Land Information Memorandum

Application

Simon Horner	No.	L250151
Claire Horner	Application date	17/03/2025
44 Tainui Road	Issue date	25/03/2025
Devonport	Phone	029 477 1694
Auckland 0624	Fax	

Please Note: This LIM report contains information for the entire legal description below.

Property

Valuation No.	0122010202
Location	17 Surf Road, Mangawhai
Legal Description	Lot 1 DP 365063 1/23 Share Lot 101 DP 36506 3
Owner	Horner Simon Michael : Horner and Ors Claire Rachel
Area (hectares)	0.1020

Rates

Government Valuation	
Land	$700,000
Capital Value	$1,500,000
Improvements	$800,000
Current Rates Year 2024 to 2025	
Annual Rates	$3,616.21
Current Instalment	$ 904.06
Current Year - Outstanding Rates	$ 0.00
Arrears for Previous Years	$ 0.00
Next Instalment Due	20/05/2025.

Note: Rates are charged in four instalments for the period commencing 1 July and ending 30 June each year.

To date a Mangawhai Wastewater Contribution has not been levied against this property. A Mangawhai Wastewater reticulation extension review is in progress for the Mangawhai Community Wastewater Scheme. This property is included in the reticulation extension area under review.

Please refer to the Kaipara District Council Long Term Plan 2024/2027 and in particular to the Wastewater Targeted Rates and to the Kaipara District Council Development Contribution Policy 2024 which can be found at the Council website.

Planning/Resource Management

Zoning: **Kaipara District Plan 2013:** Rural – East Coast Overlay. See attached information regarding the District Plan.

Full details of the zone requirements are found in the current District Plan. Relevant zone ordinance can be found at the Council website.

17/03/06 **RESOURCE CONSENT 050246:** Variation to RM030149, RM040311 and RM040145 **Created DP 365063** Section 224 Issued 3/05/06 : APPROVED BY JUDICIAL COMMITTEE 24/02/06 (Found on parent property: 0122010201).

RM050246 Consent Notices for Lots 1 to 31, 33, 34 DP365063 shall: Require the construction of stormwater soakage trenches on each lot in accordance with the specific details indicated on the Kea Consultants Ltd. Report entitled Stormwater Assessment of Environmental Effects: Mangawhai Heads Land Development Subdivision (dated August 2003) as further amended in accordance with the Kea Consultants Ltd. Drawing Nos. 2064-S1, Sheets 1-11, Issue 6 (dated October 2003), at the time of construction of buildings on the said allotments; Require all rainwater tank overflows and other concentrated sources of stormwater to be directed to these soakage trenches; and Require ongoing maintenance of the soakage trenches to ensure effective continuing operation. **Copy of Stormwater Report and Drawings attached.**

RM050246 Consent Notices for Lots 3 to 33 DP 365063 shall require that vehicle crossings be constructed at the time of residential development of the respective lot in accordance with Council standards relevant at the time. (Found on parent property: 0122010201)

RM050246 Consent Notices for Lots 1 to 31, 33, 34 DP365063 shall draw attention to the Geotechnical appraisal prepared by Soil and Rock Consultants, Geotechnical Engineers dated May 2003, and require compliance with that report with respect to the need for Geotechnical Investigation and Design. Where the recommendations of Soil and Rock Consultants, Geotechnical Engineers dated May 2003 are for Specific Geotechnical Investigation and Design (Zone B), then Producer Statements are to be provided to the effect that building foundations have been designed and constructed to have an adequate factor of safety against failure. **Copy of Soil and Rock and Geotechnical Report attached.**

RM050246 Consent Notices for Lots 1 to 31,33,34 DP 365063 shall draw attention to the landscape mitigation measures described in the Assessment of Environmental Effects (AEE) (dated August 2003), the Landscape Visual Assessment, the Landscape Design Guidelines and the Architectural Design Guidelines for The Heads prepared by D. J. Scott and Associates (dated August 2003), and require compliance with those reports such that: buildings shall only be constructed on those areas not included in the land covenant areas shown in the copy of the Harrison Grierson Consultant Land Transfer Plans referred to as drawing 2230-120766-01 dated October 2005 and as submitted with the application of October 2005 to change conditions. All buildings on Lots 1 - 30 DP 365063 shall be designed and constructed having regard to the Architectural Design Guidelines prepared by D. J. Scott and Associates and included as Appendix 8 to the AEE. That buildings on Lots 5, 6, 10-12, 14, 17-22 DP 365063 are to be designed and constructed having regard to the architectural guidelines prepared by Jo Hill (architect) included in figures 14-16 respectively of the A.E.E, and so that the vertical distance between the highest and lowest point on the building at any point shall not exceed 5.0m, provided that for the purposes of this condition, Height means the vertical distance between the highest point on the building at any point, but excluding aerials and chimneys provided that such structures do not exceed a height of 3m above the max. permitted height. All proposals for building and site development shall be submitted for approval to the KDC prior to making an application for building consent. **Copy of Reports attached.**

RM050246 Consent Notices for Lots 1 to 31, 33, 34 DP365063 shall advise potential purchasers that notwithstanding the specific limitations on the height and location of buildings set out in the conditions of this subdivision, the Kaipara District Plan sets out rules in relation to permitted activities for building development that must be complied with or a resource consent obtained. This includes in particular the requirement to obtain a resource consent for all development above the 60-metre contour line identified on the Planning Maps.

RM050246 Consent Notices for Lots 1 to 31, 33, 34 DP 365063 shall require compliance with the following conditions in respect to all buildings on all lots within the subdivision: i) Use only roof claddings made of steel (corrugated or tray) cedar

shingles, slate, tiles or other such materials which are consistent with the restriction on roof colours referred to in the following clause. ii)Use only roof colours comprising dark recessive hues and of low reflectivity. All steel roofing shall be painted or otherwise colour treated and shall exclude zincalume, galfan and other similar matt-finish, untreated and unpainted iron or aluminium products. Acceptable colour steel hues shall be limited to Ironsand, Grey Friars, New Denim Blue and Karaka Green (Resene NZ colours). No other colours shall be permitted. iii)Use only wall materials in recessive timber, smooth plaster or stone. If smooth plaster is used then a dark resin shall be added. Wall colours are to be natural and recessive (in materials stated above) or in the range of browns, tussock, greys or natural greens. Walls are to be continuous on one cladding from ground to roof. iv)Use only timber, steel or aluminium joinery and joinery colours (other than timber) shall match roof, gutter and spouting colours. v)Use the same external material on all buildings and structures within any given lot so that all ancillary buildings shall have the same external materials and colours as the dwelling house on that Lot. vi)Any vegetation clearance within the building clearance platforms shall be restricted to a minimum necessary to construct a dwelling and related motor vehicle access, manoeuvring space and firebreaks.

RM050246 Consent Notices for Lots 1 to 31, 33, 34 DP 365063 shall draw to the attention and require compliance in respect to the following matters: i)Each allotment owner will be required to be a shareholder or member of the registered company or other corporate body formed to operate, maintain and administer all matters associated with the communal wastewater treatment and disposal system, the communal stormwater control system for stormwater runoff from all roading proposed for the subdivision (including the stormwater detentions ponds), the maintenance of the roading within the subdivision including the currently unformed legal road on the ridgeline, and the maintenance of the registered conservation covenant area of existing native bush and proposed future revegetation planting on the application site. The communal wastewater treatment plant (excluding each of the individual on site septic tanks located on each lot and associated effluent reticulation) will be abandoned and the main effluent collector pipe will be required to be connected to the community sewerage scheme planned by the Council for Mangawhai. All current and relevant requirements of the KDC with respect to connection to the community sewerage scheme including the payment of any development contribution, connection fee or any other charge shall be complied with. It is noted with respect to calculation of applicable charges, that each individual lot will be assessed as a `future lot` in accordance with the EcoCare Statement of Proposal. The management company will be required to oversee ongoing maintenance of the individual on-site septic tanks and effluent reticulation pipelines to the point of connection to the community sewerage scheme. For the purposes of clarification, the point of connection to the community sewerage scheme shall be the point at which all downstream reticulation is at least 150 mm in diameter. Septic tanks and plumbing fixtures are to be supplied and installed to each lot in accordance with the standards defined by the registered company or other corporate body responsible for ongoing management of the communal sewerage scheme.

16/06/05 RESOURCE CONSENT 040311 : The subdivision of Proposed Lot 31 being a subdivision of Lot 2 Allots 20 21 Mangawhai Psh into 3 residential lots, refer RM030149, RM020024

Section 224 Issued 3/05/06 : APPROVED BY JUDICIAL COMMITTEE 17/05/05 (Found on parent property: 0122010201)

13/10/04 RESOURCE CONSENT 040145 : VARIATION TO CONDITIONS 1c), 2jj), 2dd), 1d), 2y), OF RM030149 Decision Notified 22/09/04 : GRANTED UNDER DELEGATED AUTHORITY 22/09/04 (Found on parent property: 0122010201)

30/01/04 RESOURCE CONSENT 030149 : SUBDIVISION OF ALLOTS 20 21 MANGAWHAI PARISH and LOT 2 DP 82874 INTO 30 RR LOTS and 1 COASTAL LOT.

RE:RM020024 Decision Notified 12/12/03 : APPROVED BY COUNCIL 12/12/03 (Found on parent property: 0122010201)

Access is private and not maintained by Council.

No other information located.

Building

11/09/08 BUILDING CONSENT 080511: New House: Code Compliance Certificate issued 9/07/10.

No other information located.

Sewer and Water

Sewer Not available.

Stormwater No information located.

Water Not available.

Any on-site wastewater system for the property may need to comply with Council inspection and maintenance regime under the Councils Wastewater Drainage Bylaw 2016. This bylaw is located on KDC website.

Copy of drainage plan attached.

No other information located.

Land and Building Classifications

No information located.

Refer to copy of map from District Plan for other classifications in the immediate vicinity.

Compliance with Swimming Pool Bylaw

No pool registered to this property.

Land Transport Requirements

No information located.

Special Land Features

No information located.

Licences/Environmental Health

No information located.

Network Utility Operators

Information related to the availability of supply, authorisations etc (eg, electricity or gas) can be obtained from the relevant Network Utility Operator.

Other Information

No title search has been done on this property.

Notes

1. Final inspections on buildings were not mandatory prior to 1 January 1993. Should an evaluation of the building be required an independent qualified person should be consulted. In the interests of safety, an inspection of any fireplace within the dwelling may be requested of Council at any time, after paying the appropriate fee.

2. Every care has been taken to ensure that the information supplied by the Council on this form is accurate. The Council relies on information available to it and will not be held responsible for incomplete or inaccurate information provided, or for any errors or omissions made in good faith.
3. Please note that the property was neither inspected nor visited in the course of the preparation of this Land Information Memorandum.
4. Other information may be held by other authorities, for example the Northland Regional Council or Heritage New Zealand.
5. This Land Information Memorandum is a disclosure of information (which may be historical) held by the Council at the time of application and is subject to change.
6. Any enquiry not accompanied by a fee will be invoiced separately. (All prices are GST inclusive).
7. Any Resource or Building consents run with the land; if the project is incomplete, there may be existing/additional charges to pay for which the new owner will be liable.
8. A Development Contribution and or Financial Contribution may be payable if development is carried out, the effect of which is to require new or additional assets or assets of increased capacity and as a consequence Council incurs capital expenditure to provide appropriately for those assets and that capital expenditure is not otherwise funded or provided for. Future rating policies are outlined in Council's Long Term Plan 2024-2027.

Name:_____ Date: 25/03/2025.

Performance Standards of the Kaipara District Plan 2013

To view the performance standards (rules) for each zone please refer to the relevant chapter of the Kaipara District Plan 2013:

Rural - Chapter 12

Residential - Chapter 13

Business: Commercial and Industrial - Chapter 14

Māori Purposes: Māori Land – Chapter 15A

Māori Purposes: Treaty Settlement Land – Chapter 15B

Estuary Estates – Chapter 16

Estuary Estates - Chapter 16A – Trifecta Development Area

All Zones - Chapter 10 Network Utilities and Chapter 11 Transport Network

How can I view the Kaipara District Plan 2013?

If you have access to the internet and want access to the most up to date information, visit the website **www.kaipara.govt.nz**

If you do not have access to a computer, you can visit one of the following locations to view a hard copy of the Plan:

Venue	Opening Hours	
Kaipara District Council Office – Dargaville 32 Hokianga Road Dargaville Telephone 0800 727 059	Monday – Tuesday Wednesday Thursday - Friday	8.00am to 4.30pm 9.00am to 4.30pm 8.00am to 4.30pm
Kaipara District Council Office – Mangawhai Unit 5, The Hub 6 Molesworth Drive Telephone 0800 727 059	Monday – Friday	9.30am to 3.00pm
Dargaville Library Corner Poto and Normanby Streets Dargaville Telephone 0800 534 542	Monday – Wednesday Thursday Friday Saturday	9.30am to 5.00pm 9.30am to 6.00pm 9.30am to 5.00pm 9.30am to 12.30pm
Mangawhai Library 45 Moir Street Mangawhai Telephone 0800 532 542	Tuesday - Wednesday Thursday Friday Saturday	10.00am to 5.00pm 10.00am to 6.00pm 10.00am to 5.00pm 10.00am to 1.00pm
Kaiwaka Library Corner State Highway 1 and Kaiwaka Mangawhai Road Kaiwaka Telephone (09) 431 2539	Monday Tuesday Wednesday - Saturday	4.00pm to 6.00pm Closed 10.00am to 2.00pm
Maungaturoto Library Centennial Building Hurndall Street Maungaturoto Telephone (09) 431 8811	Monday – Tuesday Wednesday Thursday – Saturday Friday Terms 1 & 4 also	10.30am to 1.00pm 10.30am to 4.00pm 10.30am to 1.00pm 4.00pm to 6.00pm
Paparoa Library Brook House 1980 Paparoa Valley Road State Highway 12 Paparoa Telephone (09) 431 7555	Monday Tuesday Wednesday Thursday Friday Saturday	2.00pm to 4.30pm 10.00am to 1.00pm 2.00pm to 4.30pm 10.00am to 4.00pm 11.00am to 1.30pm 10.00am to 12.00pm

All Maps

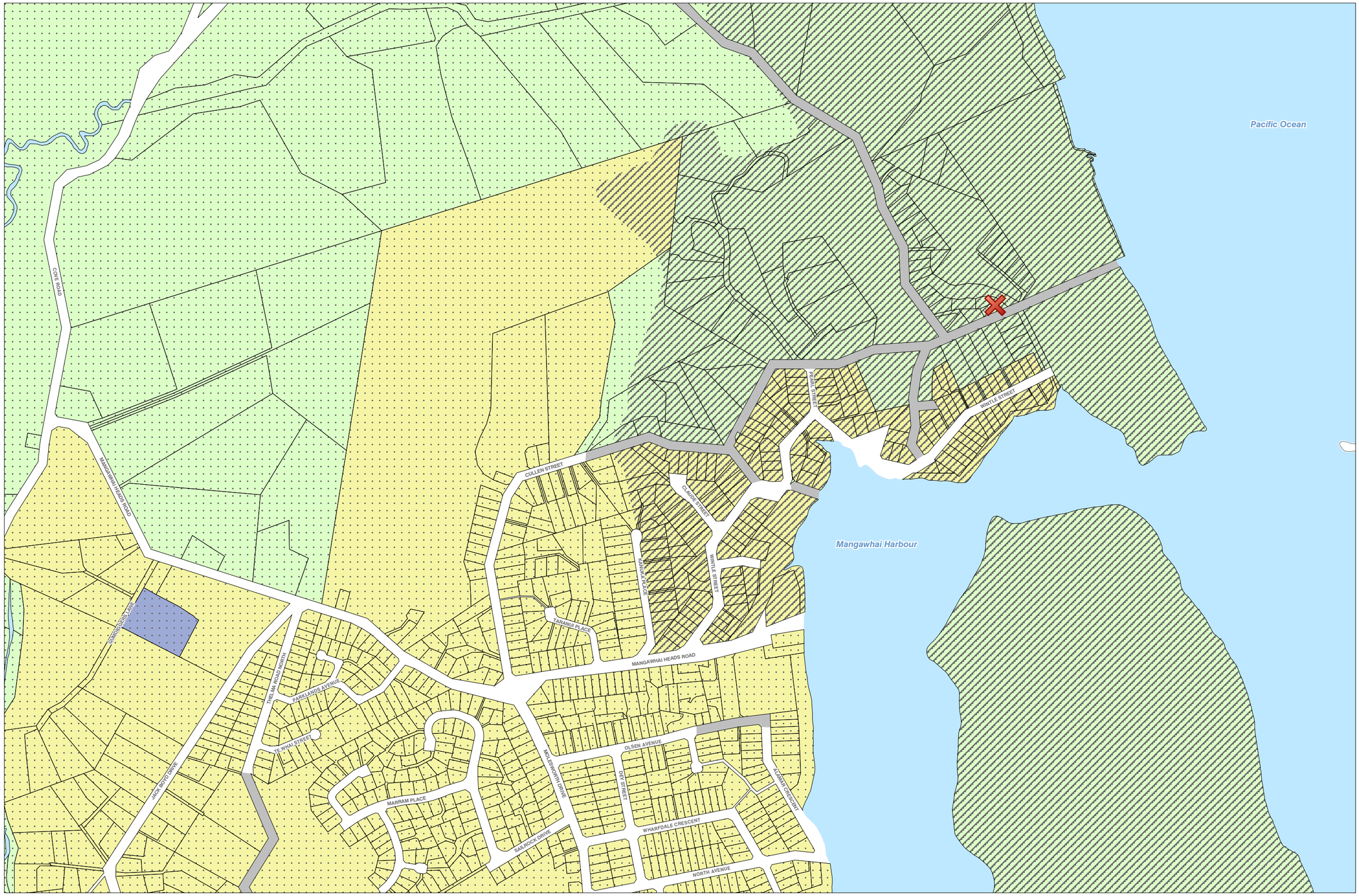
- State Highway
- Railway
- Bridge or Causeway
- Unformed Road
- Sea, Lakes and Rivers
- Parcel Boundary

Map Series One - Land Use

- Estuary Estates
- Rural
- 8m Height Restriction
- Business: Commercial
- Business: Industrial
- Residential
- Maori Land
- Treaty Settlement
- Estuary Estates
- East Coast Overlay
- Harbour Overlay
- Kai Iwi Lakes Overlay
- West Coast Overlay

Map Series Two - Sites, Features and Units

- Heritage Resource
- Notable Tree
- Maungaturoto Dairy Factory Wastewater Pipeline
- 110-220 kV Electricity Transmission Line
- 50 kV Electricity Transmission Line
- Designation Areas
- Outstanding Natural Landscape
- Reserve Management Units
- Areas of Significance to Maori
- Maungaturoto Dairy Factory Noise Contour Boundary (45dBA leq)



KAIPARA DISTRICT
Kaipara te Oranganui • Two Oceans Two Harbours

Scale: 1: 7,500 @ A3

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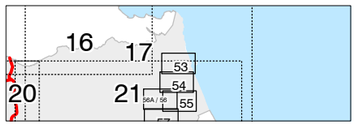
KAIPARA DISTRICT PLAN - OPERATIVE VERSION - JULY 2013

Map Series One

Land Use : Mangawhai

Map 53 of 60



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KAIPARA DISTRICT

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Cadastre from 19 March 2021.

KAIPARA DISTRICT PLAN - OPERATIVE NOVEMBER 2013

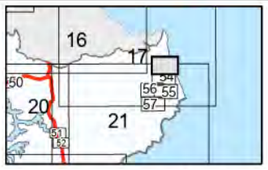
Map Series Two

Sites, Features and Units Mangawhai

N

0 10 20 Km

A3 Scale: 1:7,500



Date Updated:4/08/2021

Rates Information - 2024/25

Valuation ID	0122010202	Old Valuation ID	C:0122010201

Property Description

Location (GIS)	17 Surf Road, Mangawhai
	View in Google Maps
Legal Description	Lot 1 DP 365063 1/23 Sh Lot 101 DP 36506 3
Certificate of Title	263992

Use	91 Residential: Single Unit (other than bach)	Category	RD200
TORAS	111000	Category Group	Residential Dwelling fully or semi detached
Tenure	Property is not leased. Owner is also occupier.	Ward	4
Ownership	Private: Individual	Region	1
Rateability	Rateable	Zone	1A
Apportionment	Std property - Not Applicable, Not apportionment		

Valuations

Area (Hectares)	0.1020	Land Value	700,000
Improvements	800,000	Capital Value	1,500,000
Nature of Improvements	DWG OI		
Valuation Date	1/09/23		

Rates for Current Year - 2024/25

Type	Description (Basis)	Factor	Amount $
002	Uniform Annual General Charge - Rating Unit	1.00	725.00
012	Mangawhai Stormwater - (L)	700,000.00	394.45
081	Mangawhai Harbour Restoration (MHR) - Rating Unit	1.00	80.00
233	General Rate Residential & Small Sized Lifestyle - (L)	700,000.00	1,333.57
238	Parks and Libraries Targeted Rate - (U)	1.00	372.77
	** Kaipara District Council Sub-Total		2,905.79
250	NRC Targeted Council Services Rate - (U)	1.00	242.60
253	NRC Pest Management Rate - (U)	1.00	117.87
254	NRC Targeted Flood Infrastructure Rate - (U)	1.00	40.67
255	NRC Targeted Emergency and Hazard Management Rate - (U)	1.00	66.69
256	NRC Targeted Regional Rescue Services Rate - (U)	1.00	11.30
257	NRC Targeted Regional Sporting Facilities Rate - (U)	1.00	16.18
259	NRC Targeted Land and Freshwater Management Rate - (L)	700,000.00	198.03
260	NRC Targeted Regional Economic Development Rate - (L)	700,000.00	17.08
	** Regional Council Sub-Total		710.42
	Total Rates Levied 2024/25		3,616.21
	(GST on Rates Levied)		471.68
	Rates Last Year 2023/24		3,399.62
	Last Year's Final Instalment		849.90

Rates Last Year 3,399.62 Instalments YTD 2,712.16 Current Instalment 904.06

History

Year	Land Value	Capital Value	Annual Rates
2023/24	485,000	1,325,000	3,399.62
2022/23	485,000	1,325,000	3,216.36
2021/22	485,000	1,325,000	3,015.39
2020/21	335,000	1,040,000	2,470.58
2019/20	335,000	1,040,000	2,347.29
2018/19	335,000	1,040,000	2,194.13
2017/18	215,000	730,000	1,885.44
2016/17	215,000	730,000	1,856.29
2015/16	215,000	730,000	1,849.56
2014/15	250,000	690,000	1,930.77

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AMALGAMATION CONDITION(S)

THAT LOT 101 HEREON (LEGAL ACCESS) BE HELD AS TO TWENTY SEVEN UNDIVIDED ONE-TWENTYSEVENTH SHARES BY THE OWNERS OF LOTS 1 TO 23 INCLUSIVE AND LOT 31, 32, 33 AND 34 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE HEREWITH.
SEE

THAT LOT 103 HEREON (LEGAL ACCESS) BE HELD AS TO FOUR UNDIVIDED ONE-FOURTH SHARES BY THE OWNERS OF LOTS 12, 13, 15 & 16 INCLUSIVE HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE HEREWITH.
SEE

THAT LOT 104 HEREON (LEGAL ACCESS) BE HELD AS TO FIVE UNDIVIDED ONE-FIFTH SHARES BY THE OWNERS OF LOTS 3 TO 7 INCLUSIVE HEREON AS TENNANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE HEREWITH.
SEE

THAT LOT 105 HEREON (LEGAL ACCESS) BE HELD AS TO EIGHT UNDIVIDED ONE-EIGHTH SHARES BY THE OWNERS OF LOTS 24 TO 30 & 32 INCLUSIVE HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE HEREWITH.
SEE

THAT ONE HALF SHARE IN LOT 3 DP 333700 BE HELD AS TO AN UNDIVIDED ONE-HALF SHARE BY THE OWNER OF LOT 32 HEREON AS TENNANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE HEREWITH.
SEE

AREAS SHOWN AS (AA) TO (AD) (AF) TO (BM) (H) (G) (E) AND (ZZ) ARE SUBJECT TO LAND COVENANTS

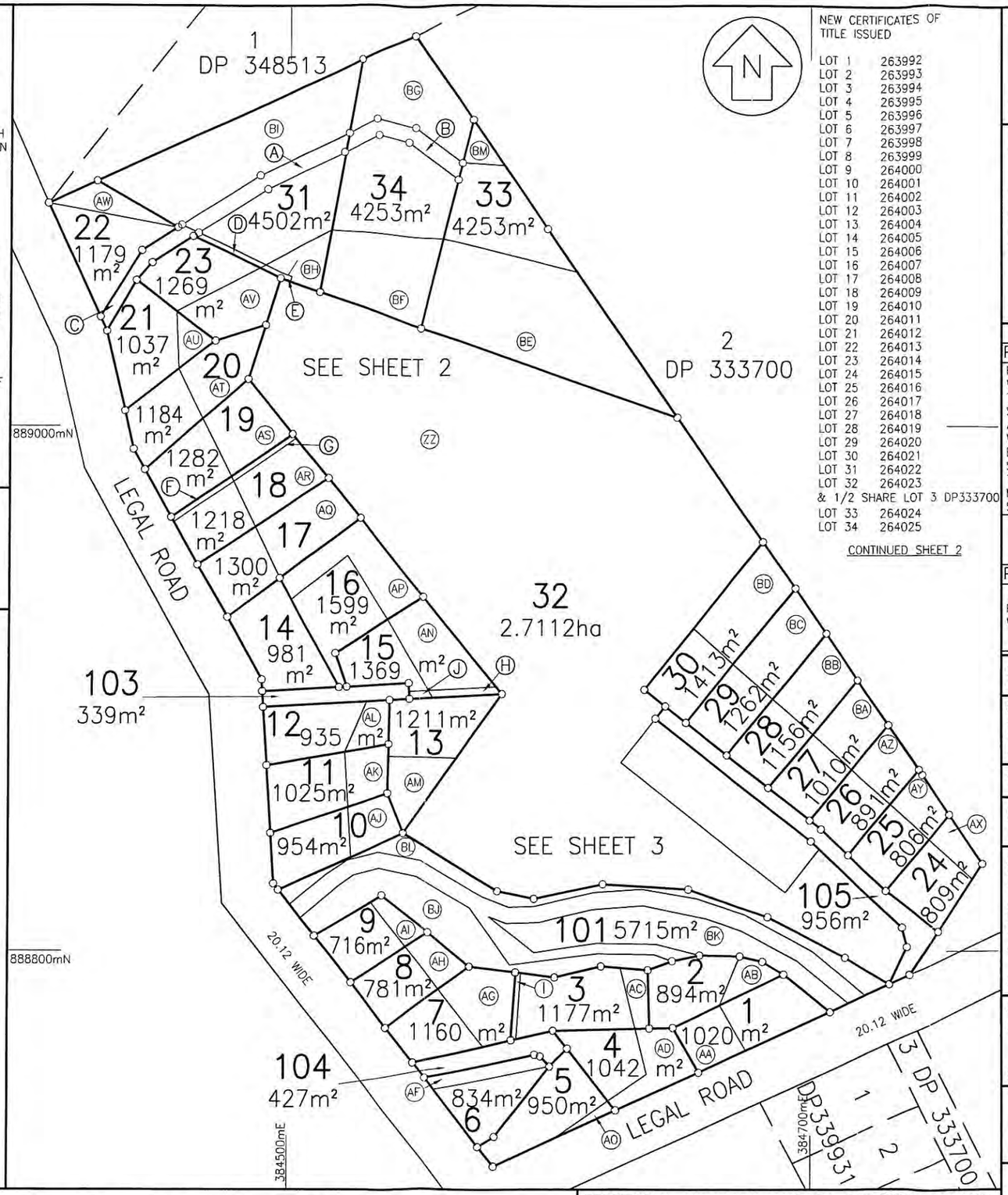
THE TOTAL AREA OF CONSERVATION COVENANT AREAS SHOWN ON THIS PLAN IS 5.0093ha

PROPOSED EASEMENTS IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
ELECTRICITY SUPPLY	LOT 101 HEREON	LOT 101 HEREON	NORTHPOWER LIMITED
	LOT 103 HEREON	LOT 103 HEREON	
	LOT 104 HEREON	LOT 104 HEREON	
	LOT 105 HEREON	LOT 105 HEREON	
	(A) (C)	LOT 31 HEREON	
	(B)	LOT 34 HEREON	
	LOT 3 DP333700	LOT 3 DP333700	
RIGHT TO DRAIN SEWERAGE AND RIGHT TO DRAIN STORMWATER	LOT 103 HEREON	LOT 103 HEREON	THE HEADS MANAGEMENT LIMITED
	LOT 104 HEREON	LOT 104 HEREON	
	(C) (D) (E)	LOT 31 HEREON	
	(F) (G)	LOT 18 HEREON	
	(H) (J)	LOT 15 HEREON	
	(I)	LOT 3 HEREON	

PROPOSED EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY	LOT 101 HEREON	LOT 101 HEREON	LOTS 24-30 HEREON
RIGHT OF WAY	LOT 105 HEREON	LOT 105 HEREON	LOTS 1-23 & 31, 33 & 34 HEREON



NEW CERTIFICATES OF TITLE ISSUED

LOT 1	263992
LOT 2	263993
LOT 3	263994
LOT 4	263995
LOT 5	263996
LOT 6	263997
LOT 7	263998
LOT 8	263999
LOT 9	264000
LOT 10	264001
LOT 11	264002
LOT 12	264003
LOT 13	264004
LOT 14	264005
LOT 15	264006
LOT 16	264007
LOT 17	264008
LOT 18	264009
LOT 19	264010
LOT 20	264011
LOT 21	264012
LOT 22	264013
LOT 23	264014
LOT 24	264015
LOT 25	264016
LOT 26	264017
LOT 27	264018
LOT 28	264019
LOT 29	264020
LOT 30	264021
LOT 31	264022
LOT 32	264023
& 1/2 SHARE LOT 3 DP333700	
LOT 33	264024
LOT 34	264025

CONTINUED SHEET 2

Approvals

REGISTERED OWNERS

I HEREBY CERTIFY THAT THIS PLAN WAS APPROVED BY THE KAIPARA DISTRICT COUNCIL PURSUANT TO SECTION 223 OF THE RESOURCE MANAGEMENT ACT 1991

ON THE 2nd DAY OF March 2006

SUBJECT TO THE GRANTING OR RESERVING OF THE EASEMENTS SET OUT IN THE MEMORANDUM HEREON AND SUBJECT TO THE AMALGAMATION CONDITION(S) SET OUT HEREON

AUTHORISED OFFICER

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, RIGHT TO DRAIN STORMWATER AND WASTEWATER ELECTRICITY SUPPLY, TELECOM-MUNICATIONS SUPPLY	(A)	LOT 31 HEREON	LOTS 33 AND 34 HEREON
	(B)	LOT 34 HEREON	LOT 33 HEREON
	(C)	LOT 31 HEREON	LOTS 21, 22, 23, 33 AND 34 HEREON
	LOT 3 DP333700	LOT 3 DP333700	LOTS 1-31, 33 AND 34 HEREON

MEMORANDUM OF EASEMENTS IN GROSS

PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
RIGHT OF WAY	LOT 101 HEREON	LOT 101 HEREON	KAIPARA DISTRICT COUNCIL
	LOT 3 DP333700	LOT 3 DP333700	

SHEET 1 OF 4

CLASS OF SURVEY:
LOTS 1-31, 33, 34 103-105 CLASS I
LOT 32 & 101 CLASS II,

Total Area 8.0022ha

Comprised in 138087

I, STEVEN ROBERT MILLS
being a person entitled to practice as a licensed cadastral surveyor, certify that -
(a) The survey to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002/2
(b) This dataset is accurate, and has been created in accordance with those Rules.

Signature *Date*

Field Book *p.* *Traverse Book* *p.*
Reference Plans

Examined *Correct*

Approved as to Survey by Land Information NZ on:

/ /

Deposited by Land Information NZ on:

/ /

File 2230.120766.01
Received
Instructions

DP365063

LAND DISTRICT NORTH AUCKLAND

LOTS 1-34, 101 & 103-105 BEING A SUBDIVISION OF LOT 1 DP 333700

TERRITORIAL AUTHORITY KAIPARA DISTRICT COUNCIL
Surveyed by HARRISON GRIERSON
Scale 1:1250 **Date** JANUARY 2006

28/06/2005 8:43:39 a.
N:\2230\120766_a\cad\120766-DP365063 title bok.dwg

CONO 6859107.2 Cons
Cpy - 01/01, Pgs - 005, 10/06/06, 10:09
DocID: 312452813

IN THE MATTER	of the Resource Management Act 1991 ("the Act")
AND	
IN THE MATTER	of a subdivision consent as evidenced by Land Transfer Plan No. 365063
AND	
IN THE MATTER	of a Consent Notice issued pursuant to Section 221 of the Act by KAIPARA DISTRICT COUNCIL ("the Council")

I, ALAN JOHN McKERCHAR, Chief Executive for the Council HEREBY CERTIFY that the following conditions which are to be complied with by the Owner (as defined in the Act) on a continuing basis were imposed by the Council as a condition of approval for the subdivision of Lot 1 DP333700 CT138087as affected by Land Transfer Plan No. 365063 ("the Plan") for which consent was granted under number RM030149 as amended by RM040145 and as varied by RM050246.

Conditions affecting Lots 1 to 30 of the subdivision:

1. The Owner of each Lot must:

   i. Construct stormwater soakage trenches on each lot in accordance with the specific details indicated in the Kea Consultants Ltd Report entitled "Stormwater Assessment of

Environmental Effects: Mangawhai Heads Land Development Subdivision" (dated August 2003) as further amended in accordance with the Kea Consultants Ltd. Drawing Nos. 2064-S1, Sheets 1-11, Issue 6 (dated October 2003), at the time of construction of buildings on the said Lots;

ii. Provide for all rainwater tank overflows and other concentrated sources of stormwater to be directed to these soakage trenches; and

iii. Provide for ongoing maintenance of the soakage trenches to ensure effective continuing operation.

2. The Owner of each Lot must comply with a Geotechnical appraisal prepared by Soil and Rock Consultants, Geotechnical Engineers dated May 2003 in respect to the need for Geotechnical Investigation and Design. Where recommendations of Soil and Rock Consultants, Geotechnical Engineers dated May 2003 are for Specific Geotechnical Investigation and Design (Zone B), then Producer Statements are to be provided to the effect that building foundations have been designed and constructed to have an adequate factor of safety against failure.

3. The Owner of each Lot must comply with the Assessment of Environmental Effects (AEE) (dated August 2003), the "Landscape Visual Assessment", the "Landscape Design Guidelines" and the "Architectural Design Guidelines" for "The Heads" prepared by D. J. Scott and Associates (dated August 2003), and require compliance with those reports such that:

   i. Buildings shall only be constructed on those areas not included in the land covenant areas shown in the copy of the Harrison Grierson Consultant Land Transfer Plans referred to as drawing 2230-120766-01 dated October 2005 and as submitted with the application of October 2005 to change conditions.

   ii. All buildings on Lots 1-30 shall be designed and constructed having regard to the Architectural Design Guidelines prepared by D. J. Scott and Associates and included as Appendix 8 to the AEE.

   iii. That buildings on Lots 5, 6, 10-12, 14, 17-22 and to be designed and constructed having regard to the architectural guidelines prepared by Jo Hill (architect) included in figures 14-16 respectively of the AEE and so that the vertical distance between the highest point on the building at any point and the natural ground level at any point shall

not exceed 5.0m, provided that for the purposes of this condition, 'Height' means the vertical distance between the highest point on the building at any point and the natural ground level at that point, but excluding aerials and chimneys provided that such structures do not exceed a height of 3m above the maximum permitted height.

iv. All proposals for building and site development shall be submitted for approval to the Kaipara District Council prior to making an application for building consent.

4. Notwithstanding the specific limitations on the height and location of buildings set out in the conditions of this subdivision, the Kaipara District Plan sets out rules in relation to permitted activities for building development that must be complied with or a resource consent obtained. This includes in particular the requirement to obtain a resource consent for all development above the 60-metre contour line identified on the Planning Maps forming part of the Kaipara District Plan.

5. The Owner of each Lot must comply with the following conditions in respect to all buildings on all lots within the subdivision:

   i. Use only roof claddings made of steel (corrugated or tray) cedar shingles, slate, tiles or other such materials which are consistant with the restriction in roof colours referred to in the following clause.
   ii. Use only roof colours comprising dark recessive hues and of low reflectivity. All steel roofing shall be painted or otherwise colour treated and shall exclude zincalume, galfan and other similar matt-finish, untreated and unpainted iron or aluminium products. Acceptable colour steel hues shall be limited to Ironsand, Grey Friars, New Denim Blue and Karaka Green (Resene NZ colours). No other colours shall be permitted.
   iii. Use only wall materials in recessive timber, smooth plaster or stone. If smooth plaster is used then a dark resin shall be added. Wall colours are to be natural and recessive (in materials stated above) or in the range of browns, tussock, greys or natural greens. Walls are to be continuous on one cladding from ground to roof.
   iv. Use only timber, steel or aluminium joinery and joinery colours (other than timber) shall match roof, gutter and spouting colours.
   v. Use the same external material on all buildings and structures within any given lot so

that all ancillary buildings shall have the same external materials and colours as the dwelling house on that lot.

vi. Any vegetation clearance within the building clearance platforms shall be restricted to a minimum necessary to construct a dwelling and related motor vehicle access, manoeuvring space and firebreaks.

6. Attention of the Owners and prospective purchasers is drawn to the following requirements which are to be complied with by each Owner:

   i. An Owner must be a shareholder or member of the registered company or other corporate body formed to operate, maintain and administer all matters associated with the communal wastewater treatment and disposal system, the communal stormwater control system for stormwater runoff from all roading proposed for the subdivision (including the stormwater detention ponds), the maintenance of the roading within the subdivision including the currently unformed legal road on the ridgeline, and the maintenance of the registered conservation covenant area of existing native bush and proposed future revegetation planting on the land in the Plan.

   ii. On the community sewerage scheme planned by the Council becoming available each Owner must abandon the communal wastewater treatment plan (excluding each of the individual onsite sceptic tanks located on each lot and associated effluent reticulation) and the main effluent collector pipe will be required to be connected to the community sewerage scheme planned by the Council for Mangawhai ("EcoCare"). All current and relevant requirements of the Kaipara District Council with respect to connection to the community sewerage scheme including the payment of any development contribution, connection fee or any other charge shall be complied with by the Owner. It is noted with respect to calculation of applicable charges, that each individual lot will be assessed as a "future lot" in accordance with the EcoCare Statement of Proposal.

   The management company is to oversee ongoing maintenance of the individual onsite septic tanks and effluent reticulation pipelines to the point of connection to the community sewerage scheme. For the purposes of clarification, the point of connection to the community sewerage scheme shall be the point at which all downstream

reticulation is at least 150mm in diameter.

iii. Each Owner must ensure that septic tanks and plumbing fixtures are to be supplied and installed to each lot in accordance with the standards defined by the registered company or other corporate body responsible for ongoing management of the communal sewerage scheme.

iv. Each Owner is required to enter into an ongoing contract for the maintenance of the septic tanks with an organisation to the approval of the registered company or other corporate body responsible for ongoing management of the communal sewerage scheme.

v. In the absence of a registered company or other corporate body the Owners jointly and severally must comply with the requirements of this clause 6.

7. Attention of the Owners and prospective purchasers is drawn to the following requirements in respect of Lot 32 which are to be complied with by each Owner:

   i. The use of Lot 32 is restricted to vehicle access, parking, wastewater treatment and disposal, common community recreational and amenity activities, and conservation purposes; and

   ii. The use of Lot 32 for residential purposes is prohibited.

Dated at Dargaville this 3rd day of May 2006.

Signed by the said ALAN JOHN McKERCHAR, Chief Executive for the KAIPARA DISTRICT COUNCIL

A. J. McKerchar

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Stormwater Assessment of Effects: Mangawhai Heads Land Development Subdivision

August 2003

RECEIVED
27 AUG 2003
Kaipara District Council

Report prepared by:
KEA Consultants Limited
PO Box 5195
Wellesley St
AUCKLAND

KEA CONSULTANTS LTD.

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KEA CONSULTANTS LTD.

PREPARED BY: Boubacar Coulibaly

REVIEWED BY: Mark Kearney
Director KEA Consultants Ltd

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KEA CONSULTANTS LTD.

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1. BACKGROUND

KEA Consultants Ltd has been commissioned to carry out the hydrologic, hydraulic modelling and the preliminary design of the stormwater system around the development of the proposed Mangawhai Subdivision-"The Heads".

The applicant proposes to subdivide the existing Lot 1 **(8.0 hectares) at** Wintle Street, Mangawhai Heads, into 30 new sites (31 in total) providing for residential activities (see Subdivision Plan, figure 2). There are also a number of access lots that provide for access to the residential lots.

A comprehensive collective wastewater treatment and disposal system is proposed (for **Lots 1-24 and Lots A-F**), as is a comprehensive stormwater management proposal including the use of sediment detention ponds. A programme of revegetation and ongoing managementb for the site has also been prepared; ensuring that the revegetation proposed is protected and maintained through appropriate covenants.
The subdivision concept has been mainly determined by the geotechnical capabilities of the site that have effectively limited the location of building platforms and access roading. As a result, much of the development is proposed along the upper contours of the site and in the areas that are considered more geotechnically stable. The positioning of house sites has consequently aimed at "clustering" of buildings primarily along the southern upper slopes of the site, as well as along the existing entranceway off of Wintle Street.

The Mangawhai Subdivision Development will involve:

- Protection of existing bush areas and additional plantings
- Provide effective and efficient management of the natural waterway adjacent to the site into a water quality, flood attenuation pond. This pond will also provide a recreational amenity to the immediate area.

- Construction of infrastructure in support of the development; roading, drainage, including sanitary sewer system and disposal area and stormwater quality devices such as stormwater quality ponds.

The natural open waterway alongside of the proposed Mangawhai Subdivision development, provides the main flow system through the site and also services approximately11 hectares of catchment area.

The extent of the study has included the following:

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- Data Capture
  Collation of catchment data necessary to undertake hydrologic and hydraulic modelling of stormwater so as to, obtain flows and routing details related to the flow through the gully system

- Modelling
  A computer model was generated utilising Mouse (mathematical hydraulic analysis software). The Mouse model was used to analyse hydrographs and related terrain to determine flow characteristics and flood levels through the site. The 10% AEP (1 in 10 year) and 1% AEP (1 in 100 year) flood events were modelled and the impacts that these events may potentially have on the proposed development was analysed.

- Findings and Remedial Works
  Utilising Mouse modelling techniques, issues and options were analysed, and various options for storage and outlet controls were studied. From this analysis, proposed storage pond, locations, volumes and weir levels have been recommended. Based on the results of the Mouse models, a preliminary primary reticulated stormwater system has also been investigated to ensure that appropriate levels and fall can be achieved for drainage to reach the stormwater quality pond system.

- Preparation of CAD drawings for the stormwater system.

It is to be noted that the project is in a planning stage therefore some of the engineering final design details may change subject to resource consent conditions.

It is noted that the Kaipara District Plan adopts a low impact design approach to stormwater management as part of subdivision design.

The low impact design approach has the following objectives:

- reducing the amount of impervious surfaces using minimum width roads and driveways where possible

- retaining natural drainage channels, including grassed roadside swales rather than paved channels and pipes for the primary collection system

- decreasing stormwater flows through use of detention ponds particularly at points where slopes decrease from upper catchment areas

- using natural ground soakage runoff in areas with suitable soils (this involves soakage testing of sites)

- provision for secondary flow paths to cater for large storms where runoff exceeds soakage capacity

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2. DATA COLLECTION & CATCHMENT CHARACTERISTICS

2.1 Existing Stormwater System

The data provided by the client included the contours and areal photographs. The gully through the site is the main drainage system from the top of the catchment to the sea. There is an existing 1050 mm diameter culvert under Wintle Road before the sea. This creates a natural ponding area, which will be enhanced to improve the recreation quality of the area.

The proposed Mangawhai Subdivision is situated in the middle to lower part of the catchment. The overall size of the catchment is approximately 12 hectares, all of which drains into the creek alongside of the proposed development.

The proposed development will be low density 'residential' (average lot size of more than 2000m2). Apart from the culverts for road crossing, the catchment does not have a reticulated pipe drainage system.

Immediately upstream of the development the creek flows through a low lying flat area. The available storage within this flat area greatly affects the peak flows through the creek downstream of the storage area. Stormwater will flow, with relatively high velocity, from the very steep upper reaches of the catchment until it reaches this low lying flat area where velocity will rapidly drop.

2.2 Sewer Drainage

This area of Mangawhai development is planned to have an on-site wastewater treatment and disposal system that will service the full development. The scope of work covered in this brief does not include wastewater disposal.

3. STORMWATER CATCHMENT MODELLING

The computer software, Mouse from the Danish Institute of Hydraulics has been used to model the Mangawhai stormwater catchment so as to estimate, design flows and flood levels through the creek alongside of the proposed Mangawhai Subdivision. Mouse is the standard model preferred by Auckland Regional Council (and the Northland Regional Council) and most City Councils for both stormwater and wastewater systems.

In the study only the main creek system has been modelled for flood levels. The overall catchment has been divided into sub-catchments around the main gullies. Of these sub-catchments 40% of area has been assumed impervious. These figures are conservative but, for the purposes of this study and the importance of ensuring that accurate and low risk flood levels are developed to protect the significant proposed capital investment, a conservative approach is appropriate.
The following parameters are those that were used for generating flows:

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- Impervious Roof & concrete/asphaltic areas: 20% of the total area
- Semi pervious areas: 20% of the total area
- Pervious planted areas: 20% of the total area
- Pervious unplanted areas: 40% of the total area

The results from the computer modelling have been compared to other methods such as the Rational Formula, and TP108. The following table shows the flows developed from different methodologies. This comparison demonstrated that the results of the computer Mouse modelling are within realistic ranges when cross-checked with results from these other methods.

The reduced level of the inverts of the stormwater pipes indicate that the creek system is tidal below the Mangawhai Subdivision Development Area. The adopted downstream Engineering Water Level is 1.756 m.

Table 1: Comparison of Mouse model results with other methods

Annual Excedance Probability	Mouse Model Flow (m^3/s) (at end of catchment)	Rational Method (m^3/s) (at end of catchment, C=.5, I_{100}= 130 mm, I_{10}=75mm)	ARC TP108 Method (m^3/s) (at end of catchment)
1% AEP (1 in 100 year)	2.2	2.17	2.11
10% AEP (1 in 10 year)	1.25	1.33	1.2

The results developed from the hydraulic modelling of the catchment indicate that the proposed development will be safe from flooding in the 1% AEP Scenario.

The extents of the flood plain are shown on the plan (appended to this report).

We have considered the options of creating the ponds by damming the creek with minimal excavation at the proposed common driveway and also reorganising the ponding area upstream the 1050 mm diameter culvert, to increase its efficiency.

Because of the limited size of the catchment and the inflow, the ponds are likely be dry at low rainfall intensity period.

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3.1 Disposal of runoff from Lots and roadway:

The disposal of runoff from each site will pass through an on-site scoria trench. Each trench will act as a stormwater overland flow dispersal device. This way erosion will be controlled through the elimination of concentrated stormwater discharge flows.

Runoff from the road will be collected into the road channel, then discharged via piped reticulation and discharged through rip rap and then to overland flow into the stormwater ponding system.

The scoria trenches will also play an important role in treating runoff from the roadway and the driveway area of each property.

3.2 Modelling Results and Model Results Verification

The scope of the project work has not allowed for the collection of real data to calibrate the computer model. The model results were however compared to the Rational Method and TP108 (ARC) calculations. These comparisons are based on the assumption that stormwater flow is routed through the creek system without suffering any restrictions caused by road crossings.

Considering the size of the Mangawhai development catchment of 12 ha, and the cross checking utilised we believe that the Mouse model is reasonable.

4. REMEDIAL WORKS

4.1 Stormwater Design Philosophy

The approach this study has taken with regards to catchment planning is a holistic one. The catchment as whole has been comprehensively assessed and the impacts arising from each option have been considered, as have also recommended remedial works within the overall framework of acceptable Health & Safety and environmental risks. Both the quantity and quality of the stormwater generated from the Mangawhai development catchment has been considered. This is critical due to the requirement to establish building controls and to satisfy resource consent guidelines.

The Kaipara District Council has no comprehensive management plan for the Mangawhai development catchment area, hence the need to develop the hydrologic model. The possible concerns of the District Council, if any, will be addressed through the planning and consent process.

4.2 Stormwater Detention and Water Quality Ponds (see attached plan)

The floodwater from the Mangawhai catchment is confined within the flat watercourse along the development area, therefore flooding is not considered to be an issue. It is also to be

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noted that due to rural nature of the site and the low traffic volumes expected, stormwater pollution is not expected to be serious.

The design approach to the stormwater ponds can also include inclusions of amenity design features that will provide the ponds with the purposes of detention, recreation and water quality. The size of the ponding area is more than adequate to satisfy the requirements of TP10 in term of removing 75% of the sediments generated from the upstream catchment. The required volume for the stormwater ponds to achieve 75% removal of sediment is approximately 2,000m^3 while the available volume could be more than that, depending on the recreation value attached to the ponding areas.

Preferred option. (As shown by the attached plan):

- Constructing an open channel at the lower part of the Mangawhai Subdivision Development adjacent to the entrance access road.
- Constructing a double purpose detention and water quality pond (or two smaller ponds) of approximately 2,000 m^3. The bottom of the pond will be covered with a layer of densely compacted impermeable clay.
- Extensively planting the banks of the open channel with New Zealand native plants in a manner to minimise erosion and facilitate recreational purpose
- Installation of two weirs and pipes with energy dissipation mechanisms
- Application of a biodegradable matt, (Bio Mac - or similar material), on the open channel banks to facilitate and accelerate revegetation.

It is considered that that the ponding option will satisfy all the requirements of the, Northern Regional Council, and the Kaipara District Council. The ponding option will also improve the quality of the overland flow out of the Mangawhai catchment, and prior to discharging into the receiving water. The ponds will reduce the amount of sediment and heavy metal discharging into the sea. Extensively planting the area with adequate vegetation will also be of high recreational value to Mangawhai Subdivision. The recommended ponding option has sufficient capacity to contain the 1% AEP (1 in 100 year), 60 minutes duration of storm floodwater without causing any flooding.

Two ponds constructed in series by damming the creek at the two locations has been considered as shown by the Drawing No: 2031-S2. This is a most cst effective option to construct compared to the option of excavating the ponds. However, the flood levels will be increased compared to the existing situation.

The following table contains the list of some of the stormwater pollutants encountered in stormwater.

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Table 3. Summary of NURP Priority Pollutant Analyses* (Source: EPA, 1983)

Pollutant	Frequency of detection (%)	Range of detected concentrations (□g/L)
Pesticides		
α - BHC	20	0.0027 to 0.1
γ - BHC (lindane)	15	0.007 to 0.1
Chlordane	17	0.01 to 10
α – Endosulfan	19	0.008 to 0.2
Metals and cyanide		
Antimony	13	2.6 to 23
Arsenic	52	1 to 51
Beryllium	12	1 to 49
Cadmium	48	0.1 to 14
Chromium	58	1 to 190
Copper	91	1 to 100
Cyanides	23	2 to 300
Lead	94	6 to 460
Mercury	10	0.6 to 1.2
Nickel	43	1 to 182
Selenium	11	2 to 77
Zinc	94	10 to 2400
PCBs and related compounds	None detected in >1% of samples	
Halogenated aliphatics		
Methylene chloride	11	5 to 15
Ethers	None detected in any samples	
Monocyclic aromatics	None detected in >6% of samples	
Phenols and Cresols		
Phenol	14	1 to 13
Pentachlorophenol	19	1 to 115
4-Nitrophenol	10	1 to 37
Phthalate esters		
Bis(2-ethylhexyl)phthalate	22	4 to 62
Polycyclic aromatic hydrocarbons		
Chrysene	10	0.6 to 10
Fluoranthene	16	0.3 to 21
Phenanthrene	12	0.3 to 10
Pyrene	15	0.3 to 16

* Based on 121 samples from 17 cities. This table contains only those compounds found in >10% of outfall samples.

Heavy metals from the road are likely to be the main pollutants that may be generated at Mangawhai because of vehicular traffic. The heavy metals of most concern in urban runoff are lead, zinc, copper, nickel, and chromium. Most of these heavy metals have very low

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solubilities at the typical pH of receiving waters. They either are removed by sediment adsorption or are organically complexed with other particulates (Hampson, 1986) and are easily removed during filtration. Metals in urban runoff originate both at industrial sites and on highways, etc., as part of the exhaust and other residue left by vehicular use (Lloyd, et al. 1988). Metals seem to be more prevalent in stormwater runoff from industrial areas, although they are also commonly found in runoff from residential and commercial areas. High concentrations of many of the heavy metals found in industrial area runoff were found both during dry-weather and wet-weather conditions (Pitt and McLean, 1986). Table 5 lists the maximum median and the maximum concentration of several heavy metals in urban runoff, as well as the land use of the area draining to the sampling location.

Table 5. Heavy Metal Source Area Concentrations (Source: Pitt, et al. 1995)

Toxicants	Concentration (□g/L)	Source area
Cadmium Maximum		
Max. median	8	Vehicle service area runoff
	220	Street runoff
Chromium		
Maximum	100	Landscaped area runoff
Max. median	510	Roof runoff
Copper		
Maximum	160	Urban receiving water
Max. median	1250	Street runoff
Lead		
Maximum	75	Combined sewer overflow
Max. median	330	Storage area runoff
Nickel		
Maximum	40	Parking area runoff
Max. median	130	Landscaped area runoff
Zinc		
Maximum	100	Roof runoff
Max. median	1580	Roof runoff

4.3 Stormwater Runoff Control and Quality Devices

The following outlines a range of stormwater runoff control and quality devices that can be combined with the ponds to improve stormwater quality at Mangawhai Subdivision Development.

4.3.1 Rain Gardens:

Rain gardens are constructed depressions containing filter materials such as sand, scoria, and filter fabric to prevent the migration of the fine materials; and a layer of much and plant soil. The area is then planted and landscaped. Approximately 5% to 10% of the size of the impervious area is required in rain garden to achieve the 75% sediment removal. They could be used in the Mangawhai Development depending on land geotechnical suitability. It will be

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important to keep the rain gardens above the creek floodplain. Rain gardens are cheap to construct, but however require frequent maintenance. Because of the maintenance requirements and geotechnical reasons, rain gardens have not been recommended in this development.

4.3.2 Scoria Trenches:

Scoria trenches are trenches filled with layers of scoria and sand underlying with a filter fabric to avoid the migration of the material. They are similar to rain gardens in principle except that they do not have to be a depression. The surface can be covered with mulch and plant soil and landscaped with other plants or grass. Scoria trenches could be successfully incorporated to the design of the Mangawhai Subdivision Development. They are cheap to construct and to maintain. Scoria trenches have been recommended in each of the properties for both runoff control and stormwater quality purposes. They are not designed to infiltrate water back into the ground but rather sheet flow stormwater across the surface.

4.3.3 Permeable Surfaces

Studies carried out at the Coventry University in UK, on shaped concrete blocks which allowed stormwater to percolate between then into the underlying substructure, indicated that permeable pavement have the potential to act as pollutant sink and a stormwater quality device. The permeable pavement normally comprise of a layer of concrete blocks at the surface laid upon 50 mm layer of 5-10 m washed pea gravel, separated from the underlying sub-base stone layer of geotextile. The sub-base is 20-50 mm washed crushed granite with a depth of 600 mm. Permeable pavement have been used by Waitakere City Council. According to the literature, permeable pavement are typically more expensive than normal pavement. Permeable pavements could be used to reduce the amount of runoff from each lot.

4.4 EROSION

From the attached velocity table, the flow velocity will be reduced after passing through the proposed stormwater pond. This will minimise the risk of erosion. The we has visited the Mangawhai Subdivision Development site and the creek, due to the width of the channel and the floodplain, and the estimated velocities, we believe that erosion should be minimal. The construction of the ponds and the re-vegetation around the pond with erosion resistant plants, should further reduce the risk of erosion. Sediment control will be required throughout the earthworks construction period. Sediment control methods outlined in the ARC TP90, and the Kaipara District Plan Low Impact Design approach shall be adopted.

5. CONCLUSION

Further to the computer modelling and stormwater quality requirements, the we recommend that the Client consider the different types of stormwater runoff control and quality devices discussed in this report and decide what they will prefer. All the systems discussed within this report are applicable and achievable at the Mangawhai Subdivision Development site. Our attached plan shows scoria trenches in each lot with the main stormwater quality ponds in the common lot area in the lower subdivision, however rain gardens can be used in individual properties as well.

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The ponds are not a necessity for flood management but rather they are recommended for stormwater quality treatment as they will enhance the quality of the stormwater before discharging into the receiving environment and add an additional recreational value to the development. It should also be noted that because of the limited size of the catchment, the pond(s) will dry up during the summers unless the outlet design is designed to retain stormwater within the catchment.

6. RECOMMENDATION

Further to the computer modelling and analysis of the development, the following recommendations are outlined.

1. Construct and landscape one pond or two ponds in series to treat and detain the stormwater
2. Construct scoria infiltration trenches in each of the properties.

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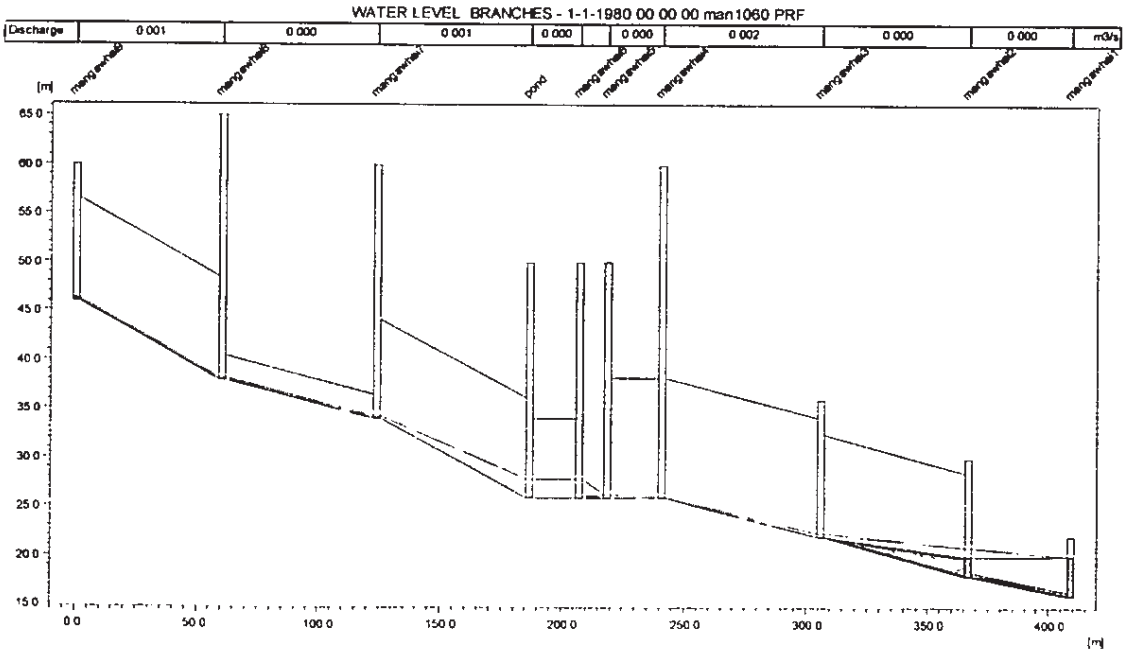
Water Levels for 1 in 10 years 60min

WATER LEVEL NODES	Minimum	Maximum
mangawhai1	17.000	17.000
mangawhai2	18.202	18.786
Mangawhai2a	18.005	18.791
mangawhai3	19.505	19.905
mangawhai4	26.005	26.087
mangawhai5	26.001	26.259
mangawhai6	26.001	27.917
mangawhai10	34.005	34.120
pond	26.005	27.917
mangawhai11	34.005	34.208
mangawhai7	34.005	34.255
mangawhai8	38.005	38.224
mangawhai12	40.005	40.158
Mangawhai9	46.005	46.258



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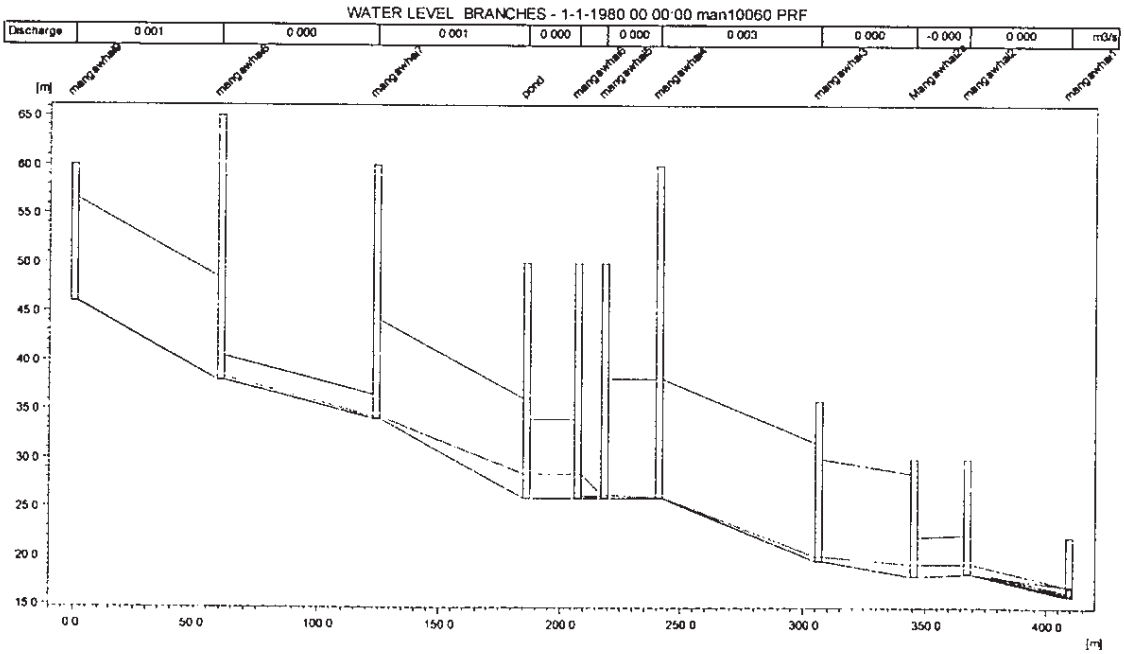
Water Levels for 1 in 100 years for 60min

WATER LEVEL NODES	Minimum	Maximum
mangawhai1	17.000	17.000
mangawhai2	18.202	19.237
Mangawhai2a	18.005	19.237
mangawhai3	19.505	19.991
mangawhai4	26.005	26.108
mangawhai5	26.001	26.297
mangawhai6	26.001	28.378
mangawhai10	34.005	34.143
pond	26.005	28.378
mangawhai11	34.005	34.257
mangawhai7	34.005	34.307
mangawhai8	38.005	38.266
mangawhai12	40.005	40.191
mangawhai9	46.005	46.305



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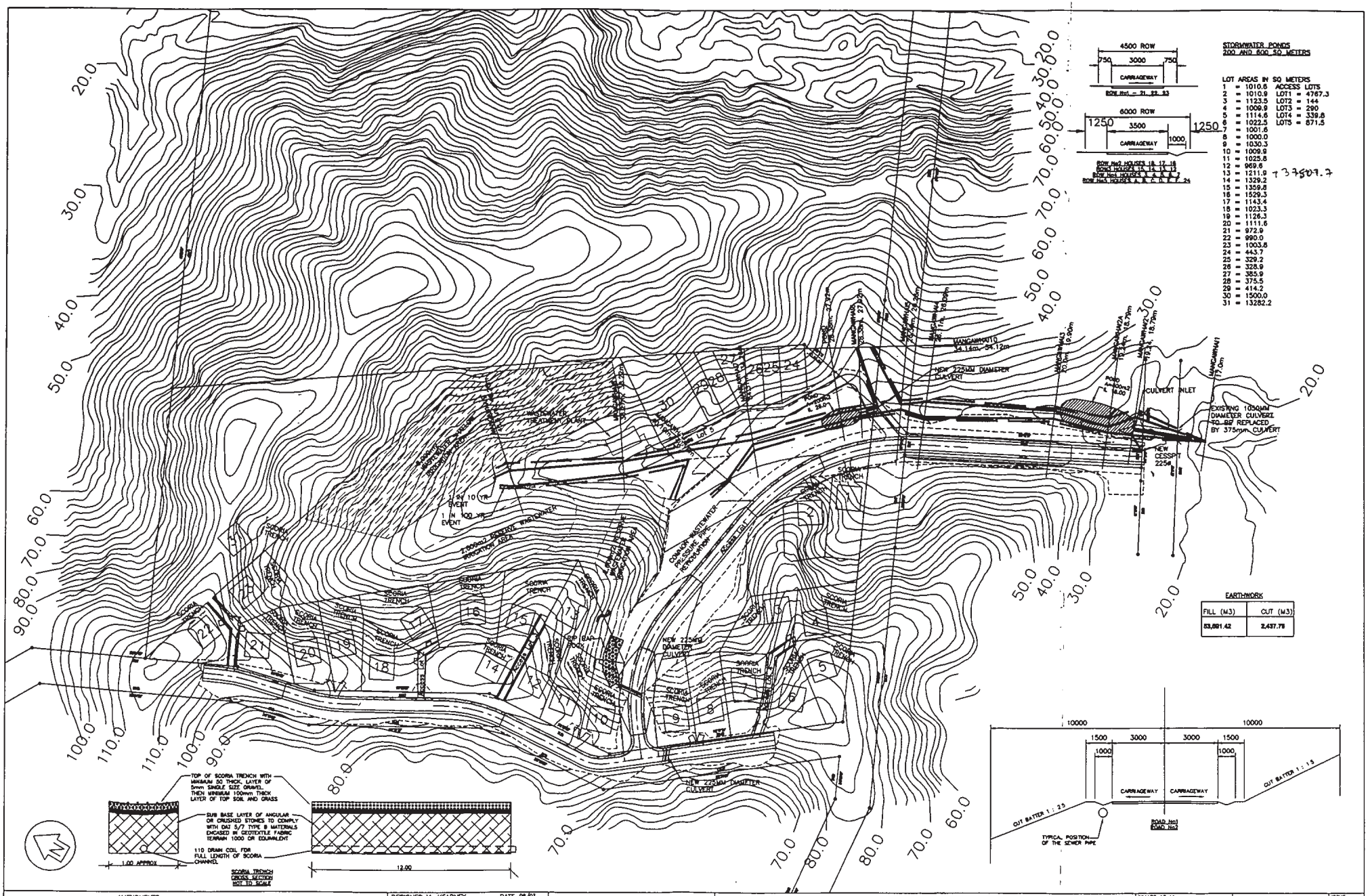

AMENDMENTS					
ISSUE	REVISION	BY	CHECK	APP	DATE
1	ISSUED FOR REVIEW	M.G.B.	M.K.		05/03
2	ROADS INSTALLED	M.G.B.	M.K.		06/03
3	PROPERTY BOUNDATIES ADDED	M.G.B.	M.K.		07/03
4	PROPERTY BOUNDATIES REVISED	M.G.B.	M.K.		07/03
5	LOT NUMBERS REVISED	M.G.B.	M.K.		07/03

DESIGNED M. KEARNEY DATE 05/03
DRAWN A. MANIRAMBONA DATE 05/03
CHECKED DATE
APPROVED DATE

THE HEADS SUB-DIVISION MANGAWAI

TITLE: STORMWATER AND WASTEWATER DRAINAGE

SCALES AT A1	FILE Nº	ISSUE
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	2064-S1	CONT 2
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HARRISON GRIERSON CONSULTANTS LIMITED

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Project	The Heads, Mangawhai Heads
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Office of Origin	Albany
Telephone	09 489 9072
Facsimile	09 489 5186
Email	albany@harrisongrierson.com

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BACK BAY LAND COMPANY LTD

The Heads, Mangawhai Heads

Lot Planting

October 2005
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1.0 INTRODUCTION

This report is to from part of the 'Owners Manual' for owners of Lots within 'The Heads' subdivision at Mangawhai Heads. The report fulfils Consent Condition 2 kk) ii), Landscape Management, of the approved Resource Consent for the development.

The report includes a Plant Schedule showing the species to be selected for the lots, dependent on their location within the development. Planting schedules have been devised for the heathland lots and the shrublands lots.

The report also includes relevant site preparation, planting and maintenance guidelines for the implementation of the works.

The guidelines are in place to ensure the owners of individual lots implement appropriate landscape measures to provide a visual integration with the subdivision and provide privacy and amenity to each lot. The landscaping is also intended to soften the built forms.

2.0 LIMITATIONS

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

This report is for the use by Back Bay Land Company Ltd only, and should not be used or relied upon by any other person or entity or for any other project.

3.0 WEED CONTROL

An important part of the revegetation of the site is the control of weed species which are present. The clearance of building platforms will assist with the removal of weed species from a portion of each lot. It will be the Owner's responsibility to ensure weed species are identified and adequately treated for their removal. This will require ongoing maintenance, usually involving spraying or hand removal. Weed control is detailed further in the Planting and Maintenance sections of this report.

No owner shall bring on to site, or permit to be brought on to site, any weed species identified in the attached weed species list. (Appendix 1)

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4.0 PLANTING PLAN

Prior to the implementation of planting, a detailed landscape plan is to be submitted to Kaipara District Council for their approval. The submission of such a plan will be required when consent is lodged for the building of the dwelling.

The plan is to include a detailed plant schedule including plant sizes, spacings and grades. All details shall be in accordance with the schedule included in this report.

Landscape plans are to be prepared by suitably qualified Landscape Architects or Landscape Designers.

The planting plan shall also detail areas of paving, structures (i.e pergolas, decks, clotheslines, sheds, etc) lighting and retaining walls.

Once submitted and approved, no changes are to be made to the landscape plan without the approval of the Body Corporate and Kaipara District Council.

An indicative planting plan is included in Appendix 2.

5.0 REVEGETATION

Each of the 31 lots within the subdivision has an area identified as being suitable for building development. In most cases there is an area of covenanted bush on each lot. A plant schedule is attached as Appendix 3.

The objective of the revegetation is to restore species diversity to the property to encourage conditions for natural regeneration to occur. This requires the planting of species which will attract bird life. The schedule includes several species which will encourage the return of birds to the site.

The establishment of a native tree canopy will assist with the suppression of weed species which are currently present. The shading the canopy creates limits the ability of weed species to establish or be sustained.

Following the completion of each dwelling the landowner is to landscape the site with a selection of suitable species as identified in the Plant Schedule, attached as Appendix 3. The planting fulfils the Consent Condition 2 kk) ii) of resource consent RM 030149.

The revegetation does not include the building platform, accessways and ancillary buildings on the site. All other areas are to be fully landscaped. The plant selection is suitable for the two landscape types, Heathland and Shrubland, as identified by Dr N Clunie in his report, dated July 2003. The Lot types are identified as follows:-

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Heathland Lots: – 3 – 23, 31 – 34

Shrubland Lots: – 1,2,24 - 30

The following recommendations from the report prepared by Clunie are to be followed when clearing building platforms to minimise the clearance of established native cover.

1. Demarcate the outer edges of prescribed sites to be cleared

2. Remove established native shrubs only from the defined house sites. Machine operation and passage shall be strictly limited to the demarcated sites.

3. Where excavations are carried out, no spoil is to be placed beyond the demarcated area prescribed for clearance. Removal of spoil is recommended.

6.0 TIMING

Revegetation planting is best implemented in the recognised planting season, which is accepted as being from May to August. During this time conditions are most conducive to plant establishment, planting outside of this time is not recommended.

Planting shall be implemented in the first planting season following the completion of the buildings and accessways on site.

7.0 PLANT SCHEDULE

The Plant Schedule is attached as Appendix 3. The schedule identifies the species appropriate for planting on the cleared areas of the lots. The schedule identifies the two landscape types, Heathland and Shrubland, and further breaks this down into suitable tree and shrub species. The Schedule indicates plant percentages and spacings. No definitive number can be provided as each lot varies in size and location.

8.0 PLANTS

All plants are to be ecosourced where possible. All plants are to be best nursery stock, healthy and vigorous with well-developed root systems, free of disease and pests and physical damage.

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9.0 PLANT LOCATIONS

Tree species are to be located on sites such that they do not obstruct the views from neighbouring lots. It is important that the recommended tree spacings are followed to avoid creating large areas of screening.

Shrub planting shall generally be at 1.0 – 2.0 metre centres as shown on the planting schedule. Larger tree species shall generally be planted at 5.0 – 10.0 metre centres as shown on the schedule.

10.0 SITE PREPARATION

The following guidelines are to be adopted when preparing each lot for landscaping. It is the responsibility of the owner, or their contractor, to ensure all guidelines are followed in the site preparation.

- Weed species are to be eradicated from all areas of the lot which are to be revegetated.
- The weed eradication programme should commence at least two (2) months prior to the date in which the plant implementation is due to commence in order to ensure successful eradication is achieved. This shall be undertaken during February, March and April prior to the planting season.
- The Owner or their representative, shall arrange a meeting with the Landscape Architect/ Landscape Designer on site prior to the commencement of weed clearance and site preparation.
- The Landscape Contractor shall arrange a meeting with the Owner on completion of the weed clearance and site preparation. This may coincide with the meeting to be undertaken prior to the implementation of planting on site.
- The Owner, or their representative, shall ensure that the entire site is prepared in such a manner that competition for the proposed plants from all weeds and grass varieties, particularly 'noxious' weeds and visually undesirable weeds are controlled in an acceptable manner. The Owner, or their representative, is responsible for any pre-planting weed control required to ensure successful plant establishment, and on-going weed control.

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- Weeds currently present on the site include:
- Gorse, prickly hakea and woolley hakea. Climbing asparagus is a climbing vine which is potentially very threatening.
- There is also a range of exotic trees which should be removed including pine and tree banksia.
- The Landscape Contractor shall undertake the following weed eradication measures:
- Raking and Hand Weeding
- Cutting / slashing / tree removal
- Weed spraying
- Chemical herbicides are to be used with caution. Where necessary they shall be applied strictly in accordance with the manufacturers instructions. Any damage caused by drift will be made good at the Owners expense.
- The Owner, or their representative, shall ensure that the entire site is prepared in such a manner that competition for the proposed plants from all weeds and grass varieties, particularly 'noxious' weeds and visually undesirable weeds are controlled in an acceptable manner.
- The Owner, or their representative, shall ensure that no noxious or invasive species are brought onto the site via machinery or introduced plants.
- The herbicides to be used for the control of the weed species shall be a Glyphosate (e.g Roundup). If the Landscape Contractor considers it necessary to use another type of herbicide they shall contact the Landscape Architect to discuss prior to use.
- All earthworking is to be completed prior to the implementation of the vegetation.
- In order to ensure the best possible result for the successful implementation of the vegetation the Owner, or their representative, must ensure that prior to completion of the earthworking by the earthworks contractor, a meeting on site takes place relating to the soil depths and quality.

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- The soil medium shall be cultivated to provide good plant support and to encourage active root growth in the Planting Areas. 200/300 mm depth of adequate friable topsoil shall be provided within the planting areas. It is the Owners, or their representative, responsibility to ensure that this is achieved.

- The Owner, or their representative, shall ensure that the surface of the topsoil follows the contours of the clay/earth beneath, so that spreading across depressions does not produce greater than average depth of topsoil.

- All topsoil shall be finely smoothed to eliminate all minor depressions and wheel marks and to produce a smooth, evenly-graded, open-textured surface which will not hold water.

- In the event that the ground has been compacted, the Owner, or their representative, shall ensure that the earthworks Contractor lightly disk the topsoil and cultivate to a depth of 200mm to assist in creating a desirable planting bed.

- The soil medium shall be cultivated to provide good plant support and to encourage active root growth in the Planting Areas. A minimum depth of 100/150mm of adequate friable topsoil shall be provided within those planting areas below the permanent water level of the wetland. It is the Landscape Contractor's responsibility to ensure that this is achieved.

- Following the earthworking stages and prior to planting the Owner or their representative, shall rake a slow release fertiliser into the topsoil.

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11.0 PLANTING GUIDELINES

The following are guidelines for Revegetation Planting.

- Revegetation planting shall be implemented to areas of each residential lot which are not used for building, accessways or ancillary buildings.
- A planting plan is to be prepared for each Lot and approved by the Kaipara District Council. All planting areas shall be undertaken in accordance with the layout as identified on the Planting Plan.
- While different Plant Identity Area differentiates the difference between typical plant types required in each environment, on the ground they should be made to merge together.
- Revegetation trees, shrub and groundcover species shall be planted in groups of 3's and 5's unless otherwise specified. When planting areas are adjacent to grassed areas or paths smaller shrub and groundcover species should typically be positioned near the front.
- Shrub plants shall generally be placed at 1.0 - 2.0 metre c/c in accordance with accepted revegetation planting practice. Tree species shall generally be placed at 5.0 - 10.0 metre c/c. All spacings are shown on the plant schedule.
- Planting holes shall be hand dug. The base of the hole is to be broken up/roughened to allow water infiltration and root growth.
- Plant holes, planting and backfilling for all revegetation plants shall be in accordance with best horticultural practice and techniques. Plants should be set in the holes so that the soil level, after settlement, will be at the original soil mark on the stem of the plant and level with the surrounding ground. No plant roots should be left exposed to the surface.
- All revegetation species with an exception for Manuka shall be planted with a controlled release (2 plus year) general fertiliser (such as 'Nutricote' or 'Agriform'). The fertiliser shall be applied according to the manufacturer's recommendations for the plant size and placed in the base of the hole.
- All plants shall be watered thoroughly at the time of planting if soil conditions are dry. Watering of plant beds shall be sufficient to give 300mm minimum depth penetration.
- All plants are to be planted with a bamboo stakes for ease of identification during the maintenance period.

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- Any large plants that are limp or struggling to stand up once in the ground shall be stacked with a single appropriately sized stack and fastened with a tie in accordance with good horticultural practice.
- A 150mm minimum average layer of cambium mulch is to be placed within all revegetation areas.
- It is important that any plant hole's backfill material is not mixed in with the cambium mulch.
- A small ditch or channel shall be dug on the perimeter of all planting areas where adjacent to grassed areas and/or paved areas to assist in containing the cambium mulch and restrict it from overflowing. This will also assist in defining the edge of the lawn and planting beds.
- If the cambium mulch is found to be sliding off certain steeper slopes then the Owner shall discuss alternative methods of mulching.

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12.0 MAINTENANCE

- Following the completion of planting, the planted areas are to be rigorously maintained for a minimum of twenty-four (24) months or until ninety per cent (90%) of the plants are established.

- Following the initial maintenance period ongoing maintenance shall be completed thereafter.

- The Owner, or their representative, shall maintain the site on a minimum monthly basis for the first twelve (12) months of plant establishment and a minimum two (2) monthly basis from twelve (12) to twenty-four (24) months of plant establishment. Additional visits may be required during the summer months for supplementary watering if ground conditions are very dry.

- The Owner, or their representative, is responsible for plant survival during the maintenance and establishment period. The Landscape Contractor is responsible for advising the Owner of any site conditions that are not conducive to the successful establishment of the plants during the maintenance period. The Owner, or their representative, shall be responsible for reinstating planting and undertaking measures to remedy the situation.

- The Owner, or their representative, shall monitor and protect all plants from weeds until the end of the maintenance period. The Owner, or their representative, shall replace any plant deaths resulting from weed suppression or weed control measures.

- Manual weeding only is to be undertaken in all planted areas during establishment with the exception of mulched areas in which some spot spraying of the herbicides Glyphosate (e.g Roundup) or Escort may occur.

- The Owner, or their representative, shall monitor and protect all trees from damage by pests and disease and remove all weed and grass species from within the one metre radius of the tree. Weed and grass species shall either be removed by hand or by spot spraying.

- Chemical herbicides shall be used with caution. They shall be applied strictly in accordance with the manufacture's instructions. Any damage caused by drift or misadventure shall be made good at the Owners expense.

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- During the maintenance period the Owner, or their representative, shall monitor and protect plants from birds (in particular Pukeko and Ducks). Any damage or plant deaths caused by birds shall be replanted at the Landscape Contractors cost.

- Suggested possible methods include:

- Heel the plants into the ground well. Use a length of approximately 600 - 800 mm long number 8 wire bent into a U shape secured over the rootball to hold each plant in place. This wire shall be removed again once the roots are established in nine (9) months following implementation so as not to impede plant growth.

- Push a small bamboo stake into the ground alongside each plant and then tie the plant to the stake to provide additional support.

- Netting, similar to that used over grape vines, or wire cages covering planted areas to prevent Pukeko's entering the planted area.

- Obtain a permit from Bird and Game for the permanent or temporary relocation removal of the birds.

- The Owner, or their representative, shall monitor and protect all plants from damage by pests, including rabbits and possums. If required, the Owner shall submit a proposal as to their proposed methods of eradication. Trapping is the recommended measure.

- The cost of plants or other landscape works deemed to have failed due to theft, wilful damage or vandalism shall be the Owners responsibility.

- In the six (6) months following completion of the planting the Owner, or their representative, will be responsible for ensuring a 100% survival rate of plants. The Owner, or their representative, shall replace any plants falling below the 100% survival rate, and further guarantee these replacement plants for another six (6) months.

- The bark mulch shall be contained in the Planting Areas in a tidy state and maintained at a minimum depth of 100mm. The Owner, or their representative, shall infill any holes that develop in the bark mulch and top-up any levels that fall below 100mm in depth.

- The bark mulch shall be maintained in a tidy state at the minimum 100mm depth. The Owner, or their representative, shall infill any holes that develop in the bark mulch and top-up any levels that fall below the 100mm depth.

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- The Owner, or their representative, shall ensure all tree stakes and ties are in good repair and are not restricting plant growth. Any breakages shall be replaced. If excessive movement in the wind is damaging a tree then the number and location of the stakes shall be reviewed and amended accordingly.

- All dead wood, broken or damaged branches and bottom growth shall be removed using the best horticultural technique. Clean cuts with a single flat face shall be made close to the truck or parent branch and when removing dead branches and stubs, cuts into live wood shall be avoided.

- The Owner, or their representative, is responsible for ensuring that no plants or trees experience stress from lack of moisture and/or nitrogen deficiencies throughout the maintenance period.

- During the summer months or any other extended dry periods the Owner, or their representative, shall water the trees and bark mulched area.

- An additional high nitrogen fertiliser application may be required in spring and autumn over the bark mulch if the bark decomposition is noticeably competing with the nutrient availability for trees.

- Any plants, which are dead, badly damaged or unhealthy, shall be removed and replaced at the Owners expense.

- Any replacement trees shall comply with the conditions in these specifications. All replacement trees shall be the same species and variety as indicated in the Plant Schedule, of these specifications, unless the Owner obtains the agreement of the Landscape Architect and notifies Kaipara District Council.

- The Kaipara District Council may inspect works at any time during either the implementation or maintenance stages.

- A formal inspection shall be carried out by the Landscape Architect or Kaipara District Council at the completion of implementation and at the completion of the maintenance period. The Owner or the Landscape Contractor shall be present on site during these inspections.

- Any implementation or maintenance work found to be defective (due to poor workmanship) or is not in accordance with the specifications outlined shall be made good at the owner or the Landscape Contractor's expense within two weeks of written notice being given to the Landscape Contractor.

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13.0 HARD LANDSCAPING

Hard landscape elements are to be kept to be kept to a minimum and located such that they do not detract from the overall aestheic of the subdivision. Hard landscaping may include

- Retaining walls – where possible these are to be a maximum of 750mm in height. If necessary walls should be stepped to achieve a greater retained height.
- Clotheslines – are to be located such that they are not visible between lots
- Lighting – is to be kept to a minimum and shall generally be located at low levels to avoid glare

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APPENDIX 1

Weed Species and Prohibited Plants

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APPENDIX 1 - WEED SPECIES (PROHIBITED PLANT SPECIES)

(As supplied by in report prepared by Dr N Clunie)

Common Name	Botanical Name
African Feather Grass	*Pennisetum macrourum*
Arrowhead	*Sagittaria montevidensis*
Balloon vine	*Cardiosperma grandiflorum*
Cathedral bells	*Cobaea scandens*
Chilean needle grass	*Nassella neesiana*
Devil's tail	*Persicaria perfoliatum*
Fine-stemmed needle grass	*Nassella tenuissima*
Fringed water lily	*Nymphoides peltata*
Green cestrum	*Cestrum parqui*
Houttuynia	*Houttuynia cordata*
Marshwort	*Nymphoides geminata*
Nassella tussock	*Nassella trichotoma*
Needle grass	*Austrostipa rudis*
Old man's beard	*Clematis vitalba*
Purple loosestrife	*Lythrum salicaria*
Sagittaria	*Sagittaria graminea spp. Platyphylla*
Scrambling lily	*Geitonoplesium cymosum*
Senegal tea	*Gymnocoronis spilanthoides*
Small balloon vine	*Cardiospermum halicacaburn*
Water poppy	*Hydrocleys nymphoides*
White-edged nightshade	*Solanum marginatum*
Broom (rural areas)	*Cystisus scoparius*
Egeria (on GBI)	*Egeria densa*
Lantana (rural areas)	*Lantana camara var.aculeata*
Manchurian wild rice	*Zizania latifolia*
Spartina	*Spartina spp.*
Containment Pest Plants	
Bathurst bur	*Xanthium spinosum*
Bushy asparagus	*Asparagus densiflorus*
Evergreen buckthorn	*Rhamnus alaternus*
Mignonette vine	*Andredera cordifolia*
Kahili ginger	*Hedychium gardnerianum*
Moth plant	*Araujia sericifera*
Nodding thistle	*Carduus nutans*
Smilax	*Asparagus asparagoides*
Variegated thistle	*Silybum marianum*
Wooly nightshade	*Solanum mauritianum*
Yellow ginger	*Hedychium flavescens*
Containment Pest Plants	
Australian sedge (20m/rural)	*Carex longibrachiata*
Gorse (20m/rural)	*Ulex spp.*
Ragwort (50m/rural)	*Senecio jacobaea*
Surveillance Pest Plants	
Ferns/Fern allies	
African clubmoss	*Selaginella kraussiana*
Tuber ladder fern	*Nephrolepis cordifolia*

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Perennial herbs	
Aristea	*Aristea ecklonii*
Artillery plant	*Galeobdolon luteum*
Blackberry	*Rubus fruticosus agg.*
Bur daisy	*Calotis lappulacea*
Burdock	*Arctium minus*
Coltsfoot	*Tussilago farfara*
Convolvulus (Field Bindweed)	*Convolvulus arvensis*
Goat's rue	*Galega maculatum*
Hemlock	*Conium maculatum*
Kiwifruit	*Actinidia chinensis*
Mexican daisy	*Erigeron karvinskianus*
Mistflower	*Ageratina riparia*
Montbretia	*Crocosmia x crocosmiiflora*
Noogoora bur	*Xanthium strumarium*
Nutgrass	*Cyperus rotundus*
Perennial nettle	*Urtica dioica*
Periwinkle	*Vinca major*
Plectranthus	*Plectranthus ciliatus*
Plumeless thistle	*Carduus acanthiodes*
Saffron thistle	*Carthamus lanatus*
Sheep's bur	*Acaena agnipila*
Skeleton weed	*Chondrilla juncea*
St John's wort	*Hypericum perforatum*
Tutsan	*Hypericum androsaemum*
Velvet groundsel	*Senecio petasitis*
Wandering Jew	*Tradescantia fluminensis*

Climbers	
Banana passionfruit	*Passiflora mollissima, P. mixta*
Blue morning glory	*ipomoea indica*
Blue passion flower	*Passiflora caerulea*
Cape ivy	*Sencio angulatus*
Japanese honeysuckle	*Lonicera japonica*
Jasmine	*Jasminum polyanthum*
Mile-a-minute	*Dipogon lignosus*

Grasses	
Broomsedge	*Andropogon virginicus*
Chinese pennisetum	*Pennisetum alopecuroides*
Giant reed grass	*Arunda donax*
Palm grass	*Setaria palmifolia*
Pampas grass	*Cortaderia selloana*
Purple pampas	*Cortaderia jubata*
Stipa	*Stipa spp.*

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Aquatic plants	
Alligator weed	*Alternanthera philoxeriodes*
Reed sweet grass	*Glyceria maxima*
Water primrose	*Ludwigia peruviana*
Yellow flag	*Iris pseudacorus*
Floating Aquatic Plants	
Nardoo	*Marsilea mutica*
Yellow Water Lily	*Nuphar lutea*
Submerged Aquatic Plants	
Caulerpa	*Caulerpa taxifolia*
Eelgrass	*Vallisneris gigantea, V. spiralis*
Hornwort	*Ceratophyllum demersum*
Hydrilla	*Hydrilla verticillata*
Lagarosiphon	*Lagarosiphon major*
Parrot's feather	*Myriophyllum aqauticum*
Trees and Shrubs	
Baccharis	*Baccharis halimifolia*
Barberry	*Berberis glaucocarpa*
Bartlettina	*Bartlettina sordida*
Blue spur flower	*Plectranthus ecklonii*
Blue spur flower	*Plectranthus grandis*
Boneseed	*Chrysanthemoides monilifera*
Boxthorn	*Lycium ferocissimum*
Brush wattle	*Paraseriathes lophantha*
Buddleia	*Buddleja davidii*
Cape honey flower	*Melianthus major*
Cotoneaster	*Cotoneaster glaucophyllus, C. franchetii*
Crack willow	*Salix fragilis*
Evergreen buckthorn	*Rhamnus alaternus*
Hawthorn	*Crataegus monogyna*
Himalayan honeysuckle	*Leycesteria formosa*
Japanese spindle tree	*Eunoymus japonicus*
Monkey apple	*Acmena smithii*
Montpellier broom	*Teline monspessulana*
Oxylobium	*Oxylobium lanceolatum*
Port Jackson fig	*Ficus rubiginosa*
Privet - Chinese	*Ligustrum sinense*
Privet - tree	*Ligustrum lucidum*
Spanish health	*Erica lusitanica*
Spiny broom	*Calicotome spinosa*
Sweet briar	*Rosa rubignosa*
Sweet pea shrub	*Polygala myrtifolia*
Sycamore	*Acer pseudoplatanus*

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Research Organisms

Acacia species	*Acacia spp.*
Agapanthus	*Agapanthus praecox subsp. Orientalis*
Austrostipa species	*Austrostipa spp.*
Bangalow palm	*Archontophoenix cunninghamii*
Brush cherry	*Syzigium australe*
Climbing gloxinia	*Lophospermum erubescens*
Coast banksia	*Banksia integrifolia*
Guava/purple guava	*psidium cattleianum*
Gypsywort	*Lycopus europeaus*
Ivy	*Hedera helix subsp. And other cvs*
Lantana	*Lantana camera cv. Other than aculeata*
Lizard's tail	*Saururus cernuus*
Moreton Bay fig	*Ficus macrophylla*
Phoenix palm	*Phoenix canariensis*
Queen of the night	*Cestrum nocturnum*
Queensland poplar	*Homalanthus populifolius*

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APPENDIX 2

Drawings
Indicative Lot Planting – Heathlands
Indicative Lot Planting - Shrublands

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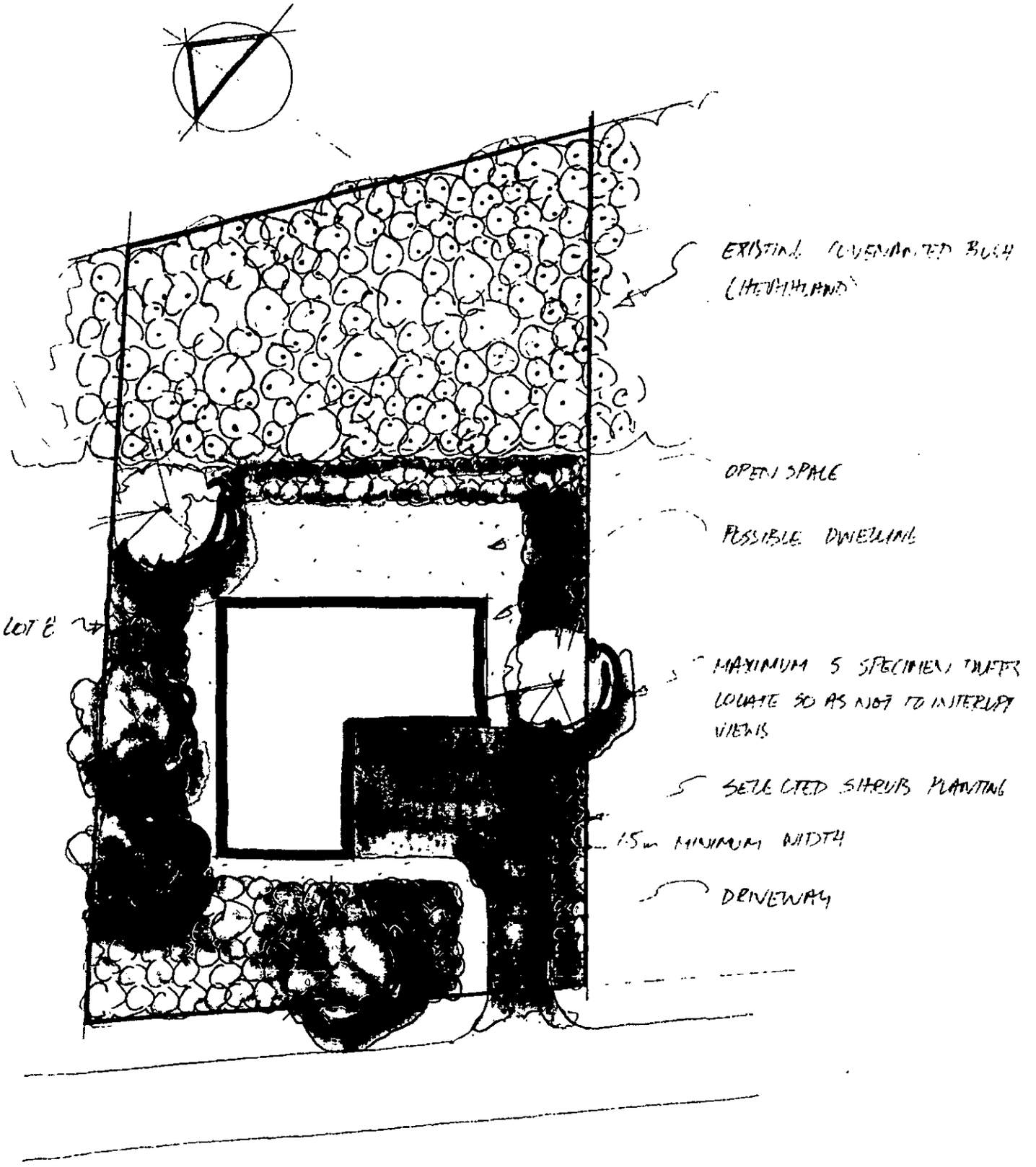

INDICATIVE LOT PLANTING - HEATHLANDS

SCALE 1:250

OCTOBER 2005

HARRISON GRIERSON

CONSULTING ENGINEERS SURVEYORS PLANNERS

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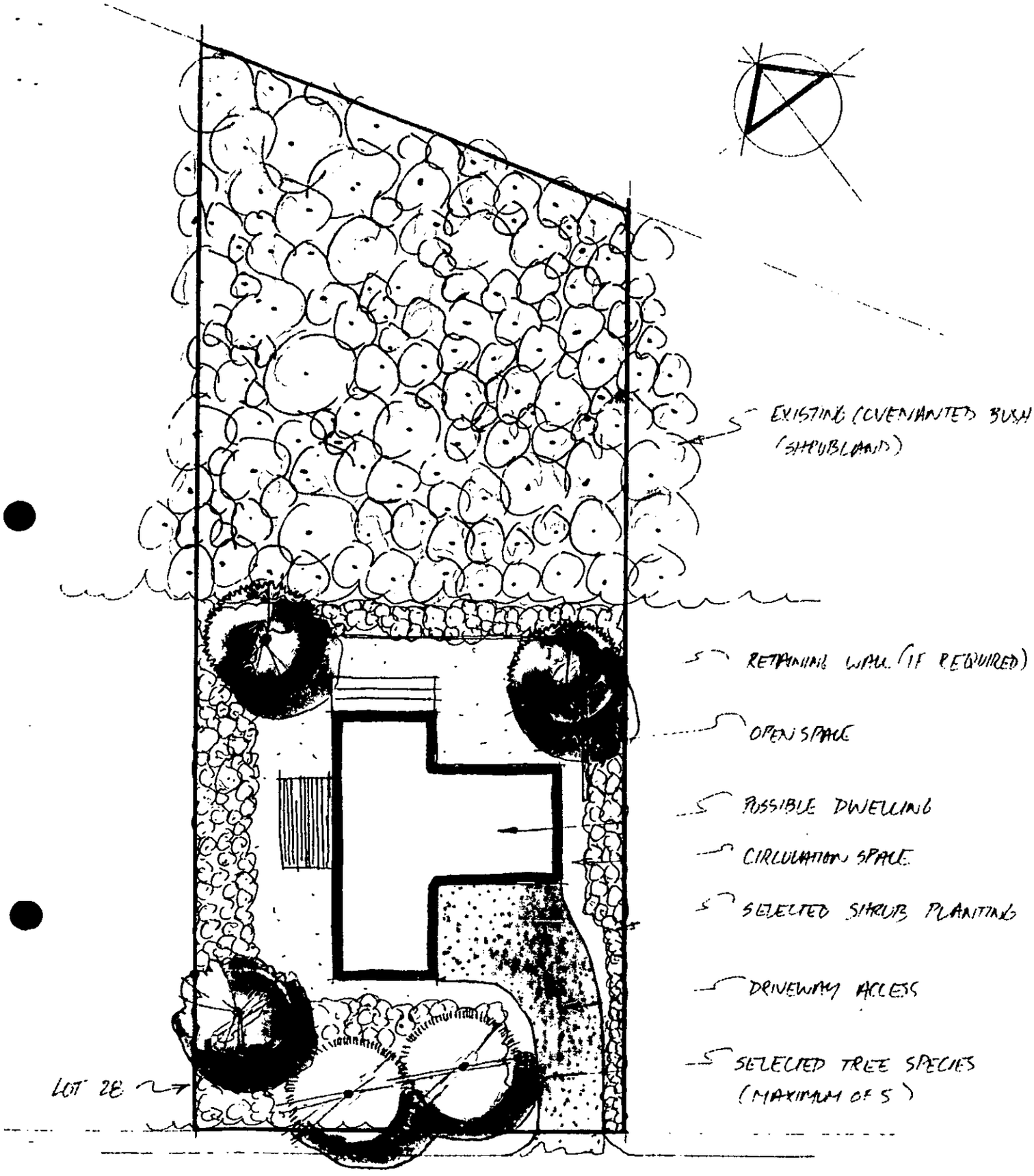

INDICATIVE LOT PLANTING - SHRUBLANDS

SCALE 1:250

OCTOBER 2005

HARRISON GRIERSON

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APPENDIX 3

Plant Schedule

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THE HEADS

RESIDENTIAL LOT PLANTING

Heathlands — Lots 3 - 23, 31 - 34

Botanical Name	Common Name	Grade	% of area	Spacing (m)
Shrub Species				
Coprosma arborea	mamangi	PB 3	15	2
Leptospermum scoparium	manuka	PB 3	15	2
Myrsine australis	mapou	PB 3	20	2
Olearia furfuracea	akepiro, Coastal daisy	PB 3	20	2
Pseudopanax crassifolius	horoeka, lancewood	PB 3	20	2
Pseudopanax lessonii	houpara	PB 3	10	2
Tree Species				
Agathis australis	kauri	PB 40		5
Elaeocarpus dentatus	hinau	PB 28		10
Knightia excelsa	rewarewa, NZ honeysuckle	PB 28		5
Metrosideros excelsa	pohutukawa	PB 40		15

Shrublands — Lots 1,2, 24 - 30

Botanical Name	Common Name	Grade	% of area	Spacing (m)
Shrub Species				
Cordyline australis	ti kouka, cabbage tree	PB 8	10	2.00
Coprosma arborea	mamangi	PB 3	5	2.00
Coprosma robusta	karamu	PB 3	7	2.00
Cyathea medullaris	mamaku, Black tree fern	PB 8	5	2.00
Kunzea ericoides	kanuka	PB 3	5	2.00
Leptospermum scoparium	manuka	PB 3	10	2.00
Macropiper excelsum	kawakawa	PB 3	10	2.00
Myrsine australis	mapou	PB 3	8	2.00
Nestegis lanceolata	maire	PB 3	5	2.00
Olearia furfuracea	akepiro, coastal daisy	PB 3	5	2.00
Olearia traversii	Chatham Island akeake	PB 3	5	2.00
Phormium tenax	harakeke, NZ flax	PB 3	10	2.00
Pittosporum tenuifolium	kohuhu	PB 3	10	2.00
Pseudopanax crassifolius	horoeka, lancewood	PB 3	5	2.00
Tree Species				
Agathis australis	kauri	PB 40		5.00
Beilschmiedia tarairi	taraire	PB 28		10.00
Corynocarpus laevigatus	karaka	PB 28		10.00
Dacrydium cupressinum	rimu	PB 28		10.00
Dysoxylum spectabile	kohekohe	PB 28		10.00
Elaeocarpus dentatus	hinau	PB 28		10.00

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Tree Species (cont'd)				
Botanical Name	Common Name	Grade	% of area	Spacing (m)
Knightia excelsa	rewarewa	PB 28		5.00
Phyllocladus trichomanoides	tanekaha, celery pine	PB 28		10.00
Podocarpus totara	totara	PB 28		10.00
Vitex lucens	puriri	PB 40		10.00

Notes:

1) Total plant numbers will need to be determined for each individual Lot as it is developed.

2) All tree species shall be located so as not to obstruct views from surrounding properties.

3) Tree species should be planted in the planting season following planting of shrub species, this will afford some protection to the trees from the shrub planting.

4) A maximum of 5 tree species are to be planted on each lot.

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Soil and Rock Geotechnical Report

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GEOTECHNICAL APPRAISAL AND WASTEWATER ASSESSMENT ALISPAHIC PROPETY WINTLE ROAD MANGAWHAI

for

T Vujnovich

Ref: N03066

May 2003

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Our Ref. N03066
23 May 2003

Backbay Land Co
PO Box 4485
Shortland Street
AUCKLAND

Attention: Tony Vujnovich

Dear Tony

GEOTECHNICAL APPRAISAL AND WASTEWATER ASSESSMENT
ALISPAHIC PROPETY WINTLE ROAD
MANGAWHAI

Introduction

As requested we have completed a limited geotechnical and wastewater appraisal within lot 1 of the Alispahic Property Wintle Street. The purpose of this appraisal was to assess the following:

- The suitability of the land for future development
- The delineation of potential hazards.

Investigation and assessment methodology.

To address the above issues the following was undertaken:

- Aerial photo interpretation.
- Walkover appraisal
- Limited subsurface investigation

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- Derivation of development zones.

It should be noted that this engineering geological and geotechnical overview is intended to assist with the layout of the development plan. It is not intended to be a comprehensive geotechnical investigation for subdivision development purposes. This report does not replace a detailed geotechnical investigation and we understand that a second phase of investigation will be conducted prior to subdivision.

Site Description

The site is located on Wintle Street near the Heads as shown on the site location map in the appendices.

It takes the form of an amphitheatre with a ridgeline circling the property and a central valley. The topography comprises elevated and low-lying ground with narrow ridge crests and steep (40-80°) side slopes.

Slopes are predominantly vegetated with Manuka and scattered gorse. The valley floor contains numerous tree ferns.

The site forms a catchement, which is drained via several gullies to the central valley. A small stream in the valley was observed to be flowing at the time of the site visit.

The slopes exhibit evidence of active as well as relict slip movement in the form of soil creep, shallow instability, debris flows and possible deep-seated failures.

Geology

The Geological Map of New Zealand Sheet 2A, WHANGAREI , indicates that the site is underlain by the Parahaki Volcanics which are of Miocene to Pliocene age. These materials form mainly cones and Dacite, tuffs and thin sheets of and small plugs of dacite lava. The material exposed on site however appeared to be Rhyolitic Tuff, the origin of which is unclear.

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Investigations

Aerial Photo Interpretation

Stereo aerial photos were sourced at a scale of 1:10 000. These were examined and the geomorphic features were mapped. The features identified on the aerial photographs include arcuate landforms scarps, debris lobes and other features generally indicative of slope movement.

In addition colluvium and alluvium associated with the central valley floor was also identified and mapped out

Walkover Geological Appraisal.

A walkover of the property was undertaken on 21/05/2003. The purpose of this walkover was to verify the features identified on the aerial photographic assessment.

To facilitate the site walkover two cross sections were cut in the steep slopes on the eastern and western side of the valley.

Cross section A-A' which was undertaken on the west facing slope (eastern side) encountered a large relic slip scarp. Movement on this scarp is in the order of 10m this is made up with both a vertical and lateral component. Geological mapping was undertaken as part of the walkover and included the mapping of cuts and exposures of the underlying materials.

Subsurface Investigation

Fieldwork comprised a walkover inspection of the sites and the drilling of six hand augerholes (AH1 to AH6) at the approximate locations shown on the site plan. The positions of the augerholes were measured by tape and clinometer without survey control and are approximate only.

Measurements of the undrained shear strength were undertaken at intervals of depth by means of a Pilcon hand held shear vane. The test method was in accordance with the New Zealand Geotechnical Society Guidelines for shear vane tests dated August 2001. The vane shear strength and remoulded vane shear strength values shown on the attached augerhole

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logs and represent readings off the Pilcon shear vane dial adjusted using BS1377 recommendations.

Scala Penetrometer tests were carried out in three of the augerholes to refusal (defined as 20 blows per 100mm penetration) for this device. No Scala penetrometer tests were carried out on the western slope owing to safety concerns relating to the steep slope angle and wet conditions. The augerhole logs, which include the results of the Scala Penetrometer test results, are attached.

Two cross-sections were established through the augerhole locations. These show our inferred soil stratigraphy and are presented on Drawings No. N03066/2 and N03066/3.

Subsoil Conditions

Subsoil conditions encountered at the positions of our augerholes are summarised below and are shown on cross-sections A-A' and B-B'. A full description of the site soils is given on the attached augerhole logs. Subsurface conditions have been interpolated between the augerhole locations and therefore variations in subsoil conditions between and away from the augerholes may exist.

The following provides a summary description of the subsoils encountered. A more detailed description is provided on the attached augerhole logs:

- **Topsoil.** The site was covered by a mantle of topsoil, which varied in thickness from 100 to 400mm.

- **Fill.** Augerhole AH1 encountered fill to a depth of 1.2m. This material predominantly comprised clayey SILT.

- **Colluvium.** Augerholes AH1, AH2 and AH4 encountered colluvium and slip debris this material was predominantly SILTY.

- **Residual Rhyolitic Tuffs.** All the augerholes with the exception of AH1 encountered residual Rhyolitic material. This material was predominantly medium dense with vane

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shear strengths generally greater than 200kPa inferred from the inability of a shear vane to penetrate the horizon.

- **Very Dense/hard Rhyolitic Tuff.** The results of the Scala Penetrometer testing within augerholes AH1, AH2, and AH3, recorded refusal at depths of 6.0m, 3.3m, and 3.2m respectively. This depth of refusal is inferred to represent a less weathered, stronger horizon.

The following groundwater levels were encountered during our drilling investigation.

Table 1

Groundwater Table

Augerhole	Groundwater Table Below Existing GL (m)
AH1	0.3
AH2	NE
AH3	NE
AH4	0.5
AH5	NE
AH6	NE

NE Not Encountered (It should be noted that groundwater levels are transient and may fluctuate and that rises in groundwater levels should be anticipated following heavy rainfall or prolonged wet periods)

Land Stability

Both the aerial photo interpretation and the site walkover indicated that portions of the site show evidence of both relict and recent slope movement.

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Shallow-Seated Movement.

Shallow seated movement at the site took the following forms:

Debris Slides

At the time of the site visit one recent debris slide was observed towards the head of the valley. This debris slide was small and localised. Near the entrance to the site on the adjacent property an access road has been cut. A cross section through a previous debris slide has been preserved in this cut. It is probable that given the material type and the steep slopes, that the site may be periodically subject to debris slides. These would probably occur preferentially in the gullies, on the lower gully sides.

Shallow Rotational Failures.

At the time of the site visit shallow rotational failures (<5m deep) were observed on the sides of the steep slopes, in the gully heads and within weaker soil horizons along the cut face of the existing access road to the east of the site.

Soil Creep.

All the steep slopes showed signs of soil creep. The upper mantle of residual soils and colluvium is particularly mobile

General

The factors affecting shallow seated instability are as follows:

Ground slope angle

- Soil strength
- Depth of soil mantle.
- Groundwater
- Removal of the toe of the slope
- Human intervention

Deep-Seated Movement.

Cross section A-A' was located on a slip feature identified from the aerial photograph. This feature appears to be a deep-seated block or rotational failure as movements in excess of 10m are visible on the headscarp.

In general the following factors affect deep-seated instability:

- Ground slope angle

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- Strength of underlying materials.
- Faults.
- Joint dip and direction.
- Unfavourable bedding planes.
- Soft seams.
- Porewater pressures.
- Removal of toe of slope.
- Human intervention.

Quantitative Assessment

To check the overall stability of the site, an indicative stability analyses have been undertaken using assumed planar failure surfaces within the natural ground surface, through Cross Section A-A'

Analysis

A preliminary stability analysis was undertaken using an infinite slope model.

Shear Strength Parameters

Lower bound effective stress shear strength parameters used for our analysis are summarised in the table below. It should be noted that these were selected on the basis of the soil description, in-situ strength testing.

Table 2 - Soil Parameters

Soil Type	Effective Cohesion on the Failure Plane c' (kPa)	Effective Angle of Internal Friction Φ'(°)	Unit Weight γ (kN/m³)
Fill	2	28	18
Alluvium	2	28	18
Residual Tuff	5	30	18
Hard Tuff	8	33	20

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Stability Analyses Results

The above analyses have been carried out on cross section A-A', which is considered representative of the sloping terrain on this site. Results of the theoretical stability analyses are summarised in the table below. It should be noted that the factors of safety given below are based on hard tuff, and assumes that the overlying soil mantle has been stripped off.

Cross Section	Depth to water table	Depth of soil Mantle	Slope Angle (°)	Factors of Safety
A-A'	2.0m	3.0m	35	1.3
A-A'	1.0m	3.0m	35	0.3
A-A'	2.0m	3.0m	25	1.6
A-A'	1.0m	3.0m	25	1.2

Conclusions

Generally a minimum Factor of Safety of 1.5 for the long-term stability is required for residential development, thus we consider that the low factors of safety under elevated groundwater conditions are significant.

Development Zones

The site has been divided into three development zones.

Zone A. Land suitable for development subject to Geotechnical Investigation and design.

Zone B. Land which may be suitable for development subject to Specific Geotechnical Investigation and Design.

Zone C. Land probably unsuitable for development.

Zone A

This zone is suitable for development subject to geotechnical investigation to verify slope stability and foundation conditions. Zone A comprises the following:

- Ridge crests.
- Land with no evidence of recent or relict instability.

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- Land on gentle slopes.

Zone B

This Zone may be able to be developed subject to site-specific investigation of building platforms to determine foundation options and remedial measures to protect from slope instability.

Zone B has been defined as follows:

- Land on moderate slopes.
- Land adjacent to, or subject to relict or recent shallow seated instability.

Zone C

This Zone is probably unsuitable for general development owing to the occurrence of recent/relict instability or marginally stable ground. In addition this Zone incorporates areas within storm water flow paths. Zone C has been assessed as being land, which may not be suitable for residential development as it has a high risk of instability. Zone C has been defined as follows:

- Land on Steep to very steeply sloping ground.
- Areas with evidence of recent or extensive or relict instability.
- Areas subject to ongoing erosion.
- Areas within gullies

Access Road

From the preliminary concept plan two access roads are proposed, one on the eastern ridgeline and one on the west.

Cuts

The existing cuts at the site show varying degrees of competence. In general the hard residual Rhyolite tuffs are more competent and stand up at steeper slopes that the overlying more clayey mantle. The clayey mantle is generally subject to instability. All cuts in excess

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of 0.5m will required geotechnical assessment and where necessary retaining structures or batter slopes will need to be designed to minimise detrimental effects on slope stability.

Slopes

Steep and very steep slopes exist on site (35 – 85°). Access roads will have to traverse these slopes at a suitable gradient for vehicular access, this may prove difficult to achieve economically. Roads traversing such grades may require retention on both uphill and downhill sides.

Areas Subject to Instability.

The access roads will traverse areas identified as Zone C, which are subject to instability or potential instability. Specific geotechnical investigation assessment and design will be required in these locations, and depending on the results of the subsurface investigation some alignments through Zone C may be unfeasible.

Storm Water Disposal

Concentrated stormwater flows from driveways, roofed and paved areas must be collected and carried in sealed pipes to the base of slopes. Stormwater flows must not be allowed to run onto or over the slopes or saturate the ground so as to adversely affect slope stability or foundation conditions. Some form of attenuation may be necessary to control flows from the catchment.

Effluent Disposal

We understand that no reticulated sanitary sewer is presently servicing the general site area and therefore specific effluent treatment and disposal systems will be required to service dwellings to be constructed on all residential Lots. Generally speaking, systems that rely on disposal of effluent via soil percolation within conventional shallow or deep trenches are not recommended at the site given the likely poor permeability of the uppermost clayey soils and the increased risk of instability developing if the slopes are further loaded with water discharged from the disposal fields. Therefore, systems that dispose of treated effluent via evaporation and evapo-transpiration rather than soil percolation are recommended.

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The site geology has been determined by reference to the geological maps of the area and based on soil descriptions obtained during our subsoil investigation. This has been discussed above.

Generally the slope stability issues outweigh the permeability issues concerning the disposal of effluent and no effluent should be disposed of on the slopes.

It should be noted that the groundwater table in the valley floor was very near the surface, and that the investigation took place during a relatively dry autumn.

The following factors should be considered during design of on-site wastewater disposal systems:

(i) The slope stability and influence of wastewater disposal fields on the existing equilibrium.

(ii) Infiltration characteristics.

(iii) Topsoil structure and depth.

(iv) Rainfall frequency and intensity.

(v) Type and density of vegetation.

(vi) Evapo-transpiration potential (siting systems for maximum exposure to sun and wind).

(vii) Proximity to overland flowpaths and areas of low lying topography.

We provide herein preliminary comments regarding design of wastewater treatment systems:

- We envisage that a communal wastewater treatment system will be installed in the valley below the properties.

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- A number of proprietary systems that provide satisfactory first stage treatment of wastewater are available.

- Limitations usually arise with regard to disposal options, which are influenced, to a large extent by the nine factors given above. Based on the results of our subsoil investigation we envisage that evapo-transpiration and direct evaporation will be the primary means of hydraulic load reduction.

- The communal wastewater disposal system within the study area will require specific design with respect to its influence on slope stability.

- The specific design must take into account elements such as exposure to sun, wind, the vegetation cover and measures must be taken to minimise the risk of treated effluent entering natural watercourses and overland flow paths. All options for reuse of treated wastewater should be explored.

- We recommend an average applied hydraulic load in the range of 2mm per day to 3mm per day be adopted for preliminary design of wastewater disposal fields. The hydraulic loading should assume that all the water is removed from site by evaporation and transpiration. The selection of the appropriate hydraulic load within the given range should be based on the factors given above, i.e. exposure to sun, elevated ground, exposure to wind and quality of vegetation cover. For example a lower bound hydraulic rate would be applicable for areas of grass cover whereas planting of shrubs and brush is encouraged to increase the evapo-transpiration rate.

- Preliminary estimates suggest a total area of some 1.5 hectares may be required to meet the hydraulic load imposed.

Limitations

This report has been prepared for the sole benefit of Mr T Vujnovich. It may be used in design by his appointed Consultants for preliminary planning and design, further geotechnical investigation is required before submission to Council for a Subdivision Consent application.

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It is not to be relied upon or used out of context by any other person without reference to Soil & Rock Consultants.

No drawings of the proposed development were available at the time of issuing this report. We suggest that once these become available they are referred to us for assessment.

We trust this is satisfactory and if you have any queries please contact the undersigned at your convenience.

Yours faithfully
SOIL & ROCK CONSULTANTS

Prepared by: M.G Knocker
Engineering Geologist

Reviewed by: Terry Mc Carthy
Geotechnical Engineer

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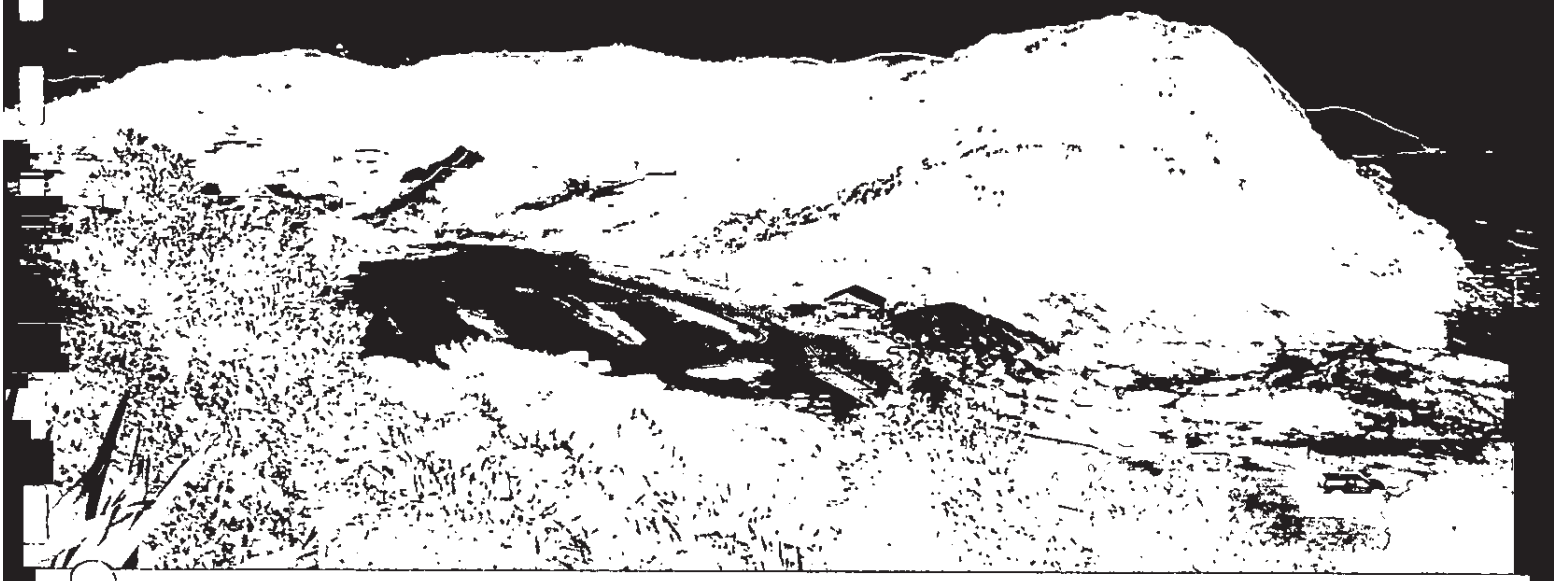

ASSESSMENT OF ENVIRONMENTAL EFFECTS

'THE HEADS'
Wintle Street, Mangawhai

RESOURCE CONSENT APPLICATION FOR:

Kaipara District Council

AUGUST 2003

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View towards the Mangawhai Village from the parking lot at Mangawhai Heads

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View into the site from the Mangawhai Heads lookout

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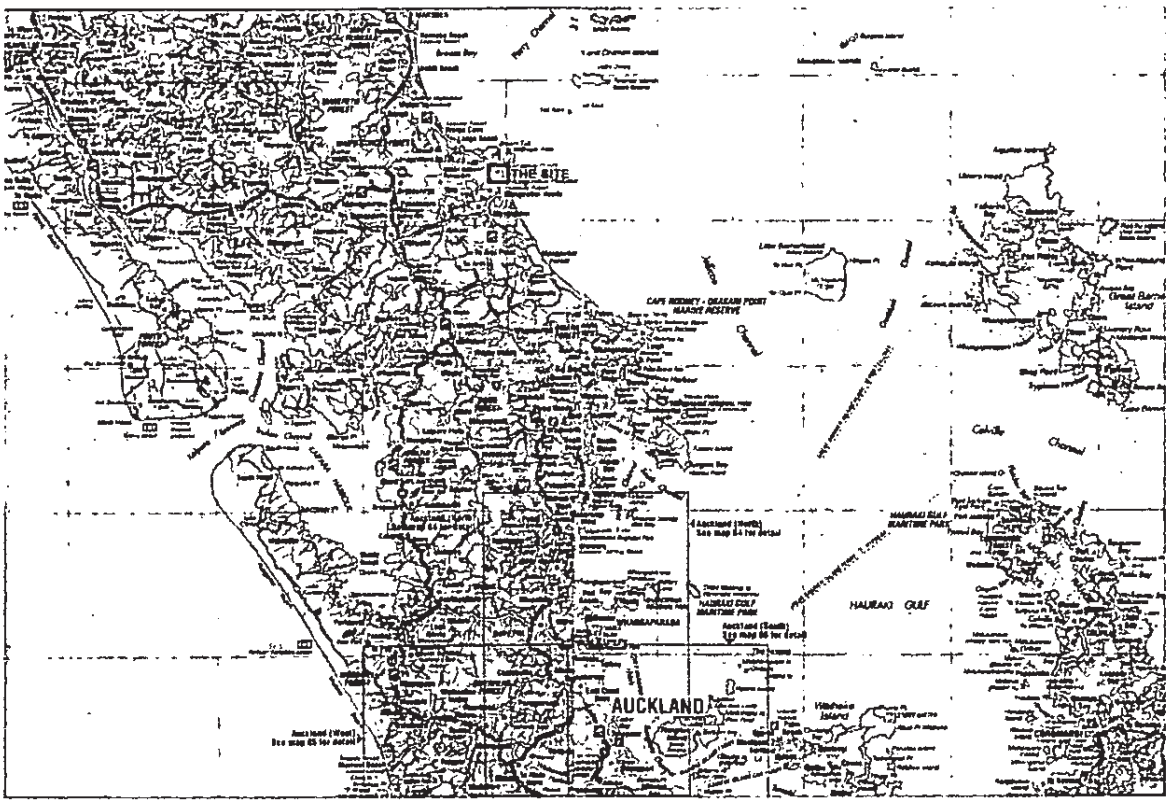

Figure 1 Site Location Plan

1.0 OVERVIEW

This report has been prepared to assess the environmental effects of a proposed subdivision at Wintle Street, Mangawhai.

In March 2003 a two lot subdivision application, by S & G Alispahitic, was approved as a controlled activity on this site. The applicant is the purchaser of Lot 1.

The attached application seeks resource consent to develop a 31-lot subdivision on the subject site. The proposal will create 31 'rural-residential' lots (Lots 1-24), including 6 cluster type residential lots (Lots 26-30) and one 'coastal-zoned' lot, Lot 31. The proposal also includes the development of 6 access lots (numbered Access Lot 1-5 on the Subdivision Plan (figure 2).

A comprehensive wastewater treatment and disposal system is proposed as is a comprehensive stormwater management proposal including the use of sediment ponds.

A weed removal and native revegetation planning programme for the property is also proposed, along with covenanting 5.5 hectares of the property.

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2.0 CONSULTANTS

The consultants involved with the preparation of this document include;

- Nigel Clunie, Ecological Assessment (Appendix 4)
- Dianne Harlow, Architage, Archaeological Assessment (Appendix 5)
- Jo Hill, Architectural Detailing
- Soil & Rock Consultants, Consultant Geotechnical Engineers, Geotechnical Analysis and Suitability (attached report)
- D. J. Scott Associates Ltd., Landscape Planning and Visual Assessment (Appendix 3)
- KEA Consultants Ltd, Engineering and Stormwater Investigation (attached Engineering Report)
- Barry Kaye Associates Ltd., Planning and Resource Management

3.0 SITE BACKGROUND AND CONTEXT

3.1 Historical context

The land use of the site, over the past 100 years has included mainly land clearance and pastoral farming. Until the 1960's the property was used predominately for winter grazing, after which time the land was left and reverted to shrubland cover dominated by gorse and manuka. A scrub fire swept through the property in 1972, clearing much of the vegetation. Since this time several unsuccessful attempts have been made on the site to establish horticultural crops, including viticulture and forestry. Today, the site has again reverted to predominately native shrub vegetation dominated by manuka and gorse.

An archaeological investigation of the property was undertaken by Dianne Harlow, Architage Heritage Consultants in early August 2003 (Appendix 5). No archaeological sites have been recorded on the part of the property under proposed development and none were identified during the site survey.

The southern ridgeline has been cleared in the past for horticulture and is still open and maintained by regular mowing in order to provide access across the property.

The soils are of a podzolised nature and the area would be more likely to have attracted pre-European Maori for the benefit of lookout points rather than for occupation. There are high points on the southern side of the property but archaeological evidence did not consider these suitable for the construction of a former pa on the site. Therefore it is unlikely that archaeological evidence exists but it cannot be ruled out owing to the difficulty in examining the ground surface.

The archaeological report, of which this is a brief summary, details the protocols to be undertaken if any archaeological evidence should be uncovered during earthworks.

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3.2 Planning Context

The Kaipara District Council District Plan became operative in 1997 and has been amended through a number of Plan Changes of which the most relevant to the proposal is Plan Change 9, which has been made operative. That Plan Change introduced rural-residential provisions, which affect the applicant's site. The zoning of the applicant's site is therefore mainly rural-residential with a small portion (1.3 hectares) remaining as 'coastal' zone (Figure 2).

The District Plan provides for a Rural-Residential (Landscape and Ecological Enhancement) zone that was introduced following the Mangawhai Planning Study (1997). The zone covers several areas of land at Mangawhai that have been partially developed for rural-residential use and have some ecological and landscape values. The zone is intended to provide for further development that protects and/or enhances the land's 'natural' character values. It may in future be applied to other blocks of similar land in the district either by a Council or privately initiated plan changes.

The Rural Residential (Landscape and Ecological Enhancement) zone at Mangawhai Heads North contains a shrubland area that is on the Department of Conservation's Schedule of Sites of Biological Interest (S.S.B.I.). Rare native orchids and other significant plants have been found on one of the properties. An ecological assessment of each property in this zoned area is required prior to its subdivision.

The District Plan also notes "The Council considers some controls are required over the extent of earthworks and removal of vegetation within settlements. The Regional Council has some rules on earthworks, but these have limited application in residential areas. The 5,000m³ threshold above which land use consent is required (except on identified "erosion prone" land) is relatively high and has been developed primarily from a soil conservation perspective. Special earthworks and vegetation clearance rules *(Part 3)* have accordingly been incorporated into the provisions of the Residential and Rural-Residential (Landscape & Ecological Enhancement) zones. They are intended to ensure that building excavations and other ground clearance works are minimised and associated amenity/landscape and erosional /instability issues are addressed. The effectiveness of the rules will be monitored and if necessary changes made to them."

4.0 PROPOSAL OVERVIEW

4.1 The proposal

The applicant proposes to subdivide the existing Lot 1 (8.0 hectares) at Wintle Street, Mangawhai Heads, into 30 new 'rural residential' type sites (31 sites in total including Lot 31-Coastal lot) providing for residential activities (see Subdivision Plan, figure 2). There are also 6 proposed access lots that provide for access to the residential lots.

A comprehensive collective wastewater treatment and disposal system is proposed (for Lots 1-30), as is a comprehensive stormwater management proposal including the use of sediment detention ponding and other typical sediment management devices. A programme of revegetation and ongoing management for the site has also been prepared; ensuring that the revegetation proposed is protected and maintained through appropriate covenants.

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The wastewater treatment system will be located on proposed Lot 13. All purchasers of lots will be required to become members of a either an Incorporated Society or Body Corporate so that there is longevity and certainty attached to the management and maintenance of that system as well as for the management of covenanted areas.

The subdivision concept has been mainly determined by the geotechnical capabilities of the site, which have effectively limited the location of building platforms and access roading.

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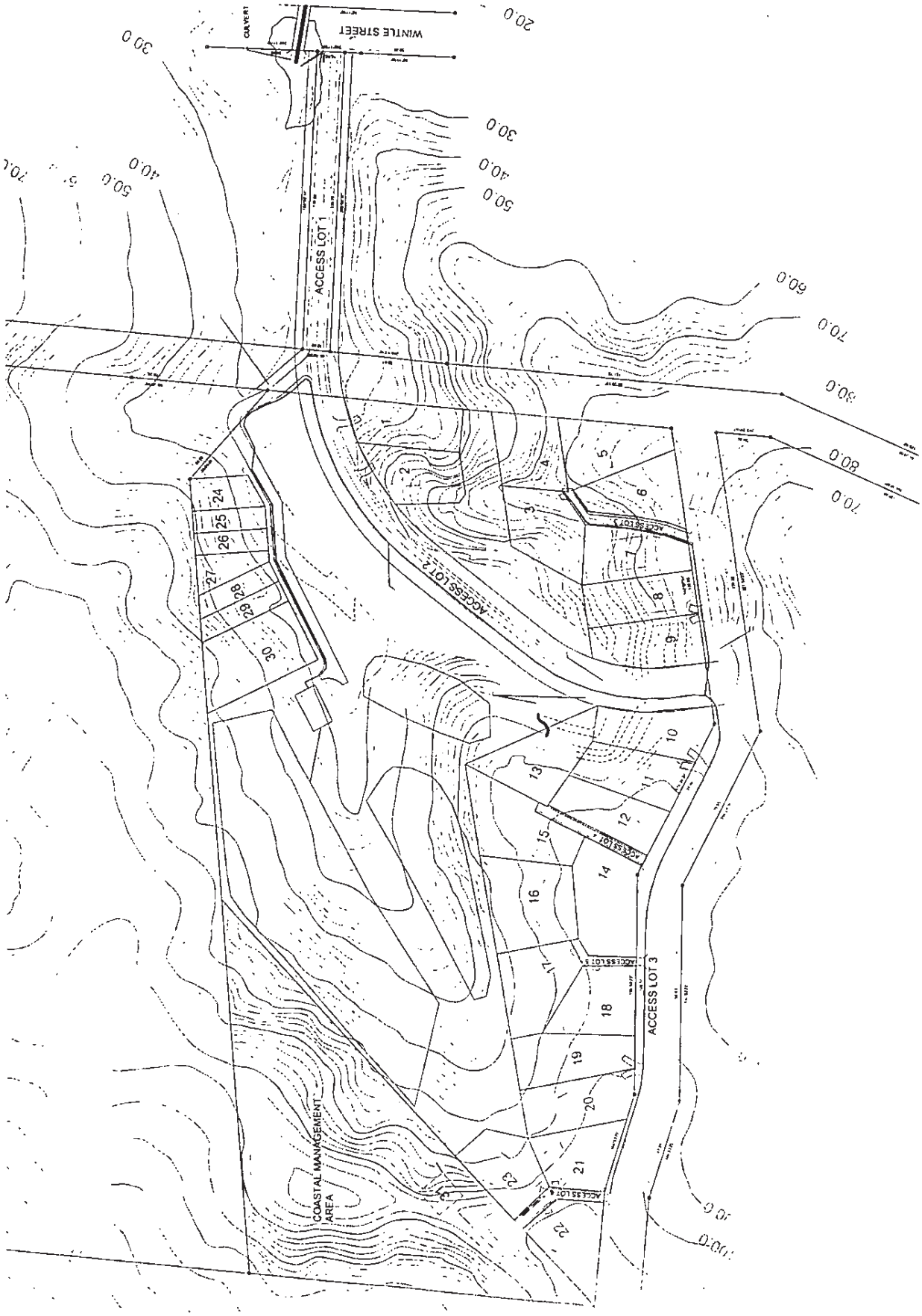

Figure 2 Subdivision Plan

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As a result, much of the development is located along the upper contours of the site in the areas that are considered more geotechnically stable (refer Soil and Rock report). The positioning of house sites has consequently concentrated buildings primarily along the southern upper slopes of the site, as well as at the existing entranceway off of Wintle Street.

The proposed lots on the elevated parts of the site are accessed by Access Lot 1 which originates from Wintle Street (the existing access to the site). The access road extends up the slope at a gradient of up to 1 in 5 and at the upper reaches feeds to the west and east along the alignment of the paper road (which a recent adjoining subdivision uses to access two new sites). It is not proposed or necessary to vest any roads in Council.

The proposal will provide for 31 'rural residential' lots meeting the 2000m² average lot size requirement set out in the Plan provisions and also will create a lot of 1.3 ha that includes the 'coastal' zoned part of the property. All of the rural residential lots will be serviced by the common wastewater treatment and disposal system, which is located on Lot 13. Access to all lots will be by way of access lots numbered Lots 1-6.

The nett density (refer Plan definitions) of the proposal (only the rural residential part of the site) will enable one dwelling per 2233m² of land area (approximately). Lot 31, the coastal zoned lot, will enable a future dwelling to be constructed in accordance with the relevant zone rules and a nominal building area is shown on the application plans.

The applicant's site was subject to a subdivision proposal for two lots by S & G Alispahitic in January 2002. Council approved that proposal as a controlled activity on 18th March 2003 under the provisions of the Kaipara District Plan.

It is noted that approval was granted on the basis that the effects on the environment were deemed to be minor and would be properly mitigated by the conditions of consent. Under the provisions of the Plan, as amended by Plan Change 9, the applicant's site has been rezoned Rural Residential except for the north eastern corner, where a triangular portion (1.3 ha) of the site remains in the Coastal Zone.

The applicant proposes extensive weed management and revegetation as set out in the report by Dr Clunie and DJ Scott Associates, and details of this programme are included in Appendix 6 of this document. A significant portion of the property is to be covenanted (5.5 hectares) in order to ensure that ecological and landscape outcomes set out in the Plan are achieved * see below.

> ** The district plan also has a Rural-Residential (Landscape and Ecological Enhancement) zone, which was introduced following the Mangawhai Planning Study (1997). The zone covers several areas of land at Mangawhai which have been partially developed for rural-residential use and have some ecological and landscape values. The zone is intended to provide for further development, which protects and/or enhances the land's 'natural' character values.*

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Figure 3 Aerial oblique of site

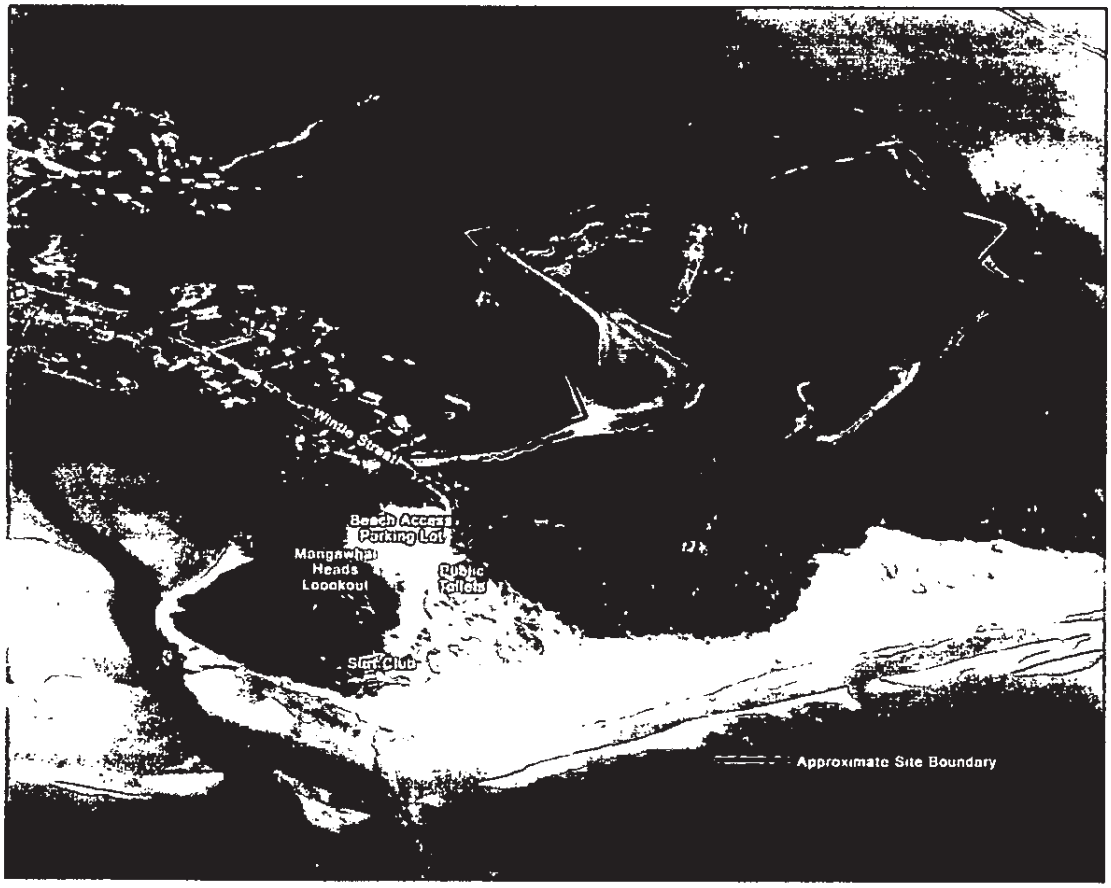

Figure 4 Oblique of site and surrounding area

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5.0 SITE LOCALITY AND DESCRIPTION

5.1 The Site

The site is located to the north of Mangawhai Heads village and includes 8.0 hectares of land. The site is located near the southeastern end of steeply sloping hill country to the immediate north of the sand spit at the Mangawhai harbour. The site occupies the majority of the head basin and forms a bowl-shaped amphitheatre with a ridgeline encircling the property and the central valley of the site. The property forms a mainly self-contained catchment draining through a series of gullies into the central valley, and out into the estuary near Picnic Bay at the mouth of the Mangawhai estuary.

5.2 Topography

The topography of the site is varied and includes a long broad ridgeline along the southern portion of the property sloping steeply south to north and into a flat valley system. The topography rises up again to another steep ridgeline to the north; the site includes only the lower half of this slope, as shown in figures 3 and 4.

The high ridges on and adjacent to the property are part of a headland landform that is a visually prominent feature in the local coastal area. The high headland knoll located on Council reserve land is positioned to the immediate southeast of the property and is also considered to be a dominant visual feature within this coastal landscape.

There is a subsidiary valley head in the south western part of the property, enclosed by rounded spurs. The northern of these spurs separates the subsidiary head from the main valley head, with the southern spur that encloses the valley along the southern edge of the property.

5.3 Vegetation History

The site has been cleared of its natural forest cover form many years, due to both clearance and periodic fires on the property.

Grazing was practiced on the site until the 1960's at which time the land was retired and returned to vegetative cover, including mainly a mixture of manuka and gorse. In 1972 a fire swept through the site, clearing all vegetation. Again, the site returned to shrub cover.

In 1980 the north and easterly-facing slopes of the southern ridge were cleared and planted in grape vines, which proved to be unsuccessful. The current owner of the property has managed the property for over the past 20 years. In 1990 3,000 to 4,000 pine seedlings were planted on the north and easterly-facing slopes and have established as a prominent element in this area.

5.4 Current Vegetation Cover

Vegetation cover on the site consists of a mix of mainly native with a number of exotic species scattered throughout. Given the steep topography, clay soils and coastal nature of the site, vegetation species are limited to those capable of handing the harsh site conditions.

Some of the best examples of native vegetation communities on the site are present within the central gully, protected from coastal winds and positioned to the western

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central boundary of the property. This gully is also the main drainage gully for the site, draining out centrally through the property along the Wintle Street stream.

Exotic vegetation, in particular the wilding pine will need to be removed as a part of a comprehensive management strategy for the site.

5.5 Ecological Assessment

Clunie Associates Ltd. has undertaken an ecological survey of the site; the findings of this survey are included as Appendix 4 of this report. The ecological assessment identified the site as one with a typical Gumlands habitat and as having approximately 75% natural or near-natural vegetation cover. The vegetation cover is recognised as including mostly regenerating native scrub and shrubland in which manuka (*Leptospermum scoparium*) predominates. In addition, young pine trees, planted and/or self-sown are also emergent (and increasingly visually dominant) above the shrubland vegetation and are becoming an increasingly prominent feature on the westerly side of the valley.

Along the upper ridge areas and spurs, low (often 1-2.5 metres tall) relatively open, heathlands or gumlands scrub occurs. Further downslope manuka scrub cover is taller and denser. On the lower and toe slopes of the valley there is a closed canopy of manuka at 3.5 to 5.0 metres, with black tree fern (mamaku – *Cyathea medullaris*) prominent locally.

5.6 Gumlands Habitat

Gumlands habitat can be recognised on the site by the presence of established vegetation and exposed soils that indicate that a high degree of podzolisation has resulted in severely depleted and dense clays on the ridges and upper slopes. These dense, amorphous clay soils, severely depleted of nutrients and with very poor internal drainage and aeration, are known as pipe-clay gumlands. The gumlands owe their origin to the podzolising effects of the acid litter from earlier cover of native conifers, especially kauri [hence the name "gumlands" – after the kauri resin (or gum) found in the depleted soils.

The gumlands, on the ridges and upper slopes, support a characteristic heathland vegetation, usually known as 'gumlands scrub', in which manuka is dominant or co-dominant with a characteristic set of native sedges that occur only on these very 'hard' soils. The gumlands are the home also to a characteristic flora of smaller native herbs, including a variety of characteristic ground orchids.

The almost exclusive dominance of manuka and absence or only sparse presence of kanuka in the closed scrub cover indicates that even the deeper colluvial soils on the middle to lower slopes are depleted and have poor aeration and internal drainage

5.7 Drainage Patterns

Given the steep topography of the property, there are several drainage patterns present (in the form of gully systems) on the site. The two main patterns are located on the western boundary of the property and along the southern boundary, draining northwards and into the central valley system. There area also a series of drainage gullies present along the northern boundary, commencing off site on Lot 2 DP 82874

also draining down into the central drainage gully system flowing off towards Wintle Road.

5.8 Geology and Soils

The underlying rock type is reported to be Parahaki volcanics (Geological Map of New Zealand, 1961). Cuttings (up to 3m deep) on the established farm track show the weathered volcanics are intermixed with sedimentary materials including sandstones. Soils derived from the Parahaki volcanics are stiff clays that are greasy when wet.

A geotechnical appraisal and wastewater assessment for the site has been prepared by Soil & Rock Consultants, Geotechnical Engineers in May 2003 (attached) in order to assess the suitability of the land for future development and the delineation of potential hazards. This report is attached and forms part of this AEE.

5.9 Land Stability

The geotechnical report described above identified a number of areas of underlying instability. The site is also classified in the Regional Water and Soil Plan as having a moderate to high potential for erosion. The geotechnical features of the site have been a major determinant of the location of roads and building areas. As noted elsewhere, this has meant that other Plan requirements need to be balanced out against the overall outcomes that the proposal will secure in both an ecological and built environment sense.

The geotechnical report notes that;

> *"..this engineering geological and geotechnical overview is intended to assist with the layout of the development plan. It is not intended to be a comprehensive geotechnical investigation for subdivision development purposes. This report does not replace a detailed geotechnical investigation and we understand that a second phase of investigation will be conducted prior to subdivision".*

The applicant anticipates that as part of this resource consent application for subdivision approval, suitable conditions of consent will be imposed that require further detailed geotechnical investigations, as anticipated in the Soil and Rock report, prior to the commencement of any work on the site.

6.0 THE PROPOSAL

6.1 The Proposed Concept

The development of the site includes:

- The subdivision of the site into 30 rural-residential lots (Lots 1-30)
- Creation of Lot 31, separating out the land zoned coastal, as a residual lot with a nominal building area
- The provision of access (by way of 6 access lots) to the individual properties on the site
- The use for access, of part of the two paper roads identified in the District Plan (the upper one of which services an adjacent recently approved subdivision).
- The covenanting of appropriate native vegetation along the ridge and gully systems of the site and around the proposed building areas (5.49 hectares);

- The implementation of a weed management programme for the covenant areas of the site;
- Provision for a common wastewater treatment and disposal system; and
- Provision for stormwater management through detention ponding and scoria trenches on all rural residential sites as well as appropriate measures for access and roading

The geotechnical constraints of the site have been the main determinant of the subdivision, defining the areas available land for the development of building platforms and also in regard to the design of access and roading. Underlying instabilities and toe slopes on the lower areas of the site have rendered these areas, for the most part, unsuitable for development. A report by Soil and Rock, which forms part of the application documents, addresses those matters.

Consequently, the majority of building platforms have been located along and just below the existing ridgeline on the southern boundary of the property. This area is also considered to be the most appropriate in terms of access and the presence of the currently unformed paper road along the southern boundary. This key determinant has over-ridden the Plan focus on limiting buildings to below the 60 metre identified contour line. In addition, the prime vegetation on the site lies below the 60 metre contour in the main and for the purposes of ecological and landscape enhancement (as required by the Plan provisions) is more appropriately retained rather than locating all of the development in those areas.

An existing subdivision development has just been granted consent to the immediate south of the project and it is important to note, that as a part of this development house sites are to be developed along the southern boundary and below the ridge from the paper road, facing the Mangawhai Village (Lot 5 DP 115537).

That subdivision will ultimately result in residential housing along this ridgeline being established before this subdivision proposal is implemented. In respect of the nature of the existing environmental 'baseline' for the purpose of assessing this proposal, that development must therefore be included as part of the existing environment.

Specific consent is sought as part of this application for the land modifications, sediment control and stormwater management works that underpin the subdivision concept. Consents are also sought from the Northland Regional Council in that respect.

6.2 The Proposal in Detail

6.2.1 Access

The proposed access to the property connects the existing Wintle Street access to the paper road at the ridgeline, which is identified on the District Plan. It also passes over another paper road by Wintle Street. The positioning of access for individual sites has been driven by the geotechnical characteristics of the site. Private ways (which include Access lots-see definition D. Plan Section 9.8.5) as shown on the proposal plans enable complying access to all proposed lots. Access will be in accordance with the following standards as set out in the Plan;

(1) Access Width
The width of all access is sufficient to provide for a formed carriageway, watertabling and stormwater drainage channels, power, telephone and other utility services along with a grassed verge. Private ways catering for single lane traffic are to be at least 4.0 metres wide and those designed to carry two way

traffic at least 6.0 metres wide (see D Plan, Appendix 9J).

(2) Carriageway Width
Under the Plan provisions, the width of carriageway is to be determined according to the volume and type of traffic it is expected to carry. For rural subdivisions this is based on the number of allotments being served and an average of 6 vehicle movements per day per allotment. Carriageway widths are expected to range from 2.7 metres to 5.5 metres as shown in Appendix 9J.

(3) Gradients
Private ways should be designed with gradients no greater than 1 in 5. Gradients of up to 1 in 5 may be permitted where the surface is permanently sealed or concreted.

(4) Surfacing
The type of surfacing required should be related to the volume of traffic expected to be carried and the standard, including gradient of the adjoining road. Where a private way adjoins a metalled road carrying less than 180 vehicles per day metal formation will generally be adequate. A requirement for sealing is likely where a private way adjoins a sealed road or a metalled road carrying more than 180 vehicles per day. (Ref. Appendix 9J).

The reports and plans by KEA Consultants set out the relevant proposal details and the proposals are consistent with Plan requirements.

Conjunctive applications have been lodged with the Kaipara District Council (KDC) and the Northland Regional Council (NRC), in regard to earthworks, sediment control, wastewater and stormwater management and all associated works necessary to achieve sustainable development outcomes.

Those applications address the following matters.

Northland Regional Council Applications

6.2.2 Stormwater Management

The applicant proposes to use detention ponding to manage the runoff from the catchment that the application site is contained within (refer KEA Consultants report). That will provide an effective detention capacity for peak storm events (1 in 10 and 1 in 100 years have been modelled) as well as acting as a sediment management device.

Each of the proposed new rural residential lots will have a scoria trench constructed below the house site so that there is appropriate management of overflow water from roof tanks.

On the main access road, there will also be scoria trenches and rip rap used to contain runoff. That will be taken to the detention ponding, as shown on the KEA plans.

As noted in the KEA report, the approach this study has taken with regards to catchment planning is a holistic one. The catchment as whole has been comprehensively assessed and modelled, and the impacts arising from appropriate options have been considered, as have also allied remedial works within the overall framework of acceptable Health & Safety and environmental risks. Both the quantity and quality of the stormwater generated from the Mangawhai development catchment has been considered.

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6.2.3 Earthworks

It is estimated (by KEA Consultants) that approximately 58,000 cubic metres of fill and 2500m^3 of cut will be necessary for the proposal. These works are mainly for the formation of the access road and access to the proposed lots. Conjunctive applications have been lodged with the Northland Regional Council in regard to the earthworks (and other)proposals.

All earthworks will be carried out in accordance with standard practices and regional guidelines (such as the ARC's TP 90 and the Low Impact Design Manual for the Auckland Region). The works involve the placement of fill material alongside the main access road (Access Lot 2) as shown on the KEA Consultants plans. Minor works to construct sediment management devices in places and to manage stormwater will also be required.

6.2.4 Wastewater Treatment and Disposal

Conjunctive applications have also been lodged with the NRC in regard to wastewater treatment and disposal. Those matters are addressed in the AEE herein and in the report by KEA Consultants Ltd (attached).

It is proposed to install an on-site decentralised wastewater treatment plant supplied and installed by Innoflow Technologies Ltd. The treatment plant will comprise a recirculating textile packed bed reactor as shown in the schematic below. Recirculating packed bed reactors are now recognised as the most stable treatment process, able to produce a consistently high quality effluent, even under widely fluctuating loads and wastewater strengths.

Final renovation of effluent is proposed by irrigation to an extensive land application system comprising pressure compensating drip irrigation lines laid within the surface soils and planted out with vegetation.
Details of the proposed wastewater treatment plant and land application system are discussed in detail in the KEA report.
The purchasers of the proposed lots will be obliged to enter into membership of an Incorporated Society or Body Corporate as a means to ensure that they connect to and collectively maintain the wastewater treatment system.

6.2.5 Geotechnical Matters

The applicant commissioned a report by Soil and Rock, which assessed the site in regard to erosion and stability matters having particular regard to the classification in the Regional Water and Soil Plan as being land of moderate to high erosion potential.

The main outcome from that assessment was that the parts of the site that were suitable for zoned purposes (rural residential activities) and for dwellings in particular, are found to be located at the upper parts of the site, apart from the smaller area near the Wintle Street access.

6.2.6 Cultural and Heritage Matters

The applicant has commissioned a report by Architage who have addressed cultural

and heritage aspects of the proposal.

It is noted in the report that *"No archaeological sites have been recorded on the part of the property under proposed development and none was identified during the survey. The southern ridgeline has been bulldozed in the past and is kept clear to provide access across the property. The spurs also appear to have been partly cleared in the past and evidence of terracing was noted, seemingly for the purpose of horticultural activities, all now under revegetation. Surface archaeological evidence which may once have been there has been graded or dug away or, if still present, remained unseen under dense vegetation."*

Also it is noted "The soils are of a podzolised nature and the area would be more likely to have attracted pre-European Maori for the benefit of lookout points rather than for occupation. There are high points on the southern side of the property but not obviously suited to the construction of pa. Therefore it is unlikely that archaeological evidence exists but it cannot be ruled out owing to the difficulty in examining the ground surface."

For that reason while no specific sites have been identified, protocol conditions are recommended in the event that any works leading to items of cultural significance being uncovered.

6.2.7 Landscape and Visual Assessment

DJ Scott Associates have carried out a landscape visual assessment of the proposal (Appendix 3). That assessment concludes that the visual effects of the proposal can be divided into three categories, based primarily on the locations of the individual building platforms on the property:

- Group One - sites (and subsequent buildings) located on the upper knolls of the ridgeline (including lots 6, 14 and 22) and are considered to have potential for a more than minor adverse visual impact on the receiving environment,;
- Group Two – sites (and subsequent buildings) located along the ridgeline of the site (including lots 5,10-12,18,21 and 31) which are anticipated to have a more limited visibility from neighbouring viewpoints and a higher potential for mitigation; and
- Group Three- sites located on the lower contours of the site, which due to the ability of those sites to be screened and visually enhanced (based on their less prominent visual position), are considered to have potential for a less than minor adverse visual impact.

A Visibility Analysis Plan (figure 5) has been prepared in order to illustrate the issues in relation to visibility, in particular in relation to the limitations on subdivision above the 60-metre contour line, as outlined in the District Plan. Figure 5 illustrates the positioning of the proposal in relation to these criteria. In relation to the visual assessment of the proposal, those sites located along the upper knolls and the ridgeline of the site (identified in Figure 5) are those which are considered to have the highest potential visual effects and which will require high levels of mitigation and associated screening in order to reduce their potential visual impact, as referenced above. The house sites located below the ridge and towards the 60-metre contour line are considered to have a limited visibility and can be readily mitigated through architectural controls and revegetation plantings.

The above findings need to be considered in relation to the geotechnical analysis prepared by Soil and Rock Consultants, which concludes that, in general, the ridge

tops are considered to be the most appropriate location for development based on the stability of these areas, while the mid to lower slopes range from potential suitability (pending further investigation) to generally unsuitable for development. The limitations in areas of suitability consequently become the key determining factors in the positioning of future development, despite the potential visual impact of some sites.

The applicant proposes to mitigate the identified potential effects of buildings on the upper sites through a combination of building limitations (height limitations of 5.0 metre on the Group 1 sites (lots 6, 14 and 22) secured by consent notice), architectural building design guidelines, siting and plantings (covenanted). Those elements of mitigation are described further in the Landscape and Architectural Mitigation description (Section 6.3) of this report and in Appendix 7 and 8 of this report.

In addition, and in order to properly address the visual concerns of the proposal, a series of cross-sections have been prepared in order to demonstrate the potential impacts of the proposal on the receiving natural environment. Figures 7 through 9 illustrate the position of a number of key building platforms (in terms of visibility) at the 5.0metre maximum building height, with the inclusion of the proposed revegetation / covenant planting (at approximately 5 to 10 years growth). These cross-sections illustrate the potential visibility of these building platforms considering the mitigation effects of both architectural controls and revegetation planting. As the cross sections illustrate, while the proposed building platforms are still visible, the inclusion of revegetation plantings aids in further integrating the proposed building platforms and reduce the visual impact from local viewing locations.

Provided those elements of mitigation are secured, (and noting that any dwelling/buildings will require a consent as a discretionary activity under Rule 3.6.4 and Rule 13.2.7 of the Operative Plan that will enable the specific design and further mitigation elements of any proposal to be fully addressed) the effects of buildings on the upper sites can be reduced. The purpose of the assessment forming part of the subdivision application is to secure fundamental elements of mitigation that enable the proposed lots to be approved.

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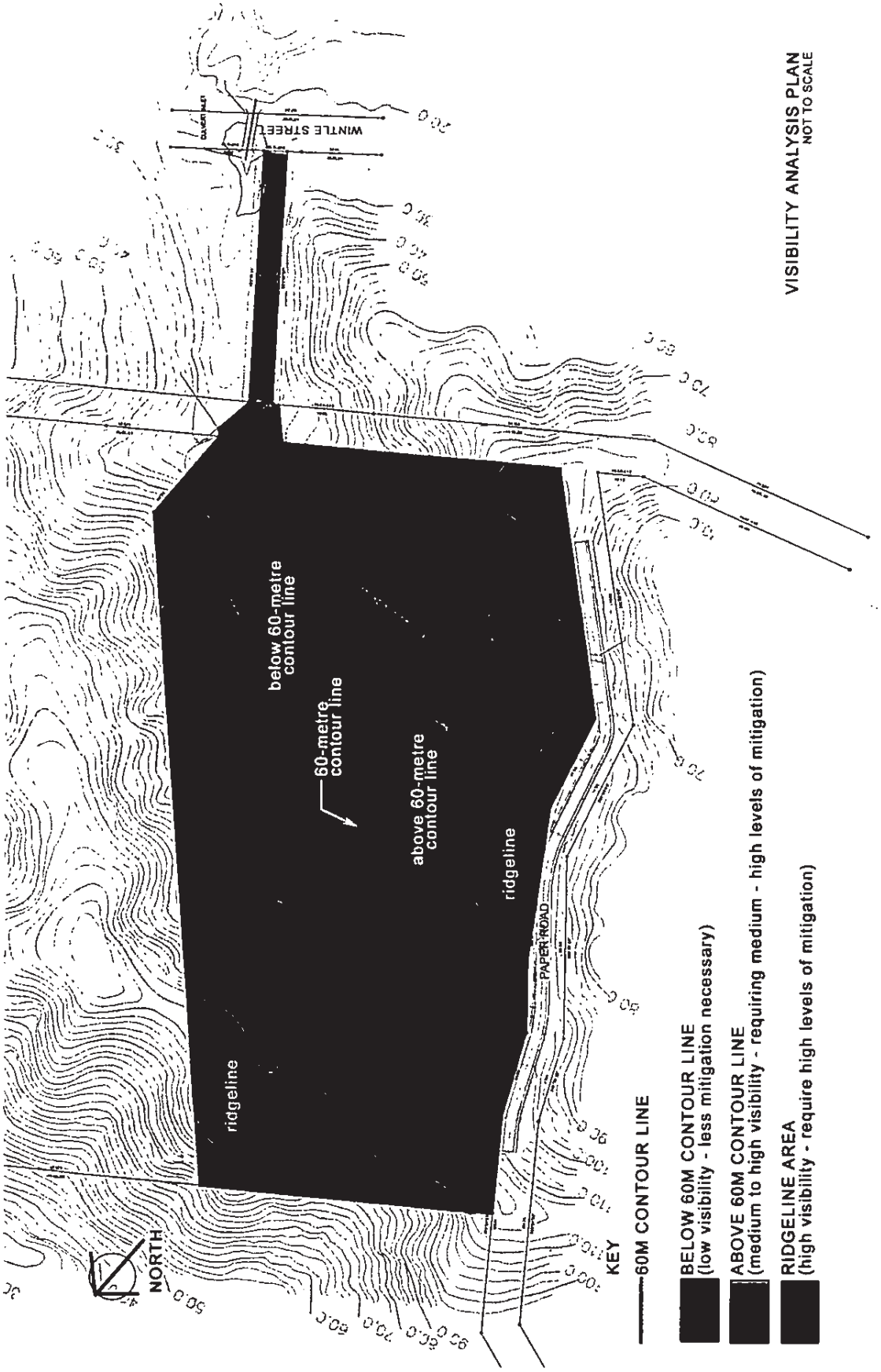

Figure 5 Visibility Analysis Plan

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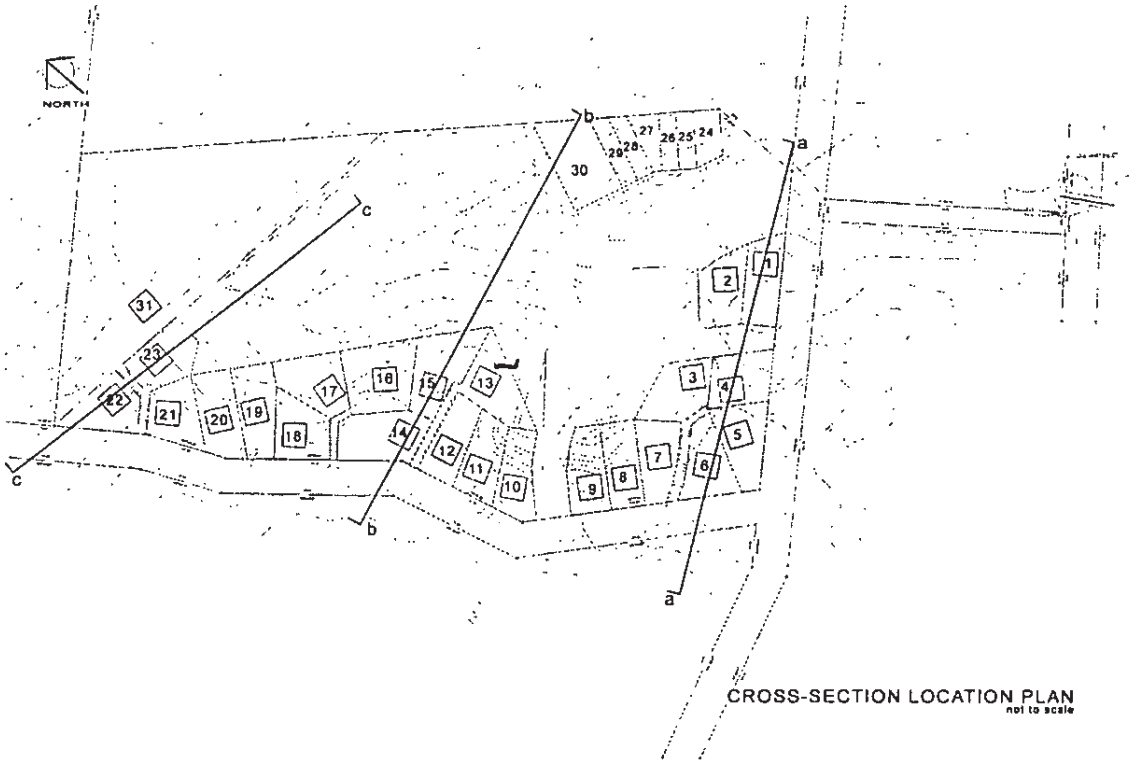

Figure 6 Cross-Section Location Plan

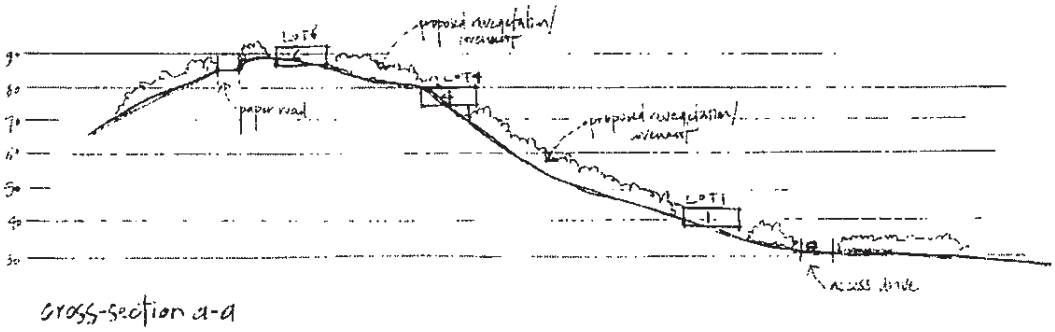

Figure 7 Cross Section a-a west to east through lots 22 and 23

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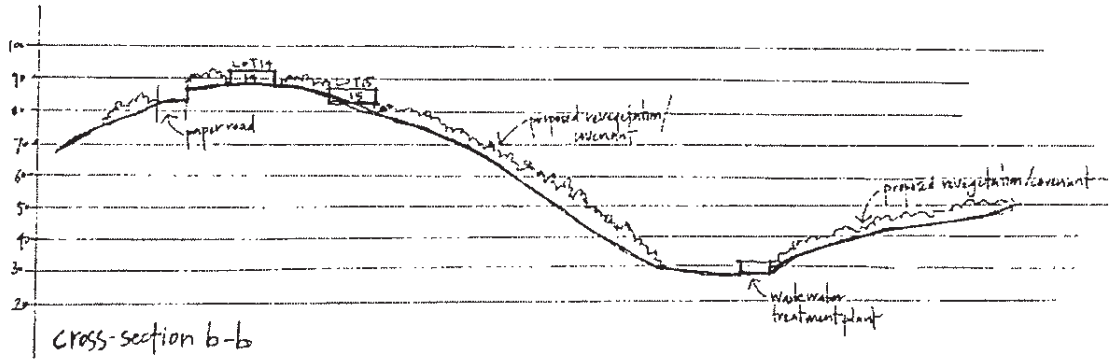

Figure 8 Cross Section bb, west to east through lots 14 and 15

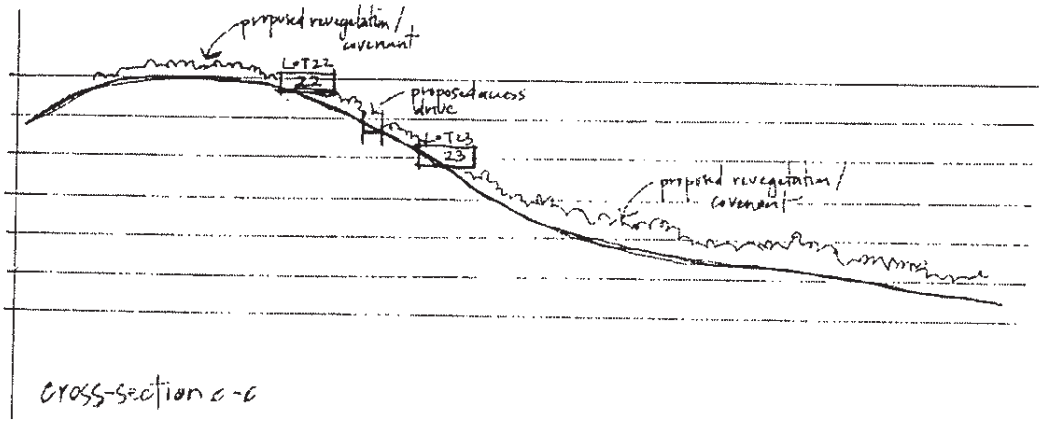

Figure 9 Cross Section cc, southwest to east through lots 6,4 and 1

6.2.8 Proposed Revegetation Planting

In coordination with the visual assessment, a landscape and revegetation plan has been prepared for the property with the following objectives;

1. To encourage and establish native vegetation and remove exotic weed species from the property;
3. To improve the ecological integrity of the site;
4. To establish native vegetation along the gully systems of the site;
5. To aid stabilising the ridge;
6. To aid in screening the proposal from neighbouring and adjacent properties; and public viewing areas;
7. To visually screen the individual lots from one another

A Revegetation Plan for the site has been prepared outlining the areas of native revegetation planting and interplanting (where existing native vegetation will be

retained). In addition, the Revegetation Plan has been prepared in coordination with the assessment and analysis of the ecological report and seeks to establish a maintainable pattern of revegetation on the property.

The main function of the revegetation planting is to repair and restore the ecological integrity of the site while allowing for residential settlement in appropriate locations. The geotechnical constraints of the property (see geotechnical assessment report) effectively limit the potential development areas of the site and allow for development mainly along the more stable ridge locations. The ridges of the site are the most geotechnically suitable location for housing on the property and are also mainly free of significant vegetation, providing commanding views of the Mangawhai Harbour, Mangawhai village and the sea.

The current management of the ridges includes regular mowing, indicating the openness of these areas and their absence of vegetation. Overhead views of the ridges are available in Figures 3 and 4 of this report.

The Revegetation Plan prepared for the site will incorporate the use of native vegetation along the batters of the proposed access road as well as surrounding the proposed building platforms. The proposed planting will aid in reducing the available views of the proposal including roading and building platforms from a number of key viewing locations. The effectiveness of the proposed mitigation planting will increase over time as the plantings mature.

In order to ensure the effectiveness of the structure planting, this vegetation will need to be covenanted as a part of the ecological restoration programme of the site. A list of proposed revegetation species is provided as Appendix 6 of this report. Proposed species include native species found currently on the site and additional native species endemic to the area and appropriate to the coastal and exposed nature of the site.

Considering the poor quality of soils and the exposed nature of the site, the revegetation programme will need to include a combination of revegetation approaches including the full revegetation (at 5,000 – 10,000 stems per hectare) and the development of a programme encouraging the natural regeneration of the site.

Introduced species will include a mixture of manuka, kanuka, karamu, flax and other coastal species. In addition, the introduction of seed sources will allow for natural revegetation to occur with the dispersal of seeds predominately by birds, these species would include tawa, taraire, kohekohe, hinau and native podocarps; miro, matai, kahikatea, tanekaha and rimu.

6.2.9 Ongoing Management

The revegetation programme will require ongoing management and monitoring of weed species throughout the site in order to be successful. The ecological report identified 17 species of weeds on the property including widespread weeds ; gorse, prickly hakea, woolly hakea, emergent trees; pines and tree banksia and localised and small infestation of weeds including; woolly nightshade, brush wattle, boneseed, pampas grass and wild ginger.

While the site is becoming increasingly ecologically degraded through the spread of plant pests and weeds, many of these are recent infestations and of small enough populations that they could be controlled through ongoing maintenance.

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The establishment of a tall-tree canopy is important to the long-term eradication of weed species, effectively shading out the main invasive weed species.

6.2.10 Financial Contributions

Financial contributions are addressed in Section 10 (page 78) herein. It is submitted that there is no need for a financial contribution having regard to the particular nature of the reserves in the area, the characteristics of the road network and the particular site characteristics and location. The applicant does however recognise that there is merit in enhancing the reserve area and stream environs immediately abutting the Wintle Street access to the site. That will enable better stormwater management and will enhance a degraded area. As part of the proposal the applicant will implement those works subject to approval of such plans by Council. The applicant also notes that once a wastewater disposal system is in place and available to dwellings on the applicant's site there will be significant costs to enable connections to be made.

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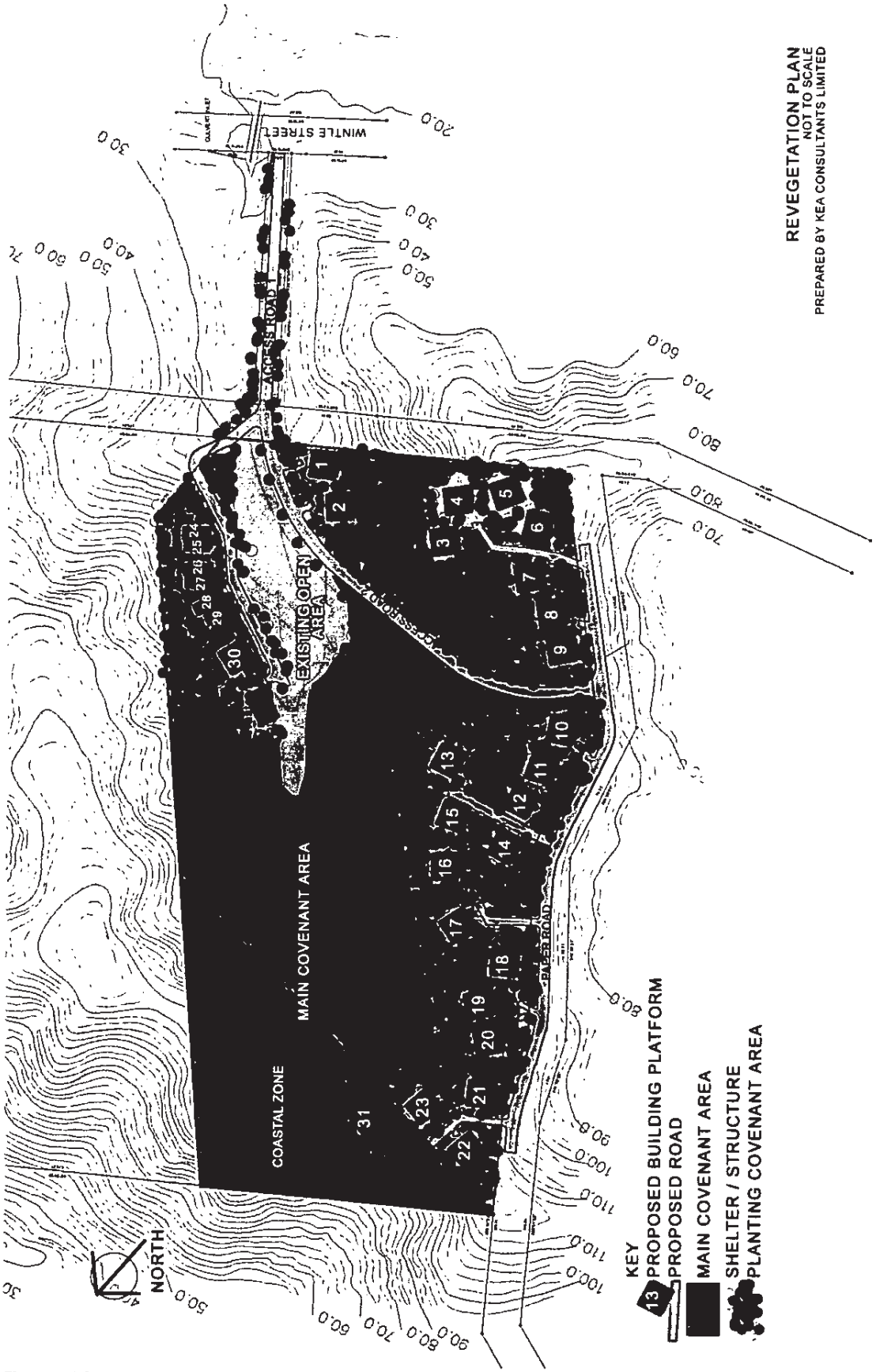

Figure 10 Proposed Revegetation Plan

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6.3 PROPOSED MITIGATION

A series of architectural and landscape design guidelines have also been prepared, specific to the nature of the site, in order to aid in visually integrating the proposed subdivision (and associated future buildings) into the landscape context and to aid in visually mitigating the potential visual effects of the proposal.

These guidelines outline appropriate building materials and colours, the position of landscape planting for screening and shelter, and protection or covenanting of the proposed plantings in order to achieve these goals (also listed in Appendix 7 and Appendix 8 of this report).

6.3.1 LANDSCAPE MITIGATION

6.3.2 Hillside Development

Hillsides pose unique problems for the construction and maintenance of human settlements and are prone to natural hazards, topographical constraints and visual prominence which constrain the design of developments. Despite constraints, hillsides are considered to be attractive places due to the available views, unique design opportunities and the sense of closeness to nature.

From a visual perspective, the main issues with hillsides are their high visibility from surrounding areas and consequent response from the surrounding community. The main issue in relation to community concerns is the desire of neighbours, both near and distant to limit views of new hillside development, mainly in relation the associated alterations to the natural shape and vegetation patterns of existing hillsides.

Appropriate controls generally include limitations on vegetation removal and the use of design guidelines, including limitations on building bulk, shape, height or colour of proposed buildings Revegetation requirements can, in the long term, result in a natural appearance that mitigates the built form of introduced buildings in the landscape.

6.3.3 Site Related Hillside Development

Given the visibility of the sites on the southern ridgeline of the property, landscape planting has been located in order to aid in reducing the visual impact of the development from the main public viewing locations. Even with planting however, the impacts of the proposal will be most pronounced in the first 3 to 7 years during and following construction as the proposed vegetation is implemented and vegetation establishment is underway. This timeframe is probably extended on this site due to the poor and degraded soils of the property in combination with the coastal and exposed conditions of the site, despite careful plant species selection.

The goal of the mitigation of the proposal has been to assist in reducing the overall visual impact of the proposal through;

- The retention and enhancement of areas of vegetation throughout the site, particularly between proposed building platforms;
- The placement of proposed native vegetation above and below the proposed building platforms (where achievable) in order to establish a vegetated setting, into which the proposed building platforms can be located ;
- The application of architectural standards controlling building heights, materials, reflectivity etc.;

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- The establishment of a weed management strategy for the site removing unwanted and potentially invasive exotic species and promoting the restoration of native vegetation across the site; and
- Utilising existing open areas and the existing road corridor (identified in the plan) for the provision of access ways
- Covenanting vegetation to ensure ongoing mitigation, and
- Limiting the maximum height of proposed buildings above the existing natural landform to no more than 2.0 metres.

Potential visual impacts on the surrounding landscape include;

- Effects on those who view the site including neighbours, visitors to the area; and
- Effects during the construction and implementation (of revegetation programme) phases of the project. During this time the proposal will potentially be the most visible; due for the most part to the level of activity around the structure and the removal of vegetation for road cuts and building platforms.

Details for how this can be achieved have been included as Figures 11, 12 and 13 as follows. These diagrams illustrate how hillside development can be mitigated through the location of vegetation and controls on the height, shape and form of proposed buildings in the landscape.

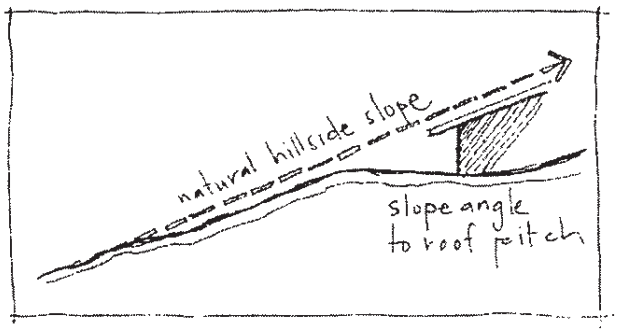

Figure 11 Roof pitch designed to simulate natural angle of hillside

Built Form

On hillsides, the intrusion of built form disrupts the natural silhouette of the hillside; therefore, structures should be designed so that the slope angle of the roof pitch is generally at or below the angle of the natural hillside or altered slope.

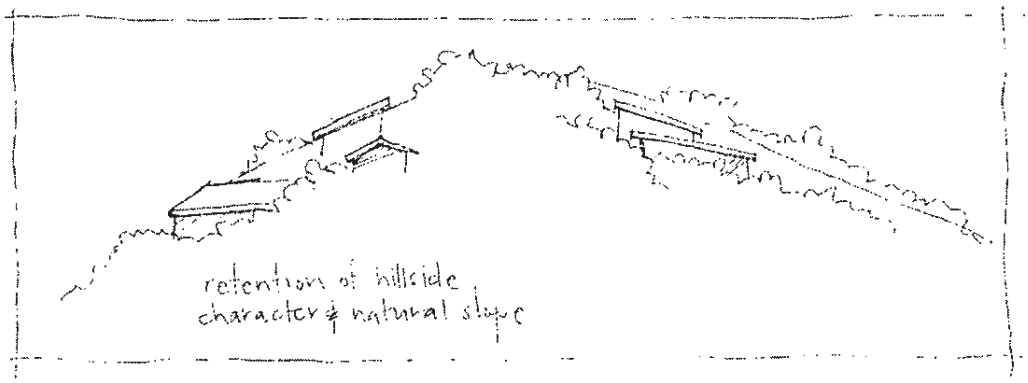

Figure 12 Housing set into and screened by vegetation

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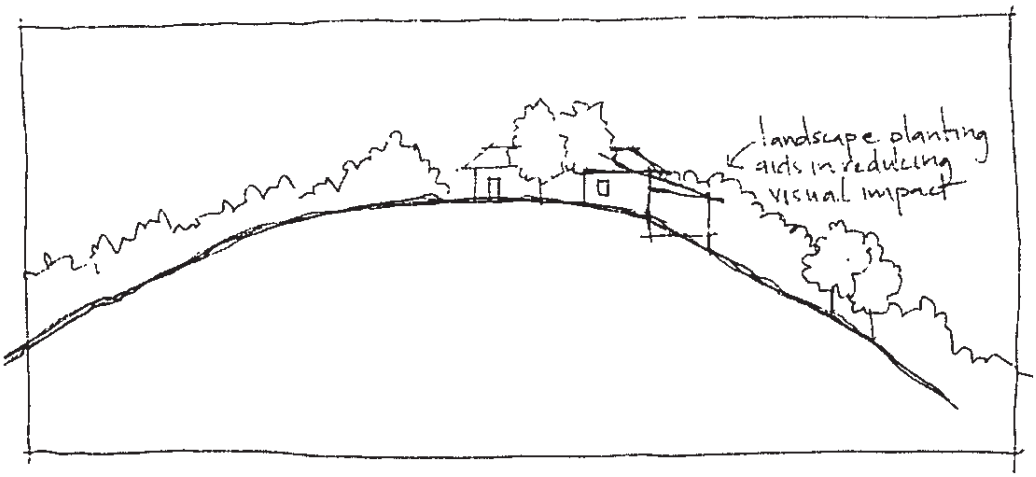

Figure 13 Vegetation used to minimise visual impacts of buildings

Vegetation
The location of vegetation and the consequent positioning of individual building platforms can effectively aid in reducing the visual impact of proposed structure on the hillside. In addition, the position of the proposed structures allows the occupants to retain their views, while minimising their impact on the surrounding landscape.

6.3.4 Architectural Design Guidelines

Architectural guidelines for individual lots have been prepared for the property and for specific lots, including lot 6, 14 and 22. These illustrations demonstrate how the proposed building platforms could be set into the site and aid in reducing their visual impact.

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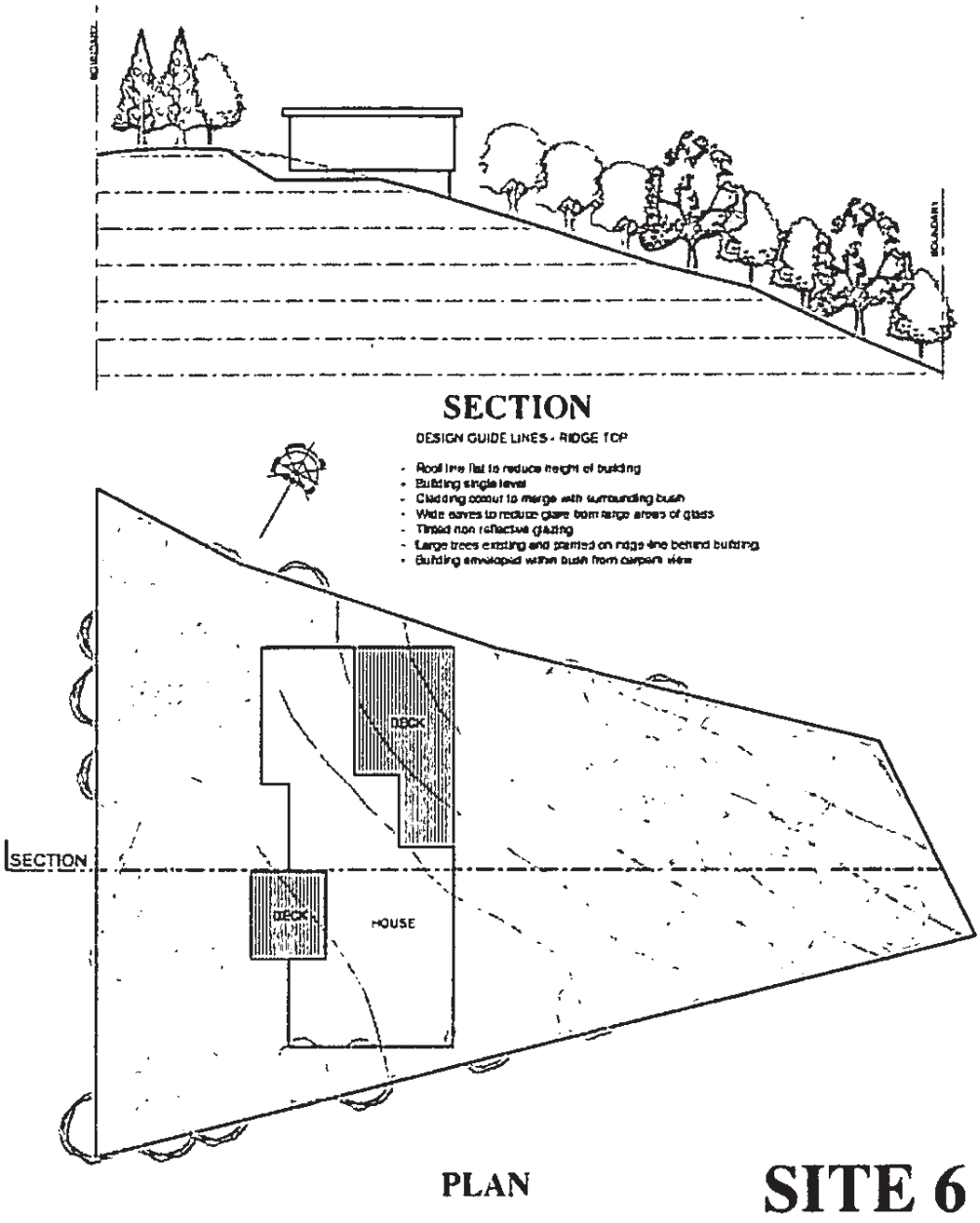

Figure 14 Architectural layout of proposed Lot 6, prepared by Jo Hill, Architect

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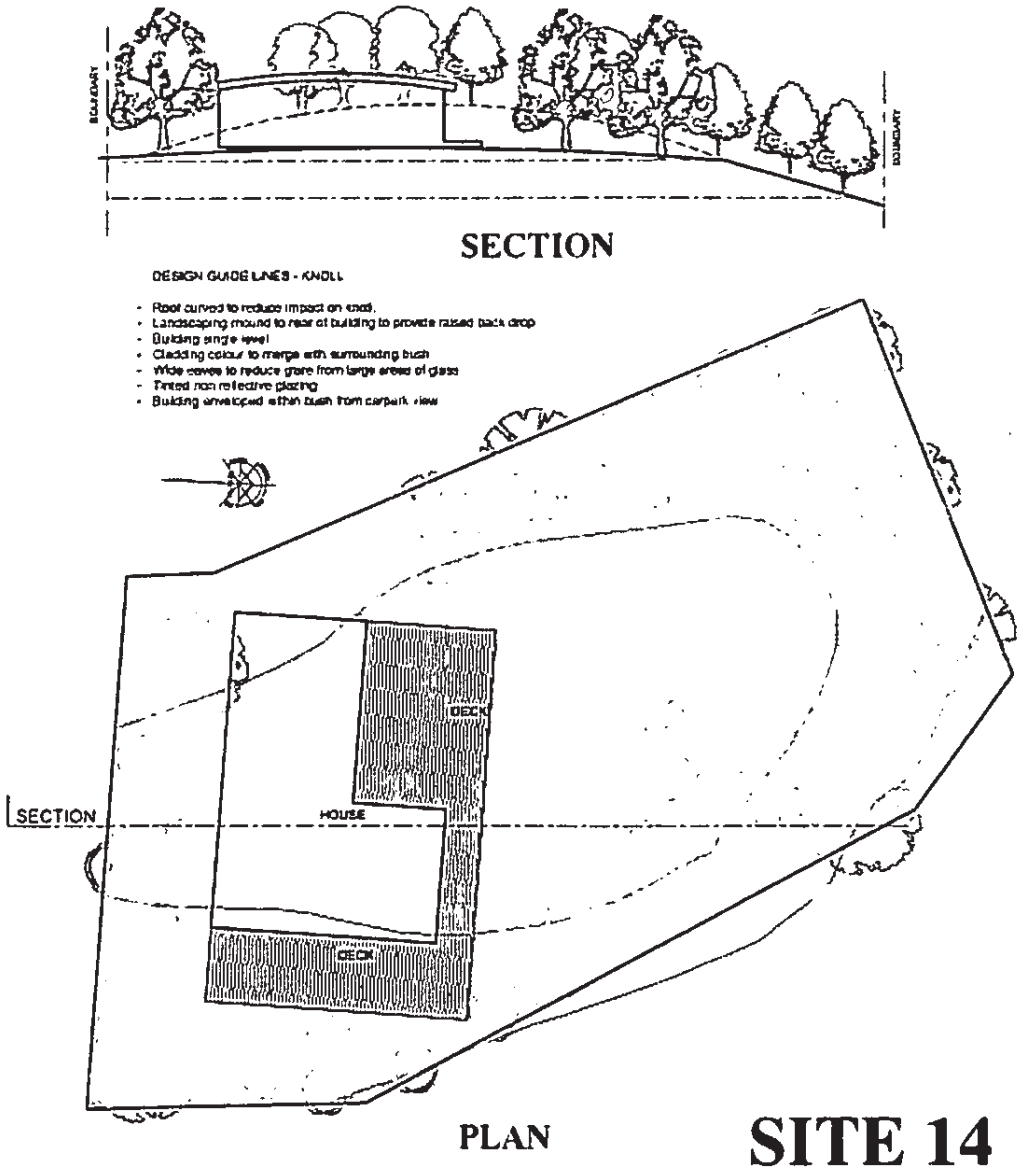

Figure 15 Architectural layout of proposed lot 14, prepared by Jo Hill, Architect

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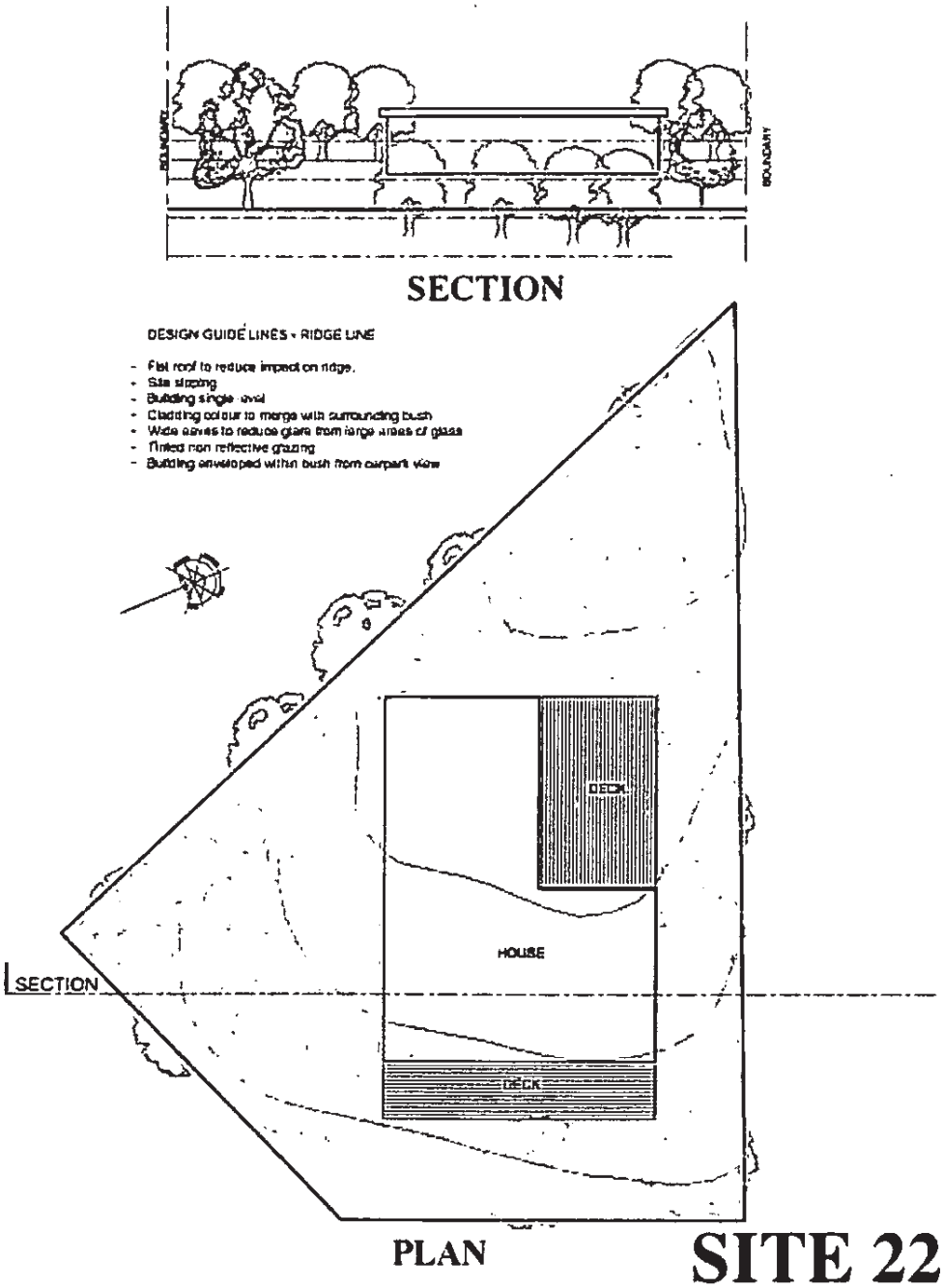

Figure 16 Architectural layout of proposed lot 22, prepared by Jo Hill, Architect

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A photomontage (figure 17) of the proposal has also been prepared by the applicant's architect, which illustrates the impact of these same three building platforms (note the rest of the proposal including access roading is not included in the montage image). The montage shows only the positioning of these 3 house sites along the top of the ridge, and additionally does not depict the impacts of vegetation removal, in particular the visually prominent pine trees located at the top of the ridge (which would be replaced with suitable plantings).

Figure 17 Photomontage illustrating the positioning of lots 6, 14 and 22 with vegetation at approximately 10 years growth, prepared by Jo Hill Architect

7.0 REASONS FOR THE APPLICATION

7.1 KAIPARA DISTRICT COUNCIL PLAN

The site is zoned as rural residential with a small part (1.3ha) being zoned coastal. The Kaipara District Council Plan provides for subdivision as follows;

Rule 11.5.7 (2) ii, Discretionary Activities "The subdivision of land into lots for principally residential use in the form of a comprehensive development which is served by whole subdivision wastewater and stormwater disposal systems installed at the time of subdivision provided the lots have an average area of at least 2,000m² (net site area) and any of the land not contained in the residential lots is held in one balance area or held in conjunction with the residential lots and amalgamation condition or restrictive covenants arrangements entered into."

And

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Rule 11.5.3 (2) The following shall be discretionary activities in the Coastal Zone:

i) The subdivision of land into lots of less than 20 ha for any purpose (other than those specifically listed as controlled activities) provided that no more than 3 lots are subdivided from any one site in any 10 year period.

Consent is also sought for land use activities to carry earthworks related to the formation of access, sediment control and stormwater management, and allied clearance of vegetation.
Those activities are provided for as a restricted discretionary activity under Rule 3.6.5 .2 and Rule 13.2.7.

The proposal is therefore a discretionary activity overall.

7.2 NORTHLAND REGIONAL COUNCIL PROPOSED WATER AND SOIL PLAN July 2003

Resource consents are required from the NRC in respect of;

- Stormwater discharges-Rule 22.3- Discretionary activity
- Earthworks- Rule 33.3-Discretionary Activity
- Wastewater Treatment and Disposal– Discretionary Activity, Rule 15.3 >6m3/day

The proposal is therefore a discretionary activity overall. Those matters are addressed through the AEE in Section 8.0 herein and as follows in Section 10.3.

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8.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

This section has been prepared in accordance with the requirements of Section 88 and the Fourth Schedule of the Resource Management Act 1991.

In undertaking an assessment of the potential and actual effects of the proposal, the meaning of 'effect' is defined in Sect. 3 of the Act to mean;

a) Any positive or adverse effect; and
b) Any temporary or permanent effect and
c) Any past, present or future effect; and
d) Any cumulative effect which arises over time or in combination with other effects - regardless of the scale, intensity, duration, or frequency of the effect and also includes -
e) Any potential effect of high probability; and
f) Any potential effect of low probability which has a high potential impact

The proposal may raise the following actual and potential adverse effects on the environment:

a) Wastewater Treatment and Disposal Effects
b) Landscape and Visual Effects
c) Traffic and Parking Effect
d) Ecological Effects
e) Effects on the Coastal Environment
f) Social and Community Effects
g) Cultural and Heritage Effects
h) Noise Effects
i) Stormwater Effects
j) Earthworks and Roading Effects

8.1 Wastewater Treatment and Disposal Effects

The applicant proposes a comprehensive wastewater treatment and disposal system that will service all of the proposed 'rural residential' lots.

An adequate depth of unsaturated soil is present at the site to ensure final renovation of effluent prior to any interaction with groundwater. In accordance with Regional Council guidelines, a minimum separation of 900 mm between the base of the land application system and the highest winter groundwater level will be maintained.

Due to the low areal loading rate to the land application area, the level of nutrient discharge is very low. It is considered that due to the clayey soil type and proposed revegetation the uptake of nutrients will be high. Based on the peak wastewater production and total nitrogen levels of 15 mg/l in the effluent, a nitrogen loading rate of 80-85 kgN/ha/yr is estimated. This figure is considered within acceptable limits. Further nutrient reduction is achieved through uptake by vegetation, denitrification, volatilisation, and soil storage.

Offensive odours are not expected from the aerobic treatment plant. There is potential for odour generation from the septic tanks as a result of anaerobic decomposition. To

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mitigate against odour generation, all tanks will be fitted with activated carbon filters designed to scrub vented air.

Noise generation will not be noticeable from the treatment plant as small submersible pumps are proposed within tanks buried below ground level.

The proposed wastewater treatment and land application system is considered the most appropriate system for the proposed development due to its robustness, reliability and consistent treatment process.

The wastewater treatment plant and land application system is expected to have no more than minor effect on the receiving environment.

The proposed land application system will be located a minimum of 15 m from any surface water bodies, and is considered sufficient to allow for the renovation of effluent in the unlikely event of overland flow.

The entire land application system will be buried within the surficial soils at the site minimising the potential for damage to the drip line system. The planting programme will be undertaken in conjunction with laying of the land application system to avoid potential damage to the buried lines.

The proposed loading rate of 2.0 mm/day is considered low and is not expected to result in any effluent run off even during extreme rainfall. However, should runoff occur it is likely to be extremely diluted and any effects are expected to be no more than minor.

An adequate depth of unsaturated soil is present at the site to ensure final renovation of effluent prior to any interaction with groundwater. In accordance with Northern Regional Council guidelines, a minimum separation of 600 mm between the base of the land application system and the highest winter groundwater level will be maintained

Offensive odours are not expected from the aerobic treatment plant. There is potential for odour generation from the septic tanks as a result of anaerobic decomposition. To militate against odour generation, all tanks will be fitted with activated carbon filters designed to scrub vented air.

Nitrogen reduction due to the rtPBR treatment process is expected to be up to 70-80 %. Most of the nitrogen will be in the nitrate nitrogen form as the rtPBR almost completely nitrifies (i.e. ammonia is almost entirely converted to nitrates).

Due to the low areal loading rate to the land application area, the level of nutrient discharge is also very low. It is considered that due to the clayey soil type and proposed revegetation the uptake of nutrients will be high. Based on the peak wastewater production and total nitrogen levels of 15 mg/l in the effluent, a nitrogen-loading rate of 80-85 kgN/ha/yr is estimated. This figure is considered within acceptable limits. Further nutrient reduction is achieved through uptake by vegetation, denitrification, volatilisation, and soil storage

The entire wastewater treatment plant and land application system will be remotely monitored and regularly maintained through a service contract. The system will contain a minimum of 24 hours emergency storage above high-level alarm levels at peak operating flows.

Mitigating measures include adequate setbacks to groundwater and surface waters as well as a proposed planting programme to revegetate the land application area. At the proposed loading rate of 2.0 mm/day, throughout much of the year most of the applied effluent will be consumed by plants, resulting in very little soakage into the underlying soils.

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as amended
12.9.03 TL

In addition the proposed treatment plant will be completely watertight to prevent the infiltration of stormwater or groundwater into the system or exfiltration of wastewater into the environment. All tanks will contain sealed access risers and sealed lids.

The proposed wastewater treatment and land application system is considered the most appropriate system for the proposed development due to its robustness, reliability and consistent treatment process.
The wastewater treatment plant and land application system is expected to have a minimal impact on the receiving environment.

8.2 Landscape and Visual Effects

The landscape and visual effects of the proposal will vary according to the location of the proposed lots as noted in the visual assessment by DJ Scott Associates. The upper building platforms on the site (Lots 6, 14, and 22) are considered to have a potential more than minor visual effect, while the remaining building platforms, located less prominently will have a potential no more than minor visual effect. Where there is a potential for more than minor effects those effects can be reduced through the mitigation strategy set out in Appendix 7 and 8 of this report.

Key mitigation measures associated with the proposal include;

- 5.0 m height limitation (from natural ground level) on buildings along the ridgeline, being proposed Group 1 Lots 6, ,14, and 22 .
- limiting the height of buildings above the ridge to no more than 2.0 metres, being proposed lots in Group 1 (lots 6,14 and 22) and Group 2(lots 5,10-12,18,21 and 31)(measured horizontally from the highest point of the ridge)
- limiting the available building areas (lots 5, 6,10-12,14, 18, 21, 22, and 31) to the area outside of the covenant area defined for each lot which are subsequently subject to the District Plan discretionary rules for proposed buildings above the 60m contour line
- proposed plantings and covenanting

The Rural - Residential zone provides as permitted activities for a buildings with a footprint up to 20% of the net site area (where it is located below the 60m contour line). That enables, using an average site area of 2000m^2 (as a complying site), up to 800m2 of gross floor area for each building area. On the proposal site, the available building areas, particularly on the upper areas (which are most relevant in visual terms) will be limited by the presence of the vegetation covenants surrounding the building platforms which, in association with the Plan yard requirements and other development controls, limit available building area, thus limit potential building footprint to an area substantially less than that which can arise for building sites below the 60m contour but still visible from public viewing areas.

The proposed 5.0 m height limitation on the ridgeline sites, along with the limitation of building height of no more than 2.0 m above the ridge or knoll will therefore result in at the least a 50% reduction in the potential total gross floor area on each site, compared with permitted dwellings that may arise lower down the slopes. These measures will effectively reduce the potential bulk of buildings on the site. In addition, each proposed house located above the 60-metre contour line will require consent as a discretionary activity and will be subject the rules set out in the District Plan in addition to the subdivision rules established with the subdivision.

These measure comprise a key mitigation tool used to reduce the potential effects of the proposed building platforms on the receiving environment.

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8.3 Traffic and Parking Effects

The assessment carried out for the applicant by KEA Consultants Ltd concludes that the surrounding road network can accommodate the proposed development without compromising its function, capacity or safety. The existing intersection will effectively and efficiently function in its current form after the development is implemented and the proposed development would also meet the required parking standard from Kaipara District Plan.
The main traffic effects that have been considered relate to traffic volumes and flows, traffic movements and directions and necessary road and access widths and parking needs.

As described in the proposal details, the subdivision will be accessed from Wintle Street, and will be serviced by access lots (apart from where the access crosses paper roads). The gradient of the access will be up to 1 in 5 as it rises from Wintle Street to the west.
There will be some effects arising in the short term from construction activity. In particular those effects will relate to the trucking of some 58,000m3 of fill to the site. The applicant proposes limiting the hours of activity as a key mitigation tool. There will be an appointed traffic management warden who controls vehicles exiting and entering the site. The applicant will also provide a construction management plan prior to any works commencing. These measures in association with monitoring of the works should enable any issues arsing to be addressed when and if they occur.

8.4 Ecological Effects

The applicant commissioned a report by Dr N Clunie in regards to defining the ecological characteristics of the site and assessing the potential effects of the applicant's proposals.

The key matters addressed in his brief from the applicant were to;

- Identify and record the species composition, habitat quality and other features of the communities in each of the main natural vegetation types on the property.
- Assess and report on the conservation significance of the natural vegetation and habitat.
- Advise on measures to avoid or minimise any adverse effects on the natural environment that might result from a proposed subdivision and associated access and building areas, and,
- Assess the potential to protect and enhance the natural environment, including opportunities to conserve and protect established natural regeneration, arrest and control weed infestation, restore species richness and diversity in the regenerating communities and to restore bush cover on sites of environmental sensitivity.

As noted by Cluine "*More than 75% of the land area of the property has a natural or near-natural cover of predominantly native vegetation, mostly regenerating native scrub and shrublands in which manuka (Leptospermum scoparium) predominates. Young pine trees, planted and/or self-sown and now emergent above the shrublands, are becoming an increasingly prominent feature of the cover on the westerly side of the valley. The pattern of distribution and extent of the native shrublands and scrub/regenerating bush cover is shown in the aerial photograph in Figure 1.*

Low (often 1-2.5 metres tall), in places relatively open, heathlands or gumlands scrub occurs on the crests and upper flanks of the ridges and spurs. Downslope the manuka scrub cover is taller and denser. On the lower and toe slopes of the valley there is a closed canopy of manuka at 3.5-5 metres, with black tree fern (mamaku - Cyathea

The proposal is considered to benefit the ecology of the site through the revegetation and natural regeneration programme proposed for the property".

He also noted *"There is a substantial range and diversity of native species that are characteristic of heathlands or gumlands scrub" communities, established locally on heavily podzolised soils on the crests and upper flanks of the ridges and spurs. Biodiversity is low in the manuka-dominated communities on the middle and lower slopes. Native vascular plant species recorded in rapid-inventory reconnaissance during my visit are listed in Appendix 1."*

As proposed and noted by Clunie *"Enrichment plantings to establish a range of enduring tall-forest tree species is part of the environmental enhancement component of the development proposal. This will establish the initial native tree stocking necessary to establish enduring native forest cover. It will also establish seed sources for ongoing natural dispersal of a diverse range of enduring native forest species, to facilitate the establishment and sustainability of species-rich native forest cover on the property and in the shrubby cover on the surrounding landscape".*

8.5 Effects on the Coastal Environment

As noted by Clunie none of the part of the property near or to the north of the dominant coastal ridgeline (in the northeastern corner and towards the northwestern corner of the subject property) will be affected adversely by the development. Potential effects will be positive, by way of proposed enrichment plantings near the southerly fringe of the ridgeline, to enhance the natural environment. There will be no development or adverse visual or other effects on any of the area of the subject property zoned for protection of coastal features.

8.6 Social and Community Effects

The proposal will ultimately introduce 31 new households into the local community. That development is consistent with the Plan in respect of density and thus the effects on the community are anticipated by the Plan. There will be positive effects arising in respect to the local economy and the social fabric of the community. Schools will be potentially reinforced by additional numbers of children thus assisting with funding applications and reinforcing the permanent residential elements of the community.

8.7 Cultural and Heritage Effects

There are no effects arising that will require any special measures in relation to Iwi and/or cultural heritage matters. The applicants commissioned a report from Architage, Consultant Archaeologists, in order to address such matters. That report forms part of the application documents. There are identified sites that will be affected by the proposal. It is noted in the report that *"No archaeological sites have been recorded on the part of the property under proposed development and none was identified during the survey. The southern ridgeline has been bulldozed in the past and is kept clear to provide access across the property. The spurs also appear to have been partly cleared in the past and evidence of terracing was noted, seemingly for the purpose of horticultural activities, all now under revegetation. Surface archaeological evidence which may once have been there has been graded or dug away or, if still present, remained unseen under dense vegetation."*

Also it is noted "The soils are of a podzolised nature and the area would be more likely to have attracted pre-European Maori for the benefit of lookout points rather than for occupation. There are high points on the southern side of the property but not obviously

suited to the construction of pa. Therefore it is unlikely that archaeological evidence exists but it cannot be ruled out owing to the difficulty in examining the ground surface."

The applicant has suggested that a cultural protocol condition of consent to be used to manage any events where any cultural issues arising during the implementation of the consent.

8.8 Noise Effects

The main aspects of the proposal that have a potential to generate noise effects are those related to construction and development of the subdivision access and infrastructure. Any noise arising from the future dwellings on the land is anticipated by the Plan having regard to the permitted average density of one dwelling per 2000m2 of nett site area. Construction noise will mainly be related to the earthworks phase and that will be confined to daylight hours 7am to 7pm Mondays to Saturdays with no work occurring on public holidays or Sundays. No work will occur between 24 December and 5 January. There will be some 58,000m3 of fill brought to the site which will mean up to 3100 truckloads of fill using truck and trailer units (20m3 capacity) or up to 6200 truckloads using a single truck unit. As the proposal will no doubt involve a combination of those vehicle capacities depending on availability and weather condition traffic movements may relate to 4600 truckloads on average. The noise effects from those activities will be mitigated through a combination of hours of operation (which can be conditioned), catchment characteristics and frequency of truck movements (governed by fill source). There also will be onsite truck movements to distribute the material cut from the site (2437m3).

The consent holder will additionally employ staff to control vehicles entering and exiting the main road as an additional safety measure.

All construction noise will comply with the standards set out in NZS 6802:1991.

Noise generation will not be noticeable from the proposed wastewater treatment plant as small submersible pumps are proposed within tanks buried below ground level.

8.9 Stormwater Effects

The applicant's engineers, KEA Consultants Ltd have carried out an assessment of the stormwater management aspects of the applicant's proposals and have designed appropriate mitigation measures to address any potential effects.

The applicant proposes to use a detention pond to manage the runoff from the catchment that the application site is contained within (refer KEA Consultants report). That will provide an effective detention capacity for peak storm events (1 in 10 and 1 in 100years have been modelled) as well as acting as a sediment management device.

Each of the proposed new rural residential lots will have a scoria trench constructed below the house site so that there is management of overflow water from roof tanks as well as the runoff from each site.

On the main access road there will also be scoria trenches to contain runoff. That will be taken to the detention pond as shown on the KEA plans. Grass swales will be used as necessary.

As noted in the KEA report, the approach this study has taken with regards to catchment planning is a holistic one. The catchment as whole has been comprehensively assessed and the impacts arising from each option have been considered, as have also recommended remedial works within the overall framework of acceptable Health & Safety and environmental risks. Both the quantity and quality of the stormwater generated from the Mangawhai development catchment has been considered.

The floodwater from the Mangawhai catchment is confined within the flat watercourse along the development area, therefore flooding is not considered to be an issue. It is also to be noted that due to dominantly rural nature of the site and the low traffic volumes expected, stormwater pollution is not expected to be serious.

The applicant's proposal includes;

- Constructing an open channel at the lower part of the Mangawhai Subdivision Development adjacent to the entrance access road.
- Constructing a double purpose detention and water quality pond of approximately 2,000 m³. The bottom of the pond will be covered with a layer of densely compacted impermeable clay.
- Extensively planting the banks of the open channel with New Zealand native plants in a manner to minimise erosion and facilitate recreational purpose
- Installation of two weirs and pipes with energy dissipation mechanisms
- Application of a biodegradable matt, (Bio Mac - or similar material), on the open channel banks to facilitate and accelerate revegetation.

Those measures are expected to ensure that the potential adverse effects arising from the proposal are mitigated and/or avoided and that the overall effects arising from the proposal will be no more than minor.

The provisions of Part 11.3.8B of the District Plan have been considered and in particular, low impact design principles used to achieve the stated objectives of:

- reducing the amount of impervious surfaces using minimum width roads and driveways where possible
- retaining natural drainage channels, including grassed roadside swales rather than paved channels and pipes for the primary collection system
- decreasing stormwater flows through use of detention ponds particularly at points where slopes decrease from upper catchment areas
- using natural ground soakage runoff in areas with suitable soils (this involves soakage testing of sites)
- provision for secondary flow paths to cater for large storms where runoff exceeds soakage capacity

The site is classified as being in Group C on KDC Planning Maps 83/84 and thus is

generically classified as having poor soakage capability. The reports by Soil and Rock and KEA Consultants Ltd address those aspects of the proposal and wastewater and stormwater disposal are satisfactorily provided for as required by both the District and Regional Plans.

8.10 Earthworks and Roading Effects

The main earthworks relate to the provision of access to the new lots. The visual effects of those aspects of the proposal are addressed in the landscape and visual assessment set out in Part 8.0 herein.
It is estimated that 58,000 cubic metres of fill and 2,500m^3 of cut will be necessary for the proposal. These works are mainly for the formation of the access road and access to the proposed lots, as well as some minor works for sediment and stormwater management. Full details are shown on the plans prepared for the applicant by KEA Consultants Ltd.

Conjunctive applications have been lodged with the Northland Regional Council in regard to the earthworks proposals.

All construction will proceed in accordance with standard practices and the applicant will submit a construction management plan to KDC and/or the Regional Council prior to any work commencing.

Such plan will generally cover the following matters;

(i) Details of the site manager, including their contact details (phone, facsimile, postal address;
(ii) The location of a large notice board on the site that clearly identifies the name, telephone number and address for service of the site manager;
(iii) Any means, such as a restriction on the size of construction vehicles and machinery accessing the site, required to ensure that no damage occurs to street trees throughout the construction period;
(iv) Any means of protection of services such as pipes and water mains within the road reserve.
(v) Measures to be adopted to maintain the site in a tidy condition in terms of disposal/storage of rubbish, storage and unloading of building materials and similar construction activities;
(vi) Measures to be adopted to ensure that pedestrian access past the site on the public footpaths is safe and not obstructed during construction works.
(vii) Location of workers conveniences (e.g. portaloos).
(viii) Ingress and egress to and from the site for vehicles during site works period.
(ix) Proposed numbers and timing of truck movements throughout the day and the proposed routes.
(x) Procedures for controlling sediment runoff, dust and the removal of soil, debris and demolition and construction materials from public roads or places.
(xi) Proposed hours of work on the site.
(xii) Locations of vehicle and construction machinery access during the period of site works.
(xiii) Location of the area to be made available for the unloading and loading of trucks.
(xiv) Provision for any truck cleaning where any excavation is to occur.

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8.11 Summary Of Environmental Effects

The applicant has addressed the potential effects arising from the proposed subdivision and in particular matters related to wastewater, stormwater, landscape, visual and ecological matters. There will be some short term effects associated with the construction phase such as traffic generation and noise but those effects will be mitigated through a combination of duration and hours of activity, tenure of the works and the on-site mitigation measures to contain effects to the site.

In term of other potential adverse effects, the applicant's proposal has addressed the visual effects through proposed mitigation including plantings and limited heights of buildings on specified lots. Design guidelines are also to be used. There will be significant ecological enhancements arising through the proposed weed management programme as well as through the proposed plantings and associated covenanting. In addition, the comprehensive wastewater treatment and disposal proposals taken in association with the stormwater management regime proposed means that the development will be sustainable. Traffic effects have been addressed by the applicant's engineers and their assessment leads to the conclusion that the traffic likely to be generated is within the capacity of the road and is in fact anticipated by the Plan. Extensive covenanting will ensure that key mitigation plantings and the ecological fabric of the site are protected and endure as part of the on going maintenance of the natural character of the site.

There are considered to be no adverse effects arising from the activity that are not mitigated on site or else avoided and thus the applicant concludes that there is no need for a financial contribution under the Plan provisions. Beyond that however the applicant suggests that enhancement works can be implemented on the reserve area by the Wintle Street access at their cost as a positive contribution to the wider area.

The overall conclusion reached is that the proposal can be approved as no more than minor adverse effects are likely to arise from the proposal.

9.0 CONSULTATION

The applicant has consulted with Kaipara District Council regarding various aspects of the proposal including roading, wastewater and access. The neighbouring property owners who have a recent subdivision approval using the paper road access from Pearl Street have also been consulted to ensure that there are no issues arising in regard to the applicants intended use of that access for the upper parts of the subdivision. The applicant has also obtained the agreement of the owner of adjacent Lot 2 in respect of the use of the shared access from Wintle Street.

10.0 STATUTORY COMPLIANCE

10.1 RESOURCE MANAGEMENT ACT 1991

Section 104

Section 104 of the Act states that, subject to Part II of the Act, regard must be had to the following:

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- *Any actual and potential effects on the environment of allowing the activity*
- *Any relevant objectives, policies, rules or other provisions of a plan or proposed plan*
- *Any other matters considered to be relevant and reasonably necessary to determine the application.*

The proposal requires consent as a non-complying activity overall as set out in Section 8.0 of this document.

Section 105

As a non-complying activity the proposal must satisfy one of the 'gateways' of s.105(2A) of the Resource Management Act before the Council may grant consent under s.104. Sub-section (2A) states that a consent authority shall not grant a resource consent for a non-complying activity unless:

(a) the adverse effects on the environment will be minor; or
(b) the application is for an activity which will not be contrary to the objectives and policies of -

(i) where there is only a relevant plan, the relevant plan; or
(ii) there is only a relevant proposed plan, the relevant proposed plan; or
(iii) where there is a relevant plan and a relevant proposed plan, either the relevant plan or the relevant proposed plan

The AEE in Section 11.0 of this document sets out the manner in which the actual or potential adverse effects of the proposal will be avoided and/or mitigated.

It is concluded that there will be no more than minor adverse effects arising from the proposal and accordingly, the proposal achieves the first gateway test of section 105(2A)(b).

The proposal has been assessed in respect of the relevant District Plan objectives and policies and it is concluded that it is consistent with those matters.

Part II - Purpose and Principles

Section 104 of the Act requires that regard be had to Part II of the Act.
The purpose of the Act is stated at Section 5, namely to promote the sustainable management of natural and physical resources. Sections 6, 7, and 8 are also relevant in achieving the purpose of the Act, those being matters of national importance, other matters, and the Treaty of Waitangi.

The relevant clauses of Part II are set out as follows:

"Section 5. Purpose
The purpose of this Act is to promote the sustainable management of natural and physical resources.
In this 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

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

Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Section 6. Matters of national importance
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 recognise and provide for the following 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.

Section 7. Other matters
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—

f) Kaitiakitanga:
(aa) the ethic of Stewardship
g) The efficient use and development of natural and physical resources:
h) The maintenance and enhancement of amenity values:
i) Intrinsic values of ecosystems:
j) Recognition and protection of the heritage values of sites, buildings, places, or areas:
k) Maintenance and enhancement of the quality of the environment:
l) Any finite characteristics of natural and physical resources:

Section 8. Treaty of Waitangi
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 take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi)."

In assessing the proposal, the matters most relevant to the proposal include Section 5(a) (b) (c), Section 6 (a), (d) and (e), Section 7 (b), (c),(d), (f) and (g), and Section 8.

The proposal is consistent with the above statutory directives and will promote sustainable management.

10.2 NEW ZEALAND COASTAL POLICY STATEMENT 1994

The New Zealand Coastal Policy Statement ("NZCPS") is a statutory document, issued by the Minister of Conservation, which states policies in order to achieve the purpose of the RMA in relation to the coastal environment of New Zealand. The NZCPS sets out priorities for the preservation of the natural character of the coastal environment and other matters of national importance included in section 6 of the Act.

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Furthermore, the policies stated in the NZCPS provide guidance and direction for local authorities on the management of the coastal environment. Regional policy statements and plans and District Plans must not be inconsistent with the NZCPS.

The NZCPS outlines a number of national priorities and also policies for activities involving the subdivision, use or development of areas of the coastal environment, which are reflected in the policies of the Auckland Regional Policy Statement ("ARPS") and the Proposed Regional Plan-Coastal (PRPC). It is considered that the proposal is consistent with the goals and policies of the NZCPS, and regional planning documents, for reasons outlined below.

Chapter 1 of the NZCPS sets out national priorities for the preservation of the natural character of the coastal environment including protection from inappropriate subdivision, use and development.

Policy 1.1.1

It is a national priority to preserve the natural character of the coastal environment by:

(a) encouraging appropriate subdivision, use or development in areas where the natural character has already been compromised and avoiding sprawling or sporadic subdivision, use or development in the coastal environment;
(b) taking into account the potential effects of subdivision, use, or development on the values relating to the natural character of the coastal environment, both within and outside the immediate location; and
(c) avoiding cumulative adverse effects of subdivision, use and development in the coastal environment.

Policy 1.1.4

It is a national priority for the preservation of natural character of the coastal environment
to protect the integrity, functioning, and resilience of the coastal environment in terms of:

(a) the dynamic processes and features arising from the natural movement of sediments, water and air;
(b) natural movement of biota;
(c) natural substrate composition;
(d) natural water and air quality;
(e) natural bio diversity, productivity and biotic patterns; and
(f) intrinsic values of ecosystems.

Policy 1.1.5

It is a national priority to restore and rehabilitate the natural character of the coastal environment where appropriate.

Chapter 3 of the NZCPS sets out policies in respect of activities involving the subdivision, use or development of areas in the coastal environment.

Policy 3.2.2

Adverse effects of subdivision, use or development in the coastal environment should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects, to the extent practicable.

Policy 3.2.4
Provision should be made to ensure that the cumulative effects of activities, collectively, in the coastal environment are not adverse to a significant degree.

Policy 3.2.5
Subdivision, use and development in the coastal environment should be conditional on the provision of adequate services (particularly the disposal of wastes), and the adverse effects of providing those services should be taken into account when preparing policy statements and plans and when considering applications for resource consents.

Assessment

The proposal is consistent with the NZCPS. Effect is given to the above referenced policies of the NZCPS by the proposal. The proposal is consistent with the objectives, policies and strategic/environmental outcomes set out in both the Regional Plan and District Plan and as a consequence is consistent with the provisions of the NZCPS. There are no matters arising in respect of the interests of Iwi as set out in the NZCPS. In addition, the proposal will properly provide for wastewater and stormwater management and will lead to the enhancement of the ecological values of the site. Appropriate protection instruments will be used such as covenants and consent notices.
The site is located away from the coastline and is physically separated by a ridgeline. There are detention ponds at the foot iof the catchment within which the proposal is located and those will ensure that the quality of water that may end up in coastal waters is high.

Coastal Matters of Significance to Tangata Whenua

Section 6 (e) of the RMA requires recognition and provision for *"The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga"*. Section 7 (a) requires that particular regard be had to *"Kaitiakitanga"*, and Section 8 that the principles of the Treaty of Waitangi are taken into account.

Heritage and Coastal Matters of Significance to Tangata Whenua

Section 6 (e) of the RMA requires recognition and provision for *"The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga"*. Section 7 (a) requires that particular regard be had to *"Kaitiakitanga"*, and Section 8 that the principles of the Treaty of Waitangi are taken into account.

Assessment

The proposal will not adversely affect any areas of special value to Tangata Whenua

A report on heritage and cultural matters forms part of the application documents (ARCHITAGE) and it is concluded therein that there are no issues in respect of the proposal.

It is noted in the report that "No archaeological sites have been recorded on the part of the property under proposed development and none was identified during the survey. The southern ridgeline has been bulldozed in the past and is kept clear to provide access across the property. The spurs also appear to have been partly cleared in the past and evidence of terracing was noted, seemingly for the purpose of

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horticultural activities, all now under revegetation. Surface archaeological evidence which may once have been there has been graded or dug away or, if still present, remained unseen under dense vegetation."

Also it is noted "The soils are of a podzolised nature and the area would be more likely to have attracted pre-European Maori for the benefit of lookout points rather than for occupation. There are high points on the southern side of the property but not obviously suited to the construction of pa. Therefore it is unlikely that archaeological evidence exists but it cannot be ruled out owing to the difficulty in examining the ground surface."

Even though there are unlikely to be any issues arising as a result of the proposal the applicant anticipates that standard protocol conditions will be applied to any consent along the following lines.

"For any works associated with this subdivision and to enable the subsequent erection of any buildings on any of the lots, in the event of archaeological evidence being uncovered (e.g. shell, middens, hangi or ovens, pit depressions, defensive ditches, artefactual material or human bones) work in the vicinity of the discovery is to cease immediately and the aipara District Council as well as a representative of Iwi is to be contacted so that appropriate action can be taken before any work may recommence there."

10.3 REGIONAL PLANS

Resource consents are required from the Northland Regional Council in respect of;

- Stormwater discharges
- Earthworks/Land disturbance-
- Wastewater Treatment and Disposal

10.3.1 Regional Water and Soil Plan-July 2003

10.3.1.1 Stormwater Management

The relevant rules from the Regional Water and Soil Plan are as follow;

Section 21. RULES FOR STORMWATER DISCHARGES

The following diversions and discharges of stormwater are permitted activities:

1. The diversion and discharge of stormwater including from:

(1) Roofs and defined formed car parking areas; or
(2) Any industrial or trade premises; or
(3) Roads, provided that the stormwater collection system is also designed to divert or discharge stormwater from any of the sources listed in (i) or (ii);

by way of an open constructed stormwater collection system or piped stormwater collection system into water or onto or into land where it may enter water is a permitted activity, provided the following conditions are complied with:

(a) The stormwater collection system is not connected to, nor part of, a public stormwater system in any of the urban areas listed in Schedule F.

(b) For new subdivision and development, the best practicable option for on-site stormwater disposal shall be identified and incorporated into the stormwater management design to avoid or minimise changes to stormwater flows after development for the 1 in 5 year return period storm event.

(c) Where the diversion and/or discharge drains a hazardous substance storage area:

(i) for hazardous substances in fluid form or likely to liquefy in fire, the area is bunded or otherwise designed with sufficient capacity to provide secondary containment that meets the following criteria:

- Where containers are stored that have capacities of less than or equal to 450 litres, the secondary containment is able to contain the total capacity of substances stored; and
- Where a single container with a capacity of greater than 450 litres is stored, the secondary containment is able to contain 110% of the volume of the container, or where two or more containers with capacities of greater than 450 litres are stored, the secondary containment is able to contain 100% of the volume of the largest container plus 10% of the aggregate capacity of all other containers.

(ii) the stormwater collection system is designed to avoid any hazardous substances (including unintentional releases) entering the system, or a stormwater interceptor system shall be installed; or

(iii) the specific area complies with the following:

- Hazardous substances are contained within vehicles, boats, aircraft and small engines;
- It is for domestic storage of hazardous consumer products;
- It is a retail outlet for the sale of hazardous substances for domestic use (e.g. supermarkets, hardware shops, pharmacies);
- Agrochemicals are stored in accordance with NZS8409: 1999: The Code of Practice for the Management of Agrochemicals.

(d) Where the diversion and/or discharge drains an industrial or trade premise:

(i) a stormwater interceptor system shall be installed at the site to avoid, or minimise in accordance with Policy 8.17.7, any suspended solids, industrial by-products, oil, or other contaminated substance or waste entering the stormwater collection system; and

(ii) any process water or waste stream on the site shall be bunded or otherwise contained), within an area of sufficient capacity to provide secondary containment equivalent to 100% of the quantity of any process water or waste that has the potential to spill into a stormwater collection system, in order to prevent process water or waste entering the stormwater collection system; and

(iii) the site is managed such that the concentration of contaminants in stormwater leaving the site do not pose an immediate or long term hazard to human health or the environment beyond a 10-metre radius of the discharge point.

(e) The stormwater collection system is designed to cater for stormwater flows resulting from not less than a 1 in 5 year return period storm event and a stabilised overland flow path is provided for to allow flows up to and including a 1 in 50 year storm event in excess of the capacity of the primary collection system.

(f) For discharges to water, the discharge does not:

(i) increase the natural temperature of the receiving water by more than 3° Celsius at or beyond a 10-metre radius from the discharge point.

(ii) cause the pH of the receiving water to fall outside of the range 6.5 to 9 at or beyond a 10-metre radius of the discharge point.

(ii) cause the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials.

(iii) in the receiving water at or beyond a 10-metre radius of the discharge point.

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(iv) cause any emission of objectionable odour in the receiving water at or beyond a 10-metre radius of the discharge point.
(v) contain more than:
20g/m3 of total petroleum hydrocarbons
10mg/m3 of total copper
10mg/m3 of total lead
100mg/m3 of total zinc
100g/m3 of suspended solids.
(g) The discharge does not cause scour or erosion of the beds or banks of the receiving water body.
(h) For diversion and/or discharges onto or into land, stormwater quality control measures or treatment systems such as silt, oil and grease traps are incorporated to minimise the level of contaminants prior to final disposal.
(i) The stormwater management or treatment systems, and any associated works or equipment shall be constructed, operated and maintained in an effective operating condition, and in accordance with Policy 8.17.7.
(j) The diversion and/or discharge does not cause flooding of adjacent properties.

To help achieve the best practicable option for on-site stormwater disposal in clause (b), the following measures should be considered:

- *Infiltration facilities in permeable soil types;*
- *The retention of natural stream channels;*
- *Minimise areas of impermeable surfaces;*
- *Stormwater detention before dispersal into waterways.*

One means of complying with Clauses (b) and (g) is to implement onsite volume control practices as contained in Technical Publication 124, Low Impact Design Manual for the Auckland Region, ARC, 2000. The Northland Regional Council is planning to work with the District Councils in developing a Northland code of practice for on-site stormwater management outside urban areas to further assist in meeting the provisions of the Plan.
It is inappropriate to allow stormwater discharge from hazardous substances storage

SECTION 21.2 CONTROLLED ACTIVITIES

The following diversion and discharge of stormwater is a controlled activity:

1. The diversion and discharge of stormwater, including from:

(1) Roofs and formed car parking areas; or
(2) Any industrial or trade premises; or
(3) Roads provided that the stormwater collection system is also designed to divert or discharge stormwater from any of the sources listed in (i) or (ii); by way of an open constructed diversion system or piped system, into water or onto or into land where it may enter water which does not meet the requirements of Rule 21.1.1 is a controlled activity, subject to the following standards:
(a) Compliance with conditions (c), (d), (e), (g) and (i) of Rule 21.1.1
(c) The diversion and/or discharge does not result in any of the effects as specified in Section 107(c)-(g) of the Resource Management Act 1991 outside of a reasonable mixing zone.

Matters Subject to Control

(a) The permissible maximum concentration of contaminants in the discharge.
(b) The size of the zone of reasonable mixing.
(c) The adequacy of the proposed stormwater management and treatment systems.
(d) The adequacy of the proposed inlets to collect the stormwater at the design

return period.

(e) The adequacy of the proposed measures to prevent scouring and erosion of riverbanks or river beds.

(f) The acceptable degree of flooding of adjacent properties.

(g) Information and monitoring requirements.

(h) Any necessary staging of works.

(i) The matters addressed in any Stormwater Management Plan prepared in accordance with Section 36.1(i) of this Plan. An application in respect of this controlled activity will be non-notified unless the Regional Council c onsiders special circumstances exist to require notification in terms of Section 94(5) of the Resource Management Act 1991. In considering whether or not special circumstances exist, Council will include consideration of:

1. *The use of the receiving water.*
2. *The extent of public and tangata whenua interest in the activity and/or its effects.*

The Council will require written approvals be obtained from those persons who, in the opinion of the Council, may be adversely affected by the proposed stormwater flow path, unless Council considers it unreasonable in the circumstances to require obtaining of every such approval.

SECTION 21.3 DISCRETIONARY ACTIVITIES

The following diversions and discharges of stormwater are discretionary activities:

1. The diversion and discharge of stormwater, including from:

(1) Roofs and formed car parking areas; or

(2) Any industrial or trade premises; or

(3) Roads, provided that the stormwater collection system is also designed to divert or discharge stormwater from any of the sources listed in (i) or (ii); by way of an open constructed stormwater collection system or piped stormwater collec tion system into water or onto or into land where it may enter water which:

(a) Does not comply with conditions (c) and (d) of Rule 21.1.1; or

(b) Has a design capacity of less than a 1 in 5 year period return period storm event; or

(c) Is contaminated to a degree which suggests that, even after reasonable mixing, receiving water standards may not be able to be met;

(d) In any other way fails to comply with Rule 21.1.1, and 21.2.1.

Explanation: *Consent applications will be processed as a discretionary activity where the standards under controlled use activity rule 21.2 cannot be met.*

10.3.1.2 Comment

The applicants proposal will meet the standards for permitted activities but as the proposal is discretionary in respect of the proposed land disturbance activities (Rule 33.3) and also with reference to Rule 22.3, the proposal therefore must be assessed as a discretionary activity overall. The permitted and controlled activity standards and criteria have however been used as relevant guidelines in formulating and assessing the proposal. Also, the proposal has been formulated having regard to the principles set out in the Low Impact Design Manual for the Auckland Region, ARC, 2000. The proposal meets all relevant Plan requirements and will achieve the outcomes set out in the Plan as a consequence.

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SECTION 22. RULES FOR RUNOFF FROM ROADS AND FROM LAND DISTURBANCE ACTIVITIES

Rule 22.1 Permitted Activities

The following diversions and discharges associated with stormwater from roads and land disturbance activities are permitted activities:

1. The diversion and discharge of stormwater into water or onto or into land where it may enter water from any land disturbance activity, which is permitted under a Land Disturbance Activity Rule in this Plan is a permitted activity, provided that:

   (a) The stormwater is diverted or discharged in the catchment from which it originates.
   (b) Water and sediment control measures (e.g. rock rip-rap, cut-off drains, sediment traps) are installed and maintained, in accordance with Policy 8.17.7, to avoid or minimise erosion and to avoid or minimise sediment discharges to any adjacent water bodies or to any coastal waters.
   (c) The diversion and discharge has a no more than minor adverse effect (as determined by the relevant water quality guidelines in Section 7 of this Plan) on aquatic ecosystems and/or on neighbouring or downstream landowners/occupiers (e.g. deposition of sediment, exacerbation of flooding).

2. The diversion and discharge of stormwater from any road or track into water or onto or into land where it may enter water is a Permitted activity, provided that:
   (a) The road does not form part of a stormwater collection system that is designed to divert or discharge stormwater from any of the sources otherwise regulated by rules contained in Section 21 of this Plan.
   (b) The road is not connected to, nor forms part of, a public stormwater collection system in any of the urban areas listed in Schedule F.
   (c) Water and sediment control measures (e.g. rock rip-rap, cut-off drains, sediment traps) are installed and maintained, in accordance with Policy 8.17.7, to avoid or minimise erosion and to avoid or minimise sediment discharges to any adjacent water bodies or to any coastal water.
   (d) The diversion and discharge does not cause adverse effects on neighbouring properties.
   (e) The stormwater collection system is designed to cater for stormwater flows resulting from not less than a 1 in 5 year return period storm event, and a stabilised overland flow path is provided for to allow flows up to and including the 1 in 50 year storm event in excess of the capacity of the primary collection system.
   (f) Environmental Standards 32.2.2 and 32.2.3 in Section 32 of this Plan are complied with.
   (g) For discharges to water, the discharge does not:
      (i) increase the natural temperature of the receiving water by more than 3° Celsius at or beyond a 10-metre radius from the discharge point.
      (ii) cause the pH of the receiving water to fall outside of the range of 6.5 to 9 at or beyond a 10-metre radius of the discharge point.
      (iii) cause the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials in the receiving water at or beyond a 10-metre radius of the discharge point.
      (iv) cause the emission of objectionable odour in the receiving water at or beyond a 10-metre radius of the discharge point.
      (v) contain more than:
         - 20g/m3 of total petroleum hydrocarbons
         - 10mg/m3 of total copper
         - 10mg/m3 of total lead
         - 100mg/m3 of total zinc

- 100g/m3 of suspended solids.

Rule 22.2 Controlled Activities

The following diversion and discharge associated with land disturbance activities or from roads is a controlled activity:

1. The diversion and discharge of stormwater into water or onto or into land where it may enter water:
   (1) From any land disturbance activity, (where that activity is a **controlled activity** under a Land Disturbance Activity Rule in this Plan (refer also Section 33)); or
   (2) From any road that does not meet the requirements of permitted activity Rule 22.1.2;

   provided that the following conditions are met:

   (a) The road does not form part of a stormwater collection system that is designed to divert or discharge stormwater from any of the sources otherwise regulated by rules contained in Section 21 of this Plan.
   (b) There are no adverse effects on soil conservation beyond the property boundary.
   (c) The environmental standards in Section 32 of this Plan are complied with.
   (d) In the case of the diversion or discharges of stormwater from roads, compliance with Conditions (c), (d), (f) and (h) of Rule 21.1.

Rule 22.3 Discretionary Activities

*The following diversion and discharge associated with land disturbance activities and stormwater from roads is a **discretionary activity**:*

1. *The diversion and discharge of stormwater from any land disturbance activity or stormwater diverted by a discharge from roads that in any way fails to comply with the rules in Sections 22.1 and 22.2 of this Plan is a discretionary activity.*

10.3.1.3 Comment

The applicant's proposal is a discretionary activity as the provisions of Rule 22.1 and 22.2 are not met in that the proposed land disturbance activities are discretionary activities under Section 33.3 of the Plan. The applicant's proposals will however achieve the standards for permitted activities as set out in 22.1 above and those outcomes are considered in relation to assessing the effects of the proposal as well as when considering the proposal as a discretionary activity.

The applicant proposes to use detention ponding to manage the runoff from the catchment that the application site is contained within. That will provide an effective detention capacity for peak storm events, as well as acting as a sediment management device.
Each of the proposed new rural residential lots will have a scoria trench constructed below the hose site so that there is management of overflow water from roof tanks as well as from each site.

On the main access road there will also be scoria trenches to contain runoff. That will be taken to the detention pond as shown on the KEA plans.

SECTION 33. RULES FOR LAND DISTURBANCE ACTIVITIES

EARTHWORKS/LAND DISTURBANCE

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The applicant's proposals will generally meet the standards set out in Sections 33.1.2 and 33.1.4 as well as the environmental standards set out in Section 32. The proposals to clear vegetation to form roading and access can be deemed to be a permitted activity
(but is a discretionary activity under the Kaipara District Council Plan rules) while the proposed earthworks will be a discretionary activity, as they will exceed the volume threshold set out in Rule 33.2 and are on identified erosion prone land. Thus the proposal is discretionary in respect to Section 33.3 of the Plan as set out below;

SECTION 33.3 Discretionary Activities

The following land disturbance activities are discretionary activities:

1. Any earthworks, that are not permitted, controlled or non complying activities are discretionary activities.

2. Any vegetation clearance on erosion prone land that cannot comply with the conditions in Rule 33.1.2 is a discretionary activity.

3. Any land preparation which;

(a) Is undertaken on erosion prone land; or
(b) Does not comply with Rule 33.1.4, is a discretionary activity.

10.3.1.4 Comment

It is estimated that 58,000 cubic metres of fill and 2500m3 of cut will be necessary for the proposal. These works are mainly for the formation of the access road and access to the proposed lots. The details of those proposals are set out on the plans and in the reports by KEA Consultants.

All earthworks will be carried out in accordance with standard practices and regional guidelines As noted already, the Low Impact Design Manual for the Auckland Region (ARC Publication) has been considered as part of formulating the applicants proposal as has TP90 (ARC publication).

As the proposal is a discretionary activity overall, the assessment criteria set out in Part 37 of the Plan have been considered as well as the relevant provisions of the Act.

There are also a number of General Environmental standards that apply to the proposal as set out below;

SECTION 32.1 General Environmental Standards

1. *The short term visual clarity of any permanently flowing river or wetland shall not be reduced by more than 40%, after reasonable mixing, due to sediment or sediment laden discharge originating from the site of the land disturbance activity.*
2. *The short term visual clarity of any lake or coastal waters shall not be reduced by more than 20%, after reasonable mixing, due to sediment or sediment laden discharge originating from the site of the land disturbance activity.*
   (Note: See Appendix 1 for explanation on the measurement of visual clarity)
3. *No vegetation, slash, soil, earth, rock, or any other debris shall be allowed to enter or shall be placed in a position where it could readily enter, or be carried into, a permanently flowing water body or lake.*

4. *All practicable measures shall be taken to avoid creating erosion features such as sheet wash, slips, slumps, rills and gullies, and stream bank erosion and to mitigate the effects of existing erosion features.*
5. *The activity shall not interfere with or destroy any waahi tapu, as defined in the Definitions urupa or any other sites known to the local iwi which are of spiritual or cultural significance to Maori, which have been identified to the Regional Council.*
6. *Activity shall cease and information shall be sought from local iwi and/or the Department of Conservation, should archaeological remains or features be uncovered.*
7. *Where vegetation clearance results in areas of exposed soil, these areas shall be revegetated (in the spring or autumn immediately following) to achieve an 80% ground cover within 24 months of the operation being completed.*
8. *No storage, mixing of fuels, oils, agrochemicals or other similar substances shall take place in the Riparian Management Zone.*
9. *During forest harvesting operations, all stem butts shall be well raised above the ground when cable logging through the Riparian Management Zone. That is, when hauling through Riparian Management Zones, the operation shall be undertaken in such a manner so as to minimise damage to remaining riparian vegetation.*
10. *All vegetation shall be felled away from any water body unless, for safety reasons, it is impractical to do so.*
11. *The activity shall not take place within any indigenous wetland and, where the activity involves the taking, use, drainage or diversion of water, shall not cause any change to the seasonal or annual range in water level of any indigenous wetland to an extent that may adversely affect the wetland's natural ecosystem.*

Note:

(1) Provision 32.1.5 and 6 complements the duties and obligations imposed on all persons by the Historic Places Act 1993 in respect of known archaeological sites.
(2) The Department of Conservation is the holder of the records on the New Zealand Archaeological Association. These records are subject to ongoing research to add to the list. The Department of Conservation should be consulted to determine whether there are any known archaeological sites in a particular area.
(3) These provisions do not abrogate the responsibility of people to satisfy themselves as to the presence of waahi tapu etc. and their need to consult with Tangata Whenua.

SECTION 32.2 Environmental Standards For Earthworks

1. Where earthworks result in areas without vegetation cover, these areas shall be revegetated (in the spring or autumn immediately following) to an 80% ground cover within 24 months of the operation being completed. Where the operation is not finished but will need to stop for the winter months, any bare area must be oversown with a temporary cover in autumn or there must be contingency measures in place, to minimise soil loss.
2. Batters and side castings are to be stabilised by appropriate measures such as compacting, seeding, drainage and/or other methods of stabilisation to avoid slumping of upslope land and movement of soil offsite such that it can enter a water body.
3. Roading and tracking shall be adequately maintained at all times or revegetated when no longer in use, to avoid or minimise erosion and sediment discharges to any adjacent water bodies. 4. All earthworks shall incorporate stormwater controls including water tables, grade control structures and cut-off drains and any other runoff control measures necessary to prevent scour from channelled water and to prevent sediment discharges.

SECTION 32.3 Environmental Standards For Land Preparation

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1. Mechanical preparation of land, with the exception of subsurface drainage, shall be carried out parallel to the contour, where feasible. Where it is physically not possible to carry out land preparation parallel to the contour due to slope, sufficient runoff control measures shall be provided to prevent gully and rill erosion. 2. Windrows of slash shall be parallel to the contour to reduce sediment runoff.

10.3.1.5 Comment

The applicant's proposals will meet the outcomes anticipated by the relevant provisions of both the Regional Plan (Water and Soil) and the District Plan (as set out below).

The applicant commissioned a preliminary geotechnical report from Soil and Rock Consultants that has been used to assist with the subdivision design.

That report notes that "It should be noted that this engineering geological and geotechnical overview is intended to assist with the layout of the development plan. It is not intended to be a comprehensive geotechnical investigation for subdivision development purposes. This report does not replace a detailed geotechnical investigation and we understand that a second phase of investigation will be conducted prior to subdivision".

The applicant anticipates that a condition of consent will require further geotechnical work to be carried out prior to final design approvals and prior to any work commencing. Also, for each of the building sites there will be a need to require site specific geotechnical reports as part of any building consent application (or parallel resource consent application).

The Soil and Rock report divides the site into three development zones;

Zone A.	Land suitable for development subject to Geotechnical Investigation and design.
Zone B.	Land which may be suitable for development subject to Specific Geotechnical Investigation and Design.
Zone C.	Land probably unsuitable for development.

Those zones are then described as follows;

Zone A

This zone is suitable for development subject to geotechnical investigation to verify slope stability and foundation conditions. Zone A comprises the following:

- *Ridge crests.*
- *Land with no evidence of recent or relict instability.*
- *Land on gentle slopes.*

Zone B

This Zone may be able to be developed subject to site-specific investigation of building platforms to determine foundation options and remedial measures to protect from slope instability.

Zone B has been defined as follows:

- *Land on moderate slopes.*
- *Land adjacent to, or subject to relict or recent shallow seated instability.*

Zone C

This Zone is probably unsuitable for general development owing to the occurrence of recent/relict instability or marginally stable ground. In addition this Zone incorporates areas within storm water flow paths. Zone C has been assessed as being land, which may not be suitable for residential development as it has a high risk of instability. Zone C has been defined as follows:

- *Land on Steep to very steeply sloping ground.*
- *Areas with evidence of recent or extensive or relict instability.*
- *Areas subject to ongoing erosion.*
- *Areas within gullies*

The report then goes on to addresses matters related to wastewater, stormwater and roading. It is noted that site-specific geotechnical designs are necessary prior to final engineering design. Those matters have been addressed in the wastewater, stormwater and design work carried out by KEA Consultants Ltd in the attached reports.

10.4 WASTEWATER TREATMENT AND DISPOSAL

Conjunctive applications have been lodged with the KDC and NRC in regard to wastewater treatment and disposal. Those matters are addressed in the AEE herein and in the reports by KEA Consultants Ltd (attached).

The wastewater plant will be located on Lot 13 and may eventually be reticulated into Mangawhai's proposed bulk system (which is being progressed at the moment). The Incorporated Society, of which all purchasers will be obligated to be a member, will manage the wastewater system.

There will be suitable easements put in place to enable the collection of wastewater from individual households and to take that through pipes to the wastewater plant. There will also be easements over the site to enable the disposal of treated wastewater to ground (refer KEA plan) with these easements able to be removed if a bulk wastewater reticulation system is in place.

Sufficient reserve land application area for on site disposal is provided for. This area represents 50 % of the primary area and is in accordance with standard practices.

In accordance with standard practice, a maintenance contract between a 'Wastewater Plant Service Company' and the Incorporated Society (initially the consent holder and then transferred to the Society once enough sites are sold for the Society to be constituted as a legal entity) will be entered into.

Potential environmental effects such as contamination of groundwater is minimised by the very high treatment quality of wastewater discharged into the environment and the very low loading rates, enabling renovation and assimilation.

Treated effluent will be subjected to further treatment by way of UV disinfection to further improve effluent quality prior to discharge. This treatment method ensures that pathogen removal is sufficient to minimise potential contamination of groundwater and surface waters.

Land treatment and assimilation is considered the most appropriate and sustainable final treatment option at the site. Discharge to any other receiving environment is not

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considered acceptable due to potential environmental effects and cultural considerations.

Mitigating measures include adequate setbacks to groundwater and surface waters as well as a proposed planting programme to revegetate the land application area. At the proposed loading rate of 2.0 mm/day, throughout much of the year most of the applied effluent will be consumed by plants, resulting in very little soakage into the underlying soils.

In addition the proposed treatment plant will be completely watertight to prevent the infiltration of stormwater or groundwater into the system or exfiltration of wastewater into the environment. All tanks will contain sealed access risers and sealed lids.

The proposed land application system will be located a minimum of 15 m from any surface water bodies, and is considered sufficient to allow for the renovation of effluent in the unlikely event of overland flow.

The entire land application system will be buried within the surficial soils at the site minimising the potential for damage to the drip line system. The planting programme will be undertaken in conjunction with laying of the land application system to avoid potential damage to the buried lines.

The proposed loading rate of 2.0 mm/day is considered very low and is not expected to result in any effluent run off even during extreme rainfall. However, should runoff occur it is likely to be extremely diluted and any effects are expected to be no more than minor.

An adequate depth of unsaturated soil is present at the site to ensure final renovation of effluent prior to any interaction with groundwater. In accordance with Regional Council guidelines, a minimum separation of 900 mm between the base of the land application system and the highest winter groundwater level will be maintained.

Due to the low areal loading rate to the land application area, the level of nutrient discharge is very low. It is considered that due to the clayey soil type and proposed revegetation the uptake of nutrients will be high. Based on the peak wastewater production and total nitrogen levels of 15 mg/l in the effluent, a nitrogen loading rate of 80-85 kgN/ha/yr is estimated. This figure is considered within acceptable limits. Further nutrient reduction is achieved through uptake by vegetation, denitrification, volatilisation, and soil storage.

Offensive odours are not expected from the aerobic treatment plant. There is potential for odour generation from the septic tanks as a result of anaerobic decomposition. To mitigate against odour generation, all tanks will be fitted with activated carbon filters designed to scrub vented air.

Noise generation will not be noticeable from the treatment plant as small submersible pumps are proposed within tanks buried below ground level.

The proposal is a discretionary activity in terms of the Regional Water and Soil Plan, as set out below;

SECTION 15. RULES FOR SEWAGE DISCHARGES

"15.3 DISCRETIONARY ACTIVITIES

The following discharges of sewage effluent are discretionary activities:

1. *The discharge of:*
   (1) Sewage effluent; or
   (2) Sewage sludge;
   into or onto land in a manner outside the scope of or unable to meet the conditions pertaining to the permitted activity Rules 15.1.1, 15.1.2, 15.1.3, 15.1.4, is a discretionary activity.

However, any discharge to land which results in runoff to water via discrete flow paths, such as channels, drains or tracks, is considered to be a direct discharge to water and would be covered by Rule 15.3.2. Existing discharges of sewage effluent to deep soakage systems (including deep bores and soak holes) and rapid infiltration systems which are having adverse effects can either be upgraded to comply with Rule 15.1.3 as a permitted activity or will, under this rule, require a resource consent in order to avoid, minimise or mitigate the adverse effects."

It is noted that for permitted activities various standards must be met and those are set out below and have been considered in the applicant's design and assessment of the proposed wastewater system;

The discharge of secondary treated sewage effluent (not including stormwater) into or onto land from on-site treatment and disposal systems is a permitted activity, provided that:

(a) The lowest point of the disposal system is not less than 0.6 metres (600) millimetres) above the winter (June, July or August) groundwater table.

(b) Prior to being discharged to ground the effluent is treated to a standard such that:

(i) the five day biochemical oxygen demand (BOD5) of any sample taken is less than or equal to 30 grams per cubic metre; and(ii) the total suspended solids (TSS) concentration of any sample taken is less than or equal to 45 grams per cubic metre.

(c) No part of the disposal area and reserve area is located within 20 metres, measured horizontally, of any existing groundwater bore located on any other property.

(d) No part of the disposal area and reserve area is located within 15 metres, measured horizontally, of any surface water (as defined in the Plan).

(e) The effluent is discharged into or onto land using a dripper system that has been designed to evenly distribute effluent and to avoid clogging by soil or root intrusion.

(f) The selection and sizing of the treatment and disposal system has been based on:

(i) the volume of the discharge;

(ii) the appropriate design loading rates for the identified soil type; and

(iii) has taken into account any constraints identified by a detailed site investigation.

The Council will accept as compliance with (f)(i - iii) an effluent treatment system designed in accordance with the principles and procedures outlined in Australian/New Zealand Standard "On-site Domestic Wastewater Management" (AS/NZS 1547:2000).

(g) There is no surface runoff of any contaminants from the disposal area.

(h) The discharge results in no more than minor contamination of ground and surface water beyond a 20 metre separation distance measured horizontally from any part of the disposal system, or beyond the boundary of the property on which the discharge is taking place, whichever is the lesser.

(i) The volume of effluent discharged does not exceed 3 cubic metres per day, averaged over the month of greatest discharge.

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(j) The maximum volume of effluent discharge does not exceed 6 cubic metres over any 24 hour period.
(k) A reserve area equivalent to 30% of the design disposal area has been allowed for and set aside.
(l) A programmed maintenance contract for the treatment and disposal system is entered into.

10.4.1 COMMENT

The applicant's proposal will provide for the treatment and disposal of up top 16.2m3 of wastewater per day and as already noted is a discretionary activity for that reason.

It is proposed to install an on-site decentralised wastewater treatment plant supplied and installed by Innoflow Technologies Ltd. The treatment plant will comprise a recirculating textile packed bed reactor as shown in the schematic below. Recirculating packed bed reactors are now recognised as the most stable treatment process, able to produce a consistently high quality effluent, even under widely fluctuating loads and wastewater strengths.

Final renovation of effluent is proposed by irrigation to an extensive land application system comprising pressure compensating drip irrigation lines laid within the surface soils and planted out with vegetation.

It is recommended that all dwellings connected to the wastewater treatment system contain wastewater-reducing fixtures to reduce actual wastewater production. Installation of wastewater reduction fixtures can provide water consumption savings of up to 20 %. This will provide additional mitigation in respect of the volumes of water to be discharged to ground thus assisting

Details and an assessment of the proposed wastewater treatment plant and land application system are discussed in detail in the KEA report.

As the proposal is a discretionary activity overall, the assessment criteria set out in Part 37 of the Plan have been considered as well as the relevant provisions of the Act. In addition the relevant conditions and standards set out in the Plan for permitted and controlled actvities have been considered as part of the overall assessment of the proposal. The proposed wastewater treatment and land application system is considered the most appropriate system for the proposed development due to its robustness, reliability and consistent treatment process.

The wastewater treatment plant and land application system is expected to have no more than minor effects on the receiving environment.

10.5 REGIONAL POLICY STATEMENT-OPERATIVE MARCH 1999

There are a number of objectives and policies in the RPS that are relevant to the proposal; and have accordingly been considered. Those include the following matters;

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WATER QUALITY –Chapter 17

Objectives

1. *The maintenance or enhancement of the water quality of natural water bodies and coastal waters in Northland to be suitable, in the long term, and after reasonable mixing of any contaminant with the receiving environment and disregarding the effect of any natural events, for such of the purposes listed below as may be appropriate.*

(a) WATER QUALITY STANDARDS

Policies

1. *To ensure that discharges of contaminants, and water and land use are managed so as to achieve or exceed, where practicable, the water quality standards suitable for the desired purposes, as set out in Objective 17.3.1.*
2. *To have particular regard, when setting water quality standards and rules in plans and when setting conditions to resource consents to:*

(i) Potential effects on the gathering of kaimoana and kaiawa; and
(ii) The long term goal of enhancing inner harbour and estuarine areas.

2. *The reduction and minimisation of the quantities of contaminants which adversely affect water quality entering water bodies, and coastal waters, in particular those that are potentially toxic, persistent or bio-accumulative.*

(b) EFFLUENT TREATMENT AND DISPOSAL SYSTEMS

Policies

1. *To require that all new discharges of organic contaminants, particularly sewage and animal wastes, either be onto or into land, or be the best practicable option when compared to land disposal. Discharges shall be considered to have been disposed onto land or into land where they have been passed through soil, or a constructed wetland where there is no discharge to surface water.*
2. *To require that all existing discharges with high organic content, particularly sewage and animal wastes, be upgraded to meet the requirements in policy 17.4(b)1, based on the actual and potential effects of the discharge by the year 2004, or according to an upgrading programme established as part of the conditions of a discharge permit.*
3. *Subject to policy 1; to promote the exploration and adoption of effective and efficient effluent treatment technology.*
4. *To encourage regular maintenance of effluent treatment and disposal systems.*

(c) DIFFUSE SOURCE CONTAMINATION, STORMWATER DRAINAGE SYSTEM CONTAMINATION AND RIPARIAN AREA MANAGEMENT

Policies

1. *To promote the use of best management practices to avoid the contamination of natural water bodies and coastal waters arising from sediment and leachates in runoff and*

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groundwater and from contaminated stormwater.

2. *To avoid the discharge of industrial or household wastes or sewage into stormwater drainage systems.*
3. *To promote and, where it is important for the maintenance, restoration or enhancement of water quality, to require the retention or enhancement of riparian vegetation, including wetlands, estuaries, lake, stream and coastal margins.*

Outstanding Natural Features and Outstanding Landscapes -Section 19 -

Policies

1. To identify and classify the variety of natural features and landscapes found within the region, using a consistent methodology and consultation with landowners, tangata whenua and community groups, to define which natural features and landscapes are of outstanding value.

2. *To ensure protection of outstanding natural features and outstanding landscapes, particularly those important to the natural character of the coastal environment, wetlands, and lakes and rivers and their margins, by avoiding, remedying or mitigating adverse effects from inappropriate subdivision use and development, which may include activities such as earthworks, structures and vegetation clearance.*
3. *To establish and provide for the relationship of Maori and their culture and traditions with their ancestral lands in relation to outstanding natural features and outstanding landscapes.*
4. *To recognise and provide for outstanding natural features and outstanding landscapes and associated intrinsic values of ecosystems, and for heritage, ecological, cultural, spiritual and amenity values.*

5. To recognise and provide for the protection of outstanding landscapes by avoiding those effects of subdivision, use and development which adversely impact on the integrity of an outstanding landscape unit.

6. *To recognise that productive uses, such as farming and forestry, do occur within some outstanding landscape units.*

SOIL CONSERVATION AND LAND MANAGEMENT

Policies

1. *To promote soil conservation as an integral part of all land use and development activities.*
2. *To promote the adoption of best management practices for land use activities which have the potential to cause accelerated erosion, and other forms of soil degradation.*
3. *To encourage the retirement and re-vegetation of land which has a high erosion risk.*

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COASTAL MANAGEMENT- CHAPTER 22

Objectives

1. *The preservation of the natural character of the coastal environment, including protection from inappropriate subdivision, use and development.*
2. *Prevention of damage to and loss of traditional fisheries habitats and tangata whenua resources of significance to the tangata whenua.*
3. *Maintenance and enhancement of public use, enjoyment of and access to the*

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coastal environment.

4. *The minimisation of the conflicts between uses in the coastal environment and their effects on public health and safety.*

Policies

2. *In protecting the coastal environment from inappropriate subdivision, use and development (including any adverse effects associated with location, scale and/or character), councils will have particular regard:*

(a) In relation to preservation of natural character avoiding

(i) types of use and development (including sporadic and sprawling subdivision) that would be likely to have adverse effects on the coastal environment; and

(ii) cumulative adverse effects (including those associated with incremental change and a shift towards dominance of the built form); and

(iii) any conflict (potential or actual) with current or existing uses, values and the natural character of adjacent land and water areas, and

Where it is not practicable to avoid these matters, councils will have regard to the extent to which they may be remedied or mitigated.

(b) In relation to other matters to;

(iv) future adverse effects associated with sea level rise; and

(v) efficient use and development of finite coastal resources, including (where appropriate) the concentration of types of activity and the multiple use of any facility; and

(vi) the extent to which alternative locations (both to the coastal environment and within the coastal environment) and/or methods of subdivision, use and development are either impractical or otherwise inappropriate; and

(vii) the maintenance of existing public access to and along the coastal marine area.

3. *To ensure that activities which can cause irreversible changes to the coastal marine area (including reclamation, dredging and dredging spoil disposal) are only carried out in the coastal marine area where:*

(a) no practical land based alternative exists

(b) the activity takes place in the minimum area possible

(c) there is a significant public benefit as a result of the activity

4. *Where appropriate, to promote or require restoration of areas within the coastal environment where the natural character has been degraded by subdivision, use and development.*

5. *To encourage, and depending on its relative cultural, landscape, and ecological significance, and the degree of risk posed to it by use and development, to require the protection of areas of the following significant indigenous vegetation:*

(a) remnant forest;

(b) shrubland;

(c) coastal wetland including mangroves and saltmarsh;

(d) eel grass;

(e) sand dune vegetation; and

(f) significant habitats of indigenous fauna.

6. *To promote the control of the introduction of exotic organisms into the coastal marine area.*

7. *To adopt a precautionary approach to coastal management where knowledge is limited about the likely impact on the natural character of the coast of the effects of subdivision, use and development in the coastal environment.*

8. *To ensure that provisions in the regional coastal plan and in district plans are complimentary for adjoining coastal land and coastal marine areas.*

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SECTION 23 - ECOSYSTEMS AND BIODIVERSITY

Policies

1. *To maintain general ecosystem health and indigenous biodiversity by avoiding, remedying or mitigating adverse effects of land use activities, water use activities and contaminant discharges on natural ecosystems.*
2. *To recognise and promote awareness of the role of ecosystems in sustaining the life supporting capacity of the biosphere and the importance of the protection of indigenous biodiversity.*
3. *To promote the identification and evaluation of areas containing indigenous vegetation and the habitats of indigenous fauna using the established scientific assessment and ranking criteria developed under the Sites of Special Biological Interest and Protected Natural Area programmes.*
4. *To recognise, as 'significant', those sites of indigenous vegetation and habitats of indigenous fauna which are of Moderate, Moderate-High, High and Outstanding Value under Sites of Special Biological Interest or equivalent under the Protected Natural Areas criteria, or that meet any of the criteria listed in Appendix III.*
5. *To allow for a review of the significance of any site where additional information has been collected which may affect the current ranking or where the values associated with the site may have changed over time.*
6. *To protect significant indigenous vegetation and significant habitats of indigenous fauna so that the ecological values of such sites are maintained. When assessing adverse effects, to emphasise avoidance unless remediation or mitigation would more effectively maintain the life-supporting functions of natural ecosystems.*
7. *To promote habitat restoration as a mechanism for the protection of significant indigenous vegetation and the significant habitats of indigenous fauna, and in the maintenance of general ecosystem health and indigenous biodiversity.*
8. *To recognise and provide for the maintenance or enhancement of riparian vegetation and habitats, and encourage their restoration, for the protection of significant indigenous vegetation, significant habitats of indigenous fauna, preservation of natural character and the maintenance of general ecosystem health and indigenous biodiversity.*
9. *To promote the establishment of national parks, marine and other reserves in the region.*
10. *To encourage co-ordination and integration between all agencies involved in the protection, management of, and research on, significant habitats of significant indigenous vegetation and fauna within the region.*

10.5.1 COMMENT

The applicant's proposals have been considered in regard to all relevant statutory matters including regional and district planning instruments. The provisions of the Regional Policy Statement (RPS) have basically structured the content of the Regional Water and Soil Plan as well as the provisions of the Kaipara District Plan. The proposal is consistent with those provisions and is therefore deemed to be consistent with the RPS. Notwithstanding that the proposal has been assessed with respect to the above regional matters in particular and is considered to be consistent with the required outcomes as a result of the specific design of the proposal and the proposed mitigation and/or avoidance methods employed to ensure that any potential adverse effects arising from the proposal are no more than minor.

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10.6 KAIPARA DISTRICT PLAN- ASSESSMENT

DISTRICT PLAN ZONING

Under the provisions of the Operative District Plan the applicant's site is zoned as Rural-Residential (Landscape and Ecological Enhancement) Zone with a small part being in the Coastal Zone (1.3ha approximately). Those Plan provisions are set out below.

The provisions of proposed Plan Change 9 (now Operative) amended a number parts of the then District Plan including those related to earthworks, removal of vegetation, objectives and policies, subdivision provisions and subdivision policies.

A new zone statement (3.6.1) for the Rural-Residential (Landscape and Ecological Enhancement) Zone is included in the Plan. It is stated therein -

"This zone covers several areas of land at Mangawhai which have significant ecological and natural character values and provide associated landscape context to the settlement. They have been partially developed for rural-residential purposes and have the potential to be further developed with appropriate ecological and landscape protection/enhancement measures.

The nature of the land within the zoned areas varies considerably in terms of contour, relationship to the coast and vegetation present. The zone rules are directed at encouraging innovative subdivision and building developments which respect the natural features of sites and utilise low impact servicing methods. There are restrictions on earthworks and clearance of naturally occurring indigenous vegetation. The zone also has rules requiring information on the ecological and landscape values of sites, and information on the effects of subdivision and land use activities on these values. This information is to be provided with all resource consent applications.

The land at Mangawhai Heads forms an important visual backdrop to the settlement with controls of subdivision and buildings above the 60 metre contour line on the most seaward ridge. It also contains some shrubland areas with significant ecological values, which are to be protected and enhanced when subdivision and land use activities requiring consent are undertaken."

For the Coastal Zone, the associated zone statement is;
"The Coastal zone covers land along both the east and west coasts and around the Kai Iwi Lakes which has a distinctive landscape character and is sensitive to development. It generally covers land within the coastal environment and lake catchments to which the provisions in Section 6(a) of the Act apply. These provisions require the preservation of the natural character of such land and its protection from inappropriate subdivision use and development.

The inland boundary of the zone generally follows property boundaries and may include some small areas which have little relationship to the coast or lakes. Provision is made for these areas to be utilised for a wider range of land use and subdivision activities. The most environmentally sensitive area adjacent to the coast has been identified on the planning maps and special assessment criteria apply to land use and subdivision activities within it.
The zone is intended to complement similar zones applying to coastal land in the adjoining Far North, Rodney and Whangarei districts. The range of land use and subdivision activities listed is limited to those which are considered compatible with a coastal or lakeside location and enable the relatively open and unfragmented character of the landscape to be maintained. Special provisions apply to the protection of significant bush and wetland areas."

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It is noted that the applicant's site is subject to the 60 metre contour line provision in the rural residential zoned parts of the site. There is no similar height/amenity provision for the coastal zoned part of the site. It is further noted that a number of the proposed dwelling sites are located above that 60 metre line (Lots 3-23 and 31).

As noted elsewhere that is primarily due to the geotechnical characteristics of the site. Residential dwellings containing one household unit per site are a permitted activity under Rule 3.6.2 of the plan change.

Buildings for residential (and other) purposes are subject to a number of standards set out in Part 3.6.5 of the plan and those include matters related to yards, height of buildings (maximum height of 7.5 metres), site coverage (20%), the location of buildings in visually prominent areas (as a permitted activity no part of any building shall extend above the 60 metre contour line shown on the planning maps). It is noted that Section 13.2.7 (refer 3.6.5.1) of the Plan makes provision for applications seeking land use consent to undertake activities not in compliance with any of the standards set out in relation to permitted activities. It is also noted that any such applications are discretionary activities. The applicant only seeks to subdivide the land and any dwellings will be built by future landowners in accordance with the rules prevailing at the time. This application seeks to ensure that any future dwelling can be designed and constructed and meet the policy intent for the zone.

Permitted activity standards also limit earthworks to 200m^3, the clearance of predominantly indigenous vegetation to 200m^2 in area and restrict any work affecting any single native tree over 3 metres in height. It is noted that land use consent can be sought to carry out earthworks or indigenous vegetation clearance exceeding the permitted standards as a restricted discretionary activity. Section 13.2.7 of the plan identifies the matters the Council will have regard to in considering any such (discretionary) application. This proposal seeks consent to carry out the land modifications and vegetation clearance to implement the subdivision proposal. Under the provisions of the Regional Plan Water and Soil, consent is also sought for those proposals as well as for wastewater treatment and disposal.

Rule 11.5.7 (2) provides for in sub-clause (iii) provides for the subdivision of lots for principally residential use in the form of a comprehensive development which is served by whole subdivision wastewater and stormwater disposal systems installed at the time of subdivision provided the lots have an average area of at least 2000m^2 (net site area) and any of the land not contained in the residential lots as held in one balance area or held in conjunction with the residential lots and amalgamation condition or restricted covenants arrangements entered into.

Particular assessment criteria are set out in the Plan in Parts 13.3.3.E, 13.3.5 and 13.3.6 (3) & (5) and those criteria include the following;

13.3.3E Special Information Requirements – Applications for Subdivision Consent Involving Sites in the Rural-Residential (Landscape and Ecological Enhancement) Zone

Subdivision consent applications involving sites in the Rural-Residential (Landscape and Ecological Enhancement) zone are to contain or be accompanied by a report, which provides the following information:

- *A description of any significant areas of predominantly indigenous forest, shrubland or wetland on or immediately adjacent to the site, their ecological values in terms of the Department of Conservation's rating criteria for ecological features as set out in Appendix 8G, and measures intended to secure their long term protection and enhancement on the site. For land in the Mangawhai Heads North area (Ref Planning Maps 55 and 80)*

the information is to be in the form of an Ecological Assessment and Management Plan prepared by an appropriately qualified person.

- *A description of the landscape values of vegetation on the site and measures intended to enhance or restore the amenity and natural character values of the site. For land around the fringes of the Molesworth Peninsula (Ref Planning Maps 59 and 80) the information is to be provided in the form of a Vegetation Assessment and Management Plan prepared by an appropriately qualified person.*

- A plan showing the location of any roads and private ways to be formed as part of the subdivision, along with nominated building envelopes and driveways where such facilities are likely to have more than minor effects on the ecological and landscape values described in the Ecological Assessment and Management Plan and Vegetation Assessment and Management Plan.

13.3.5 General Assessment Criteria

The Council will have regard to the following matters or assessment criteria when considering a subdivision consent application involving a controlled activity, a discretionary activity, or a non-complying activity. When considering an application for subdivision consent involving a controlled activity the Council will exercise its control only over the matters listed. For subdivision consent applications involving discretionary or non-complying activities the Council has not by virtue of this plan restricted its discretion to the matters listed and may consider other matters relevant to the application.

i) Subdivision Layout - the extent to which the boundaries of each new lot are located in accordance with the topography of the land so as:

- *to enable effective access, drainage, fencing and management of the lots and any balance area*
- *to provide more than one suitable building site where such development is likely*
- *to create a variety of lot sizes where the subdivision is for residential purposes and involves three or more lots in a 'greenfields' area*
- *to not prejudice the subdivision potential of any balance area or adjacent site and provide for future road linkages, particularly where shown on structure plans*
- *to make effective provision for road, pedestrian and cycleway linkages between subdivision and community facilities such as schools*

ii) Lot Shape - the extent to which the shape of the lot is suitable for the intended use. The Council will generally require each lot to contain a nominated building site of not less than 200m², with a least dimension of 10 metres, exclusive of any yard requirements. Each lot is also to be of such a shape as to contain suitable land for on-site sewage effluent disposal and stormwater disposal where this is intended.

iii) Natural Hazard Mitigation - the extent to which the site is affected or likely to be affected by erosion, subsidence, slippage, inundation, or other natural hazards and the need for associated protective measures

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taking into account the provisions in Section 106 and Section 220 (1) (d) of the Act.

iv) *Road Access - the type of access required to serve the proposed lots. The Council will generally require each lot to have frontage to a formed road except where provision is otherwise made in accordance with Section 321 of the Local Government Act. Conditions requiring a financial contribution towards the establishment and/or upgrading of roads, service lanes, rights of way and other similar facilities serving the subdivision may be imposed on subdivision consents. Section 9.8 prescribes the basis upon which such conditions, including financial contributions may be sought.*

v) *Utility Services - the servicing needs of the proposed lots, particularly in terms of sewage and stormwater disposal, water supply, electricity and telephone services. The Council will generally require lots to be provided with connections to any public utility services available in the immediate vicinity. Associated financial contributions may be required as conditions of subdivision consent where a subdivision causes a demand for the upgrading or extension of existing services. Section 10.7 prescribes the basis upon which such conditions, including financial contributions may be sought*

vi) *Earthworks and Site Development Works - the nature of earthworks and other site development works required as part of the subdivision and their likely impact on existing landforms and related features including lakes rivers and streams. Conditions may be imposed on any subdivision consent limiting the form, scale and timing of earthworks and associated filling and compaction operations in sensitive areas.*

vii) *Protection of Historic and Natural Features - the need to formally protect any significant historic sites, archaeological sites, Wahi tapu, stands of bush, wetlands and other natural features or significant landscape features as part of the subdivision and to arrange the layout access to and servicing of lots accordingly.*

viii) *Reserves - the extent to which use of the proposed lots will place additional demands on reserves and other public open space areas in the general locality and the need for a financial contribution to be made towards the establishment and/or upgrading of such reserves and public open space areas. Section 11.6 prescribes the basis upon which such financial contributions may be sought.*

ix) *Esplanade Areas - the need for esplanade reserves or esplanade strips to be created as part of the subdivision in accordance with the requirements in Sections 231 and 232 of the Act and related provisions of this plan (See Section 11.7).*

x) *Proximity of Lots to High Voltage Transmission Lines*

- *Subdivision design: The degree to which subdivision design, including the location of roads and reserves recognises and provides for existing electricity lines so that reasonable access to the lines is maintained.*

- *Location of building platforms: The extent of separation between building platforms and existing lines, taking into account the requirements of NZECP:34 or any subsequent code of practice.*

- *Location of proposed tree planting: The extent of separation between the location of proposed trees and existing lines, taking into account the likely mature height of the trees, whether they have potential to interfere with the lines, and whether an alternative location would be more suitable given the operational requirements of the lines owner to prune or remove trees which have the potential to interfere with the lines.*

- *Extent and mode of earthworks: Whether appropriate safeguards are in place to avoid contact with or flashovers from lines, and effects on the stability of support structures.*

xi) *Stormwater Drainage - the stormwater drainage needs of individual lots, including balance areas, and the extent to which the subdivision has been designed to protect identified drainage and flood paths in Council plans, including the Mangawhai Heads Catchment Drainage Plan (1991)*

(3) *<u>Coastal Zone - Lots Less Than 20ha (Discretionary Activities)</u>*

i) *Settlement Pattern - The proximity of the proposed subdivision to existing settlements and the availability of lots of a similar nature within such settlements.*

ii) *Natural Character of the Coastal Environment - The scale of the proposed subdivision and the extent to which any subsequent building development is likely to detract from the natural character of the coastal environment. The Council will give particular consideration to the number of lots intended for principally residential use and their associated layout and access arrangements. It will generally not grant consent to multiple lot subdivision of a principally residential nature on land which is visually prominent and contributes significantly to the open landscape character of the coast or any lakes in the zone. Much of the land within the primary visual catchment area of the Taharoa Domain (Kai Iwi Lakes) and immediately adjacent to the east and west coasts, (i.e the land which is contained within the Coastal Environment Area shown on the planning maps falls into this category. Lots of a residential nature may however be approved in areas adjacent to existing settlements which are of limited scenic significance and where the form and scale of subdivision would complement the existing development pattern. They may also be approved in areas inland of the Coastal Environment Area which do not have significant landscape values.*

iii) *Covenanting and Reservation of Land - The extent to which land within the catchment area of any dune, lake or the Coastal Environment Area will be formally reserved or covenanted and its conservation or cultural values enhanced as a result of the subdivision.*

iv) *Access and Traffic Effects - The location and number of vehicle entrances proposed and the likely effect of resulting traffic movements on the safety and efficiency of any adjacent roads. The Council will generally not grant consent to subdivisions which are likely to create*

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forms of ribbon development along roads, especially heavily trafficked strategic and arterial routes.

v) Availability of Building Sites and Land for Sewage and Stormwater Disposal - The extent to which suitable building sites are available on the proposed lots and associated land is available for on-site sewage and stormwater disposal where such services are to be utilised. Where septic tank systems with conventional drainage fields are to be used for sewage disposal the Council will generally expect an area of at least 400m² to be available solely for this purpose within each lot. Such areas are to be of suitable soil type and slope and free of paved areas, buildings and the like.

13.3.6 (5) Rural-Residential (Landscape and Ecological Enhancement) Zone

(i) Natural Character of the Coastal Environment - The scale of the proposed subdivision and the extent to which subsequent building development is likely to affect the natural character of the coastal environment. The Council will give particular consideration to the layout of lots, siting of nominated house sites, and access arrangements. The subdivision design is to utilise the existing landform profile and contours, minimise cut and fill earthworks, and wherever possible involve the use of shared accesses.

(ii) Ecological Protection and Enhancement - The nature of any significant indigenous flora and fauna on the site and extent to which it is to be protected through creation of reserves or conservation covenants. Particular consideration is also to be given to ongoing ecological enhancement measures, including restorative plantings and weed management.

(iii) Landscape Enhancement - The landscape qualities of the site and surrounding area and the extent to which existing features are integrated into the subdivision and enhanced. Particular consideration is to be given to restorative planting of areas affected by past earthworks or earthworks required as part of the subdivision. The Council may control the location of building sites to ensure protection of landscape and natural character values.

(iv) Availability of Building Sites and Land for Sewage and Stormwater Disposal - The extent to which suitable building sites are available on the proposed lots and associated land is available for on-site sewage and stormwater disposal. Where septic tank systems with conventional drainage fields are to be used for sewage disposal the Council will generally expect an area of at least 400 m² to be available solely for this purpose within each lot. Such areas are to be of suitable soil type and slope and free of paved areas, buildings and the like.

(v) Drainage Conditions On-Site and Water Resource Protection The drainage conditions on the proposed lots and the extent to which any wastewater disposal systems will be effective and not contaminate water resources. The proximity of the lots to natural water courses and the nature and use of underground water supplies in the immediate area are to be assessed. Particular consideration is to be given to the effects of wastewater discharges from subdivisions on the Mangawhai Coastal Aquifer identified in the Proposed Regional Water & Soil Plan (see Planning Map 85).

Note Subdivision consent applications being assessed under this clause

are required to be supported by engineering reports and information on alternative wastewater and stormwater systems, whether or not the proposed means of stormwater and wastewater disposal comply with the relevant regional rules on discharges to discharges and whether any other resource consents are required.

(vi) Access and Traffic Effects - the location and number of vehicle entrances proposed and the likely effect of resulting traffic movements on the safety and efficiency of adjacent roads. Particular consideration will be given to entrances onto heavily trafficked arterial and collector roads and the need for internal subdivision roads, common access lots and other traffic safety mitigation measures.

10.7 RELEVANT KAIPARA DISTRICT COUNCIL PLAN DEFINITIONS

In regard to the applicant's proposals, there are a number of relevant definitions that apply to the interpretation of the Plan provisions, and those include the following;

- ***Access Lot*** *means a lot held in undivided shares by the owners of two or more lots as tenants in common which provides street frontage and access to the lots.*

- ***Net Site Area*** *means the total area of a site minus the area of any entrance strip or any area subject to a drainage or right of way easement in favour of any site.*

- ***Entrance Strip*** *means in relation to a rear site that part of the site which extends from the street boundary to the nearest rear yard of the site and which provides street frontage and access to the site.*

- ***Subdivision of Land*** *shall have the meaning given in the Resource Management Act 1991 being:*
  (a) The division of an allotment:-
  - *(i) By an application to a District Land Registrar for the issue of a separate certificate of title for any part of the allotment; or*
  - *(ii) By the disposition by way of sale or offer for sale of the fee simple to part of the allotment; or*
  - *(iii) By a lease of part of the allotment which, including renewals, is or could be for 20 years or longer [; unless that part of the allotment is in the coastal marine area, and that lease is allowed for a term of 20 years or longer by a coastal permit or by a rule in a regional coastal plan; or]*
  - *(iv) By the grant of a company lease or cross lease in respect of any part of the allotment; or*
  - *(v) By [the deposit of a unit plan, or] an application to a District Land Registrar for the issue of a separate certificate of title for any part of a unit on a unit plan; or*

  (b) An application to a District Land Registrar for the issue of a separate certificate of title in circumstances where the issue of that certificate of title is prohibited by section 226.

- *Lot shall have the same meaning as allotment in the Resource Management Act 1991 being parts of land or buildings shown on a survey plan, or on a unit*

title plan;

Except that in respect of any company or cross lease form of subdivision a lot shall be deemed to be the building or flat (allotment), and associated areas over which restrictive covenants are proposed, along with a proportionate share of any common areas; and

Except in respect of any unit title form of subdivision a lot shall be deemed to be the principal unit (allotment) and associated ancillary units along with a proportionate share of any common areas.

- Site means and includes:
  (a) an area of land which is
  (i) comprised in a single certificate of title, under the Land Transfer Act 1952 or
  (ii) contained in a single allotment on an approved survey plan of subdivision for which a separate certificate of title could be issued without further consent of the Council
  (b) an area of land which is composed of two or more contiguous allotments held together in one certificate of title in such a way that the allotments cannot be dealt with separately without the prior consent of the Council; or
  (c) an area of land which is composed of two or more contiguous allotments held in two or more certificates of title where such titles are:
  (i) subject to a condition imposed under Section 643 of the Local Government Act 1974; or
  (ii) held together in such a way that they cannot be dealt with separately without the prior consent of the Council;

  except that in respect of any company or cross lease form of title issued under the Land Transfer Act 1952 a site shall be deemed to be the flat and areas over which associated restrictive covenants exist along with a proportionate share of any common areas, and
  except that in respect of any unit titles issued under the Unit Titles Act 1972, a site shall be deemed to be the principal unit and associated accessory units along with a proportionate share of any common areas.

- ***Managed Whole Subdivision Wastewater or Stormwater System*** *means a system designed to serve all of the lots in a subdivision using one or more treatment and disposal facilities which are subject to regular inspection, maintenance and discharge monitoring arrangements*

- ***Reticulated Wastewater System*** *means a system for collecting, treating and disposing of wastewater which serves all buildable lots in a subdivision*

- ***Private Road*** *shall have the meaning given in the Local Government Act 1974 (Section 315) being any roadway, place, or arcade laid out or formed within a district on private land, whether before or after the commencement of this part of this Act, by the owner thereof, but intended for the use of the public generally*

- ***Private Way*** *shall have the meaning given in the Local Government Act 1974 (Section 315) being any way or passage whatsoever over private land within a district, the right to use which is confined or intended to be confined to certain persons or classes of persons, and which is not thrown open or intended to be open to the use of the public generally; and includes any*

such way or passage as aforesaid which at the commencement of this part of this Act exists within any district.

- ***Earthworks*** *- means the disturbance of land surfaces by placing soil or earth, or by excavation, or by cutting and filling operations, or earthworks for quarries or mines, and roading. The term does not include trenching for utility services, the maintenance of driveways and tracks, digging post holes or earthworks associated with clearance and maintenance of drains, dams, and other manmade water features.*

- ***Naturally occurring indigenous vegetation*** *- means vegetation comprising species which are predominantly indigenous to New Zealand and include such vegetation and forests, dunelands, gumlands and shrublands, regardless of size but does not include any planting of any indigenous flora except where this has been undertaken for revegetation purposes in accordance with a resource consent condition.*

10.7.1 COMMENT

In regard to the applicant's proposal it is noted that;

1. Formed access is provided over access lots (being private ways) which provide legal street frontage.

2. All rear lots are provided street frontage by the proposed access lots.

3. Net site area includes the access lot areas by virtue of the above definitions.

4. Easements are provided for the purposes of providing a *Managed Whole Subdivision Wastewater or Stormwater System* (and not for 'drainage' purposes; therefore are not excluded from net site area).

5. Net site area is the gross site area less 143m2 (being the access leg of Lot 31) for the applicant's proposals, as a consequence of the above definitions. This results in a rural residential density of 2228m2 per lot.

10.8 STORMWATER AND WASTEWATER DISPOSAL

Part 11 of the Plan sets out a number of matters related to stormwater and wastewater. Those most relevant to the proposal include;

'The District Council's only Resource Management Act responsibilities relating to wastewater disposal come from its functional obligations to control "the subdivision of land" and the "effects of the use, development and protection of land" (Ref Section 31 of the Act). The District Council's approach to these matters is to generally rely on the regional rules and associated performance standards but to exercise particular control over residential forms of subdivision in areas with 'poor' soils and sensitive water resources, including coastal waters and groundwater aquifers. The Council will require all people seeking resource consents (land use or subdivision) or building consents to demonstrate compliance with the regional rules on sewage discharges.'

The applicant is seeking consent from the Regional Council in respect of a

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number of matters including stormwater and wastewater management.

Also, the District Plan notes;

'The plan identifies 13 drainage catchments and around 90 sub-catchments in the Mangawhai Heads - Molesworth Peninsula. It discusses soil conditions, land drainage and stormwater disposal issues in each catchment and makes recommendations on future facilities. Amongst these are the provision for "natural ponding areas" and "overland flow paths" and "protected drainage paths", particularly on 'undeveloped' parts of the Molesworth Peninsula. The plan generally recommends that the overland flow paths and protected drainage paths identified in the plan be kept free of buildings and other structures. '

and
'The Mangawhai Infrastructural Assets Study (1999) investigated the effectiveness of existing stormwater systems in the two settlements and need for improvements to accommodate expected future growth. In the Mangawhai Heads area it worked primarily on the basis of the drainage catchments identified in the 1991 catchment management plan. The study recommended a number of stormwater improvements over a 10 year period utilising whenever possible a low impact design approach. It also recommended that this approach form the basis of future servicing and appropriate provisions incorporated into the District Plan and Engineering Code of Practice For Land Subdivision and Development.

The low impact design approach has the following objectives:

- *reducing the amount of impervious surfaces using minimum width roads and driveways where possible*
- *retaining natural drainage channels, including grassed roadside swales rather than paved channels and pipes for the primary collection system*
- *decreasing stormwater flows through use of detention ponds particularly at points where slopes decrease from upper catchment areas*
- *using natural ground soakage runoff in areas with suitable soils (this involves soakage testing of sites)*

provision for secondary flow paths to cater for large storms where runoff exceeds soakage capacity'.

10.8.1 COMMENT

The applicant's proposals are consistent with the Plan provisions. Consents are also sought from the NRC in respect of wastewater disposal and all relevant matters are set out in Section above. The proposal provides for a comprehensive wastewater treatment and disposal system that will produce a high quality product that can be disposed of to ground at a loading rate of 2mm, which is within the loading range identified in the Soil and Rock Consultants geotechnical report.

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10.9 OBJECTIVES AND POLICIES

The Plan also sets out particular relevant objectives and policies in relation to the relevant zones and any subdivision proposals and those include;

6.4.2 Policies

(1) Coastal Management

Policy 1: To recognise the special character of land in the coastal environment and control development activities within it.

Methods of Implementation

1. *A Coastal zone covering land in the coastal environment which has high biological or scenic qualities or cultural values of special value to tangata whenua.*

2. *Rules which list those land use activities which are likely to detract from the natural character of land in the Coastal zone as either controlled or discretionary activities depending on their effects.*

3. *Rules which limit the circumstances under which land may be subdivided in the Coastal zone in accordance with its purpose.*

4. *Special environmental standards and assessment criteria (rules) relating to the design and location of buildings in the Coastal zone.*

5. *A Coastal Environment Area covering Maori Purposes and Rural zoned land around the Kaipara Harbour having moderate landscape values and within which special rules on earthworks and indigenous vegetation clearance apply along with building and subdivision assessment criteria.*

6. *Rules providing for the use of financial contributions by way of works and/or land to mitigate the adverse effects of land use activities on riparian margins and water areas.*

7. *Investigate in conjunction with the Northland Regional Council and the Department of Conservation the need for special bylaw or management controls relating to the use of public reserve and other open space areas along the coast.*

8. *Develop and maintain publicity material and signs restricting vehicle movements, stock grazing and other potentially damaging activities on and adjacent to sensitive coastal areas.*

Explanation: The zoning of land is considered the most effective means of exercising some control over land use and subdivision activities in the coastal environment. Such provisions need to be supported by measures which limit the use of some highly sensitive reserve and other open space which are in public ownership.

11.5.2 RESIDENTIAL SETTLEMENT

(1) Settlement Patterns

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Policy 1: To concentrate residential development within and adjacent to existing settlements.

Methods of Implementation

1. *Zone land for principally residential and rural-residential subdivision and use in the Dargaville, Te Kopuru, Ruawai, Maungaturoto, Paparoa, Kaiwaka, Maunganui Bluff, Omamari, Baylys Beach, Glinks Gully, Pouto Point, Kellys Bay, Tinopai, Pahi, Whakapirau, and Mangawhai areas.*
2. *Rules which limit the development and subdivision of land for intensive residential use in the Coastal, Maori Purposes and Rural zones.*
3. *Monitor residential section demands and housing trends and initiate appropriate changes to the plan.*

Explanation: The planned development of residential and rural-residential areas in strategic locations is a cost effective strategy consistent with the sustainable management purpose and principles of the Act.

Objective: To manage the future growth of the Mangawhai area in a manner which enhances its distinctive coastal character, residential amenity and soil, water, ecological and landscape values.

Policy 1 : To manage the peripheral residential expansion of the Mangawhai Heads and Mangawhai Village Settlements and promote efficient resource use and servicing.

Policy 2: To promote integrated business, residential, rural-residential and public open space development on the Molesworth Peninsula and link it to the two existing settlements.

Policy 3: To promote a community wastewater scheme for the Mangawhai Heads, Mangawhai Village and Molesworth Peninsula Settlement areas.

Policy 4: To limit the extent of both 'greenfield' and 'infill' subdivision of residential areas based on individual lot stormwater and wastewater servicing and promote comprehensive low impact design solutions.

Policy 5: To retain the low density character of the Mangawhai Heads 'Beachfront' Area and require the protection and enhancement of amenity and landscape values in all subdivisions and land use developments

Policy 6: To provide for a range of lots and residential developments in areas outside the Mangawhai Heads 'Beachfront' Area to cater for the changing nature of resident and visitor populations.

11.5.3 LAND SUBDIVISION

11.4 Objectives, Policies and Methods of Implementation

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11.4.1 Objectives - Land Subdivision

Objective 1: To encourage the subdivision of land in a manner which ensures sustainable use is made of the land and associated infrastructural services whilst significant cultural, historic and natural features and amenity values are protected.

Explanation: Land is one of the district's most valuable resources. Its closer subdivision is to be encouraged in accordance with the rural development and settlement objectives of this plan. Controls on the form and scale of subdivision are required in order to safeguard existing amenity values, and make effective use of roads, and utility services.

Policies

(1) Rural Subdivision

Policy 1A: To retain the relatively open natural character values of rural land along the East and West Coasts and concentrate residential forms of subdivision in and adjacent to existing settlements.

Policy 1B: To recognise the history of settlement and intensive use of land around the Kaipara Harbour and direct residential forms of subdivision into areas where the natural character has been compromised and/or the effects of development on the natural character can be effectively mitigated.

Policy 3: To ensure that where land is subdivided for small lot farming, farm park and other similar purposes and rural-residential use, the rural amenities of the site and surrounding area are protected and enhanced.

Policy 4: To ensure that subdivisions are designed to avoid or mitigate potential conflicts between residential activities and existing rural land use activities with nuisance elements, i.e. dust, noise, odour and contaminant discharges.

Policy 5: To encourage, and where appropriate require, the protection and enhancement of significant ecological, heritage and landscape features at the time of subdivision.

Policy 6: To ensure that at the time of subdivision effective use is made of roads and private ways and the number of new vehicle crossings created is limited, especially on state highways and other heavily trafficked roads.

Policy 7: To generally require the provision of electricity to lots of a principally residential, commercial or industrial nature.

Policy 8: To limit Council involvement in the supply of electricity to lots of a principally rural nature to the creation of any necessary supply easements and the effects of above ground structures on the natural character of land in the Coastal Environment Area and Kaipara Harbour Environment Area.

Policy 9: To recognise the potential adverse effects of intensive subdivision and associated buildings, human activities and domestic animals on the ecological, landscape and amenity values of conservation areas and reserves administered by the Department of Conservation and other significant ecological areas.

(3) <u>Subdivision Design</u>

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Policy 1: To require that land be subdivided in an environmentally sensitive manner having regard to its topography, historic, cultural and natural features, and servicing needs.

(4) Reserves Roads and Utility Services

Policy 1: To ensure that adequate land is set aside for reserves within settlements at the time of subdivision and associated facilities developed to meet the recreational needs of future occupiers.

Policy 2: To require a reserve contribution generally in cash on all rural lots which are capable of accommodating a residential dwelling and have been assessed for building site suitability purposes at the time of subdivision.

Policy 3: To not require a reserve contribution on lots for utility services purposes, including network utilities.

Policy 4: To ensure that when land is subdivided roads and utility services are provided to meet the access and servicing needs of future occupiers.

Policy 5: To ensure effective road and pedestrian access links are provided between subdivisions and subdividers upgrade roads affected by subdivisions or make appropriate financial contributions.

Policy 6: To generally require works be carried out by subdividers to offset the adverse effects of subdivisions on existing roads and utility services and administer limited cash contribution systems.

Policy 7: To administer a cash based financial contribution for the growth related roading and pedestrian access improvements within the Molesworth Peninsula Structure Plan Area.

Policy 8: To encourage the use of private roads and rights of way in rural subdivisions, particularly where there are little or no public benefits in extending the public road network.

Policy 9: To require that when land is subdivided appropriate provision is made for vehicle crossings and where the adjacent road has traffic safety limitations, existing crossings are upgraded or new crossings installed to mitigate the effects of the subdivision.

Policy 10: To encourage, and where appropriate require, the provision of managed whole subdivision wastewater and stormwater systems for subdivisions in environmentally sensitive areas.

Policy 11: To ensure that stormwater systems in settlement areas are planned and designed in accordance with Council drainage plans, including the Mangawhai Heads Catchment Drainage Plan.

Policy 12: To generally require the provision of electricity to lots of a principally residential, commercial or industrial nature.

Policy 13: To limit Council involvement in the supply of electricity to lots of a principally rural nature to the creation of any necessary supply easements and the effects of above ground structures on the natural character of land in the Coastal Environment Area and Kaipara Harbour Environment Area.

11.4.2 COMMENT

The applicant's proposal is consistent with the Plan objectives and policies for the relevant zones.

In particular the proposal is consistent with Policy 5 as it will maintain the low-density character at Mangawhai Heads and the landscape and amenity values of the site and thus the wider area will be enhanced and protected. Significant parts of the site will be replanted and large areas will be subject to protection covenants as set out in the report by DJ Scott Associates.

As noted in Section 3.4.2 of the Plan " The planned development of residential and rural-residential areas in strategic locations is a cost effective strategy consistent with the sustainable management purpose and principles of the Act."

The proposal will provide for appropriate access to all proposed lots as well as sustainable wastewater treatment and disposal. Each proposed lot can provide for a residential dwelling; noting that all buildings over the 60m contour in the rural residential zone will require a discretionary activity resource consent. Due to the nature of the site and the overall land management requirements this is an appropriate process. The applicant's landscape assessment identifies the potential effects of future buildings and addresses mitigation proposals and methods that are necessary to ensure that the provisions of the Plan are given effect to. The subdivision proposal also seeks to anticipate some likely effects mitigation and thus plantings are proposed and will be covenanted as well as there being proposed 5m height limitations imposed on certain lots (by way of consent notice).

A comprehensive wastewater plant will be provided to service the lots and an entity such as an Incorporated Society will be used as a mechanism to ensure ongoing management and maintenance of that plant. Stormwater management will ensure all effects arising from the proposed lots and access thereto are contained to and mitigated on site.

10.10 FUTURE DEVELOPMENT AND THE PROPOSED LOTS

The Plan sets out specific standards for permitted activities in the rural residential and coastal zones and those have been considered as part of the process of formulating and assessing the proposal.

Those standards include the following;

3.6.5 Rural-Residential (Landscape and Ecological Enhancement) Zone - Environmental Standards

*1. **Buildings and Structures***

(a) Location of Buildings in Relation to Site Boundaries (Yards)
No building shall be erected within the front side or rear yards of a site which are as follows:-

- *Front yards - 5 metres*
- *Side yards - one of 1.5 metres and one of 3.0 metres*
- *Rear yards - 3.0 metres <u>except</u> on rear sites where one yard of 1.5 metres*

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may be provided

provided that an accessory building may be erected in any side or rear yard where:

- *vehicle access is retained to the rear of the site, and*
- *it is at least 3.0 metres from any habitable room on an adjoining site, and*
- *it does not exceed 10 metres in length or 25% of the length of the side or rear yard whichever is the lesser.*

(b) Location of Buildings Near Lakes Rivers and the Sea
No building shall be erected within 30 metres of mean high water mark of the coastal marine area, or the banks of any lake whose bed has an area of 8ha or more, or the bank of any river or stream whose bed has an average width of 3 metres or more.

(c) Height of Buildings - General
No building shall exceed a height of 7.5 metres or that equal to 3 metres plus the shortest horizontal distance between that part of the building and any site boundary whichever is the lesser.

(d) Building Coverage
Building coverage of a site shall not exceed 20% of the net site area.

(e) Minimum Floor Levels of Buildings
See N.Z. Building Code (Clause E13.2)

(f) Building and Structures Near Road and Railway Intersections
See Section 9.10

(g) Buildings and Structures Near Electricity Lines
See Electricity Regulations 1993

(h) Buildings and Structures Near Gas Lines
See Gas Supply Regulations 1984

(i) Buildings and Structures Near Drains
See Kaipara District Council Land Drainage Bylaw.

(j) Location of Buildings in Visually Prominent Areas
No part of any building shall extend above the 60 metre contour line shown on the planning maps for the Mangawhai Heads North area (See Planning Maps 55 & 80).

NB: Section 13.2.7 makes provision for people to seek land use consent to undertake activities not in compliance with the abovementioned rules. Such applications are considered as discretionary activities.

2. Earthworks and Clearance of Indigenous Vegetation

No land use is to be carried out which involves the following activities:

- *earthworks in excess of 200m^2 in area in any 12 month period,*
- *clearance of naturally occurring indigenous vegetation in excess of 200m^2*

in area

- *damage to any single naturally occurring indigenous tree over 3 metres in height.*

Land use consent can be sought to carry out earthworks or indigenous vegetation clearance which exceed the abovementioned standards (Ref. Section 13.2.7 of the plan). Any such application shall be considered as a restricted discretionary activity and maybe processed by the Council in a non-notified manner pursuant to the provisions in Section 92 of the Act. Section 13.2.7 of the district plan identifies matters the Council will have regard to in considering such applications.

3. Noise Emissions

(i) Noise Limits

All activities shall be conducted so as to ensure that noise from the site shall not exceed the following limits, neither at nor within the boundary of any other site zoned Residential or Rural-Residential (Landscape and Ecological Enhancement):-

7.00 am to 7.00 pm Monday to Saturday 50 dBA L10
All other times and on public holidays 40 dBA L10
Any day from 10.00 pm to 7.00 am the following day 65 dBA Lmax

(ii) Measurement of Noise

Subject to the express provisions of this rule, sound levels shall be measured in accordance with New Zealand Standard NZS 6801:1991 Measurement of Sound and assessed in accordance with NZS 6802:1991 Assessment of Environmental Sound.

(iii) Construction Noise

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.

(iv) Noise From Temporary Military Activities

Noise emanating from military activities of a temporary nature shall not exceed the following limits, neither at nor within the boundary of any site zoned Residential nor within the notional boundary of any dwelling on a site in the Rural-Residential, Rural, Coastal and Maori Purposes zones.

Time (Any Day)	Limits (dBA)		
	L10	L95	Lmax
0630 - 0730	60	45	70
0730 - 1800	75	60	90
1800 - 2000	70	55	85
2000 - 0630	40		

Notwithstanding the above, noise resulting from the use of explosives shall not exceed 122 dBC and shall be limited to daylight hours. The noise measurement

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shall be taken at or within the boundary of site zoned Residential and within the notional boundary of any dwelling on a site in the Rural-Residential, Rural, Coastal or Maori Purposes zones.

4. Contaminant Discharges

No activity shall be carried out which results in the discharge of any contaminant to the air, einto land or into water in contravention of Section 15 of the Resource Management Act unless provided for by a rule in a Regional Plan or a Proposed Regional Plan or a Resourc e Consent (See Section 4.3.4 for further explanation).

5. Protection of Heritage and Natural Features

See Section 8.

6. Signs

See Section 9.

7. Vehicle Access Loading and Parking

See Section 9.

8. Other Resource Consents

People undertaking a land use listed as a permitted activity, controlled activity or discretionary activity in the zone are advised to contact the Northland Regional Council to determine if any other resource consents are required under the provisions of any Regional Plan. All Regional Plans are available for inspection at the Regional Council offices in Dargaville and Whangarei.

6.5.5 Coastal Zone - Environmental Standards

The following standards shall apply to all permitted activities in the zone, except network utilities.

(1) Buildings and Structures

(a) Location of Buildings in Relation to Site Boundaries (Yards)
No building shall be erected within the front side or rear yards of a site which are as follows:-

Front yards - 10 metres
Side and Rear Yards - 3 metres

(b) Location of Buildings Near Lakes Rivers and the Sea
No building shall be erected within 30 metres of mean high water mark of the coastal marine area, or the banks of any lake whose bed has an area of 8ha or more, or the bank of any river or stream whose bed has an average width of 3 metres or more.

(c) Distances between Buildings or Enclosures Housing Livestock and Residential Dwellings.
No building or enclosure intended to house livestock shall be erected within 50 metres of any residential dwelling unless that dwelling is occupied by the owner or occupier of the site or their employees.

(d) *Height of Buildings - General*
No building shall exceed a height of 10 metres or that equal to 3 metres plus the shortest horizontal distance between that part of the building and any site boundary whichever is the lesser.

(e) *Minimum Floor Levels of Buildings*
See N.Z. Building Code (Clause E 1.3.2)

(f) *Buildings and Structures Near Road and Railway Intersections*
See Section 9.5

(g) *Buildings and Structures Near Electricity Lines*
See Electricity Regulations 1993

(h) *Buildings and Excavations Near Gas Lines*
See Gas Supply Regulations 1984

(i) *Buildings and Structures Near Drains*
See Kaipara District Council Land Drainage Bylaw

(2) Noise Emissions

(a) **Noise Limits**

All activities shall be conducted so as to ensure that noise from the site shall not exceed the following limits, neither at nor within the boundary of any site zoned Residential, nor within the notional boundary of any dwelling on a site in the Rural, Coastal or Maori Purposes zones.

7.00 am to 7.00 pm Monday to Saturday	*50 dBA L10*
All other times and on public holidays	*40 dBA L10*
Any day from 10.00 pm to 7.00 am the following day	*70 dBA Lmax*

provided that the abovementioned noise limits may be exceeded under the following circumstances:-

(1) *where emergency valves need to be used for a short period of time during emergencies.*
(2) *where safety valves are being tested on site. On these occasions public notification of safety valve testing shall be given one week prior by advertisement in the local paper.*

(b) **Measurement of Noise**

Subject to the express provisions of this rule, sound levels shall be measured in accordance with New Zealand Standard NZS 6801:1991 Measurement of Sound and assessed in accordance with NZS 6802:1991Assessment of Environmental Sound.

(c) **Construction Noise**

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.

(d) **Noise From Temporary Military Activities**

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Noise emanating from military activities of a temporary nature shall not exceed the following limits, neither at nor within the boundary of any site zoned Residential nor within the notional boundary of any dwelling on a site in the Rural, Coastal and Maori Purposes zones.

Time (Any Day)	Limits (dBA)		
	L10	L95	Lmax
0630 - 0730	60	45	70
0730 - 1800	75	60	90
1800 - 2000	70	55	85
2000 - 0630	40		

Notwithstanding the above, noise resulting from the use of explosives shall not exceed 122 dBC and shall be limited to daylight hours. The noise measurement shall be taken at or within the boundary of site zoned Residential and within the notional boundary of any dwelling on a site in the Rural, Coastal or Maori Purposes zones.

(3) Use of Explosives and Blasting

All explosives shall be handled stored and used in accordance with the provisions in the Dangerous Goods Regulations 1979 and N.Z. Standard NZS 4403 (1976) "Code of Practice for Storage, Handling and Use of Explosives."

All blasting operations shall be carried out between the following hours:

Monday to Friday 0700 - 1900 hours
and Saturday 0700 - 1300 hours
except in emergency situations where the Council is advised accordingly and provided the following levels are not exceeded:

- *a peak overall sound pressure level of 128dBA linear unweighted*
- *a peak particle velocity ground vibration of 10mm per second measured in the frequency range 3-12 metres as measured from or within 20 metres of any occupied dwelling on any adjacent site.*

Records shall be kept of all blasting activities and made available for Council inspection at all times.

(4) Contaminant Discharges

No activity shall be carried out which results in the discharge of any contaminant to the air, onto land or into water in contravention of Section 15 of the Resource Management Act unless provided for by a rule in a Regional Plan or proposed Regional plan or a resource consent. (See Section 4.3.4 for further explanation)

(5) Protection of Heritage and Natural Features *See Section 8*

(6) Signs *See Section 9.*

(7) Vehicle Access Loading and Parking *See Section 9.*

(8) Other Resource Consents

People undertaking a land use listed as a permitted activity, controlled activity or discretionary activity in the zone are advised to contact the Northland Regional Council to determine if any other resource consents are required under the provisions of any Regional Plan. All Regional Plans are available for inspection at the Regional Council offices in Dargaville and Whangarei.

10.10.1 COMMENT

The proposed subdivision will enable the provision of primarily residential activities on each lot with a dwelling and accessory buildings being the most likely immediate activity.

Each lot provides for sufficient area for the above referenced performance standards to be met. In the case of the location of lots above the 60 metre contour line and the relevant Plan provisions that apply, the applicants proposal includes a visual assessment and consideration of the nature of buildings on each of the lots and in doing so, enables it to be demonstrated that when future owners apply as a discretionary activity to build on such lots, subject to appropriate design and mitigation, the resultant buildings will achieve the Plan purposes.

As noted elsewhere in this application document, the proposal has provided for the new lots in locations that specifically minimise risk in regard to land stability and erosion and maximise protection of the existing natural environment. he reports provided by Dr.Clunie and Soil and Rock support that approach.

To further that outcome, for Lots 3-23 and 31 in particular, the applicant has proposed as part of the proposal that there be a height limitation of 5m on those lots (put in place through a consent notice) and that the landscape and mitigation plantings shown on the plan by DJ Scott Associates be implemented and protected by covenant.

There is sufficient area available on each lot to provide for adequate vehicle manoeuvring and parking (two parks). Wastewater disposal is via a collective treatment and disposal system and all stormwater and runoff from residential lots will be managed thought the use of scoria dissipation trenches.

All yard requirements can be met on each site and any earthworks or vegetation beyond that involved in the formation of the access to each lot will be addressed at the time of future dwellings being proposed.

In regard to proposed Lot 31, which is in the coastal zone, all standards set out in 6.5.5 can be met and it is noted that there is no specified height contour line restriction applying to that site (and that in fact a 10m height standard applies).

The proposal therefore provides for appropriate building areas on lots which may be used for and comply with the respective provisions of the Plan for principally residential activities, apart from the 60m contour height limitation. Where that is not the case appropriate resource consent applications are required and will be assessed on their merits.

10.11 FINANCIAL CONTRIBUTIONS

The Plan sets out in Part 11 provisions relating top financial contributions and subdivisions.

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Those are as set out below.;

11.6 Rules - Reserve Contributions

11.6.1 General Requirements for Reserve Contributions as Conditions of Land Use or Subdivision Consent

The Council may in accordance with the provisions in Section 108 of the Act require a financial contribution in cash or land towards the establishment and/or upgrading of reserves and public open space areas as a condition of land use consent or subdivision consent. Contributions in land may be sought for the following purposes:

- *Where land is required to be set aside and developed for reserve or public open space use to cater for the recreational and open space needs of people associated with a proposed land use or subdivision; and/or*
- *Where land is required to be set aside to protect a significant natural feature, historic place or archaeological site,*

11.6.2 Form of Reserve Contributions

The Council will assess financial contributions on an application by application basis having regard to the ecological, landscape and recreational public open space effects of the proposed activity and the extent to which any adverse effects can be avoided, remedied or mitigated.

Any reserve contribution required as a condition of land use consent or subdivision consent may be in the form of:

i) land to be set aside and vested in the Council, the Department of Conservation, or other authority for reserve or public open space purposes; or

ii) a cash contribution to the Council for it to carry out works relating to developing or upgrading reserves or public open spaces in the district.

In addition under Section 108 of the Act the Council can require as a resource consent condition works on any reserve or public open space. Such works may include but are not limited to the following:

- *fencing*
- *landscaping including grassing and tree planting*
- *provision of play equipment and other recreational facilities*
- *provision of footpaths and walking tracks*

11.6.3 Maximum Amount of Reserve Contributions in Land

No requirement to set aside land for reserve or public open space purposes shall exceed the following maximum amounts:

(1) Subdivision of Land for Principally Residential Purposes or Rural Purposes Where The Lots Can Accommodate A Residential Dwelling
an area equivalent to 100 m² for each additional lot or 5% of the value of each

additional lot, <u>except</u> on lots of more than 4000m² where the contribution will be assessed on the basis of a 'nominal' 4000m² dwelling site.

(2) Development of Land for Principally Residential Purposes
an area equivalent to 0.5% of the value of each additional dwelling unit or similar accommodation facility

(3) Subdivision of Land for Principally Commercial or Industrial Purposes
an area equivalent to 100 m² for each additional lot or 5% of the value of each additional lot

The Council may in some circumstances negotiate with an applicant to provide more land than the maximum reserve contribution specified above. This will be done on the basis of the Council paying for the additional land concerned and a proportionate share of the survey costs incurred. An applicant may also choose to gift a larger reserve area than that specified above.

11.6.4 Maximum Amount of Reserve Contributions in Cash

Where the Council considers that a subdivision or development is adequately served by reserves and public open space areas (but not facilities and services thereon) or it is impracticable to provide such reserves or public open space areas, it may require a cash contribution in lieu thereof be paid. No such cash contribution required under these provisions shall exceed the following maximum amounts:

(1) Subdivision of Land for Principally Residential Purposes or Rural Purposes Where the Lots Can Accommodate A Residential Dwelling
5% of the value of each additional lot, except on lots of more than 4000m² where the contribution will be assessed on the basis of a 'nominal' 4000m² dwelling site.

(2) Development of Land for Principally Residential Purposes
0.5% of the value of each additional dwelling unit or similar accommodation facility

(3) Subdivision of Land for Principally Commercial or Industrial Purposes
5% of the value of each additional lot.

11.6.5 Maximum Amount of Reserve Contributions in Works

No resource consent condition to carry out works on a reserve or area of public open space shall exceed the equivalent maximum amount permitted in land or cash under Sections 11.6.3 and 11.6.4 respectively.

11.6.6 Matters to be Considered when Assessing Reserve Contributions

The Council will have regard to the following matters when assessing reserve contributions in respect of the development or subdivision of land for principally residential, commercial or industrial purposes:

- *the proximity of the land to existing reserves and public open space areas and standard of facilities on such reserves and open space areas*
- *the nature of any important archaeological sites, historic or natural features on the land and the appropriateness of them being formally set aside as part of a reserve or public open space*
- *the extent to which any archaeological, historic, ecological or other*

3+3

natural features are to be protected by way of covenants or other similar instruments and be made available for public use and enjoyment

- *the nature of any landscaping and planting programmes proposed as part of the development or subdivision*
- *the extent to which any land area set aside would effectively complement or provide linkage to other reserves including esplanade reserves in the immediate vicinity*
- *the nature of any previous reserve contributions made in respect of the land in excess of the maximum amounts specified in Sections 11.6.3, 11.6.4 and 11.6.6.*

Part 9 of the Plan also sets out matters related to Transportation and Financial contributions.

9.8 Rules - Roads and Private Ways

9.8.1 General Requirements for Financial Contributions as Conditions of Land Use or Subdivision Consent

The Council may in accordance with the provisions in Section 108 of the Act require a financial contribution in cash or land towards the establishment and/or upgrading of a road, service lane, private road or private way as a condition of land use consent or subdivision consent. Such contributions may be sought for the following purposes:

- *Where a new road, service lane, private road or private way is required to be set aside and/or formed to cater for new traffic movements arising from the proposed land use or subdivision;*
- *Where an existing road, service lane, private road or private way is required to be upgraded, including any additional land needed for road widening purposes, to cater for increased traffic movements arising from the proposed land use or subdivision.*

9.8.2 Form and Maximum Amount of Financial Contributions

The Council will assess financial contributions for roads and private ways on an application by application basis having regard to the traffic safety and efficiency effects of the proposed activity and the extent to which any adverse effects can be avoided, remedied or mitigated.

Any financial contribution required as a condition of land use consent or subdivision consent may be in the form of:

(1) land to be set aside and vested in the Council, Transit NZ or other road controlling authority for road or service lane purposes; or land to be set aside for private road or private way purposes; or

(2) a cash contribution paid to the Council, Transit NZ or other road controlling authority for it to carry out specified works related to forming or upgrading a road, service lane, private road or private way.

(1) <u>Contributions in Land</u>

Contributions in land may be required where one of the following circumstances exist;

- *a new road or service lane is considered necessary to serve a proposed land use or subdivision.*
- *part of an adjoining section of road has been formed outside the legal road reserve and it needs to be legalised as part of the proposed land use or subdivision.*
- *a corner splay or other similar works are necessary to improve driver visibility and associated traffic safety on a section of road adjoining a proposed land use or subdivision.*

(2) Contributions in Cash

(i) Molesworth Peninsula Structure Plan Area

(Ref Map 81)

(ii) Other Areas

Contributions in cash may be required where an existing road adjacent to the proposed landuse or subdivision requires some upgrading to accommodate its anticipated traffic effects and the Council, Transit NZ or other road controlling authority has publicly available plans to undertake other works on the road within the subsequent 2 year period.

Where a cash contribution is required to be paid to the Council, Transit NZ or other road controlling authority relating to the upgrading of any road or service lane it shall be determined having regard to the existing traffic using the road, the additional traffic expected from the proposed subdivision or use and the roading guidelines in the district plan.

The Council will calculate the additional number of vehicle movements generated per day, taking into account the intended use of the lots/sites and any seasonal fluctuations in traffic. For residential subdivisions the Council will generally adopt an average of 6 vehicle movements per day for each new lot created.

Any cash contribution will be determined based on the following formula:-

$$\text{Estimated Cost of Road Upgrading} \times \frac{\text{Additional AADT}}{\text{Existing AADT} + \text{Additional AADT}}$$

**Where AADT is the estimated average daily traffic for the section of road concerned.*

10.11.1 COMMENT

The applicant's proposal is for a site that is near a large Council coastal reserve and also is in close proximity to Mangawhai Heads beach. The site is a rear lot accessed through a smaller lot running off Wintle Street. That 'access' lot is now subject to limitations so that access is guaranteed to Lots 1 and 2 of the recent subdivision, which created the property subject to this application. There is little potential for any access beyond the applicants site and the nature of the existing paper roads means that the site is effectively landlocked and given the proposed covenants and like protection measures proposed, will not be a location having any public use aspects. All elements

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of the proposal that a financial contribution are normally required for are either satisfied on the site (wastewater disposal and stormwater management) or are addressed through the particular details of the proposal such as the use of private ways maintained at the landowners costs.

Having regard to the provisions of Part 11.6.6 of the Plan it is submitted that the applicant will satisfy all necessary outcomes and that the proposed land covenants to protect ecological and environmental features of the site will achieve the purposes of the zone and will provide a cost effective means of securing the desired Plan outcomes for the area.

In regard to the road network servicing the proposal the applicant submits that the existing standard is satisfactory and that no upgrading contributions are required, having regard to the traffic anticipated to be generated by the proposal, as set out in the traffic report by KEA Consultants.

The applicant does however recognise that there is merit in enhancing the reserve area and stream environs immediately abutting the Wintle Street access to the site. That will enable better stormwater management and will enhance a degraded area. As part of the proposal the applicant will implement those works subject to approval of such plans by Council.

11.0 CONCLUSIONS

The proposal is consistent with the relevant Objectives, Policies and Rules of both the Kaipara District Plan as well as the Regional Plans and other statutory documents considered.

The proposal provides for 31 new rural residential lots at an average density of 2228m2 per lot. The coastal lot, Lot 31 will contain 1.3ha of land area and includes an access leg of 143m2 in area. There will be ROW's registered over that lot in favour of Lots 21-23.

Each lot is located to minimise adverse environmental effects in including visual intrusion and reduction of landscape amenity and character. Specific mitigation measures are necessary to ensure that outcome including height limits for buildings on Lots -- (5m) and specific plantings and covenanting around the building areas.

Stormwater from the site will be appropriately managed as set out in the KEA Consultants reports.

Earthworks will be limited and will be managed in accordance with acceptable methods as set out in relevant ARC publications, which are adopted by the NRC for assessment purposes. Applications have been made to the NRC for consents in regard to stormwater, wastewater and land modifications. All relevant performance standards will be met.

The provisions of Sections 105 and 104 of the Resource Management Act 1991 are met and consent may accordingly be granted.

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APPENDIX 1
CERTIFICATE OF TITLE

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References
From CT 352/132

Transfer No.
N/C. Order No. 477351.2

11 DEC 2001

Land and Deeds 69

REGISTER

39B / 010

COPY

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 7th day of August one thousand nine hundred and Seventyeight under the seal of the District Land Registrar of the Land Registration District of North Auckland

WITNESSETH that SAMSUDIN ALISPAHIC of Papatoetoe fitter and turner and GABRIEL PEARL ALISPAHIC his wife are seised of an estate in fee simple as tenants in common in equal shares

[redacted] (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 1720 square metres more or less being lot 2 Deposited Plan 82874 and being part Allotments 2 and 3 Town of Nolesworth

DISTRICT LAND REGISTRAR NORTH AUCKLAND N.Z.

Assistant Land Registrar

D411578 1 Mortgage to Knight Colcicutt Solicitors Nominee Company Limited 20.7.1999 at 12.14

for RGL

39B / 810

Measurements are Metric

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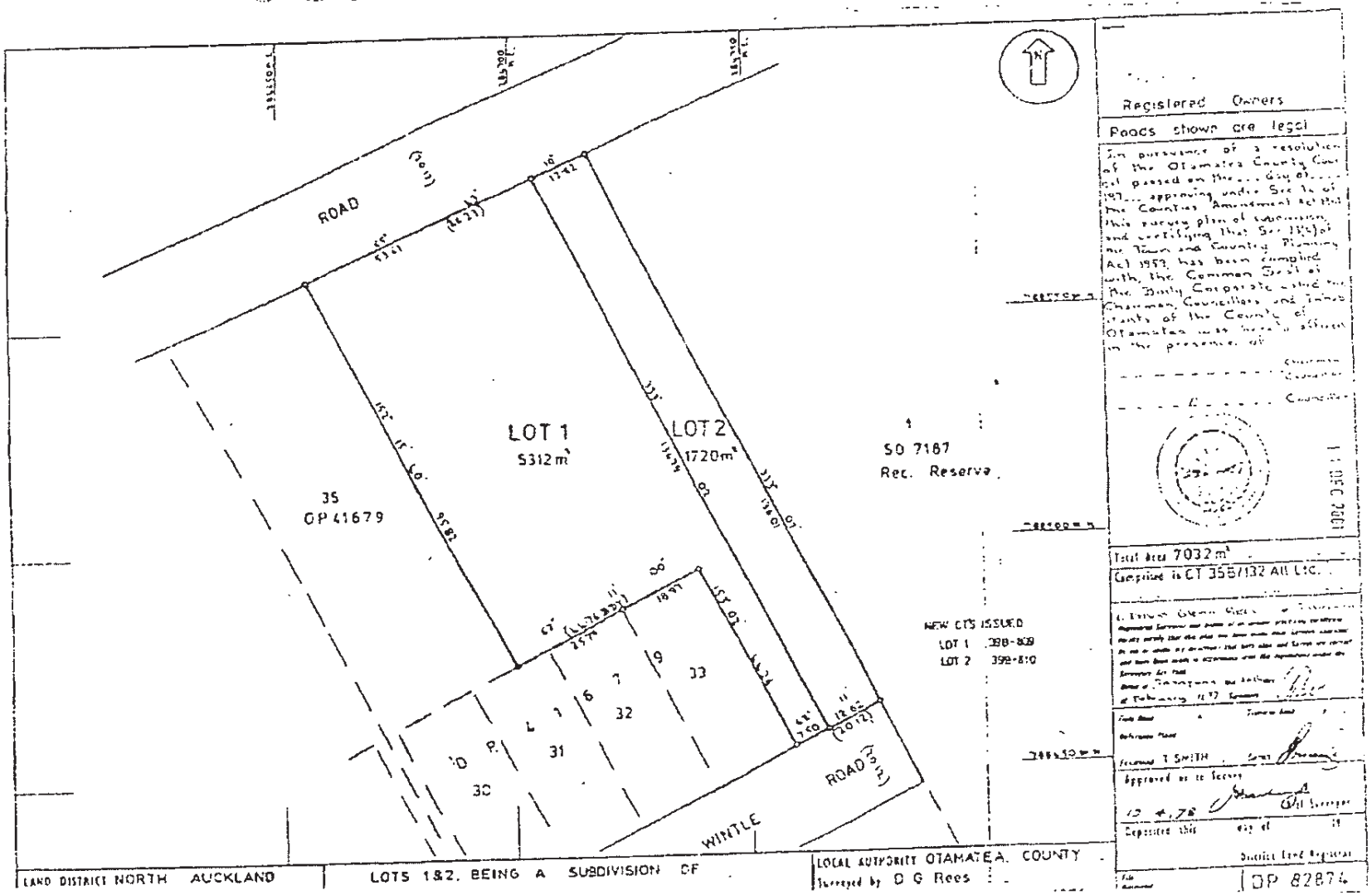

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APPENDIX 2
SUBDIVISION PLAN
K&A ASSOCIATES LIMITED

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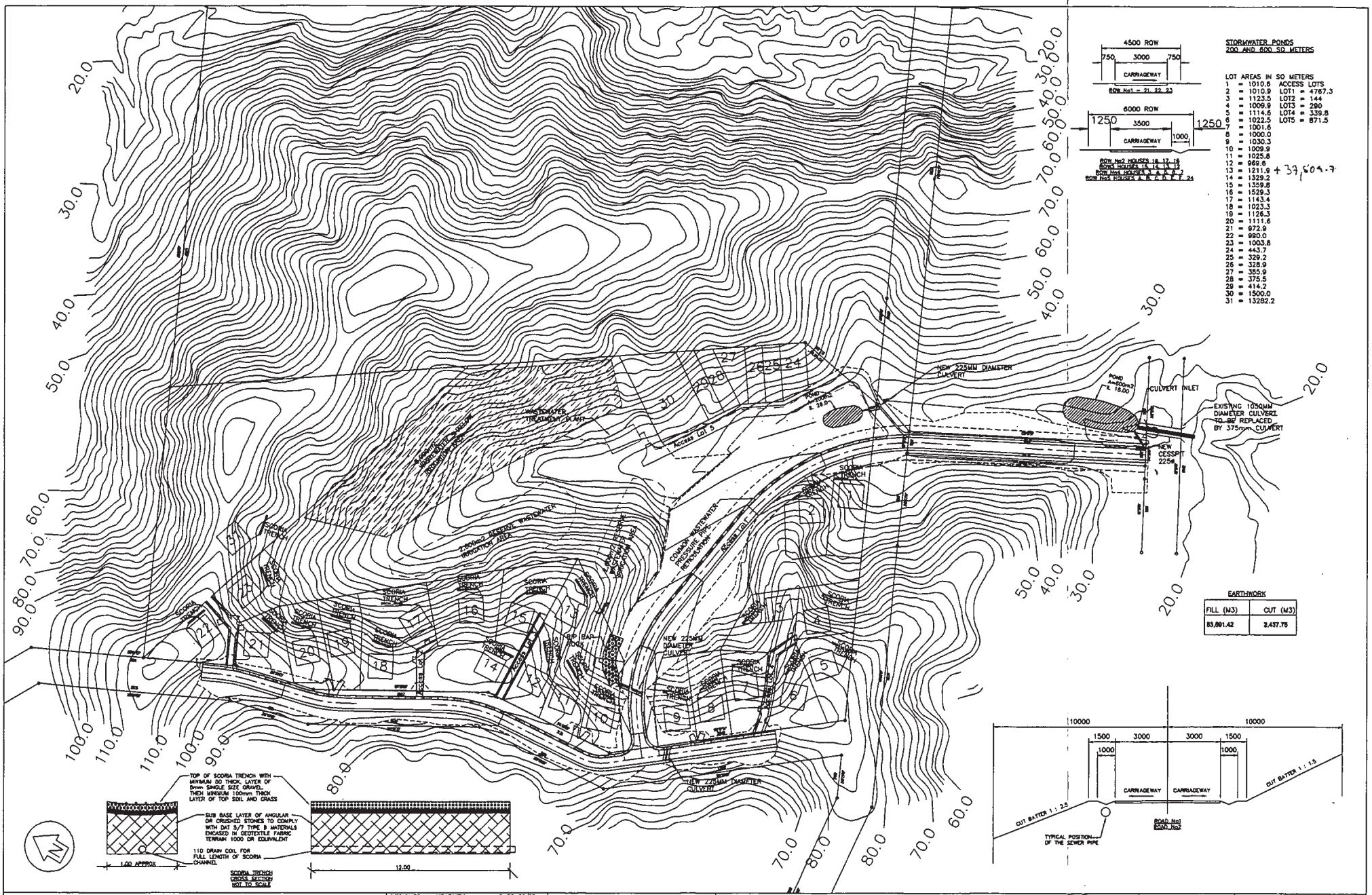

AMENDMENTS					
ISSUE	REVISION	BY	CHECK	APP	DATE
1	ISSUED FOR REVIEW	M.G.B.	M.K.		05/03
2	ROADS INSTALLED	M.G.B.	M.K.		06/03
3	PROPERTY BOUNDATIES ADDED	M.G.B.	M.K.		07/03
4	PROPERTY BOUNDATIES REVISED	M.G.B.	M.K.		07/03
5	LOT NUMBERS REVISED	M.G.B.	M.K.		07/03

DESIGNED M. KEARNEY DATE 08/03
DRAWN A. MANIRAMBONA DATE 08/03
CHECKED DATE
APPROVED DATE

KEA CONSULTANTS LTD
13 Morris Street, Newmarket
PO Box 5195 Wellesley Street,
Auckland Ph/Fax: 09 522 4183

THE HEADS SUB-DIVISION MANGAWAI

TITLE: STORMWATER AND WASTEWATER DRAINAGE

SCALES AT A1	FILE N°	ISSUE
1:1000	2064	5
VENDORS DRAWING N°	DRAWING N°	SHEET 2
	2064-S1	CONT 2
CAD ARCHIVE 2064-S1-3.DWG		

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APPENDIX 3
LANDSCAPE VISUAL ASSESSMENT
DJ SCOTT ASSOCIATES LIMITED

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1.0 LANDSCAPE VISUAL ASSESSMENT

The landscape visual assessment addresses the proposed subdivision's visual and landscape relationship on its immediate and surrounding environs. In order to appraise the potential visual impact of the proposal the existing landscape character and site context shall be considered and effects of the proposed modification to the landscape assessed.

1.1 LANDSCAPE ASSESSMENT CRITERIA

The landscape assessment of the site considers a series of elements that contribute to the overall visual impression of the proposed development within the landscape. These elements include;

- The existing landscape character and site context;
- Existing land use of the site and surrounding area;
- The existing coastal context of the site;
- Analysis of the landscape elements and patterns of the site;
- The existing vegetation patterns of the site and surrounding area;
- The visual catchment within which the proposal will be viewed;
- The visual enclosure / openness of views;
- The quality, design and location of built form;
- The scope for mitigation and enhancement;
- The proposed Subdivision Plan for the site; and
- The proposed landscape restoration and maintenance programme identified for the site.

1.2 EXISTING LANDSCAPE CHARACTER

The local and wider catchment context is integral to understanding the visual context within which the proposal is to be viewed. The scale and form of existing development and the topography and vegetation patterns of the area aid in determining the visual impact of the proposal on the surrounding landscape.

1.3 VEGETATIVE COVER

Vegetation on the site consists predominately of native species with a number of exotic species throughout. The site is mainly vegetated with cleared areas along the valley floor and along the top of the ridge.

The natural habitats of the site are dominated primarily by heathland and shrubland or scrub communities, in which manuka is the predominant canopy species on heavily podzolised soils. The main native vegetation types in the natural areas on the property include:

- Heathlands or gumlands scrub
- Manuka-dominated shrublands and scrub, and,
- Manuka-dominated secondary forest

Nigel Clunie, in his ecological report identifies that, on many sites there is a gradual transition between vegetation types. The site includes areas of broad mixed communities where, for example, the heathlands on the crests and upper flanks of ridges and spurs merge with manuka scrub on the mid slopes. Likewise, there is a

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gradual transition between the dense manuka scrub on the middle slopes and the taller manuka forest regeneration on the lower and toe slopes.

The site also includes several weed species. On and near the high ridgeline at the northern edge of the property invasive exotic species are only a minor and inconspicuous component of the heathland communities. Gorse, prickly hakea (Hakea sericea) and the heavily-spined woolly hakea (Hakea gibbosa) are scattered throughout the manuka canopy.

These same shrubby weeds are more abundant to the north and easterly facing middle to upper portions of the slopes on the southerly side of the valley. The regeneration of the heathlands or shrublands is extensively modified in this portion of the site, with 2.5-4.5m tall planted radiata pine poles, tree banksia and more scattered wilding maritime pine poles located as prominent visual features extending above the low heath and shrublands canopy.

1.4 VISIBILITY

The sensitivity of the landscape to change is reflected in the degree to which a landscape is able to accommodate change due to development or land use change without adverse effects on its character. The ability of the landscape to accommodate change is influenced by the extent of existing or new landform and / or existing vegetation or new planting. These and other factors determine the visibility of the proposed development and therefore influence the extent of its effect on the perceived character and visual amenity of the surrounding landscape.

The assessment of visual effects describes:

- the changes in the character of the available views resulting from development
- the changes in the visual amenity of visual receptors

The topography and vegetative cover of the site, the context (including landscape and built form) of the site and the degree of modification to the landscape are all critical to the assessment of the visual effects and the ***visual absorption capability*** of a proposal. The *visual absorption capability* refers to the landscape's ability to absorb changes such as development.

As discussed previously, the context of the site and surrounding area consists of steep, bush-clad hills with housing located primarily on the lower slopes and separated by vegetation and landform. The ridgeline on the southern boundary of the site (extending in a northwest to southeast direction) is the main topographical feature. The ridge is mainly open with vegetation extending up the slopes from the valley below.

Views of the site will be afforded from several viewing locations including;

- Wintle Street
- The Mangawhai Channel
- Mangawhai Beach
- The sea and coastal areas to the east of the site, and

1.5 VIEWING AUDIENCE

The viewing audience of the proposal will vary based on seasonal use, visitor intensity and individual vantage points. The sensitivity of visual receptors and views will be dependent on:

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- The location and context of the viewpoint;
- The expectation and occupation or activity of the receptor;
- The importance of the view (which may be determined based on its popularity or numbers of people affected); and
- Whether the view is transient or one of a sequence of views as from a moving vehicle or footpath.

When assessing the visual impact of a proposal, one must consider the visual catchment. The visual catchment is the area from which views of the proposal can be afforded.

1.6 REPRESENTATIVE VIEWPOINTS

Twelve representative viewpoints have been identified in relation to the available views of the site, of these views:

- Four viewpoints have been taken from the water, including the Mangawhai channel and the sea; and
- The remaining 8 have been taken from public, off-site viewpoints including public roads, beaches and lookouts

The methodology of this assessment is to assess the degree of visibility, ensuring all potential representative viewpoints are taken. The viewpoints also allow assessment of the effect of intervening vegetation, topography and development on the view.

The representative viewpoints have been described and the potential impact on the individual views assessed. Each viewpoint is located on the accompanying map and enhancement measures are discussed in Section 6.27 and 6.3 in the main AEE report.

The location of the site is marked in red on each relevant viewpoint. Please note that the red line does not necessarily represent the view of the proposal that will be afforded from each viewpoint. Rather, the red line is marked on each photograph is an indicative location of the proposal placement within the existing landscape. The visibility of the proposal is discussed in detail within the individual notes for each viewpoint.

All distances of representative viewpoints from the site area have been taken as accurately as possible from topographical maps and are measured from the viewpoint to the nearest site boundary.

All representative viewpoints have been taken using a Nikon F80 with a 50mm lens standing at eye level (approximately 1.7m from ground level). Photographs were taken on a slightly overcast day in late May 2003.

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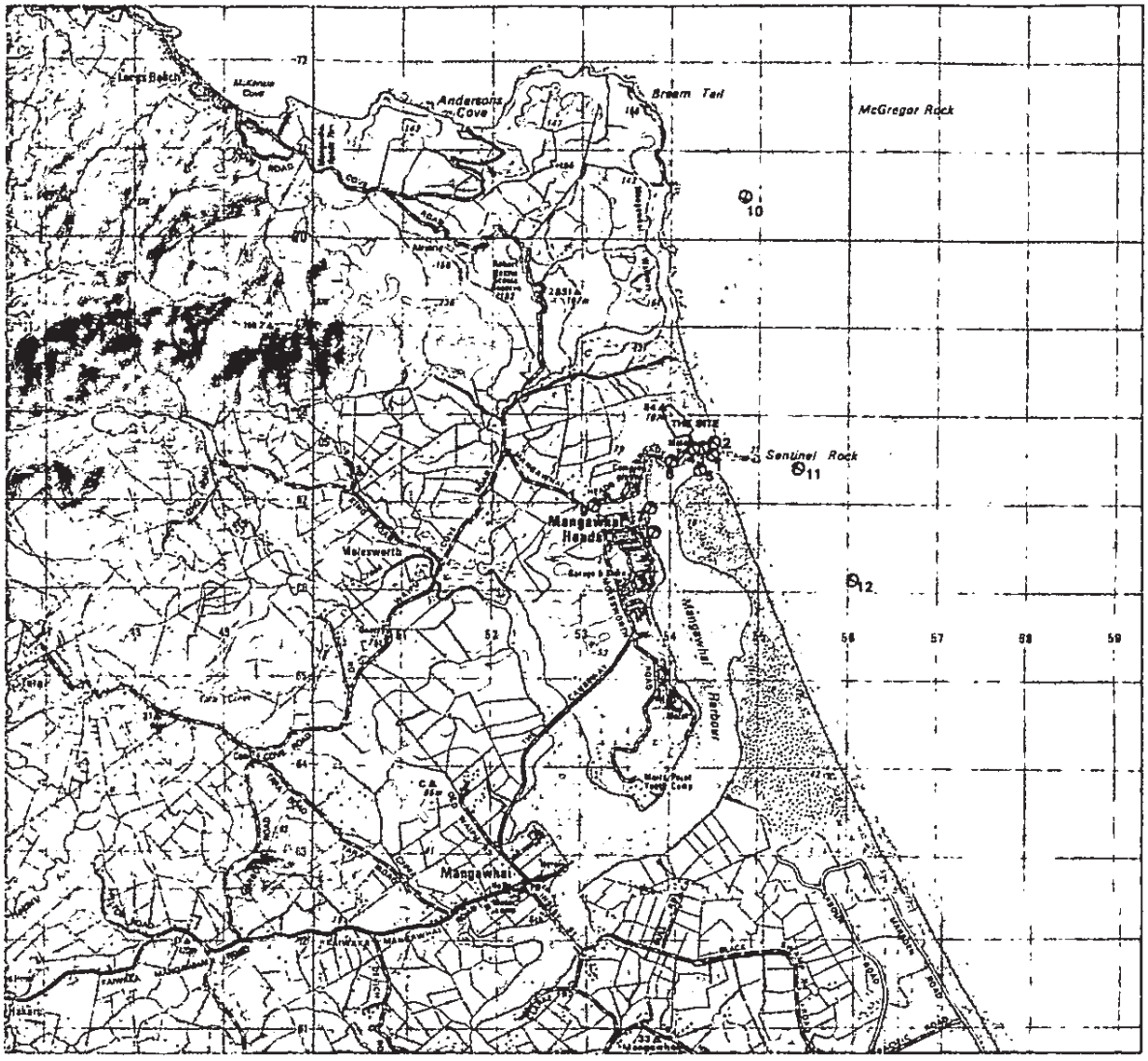

Figure 18 Viewpoint Location Plan

1.7 VIEWPOINT ANALYSIS

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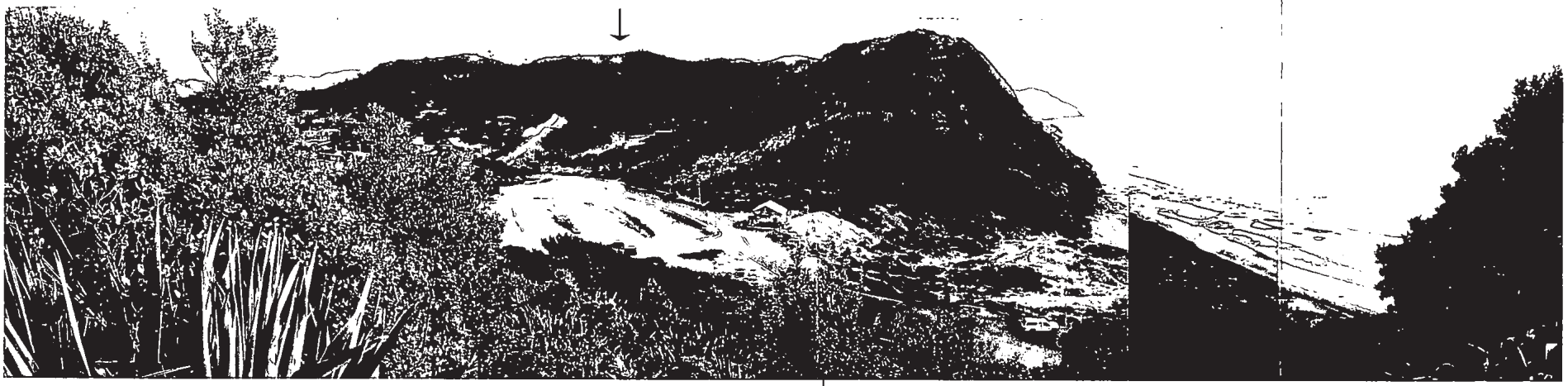

Viewpoint 1

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the top of the lookout hill at Mangawhai Heads facing northwest into the site

DISTANCE

This viewpoint is approximately 200 metres from the eastern-most boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from the lookout hill at Mangawhai Heads.

CLARITY OF THE VIEW

From this location there will be open views into the proposed development including the access road and a number of the proposed building platforms (8-10 potentially visible from this position). From this location the proposal is set within the context of the more prominent hill slopes adjacent to Wintle Street and in front of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals climbing Mangawhai Heads lookout.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to medium (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

In general, individuals climbing the Mangawhai Heads lookout hill will be doing so in order to view the greater coastal landscape including Mangawhai Heads, Sentinel Rock, Mangawhai Wildlife Refuge Bird Sanctuary and the Mangawhai Village. However these views will include the greater Mangawhai Village area as well.

THE VIEW

FOREGROUND

Mangawhai Heads lookout

MIDGROUND

Wintle Street, the Mangawhai Heads beach parking lot, residential housing, recent access roading, the beach and the site

BACKGROUND

The site, the sea, coastal and inland-vegetated hills and residential development.

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

From this viewing location there will be open and available views into the site, however portions of the site will be screened by intervening topography and existing vegetation. The majority of individuals climbing the lookout will generally be doing so in order to gain a better vantage point out to sea, and Mangawhai Heads beach and Bird Sanctuary and will be viewing the site set within the greater coastal setting.

The proposed enhancement planting, revegetation programme and architectural controls on building height and materials have been designed in order to aid in visually mitigating, over time the effects of these views from this location.

MITIGATION

Native revegetation planting identified and architectural controls on building heights and materials described in **the mitigation programme** of this is recommended mitigation to the proposed development.

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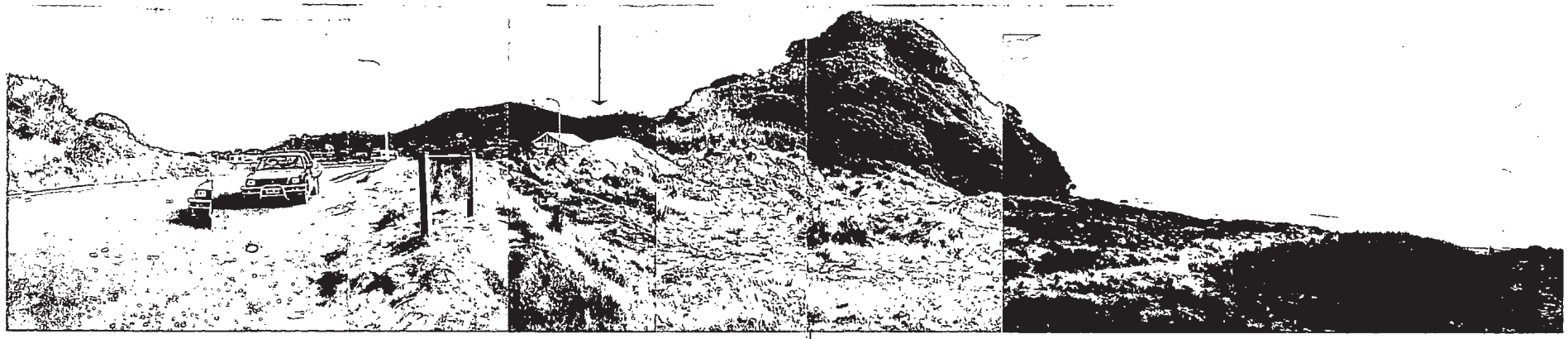

Viewpoint 2

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the end of Wintle Street and the Mangawhai Heads beach access road, adjacent to the existing walkway sign and approximately 30metres east of the existing Public Toilets.

DISTANCE

This viewpoint is located approximately 200 metres from the eastern-most boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from the beach end of Wintle Street and the public walkway to the beach.

CLARITY OF THE VIEW

From this location there will be views available of the proposal, in particular of the house sites located along the southern ridgeline of the site (and towards Wintle Street). The views from this location are partially screened due to the presence of intervening topography and vegetation, and include mainly views of proposed building platforms along the upper portion of the south eastern boundary of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals stopping at the beach or accessing the beach from Wintle Street.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to high (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include individuals visiting Mangawhai Heads beach along the Wintle Street access. Consequently, the majority of viewers within this location will be concentrating on the overall coastal landscape context of the area, including – the sea, the beach, the cliffs and will not be specifically focused on inland development.

THE VIEW

FOREGROUND

Wintle Street, road edge and sand dunes

MIDGROUND

Wintle Street, the Mangawhai Heads beach parking lot, residential housing,

BACKGROUND

Residential housing, inland hills, the site.

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

From this viewing location the majority of the site will not be visible due to the presence of intervening topography and vegetation. Available views of the site will include portions of 8 or 9 houses, set within the proposed landscape and revegetation planting. Buildings positioned on the lower portions of the slopes are anticipated to be progressively screened with the maturity of the proposed landscape planting, designed and positioned specifically to aid in mitigating and enhance any potential views of the proposal from available viewing locations.

In addition, the majority of viewers from this location will be focusing on the dunes, the beach and the greater coastal context of the surrounding area.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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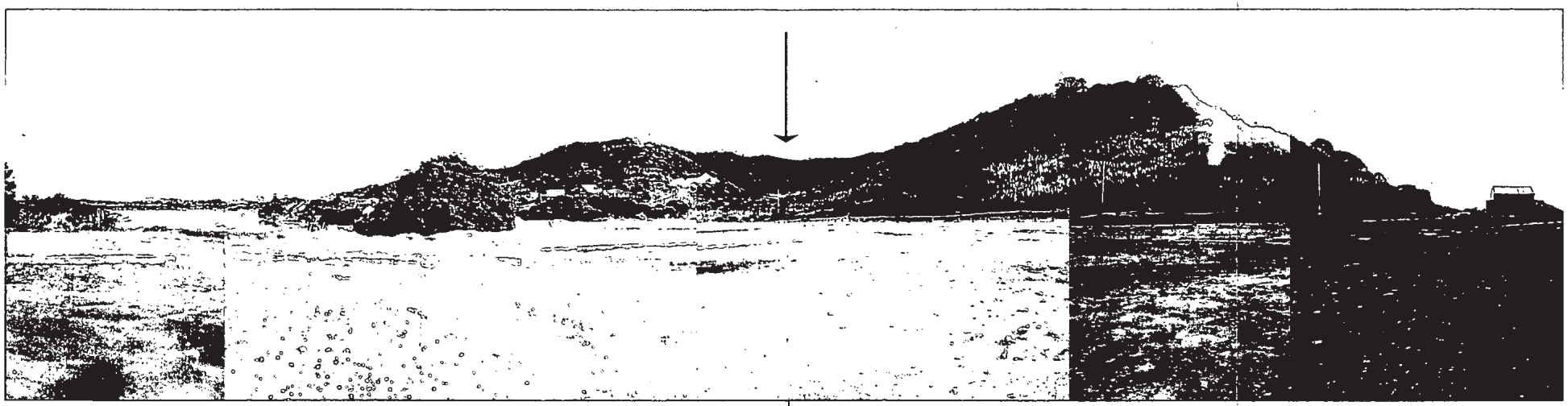

Viewpoint 3

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the Mangawhai Heads beach access parking lot along Wintle Street facing west into the site.

DISTANCE

This viewpoint is located approximately 200 metres from the eastern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from the public parking lot for the beach at the beach end of Wintle Street.

CLARITY OF THE VIEW

From this location there will be available views into the proposal. The presence of intervening topography and vegetation will screen portions of these views, mainly those on the lower contours of the site from this location. The majority of views will include the upper portions and ridge tops of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals utilising the parking lot, or travelling along this portion of Wintle Street.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to high (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly individuals getting into and out of their vehicles, heading for the Mangawhai Heads beach, generally passive and / or active recreators. Consequently, the majority of viewers within this location will be concentrating on the overall coastal landscape – the sea, the beach, the cliffs and will not be focused on inland development and the site.

THE VIEW

FOREGROUND

Public parking lot, Wintle Street, road edge

MIDGROUND

Wintle Street, the Mangawhai Heads beach parking lot, public toilets, residential housing, coastal hills

BACKGROUND

Inland hills, the site.

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

From this viewing location there will be views into the upper portions of the proposal and it is anticipated that portions of 7 or 8 building platforms will be visible. From this location, the majority of the site will not be visible due to the presence of intervening topography and vegetation.

Views of the site from this location will be partially mitigated by the presence of existing vegetation, which in addition to the proposed landscape and revegetation planting will aid in mitigating views into portions of the site. In addition, these views are anticipated to be progressively screened with the maturity of the proposed landscape planting, designed specifically to mitigate the much of the potential visual impact of the proposal from available this viewing locations.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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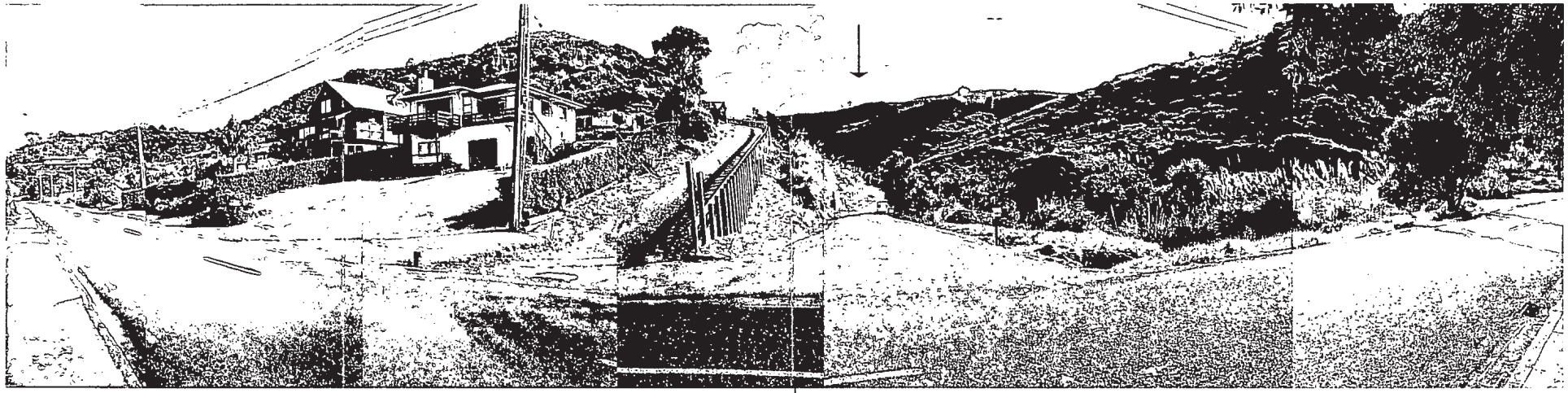

Viewpoint 4

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from directly in front of the site and up the existing access drive to the property.

DISTANCE

This viewpoint is located approximately 10 metres from the eastern boundary (and access road) of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from directly in front of the site at Wintle Street.

CLARITY OF THE VIEW

From this location there will be available views into the existing and proposed access drive, and 2 or 3 proposed building platforms.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals travelling along Wintle Street

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to high (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly individuals travelling along Wintle Street to and from the beach.

THE VIEW

FOREGROUND

Wintle Street, residential housing along Wintle Street

MIDGROUND

Wintle Street, residential housing along Wintle Street, the access road to the site.

BACKGROUND

The site and inland hill slopes

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

From this viewing location the views of the proposal will include mainly the access drive and 2 or 3 building platforms located mainly along the eastern boundary of the site. Considering the presence of intervening topography and vegetation, the existing site context and character and the proposed landscape planting and revegetation programme proposed, the visual impact of the proposal from this location will be effectively mitigated through these measures.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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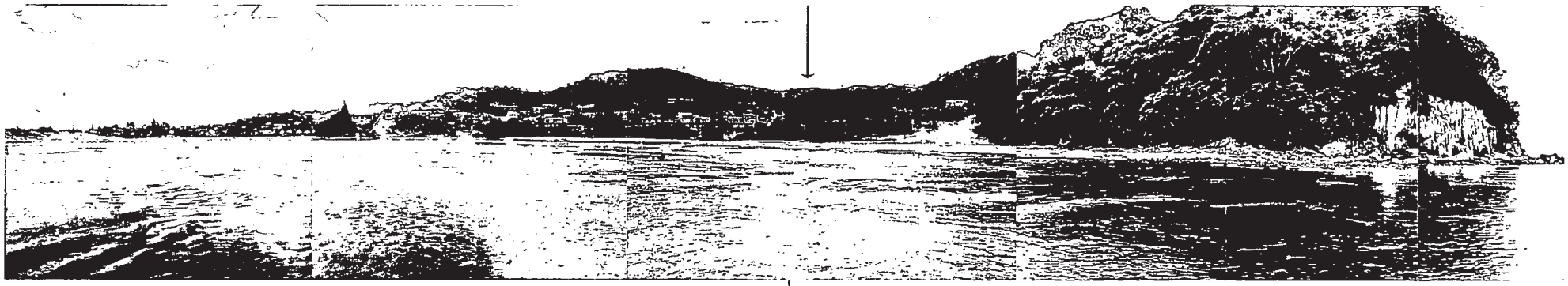

Viewpoint 5

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from channel between the Mangawhai village and the Mangawhai Heads sand spit which provides access to the sea facing north into the site.

DISTANCE

This viewpoint is located approximately 400 metres from the eastern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from boaters travelling along the channel to and from the sea.

CLARITY OF THE VIEW

From this location there will be available views of the proposal site, in particular the terraced apartment-style residences in the valley and the houses located along the ridge and the knolls will be visible from this location. Given the topography and the bowl-shape of the site, a number of building platforms located in the lower central portions of the site will not be visible from this location

THE VIEWING AUDIENCE

COMPOSED OF

Individuals travelling along the channel

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to high (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include boaters travelling into and out of the channel between the sea and the Mangawhai village.

THE VIEW

FOREGROUND

Channel, coastal cliffs and vegetation along the channel

MIDGROUND

Coastal hills, coastal and inland vegetation, coastal /residential housing

BACKGROUND

Coastal/residential housing associated with Mangawhai village, inland hills, the site.

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

From this viewing location there will be views of the proposal and it is anticipated that portions of 5 or 6 house sites will be visible. The presence of intervening topography and vegetation will minimise the visibility of the proposed building platforms; in particular, the sites located within the lower central portion of the site will not be visible. Portions of these views (mainly along the lower contours) are anticipated to be progressively screened with the maturity of the proposed landscape planting, designed and positioned specifically to mitigate the potential views of the proposal from this viewing location.

In addition, the majority of viewers from this location will be focusing on the dunes, the beach and the greater coastal context of the surrounding area.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in the mitigation programme of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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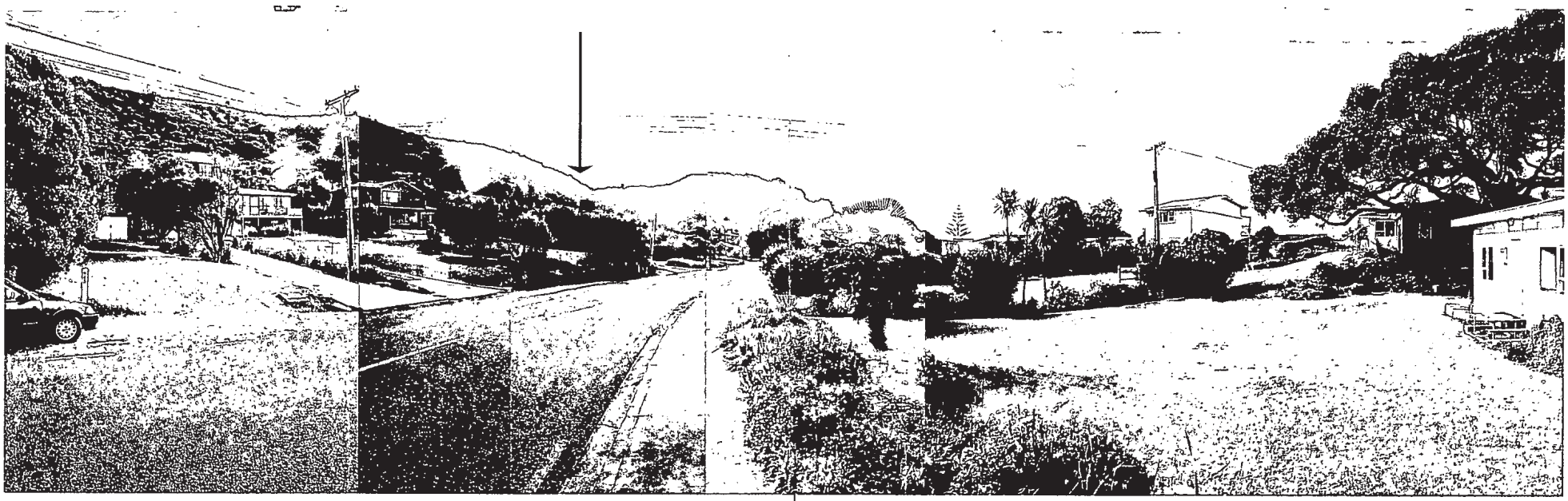

Viewpoint 6

CONTEXT OF THE VIEWING POSITION
LOCATION OF THE VIEWPOINT
This viewpoint is taken from Wintle Street facing north towards the site.
DISTANCE
This viewpoint is located approximately 400 metres southeast of the nearest site boundary.
CONTEXT OF THE VIEW
This is a typical view towards the site afforded from the southern portion of Wintle Street.
CLARITY OF THE VIEW
From this location portions of the paper road (and access drive for the site) and 2 - 3 house sites will be visible.
THE VIEWING AUDIENCE
COMPOSED OF
Individuals travelling along Wintle Street
NUMBER OF VIEWERS
The number of viewers from this location is anticipated to be low to medium (depending on the season).
NATURE OF THE VIEWERS ACTIVITY
Views of the site from this location will include mainly individuals travelling along Wintle Street.

THE VIEW
FOREGROUND
Wintle Street, residential housing along Wintle Street
MIDGROUND
Wintle Street, residential housing along Wintle Street
BACKGROUND
The site and inland hill slopes
VISIBILITY OF PROPOSED DEVELOPMENT
VISUAL IMPACT
From this viewing location there will be available views of 2 - 3 building platforms and the paper road providing access to the site. Building platforms positioned in the lower and central portions of the site will not be visible from this location.
The careful siting and positioning of landscape planting along the access drive and around house sites will aid in reducing the visual impact from this location along with adherence to the architectural controls for the buildings on the upper ridgeline of the site.
MITIGATION
Native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.
It is also of note that an existing subdivision, located just in front of the proposal site from this location will involve the establishment of building platforms along the front of the southern ridge on the property (Joyden Productions Ltd, Pearl Strett, Mangawhai, Lot 5 DP 115537).

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Viewpoint 7

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the boat ramp at the bottom of Alamar Crescent facing north towards the site.

DISTANCE

This viewpoint is located approximately 1.2 kilometres from the eastern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from the boat ramp and generally from the beach edge of the Mangawhai Village section of the Mangawhai Harbour.

CLARITY OF THE VIEW

From this location there will be distant views of building platforms and portions of building forms, in particular those located along the ridgeline of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals utilising the boat ramp and Mangawhai Harbour beach.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to medium (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly individuals utilising the Mangawhai Harbour (village end) beach.

THE VIEW

FOREGROUND

Mangawhai Harbour beach, boat ramp, boat ramp parking lot

MIDGROUND

Mangawhai sand spit, Mangawhai Harbour, Mangawhai Village and associated residential housing

BACKGROUND

The site, residential housing, Mangawhai Harbour and inland hill slopes

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

Due to the distance from the site, views of the proposal will be limited from this location, however the patterns and forms of residential buildings set along the ridgeline will read as legible as distinct elements of built form (especially during vegetation establishment and initial site clearance) within this predominately natural and vegetated ridgeline. The proposed landscape planting will aid in reducing the development of these patterns over time.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In particular the height controls described in the main AEE document and including the 5.0-metre height restrictions and the limitation of building forms to no more than 2.0-metres above the ridgeline of the site. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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Viewpoint 8

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the Mangawhai Harbour beach end of Wood Street facing north towards the site.

DISTANCE

This viewpoint is located approximately 1.4 kilometres from the eastern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from the Mangawhai village beach end of the Mangawhai Harbour.

CLARITY OF THE VIEW

From this location there will be distant views of building platforms and building forms, in particular those located along the upper knolls and ridgeline of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals utilising Mangawhai Harbour beach and residents along the beach

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be medium to high (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly individuals recreating and living along the Mangawhai Harbour beach (village end).

THE VIEW

FOREGROUND

Mangawhai Harbour beach, residential housing, Mangawhai Harbour

MIDGROUND

Mangawhai Harbour, residential housing, Mangawhai sand spit.

BACKGROUND

The site, Mangawhai Harbour and inland hill slopes

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

As with viewpoint 7, this is a distant viewpoint and consequently, views of the proposal will be limited from this location, however the patterns and forms of residential buildings set along the upper knolls and ridgeline of the site will read as distant elements within this predominately natural and vegetated ridgeline. The proposed landscape planting and architectural height limitations will be important mitigating measures to effectively aid in reducing the visual impact of the proposal from this location.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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Viewpoint 9

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the roundabout at the intersection of Molesworth Drive and Mangawhai Heads Road facing north towards the site.

DISTANCE

This viewpoint is located approximately 1.2 kilometres from the southern boundary of the property.

CONTEXT OF THE VIEW

This viewpoint represents the view of the site available from the roundabout at the intersection of Molesworth Drive and Mangawhai Heads Road, the main connecting road to the site.

CLARITY OF THE VIEW

From this location there will limited and distant views of the upper portions of the site, set behind the views of the existing residential context of Mangawhai Villager.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals travelling along Molesworth Drive and Mangawhai Heads Road.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to medium, depending on the season.

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly individuals travelling along Molesworth Drive, Mangawhai Heads Road and Cullen Street

THE VIEW

FOREGROUND

Mangawhai Heads Road, roadside vegetation, residential housing

MIDGROUND

Residential housing, Molesworth Drive

BACKGROUND

Residential housing, coastal hills, the sea and the site

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

From this location the upper portion of the southern ridge of the site is just visible in the distance. There is potential for views of 2 building platforms and the proposed paper road from this viewing location. However, due to the distance of the viewpoint and the dominant presence of residential housing in the foreground of the site, and the future development of Pearl Street these views are extremely filtered and screened.

MITIGATION

While there are limited and screened views of the proposal afforded from this location, the mitigation proposed for the rest of the viewpoints is recommended in order to aid in reducing the legibility of the building platforms and proposed building forms from this location. Consequently, native landscape and revegetation planting along with architectural controls on building heights and materials described in **the mitigation programme** of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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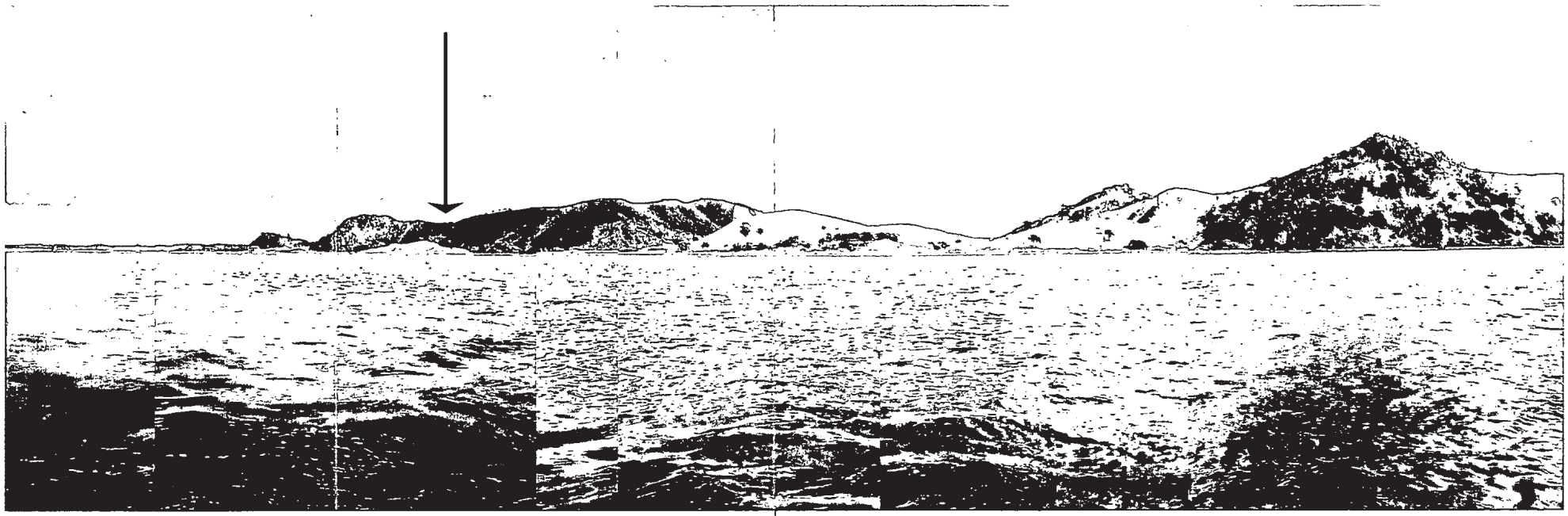

Viewpoint 10

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the sea facing southwest towards the site.

DISTANCE

This viewpoint is located approximately 2.5 kilometres from the northern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from individuals travelling along the Mangawhai coast by boat.

CLARITY OF THE VIEW

From this location there are distant views available of 2 or 3 house sites located within the upper southwest portion of the site (the highest knoll).

THE VIEWING AUDIENCE

COMPOSED OF

Individuals travelling along the Mangawhai coast by boat.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to medium (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly recreational boaters travelling along the coast.

THE VIEW

FOREGROUND

The sea

MIDGROUND

Coastal slopes along the beach

BACKGROUND

The site, Mangawhai Harbour , Mangawhai Village and inland hill slopes

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

Portions of 1 or 2 buildings will potentially be visible from this location, particularly those located along the upper knolls and the ridgeline of the site. The application of the mitigation programme and associated native planting and architectural controls will aid in reducing the impact of these views from this location. In particular, the architectural controls in relation to building heights and the limitation of buildings to no more than 2.0 metres above the ridge, in combination with the proposed revegetation and structural planting programme will effectively minimise the potential views of the proposal from this location.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in the mitigation programme of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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Viewpoint 11

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the sea facing west towards the site.

DISTANCE

This viewpoint is located approximately 1.5 kilometres from the eastern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from individuals travelling along the Mangawhai coast by boat.

CLARITY OF THE VIEW

From this location there are available views of the upper south western and central portions of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals travelling along the Mangawhai coast by boat.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to medium (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly recreational boaters travelling past the site and along the coast greater Mangawhai coast.

THE VIEW

FOREGROUND

The sea

MIDGROUND

Mangawhai village and associated residential and commercial development, coastal slopes, the Mangawhai sand spit, the beach.

BACKGROUND

The site, Mangawhai village and associated residential and coastal development and inland hill slopes

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

The upper central and southwestern portions of the site will be visible from this location. It is anticipated that portions of between 8 or 9 house sites may be visible, in the distance from this location. While these views will be distant views they include the major boating public which travel past this site. In addition, the building platforms located on the ridgeline will have a higher potential visibility within the coastal environment. The proposed landscape planting and architectural controls outlined within this proposal will aid in effectively reducing the impact of these building platforms from this location.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in the mitigation programme of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

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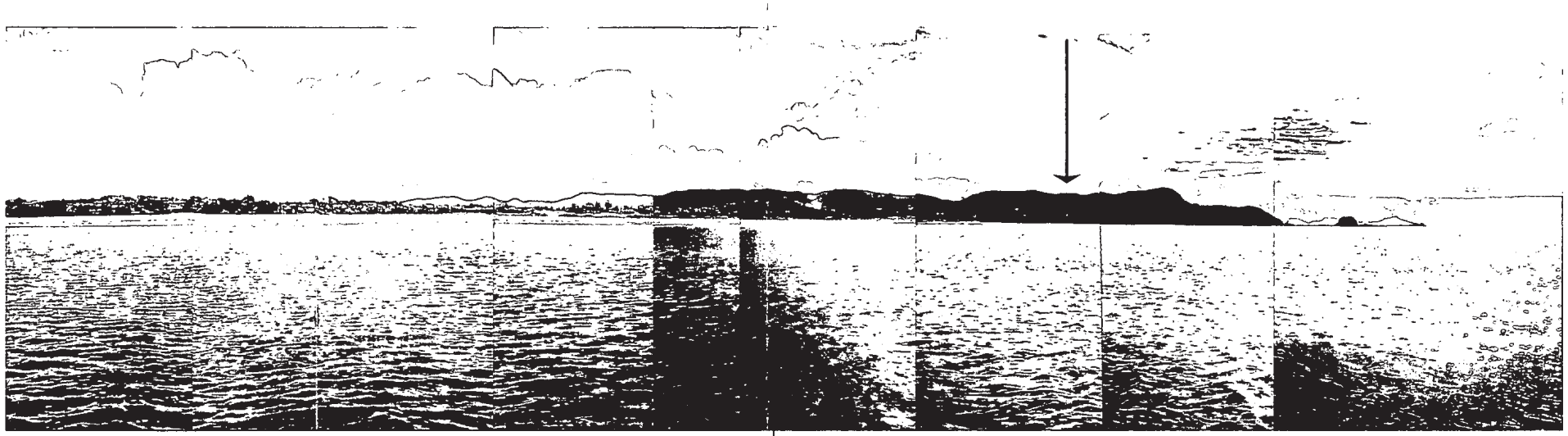

Viewpoint 12

CONTEXT OF THE VIEWING POSITION

LOCATION OF THE VIEWPOINT

This viewpoint is taken from the sea facing north towards the site.

DISTANCE

This viewpoint is located approximately 2.5 kilometres from the eastern boundary of the property.

CONTEXT OF THE VIEW

This is the typical view of the site afforded from individuals travelling along the Mangawhai coast by boat.

CLARITY OF THE VIEW

From this location there are distant views of the central and southern portions of the site.

THE VIEWING AUDIENCE

COMPOSED OF

Individuals travelling along the Mangawhai coast by boat.

NUMBER OF VIEWERS

The number of viewers from this location is anticipated to be low to medium (depending on the season).

NATURE OF THE VIEWERS ACTIVITY

Views of the site from this location will include mainly recreational boaters travelling past the site and along the coast.

THE VIEW

FOREGROUND

The sea

MIDGROUND

Mangawhai sand spit, the beach, Mangawhai village and associated residential and commercial development

BACKGROUND

The site, Mangawhai Harbour , Mangawhai Village and inland hill slopes

VISIBILITY OF PROPOSED DEVELOPMENT

VISUAL IMPACT

Due to the distance from the site, views of the proposal will be quite limited from this location. Portions of 4 or 5 building platforms may be visible from this location, in particular those set along the upper knolls and the ridgeline of the site, read as distant built form elements along the ridge. The establishment of landscape structural and revegetation planting along with the architectural height and material controls outlined in the AEE will aid in minimising these visual impact from this location.

MITIGATION

Native landscape and revegetation planting along with architectural controls on building heights and materials described in the mitigation programme of this report are the recommended mitigation measures recommended for the proposed development. In addition, landscape planting incorporated for screening and mitigating the proposal will also need to be covenanted in order to ensure the effectiveness of the planting programme for screening purposes.

1.8 VIEWPOINT SUMMARY

Due to the enclosed nature of the landform of the site, in particular, the small catchment formed by the location of the slopes and topography of the site potential views into the interior areas of the site is limited.

The main visual effects of the proposal will include the proposed access road including its formation at the upper paper road location and the positioning of a number of house sites (lots 6,14 and 22 in particular) located on the upper knolls of the southern ridge of the site. The proposed revegetation and mitigation will aid in offsetting the visual impact of these features, however the pattern of the upper future residential housing and associated roading will be visible from surrounding public viewpoints as set out in Section 1.7 above.

1.9 PHYSICAL EFFECTS

Visual impact can be assessed objectively by a series of parameters that assess the context within which the proposal is located and the appropriateness of the proposal within this existing context. The parameters for deciphering visibility as opposed to adverse visual impact are;

The amount of the structure visible
Depending on the location of the proposed building platforms, views of the structure will vary from being; mainly visible to limited visibility to no visibility. The proposed building platforms located along the prominent knolls and highest areas of the ridge will be highly visible. Building platforms located further downslope will have limited to no visibility from individual viewpoints. A detailed description of the available views is provided in the Visual Assessment Section 1.7. These views will be available, in varying degrees from along Wintle Street, the eastern boundary of the property, Mangawhai beach and the sea. The views of the site from these locations are however, limited due to the presence of intervening vegetation and topography and also need to be considered in regards to the proposed landscape planting programme and architectural controls identified for the site.

The visual and physical links to other elements in the landscape
Residential housing is a common and reoccurring element throughout the surrounding area, including the Mangawhai village and the slopes along Wintle Street. In addition, a recently consented subdivision (Lot 5 DP 115537, Joyden Productions Ltd, Pearl Street, Mangawhai) is to be implemented adjacent to the site, and includes a number of visible building platforms.

Appropriateness of the scale of the proposal
The proposed layout and design outcome for the site aims to protect and enhance the topographical and vegetative features of the site while attempting to minimise the visual effects and impact of the proposal on the wider landscape setting. Building platforms and thus future buildings will be limited in terms of maximum height, design and materials and bulk while located to take advantage of the expansive coastal vistas of the site. The proposal also provides for extensive covenanting (including 5.5 hectares) of land for visual and landscape/ecological restoration purposes.

Screening based on existing foreground elements such as vegetation and topography and the potential areas of land available for vegetation screening
The proposal has been developed to maximise the ability of the site to provide vegetation and landform screening of the proposed sites, including areas in between, above and below the proposed building platform areas. The proposal also allows for

additional landscape and revegetation planting of native species to further minimise the potential visual effects. Can we identify some special plantings low down to screen the view into the site from the car park at all?

Level of physical and visual disturbance generated by activities associated with the proposal during the construction and normal use
The highest level of visual and physical disturbance of the site will be experienced during the construction phase of the project. These effects will be progressively mitigated, over time by the proposed landscape planting. Those proposals are set out in ???? In addition, all construction and earth moving proposed will be undertaken to the highest levels of professional practice in order to further minimise the physical effects of construction on both the receiving environment and the surrounding area.

The expectation of viewers
The site is located adjacent to existing areas of residential and commercial development. Within this landscape, residential housing is a common and reoccurring element. The implementation of the adjacent subdivision proposal (at Pearl Street) will set a visual precedent of buildings located along ridgelines and upper slopes in this area of Mangawhai. The proposal is for land that was recently zoned as rural residential thus providing for residential lots at an average density of 2000m2 of land area. While there is a 60m upper building height control for buildings, the Plan does provide for the ability to locate buildings higher in the landscape as a discretionary activity and presumably deliberately no as a non-complying activity. Thus there is an expectation under the Plan provisions that a) there will be buildings in this landscape and b) that they may be located at upper slope locations where appropriate mitigation is provided for.

Background against which the structure will be seen
A number of the proposed building platforms have been positioned below the ridge line to allow for the retention of the vegetated visual backdrop for the proposal. The presence of this backdrop will allow for the visual absorption of the proposal into the existing landscape setting. The remainder of the house sites (lots 5,6,10-12, 14,18, 21, 22 and 31) can be consented under strict conditions relating to building height, materials, colour and with associated mitigation vegetation covenants in between and surrounding individual building platforms in order to aid in reducing this potential visual impact.

The relationship of the proposal to the existing landscape character
The existing landscape character of the site and surrounding area includes for the most part residential housing set within a diverse coastal environment ranging from flat, open beach-side development in the Mangawhai village to the steeper inland development associated with Wintle Street and the site. The proposal is considered to be, for the most part, consistent with the existing landscape character, including that of the consented Pearl Street subdivision which is considered as a baseline element in this assessment.

1.10 CONCLUSIONS-POTENTIAL VISUAL EFFECTS OF THE PROPOSAL

Potential visual impacts of the proposal on the surrounding landscape include potential effects on those who persons can view the site, including neighbouring landowners and visitors to the area.

The visibility of the site has been based on the visual absorption capability of the site, and considering the context of the site, topography, vegetation and the degree of

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APPENDIX

ECOLOGICAL ASSESSMENT

CLUNIE & ASSOCIATES TREE SPECIALISTS

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"THE HEADS"

(LOT 1, ALISPAHIC PROPERTY),

WINTLE STREET, MANGAWHAI HEADS:

THE VEGETATION AND NATURAL FEATURES

ASSESSMENT OF SIGNIFICANCE

AND EFFECTS

By

N M U Clunie

Clunie & Associates
Environmental Consultants & Tree Specialists
P O Box 48 177
Blockhouse Bay
Auckland
Phone & fax: (09) 627 8539

July 2003

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"THE HEADS"
(LOT 1, ALISPAHIC PROPERTY),

WINTLE STREET, MANGAWHAI HEADS:

THE VEGETATION AND NATURAL FEATURES ASSESSMENT OF SIGNIFICANCE AND EFFECTS

INTRODUCTION

1. **Commission:** I was commissioned to assess and report on the significance of the vegetation and natural features on the Alispahic property (Lot 1) at Wintle Street, Mangawhai Heads (Map ref: NZMS 260 R08 / c.540E 678N), and the effects of a proposal to subdivide and develop the property for residential purposes.

2. **Objectives:** The main objectives of my study were to:
   - Identify and record the species composition, habitat quality and other features of the communities in each of the main natural vegetation types on the property.
   - Assess and report on the conservation significance of the natural vegetation and habitat.
   - Advise on measures to avoid or minimise any adverse effects on the natural environment that might result from a proposed subdivision and associated access and building areas, and,
   - Assess the potential to protect and enhance the natural environment, including opportunities to conserve and protect established natural regeneration, arrest and control weed infestation, restore species richness and diversity in the regenerating communities and to restore bush cover on sites of environmental sensitivity.

3. I understand the subject property (the subdivided Lot 1, which it is proposed to further subdivide into residential allotments and develop) includes a land area of approximately 8 hectares. This assessment and report is to assess effects and provide information to assist in maintaining a high standard of protection and enhancement of the natural environment in a proposal to subdivide the property into residential Lots, and develop associated access and building areas.

4. **Site visit:** I inspected the subject property and its surrounds with Mr. Tony Vujnovich on 16 May 2003.

5. **Field reconnaissance and survey:** I examined a representative part of the natural communities on the subject property and on the surrounding terrain during traverses on foot. These traverses or gradsecs (transects chosen to facilitate targeted examination of the main ecological gradients and features of the property) are a field reconnaissance procedure to ensure effective and representative assessment of all of the main natural/ecological features. The gradsecs included the following traverses, with shorter transects out from the gradsecs into the surrounding terrain and natural communities:

   - Along the entrance road and strip on the valley mouth from Wintle Road to the main body of the property.
   - From the valley bottom up part of the "paper road" that bounds the Council-administered reserve land (on the elevated headland, to the east of the subject property) to the main ridgeline.
   - Along the main ridgeline to the high northwestern corner of the subject property (by the trig station at elevation 107m a.s.l[1]. – with a communications tower).
   - Along the public/"paper road" on the ridgeline bounding the western side of the subject property.

[1] a.s.l. = above sea level.

- Down to the valley bottom along the cleared track on the spur that descends to the east, roughly parallel with the southern (southeastern) boundary (which adjoins the public/"paper" road).
- Up the valley bottom to the basin walls beyond the cleared land on the valley floor.

6. A more general inspection and canopy scan of the vegetation and natural habitat was made, both on the subject property and the nearby natural communities on privately-owned land and protected natural areas.

Terrain and catchment features:

7. The property is near the southeastern end of steep-sloping hill country immediately north of the estuary bounded by the sand spit at Mangawhai harbour. It occupies much of the head basin and the slopes and floor on the upper part of a valley that forms the catchment of a small stream, which drains into the estuary near Picnic Bay at the mouth of the Mangawhai estuary.

8. The high ridges on and adjacent to the property are part of a headland landform that is a visually prominent feature in the local coastal area. The high headland knoll[2] on Council-administered reserve land immediately to the southeast of the subject property and the steep coastal flanks of that headland in particular are dominant visual features in the coastal landscape.

9. There is a subsidiary valley head in the southwestern part of the property, enclosed by rounded spurs. The northern of these spurs separates the subsidiary head from the main valley head, with the southern spur that encloses the valley along the southern edge of the property.

10. There do not appear to be any deeply incised waterflow channels on the slopes. There is some evidence of surface landslips only on the lower to middle slopes on the northern side of the valley head, where the ground surface appears to be less stable in local pockets [no development is proposed on this part of the site]. The gently grading floor of the valley is quite damp [from seepage off the catchment slopes], and a network of drains has been cut to catch and channel the seasonal surface water.

11. There is an artificial pond just down-gradient of the existing house on the valley floor, and outflow from the pond is culverted. Up-gradient of the house there is a narrow tongue of grassland, which extends up the floor of the main valley and the side-valley.

12. **Geology and soils:** The underlying rock type is reported to be Parahaki volcanics (Geological Map of New Zealand, 1961). Cuttings (up to 3m deep) on the established farm track show the weathered volcanics are intermixed with sedimentary materials including sandstones. Soils derived from the Parahaki volcanics are stiff clays that are greasy when wet.

13. **Gumlands habitat:** The nature of the established vegetation and the soils exposed in relatively recent earthworks[3] indicate that a high degree of podzolisation has resulted in severely depleted and dense clays on the ridges and upper slopes. These dense, amorphous clay soils, severely depleted of nutrients and with very poor internal drainage and aeration, are known as pipe-clay gumlands. The gumlands owe their origin to the podzolising effects of the acid litter from earlier cover of native conifers, especially kauri [hence the name "gumlands" – after the kauri resin (or gum) found in the depleted soils].

14. The gumlands, on the ridges and upper slopes, support a characteristic heathland vegetation, usually known as 'gumlands scrub', in which manuka is dominant or co-dominant with a characteristic set of native sedges that occur only on these very 'hard' soils. The gumlands are the home also to a characteristic flora of smaller native herbs,

[2] The higher and northerly of two knolls on the headland landform.

[3] e.g., on the bulldozed track down the upper flank of the southerly spur from the paper road on the western boundary.

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including a variety of characteristic ground orchids.

15. The almost exclusive dominance of manuka and absence or only sparse presence of kanuka in the closed scrub cover indicates that even the deeper colluvial soils on the middle to lower slopes are depleted and have poor aeration and internal drainage.

16. **Pattern and extent of natural habitat:** More than 75% of the land area of the property has a natural or near-natural cover of predominantly native vegetation, mostly regenerating native scrub and shrublands in which manuka (*Leptospermum scoparium*) predominates. Young pine trees, planted and/or self-sown and now emergent above the shrublands, are becoming an increasingly prominent feature of the cover on the westerly side of the valley. The pattern of distribution and extent of the native shrublands and scrub/regenerating bush cover is shown in the aerial photograph in Figure 1.

17. Low (often 1-2.5 metres tall), in places relatively open, heathlands or gumlands scrub occurs on the crests and upper flanks of the ridges and spurs. Downslope the manuka scrub cover is taller and denser. On the lower and toe slopes of the valley there is a closed canopy of manuka at 3.5-5 metres, with black tree fern (mamaku – *Cyathea medullaris*) prominent locally.

Recent vegetation history:

18. The site very likely was cleared of its natural forest cover long ago, and kept clear over a long period, by the ravages of periodic fires or maintained clear in other ways.

19. Mr. Sam Alipahic, who I understand has been the co-owner of the property since 1983 and has worked on it for many years, relates the following information about the recent vegetation history of the property:

- Until approximately 1960 the property was in grass, and used for winter grazing.
- From c.1960 until 1972 the grassed slopes "reverted" to a shrubby cover with gorse and makuka.
- In 1972 the entire property was completely burnt out in a big scrub fire.
- There followed scrubby "reversion", with periodic clearance of parts of the property in attempts to establish productive crops, including:
- In 1980 clearance of the north- and easterly-facing slopes on the southerly side of the valley to plant grapes – a project frustrated by possums destroying the vines.
- 3-4,000 radiata pine seedlings were planted on the north- and easterly-facing slopes on the southerly side of the valley in 1990. The c.13 year-old pines (together with wilding pines) are now a conspicuous feature, emergent above the low shrublands canopy on these slopes.

Plant communities:

20. The natural habitats are dominated by heathland and shrubland or scrub communities, in which manuka is the predominant canopy species, on heavily podzolised soils. The main native vegetation types in the natural areas on the property are:
- Heathlands or gumlands scrub
- Manuka-dominated shrublands and scrub, and,
- Manuka-dominated secondary forest.

21. On many sites there is a gradual transition between the vegetation-types. There are broad ecotones or intermediate mixed communities where the heathlands on the crests and upper flanks of ridges and spurs merge with manuka scrub on the mid slopes. Likewise, there is a gradual transition between the dense manuka scrub on the middle slopes and the taller manuka forest regeneration on the lower and toe slopes.

22. **Manuka heathland (gumlands scrub) with native sedges:** The heathlands occur on severely depleted "gumland" clay soils, on the crests and upper flanks of the ridges and spurs. Manuka predominates or is co-dominant with a characteristic set of native sedges, including *Lepidosperma laterale*, *Gahnia* lacera and *Gahnia setifolia*, *Schoenus brevifolius* and *Schoenus tendo*, in a low (mostly 2-3m tall) 60-95% closed heathlands

canopy. This heathland vegetation-type is confined to and characteristic of heavily podzolised, dense, amorphous clay soils, severely depleted of nutrients and with very poor internal drainage and aeration, which are known as pipe-clay gumlands (see 13-14, above).

23. Other native shrub species that are scattered or occur only locally as a minor but characteristic component of the canopy include kanuka (*Kunzea ericoides*), mingimingi (*Leucopogon fasciculatus*), divaricate coprosma (*Coprosma rhamnoides*), akepiro (*Olearia furfuracea*), hangehange (*Geniostoma* rupestra), Pomaderris *ericifolia* and kumarahou (*Pomaderris kumeraho*).

24. The gumlands are the home also to a characteristic flora of smaller native herbs, including a variety of characteristic ground orchids. Sun orchids – *Thelymitra* spp., and *Prassophyllum* were observed, but a substantially broader range of seasonal native orchid species is likely to occur in this habitat. Where the low manuka canopy is broken or more open there is a characteristic range of small herbaceous native species. These include turutu or bluebell (*Dianella nigra*), the monotypic endemic sedge *Morelotia affinis*, other small sedges including *Schoenus apogon*, sundews (*Drosera peltata*), and the small woody species *Gaultheria antipoda* and *Pimelia prostrata*.

25. **Weeds of the heathlands:** On and near the high ridgeline at the northern edge of the property invasive exotic species are only a minor and inconspicuous component of the heathland communities. Prickly hakea (*Hakea sericea*) and the heavily-spined woolly hakea (*Hakea gibbosa*) and gorse are scattered mostly sparsely in the manuka canopy. These shrubby weeds are more plentiful on the north- and easterly-facing middle to upper slopes and crests on the southerly side of the valley. The heathlands regeneration is much more modified here, with 2.5-4.5m tall planted radiata pine poles, tree banksia and more scattered wilding maritime pine poles a prominent visual feature, emergent above the low heath and shrublands canopy.

26. **Manuka shrublands and scrub:** A dense, largely monospecific closed scrub canopy of spindly-stemmed manuka, from 2 to 4 metres high, covers most of the middle valley slopes. In places, especially on the middle north- and easterly-facing slopes on the southerly side of the valley, gorse forms 10-15% of the cover and is conspicuous in the canopy. Because the manuka canopy is so dense, the understorey is sparse or absent, with few species on the floor. Biodiversity in these communities is low. Regeneration of native forest species is very sparse and largely absent. No regeneration of enduring species of native forest trees was observed.

27. **Manuka-dominated secondary forest, with mamaku groves:** Manuka is dominant or exclusive in a taller closed canopy, mostly 4-5.5m high (to 6m) on the lower and toe slopes of the valley. The manuka is spindly-stemmed (to 6cm d.b.h[4]. – mostly more slender). Mamaku or black tree fern (*Cyathea medullaris*) is prominent in the canopy in groves or more scattered small groups on damp (seepage) areas on the toe slopes.

28. In the more mesic habitat on the lower and toe slopes, the understorey is richer and more varied. There is a range of native forest shrub species regenerating, including hangehange, karamu (*Coprosma robusta*, *C. lucida* and less *Coprosma grandifolia*), *Coprosma rhamnoides*, kawakawa (*Macropiper excelsum*) and mahoe (*Melicytus ramiflorus*). Where best developed, the mixed-species shrubby understorey reaches 3.5m in height. A range of native herbs and forest ferns has established in low density on the floor – including the ferns kiokio (*Blechnum novae-zeelandiae*), *Doodia media* and *Pteris tremula* (and *Blechnum chambersii* in damp hollows), sedges (especially *Gahnia lacera* and *Lepidosperma laterale*, forest grass (*Oplismenus imbecillis*) and ground herbs (*Dichondra repens*). No regeneration of enduring species of native forest trees was observed.

29. **Weeds in the manuka forest:** Most of the manuka secondary forest stands are

[4] d.b.h. = stem diameter at 1.4 metres above ground level.

relatively weed free. There is a light infestation of gorse, and woolly nightshade (or tobacco weed – *Solanum mauriteanum*) on the lower margins of the manuka stands. The aggressive and potentially damaging weedy vine climbing asparagus (*Asparagus scandens*) is established locally in patches on the forest margin in the lower reaches of the valley, and birds have spread the seed to form light early infestations more widely (immediate control is advised). Wild ginger (*Hedychium gardnerianum*) is present locally in small amounts – but mostly on the margins of the stream on the accessway (proposed Lot 3).

30. **Pines and heavily-modified communities:** The rounded crest and upper flank of the ridge that adjoins the western boundary and down the two easterly dipping spurs have been subjected to relatively frequent and recent clearing and cropping activities. Invasive exotic species are a more substantial component and are much more prominent on these north- and easterly-facing middle to upper slopes and crests on the southerly side of the valley. Young pines, mostly 2.5-4.5 metre tall c.13-year-old *Pinus radiata* poles (with fewer self-sown maritime pines - *Pinus pinaster*) are visually dominant, emergent above the low shrublands and heathland canopy on the middle to upper slopes. Tree banksia or bottlebrush tree (*Banksia integrifolia*) is regenerating and spreading where the heathland canopy is broken or more open. The older-established emergent banksia trees are also visually prominent.

SIGNIFICANCE OF THE BIOTA AND HABITATS

31. The secondary shrubby cover and natural habitats on the parts of the valley slopes where natural regeneration following earlier clearance and fires has resulted in predominantly native habitat and communities has intrinsic conservation value and significance.

32. **Potential significance of the manuka shrublands and secondary forest:** Native biodiversity is particularly low in the dense manuka scrub on the middle slopes. A broader range of native forest species have established in the taller manuka-dominated secondary forest regeneration on the lower and toe slopes, but native biodiversity, is low, and insufficient to regenerate species-rich native forest. No regeneration of enduring species of native forest trees was observed in either of these vegetation-types.

33. These sites have little intrinsic conservation significance, other than their potential to regenerate self-sustaining native forest habitat with a high level of biodiversity. This is only likely to be achieved with the assistance of enrichment plantings and appropriate tending to introduce and establish a range of enduring tall-forest tree species.

34. **Heathlands on podzolised gumlands habitat:** The low manuka heathlands on the crests and upper flanks of the ridges and spurs has greater intrinsic conservation value and significance. The heathland communities occur only on heavily podzolised and severely depleted soils that once supported kauri forest (referred to as 'pipe-clay gumlands' - see 18-19, above). This vegetation-type and habitat once covered substantial tracts of Northland but the gumlands have since largely been lost to agricultural development, where the fertility level of the formerly impoverished soils is raised and the characteristic suite of species adapted to the gumlands habitat is permanently displaced.

35. **The native flora:** There is a substantial range and diversity of native species that are characteristic of heathlands or gumlands scrub'' communities, established locally on heavily podzolised soils on the crests and upper flanks of the ridges and spurs. Biodiversity is low in the manuka-dominated communities on the middle and lower slopes. Native vascular plant species recorded in rapid-inventory reconnaissance during my visit are listed in Appendix 1.

36. Native species recorded during my survey included:

- 15 species of trees, shrubs and trailing plants.
- 21 species of native herbs.
- 15 species of ferns and fern allies.

A substantially broader range of seasonal native ground orchid species is likely to occur in the gumlands habitat on the property. Eight native orchid species are reported observed in gumlands habitat in the area – including *Corybas cryptanthus*, which is categorised as "local" in a list of threatened species (L. Forester, 1996 – cited in Pierce 2002).

37. No species categorised as threatened or endangered was observed during my survey – or in an earlier study of the area (Pierce 2002).

38. The established flora of the heathlands is large and diverse enough to represent an important local reservoir of native biodiversity and seed source for natural regeneration in the local landscape of the coastal hinterland. This small remnant of native heathland forest biodiversity is part of a larger area of heathlands habitat on the adjacent ridges.

39. **Fauna and habitats:** The native bird species observed during my visit are listed in Appendix 1. The birds are typical of coastal shrublands and natural habitat in the general area. None of the birds observed is classed as a threatened species.

40. Department of Conservation records indicate that New Zealand fernbird (*Bowdleria punctata, vealeae*) was recorded in the area sixteen years ago, but it was not observed during my visit.

41. No record of other native fauna such as insects and lizards was made. The diverse terrain and range of natural habitats indicates a strong likelihood that the area would be habitat for a substantial range of species. The shrublands habitat could be important for a number of lizard species, in particular.

42. The proposals to conserve natural habitats, control aggressive weeds and re-establish enduring and sustainable species-rich native cover will ensure that habitat quality and native biodiversity is enhanced and sustained in the future. In this way, the proposed environmental protection and enhancement will increase the natural significance of the property (and, by association, the surrounding coastal lands).

43. **Significance of habitats on proposed development sites:** The intrinsic conservation value and significance of the heathland and shrubland cover is relatively low[5] on the sites proposed for residential development and the access roads to the residential allotments. The plant cover on these sites has been persistently and more recently cleared and modified, with 13-year-old pine plantation covering much of the affected sites on the southern side of the valley.

PROBLEMS AFFECTING NATURAL REGENERATION – AND REMEDIES:

44. **Manuka shrublands/bush cover:** The following problems are likely to prevent the establishment of self-perpetuating and sustainable native communities with a rich and diverse flora and high value as habitat for native wildlife:
    - The low level of native biodiversity and lack of any regeneration of enduring native tree species in the manuka shrublands/bush cover.
    - The paucity or lack of seed sources for a diverse range of native forest species in the nearby surrounds.
    - The site is becoming increasingly degraded through the spread of plant pests or weeds.

[5] Far less intrinsic conservation value and significance than the relatively unmodified areas of natural cover that will be enhanced and not adversely affected by the proposed subdivision and development.

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45. **Lack of forest trees and low biodiversity:** Native biodiversity is low, and insufficient to regenerate species-rich native forest. No regeneration of enduring species of native forest trees was observed in the manuka-dominated shrublands and scrub or secondary regeneration.

46. **Transient native cover:** Manuka is a relatively short-lived species and can only regenerate in open conditions (e.g., after a fire). It is a pioneer, serial species that doe not re-establish in its own shade. Unless it is over-topped and superseded by more enduring and taller tree cover that has established in its shade, it is replaced by weedy "wasteland" cover as the manuka shrub canopy becomes over-mature and collapses. The lack of any regeneration of enduring native tree species and the poor stocking of only a limited range of forest shrubby species indicates there is little prospect of sustainable native forest cover establishing on these sites without management to introduce a range of enduring tall-forest tree species.

47. **Lack of seed sources:** Problems of low and relatively transient native biodiversity in the shrublands/secondary bush habitat are compounded by paucity or lack of seed sources for a diverse range of native forest species in the surrounding landscape.

48. **Proposed remedies:** Self-sustaining native forest habitat with a high level of biodiversity is only likely to occur if enrichment plantings and appropriate tending are used to introduce and establish a range of enduring tall-forest tree species.

49. Enrichment plantings to establish a range of enduring tall-forest tree species is part of the environmental enhancement component of the development proposal. This will establish the initial native tree stocking necessary to establish enduring native forest cover. It will also establish seed sources for ongoing natural dispersal of a diverse range of enduring native forest species, to facilitate the establishment and sustainability of species-rich native forest cover on the property and in the shrubby cover on the surrounding landscape.

50. Establishment of species with large fruit, such as tawa, taraire, kohekohe, hinau, and native podocarps (including miro, matai, kahikatea, tanekaha and rimu), will attract wood pigeons to the property (to once again roost and breed here). This will lead to natural dispersal of seed from these stands much more widely into regenerating shrublands in the local coastal landscape – with very substantial benefit and enhancement of natural areas (including the Council-administered reserve land at the heads.

51. **Weeds:** Weeds and other exotic species of vascular plants recorded in the natural areas on the property are listed in Appendix 2. 17 species were recorded in rapid-inventory survey.

52. A number of shrubby weed species, including gorse, prickly hakea and woolly hakea are widespread in the heathlands, but a relatively minor component of the canopy. Gorse is also widespread in the manuka shrublands. Unless there are further fires, these weedy shrubs are transient, and will eventually be overtopped or displaced by competition. The pines and tree banksia are much longer-lived. They are emergent trees that will increasingly dominate the visual character and ecology of the affected areas of heathland and shrubland, unless they are removed.

53. Many of the other weeds recorded are much more local in small populations or recent colonies. Some of these, such as woolly nightshade, brush wattle, boneseed, pampas grass and wild ginger, are potentially invasive plant pests. Elimination of these pests or their effective control is practical, if control is implemented before they spread more widely.

54. Climbing asparagus: Potentially by far the most damaging of the invasive plant pests recorded is the aggressive vine climbing asparagus (*Asparagus scandens*). At this stage

the infestation of climbing asparagus is light and largely localised on the lower and toe slopes along the valley floor. However, the vine fruits profusely and the seed is spread by birds, and it has the potential to spread rapidly. Climbing asparagus becomes most dense and rampant in the semi-shade where the canopy is thinning naturally or is partly open or broken. Climbing asparagus is a particularly aggressive vine that strangles and smothers understorey plants including regenerating native seedlings and saplings. Its ability to grow rampantly over understorey plants and form dense smothering foliage in the semi-shade beneath the shrub canopy makes climbing asparagus a most severely damaging weed of native forest regeneration. It is important to quickly eradicate climbing asparagus whenever it is found, to prevent the build-up of an internal seed source. Early control is needed, before this vine spreads more widely.

55. Control of invasive plant pests that are degrading the native communities is an integral part of the environmental enhancement component in the development proposal.

56. **Problems affecting the heathlands (gumlands):** In addition to the requirement for the impoverished soil conditions to which the characteristic species of the gumlands are specifically adapted, the heathlands are dynamic communities that require "rejuvenation" by fire periodically to be sustained. They owe their origin to fire and are sustained by periodic fires, which provide the open habitat necessary for regeneration and growth of many of the small plants that give these fire-induced communities their characteristic biodiversity. Unless the open conditions are periodicaly re-created by fire (or other periodic clearance), much of the biodiversity is lost. Open conditions are necessary to prevent the smothering of the smaller plants by the relatively few taller species (mainly manuka), and to provide for regeneration of the broad range of smaller plants that cannot establish in shaded conditions. Periodic breaking or opening of the shrubby canopy is necessary, to sustain the high level of characteristic biodiversity of the heathlands in the medium to longer term.

57. In a small remnant of gumlands communities, as on Lot 1 (and on the adjacent ridges), it is difficult to provide the dynamic ongoing changes to habitat conditions necessary to sustain the characteristic high level of biodiversity. Realistically, as fire control becomes increasingly effective a high level of biodiversity is not likely to be sustained in the longer term on undisturbed sites. The existing moderately high level of biodiversity found here is likely to be a transient feature on undisturbed sites. Fire as a management tool here would create a potential hazard to a much broader area, and is impractical. Many of the characteristic gumlands species are likely to persist (in small but sustainable populations) on the disturbed and relatively open margins of roads or tracks and cleared areas when they are displaced more generally on the landscape by overgrowth of a taller shrub canopy.

PROPOSAL - ASSESSMENT AND PROTECTIVE MEASURES

Subdivision plans:

58. I have discussed issues of conservation and environmental protection and enhancement and effects of the proposal with Mr. Tony Vujnovich (who is preparing the development proposal) and the landscape consultant Kristine Bouw (of D. J. Scott Associates), during the course of preparation of the subdivision plans and proposal. The proposed Lots to which this report refers relate to the Lots delineated on the Preliminary Concept Plans prepared by D. J. Scott Associates (copy annexed as Appendix 3).

59. In my examination of the property and on-site discussions with Mr. Vujnovich I observed the following features of the subdivision and development proposal that are important in an assessment of effects on the natural environment:

60. **Visual enclosure:** All of the area proposed for development will be contained within the main valley and on terrain below the main ridgelines that enclose the head basin and sides of the valley. The part of the valley on the subject property is set well

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back from Wintle Road. The affected land within the valley is largely "visually enclosed", and obscured from all but very local viewing "shafts" by the greater elevation of the enclosing ridges. Because of the nature of the terrain, only a small and localised part of the developed sites will be visible from the very local views into the upper slopes of the valley from lower ground nearer the coast.

61. **Coastal protection areas:** None of the part of the property near or to the north of the dominant coastal ridgeline (in the northeastern corner and towards the northwestern corner of the subject property) will be affected adversely by the development. Potential effects will be positive, by way of proposed enrichment plantings near the southerly fringe of the ridgeline, to enhance the natural environment. There will be no development or adverse visual or other effects on any of the area of the subject property zoned for protection of coastal features.

62. **Access road:** It is proposed that the common access road to serve the proposed residential Lots along the westerly (and southwesterly) part of the property will rise from the valley floor up the northerly flank of the spur that descends parallel with the "paper road" on the southern boundary. This road will join the "paper road" on the ridge along the western boundary, which will be formed. Access to residential Lots on and near the southerly spur slopes and below the ridgeline along the western side of the property will be by way of relatively short side-roads off the common access road. This placement of the roading system has substantial advantages in protecting important features of the natural environment and avoiding or minimising adverse effects. These advantages include:

- Natural habitat and environmentally sensitive terrain along the damp valley floor and lower slopes is retained intact.
- The common access road will be much closer to the proposed residential Lots, so access roads to each individual Lot (from the common access road) will be shorter.
- These (relatively short) side-roads to individual lots will be on well drained, potentially more stable ground, and on terrain of substantially more gentle gradient than would be the case with relatively long side-roads up the steeper middle slopes from below.
- Construction of the (relatively short) side-roads will involve much less clearance of established native cover and less earthworks than would be the case with relatively long side-roads up the steeper middle slopes.

Environmental protection and road construction:

63. The following measures and procedures can help to avoid or minimise adverse effects of earthworks on the natural environment in relation to the roads and their construction:

64. **Retaining walls** should be used where possible to effectively minimise the extent of cut and fill batters, thereby minimising vegetation clearance and the creation and exposure of potentially erodable sloping cut and fill surfaces. In practice, where the side-slope is most steep shallow fill batter slopes might be impractical to achieve (or would cover an excessive area), and fill might slip on the steep side slope unless supported by a retaining structure.

65. **Drainage:** On this terrain, potential problems with scouring and surface erosion of the valley slopes can most effectively be avoided by avoiding any concentration of water in roadside drains. In my experience, this is best achieved by forming the road surface with a gentle (eg, 2°-3°) cross-slope, angled with the main slope (rather than a conventional rounded surface with table drains), and avoiding any concentration of water in roadside table drains and culverts. The objective is to shed water from the road surface onto the lower slope at numerous closely spaced points and avoid any opportunity for water to accumulate in volume and increased velocity in sloping drains. In this way, drainage from the road will closely simulate the natural drainage patterns and features.

66. If at any location it is necessary to form a table drain and culvert a more substantial

volume of water to a point discharge, special protection provisions to disperse water and reduce its velocity at the discharge point are advisable. Protective measures can include rock rip-rap fans and establishment of resistant and enduring groundcover – flax and native sedges such as *Carex flagellifera* are effective.

67. **Erosion blanket:** A biodegradable erosion control blanket ("Xcell"™ blanket) can be used to cover all fill batter surfaces (and cut batter surfaces to a maximum slope of 1:1). Mountain flax or wharariki (*Phormium cookianum*) and native sedges (especially *Carex flagellifera*, with fewer *Uncinia uncinata* and *Uncinia banksii*) can be planted (in slots cut through the blanket) at close spacings – less than 1m to 2m apart. The Xcell blanket controls surface frittering and erosion and its moisture-retention properties promote rapid establishment of low native sedge cover (with a strong fibrous root system) to provide longer-term self-sustaining protection of the batter surfaces.

68. **Measures to minimise effects of vegetation clearance:** The following procedures and measures can minimise clearance of established native cover and disturbance of natural habitats:

- Remove established native shrubs only from the direct site of excavations necessary to form the road base. Machine operation and passage be strictly confined to the demarcated road alignment, within the defined area of excavation.
- The outer edges of the excavation cut be demarcated (using "dazzle" paint). All affected native shrubs be hand cut before excavation commences.
- No spoil or fill be deposited or allowed to spill onto the slopes beyond the cut. The removal of spoil (rather than deposit at the road edge) can greatly reduce the extent of effects of earthworks.

69. **Effects:** Only a small area of secondary native shrub cover will be affected. As noted earlier (30) the affected area has largely been planted in pines, and is the most heavily modified part of the property. Ecological effects of road construction will be transient and minimal. Visual effects will be small and temporary – with the growth of new plantings and shrubs retained near the road edge quickly filling the minor gaps in the cover and screening the roads from views.

Vegetation clearance for house (and yard) sites:

70. **Natural habitats on the sites proposed for residential development:** The heathland and shrubland cover on the sites proposed for residential development and the access roads to the residential allotments is heavily modified and of relatively low intrinsic conservation value and significance.

71. **Affected heathland and shrubland habitat on upper slopes:** Relatively recent and persistent attempts to establish a productive crop have resulted in a heavily modified plant cover on upper slopes flanking the main ridgeline adjacent to the western boundary and on the crests and flanks of the spurs that descend the southerly side of the valley. Pine, planted and/or self-sown and now emergent above the shrublands, and tree banksia are becoming an increasingly prominent feature of the cover.

72. Relatively recent modification includes the scar of a bulldozed track down the spur crest to the valley floor from the "paper road" on the ridge – which passes directly through proposed house sites.

73. **Affected shrublands:** The plant cover has been persistently and more recently cleared and modified also on the relatively accessible middle and lower slopes on the easterly side of the valley towards the southeastern corner of Lot 1. This has resulted in a much lower, younger and less species-rich cover than that on the slopes further up the valley.

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74. **Effects of clearance:** Because the significance and value to nature conservation of the plant cover and habitats is relatively low on the modified sites proposed for residential development, the effects of vegetation clearance will not be significant.

75. Pines: Pines growing on the proposed house sites and garden areas will be removed. I recommend that all the pines on the slopes beyond the house/garden sites be removed also – as part of the weed control programme.

76. Clearance of pines from the sites on the southern side of the valley will have a net positive effect on sustaining the native character of the plant cover in the valley. The pines (and to a less extent tree banksia) are already visually prominent. If they are not removed the pines will quickly grow much larger and become visually dominant, detracting from the native character of the plant cover in the landscape.

77. The following procedures and measures can help minimise clearance of established native cover and disturbance of natural habitats:

- The outer edges of the prescribed sites to be cleared be demarcated (using tape or "dazzle" paint or similar).
- Remove established native shrubs only from the defined house sites and garden areas. Machine operation and passage be strictly confined to the demarcated sites.
- Where there are excavations, no spoil or fill be deposited or allowed to spill onto the slopes beyond the areas prescribed for clearance. Removal of spoil (rather than deposit onto natural habitats beyond the cleared garden sites) can greatly reduce the extent of effects of earthworks.

ENHANCING THE NATURAL ENVIRONMENT:

78. **Weed problem:** The site is becoming increasingly degraded through the spread of plant pests or weeds. Many of the established weeds are relatively recent infestations in small populations that can be controlled or eradicated (provided control begins soon). Although weeds comprise only a relatively small proportion of the natural cover on the valley slopes, there are two problems that need priority attention:
- Pines and other long-lived exotic trees will quickly compromise the native character of the valley if they are not removed.
- The aggressive and potentially very damaging vine climbing asparagus (*Asparagus scandens* – see 53, above), which has established on the lower valley slopes must be eradicated quickly, to prevent the build-up of an internal seed source.

79. The weed problem is discussed more fully in 50-54, above.

80. Weeds need to be controlled effectively, to arrest decline in established native cover and disruption of natural regeneration, and to enable plantings to establish and grow successfully

81. **Landscaping – weed control and native planting:** There is good potential for plantings to re-introduce a much broader range and diversity of native coastal forest species and extend and consolidate an enduring and self-perpetuating (sustainable) native coastal forest cover on the property. A landscaping programme incorporating weed control and native plantings to arrest decline in the established cover and restore and enhance native biodiversity, natural habitats and environmental quality is proposed as part of the application for subdivision and development of the site.

82. **Sustainable land-use and environmental protection:** Long-term control of aggressive weeds to establish and sustain native cover and environmental quality is an ongoing process that requires resources and effort. It is most likely to be sustainable if there is a

strong and ongoing incentive to encourage and sustain the resources and effort required. It essentially will require effective all-season access within the property. The proposed development of residential units and access roads on the most heavily modified parts of the site will make weed control and establishment of diverse and enduring native cover much more likely to be effective and sustainable.

LANDSCAPING – RECOMMENDED PROCEDURES

83. D J Scott Associates is developing the landscaping plans and implementation parameters. I recommend the following procedures and measures as likely to be effective in promoting and establishing greater native biodiversity, extending and consolidating enduring and self-perpetuating (sustainable) native coastal forest cover, and enhancing native habitats on sensitive parts of the site including the heathlands.

84. **Objectives:** The primary objective of the native plantings and re-vegetation is to restore species-rich native communities and habitat to manuka shrublands and secondary cover and environmentally sensitive parts of the site that have been degraded by a long history of fires and clearance. Most of the species of the forests that originally covered the site and the surrounding terrain have been displaced, together with seed sources. Plantings will be used to re-introduce a broad range of native species that have been lost from the site and to supplement natural regeneration. In addition, there will be strategic plantings of native shrubs and enduring tree species alongside and near the access roads and building sites for screening, windbreaking and specific amenity objectives.

85. **Initial weed control:** Initial and ongoing control of weeds is an essential part of the environmental enhancement programme. Eradication is practical with plant pests that are currently established in only relatively small and localised populations – most importantly the aggressive vine climbing asparagus, which can smother and overwhelm regenerating native seedlings and saplings.

86. **Ongoing (long-term) weed control:** Early establishment of an enduring tall-tree canopy is particularly important in sustainable weed control. Establishing a tree canopy of long-lived native species is by far the most practical and sustainable form of weed control in the medium to long term.

87. An enduring tall-tree canopy, once established, will quickly suppress most potentially damaging weeds, which are weakened by overtopping and shading. Rapid establishment of a tall-tree canopy is important – to quickly reduce the concentrated effort and resources otherwise needed to maintain weed control.

88. **Pohutukawa:** The most practical way to quickly establish a tree canopy of long-lived native species is to make pohutukawa saplings a major component in the initial plantings. Pohutukawa will establish well and is a suitable and particularly attractive canopy tree for all of the upper and middle slopes on this site.

89. In addition to its special intrinsic characteristics that identify it as the pre-eminent enduring native coastal tree in the region, pohutukawa has the following characteristics that make it especially suited for sustainable long-term weed control:
- It is a "pioneer" tree that will establish on open sites.
- It grows rapidly in stature, soon growing beyond the rampant and potentially smothering growth of the vines.
- It grows to a large size, with a wide-spreading crown – soon covering a substantial area (with attendant rapid establishment of ongoing natural weed control).
- It is a long-lived tree – ensuring long-term natural weed control.
- It forms an attractive roosting habitat for birds, and a wide range of characteristic associated coastal tree and shrub species will regenerate naturally under and amongst the pohutukawa canopy.

90. **Plantings – species:** Choice of species must be carefully matched with local site

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conditions (or microhabitats), because of the unforgiving nature of the highly podzolised "hard" soils and soil moisture/aeration conditions, especially on the higher slopes.

91. **Heathlands:** Only very limited plantings should be made on the heathlands, where the established canopy is broken or opened where weeds are removed. I recommend planting the leathery-leaved tree daisy akepiro (*Olearia furfuracea*), but only as isolated plantings or widely-spaced (15 metres plus) small clusters.

92. **Seasonally dry upper and middle slopes:** I recommend using **pohutukawa** as a major component in the enrichment plantings on the upper and middle slopes. Pohutukawa requires open light conditions to establish successfully. Saplings will be planted in "light holes", either natural breaks in the shrubby canopy or formed by cutting-back established shrubs (and, with weedy shrubs such as woolly nightshade, immediately "painting" the stumps with concentrated herbicide). Pohutukawa should be planted irregularly at spacings of at least 15 metres (preferably 15-25 metres).

93. Enrichment plantings to be made on the upper and middle slopes in established native shrublands can include a broad range of species that thrive on "hard" soils that are subject to seasonal drying and moisture deficits, but establish better in the shelter of a 'nurse crop' of established cover.

94. A selection of at least eight species from the following is recommended for these plantings:

- akepiro (*Olearia furfuracea*)
- hinau (*Elaeocarpus dentatus*)
- houpara (*Pseudopanax lessonii*)
- kauri (*Agathis australis*)
- lancewood (*Pseudopanax crassifolius*)
- mamangi (tree coprosma) (*Coprosma arborea*)
- mangeao (*Litsea calicaris*).
- mapou (*Myrsine australis*)
- pohutukawa (*Metrosideros excelsa*)
- rewarewa (*Knightia excelsa*)
- tanekaha (*Phyllocladus trichomanoides*)
- totara (*Podocarpus hallii* or *P.hallii X totara*)

95. Spacing: Enrichment plantings amongst the established shrublands and in openings where the shrub canopy is broken should be widely spaced - averaging no closer than approximately 10-15 metre spacing for canopy-tree species.

96. **Middle and lower slopes:** A diverse range of native forest species can be used in the enrichment plantings, to re-establish local seed sources for ongoing natural dispersal and regeneration. Most of the species listed above (in 94), are suitable. Other tree species can include a selection from:

- hinau (*Elaeocarpus dentatus*)
- kahikatea (*Dacrycarpus dacryoides*)
- karaka (*Corynocarpus laevigatus*)
- kauri (*Agathis australis*)
- kohekohe (*Dysoxylum spectabile*)
- lancewood (*Pseudopanax crassifolius*
- maire (*Nestegis lanceolata*)
- mamangi (tree coprosma) (*Coprosma arborea*)
- mangaeo (*Litsea calicaris*)
- matai (*Prumnopitys taxifolia*)
- miro (*Prumnopitys ferruginea*)
- puriri (*Vitex lucens*)
- rewarewa (*Knightia excelsa*)
- rimu (*Dacrydium cupressinum*)
- tanekaha (*Phyllocladus trichomanoides*)

- taraire (*Beilschmiedia tarairi*)
- tawa (*Beilschmiedia tawa*)
- totara (*Podocarpus totara*)
- tree daisies (*Olearia rani, Brachyglottis kirkii*)

97. Shrubby/small tree species suitable for sites on the middle and lower slopes (for more close-spaced plantings to help quickly form a closed canopy – but not as a substitute for the long-lived tree species) could include (in addition to kanuka):

- mapou (*Myrsie australis*).
- kohuhu (*Pittosporum tenuifolium*).
- tree daisies (*Olearia* spp.) – including
- akepiro (*Olearia furfuracea*)
- heketara (*Olearia rani*).

98. Spacing for shrubby species should be not less than 2 metres.

99. As with planting the pohutukawa, light holes will be cut in the established shrub caanopy, in which to plant and establish the saplings, but no established native species other than manuka will be cut out to form the light holes.

100. **Planting stock:** Nursery-raised seedlings/saplings of native tree and shrub species will be planted. Stock used should be well-hardened nursery stock with stems 1-1.5m tall.

101. All stock used in the plantings will be `eco-sourced' – raised from seed collected in the mid-Northland region, to prevent `genetic pollution'. `Genetic pollution' is possible changes to local populations which have evolved a distinct local identity by introducing new (geographically distinct) strains of the same species with which they may hybridise.

102. **Timing:** Plantings should be timed for the onset of cool-season rains - usually early to mid May, onwards, and before August.

Fertilisers and mulching: I recommend using slow-release fertiliser "cakes" or organic fertiliser (blood and bone - dug in to planting holes at a rate of roughly a handful). Fertiliser targeted specifically to the planting helps the early growth of planted saplings to get up above competing growth. Liberal use of organic mulch around each of the plantings is recommended.

GENERAL CONCLUSIONS

103. The environmental protection provisions and the planting and vegetation management programme in the subdivision proposal will:

- Retain intact and protect most of the established shrublands and bush regeneration and native habitat on the property.
- Arrest and control weed infestation that will otherwise degrade native habitats on the property.
- Establish a sufficient stocking of long-lived native tree species and future seed sources to form and sustain a species-rich native forest canopy.
- Supplement natural regeneration and re-vegetate parts of the site that are environmentally most sensitive.
- Re-introduce and restore native species diversity and enhance habitat quality on the areas of existing natural habitat that are very poorly stocked with regenerating trees and shrubs.
- Re-establish and sustain important ecological corridors that will link established native habitats in the general coastal area and thereby sustain biodiversity and habitat quality.

104. These proposals provide a good opportunity to:

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- Protect, enhance and conserve important natural habitats.
- Arrest decline in the established natural cover.
- Re-establish species-rich native cover on natural areas that will otherwise become increasingly weed-infested and degraded.
- Facilitate natural regeneration and the sustenance of habitat quality and native biodiversity.
- Enhance strategically important native communities on the ecologically most sensitive parts of the property.
- Restore and enhance species diversity.
- Provide, in the medium to longer term, for enhanced visual amenity on the valley slopes in the coastal hinterland.
- Ensure the survival of the natural habitats as an enduring natural feature in the landscape.

105. In my opinion, the proposals provide well and adequately for enhancement and conservation of the significant natural vegetation and habitats on the site. The proposed conservation measures will provide much more adequately for long term sustainability of the important natural habitats and will restore a broad range of native species that were part of the original forest cover on the site but have been displaced.

106. The provisions for environmental protection and enhancement in the subdivision proposal provide a good opportunity for enhancement and long-term conservation of natural features that are important to the ecology and natural character of the coastal hinterland.

107. I believe that the proposed subdivision and use of the property for protection of natural habitats and closely associated residential purposes represents an appropriate and sustainable use of the natural resources of the site.

108. **In summary**: The proposed subdivision and development of residential units on the most modified parts of the site will not damage or alter the natural environment in a significant or harmful way, and will have no ongoing adverse effects on the coastal environment. The proposed protection, rehabilitation and enhancement of the existing natural areas and the re-vegetation will:

- Cause no adverse effects on the environment.
- Reduce damaging weed problems and control future opportunities for weed infestation.
- Retain, protect and sustain the native communities and plants already established on the site.
- Reintroduce species which are characteristic of the original forests on the site.
- Restore diverse and species-rich native vegetation to fragile and ecologically sensitive parts of the site.
- Re-establish species-rich native cover on weed-infested sites.
- Establish and sustain ecological corridors and provide enhanced local habitat and food sources to attract and sustain a variety of native birds.
- Contribute to the native biodiversity and quality of the local landscape.
- Contribute to the visual amenity of the site and the neighbouring landscape.

N M U CLUNIE July 2003
(MSc Hons-Botany, PhD Forestry)

FIGURES (over page)
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APPENDICES

APPENDIX 1: Native species of vascular plants recorded in the natural areas on the Mangawhai Heads site.

1. Native bush and shrublands communities:

Trees, shrubs and trailing plants:

Coprosma grandifolia	
Coprosma lucida	karamu
Coprosma rhamnoides	
Coprosma robusta	karamu
Cordyline australis	cabbage tree
Gaultheria antipoda	
Geniostoma rupestre	hangehange
Kunzea ericoides	kanuka
Leptospermum scoparium	manuka
Leucopogon fasciculatus	mingimingi
Macropiper excelsum	kawakawa
Melicytus ramiflorus	mahoe
Olearia furfuracea	tree daisy (*akepiro*)
Pomaderris ericifolia	
Pomaderris kumeraho	kumarahou

Herbs:

Centella uniflora	
Dianella nigra	bluebell (turutu)
Dichondra repens	
Drosera peltata ssp. *auriculta*	sundew
Gahnia lacera	
Gahnia setifolia	cutty grass (scrub gahnia)
Haloragis erecta	toatoa
Lepidospermum australe	
Lepidospermum laterale	
Microyis sp.	ground orchid
Morelotia affinis	
Nertera scapanioides	
Oplismenus imbecillus	forest grass
Pimelia prostrata	
Prassophyllum sp.	ground orchid
Rytidosperma spp.	danthonia
Schoenus apogon	
Schoenus brevifolius	
Schoenus tendo	
Thelymitra spp. (including *T. longifolia*)	sun orchids
Uncinia uncinata	hook sedge

Ferns and Fern Allies:

Blechnum chambersii	
Blechnum minus	
Blechnum novae-zelandiae	kiokio
Cyathea dealbata	ponga
Cythea medullaris	mamaku
Deparia petersenii	
Doodia media	pukupuku
Gleichenia dicarpa	
Histiopteris incisa	
Lindsaea linearis	
Lycopodium cernuum	clubmoss
Lycopodium deuterodensum	clubmoss
Paesia scaberula	ring fern

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Pteridium esculentum	bracken fern
Pteris tremula	

Native Birds Recorded on the site:

Australasian harrier	*Circus approximans*
fantail (*Piwakawaka*)	*Rhipidura fuliginosa*
grey warbler	*Gerygone igata*
kingfisher (*kotare*)	*Todiramphus (Halcyon) sancta*

APPENDIX 2: Weeds and other exotic species of vascular plants recorded in the natural areas on the Mangawhai Heads site.

*v = vine

agapanthus	Agapanthus orientalis
banksia	Banksia integrifolia
boneseed	Chrysanthemoides monilifera
brush wattle	Paraserianthes lophantha
ginger	Hedychium gardnerianum
gorse	Ulex europaeus
hakea (prickly)	Hakea sericea
hakea (woolly)	Hakea gibbosa
Indian shot	Canna indica
inkweed	Phytolacca octandra
lilies	Lilium sp.
pampas grass	Cortaderia selloana (C. jubata)
passionfruit	Passiflora edulis
pine (maritime – wilding)	Pinus pinaster
pine (radiata)	Pinus radiata
wattle (brush)	Paraserianthes lophantha
woolly nightshade (tobacco weed)	Solanum mauriteanum

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APPEND
ARCHAEOLOGICAL ASSESSMENT
ARCHTAGE HERITAGE CONSULTANTS

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FIGURE 2 –Proposed lots plan

FIGURE 3 – Ferrar geological map

FIGURE 4 – Archaeological map

Archaeological site record forms

File: the heads, mangawhai.doc

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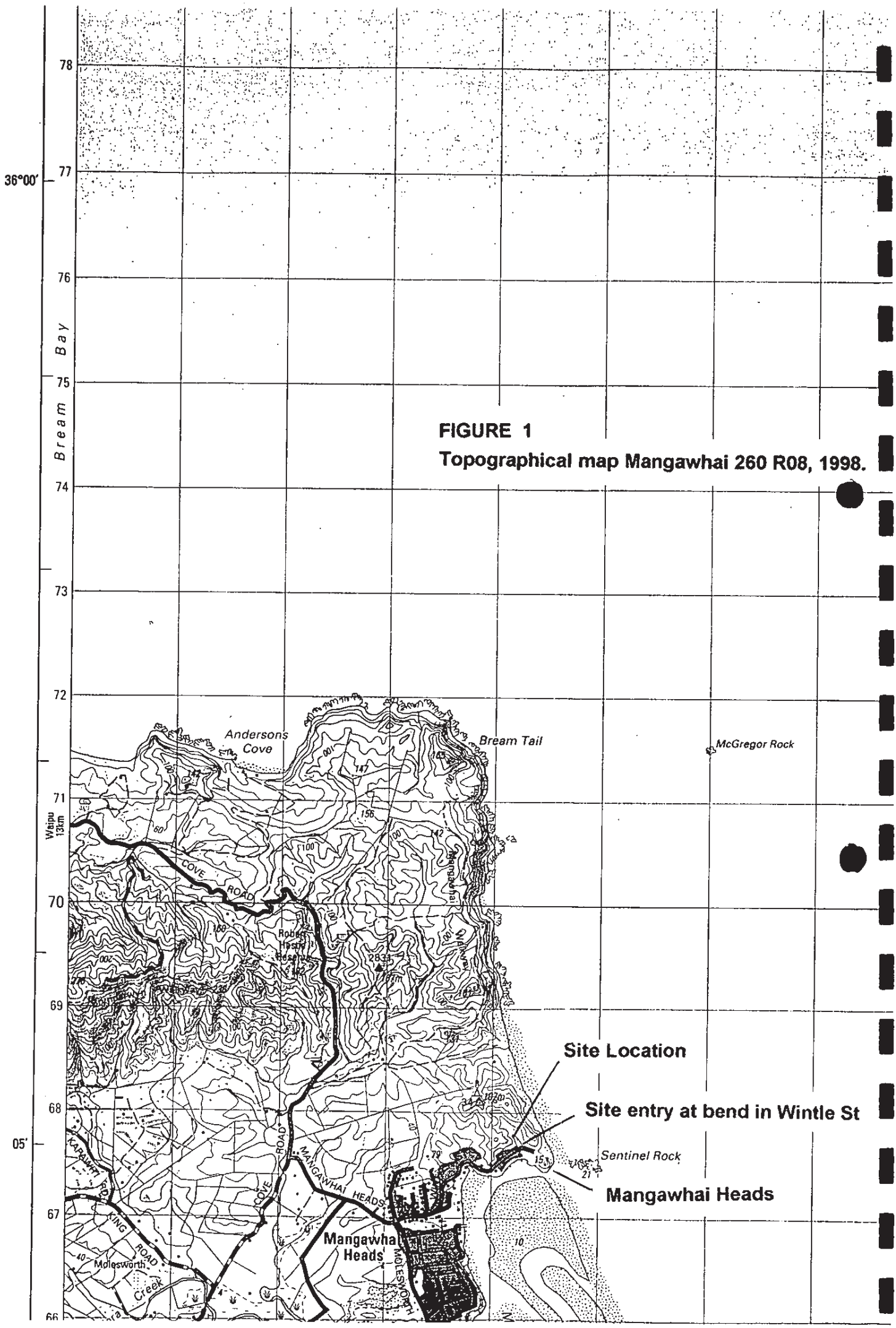

FIGURE 1

Topographical map Mangawhai 260 R08, 1998.

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ARCHAEOLOGICAL ASSESSMENT REPORT
"THE HEADS"
WINTLE STREET
MANGAWHAI

INTRODUCTION

A field survey and assessment were requested by D.J.Scott Associates for their clients' development "The Heads" at Wintle Street, Mangawhai [Figure 1]. This report was commissioned to identify any possible archaeological sites and to assess any heritage issues which might arise with regard to the project site and proposals as part of the Assessment of Environmental Effects.

SITE INFORMATION

The subject site comprises 8 acres being Lot 1 presently owned by S & G Alispahic and is situated to the northeast of Mangawhai Heads. In the centre of the property is a valley with a steep ridge rising to the southwestern and western boundaries, wrapping around to the north and folding back to the east. A small side valley runs off the main valley in the southern section of the property to the west The ridgeline to the east is on a neighbouring property, Lot 2. To the northwest corner, outside the property, is a trig station and communications installation on the highest point at 107 metres.

At the end of the drive off Wintle Road is an existing house. To the southeast of the house is a bulldozed track leading up the eastern ridge onto a Lot not part of this development proposal. In the side valley to the west is a large farm shed. A cleared track runs around the edges of the side valley.

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The valley floor is under grass and at the northern end was quite wet underfoot. The ridges to the north and west and the ridge slope to the east are steep and covered in dense bush and scrub, much of it stunted and impenetrable. There are two main spurs coming off the western ridge to the east, one in the centre of the property, one to the south. Along the western ridgeline, indicated on the plan as a paper road [Figure 2], and along the northern ridgeline is a track bulldozed through in the past and kept clear. At the heads of the spurs are also cleared areas on which vegetation is attempting to grow. These cleared areas display no topsoil but a heavy grey clay.

Soils

The following information on soils on the subject site comes from the Ecology report by Nigel Clunie, July 2003.

The dense, amorphous clay soils, severely depleted of nutrients and with very poor internal drainage and aeration, are known as pipe-clay gumlands. The gumlands owe their origin to the podzolising effects of the acid litter from earlier cover of native conifers, especially kauri [hence the name "gumlands" – after the kauri resin (or gum) found in the depleted soils]. A 'high degree of podzolisation has resulted in severely depleted and dense clays on the ridges and upper slopes ... which are greasy when wet'.

The almost exclusive dominance of manuka and absence or only sparse presence of kanuka in the closed scrub cover indicates that even the deeper colluvial soils on the middle to lower slopes are depleted and have poor aeration and internal drainage.

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Vegetation

On the crests and upper slopes of the ridges is a manuka heathland or gumlands scrub. These gumlands are interspersed with pines which were planted some 13 years ago as well as by wilding pines which are emerging through the heathland and the shrublands farther down the slopes. Tree banksia is spreading through the manuka on the ridge crest and upper ridge slopes and gorse is widespread in the manuka through the areas proposed for development.

SITE PROPOSAL

The proposal is to construct 31 housesites / house clusters along the western boundary and the spurs running off to the east. The clustered houses are in the area of the existing house in the southeast corner of the property, an extension of the present drive will service these. The existing drive will be continued through the side valley and up a gully to meet with the paper road on the ridgeline. Access rows will lead off these two roads [Figure 2].

HISTORICAL BACKGROUND

Mangawhai has gained its name from the Ngati Whatua chief, Te Whai, who spent some time at the pa later to be known as Pakiri. The historian Mabbett relates that Te Whai was attacked there by Ngapuhi but managed to escape and establish the remnant of his tribe at 'the place belonging to Te Whai where the streams meet' – Manga-te-Whai. These were two tidal creeks later known as Hornes Creek and Henry's Creek after the names of two early settlers (Mabbett 1977:130). Further, the area at which Te Whai settled was said to be named Brown's Point.

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The Mangawhai Estuary was a strategic area for Maori as it was the key to a toanga waka or portage where canoes could be hauled either to the Kaiwaka and Otamatea Rivers or to the Topuni and Oruawharo, via Hakaru (Mabbett 1977:130). Thus the mouth of the Mangawhai Harbour was guarded by two pa on the north side, one on the Head and the other approximately 150 metres north overlooking both the mouth and the sea to north and south. This latter pa is noted on Ferrar's geological map (Ferrar 1934) [Figure 3].

There were two Crown purchases in the Mangawhai area. The first sale was in 1854 by Ngati Whatua, an area of 50,000 acres whose southern boundary was along the 'old tribal line' to Te Arai Point. The second sale was in 1874 by Ngati Whatua of 3457 acres. By 1858 the Government survey was completed and the first grant was made although it has been claimed that Europeans had arrived in the area from as early as 1838, even though no discernible settlement or land claims had been made. When Lots were advertised the area was spelt as Mangawai which persisted into the 1950s when the error was finally corrected (Mabbett 1977:124, 134).

The Albertlanders arrived in New Zealand from 1862 on and many arrived at their Lots via the Kaipara Harbour but some travelled along the Mangawhai Harbour to the Te Hana Landing. The first settlers of Te Arai district also made their way via the Mangawhai port (Mabbett 1977:133,138). Gradually, as roads were built throughout the districts, the waterways became less important and so did the area around Mangawhai Harbour.

The subject site is on Wintle Road named for Alfred Wintle, an ex-army captain who arrived in Mangawhai in 1896 having first arrived in Auckland in 1861 (Mabbett 1977:138).

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Recent history of farming activities and vegetational change.

Prior to the planting of pines, the property had been in pasture until approximately 1960 after which the grassed slopes reverted to a shrubby cover with gorse and manuka. In 1972 the entire property was completely burnt out in a big scrub fire which was followed by scrubby reversion with periodic clearance of parts of the property in attempts to establish productive crops. In 1980 clearance on the north and east facing slopes on the southern side of the valley was preparation for grape planting. As this was unsuccessful 3 – 4000 radiata pine seedlings were planted in these same areas in 1990. (Clunie report and pers.comm. – information gained from Sam Alispahic).

ARCHAEOLOGICAL BACKGROUND

Background research indicated little archaeological surveying has been carried out on the north side of Mangawhai Harbour other than an extensive survey undertaken by Bellingham and Houba in 1976. They covered an area from Mangawhai Heads to Langs Beach, generally using the Mangawhai-Waipu Road, now known as Cove Road, as their western boundary. In 1997 Johnson surveyed an area of 190 hectares to the southwest at Molesworth. In 1996 he surveyed the area of the subject site Lot 1 and also Lot 2 [Figure 2]. The only archaeological site identified across these two lots was a midden, R08/104, on Lot 2 'two thirds of the way up the track from the valley to the ridge behind the beach' (SRF). Efforts were made to obtain a copy of this report but to no avail. Finally, the Department of Conservation has archaeologically assessed all parts of the Conservation Estate in the Mangawhai area.

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The recorded sites in the area consist of shell middens in the foredunes, some terracing in the solidified backdunes and pa on coastal headlands and high ridges. Undefended pits and terrace sites are also evident. Other than the midden noted

above, the nearest recorded archaeological sites to the subject site are pa site N29/53 (Imperial), R08/56 (Metric) at Mangawhai Heads and pa site N29/52 (Imperial), R08/55 (Metric) 'on the second hill north of Mangawhai Surf Club' (SRF) [Figure 4]. This is likely the pa site recorded by Ferrar when compiling field data in 1928 [Figure 3].

METHODOLOGY

The New Zealand Archaeological Site Record File was searched for archaeological sites in the vicinity (Maingay). The Auckland Public Library data base was searched as were archaeological files held at the Department of Conservation, Whangarei.

A visual inspection, on foot, was conducted over the extent of the subject site on August 1, 2003. Areas not specifically proposed for housesites were also checked. The valley and side valley were walked through. The track along the ridgeline from the south around to the east and beyond the boundary was walked. Attempts were made to progress along and down the spurs.

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RESULTS

As indicated above the property, apart from the valley, is covered in regenerating bush and scrub which in parts is dense and almost impenetrable. This made surveying difficult, particularly along the spurs where many of the proposed housesites are situated. Where it was possible to 'bush crash' and the ground was visible, it appeared that the topsoil had been removed and a grey/cream clay – pipeclay, was evident. This was presumably due to past attempts to level the ground for horticultural activities. This same clay was evident along the length of the cleared 'paper road' track along the western ridgeline.

At the top of the central spur on the southern side, was a terrace accessed from the ridgetop track. It had been hewn from the side of the spur to a width of up to 4 metres and was accessible for approximately 20 metres but its length could not be determined due to the dense bush cover. The height of the scarp was up to 3 metres. A second terrace, of similar measurements, was seen at the base of the spur where it descends to the southern side of the side valley. It would appear that these were made for horticulture, perhaps towards efforts at viticulture. It is possible that other such terraces were on the property but unseen within the bush cover.

The land modification by cutting and levelling has most particularly been along the ridgeline and spurs, areas where pre-European Maori occupational evidence would be most likely. If sites once existed on the property, their surface evidence has either been bulldozed away or is hidden within the bush. However the poor nature of the soils would suggest that any form of settlement on the property would be unlikely. More possible would be the use of the high land for lookout points or for using the ridges as tracks from the coast to the hinterland.

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RECOMMENDATIONS AND CONCLUSION

It should be recognised that an archaeological survey cannot necessarily identify subsurface archaeological evidence nor wahi tapu or other traditional sites. It is possible that surface evidence is located within the bush and subsurface archaeological evidence may also be present. Subsurface evidence could be in the form of shell, bone, charcoal, hangi stones, ash, unusual stratigraphy or artefacts, Maori or European.

Archaeological monitoring is not suggested however as all archaeological sites, recorded or not, are protected from destruction, damage and modification by the Historic Places Act, 1993 it is recommended:

1. that, if archaeological evidence is uncovered during earthworks construction, work should stop, a buffer zone placed around the site to a minimum of 5 metres and an archaeologist or the Historic Places Trust notified.

2. that, if archaeological evidence is encountered, an Authority to modify, damage or destroy an archaeological site under the Historic Places Act, 1993 is applied for.

3. that the site foreman is made aware of the possibility of subsurface archaeological evidence and the procedures to follow if encountered as in (1).

4. that if human remains (koiwi) are unearthed work should stop immediately and the tangata whenua and the Historic Places Trust contacted so that appropriate action may be taken.

5. that, as an archaeological survey cannot necessarily detect sites of traditional Maori value, consultation is undertaken with tangata whenua regarding the possibility of such sites and the recommendations in this report.

ARCHITAGE 548 Manukau Rd Epsom, Auck 09.631.5719 (Ph & Fax) Dianne Harlow - Archaeologist

REFERENCES

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Ferrar, H.T 1934. *Geology of the Dargaville-Rodney Subdivision, Hokianga and Kaipara Subdivisions*, Bulletin No 34. Geological Survey Branch of DSIR. Government Printer, Wellington.

Johnson, L July, 1997. Archaeological Survey of the Proposed Forest Park Trust Subdivision, Molesworth, Manga-whai Heads. Unpublished report prepared for G.Hull.

Mabbett,H 1977. *The Rock and the Sky*. The Story of Rodney County.. Wilson and Horton Ltd, Auckland.

New Zealand Archaeological Association Site Record Files

MAPS, PLANS, ETC.

Plans and contour map: Courtesy: D.J.Scott Associates
Topographical map Mangawhai 260 R08, 1998.
Aerial photographs: D.J. Scott Associates and Tony Vujnovich
Archaeological map from DoC files is from Imperial maps N28 & N29

ACKNOWLEDGEMENTS

Kristine Bouw Landscape Architect, D.J.Scott Associates
Fergus Clunie Ecologist
Joan Maingay Archaeologist, Dept of Conservation, Whangarei
Tony Vujnovich Client
Tony Walton Archaeologist, Dept of Conservation, Wellington

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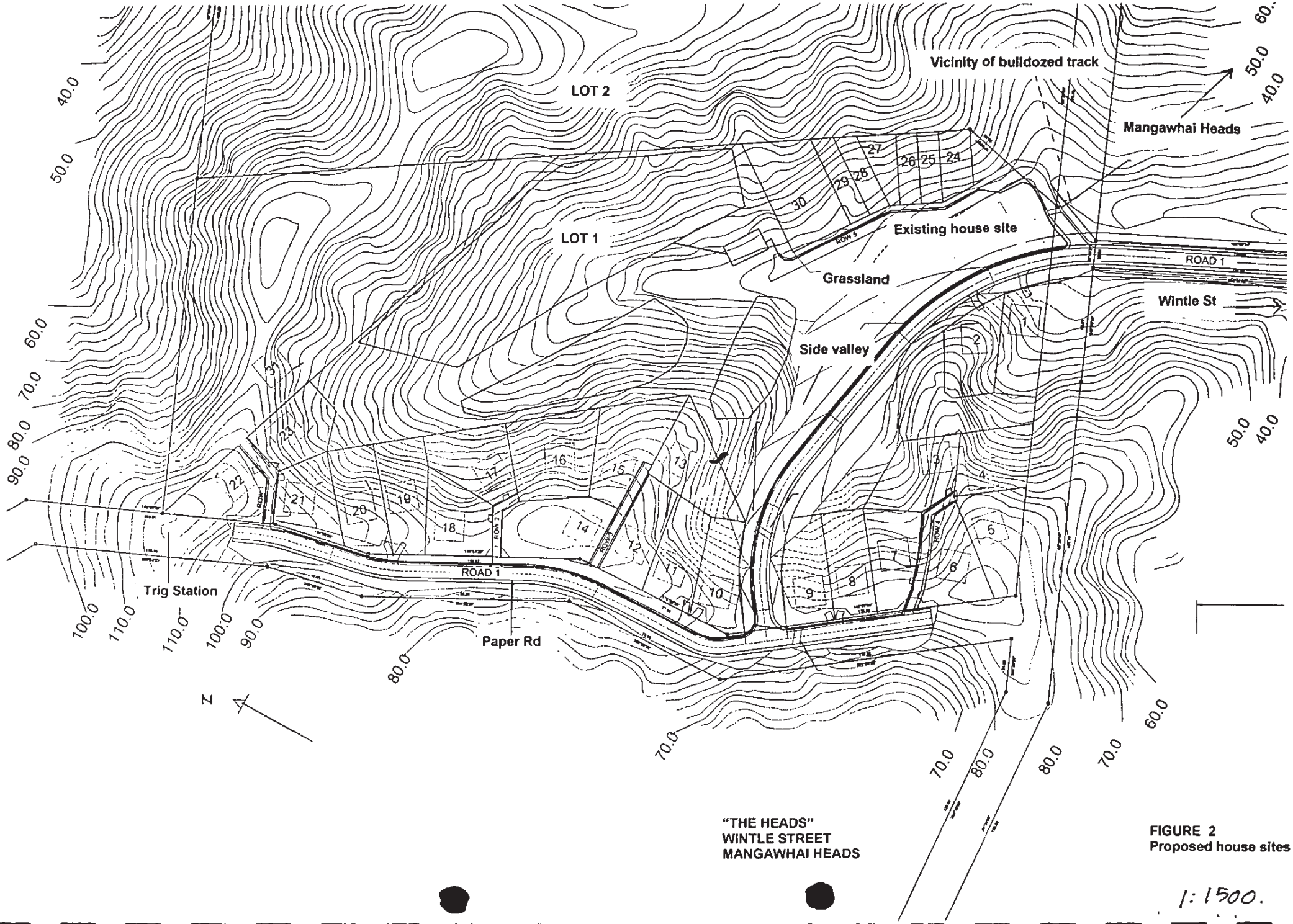

FIGURE 2
Proposed house sites

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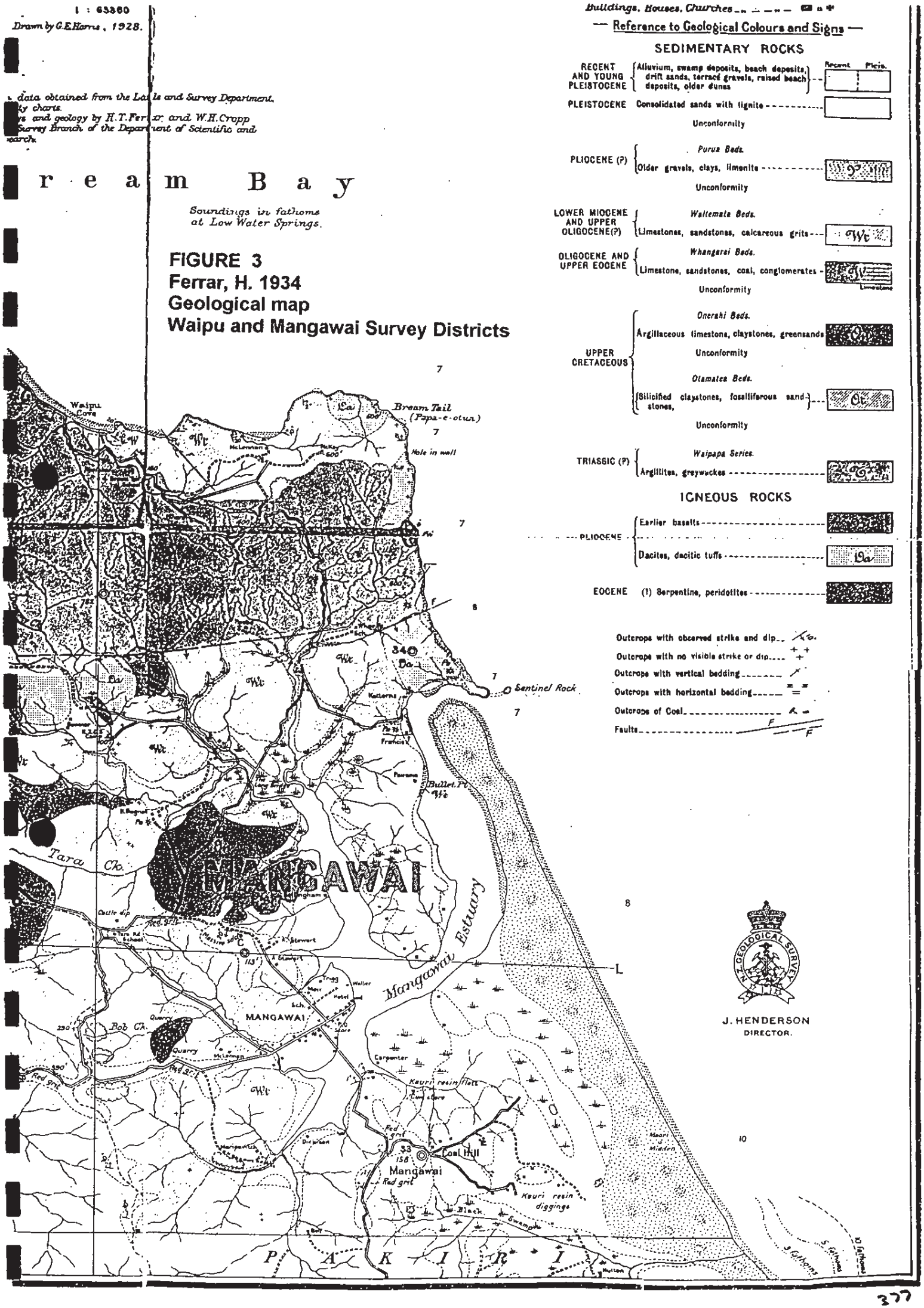

FIGURE 3
Ferrar, H. 1934
Geological map
Waipu and Mangawai Survey Districts

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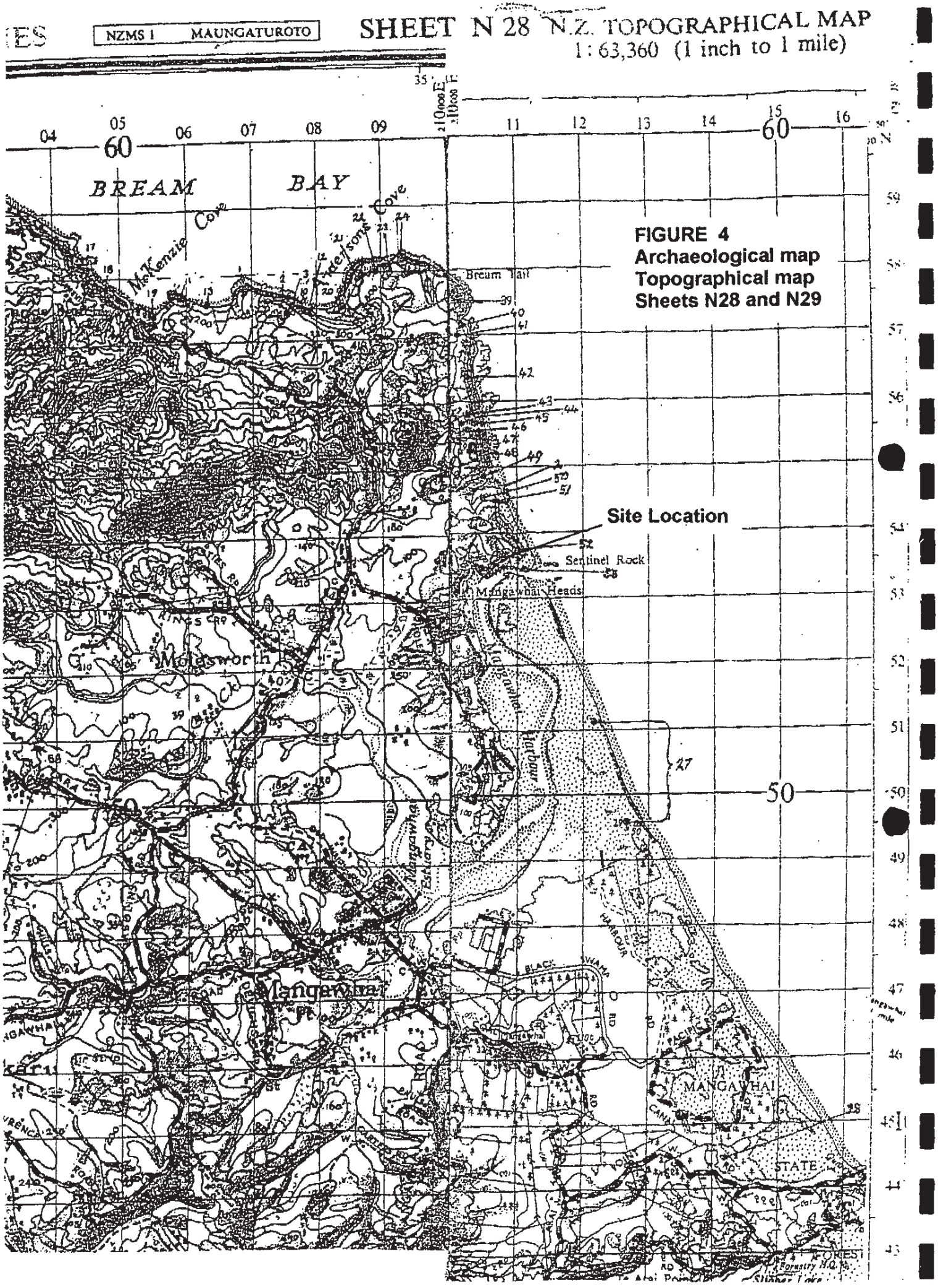

FIGURE 4
Archaeological map
Topographical map
Sheets N28 and N29

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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM (METRIC)

Metric map number: R08
Metric map name: MANGAWHAI
Metric map edition: 1st 1980

NZAA METRIC SITE NUMBER: R08/104
DATE VISITED: 3. 11. 1996.
SITE TYPE: Midden.
SITE NAME: MAORI: -
OTHER:

Grid Reference Easting 5425 Northing 6792

1. Aids to relocation of site (*attach a sketch map*): Located at Mangawhai Heads, The site occurs on the Alispahic property to the N of the end of Wintle St and Mangawhai Heads itself. The site occurs exposed on the top side of a track cutting on a sharp bend approximately two thirds of the way up the track from the valley to the ridge behind the beach. The ridge is 40m up the track from the site and the valley approximately 100m down the track. Approximately 60m ASL.

2. State of site and possible future damage: Poor condition. Under gorse, pines, bracken, tea tree and pampas. Significant damage from previous bulldozing and construction of track.

3. Description of site (*Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here*):

A midden is exposed in the topside of a corner of the track two thirds of the way up the hill. The midden is under dense gorse and pampas and its dimensions were difficult to determine. The midden appeared to extend for a distance of 1m and occurred from the surface to a depth of 0.25m. Midden contents included whole and fragmentary cockle (*Chione stutchburyi*) and pipi (*Paphies australe*) with some reddened fire fractured rock and a small quantity of charcoal. The site has been damaged by bulldozing and sections of the midden have fallen on tot the track below. Shell is scattered on the track above and below the site for some distance.

4. Owner: S&G Alispahic
Address: B 5a Stilwell Rd
Auckland.

Tenant/Manager:
Address:

5. Nature of information (*hearsay, brief or extended visit, etc.*): Brief visit.
Photographs (*reference numbers*):
Aerial photographs (*reference numbers and clarity of site*):

6. Reported by: L. Johnson
Address: Northern Archaeological Research
67 Church St, Devonport
Auckland

Filekeeper:
Date: 9/1/97

7. New Zealand Historic Places Trust (for office use)

Type of site
Local environment today
Land classification
Present condition and future danger of destruction
Local Body

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AD BC AH AA AA JB

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM

Map number N 29
Map name Parkiri
Map edition 1969
Grid Reference 110538

SITE NUMBER N 29/52 R08/55

SITE NAME: MAORI / OTHER

SITE TYPE Defended Pa

1. Aids to relocation of site E210000 N7 3800

Second Hill North of Mangawhai Surf Club building.

2. State of site; possibility of damage or destruction

In scrub: no possibility of damage or destruction.

3. Description of site *(NOTE: This section is to be completed ONLY if no separate Site Description Form is to be be prepared.)*

Runs North West/South East along ridge; covered in flax, manuka, gorse, bracken.

4. Owner Council Reserve
Address

Attitude

Tenant/Manager
Address

Attitude

5. Methods and equipment used Walked over, mapped, photographed.

Photographs taken: Yes/No (Describe on Photograph Record Form)
Date recorded 15.11.76

6. Aerial photograph or mosaic No.

Site shows:
Clearly/badly/not at all

7. Reported by R. M. Bellingham & A. M. Houba
Address 36 Utah St, Rotorua.
Date 15.11.76

Filekeeper [signature]
Date 19/3/77

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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE DESCRIPTION FORM

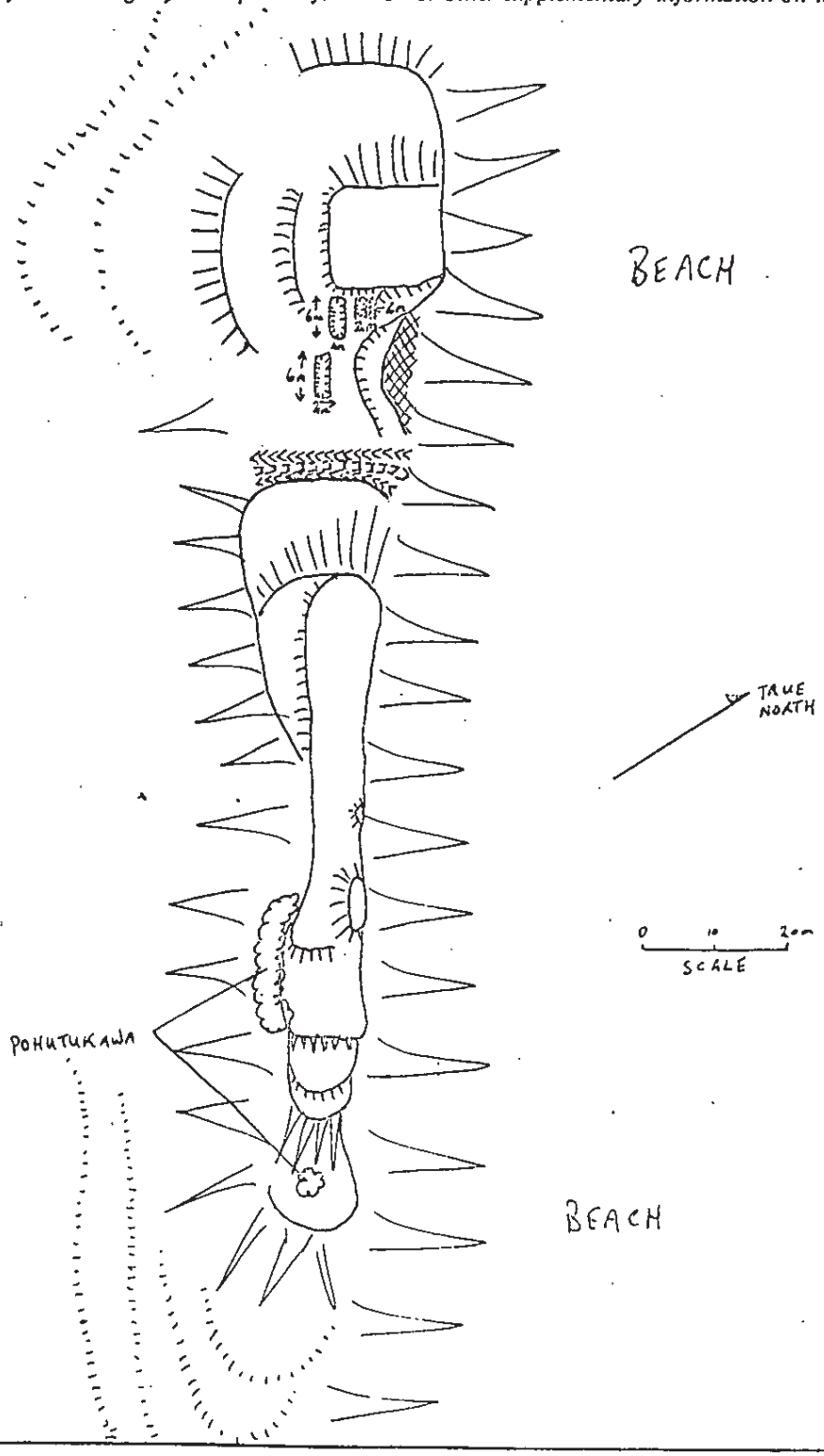
Map Number N 29
Map Name Pakiri
Map Edition 1969
Grid Reference 110538

SITE NUMBER N 29/52 R08/55

SITE NAME: MAORI / OTHER

SITE TYPE Defended Pa

(This form may be used for recording any descriptive information or other supplementary information on the site, or for maps and drawings.)



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AD BC AH AA AAJB

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD FORM

Map number N 29
Map name Parkiri
Map edition 1969
Grid Reference 111535

SITE NUMBER N 29/53 R08/56

SITE NAME: MAORI / OTHER

SITE TYPE Defended Pa

E2111000 N7535000

1. Aids to relocation of site

Hill immediately above Mangawhai Surf Club building.

2. State of site; possibility of damage or destruction

Generally cleared of bush; no possibility of damage or destruction.

3. Description of site *(NOTE: This section is to be completed ONLY if no separate Site Description Form is to be be prepared.)*

Platform generally in East West direction; terraces face North and West; flax, pohutakawa, bracken, gorse.

4. Owner Council Reserve
Address

Attitude

Tenant/Manager
Address

Attitude

5. Methods and equipment used Walked over, mapped, photographed.

Photographs taken: Yes/No (Describe on Photograph Record Form)
Date recorded 15.11.76

6. Aerial photograph or mosaic No.

Site shows:
Clearly/badly/not at all

7. Reported by R. M. Bollingham & A. M. Houba
Address 36 Utah St, Rotorua.
Date 15.11.76

Filekeeper
Date 19/3/77

RECEIVED: 3 Nov 2009 SCANNED: 3 Nov 2009 BOX: 8 BATCH: 46101 DOC: KDCAAJIA

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE DESCRIPTION FORM

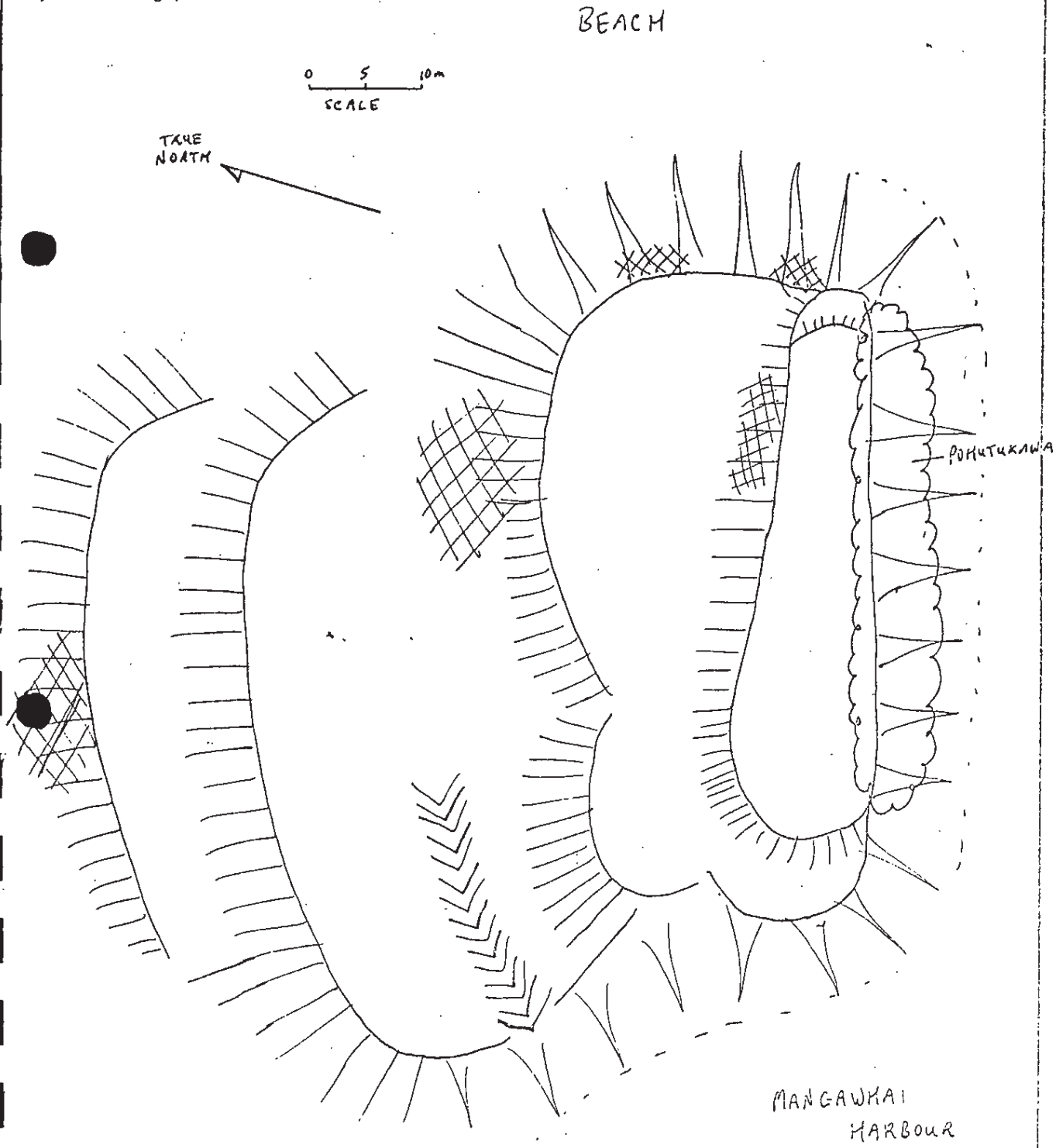
Map Number N 29
Map Name Pakiri
Map Edition 1969
Grid Reference 111535

SITE NUMBER N 29/53 R08/56

SITE NAME: MAORI / OTHER

SITE TYPE Defended Pa

(This form may be used for recording any descriptive information or other supplementary information on the site, or for maps and drawings.)



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APPENDIX 6
PROPOSED REVEGETATION PLANTING SCHEDULE
DJ SCOTT ASSOCIATES LIMITED

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EXECUTIVE SUMMARY

DJ Scott Associates have been requested to prepare a Revegetation Management Plan in association with the proposed subdivision at Wintle Street, Mangawhai Heads. The Revegetation Plan is the result of specific management issues identified onsite by the landscape architectural and ecological investigation of the property.

PROPOSED REVEGETATION PLANTING

The proposed revegetation planting, will aid in the restoration of the existing vegetated areas of the property. It is proposed to covenant approximately 5.5 hectares of existing native bush and proposed future revegetation planting on the property.

The native revegetation areas, identified on the Revegetation Plan (attached) indicate the different areas and types of revegetation required on site.

A species mix for these planting areas has been developed (attached), the species mix chosen has been determined based on the report prepared by Nigel Clunie, the project ecologist and site visits to the property. The species mix also incorporates the specific site conditions, existing plant stock and coastal proximity of the property. Additionally, the species mix has been selected to provide erosion protection, landscape restoration and visual structural screening of the proposed house sites and access roading and driveways on the site.

The application of this planting mix will aid in the restoration of the critical landscape patterns of the site and aid in the natural regeneration of the property, in particular the understorey vegetation.

Plant Communities
The natural habitat of the site has been identified by the project ecologist, Nigel Clunie as dominated by heathland and shrubland communities, with manuka as the predominant canopy species. The soils of the site are heavily podzolised and degraded.

The main native vegetation types in the natural areas are;

- Heathland or gumlands scrub
- Manuka-dominated shrublands, and
- Manuka-dominated secondary forest

The site is recognised as having both poor soils and exposed, coastal conditions. The species mix has been prepared accordingly and allowing for the introduction of

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endemic species to the property while focusing the revegetation programme on the re-establishment of pioneer species, mainly manuka to achieve site coverage as early as possible.

The planting programme will also involve the inter-planting of canopy species in critical locations, by providing openings in the manuka cover to allow sunlight to penetrate the often-dense canopy.

STAGING OF WEED CLEARANCE AND REVEGETATION

As indicated on the Mitigation Plan (figure 1, Appendix 3), there are **four** key areas on site. It is recommended that weed clearance of these identified areas be staged to ensure sources of weed seeds are removed first to reduce the possibility of weed re-infestation during the revegetation programme.

The three main areas requiring management, in order of importance, include:

- **Area 1: Heathlands** – positioned on and near the high ridgeline at the northern edge of the property – weed species are inconspicuous and include Prickly hakea (Hakea sericea) and the Woolly hakea (Hakea gibbosa), gorse, Pine (Pinus radiata), and tree banksias.
- **Area 2:** Manuka shrublands – dense canopy including mainly manuka (2-4 metres high) along the middle valley slopes – weed species includes mainly gorse (10 – 15% cover). There is little understorey in this area due to the density of the manuka canopy.
- **Area 3: Manuka-dominated secondary forest** - Located on the lower toe slopes of the valley with manuka as the dominant closed canopy (4.5-5 metres and 6 metres high), Mamuka is also prominent along the northwestern gully system. A range of regenerating forest species exists in the lower toe slopes. This area is mainly weed free with small gorse and woolly nightshade infestations on the lower margins. Climbing asparagus (Asparagus scandens) is also present along with Wild ginger (Hedychium gardnerianum) in localised areas.

Stage 1

Weed species need to be removed as soon as possible from Area 1, indicated on the Mitigation Plan. This area is currently heavily infested with aggressive vine species including; hakea (Hakea sericea) and the Woolly hakea (Hakea gibbosa), gorse, Pine (Pinus radiata), and tree banksias.

In addition, planting along the proposed access road batters and around the structural shelter planting proposed around the proposed building platforms is to occur at this stage (pending consenting of building platforms). It is proposed that native vegetation species in these areas is established as soon as possible (the first winter after consent) in order to establish structural screen planting in these critical locations.

Ongoing maintenance on site will be required to ensure the removal of weed species adjacent to the proposed building platforms and the associated access drives.

Stage 2

Stage two will include the removal of the remainder of weed species in Area 2 and Area 3. Following removal of weed species a revegetation programme, using

appropriate native species, will need to be undertaken introducing canopy species into these areas and to allow for natural regeneration to occur. Openings in the manuka canopy will need to be created in order for light to reach critical inter-planted species.

As with stage 1, ongoing maintenance will be required for this stage in order to control weed growth and in order to protect new plantings.

Stage 3

Weed removal and enhancement of the remainder of the site area will occur at this stage, including interplanting of earlier planting areas.

Ongoing weed management, as with Stages 1 and 2 will be required in order to control re-infestations of weed and to protect new plantings.

PLANTING PROGRAMME

The planting of the identified (and covenanted) areas of the site is to be undertaken during the winter season to ensure the best plant establishment and growth rates are achieved.

It is recognised that the combination of coastal conditions and poor soils will provide limitations to revegetation in terms of the timeframe for canopy establishment and the diversity of species which will be successful in the early stages of the programme– mainly along the upper ridgeline areas.

It is also recognised that the site has a limited seed source and the planting programme seeks to introduce species, particularly fruiting species which will attract bird species and allow for natural regeneration in appropriate locations.

The final established planting shall be at a plant density of not less than 5,000 stems per hectare in the upslope areas and 10,000 stems per hectare in the wetland / gully planting areas. This density is likely to achieve a canopy / full cover of 75% within 7 years after the commencement of planting, however this rate will vary based on soil conditions and coastal exposures across the property.

In addition, and as in any planting programme of this nature an expected mortality of 5 – 10% is normally allowed for when specifying density calculations.

The planting shall be carried out by experience planting contractors under the supervision of a suitably qualified professional.

PLANTING METHODOLOGY

Layout and plant densities for the Upslope and Riparian Planting Areas shall be at approximately 1.5m spacings and for Wetland / Gully Planting at 0.75 m spacings. This is a general overall density guide only and is dependent on species combinations and growth form.

The planting methodology for all areas shall be undertaken based on established revegetation techniques and specific to site conditions, soil type, soil/moisture conditions, aspect, exposure and recognition of individual species relationships and growth habit.

Paper pots and open ground material shall be planted with a double spade cut to shatter soil structure and to allow rapid root formation and nutrient uptake.

Larger grade plants and PB sizes shall be planted in hand dug holes. The base of the planting hole is to be broken up / roughened with double spade cut to shatter soil structure to allow rapid root formation and nutrient uptake.

All plant species shall be planted with a controlled release (2 plus year) general fertiliser (such as 'Nutricote' or 'Osmocote Plus') and rain crystals. Both the fertiliser and rain crystals shall be applied according to the manufacturer's recommendations for the plant size.

The rain crystals shall be distributed through the base of the hole amongst the shattered soil. If the plant is on a slope then the fertiliser shall be placed predominantly on the upper hillside.

All plants shall have an identification stake placed in close proximity. The presence of the stake will allow rapid identification of plants at the maintenance stage and greatly assist the monitoring process for the detection and control of plant mortality and success rates.

REPLANTING PROGRAMME

The area of proposed planting includes 5.5 Ha of covenant which includes a mixture of interplanting and open ground planting. The difference between these types of planting is in the method applied based on the existing site coverage.

With interplanting, generally a good cover of predominately native species exists, however additional plantings are to be added in areas where weeds are to be removed or where canopy species are to be added in order to quicken the succession of canopy species.

Open ground planting generally implies that there is little or no existing native vegetation species present and that planting will be at 5,000 to 10,000 stems per hectare, depending on the area to be planted.

Planting density

The final established planting should generally be at a density of 5,000 stems per hectare. This equates to 20,000 stems over the 5.5 Ha planting area, to achieve a canopy cover of 75% (depending on site conditions) with an average plant spacing of 1.5m.

Species Schedule

Revegetation species have been specifically identified for each management areas.

The selected species are those, which provide total confidence of performance based on experience in similar conditions and environments. Pending subdivision consent a more detailed Plant Schedule is to be prepared and include plant numbers, plant sizes and densities, appropriate to the site conditions.

The species mix will introduce a reasonable degree of diversity.

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Substitutions may be required. This is due to a number of factors including:

- Availability
- Variability of seed set in relation to various species
- Variability of seed viability and germination
- And also seasonal variations in relation to the above two factors

PLANT SCHEDULE – PRELIMINARY	
Common Name	**Botanical Name**
REVEGETATION SPECIES	
AREA 1- RIDGELINES AND UPPER RIDGE	
Heathland or Gumlands Scrub	
akepiro	*Olearia furfuracea*
Cabbage Tree	*Cordyline australis*
hinau	*Elaeocarpus dentatus*
houpara	*Pseudopanax lessonii*
kanuka	*Kunzea ericoides*
Karaka	*Corynocarpus laevigatus*
kauri	*Agathis australis*
Kohekohe	*Dysoxylum spectabile*
lancewood	*Pseudopanax crassifolius*
mamangi (tree coprosma)	*Coprosma arborea*
mangeao	*Litsea calicaris*
manuka	*Leptospermum scoparium*
mapou	*Myrsine australis*
Pohutukawa	*Metrosideros excelsa*
Puriri	*Vitex lucens*
rewarewa	*Knightia excelsa*
tanekaha	*Phyllocladus trichomanoides*
AREA 2 - MID VALLEY - LOWER SLOPES	
Manuka Shrublands	
tree species	
hinau	*Elaeocarpus dentatus*
kahikatea	*Dacrycarpus dacryoides*
kanuka	*Kunzea ericoides*
karaka	*Corynocarpus laevigatus*
kauri	*Agathis australis*
kohekohe	*Dysoxylum spectabile*
lancewood	*Pseudopanax crassifolius*
maire	*Nestegis lanceolata*
mamangi	*Coprosma arborea*
mangaeo	*Litsea calicaris*
manuka	*Leptospermum scoparium*
matai	*Prumnopitys taxifolia*
miro	*Prumnopitys ferruginea*
puriri	*Vitex lucens*
rewarewa	*Knightia excelsa*

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rimu	*Dacrydium cupressinum*
tanekaha	*Phyllocladus trichomanoides*
taraire	*Beilschmiedia tarairi*
tawa	*Beilschmiedia tawa*
totara	*Podocarpus totara*
tree daisies	*Olearia rani, Brachyglottis kirkii*
shrub species	
mapou	*Myrsie australis*
kohuhu	*Pittosporum tenuifolium*
akepiro	*Olearia furfuracea*
heketara	*Olearia rani*

SOURCING

All plant material shall be eco-sourced.

Once the contract and planting program is confirmed the Landscape Contractor shall source all plant material to ensure that the best hardy nursery stock available is secured.

All plants shall be best nursery stock, healthy and vigorous, with well-developed root systems, free of disease, pests and physical damage. Plants shall be well branched and symmetrically shaped and a normal habit for their particular species.

SITE PREPARATION/MAINTENANCE OF EXISTING PLANTING

The presence of invasive vine species on the site requires the following site preparation is recommended for the period November– March:

1. Cut vines and remove from existing native species
2. Immediately following this paint the stumps of the vines with herbicide such as Grazon, Tordon or Vigilant.

The presence of invasive shrub species, including Ginger, Gorse prickly hakea and woolly hakea species are widespread throughout the property. These weedy species will be out-competed in time with the establishment of canopy species on the property, however they should be removed as a part of the maintenance programme for the site.

The presence of pine and tree banksias creates a greater problem on the site and are presently dominating the upper ridges of the property. These species will need to be removed in the first stage of the Revegetation Programme and ongoing maintenance will need to consider their control in order to allow these species to compete with native vegetation proposed for the site.

The presence of invasive vine species on the site and the localised weed populations will also need to be controlled. The presence of Climbing asparagus is potentially the most damaging weed species and while it is present in low populations at the present time, its immediate removal and ongoing control on the site will be an important part of the revegetation programme due to the aggressiveness of this weedy vine.

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MONITORING/MAINTENANCE

Regular monitoring shall be undertaken at 1 monthly intervals, dependent on prevailing weather conditions. Monthly monitoring shall be effective for the first 3 years of each planting stage then half yearly monitoring will take place thereafter.

Hand and/or herbicide spray (Roundup or Fusilade W6) releasing of plant material shall be undertaken in spring and autumn as necessary.

Follow-up maintenance to include replacement of losses over 10% in winter season following maintenance visits.

Maintenance period – Initial 3 years rigorous regime
- ongoing thereafter.

No watering is required as plant material is chosen for specific aspect/slope/soil type/moisture regime. Crystal rain and fertiliser shall be used at time of planting.

PEST CONTROL

Rabbit and possum eradication/control area generally the landowners responsibility.

An initial night shooting programme with laser scope for possums and rabbits shall be undertaken to decrease pest numbers prior to planting commencing. Ongoing control shall be undertaken by way of poisoning and ongoing night shooting as above.

Poisoning methods are different for rabbits and possums and are outlined below:

- Rabbits: Pindone cereal pellets should be hidden in short lengths of terracotta or plastic pipe during dry weather.
- Possums: Pindone could also be used for the eradication of possums also, however bait stations including: brodifacoum or cholecalciferol pellet baits could be used.

Monitoring of planting for damage shall be undertaken post-planting in spring/autumn and control methods executed as necessary.

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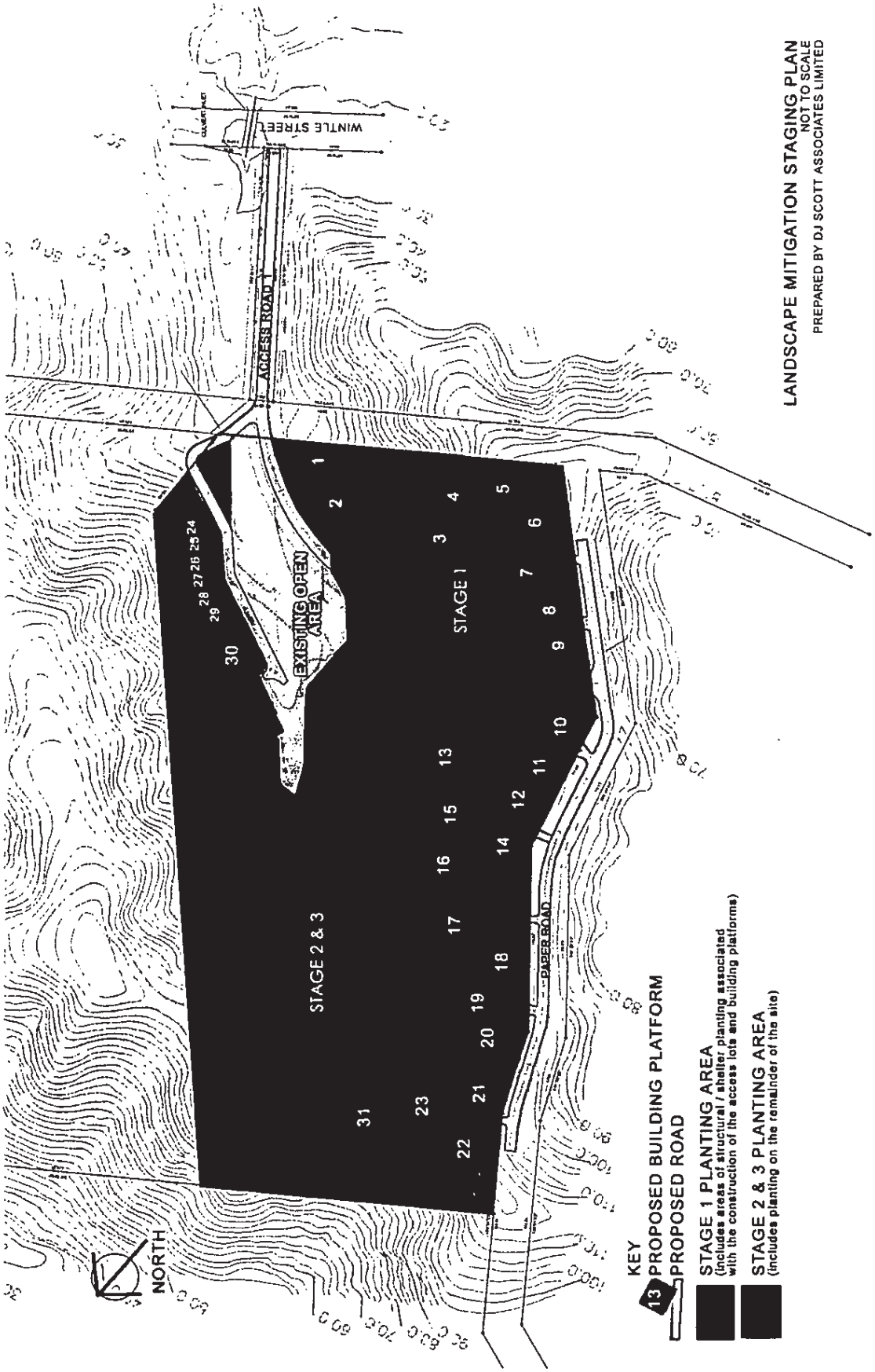

Figure 1 Mitigation Plan

3870

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CONSERVATION COVENANT

(PURSUANT TO SECTION 77 OF THE RESERVES ACT 1977)

DATED the day of 2006

BETWEEN: **THE HEADS LIMITED** (Called the Covenantor).

AND: **KAIPARA DISTRICT COUNCIL** (Called "the Council")

BACKGROUND:

A. **THE** Covenantor is a registered as proprietor of an estate in fee simple in the land described in the Schedule to this covenant.

B. **THE** Council is authorised by the Reserves Act 1977 (referred to as "the Act") to obtain conservation covenants in respect of any private land for the purpose of managing the said land so as to preserve the natural environment or the landscape amenity or wildlife or fresh water marine life habitat or historical value.

C. **THE** Covenantor has agreed to Grant to the Council a conservation covenant for the purpose and intent of protecting and preserving certain areas of both native bush and proposed future revegetation planting on the land described in the Schedule.

D. **THE** area of native bush and the proposed future revegetation planting in respect of which the covenant applies are those areas on Deposited Plan 365063 (called "the conservation areas" set out next to the Unique Identifiers in the Schedule) but shall not include any areas of land on proposed Lots 1-31, 33 and 34 of the subdivision covered by the building areas or land that will be utilised for vehicle access, parking, wastewater treatment and disposal, common community/amenity activities and domestic amenity areas (called "the conservation area")

NW

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THE PARTIES AGREE:

1. **THE** Covenantor hereby grants to the council a conservation covenant which will forever bind the land described in the Schedule into whomever's hands the same may come (but not so as to render the Covenantor personally liable in damages for any breach of covenant committed in respect of the land after the Covenantor shall no longer be registered proprietor of the land).

2. **THE** parties covenant at all times to observe and perform their respective duties and obligations imposed in the restrictions, stipulations and agreements contained in this covenant.

THE COVENANTOR COVENANTS:

1. **THE** Covenantor shall preserve and protect the said conservation area. No act or thing shall be done or placed or permitted to be done or remain upon the land in the conservation areas which in the opinion of the Council materially alters the actual appearance or condition of the land or is prejudicial to the land as conservation areas.

2. **NO** native bush shall be modified, felled, removed or replaced by the other species or by a different mixture of species in the conservation area except with the previous written consent of the Council and such consent shall not unreasonably withheld if the Council is satisfied that the work is in accordance with the purpose specified in Clause C in the background, hereto, PROVIDED THAT the following may be undertaken without the Councils consent.

   A) **THE** removal of dead or diseased trees.

   B) **TREE** work carried out in accordance with sound arboricultural practice and which is necessary for the health and stability of the tree or the conservation area generally.

   C) **REVEGETATION** planting as outlined in the "Assessment of Environmental Effects" Report.

3. **THE** Covenantor shall undertake the requirements of the "Assessment of Environmental Effects" Report, and the "Revegetation management Plan, for The Heads", dated August 2003 (attached herewith). These requirements are for the purpose of protecting and enhancing the ecological value of the conservation areas.

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4. **THE** Covenantor shall not light nor permit to be lit any fire within the conservation area or on any adjacent land owned or occupied by the Covenantor or under the Covenantor's control when there may be a risk of fire spreading into the protected area.

5. **THE** Covenantor shall undertake plant pest control measures to ensure such plant pests do not prevent or significantly impair the growth of native seedlings, and shall seek to ensure that plant pest control measures do not adversely affect native species.

6. **THE** Covenantor shall undertake animal pest control measures in accordance with the local operative regional pest management strategy.

7. **THE** provisions of Section 77 and Sections 93 to 105 of the Reservations Act 1977 shall apply to this covenant.

8. **THE** Council, through its officers or agents, shall be permitted to enter at any reasonable time the conservation area, and any adjacent or nearby land in which the Covenantor has any interest, to determine whether the covenant is complied with.

9. **IF** at any time prior to the registration hereof by the Land Information New Zealand Registry, the Covenantor desires to sell or otherwise dispose of all or any part of the land such sale or disposition shall be made expressly subject to the restrictions, stipulation's and agreements contained in this Conservation Covenant.

10. **THE** Council or Covenantor may at any time during the term of this covenant by mutual agreement, carry out any work, improvements, or take any action either jointly or individually or vary the terms of this covenant to ensure the more appropriate preservation of the conservation area PROVIDED HOWEVER such agreement is not contrary to the purpose and intent of this covenant specified in Clause C in the Background hereto.

11. **THE** costs of the preparation, execution, registration and enforcement of this covenant shall be borne by the Covenantor.

RECEIVED: 23 Apr 2012 SCANNED: 23 Apr 2012 BOX: 4 BATCH: 90076 DOC: KDCAAOOH

IN WITNESS OF WHICH this document has been completed:

SIGNED BY THE HEADS LIMITED
By its Directors
In the presence of

Director

Director

_____
Name

_____
Address

_____
Occupation

The COMMON SEAL of
KAIPARA DISTRICT COUNCIL
was hereto affixed in the presence of:

_____
Mayor

_____
Chief Executive

THE KAIPARA DISTRICT COUNCIL
The Common Seal of

RECEIVED: 23 Apr 2012 SCANNED: 23 Apr 2012 BOX: 4 BATCH: 90076 DOC: KDCAAOOH

SCHEDULE

Lot	Deposited Plan	Certificate of Title Reference
1	365063	263992
2	365063	263993
3	365063	263994
4	365063	263995
5	365063	263996
6	365063	263997
7	365063	263998
8	365063	263999
9	365063	263400
10	365063	264001
11	365063	264002
12	365063	264003
13	365063	264004
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21	365063	264012
22	365063	264013
23	365063	264014
24	365063	264015
25	365063	264016
26	365063	264017
27	365063	264018
28	365063	264019
29	365063	264020
30	365063	264021
31	365063	264022
32	365063	264023
33	365063	264024
34	365063	264025

RECEIVED: 2 Dec 2010 SCANNED: 24 Nov 2010 BOX: 5 BATCH: 65028 DOC: KDCAALUP

Code Compliance Certificate 080511

Form 7, Section 95, Building Act 2004

S and C Horner
44 Tainui Road
Devonport
Auckland

Issue Date: 9/07/10
Overseer: Eastern

THE BUILDING:

Street Address of Building:	WINTLE STREET, MANGAWHAI
Valuation Number:	0122010202
Legal Description:	Lot 1 DP 365063 1/23 Sh Lot 101 DP 36506 3
Building Name:	
Location of Building within site/block number:	
Level/Unit Number:	
Current Lawfully Established Use:	Housing - detached - dwelling
Year First Constructed:	

THE PROJECT:

Description:	New house NEW (& PREBUILT) HOUSE, UNIT, BACH, CRIB, TOWN HOUSE
Type of Work:	
Intended Use:	Housing - detached - dwelling
Intended Life:	Indefinite, but not less than 50 years
Stages:	Being Stage 1 of an intended 1 Stages

THE OWNER:

Owners Name:	S and C Horner			
Owners Mailing Address:	44 Tainui Road, Devonport, Auckland			
Street Address/Registered Office:				
Phone Number	**Landline:** 094450402	**Daytime:**		**After Hours:**
	Mobile:	**Fax:**		
Email:	hornerfamily@xtra.co.nz		**Website:**	

FIRST POINT OF CONTACT:

First Point of Contact:	Full Name: S and C Horner Mailing Address: C/- Belinda George Architects Ltd, P.O.Box 68792, Newton Auckland Phones:: 021987645: 093600150 Fax: 09360180 Email: info@belindageorge.co.nz

BUILDING WORK:

Building Consent Number:	080511
Issued By:	Kaipara District Council

This Code Compliance Certificate is issued by the Kaipara District Council. As the Building Consent Authority it is satisfied, on reasonable grounds that:

- The building work complies with the Building Consent 080511

Signature **Date:** «IssueDate» **Position** Building Services Officer

On behalf of: Kaipara District Council

(A00) 01 Cover Page
- Drawing List
- View 1

(A0) 01 Site and Locality Plans
- Locality Plan
- Section S
- Site Plan

(A1) 01 Ground Floor Reference Plans
- Ground Floor Plan Reference
- Keys

(A1) 02 First Floor Reference Plan
- First Floor Plan Reference
- Keys

(A1) 11 Ground Floor Detailed Plan
- Ground Floor Plan Detailed
- Keys

(A1) 12 First Floor Detailed Plan
- First Floor Plan Detailed
- Keys

(A1) 21 Foundation Plan
- Foundation Plan

(A1) 22 Framing Plans
- Lintel Fixing
- Mid-Floor Framing Plan
- Roof Framing Plan

(A1) 31 Bracing Plans
- First Floor Bracing Plan
- Ground Floor Bracing Plan

(A2) 01 Elevations
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- Keys
- Keys
- North Elevation E2
- South Elevation E1
- West Elevation E4

(A2) 10 Sections
- Keys
- Keys
- Keys
- Keys
- Section S1
- Section S3

(A2) 11 Sections
- Keys
- Keys
- Section S4
- Section S5

(A2) 12 Sections
- Keys
- Keys
- Section S2
- Section S6

(A3) 01 Doors and Windows Schedule
- Entry Door
- External Doors & Windows
- Garage Door
- Internal Doors & Windows

(A5) 01 Reflected Ceiling Plans
- First Floor Reflected Ceiling Plan
- Ground Floor Reflected Ceiling Plan
- Keys

(A6) 01 Plumbing and Drainage Plans
- First Floor Plumbing & Drainage
- Ground Floor Plumbing & Drainage
- Plumbing & Drainage Schematic
- Roof Plan

(A6) 11 Lighting and Electrical Plans
- First Floor Lighting & Electrical Plan
- Ground Floor Lighting & Electrical Plan
- Keys

(A7) 01 Construction Details

HORNER HOUSE, LOT 1, THE HEADS, MANGAWHAI

belinda george architects

KAIPARA DISTRICT COUNCIL
BC 050511
BUILDING INSPECTOR

COUNCIL

Revision	Notes
BC1	2008 05 07

5 arthur st freemans bay auckland
po box 68 792 newton t 09 360 0150
f 09 360 0180 m 021 987 645
e info@belindageorge.co.nz

Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Cover Page

Drawn: PD Scale:

Designed: Belinda Date : **Jan 2008**

Drawing Status: Issue Date
- Resource Consent
- Building Consent
- Tender
- Construction

Code: **(A00) 01** Revision: BC1

Do not scale.

Contractor must verify all dimensions on site before commencing any work

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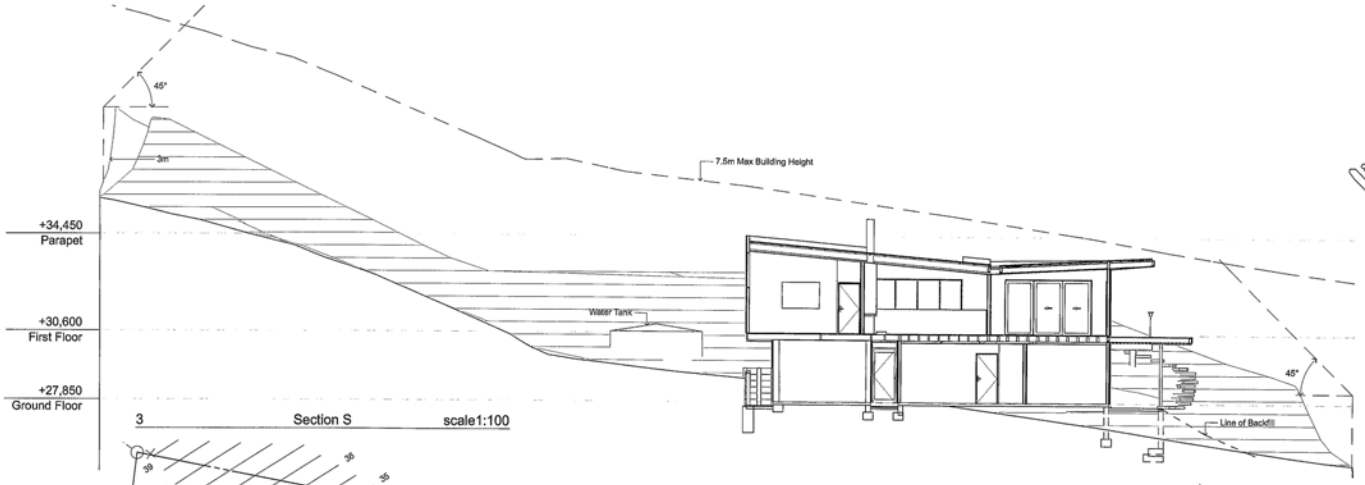
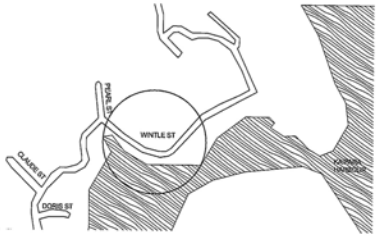
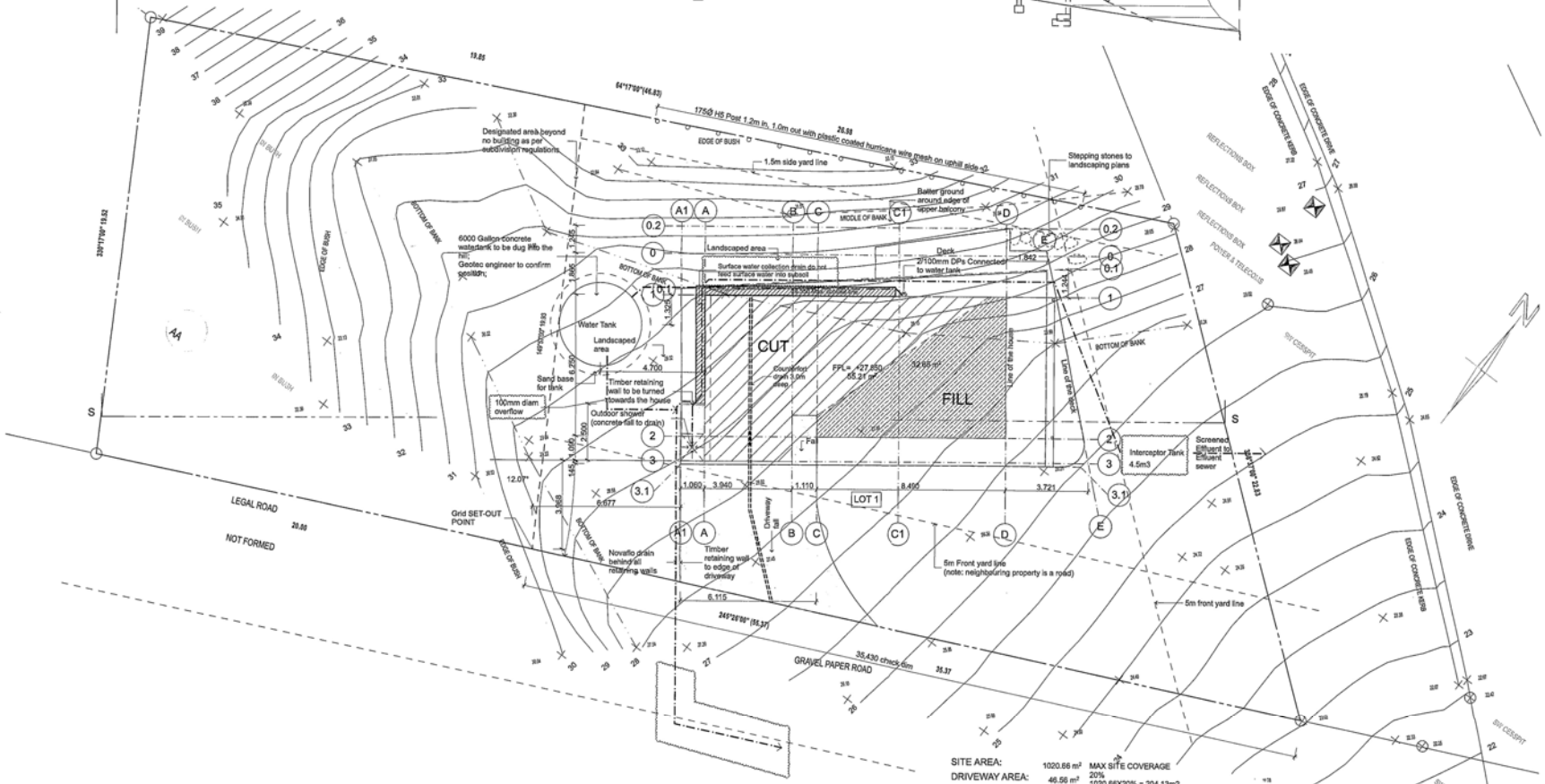


3 Section S scale1:100



1 Locality Plan



2 Site Plan scale1:100

LEGAL DESCRIPTION
CT 263992
Lot 1 DP 365063

SITE: SPECIFIC GEOTEC DESIGN;
Refer Geotec consultants documentation for details

SITE AREA:	1020.66 m²	MAX SITE COVERAGE 20% 1020.66X20% = 204.13m2
DRIVEWAY AREA:	46.56 m²	
HOUSE AREA:		
PATIO AREA:	26.58 m²	Roof+Uncovered decks+Driveway = 194.56m2
UPPER DECK AREA*:	21.22 m²	
ROOF AREA:	134.86 m²	

* part outside of roof overhang

COUNCIL

Seaspray Zone:
All structural deck fixings require stainless steel fittings.
All exterior handrails and balustrades to be stainless steel;
Subfloor fixings less than 600mm above gl require stainless steel fixings, where no base lining is installed.

Revision	Notes
BC2	2008 08 22
BC1	2008 05 07

belinda george architects

5 arthur st freemans bay auckland
po box 68 792 newton t 09 360 0150
f 09 360 0180 m 021 987 645
e info@belindageorge.co.nz

Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Site and Locality Plans

Drawn: PD Scale:
Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
Resource Consent ►
Building Consent ►
Tender ►
Construction ►

Code: **(A0) 01** Revision: BC2

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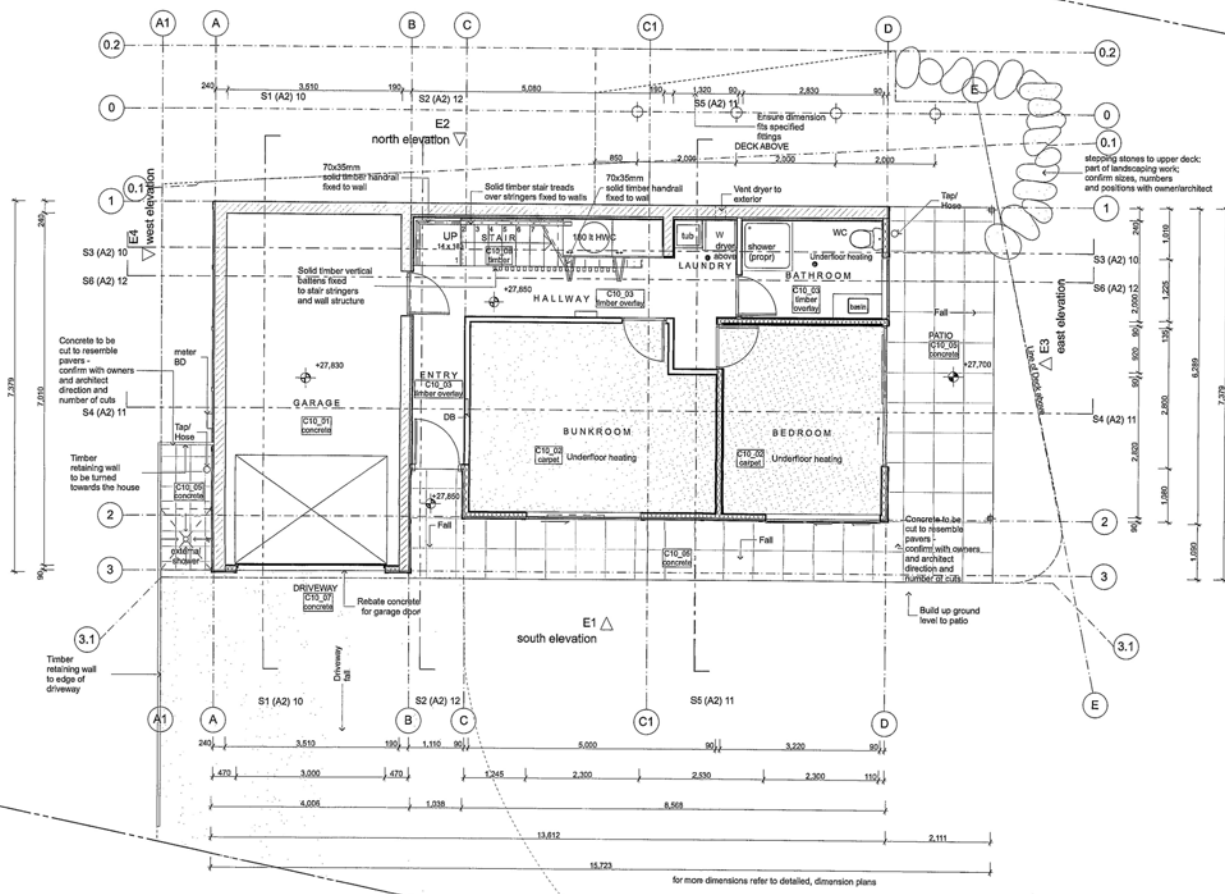

Ground Floor Plan Reference scale1:50

SIMPLE WALL KEY

- CONCRETE BLOCK WALLS
- TIMBER FRAMED WALLS (INSULATED)
- TIMBER FRAMED WALLS (NON-INSULATED)

All timber walls to have Studs @ 600 crs. unless otherwise noted

NOTES:
- All work to NZS3604:1999
- Builder to confirm and verify all grids and dimensions on site prior to construction
- All work to the NZBC & council requirements
- LBW=load bearing walls are 90mm wide all external walls are load bearing walls
- Acoustic insulation to all bathroom and wc internal walls
- Lintels to be 24% maximum moisture content, timber size as shown in NZS3604:1999
- All glass to be as per NZS 4223(Part 3 in particular)
- Window manufacturer shall check on site all window and door openings sizes prior to assembly
- For wind bracing type and definition refer to specification
- For fixings refer to element manufacturers instructions
- All joinery and cabinetry items to be checked on site prior to manufacture or assembly
- Stairs to comply with the NZBC section D1/AS1, main private: 280min tread, 190max riser
- Balusters to comply with NZBC requirements section B1/AS2-900min above finished floor level and flight line for internal balustrades. Landings 900min min.

Revision	Notes
BC2	2008 08 22
BC1	2008 05 07

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Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Ground Floor Reference Plans

Drawn: PD Scale:

Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
- Resource Consent ►
- Building Consent ►
- Tender ►
- Construction ►

Code: **(A1) 01** Revision: BC2

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COUNCIL

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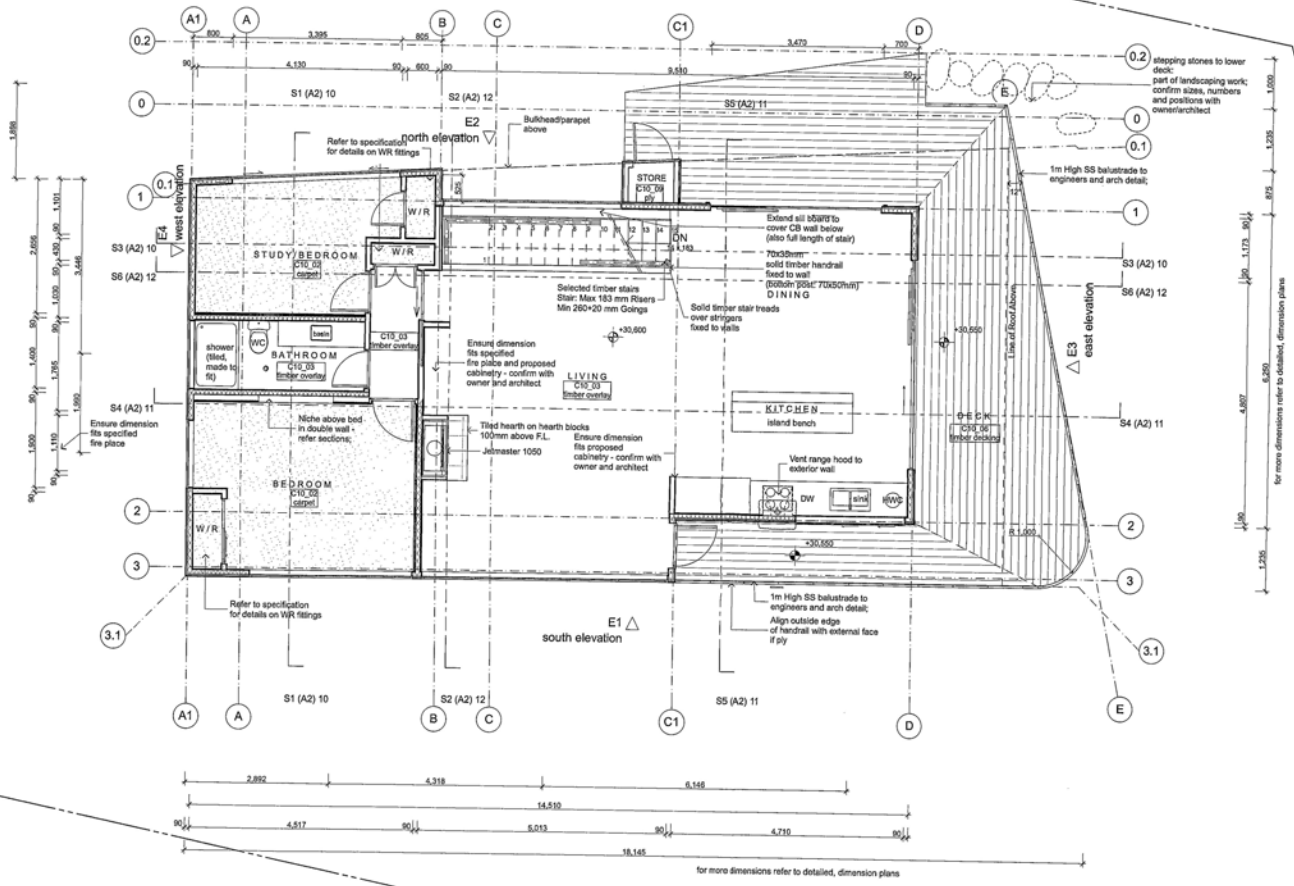

First Floor Plan Reference scale1:50

belinda george architects

SIMPLE WALL KEY

- CONCRETE BLOCK WALLS
- TIMBER FRAMED WALLS (INSULATED)
- TIMBER FRAMED WALLS (NON-INSULATED)

All timber walls to have Studs @ 600 crs. unless otherwise noted

NOTES:
- All work to NZS3604:1999
- Builder to confirm and verify all grids and dimensions on site prior to construction
- All work to the NZBC & council requirements
- LBW=load bearing walls are 90mm wide all external walls are load bearing walls
- Acoustic insulation to all bathroom and wc internal walls
- Lintels to be 24% maximum moisture content, timber size as shown in NZS3604:1999
- All glass to be as per NZS 4223(Part 3 in particular)
- Window manufacturer shall check on site all window and door openings sizes prior to assembly
- For wind bracing type and definition refer to specification
- For fixings refer to element manufacturers instructions
- All joinery and cabinetry items to be checked on site prior to manufacture or assembly
- Stairs to comply with the NZBC section D1/AS1, main private: 280min tread, 190max riser
- Balusters to comply with NZBC requirements section B1/AS2-900min above finished floor level and flight line for internal balustrades. Landings 900min min.

Revision	Notes
BC2	2008 08 22
BC1	2008 05 07

5 arthur st freemans bay auckland
po box 68 792 newton t 09 360 0150
f 09 360 0180 m 021 987 645
e info@belindageorge.co.nz

Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
First Floor Reference Plan

Drawn: PD Scale:

Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
- Resource Consent ►
- Building Consent ►
- Tender ►
- Construction ►

Code: **(A1) 02** Revision: BC2

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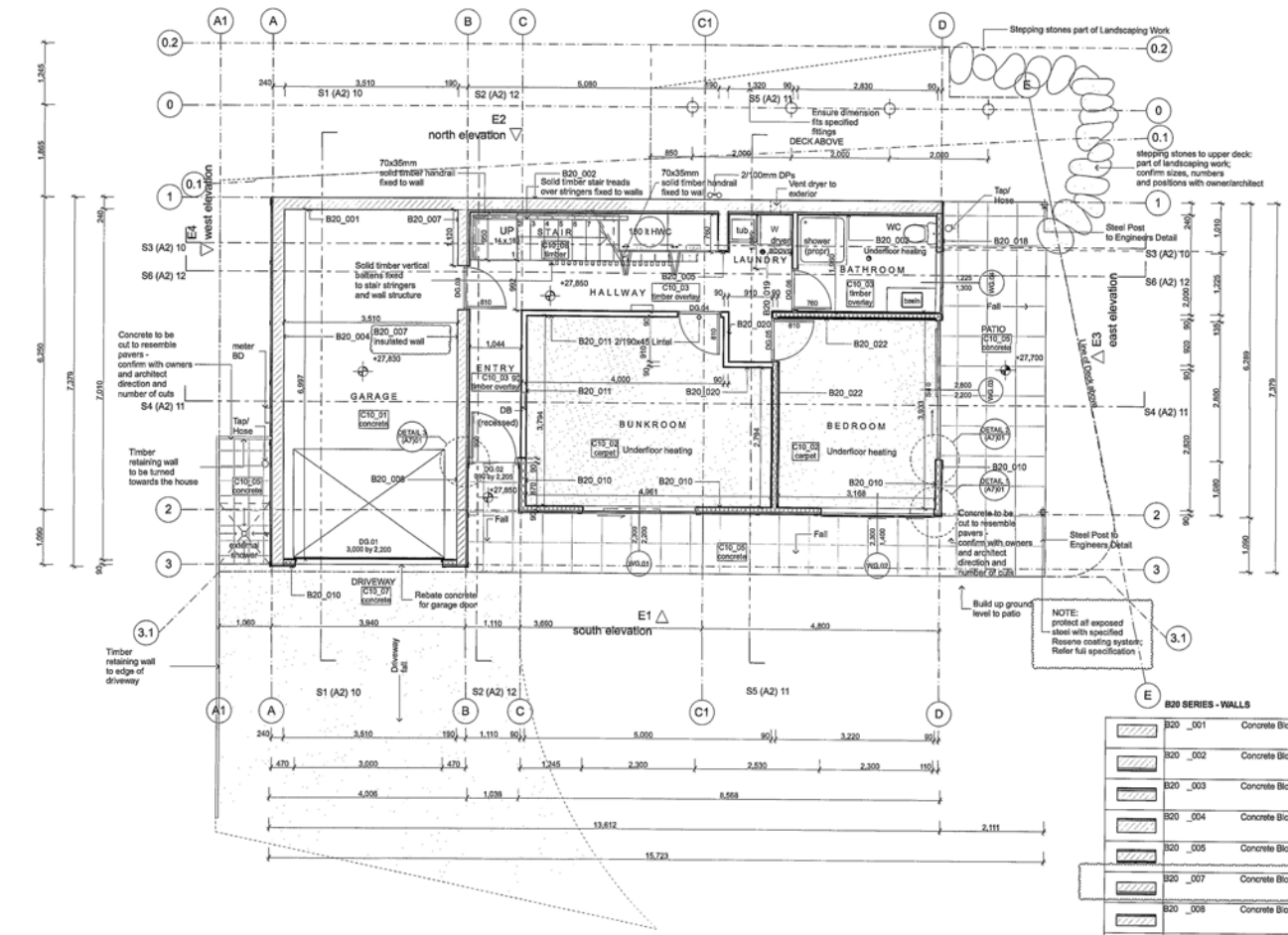

Ground Floor Plan Detailed 1:50

NOTES:
- All work to NZS3604:1999
- Builder to confirm and verify all grids and dimensions on site prior to construction
- All work to the NZBC & council requirements
- LBW=load bearing walls are 90mm wide all external walls are load bearing walls
- Acoustic insulation to all bathroom and wc internal walls
- Lintels to be 24% maximum moisture content, timber size as shown in NZS3604:1999
- All glass to be as per NZS 4223(Part 3 in particular)
- Window manufacturer shall check on site all window and door openings sizes prior to assembly
- For wind bracing type and definition refer to specification
- For fixings refer to element manufacturers instructions
- All joinery and cabinetry items to be checked on site prior to manufacture or assembly
- Stairs to comply with the NZBC section D1/AS1, main private: 280min tread, 190max riser
- Balusters to comply with NZBC requirements section B1/AS2-900min above finished floor level and flight line for internal balustrades. Landings 900min min.

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STANDARD TIMBER TREATMENT	
ITEM	TREATMENT
Piles	H5 HighDensity - Rad
Dwelling Bearers	H3.2 WetRad No1/MSG6
Deck Bearers	H3.2 WetRad No1/MSG6
Dwelling subfloor joist incl bdy joists	H3.2 WetRad No1/MSG6
Deck subfloor joist	H3.2 WetRad No1/MSG6
Dwelling-midfloor joist non wet area	None - KD Rad MSG8
Dwelling-midfloor joist wet area +bdy	H3.1 - KD Rad MSG8
Exterior bearing walls no cavity	H3.1 - KD Rad MSG8
Midfloor substrate non wet area	Particle bd - none
Midfloor substrate wet area	H3.1 - Ply
Cavity battens where required	H3.1 - KD Rad No 2
Non load bearing walls internal	None - KD Rad MSG8
Roof trusses	None - KD Rad MSG8
Ext Ceiling btn + top plate pack	H3.1 Merch KD Rad
Ceiling strapping + dragon ties	None - Merch KD Rad
Ridge & Hip	None - KD Rad MSG8
Valley boards	H3.2 Merch Wet Rad
Purlins	H1.2 Rad No1
Roof Battens	H1.2 cut off log
Fascia & Frieze + Exterior Scotia	H3.1 - F/J Rad
Exterior facings + Scribers	H3.1 - F/J Rad
Exterior Door Jambs + Door Sills	H3.1 - F/J Rad
Aluminium Joinery Liners	H3.1 - F/J Rad
Interior stair handrail	Untreated Select A Rad
Timber base boards	H3.1 Merch Rad R/Sawn
Ext stairs, handrails, unroofed deck	H3.2 Wet Rad No1
Ext stairs, handrails, unroofed deck	H3 Ply
Ext post for roof/floor not in ground	H3 WetNo1 or MSG6
Ext post for roof/floor in ground	H5 WetNo1 or MSG6
Roof framing	H3.1
Floor joist wet areas tiled	H3.1
Timber reveals	H3.1
Cantilever floor joist	H3.2 for decks

(OR BETTER FOR ALL)

Insulation note:
Walls: R 1:8
Roofs: R 2.2

COUNCIL

B20 SERIES - WALLS

	B20 _001	Concrete Block Wall	Concrete Block Wall. 25 series concrete blockwork to engineers specification. Waterproofing to outside; Paint finish to inside;
	B20 _002	Concrete Block Wall	Concrete Block Wall. 25 series concrete blockwork to engineers specification. Waterproofing to outside; 13mm GIB Ultra/Aqualine on Rondo strapping to interior, painted; EPS insulation to cavity;
	B20 _003	Concrete Block Wall	Concrete Block Wall. 20 series concrete blockwork to engineers specification. Waterproofing to outside; 13mm GIB Ultra/Aqualine on Rondo strapping to interior, painted; EPS insulation to cavity;
	B20 _004	Concrete Block Wall	Concrete Block Wall. 25 series concrete blockwork to engineers specification.Ply over battens to outside; paint finish to interior
	B20 _005	Concrete Block Wall	Concrete Block Wall. 20 series concrete blockwork to engineers specification. 13mm GIB Ultra/Aqualine onRondo strapping to all sides, painted;
	B20 _007	Concrete Block Wall	Concrete Block Wall. 20 series concrete blockwork to engineers specification.13mm GIB Ultra/Aqualine on Rondo strapping to one side with 40mm polystyrene insulation. Paint finish to GIB
	B20 _008	Concrete Block Wall	Concrete Block Wall. 20 series concrete blockwork to engineers specification. SHADOWCLAD Texture ply over battens to outside; paint finish to inside
	B20 _010	Timber Framed Wall	Exterior wall 90 x 45 timber framing. 13mm GIB Ultra lining to inside; 13mm Stained SHADOWCLAD Texture ply over cavity lining outside; Batts insulation to main framing;
	B20 _011	Timber Framed Wall	Interior wall 90 x 45 timber framing. 13mm GIB Ultra lining both sides.
	B20 _012	Timber Framed Wall	Interior wall 90 x 45 timber framing. 13mm GIB Aqualine lining one side 2x 13mm GIB Ultra on other side over Rondo battens (acoustic wall).
	B20 _013	Timber Framed Wall	Exterior wall 90 x 45 timber framing. 13mm GIB Ultra lining to inside; 13mm Stained SHADOWCLAD Groove ply over cavity lining outside; Batts insulation to main framing;
	B20 _017	Timber Framed Wall	Exterior wall 90 x 45 timber framing. 13mm Stained SHADOWCLAD Groove ply over cavity lining outside; Batts insulation to main framing;
	B20 _018	Timber Framed Wall	Exterior wall 90 x 45 timber framing. 13mm GIB Aqualine lining to inside; 13mm Stained SHADOWCLAD Texture ply over cavity lining outside; Batts insulation to main framing;
	B20 _019	Timber Framed Wall	Interior wall 90 x 45 timber framing. 13mm GIB Aqualine lining both sides.
	B20 _020	Timber Framed Wall	Interior wall 90 x 45 timber framing. 13mm GIB Aqualine lining one side, 13mm GIB Ultra lining other side.
	B20 _021	Timber Framed Wall	Interior wall 2 x 90 x 45 timber framing. 13mm GIB Aqualine lining one side 2x 13mm GIB Ultra on other side over Rondo battens (acoustic wall).
	B20 _022	Timber Framed Wall	Interior wall 90 x 45 timber framing. Acoustic resilient mounts fitted, 2x10mm GIB Noiseline each side over Rondo battens (acoustic wall) (STC rating 62).
	B20 _014	**Timber Framed Wall**	**Exterior wall 90 x 45 timber framing. 6mm Stained ply lining to inside; 13mm Stained SHADOWCLAD Groove ply over cavity lining outside;**

All timber walls to have Studs @ 600 crs. unless otherwise noted

Double top plate required for all timber framed walls

BC2	2008 06 22	
BC1	2008 05 07	
Revision	Notes	

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po box 68 792 newton t 09 360 0150
f 09 360 0180 m 021 987 645
e info@belindageorge.co.nz

Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Ground Floor Detailed Plan

Drawn: PD Scale:
Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
Resource Consent ►
Building Consent ►
Tender ►
Construction ►

Code: **(A1) 11** Revision: BC2

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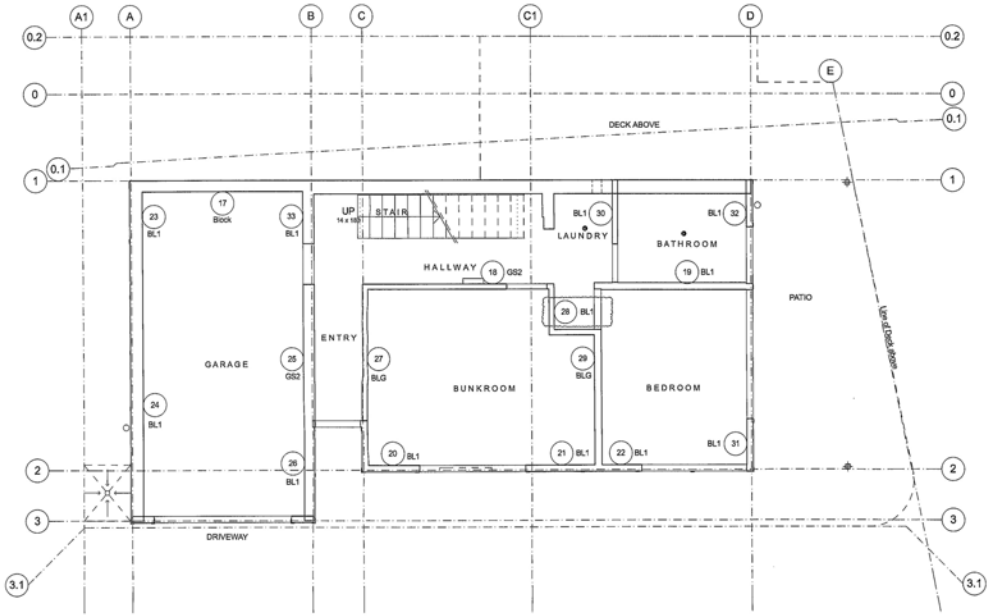
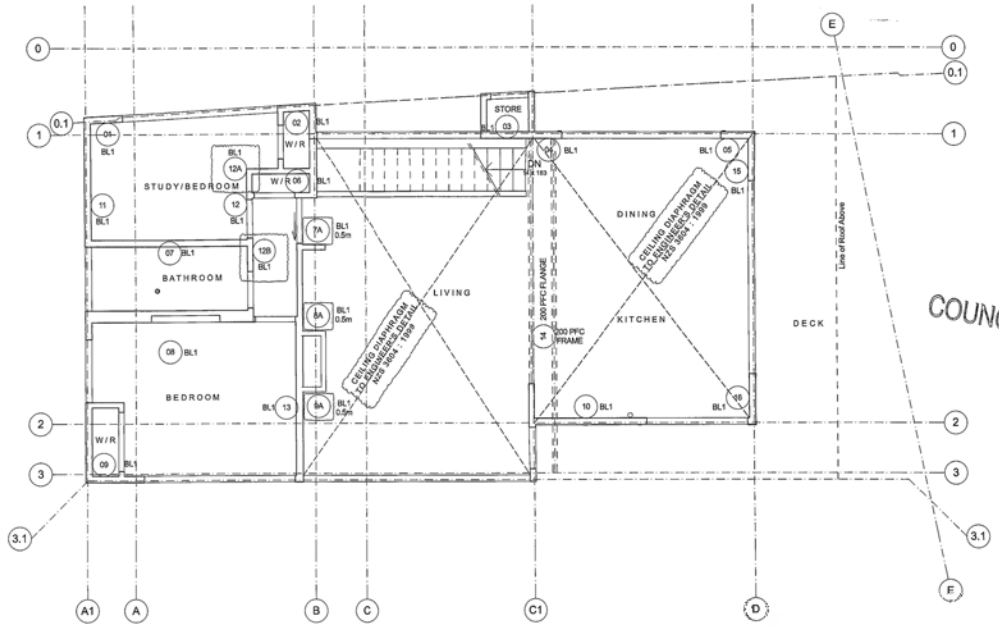


1 Ground Floor Bracing Plan scale1:50



2 First Floor Bracing Plan scale1:50

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Note:

Refer to engineer's documentation for bracing calculations

Revision	Notes
BC2	2008 06 22
BC1	2008 05 07

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Horner House
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@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Bracing Plans

Drawn: PD Scale:

Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
Resource Consent ►
Building Consent ►
Tender ►
Construction ►

Code: **(A1) 31** Revision: BC2

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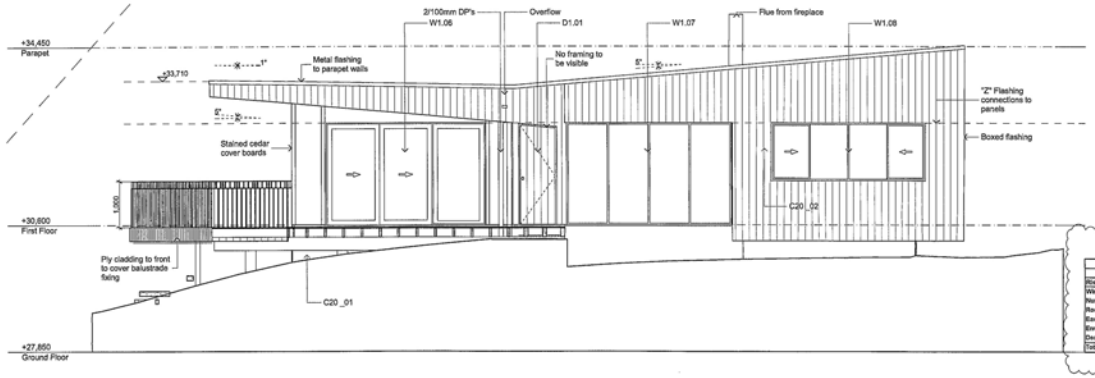

2 North Elevation E2 scale1:50

BUILDING ENVELOPE RISK MATRIX		
North Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Very high risk	2
Number of storeys	High risk	2
Roofwall intersection design	High risk	3
Eaves width	High risk	2
Envelope complexity	Low risk	0
Deck design	Medium risk	2
Total Risk Score:		11

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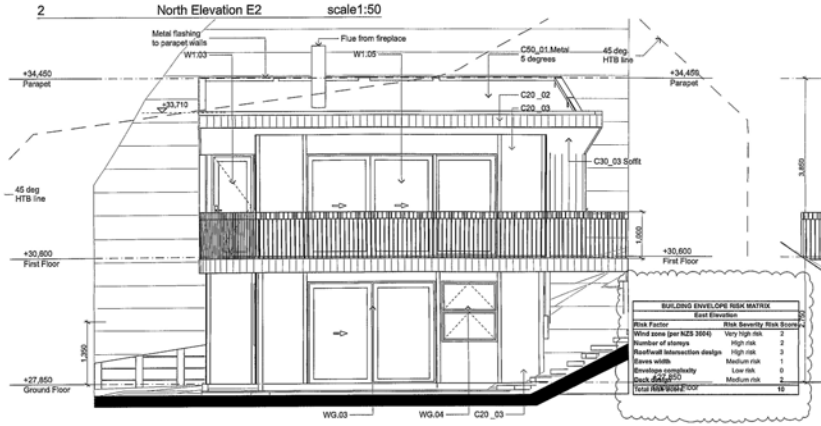
C20 SERIES - ELEVATION FINISHES			
C20	_01	Concrete	Concrete block, plaster
C20	_02	Shadowclad	SHADOWCLAD GROOVE, stained on cavity
C20	_03	Shadowclad	SHADOWCLAD TEXTURE + batten stained on cavity

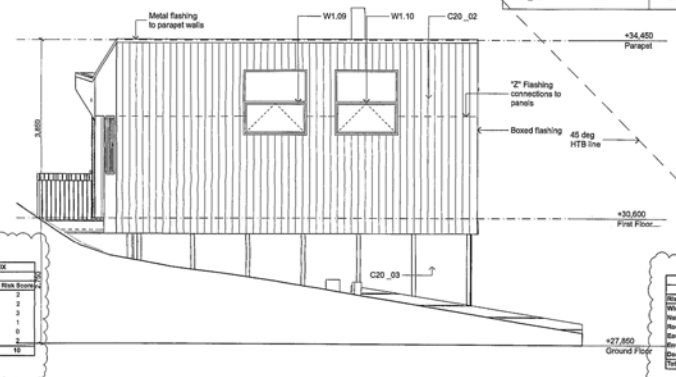
C30 SERIES - CEILINGS			
C30	_01	Plasterboard	13 mm GIB lining on Rondo battens
C30	_02	Timber battens	Timber sarking on timber battens
C30	_03	Soffit	Marine bonded Hoop pine ply cladding with exterior finish on timber battens
C30	_04	Ply	12 mm ply ceiling with polyurethane finish

C50 SERIES - ROOFS			
C50	_01	Metal	Colorsteel MAXXLong run trough section roofing on building paper on timber purlins
C50	_02	Membrane	BUTYANOL membrane on construction plywood (in gutter)



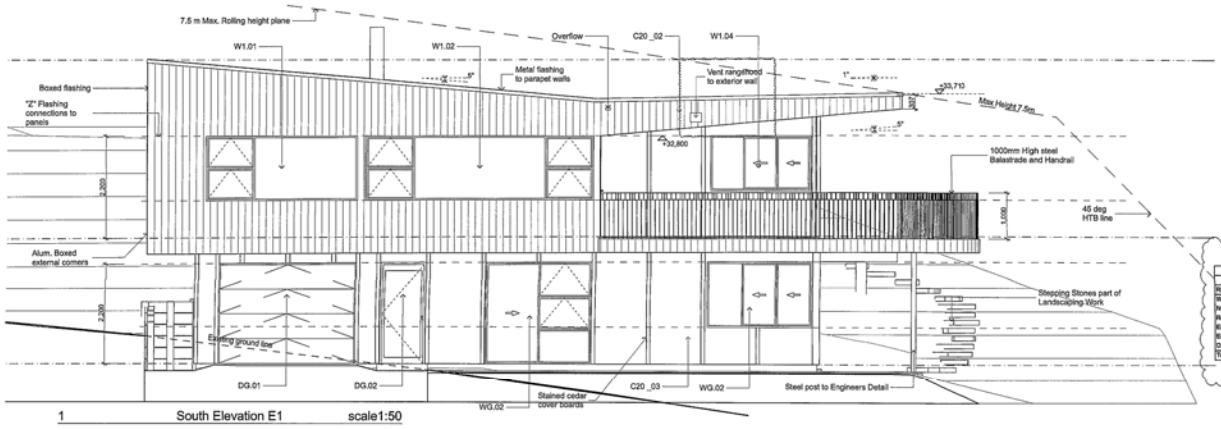
3 East Elevation E3 scale1:50

BUILDING ENVELOPE RISK MATRIX		
East Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Very high risk	2
Number of storeys	High risk	2
Roofwall intersection design	High risk	3
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Medium risk	2
Total Risk Score:		10



4 West Elevation E4 scale1:50

BUILDING ENVELOPE RISK MATRIX		
West Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Very high risk	2
Number of storeys	Medium risk	1
Roofwall intersection design	Very high risk	5
Eaves width	Very high risk	5
Envelope complexity	Low risk	0
Deck design	Low risk	0
Total Risk Score:		13



1 South Elevation E1 scale1:50

BUILDING ENVELOPE RISK MATRIX		
South Elevation		
Risk Factor	Risk Severity	Risk Score
Wind zone (per NZS 3604)	Very high risk	2
Number of storeys	High risk	2
Roofwall intersection design	High risk	3
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Medium risk	2
Total Risk Score:		10

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Revision	Notes
BC2	2008 08 22
BC1	2008 05 07

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po box 68 792 newton t 09 360 0150
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e info@belindageorge.co.nz

Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Elevations

Drawn: PD Scale:

Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
Resource Consent ►
Building Consent ►
Tender ►
Construction ►

Code: **(A2) 01** Revision: BC2

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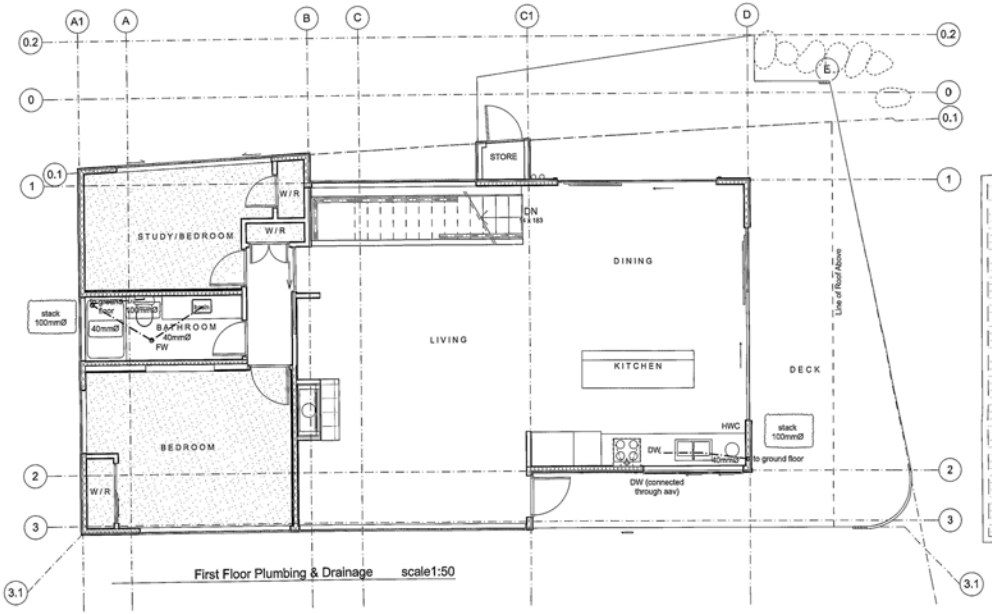
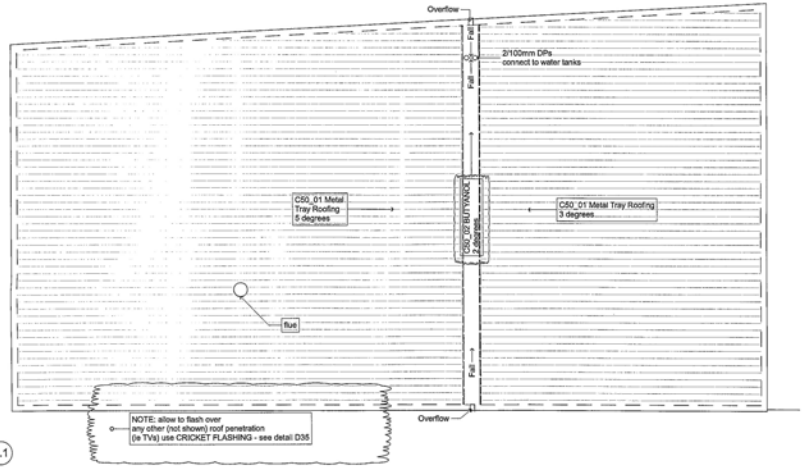
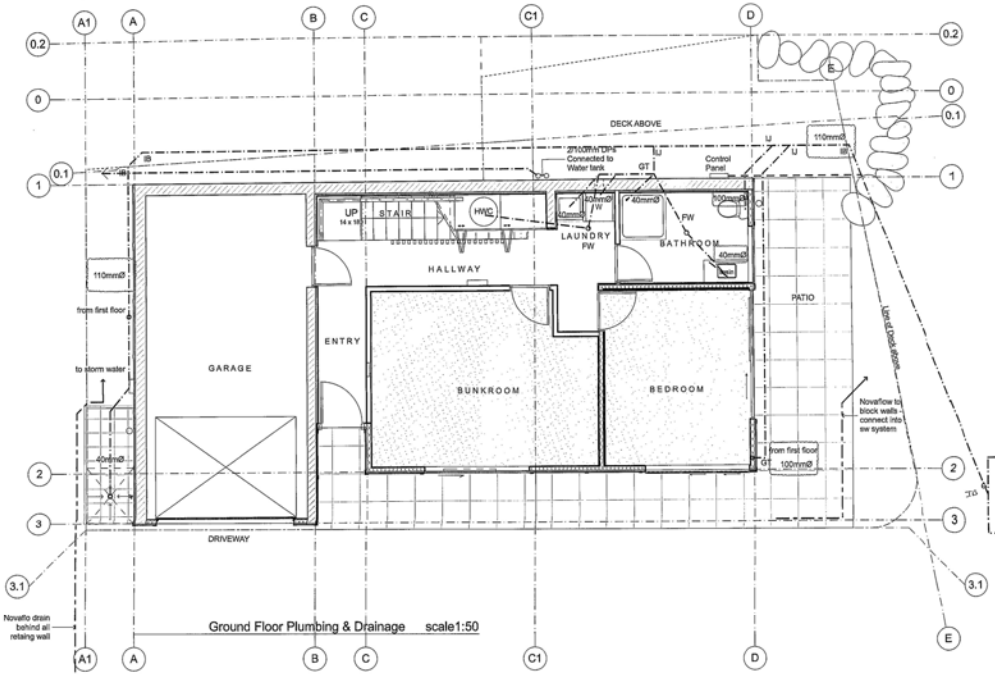


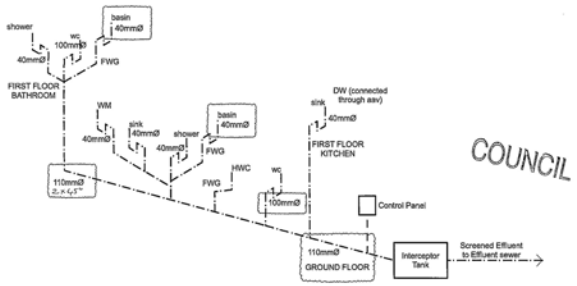
First Floor Plumbing & Drainage scale1:50



Roof Plan scale1:50



Ground Floor Plumbing & Drainage scale1:50



Plumbing & Drainage Schematic scale1:50

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Revision	Notes
BC2	2008 08 22
BC1	2008 05 07

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Horner House
Proposed Dwelling
@ THE HEADS
(Wintie Road)
Mangawhai

Sheet
Plumbing and Drainage Plans

Drawn: PD Scale:

Designed: Belinda Date : **Jan 2008**

Drawing Status: Issue Date
Resource Consent ►
Building Consent ►
Tender ►
Construction ►

Code: **(A6) 01** Revision: BC2

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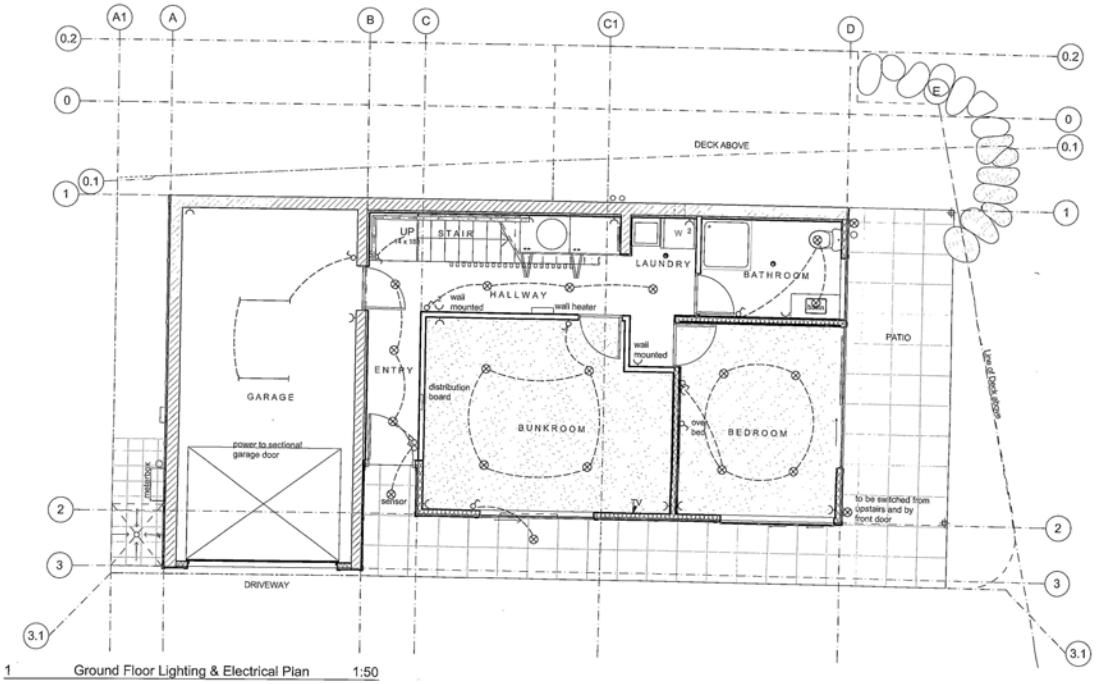
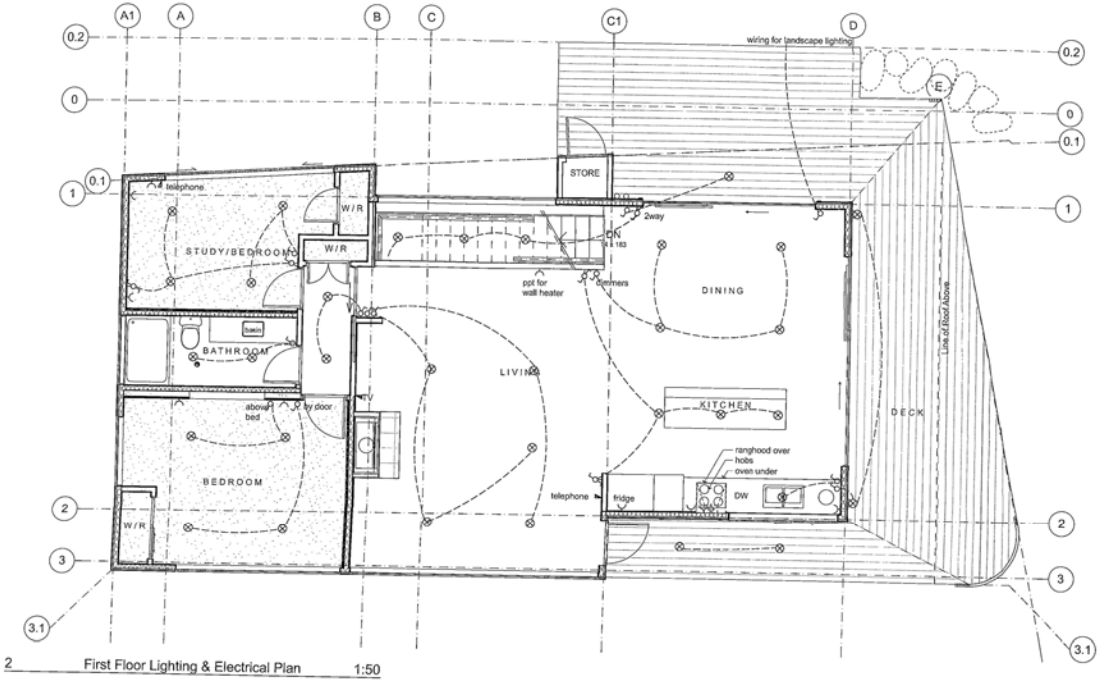


1 Ground Floor Lighting & Electrical Plan 1:50



2 First Floor Lighting & Electrical Plan 1:50

SERVICES LEGEND

	Fluorescent
	Recessed ceiling light fitting
	Wall mounted light fitting
	Single light switch
	Two way light switch
	Single powerpoint
TV	TV aerial jack point
	Telephone jack point

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NOTE FOR ELECTRICIANS:
Small openings (eg. power outlets) of 90x90mm or less may be placed no closer than 90mm to the edges of GIB brace elements. Therefore nog frame to suit

Electrician to confirm all powerpoint/switch and light positions with the architect or client before wiring

Revision	Notes

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f 09 360 0180 m 021 987 645
e info@belindageorge.co.nz

Horner House
Proposed Dwelling
@ THE HEADS
(Wintle Road)
Mangawhai

Sheet
Lighting and Electrical Plans

Drawn: PD Scale:

Designed: Belinda Date : Jan 2008

Drawing Status: Issue Date
Resource Consent ►
Building Consent ►
Tender ►
Construction ►

Code: Revision:
(A6) 11

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Job No: 5408-GT-E

April 2008

GEOTECHNICAL INVESTIGATION

AND

ENGINEERING REPORT

FOR

C & S HORNER

COUNCIL

FOR

PROPOSED HOUSE

LOT 1, THE HEADS SUBDIVSION, WINTLE STREET

MANGAWHAI HEADS

Ashby Consulting Engineering Ltd
Structural, Civil & Geotechnical Engineering
3 Elizabeth Street, P O Box 124, Warkworth
Ph 09 425 9422 Fax 09 425 9431 E-mail: cacl@maxnet.co.nz

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Job No: 5408-GT-E April 2008

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	Site Information, Bore Logs & Drawings	

Ashby Consulting Engineering Ltd
Structural, Civil & Geotechnical Engineering
3 Elizabeth Street, P O Box 124, Warkworth
Ph 09 425 9422 Fax 09 425 9431 E-mail: cacl@maxnet.co.nz

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1.0 Introduction

Ashby Consulting Engineering Ltd., have been requested to carry out a geotechnical investigation of a proposed house site at Lot 1, The Heads Subdivision, Mangawhai Heads. Lot 1 being a section subdivided off from the larger Lot 1 (DP 333700).

The purpose of the investigation is to ensure that the proposed house site is stable and suitable to be built upon.

2.0 Description

Lot 1 is located near the base – and on the northern side - of a south eastern striking gully and encompasses an area of approximately 1020m^2. The section is at present covered in bark and wood shavings (mulch) and slopes down in a south eastern direction at approximately 12°. To the north, north west of the house site the ground slopes rise at up to 38°, where large benches, retained with boulders, have been constructed on the northern side of this slope. The slopes to the east of the house site are covered in Ti tree. The site accesses views to the south east out towards the estuary mouth of Mangawhai Heads. A bag-pipe drain extends down the slope above the lot, draining water from a higher up cesspit.

3.0 Geology of the Area

The following geological references have been referred to;

1. NZ Geological Survey Map Sheet 2A for Whangarei: at a scale of 1– 250,000. The map indicates that the site has the underlying soil type – Parahaki Volcanics, being of *"mainly cones and dacite tuffs (Brynderwyn), and thin sheets and small plugs of dacite lava"*.
2. "A Geology for Engineers" text book by F.G.H. Blyth, when searched yields the following information, expressed in my own words below;

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Dacite; is an igneous rock of extrusive (Volcanic) origin, which is part way between an "acid" Rhyolite and an "Intermediate" Andesite rock type.

Tuffs; The layers of ash and dust that form for some distance around a volcano, and when built its cone becomes hardened into rocks which are called tuffs. Tuffs may be coarse or fine depending on the size of the fragments they contain. Poorly consolidated tuffs were used by the Romans, for making "hydraulic" cement, which were called *pozzolans,* mixed with lime they hardened under water.

It is noted that "clays" formed from the weathering of volcanic materials can have a plasticity index much lower than that of clays with a similar liquid limit, and have engineering characteristic of relatively coarse grained soils with a higher angle of internal friction (34°, average and practically independent of water content) and higher permeability. Particle size measurements together with mineralogy indicate that most of the clay fraction of weathered lavas is present as clusters of clay mineral particles forming porous grains with rough surfaces. Water is contained in the voids of the clusters as well as in between them. It appears that such "clays" can be as good as normal clays of high quality, with low liquid limit for the construction of earth dams.

These soils can be very sensitive having good initial shear strength but low remould strength.

Since first undertaking our investigation on this site we have had soils on a neighbouring property at 17 Wintle Street triaxial tested, confirming an effective angle of friction of 34° and cohesion of 8 kPa. From visual inspection the soils on both sites appear to be similar.

4.0 Investigation

We have undertaken a drive over inspection of the subdivision to observe natural slopes in this material elsewhere within the greater area and found that Ti-tree clad slopes of upto 38° to 40° generally appear to be stable against slipping although scour problems may occur on steeper slopes where soil is exposed.

We had requested a copy of the original subdivisional geotechnical report which we wish to review and compare with our findings. These eventually were obtained but found to be of limited use.

We have visited the site and carried out a geotechnical investigation. This consisted of an initial walkover of the site followed by two hand augured boreholes (BH1 & 2) and two scala penetrometer soundings (SP1 & 2) being put down within the vicinity of the proposed house site.

BH1 was taken to a depth of 1.1m and exposed a 100mm layer of mulch followed by a wet silty ash to a depth of 400mm. Below 400mm a yellowish brown silty clay with topsoil intrusions extended to a depth of 0.6m, at which point the topsoil intrusions were lost and the material became a soft and pliable clayish silt. By 1m the material had become more of a silt, and by 1.1m a hard substrata was encountered and it was not possible to auger any further. thus the borehole was stopped and the investigation was furthered with a scala penetrometer (SP1).

The undrained shear strengths of the material were recorded at 0.5m intervals within BH1, and proved the sub-soils to be good, with all shear strengths being in excess of 100 kPa. These ranged from 159 kPa being the lowest, to 218 kPa being the highest.

SP1 was conducted from the base of BH1 and taken to an overall depth of 4.2m.

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This showed the material to be mainly dense (7 – 17 blows / 100mm of penetration) to a depth of 1.4m, below which medium dense material (3 – 7 blows / 100mm of penetration) extended to 1.9m. Between 1.9m and 2m depth a sounding of 1 blow / 100mm of penetration was encountered indicating the material here to be soft. Below 2m medium dense material extended to a depth of 3.1m, at which point mainly dense material was encountered and extended to a depth of 3.9m. Below 3.9m, very dense material (> 17 blows / 100mm of penetration) continued to the end of the sounding at 4.2m depth.

BH2 was conducted approximately 15m south east of BH1 and was taken to a depth of 1.25m. This exposed 50mm of mulch followed by a silty grey ash material, with white flecks, to a depth of 1m, at which point alternating layers of a wet grey gritty silt and a pale white silt were encountered. At 1.25m a hard substrata was encountered and it was not possible to auger any further, thus the borehole was stopped and the investigation was furthered with a scala penetrometer sounding (SP2).

The undrained shear strength of the material was recorded at 0.5m intervals within BH2, and proved the soil strengths to be good with all readings being in excess of 100 kPa. These ranged from 108 kPa being the lowest to 232+ kPa being the highest.

SP2 was conducted from the base of BH2 and taken to an overall depth of 6.2m. This proved the material to be of medium density to a depth of 1.9m, below which dense material extended to a depth of 5.9m. From 5.9m to the end of the sounding very dense material was encountered.

5.0 Groundwater

Groundwater was encountered within SP1 between 2.8m and 3.2m depth below ground level and at 1.2m below ground level in SP2.

6.0 Findings

Slope stability is the principle concern with respect to this site, <u>particularly with respect to the potential for falling debris</u> from the higher slopes to the north east of the proposed house site.

To mitigate against this potential risk it is recommended that a protection fence be constructed uphill of the house to catch any potential falling debris. We would recommend the use of a timber post and hurricane link mesh fence using 175mm Ø H5 posts at 1.5m centres, 1.2m into the ground and 0.9 to 1m out of the ground to suit mesh roll height. The hurricane link mesh shall be fixed to the uphill side of the posts and shall be of the type to have a green plastic coating over the galvanised wire because of the corrosive coastal marine environment.

There is also the potential risk of inundation, should the cesspits uphill block and the concrete stormwater impoundment area overtop, or the stormwater reinforced PVC flexible "bag pipe" rupture or become dislodged at its inlet. It would be prudent for the property owner to take a walk upslope every now and then to inspect these head-works, clearing any blockages or instigating any timely repairs.

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The house site is located on the northern side and at the base of a south eastern striking gully. The slope to the north behind the house site is very steep (up to 38°) and the proposal is to undercut and retain the toe of this slope with a 250mm thick reinforced concrete block wall, all cells filled to a height of upto 1.5m above slab level.

While the internal angle of friction of the insitu material is likely to be of the order of 34°, this is less than the slope of the hillside above which is of the order of 38°. The saving grace is the cohesion of the insitu material at 8 kPa.

Even so, the base of any retaining wall constructed **shall** lie at or above the projection down slope at 34° from the most prominent point on the slope above. (See cross section).

For design purposes the slope retained **shall** be taken as 34° from the highest point on the retaining wall even if the back slope is locally less.

We recommend the construction of a reinforced masonry wall as part of the basement wall to retain to a maximum height of 1.5m. Assuming 34° back slope conservatively from this level. It is envisaged that a cast on grade concrete floor will be used with the reinforced toe of the retaining wall tied into it. We would also recommend the use of shear key piles under this wall.

We further recommend the construction of a counter-fort drain up to 3m deep under the centre line of the garage, extending back to the retaining wall. This is considered necessary to draw ground water level down thereby increasing land stability and buttressing at the toe of the slope.

The shear strengths of the soil were good being in excess of 100 kPa. However, of some concern was the presence of a soft layer encountered within SP1 at a depth between 1.9m and 2m depth. However, this did not show up in SP2 and we therefore anticipate that it may have been a localised lensoid.

When considering foundation design, this should be taken into account. Possibly underpinning the house to a depth of not less than 2.5m below ground level, or alternatively opting for shallow raft construction.

Significant groundwater was located within SP2, at 1.2m below ground level, which tends to indicate subsurface water moving through the soils, which are fed from the upper slopes of the gully. The proposed counterfort drain should satisfactorily take care of this matter.

There is a rip-rap drain running in south eastern direction, located to the south of the house site on the far side of the unformed paper road reserve, and it is anticipated that the counterfort drain will drain to this. Permission from council will be required to form the counterfort drain across the unformed road reserve but I do not foresee permission being withheld.

Subject to the recommendations in this report the proposed building site is unlikely to be exposed to flooding, inundation, erosion, avulsion (*the sudden diversion of a river, with formation of a new channel*), alluvion (*soil deposited by flowing water*), falling debris, subsidence, fault displacement or any other geotechnical hazard.

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7.0 Soil Parameters

From inspection for general design purposes, we would assess soil parameters as the following;

Insitu shear strength (maximum shear strength reading per test). *(For design purposes normally use lowest maximum shear strength reading recorded in the borehole)*	τ_{max} = 100 kPa
Remould Shear Strength (residual shear strength)	τ_r = 12 kPa.
Apparent Cohesion (in terms of effective stress)	c' = 8 kPa,
Apparent Internal Angle of Friction (in terms of effective stress)	ϕ' = 34°
Bulk Density (weight density)	γ = 18 kN/m³.
Ultimate Bearing Capacity	q_u = 308 kPa
Allowable Bearing Capacity (due to sensitivity)	q_a = 102 kPa
Safe Pile Skin Friction (ignoring top 1.0m) τ_s = 25% of τ_r	τ_{sf} = 3 kPa if bored and poured, τ_{sf} = 0 kPa if piles driven.

(Do not rely on skin friction in these soils)

8.0 Retaining Walls

We recommend the construction of a reinforced masonry wall as part of the basement wall to retain to a maximum height of 1.5m. Assuming 34° back slope conservatively from this level. It is envisaged that a cast on grade concrete floor will be used with the reinforced toe of the retaining wall tied into it. We would also recommend the use of shear key piles under this wall. Such retaining wall shall be extended up as a continuous all cells filled Block Masonry wall to the full height of the basement wall, and shall be well reinforced and designed to take the impact should higher ground move.

For retaining walls, design parameters shall be taken as above with the exception that cohesion shall be taken as zero, c' = 0 kPa.

For the critical retaining walls supporting the building the coefficient of "At Rest Pressure" shall be utilised (K_O).

For cantilever timber retaining walls up to 3m not supporting a building or driveway, some deflection of the wall and minor settlement of the ground supported may be acceptable, and the coefficient for "Active Earth Pressure" may be used (K_A).

For intermediate cases to be considered on their merits by a Chartered Engineer, a coefficient of back pressure of $\frac{1}{2}(K_A + K_O)$ would be acceptable.

Note where any retaining wall exceeds 1.0m in height, the top is required to be fenced off to provide safety against falling, in general accordance with the requirements of the Building Act.

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9.0 Earthworks

Some filling will be required under the garage to bring the finished floor slab up to FL 27.85m. The amount involved is not great (Maximum Depth approx 1.0m) and compacted hard fill may prove to be the best option in this case.

As a general rule it is better to avoid placing earth fill under a building. However, a properly constructed and compacted earth fill can end up denser and stronger than the original ground. Any earth fill under or within 3m of the building platform shall be constructed in general accordance with NZS 4431:1989 the New Zealand Code of Practice for Earth Fill for Residential Development.
With this particular material, among the engineering properties optimum moisture content experience indicated is lower than the plastic limit of the clay. This means that it would have to be dried before meeting specification for placement and compaction as fill.

Compaction shall be tested and a Producer Statement Construction Review provided by a Chartered Engineer familiar with this report. The use of a "Dynamic cone Penetrometer Test" (Scala Penetrometer) as an alternative method would not be recommended in this material.

Cut batters in this material may be laid back at 1(v) in 1.5 (h) however they will be subjected to rilling unless grass cover is established.

We would generally recommend that batters be no steeper than 1v in 3.0h (18.4°), for ease and safety of mowing, and establishment of turf.

Any near vertical cuts over 0.6m high we would recommend should be retained.

10.0 Foundations

The potential for soil creep or sheet failure on the steeper slopes shall be taken into account, assuming a failure depth of 1m. Foundations on the steeper slopes shall be taken down at least 3m deep, and shall be designed to resist an active pressure force from a block of land 1m deep by 3 x Pile diameters wide.

From our investigations, the material tends to act like silt with little apparent cohesion when disturbed and from text book reference and testing undertaken on a neighbouring property, is likely to have an internal angle of friction of the order of 34°.

The material has reasonable in-situ shear strength (100 kPa plus) but is relatively sensitive with low remould strength; hence we would recommend using a safe bearing capacity of 50kPa.

We have not tested the shrink/swell characteristics of this soil but would consider it to be most probably a category "M" in terms of the Australian Standard "AS 2870 – 1996 Residential Slabs and Footings – Construction" classification "M" sites. Under local very dry summer conditions, surface shrinkage movement (y_s) of the order of 30mm can be anticipated, with the active depth of shrinkage (H_s) extending down to 1.5m.

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Therefore, the building shall be designed for an allowable bearing pressure of 50kPa with due allowance for extra depth to allow for the seasonal shrinkage - swelling nature of the soils. Subject to this the building may be constructed in general accordance with NZS 3604 – 1999. Shrinkage under a concrete slab can theoretically extend back as much as 1.2m in category "M" soils, while the ground under the centre of a slab will have reached moisture equilibrium.

The most adversely effected section of a building that will be affected by ground shrinkage, are the external outer corners where the ground can dry out on ¾ of a circle around the corner point.

This leads to greater differential settlement at the corners, which in turn can lead to cracking at the corners, potentially affecting the footing, slab and cladding.

To mitigate this risk we recommend that if the building is on a concrete slab or waffle slab, and the building has heavy wall cladding or a tiled roof, or is two storeys, that the external walls and outer corners be underpinned, using either 200mm ϕ H5 driven timber or bored and poured reinforced concrete piles not less than 1.5m deep. The bottom of any boreholes shall have insitu shear strength in excess of 80kPa minimum, and shall be scrupulously clean and free of water, sponged out if necessary with a sponge on the end of a stick.

Continuous reinforced concrete strip footings tied into a reinforced concrete slab, shall be taken to a minimum of 450mm depth below finished ground level, underpinned at external outer corners with 350mm bored piles filled with at least 20MPa concrete and reinforced centrally with 1 – D16 rod to 1.5m below finished ground level. Slabs shall be at least 100mm thick with at least 665mesh used as reinforcement laid on damp proof course, on sand blinding, on 100mm of compacted hard fill, on the prepared subgrade.

Rib-Raft or Waffle Slabs may be laid directly on damp proof course, on sand blinding, on 100mm of compacted hard fill, on the prepared subgrade. If the damp proof course is not extended beyond the perimeter of the slab as outlined above then the exterior foundation shall be underpinned if necessary as outlined above.

However, underpinning of the external walls and corners will not be required where a rib raft slab is specifically designed to support super-imposed loads by cantilever action under ground shrinkage conditions.

Isolated Pile Foundations shall be taken to a minimum of 900mm depth below finished ground level. Anchor Piles shall be taken to a depth of 1500mm below finished ground level.

Driven Timber Piles are not recommended in this material.

11.0 Sewage Disposal

The subdivision appears to be serviced by a decentralised wastewater management system. However, a intercepter tank may be required on the property. The owner should check with council to determine what the requirements are for this subdivision.

If necessary we could design an onsite wastewater system if required.

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12.0 Stormwater Disposal

It would appear that the subdivision is serviced by a reticulated stormwater system which discharges into stormwater retention ponds. The owner should check with council for the location of such services, and the requirements of subdivision.

13.0 Access

Access to the Building site has been formed via a concrete right of way that services other lots within the subdivision.

14.0 Historical & Cultural Issues

From our inspection of the site there were no apparent issues of a Historical or Cultural nature evident.

However, if during construction, previously unrecorded historic sites are exposed, all work in the immediate vicinity will cease and the site will be investigated. If appropriate, an authority to continue operations will be obtained from the New Zealand Historic Places Trust, as prescribed in the Historic Places Act 1993.

15.0 Wind Exposure

The site is exposed to a tunnel effect between the hills from south easterly coastal winds, and on the days of the site visits the wind was relatively strong on site. In our assessment it would be prudent to design for very high wind exposure, even though the site appears to be relatively sheltered.

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16.0 Planting

The establishment of planting in these fragile soils is important for soil conservation considerations. From inspection on site the plants already planted in the area appear to be suffering from wind burn even though it is still winter, and unless some windbreak fencing (we would suggest parallel to the contour at 10m centres are erected, we would suggest that plant die off rate is likely to be high in summer.

17.0 Adjoining Unformed Road Reserve

The property to the east of the site, is unformed road reserve, and there is therefore the opportunity to take advantage of this in forming access to the under house garage.

18.0 Conclusion and Recommendations

It is the considered opinion of Ashby Consulting Engineering Ltd. that -

1. The building work to which an application for a building consent relates will not accelerate, worsen, or result in a natural hazard on the land on which the building work is to be carried out or any other property, providing the works are carried out with due care and diligence in strict accordance with the recommendations of this report.
2. It shall be noted that the land above and behind the proposed building site is steep, and any building constructed needs to be built in such a way as to mitigate or reduce any negative impact from potential subsidence, falling debris, or inundation should the stormwater head-works further uphill fail to operate as intended. The building shall be so designed and constructed so as, insofar as is reasonably possible, mitigate or reduce any adverse effects of natural hazard.

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Mitigating measures as outlined in this report include:

- Limiting excavation to 1.5 m at the base of the hill.
- Constructing full height reinforced concrete masonry all cells filled basement wall, using the coefficient for at rest earth pressure.
- Ensuring that the basement wall is well keyed into the underlying ground.
- Ensuring that there is a least 600mm of ground clearance below the bottom of cladding line of the upper storey.
- Construction of a counterfort drain, under the centre of the garage to ensure that ground water levels are kept down.
- The construction of a debris fence uphill of the proposed house.

3. Provided the recommendations as outlined in this report are strictly followed and complied with, the risk of a natural hazard and inversely affecting the building will be mitigated against and considered to be "unlikely".

4. It is recommended that a preconstruction meeting be held on site with the owner, builder, Council Building Inspector and a Chartered Engineer familiar with this report prior to commencing work, and a management plan and critical path established for this project so as to minimise time of exposure of temporally un-retained soil faces.

5. Soil Parameters for structural or retaining wall design may be adopted as outlined in this report.

6. Retaining walls, earthworks and foundations may be constructed as outlined in this report.

7. That a protection fence be constructed uphill of the house to catch any potential falling debris.

8. Foundations may be constructed in general accordance with NZS 3604: 1999 subject to the recommendations outlined in this report. The Safe Bearing Pressure of the subsoils may be taken as 50kPa (see section 10.0 of this report).

9. The potential for soil creep or sheet failure on the steeper slopes shall be taken into account, assuming a failure depth of 1m. Foundations on the steeper slopes shall be taken down at least 3m deep, and shall be designed to resists an active pressure force from a block of land 1m deep by 3 x Pile diameters wide.

10. A counter-fort drain shall be constructed up under the building in general accordance with the outline in this report to lower groundwater levels at the base of the slope and enhance land stability. Special care with respect to adequate compaction of back fill using a hydraulic digger mounted plate compactor shall be exercised to ensure the solidness of the ground prior to building over it.

11. The subdivision appears to be serviced by a decentralised waste water management system. However, an interceptor tank may be required on the property. The owner should check with council to determine what the requirements are for this subdivision.

12. It would appear that the subdivision is serviced by a reticulated stormwater system which discharges into stormwater retention ponds. The owner should check with council for the location of such services, and the requirements of subdivision

13. Access to the Building has been formed via a concrete right of way that services other lots within the subdivision.

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14. From our inspection of the site there were no apparent issues of a historical or a cultural nature evident. However, if any evidence of a historic nature is exposed then the procedures as outlined in this report shall be followed (see section 14.0 of this report).

15. The site has been assessed as having "very high" wind exposure.

16. That planting as a soils conservation measure be encouraged and in particular new plants offered some protection against wind burn allowing them to become established.

17.0 Applicability

This report has been prepared for the particular brief given to us, and data or opinions contained in it may not be used in any other context or for any other purpose without our prior review and agreement.

Soils by their very nature are variable, and although this report has been compiled with due effort and in good faith, no absolute guarantee can be given that something untoward may not have been discovered when compiling this report. This report has been compiled from assessment of the limited data available from isolated boreholes, testing, etc, and our assessment of the topography based on sound engineering experience and our knowledge of the area, and should not be construed as a guarantee.

Should however the project be expanded, or ground conditions are subsequently encountered which are outside the scope of this report, or of concern, please contact the writer immediately. If necessary, we would be pleased to provide further service to you and believe that your project would benefit from the continuity.

We have little doubt that this report is of benefit and assistance. Please do not hesitate to contact the undersigned if we can be of any further assistance.

Colin W. Ashby
MIPENZ. (Civil, Structural) CPEng Int PE
B.E. NZCE.

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Client : C & S HORNER
Location : LOT 1 WINTLE ST. MANGAWHAI HEADS
Job Number : 5408 **Date :** 30/06/06

Auger Borehole No. 1
Sheet 1 of 2

Diameter 50 mm

SOIL DESCRIPTION	Legend	Depth (m)	Water Level	Shear Vane(kPa)	Remould Strength (kPa)	Samples - No. Type Depth	Other Tests
100mm LAYER OF MULCH		0.1					
100 mm+ WET SILTY ASH		0.2					
		0.25					
400mm YELLOWY BROWN SILTY CLAY WITH TOPSOIL INTRUSIONS		0.5		159	76		
		0.6					
600mm NO TOPSOIL INCLUSIONS, SOFT & PLYABLE CLAYISH SILT.		0.75					
1000mm BECOMING MORE OF A SILT YELLOWISH.		1.0		218	50		
1100mm HIT HARD CAN'T AUGER ANY FURTHER		1.1					
END OF BORE @ 1.1m		1.25					
		1.5					
		1.75					
		2.0					
CONTINUED WITH SCALA PENETROMETER TO A DEPTH OF 4.2m		2.25					
		2.5					
		2.75					
		3.0					

Remarks : RED HEAD SHEAR VANE USED

LOGGED : W.B
CHECKED :
R.L. : m.
TYPED BY :

Topsoil, Fill, Clay, Silt, Sand, Gravel, Peat, Rock

Ashby Consulting Engineering Ltd
3 Elizabeth Street Warkworth Phone (09) 425 9422 Fax (09) 425 9431
E-mail cacl@maxnet.co.nz

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Client : C & S HORNER
Location : LOT 1 WINTLE ST. MANGAWHAI HEADS
Job Number : 5408 **Date :** 30/06/06

Auger Borehole No. 2
Sheet 2 of 2

Diameter 50 mm

SOIL DESCRIPTION	Legend	Depth (m)	Water Level	Shear Vane(kPa)	Remould Strength (kPa)	Samples - No. Type Depth	Other Tests
50mm LAYER OF MULCH		0.05					
50mm+ GREY SILTY ASH WITH WHITE FLECKING.	x x x	0.1					
		0.25					
		0.5		108	12		
		0.75					
1000mm ALTERNATING LAYERS OF A GREY WET GRITTY SILT AND A PALE WHITE SILT.	x x x x x x x x x x x x	1.0		232+			
1250mm MATERIAL TOO HARD TO AUGER	x x x	1.25		232+	55		
END OF BORE @1.25m							
		1.5					
		1.75					
		2.0					
CONTINUED WITH SCALA PENETROMETER TO A DEPTH OF 6.2m		2.25					
		2.5					
		2.75					
		3.0					

Remarks : RED HEAD SHEAR VANE USED

LOGGED : W.B. CHECKED :
R.L. : m. TYPED BY :

Topsoil		Sand	
Fill		Gravel	
Clay		Peat	
Silt		Rock	

Ashby Consulting Engineering Ltd
3 Elizabeth Street Warkworth Phone (09) 425 9422 Fax (09) 425 9431
E-mail cacl@maxnet.co.nz

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SCALA PENETROMETER TEST RESULTS

TABLE OF BLOWS PER 50mm INCREMENT

BH No.	1/SP.1										
Start D.											
50 mm		2050	3	4050	20+	6050		8050			
100											
150			3		20+						
200											
250		2250	4	4250		6250		8250			
300											
350			4								
400											
450			5								
500		2500		4500		6500		8500			
550			5								
600											
650			7								
700											
750		2750	8	4750		6750		8750			
800											
850			4								
900											
950			7								
1000		3000		5000		7000		9000			
1050	18		7								
1100											
1150	17		10								
1200											
1250	14	3250	14	5250		7250		8250			
1300											
1350	9		15								
1400											
1450	7		18								
1500		3500		5500		7500		9500			
1550	5		16								
1600											
1650	6		15								
1700											
1750	3	3750	18	5750		7750		9750			
1800									NOTE: WATER		
1850	3		16						BETWEEN LAST		
1900									1.0 - 1.4m OF ROD.		
1950	1		20								
2000		4000		6000		8000		10000			
Dep. end											

Ashby Consulting Engineering Ltd
CIVIL & STRUCTURAL ENGINEERING
3 Elizabeth Street PO. Box 124 Warkworth
Ph. (09) 425 9422 Fax. (09) 425 9431
E-mail cacl@maxnet.co.nz

Job No.: 5408	Client: C & S HORNER
Site: LOT 1 WINTLE ST.	Logged by: W.B/ D.W.
Date: 30/06/06	Weather: FINE

RECEIVED: 2 Dec 2010 SCANNED: 24 Nov 2010 BOX: 5 BATCH: 65029 DOC: KDCAALUS

SCALA PENETROMETER TEST RESULTS

TABLE OF BLOWS PER 50mm INCREMENT

BH No.	2/SP.2											
Start D.												
50 mm		2050	10	4050	12	6050	20+	8050				
100												
150			10		14		20+					
200												
250		2250	11	4250	16	6250		8250				
300												
350			12		15							
400												
450			10		14							
500		2500		4500		6500		8500				
550			9		13							
600												
650			9		12							
700												
750		2750	9	4750	10	6750		8750				
800												
850			11		10							
900												
950			12		13							
1000		3000		5000		7000		9000				
1050			13		16							
1100												
1150			10		16							
1200												
1250	6	3250	11	5250	16	7250		8250				
1300												
1350	5		13		16							
1400												
1450	5		12		15							
1500		3500		5500		7500		9500				
1550	5		12		13							
1600												
1650	5		12		10							
1700												
1750	5	3750	12	5750	11	7750		9750				
1800									NOTE: LAST 5m			
1850	7		10		12				WET.			
1900												
1950	9		12		20+							
2000		4000		6000		8000		10000				
Dep. end												

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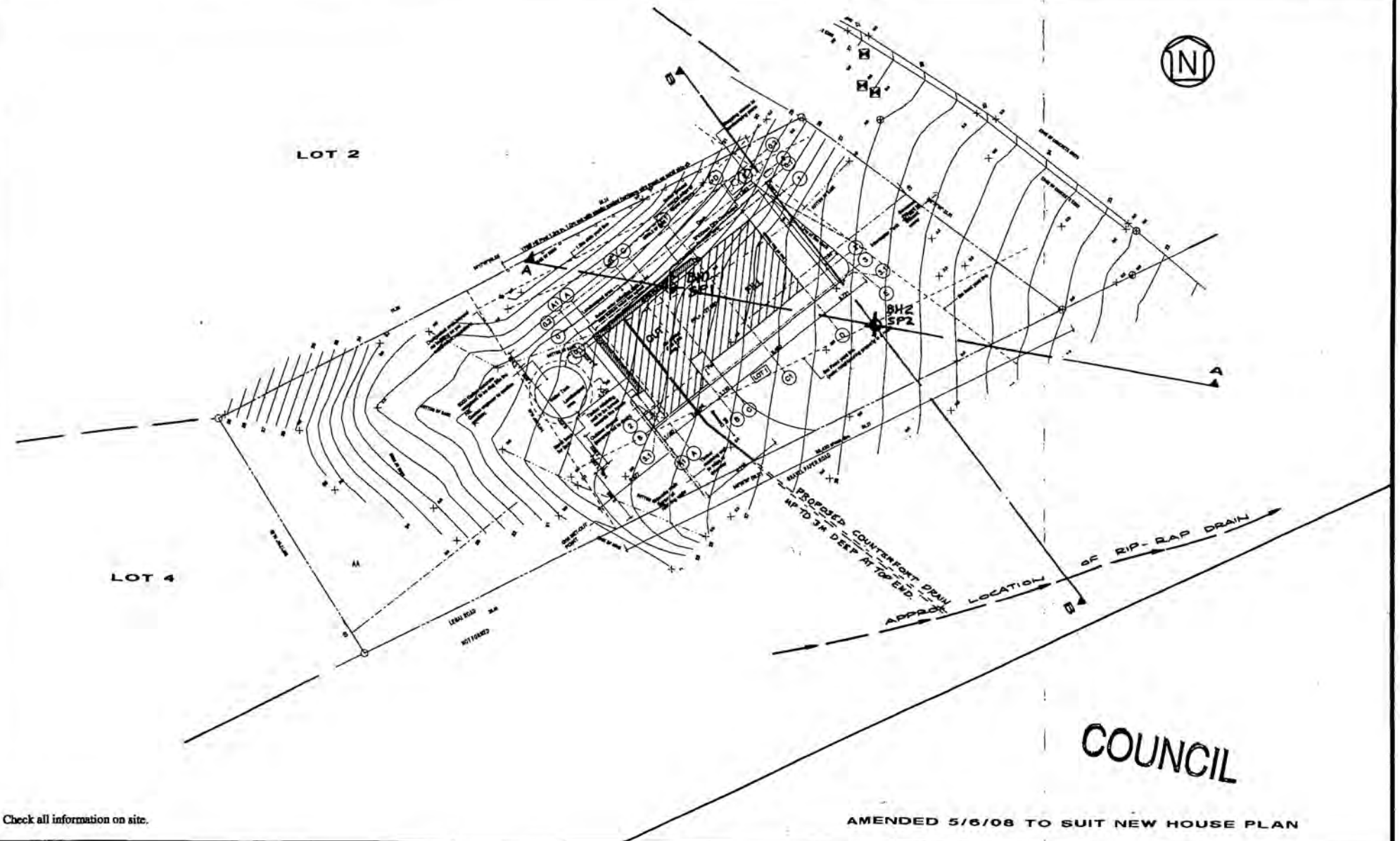
3 Elizabeth Street PO. Box 124 Warkworth
Ph. (09) 425 9422 Fax. (09) 425 9431
E-mail cacl@maxnet.co.nz

Job No.: 5408	Client: C & S HORNER
Site: LOT 1 WINTLE ST.	Logged by: W.B/ D.W.
Date: 30/06/06	Weather: FINE

RECEIVED: 2 Dec 2010 SCANNED: 24 Nov 2010 BOX: 5 BATCH: 65029 DOC: KDCAALUS



Check all information on site.

AMENDED 5/6/08 TO SUIT NEW HOUSE PLAN

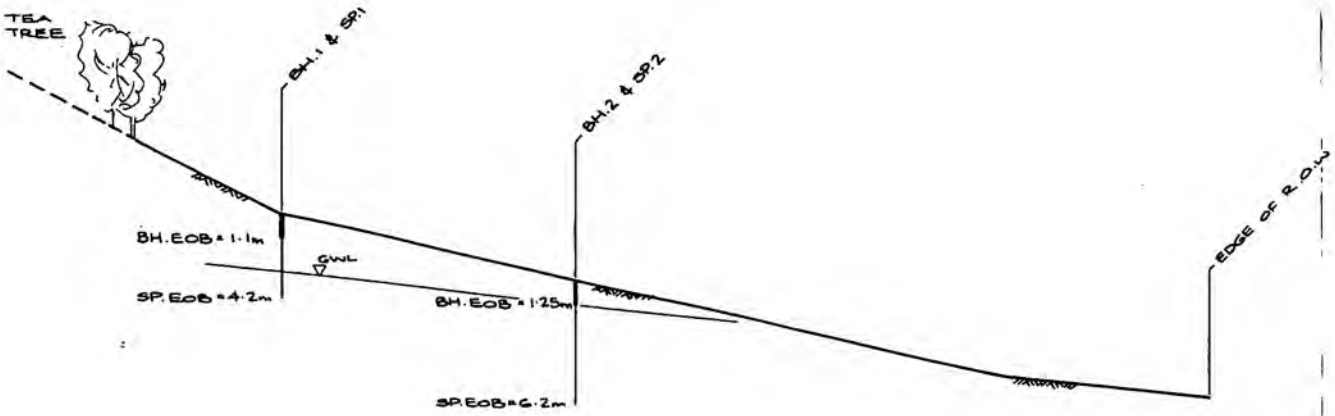
Ashby Consulting Engineering Ltd
Structural, Civil, & Geotechnical Engineering
P.O. Box 124 Warkworth,
Ph 09 425 94 22, Fax 09 425 94 31, Mobile 029 94 96 949
E-mail info@ashby.net.nz

GEOTECHNICAL INVESTIGATION
FOR C & S HORNER
LOT 1 WINTLE STREET
MANGAWHAI HEADS

Plan No. 5408		Sheet : 1
Scale : 1:250 @ A3 (approx)		
Drawn : D.W	Date : JULY/06	Series of : 2

RECEIVED: 2 Dec 2010 SCANNED: 24 Nov 2010 BOX: 5 BATCH: 65029 DOC: KDCAALUS

PROFILE A



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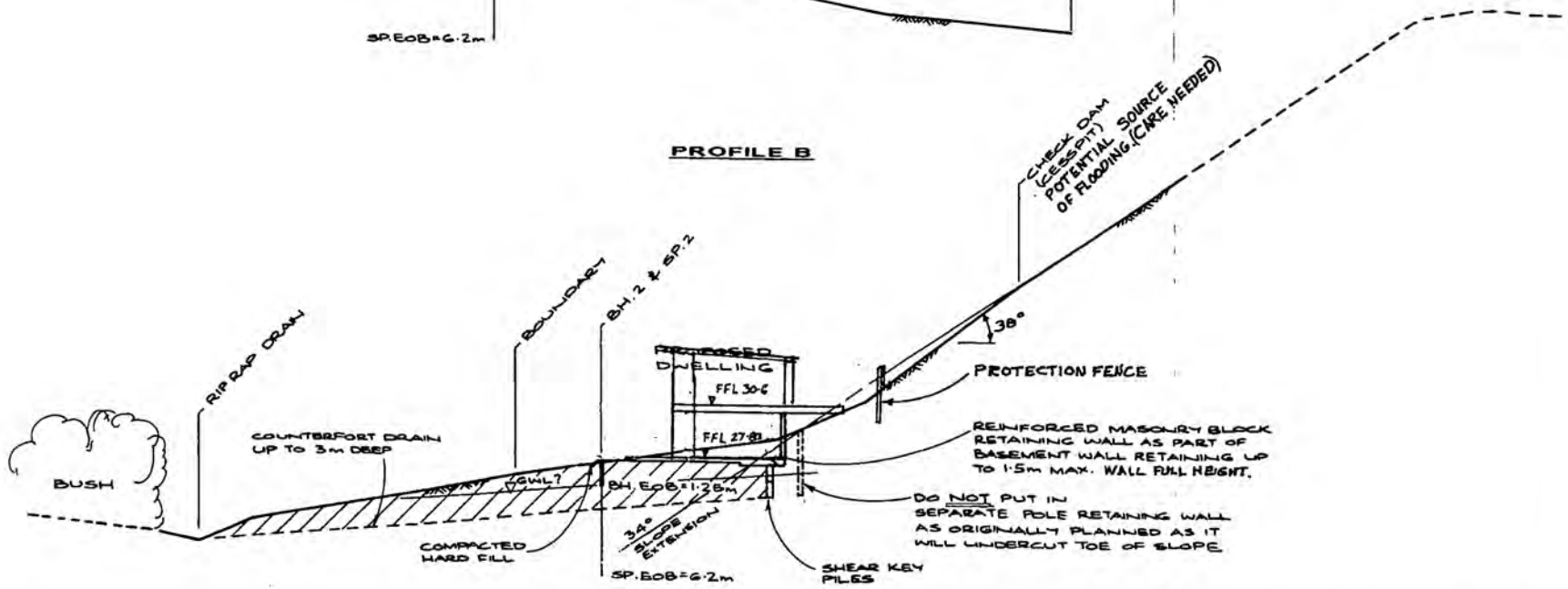

Check all information on site.

AMENDED 5/6/08 TO SUIT NEW HOUSE PLAN

Ashby Consulting Engineering Ltd
Structural, Civil, & Geotechnical Engineering
P.O. Box 124 Warkworth,
Ph 09 425 94 22, Fax 09 425 94 31, Mobile 029 94 96 949
E-mail info@ashby.net.nz

GEOTECHNICAL INVESTIGATION FOR C & S HORNER LOT 1 WINTLE STREET MANGAWHAI HEADS

Plan No. 5408		Sheet : 2
Scale : 1:250 @ A3		
Drawn : D.W	Date : JULY/06	Series of : 2

Print Date: 3/17/2025
Print Time: 1:31 PM

Asset Map 0122010202

Scale: 1:1,128
Original Sheet Size: A4

Projection: NZGD 2000 New Zealand Transverse Mercator
Bounds: 1743321.319912E 6006188.408287N
1743643.277899E 6005995.689181N

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Print Date: 3/17/2025
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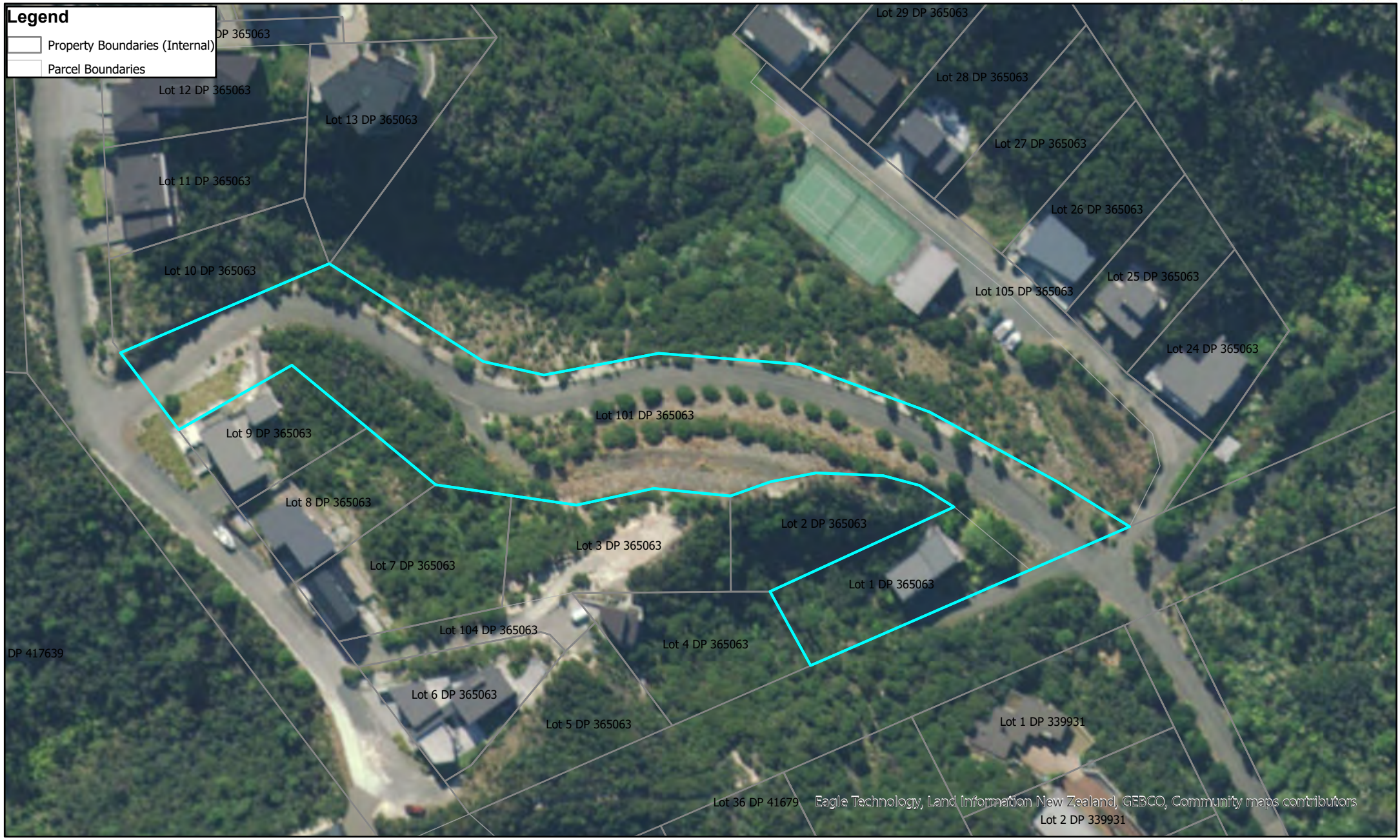
Asset Map 0122010202



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Roads and driveways

District councils are responsible for local roads and Transit New Zealand is responsible for state highways. Private driveways are the responsibility of private landowners.

Check whether the access driveway from the public road is part of the property or crosses other land.

Make sure any right of way is recorded on the title.

Check that any right of way shown on paper matches up with the formed access.

Check the location of any dwelling in relation to other people's or shared driveways – vehicles using driveways can cause dust.

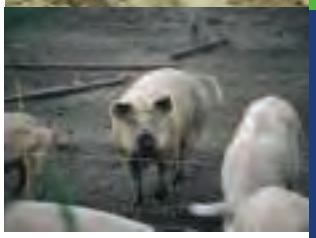
Will my green rural outlook change?

The rural landscape is constantly changing. Change is a necessary and inevitable part of living in the country -

- farming methods change
- new types of rural production will occur
- crops (including trees) will be harvested
- land may be subdivided
- new people and new ideas will come

The council's rules are not intended to preserve things as they are now but to manage the environmental effects of ongoing changes.

Ask the council about its rules for rural subdivision and the location of buildings on adjoining land.



Other things to check:

- Requirements for controlling serious weeds
- Responsibilities to control dogs and livestock
- The use of chemical sprays
- The location of emergency services (doctor, rural fire service)
- Power connection to the property

How can I find out about all of that?

Visit your district council – they will be able to answer many of your questions.

The district council can give you a Land Information Memorandum (a 'LIM') which describes important details about any property. There will usually be a small fee – but it is a small price to pay for accurate information.

You might also like to talk to the regional council.

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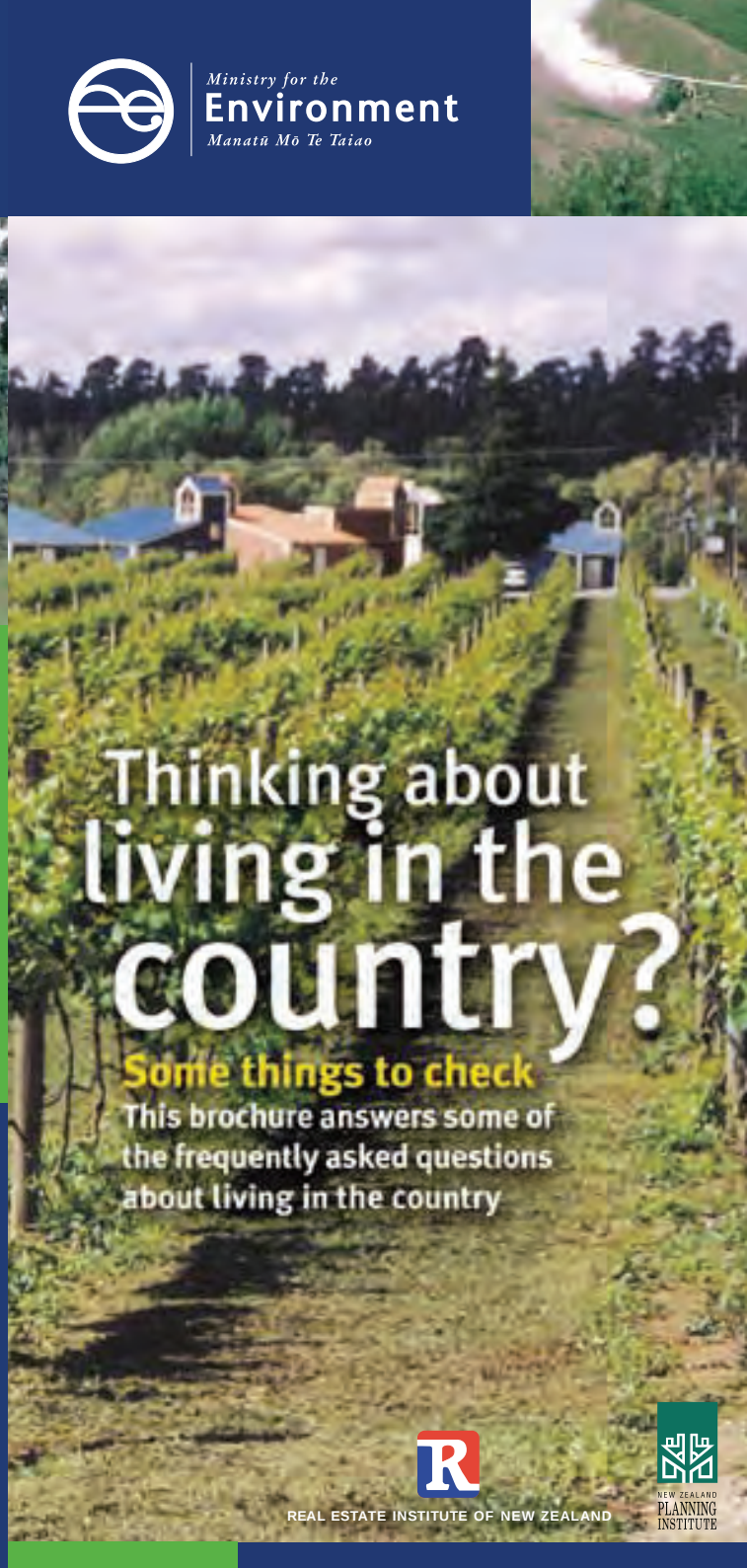

Thinking about living in the country?

Some things to check

This brochure answers some of the frequently asked questions about living in the country

REAL ESTATE INSTITUTE OF NEW ZEALAND

NEW ZEALAND PLANNING INSTITUTE

it's paradise – right?

It can be but remember - the rural environment is where people live and work. That means it's both a beautiful landscape and a place of production.

Some production activities create effects that are noticeable on adjoining properties. Many of these effects are a necessary and legitimate part of rural production. Maybe not all day or all year – but sometimes, depending on the season, there might be:

Noise Dogs barking, farm machinery operating, planting or harvesting activities, stock being moved, bird scaring devices, truck movements in the early or late hours, stock noise at weaning time, helicopters

Smell Animal enclosures, silage, effluent disposal

Smoke Stubble burn-off or other fires

Dust Cultivation, planting and harvesting, vehicles on unsealed roads and driveways

Spray Agrichemical spraying of crops and paddocks

Look around the rural neighbourhood and see what's there. Think about how established activities might affect you.

Ask around – find out what day-to-day life is like in that rural area in all seasons.

Spend some time there – check it out in good weather and bad weather days and all wind directions.

Can I do anything I want on my land?

It might pay to check. Usually you can – provided your activities don't cause adverse environmental effects.

Councils are responsible for managing the effects of activities and may have rules and bylaws controlling things like:

- house location and number of houses
- location of farm buildings and stock yards
- disposal of household sewage and stock effluent
- taking water from the ground or rivers
- discharges to ground and water
- burning of open fires
- distance of shelter belts and plantation forestry from boundaries
- noise
- removal of scrub or trees
- earthworks to build access tracks

There may be particular or additional controls in areas that have special landscape or ecological importance.

Ask the council for a copy of the rules applying to your property and rural neighbourhood.

Just as in town, it's important to get on with neighbours. The council can set basic guidelines or standards but, when it comes to managing minor matters, it's up to you and your neighbours.

Make sure you can get hold of your neighbours if anything happens on their property that might affect you.

Why not tell your neighbours about anything you plan to do that might affect them?

Water and sewerage

Most rural properties have to provide for their own water supply and sewage disposal.

This usually means rain water has to be collected in tanks or water has to be pumped from waterways or an underground bore. If water is already piped onto the property from elsewhere, find out where it comes from and check that there is an easement or permission that allows this to continue – even in summer dry periods.

Sewage disposal is often to a septic tank. Septic tanks need to be emptied periodically.

It may be that you will need to install a new water supply or sewage disposal system – especially if the property is bare land.

water supply and sewage disposal systems meet required standards and actually work.

Rural landowners are responsible for the ongoing maintenance of water supply and sewage disposal systems – you'll need to know how to maintain pumps and clear blocked drains.