

**Before Commissioners  
Delegated by Kapiti Coast District Council**

**In the matter of** proposed Plan Change 2 to the Kapiti  
Coast District Plan

**And** Submissions and further submissions by  
Waikanae Land Company

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**STATEMENT OF EVIDENCE OF MAURICE BATHURST ROWE**

**10 March 2023**

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**FitzherbertRowe**  
Palmerston North

Person Acting : M Rowe  
Telephone : (06) 351 4710  
Private Bag 11016  
Palmerston North 4442  
m.rowe@fitzrowe.co.nz

**(Counsel)**  
M J Slyfield  
Stout Street Chambers

021 915 9277  
PO Box 117  
Wellington 6011  
morgan.slyfield@stoutstreet.co.nz

## **A INTRODUCTION AND OVERVIEW**

1. My full name is Maurice Bathurst Rowe. I am a solicitor at Fitzherbert Rowe in Palmerston North.
2. Waikanae Land Company Ltd is a development company first incorporated in 1968. I have acted as solicitor for WLC since its inception. From 1979 until 2000, I was a director of WLC.
3. I make this statement to put before the Plan Change 2 Panel the history of WLC's involvement with the block of land (**20 Acre Block**) that is the subject of the Kāpiti Coast District Council's proposed new wāhi tapu listing in Plan Change 2.<sup>1</sup> Attached as **Exhibit 01** is a scheme plan of the area, showing in red the outline of the 20 Acre Block.
4. In this statement, I address the following matters:
  - 4.1 WLC's acquisition of the 20 Acre Block.
  - 4.2 Development of the WLC land between 1969 and 2000.
  - 4.3 Discovery and reinterment of human remains at Stage 6.
  - 4.4 Subsequent activities in respect of Stage 6.
  - 4.5 Proposed Stage 4B development.
  - 4.6 WLC's communications with Kāpiti Coast District Council in respect of the proposed new wāhi tapu listing.

## **B WLC ACQUISITION OF THE 20 ACRE BLOCK**

5. Between 1968 and 1969, WLC acquired a number of blocks of land in the Waikanae area. These included the 20 Acre Block (approximately 8 ha), being Ngarara West A14B1, and a block consisting of approximately 95 acres (38.8 ha), being Ngarara West A 14B2B3. The latter block included the whole of the Waikanae River estuary extending from the southern boundary

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<sup>1</sup> WLC is aware that the boundary of the 20 Acre Block is not exactly coextensive with the boundary of the proposed new wāhi tapu listing as drawn in the Plan Change 2 maps. Specifically, the south-western boundary of the proposed wāhi tapu listing is slightly further north than that of the 20 Acre Block. WLC understands Ātiawa ki Whakarongotai take issue with this. WLC does not take a position.

of the Waikanae sea-front land to Paraparaumu (including ownership of the bed of the Waikanae River within the title area).

6. WLC acquired the 20 Acre Block in 1969, following WLC's application to the Māori Land Court for a meeting to be called of the owners in order to obtain their agreement to a sale. That agreement did not eventuate, but the Māori owners did pass a resolution that the Māori Trustee be appointed as their agent. The 20 Acre Block was subsequently placed on the market. WLC tendered a purchase price, which was accepted by the Māori Trustee in August 1969.
7. In 1968, the 20 Acre Block had been designated in the Horowhenua County Council (**HCC**) District Scheme as "Maori Cemetery" with an underlying residential zoning. In 1969, WLC wrote to the Māori Land Court requesting advice as to whether or not Māori Land Court records indicated the land had been used as a Māori burial ground. The Māori Land Court wrote back indicating that there had been "no subsequent action to have the land set apart as a Maori reservation for the purposes of a cemetery, nor have trustees been appointed at any time". The Court said it remained "ordinary Maori freehold land" in their records. The Court's letters are attached as **Exhibit 02**.
8. WLC also sent a letter to HCC in 1969, advising that WLC wished to develop the land for residential purposes and requested HCC to take necessary steps to remove the designation of Maori Cemetery. WLC later forwarded to HCC the Māori Land Court response to WLC's enquiries.
9. HCC undertook a process to decide whether to lift the designation. HCC received objections to the proposal lifting, as follows:
  - 9.1 An objection from Mrs Kauri and Mrs Tamati received prior to the opening of formal dates for objections. This is attached as **Exhibit 03**. The objection recorded:

If this is [the] piece of ground known as Karewarewa then our Ancestors are interred there, as well as many other Maori Personages...
  - 9.2 An objection from Mrs Kauri within the objection period. That objection did not repeat any reference to Kārewarewa, but stated Mrs Kauri regarded the site as sacred ground and tapu land, having ancestors buried there. It also recorded that Mrs Kauri "stood alone" on the matter. This is attached as **Exhibit 04**.
  - 9.3 Three other objections that were outside the period for objections, the contents of which were not made available to WLC at the time.

10. A hearing took place at the HCC Chambers on 25 April 1970, which I attended. HCC decided to remove the designation by a decision issued in August 1970. This is attached as **Exhibit 05**. The decision recorded that there was “no certain evidence” of the 20 Acre Block being a Māori burial ground, or that interments had taken place since it was set apart for a future Māori cemetery in 1919. However, the decision stated that it should be drawn to the attention of the Committee that there was a possibility of uncovering human remains, so that the Committee may recommend as a condition that:

the company shall arrange for the re-interment of any such remains, on a site to be determined by the Waikanae Town Committee, and, if the Committee sees fit, the erection on that site by the Company of a commemorative plaque with a suitable inscription thereon.

11. I am aware of recent suggestions by Ātiawa ki Whakarongotai that WLC acted improperly in the process of acquiring the 20 Acre Block and seeking to lift the designation. I am aware that some have also recently suggested that alienation of the 20 Acre Block was unlawful. I reject those suggestions, and note the following:

11.1 WLC undertook extensive investigations to ensure the owners of the 20 Acre Block were able to be identified. The Māori Land Court records in 1969 indicated that the original owners of the 20 Acre Block were 34 owners but, at the time of purchase, 73 owners were listed (with many noted as deceased). WLC collected as many addresses for registered owners as the Māori Land Court was able to provide and then undertook extensive research, visitation work, and letter writing in an endeavour to communicate with as many owners as possible. Enquiries made by WLC sought to find addresses of owners, details of owners who were deceased, and names and addresses of their successors. The addresses collected were spread throughout New Zealand and included one in New South Wales. WLC provided its information to the Māori Land Court to update its register of ownership and provide additional details and addresses of owners.

11.2 WLC was not aware of anything during the sale process, or during the subsequent process uplifting the cemetery designation, that shows Ātiawa taking any interest in the 20 Acre Block at that time. In particular, WLC was not made aware of the status of Mrs Kauri and/or Mrs Tamati within Ātiawa at the time the designation was lifted, nor were their objections expressed to be representative of an iwi position.

11.3 In 2019, the Waitangi Tribunal was presented with a legal argument that the Burial and Cremation Act 1964 applied to the 20 Acre



Block, which meant it could not be alienated except by Act of Parliament. The Tribunal expressly rejected that argument.

### **C DEVELOPMENT OF WLC LAND BETWEEN 1969 AND 2000**

12. Between 1969 and 1990, WLC planned and developed subdivision of various parts of its land holdings. This work included forming the Waimanu marina and lagoon along the old course of the Waimea Stream, and subdivision and sale of 124 residential lots on the seaward side of its landholdings—namely, Oratia St, Ara Kuaka, Tutere St and Waiheke St. Attached as **Exhibit 06** are plans of that subdivision.
13. In 1989 WLC, with the assistance of a contractor, obtained subdivision resource consents for an additional seven new stages of development of the inland side of the Waimanu Lagoons for some 112 residential sections, of which 71 were developed and sold between 1992 and 1999—in Major Durie Plc, Barrett Drive, Marewa Plc, and Te Ropata Plc. Attached as **Exhibit 07** are plans of that subdivision.
14. Several of these stages involved development of land within the 20 Acre Block—including some 39 residential lots that were either within or overlapped with the 20 Acre Block. By 1999, only two stages that included land in the 20 Acre Block remained to be developed: Stage 4B and Stage 6.
15. In 2000, WLC had begun development of Stage 6 into residential lots. Attached as **Exhibit 08** are plans of that subdivision. Extensive earthworks were undertaken for the development of the whole of the Stage 6 area in accordance with its resource consent. By July 2000, all major earthworks were undertaken for the street formation for both Tamati Place and Wi Kingi Place with underground services installed ready for final kerbing, channelling and roadway sealing, and all underground pipelines and services were installed ready for final pressure testing of water mains.

### **D DISCOVERY AND REINTERMENT OF HUMAN REMAINS AT STAGE 6**

16. On 5 July 2000, in the course of finalising some subdivisional ground works, human remains were discovered in the Wi Kingi Place area towards the north-east extremity of the WLC's land. Heritage New Zealand Pouhere Taonga (**HNZPT**) was promptly advised.
17. The discovery ultimately led to prosecutions by HNZPT being brought in the District Court against contractors and consultants in respect of further works which had continued on the site after 5 July 2000. The District Court found the allegations proven, but that decision was overturned on appeal to the High Court.

18. The remains were removed, and were examined by Dr Nancy Tayles of the University of Otago. Her report, dated June 2001, concluded that the remains were of a minimum of nine separate individuals, three of whom were adults and the rest infants and children. She concluded that two of the adults were Māori, and that one child had two characteristics that suggested the child was Māori. Dr Tayles' report is attached as **Exhibit 09**.
19. Following discussions with iwi and approval from HNZPT, the remains were reinterred in 2001 on Wi Kingi Place in the location where they were found.
20. Neither Stage 6 nor Stage 4B have had any further development since that time.

#### **E SUBSEQUENT ACTIVITIES IN RESPECT OF STAGE 6**

21. Mary O'Keeffe prepared an Archaeological Report in 2001 for WLC (through its consultant MWH). This is attached as **Exhibit 10**.
22. In 2003, WLC commissioned an initial Ground Penetrating Radar (GPR) survey by GPR Geophysical Services Ltd in respect of the 20 Acre Block. This survey identified the cluster of human remains where they had been reinterred following initial removal, and some other isolated anomalies. The report from this survey is attached as **Exhibit 11**.
23. In mid-2006, in the course of discussions and meetings with iwi members over the future of the WLC land (in particular with Danny Mullen and Jack Rikihana representing the Whakarongotai Trust), Te Ātiawa indicated to WLC an interest in purchasing the Stage 4B and Stage 6 land and completing the development of that land. This continued for quite a lengthy period, but ultimately did not proceed.
24. In 2012, Mary O'Keeffe provided another Archaeological Report, with the benefit of the 2003 GPR Geophysical Services report and her own further research. This is attached as **Exhibit 12**.
25. In 2017, on the recommendation of Mary O'Keeffe, WLC instructed Archaeology Solutions Ltd (Hans Bader) to undertake a geomagnetic survey of the land utilising what Ms O'Keeffe believed to be more updated radiographic survey equipment since the previous GPR survey was undertaken in 2003. In conjunction with this later survey, it was suggested that a small trench be dug on the land in order to determine the extent of fill which may have been deposited in the area as a result of the dredging work undertaken for the formation of the lagoon reserve areas. WLC sought prior consultation with Te Ātiawa for their consent to digging the trench. This was initially declined by André Baker on behalf of Te Ātiawa, but

subsequently such consent was provided by Ben Ngaia to Ms O'Keeffe. HNZPT granted consent to this trench and the work proceeded.

26. Representatives of Te Ātiawa were invited to observe the trenching work and undertake any tikanga required, and some representatives attended for that purpose. The trench dug was approximately 2–2.5 metres in length, 0.5 metres in width, and 0.6 metres in depth. No human remains were disturbed in the digging of the trench. The result was that there was no indication of an overlay of dredged material from the lagoon formation and that the land in the area seemed untouched by such dredging. Archaeology Solutions identified relatively few isolated anomalies which could warrant further inspection of a more invasive form which would require HNZPT consent. Archaeology Solutions' report is attached as **Exhibit 13**.
27. As an additional independent assessment, WLC instructed Southern Geophysical Ltd of Christchurch to carry out a full geophysical site investigation of the Stage 6 area, and its Magnetic Gradometer and Ground Penetrating Radar survey was completed in July 2019. Apart from the area where the known human remains had been re-interred, this report identified no significant anomalies except for two at the far end of Wi Kingi Place which could warrant further inspection. The report is attached as **Exhibit 14**.
28. In 2014, WLC engaged Mahina-a-rangi Baker to provide a cultural impact assessment from Ātiawa's perspective for submitting to HNZPT in respect of a modified Stage 6 proposed development area on the north-eastern side of Barrett Drive. This is attached as **Exhibit 15**.
29. I comment as follows on specific allegations made in the cultural impact assessment of further burials or gravesites being discovered or disturbed.
  - 29.1 I have no knowledge whatsoever of any kōiwi being excavated in the WLC dredging works. I attended the site on a monthly basis during the period from 1968 until 1979. Given my frequent site visits and the role I held at the time, had there been any of those incidents, I am confident they would have either been reported to me or witnessed by me. To the best of my recollection, there were not. Nor does WLC have any documents that suggest such incidents occurred. Further, the dredging process did not excavate dredging material from inside the 20 Acre Block, as excavations were confined to the swampy land remaining from the diverted Waimea Stream works undertaken by the Manawatu Catchment Board some years prior to WLC's existence. The land that was dredged is now part of a public reserve, not part of the 20 Acre Block.

- 29.2 In addition to the formation and dredging of the lagoon areas, extensive subdivisional and pipeline trenching works have been undertaken and completed throughout WLC's land development works. This work was for a total of 232 residential lots (including 39 completed within the 20 Acre Block), and includes earthworks and services installation for the development of the whole Stage 6 area in Tamati Place and Wi Kingi Place for the formation of 37 intended residential lots. The only discovery of human remains throughout the WLC land has been of those found at Wi Kingi Place in 2000.
30. I am aware that Ātiawa ki Whakarongotai and others have relied on factual findings of the Waitangi Tribunal to conclude that the 20 Acre Block is Kārewarewa urupā. WLC was not invited to take part in the Waitangi Tribunal hearing. Nor was it entitled to be heard in such a hearing, despite its long involvement with the 20 Acre Block and the potential for natural justice concerns in respect of its interests. This is particularly concerning given that the Crown's approach included conceding certain matters such that the evidence presented to the Tribunal was not robustly tested in the ordinary way.
31. I am also aware that Ātiawa ki Whakarongotai have previously suggested WLC has failed to consult with iwi about the 20 Acre Block. This is incorrect. WLC has had many interactions with iwi over the years—either directly or through WLC's consultants—particularly following the discovery of human remains in 2000. These interactions have included attending meetings, providing information to iwi groups, seeking approval to dig a test pit to assist in geomagnetic surveying analysis, corresponding regarding the potential sale to iwi of part of the 20 Acre Block, and seeking meetings to discuss the cultural impact assessment. I attach as **Exhibit 16** an iwi engagement log that records some of this engagement from 2013 to 2021.

## **F PROPOSED STAGE 4B DEVELOPMENT**

32. Prior to Council's consultation regarding PC2, WLC progressed plans to develop the Stage 4B land, some of which is within the boundaries of the original 20 Acre Block. Attached as **Exhibit 17** is a plan of that proposed development.
33. As part of these development plans, WLC commissioned an Archaeological Assessment Report from Mr Gibb of Geometria Ltd in respect of the proposed new Stage 4B subdivision. This report is attached to the statement that Mr Gibb has provided for the PC2 hearing.
34. Mr Gibb assessed the Stage 4B site as having low potential for any archaeological material. However, he recommended applying for a general archaeological authority to avoid the project from being delayed in the event that land disturbance uncovered any archaeological material

in the form of middens or otherwise. WLC duly applied for a general authority, which HNZPT declined.

35. WLC has appealed that decision to the Environment Court, and has also applied for subdivision and earthworks consent for the Stage 4B development, which has been direct referred to the Environment Court and amalgamated with the archaeological authority appeal. There has been a preliminary hearing on a legal issue, but the balance of these matters is awaiting a fixture, potentially in June 2023.

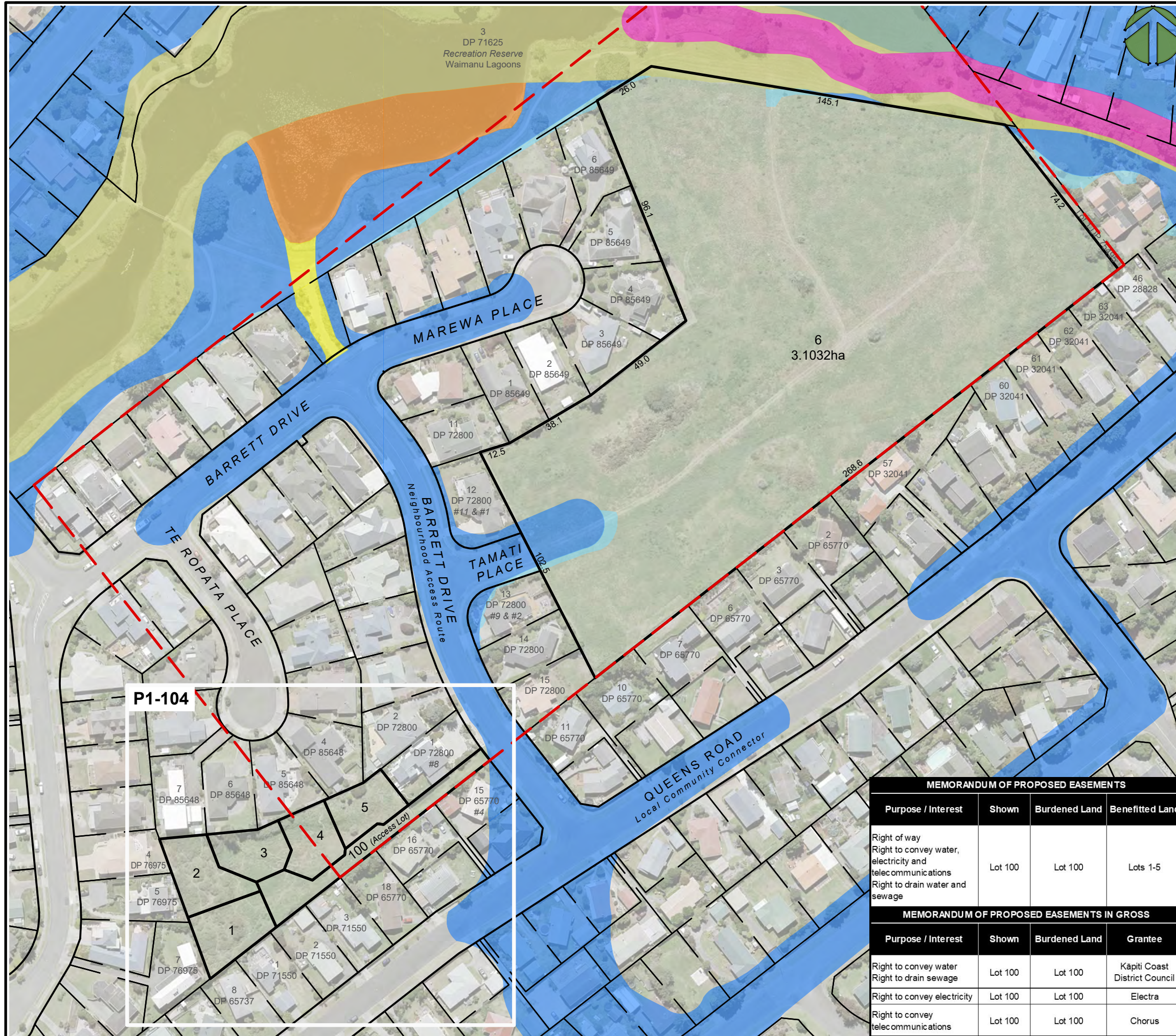
#### **G PC2 CONSULTATION WITH KĀPITI COAST DISTRICT COUNCIL**

36. WLC has sought to engage with Kāpiti Coast District Council regarding the proposed new wāhi tapu listing. In that correspondence, WLC has communicated to Council its concerns about the listing in terms of the substance of the listing, and the legal basis of making the listing in an intensification process.
37. I attach as **Exhibit 18** correspondence between WLC and Council following the release of the draft consultation version of PC2 in July 2022. I attach as **Exhibit 19** WLC's submissions to Council following notification of PC2 in August 2022.

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**Maurice Rowe**  
10 March 2023





**GENERAL NOTES**

1. Plan is in terms of New Zealand Geodetic Datum 2000 (NZGD2000).
2. Areas and dimension subject to cadastral survey.
3. Boundaries are from the Land Information New Zealand (LINZ) Digital Cadastral Database (DCDB).
4. Aerial photography is from the LINZ Data Service.
5. Underground services, aerial photography and flood hazards are from Kāpiti Coast District Council records and indicative only.

**AMALGAMATION CONDITION**

That Lot 100 hereon (legal access) be held as to five undivided one-fifth shares by the owners of Lots 1, 2, 3, 4 and 5 hereon as tenants in common in the said shares and that individual Records of Title be issued in accordance therewith.

**KEY**

- Residual Overflow Path
- Stream Corridor
- Ponding Area
- Residual Ponding Area
- Flood Storage Area
- Ngarara West A 14B1

Issue Description	Ngarara West A 14B1 added			
-	BA	BA	EB	8/09/2020
Surveyed	Designed	Drawn	Checked	Date



1 Ngaio Rd Waikanae + contactus@landlink.co.nz + 04-902-6161

Client  
**Waikanae Land Company Ltd**

Title  
**Proposed Subdivision of Pt Lot 1 DP 71625 Overall Plan**

Project  
**Barrett Drive, Waikanae Beach**

Scale: 1:1500 A3

Drawing No.  
**2540-P1 001 E**

**MEMORANDUM OF PROPOSED EASEMENTS**

Purpose / Interest	Shown	Burdened Land	Benefitted Land
Right of way	Lot 100	Lot 100	Lots 1-5
Right to convey water, electricity and telecommunications	Lot 100	Lot 100	Lots 1-5
Right to drain water and sewage	Lot 100	Lot 100	Lots 1-5

**MEMORANDUM OF PROPOSED EASEMENTS IN GROSS**

Purpose / Interest	Shown	Burdened Land	Grantee
Right to convey water	Lot 100	Lot 100	Kāpiti Coast District Council
Right to drain sewage	Lot 100	Lot 100	Electra
Right to convey electricity	Lot 100	Lot 100	Electra
Right to convey telecommunications	Lot 100	Lot 100	Chorus



"02"

Telegraphic Address: MAORIFAIRS



Our Reference: 12/6/80, <sup>M.A. 175</sup> Oti.  
Your Reference: 229/1 &  
Inquiries—ask for 15/1/4235

**MAORI LAND COURT**  
**IKAROA DISTRICT**

Government Life Building,  
Cnr. Rangitikei and Queen Streets.  
Telephone 89 109 (4 lines).

Private Bag,  
PALMERSTON NORTH  
11 September 1969

Messrs Rowe & O'Sullivan,  
Barristers & Solicitors,  
P.O. Box 479,  
PALMERSTON NORTH.

Dear Sirs,

NGARARA WEST A14B1

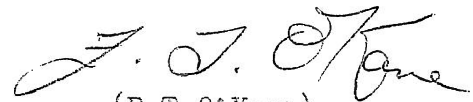
I acknowledge your letter of 26 August.

...  
I enclose a copy of the Court minutes on partition of this land in 1919, where it is said the partition was for the purpose of cutting out a graveyard. There has been no subsequent action to have the land set apart as a Maori reservation for the purposes of a cemetery, nor have trustees been appointed at any time. It still remains ordinary Maori freehold land in our records, and the ownership is vested in the beneficial owners.

At the meeting of owners of this block held at Waikanae on 18 December 1968, Mr Simpson, Solicitor, said that at first it was thought that the cemetery was in this block but he had since learnt that it was not. Mr Simpson, of Morison, Taylor and Co., Box 83, Wellington, may be able to enlarge on this statement.

I am sorry we cannot give you any more information, but the Court records do not disclose anything further about the actual use of this block as a Maori burial ground.

Yours faithfully,

  
(F.T. O'Kane)  
Deputy Registrar

Encl:

Telegraphic Address: MAORIFAIRS



Our Reference: 12/6/80

Your Reference:

Inquiries—ask for

## MAORI LAND COURT

### IKAROA DISTRICT

Government Life Building,  
Cnr. Rangitikei and Queen Streets.  
Telephone 89 109 (4 lines).

Private Bag,  
PALMERSTON NORTH

23 September 1969

Messrs Rowe & O'Sullivan,  
Barristers and Solicitors,  
P.O. Box 479,  
PALMERSTON NORTH

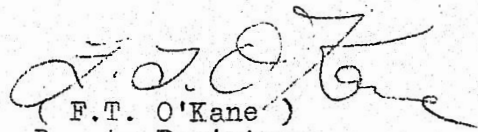
Dear Sirs,

NGARARA WEST A 14B1

I refer to your letter of 26 August.

When this block was partitioned out in 1919 it was said in the Minutes that the partition was for the purpose of cutting out a graveyard. There has been no subsequent action to have the land set apart as a Maori reservation for the purposes of a cemetery nor have trustees been appointed at any time. It still remains ordinary Maori freehold land in our records and the ownership is vested in the beneficial owners.

Yours faithfully,

  
( F.T. O'Kane )  
Deputy Registrar.



2  
200 14  
Waikanae  
14/10/69

The Chairman  
& Members,  
Waikanae County Towns Committee  
Waikanae

Gentlemen

It has come to  
our notice, that Application has  
been made to your committee,  
to change the designation of the  
block of land Aparara West A14 B1  
from Maori Cemetery on the District  
Scheme

If this is piece of ground  
known as Karewarewa then our  
Ancestors are interred there as  
well as many other Maori  
Tangohanga, such as Iain Pihua  
and Mere Tomaris mother the

Zambous Chieftainess Te Rauotorangi,  
land the mother of Te Eruini Te  
Marau. Further some of Ni Parata  
Te Kakakura ancestors are there.

Here Pomare emphasized this  
place was very tapu.

On these grounds and for the  
preservation of Historic Places we  
object to any alteration to  
the present designation.

We are Yours Faithfully

Sylvia Rangiahi Tamati

Te Apuka Kuwarian Parata - Hauori



Received  
8/20/70  
6/14/70  
209

OBJECTION No. 311  
County Ref.

19/17  
change 3 amend

FORM E

TOWN AND COUNTRY PLANNING ACT 1953

STATEMENT OF OBJECTIONS TO (CHANGE NO. ....)

AMENDMENT NO.: ..... ) OF THE HOROWHENUA COUNTY

DISTRICT SCHEME

(PLEASE PRINT CLEARLY)

To: The County Clerk,  
Horowhenua County Council,  
Bath Street,  
LEVIN

State name of objector and, if 2 persons, name of any  
one property owned or occupied by the objector by  
street and house number, valuation roll number,  
certificate of title reference, or description of land)

TE APUTA WAIRAU KAURI  
4. NGAIRO ROAD  
WAIKANAE

VALUATION NO. 1494  
369

I object to the proposed (Change No. 3 Amendment No. 3  
of) the Horowhenua County District Scheme.

My interest is stated as (State whether owner or occupier of  
property, giving brief reference to it, or on behalf of ratepayers association,  
or football club, or other interest):

FAMILY INTEREST. WE REGARD  
THE CEMETERY BLOCK AS SACRED  
GROUND.

The specific provisions of the district scheme change which I object,  
and the reasons for my objection to each

I HAVE ANCESTORS BURIED IN THIS  
CEMETERY. IT IS TAPU LAND.  
IT IS THE RESTING PLACE OF MANY PERSONS  
CONNECTED WITH THE EARLY HISTORY OF WAIKANAE

My objection would be met by: (state action desired):

TO REMAIN AS A MAORI CEMETERY.

SIGNATURE: Te Apuka Kauri

DATE: 2/4/70

Name & Address for Service: Mrs A. KAURI

Box 14  
WAIKANAE

Tene Koutou Katoa.

Evidence Statement

Mr Chairman and Gentlemen:

(page 1 of 2)

Greetings.

I appear before you in connection with the proposal to lift "Maori Burial Ground" from Ngarara West A14 B1 - to enable this land to become available for urban development.

I lodged an objection to that proposal - and at the time I was moved to do so by the deep feelings of emotion and sentiment which I have concerning our Maori heritage - feelings of respect and veneration which were first instilled in me as a child by my parents.

There is an adage in Maoridom -

"Learn the wisdom of your Elders,  
apply it to yourselves -  
and pass it on."

Such a personage was Wi Parata TeKaKaKura - my great-grandfather born in 1835. At that time the Waikanae coastline (or KenaKena) was densely populated - and when 4 years later, in 1839 Octavius Hadfield came into the District, all the tribes embraced Christianity - and a church was built in 1843.

We became a race of people ready to adapt ourselves to a way of European life, civilisation and education.

In coming before you today, I am aware that I stand alone in this matter - and that sentiment for the past will not stop progress towards the future: - that you are obliged to consider what appears to you to be in the public interest and in the interest of good town planning. My objection still stands but if it is disallowed the very least I would ask is this: that you arrange for the Waikanae Land Company or for the Council, to see that any human remains that are uncovered in the course of excavation or development of Ngarara West A14 B1, be interred in a common grave on an adjacent piece of reserve land and for a plaque to be erected and inscribed with these words:-

"Christianity began with the Te Atiawa and all other tribes at KenaKena, Waikanae, in 1839."

As a matter of interest and for your records, I attach to this statement the notes which I have taken from searches I have made of the Maori Land Court records.

*Te Apurā Wairau Kauri*  
Te Apurā Wairau Kauri.

Extracts from the Maori Land Court Records:

Order dated 17th June 1919.

Minute Book 21, Wellington, Page 386.

Ngarara West A14 B1 - 20 acres 0 roods 00 perches.

Number of original owners: 34.

75. Wi Parata KaKaKura 16.634.

Wellington 18th June 1919. Plan 2823 Partition.

It was explained that this partition of cutting out a Graveyard and that each block would be vested in all owners.

(Undecipherable) Hira Parata asked for partition to cut out for cemetery, all this has been agreed to by all the people. This had been set aside by Judge McKay, but not carried out a survey. (No objections).

Order for partition to be called Ngarara West A Section 14 B1 form ? as follows in the most convenient way with boundaries to be pointed out by Hira Parata or failing him by some other person as is approved by a Judge of the District to cut off about 20 acres.

As the position of boundaries will be only ascertained on the survey, these cannot now be described - in favour of all the present owners or their representatives.

See Order 10th August 1915.

Order for portion to be called Ngarara West A14 B2 form as follows; this is the balance of the block containing 158 acres 20 perches including area under water in favour of all present owners in their shares; and their representatives. See Order of 10th August 1915.

*To Hira Parata Kauri*

"05"

ALL COMMUNICATIONS TO BE ADDRESSED TO  
"THE COUNTY CLERK"



Reference No.

[Empty box for Reference No.]

TELEPHONE 7189

HOROWHENUA COUNTY COUNCIL

P.O. Box 17,  
LEVIN, N. Z.

JHH/HMG

10th August, 1970.

Waikanae Land Coy. Ltd.,  
C/o Messrs Rowe, O'Sullivan & Co.,  
Solicitors,  
P.O. Box 479,  
PALMERSTON NORTH.

Dear Sirs,

NOTICE OF DECISION  
Horowhenua County District Scheme : Change No. 3  
Amendment No. 3.

Objection No. 3/1 by Mrs Te Aputa Wairau Kauri  
to the designation "Maori Cemetery" on Ngarara  
West A14B1 Block at Waikanae, being deleted,  
Underlying Residential Zoning to remain.

I have to advise that the hearing of objections to Change No. 3 has now been completed, and the decision of the Council relating to the above objection is as follows:-

"THAT Objection 3/1 be DISALLOWED, the Council being of the opinion that the designation 'Maori Cemetery' shall be lifted, the land having been sold by the Maori Owners to a Development Company, and there being no certain evidence that it is an historical Maori Burial Ground, or that interments have taken place since it was set apart for a future Maori Cemetery in 1919:

but nevertheless, as there is a possibility that human remains may be uncovered as development of the land proceeds, the Waikanae County Town Committee's attention be drawn to this possibility, so that in recommending the approval of any scheme of subdivision of the land, the Committee may recommend as a condition of such approval that the Company shall arrange for the re-interment of any such remains, on a site to be determined by the Waikanae County Town Committee, and, if the Committee sees fit, the erection on that site by the Company of a commemorative plaque with a suitable inscription thereon."

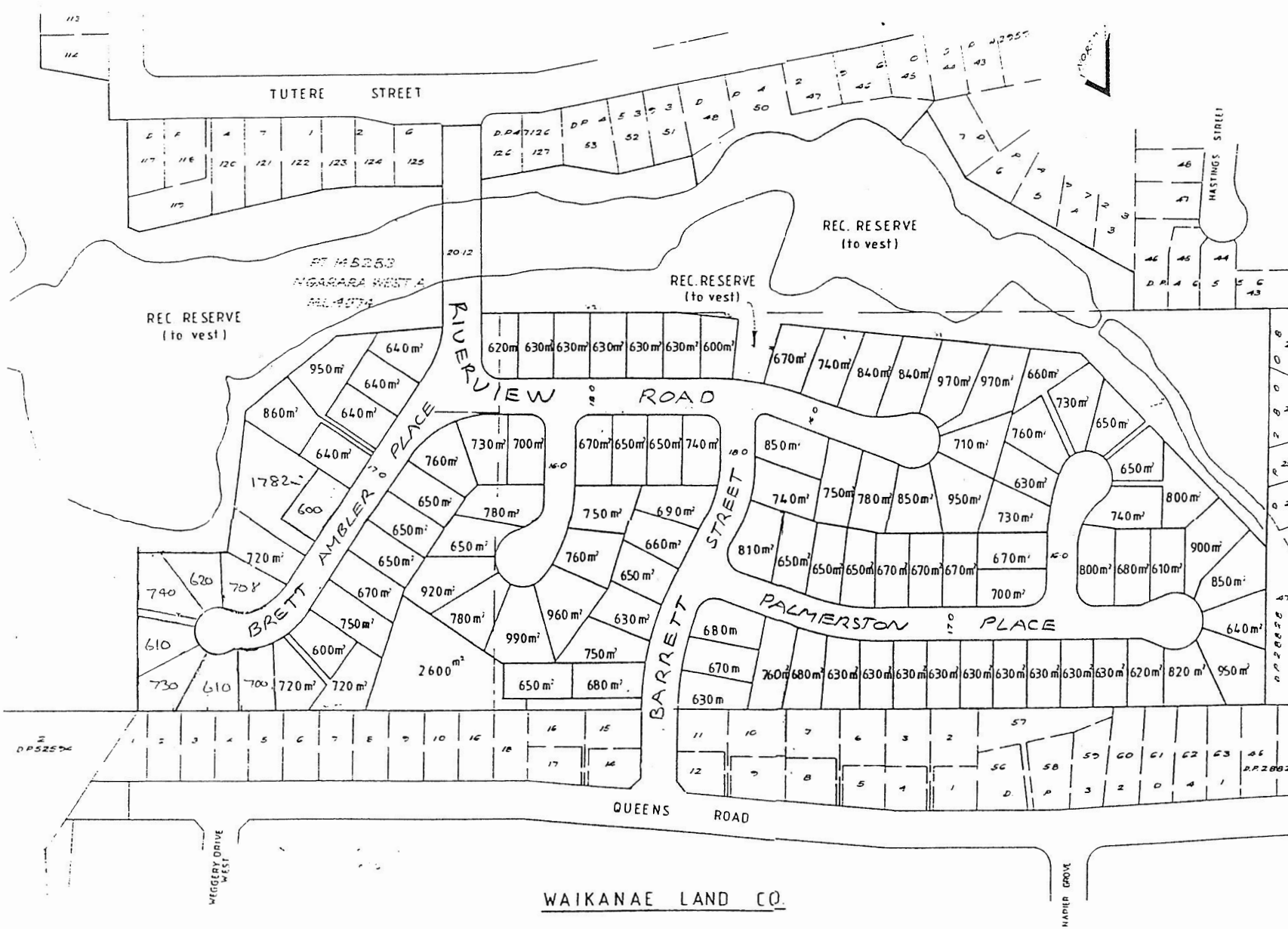
Yours faithfully,

J.H. HUDSON,  
COUNTY CLERK

12 AUG. 1970



"06"



NOTES

**PAYNE SEWELL LTD**  
 CONSULTING ENGINEERS SURVEYORS PLANNERS  
 CONSULTING ENGINEERS SURVEYORS PLANNERS

Legal Description -  
 PT 14 B 2 B 3 M.L 4074 &  
 14 B 1 M.L 3495 NGARARA  
 WEST A & LOT 13 D.P

See sheet 2 (A<sup>2</sup>) for reserve  
 area.

SCALE	as shown
THE CONTRACTOR SHALL CHECK ALL DIMENSIONS ON SITE	
DRAWN BY	JGR
APPROVED BY	
DATE	2
NO. 07901/1	

PLAN OF OVERALL RESIDENTIAL SUBDIVISION

WAIKANA E BEACH

WAIKANA E LAND CO.

scale : 1000

date - NOV 198E

Approvals

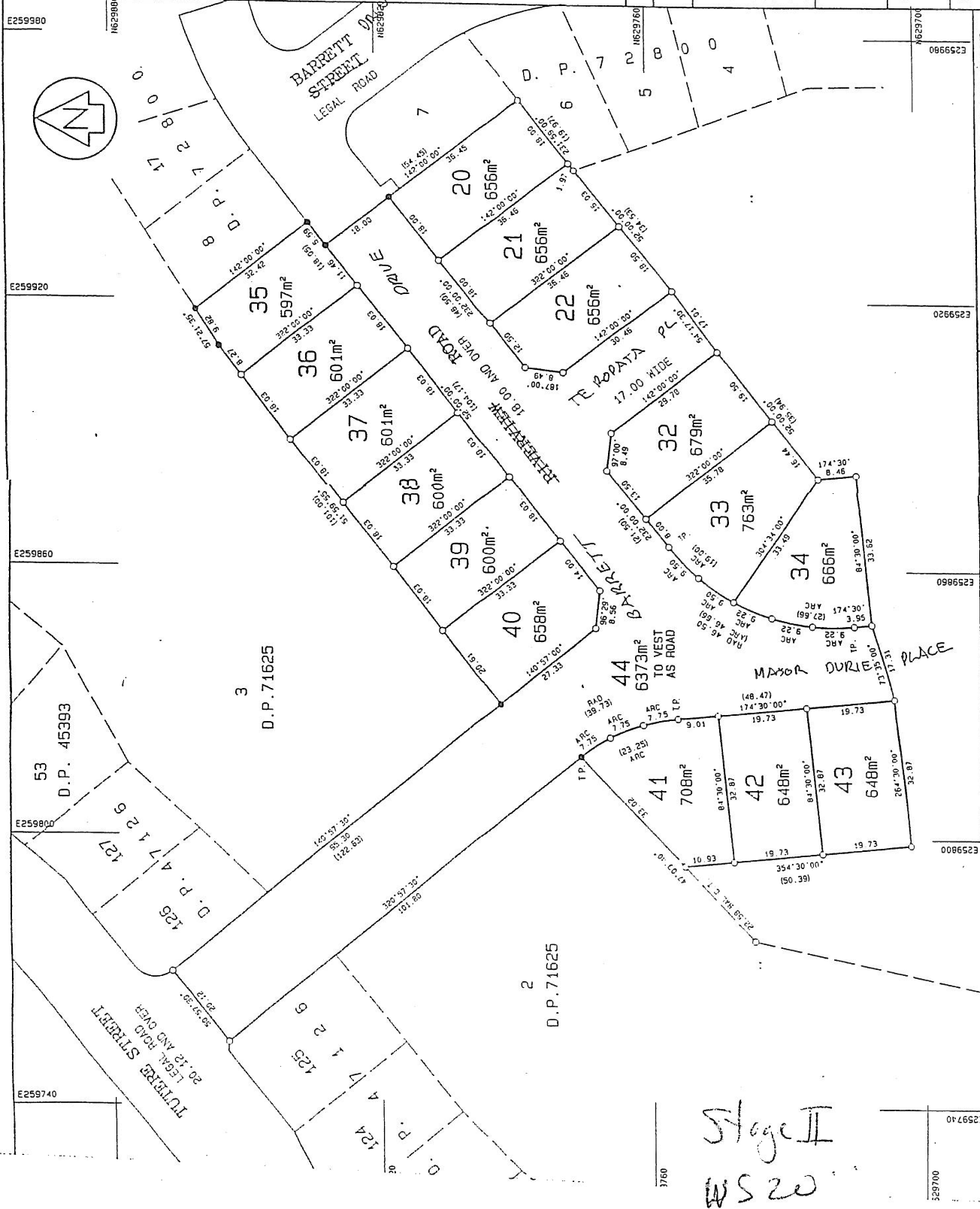
REGISTERED OWNER

PURSUANT TO A RESOLUTION OF THE KAPITI COAST DISTRICT COUNCIL PASSED ON THE 21<sup>ST</sup> DAY OF December 1992, APPROVING PURSUANT TO SEC. 305 OF THE LOCAL GOVERNMENT ACT 1974 THIS SURVEY PLAN AND CERTIFYING THAT THE SURVEY PLAN WAS IN ACCORDANCE WITH THE REQUIREMENTS AND PROVISIONS OF THE OPERATIVE DISTRICT SCHEME IN FORCE FOR THE AREA TO WHICH THE SURVEY PLAN RELATES AT THE DATE OF APPROVAL OF THE SCHEME PLAN, THE COMMON SEAL OF THE KAPITI COAST DISTRICT COUNCIL WAS AFFIXED HERETO IN THE PRESENCE OF:

*[Signature]*  
MAYOR

*[Signature]*  
GENERAL MANAGER

Total Area	1.6110 ha
Comprised in	
<p>PETER ALLAN TONG Registered Surveyor and holder of an annual practicing certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1958 hereby certifies that this plan has been made from surveys conducted by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1979. Any regulations made in substitution thereof.</p> <p>Dated at <u>Wellington</u> this <u>17</u> day of <u>December</u> 1992. Signature <i>[Signature]</i></p> <p>Field Book <u>1010</u> p <u>12, 13</u> Traverse Book <u>P</u> Reference Point <u>DP-45393, DP47126, DP71625, DP72801</u> LT <u>50316, L169580</u> Estimated <u>Correct</u></p>	
Approved as to Survey	
Deposited this	day of <u>19</u>
<p>Chief Surveyor</p> <p>District Land Registrar</p> <p>1906289 76435</p>	



TERRITORIAL AUTHORITY KAPITI COAST DIST  
Surveyed by PAYNE, SEWELL, LTD  
Scale 600 Date DEC 1992

Lots 20-22, 32-44 being subdivision  
of Pt Lot 1 DP 71625

DISTRICT MELLINGTON  
BLK. & DIST. Y. KAITIWA

*Stage II*  
*WS 20*



6.20.200.0 2.1.2.2.1.1 4.2.10

Approved:  
 WAIKANAE LAND COMPANY LIMITED  
 by its Attorney ROSE GARDON  
 GARDON  
*R. G. Gardon*  
 12/17/93

REGISTERED OWNER  
 (see plan file also)

MEMORANDUM OF EASEMENTS

PURPOSE	SPAWN	SERV. TEN	DOM. TEN
RIGHT OF WAY, SEWAGE, DRAINAGE, WATER SUPPLY, ELECTRICITY, TELEPHONE, SUPPLY, GAS SUPPLY, STORMWATER DRAINAGE.	A	LOT 22	LOT 21
	B	LOT 21	LOT 22

APPROVED PURSUANT TO SEC 223 OF THE CIVIL DEFENSE ACT OF 1976, ON THE 17th DAY OF MARCH 1993, BY THE KAPITI COAST DISTRICT COUNCIL, IN THE PRESENCE OF THE RESOLUTIONS OF THE EASEMENTS SET OUT IN THE MEMORANDUM HEREIN.

THE COMMON SEAL OF THE KAPITI COAST DISTRICT COUNCIL IS HERETO AFFIXED IN THE PRESENCE OF

*[Signature]*  
 Mayor  
*[Signature]*  
 Deputy Mayor

ORIGIN OF LEVELS IS KAPITI COAST DISTRICT COASTAL BENCH MARK 942085 (QUEEN'S RAAC) PL 3.23

LEVEL DATUM : WELLINGTON M.S.L.

LEVELS SHOWN ARE AT THE BACK EDGE OF THE CONCRETE PAVEMENT OPPOSITE EACH EASEMENT

AREAS SHOWN G.L. TO BE SUBJECT TO EASEMENTS (CONVEYANT PRESENT RESTRICTIONS)

Total Area — 1.8365 ha.

Compared in — CT 420/866 (Pt.)

PETER ALLAN TONG OF WAIKANAe

Surveyor No. 1775

14/3/93

APPROVED AS TO SURVEY

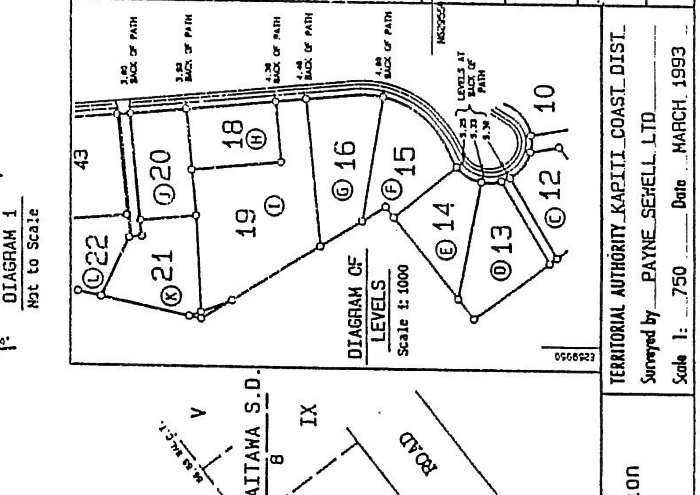
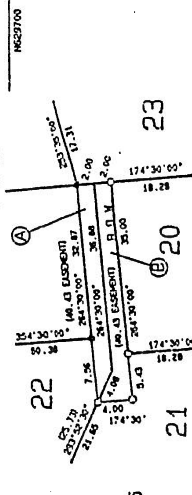
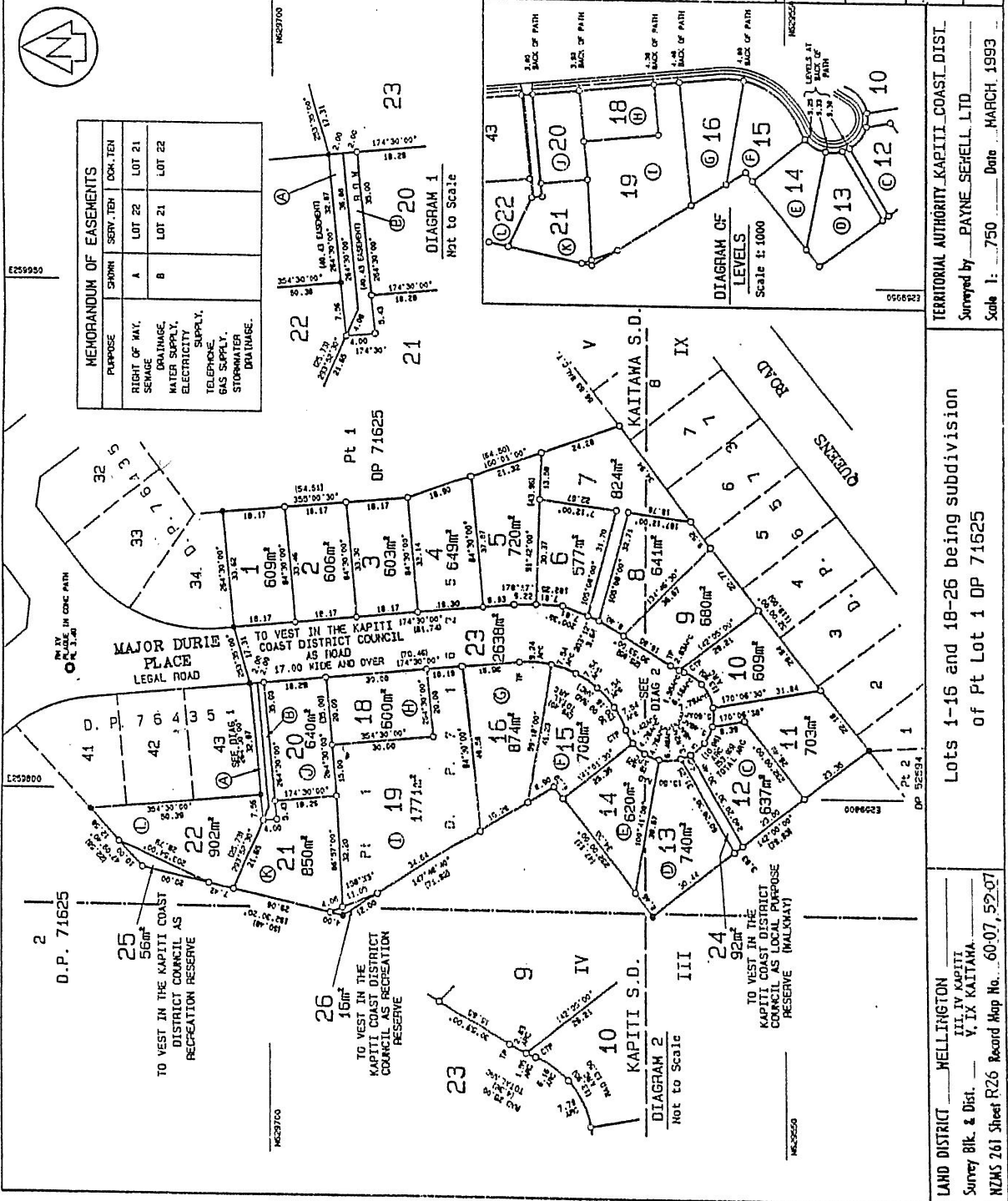
*[Signature]*  
 Approved as to Survey

14/3/93

Deposited this 9th Day of March 1993

*[Signature]*  
 Registrar

76975



MAJOR DURIE PLACE LEGAL ROAD

TO VEST IN THE KAPITI COAST DISTRICT COUNCIL AS ROAD 17.00 M WIDE AND OVER 17.00 M

KAITIATA S.D. ROAD

TO VEST IN THE KAPITI COAST DISTRICT COUNCIL AS ROAD 17.00 M WIDE AND OVER 17.00 M

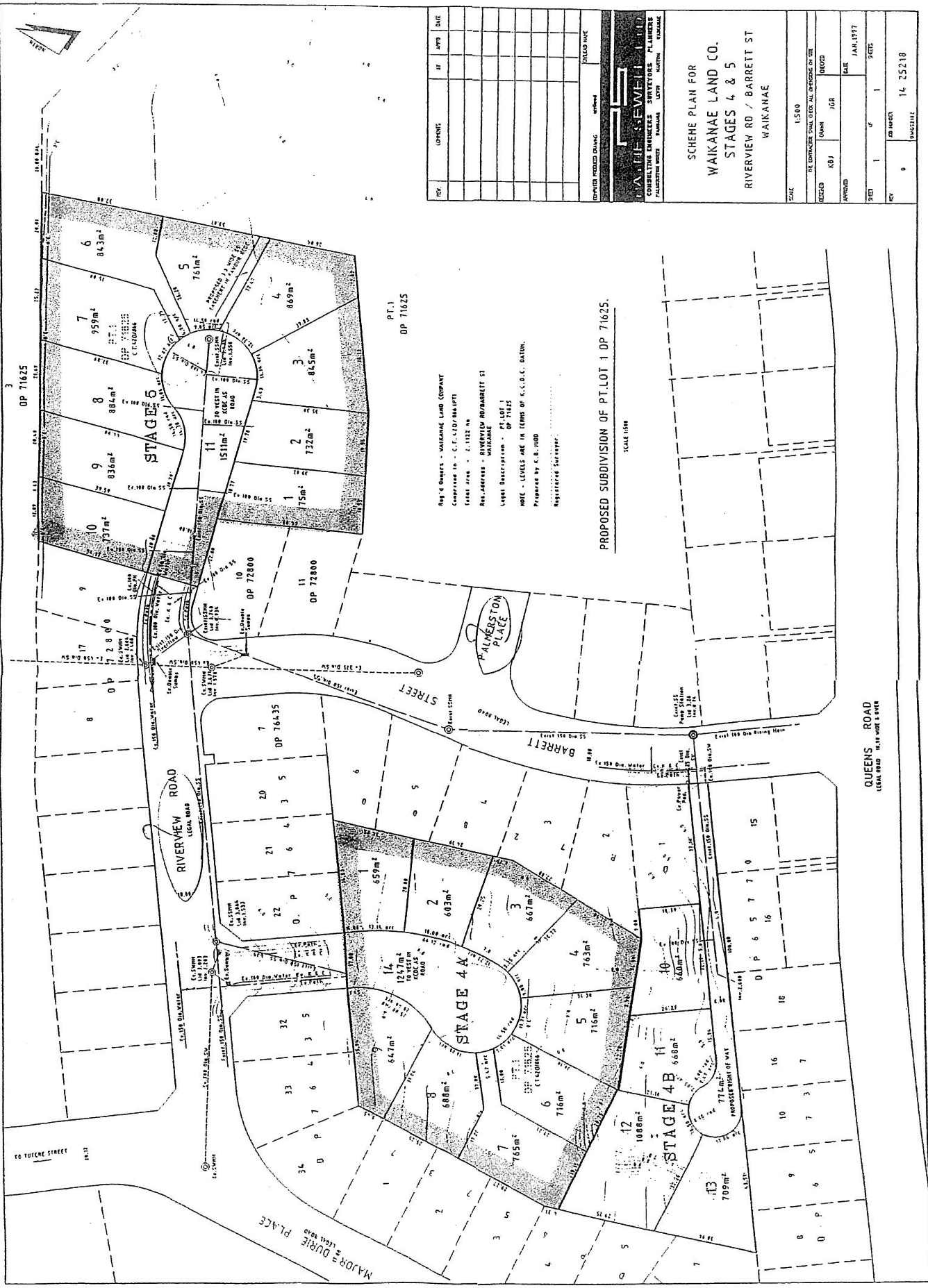
LAND DISTRICT — WELLINGTON  
 Survey Blk. & Dist. — III, IV KAPITI  
 V, IX KAITIATA

WAIMANAE 3.6

NZMS 261 Sheet R26 Record Map No. 60-07, 59-07

Lots 1-16 and 18-26 being subdivision of Pt Lot 1 DP 71625

TERRITORIAL AUTHORITY KAPITI COAST DIST. Surveyed by PAYNE SCHELL LTD Scale 1: 750 Date MARCH 1993



REF.	COMMENT	BY	DATE

ENGINEER PROPOSED CHANGES  
 APPROVED  
 PREPARED BY  
**PAUL SEWELL**  
 CONSULTING ENGINEERS SURVEYORS PLANNERS  
 101 WILSON STREET, WAIKANAĒ, WAIKANAĒ DISTRICT COUNCIL

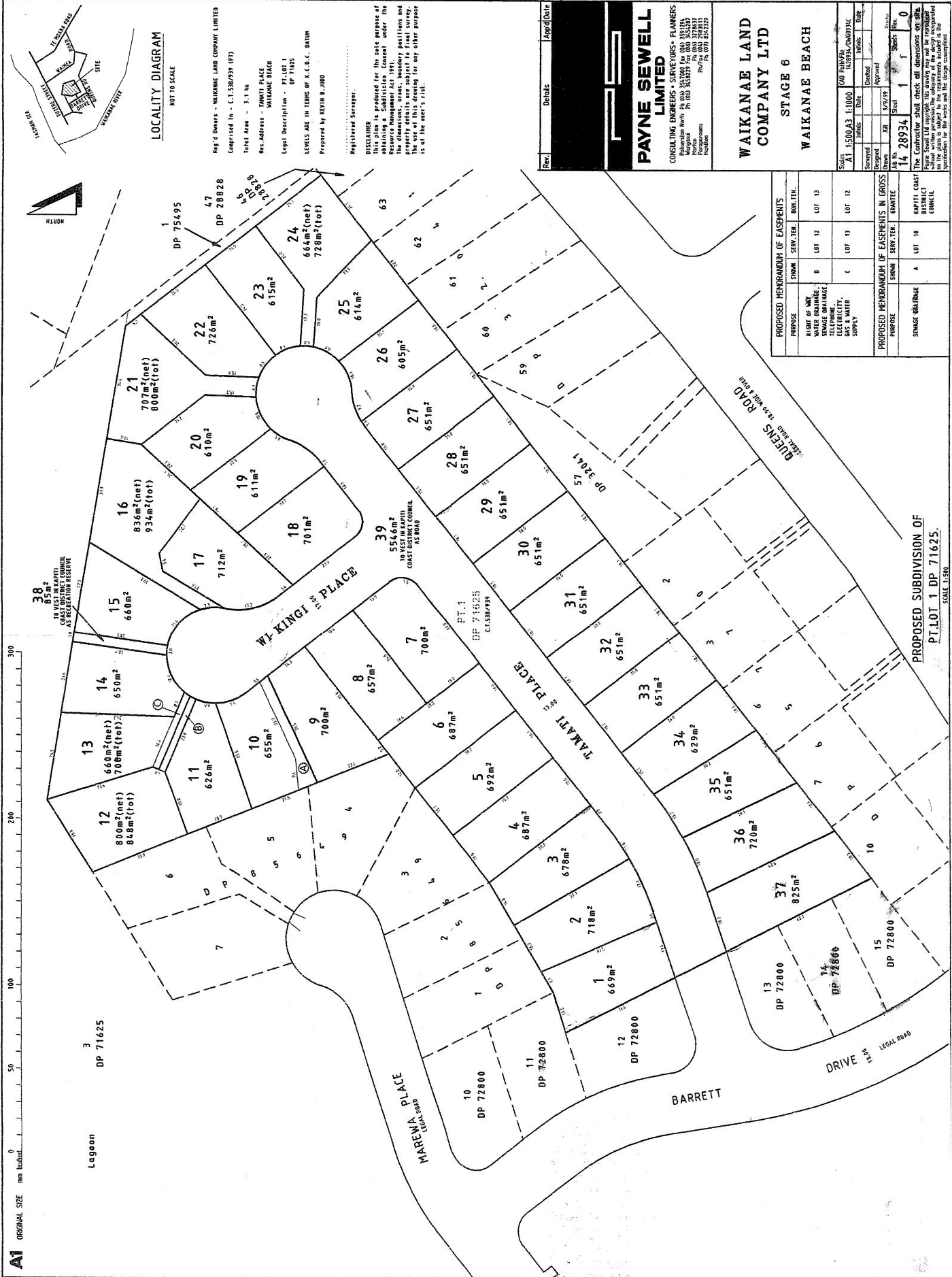
**SCHEME PLAN FOR  
 WAIKANAĒ LAND CO.  
 STAGES 4 & 5  
 RIVERVIEW RD / BARRETT ST  
 WAIKANAĒ**

SCALE 1:500  
 THE CONTRACTOR SHALL OBEY ALL PROVISIONS OF THE  
 RESOURCE MANAGEMENT ACT 1991 AND THE RESOURCE  
 MANAGEMENT REGULATIONS 1992  
 APPROVED 16/11/1997  
 DATE  
 SHEETS 1 OF 1  
 DRAWING NO. 14 25218

REG'D OFFICER - WAIKANAĒ LAND COMPANY  
 COMPANIES IN THE ACTING/REGISTRATION  
 (LIMITED AREA - 2.1122 KM)  
 REG. ADDRESS - RIVERVIEW ROAD/BARRETT ST  
 WAIKANAĒ  
 LOT DESCRIPTION - PT. 1 OF  
 OP. 71625  
 NOTE - LEVELS ARE IN TERMS OF M.S.L. DATUM.  
 Prepared by E.B. JORD  
 Registered Surveyor.

PROPOSED SUBDIVISION OF PT. 1 OF OP. 71625.  
 SCALE 1:500

QUEEN'S ROAD  
 (LOCAL ROAD) 101.88 METRE WIDE & 10.00 METRE DEEP



"09"

UNIVERSITY  
of  
OTAGO



*Te Whare Wānanga o Ōtāgo*

22 June 2001

Karen Greig,  
Historic Places Trust,  
PO Box 2629,  
Wellington.



Dear Karen,

Herewith, finally, is the final Tamati Place report, as per my email of yesterday. Please get in touch if you need anything further, or any clarification of anything.

I have also enclosed the negatives for the two films I took.

Regards

Nancy Tayles.

*Department of Anatomy and Structural Biology – School of Medical Sciences*

PO Box 913, Dunedin, New Zealand.

Tel 64 3 479 7362 • Fax 64 3 479 7254 • Email [anatomy@otago.ac.nz](mailto:anatomy@otago.ac.nz)

[www.otago.ac.nz/anatomy](http://www.otago.ac.nz/anatomy)

DUNEDIN • CHRISTCHURCH • WELLINGTON • AUCKLAND

Report on human skeletal remains from Tamati Place, Waikanae.

Dr Nancy Tayles  
Department of Anatomy and Structural Biology  
Otago School of Medical Sciences  
University of Otago, Dunedin

June 2001



At the request of the Historic Places Trust, on the 26th and 27th April 2001 I carried out an analysis of human skeletal remains which had been collected from an area of land being prepared for a housing development in Tamati Place, Waikanae. I understand the skeletal material had been disturbed during modification of a previously excavated trench dug for a storm water drain. The skeletal material had been partly gathered from a spoil heap from the trench and partly excavated where it had been found in the trench or protruding from the walls. The material was collected on 20 July 2000 by a team led by an archaeologist, Susan Forbes. The bones were placed in plastic bags and had been stored in the Waikanae Funeral Home, where the analysis was carried out. As the site in Tamati Place was known to have been designated an Urupa in the past, the analysis was carried out in the presence of members of Te Ati Awa Ki Whakarongotai, led by Kaumatua Paul Ropata. Karen Greig, archaeologist from the Historic Places Trust, was also present and on the 26th April, Mary O'Keeffe, contract archaeologist retained by the developers, observed.

I did not have any written brief from the Trust but after discussions with Karen Greig I addressed the following in my analysis:

1. The number of individuals represented.
2. Identification of whether the remains were Maori.
3. Estimates of age at death and sex of each individual.
4. Any other information about the individuals represented which could be gathered from the skeletal material.

I have also commented briefly on material removed from the original trench on 5th July 2000 and reburied. My comments are based on observations from a photograph supplied by Karen Greig.

### Summary of findings:

1. The minimum number of individuals represented is nine; three adults and six infants and children. It is not possible to be more precise about the numbers because of the disturbance and poor condition of some of the material.
2. Two of the adults are Maori, with characteristics which are consistent with those seen in Maori Koiwi Tangata, as described by Houghton (1996). One child (Individual 6) has two of the Maori characteristics, in the skull and femur. As the complete suite of characteristics does not develop fully until maturity, the absence of further characteristics is to be expected. Those characteristics present suggest that the child was Maori. It is not possible to say whether or not the other infants and children are Maori, either because they are too young or the bones are too poorly represented or preserved.
3. The nine individuals, with their sources (bag numbers), and age and sex estimates are listed in the following table. It is not possible to assess the sex of

infants and children, as the specific characteristics do not develop until the skeleton is mature. The identifying bag numbers are those used during the analysis. The basis for these is explained in the detailed catalogue and any discrepancies with numbers allocated during the collection of the skeletons are detailed.

Individual	Bag numbers	Age	Sex
1	3/4a,b;7	adult <30 years	male?
2	3/4d;40b	adult	female?
3	10	infant 3-9 months	?
4	11	child 8-11 years	?
5	35	infant 6-12 months	?
6	36	child 11-12 years	?
7	37; 6	adult 40-50 years	male
8	40a; 3/4c; 42	child 8-15 years	?
9	41	child 3-7 years	?

4. One of the adults is the complete skeleton of a large, very strong man, but the other two are represented by isolated bones. The infants and children generally appear to have been sickly, with illnesses which related to nutritional deficiencies, either from poor diet or illness such as gastro-intestinal infections which prevented them from eating or from absorbing nutrients. It is important to note that these were the children who died and therefore their state of health is not necessarily indicative of the health of the population in general. The size of the big man indicates that at least some of those who survived childhood had healthy lives. The condition of the teeth is interesting as it gives clues to the diet. The teeth are not very worn, which indicates that the diet consisted of soft, cooked, and otherwise processed foods, rather than the fibrous or gritty diet which resulted in very worn teeth in Maori in pre-European times. Despite this, there are no caries (tooth decay), which suggests that the diet did not include sugary foods. There is no obvious cause of death for any of these people, although one child (Individual 4) has an unusual break across the top of the skull. Unfortunately it is not possible to confirm whether the break was the result of a fatal injury or simply an unusual post mortem event.

The photograph of the remains from the original trench shows a number of bones. Apart from identifying the bones present, which are all adult, I am unable to make any further comments about the ethnicity or sex of the individuals. The photograph shows two skulls, a left humerus, left and right clavicles, part of a left pelvis, three ribs, part of a sternum (breastbone), part of a scapula, a section of bone shaft which may be a tibia, and four other unidentifiable fragments. As it is possible these bones could belong to the two adults identified as Individuals 1 and 2 in the above table it would be inappropriate to increase the estimated minimum number of individuals disturbed by the excavation of the trench.

## Individuals:

Individual 1 is represented by only a few bones. This person is a composite of a facial skeleton (Fig. 1a) and partial femur (thigh bone) (Fig. 1b) from the spoil heap (Bag 3/4 a, b) and a partial sacrum (base of the spine) from the wall of the trench (Bag 7). The femur and face have Maori characteristics. The facial skeleton and the sacrum suggest the person was a male, and the stage of maturity of the sacrum suggests that he died young, before the age of 30 years. His sacrum is stained red on the front and partly corroded, consistent with the metal object found with this bone having been a belt buckle.

Individual 2 is again a composite, represented by two bones from the forearm (Fig. 2), found on the spoil heap (Bag 3/4d), and one leg bone (fibula) from the trench (Bag 40b). The bones are those of an adult, but a very small adult. This suggests this was a woman, but no further conclusions can be drawn about her age at death or whether or not she was Maori.

Individual 3 was from the trench (Bag 10). This is an infant who died in the first year of life (Fig. 3). The skeleton was incomplete and the bone badly deteriorated. Age at death is estimated from development of the teeth. This infant had been ill with scurvy, which may have resulted from an inadequate diet or an illness which prevented absorption of nutrients.

Individual 4 was from the trench (Bag 11). This is a child who died at the age of eight to eleven years. The skeleton is again incomplete and fragmented (Fig. 4a). Age at death is estimated from the development of the teeth. This child had evidence of slight anaemia. This is the child with an unusually broken skull (Fig. 4b), which may have been simply an unusual post mortem break or the result of a severe, fatal, blow to the head.

Individual 5 was from the trench (Bag 35). It is the very incomplete and poorly preserved skeleton of an infant who died in the second half of the first year of life (Fig. 5). Age at death is estimated from the development of the teeth. There is no evidence of the state of health.

Individual 6 was from the trench (Bag 36). This is the almost complete skeleton of a child aged 11-12 years at death (Fig 6a). This was the best represented and preserved of the child skeletons. The bones have Maori characteristics in the form of a pentagonal skull (Fig. 6b) and flattening of the shaft of the femur. Other Maori characteristics are not present but this is not surprising as they generally do not develop until skeletal maturity. The flattening of the femur in particular would be very unusual in a non-Maori child at this age and therefore, although the evidence is incomplete, it is most likely the child was Maori. The age at death is estimated from the development of the teeth and the maturity of the skeleton. The bones are very small for a child this age. This suggests that growth had been very poor, again possibly because of poor nutrition through poor diet or illness. There is evidence of severe anaemia and defects on the teeth which reflect episodes of ill health early in life. The left clavicle (collar bone) and scapula (shoulder blade) are stained green, which is consistent with



artifacts, perhaps jewellery, containing copper having been lying on the bones. Small animal bones, such as those of a rat, very small kitten or puppy, were also found with this child.

Individual 7 is an adult, with the skeleton complete (Fig. 7b, d, e) except for damage to the right leg and foot (the fibula and foot (Fig. 7c) were found separately - Bag 6) consistent with crushing by a heavy machine. The skeleton was found at the side of the trench (Bag 37). This person was definitely a male, as the evidence from the pelvis and the skull is consistent and clear. He has many attributes which indicate that he was a Maori, although his lower face and his mouth would have been more forward projecting than in most Maori. He was a tall man at around 178cm (5ft 8in) and very muscular. His age at death of 40-50 years was estimated from the appearance of his joints. His size suggests that he had had a healthy childhood, although a defect on his teeth indicates at least one episode of childhood illness. He had excellent teeth, with no decay, but was developing gum disease, perhaps from poor dental hygiene. His teeth were very little worn. He appears to have led a very physically active life and his joints show he would have been beginning to suffer from slightly painful, stiff, knees and lower back. He had a defect in his nasal cavity which may have meant his breathing was difficult if he caught a cold or other respiratory infection. There is no evidence why this large, active, man died prematurely.

Individual 8 is a child aged between eight and fifteen years at death. The skeleton is represented by the lower half of the body found in the trench (Bag 40a, Fig. 8a), although the partial child skull from the spoil heap (Bag 3/4c) and forearm bones in Bag 42 could belong to the same child (Fig 8b). As there are no teeth, age at death is estimated from the size of the bones, which is less accurate, as shown by the discrepancy in dental development and skeletal size in Individual 6.

Individual 9 is a child who died aged 3-7 years. The skeleton, which was from the trench (Bag 41), is incomplete and the bone badly deteriorated (Fig. 9). Age at death is estimated from the teeth and the size of the bones are consistent with this, suggesting growth was not retarded by poor health. The poor condition of the bones means little else can be said about this child.

## Catalogue:

### Bag numbers:

The numbers identifying the contents of each bag were written on card and placed within the bag. As the contents of the bags, both bones and adhering sand, were damp, the numbers on some of the cards had become indistinct or illegible. During the analysis, the contents of the bags were identified by the number written on the card where this was legible; in cases where the number was partly legible, the contents were given a double-digit number beginning with 3 followed by the possible number. Where the number on the card was illegible, the contents were given a new double-digit number, in sequence as the bags were opened, starting from 40.

Susan Forbes provided a sketch map of the area and the position of the remains she recovered, which she had numbered from 3 (two skulls had previously been removed from the trench and reburied) to 11. During discussions with her, it became clear that some of the bag numbers differed from the numbers written on the map. Where these discrepancies are known, they have been noted in the following descriptions.

All measurements are based on definitions in Buikstra and Ubelaker (1994)

### *Bag 3 and 4*

This is assumed to have been collected from the spoil heap, as it consisted of a mixture of bones from different individuals (at least two adults and a child). The individual bones were given lower case alphabetical designations:

a. The proximal half of the femur of an adult (Individual 1). This is in good condition apart from damage to the cortical bone on an area of the posterior in the vicinity of the greater and lesser trochanters.

There are two features which suggest that the bone is Maori

- the subtrochanteric shaft is extremely platymeric (subtrochanteric diameter, mediolateral 35.1mm; anteroposterior 22.9mm; index 65.2)
- the *fovea capitis* is oval

The head measures 46.5mm at its maximum diameter (medio-lateral).

b. The central portion of the face of an adult, which may have been from the same individual as (a) (Individual 1). The bones included are:

- both maxillae and the maxillary dentition, with the exception of the left 3rd molar (lost postmortem) and the right 3rd molar, which was not visible and possibly unerupted or impacted
- both nasal bones
- the right zygomatic bone

- part of the frontal bone extending from the medial margin of the superior aspect of the left orbit, over glabella, the right supraorbital area, the right fronto-zygomatico suture almost to the coronal suture
- part of the right greater wing of the sphenoid
- anterior part of the right temporal bone

The face had features which suggested that it was Maori:

- orthognathism
- short anterior alveolar process of the maxillae

The teeth were in very good condition, with minimal wear (grades 3-6; Buikstra and Ubelaker 1994), no caries or evidence of alveolar infection visible on the surface.

It is difficult to estimate age at death, other than that this was a mature adult. The sex is equivocal, but possibly male. The right supraorbital margin was grade 3 and the glabella/supraorbital ridge grade 4 (Buikstra and Ubelaker 1994).

Measurements: (mm). Maxillo-alveolar breadth: 60.7; Maxillo-alveolar length: 52.6; Upper facial height: 78.0; Nasal height: 53.8; Nasal breadth: 25.4; Orbital breadth: 42.4; Orbital height: 38.6; Interorbital breadth: 23.7.

c. The left parietal bone from the skull of a child. The bone is small (100mm bregma to pterion; 124mm maximum length; sagittal suture length 107mm) and thin (2-3mm thickness). This could have been from the same individual as in Bag 40 (a) (Individual 8).

d. The incomplete right radius and ulna of a small adult (Individual 2). These bones are too small to be from the same individual as (a) and (b).

The radius is complete except for the proximal end proximal to the radial tuberosity. There is surface damage in the periarticular area of the distal end. The shaft fragment measures 214mm and the midshaft mediolateral diameter 16.2mm.

The ulna is complete except for the distal end of the shaft and the head. There is surface damage in the region of the radial notch. The fragment measures 231mm in length.

The small size of the bones suggests they may be from a female.

e. A small fragment of a thoracic vertebra, consisting of the inferior zygapophyseal joint. This may have belonged to either of the adults.

### *Bag 6*

This consists of bones from the right leg and foot of an adult. This was identified by Susan Forbes as '9' on her sketch map and appears to belong with the individual in Bag 7 (Individual 7). The bones are:

- the proximal 7/8 of a fibula, in two parts with a postmortem fracture. The parts fit together neatly and the bone in total measures 354mm. The shaft is very angular with very strongly marked ridges including the interosseous ridge. This suggests a very muscular, physically active person.

- the talus (length 56mm, max. width 45mm)
- one cuneiform
- one cuboid
- the proximal 50% of the first metatarsal

### *Bag 7*

This consists of the superior half of an adult sacrum, with the complete first and second sacral vertebrae and part of the third. The alae are narrow relative to the articular surface of the lumbo-sacral joint, suggesting that this was from a male. The bodies of S1-S2 and S2-S3 are partly fused, indicating that he was a young adult. The sacrum is otherwise mature. This could not be the same individual as the large male in Bag 37, as that skeleton already had a sacrum, but may have been the same individual as Bag 3/4 a/b (Individual 1). Measurements (mm) Superior width: 109.2; lumbo-sacral articular surface width: 46.3.

There is a reddish stain on the central area of the anterior aspect of the body of the first vertebra and an area of surface damage, also stained red, on the left lateral part of the anterior surface, adjacent to the auricular surface. The staining may be from the round metal object with attached fabric found with this bone, in which case the object may be a belt buckle.

### *Bag 10*

This contained the incomplete remains of an infant, designated Individual 3. Although the bag was identified as 10 during the analysis, it cannot be the material found at number 10 on the map, as this was the large adult male numbered 37 in this report. The material consists of badly deteriorated fragments of the skull, ribs, vertebrae, and shafts of the femora and one tibia. There are a few deciduous teeth present in both maxilla and mandible.

Age can be estimated from the dentition. Present were both central and right lateral incisors and 2/3 of the crown of the first molar in the maxilla; in the mandible both central and right lateral incisors and 1/2 the crown of the first molar with a fragment of the crown of the second molar. All are unerupted, although the central mandibular incisors are close to eruption. This would give an age estimate of 3-9 months.

Measurements (mm). Femur shaft fragments: Length left 54, right 61; diameter 8.5; Tibia length left 44; diameter (nutrient foramen) anteroposterior 9.1, mediolateral 9.1; Sphenoid greater wing right, length 43.0, width 21.7; Occipital basilar part length 14.9, width 19.2; Mandible right width of the arc 18.3; full length of half mandible 63.5.

This infant has an area of thickening (3-4mm) and development of woven bone on the outer surface of the greater wing of the sphenoid and the antero-lateral area of the frontal bone which is consistent with the diagnosis of scurvy.

Included with the infant skeleton is the body of a hyoid, which could have belonged to any of the three adults.

#### *Bag 11*

This is the fragmented skeleton of a child (Individual 4). Present are fragments of the cranium, the mandible, incomplete shafts of the major long bones, and fragments of ribs and the left clavicle. The dentition is mainly permanent, with most teeth present. Missing are the third molars, the left maxillary canine and right maxillary lateral incisor. The second deciduous molars are also present. The permanent second maxillary premolars and all second molars are unerupted. The permanent mandibular canines are partly erupted. There was a piece of fabric adhering to the maxilla.

Age estimated from the dentition is 8-11 years. This child had very slight cribra orbitalia suggesting minor anaemia.

An unusual aspect of the cranial vault fragments is a straight fracture of the parietal bones across the vault in a coronal plane. The vault bones have other irregular fractures consistent with the type of damage typically resulting from post mortem deterioration of the bones but the straight break is unusual. The edges of the fracture are uneven but as the bone is poorly preserved these may have deteriorated post mortem. It is possible that the break is evidence of an injury that caused the death of the child but it is not possible to be certain of this.

Measurements (mm). Femur fragments length right 295, left 240; tibia fragments length right 235, left 195; humerus fragments right 190, left 180.

#### **Bags with indistinct numbering:**

##### *Bag 35*

A bag indistinctly labelled '5' and therefore numbered during the analysis as '35' contained the incomplete and poorly preserved remains of an infant (Individual 5). These consist of fragments of the skull, the vertebrae, the ribs, and the shafts of lower limb bones. The deciduous dentition is also complete except for the right first mandibular molar and the right mandibular incisors. These teeth are loose and there is no maxilla or mandible. The united cusps of the first permanent molars are also present. The teeth are not fully formed and their stage of development is consistent with an age at death of 6-12 months. No other observations were possible because of the poor preservation.

Measurements (mm). Ischium length right 35.1, left 35.6; width right 17.9, left 18.0; pubis length right 28.2, left (incomplete) 24.7; femur length right 123, left (incomplete) 104.3; midshaft diameter mediolateral right 11.4, left 10.5; anteroposterior right 11.5, left 10.3; tibia length left (incomplete) 86.6, diameter (nutrient foramen) left mediolateral 10.7, anteroposterior 12.8.

### *Bag 36*

A bag indistinctly labelled '6' therefore numbered during the analysis as '36' contained the virtually complete remains of a child (Individual 6). The only bones missing are one thoracic vertebra, four ribs, one first metacarpal, four proximal, one middle, and one distal hand phalanges, one navicular, one cuboid, one first metatarsal, three proximal and all middle and distal foot phalanges. Many unidentifiable epiphyses are present. The cranium has been distorted post mortem, and has 'sprung' apart across the base from the right lambdoid suture, through the spheno-occipital synchondrosis and the left coronal suture. Despite this it has remained intact. The dentition is mixed deciduous and permanent and almost complete. The left clavicle and scapula are stained green, with the colour characteristic of the staining from copper.

The cranium has a pentagonal appearance but there is no flattening of the sides. The mandible does not have a rounded lower margin of the body or vertical ramus. However, as these characteristics reflect the development of a high vault on a short, flat cranial base and consequent adaptation of the mandible and masticatory musculature, during adolescence, this is likely to be a reflection of immaturity rather than non-Maori ancestry. The femur is very platymeric (index right 62.7, left 64.8 - measurements listed below), which would be very unusual in a non-Maori of this age. In sum, this child is more likely to be Maori than non-Maori.

Age can be estimated from the dentition. The permanent teeth fully erupted are all first molars, the right first premolar, all mandibular incisors, and the central and right lateral maxillary molars. The left lateral maxillary incisor is 2/3 erupted, the right maxillary canine 1/2 erupted, the left maxillary canine and first premolar 1/8 erupted and the second molars visible but unerupted. The deciduous teeth remaining are the second maxillary molars and in the mandible the canines and both molars on both sides. The wear on the deciduous dentition and the fully erupted permanent teeth is grade 1-2. Estimation of age is in the range of 7-12 years.

Age estimation from the skeleton on the basis of maturity is 11-14 years. This is based on the commencement of fusion of sacral vertebrae 4 and 5; the complete fusion of the ischio-pubic ramus of the pelvis; the absence of fusion of the ischium, ilium and pubis at the acetabulum; the absence of fusion of the dens of the atlas; and the commencement of fusion of the proximal epiphysis of the humerus.

The combined age estimate from dentition and skeletal maturity is 11-12 years but most long bone lengths are equivalent to age 5-6 years at death, although the

length of the clavicle and the width of the scapula equate to around 8 years at death.

The discrepancy between the skeletal age estimates may indicate growth retardation due to illness, which is corroborated by the presence of moderate-severe cribra orbitalia in both orbital roofs, indicative of anaemia. No other pathology was seen, although the permanent incisors had two linear enamel hyperplastic defects, indicating two episodes of growth disruption during infancy.

Measurements (mm). Skull: max. cranial breadth 132; max. cranial length 174; minimum frontal breadth 87; upper facial height 52.7; maxillo-alveolar breadth 56.0; maxillo-alveolar length 35.4. Clavicle length right 95.3, left 95.0; diameter right 8.2, left 7.5. Scapula length right (incomplete) 78.0, left 84.3; width right 62.0, left 63.6; spine length right 78.4, left 75.9. Ilium length right 93.2, left 93.2; width right 86.4, left 90.3; humerus length (excl. prox. epiph.) right 185, left 180; diameter midshaft mediolateral 11.6, anteroposterior 12.3; epicondylar breadth right 33.6, left 35.1. Ulna length right 157, left 155. Radius length right 141, left 140. Femur length right 266, left 265; diameter - subtrochanteric mediolateral right 22.8, left 21.9; anteroposterior right 14.3, left 14.2; diameter midshaft mediolateral right 14.2, left 15.1. Tibia length right 207, left 210; nutrient foramen diameter mediolateral right 16.6, left 16.5; anteroposterior right 18.5, left 18.4. Fibula length right 210, left 209.

### *Bag 37*

Several bags indistinctly labelled '7', and therefore numbered during the analysis as '37' contained the complete remains of a single adult (Individual 7); Susan Forbes identified this individual as '10' on her map. It is complete with the exception of most of the right foot, the right fibula, a short section of the right tibia shaft, and a number of the phalanges from the left foot and the hands. The foot and fibula in Bag 6 appear to belong to this individual. The distal end of the right tibia shaft is crushed and has dark-coloured marks that suggest that it was damaged by a heavy machine. There is minor damage to other bones which is consistent with that resulting from postmortem processes seen on bones from other individuals.

The skull is complete with the exception of two minor areas of deterioration on the base adjacent to the foramen magnum. It has the appearance of a Maori skull:

- large
- pentagonal shape viewed from posterior
- straight, vertical sides and wide zygomatic arches
- well marked temporal lines
- 'rocker' jaw, with vertical rami and no antegonial notch

The only exception to the Maori appearance is maxillary alveolar prognathism.

The dentition is complete, with wear grades 4-5 on the anterior teeth and 3-6 on the posterior teeth. There is no evidence of caries or infection but there is calculus on all teeth, more severe on the lingual aspect of the anterior than the buccal aspect of the molars. The alveolar crest is porous and has resorbed, which, together with the presence of the calculus, suggests developing periodontitis. The canines and first premolars have a very clear single linear enamel hypoplasia (3.3mm below the occlusal surface on the premolar and 6.5 mm below on the canine), indicating an episode of disrupted growth during infancy, at about the age of 2.5 years.

The evidence of sex from the pelvis (greater sciatic notch, multiple features on the pubis, and the sacrum) all indicate that this person was male. The features on the skull, with the exception of the nuchal crest on the occiput, are also all robust which is consistent with this being a male.

The indications of age at death from the pubic symphysis are that the joint appears to be very porous, particularly the superior half, and there is no defined rim although a ventral margin is defined on the right face. This conforms most with phase 6 (Suchey-Brooks system) or phase 10 on the Todd system (Buikstra and Ubelaker 1994). The ectocranial sutures are unclear because of erosion of the bone surface. The endocranial sutures are not visible. The only indications of joint degeneration elsewhere are single, well-defined (~2mm diameter) porosities on the condyles of the distal femora, extreme porosity of the surfaces of the vertebral bodies of the L4-5 joint (there are no marginal osteophytes at this joint but the anterior aspect of the bones are slightly damaged), and large osteophytes at the right costo-vertebral joints. All bones are very strongly marked at the muscle attachments and there is slight ossification on the left patella at the insertion of the Quadriceps femoris tendon. This was clearly a mature adult, although the condition of most of the joints and the relatively minimal tooth wear and periodontitis are not consistent with the indication of 'elderly' from the pubic symphysis. The best estimate of age at death is probably middle age; in the region from 40-50 years.

He was a large man as the size (length and diameter) of his long bones are well above average for prehistoric Maori males (compared with the database held in the Department of Anatomy and Structural Biology). A stature estimate based on the tibial length is 177.2 -178.6cm (~5ft 8in) (Houghton, Leach and Sutton 1975).

There is no evidence for a cause of death for this man. There is also no evidence of illness which may have contributed to his death, although he did have a malformation within his nasal cavity, with the vomer and ethmoidal perpendicular plate deflected to the left and a greatly enlarged middle concha on the right. This may have interfered with his breathing although his large body size argues against this being a chronic or significant problem.

Measurements (mm) Skull: max. cranial breadth 142; max. cranial length 184; bizygomatic diameter 148; basion-bregma height 130; basion-prosthion height 100, upper facial height 77.2; minimum frontal breadth 103; nasal height 57.5;



nasal breadth 27.0; orbital breadth 40.2; orbital height 37.7; interorbital breadth 28.0; chin height 35.2; bigonial width 109; bicondylar breadth 147; min. ramus breadth 33.7. mandibular length 135 (mentum to gnathion). Clavicle length right 149.1, left 153.9; Humerus length right 343; epicondylar breadth right 68.1, left 67.4. Ulna length right 288, left 288; Radius length right 269, left 270; midshaft diameter mediolateral right 18.4, left 19.4; anteroposterior right 13.9, left 12.8. Femur length right 482, left 484; diameter - subtrochanteric mediolateral right 39.5, left 38.7; anteroposterior right 27.7, left 27.3; diameter midshaft mediolateral right 28.2, left 29.5; anteroposterior right 35.6, left 36.1. Tibia length left 388; nutrient foramen diameter mediolateral right 27.0, left 27.8; anteroposterior right 39.3, left 40.2. Fibula length left 375.

### **Bags with illegible numbering:**

#### *Bag 40*

Most of the bones consist of the fragmented bones of the lower half (from the waist down) of a child (designated 40 (a) Individual 8). These include the incomplete shafts of the femora and tibiae, one fibula, the pelvic bones with the exception of the left ilium, three sacral and three lumbar vertebrae, four metacarpals and six hand phalanges.

Without the dentition or any complete long bones age estimation is difficult but the minimum lengths of the bones and the stage of maturity of the skeleton indicate that the child was aged between 8 and 15 years at the time of death.

Maturity: Fused: lumbar neural arches together and to centrum. Unfused: ilium-pubis; ischium-ilium (ischium-pubis damaged and unclear); femur proximal, trochanters, distal; proximal tibia; distal metacarpals, proximal phalanges.

Measurements (mm): Ilium fragment length right 96; width right 86. Pubis length right 53.1, left 56.1. Femur fragment length right 329; diameter midshaft mediolateral right 21.0. Tibia fragment length right 251; nutrient foramen diameter mediolateral right 18.5.

Included with the child skeleton is the shaft of a very gracile adult fibula (designated 40 (b). This may belong to the small individual (2) represented by the radius and ulna in Bag 3/4 (d).

#### *Bag 41*

This is again the incomplete skeleton of a child (Individual 9). The skull is fragmented and the bone badly deteriorated but includes the maxilla and mandible. The teeth are mixed deciduous and permanent. All deciduous teeth are present except the right canine. The permanent first molars have erupted but are unworn. Half the crowns of the right maxillary second molar and the

right mandibular canine are present. The postcranial bones include 16 rib fragments, fragments of cervical and thoracic vertebrae, fragments of both scapulae, the left clavicle and incomplete shafts of all major long bones except the right tibia.

The age of the child estimated from the calcification and eruption of the dentition is 3-7 years. Wear is grade 3-5 which suggests the upper end of the age range. Skeletal maturity suggests the child was aged around 3 years and clavicle length around 6 years.

The bones were too poorly preserved to identify any pathology.

Maturity: Fused: cervical and thoracic neural arches together. Fusing cervical neural arches to centrum. Unfused: occipital pars lateralis to squama; femur proximal.

Measurements (mm): Clavicle length left 81. Humerus fragment length right 156. Femur fragment length right 193.

Included with the child skeleton is a canine from an 8-9 year old child. This may belong to the individual in Bag 11 (Individual 4).

#### *Bag 42*

This bag, which was not numbered during the analysis (I have allocated the number 42 for consistency) contained the incomplete, crushed shafts of the left radius and ulna of a child. These may belong to the individual in Bag 40 (a) (Individual 8). Measurements (mm): Ulna midshaft diameter mediolateral 11.8, anteroposterior 8.8; Radius midshaft diameter mediolateral 12.3, anteroposterior 8.9.

#### References:

Buikstra, J.E. and D.H. Ubelaker. 1994. Standards for data collection from human skeletal remains. *Arkansas Archeological Survey Research Series* No. 44.

Houghton, P. 1996. *People of the Great Ocean*. Cambridge: Cambridge University Press.

Houghton, P., Leach, B.F. and Sutton, D.G. 1975. The estimation of stature of prehistoric Polynesians in New Zealand. *Journal of the Polynesian Society* 84: 325-326.



Fig. 1a Individual 1 (Bag 3/4b) Facial bones young adult Maori male.

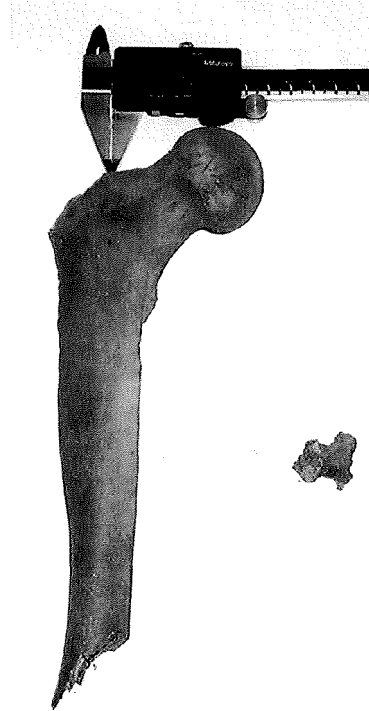


Fig. 1b Individual 1 (Bag 3/4a, e) partial femur and fragment of thoracic vertebra



Fig. 1c Individual 1 (Bag 7) partial sacrum

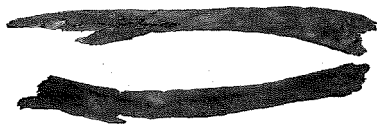


Fig. 2 Individual 2 (Bag 3/4d) small adult radius and ulna (female?)



Fig. 3 Individual 3 (Bag 10) Infant aged 3-9 months



Fig. 4a Individual 4 (Bag 11) Child 8-11 years



Fig. 4b Individual 4  
Unusually broken skull



Fig. 5 Individual 5 (Bag 35) Infant 6-12 months



Fig. 6a Individual 6 (Bag36) Child,  
Maori, aged 11-12 years



Fig. 6b Individual 6 skull



Fig. 7a Individual 7 (Bag 37) adult Maori male (40-50 years)

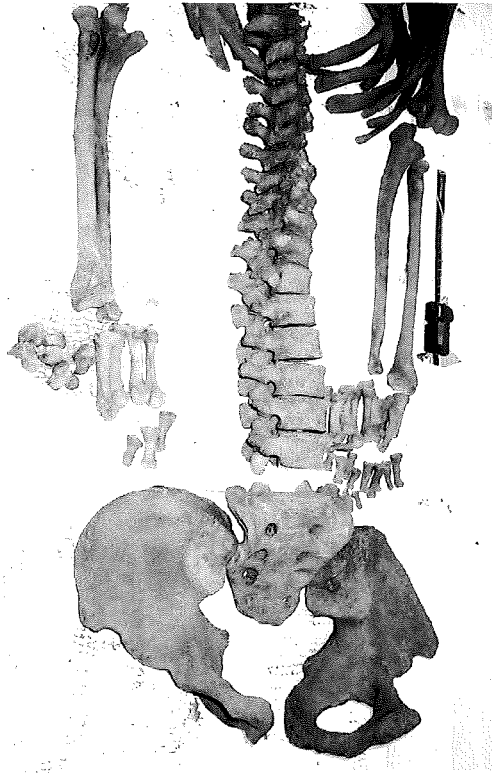


Fig . 7b Individual 7 (Bag 37)

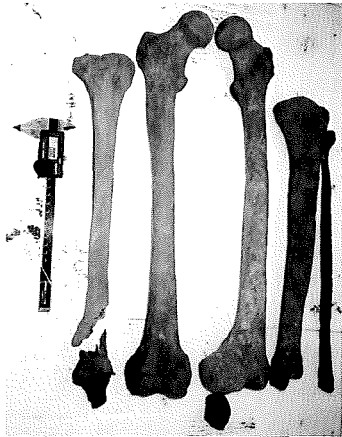


Fig. 7d Individual 7 (Bag 37)

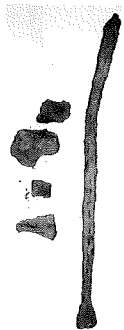


Fig. 7c Individual 7 (Bag 6) right foot and fibula



Fig. 7e Individual 7 (Bag 37) left foot

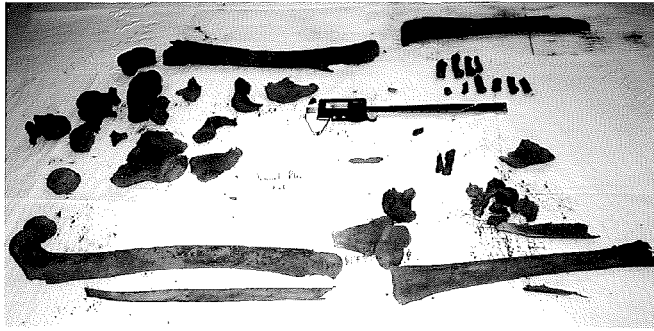


Fig. 8a Individual 8 (Bag 40a) Child 8-15 years

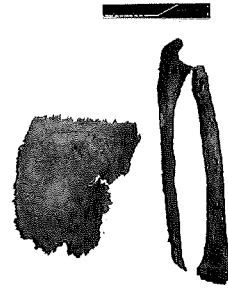


Fig. 8b Individual 8  
radius, ulna (Bag 42),  
parietal (Bag 3/4c)



Fig. 9 Individual 9 (Bag41) Child aged 3-7 years



**Report to Montgomery Watson:**

**Tamati Drive Subdivision,  
Waikanae**

**Archaeological Assessment**

**May 2001**

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# **Tamati Drive Subdivision: Archaeological Assessment**

**Prepared for Montgomery Watson**

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**May 2001**

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# Executive Summary

1. Waikanae Land Company are preparing a subdivision to be located around Tamati Drive and Wi Kingi Place, Waikanae Beach.
2. Disturbance of koiwi (human remains) on site in July 2000 during site preparation work implied the possibility of archaeological remains. This necessitated the need for an assessment of archaeological values for an application to the Historic Places Trust for an authority to modify, damage or destroy archaeological sites under Part 1 of the Act.
3. Mary O’Keeffe of Heritage Solutions was engaged to undertake this assessment.
4. Information was gathered from the archaeological record, survey plans and records, historical documents, contemporary sources, and from geomorphological data.
5. It is inferred from the history of earthworks on the subdivision that the shells observed on the ground surface and reported from in the trench are not *in situ* archaeological deposits. It is likely they are derived from a former beach in the position of the present lagoon, and were deposited as part of the lagoon dredging.
6. It is inferred from traditional and contemporary sources that the area including the proposed subdivision is a Maori burial ground, probably in use from 1839.
7. Burials recorded on an 1898 plan makes the area an archaeological site in terms of the definition in the Historic Places Act.
8. Archaeological values are considered to be such that further development is considered inappropriate.
9. **It is recommended** that the client does not apply for an authority under the Historic Places Act, as the archaeological values are considered sufficiently high to preclude further work. It is considered very unlikely that Historic Places Trust would grant an authority with strong evidence of the presence of a burial ground.

# 1. Introduction

The Waikanae Land Company wish to develop a subdivision located at Tamati Drive, Waikanae Beach. Work has already been undertaken on site to prepare the site and construct service trenches.

The consultant has been engaged to undertake an archaeological assessment of the proposed subdivision, and of the work already undertaken on site, in fulfilment of the requirements of an application for an authority under Part 1 of the Historic Places Act 1993.

The subdivision area is within Pt Lot 1 DP71625.

## 1.1 Scope and limitations of this report

At the time of writing Historic Places Trust Pouhere Taonga (HPT) are prosecuting Payne Sewell (now known as Montgomery Watson) and their subcontractors, Higgins Contractors Ltd, over incidents on site in June 2000 when koiwi (human bones) were uncovered. The author of this report is taking no part in this prosecution, and is not associated with it in any way. However, aspects of the prosecution impacts on this archaeological assessment, but the author of this report was not on site when the koiwi were disturbed, and, as all information associated with this is *sub judicae* at the time of writing, is unable to establish the archaeological context of the burials.

This report presents a full archaeological assessment of the planned subdivision, but it is only that. There may be sites or features that are also of significance to the Iwi through tradition or association; this report does not constitute an assessment of Maori values. The developer will need to obtain such an assessment from the Iwi.

## 2. The archaeological resource

### 2.1 Context and Data

Archaeological sites are defined in the Historic Places Act 1993 as:

“...any place in New Zealand that

(a) Either -

(i) was associated with human activity that occurred before 1900; or

(ii) is the site of the wreck of any vessel where that wreck occurred before 1900; and

(b) is or may be able through investigation by archaeological methods to provide evidence relating to the history of New Zealand.<sup>1</sup>”

Archaeological sites by implication are physical and tangible; they can be observed and measured. Archaeological sites may be of Maori origin and therefore of significance to Maori. There may also be other sites of significance to Maori for their spiritual and traditional values, and which may have no physical or tangible remains, and therefore do not fall within the legal definition of an archaeological site. This report is looking only at the archaeological resource in the study area, and will not attempt in any way to comment on or judge the Maori values of these sites. This is not meant to diminish or undermine the value of these places of significance to Maori; rather, this acknowledges that it is not appropriate for an archaeologist to comment on matters of significance to Tangata Whenua.

Archaeological sites only have a sense of meaning if they are examined in the context of a cultural landscape. Sites can be examined by archaeological methodology, that is, by applying a variety of scientific techniques to examine and rationalise the date; however, ultimately these places must be seen as remains of human populations, and their relationships with environmental factors are a by-product of this.

Archaeology can never say definitively “what happened” on a site or a landscape; instead data and information is gathered, and a hypothesis is proposed to explain the possible relationships between data, known information and possible interpretations.

Data for this study was sourced from CINZAS (Central Index of New Zealand Archaeological Sites), the electronic version of the NZ Archaeological Association’s (NZAA) site recording file that is maintained by the Department of Conservation.

The definition of an archaeological site is noted above, and this definition includes places of both Maori and European origin. Archaeological sites in New Zealand are recorded by the NZAA and records entered into the site recording scheme. A site will be included simply by virtue of its existence; the NZAA file is an information database and makes no selection or ranking. Grid references given for an archaeological site are simply an indication of the site’s location, and do not delimit the site’s extent. Also, some sites included in the NZAA list may no longer exist, as they may have been destroyed since they were recorded.

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<sup>1</sup> Historic Places Act 1993, Section 2, Interpretation.

All archaeological sites in New Zealand that conform to the definition from the Historic Places Act 1993 cited above have legal protection under Part 1 of the Historic Places Act 1993, whether or not they are recorded or their existence is known.

## 3. Contextual research

### 3.1 Maori occupation of the Kapiti coast

Although relatively little strategic archaeological surveying has occurred along the Kapiti coast, enough sites have been recorded to give a clear idea of the nature of occupation in the pre-contact period. The Maori population would have been living in an environment rich with resources and opportunities. The coast and estuaries would have provided fish and shellfish, the forested dunes would have provided birds, rats and plant species, and the swamp areas would have yielded birds, eels and yet more plant species.

Behind the flat coastal edge the hills would have provided soils for gardening. Other resources were not far away, such as the food and plant resources available from Kapiti Island, and the important lithic (stone) resources available from D'Urville Island at the top of the South Island<sup>2</sup>.

Muaupoko lived along the Kapiti coast until about 1822. At this time Te Ati Awa of Taranaki accompanied Te Rauparaha on his great heke of 1821-22, and they settled around the Waikanae estuary area (WRC River Flood Plain Management Plan, 1992).

At this time Te Ati Awa built the Waimea pa, located at the junction of the Waimeha stream and the Waikanae River (Carkeek, 1966:152). Carkeek also notes the spelling would probably be more correct as Waimeha (*ibid.*). Carkeek also notes Arapawaiti pa, located on the southern side of the Waikanae River (*ibid.*:110, 173). However the main pa of the immediate area was the Waikanae pa at Kenakena, located on the southern side of the Waikanae River near the old river mouth.

A key event at this time was the Kuititanga battle of 1839. This battle was fought at the Waikanae estuary between Te Ati Awa and their northern neighbours, Ngati Raukawa, over disputed land, and was the last tribal battle fought in the Waikanae district (Carkeek, 1966:55). Although Ati Awa repelled the Ngati Raukawa attack, a large number of warriors on both sides were killed. Ngati Raukawa attacked the Waimeha pa, and forced Te Ati Awa to retreat across the Waikanae River to Arapawaiti. Here Te Ati Awa rallied and forced Ngati Raukawa back up the beach (MacLean, 1988:20).

Reports of casualties of the battle varied. Jerningham Wakefield said 18 Te Ati Awa and 50 Ngati Raukawa were killed (MacLean, 1988:20), Te Kahui cited in Carkeek stated 39 Te Ati Awa and 200 Ngati Raukawa were killed at the Ngati Raukawa pa of Kukutauaki up the Waikanae beach (Carkeek, 1966:59). Carkeek also states that many of the Ngati Raukawa were taken prisoner and were killed at the "main Waikanae settlement" (presumably the Waikanae pa at Kenakena), and that 55 were

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<sup>2</sup> D'Urville Island argillite is an important source of stone for adzes and other tools, and artefacts made from this material were being traded throughout New Zealand at least by the 12th Century AD (Davidson, 1984:195)

buried in one grave. Carkeek notes that when Archbishop Williams visited the battle scene a short time after he was told that the dead had been buried “in European fashion”, in contrast to ancient customs pertaining to war (*ibid*:60). The surgeon and naturalist Ernst Dieffenbach also made the same observations: he noted “...that in deference to new attitudes brought by Christianity...” Te Ati Awa buried their own dead and buried the bodies of their enemy in one mass grave rather than feasting on them (MacLean, 1988:20)

Christianity and associated “European” behaviour was just taking a hold on the Waikanae Coast at this time. During the 1830s the teachings of the missionaries in the north began to spread southwards, largely carried by slaves, many who became Christian after being released by their newly converted masters. Rev. Octavius Hadfield arrived with Archbishop Williams very soon after the Kuititanga battle, as noted above (Williams in fact took part in the peace talks) (MacLean, 1988:20). Hadfield remained in the Waikanae region for many years, and built his church at Kenakena which was completed in 1843.

### **3.2 Recorded sites**

Traditional accounts and documented sources such as Land Court records indicate there was reasonably substantial Maori settlement and population along the Kapiti Coast, as would be expected from such a desirable environment.

There have been 30 sites recorded within in the general vicinity of the subdivision area. Appendix 1 lists the recorded sites, which are contained in a square including the area of the planned subdivision and the Waikanae River in the west, running east to the hills, and from south of the Waikanae River to just north of Waikanae Beach. The grid square is bounded by grid references easting: 2677000-2684000, northing: 6034000-6037000.

This data needs careful interpretation. The distribution of recorded sites does not represent the actual distribution of people or settlement in the prehistoric context – these are simply where sites happen to have been recorded. Neither does an absence of recorded sites infer an absence of settlement. The large cluster of sites around Waikanae is a product of the development of this land for housing, where sites have been located as the ground was cleared. This cluster does not necessarily represent an actual preference for this location in the prehistoric context.

There has been sporadic site recording in the Kapiti region from the 1950s through to the present. Only one planned systematic survey has been undertaken, by Colin Smart and students of the Wellington Teachers College in 1959-61. Smart was specifically sampling and analysing midden, so arguably was not concentrating on other possible sites. However he also noted the relationship between the dunes and the midden sites.

Beckett wrote in 1957 of observations made in the 1920s and before, prior to substantial development of the area. Of note is the fact that Beckett recorded 7 pa within the study area. Three of these sites would today be considered pa within the archaeological definition of the term, being a defended settlement. The other four



would be considered settlements or kainga. However Beckett's notes provide invaluable data on sites that are now completely destroyed.

Most other recording has either been opportunistic sightings, or sites notified after exposure through development or landmoving.

There have been about 33 midden sites recorded in close vicinity to Tamati Drive; all of these were recorded by Smart in the 1960s, and few now remain. There are no recorded sites within the boundaries of the subdivision.

### **3.3 1898 graves**

At much the same place where the koiwi were disturbed in 2000 is marked as *graves* in the field book of an early cadastral plan (ML1491, Figure \*) dated 1898<sup>3</sup>. The graves were situated on a stream terrace that separated the Waimea stream from the low dune ridge (Figure \*). In 1898 the stream was about 90m from the graves, but by 1920 it had moved to within 20m of the graves.

It is considered significant that the surveyor used the word "graves" in his fieldbook, and three small rectangles are shown to mark the graves. From the specific use of this term it may be inferred that the graves were of European style, marked either with headstones, crosses or a boundary fence. Generally when surveyors were recording unmarked Maori burial grounds they used terms such as "native burial ground", "burial ground" or similar.

### **3.4 Historical burials**

The WRC reports states that during the work in 1970-71 to create the Waimeha lagoons

"Nearby several gravestones made of Sydney sandstone were discovered. They mark the burial place of, among others a whaler named William Browne, Margaret Nairn, and Penelope Durie, a daughter of Major Durie, Police and Customs Officer 1847-1851. Until recently large flax bushes had grown over the headstones all but obscuring the remains of a large burial ground which once covered nearly 20 acres. The headstones have been restored and are now visible by the Waimanu Lagoon" (WRC, 1992:105).

Unfortunately this information not sourced, but the text is extremely similar to that used in Chris MacLean's book on Waikanae, which suggests this as the source. The text in MacLean only lists William Browne and "...a daughter of Major Durie..." (MacLean, 1988:196) and equally unfortunately does not list the source for identifying these people.

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<sup>3</sup> The transect and offset lines in the surveyor's notebook have been transposed to a current map. The 1898 survey reference points are still in use today.

The author of this report found the relocated headstones beside the lagoon (figure\*); the writing on them is largely so weathered as to be unreadable.

The Biographies index of the National Library lists a William Franklin Browne, born in Barbados and died 11 August 1911. He married Erena, daughter of William Jenkins, a well-known whaler of the district, who married Paeroke Rawiri; William Jenkins built the Jenkins Accommodation House at Waikanae (now known as Jenkins cottage, and still lived in by a family descendant) (NZ Biographies Index, Baldwin, 1988). Marriage to a Waikanae woman would have explained why William Browne was buried at Waikanae; however, the obituary for William Franklin Browne notes he was buried at Karori cemetery, so this cannot be the William Browne buried at Waikanae (NZ Times, 14 August 1911).

The biographies index does not have an entry for Penelope Durie. She was probably named after her mother 1840 (NZ Biographies index). Major David Stark Durie (1804-1874) arrived in New Zealand in May 1840, and was the Police and Customs Officer at Waikanae between 1847-1851. His entry in the NZ Biographies index notes he had 6 children, including 4 daughters. Only three of the daughters are named, and their “society weddings” are described; it is speculated that the fourth daughter was not named or her life noted because she died as a child. The register of deaths index at the National Library has deaths noted for a William Browne in 1890, 1892 and 1893, for a Margaret Nairn in 1893 and for a Penelope Durie in 1896. Further research could be undertaken by obtaining these death certificates from the Registrar of Births, Deaths and Marriages; however this research is considered peripheral to the archaeological issues of this work.

The New Zealand Cemeteries Records index at National Library was checked, as were the New Zealand Gazettes between 1857-1920. There is no record of a formal or gazetted cemetery at Waikanae.

It is possible that the graves of Browne, Nairn and Durie are the same three graves shown in the surveyor’s notebook of 1898. However this has not been proven and can only be speculation. It is also noted that the WRC report states that Nairn and Durie shared one grave, and only two headstones were relocated during the lagoon construction work; therefore, if these people are the three in the 1898 plan there at least one further unknown person in the third grave.

### **3.5 Traditional burial ground**

The Maori Land Court minute books were examined for information pertaining to this area. The Wellington Minute Book no. 21 records a hearing before Judge Jones on 18 June 1918. The record notes that the petition was being made for the purposes of cutting out a graveyard. It was noted that a survey had not yet been carried out. The order was for the portion to be called Ngarara West A Section 14B1. The boundaries were to be pointed out by Hera/Hine(?) Parata or failing him by some other person as approved by the judge. It was noted the portion to be cut out was about 20 acres. The

remaining area of land was to be called Ngarara West A Section 14B2, and comprised about 158 acres<sup>4</sup>. (Figure \*)

A scribbled note at the bottom of this page noted plan 3495, and had the word “approved” written beside it.

Plan ML 3495 was obtained from Land Information New Zealand (Figure \*). This was surveyed in October 1920 for the “native owners”. It shows the 20 acre area of section 14B1, and the surveyed boundaries of this piece.

It is concluded that this burial ground was surveyed in 1920, and its boundaries established by survey.

Using the known survey pegs, the boundaries of this burial ground have been overlain on a current aerial photo to relate to the planned subdivision (figures \* and \*). It shows that the subdivision is located entirely within the area of the burial ground, and that in fact much of it has already been built on.

The area was described as the Waimeha burial ground near the old Waimeha pa to Wellington Regional Council in preparation of their flood plain management plan. Metapere Waipunahau is reported to have been buried there on her death in 1853; she was the mother of Wi Parata Te Kakakura Waipunahau, Chief and leader of Te Ati Awa (WRC, 1993:4).

A newspaper report from the Evening Post of 28 October 1969 records the plan of the Waikanae Land Company to buy the 20 acre block which at that time was designated Maori Cemetery, and of the plan to change the designation. The article notes three recognised Maori burial grounds in the Waikanae area, and names the burial ground in question as Karewarewa. The article notes that the burial ground then in current use at Waikanae was the Tukimore [sic] ground, the other two being considered filled. This statement implies Karewarewa burial ground had been in use prior to that time. Carkeek (1966:114) recorded Wi Parata referring to Karewarewa as a village belonging to his ancestors. In the same source Mere Pomare, mother of Sir Maui Pomare, recorded it as a burial ground, and noted that her mother, the famous chieftainess Te Raouterangi, was buried there.

It is not clear whether the designated burial ground was already in use and the Maori Land Court was formalising an existing land use, or whether the area was cut out for planned future use. However given the traditional and documented previous burials of notable people in this vicinity, it is suggested that the burial ground was already in use.

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<sup>4</sup> The original handwriting of this minute book entry was illegible in places. At some point someone had attempted a translation: their words are written in smaller writing above the main entry. In some cases they could not decipher the words, in others, this author disagreed with their translation.

### **3.6 Other documents**

Further documents were searched in an attempt to obtain information on the land and its use. The current certificate of title (53B/939 issued 21 July 1998) was examined, as were previous CTs (7A/1139 issued 12 June 1969, cancelled and 8B/524, issued 3 August 1970, cancelled). These latter two CTs also referred to Maori Register documents that were obtained (MR 10/62 and 10/139).

The Ngarara West A file was examined (National Archives AAMA 20/27 Vol 1, accession W3150). The only reference to a cemetery was a letter dated 28 January 1926 from a Pono Timihana of Taranaki, requesting a copy of a sketch map of the Waimea Block to show the two cemeteries, Waimea cemetery and Takamore cemetery. The reply from the Chief Surveyor of 28 January 1928 notes there were no plans in the office showing these cemeteries. There is no further correspondence on this matter on the file.

## 4. Archaeological issues

The archaeological issues of the site are addressed in this report in two parts: the landscape archaeology and the koiwi. That is not to separate the koiwi from the landscape in which they were found but to describe the specific archaeological issues of each.

A key component of the context and interpretation of the archaeology of this site is closely linked with the underlying geomorphology and environmental context. For this reason Dr Bruce McFadgen was subcontracted to assist with issues of geomorphology, especially the sand dune sequence. Dr McFadgen is a geologist and archaeologist, and is author of *Archaeology of the Wellington Conservancy: Kapiti-Horowhenua. A Prehistoric and Palaeoenvironmental Study* (McFadgen, 1997).

### 4.1 Fieldwork undertaken

Two site visits have been made. The first was in the company of James Hutchison on 14 December 2000, shortly after being commissioned to undertake the archaeological assessment. The purpose of this visit was familiarisation with the site, and discussion of the work that had occurred on site up to then.

The second visit was with Dr Bruce McFadgen. The site was walked over and visual observations were made. A surface collection of shells was made to be radiocarbon dated. The need for this surface collection was discussed by phone with Dr Rick McGovern-Wilson, senior archaeologist of Historic Places Trust, on 10 January 2001, and Dr McGovern-Wilson agreed to a non-invasive surface collection.

### 4.2 Geomorphological context

Survey plans and aerial photos housed at Land Information New Zealand were studied to gain information on the changing environmental context of the area.

The subdivision is near the seaward edge of the sand dune belt that extends from Paekakariki in the south to beyond the Manawatu River in the north. It is on the south bank of the former Waimeha Stream, which was once a large distributory of the Waikanae River (Adkin, 1941) that flowed west to southwest behind the coastal dunes towards the present Waikanae estuary. It is bounded to the southeast by a low dune ridge roughly parallel to the coast (Figure \*).

The sand dune belt has formed during the last 6500 years (Gibb, 1978). Before then the shoreline was near the foot of the hills (Fleming, 1972), and since then, as a result of sand accretion, the shoreline has moved seawards some 3.5 km to its present position.

About a kilometre inland of the subdivision a prominent sand dune ridge roughly parallel to the coast marks an intermediate position of the shoreline. The dune ridge,

called the Taupo Dune, is a relict foredune that was the shoreline at the time of the Taupo Pumice eruption (Stevens, 1988) *ca.* 230 AD (Sparks *et al.*, 1995).

The sand seawards of the Taupo Dune has accumulated since about 230 AD and is identified as belonging to the Waitarere and Motuiti dune-building phases (Stevens, 1988). At some time since 230 AD the beach was where the subdivision is today, and has been buried as the shoreline advanced further seawards. The Waimeha Stream, which at one time would have flowed to sea north of the subdivision, was probably forced to flow southwestwards by the accumulation of sand between it and the sea.

### 4.3 Recent work on site

In the last 30 years the ground surface of the subdivision has been considerably modified. In the 1970s the lagoon was excavated approximately along the course of the Waimeha Stream (James Hutchison, *pers. com.* 2000).

The Waikanae Land Company was formed around \*1969 to develop areas of land on the Kapiti Coast for subdivision. Among land purchased was a block that contains the area of what is now the Tamati Drive subdivision. Part of this block was subject to a designation for a Maori cemetery. This is shown on a Horowhenua County Council planning map of 1968. It is not known when this designation was placed<sup>5</sup>, but the Waikanae Land Company successfully sought to have this designation lifted in 1969 in order to allow zoning to change to residential use. It is noted that the area of this designation shown on the planning map is of very similar size and alignment as the 20 acre block cut out for a burial ground in 1918.

Between 1969 and 1971 a swampy area that was the former bed of the Waimea River was created into a lagoon named the Waimanu lagoon (Maurice Rowe, *pers. comm.*). The lagoon was excavated with a floating suction dredge that pumped material from the bed of the lagoon and discharged it onto the southeastern lagoon shore (James Hutchison *pers. com.*). How far from the lagoon shore the material was re-deposited is not known, but it is reasonable to expect that it would have been used to level the surface of the terrace between the stream and the low dune ridge. The nature of the dredge meant it was automatically compacting material as it was deposited (Maurice Rowe, *pers. comm.*). A recreation reserve was created around the edges of the lagoons.

The 1990 ground surface is therefore likely to have been material of varying thickness deposited by the dredge. To determine the actual thickness and extent of the dredgings, and whether prior disturbance of the ground surface occurred, will require a stratigraphic examination of the deposits.

A report and photograph in the Kapiti Observer of 9 July 1970 shows the suction dredge at work. The story reports plans for a marine and housing development. The Kapiti Observer has further stories and photos in its editions of 29 October 1970 and

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<sup>5</sup> Horowhenua Council records have been moved in part to the Kapiti Coast District Council. Many records are missing or incomplete. The district plan which shows the map became operative on 1 June 1968.

17 December 1970. In October it notes the dredge previously worked on the Kapuni pipeline project.

As the work proceeded on the lagoons reports state that “an extensive Maori burial ground was uncovered” (WRC, 1992:105). This report speculates that these burials may have “included warriors killed during the battle of Kuititanga” (*ibid*:105). This report is also included in Chris MacLean’s book *Waikanae: past and present* (it is likely that MacLean was a source for the WRC report – text in both is very similar)<sup>6</sup>.

However it is possible sources have become confused over the years. Maurice Rowe is emphatic that no burials were located or disturbed during the lagoon development work; he remembers the finding of the headstones, but no bodies in association with these or anywhere else.

This report from the MacLean book and the WRC report was discussed with Kapakapanui at a meeting of 13 February 2001; in a follow-up e-mail from Susan Forbes on this issue Susan states “some of that info has become somewhat generalised over the years. Burials were uncovered at the airport and at Queens Road and none of us could think of any at Waimeha – Chris’s sources were probably talking about Queens Road - not far away but far enough to be unrelated to this project” (e-mail exchange: Susan Forbes to Mary O’Keeffe, 15 February 2001).

Also during the development work for the lagoons, “several” gravestones were discovered, which reported to mark the burial places of William Browne, Margaret Nairn, and Penelope Durie (WRC, 1992:105). These headstones have been relocated to the recreation reserve beside the current lagoons; the report does not state whether the bodies of the people were also recovered, and if so, what became of them.

In 1990 and 1999 the ground surface of the subdivision was re-contoured (Engineering plans: 1605836 sheet 1, 1990; 1272233 sheet 1, 1999). Changes to the land surface, as a result of earth moving, are determined from the contours and levels on engineering plans 1605836 sheet 1 and 1272233 sheet 1.

In 1990 the ground to the west of Wi Kingi Place was cut to a maximum depth of slightly more than 3m on the dune ridge, and slightly more than 0.5m west of the intersection between Tamati Drive and Wi Kingi Place. Fill was deposited on the eastern part of the subdivision to a maximum depth of 4m (Figure 2). In addition, small pockets in the western part were filled to a depth of less than 1m.

In 1999 the earthworks resulted in minor cutting to a maximum depth of about 1m on the northeastern boundary of Wi Kingi Place and along Tamati Drive, and the western and northern parts of the subdivision were filled to a maximum depth of 1m (Figure 3). Small pockets of cut and fill were made along the dune ridge southeast of Tamati Drive, the maximum cut being about 2m, the maximum fill about 1m.

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<sup>6</sup> This particular section was unreferenced in the MacLean book: Chris MacLean was contacted and asked if he could remember the source. Chris was kind enough to check his records for his book; he had no written records for this report, so suspected it came from an oral interview undertaken for his book. He considered the lack of referencing would have been deliberate to ensure the anonymity of the source.



It would have been normal practice to use the nearest source of material as fill and this would have included spoil cut from the higher parts of the subdivision. In 1990, however, some spoil was also brought in from the Major Durie Drive subdivision between Tamati Drive and the Waikanae River and deposited along the southeastern dune ridge (James Hutchison, *pers. com.* 2000).

Following the cutting and filling in 1999, trenches were excavated along Tamati Drive and Wi Kingi Place for underground services. In the course of cutting of these trenches burials were disturbed in two episodes at Wi Kingi Place. The author of this report was not present when these burials were disturbed or recovered, and again, because this information is *sub judicæ* is unable to gain detailed information from the archaeologist who was present. \*The trench at this point along Wi Kingi Place excavated \*how deep below the original ground surface.

Susan Forbes' evidence to the District Court states that 2 skulls, 1 shoulder bone, 2 collarbones, rib fragments and two leg bones were removed from the trench on 5 July 2000. During the same site visit Ms Forbes observed "extensive areas of intact and modified midden/oven material" (Forbes, n.d.:4). Ms Forbes observed shell and hangi stone scattered over the subdivision, and observed at least three intact deposits of shell visible in service trenches (*ibid*).

Subsequent work in the same trench disturbed further burials on 19 July 2000. Ms Forbes' evidence states that the following koiwi were removed:

- A skull in the trench removed by the site workers
- Several large bones and a skull removed from the spoil heap
- 2 rib bones from the northern side of the trench
- 2 further burials removed from the trench

During this second site visit Ms Forbes also observed at least six intact middens along a service trench. Unfortunately it is not known exactly which trench or where along it Ms Forbes observed these and the previous midden. However James Hutchison noted the locality of the midden, as he recalled it, as being approximately opposite the intersection with Wi Kingi Place.

#### **4.4 Interpretation of the shell**

The original material excavated from the lagoon was almost certainly reworked in 1990 and again in 1999. In 1990, the material west of Wi Kingi Place was cut and probably re-deposited on the eastern part of the subdivision (Figure \*). In 1999, material along Tamati Drive and Wi Kingi Place was excavated and probably re-deposited on the western part of the subdivision (Figure \*).

Shells on the present ground surface of the subdivision are nearly all on fill and would have been deposited in their present position either during or since 1990 AD.

If the shell lens found 600 mm below the ground surface in Tamati Drive was found east of the intersection with Wi Kingi Place, then even allowing for up to 1m of cut in 1999, it would be in fill and probably deposited in that position in 1990 AD. If it was

found at or west of the intersection it could have been deposited in that position in 1970 AD as dredge spoil.

It is therefore inferred from the history of earthworks on the subdivision that the shells on the ground surface and in the trenches are not *in situ* deposits. Excavation of a trench where the shell lens was found would test the inference that the shell lens is in re-deposited material.

#### 4.4.1 Origin of the shells

The shells (Table 1) are estuarine and open coast species found on the beach today. As similar species are also found in shell middens in the Waikanae area, the species themselves are not a reliable indication of either a natural or a cultural origin.

**Table 1:** Shell species collected from ground surface of the subdivision.

Shell species	
Scientific name	Common name
<i>Austrofuscus glans</i>	ostrich foot
<i>Dosinia anus</i>	ringed dosinia
<i>Maetra discors</i>	
<i>Paphies australis</i>	pipi
<i>Paphies (Mesodesma) subtriangulata</i>	tuatua
<i>Paphies (Mesodesma) ventricosa</i>	toheroa
<i>Spisula aequilateralis</i>	triangle shell

There is a general absence of cultural material such as artifacts, animal bones from food species, burnt and fractured oven stones, or charcoal that might indicate the shells are from old middens.

Blackened twigs and sticks similar in appearance to charcoal were seen in several places, as were stone fragments with blackened surfaces, or with the reddish colour of iron oxide, but natural processes can explain these materials.

On the lower slopes of the sand ridge southeast of Tamati Drive between the entrance to the subdivision and Wi Kingi Drive are irregular mounds of black peat about 2m across and 20 to 40 cm high. The peat is mixed with swamp-blackened twigs and sticks, rounded lumps of Taupo Pumice discoloured by swamp black and iron oxide, shells stained with iron oxide, and occasional stones some with blackened surfaces others stained with iron oxide.

The peat is probably from either re-deposited material originally dredged from the lagoon in the 1970s, or is from a former *in situ* wetland. In either case it has probably been dug out of a service trench along Tamati Drive. Excavation of a new trench might clarify its origin. The wood fragments, stone, and shells can be matched on the present beach and are possibly from an old foreshore that later became incorporated in a wetland after the Waimeha Stream began to flow southwestwards.

A sample of shells was taken from the ground surface for radiocarbon dating. The ground surface over the subdivision had been sprayed with a mixture of PVA and grass seed, and PVA adhering to shells was removed by scrubbing the shells in tap water. The age of the shells, determined by radiocarbon dating, is between 935 and 1080 AD (Table 2). This age is substantially older than the date for the human settlement of New Zealand of *ca.*1250 AD (Anderson, 1991; McFadgen *et al.*, 1994; Higham and Hogg, 1997) and indicates that the shells are not from an archaeological midden.

**Table 2:** Radiocarbon and calibrated ages (95% confidence interval) for tuatua shells (*Paphies (Mesodesma) subtriangulata*) collected from the ground surface of the Tamati Drive subdivision. The shells were physically pretreated by scrubbing in cold water to remove traces of PVA and then air-dried. The shells were chemically pretreated by washing in 5 M dilute hydrochloric acid for 500 seconds, rinsing and drying.  $\Delta R = -30 \pm 13$  (McFadgen and Manning, 1990).

Laboratory number	Conventional Radiocarbon Age (years BP)	$\delta^{13}\text{C}$ ‰	Calibrated Age (years AD)
Wk9144	1360 $\pm$ 40	1.4 $\pm$ 0.2	935–1080

The age of the shells indicates that they are from a natural deposit. Considering the earthworks that have been carried out on the subdivision, especially the excavation of the lagoon in the 1970s, it is inferred that the shells on the subdivision are derived from a former beach in the position of the present lagoon. The lagoon water level is less than a metre above mean high water mark, and the suction dredge would almost certainly have intercepted an old beach when the lagoon was excavated.

Excavating a trench near the present lagoon edge can test the inference. Shells should be found at or above the height of the lagoon bottom and have an age similar to that obtained for the shells on the present ground surface.

Not all of the shells on the subdivision are necessarily from a natural deposit, however. Some could possibly be from shell middens that were originally on the subdivision, or brought from Major Durie Drive, but their status as former midden shells would need to be demonstrated.

It is noted that if the shells in the subdivision are a result of the construction of the lagoon, it is possible that some of the human bones might have been similarly deposited if they had been originally buried on a former bank of the Waimeha Stream.

#### 4.5 Interpretation of the burials

The graves along Wi Kingi Place are in a part of the subdivision where fill was deposited in 1990. They were below the ground surface as it existed before the 1990 earthworks (Figure \*) and would have been undisturbed until the service trenches were excavated in 2000 AD.

\*depth of trenches

The first groups of burial were removed from the site and have been reinterred. The second group were also removed from site and were put into safekeeping at the Waikanae Funeral Home. These burials have been analysed by Dr Nancy Tayles of Otago University.

\*Nancy's report

In her evidence Ms Forbes notes that the "bones recovered had been laid either on wooden slats or in coffins" (Forbes, n.d.:7). She does not say what the evidence for this is: whether she observed pieces of wood *in situ*, or staining in the soil/sand that is interpreted to be wood.

However the burials analysed at the Waikanae Funeral Home also contained fragments of wood that displayed regular holes consistent with a hole left by a rusted nail. It is inferred that these wooden fragments are the remains of coffins, which in turn implies burial in a "Christian" style. However it cannot be inferred that all the burials disturbed on site were in coffins or on slabs. In her evidence Ms Forbes notes that several of the disturbed burial and bones were recovered from the spoil heap (Forbes, n.d.). Equally these wooden fragments could originate from wooden crosses and/or wooden fences used to mark graves, which also are associated with Christian style of burial.

Two pieces of information have been established about the burials: some at least are of post-contact age (on the basis of the wooden fragments), and they are Maori in origin (Tayles\*).

Therefore there are several possibilities for the origins of the burials.

- The first is that they are Muaopoko, dating from before the settlement of Te Ati Awa in the region. This is not considered likely from the post-contact context inferred from the wood attributed to coffins or wooden crosses.
- The second is that they are Ngati Raukawa dead after Kuititanga battle. Carkeek notes that all the Raukawa dead were buried in one grave, and in "European fashion" (Carkeek, 1966:60). This is considered a possibility, although if all were buried in coffins and great number of coffins would have needed to have been obtained within a very short timeframe. It is considered far more likely that bodies were wrapped in shrouds or cloths of some sort, and were buried in a mass grave, as recorded by Carkeek.
- The third is that they are Te Ati Awa from mid to late 19<sup>th</sup> Century. There are no grounds to discount this as a possibility. Such burials could be in coffins, and could have wooden crosses or boundary fences, which could explain the wooden fragments with the burials.
- The fourth is that they are Te Ati Awa from the early 20<sup>th</sup> Century, and that the precise location of the burial ground has fallen out of traditional memory. These graves also could have coffins or wooden crosses or boundary fences, which could explain the wooden fragments with the burials.
- The fifth is that they are a combination of the second, third and fourth options: that the burial ground was first used after the Kuititanga battle, and that Te Ati

Awa continued to use it until an unknown date, probably in the late 19<sup>th</sup> or early 20<sup>th</sup> century.

This last option is considered likely, on the basis of historical and documented use of the site. It is reasonable to assume that some at least of the burials predate 1900, so are archaeological in terms of the definition in the Historic Places Act. There is nothing to firmly date any of the burials, except for a likely post-contact context, but the documented dated historical event of the Kuititanga battle provides a possible origin.

It is possible that bones disturbed on site are from a variety of historical origins, and have been mixed and disturbed prior to 2000AD. Some of the human bones might have been disturbed by preparation of the ground surface (e.g. by removal of topsoil or vegetation) before the lagoon dredgings were deposited in 1970, or by smoothing the ground surface after the dredging was finished. Also, it is possible that later burials intercut earlier burials, and that further disturbance by the digger in 2000AD has mixed bones of various origins.

The link between the headstones found on site and relocated in 1970, and the three graves marked on the 1898 survey plan has not been established, nor has the relationship between the occurrence of the burials of Browne, Nairn and Durie in a traditional Maori burial ground.

# Conclusions

Geomorphological evidence demonstrates that the shoreline was originally located at the foot of the hills, and has progressively moved west to its current position. Changing accumulations of sand would have redirected the Waimeha stream over time.

It is proposed that the shells scattered on the site surface and observed in trenches is of natural origin. It is likely they are derived from a former beach in the position of the present lagoon, and were deposited as part of the lagoon dredging. Further reworking of the site has moved the material around. The radiocarbon date verifies the age of shell as pre-human.

This archaeological hypothesis needs testing by trenching.

The subdivision area has been modified three times in the last 30 years – by deposition of dredge spoil, by 1990 recontouring and placement of spoil from Major Durie subdivision and 1999 recontouring. It is therefore inferred from the history of earthworks on the subdivision that the shells on the ground surface and in the trench are not *in situ* archaeological deposits.

Traditional and recorded evidence states that the subdivision area was in use as a burial ground at least by 1839 after the Kuititanga battle. Subsequent burials of people of note are reported to have taken place there.

Records show a 20 acre burial ground was cut out in 1918; there is no indisputable evidence that it was already in use. However a reference to a burial ground named Karewarewa implies it was filled, so had been in use for some time. Records show the designation for a Maori Cemetery in the 1969 district plan, of an area of very similar location, size and alignment to the 1918 burial ground.

It is considered there is strong evidence that the area is the location of a traditional burial ground, likely to have been in use since 1839 and with subsequent burials. Koiwi on site are considered to be associated with the Kuititanga battle or later 19<sup>th</sup> century burials, and may post-date 1900.

Therefore there is considered to be a high likelihood of further intact or disturbed burials in the vicinity, which could be anywhere within the 20acre block. This hypothesis requires testing to verify, but such testing is considered inappropriate.

However records verify that there were burials in this location in 1898, which makes the area an archaeological site in terms of the definition in the Historic Places Act.

As such the area has high archaeological values, and further development is considered inappropriate.

**It is recommended** that the client does not apply for an authority under the Historic Places Act, as the archaeological values are considered sufficiently high to preclude

further work. It is considered very unlikely that Historic Places Trust would grant an authority with strong evidence of the presence of a burial ground.

# Sources

## Primary:

Evening Post: 28 October 1969

Kapiti Observer: 9 July 1970  
29 October 1970  
17 December 1970

NZ Times, 14 August 1911

Horowhenua County Council District Plan, 1 June 1968.

National Archives: Former Lands and Survey file AAMA 20/27, accession W3150  
Maori Land Court Minute Book No. 21

National Library Biographies Index

Land Information New Zealand:

plans: SO 11615 1880(?)  
ML 504A 1890  
ML 1491 1898  
ML 1396 1896  
ML 2823 1915  
ML 3495 1920  
WD 4074 1928  
WD 2825 n.d.

Fieldbooks: 2025  
2140  
2900  
3066  
3203

## Secondary:

Adkin, G.L. 1941. On the nomenclature of the Waikanae River, western Wellington. *Journal of the Polynesian Society* 50(4):232-238.

Anderson, A.J. 1991. The chronology of colonization in New Zealand. *Antiquity* 65:767-795.

Baldwin, O. 1988. *The Celebration History of the Kapiti District. 100 years Plus.* Kapiti Borough Council.



- Beckett, P., 1957. Ancient Occupied sites of the Paraparaumu District. *Journal of the Polynesian Society* 66:357-364
- Carkeek, W. 1966. *The Kapiti Coast. Maori Place Names and History.* AH and AW Reed, Wellington
- Forbes, S. n.d. Witness statement to the Porirua District Court in the prosecution of Payne Sewell Limited and Higgins Contractors Ltd being taken by New Zealand Historic Places Trust Pouhere Taonga
- Higham, T.F.G., and Hogg, A. G. 1997. Evidence for late Polynesian colonization of New Zealand: University of Waikato radiocarbon measurements. *Radiocarbon* 39(2):149-192.
- McFadgen, B. 1997. *Archaeology of the Wellington Conservancy: Kapiti-Horowhenua. A Prehistoric and Palaeoenvironmental Study.* Department of Conservation, Wellington.
- McFadgen, B.G., Knox, F.B., and Cole, T.R.L., 1994. Radiocarbon calibration curve variations and their implications for the interpretation of New Zealand prehistory. *Radiocarbon* 36, 221-236.
- McFadgen, B.G. and Manning, M.R. 1990. Calibrating New Zealand radiocarbon dates of marine shells. *Radiocarbon* 32(2):229-232.
- MacLean, C & J. 1988. *Waikanae, Past and Present.* Whitcombe Press, Wellington
- Smart, C.D., 1962. Midden recording and sampling in the Waikanae Region. *New Zealand Archaeological Association Newsletter* 5:160-169.
- Sparks, R.J., Melhuish, W.H., McKee, J.W.A., Ogden, J., Palmer, J.G., and Molloy, B.P.J. 1995. <sup>14</sup>C calibration in the Southern Hemisphere and the date of the last Taupo eruption: evidence from tree-ring sequences. *Radiocarbon* 37(2):155-163.
- Stevens, G.R., 1988. The Making of the Land. In: Olive Baldwin (Compiler), *The Celebration History of the Kapiti District 100 Years Plus.* Kapiti Borough Council, pp7-30.
- Wellington Regional Council. 1992. Waikanae River Floodplain Management Plan, Environmental Investigations. Prepared by Boffa Miskell Partners. Report no. WRC/R1-06/92
- Wellington Regional Council. 1993. Waikanae River Floodplain Management Plan, Phase 1 Tikanga Maori. Ati Awa Ki Whakarongotai: response to WRC.

## Appendix 1: Recorded sites

These are sites in the NZ Archaeological Association index of sites.

These are sites in a square including the area of the planned subdivision and the Waikanae River in the west, running east to the hills, and from south of the Waikanae River to just north of Waikanae Beach.

The majority of the sites recorded in 1961 were part of Colin Smart's work on the midden sites on the Kapiti Coast. The burial ground (R26/96) is located beside the old Waikanae pa at Kenakena, on the south side of the Waikanae River.

The grid square is bounded by grid references easting: 2677000-2684000, northing: 6034000-6037000.

metric mapsheet and site number	metric easting	metric northing	site description	Date recorded
R26/186	2681600	6036100	midden	1961
R26/269	2678300	6034300	church site	1961
R26/38	2682500	6036200	midden	1961
R26/39	2682500	6036200	midden	1961
R26/40	2681700	6036000	midden	1961
R26/41	2681900	6036200	midden	1961
R26/42	2681800	6036500	midden	1961
R26/43	2682200	6036900	midden	1961
R26/44	2682200	6036700	midden	1961
R26/45	2682100	6036700	midden	1961
R26/46	2680100	6035200	midden	1961
R26/47	2679900	6035300	midden	1961
R26/48	2679900	6035300	midden	1961
R26/49	2679900	6035400	midden	1961
R26/50	2680000	6035400	midden	1961
R26/51	2679900	6035400	midden	1961
R26/52	2679900	6035300	midden	1961
R26/53	2680000	6035400	midden	1961
R26/54	2680100	6035100	midden	1961
R26/55	2680200	6035100	midden	1961
R26/56	2680200	6035200	midden	1961
R26/57	2680300	6035400	midden	1961
R26/58	2680300	6035300	midden	1961
R26/59	2680200	6035400	midden	1961
R26/60	2680200	6035400	midden	1961
R26/61	2680000	6035800	midden	1961
R26/62	2680200	6035200	midden	1961
R26/63	2680000	6035300	midden	1961
R26/64	2679900	6035200	midden	1961
R26/65	2679900	6035200	midden	1961
R26/69	2684000	6036100	midden	1961

<b>metric mapsheet and site number</b>	<b>metric easting</b>	<b>metric northing</b>	<b>site description</b>	<b>Date recorded</b>
R26/71	2679900	6035800	midden	1961
R26/72	2681100	6036500	midden	1961
R26/77	2680100	6036000	midden	1961
R26/78	2680100	6035900	midden	1961
R26/79	2680100	6035800	midden	1961
R26/80	2680200	6035800	midden	1961
R26/81	2680100	6035900	midden	1961
R26/82	2679800	6035800	midden	1961
R26/83	2679800	6035900	midden	1961
R26/84	2680100	6035700	midden	1961
R26/85	2680100	6035400	midden	1961
R26/86	2679900	6035500	midden	1961
R26/87	2680100	6035300	midden	1961
R26/88	2679700	6035300	midden	1961
R26/96	2679000	6034500	burial ground ?	1966
R26/97	2679000	6034600	midden	1966
R26/231	2678800	6034600	burial	1982
R26/260	2679800	6034400	burial	1983
R26/241	2679600	6034800	middens	1984
R26/253	2682500	6035300	midden	1989
R26/272	2681000	6035300	urupa	1997
R26/273	2680800	6035400	midden	1997
R26/274	2680800	6035400	midden	1997
R26/275	2680800	6035400	midden	1997
R26/276	2680800	6034500	midden	1997
R26/277	2680900	6035500	midden	1997
R26/278	2680900	6035600	hearth	1997
R26/279	2680900	6035600	hearth	1997
R26/280	2680800	6035600	hearth(s)	1997
R26/281	2681300	6035200	village/tree	1997

"11"

**WAIKANAЕ LAND COMPANY  
LIMITED**

Geophysical Survey of Stage 6  
of Waikanae Sub-division incorporating  
Tamati Place and Wi Kingi Place.

May 2003.

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**Ground penetrating radar and electromagnetic mapping**  
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## Appendix:

- A AutoCAD site layout drawing.
- B Typical GPR scan results.
- C EM31 soil conductivity results.

# 1. Introduction

In October 2001, Fitzherbert Rowe, Lawyers contacted G.P.R. Geophysical Services regarding a non-intrusive geophysical investigation that was required at a Waikanae site.

The Waikanae Land Company Limited have been progressively developing a large residential sub-division near Waikanae Beach on the Kapiti Coast.

In July 2000, during the course of re-excavation work to check on an apparent fault on an underground service that had been previously installed, human remains were uncovered. The remains that were discovered were from a small area in a cul-de-sac called Wi Kingi Place. This incident gave rise to the speculation that these remains may form part of a larger, abandoned cemetery ground that may have existed in this area prior to the turn of the century. It was speculated that the remains of this cemetery may cover part of Stage 6 of this sub-division incorporating Tamati Place and Wi Kingi Place, as well as other areas previously subdivided and sold on which residences have now been constructed.

## 2. Objective

A geophysical survey was commissioned to investigate the area designated as Stage 6 of the Waikanae Land Company sub-division in Waikanae incorporating Tamati Place and Wi Kingi Place.

The objective was to determine if there is any subsurface evidence that might indicate the presence of historical gravesites in the area. Any suspected gravesites or anomalies likely to be associated with old burials were to be noted and recorded.

A formal report was to be prepared outlining the methodology, results obtained with comments and a marked up scaled drawing of the findings.

## 3. Methodology

Two types of geophysical survey techniques were used on this site:

1. Electromagnetic (EM) Induction
2. Ground Penetrating Radar (GPR)

### 3.1 Electromagnetic (EM) Induction

**An electromagnetic (EM) induction survey using a Geonics EM31-Mk2 instrument.**

The EM31 is a near-surface electromagnetic survey system with a peak response in the 1 to 1.5 m depth range and a maximum depth range of 5 to 6 m. It is an extremely sensitive system capable of measuring and recording very small changes, millisiemens per metre (mS/m); in soil electrical conductivity (i.e. inverse of resistivity) It is often used to detect and delineate subtle changes in the subsurface conditions caused by contamination, underground waterways, fault lines, change in soil type, subsidence, etc.

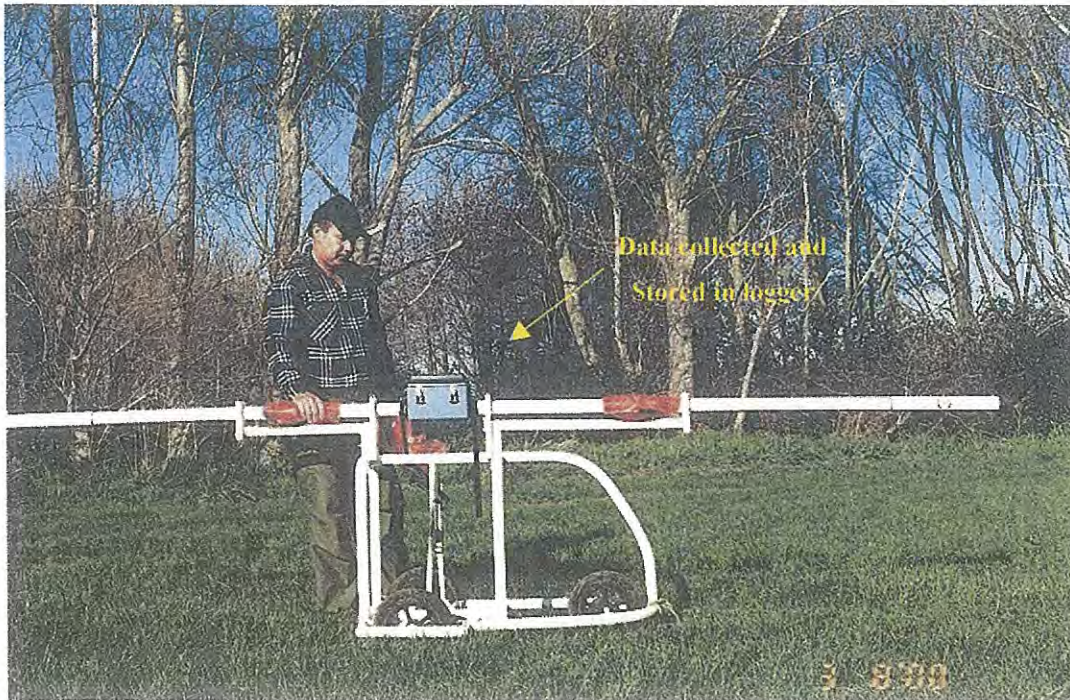


Figure 1.

EM31 shown in operational mode.

The introduction of organic matter into the ground, such as human remains, as occurs at a burial site will have an effect on the soil electrical properties at the grave location. In the right conditions these small soil conductivity changes at gravesites are detectable using this method.

The EM31 consists essentially of a transmitter and a receiver coil separated by a 3.66 metre long boom. The transmitter coil generates a 9.8 kHz electromagnetic signal that couples with the ground. This electromagnetic ground coupling causes an induced current to flow through the soil. The induced current in the soil generates its own electromagnetic field. The signal detected at the receiver coil is a combination of the primary signal, which travels directly through the air, and the secondary signal generated by the induced current flowing through the ground.

The recorded data consists of two components: a *quadrature* response, which gives a measure of the point apparent bulk electrical conductivity of the ground in millisiemens per metre, (mS/m), and an *in-phase* response, which is the mode



normally used in metal detectors measured in parts per thousand, (ppt), of the primary transmitted signal.

### 3.2 Ground Penetrating Radar (GPR)

A ground penetrating radar (GPR) survey using a GSSI SIR-2 digital radar system together with a survey wheel encoder.



Figure 2.

Ground Penetrating Radar survey in progress at Waikanae Subdivision.

Ground penetrating radar (GPR) sometimes called 'ground probing radar,' 'georadar' or 'earth sounding radar' is a non-invasive electromagnetic radio frequency (25MHz to 1000MHz typically) technique for subsurface exploration. It is widely used to locate lost utilities, unexploded ordnance, land mine detection, environmental monitoring, void, cave and tunnel detection, archaeological and forensic investigation as well as many other applications. It has the highest resolution of any geophysical method for imaging the subsurface, with centimetre scale resolution possible in most instances.

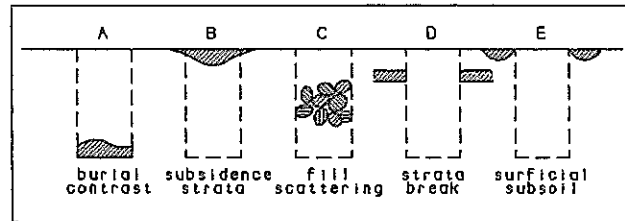
GPR operation in the field is conducted by moving an antenna across the surface of the ground along pre-determined grid lines. The antenna is connected to the central control computer via a cable. The antenna transmits pulses of high frequency EM signal into the ground and detects the reflected signal from subsurface features. The control computer collects, displays and stores the data collected by the antenna.

The strength of the reflected signal is dependent largely upon the dielectric coefficient contrast between the subsurface materials encountered. GPR can in addition to detecting discrete subsurface objects also 'see' soil strata lines. Soil strata water content varies slightly with the natural layering and density changes formed as a result of the ground formation over thousands of years. The dielectric coefficient of a material is affected by the moisture content so that this varying soil dielectric coefficient enables radar to plot the natural soil strata lines. In addition it is capable of detecting areas where air is present due to loose compaction or where voids have formed due to subsidence.

The resolution possible with GPR is controlled by the wavelength of the propagating electromagnetic signal. The higher the frequency the greater the resolution possible. Depth of penetration increases with decreasing frequency so that an optimum balance between depth of penetration and resolution is established at each site depending on expected target size and depth. In this case the targets are old gravesites where the target anomalies can vary between a small void, backfill scattering or evidence of digging (strata break), or a combination of these.

The frequencies chosen for this survey were 200MHz and 400MHz. These frequencies gave sufficient penetration (2 to 3m) with good resolution (Min. 40mm approx).

Figure 3, below, illustrates various grave-related features that may be detectable in a radar profile. As well as those illustrated the wall of an old graveshaft may also be detected by the shift in soil strata caused by digging and subsequent backfill..



**Figure 3.**  
**Graveshaft features that may suggest a possible grave in a radar profile (Bevan, 1991).**

## 4. Survey design

Rectangular survey plots were laid out to accommodate the tight grid pattern used for each of the surveyed areas.

### 4.1 Electromagnetic Induction (EM31) Survey

The EM31 survey lines were set at 0.5m apart and stacked readings were taken at 1.0m intervals along each survey line. Both quadrature and in-phase modes were recorded. Any regular pattern of graves could be expected to show in the EM31 data collected due to slight changes in the soil electrical properties caused by the presence of coffins or other grave related objects or various physical properties of the subsurface material related to the graves where the very act of digging a grave will cause changes in the soil structure. These changes may be reflected in a variation of electrical conductivity of the soil.

## **4.2 Ground Penetrating Radar (GPR) Survey.**

GPR survey lines were set 1.0m apart and the computer set to take recordings at 2cm intervals as the antenna was moved along each of the survey lines. Anomalies detected that were likely to be grave related could thus expect to be seen on at least two of the radar scan lines.

The ground contour plan, of this subdivision, produced by Payne Sewell Ltd. in 1990 show the original ground contour lines over this subdivision were few and far apart over the majority of this subdivision, with level changes not exceeding one metre. The original ground contours on this subdivision showed that this whole area was thus relatively flat land. The only area where raised ground levels occurred, with rising ground contours was along the southeastern boundary of this subdivision.

The present ground contours on this subdivision show that the eastern side area has been raised to form a flat elevated area at the eastern end. It was thus apparent that sometime after 1990 earthworks had been carried out on this subdivision to level out some of the southeastern side ground contours. The resulting raised ground level at the eastern end covers an area approx. 80m by 90m. The levels in this area were raised by between 3m to 4.5m above the original ground levels.

It was thus evident that increased GPR penetration would be required in this raised area to collect data at a suitable depth below the original ground levels. In order to achieve data collection at sufficient depth in the raised ground area, it was necessary to use special low frequency (100MHz.) GPR equipment obtained from the University of Canterbury.

The ground conditions in the Stage 6 area consist mainly of sandy soils. This type of soil does not easily support voids, which are often formed as a result of burials. The situation is made worse where the ground has been worked with heavy machinery. The weight of the machinery would tend to collapse any subsurface voids. This is most likely to have occurred on the eastern side of this subdivision where ground surface re-contouring was carried in March 1991 when 81,800 cubic metres of soil was spread over this eastern area using heavy machinery. It was therefore realised at



the outset of the survey that the detectable grave related anomalies were likely to be subtle, not necessarily obvious and variable in nature.

It is considered quite possible however, in spite of the above reservations, that soil compaction in the actual location of an old gravesite can still be less than the surrounding area. This less compacted space caused as a result of a previous burial can be detected. There are also likely to be disrupted soil strata evident at a gravesite location or where an excavation has taken place, which can also be detected.

It is a common custom with Maori burials for the body to be placed in an East–West direction. In order therefore to maximise the chance of detection, scan direction was South–North or North–South so as to cross the suspect burial at 90 degrees thus ensuring that any gravesites detected would present the largest target possible to the radar scans.



**Figure 4.**

**Pulse EKKO low frequency GPR equipment  
obtained from the University of Canterbury.**

## **5. Results**

### **5.1 Electromagnetic Induction (EM31) Survey**

The first data to be processed and analysed was that obtained with the EM31. The results show changes in soil conductivity caused by the buried services in the area. This can be seen on the attached EM31 result – Appendix C. The data collected represented over 8,000 data collection points, collected over the whole of the Wi Kingi Place area. This method has the advantage of collecting data in a rapid and efficient manner and is capable of producing useful results with minimal data processing.

A regularly laid out conventional cemetery is likely to show a pattern, albeit subtle, of soil conductivity variations. Apart from the services seen no other regular pattern of soil conductivity changes was discernible on the processed data. It thus became apparent that this technique was unfortunately not going to be adequate on this site and that ‘Ground Penetrating Radar’ was most likely going to be the preferred technique.

### **5.2 Ground Penetrating Radar (GPR) Survey**

A trial ground penetrating radar survey produced good quality data and revealed detailed soil strata information. Radar was thus selected as the main technique to be utilised for the survey of this subdivision.

As can be seen on the attached typical radargrams – Appendix B, the existing underground services are easily identified on the radar data. Apart from the existing services a number of significant anomalies were also detected in the depth range of 1 to 1.5 metres. Any significant anomalies detected have been noted and their location plotted on the attached AutoCAD scale drawing - Appendix A.

Any significant anomalies, which are seen on one radar scan only and not on adjacent scans, have been recorded as an “object”, which may or may not be a grave related feature.

Any detected significant anomaly seen on two or three adjacent scans has been treated as a possible gravesite since the anomaly detected thus has a typical grave dimension of 1.5 to 2 metres in length. This being the case it has been recorded as a possible gravesite on the AutoCAD scale drawing – Appendix A.

The aforementioned elevated section approx. 80m by 90m at the eastern end of the subdivision, required that the radar depth range be set to compensate for the extra depth applicable in this area. Anomalies under the original ground level that may be grave related could thus be expected to be seen at depths of 4.0m to 6.0m. under the present ground level.

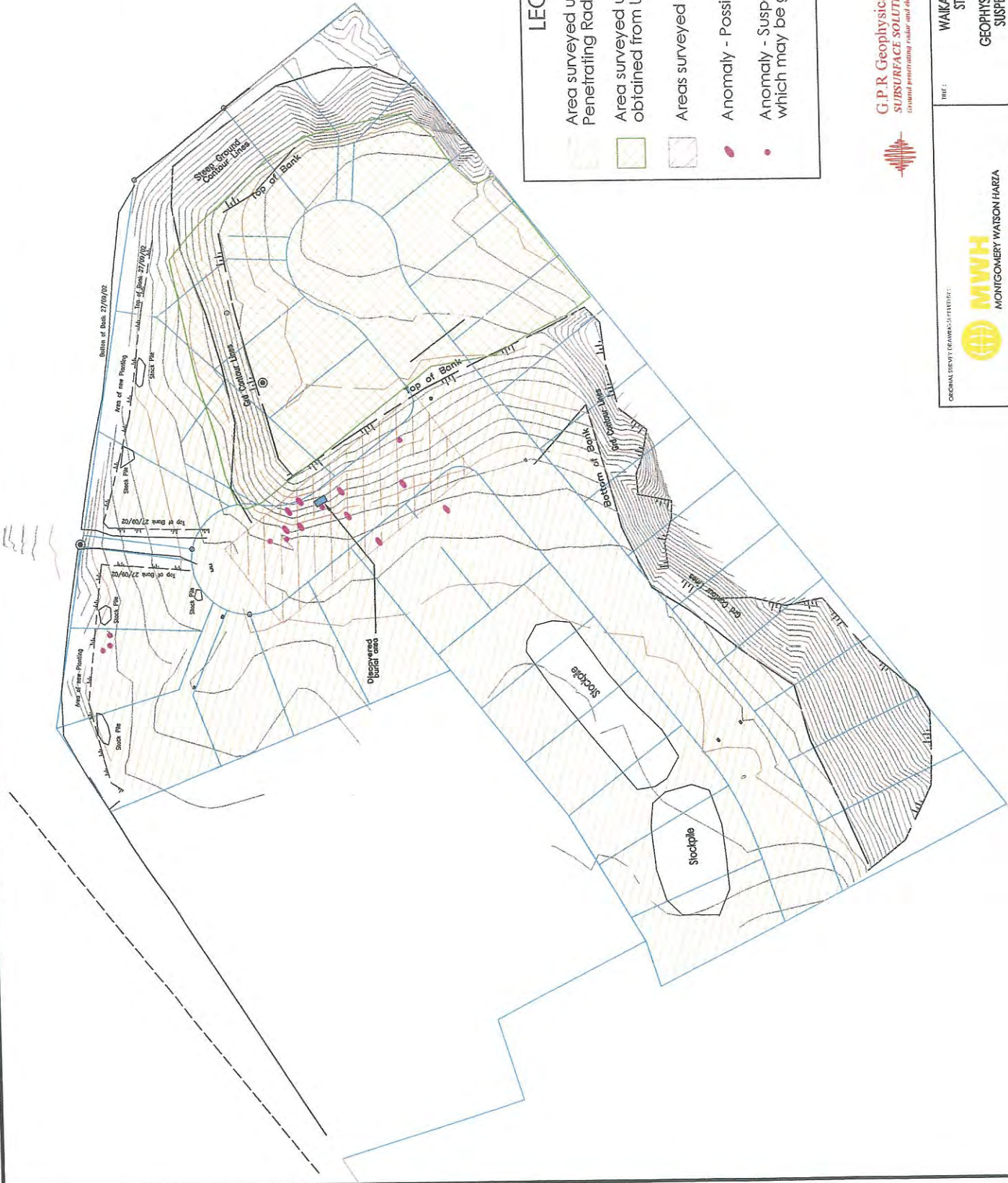
Unfortunately the water table, which tends to follow the ground contour, is apparently sitting at a depth of around 4.0m under this elevated area and is unlikely to vary sufficiently in depth throughout the year to facilitate this survey. The effect of the water table is to complicate and distort radar data close to or under this water level. In addition to the water table problem, the effect of the earlier heavy machinery and earthmoving work would tend to further complicate the data. This, combined with the disadvantage of the necessary low frequency antenna, means that data collected from this elevated area, (approx. 80m by 90m), cannot be reliably used for analysis to determine whether or not there are any anomalies which could be considered as grave related.

The affected area has been shown on the attached site layout drawing with this report.

## **6. Conclusion.**

It is apparent that all of the detected anomalies suspected to be grave related are located in or around the Wi Kingi Place area. There is much evidence of soil disturbance in and around Wi Kingi Place, which appears to be additional to and unrelated to services installation. It is possible, in this area, that some graves have completely collapsed over time due to surface activity and others that may have become masked by the service trenches so that these remain unrecorded.





**LEGEND**

- Area surveyed using Ground Penetrating Radar
- Area surveyed using low frequency GPR obtained from University of Canterbury.
- Areas surveyed using EM31
- Anomaly - Possible burial site
- Anomaly - Suspected object/void which may be grave related

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 Email [making.gpr@gsr.co.nz](mailto:making.gpr@gsr.co.nz)

**G.P.R Geophysical Services**  
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*Ground penetrating radar and electromagnetic mapping*



DATE: 20/10/2002  
 SCALE: 1:1000  
 DRAWN: Martin King  
 JOB NO.: 2002/WAL REV. 2

THE: **WAIKANA E LAND CO.**  
**STAGE 6**  
**GEOPHYSICAL SURVEY TO LOCATE SUSPECTED BURIAL SITES**

ORIGINAL SURVEY DRAWING NUMBER:



ORIGINAL SIZE A3



While it was not possible to get satisfactory data from the elevated eastern part of this subdivision, just north of this elevated area the ground level slopes down to original levels that existed before the earthworks. There were no significant anomalies seen in this area.

The data, collected from Tamati Place as far as Barrett Drive and the areas surrounding Tamati Place, showed no significant signs of any history of soil disturbance that is likely to have been caused by grave related excavation. The soil strata is generally undulating and unbroken as would typically be seen in an undisturbed naturally occurring area. The only obvious soil disturbance is that caused by excavation carried out during underground services installation work along each side of Tamati Place.

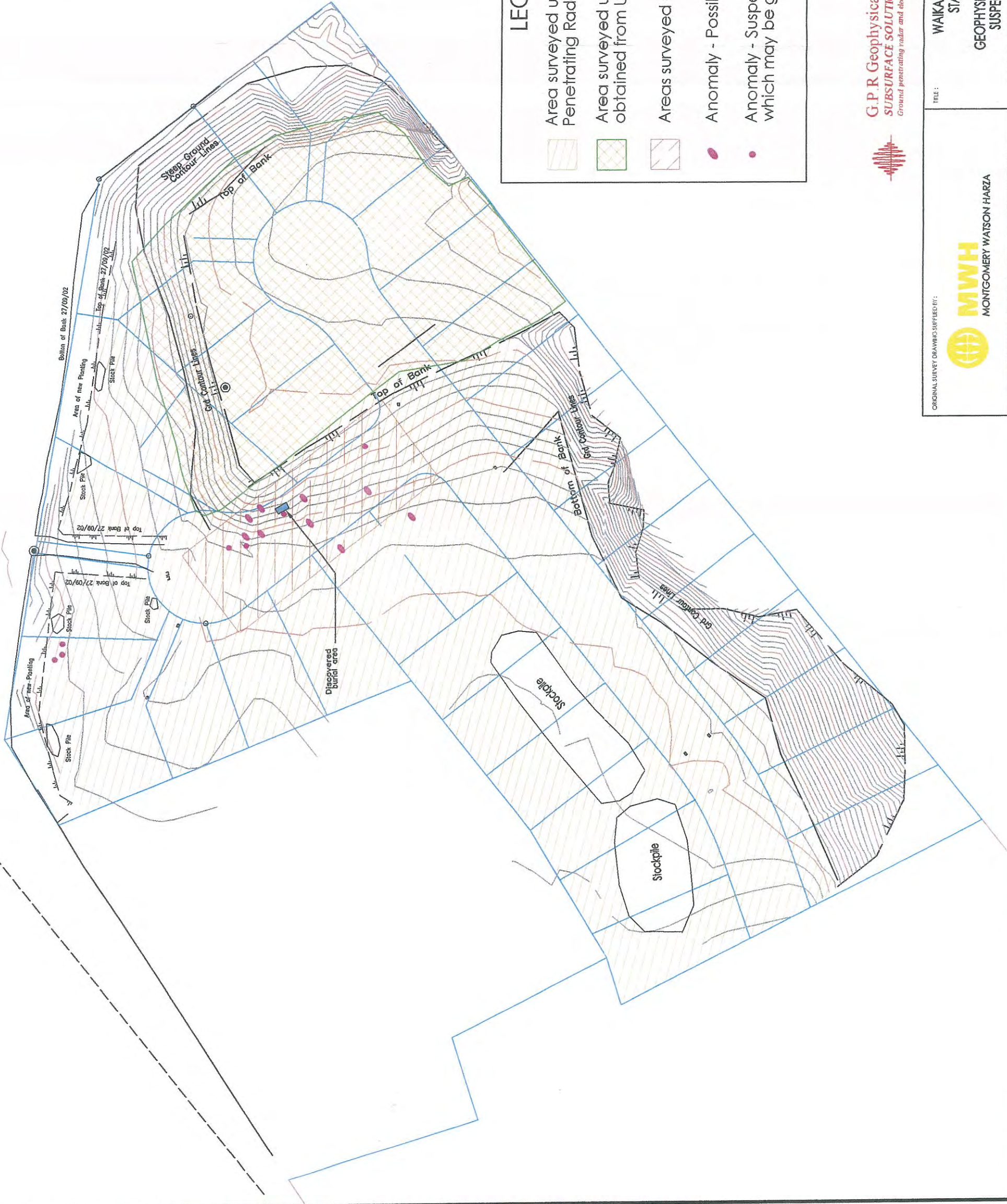
In my opinion the original cemetery/urupa area is likely to have occupied the space immediately surrounding the area now designated Wi Kingi Place and the data collected from the remainder of this subdivision, as described above, further supports this conclusion. It may perhaps extend north towards the present lagoon as the collected data indicates extensive soil disturbance.

It may also possibly extend a short distance eastwards under the now elevated area. However this is speculation as no reliable data is available from the elevated area.










ORIGINAL SIZE A3  
0 10 20 30 40 50 60 70 80 90 100



### LEGEND

-  Area surveyed using Ground Penetrating Radar
-  Area surveyed using low frequency CPR obtained from University of Canterbury.
-  Areas surveyed using EM31
-  Anomaly - Possible burial site
-  Anomaly - Suspected object/void which may be grave related

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*Ground penetrating radar and electromagnetic mapping*



ORIGINAL SURVEY DRAWING SUPPLIED BY:



**MWH**  
MONTGOMERY WATSON HARZA

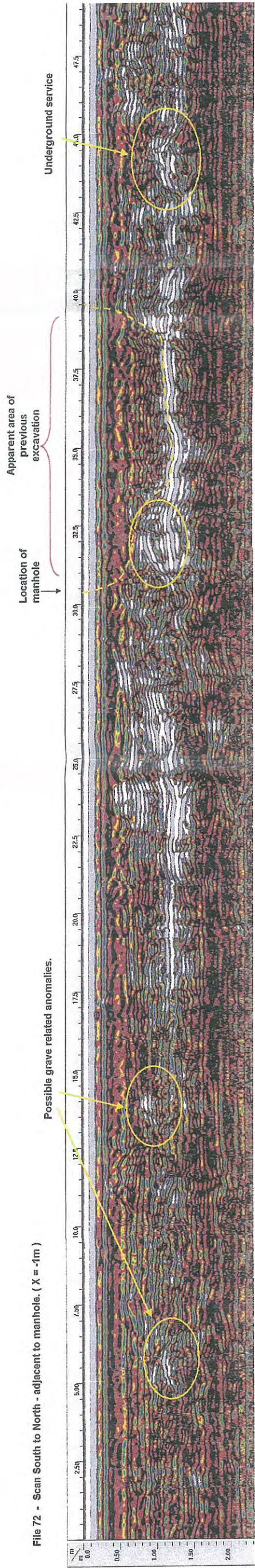
FILE: **WAIKANA E LAND CO.  
STAGE 6**

**GEOPHYSICAL SURVEY TO LOCATE  
SUSPECTED BURIAL SITES**

DATE: 20/10/2002  
SCALE: 1:1000  
DRAWN: Martin King  
JOB No.: 2002-WAI REV: 2

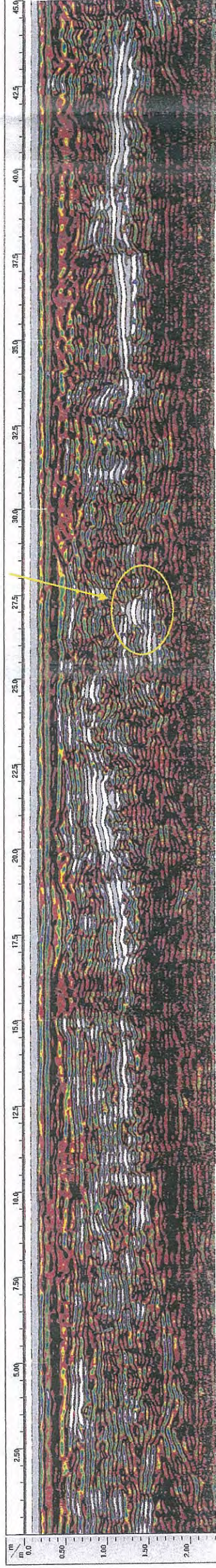


WAIKANAĒ LAND CO. LTD.  
 TYPICAL GROUND PENETRATING RADAR RESULTS  
 STAGE 6 - WAIKANAĒ SUBDIVISION.  
 Dec-02



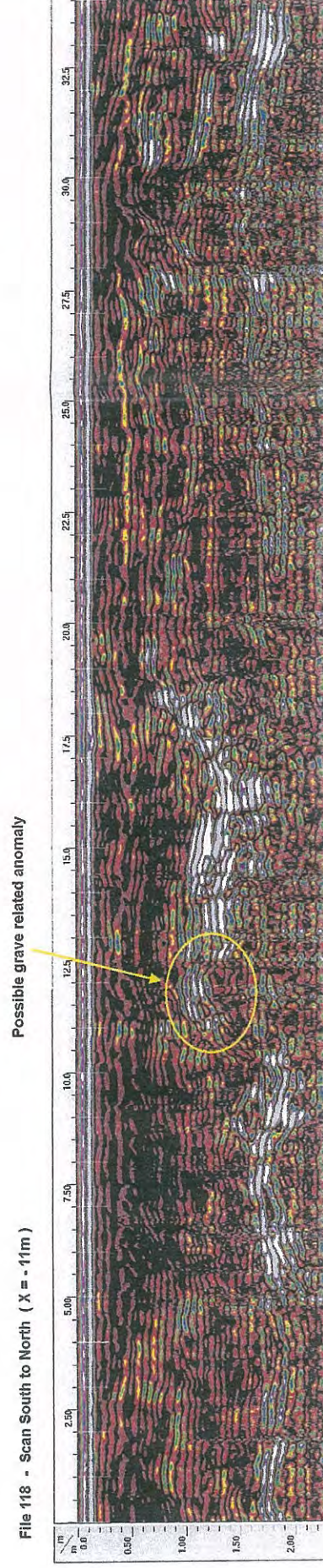
File 72 - Scan South to North - adjacent to manhole. ( X = -1m )

File 71 - Scan South to North ( X = -3m )



Evidence of disturbed strata  
in this area.

File 118 - Scan South to North ( X = -11m )



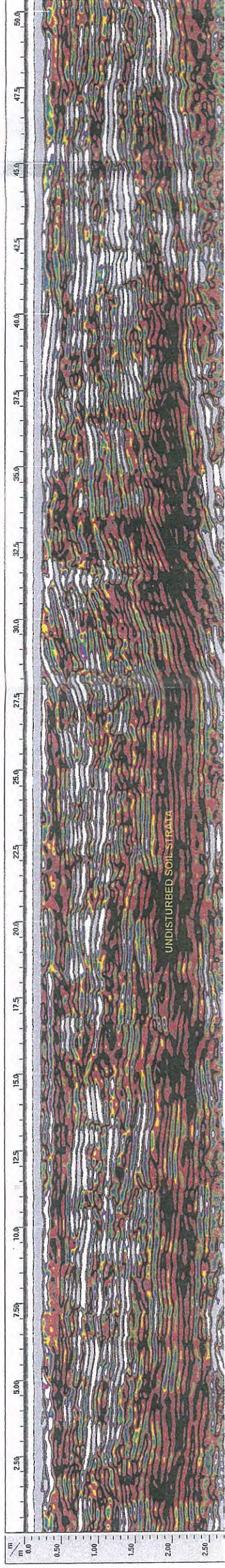
GPR Geophysical Services

Evidence of disturbed strata  
in this area.

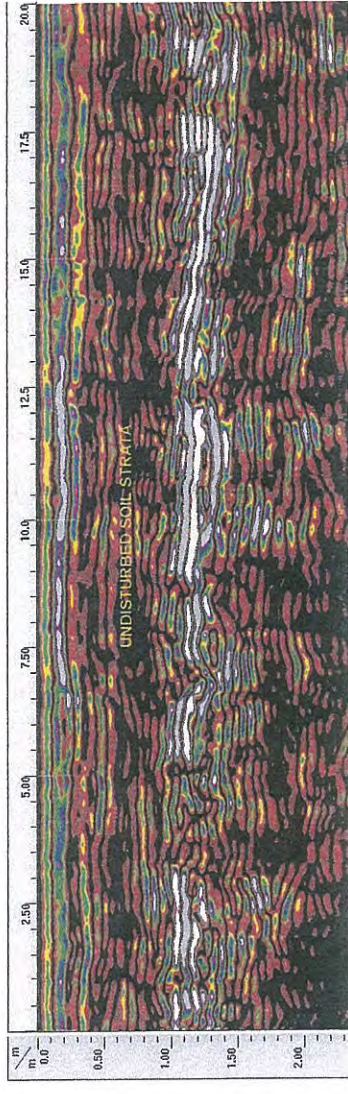


WAIKANAĒ LAND CO. LTD.  
 TYPICAL GROUND PENETRATING RADAR RESULTS  
 STAGE 6 - WAIKANAĒ SUBDIVISION. - NORMAL SOIL STRATA  
 Dec-02

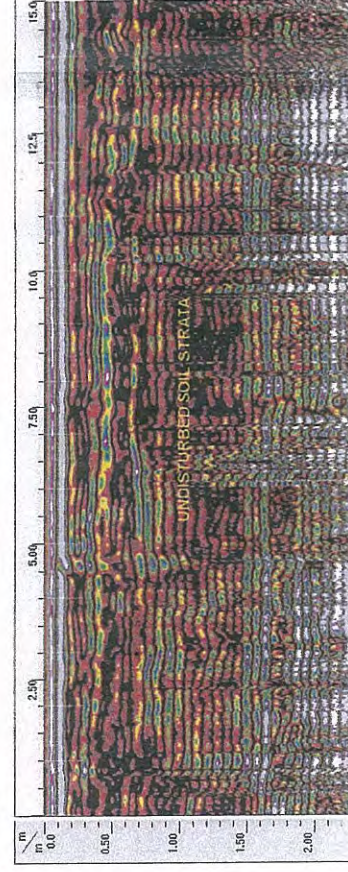
File 90 - Scan South to North - ( X = 30m )



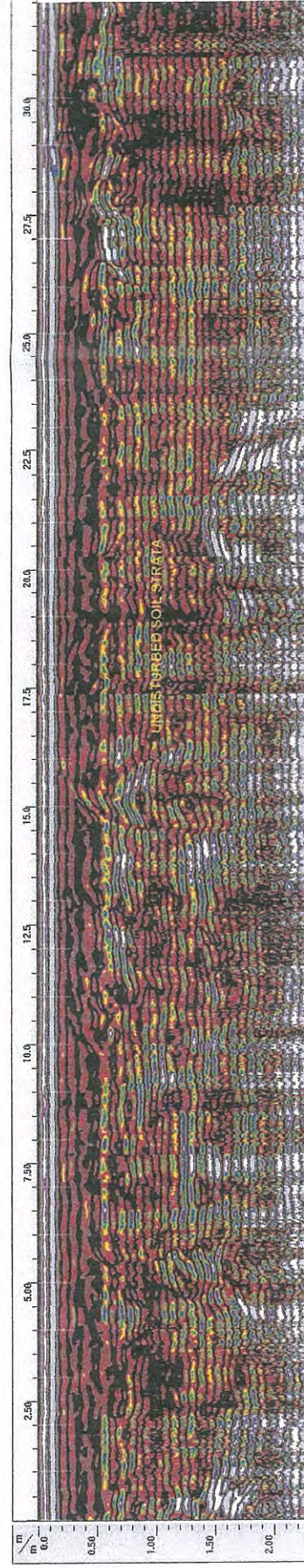
File 55 - Scan South to North - ( X = 27m )



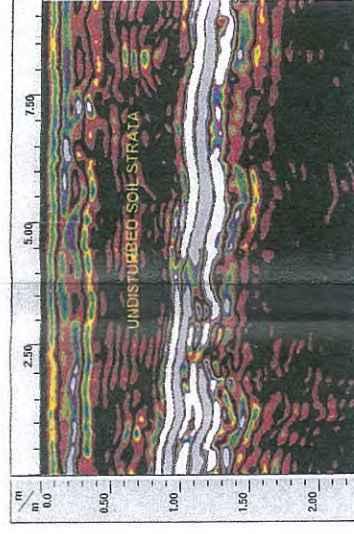
File 106 - Scan South to North - ( X = -17m )



File 86 - Scan South to North - ( X = 5m )

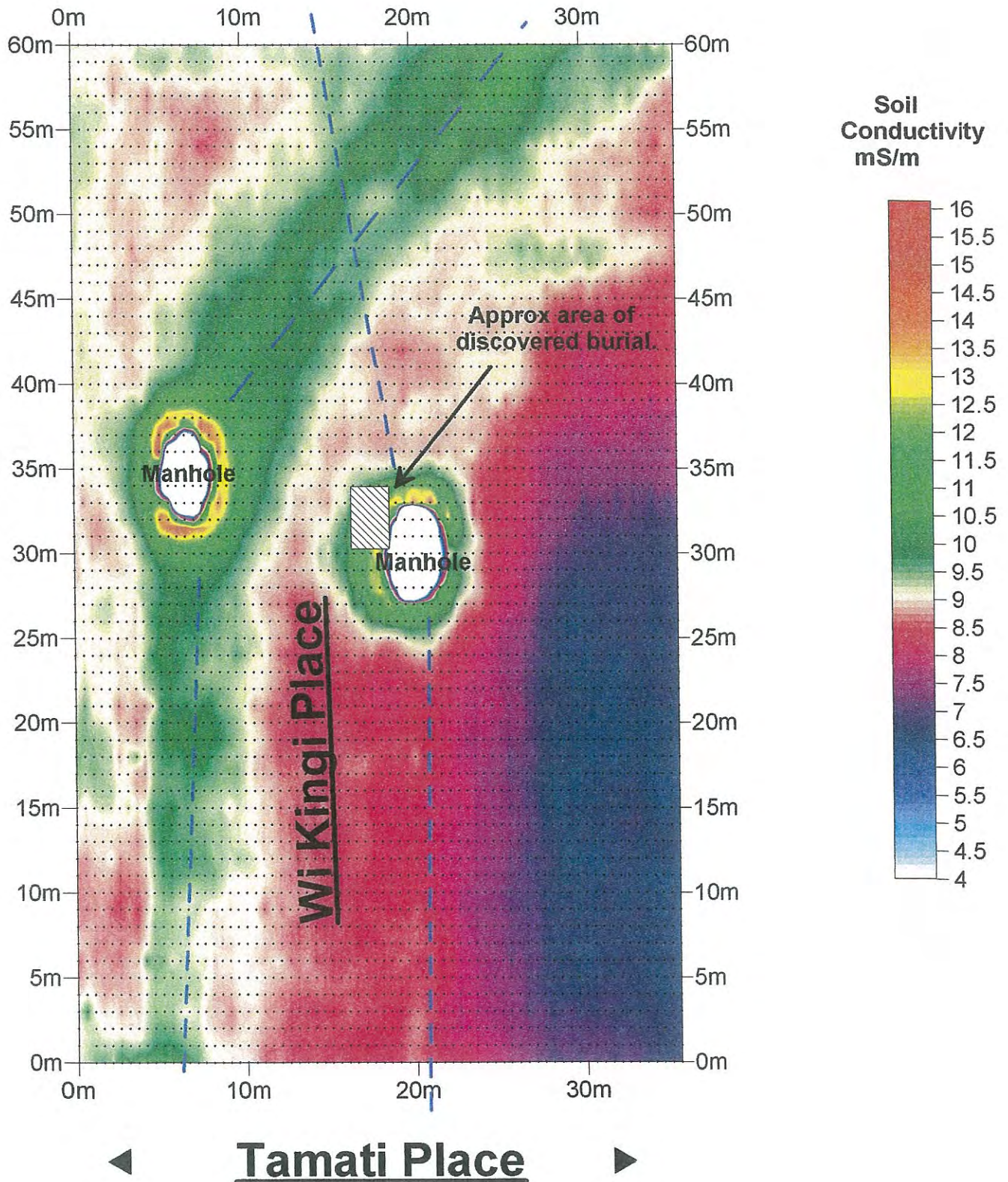


File 63 - Scan South to North - ( X = -85m )





**WAIKANAЕ LAND CO. LTD.**  
**Geophysical (EM31) Survey**  
**Wi Kingi Place Area.**  
**Stage 6 - Waikanae Subdivision.**  
**June 2002**



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**Tamati Place - archaeological issues**

Report to Waikanae Land Company and NZ  
Historic Places Trust

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Mary O'Keeffe  
Heritage Solutions  
56 View Rd  
Melrose, Wellington

March 2012



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# 1. Introduction

The Waikanae Land Company Ltd (the Company) owns land centred around Tamati Place, at Waikanae Beach (see figure 1).



*Figure 1: Location of Tamati Place*

The Company wishes to complete development of subdivisions in two locations on the land. Tamati Place was the subject of archaeological investigations in 2000-1, where human burials were exposed during trenching work in preparation for further subdivision. All work has since ceased on each planned area of development.

The history and archaeology of the land in question is complex. Mary O’Keeffe of Heritage Solutions (the consultant) was engaged by the Company, to undertake research as to the history and archaeology of the land.

This report provides that archaeological and historical background, to inform future decision making in relation to the land.

The land in question is Ngarara West A 14B1.



## 2. Background

### 2.1 History of development in the area

Subdivision commenced in the southern Tutere Street area at Waikanae Beach in the late 1960s. The Company completed some five Stages of subdivision, now comprising lower Tutere Street, Ara Kuaka Street, Oratia Street, Waiheke Street and Piopio Grove. These Stages of subdivision comprised some 121 residential allotments. In the course of the subdivision an extensive lagoon area (now known as the Waimanu Lagoon) was formed and consequently vested in the local authority as reserve. At a later date the extensive southern portion of the Company's property comprising an area of 15.2200ha (including the Waikanae riverbed and an extensive estuary area on the southern side of the Waikanae River) were transferred to the Crown as wilderness reserve<sup>1</sup>.

The Company was placed in statutory receivership in 1979. In the early 1990s further Stages of subdivision of the Company's land were undertaken in the name of the Company on behalf of unpaid security holders.<sup>2</sup>

The landholding of the Company comprised some 38.8068 hectares in Certificate of Title No 7A/1139 which included the seafront property north of the Waikanae River, the adjoining riverbed and the estuary area to the south of the River, together with a separate block comprising 8.0937 hectares in Certificate of Title No 8B/524 ("the 20 acre block"). At the date of its acquisition by the Company from Maori owners in 1969 the 20 acre block was designated "Maori Cemetery" under the 1968 Horowhenua County Council District Scheme (see below at section 3.7), but this designation was removed by the Horowhenua County Council in 1969 following a public hearing (at which local Maori appeared and gave evidence) in respect of the Company's application for such removal.<sup>3</sup>

Figure 2 shows the Company's original three title areas (outlined in red but excluding the extensive estuary area south of the Waikanae River which also formed part of the Company's main title). The largest of these outlined areas shows the Company's six Stages of subdivision which occurred on the coastal side of the lagoon areas prior to statutory receivership. Also shown in the inland side of the lagoon areas are the areas comprising the further Stages of subdivision completed since statutory receivership on behalf of security holders<sup>4</sup>. These further stages comprised the remaining residential portion of the main title area and slightly over half of the residential area of the 20 acre block. The smallest of these outlined areas shown on Figure 2 (which comprised an area of 6 acres 1 rood which now includes part of Queens Road) was purchased by the Company in May 1970 and was sold in an undeveloped state at a mortgagee sale during the statutory receivership of the Company and later subdivided (but not by the Company).

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<sup>1</sup> Letter from Maurice Rowe to author, 19 September 2009

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.



*Figure 2: Original land areas of the Waikanae Land Company Limited land (excluding the estuary area to the south which was also included in the Company's title)*

In 1999 a further Stage of subdivision (designated Stage 6) for the 20 acre block was approved by the local authority for the whole of the area to be known as Tamati Place and Wi Kingi Place. All services required for this subdivision were installed along with base course roading but in the course of final trenching human remains were located in the Wi Kingi Place area.

## **2.2 Archaeological work in 2000**

In 2000 the Company was developing a proposed subdivision at Tamati Place and Wi Kingi Place designated Stage 6 and a residual proposed subdivision off Barrett Drive designated Stage 4b (see Figure 3).



Figure 3: Location of places mentioned in this report

Trenches for services were dug along the centrelines of the proposed roads to be known as Tamati Drive and Wi Kingi Place, and human bones were exposed, along with apparently archaeological midden (shells). The bones were exposed in a discrete area within the trench towards the end of Wi Kingi Place, and the midden was exposed in one section in the trench along Tamati Place, opposite the intersection with Wi Kingi Place. The Historic Places Trust and local iwi were informed<sup>5</sup>. However further work took place on the site and within the excavated trench that resulted in a prosecution of the contractors under the Historic Places Act 1993, which was later overturned<sup>6</sup>. Further development of the subdivision fell into abeyance.

Susan Forbes' evidence to the District Court states that 2 skulls, 1 shoulder bone, 2 collarbones, rib fragments and two leg bones were removed from the trench on 5 July 2000. During the same site visit Ms Forbes observed "extensive areas of intact and modified midden/oven material"<sup>7</sup>. Ms Forbes observed shell and hangi stone scattered over the subdivision, and observed at least three apparent intact deposits of shell midden visible in service trenches<sup>8</sup>.

<sup>5</sup> It is noted that the consultant was not on site when the bones and other archaeological features were revealed, and was not the archaeologist who dealt with the preliminary archaeological findings on site.

<sup>6</sup> It is neither the purpose nor place of this report to set out or comment on the actual events that took place and resulted in the prosecution. Suffice to say there was ambiguity in communication between parties.

<sup>7</sup> Forbes, n.d.: 4

<sup>8</sup> *ibid*



Subsequent work in the same trench at Wi Kingi Place disturbed further burials on 19 July 2000. Ms Forbes' evidence states that the following human remains were removed by her and iwi:

- A skull in the trench uncovered by the site workers
- Several large bones and a skull discovered in the spoil heap
- 2 rib bones from the northern side of the trench
- 2 further burials removed from the trench

During this second site visit Ms Forbes also observed shell which she reported to be at least six intact middens along a service trench. Unfortunately it is not known exactly which trench or where along it Ms Forbes observed these and the previous midden. However James Hutchison (formerly of Montgomery Watson) noted the locality of the shell, as he recalled it, as being approximately opposite the intersection with Wi Kingi Place.

The human remains were analysed by Dr Nancy Tayles of Otago University (refer also section 3.12 of this report). In addition the consultant was subsequently engaged to undertake an archaeological assessment of the proposed Tamati Place subdivision to meet the statutory requirements of the Historic Places Act 1993, as no assessment had been completed at that time. In the course of this assessment research on the wider vicinity was undertaken to place the archaeological features into context; this research is replicated in this report.

### 3. Analysis and research

A great deal of information on the history, archaeology and geomorphology of the area is available. All of this data contributes to an understanding of the history and archaeology of Tamati Place.

#### A. Historical background

##### 3.1 *Historical burial grounds near Waikanae*

Several historical burial grounds are recorded or reported in the vicinity of Waikanae:

- Takamore: an urupa north of the Waikanae River, off Puriri Rd<sup>9</sup> <sup>10</sup>. Several marked graves on the top and slopes of a sand dune; the urupa is within a wahi tapu
- Waimeha: pa near mouth of Waimeha Stream where the stream meets the Waikanae River. Carkeek<sup>11</sup> notes it was also referred to as a burial ground by Eruini te Marau, whose mother was buried there, and it was referred to as a burial ground by Hira Maika, who said that Waipunahau is reported to have been buried there on her death in 1853; she was the mother of Wi Parata Te Kakakura Waipunahau, Chief and leader of Te Ati Awa<sup>12</sup>.
- Arapawaiti: a burial ground on the south side of the Waikanae River, near the old Ferry Inn at Otaihanga. Reported to have Maori and European families buried there, and also dead from the Kuititanga battle<sup>13</sup>.
- Karewarewa: exact location not known but it was reported to an 1890 Land Court Hearing by Mere Pomare, mother of Sir Maui Pomare, as being on the northern side of the Waikanae River<sup>14</sup>. Mere Pomare noted that her mother, the famous chieftainess Te Rauoterangi, who signed the Treaty of Waitangi, was buried there<sup>15</sup>.

##### 3.2 *Historic burials*

A 1992 report by Wellington Regional Council states that during the work in 1970-71 to create the Waimeha lagoons

“Nearby several gravestones made of Sydney sandstone were discovered. They mark the burial place of, among others, a whaler named William Browne and a little daughter of Major Durie<sup>16</sup>.....Until recently large flax bushes had grown over the headstones, all but obscuring the remnant of a large burial ground

<sup>9</sup> Carkeek, 1966: 147

<sup>10</sup> WRC, 1993: 4

<sup>11</sup> Carkeek, 1966: 152

<sup>12</sup> WRC, 1993: 4

<sup>13</sup> WRC, 1993: 4

<sup>14</sup> Carkeek, 1966: 116

<sup>15</sup> *ibid*

<sup>16</sup> Police and Customs Officer at Waikanae, 1847-1851

which once covered nearly 20 acres. However, they have been restored and are now visible by the Waimanu Lagoon<sup>17</sup>.

Unfortunately most of the information contained in this quote is not sourced. There is one reference to MacLean<sup>18</sup>, and the text of the quote is extremely similar to that used in Chris and Joan MacLean's 1988 book on Waikanae<sup>19</sup>, which suggests this could be the source. The text in MacLean only lists William Browne and "...a daughter of Major Durie..."<sup>20</sup>.

The consultant found the two relocated headstones beside the lagoon (Figure 4). The headstones are also shown as photographs in the WRC's 1992 report; the report records one headstone as being that of William Browne<sup>21</sup>, and the other being that of "Margaret Nairn and Penelope Durie"<sup>22</sup>, with both names inscribed on the stone. The writing on the headstones appears clearer when photographed in or around 1992 for the WRC report, than when photographed in 2007 by the consultant.



*Figure 4: Headstones of Browne, Nairn and Durie, relocated to edge of Waimanu Lagoon*

O'Keeffe, 2007

The Biographies Index of the National Library lists a William Franklin Browne, born in Barbados and died 11 August 1911. He married Erena, daughter of William Jenkins, a

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<sup>17</sup> WRC, 1992:106

<sup>18</sup> *ibid*

<sup>19</sup> MacLean, 1988

<sup>20</sup> MacLean, 1988:196. See also paragraph 3.7 below

<sup>21</sup> WRC, 1992: photo 30

<sup>22</sup> WRC, 1992: photo 29

well-known whaler of the district, who married Paeroke Rawiri; William Jenkins built the Jenkins Accommodation House at Waikanae (now known as Jenkins cottage, and still lived in by a family descendant)<sup>23</sup>. Marriage to a Waikanae woman would have explained why William Browne was buried at Waikanae; however, the obituary for William Franklin Browne notes he was buried at Karori cemetery, so this is unlikely to be the William Browne buried at Waikanae<sup>24</sup>.

The biographies index does not have an entry for Penelope Durie. She was probably named after her mother. Major David Stark Durie (1804-1874) arrived in New Zealand in May 1840, and was the Police and Customs Officer at Waikanae between 1847 and 1851. His entry in the NZ Biographies index notes he had 6 children, including 4 daughters. Only three of the daughters are named, and their "society weddings" are described; it is speculated that the fourth daughter was not named or her life noted because she died as a child.

The register of deaths index at the National Library has deaths noted for a William Browne in 1890, 1892 and 1893, for a Margaret Nairn in 1893 and for a Penelope Durie in 1896.

The New Zealand Cemeteries Records index at National Library was checked, as were the New Zealand Gazettes between 1857 and 1920. There is no record of a formal or gazetted cemetery at Waikanae.

### **3.3 Traditional graveyard**

An historic graveyard may have been located within the area of Ngarara West A14B. An area of land within this parcel was later designated as a cemetery in the Horowhenua County Council plan, but the designation was lifted (see section 3.7 below).

There was some ambiguity over the location of the historic graveyard, due to various petitions and orders made in the Maori Land Court in the later part of the 19<sup>th</sup> century and early 20<sup>th</sup> century.

A letter dated 19 February 1970, from the Maori Land Court to Rowe & O'Sullivan, (lawyers to the Waikanae Land Company), states:

"Mr W Lawrence has made enquiries at this office about a cemetery on land north of the Waikanae River, and he has asked me to pass the following information on to you.

On 10 November 1896 the Maori Land Court made a partition order for an area of land containing approximately 10 acres, called Ngarara West A14A. The minutes recorded in Otaki M.B 31/147-148 state "the object in dividing this section (A14) is to set apart a portion of it for a cemetery to include the part to the west of section 15 between that boundary and the River Waimea<sup>25</sup> ...". All of the owners of A14 were to be included in the Cemetery area, which was to be absolutely inalienable. This order was not completed by survey, and the order has not been signed.

<sup>23</sup> NZ Biographies Index, Turnbull Library

<sup>24</sup> NZ Times, 14 August 1911

<sup>25</sup> Note the names "Waimea" and "Waimeha" are both used



On 10 August 1915 a further partition order was made for an area of 9a.1r.20p. called Ngarara West A Sec 14A in the name of Charles Bruce Morison. The minutes on this partition are contained in Wn.M.B 20/149. There is no reference in these minutes to the land having been used as a cemetery, nor to a transfer from the Maori owner to C.B. Morison. The court would no doubt have been satisfied that Morison was entitled to be shown as the owner. This partition order has been registered in the Land Transfer Office, and we have treated the land as being European land.

Section A14A is located immediately to the north of the subdivisions of Ngarara West A14B.<sup>26</sup>

The letter is signed by the deputy registrar.

Figure 5 shows plan ML 2823, which contains land parcels Ngarara West A14A (containing 9 acres 1 rood and 20 perches) and Ngarara West A14B (containing 178 acres 0 roods and 20 perches, of which 30 acres was referred to as "underwater").

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<sup>26</sup> Letter dated 19 February 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers



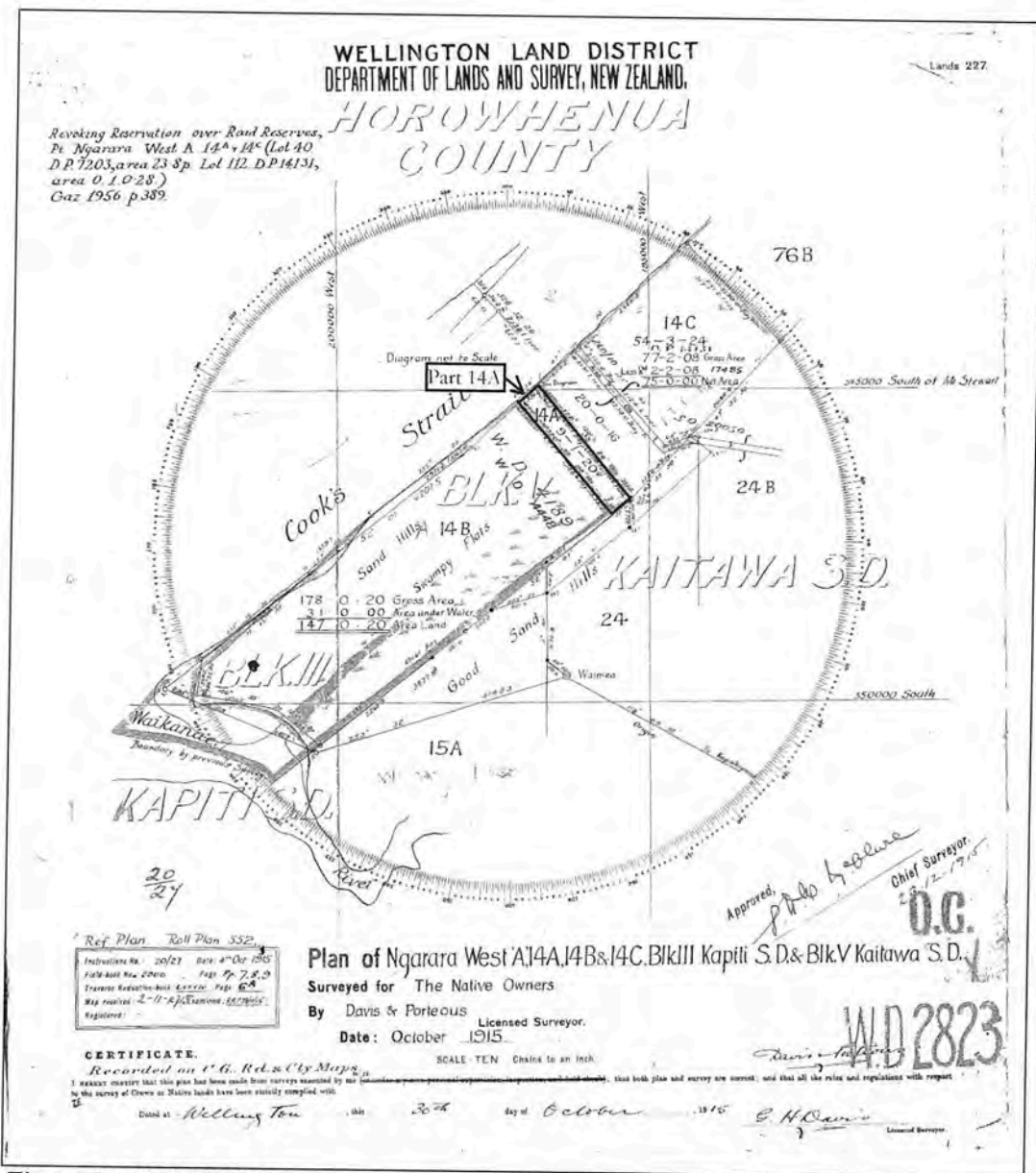


Figure 5: ML 2823, 1915  
Quickmap

Figure 6 shows ML plan 3495 showing land parcel Ngarara A 14 B1 (which is the 20 acre block partitioned in 1918 and designated as a cemetery in the 1968 Horowhenua County Council Plan).



Figure 6: ML 3495, 1920  
Quickmap

Additional research was commissioned from Evald Subasic, an expert in Maori Land Court minutes, to clarify this situation. His full report is annexed to this report as Appendix 1.

A summary of the key points from this research is:

- November 1896: Maori owners of Ngarara West A14 block apply to have section set apart as cemetery reserve
- Provisional order granted on 10 November 1896, block to be known as Ngarara West A14A, not competed by survey (cemetery didn't come into existence)
- February 1905: Maori owners made another application, this was dismissed as judge noted only required survey to complete, this didn't happen

- May 1906: different section cut out as Ngarara West A14C (this area being shown on Figure 5 as being situated immediately to the north east of Ngarara West A14A).
- August 1915: Owners (E D & H Barber) have their block cut out – this becomes known as Ngarara West A14A, but bears no relation to the 1896 application for parcel A14A (Barber’s parcel is 9 acres 1 rood & 20 perches, seen above in Figure 5)
- June 1918: Maori owners again made application for cemetery block. Parcel surveyed off (see Figure 6) and called Ngarara West A14B1.

Subasic concludes “The evidence examined suggests that the block of approximately 10 acres which the Maori owners of Ngarara West A14 sought in 1896 to set apart as a cemetery reserve was in the location of Ngarara West A14B1 which was partitioned in 1918. Ngarara West A14B1 was gazetted as a cemetery under the Horowhenua County administration (although the lifting of that status in 1969 has not been examined by me)”.

However it is not clear whether the 20 acre cemetery block was already in use in 1918 and the Maori Land Court was formalising an existing land use, or whether the area was set aside for planned future use and it is noted that the Partition Order of 1918 in respect of it did not stipulate that the area would be inalienable (as was proposed for the 1896 partition).

If the block were being defined for both existing and future use, some parts of the block would presumably include existing burials and some empty parts would be flagged for future use. It is possible that the 20 acre block would include existing burials: it is assumed that Hira Parata, who was asked by the judge in 1918 to assist the surveyors, would have advised the surveyors where any burials were located, and they would have placed the block boundaries to include these areas. Clearly the square edges of the 20 acre block do not mark the precise boundaries of a possible already existing graveyard, and are straight lines for surveying convenience.

It is noted that during the trenching on site in 1999-2000 burials were revealed in just one locality, as opposed to multiple localities as might be expected if the cemetery was in wide-spread use.

### **3.4 1898 graves**

Historic survey plans and surveyors’ fieldbooks for the area of Tamati Place were searched.

The area of the Ngarara block, within which the area of Tamati Place is located, is shown on survey plan ML 1491, 1898 (Figure 7).



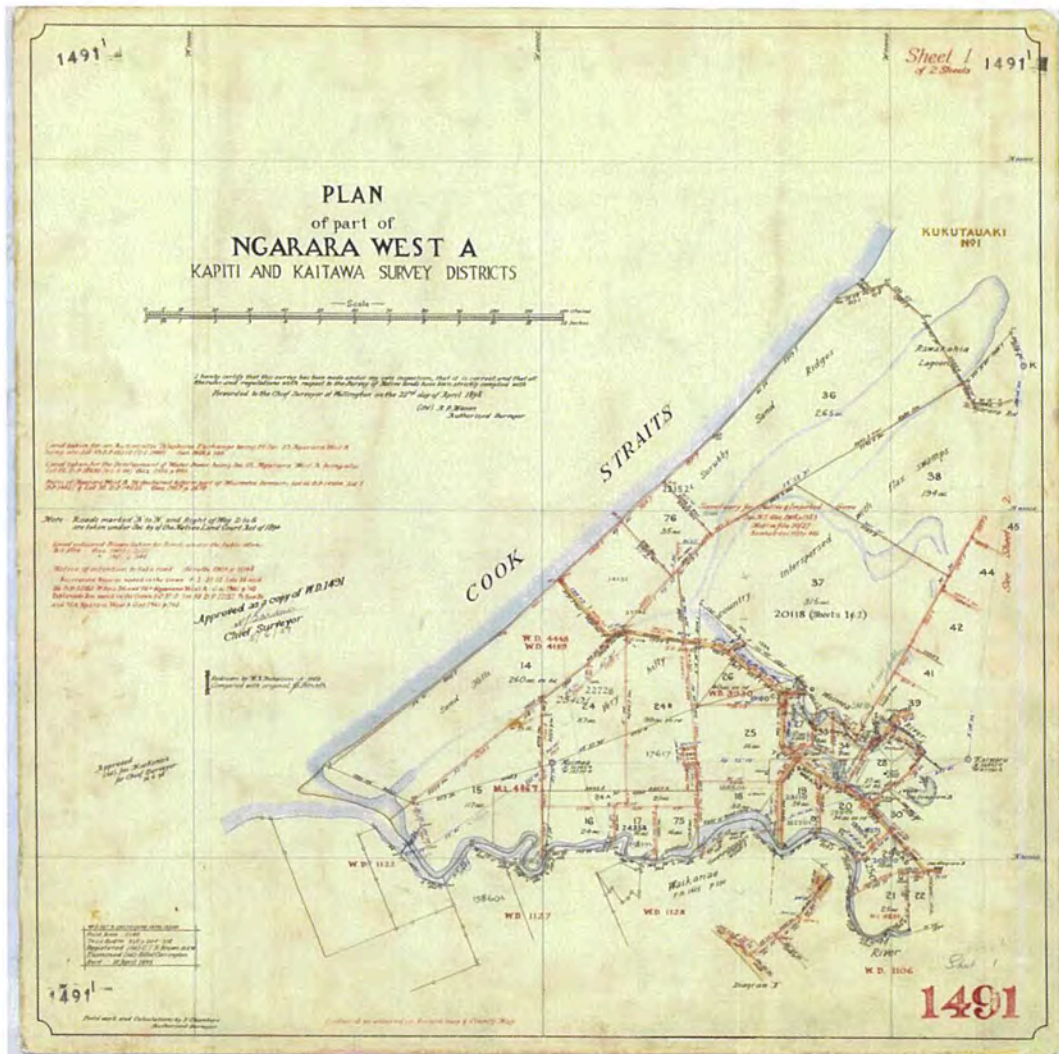


Figure 7: ML 1491, 1898  
(Quickmap)

The field book for plan ML1491, Fieldbook 2140, dated 1898 shows “graves” (Figure 8). The graves are not marked on the survey plan itself.



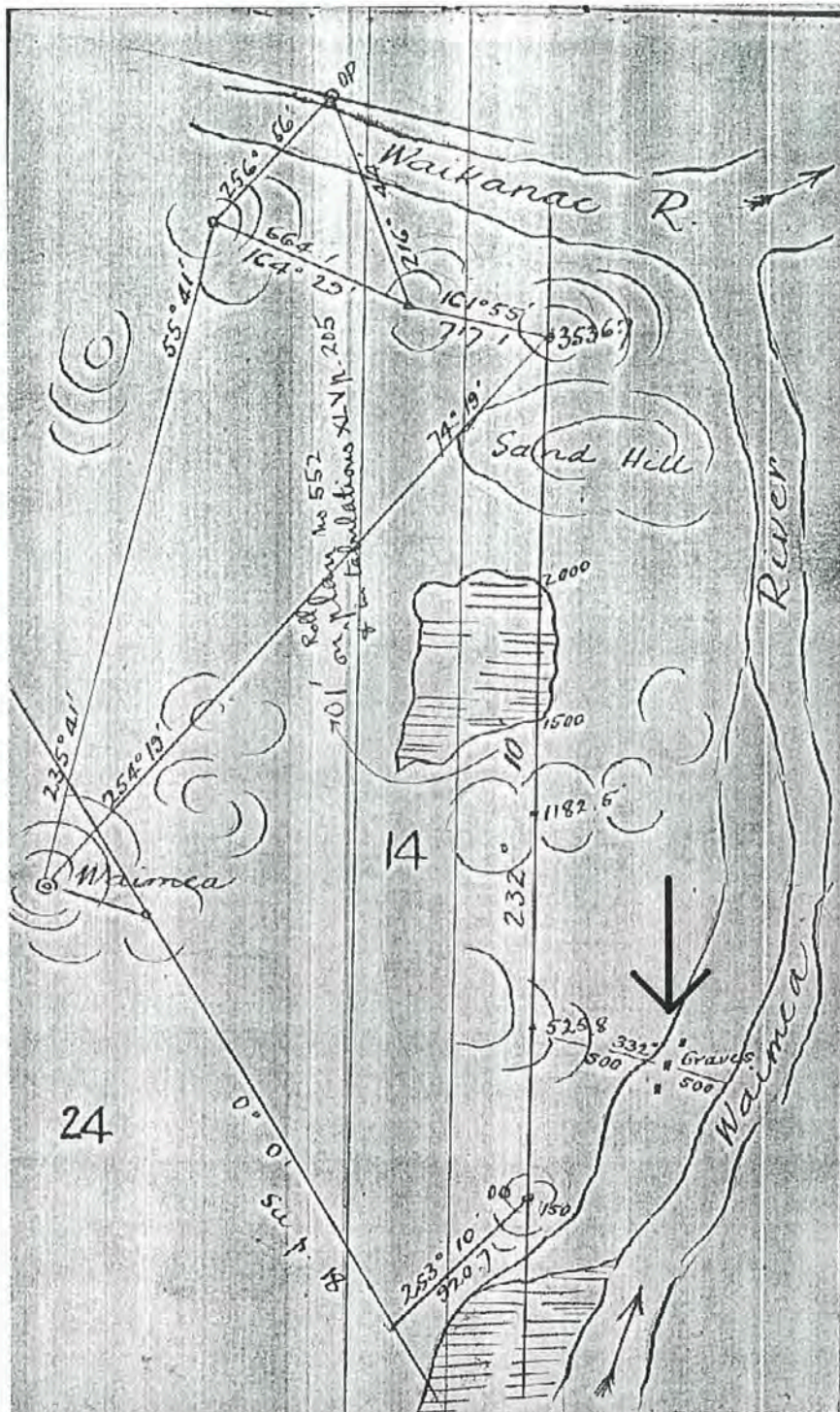


Figure 8: Fieldbook 2140, surveyed for plan ML 1491, 1898.

Graves arrowed

Land Information New Zealand

It is considered significant that the surveyor used the word “graves” in his fieldbook, and three small rectangles are shown to mark the graves. From the specific use of this term it may be inferred that the graves were of European style, marked either with headstones, crosses or a boundary fence. Generally when surveyors were recording unmarked Maori burial grounds they used terms such as “native burial ground”, “burial ground” or



similar. European style burial does not of course imply European people are buried there; they may be burials of Maori people dating from the post contact period.

Using survey information available in the notebooks, a surveyor colleague of the archaeologist<sup>27</sup> extrapolated the location of the historical graves onto a contemporary map – they are located on Wi Kingi Place exactly where the burials were revealed in 2000.



**Figure 9: Location of graves from surveyor's notebook on contemporary aerial**  
McFadgen, 2010

It is possible that the graves of Browne, Nairn and Durie are the same three graves shown in the surveyor's notebook of 1898. However this has not been proven and can only be speculation.

It is noted that the WRC report states that Nairn and Durie shared one grave, and only two headstones were relocated during the lagoon construction work; therefore, if these people are the three in the 1898 plan there was at least one further unknown person in the third grave.

### **3.5 Historical documents**

Further documents were searched in an attempt to obtain information on the land and its use. The current certificate of title for the 20 acre block (53B/939 issued in the name of the Company on 21 July 1998) was examined. The previous Certificate of Title for the 20 acre block (8B/524 issued 3 August 1970 in the name of the Company) was also examined, as was the Certificate of Title for the Company's main block originally comprising 38.8068 hectares including the estuary area (7A/1139 issued in the name of

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<sup>27</sup> Bruce McFadgen

the Company on 12 June 1969). Certificates of Title 7A/1139 and 8B/524 respectively also referred to Maori Register documents that were obtained (MR 10/62 and 10/139).

The Ngarara West A file held by National Archives was examined<sup>28</sup>. The only reference in that file to a cemetery was a letter dated 28 January 1926 from a Pono Timihana of Taranaki, requesting a copy of a sketch map of the Waimea Block to show the two cemeteries, Waimea cemetery and Takamore cemetery. The reply from the Chief Surveyor of 28 January 1928 notes there were no plans in the office showing these cemeteries. There is no further correspondence on this matter on the file.

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<sup>28</sup> National Archives AAMA 20/27 Vol 1, accession W3150

## B. The land

### 3.6 *Land ownership*

The Company purchased Ngarara West A14B1, the 20 acre block, in August 1969 from the Maori Trustee as agent for the Maori Owners<sup>29</sup>. Prior to purchase the Company had attempted to contact each of the Maori Owners individually, for a meeting to consider the sale<sup>30</sup>. This meeting was advertised for 18 December 1968<sup>31 32</sup> and was duly convened at Waikanae on that date. The meeting by resolution approved the Maori Trustee as agent of the Owners to sell the land by public tender. The Company subsequently purchased the land through that tender process.

### 3.7 *Cemetery designation*

The 20 acre area of land was identified and was partitioned for use as a cemetery in 1919. The land was surveyed in 1920, and the 20 acre cemetery area became Ngarara block section A 14B No 1.

It is not known when this cemetery designation was placed<sup>33</sup> but it must have been on or before 1968, as the land was designated as a cemetery in the Horowhenua County Council plan, and is shown as such on a Horowhenua County Council planning map, dating to 1968 (Figure 10).

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<sup>29</sup> Letter from Dep't of Maori Affairs to the Waikanae Land Company dated 8 August 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

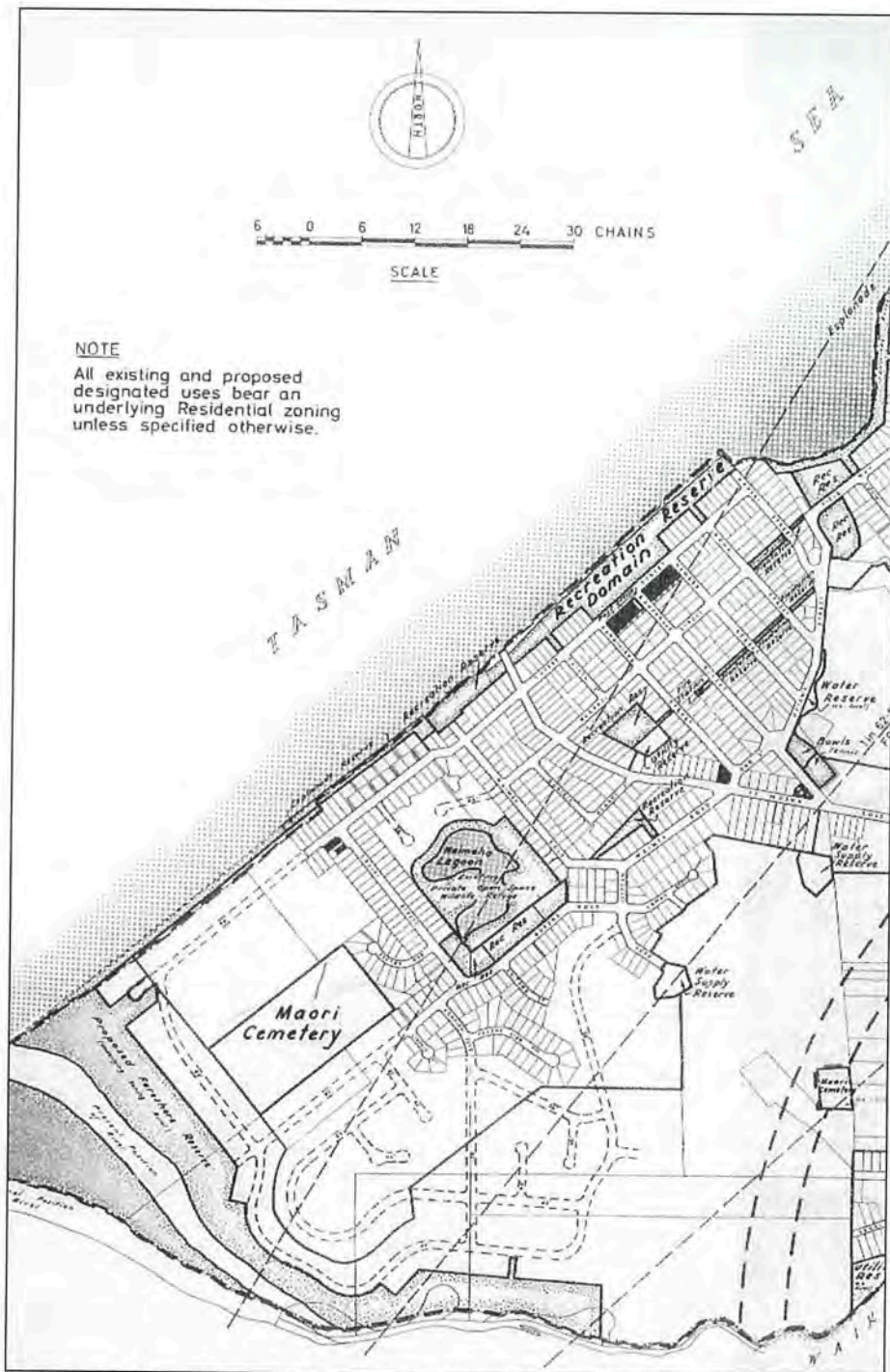
<sup>30</sup> Letters on file, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>31</sup> Note on file, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>32</sup> Of interest was a letter on file dated 18 August 1969 from the Wellington Archaeological Society, noting the advertised block for sale, noting there was "signs of prehistoric occupation, mainly in the form of now rather disturbed midden deposits" and requesting permission to go on the land to examine and record the sites, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>33</sup> Horowhenua Council records have been moved in part to the Kapiti Coast District Council. Many records are missing or incomplete. The district plan which shows the map became operative on 1 June 1968.





**Figure 10: Planning map from Horowhenua County Council district plan 1968, showing cemetery designation**

Figure 11 shows the boundary of the designated cemetery in relation to present day street layout.



*Figure 11: Cemetery designation in relation to current street layout*

The Company purchased the parcel of land known as Ngarara A14B1 some time in 1969<sup>34</sup>. A letter from the Company to Horowhenua County Council dated 26<sup>th</sup> August 1969 notes the Company had “recently entered into a contract to purchase the...block from the Maori Trustee...”<sup>35</sup>. The same letter noted that enquiries made by the Company indicated the land had never been used as a burial ground for Maori, but may have had some Europeans buried there<sup>36</sup>. The nature of these enquiries or the source of this information is not stated.

The file on the purchase of the 20 acre block by the Company, held by Fitzherbert Rowe Lawyers, contains a copy of the Wellington Minute Book 21 referred to in this report. The copy of the minutes on file has a cover letter from the Maori Land Court to the Company lawyers, dated 11 September 1969. This letter states “At the meeting of owners of this block held at Waikanae on 18 December 1968, Mr Simpson, Solicitor, said

<sup>34</sup> Letter dated 26<sup>th</sup> August 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>35</sup> Ibid.

<sup>36</sup> ibid

that at first it was thought that the cemetery was in this block but he had since learnt that it was not<sup>37</sup>. The source of this information is not stated.

A further letter from the Maori Land Court to the Company lawyers dated 23 September 1969 noted that the block of land partitioned out by the Maori Land Court in 1919 for use as a graveyard, but that there had been no subsequent action to have the land set apart as a Maori reservation for the purposes of a cemetery, and it thus remained Maori freehold land at that time<sup>38</sup>. A subsequent letter from the Company lawyers to the Horowhenua County Council dated 25<sup>th</sup> September 1969 noted that the intention of establishing a cemetery had not been carried out, and that there was no suggestion at the 1919 hearing that the land had ever previously been used as a cemetery, and that this was a use envisaged for the future<sup>39</sup>. The Council indicated in October it would consider lifting the Maori Cemetery designation, provided the Maori Land Court would confirm that the land was not in use as a Maori burial ground<sup>40</sup>.

A newspaper report from the Evening Post of 28 October 1969 on Fitzherbert Rowe's file on the purchase of the 20 acre block records the plan of the Company to buy the block, and of the plan to change the designation<sup>41</sup>. The article states there were three recognised Maori burial grounds in the Waikanae area (but names only Tukimore (sic)), and names the burial ground within the 20 acre block as Karewarewa. The article notes that the burial ground then in current use at Waikanae was the Tukimore [sic] ground, the other two were filled. This statement implies Karewarewa burial ground had been in use prior to 1969, and was filled. The source for naming Karewarewa as the 20 acre block of land is not stated in the newspaper article. The article further states that Mere Pomare noted that her mother, Te Rauoterangi, was buried at Karewarewa, as were others including Ihaia Paihia; dead from the battle of Kuititanga; and Waipunahau, the mother of Wi Parata. The source of this information is not stated in the article. Section 3.7 of this report, sourced from Carkeek, noted that not only was the precise location of Karewarewa not known, but that Waipunahau was buried at Waimeha, not Karewarewa, and that dead from the Kuititanga battle were buried at Arapawaiti, not Karewarewa.

Mrs T Kauri and Mrs S Tamati both signed a letter dated 14 October 1969, objecting to the lifting of the designation. They noted their tupuna who were buried at Karewarewa. However, of interest is the fact that they refer to land block Ngarara West A14B1, but then ask "If this is (sic) piece of ground known as Karewarewa...", which suggests there may have been some doubt over the location of Karewarewa<sup>42</sup>.

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<sup>37</sup> Letter dated 11 September 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>38</sup> Letter dated 23 September 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>39</sup> Letter dated 25 September 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>40</sup> Letter dated 3 October 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>41</sup> File on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>42</sup> Letter dated 14 October 1969, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers



The county engineer wrote to the Company's solicitors in February 1970 noting that apparent initial clearing work on site being undertaken by the Company was "premature"<sup>43</sup>.

The Maori Land Court in Palmerston North wrote to the Company on 19 February 1970, advising that at that point the survey for the 20 acre block had not been undertaken and the partition order had not been signed. The letter also notes a further partition order made for a 9 acre area called Ngarara West A sec 14A, for a Charles Morison, and that the minutes for this partition contained no reference to the land having been used as a cemetery<sup>44</sup>.

The proposal to lift the designation was publicly notified in February 1970<sup>45</sup>. An objection was lodged by Te Aputa Kauri (referred to above as Mrs T. Kauri), on the basis that ancestors were buried in the block of land, it was a tapu place, and it was the resting place of many persons connected with the early history of Waikanae<sup>46</sup>. A letter from the County Clerk to the Company's solicitors noted Mrs Kauri's objection, and also noted there were three other objectors who lodged too late, but who would probably support Mrs Kauri's objection<sup>47</sup>.

The Company lodged an opposition to Mrs Kauri's objection on 1 May 1970, on the grounds that "the land...cannot be shown to be the burial place of any of the ancestors of the objector or of Maoris (sic) connected with the early history of Waikanae; and...that the...land cannot be said to be a traditional Maori burial ground..."<sup>48</sup>.

The hearing to lift the designation was held some time between February and August 1970 (there are no minutes or record of the hearing on file, but a letter from the County Clerk dated 10 August 1970 states that the hearing of objections was complete)<sup>49</sup>.

The file held by Fitzherbert Rowe Lawyers contains an undated copy of a presentation presumably made by Mrs Kauri at the hearing. In it she expressed her feelings towards the land and her tupuna. She confirmed her objection to the lifting of the designation, but she also asked that "...any human remains that are uncovered in the course of excavation or development of [the land] be interred in a common grave on an adjacent piece of land and for a plaque to be erected..."<sup>50</sup>.

William Lawrence, Director of the Company, also made a presentation to the hearing. In his presentation he noted that the only visible evidence of burials on the land were two

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<sup>43</sup> Letter dated 18 February 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>44</sup> Letter dated 19 February, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>45</sup> Copy of public notification for insertion into Chronicle and Evening Post newspapers, 14 and 21 February, 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>46</sup> Objection form no 3/1, dated 2 April 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>47</sup> Letter dated 27 April 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>48</sup> Opposition to objection form dated 1 May 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>49</sup> Letter dated 10 August 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>50</sup> Undated presentation, signed by Te Aputa Wairau Kauri, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

headstones, one of which indicated it related to a person who was European. He noted his enquiries to the Maori Land Court which indicated there was no Court record or Court knowledge indicating the block was part of a traditional burial ground. He noted that the land had not been set apart as a Maori reservation for the purposes of a cemetery and nor had trustees been appointed. He noted that Carkeek did not know the precise location of Karewarewa<sup>51</sup>.

The County Clerk wrote to the Company on 10 August 1970, stating that Mrs Kauri's objection to the lifting of the designation had been disallowed. However the Clerk also stated "but nevertheless as there is a possibility that human remains may be uncovered as development of the land processed, the Waikanae County Town Committee's attention be drawn to this possibility, so...the Committee may recommend...that the Company shall arrange for the reinternment of any such remains..."<sup>52</sup>

In this letter dated 10 August 1970 the County Clerk notes the objection had been disallowed because "...there [was] no certain evidence that it is an historical Maori Burial Ground, or that interments have taken place since it was set apart for a future Maori Cemetery in 1919"<sup>53</sup>. This is the only reference to the cemetery being set aside for "future" use, implying the land had not been used for burials to that point apart from those evidenced by the two headstones on the land.

From August 1970 onward the file contains correspondence outlining and progressing the Company's development plans on the land.

### **3.8 Construction of the lagoons and subdivision**

In the last 30 years the ground surface of the area around Tamati Place has been considerably modified.

The Company was formed around 1969 to develop areas of land on the Kapiti Coast for subdivision. The total area purchased for development by the Company was slightly in excess of 122 acres (comprised in three separate certificates of title) and including the area of what is now the proposed Tamati Place subdivision. This block was subject to a designation for a Maori cemetery, as discussed in section 3.7 of this report; this block has already been rezoned for residential use.

Between 1969 and 1971 a swampy area that was the former bed of the Waimeha River was created into a lagoon named the Waimanu lagoon<sup>54</sup>. The lagoon was excavated with a floating suction dredge that pumped material from the bed of the lagoon and discharged it onto the south-eastern lagoon shore<sup>55</sup>. How far from the lagoon shore the material was re-deposited is not known, but it is reasonable to expect that it would have been used to level the surface of the terrace between the stream and the low dune ridge.

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<sup>51</sup> Undated, unsigned presentation, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>52</sup> Letter dated 10 August 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>53</sup> Letter dated 10 August 1970, contained in file on purchase of 20 acre block held by Fitzherbert Rowe Lawyers

<sup>54</sup> Maurice Rowe, *pers. comm*

<sup>55</sup> James Hutchison *pers. com*



The nature of the dredge meant it was automatically compacting material as it was deposited<sup>56</sup>. A recreation reserve was created around the edges of the lagoon.

A report and photograph in the *Kapiti Observer* of 9 July 1970 shows the suction dredge at work. The story reports plans for a marina and housing development. The *Kapiti Observer* has further stories and photos in its editions of 29 October 1970 and 17 December 1970.

A report made by WRC in 1992 stated “as the work proceeded on the lagoons “an extensive Maori burial ground was uncovered”<sup>57</sup>. This report speculated that these burials may have “included warriors killed during the battle of Kuititanga”<sup>58</sup>. A similar statement is also included in Chris MacLean’s book *Waikanae: Past and Present* (it is likely that MacLean was a source for the WRC report – text in both is very similar)<sup>59</sup>.

However, given that the work was carried out between 1969 and 1971, it is possible sources have become confused over the years. Maurice Rowe, who was a director of the Company at the time, is emphatic that no burials were located or disturbed during the lagoon development work; he remembers the locating of the headstones, but no bodies in association with these or anywhere else<sup>60</sup>.

This report from the MacLean book and the WRC report was discussed with Kapakapanui at a meeting of 13 February 2001; in a follow-up e-mail from Susan Forbes on this issue Susan states “some of that info has become somewhat generalised over the years. Burials were uncovered at the airport and at Queens Road and none of us could think of any at Waimeha – Chris’s sources were probably talking about Queens Road – not far away but far enough to be unrelated to this project”<sup>61</sup>.

Following acquisition of the 20 acre block by the Company in 1969-70, “several gravestones” (as described in the WRC Report) were located, which were reported to mark the burial places of William Browne, Margaret Nairn, and Penelope Durie<sup>62</sup>. These headstones have been relocated to the recreation reserve beside the current lagoon; the WRC report does not state whether the bodies of the people were also recovered, and if so, what became of them.

In 1990 and 1999 the ground surface of the subdivision was re-contoured<sup>63</sup>. In 1990 the ground to the west of Wi Kingi Place was cut to a maximum depth of slightly more than 3m on the dune ridge, and slightly more than 0.5m west of the intersection between Tamati Place and Wi Kingi Place. Fill was deposited on the eastern part of the subdivision to a maximum depth of 4m. In addition, small pockets in the western part were filled to a depth of less than 1m.

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<sup>56</sup> Maurice Rowe, *pers. comm*

<sup>57</sup> WRC, 1992:105

<sup>58</sup> *ibid.*: 105

<sup>59</sup> This particular section was unreferenced in the MacLean book: the consultant contacted Chris MacLean and asked if he could remember the source. Chris was kind enough to check his records for his book; he had no written records for this report, so suspected it came from an oral interview undertaken for his book. He postulated the lack of referencing would have been deliberate to ensure the anonymity of the source.

<sup>60</sup> Maurice Rowe to Mary O’Keeffe, 2 September 2010

<sup>61</sup> e-mail exchange: Susan Forbes to Mary O’Keeffe, 15 February 2001

<sup>62</sup> WRC, 1992:105

<sup>63</sup> engineering plans: 1605836 sheet 1, 1990; 1272233 sheet 1, 1999

In 1999 the earthworks resulted in minor cutting to a maximum depth of about 1m on the north-eastern boundary of Wi Kingi Place and along Tamati Place, and the western and northern parts of the subdivision were filled to a maximum depth of 1m. Small pockets of cut and fill were made along the dune ridge southeast of Tamati Place, the maximum cut being about 2m, and the maximum fill about 1m.

It would have been normal practice to use the nearest source of material as fill and this would have included spoil cut from the higher parts of the subdivision. In 1990, however, some spoil was also brought in from the Major Durie Drive subdivision between Tamati Place and the Waikanae River and deposited along the south-eastern dune ridge<sup>64</sup>.

It is noted that no human remains were found during the course of these works.

### 3.9 *Geomorphological context*

The geomorphology of the area provided critical information in interpreting what was thought to be archaeological material. Survey plans and aerial photos housed at Land Information New Zealand were studied to gain information on the changing environmental context of the area.

Tamati Place subdivision is near the seaward edge of the sand dune belt that extends from Paekakariki in the south to beyond the Manawatu River in the north. It is on the south bank of the former Waimeha Stream, which was once a large tributary of the Waikanae River<sup>65</sup> that flowed west to southwest behind the coastal dunes towards the present Waikanae estuary. It is bounded to the southeast by a low dune ridge roughly parallel to the coast.

The sand dune belt has formed during the last 6500 years<sup>66</sup>. Before then the shoreline was near the foot of the hills<sup>67</sup>, and since then, as a result of sand accretion, the shoreline has moved seawards some 3.5 km to its present position.

About a kilometre inland of the subdivision a prominent sand dune ridge roughly parallel to the coast marks an intermediate position of the shoreline. The dune ridge, called the Taupo Dune, is a relict foredune that was the shoreline at the time of the Taupo Pumice eruption<sup>68</sup> *ca.* 230 AD.

The sand seawards of the Taupo Dune has accumulated since about 230 AD and is identified as belonging to the Waitarere and Motuiti dune-building phases<sup>69</sup>. At some time since 230 AD the beach was where the subdivision is today, and has been buried as the shoreline advanced further seawards. The Waimeha Stream, which at one time would have flowed to sea north of the subdivision, was probably forced to flow south-westwards by the accumulation of sand between it and the sea.

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<sup>64</sup> James Hutchison, *pers. com.* 2000

<sup>65</sup> Adkin, 1941

<sup>66</sup> Gibb, 1978

<sup>67</sup> Fleming, 1972

<sup>68</sup> Stevens, 1988, Sparks *et al.*, 1995

<sup>69</sup> Stevens, 1988



### **3.10 GPR survey**

A ground penetrating radar (GPR) survey was carried out in March 2002 to check for the possibility of further unrecorded and unknown burials in the Tamati Place area. The entirety of the Tamati Place proposed subdivision was scanned; nine anomalies that the technician considered could conceivably (but not presumably) have been further possible burials were recorded in the vicinity of Wi Kingi Place, immediately around where the first burial were revealed by the trenching in 2000 (see Figure 12). Three anomalies were also recorded at the very north boundary of the site; no further anomalies were recorded anywhere else on site.

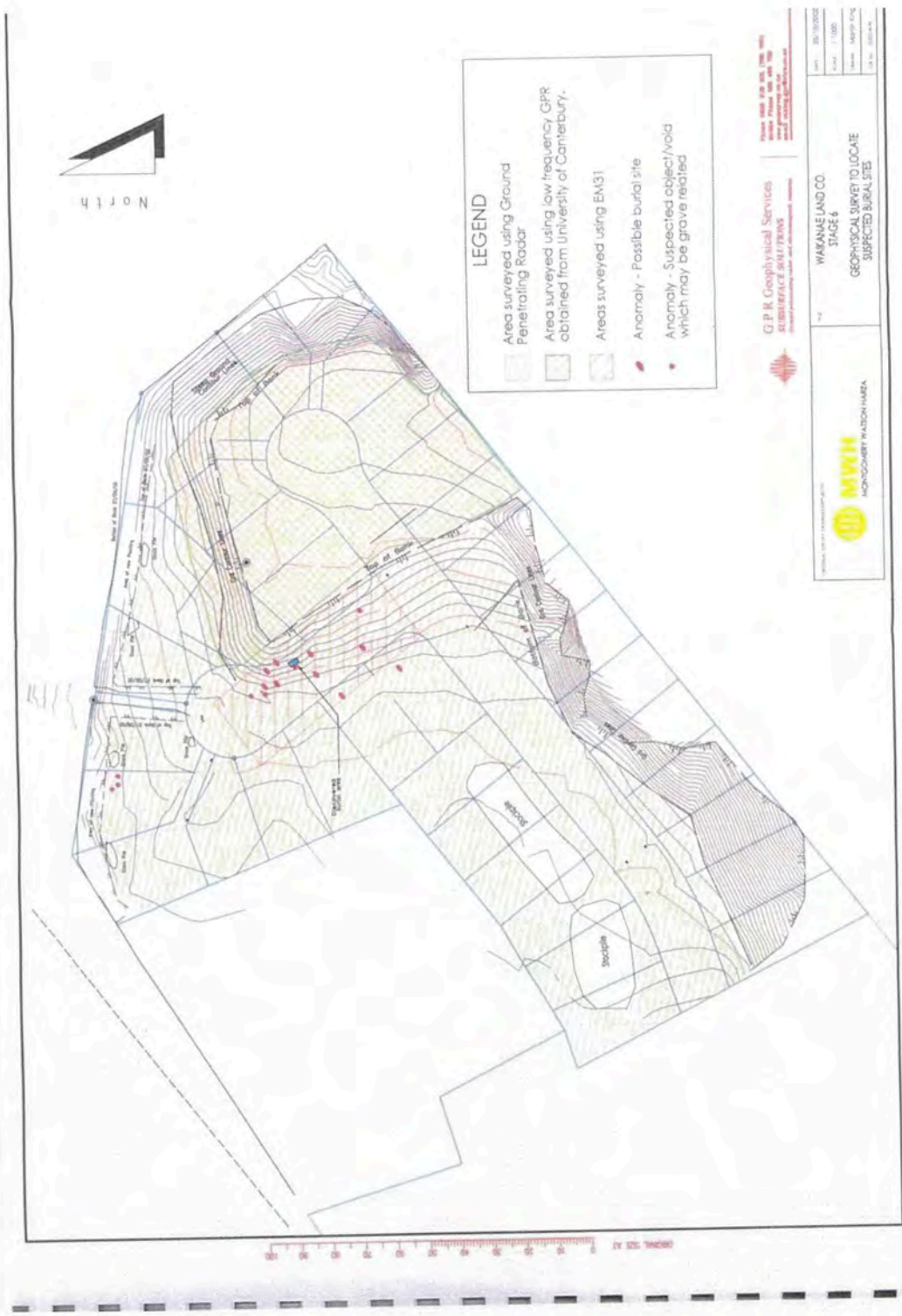


Figure 12: GPR survey  
 GPR Geophysical Services, 2003

## C. Archaeological analysis

### 3.11 Origin and interpretation of the shell

The archaeologist on site during the initial discovery of the burials also reported seeing lenses of shell<sup>70</sup> in section. When the consultant made a visit to the site in December 2000, and January 2001 shell was observed scattered loosely over the surface of the partially vegetated sand surface of the proposed subdivision.

Shells on the present ground surface of the subdivision are nearly all on fill and would have been deposited in their present position either during or since 1990 AD.

The original material excavated from the lagoon was almost certainly reworked in 1990 and again in 1999. In 1990, the material west of Wi Kingi Place was cut and probably re-deposited on the eastern part of the subdivision. In 1999, material along Tamati Place and Wi Kingi Place was excavated and probably re-deposited on the western part of the subdivision.

If the shell lens reported by Forbes to have been found 600 mm below the ground surface in Tamati Place was found east of the intersection with Wi Kingi Place, then even allowing for up to 1m of cut in 1999, it would be in fill and probably deposited in that position in 1990 AD. If it was found at or west of the intersection it could have been deposited in that position in 1970 as dredge spoil.

It is therefore inferred from the history of earthworks on the subdivision that the shells on the ground surface and in the trenches are not *in situ* deposits. Excavation of a trench where the shell lens was found would test the inference that the shell lens is in re-deposited material.

To test this hypothesis a surface collection of shells was made in January 2001 for analysis and testing.

The shells (table 1) are estuarine and open coast species found on the beach today. As similar species are also found in shell middens in the Waikanae area, the species themselves are not a reliable indication of either a natural or a cultural origin.

**Table 1:** Shell species collected from ground surface of the subdivision.

Shell species	
Scientific name	Common name
<i>Austrofuscus glans</i>	ostrich foot
<i>Dosinia annis</i>	ringed dosinia
<i>Mactra discors</i>	
<i>Paphies australis</i>	pipi
<i>Paphies (Mesodesma) subtriangulata</i>	tuatua

<sup>70</sup> Shell lenses would indicate shell deliberately discarded by people; and thus is an archaeological deposit

<i>Paphies (Mesodesma) ventricosa</i>	toheroa
<i>Spisula aequilateralis</i>	triangle shell

There is a general absence of cultural material such as artefacts, animal bones from food species, burnt and fractured oven stones, or charcoal that might indicate the shells are from old middens.

Blackened twigs and sticks similar in appearance to charcoal were seen in several places, as were stone fragments with blackened surfaces, or with the reddish colour of iron oxide, but natural processes can explain these materials.

On the lower slopes of the sand ridge southeast of Tamati Place between the entrance to the subdivision and Wi Kingi Place irregular mounds of black peat about 2m across and 20 to 40 cm high were observed during a site visit in January 2001. The peat is mixed with swamp-blackened twigs and sticks, rounded lumps of Taupo Pumice discoloured by swamp black and iron oxide, shells stained with iron oxide, and occasional stones some with blackened surfaces others stained with iron oxide.

The peat is probably from either re-deposited material originally dredged from the lagoon in the 1970s, or is from a former *in situ* wetland. In either case it has probably been dug out of a service trench along Tamati Place. Excavation of a new trench might clarify its origin. The wood fragments, stone, and shells can be matched on the present beach and are possibly from an old foreshore that later became incorporated in a wetland after the Waimeha Stream began to flow south-westwards.

A sample of shells was taken from the ground surface for radiocarbon dating. The ground surface over the subdivision had been sprayed with a mixture of PVA and grass seed, and PVA adhering to shells was removed by scrubbing the shells in tap water. The age of the shells, determined by radiocarbon dating, is between 935 and 1080 AD (Table 2). This age is substantially older than the date for the human settlement of New Zealand of ca.1250 AD<sup>71</sup> and indicates that the shells are not from an archaeological midden.

**Table 2:** Radiocarbon and calibrated ages (95% confidence interval) for tuatua shells (*Paphies (Mesodesma) subtriangulata*) collected from the ground surface of the Tamati Place subdivision. The shells were physically pretreated by scrubbing in cold water to remove traces of PVA and then air-dried. The shells were chemically pretreated by washing in 5 M dilute hydrochloric acid for 500 seconds, rinsing and drying.  $\delta R = -30 \pm 13$  (McFadgen and Manning, 1990).

Laboratory number	Conventional Radiocarbon Age (years BP)	$\delta^{13}C$ ‰	Calibrated Age (years AD)
Wk9144	1360 $\pm$ 40	1.4 $\pm$ 0.2	935–1080

The age of the shells indicates that they are from a natural deposit. Considering the earthworks that have been carried out on the subdivision, especially the excavation of the lagoon in the 1970s, it is inferred that the shells on the subdivision are derived from a former beach in the position of the present lagoon. The lagoon water level is less than a

<sup>71</sup> Anderson, 1991; McFadgen *et al*, 1994; Higham and Hogg, 1997



metre above mean high water mark, and the suction dredge would almost certainly have intercepted an old beach when the lagoon was excavated.

Excavating a trench near the present lagoon edge can test the inference. Shells should be found at or above the height of the lagoon bottom and have an age similar to that obtained for the shells on the present ground surface.

Not all of the shells on the subdivision are necessarily from a natural deposit, however. Some could possibly be from shell middens that were originally on the subdivision, or brought from Major Durie Drive, but their status as former midden shells would need to be demonstrated.

It is noted that if the shells in the subdivision are a result of the construction of the lagoon, it is possible that some of the human bones might have been similarly deposited if they had been originally buried on a former bank of the Waimeha Stream.

### **3.12 Analysis of the human bones**

Dr Nancy Tayles, an anatomist from Otago University, was engaged to examine the bones recovered in 2000.

Tayles<sup>72</sup> reported:

- ♦ The minimum number of individuals represented is nine: three adults, and six infants and children. It is not possible to be more precise about the number because of the disturbance and poor condition of some of the material
- ♦ Two of the adults are Maori. One child has two of the Maori characteristics, in the skull and femur. The ethnicity of the remaining individuals could not be established.
- ♦ Two adults were male, one was female
- ♦ There was no obvious cause of death for any of the people

### **3.13 Interpretation of the burials**

The graves along Wi Kingi Place are in a part of the subdivision where fill was deposited in 1990. They were below the ground surface as it existed before the 1990 earthworks and would have been undisturbed until the service trenches were excavated in 2000 AD.

The first groups of burial were removed from the site and have been reinterred. The second group were also removed from site and were put into safekeeping at the Waikanae Funeral Home. These burials have been analysed by Dr Nancy Tayles of Otago University, as reported in section 3.12 of this report.

In her evidence Ms Forbes noted that the “bones recovered had been laid either on wooden slats or in coffins”<sup>73</sup>. She did not say what the evidence for this is: whether she observed pieces of wood *in situ*, or staining in the soil/sand that is interpreted to be wood.

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<sup>72</sup> Tayles, 2001: 2

<sup>73</sup> Forbes, n.d.:7

However the burials analysed at the Waikanae Funeral Home also contained fragments of wood that displayed regular holes consistent with a hole left by a rusted nail. It is inferred that these wooden fragments are the remains of coffins, which in turn implies burial in a “Christian” style. However it cannot be inferred that all the burials disturbed on site were in coffins or on slabs. In her evidence Ms Forbes notes that several of the disturbed burial and bones were recovered from the spoil heap (Forbes, n.d.). Equally these wooden fragments could originate from wooden crosses and/or wooden fences used to mark graves, which also are associated with Christian style of burial.

Two pieces of information have been established about the burials: some at least are of post-contact<sup>74</sup> age (on the basis of the wooden fragments and nails), and some are Maori in origin.

There are several possibilities for the origins of the burials.

- The first is that they are Muaopoko, dating from before the settlement of Te Ati Awa in the region (c.1820s). This is not considered likely from the post-contact context inferred from the wood attributed to coffins or wooden crosses.
- The second is that they are Ngati Raukawa dead after the Kuititanga battle in 1839. Carkeek notes that all the 55 Raukawa dead were buried in one grave, and in “European fashion”<sup>75</sup>. Carkeek’s statement makes it less likely that the Tamati Place burials are from this battle: if all the battle dead were buried in coffins a great number of coffins would have had to have been obtained within a very short timeframe. It is considered far more likely that after the battle bodies were wrapped in shrouds or cloths of some sort, and were buried in a mass grave, as recorded by Carkeek. Further, Carkeek records the dead were buried at the “main Waikanae settlement”, which was the pa at Kenakena, which is across the Waikanae River.
- The third is that they are Te Ati Awa from mid to late 19<sup>th</sup> Century. There are no grounds to discount this as a possibility. Such burials could be in coffins, and could have wooden crosses or boundary fences, which could explain the wooden fragments with the burials.
- The fourth is that they are Te Ati Awa from the early 20<sup>th</sup> Century, and that the precise location of the burial ground has fallen out of traditional memory. These graves also could have coffins or wooden crosses or boundary fences, which could explain the wooden fragments with the burials.
- The fifth is that they are a combination of Maori and European dead, as the ethnicity of some of the burials recovered has not been established. They could include the bodies of William Browne, Margaret Nairn, and Penelope Durie (as noted in section 3.2 of this report). These Europeans could have been buried at the local Maori burial ground, as there may have been no European church cemetery in Waikanae at this time.

This last option is considered most likely, on the basis of historical and documented use of the site. It is reasonable to assume that some at least of the burials predate 1900, so are archaeological in terms of the definition in the Historic Places Act. There is nothing to firmly date any of the burials, except for a likely post-contact context.

It is possible that bones disturbed on site are from a variety of historical origins, and have been mixed and disturbed prior to 2000AD. Some of the human bones might have been

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<sup>74</sup> “Contact period” refers to the period in New Zealand history when Maori and European were first making contact, in the middle part of the 19<sup>th</sup> century

<sup>75</sup> Carkeek, 1966:60

disturbed by preparation of the ground surface (e.g. by removal of topsoil or vegetation) before the lagoon dredgings were deposited in 1970, or by smoothing the ground surface after the dredging was finished. Also, it is possible that later burials intercut earlier burials, and that further disturbance by the digger in 2000AD has mixed bones of various origins.

The link between the headstones found on site and relocated in 1970, and the three graves marked on the 1898 survey plan has not been established, nor has the relationship between the occurrence of the burials of Browne, Nairn and Durie in a traditional Maori burial ground. It is possible that the headstones of Browne, Nairn and Durie are the same as the three graves marked on the 1898 plan, but this has not been established nor proven.

### ***3.14 Summary of section 3***

Much detailed data has been presented in section 3 of this report. In order to help the reader assimilate this data, a summary of key facts and data is presented:

- ◆ the area of completed and proposed development is partially within the 20 acre block formerly designated “Maori cemetery”
- ◆ it is not known how much of the 20 acre block had been utilised for burials
- ◆ some of the burials disturbed at Tamati Place were of Maori origin, and were both adults and children
- ◆ there were also burials on site noted by a surveyor in 1898, probably of European origin
- ◆ two burial headstones were relocated during development work in the 1970s
- ◆ the landscape around the present Waimanu lagoons was created by dredging in the 1960s
- ◆ shell on the surface of the Tamati Place subdivision was not of archaeological origin, and instead was remnants of a former shoreline
- ◆ A GPR survey shows some anomalies on site; the majority of recorded anomalies in the GPR survey are closely clustered around the area of the revealed burials, with the exception of three anomalies at the north of the area of GPR survey.



## 4. Conclusions

The Company has completed various stages of development within an area of rolling dunes beside the former alignment of the Waimeha River. Part of the area of the proposed remaining work (Stage 6) is also within a former designated cemetery and a small part (Stage 4b) is outside this area (see Figure 3). Part of the former designated cemetery is known to have been used for burials; however the extent of the burials is not known.

While it is known that there were three graves located on the former designated graveyard block, as well as historical accounts of people possibly buried there in the 1850s, and some burials have been located on that block, the number and extent of burials is not known. A significant portion of that block has already been developed for housing and the GPR survey of the undeveloped land did not provide evidence of burials beyond the isolated site where burials were exposed in 2000.

Shell scattered on the surface adjacent to where the burials were located in 2000 was found to be of natural origin, and not archaeological. However it is noted that midden is by far the most common type of archaeological site found on the Kapiti Coast, and there is a high likelihood of middens within the rolling coastal dunes here as elsewhere on the Kapiti Coast.

Records show a 20 acre graveyard was cut out in 1918; there is no indisputable evidence that it was already in use. Records show the designation for a Maori Cemetery in the 1968 district plan, of an area of very similar location, size and alignment to the 1918 graveyard.

Due to the disturbance of the burials in 2000, this is an area of archaeological sensitivity. A ground penetrating radar survey undertaken in 2002 on Stage 6 of the subdivision located some anomalies on site that may be further unknown burials: these were clustered around the burials disturbed in 2000. It is noted that no further certain "burial" anomalies were recorded in the area of Stage 6, which suggests the burials may be a localised cluster.

From this it is inferred that there is a low likelihood of finding burials within Stage 4b of the subdivision. It is however noted that the GPR survey did not extend to the area of Stage 4b, and this area has not been tested in any way.

Specifically in relation to Stage 4b, it is suggested that an archaeological authority be granted, noting the following specific issues:

- There is to be substantial areas of fill placed on site, with little cutting, so the potential impact on the archaeological resource is reduced;
- The area of proposed work is at the western extent of the 20 acre block, whereas the found burials were at the eastern end;
- Part of the area of proposed work is a high dune. Based on existing archaeological knowledge of the Kapiti Coast, burials are more likely on the tops of the dune. The top part of the dune is located within properties adjacent to Stage 4b that have already



been developed, the majority of the dune that is within Stage 4b is the dune slope, where burials are less likely to be located;

- The consultant considers there is a likelihood of finding intact middens within the area of proposed Stage 4b; however middens are not unusual on the Kapiti Coast, and is a common outcome where other authorities have been granted;
- The actual area of work is very small, being only 4 lots. The properties bordering this proposed area of work have already been developed, and contain already constructed houses.

## Sources

### Primary:

Forbes, S. n.d. Witness statement to the Porirua District Court in the prosecution of Payne Sewell Limited and Higgins Contractors Ltd being taken by New Zealand Historic Places Trust Pouhere Taonga

Ibid. 2000. Unpublished report to Historic Places Trust dated 21 July 2000.

GPR Geophysical Services. 2003. Geophysical survey of Stage 6 of Waikanae subdivision incorporating Tamati Place and Wi Kingi Place. Unpublished report to Waikanae Land Company

Horowhenua County Council District Plan, 1 June 1968.

National Archives: Former Lands and Survey file AAMA 20/27, accession W3150  
Maori Land Court Minute Book No. 21

National Library Biographies Index

Subasic, E. n.d. Ngarara West A14 – Urupa/Cemetery – Unpublished research notes to M. O’Keeffe, supplied June 2011

Tayles, Dr. N. 2001. Report on human skeletal remains from Tamati Place.  
Unpublished report to Historic Places Trust

Land Information New Zealand:

Plans: SO 11615 1880(?)  
ML 504A 1890  
ML 1491 1898  
ML 1396 1896  
ML 2823 1915  
ML 3495 1920  
WD 4074 1928  
WD 2825 n.d.

Fieldbooks: 2025  
2140  
2900  
3066  
3203

### *Newspapers:*

Evening Post: 28 October 1969

Kapiti Observer: 9 July 1970

29 October 1970

17 December 1970

NZ Times, 14 August 1911

## Secondary:

- Adkin, G.L. 1941. On the nomenclature of the Waikanae River, western Wellington. *Journal of the Polynesian Society* 50(4):232-238.
- Anderson, A.J. 1991. The chronology of colonization in New Zealand. *Antiquity* 65:767-795.
- Baldwin, O. 1988. *The Celebration History of the Kapiti District. 100 years Plus*. Kapiti Borough Council.
- Beckett, P., 1957. Ancient Occupied sites of the Paraparaumu District. *Journal of the Polynesian Society* 66:357-364
- Carkeek, W. 1966. *The Kapiti Coast. Maori Place Names and History*. AH and AW Reed, Wellington
- Higham, T.F.G., and Hogg, A. G. 1997. Evidence for late Polynesian colonization of New Zealand: University of Waikato radiocarbon measurements. *Radiocarbon* 39(2):149-192.
- McFadgen, B. 1997. *Archaeology of the Wellington Conservancy: Kapiti-Horowhenua. A Prehistoric and Palaeoenvironmental Study*. Department of Conservation, Wellington.
- McFadgen, B.G., Knox, F.B., and Cole, T.R.L., 1994. Radiocarbon calibration curve variations and their implications for the interpretation of New Zealand prehistory. *Radiocarbon* 36, 221-236.
- McFadgen, B.G. and Manning, M.R. 1990. Calibrating New Zealand radiocarbon dates of marine shells. *Radiocarbon* 32(2):229-232.
- MacLean, C & J. 1988. *Waikanae, Past and Present*. Whitcombe Press, Wellington
- Smart, C.D., 1962. Midden recording and sampling in the Waikanae Region. *New Zealand Archaeological Association Newsletter* 5:160-169.
- Sparks, R.J., Melhuish, W.H., McKee, J.W.A., Ogden, J., Palmer, J.G., and Molloy, B.P.J. 1995. <sup>14</sup>C calibration in the Southern Hemisphere and the date of the last Taupo eruption: evidence from tree-ring sequences. *Radiocarbon* 37(2):155-163.
- Stevens, G.R., 1988. The Making of the Land. In: Olive Baldwin (Compiler), *The Celebration History of the Kapiti District 100 Years Plus*. Kapiti Borough Council, pp 7-30.
- Wellington Regional Council. 1992. Waikanae River Floodplain Management Plan, Environmental Investigations. Prepared by Boffa Miskell Partners. Report no. WRC/R1-06/92
- Wellington Regional Council. 1993. Waikanae River Floodplain Management Plan, Phase 1 Tikanga Maori. Ati Awa Ki Whakarongotai: response to WRC.

# Appendices

## Appendix 1: Research Notes on Ngarara West A14 – Urupa/Cemetery

The purpose of this report is to discuss and clarify – insofar as it is possible – the uncertainty over the location of the surveyed Maori urupa/cemetery (or cemeteries) on Ngarara West A14 block at Waikanae. Two critical issues to be addressed were identified – firstly, whether there were one or two surveyed urupa/cemeteries on the A14 block, and secondly, whether there was a surveyed urupa/cemetery on the Ngarara West A14B1 section. The conclusions, based on the sources consulted (Maori Land Court Minute Books, and Maori Affairs and Lands and Survey files at Archives New Zealand) are presented below, along with some of the related surveying and partitioning issues which help clarify the overall picture.

The first reference to a cemetery on the Ngarara West A14 block appears in Otaki Maori Land Court Minute Book 31, when the Maori owners of the land applied in November 1896 before the Maori Land Court to have a section of the block set apart as a cemetery reserve, to be vested in all the owners. The cemetery was to:

include the part to the westward of Section 15 between that boundary and the river Waimea to comprise an area of 10 acres if an area to that extent is comprised within the boundaries indicated, if not then such a quantity as may be found there whether more or less.<sup>76</sup>

Judge Mackay, who presided over the 1896 case, issued a provisional partition order to this effect, stipulating that the cemetery reserve was to be designated as Ngarara West A14A. The order, however, was not completed by survey. This in effect meant that the partition was not completed, and Ngarara West A14A as defined in the partition order did not come into existence as a cemetery reserve with a surveyed title.

The reference in the 1896 minutes to “the boundaries indicated” indicates that the boundaries of the cemetery reserve had been marked on the court’s copy of the survey plan of the block. Unfortunately, the court’s copies of such plans are not generally retained as official records and the plan before the court in 1896 has not been located.

Nine years later, in February 1905, the Maori owners of Ngarara West A14 made another application to the Maori Land Court for a cemetery to be partitioned out of the block. This time the application was dismissed, with the Judge noting that the provisional orders for this purpose had already been made in 1896, and all that was required at that point was for a survey of the section to complete the order.<sup>77</sup>

Again, no survey of Ngarara West A14A was completed. The probable reason for the lack of survey was the fact that at the time there was an outstanding survey lien on the Ngarara West A14 block dating back from the original partition of the block out of

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<sup>76</sup> Otaki MB 31, p. 147.

<sup>77</sup> Wellington MB 13, pp.285-286.



Ngarara West. Either the owners themselves were unwilling to incur a further survey lien by surveying the cemetery section, or the surveyors were unwilling to survey the section until the outstanding debt to them was paid. The evidence consulted is silent on this matter, but the outstanding survey lien from the Ngarara West A14 block came to prominence in 1906. The surveyor took advantage of a change in legislation which allowed survey liens to be satisfied with land rather than cash, and applied to the Maori Land Court in May 1906 to have a section cut out of Ngarara West A14 to satisfy the survey lien. This was approved, and 75 acres were cut out of the block (leaving the balance of the block at 185 acres) to satisfy the lien; the section being designated as Ngarara West A14C.<sup>78</sup>

The designation of the 1906 partition as Ngarara West A14C is somewhat unusual, considering that sections A and B did not actually exist at this time, not then having been surveyed. It is possible that the Judge, still mindful of the provisional partition order from 1896 designating the cemetery reserve as Ngarara West A14A, anticipated that with the completion of a survey that section would come into existence and thus any potential confusion would be avoided (presumably Ngarara West A14B was used to designate the balance of the block).

Yet again, no survey of Ngarara West A14A or B followed in the coming years, and confusion over the designations crept in. The catalyst for this was the application of E. D. and H. Barber to the Maori Land Court to have their interests in the Ngarara West A14 block cut out in August 1915. The Barbers acquired interests in the block that had initially been obtained by C. B. Morrison from the Maori owners in the late 1890s and early 1900s.<sup>79</sup> Initially it was believed that the Barbers' interest in the block was 13½ acres, but it was soon realised that after Ngarara West A14C had been cut out to satisfy the survey lien, Morrison's interest amounted to only 9 acres 1 rood and 20 perches. This area was then cut out of the block, and designated as Ngarara West A14A – its boundary was drawn parallel to the southern boundary of Ngarara West A14C (the 75 acre section cut out in 1906 to satisfy the survey lien).

It is evident that the Ngarara West A14A defined in 1915 bore no relation to the Ngarara West A14A referred to in the provisional partition order of 1896. There are several factors strongly hinting at this. Firstly, there is no reference in the Court minutes (or in other official sources) to the land having been used, or it being intended to be used, as a Maori cemetery. Secondly, it seems fairly clear from the Maori Land Court minutes that the Ngarara West A14A being talked about in 1915 was a new title, rather than any sort of completion of an existing provisional order. Thirdly, even though the provisional Ngarara West A14A order of 1896 had still not been surveyed, it seems quite clear that it is not the same piece of land as the Ngarara West A14A which came into existence in 1915. The 1915 section is a 'slice' across the block and extends all the way to the coast (something which was not mentioned in the description of boundaries given at the hearing in 1896), and its location was determined largely in relation to the Ngarara West A14C block, rather than any previously given boundaries.

It is not clear why the Barbers' section was designated as Ngarara West A14A, when the section cut out to satisfy the survey lien some nine years earlier had been

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<sup>78</sup> Wellington MB 15, pp. 127-128.

<sup>79</sup> Wellington MB 20, p. 149. For more on Morrison's acquisitions, see Otaki MB 42, pp. 263-264.

designated as Ngarara West A14C. Perhaps the Court believed that as no survey had been made for close to twenty years since the provisional order was issued in 1896, the order was unlikely to be completed and therefore a return to the usual designation of sections was deemed appropriate. Perhaps the presiding Judge was simply unaware of the provisional order in the first place. Whatever the reason, the subdivision of Ngarara West A14 by late 1915 included Ngarara West A14A (Barbers' section, no relation to the Ngarara West A14A of 1896), Ngarara West A14B (the balance of the block remaining with Maori owners), and Ngarara West A14C (cut out in 1906 to satisfy the survey lien).

In June 1918, the Maori owners of Ngarara West A14B made an application to the Maori Land Court for a cemetery to be cut out from that section. The applicants noted a section had been set apart by Judge Mackay (who presided over the original partition hearing in 1896) but that it had not been surveyed. The cemetery section sought in 1918 was to measure around 20 acres, and the boundaries were to be pointed out by Hira Parata or some other person approved by the Judge. The order for this partition was given by the Judge, and the section was designated as Ngarara West A14B1 (Ngarara West A14B2 was the balance of the block which remained with the Maori owners).<sup>80</sup> The section was surveyed by 1920 (the delay between the issue of order and survey was explained because of the difficulty of arranging the survey with Hira Parata) and shown in the plan WD 3495 (interestingly enough, there was a survey lien registered against this section until at least March 1930).

It is not clear whether Ngarara West A14B1 is the same land as the land specified in the application for a cemetery reserve in 1896. The fact that the latter was never surveyed, and the description of its boundaries in the original application is fairly vague, makes this a difficult issue to clarify. There is also no description of the boundaries at the 1918 hearing that created Ngarara West A14B1 which could conceivably have been used in comparison with the 1896 provisional order. The discrepancy in the size of the two sections (approximately 10 acres and 20 acres) is not necessarily telling – it may have been a case of inaccurate approximation in the first instance, or the owners' need to enlarge the section after over twenty years had lapsed between the two applications. Another option is that there may simply have been two different pieces of land but, for the reasons set out earlier, this seems unlikely.

The evidence examined suggests that the block of approximately 10 acres which the Maori owners of Ngarara West A14 sought in 1896 to set apart as a cemetery reserve was in the location of Ngarara West A14B1 which was partitioned in 1918. Ngarara West A14B1 was gazetted as a cemetery under the Horowhenua County administration (although the lifting of that status in 1969 has not been examined by me). Other sources (notably tangata whenua oral evidence and County Council records) may be able to provide evidence regarding the actual usage of this site, but these have not been examined in the course of research for this report.

Evald Subasic  
14 June 2011

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<sup>80</sup> Wellington MB 21, p. 386.

**"13"**



## **Archaeological Geomagnetic Report: Tamati Place, Waikanae, Kapiti Coast**

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## ***1.0 Introduction***

Human remains were discovered on the subject site in 2000 when utility service trenching and pipeline installation was being finalised for a subdivision. Some of the human remains were described as having Maori characteristics but the rest as of unknown ethnicity (Tyles 2001, summarised in O’Keeffe 2012). The site is currently zoned residential but was previously designated “Maori Cemetery” (in the 1968 Horowhenua County Council District Scheme). Given the discovery of human remains on the site, the landowner would like to confirm whether the site was used for extensive burials other than the remains currently known. The question therefore, that has been posed to the author is whether burial pits can be detected with non-intrusive methods. The purpose of this geomagnetic survey was to address this question. A previously undertaken Ground Penetrating Radar survey indicated a number of individual anomalies, which remained unconfirmed but indicate pits which could have been used as burial pits.

## ***2.0 Brief***

Fitzherbert Rowe Lawyers on behalf of the landowner (Waikanae Land Company) instructed Archaeology Solutions Ltd to undertake a geomagnetic archaeological survey over the subject site.

## ***3.0 Background***

### **3.1 Project Background**

The residential subdivision of the subject site (undeveloped land at Tamati Place, see Figure 1 & 2) is still proposed. The services were trenched and laid into the ground in 2000 under the terms of the subdivision consent previously given by the Horowhenua County Council. During final testing, and some additional digging for remedial pipeline work, human remains were discovered and initially removed from the land. Those remains were subsequently re-interred by Iwi on site close to the area where they were discovered.

The Waimea Stream was dredged in the 1960s to develop the current lagoon and the dredged material was placed over parts of the site to shape and contour it for further development (O’Keeffe 2012:22-24). The original land surface of the site is palaeo sand dunes. The western corner of the land clearly shows signs of this, but within the other areas of the proposed subdivision this is much less obvious. A test pit was dug in April 2017 to decide this question under an exploratory authority issued by Heritage New Zealand Pouhere Taonga.

The Tamati Place land was designated in the 1968 Horowhenua County Council District Plan as ‘Maori Cemetery’. The designation was uplifted by the Horowhenua County Council

in or about 1969 following the statutory process set out in the Town and Country Planning Act 1953. This process included public notification and a hearing where an opposing submission by a member of the local Iwi was presented. The number of burials on the site is currently unknown and unconfirmed. However, there were two headstones on the land in 1968 when it was purchased from the Maori Trustee (appointed by the Maori owners as their agent for effecting a sale). Those headstones were removed and now form part of a memorial established on adjoining reserve land. Local Iwi representatives advised the representatives of the landowner during meetings between 2014 and 2017, to discuss the recommencement of development of the site that they believed the site to be a burial ground referred to as Karewarewa. This view was supported by a Cultural Impact Assessment commissioned by Fitzherbert Rowe and undertaken by Te Atiawa ki Whakarongotai Charitable Trust (organisation representing the local Iwi). It is this information that the landowner sought to try and verify with this geomagnetic archaeological survey (pers comm Steven Kerr).

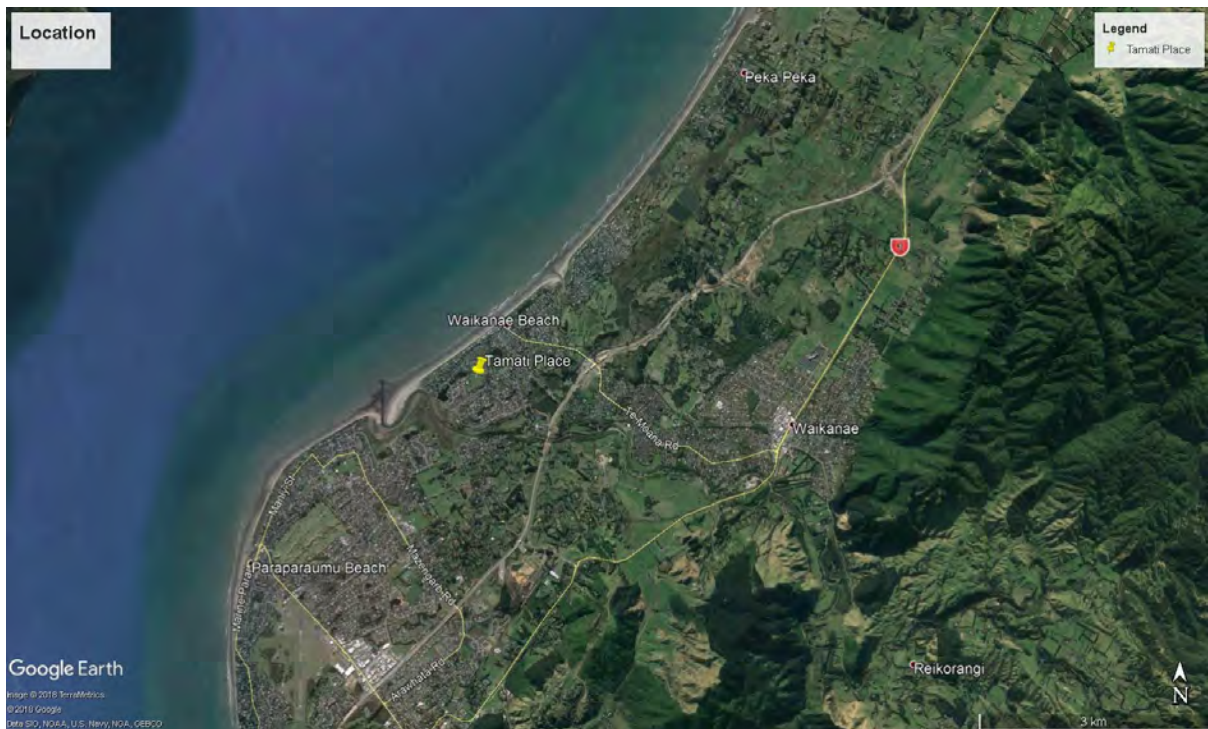


Figure 1: Location of subject area.

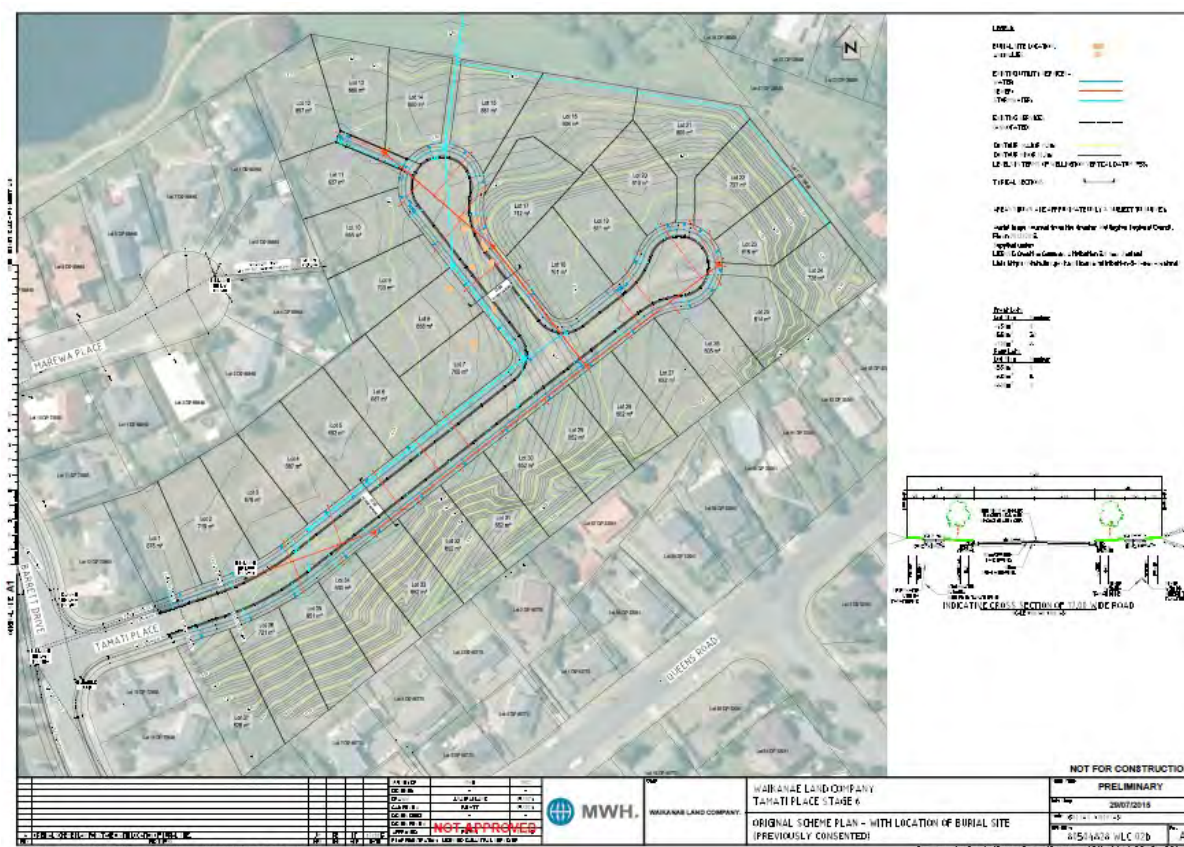


Figure 2: Proposed subdivision with service lines as planned, not as built.

### 3.2 Archaeological Background

The background to the project and discussion of the previous findings can be found in:

O’Keeffe, M. 2012. *Tamati Place - archaeological issues*, Report to Waikanae Land Company and NZ Historic Places Trust by Heritage Solutions, Wellington.

The information in that Report which is relevant for this investigation is summarised below.

#### 3.2.1 Marked ‘graves’ (1898)

In the fieldbook 2140 for the plan ML 1491, dated 1898, three indicative ‘Graves’ are marked up (O’Keeffe 2012:14). They are arguably located within or near the proposed development (ibid.)

#### 3.2.2 District Plan change (1969)

The Horowhenua County Council, after calling for objections and following a full public hearing, uplifted the designation of the land parcel as ‘Maori Cemetery’. This decision allowed subdivision consent to be approved. O’Keeffe 2012 has a lengthy discussion on the details of the proceedings and archival materials relating to this.



### **3.2.3 Discovery of human remains (2000)**

In 2000 service lines were installed within the Tamati Place Subdivision in preparation for the approved subdivision. During final digging for remedial work human remains were uncovered and consequently sent to Otago University for further analysis.

The bones found represent a minimum of nine individuals identified as three adults (two male and one female) and six infants and children. Two of the adults and one child had Maori characteristics, while the ethnicity of the remaining six individuals could not be established.

### **3.2.4. Ground penetrating radar survey (2003)**

In 2003 G.P.R. Geophysical Services undertook a preliminary electromagnetic induction survey over the area of the proposed development followed by a ground penetrating radar survey considered then to be preferable in the circumstances. Multiple geophysical methods were used but only the (presumably) 400 MHz antenna used on the ground penetrating radar showed useful results. Nine anomalies in two clusters are interpreted as possible burials by GPR Geophysical Services (G.P.R. 2003, plan repeated as Figure 12 in O’Keeffe 2012).

## ***4.0 Methodology***

### **4.1 Geomagnetism**

Five survey grid plots were laid out on the site on 12/07/2017, covering the centre of the proposed development area. They were surveyed using a Fluxgate Gradiometer Foerster Ferex 4.032 DLG STD in a two probe configuration. Transects were walked across these plots at 0.5 metre intervals and data taken in 0.2 metre intervals. Recorded data was normalized to reduce errors resulting from walking transects over uneven ground surfaces and Teslview 1.0 software was used to analyse the data. The data is displayed in the following figures of this report showing grey shades between -20nT and +20nT.

Palaeomagnetism can be recorded by magnetometric methods such as through the use of a fluxgate gradiometer. These are widely employed in archaeological research competing mainly with soil resistivity using electrical resistance and ground penetrating radar using the reflection of radar waves usually in the 200 MHz to 900 MHz range (Goldberg et al 2006, p.313). Magnetometry is the method most commonly used due to its speed and reliability in widely different soil conditions (Goldberg et al 2006, p. 315, Johnson 2006, ch.9 by K. Kvamme).

The fluxgate gradiometer measures small underground magnetic anomalies. Both natural (geomorphological) changes and human-induced soil changes can be detected. A geomagnetic survey is influenced by three components (Zickgraf 1999, p.107-9):

- A. The magnetic field of the earth is constantly changing and influenced by outside changes such as the intensity of the sun. The arrangement of the survey instrument

as a gradiometer using a magnetometer close to the soil surface and a second magnetometer in about 1 metre height compensates for those changes.

- B. Magnetic susceptibility of any material inside a magnetic field changes the magnetic signature of different materials to different degrees. This allows recognition of foreign material in the soil (e.g. shell midden concentrations in the topsoil). Ferromagnetic materials (e.g. iron) can have a magnetic signature on their own (remnant magnetism).
- C. Le Borgne effect: The susceptibility of the topsoil to about 30 cm depth can be up to 100 times stronger than the susceptibility of the soil at 100 cm depth. This is due to chemical reactions of the soil close to the surface. Therefore any trench or pit back filled with mainly topsoil shows a much stronger magnetic signature than the surrounding soil.

Fireplaces, houses and pits are standard features commonly recognised in archaeological geophysical surveys (Zickgraf, 1999, for examples see Duensberg p.130, Glauberg p.140, Mardorf-3 p.144 and Mardorf-23 p.146. The examples are mainly Neolithic and early Celtic earth built structures and settlements in Central Europe for which the archaeological signature is not dissimilar to pre-European Maori structures and archaeological deposits in New Zealand).

Fire events and shell midden have been recognised by geomagnetic surveys at Long Bay (Bader 2007a and b). The results underwent a rigorous ground testing (Phillips and Geometria 2007) that showed the validity of the geomagnetic data interpretation.

The distribution of small metal artefacts can also indicate patterns of historic settlements (Brooks et al 2009). Kvamme (in: Johnson 2006, p.216ff.) provides categories of detectable human activities using magnetometry:

1. Fires including hearth, fireplaces, burn-offs and accidental fires all create thermo-remnant anomalies.
2. Fired construction material like bricks can create the same effect.
3. Human occupation can enhance the Le Borgne effect (see above) and show the extent of settlements compared to unoccupied areas.
4. Accumulation of topsoil such as in the walls of sod houses can create anomalies. Often the natural backfill of a pit increases the amount of topsoil in the pit area and creates the same effect.
5. Removal of topsoil for ditch features or by footpaths or animal traffic can result in anomalies. The quick backfill of pits can result in similar anomalies as the topsoil ends up at the bottom of the pit and the subsoil on the top of the backfill.
6. Imported stone used as buildings or floor material often shows a difference to the surrounding soil matrix.
7. Iron objects will create a dipolar anomaly. Often these anomalies are not part of the archaeological site and can 'hide' weaker anomalies of the archaeological site.

## **4.2 Background “noise”**

The plots surveyed were accessible, slope angle and vegetation cover were such that only in two very small areas no data could be collected (Figure 8 & 9, green areas equals ‘no data’). The sandy background creates a very ‘quiet’ background. This means that the natural variation in readings of the undisturbed soil is small. Against this background, sharp changes in data can be identified as foreign items or features.

A fence on the side of one survey plot has distorted the soil readings close to it (see Figure 8, large variations in the readings along the northwestern edge of the survey area).

## **4.3 Other Data**

The survey results have been overlaid onto an aerial photo from Land Information NZ and a number of historic roll plans (oversized historic survey plans usually used for planning purposes). None of the historic roll plans shows anything of interest, apart from the fact that at least for the last 200 years this area has always been dry land while the streams to the west and east meandered considerably. Please note that all images are for interpretive purposes only. They have been only approximately geo-rectified and are not appropriate for further geo-referencing onto plans or maps intended for other purposes.

## **4.4 Differences between geophysical investigations (2003 vs 2016)**

In 2003 a ground penetrating radar (GPR) survey was conducted and in 2016 a geomagnetic survey (Fluxgate Gradiometer) was undertaken.

The ground penetrating radar detects any sharp interface between soil layers or between soil layers and other materials, e.g. rocks. The reflection of the radar wave is recorded. Any change from the ‘normal’ soil profile of top soil and sub soil is noted as long as the change is substantial. When considering the possibility of burials, the shape of a burial pit is interpreted from two changes when the radar is dragged over two sides of the pit. The difficulty in the interpretation arises when the difference between the ‘normal’ soil profile and the back fill of the pit does not create a distinguishable interface from which the reflection of the radar wave changes considerably enough to be seen in the radar profile. The profiles are said to be in 1 m distance from each other. Three disturbed and three undisturbed profiles are shown as examples for the interpretation (G.P.R. 2003, Appendix B).

In contrast the later geomagnetic survey in 2016 uses the magnetic anomalies created by disturbing the soil (Le Borgne Effect, see above) AND the size and pattern of these anomalies as displayed on a high resolution map 0.5m x 0.2m. Visibility of the service trenching with non-metallic pipes in them clearly indicate that the methodology works in this soil environment. A test trench (see below) also confirms a substantial difference between sub soil and top soil, thus any interruption of the continuous layers or mixing of soils should be visible.

Nonetheless burials are very difficult to detect whichever method is chosen. The Europae Archaeologiae Consilium (EAC) Guidelines for the Use of Geophysics in Archaeology, Questions to Ask and Points to Consider (Europae Archaeologiae Consilium, EAC Guidelines No.2, 2016; derived from the Historic England guidelines on Geophysical Survey in Archaeological Field Evaluation, 2008) recommend any geophysical survey only on areas where burials are suspected, a condition which is fulfilled here.

If GPR is chosen, they recommend a high resolution 0.25m x 0.05m which are lines in 0.25 m distance, not 1 m as documented in G.P.R. 2003. They also recommend it for stone lined coffins or cists which are nearly completely absent in New Zealand.

Furthermore in the general advice on a level 2 survey (Delineation: to delimit and map archaeological sites and features) GPR lines in 0.25m or 0.5m distance to each other should be used to create a three-dimensional data cube. Single isolated profiles should only be considered where large linear soil features can be crossed at right angles, e.g. moats or wide ditches. Also salty soils create a high signal loss and depth data has to be calibrated usually using test pits.

In contrast to the GPR, pits can be detected using geomagnetic data as long as the resolution is 0.5m x 0.25m. We have used 0.5m x 0.2m and visualised the data in a map that allows pattern recognition as is recommended in the above mentioned guidelines.

In short, detection of burials is difficult and requires quite specific tight grid lines for the different survey methods and specific displays that allow an archaeological interpretation of the pattern of the data.

The 2016 geomagnetic survey follows those recommendation of the EAC, but the earlier (2003) GPR survey does not follow these recommendations. The distance between survey lines in the GPR survey which is wider than recommended means that there is a possibility that some features were over looked.

## **5.0 Results**

The geomagnetic survey was undertaken before the test trench authorised by Heritage NZ was dug. The test trench was necessary to answer the basic question of the existing soil layers and the results are presented here before the geomagnetic survey results in the logical order.

### **5.1 Test trench results**

In April 2017 a test trench was dug in the area indicated in blue in Figure 14. It showed a deep topsoil, dark brown in the upper, modern part of it and more darker in the lower part. It overlays clean sand. There is no indication of a layer of dredged sand. The depth of the topsoil indicates centuries of build up of the top soil. It is very unlikely that these natural layers would have developed after the dredging of sand to create the lake nearby. As the land in this area seems to be untouched by the dredging, the geomagnetic data shows features and material accumulated close to the surface that could be relevant to the question



of burial pits (see Figure 11 to 14 for results and overlays and Figure 15 for a possible interpretation).

The mixing (mottled appearance) and micro layering that is typical of machine spreading is not visible in the profile and the depth and homogeneity of the top soil layer seems to be most likely the result of natural processes.

Most of the locations of the anomalies that were interpreted in the earlier GPR survey as possible burial pits (G.P.R. 2003, Appendix A) show small, negative anomalies in the geomagnetic survey. These are presented in the figures as small dark gray patches with fuzzy edges ('washed out'). This pattern is indicative of small pits back-filled with a mix of topsoil and subsoil. Anomalies of this nature are highlighted in the results as possible burial pits.

Many of the features shown in the geomagnetic survey have a strong positive and negative value close together (light and dark, often with a sharp edge). These are likely pieces of metal in the ground. The European farming, trenching for the services and building activities close to the edges of the investigation area resulted in intentional and unintentional burial of much metal.

The geomagnetic survey shows many more anomalies consistent with small pits compared to the earlier GPR survey. The possible reason for this is that the topsoil is very sandy/silty and not much different to the underlying sand in terms of density and friability. This results in weak separation of backfill of a pit and the surrounding soil matrix and it is this interface between the two that reflects the ground penetrating radar wave. Therefore the weaker the interface is, the less the radar wave reflects and therefore the harder it is to recognise a small pit. The geomagnetic survey on the other hand visualises the small magnetic difference between the natural soil layers and an area with mixed topsoil / subsoil in a pit. The test trench has shown that the topsoil build up is substantial and sufficiently different to the lower sand layer to express a different magnetic signature.



**Figure 3: Soil layers in test trench. Depth about 60 cm from surface.**





Figure 4: Soil layers in test trench: dark brown=modern topsoil, merging into an older and darker topsoil. Lowest level is nearly clean sand of the palaeo dune. The topsoil layers are quite sandy/silty. Natural build up of top soil over a long time is likely.



Figure 5: Location of test trench (with Daniel Parker and Steven Kerr).

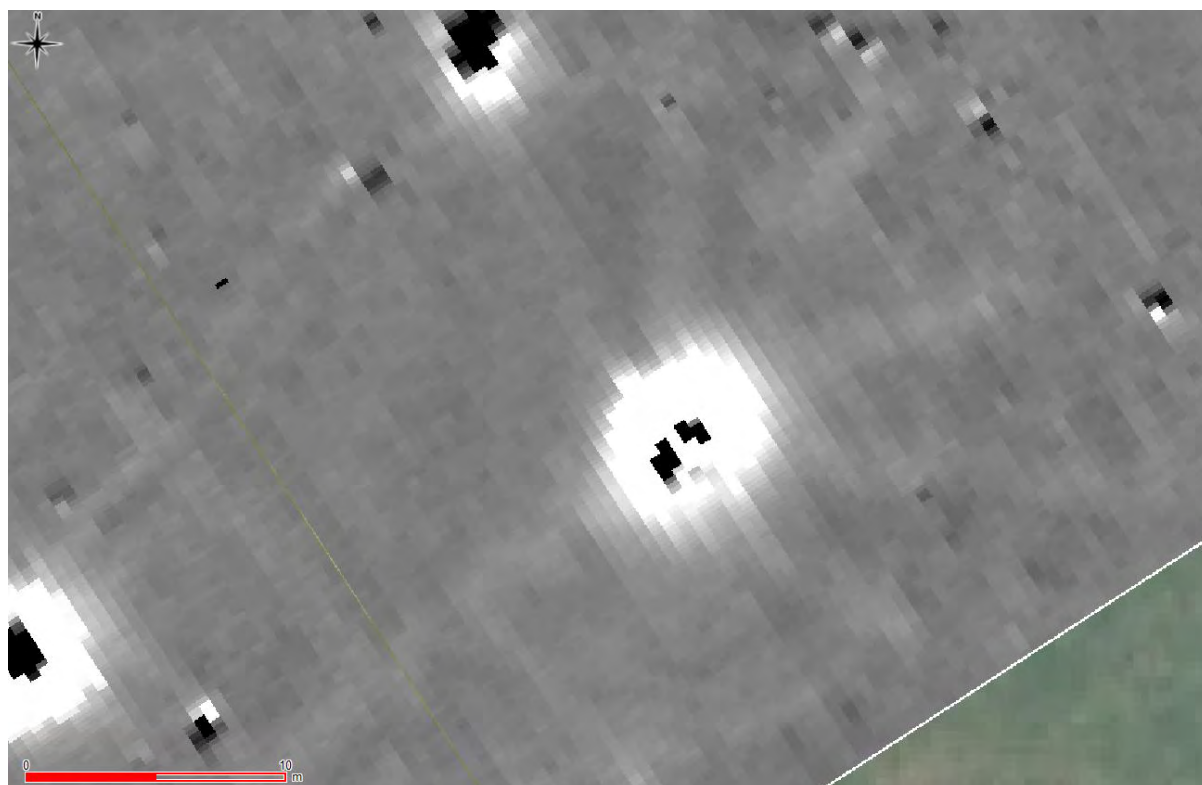


## 5.2 Geomagnetic Results

A multitude of anomalies can be seen in the map of the geomagnetic data, most of them the result of modern developments and development work. These or some of them could be remnants of what is believed to have been plant irrigation systems established on the land by the landowner in the 1970s or of a large corrugated iron building then on the site and used during that period for storage of implements (bulldozers, tractors and rollers), a site office for on-site meetings, and a kitchen service area (pers comm Maurice Rowe).

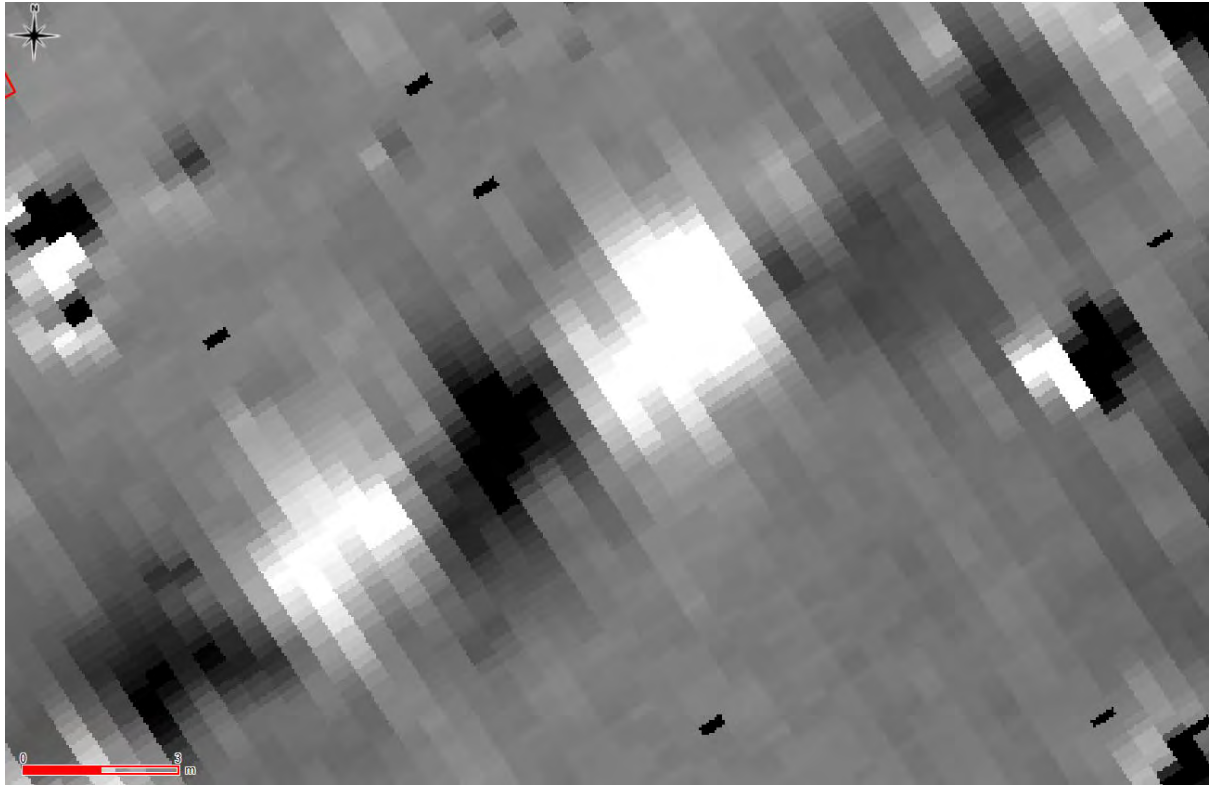
Figure 11 to 14 show the geomagnetic survey results on its own and with various overlays in context. Figure 15 is an interpretation of the results, taking into account the historic and recent information available to the author. This is preceded by a short discussion of the types of geomagnetic anomalies encountered in this survey (Figures 6 to 10).

The existing service trenches (earthworks in 2000), some with metal pipes (strong dipolar signals) and some with plastic pipes (light, positive lines), can clearly be seen in the data (Figure 6 and 7, and Figure 11 and 12).



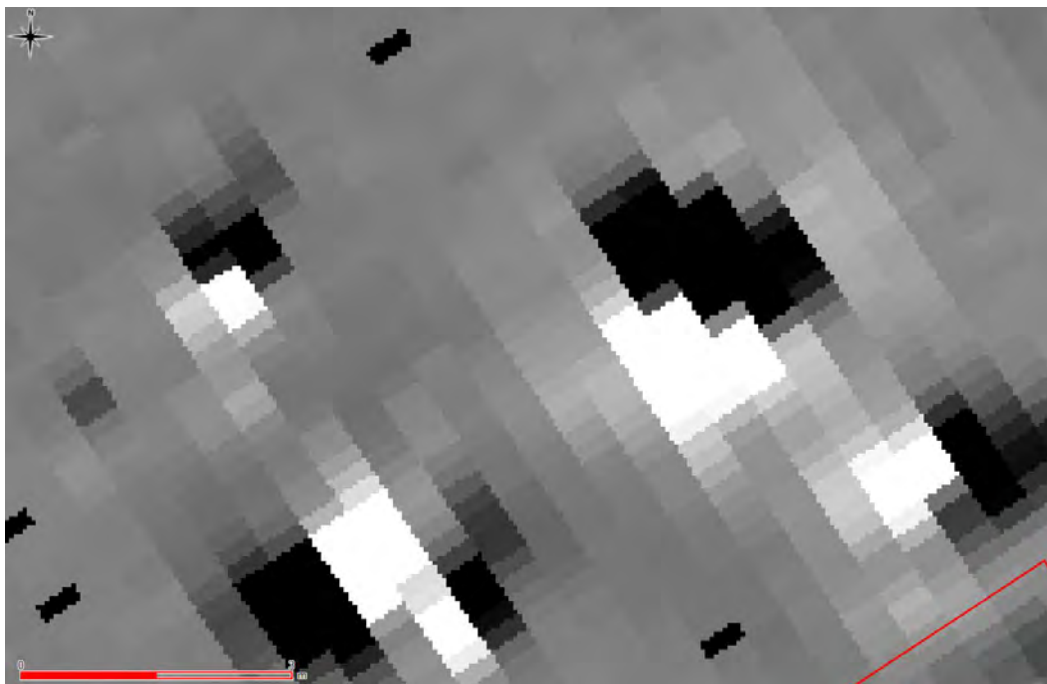
**Figure 6: Lightly coloured service trenches radiating from a manhole; kerb from road turning circle visible too.**





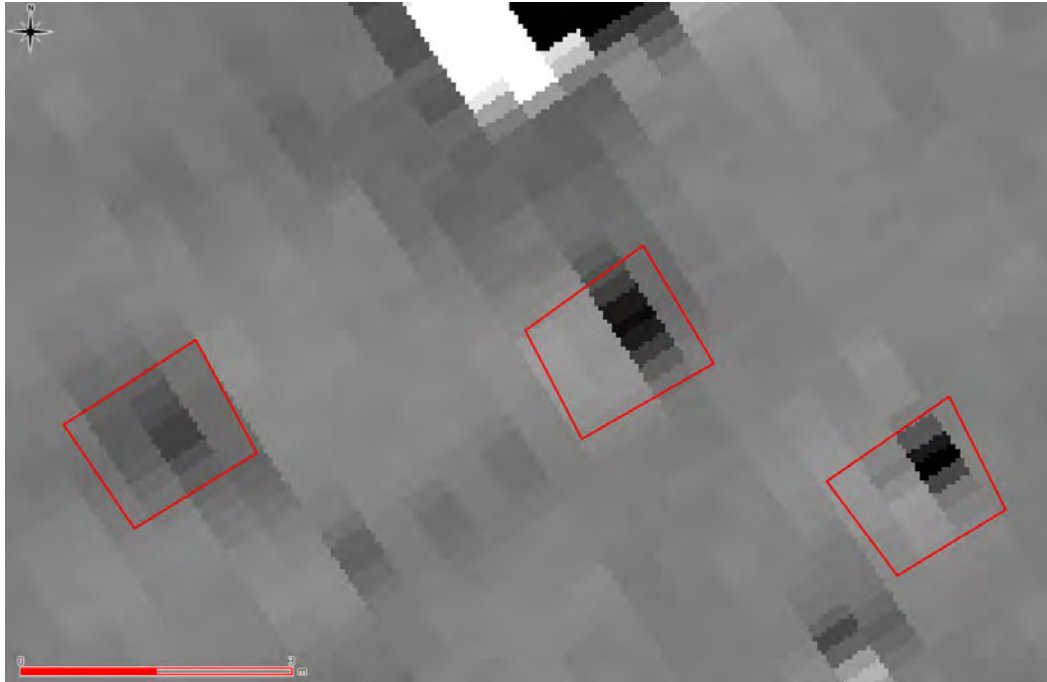
**Figure 7: A metal pipe buried deeply, showing a linear alternating di-polar signature.**

Figure 8 shows a multitude of mainly metal objects (strong dipolar signals) that are within the area. Most of them are shown very sharp which would suggest that they are close to the surface. Major disturbances and many foreign items in the ground can be seen close to the boundary at the western edge. These are most likely remnants of the building processes next door and any previous activities on the property (see above).

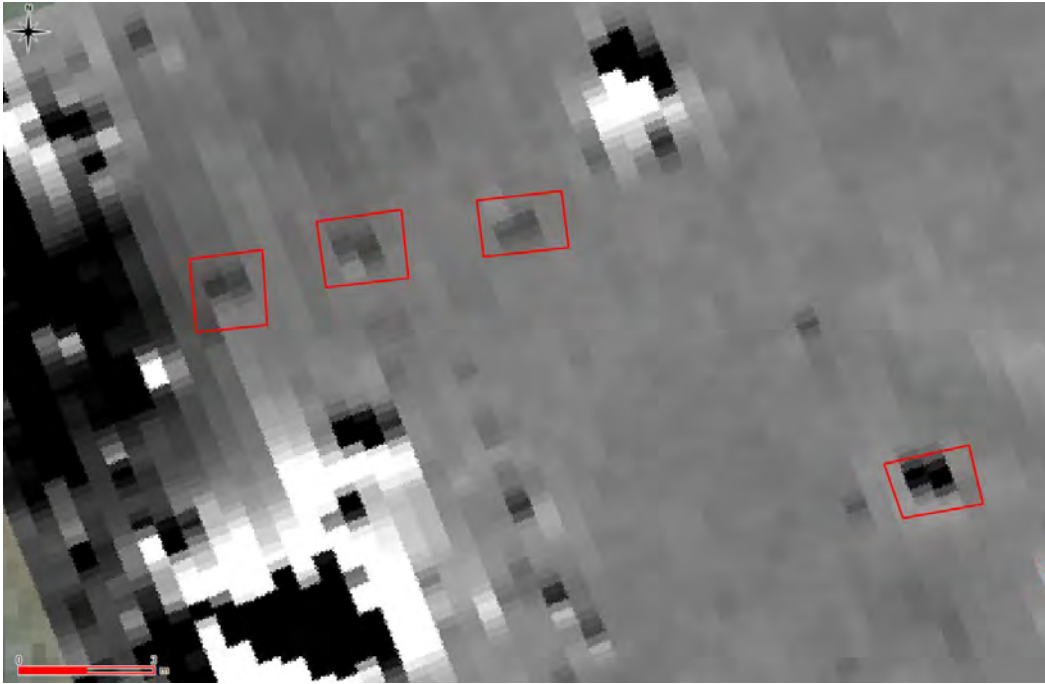


**Figure 8: Strong di-polar (plus and minus values close together) anomalies indicating pieces of metal under the surface.**

Figures 9 and 10 show some small anomalies which present themselves quite 'washed out' and are largely negative. These are consistent with small pits. Some fall within or very close to the previously recorded 'anomalies' in the GPR survey. But there are a good number more of similar 'anomalies' towards the north and northwest of the area of the previously recorded anomalies, tentatively identified as possible burial pits.



**Figure 9: Possible small pits without metal. Approximately 1.5m x 1m disturbances to the natural soil layers. Some stronger, some weaker.**



**Figure 10: Possible small pits without metal. Roughly rectangular. 1.5m x 1m. Three weaker anomalies and one stronger one. Strong metal anomalies nearby, especially to the left. Also visible are very small soil disturbances that are too small to be pits. Together with the metal they are probably remnants of the building process (e.g. burning of the building rubbish) to the west of the proposed development.**

A relevant question for the anomalies identified in this geomagnetic survey, is their depth within the original ground surface before sand was dumped onto the surface. If the original surface is close to the current surface, these anomalies would be consistent with pits to a reasonable depth. If the original surface is deeper than a metre, these items are more likely part of the dumping event. A small hand dug test trench showed that there is no overburden in the north and northwestern area of the investigation and therefore the anomalies can be understood as possible small pits cut into the original topsoil (see chapter 5.1).



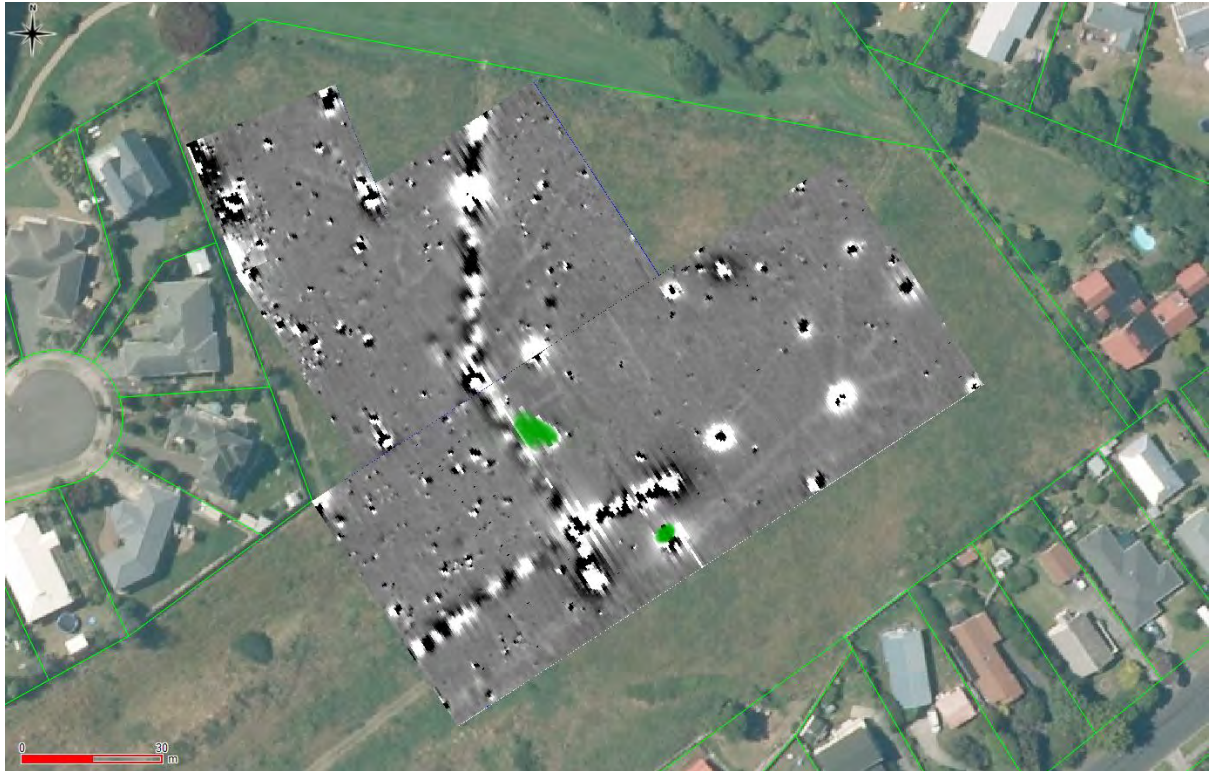


Figure 11: Geomagnetic survey overlaid onto aerial and cadastral (green areas within the survey extent indicate small area with no data due to dense vegetation cover).



Figure 12: as above. Overlaid with proposed development and services as planned.



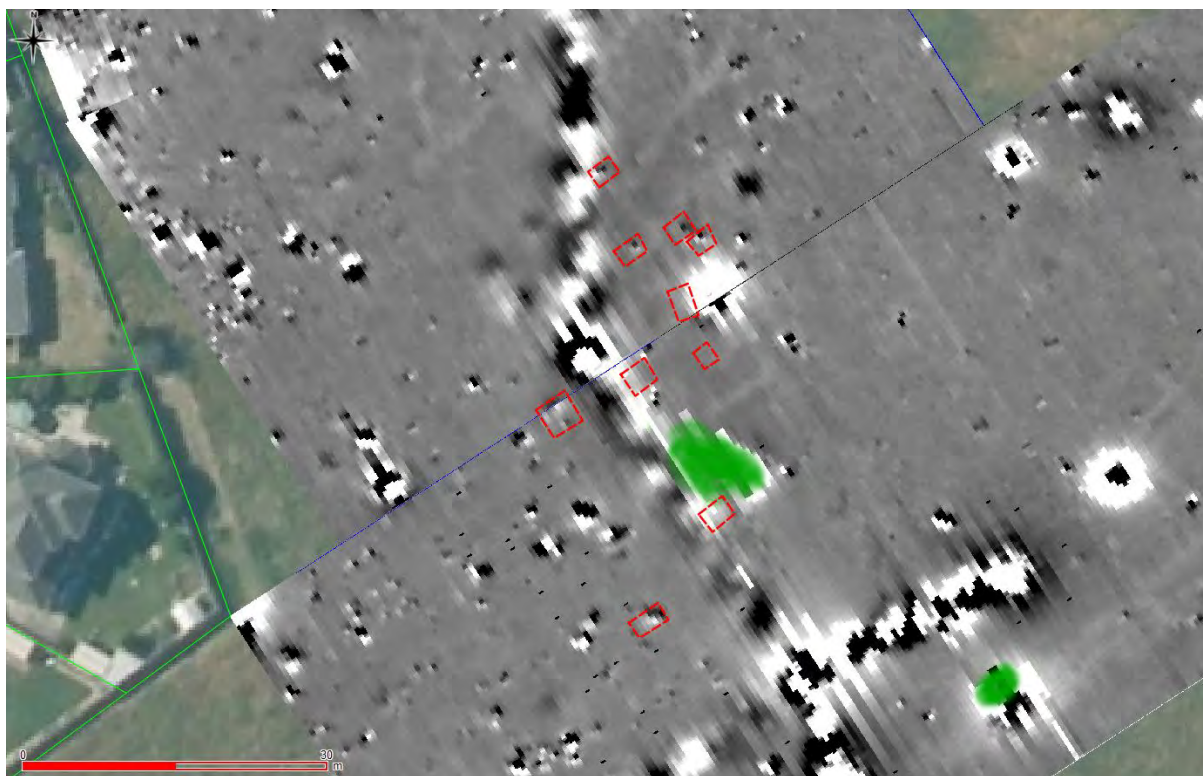


Figure 13: Previously recorded anomalies.

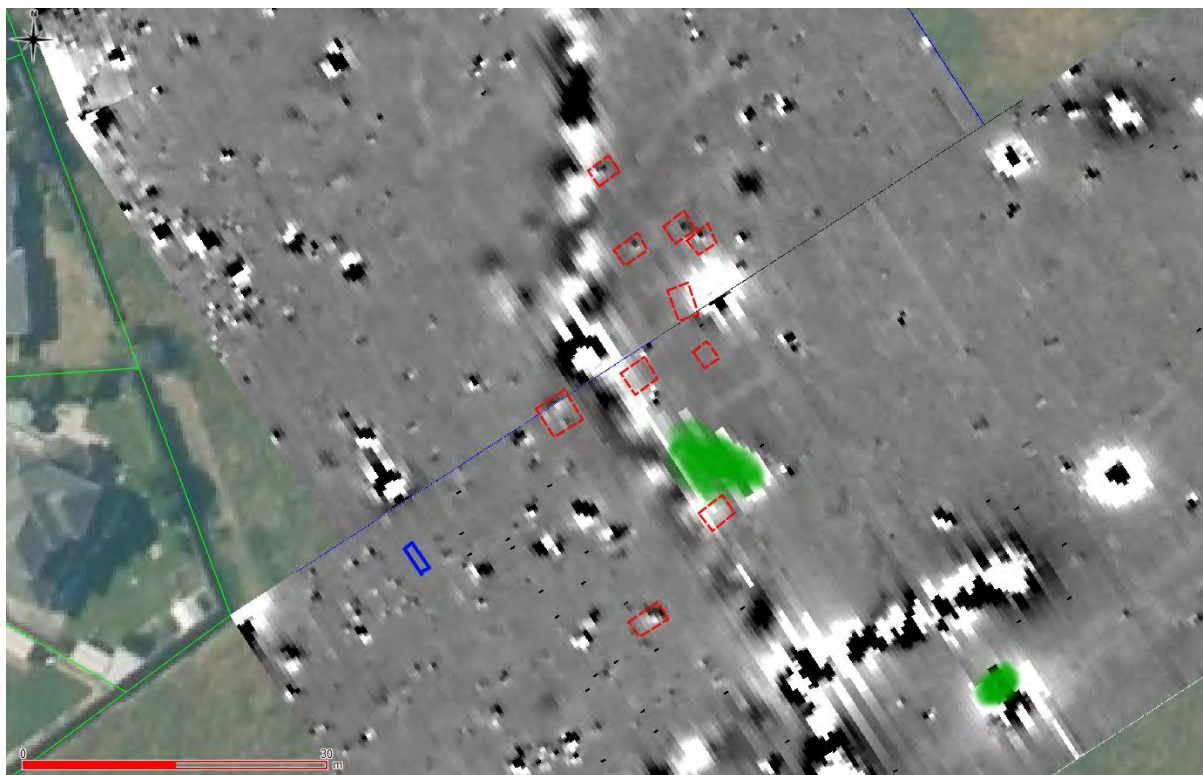


Figure 14: Test Trench location.



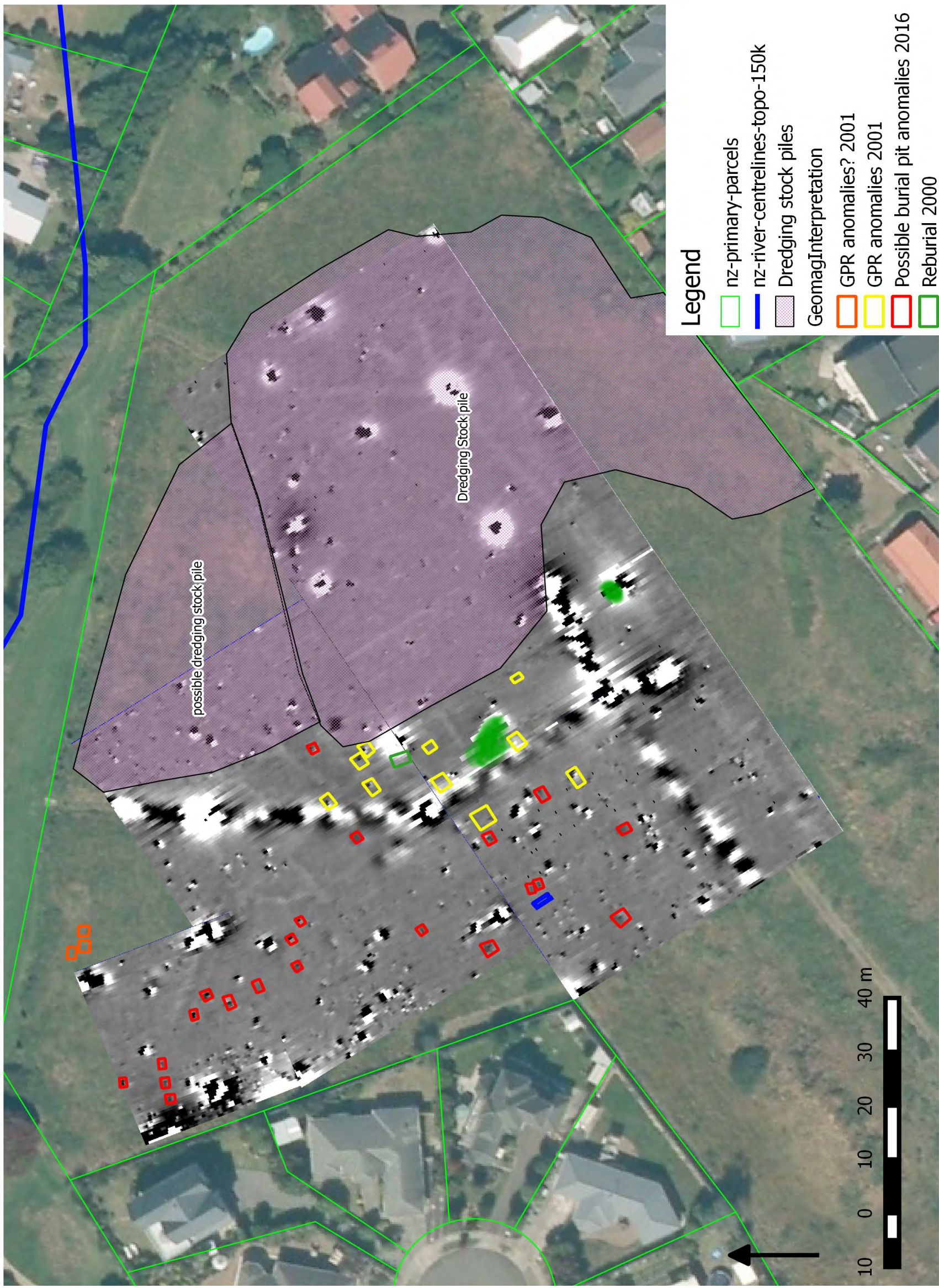


Figure 15: Interpretation of the geomagnetic survey (test trench in blue)



## ***6.0 Discussion***

This survey presents a difficult problem. Small pits, like burial pits, without any further context (e.g. a kainga or paa) are difficult to detect using any geophysical method. It is only recommended in the international literature if there is an independent indication of a burial ground in the area, which in this case is supplied by the accidental discovery of several burials. Multiple events of earthworks and since removed buildings add complexity and ambiguity to the data.

Any geophysical method used in an archaeological context relies on accurate pattern recognition. Pattern recognition can be ambiguous and more than one explanation model can fit a pattern. Therefore it is always recommended to ground test any explanation model. It is obvious that ground testing possible burial pits poses the problem of being culturally sensitive. Especially as we already know that at least some burials were undertaken in the area.

The issue with the model presented here is that the burials could have possibly been much wider spread over the property than the previous work and the accidental discovery locations suggest. If ground testing of the results would be undertaken this could be done from the fringes to the center until the extent of burial locations becomes clear. In a technical sense this approach is the least intrusive. But as it is intrusive an authority by Heritage New Zealand will be required, as we have reasonable suspicion of the presence of archaeological features on each of the possible ground testing locations. Such intrusive work is best undertaken with the support of mana whenua.

## ***7.0 Acknowledgments***

The author would like to thank Mary O'Keeffe and Daniel Parker for their help on site and off site. A special thanks to the iwi representative Les Mullen who patiently helped on site.

## 8.0 References

### 8.1 Primary Sources

LINZ - aerial photograph  
cadastral  
historic maps

### 8.2 Secondary Sources

- Bader, H.D., 2007a. *Geophysical survey, Long Bay, North Shore, Auckland*. Report prepared by Geometria Ltd for Landco Okura Ltd, Auckland.
- Bader, H.D., 2007b. *Geophysical survey, R1098-10, North Shore, Auckland: Long Bay No. 3*. Report prepared by Geometria Ltd for Landco Okura Ltd, Auckland.
- Brooks, A., Bader, H.D., Lawrence, S. and Lennon, J., 2009, Ploughzone Archaeology On An Australian Historic Site: A Case Study from South Gippsland, Victoria. *Australian Archaeology No. 68*: 37 - 44.
- Europae Archaeologiae Consilium 2016. *EAC Guidelines for the Use of Geophysics in Archaeology, Questions to Ask and Points to Consider*, EAC Guidelines No.2
- Historic England, 2008. *Guidelines on Geophysical Survey in Archaeological Field Evaluation*.
- Goldberg, P., Macphail, R. I., 2006. *Practical and Theoretical Geoarchaeology*, Blackwell Publishing, Malden.
- G.P.R., 2003, *Waikanae Land Company Limited, Geophysical Survey of Stage 6 of Waikanae Sub-division incorporating Tamati Place and Wi Kingi Place. May 2003, unpublished report*.
- Johnson, J. K. (ed.), 2006. *Remote Sensing in Archaeology*, The University of Alabama Press, Tuscaloosa.
- O'Keeffe, M. 2012. *Tamati Place - archaeological issues*, Report to Waikanae Land Company and NZ Historic Places Trust by Heritage Solutions, Wellington.
- Tayles, Dr. N. 2001. Report on human skeletal remains from Tamati Place. Unpublished report to Historic Places Trust
- Phillips, C and Geometria 2007. *Archaeological Assessment of the Long Bay Structure Plan Area at Te Oneroa o Kahu (Long Bay)*. Report prepared for Landco Okura Ltd
- Zickgraf, B., 1999. *Geomagnetische und Geoelektrische Prospektion in der Archaeologie. Systematik - Geschichte -Anwendung*, MA Thesis, Seminar fuer Vor- und Fruehgeschichte, Philipps Universitaet Marburg.



"14"

July 2019

Geophysical Site Investigations:  
Magnetic Gradiometer and  
Ground Penetrating Radar

Tamati Place, Waikanae Beach, Waikanae

Report prepared for the Waikanae Land Company

GEOPHYSICAL REPORT



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## Capability Statement

*Southern Geophysical Ltd's experienced team provides geophysical contracting and consulting services to clients in the energy, geotechnical, civil engineering, mineral, archaeological, agricultural and environmental sectors. We have one of the largest equipment resources for shallow geophysical surveys in the independent private sector in New Zealand.*

We are proudly Canterbury owned and operated and have been since our beginnings in 2004. We operate in New Zealand, Australia, the Pacific Islands, and Antarctica. Some of the major projects that we have worked on include:

- Shallow oil and gas exploration in Westland and Southland
- Recovery and rebuild projects in Christchurch, post Canterbury Earthquake Sequence
- Wind farm site investigations
- Port infrastructure investigations
- Large scale UXO surveys
- Seismic network maintenance
- Cemetery surveys

Southern Geophysical Ltd has extensive experience with Ground Penetrating Radar (GPR) and its applications, and we have carried out over 220 GPR projects for numerous geotechnical and engineering companies, allowing us to be involved with many of the larger infrastructure projects throughout New Zealand.

Our team is confident and capable of utilising the widest range of GPR systems, clocking up over 2400 hours of GPR applications over the last 13 years. The team is also skilled in the processing of the data acquired, reporting in the way the client requests and being at the end of the phone or an email to respond to queries which may arise.

SGL Job Reference: 1730





## **Summary:**

Southern Geophysical Ltd conducted a two-stage geophysical investigation across a 31,000 m<sup>2</sup> area at Tamati Place (Figure 1), Waikanae, from the 11<sup>th</sup> to the 13<sup>th</sup> and the 25<sup>th</sup> to the 26<sup>th</sup> of June 2019. Stage one: A magnetic gradiometer survey was first undertaken to generate a magnetic gradient anomaly map for the purpose of identifying possible burial plots (Figure 2). Results from the magnetic gradiometer survey allowed us to identify fifty discrete anomalous locations warranting more detailed GPR investigations (Figure 3). Results also indicate numerous ferric metal objects are located throughout the site, as well as utilities, trenches and additional reworking of the subsurface. When compared to the previous magnetic gradiometer survey completed in April 2018 by Archaeology Solutions Ltd (provided by the client) we find the results to be comparable in areas surveyed by both companies; however, additional ferrous objects have been detected during this survey, suggesting additional metal has been deposited on site in the intervening timeframe since the earlier survey of 2018.

Stage two: The aim of the additional GPR survey undertaken on the 25<sup>th</sup> and 26<sup>th</sup> of June was to characterise the anomalous areas of disturbed ground previously identified with the magnetic gradiometer survey conducted at the site from the 11<sup>th</sup> to the 13<sup>th</sup> of June 2019. A GSSI SIR-3000 digital radar system with a shielded 400 MHz antenna was used for the survey. GPR scans were collected as grids (3.6 x 4 m) at each anomalous area, with 17 GPR lines spaced at 0.25 m running South – North. The GPR investigations showed a clear difference in the subsurface across the site. The southern side of the site showed no evidence of buried objects or disturbance which could be interpreted as possible burial plots, as the substrate appears relatively homogenous. The greatest disturbance of the subsurface was found on the north side of the site. Twelve grids were identified in the GPR radargrams as having anomalous features (green grids in Figure 5), such as zones of disturbance and buried objects that span over multiple GPR radargrams. A detailed description of each anomalous grid can be found in Figures 4 through 15.

Following a review of the GPR radargrams in conjunction with the magnetic gradiometer results we have determined that of the original fifty discrete anomalous locations subjected to additional GPR investigations, five locations appear to show characteristics which could be indicative of possible burial plots (Figure 16). The remaining forty-five discrete anomalies do not appear to show characteristics indicative of burial plots.

## **Survey Methods:**

### **Site description:**

The Tamati Place site is a large grassy field comprising of many small mounds and slopes, understood to be levelled sand dunes. The site contains trees, bushes and scrub, and various types of metal and non-metal debris. A site map outlining the geophysical survey area can be found in Figure 1.

There are multiple obstructions throughout the site which will inhibit surveying in and around the obstructions, including two steeper mounds which remain covered in brambles on the south side of the site. Other obstructions include bushes, trees and exposed debris. Outlines of the obstructed areas can be found in Figure 2 and Appendices A and B.





5473800

5473750

5473700

5473650

5473600

5473550

5473500

NORTHING (m)

1769550

1769600

1769650

1769700

1769750

1769800

1769850

1769900

1769950

1770000

1770050

1770100

EASTING (m)

DRAWING-

**Figure 1: Geophysical Site Investigations**

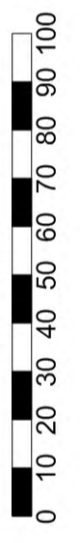
LOCATION-

**Tamati Place, Waikanae Beach, Wakanae**

NOTES-

Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

SCALE (m)



A3

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### **Magnetic Gradiometer Survey: Stage One**

Magnetic gradiometer surveys are a non-invasive method for measuring changes in the subsurface magnetic field. At Tamati Place a Bartington Dual Fluxgate Gradient Magnetometer 601-2 was used to conduct the survey. The procedure used in surveying was based on the method as outlined in the operation manual for the Bartington Dual Fluxgate Gradient Magnetometer 601-2. Surveying consisted of collecting grids of parallel lines (40 m x 40 m) spaced 0.5 m apart with a survey point collected every 0.25 m along each line, totalling 160 recorded data points per line. The grids were collected sequentially as whole or partial grids depending on the location and nature of obstructions present within each grid. A nulling zone was identified at the start of the survey for calibration purposes. The equipment was returned to the nulling zone regularly and re-calibration was undertaken when necessary to minimize sensor drift.

#### **Acquisition parameters:**

The gradiometer acquisition parameters used at Tamati Place were:

- Magnetometer system - Bartington Dual Fluxgate Gradient Magnetometer 601-2
- Survey grid size – 40 m by 40 m
- Survey Pattern - zigzag
- Instrument sensitivity setting – 100 nT
- Line spacing - 0.5 m
- Samples per lines - 160 (0.25 m intervals)

#### **Processing:**

The gradiometer survey results required DC shift removal in order to correct the normal positive/negative shift in values; which is a result of running the sensors in opposing directions. The DC shifted data were then imported into the Golden Software Surfer © program for generating maps and visuals (Figure 2).

All data has been digitally archived and is available on request.

#### **Background noise:**

The survey area predominantly consists of sandy deposits which will give a low magnetic response. Any changes to the sandy deposits such as digging/trenching or the addition of foreign objects or materials should create a discernible change in the localised magnetic field. Utilities, metal debris, metal bearing fences and earthworks are all known to exist on the site and will produce a significant change in the magnetic field such that interpretations on and around these areas will not be possible for the purpose of detecting possible burial



plots. Any ferric metal located within the survey area will produce a characteristic dipolar (positive 'white' to negative 'black') anomaly in the dataset. Many such features are visible throughout the survey area (Figure 2).

### **GPR Survey: Stage Two**

GPR is a non-invasive geophysical technique for imaging subsurface conditions. A few of the more common applications are identification of concrete thicknesses, soil strata, bedrock boundaries, underground pipelines, voids, caves and tunnels. It has the highest resolution of any geophysical method for imaging near surface features.

GPR operation in the field is conducted by moving an antenna across the surface of the ground along pre-determined grid lines. The antenna transmits pulses of electromagnetic signal at frequencies ranging from 25 MHz to 2700 MHz into the ground and detects the reflected signal from subsurface features. The strength of the reflected signal is largely dependent on the contrast in dielectric between the subsurface materials encountered. The antenna is connected to a central control computer that collects, displays, and stores the data received from the antenna.

The resolution possible with GPR is controlled by the frequency of the electromagnetic signal. Higher frequency GPR systems produce higher resolutions. The depth of penetration, however, decreases with increasing frequency. An optimum balance between depth of penetration and resolution has to be established at each site depending on the size and depth of the survey target.

At Tamati Place, the aim of the survey was to characterise the anomalous areas identified during the magnetic gradiometer survey. The GPR can identify zones of disturbance which could signify unmarked graves and burial pits. Depending on the date of burial, GPR will be able to detect reflections and diffractions from the excavated vertical shaft, from structures associated with the burial such as concrete slabs, grave markers, and coffins.

A GSSI SIR-3000 digital radar system with a shielded 400 MHz antenna was used for the survey. The anomalous areas identified from the magnetic gradiometer survey were found using a differential GPS (+/- 10 cm real-time accuracy); and were used as the center points for the GPR grids. GPR scans were collected in grids (3.6 x 4 m) of parallel lines, spaced at 0.25 m from South – North. The GPR grid positions were collected using a GeoXH differential GPS (+/- 10 cm accuracy) system and photographs were taken of key survey locations. The GPS points were output using NZGD2000 Transverse Mercator datum.

### **Acquisition parameters:**

The GPR acquisition parameters used at Tamati Place were:

- Antenna centre frequency - 400 MHz
- Trace increment – 8.3 to 16.7 mm
- Sample per trace - 512
- Time increments - 0.1953 and 0.2930 ns
- GPR system - GSSI SIR3000
- Radar data format - RADAN

### **Processing:**

Standard post-processing was applied to the GPR radargrams using the Reflexw software package. To display the depths correctly in the radargrams, an average replacement velocity of 0.08 m/ns was used, which was found using hyperbola fitting in the top 2 m. 3D GPR slices were generated from the 2D lines collected in the field.

All data has been digitally archived and is available on request.

## **Results:**

### **Magnetic Gradiometer Survey**

Figure two shows the magnetic gradiometer results for the entire field site with Appendix A and B dividing and enlarging the northern and southern areas of Figure two respectively. Results from the magnetic gradiometer survey allowed us to identify 50 discrete locations requiring GPR investigation. Forty of these locations showed some characteristics of burial plots which prompted additional processing and analysis, including:

- A localised change in the magnetic field of a size similar to that of a 'typical' burial plot, including burial plots for small and/or larger sized individuals.
- The localised magnetic field was predominantly negative shifted and showed no or very low dipolar characteristics as this would otherwise indicate the presence of ferrous material.

It is unknown if the individuals were buried in the 'typical' European style or a pre-European 'crouch burial' style, separately, in proximity to one another or with ferric-metal possessions. Therefore, in addition to the survey requirements an additional ten locations surveyed with GPR were selected to sample larger anomalies, or anomalies containing a characteristic dipolar response which had dimensions similar to that of a burial plot.

Results also indicate numerous ferric-metal objects (dipolar response) are located throughout the site, some of which are visible on the surface as bottle lids, barbed wire, fencing and debris. Utilities are clearly visible in the gradiometer survey as well as steel manhole covers and grates on the surface. Linear features are visible in the results which may represent compaction or alteration of the subsurface for the purpose of services and pathways. A comparison with the previous magnetic gradiometer survey completed by Archaeology Solutions Ltd (provided by the client) shows the results of both surveys to be comparable where overlaps in the datasets occur; however, additional ferrous objects have been detected during this survey, suggesting additional foreign materials may have been added to the site in the intervening timeframe. The approximate location for the year 2000 reburial of the previously exhumed human remains is located near a large ferric metal object (Figure 2), likely a manhole cover, which produces a very strong dipolar response, overshadowing any subtle soil changes for many metres surrounding the metal object. The reburial location is therefore not visible in the magnetic gradiometer survey.

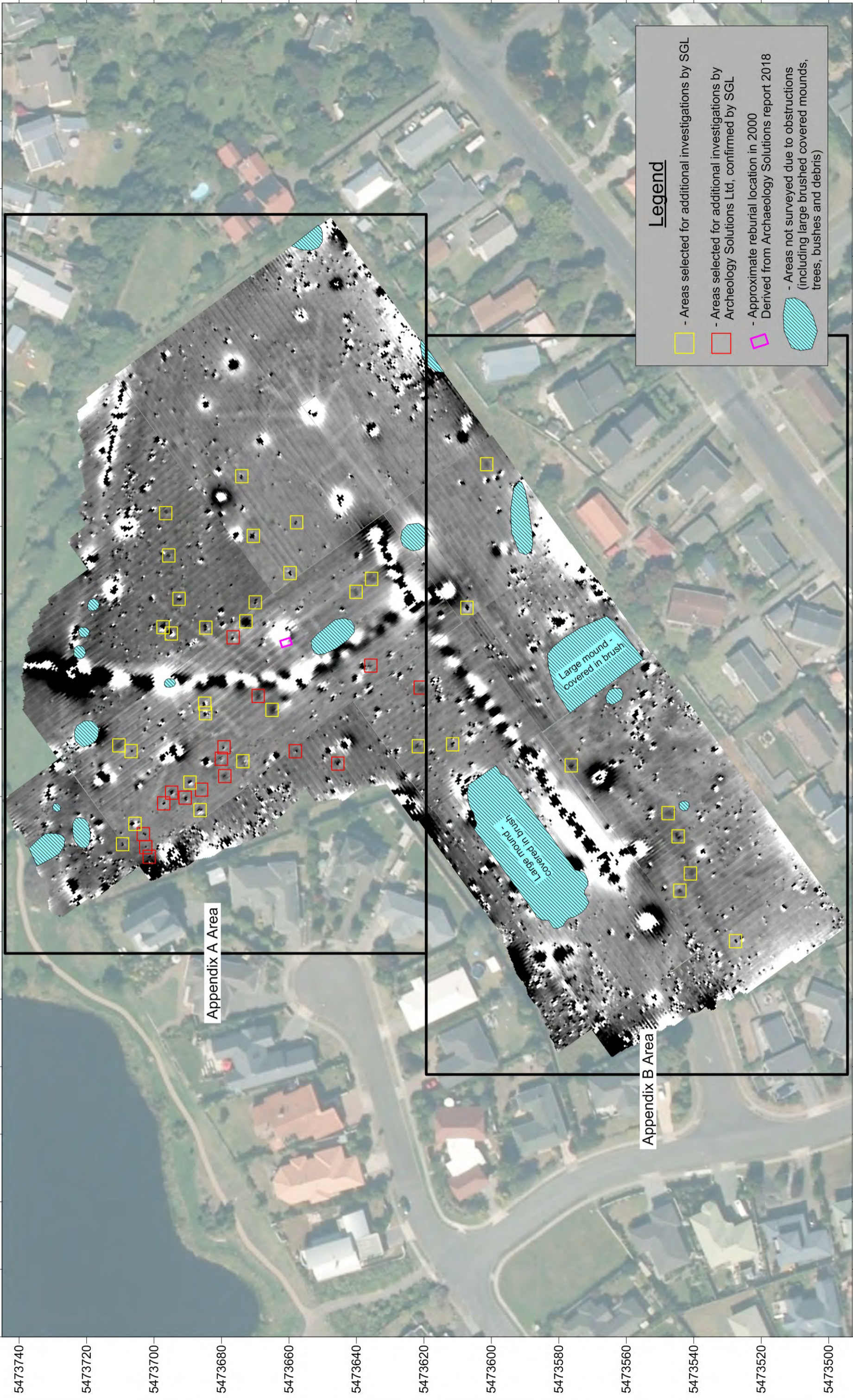
### **GPR Survey**

In total, 850 GPR lines were collected, with a total line length of approximately 3.1 km (Figure 3). The GPR data was of good quality and imaged the subsurface to depths over 2 m.

Analysis of the GPR radargrams in conjunction with the magnetic gradiometer results enabled a total of 12 GPR grids to be selected for 3D analysis. These grids were selected as they all exhibited the following characteristics:

- The magnetic gradient results revealed a localised negative shift in the magnetic field of a size that could have resulted from the digging of a burial plot.
  - An additional two grids were selected which showed a localised magnetic gradient response larger than expected of a typical burial plot. These were selected to survey the possibility of burial plots being in very close proximity, disturbing a larger than expected area.
  - A further two areas with dipolar magnetic gradient results were selected to assess the possibility of ferric metal being present in a burial plot.
- The size of the anomaly within the GPR radargrams was comparable to the size of remains expected within a European or pre-European style burial plot and the length of the anomaly was larger than 75 cm, crossing at least three radargrams.
- Stratigraphic layering was present within the GPR radargrams and therefore the grid location was interpreted to be contained within relatively undisturbed ground.

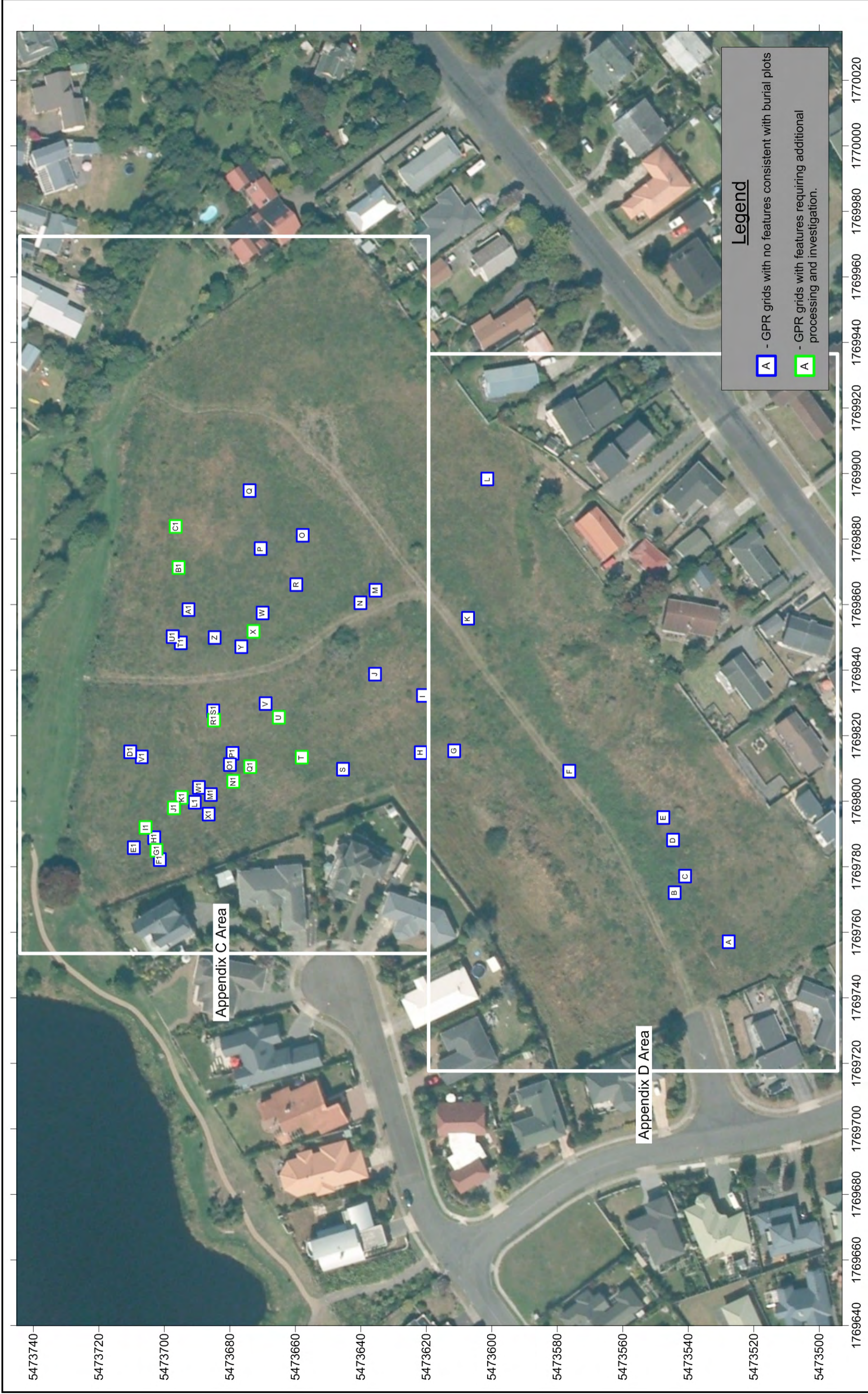




**Legend**

- Areas selected for additional investigations by SGL
- Areas selected for additional investigations by Archeology Solutions Ltd, confirmed by SGL
- Approximate reburial location in 2000 Derived from Archeology Solutions report 2018
- Areas not surveyed due to obstructions (including large brushed covered mounds, trees, bushes and debris)





**Legend**

- A - GPR grids with no features consistent with burial plots
- A - GPR grids with features requiring additional processing and investigation.



A3

NOTES:  
 Coordinates NZ2000 TM Grid.  
 Aerial photograph sourced from LINZ, Crown Copyright ©



**Figure 3: GPR Survey Map**

**Tamati Place, Waikanae Beach, Wakanae**

DRAWING-

LOCATION-



## **Combined Survey Results – Magnetic Gradiometer and GPR**

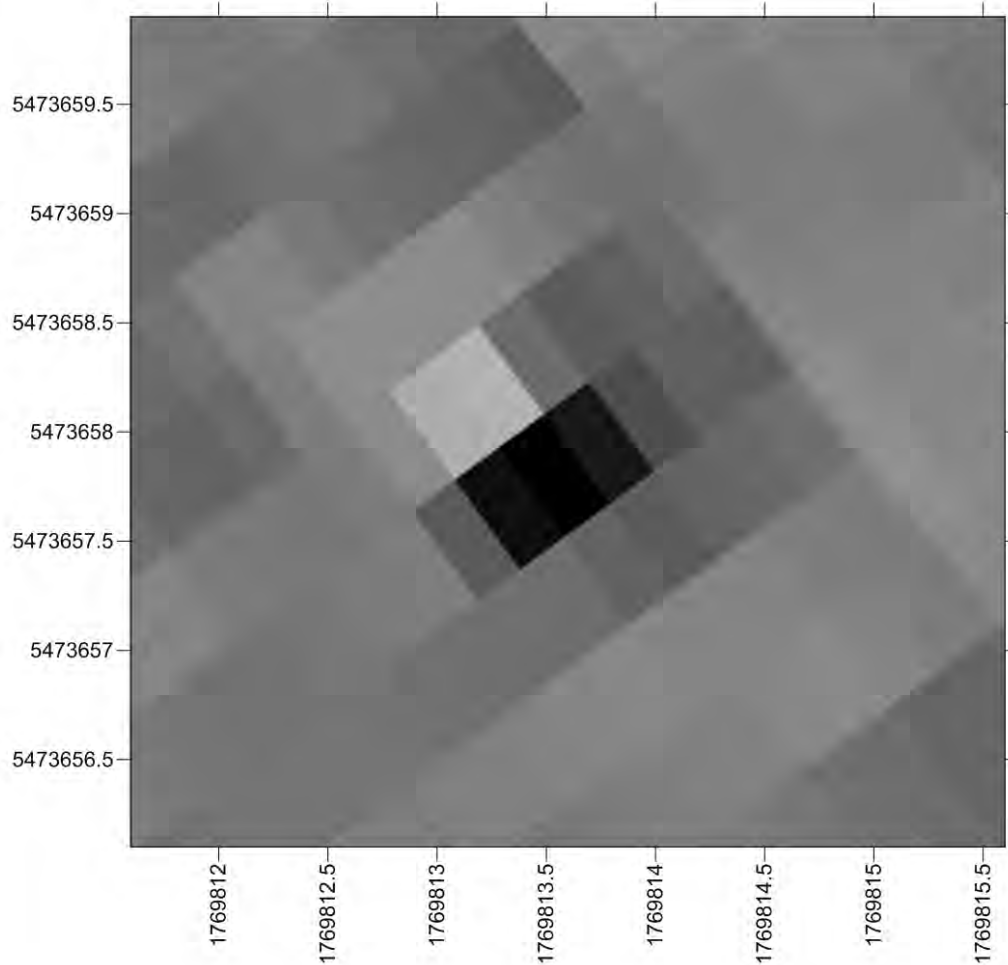
By comparing the magnetic gradiometer results with the GPR radargrams and 3D GPR time slices we were able to come to a conclusion on all twelve of the survey grids which exhibited some or all of the characteristics one might expect to see when investigating a burial plot. Figures four through fifteen contain the results for each of the twelve survey grids in question, with comparisons made between the different survey methods and details on the analysis process. Survey grids that were identified as possibly containing a burial plot exhibited the following characteristics.

- The magnetic gradient results were of a size and value comparable to what would be expected of disturbed ground within a ‘typical’ burial plot.
- The GPR anomaly was visible within three to nine radargrams (between 0.75 m and 2.2 m), therefore was of a size comparable to a ‘typical’ burial plot. This measurement window was somewhat flexible to allow for smaller or larger plots.
- The stratigraphic sequence overlying the GPR anomaly exhibited signs of disturbance.
  - Or the GPR anomaly was too shallow for any accurate comments to be made about the overlying stratigraphic sequence (or lack thereof).

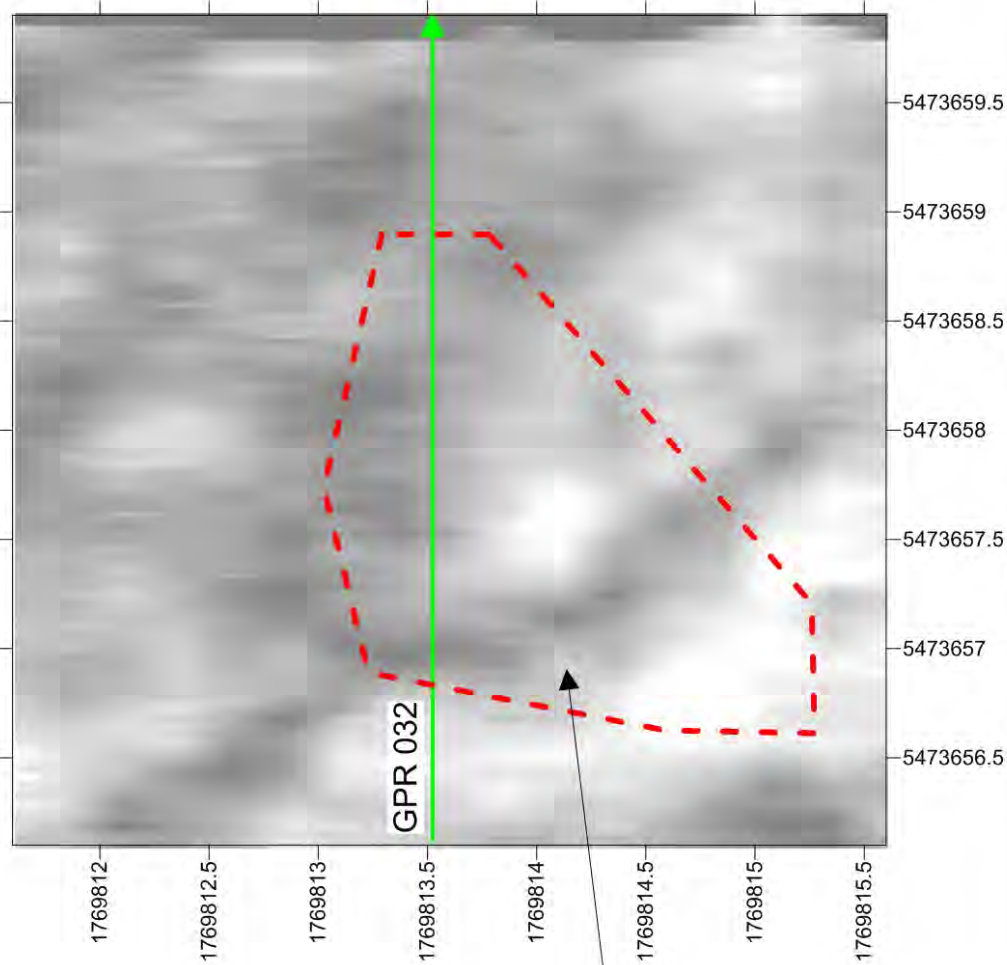
Analysis of the twelve survey grids in question yielded the following results (Figure 16):

- Two of the survey grids gave results comparable with what could be expected from a ‘typical’ burial plot (Figures 7 and 9).
- Two of the survey grids yielded some results which are compatible with a ‘typical’ burial plot, albeit shallow (Figures 8 and 11).
- A single survey grid contained two anomalies which could not be ruled out a possible burial plot (Figure 5).
- Seven of the survey grids showed no distinctive features indicative of a burial plot:
  - Three of the survey grids showed no disturbance in the stratigraphy above the GPR anomalies in question (Figures 4, 12 and 13).
  - Neither of the two dipolar (ferric-metal bearing) survey grids gave results indicative of a burial plot (Figures 10 and 15).
  - Neither of the two survey grids which showed a larger than ‘typical’ magnetic gradient response gave results indicative of a burial plot (Figures 6 and 14).

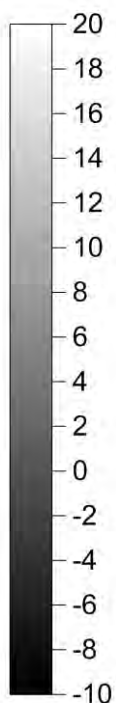
### Magnetic Gradiometer Anomaly



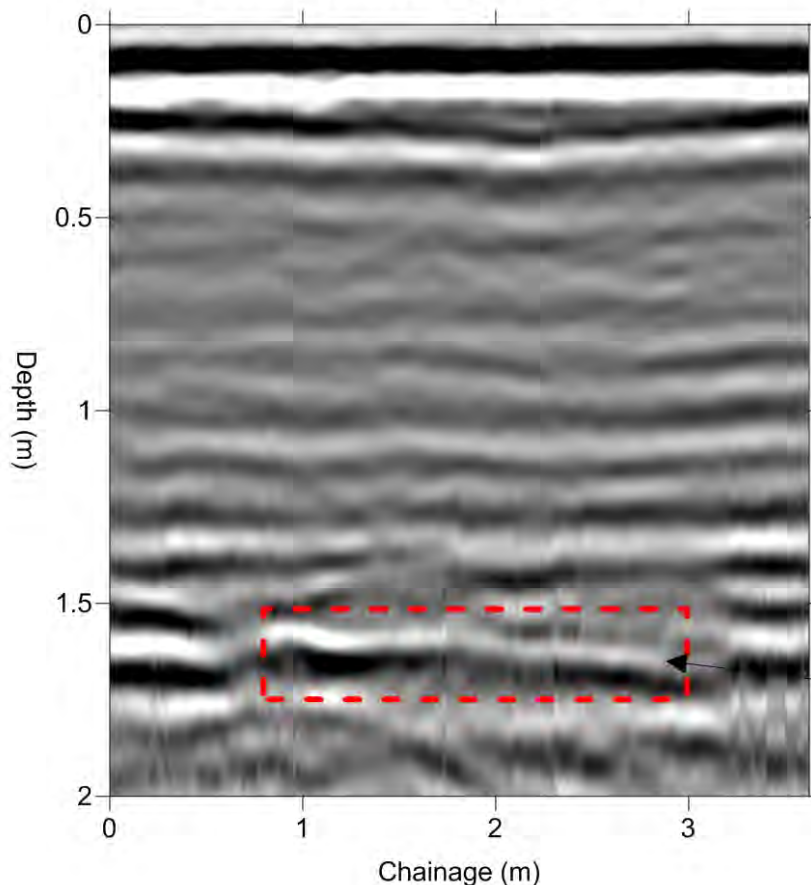
### 3D GPR Grid Time Slice



Magnetic Gradiometer Scale (nT)



### GPR Radargram 032



Overall size of anomalies within the layer, present within all relevant radargrams

Anomaly, source of additional investigation

#### Comments:

##### Magnetic gradiometer:

A localised negative shift in the magnetic field is visible within the magnetic gradiometer survey the 'Grid T' location (top left), and appears to show only a small dipole characteristic which may represent the presence of small ferric-metal object.

##### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomalies were detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

The anomaly which is visible within the 3D GPR time slice and radargram at a depth of approximately 1.6 m (Red box). The anomaly does not appear to be localised and sections of the anomaly which reflect radar well (and therefore appear more visibly in the radargrams) appear to be a part of a more widespread horizontal layer and not an anomaly associated with burial plots. The stratigraphic layers directly above the anomalous layer appear to be undisturbed, therefore, it is unlikely the anomaly represents a possible burial plot as the process of digging a burial plot would disturb the layering within the sedimentary deposits.

TITLE- **Figure 4: Location - Grid T**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



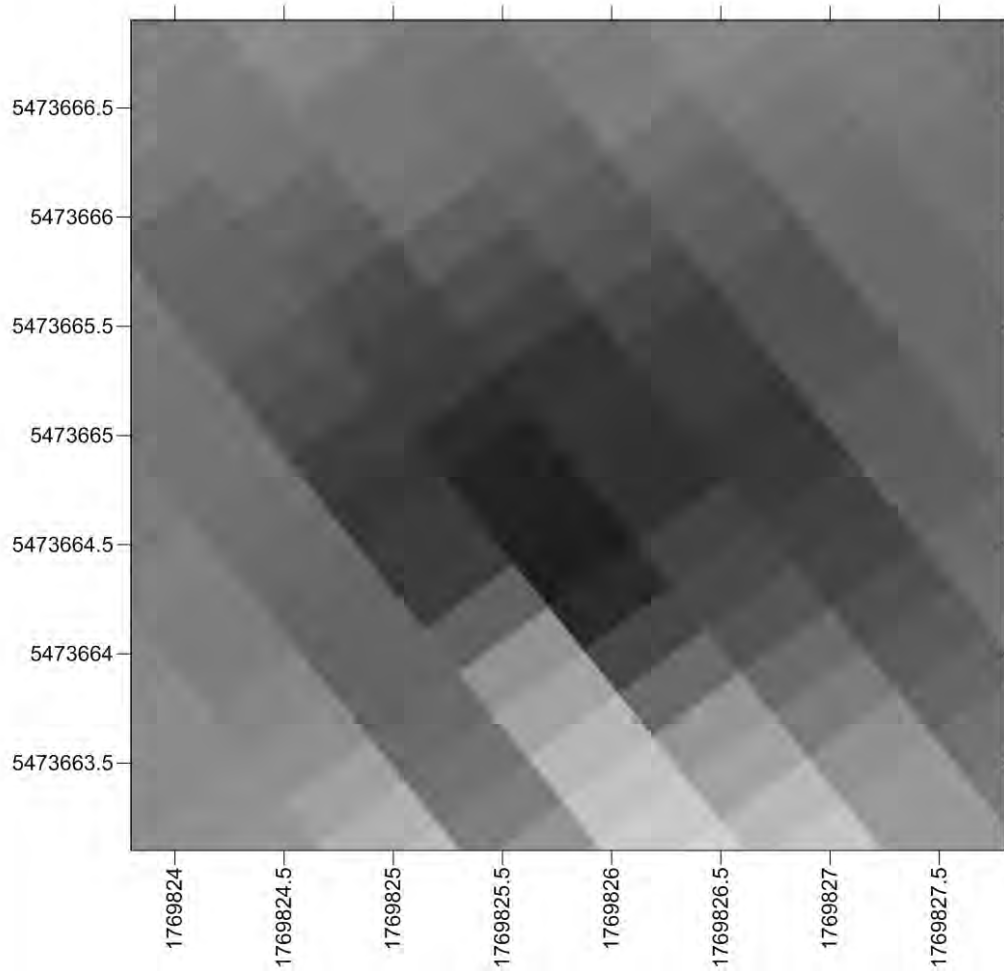
A3

**Southern Geophysical Ltd**

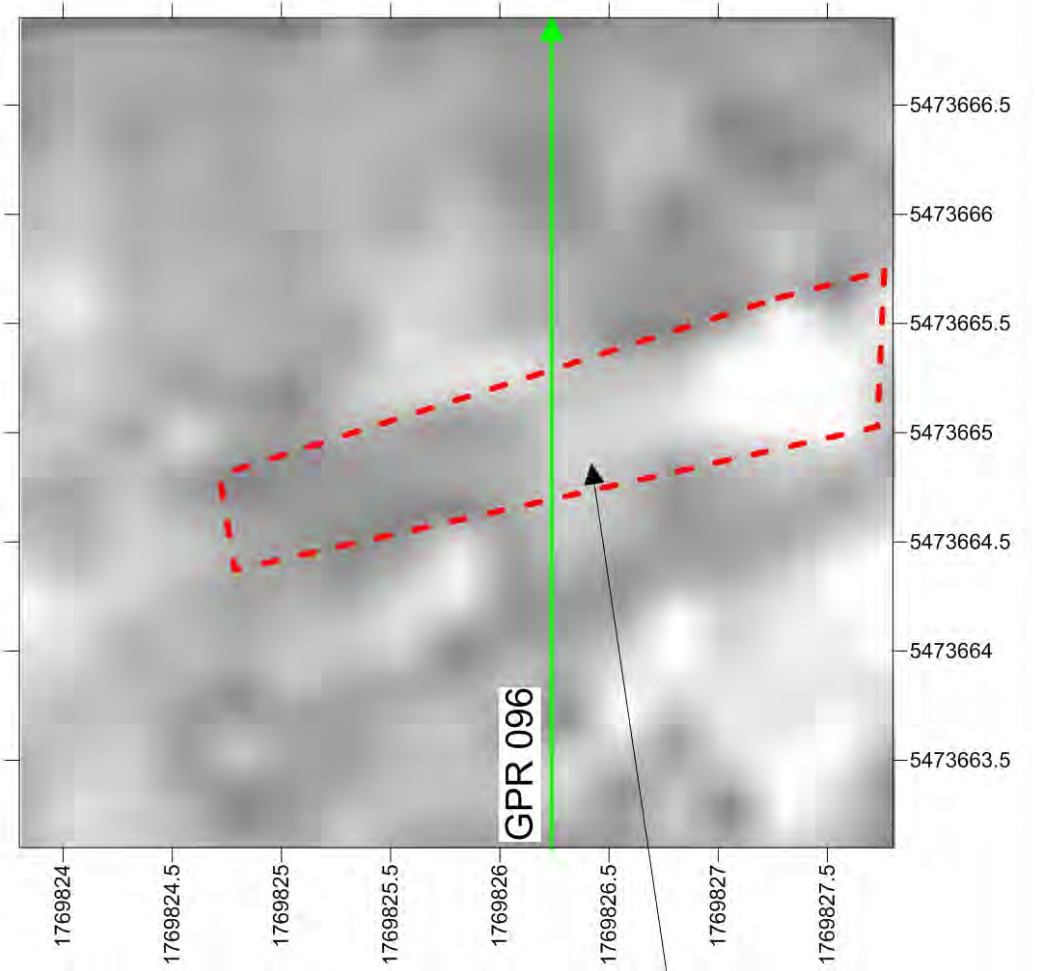
[www.southerngeophysical.com](http://www.southerngeophysical.com)



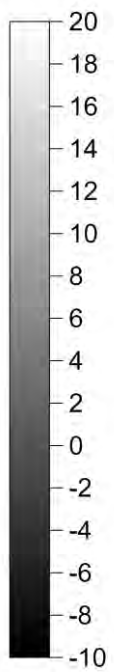
## Magnetic Gradiometer Anomaly



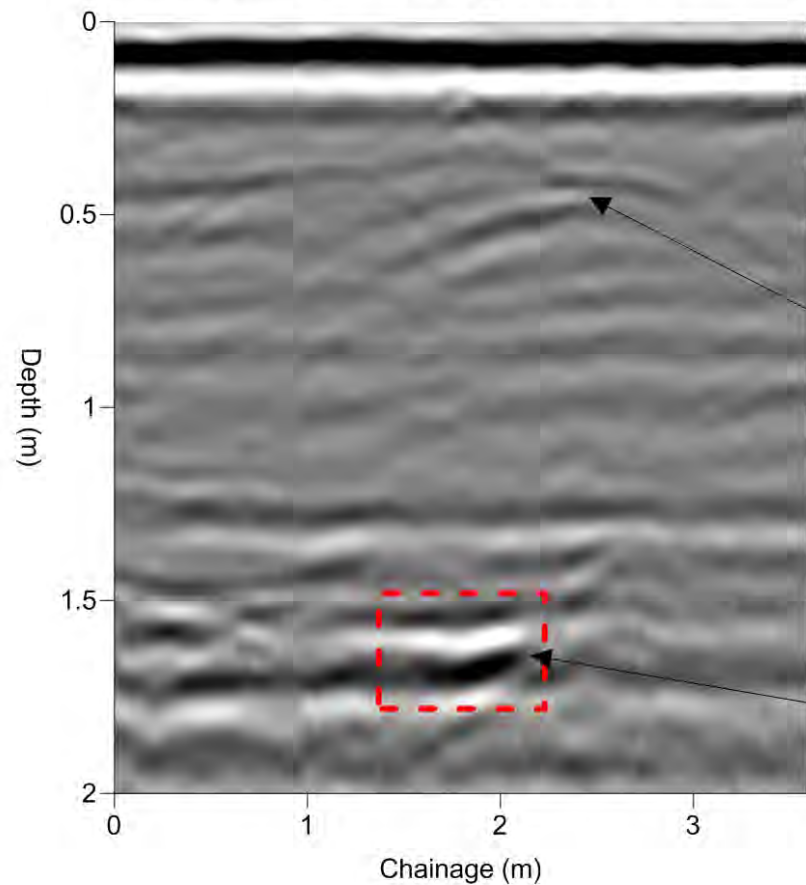
## 3D GPR Grid Time Slice



Magnetic Gradiometer Scale (nT)



## GPR Radargram 096



Overall size of anomaly, present within all relevant radargrams

Additional anomaly

Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A localised negative shift in the magnetic field is visible within the magnetic gradiometer survey the 'Grid U' location (top left), and appears to show no dipole characteristics which would otherwise represent the presence of ferric-metal.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of an anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomalies were detected within all GPR radargrams. A corresponding red box is visible within the example GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within GPR radargrams at a depth of approximately 1.5m (Red box). The anomaly is faintly visible across the 3D time slice and appears to exhibit stronger GPR reflection properties in the eastern portion of the 3D time slice.

The stratigraphic sequence at this location does not appear in GPR radargrams clearly, which may indicate disturbance of the ground across this survey grid area. The ground disturbance (if this is the case) is not localised to a burial plot sized location within this survey grid.

An additional faint anomaly is present in the upper 0.5m of the GPR radargrams which appears as a continuous anomaly for approximately 2m. Neither of the two anomalies are 'characteristic' of a burial plot; however, given the widespread reworking of materials within this site we cannot rule out the possibility that either of these two anomalies are in fact possible burial plots.

TITLE- **Figure 5: Location - Grid U**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



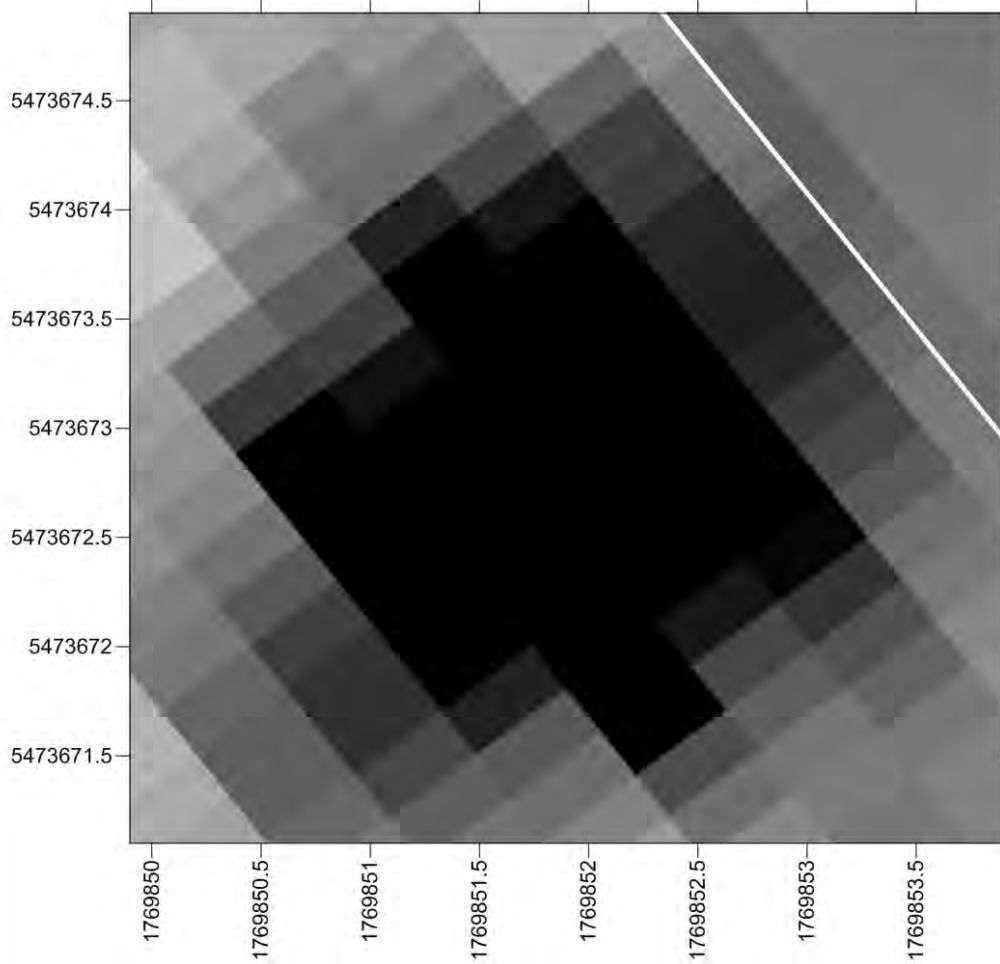
A3

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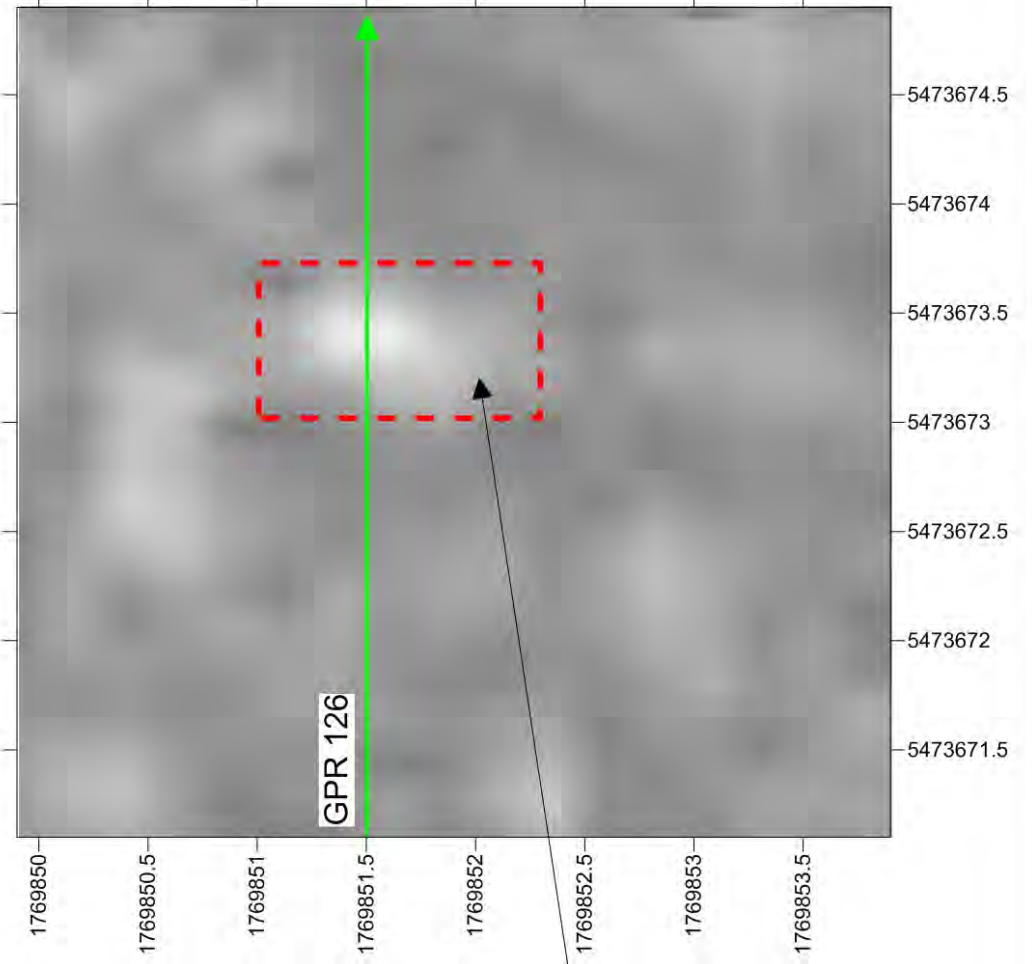
[www.southerngeophysical.com](http://www.southerngeophysical.com)



## Magnetic Gradiometer Anomaly

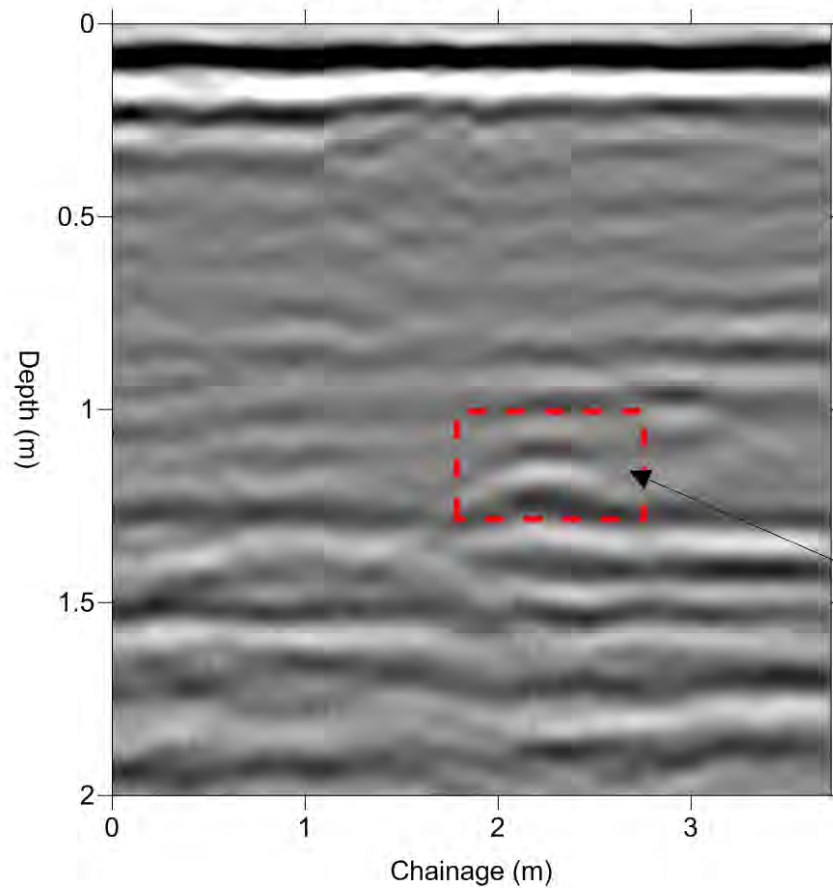


## 3D GPR Grid Time Slice



## GPR Radargram 126

Magnetic Gradiometer Scale (nT)



Overall size of the anomaly, present within all relevant radargrams

Anomaly, source of additional investigation

### Comments:

**Magnetic gradiometer:**

A large (~3m diameter), localised, strong negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid X' location (top left), and appears to show no dipole characteristic which would otherwise represent the presence of ferric-metal.

**GPR:**

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargram at a depth of approximately 1.1m (Red box).

The anomaly appears to be approximately 1.25m long, crossing 5 separate radargrams.

The stratigraphic layers directly above the anomaly appear to be undisturbed, therefore, it is unlikely the anomaly represents a possible burial plot as the process of digging a burial plot would disturb the layering within the sedimentary deposits.

TITLE- **Figure 6: Location - Grid X**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



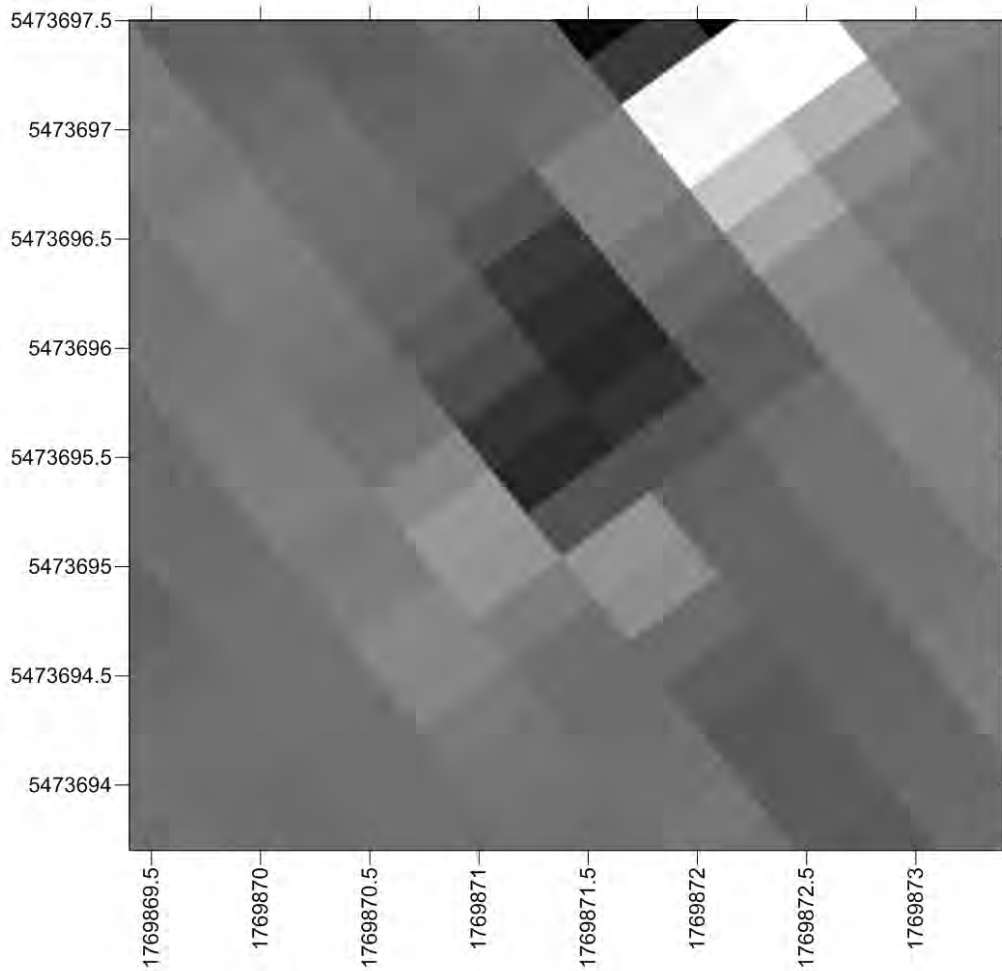
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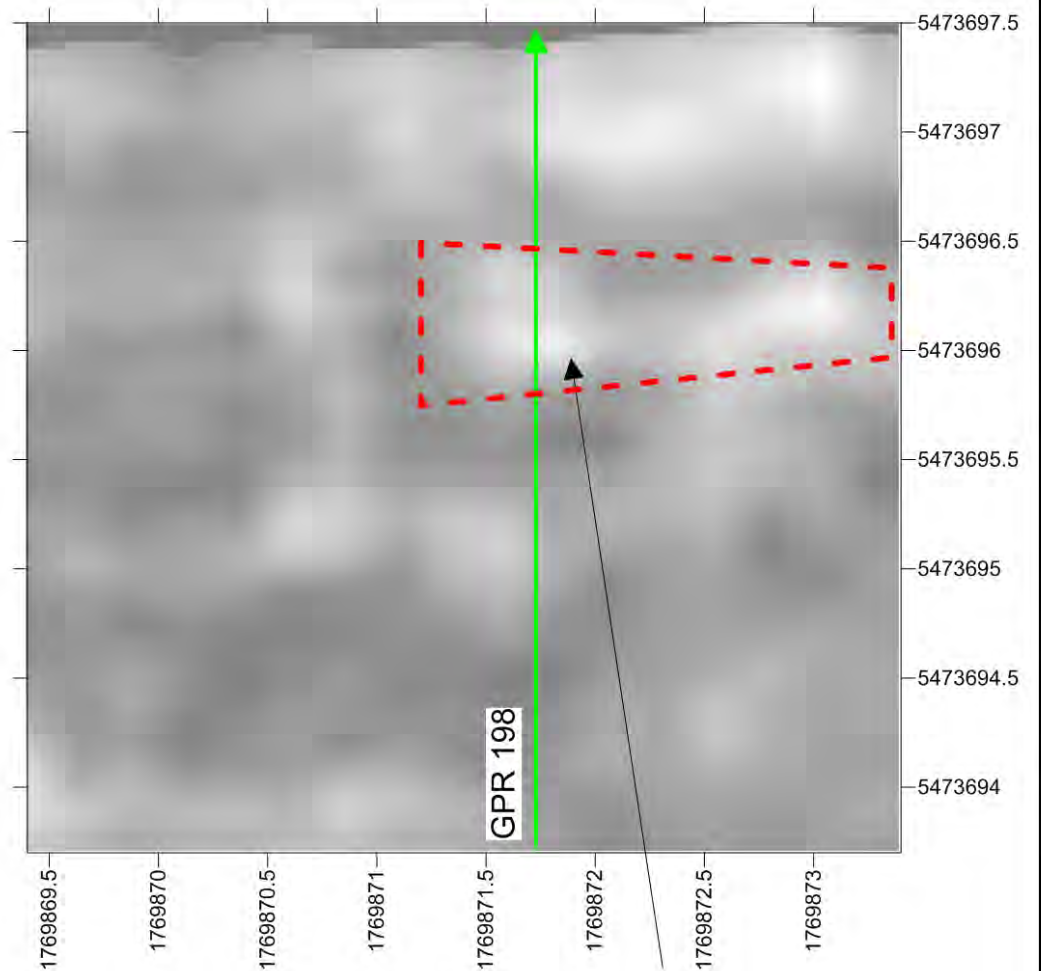
[www.southerngeophysical.com](http://www.southerngeophysical.com)



## Magnetic Gradiometer Anomaly

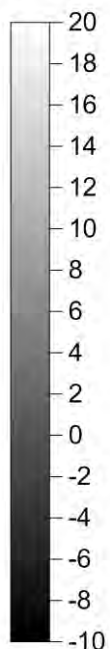


## 3D GPR Grid Time Slice

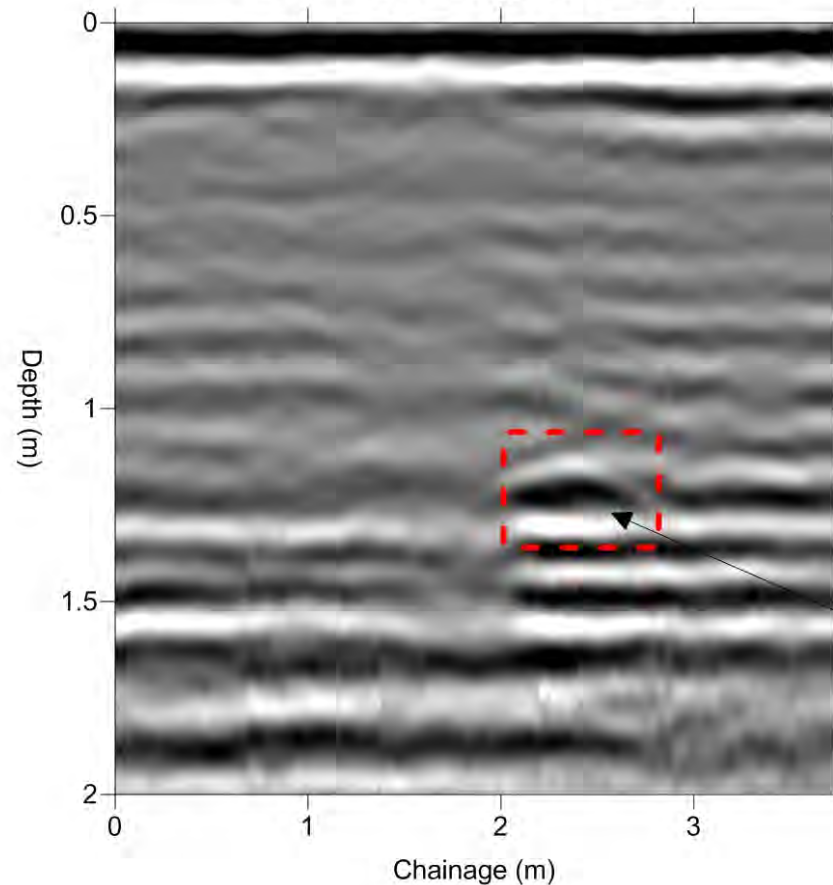


Overall size of the anomaly, present within all relevant radargrams

### Magnetic Gradiometer Scale (nT)



## GPR Radargram 198



Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A localised, negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid B1' location (top left), and appears to show a small nearby dipole feature which likely represents the presence of ferric-metal nearby.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom).

The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams.

A corresponding red box is visible within the example GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargrams at a depth of approximately 1.2m (Red box).

The anomaly appears to be approximately 1.75m long, crossing 7 separate radargrams.

The stratigraphic layers directly above the anomaly appear to be disturbed, therefore, in conjunction with the size, shape and depth of the anomaly we conclude that this anomaly shows evidence characteristic of a 'typical' burial plot.

TITLE- **Figure 7: Location - Grid B1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



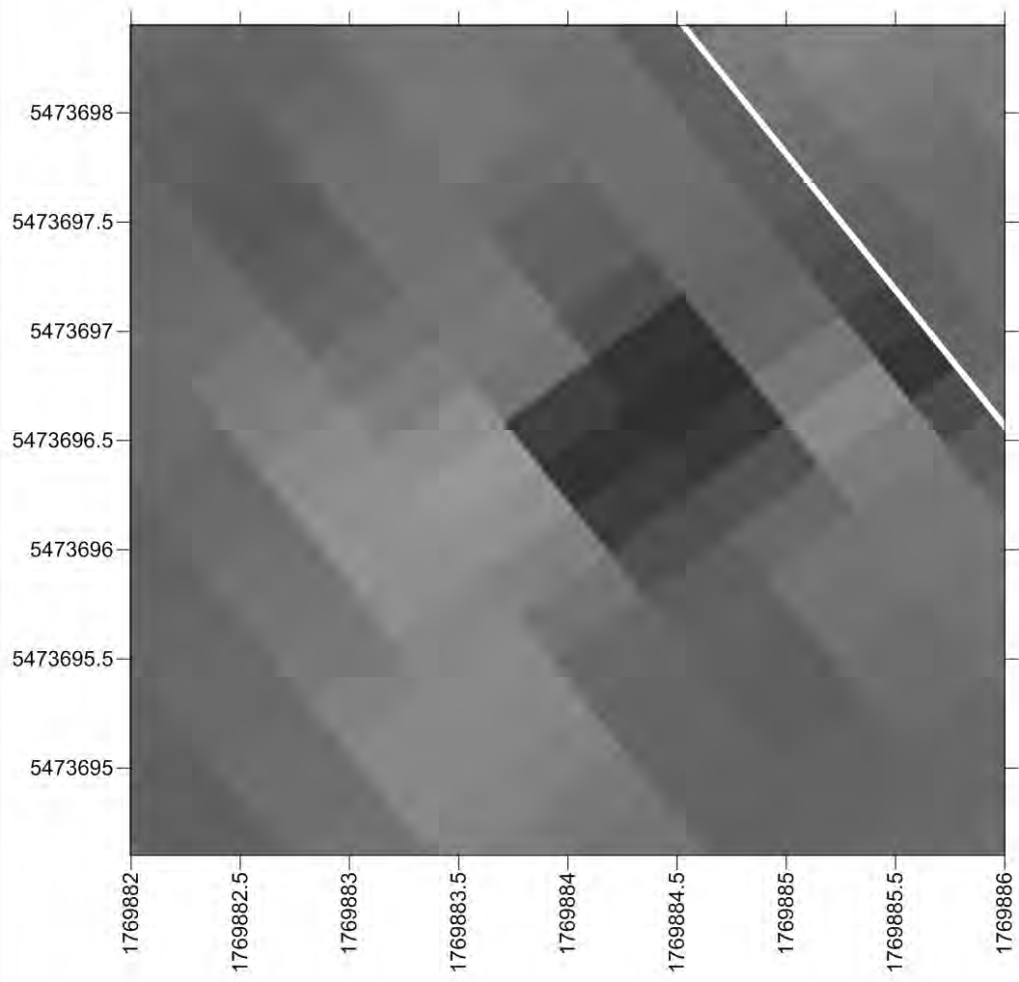
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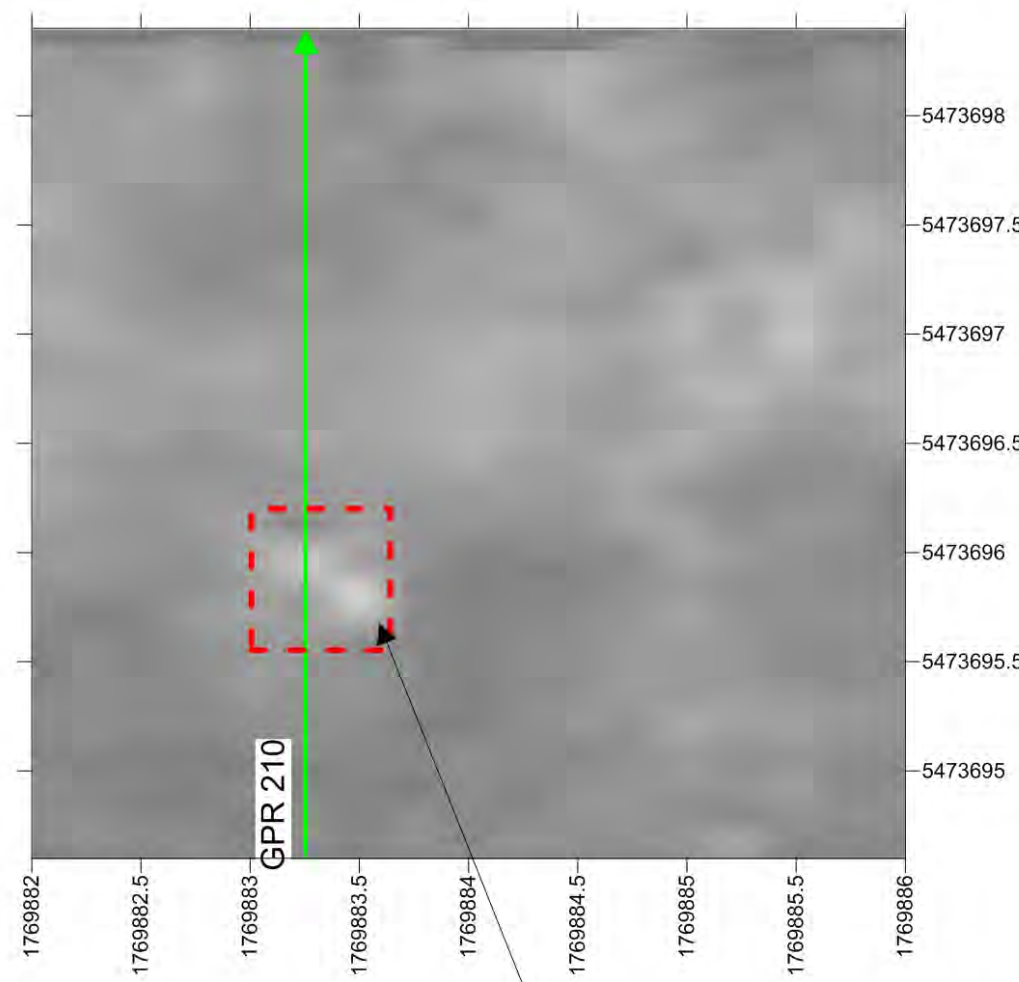
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### Magnetic Gradiometer Anomaly



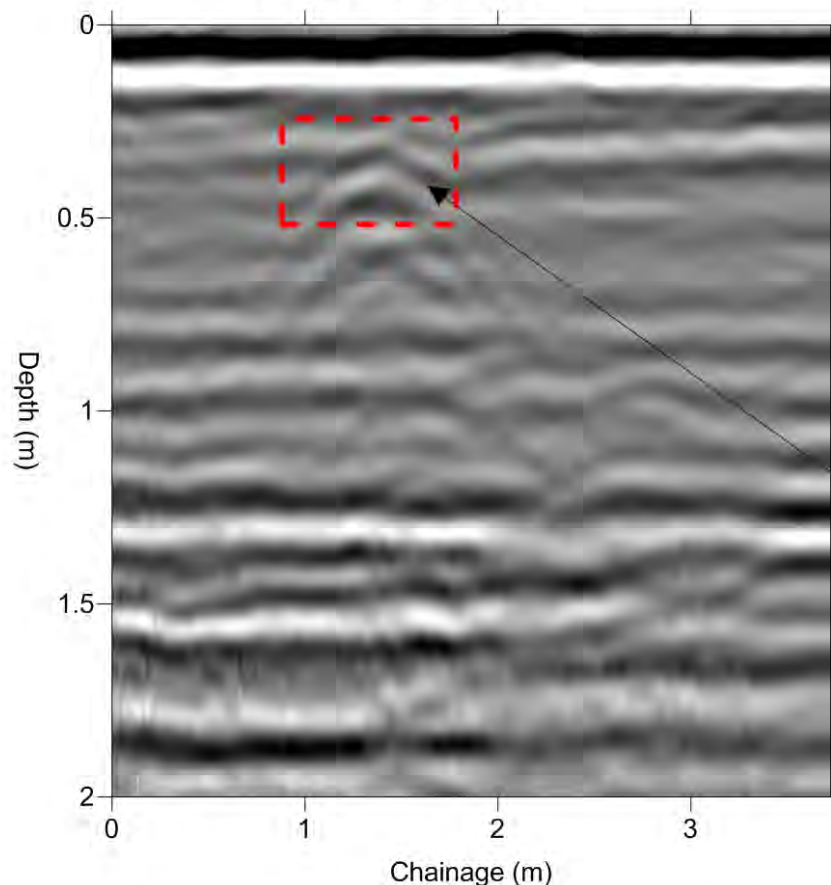
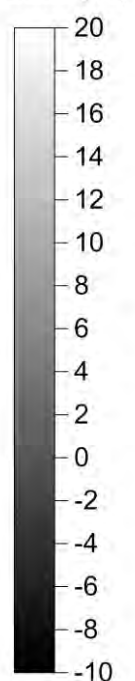
### 3D GPR Grid Time Slice



Overall size of the anomaly, present within all relevant radargrams

### GPR Radargram 210

Magnetic Gradiometer Scale (nT)



Anomaly, source of additional investigation

#### Comments:

##### Magnetic gradiometer:

A localised, negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid C1' location (top left), containing no dipole feature which would otherwise represent the presence of ferric-metal.

##### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the example GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargrams at a depth of approximately 0.25m (Red box).

The depth of the anomaly is too shallow to accurately comment on any disturbance in the overlying stratigraphy.

The anomaly appears to be approximately 0.75m long, crossing 3 separate radargrams.

While this anomaly isn't at a depth 'typical' of a burial plot, we cannot rule out the possibility due to the size and shape of the anomaly in the radargrams, combined with the weakly negative magnetic response. We conclude this anomaly shows some characteristic features of a small burial plot, albeit shallow.

TITLE- **Figure 8: Location - Grid C1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



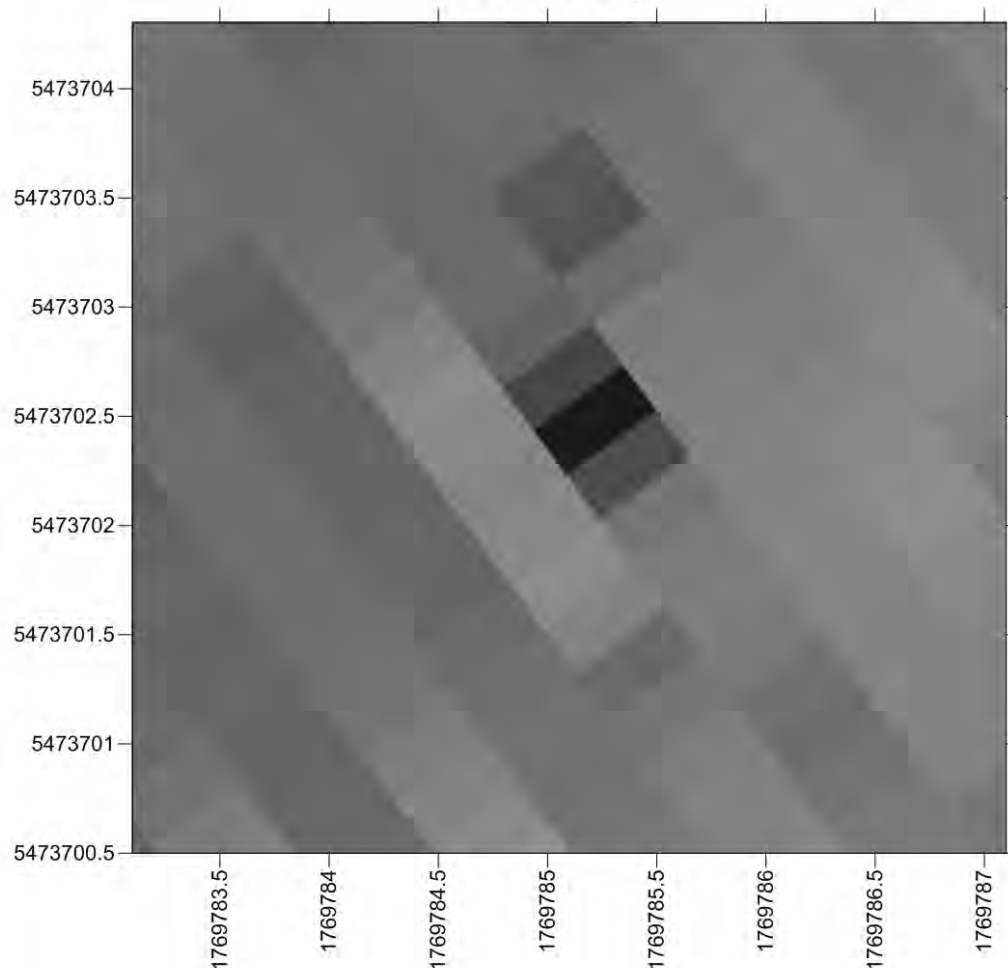
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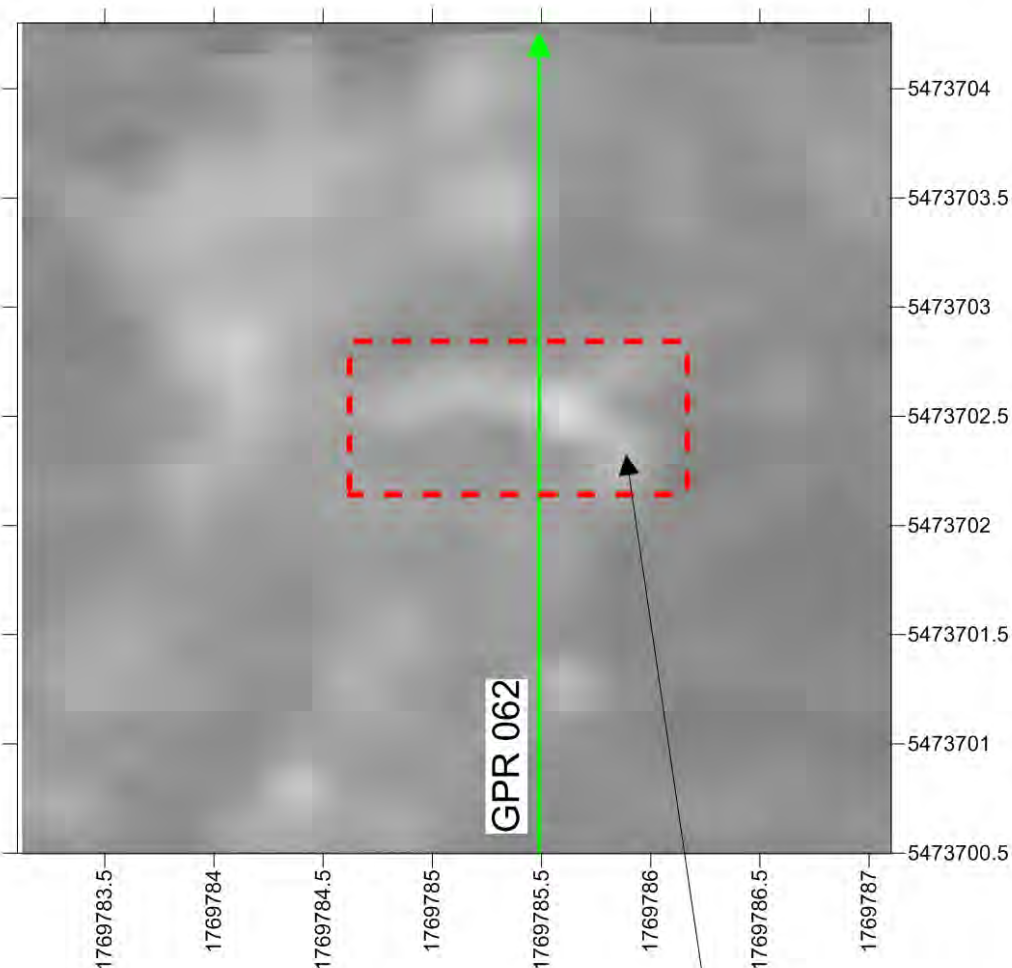
[www.southerngeophysical.com](http://www.southerngeophysical.com)



### Magnetic Gradiometer Anomaly



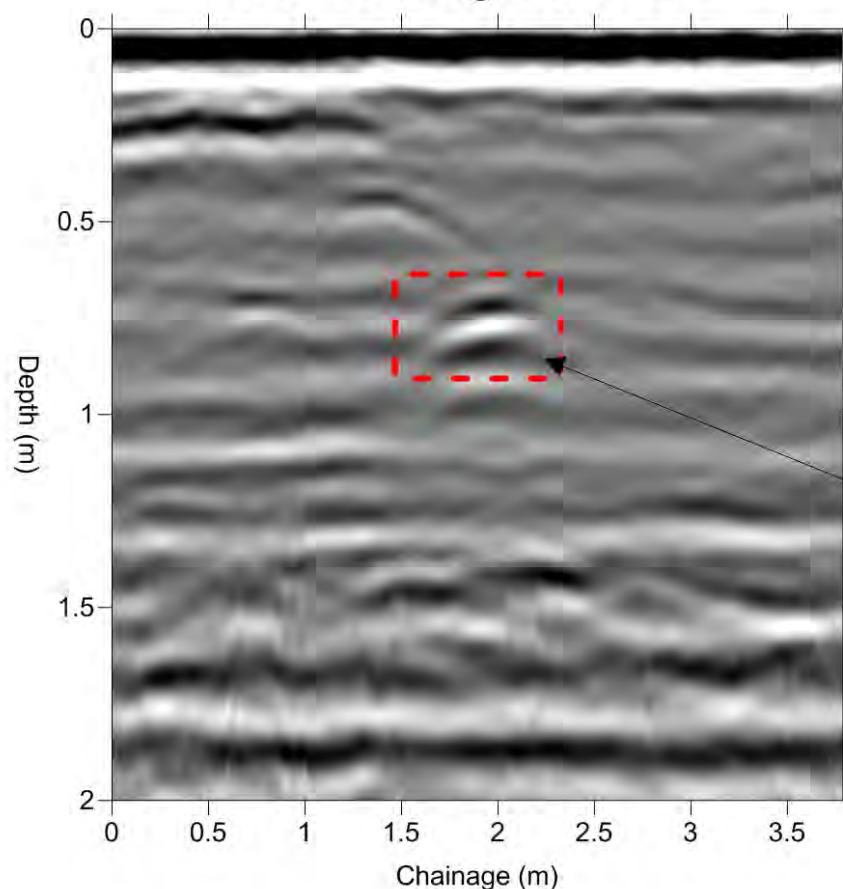
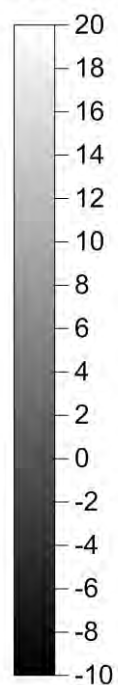
### 3D GPR Grid Time Slice



Overall size of the anomaly, present within all relevant radargrams

### GPR Radargram 062

Magnetic Gradiometer Scale (nT)



Anomaly, source of additional investigation

#### Comments:

##### Magnetic gradiometer:

A small, localised negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid G1' location (top left), and appears to show no dipole characteristic which would otherwise represent the presence of ferric-metal.

##### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargram at a depth of approximately 0.75m (Red box).

The anomaly appears to be approximately 1.25m long, crossing 5 separate radargrams.

The stratigraphic layers directly above the anomaly appear to be disturbed, therefore, in conjunction with the size, shape and depth of the anomaly we conclude that this anomaly shows evidence characteristic of a 'typical' burial plot.

TITLE- **Figure 9: Location - Grid G1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



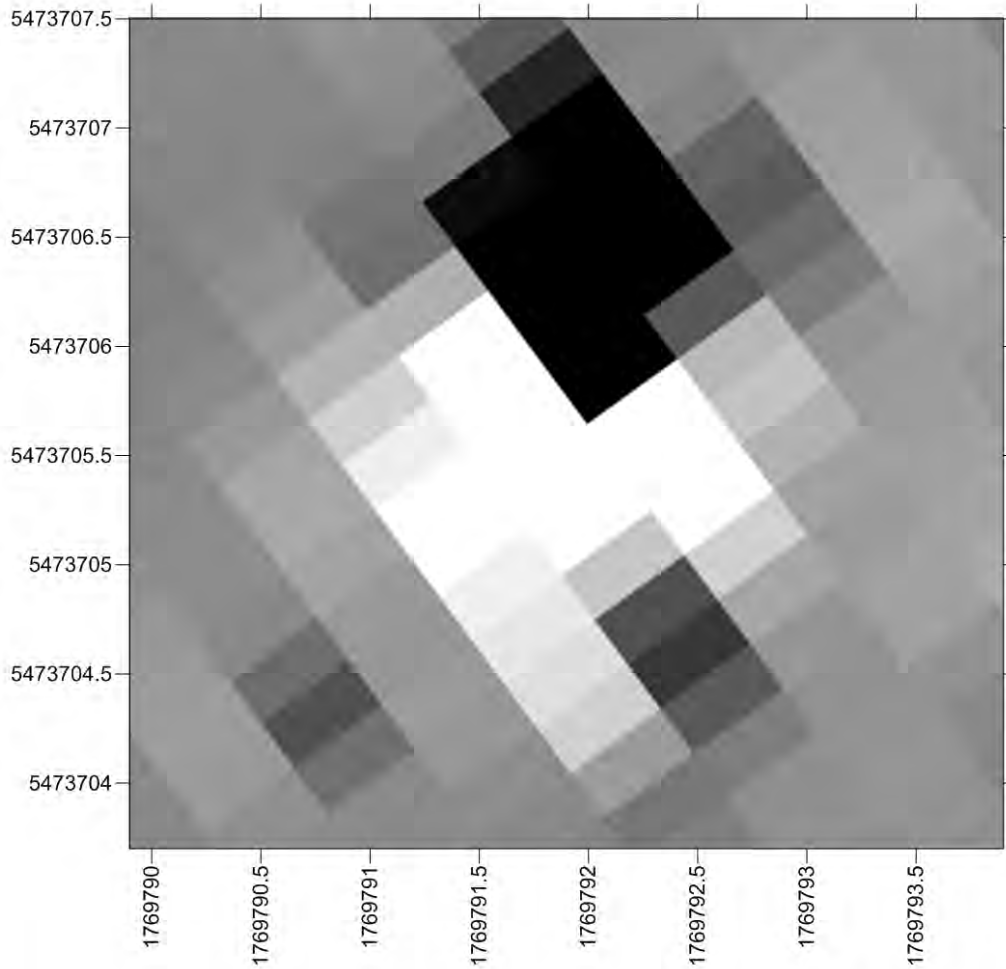
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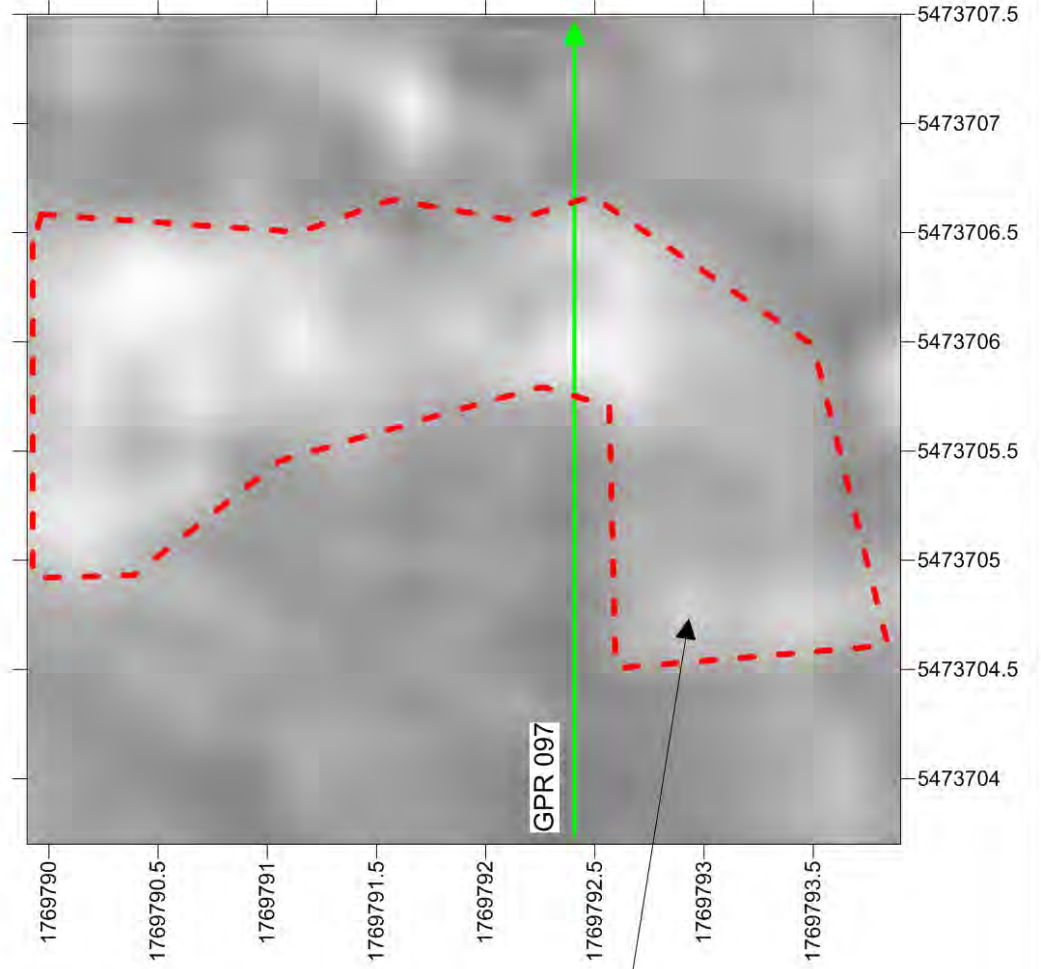
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## Magnetic Gradiometer Anomaly

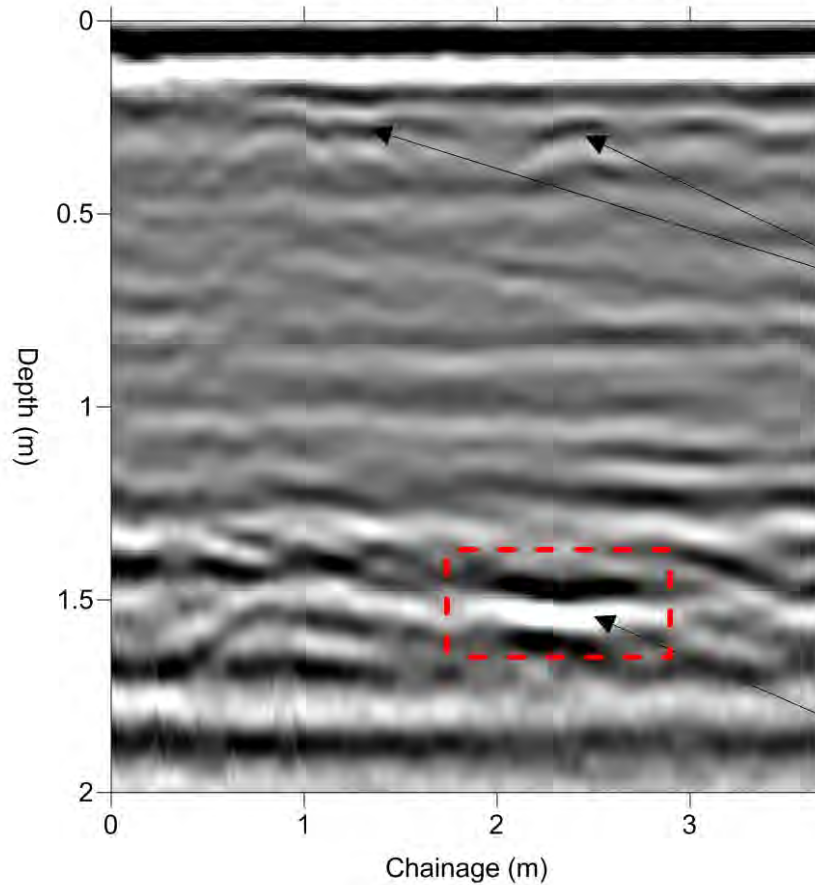
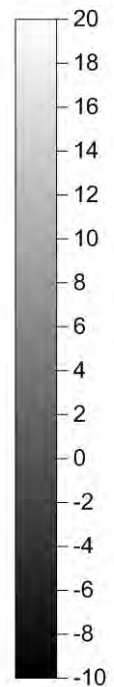


## 3D GPR Grid Time Slice



## GPR Radargram 097

Magnetic Gradiometer Scale (nT)



Area containing stronger reflections, within a larger stratigraphic layer at a depth of approximately 1.5m

Small, discrete objects in the near surface, possibly large rocks or debris. Potentially the source of dipolar magnetic anomaly.

Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A localised, strong dipolar shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid I1' location (top left), which likely represents the presence of ferric-metal. This anomaly was one of seven investigated anomalies showing a strong dipolar magnetic response.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

A layer at a depth of 1.5m shows what appeared to be linear features upon first inspection; however detailed analysis reveals these apparent linear features are likely more reflective portions of a larger stratigraphic layer and likely occur due to changes in composition within that layer.

The anomalous layer is visible within the 3D GPR time slice and radargram at a depth of approximately 1.5m (Red box).

The anomalous layer appears to be seen within all radargrams at the 'Grid I1' location.

The stratigraphic layers directly above the anomalous layer appear to be undisturbed, therefore, it is unlikely the anomalous layer represents a possible burial plot as the process of digging a burial plot would disturb the layering within the sedimentary deposits.

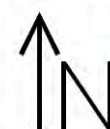
TITLE- **Figure 10: Location - Grid I1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



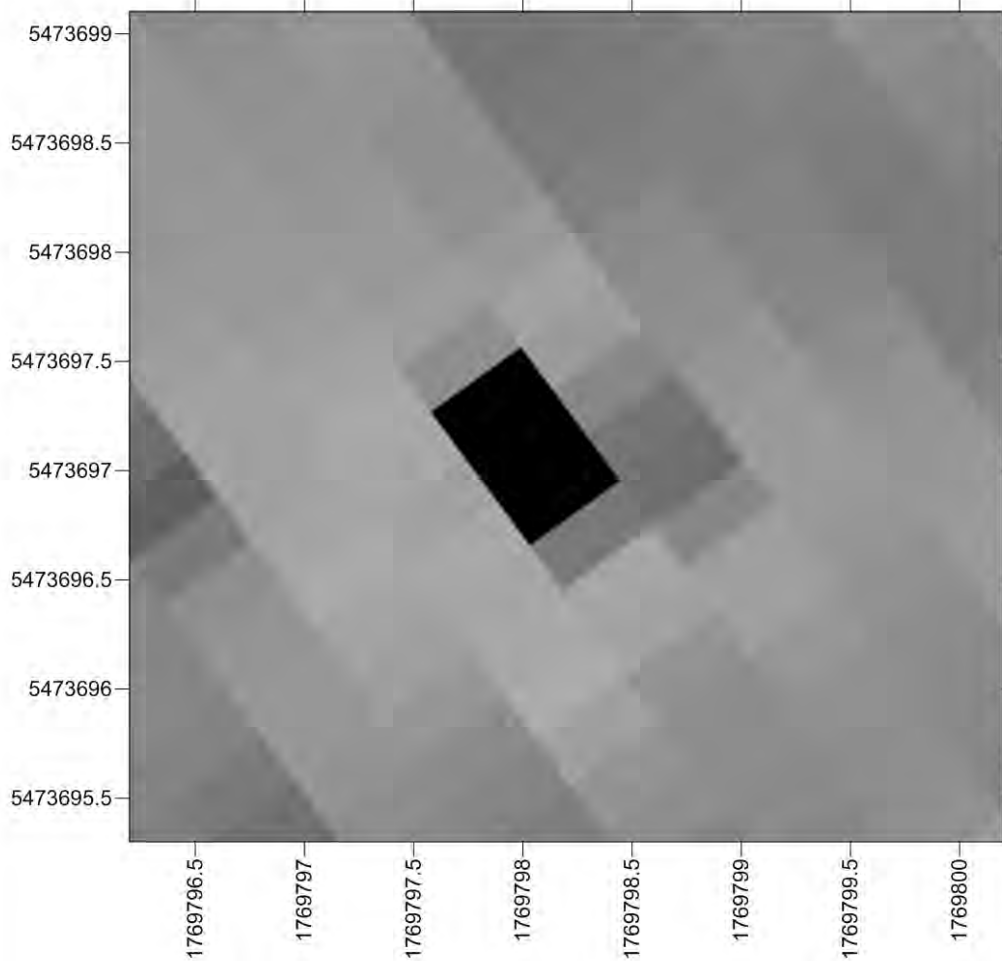
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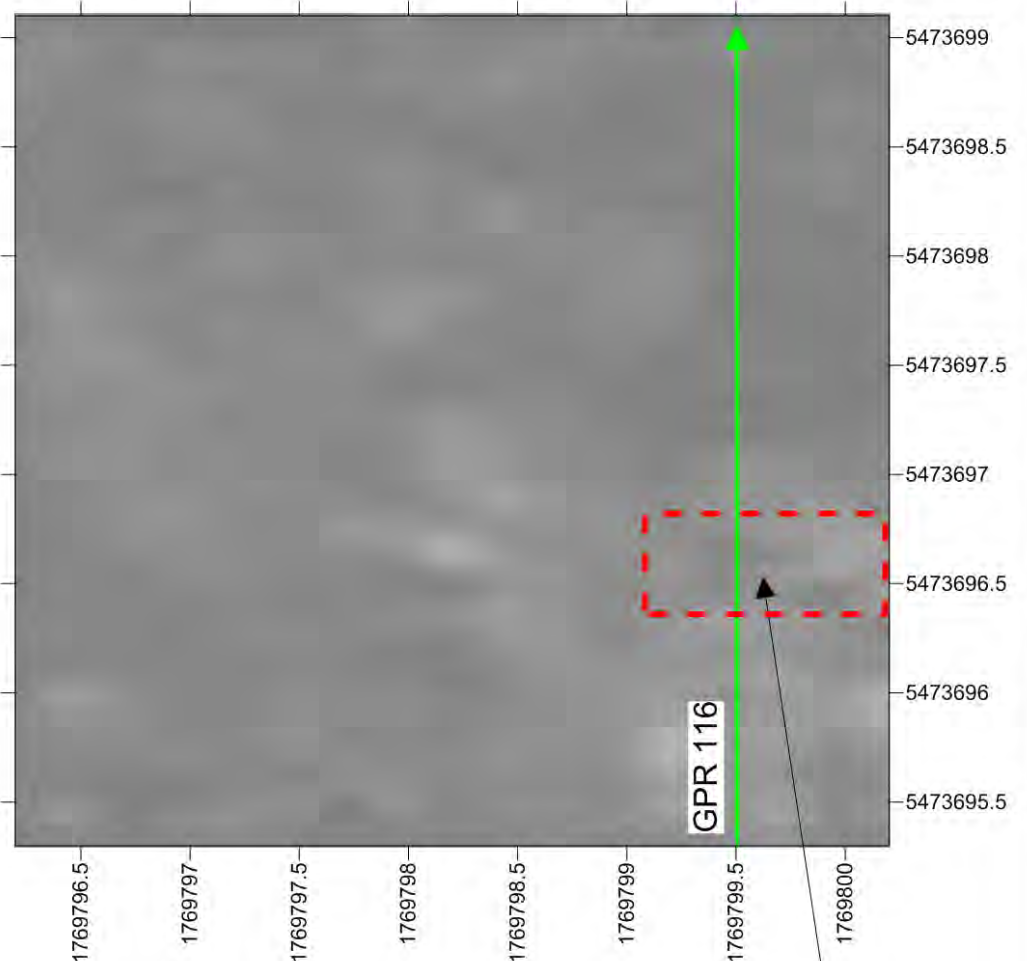
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## Magnetic Gradiometer Anomaly



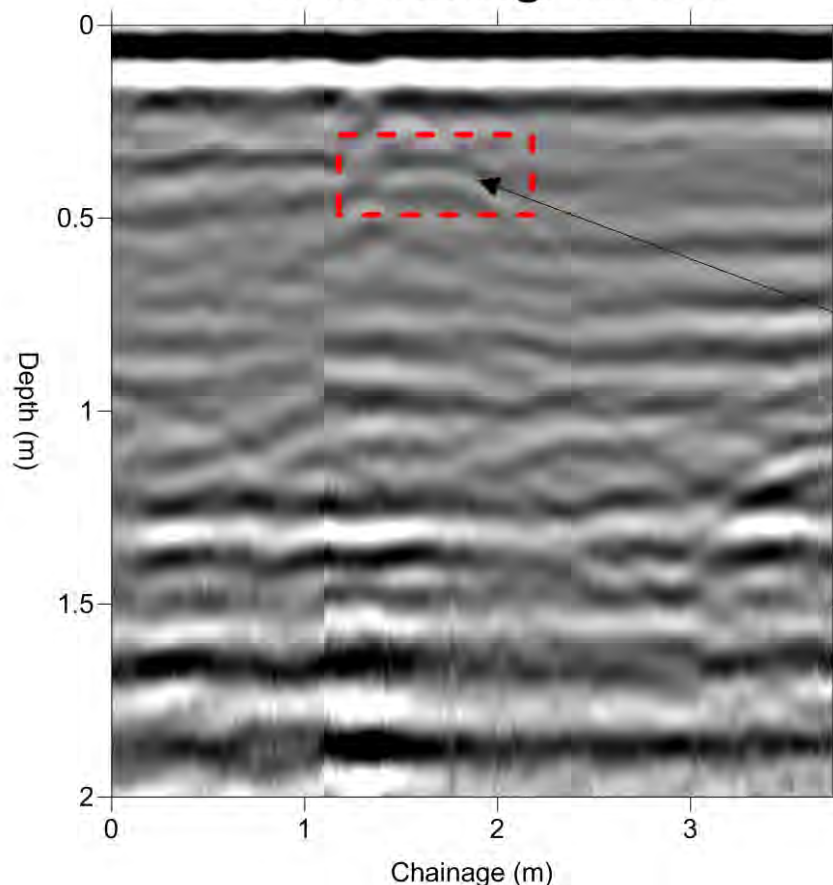
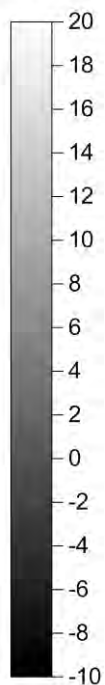
## 3D GPR Grid Time Slice



Overall size of the anomaly, present within all relevant radargrams

## GPR Radargram 116

Magnetic Gradiometer Scale (nT)



Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A small, localised negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid J1' location (top left), and appears to show no dipole characteristic which would otherwise represent the presence of ferric-metal.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

An anomaly is visible within the 3D GPR time slice and radargram at a depth of approximately 0.35m (Red box). The GPR anomaly is located approximately one meter away from the gradiometer anomaly and may be unrelated; however, the size and nature of this anomaly warranted further investigation.

The depth of the anomaly is too shallow to accurately comment on any disturbance in the overlying stratigraphy. However, the layer directly adjacent the anomaly appears to terminate at the anomaly which may represent disturbance of the ground within the vicinity of the anomaly. The anomaly appears to be approximately 1.25m long or greater (as it may continue outside of the survey grid), crossing 5 or more radargrams. While this anomaly isn't at a depth 'typical' of a burial plot, we cannot rule out the possibility due to the size and shape of the anomaly in the radargrams, and the apparent ground disturbance. We conclude this anomaly shows some characteristic features of a burial plot, albeit shallow.

TITLE- **Figure 11: Location - Grid J1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



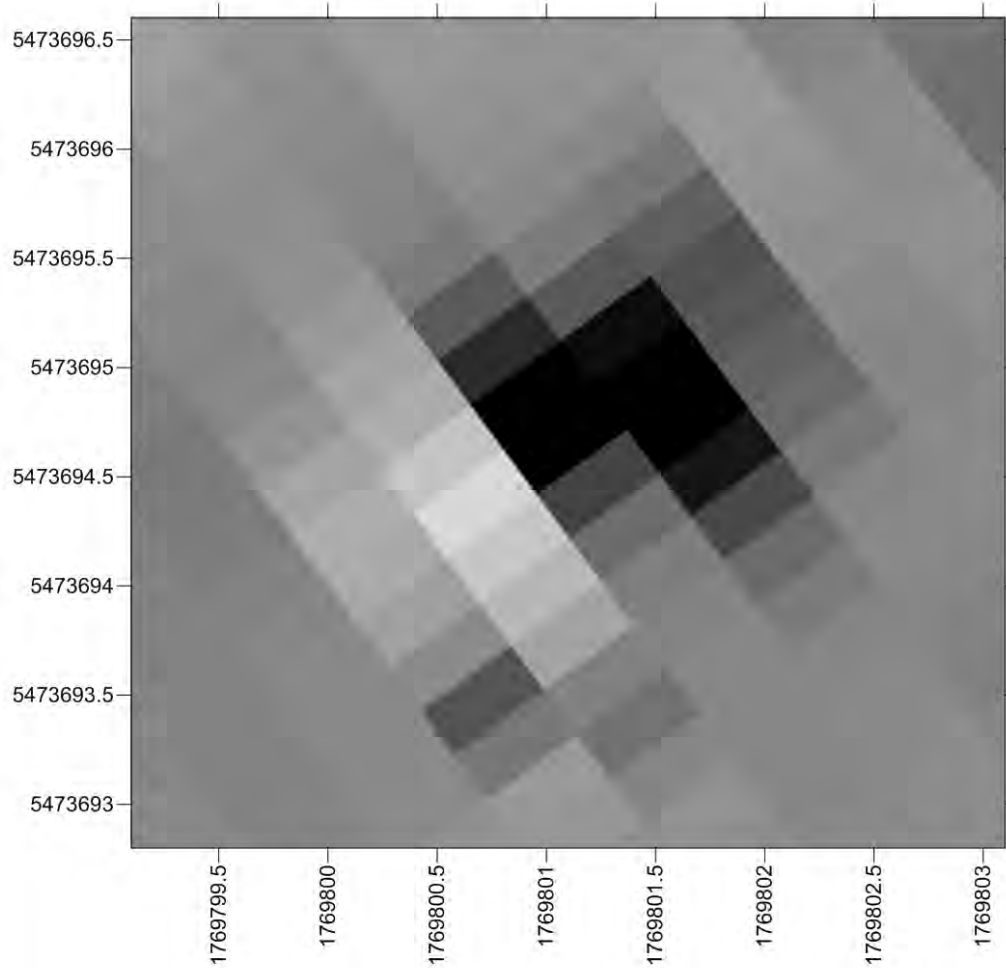
A3

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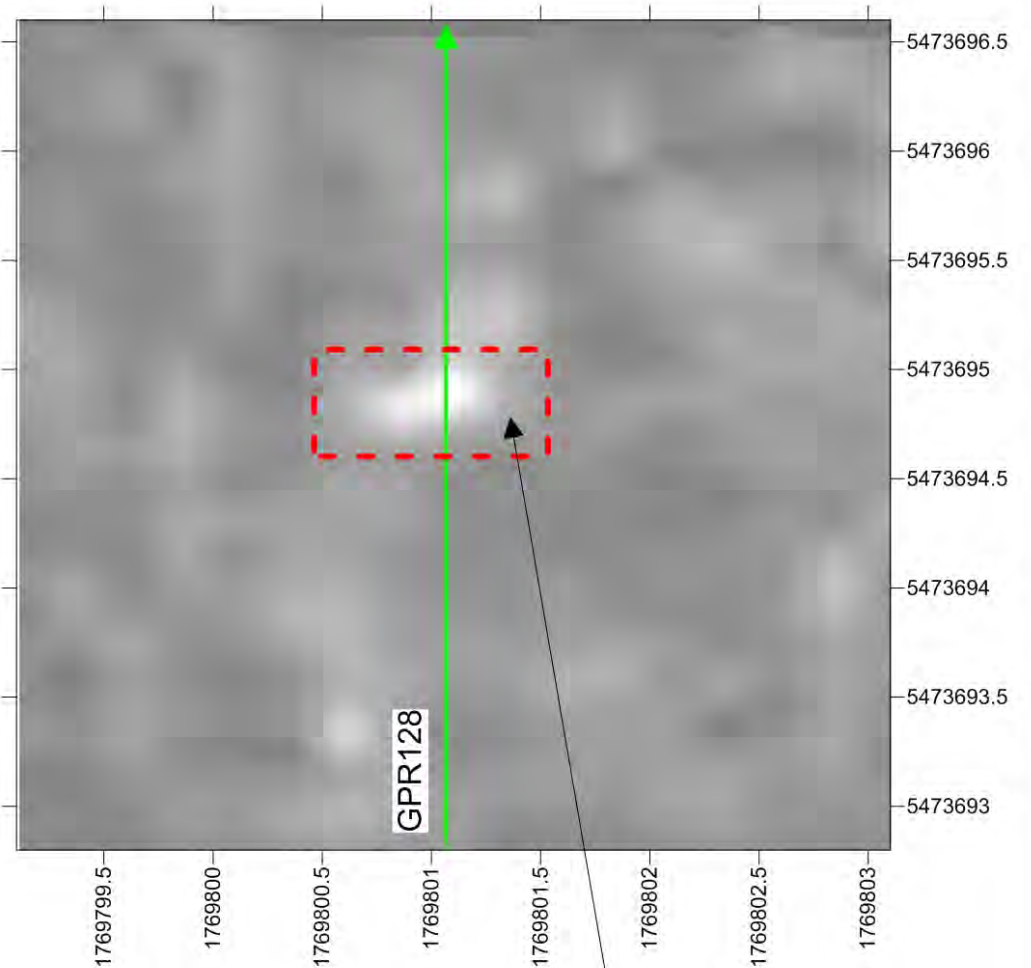
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## Magnetic Gradiometer Anomaly

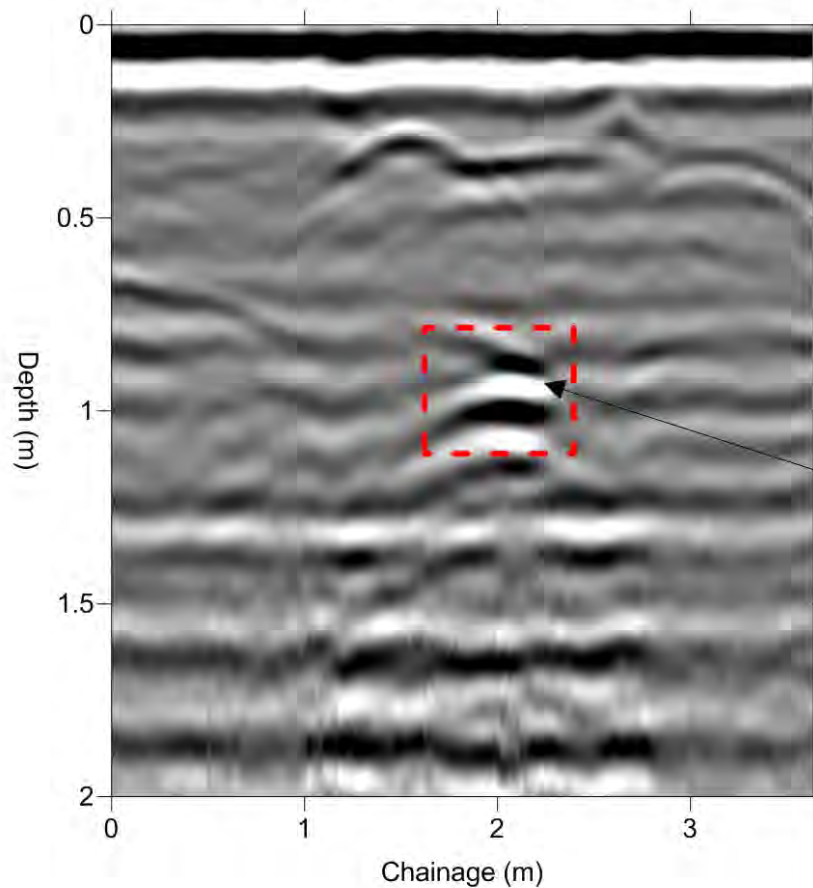
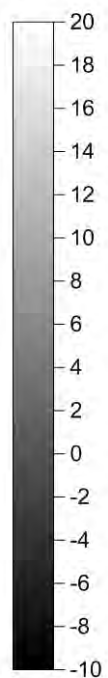


## 3D GPR Grid Time Slice



## GPR Radargram 128

Magnetic Gradiometer Scale (nT)



Overall size of the anomaly, present within all relevant radargrams

Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A localised negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid K1' location (top left), and appears to show only a very minor dipole characteristic which would otherwise represent the presence of ferric-metal.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargram at a depth of approximately 0.9m (Red box).

The anomaly appears to be approximately 1.25m long, crossing 5 separate radargrams.

The stratigraphic layers directly above the anomaly appear to be undisturbed, therefore, it is unlikely the anomaly represents a possible burial plot as the process of digging a burial plot would disturb the layering within the sedimentary deposits.

TITLE- **Figure 12: Location - Grid K1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



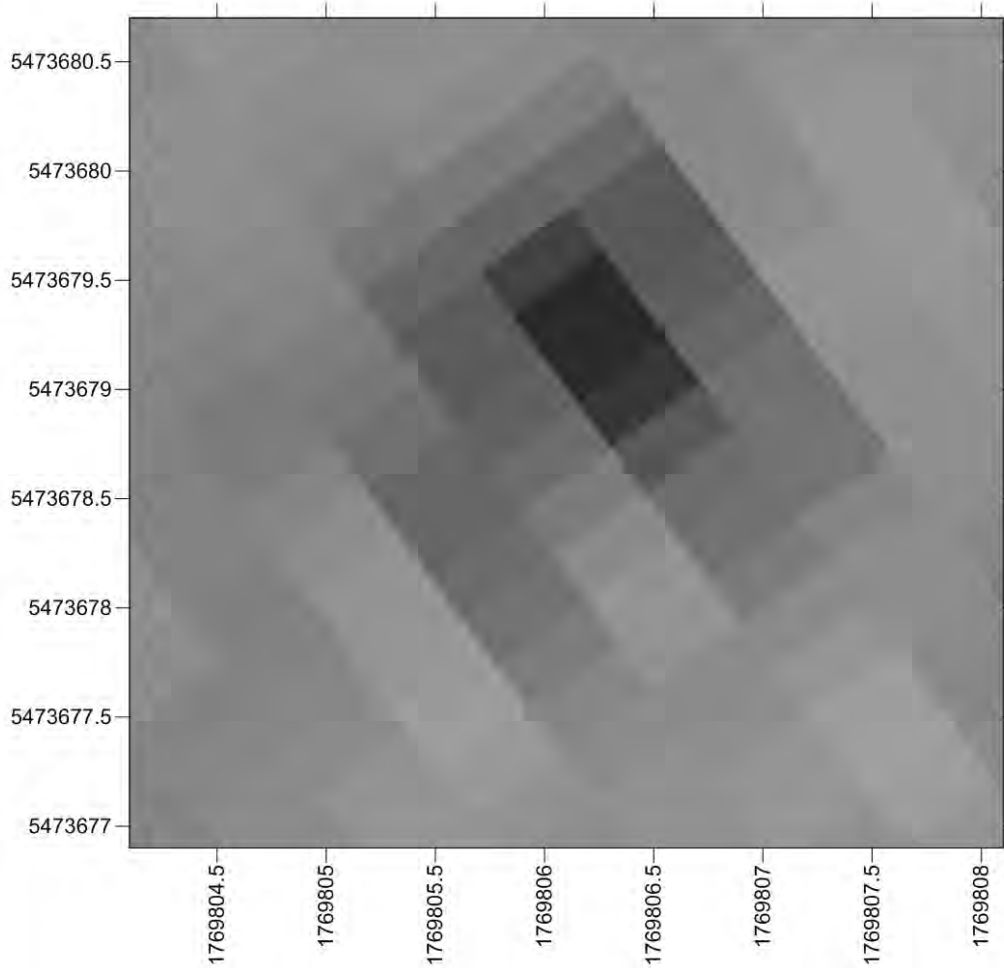
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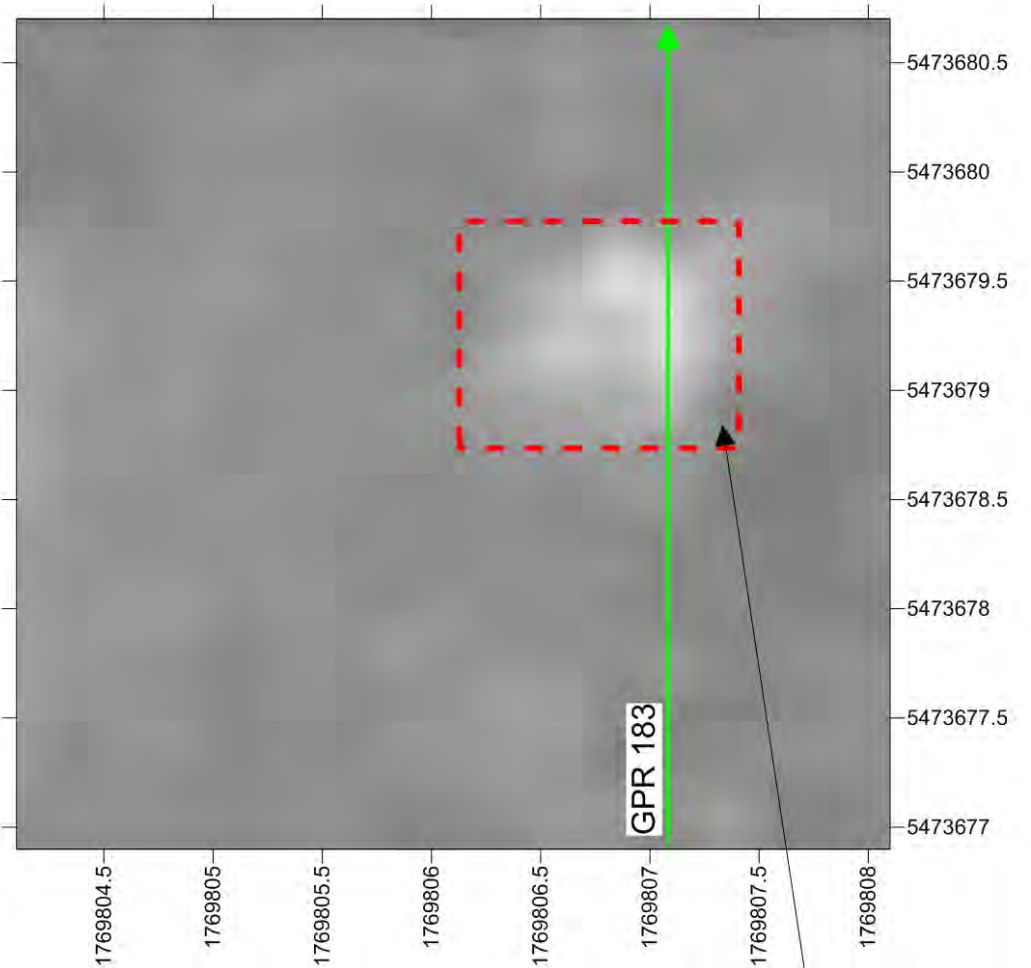
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## Magnetic Gradiometer Anomaly

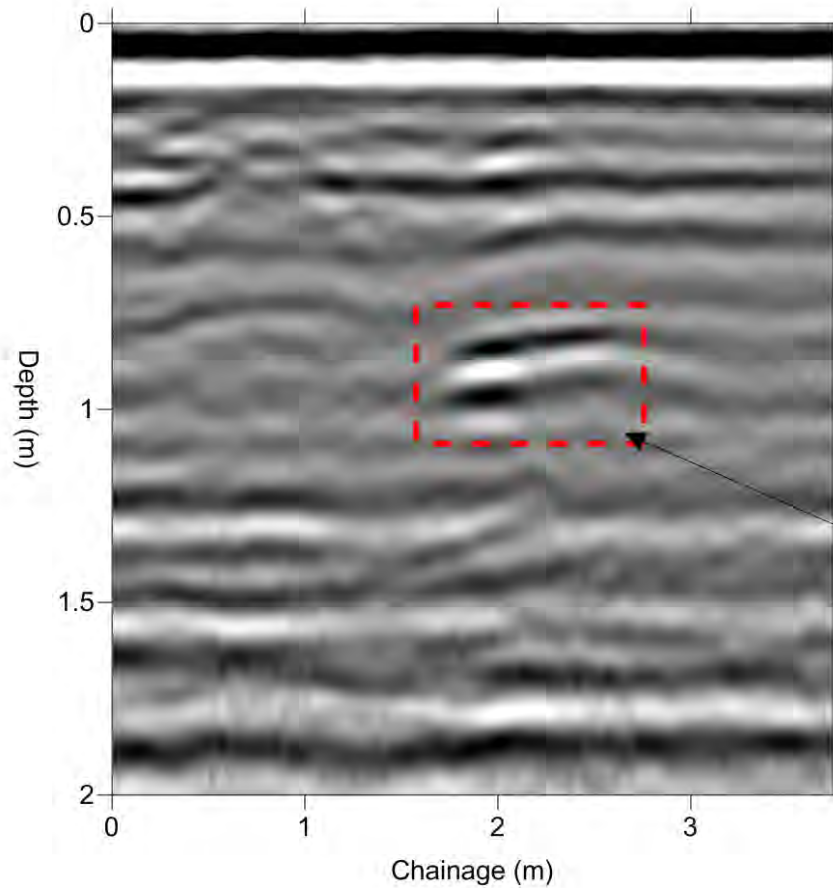
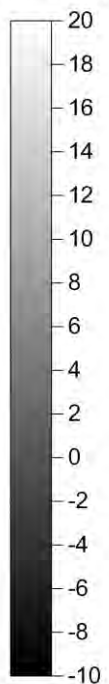


## 3D GPR Grid Time Slice



## GPR Radargram 183

Magnetic Gradiometer Scale (nT)



Overall size of the anomaly, present within all relevant radargrams

Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A localised negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid N1' location (top left), and appears to show no dipole characteristic which would otherwise represent the presence of ferric-metal.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargram at a depth of approximately 0.9m (Red box).

The anomaly appears to be approximately 1.5m long, crossing 6 separate radargrams.

The stratigraphic layers directly above the anomaly appear to be undisturbed, therefore, it is unlikely the anomaly represents a possible burial plot as the process of digging a burial plot would disturb the layering within the sedimentary deposits.

TITLE- **Figure 13: Location - Grid N1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



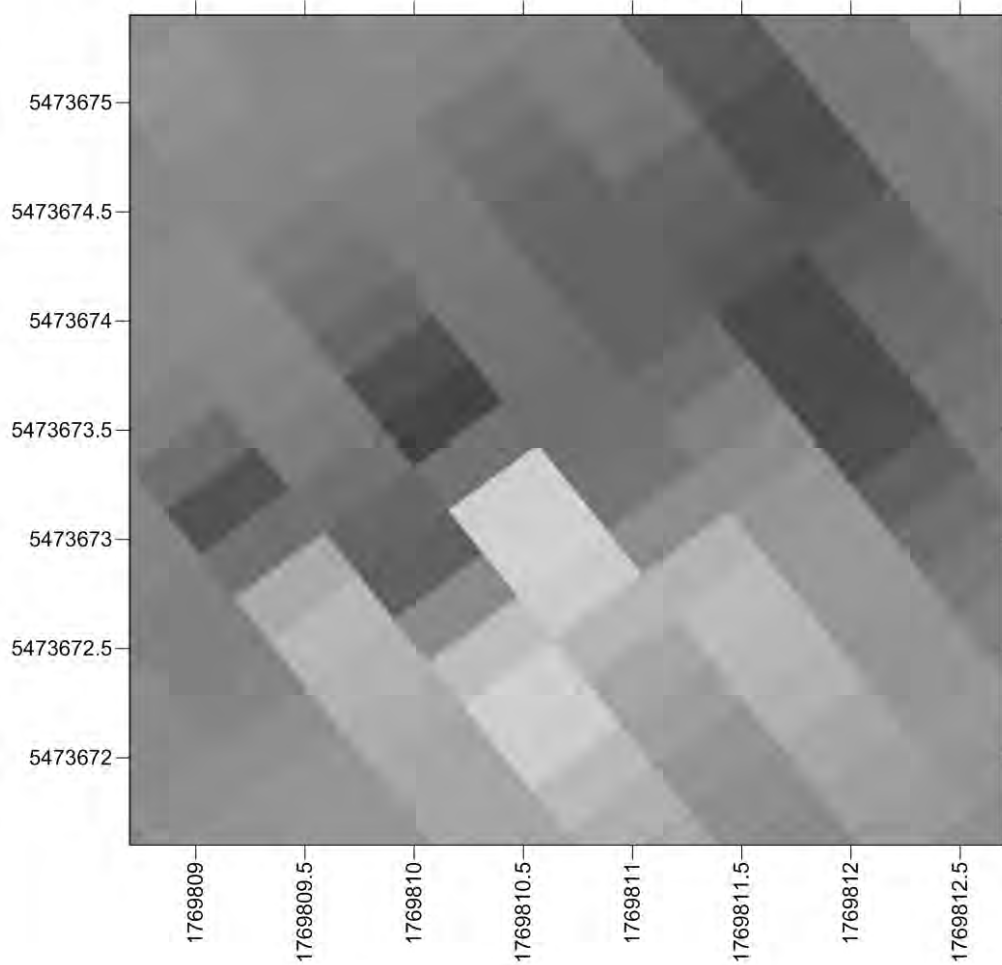
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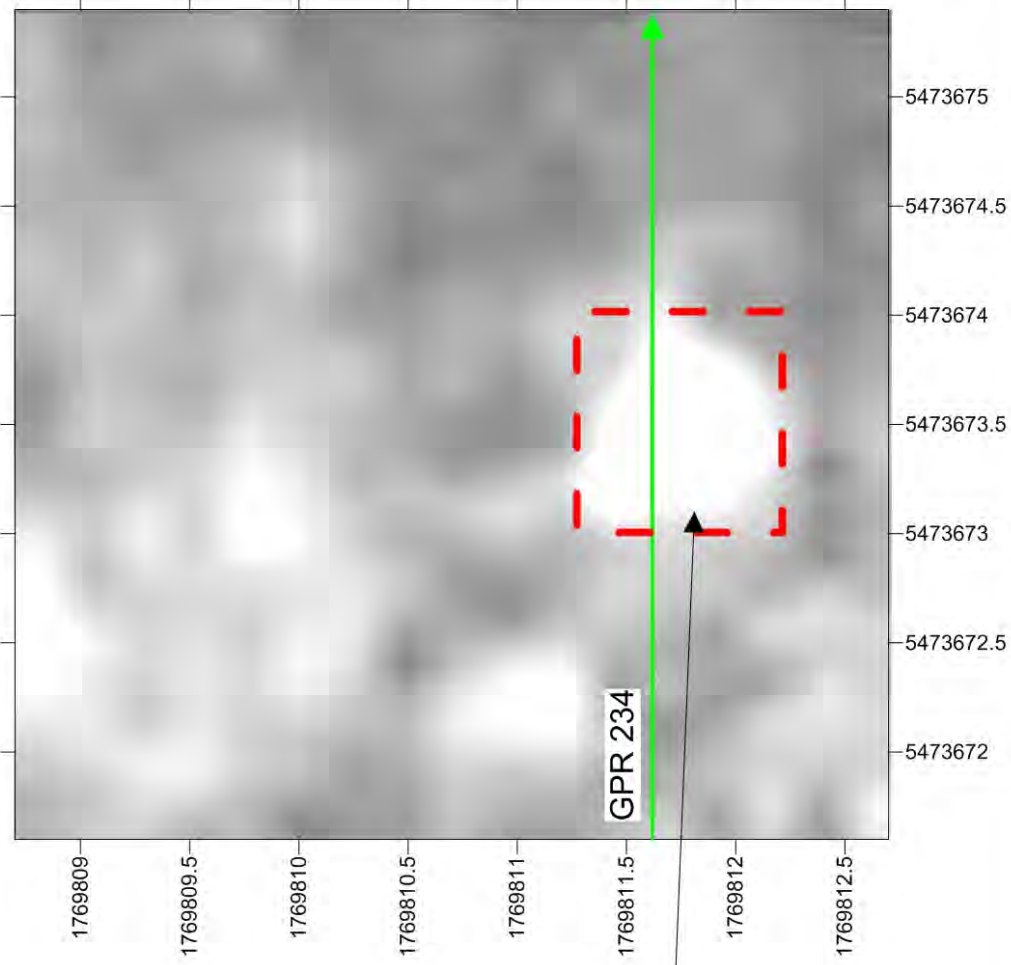
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## Magnetic Gradiometer Anomaly

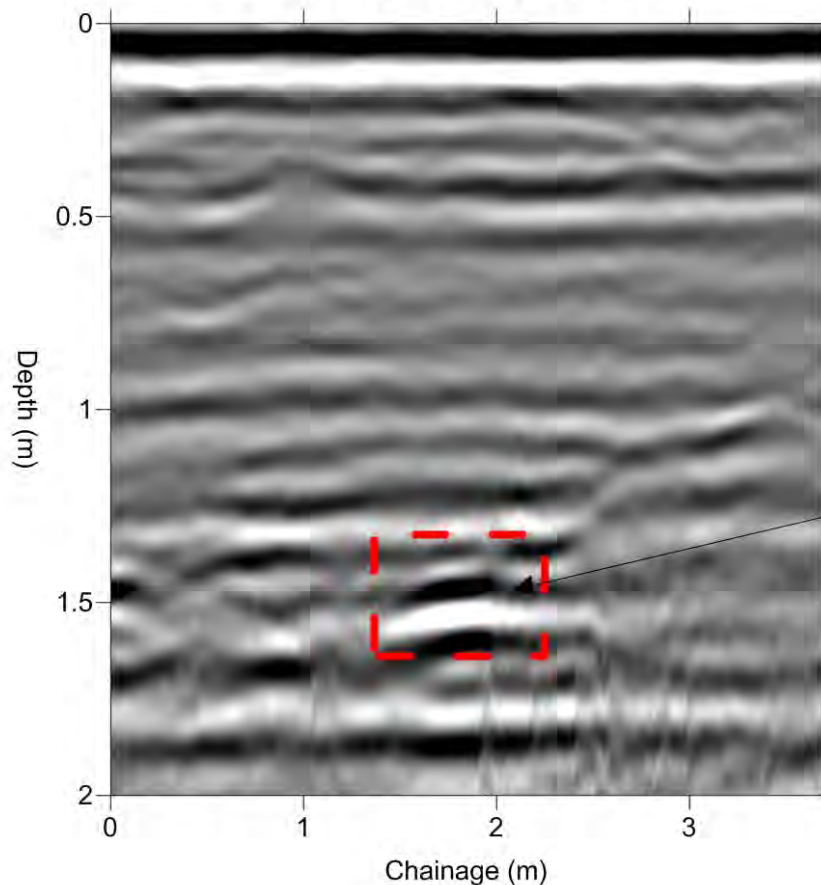
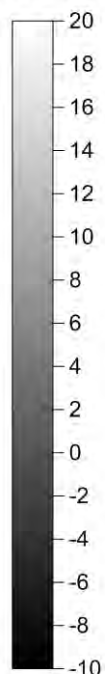


## 3D GPR Grid Time Slice



## GPR Radargram 234

Magnetic Gradiometer Scale (nT)



Overall size of the anomaly, present within all relevant radargrams

Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A large, localised negative shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Q1' location (top left), and appears to show no dipole characteristic which would otherwise represent the presence of ferric-metal.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

The anomaly is visible within the 3D GPR time slice and radargram at a depth of approximately 1.5m (Red box).

The anomaly appears to be approximately 1.25m long, crossing 5 separate radargrams.

The stratigraphic layers directly above the anomaly appear to be undisturbed, therefore, it is unlikely the anomaly represents a possible burial plot as the process of digging a burial plot would disturb the layering within the sedimentary deposits.

TITLE- **Figure 14: Location - Grid Q1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



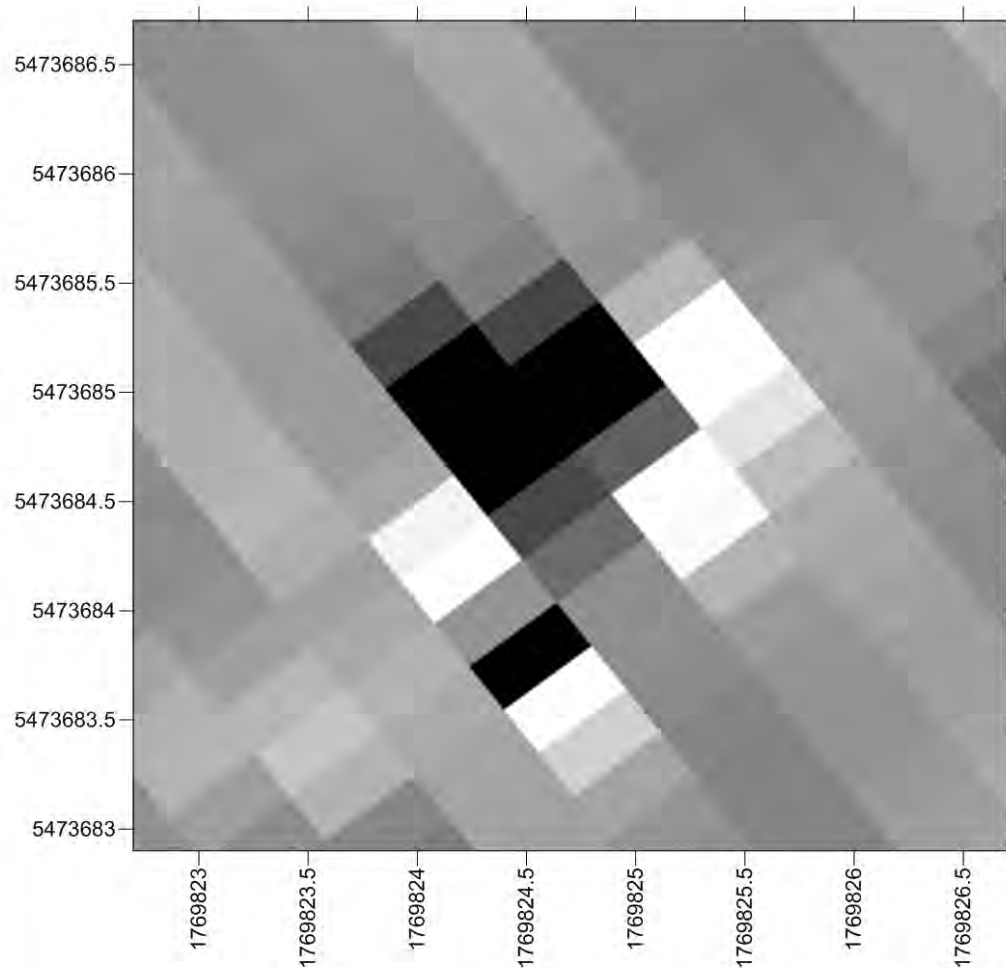
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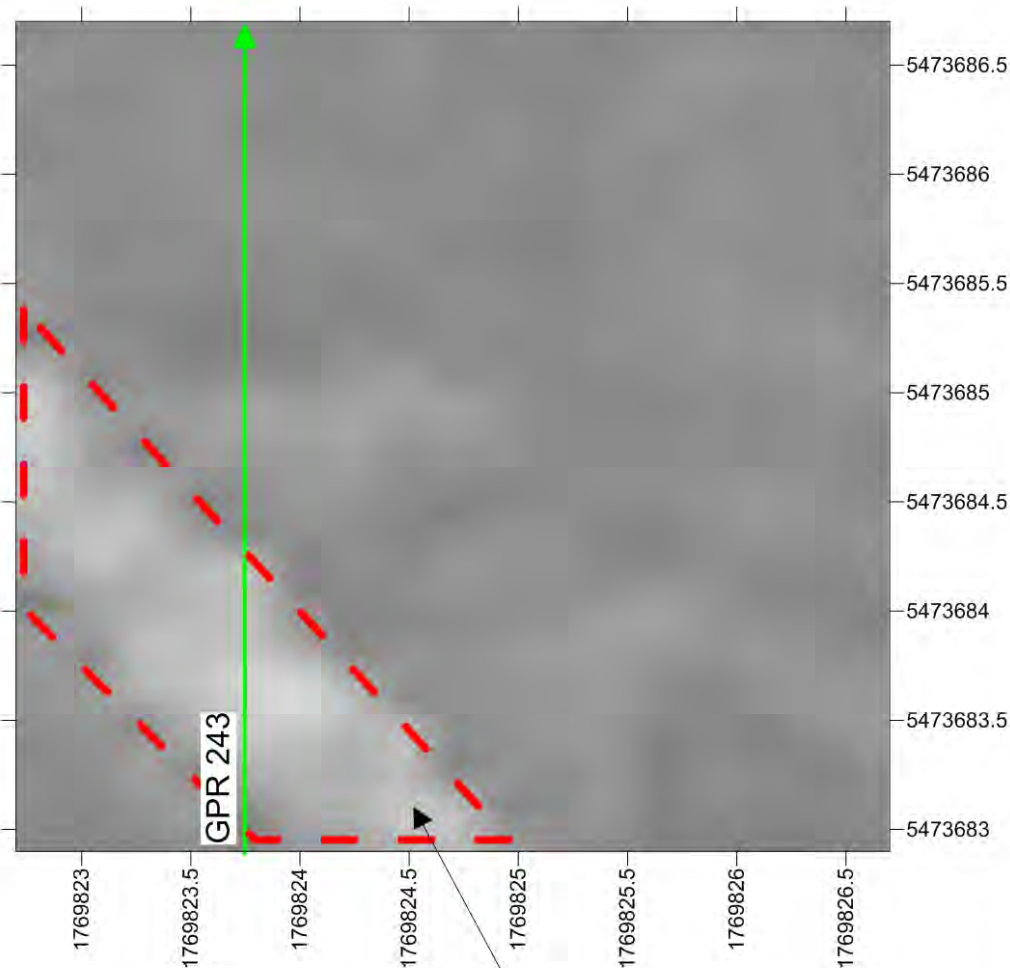
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## Magnetic Gradiometer Anomaly

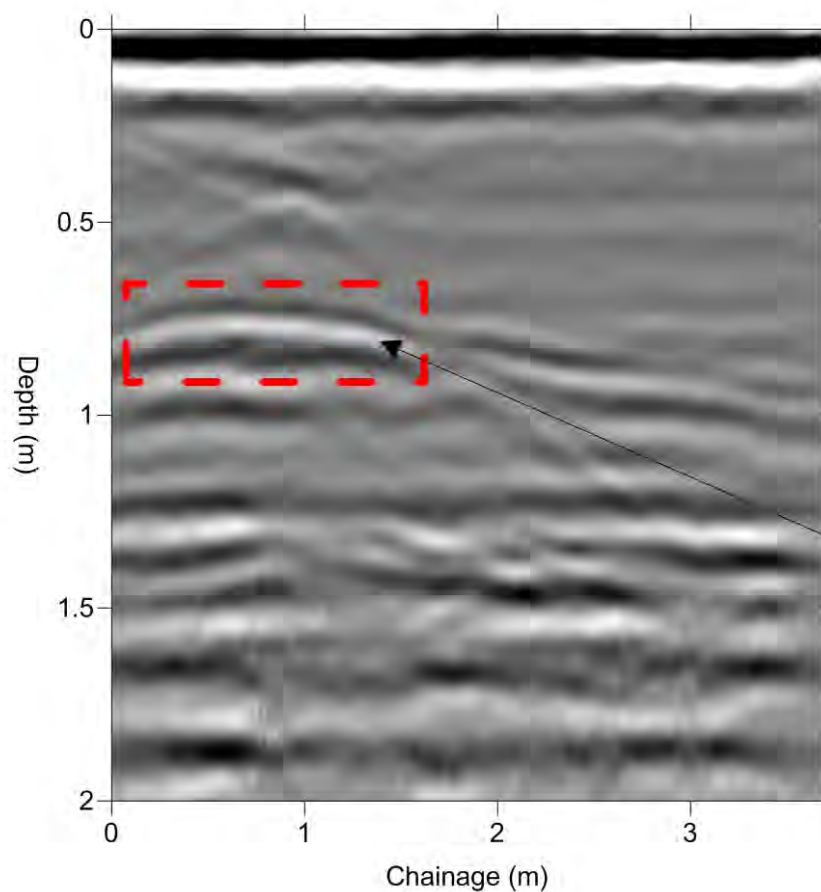
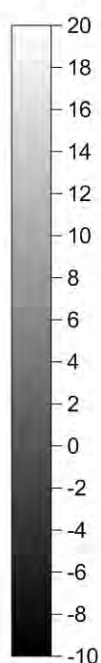


## 3D GPR Grid Time Slice



## GPR Radargram 243

Magnetic Gradiometer Scale (nT)



Overall size of the anomaly, present within all relevant radargrams

Anomaly, source of additional investigation

### Comments:

#### Magnetic gradiometer:

A localised dipolar shift in the magnetic field is visible within the magnetic gradiometer survey at the 'Grid R1' location (top left), which likely represents the presence of ferric-metal. This anomaly was one of seven investigated anomalies showing a strong dipolar magnetic response.

#### GPR:

The 3D GPR time slice (top right) is a slice of data located at the depth of the anomaly found within the GPR radargrams (bottom). The time slice contains a red box which indicates the area where the anomaly of interest was detected within the GPR radargrams. A corresponding red box is visible within the GPR radargram, outlining the anomaly within that single radargram.

An anomalous linear feature is visible within the 3D GPR time slice and radargram at a depth of approximately 0.7m (Red box).

The linear anomaly is at least 2.75m long and is visible crossing 11 radargrams (and may continue beyond the survey grid).

The linear nature of this anomaly combined with the length and location makes it likely this is a utility. We conclude it is unlikely the anomalous feature represents a possible burial plot and is most likely a utility or large linear object not of burial plot origins.

TITLE- **Figure 15: Location - Grid R1**  
Magnetic Gradiometer and GPR comparisons

LOCATION- **Tamati Place, Waikanae Beach**

NOTES- Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

GPR lines marked by green arrows, and are labelled at the start.

GPR radargrams plot ratio - 2:1



A3

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## **Conclusions and Discussion:**

The Tamati Place survey site has a complex history of land use and development. Documents surrounding development of the site reveal multiple instances of material removal, infilling and relocation within a predominantly sandy and sand dune filled area. A series of aerial photographs showing some of the site development through time can be found in Appendix G. This level of material reworking makes interpretation of non-invasive survey results complex. However, it is our understanding that parts of the subsurface in the Tamati Place survey site remain relatively undisturbed, as was confirmed with the April 2017 test trench, undertaken by Archaeology Solutions Ltd (Figure 16). With this in mind, we have compiled the results of magnetic gradiometer and GPR surveys in order to locate any possible burial plots existing on the site using the best possible non-invasive methods.

Results from the combined survey methods revealed five locations which may possibly contain burial plots (Figure 16). Of the five locations, two show many features indicative of a 'typical' burial plot. Two additional locations show some features indicative of a 'typical' burial plot, albeit shallow. A single location contains two anomalies which aren't typical of burial plots; however, contain enough similarities to warrant additional investigation or caution.

While parts of the subsurface remain relatively undisturbed we cannot be certain that all surveyed areas will be free of disturbance. In locations where material has been removed, the final depth to a burial plot is likely to be shallower than a 'typical' burial plot. Therefore, included in the selections for possible burial plots were two such examples. These grid locations showed anomalies indicative of burial plots, except for residing at a shallower depth. It is difficult to make accurate interpretations of the near surface stratigraphy overlying these shallower anomalies as the frequency of radar required to see greater than two meters deep loses resolution in the near surface.

Additionally, there is the possibility that material has been added to parts of the survey area, which may include the GPR survey grids. Some complications exist when material (likely sand in this case) is added to a location prior to GPR investigations. It is difficult to determine through GPR alone whether the current ground level at each survey location was the same ground level at the time of burial. One of the key characteristics enabling the identification of a burial plot using GPR is that the soil horizons directly above the remains appear disturbed within the GPR radargrams. Typically, the horizons appear to be broken or appear no longer present directly above the remains as the digging of a burial plot will mix the ground material prior to refilling of the plot. Where material has been added

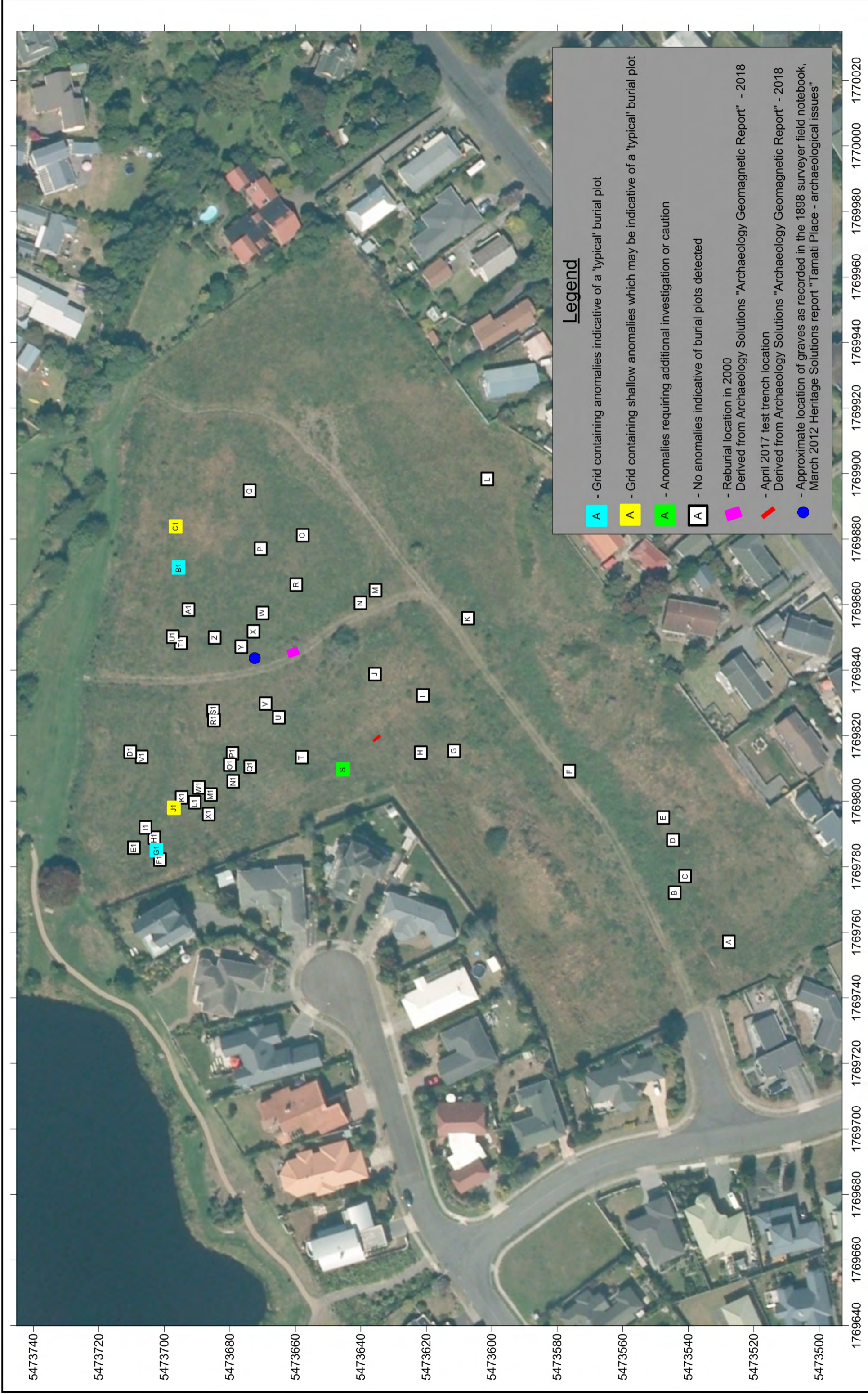


to a location, we will typically see a strong reflector at a depth of the previous ground surface, as this surface would be an unbroken horizon below the newly established ground level. Where this surface is located above a burial plot it may be interpreted as an undisturbed horizon within a relatively undisturbed area, therefore the location may be interpreted and being unlikely to have been disturbed for the purpose of creating a burial plot.

Geophysical investigations are subject to and indeed reliant on experienced interpretation. Anomalies in the subsurface may exist for a multitude of reasons, particularly in areas that have undergone development; therefore, non-invasive geophysical investigations are typically accompanied by targeted invasive investigations for the purpose of ground truthing any such geophysical interpretations. Ground truthing of GPR interpretations will often include borehole or trench investigations to the maximum depth of the GPR response at key locations identified within GPR radargrams. In the case of interpreting discrete objects or anomalies such as possible burial plots it may be necessary to investigate the geophysical anomalies directly using invasive methods.

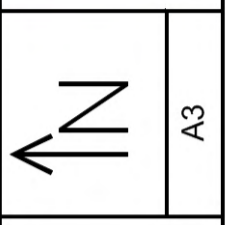
Locating possible burial plots using non-invasive geophysical methods may have reached its practical limit at the Tamati Place survey site. Additional geophysical investigations could be undertaken on the site at significant expense. An example of such an investigation would be that of a very closely spaced GPR survey across the entire survey site using multiple radar frequencies, with radar lines running both south-north and west-east. This would acquire high resolution data in the near surface and additional information at depth; however, this method would be extremely time consuming and could not guarantee correct interpretation of anomalies, particularly in areas previously modified during development of the site.





**Legend**

- Grid containing anomalies indicative of a 'typical' burial plot
- Grid containing shallow anomalies which may be indicative of a 'typical' burial plot
- Anomalies requiring additional investigation or caution
- No anomalies indicative of burial plots detected
- Reburial location in 2000  
Derived from Archaeology Solutions "Archaeology Geomagnetic Report" - 2018
- April 2017 test trench location  
Derived from Archaeology Solutions "Archaeology Geomagnetic Report" - 2018
- Approximate location of graves as recorded in the 1898 surveyer field notebook,  
March 2012 Heritage Solutions report "Tamati Place - archaeological issues"



Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

NOTES-



**Figure 16: Map of potential burial plot locations**

**Tamati Place, Waikanae Beach, Wakanae**

DRAWING-

LOCATION-



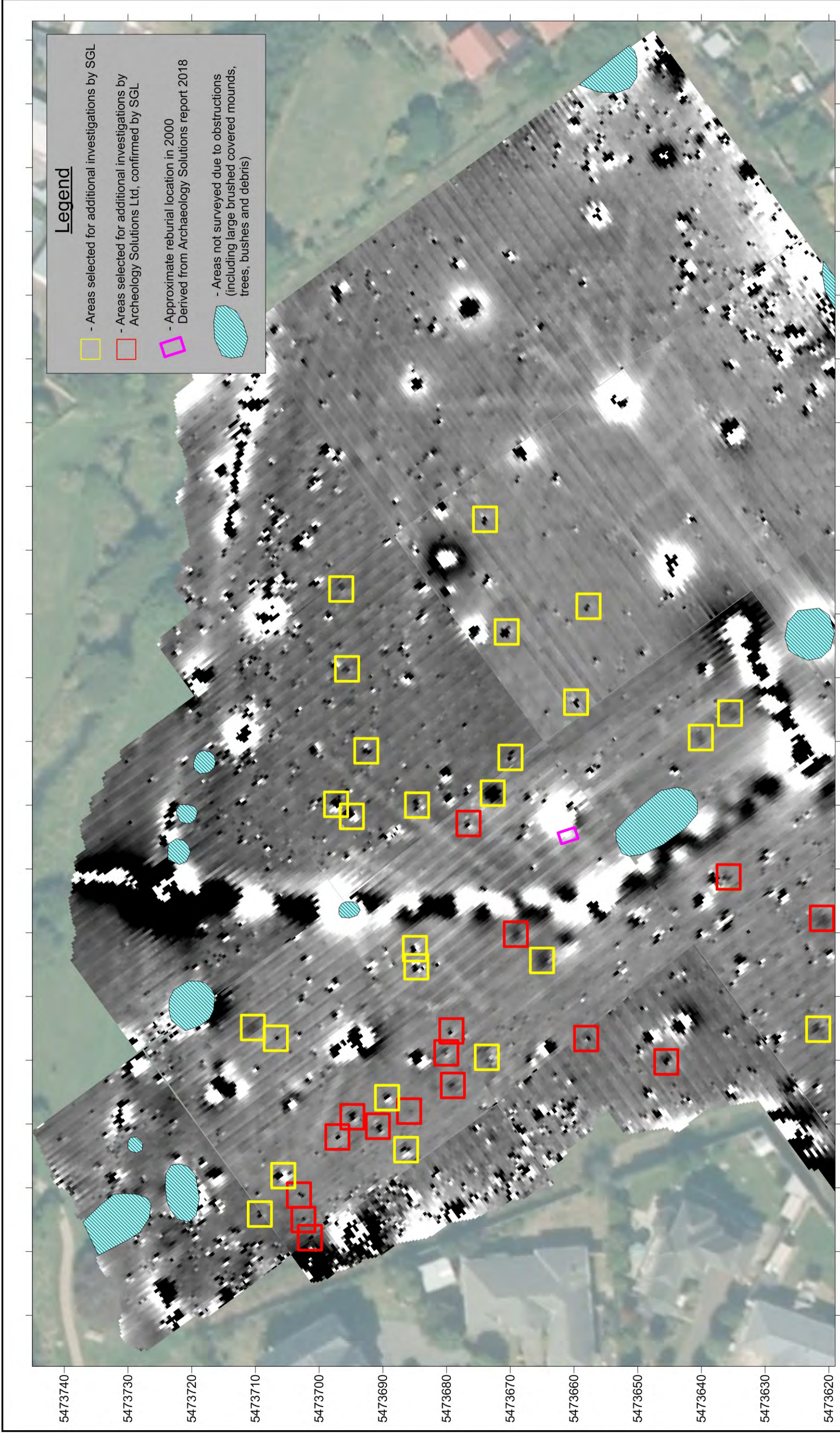
## **Disclaimer:**

This document has been provided by Southern Geophysical Ltd subject to the following: Non-invasive geophysical testing has limitations and is not a complete source of testing. Often there is a need to couple non-invasive methods with invasive testing methods, such as drilling, especially in cases where the non-invasive testing indicates anomalies.

This document has been prepared for the particular purpose outlined in the project proposal and no responsibility is accepted for the use of this document, in whole or in part, in other contexts or for any other purpose. Southern Geophysical Ltd did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Conditions may exist which were undetectable given the limited nature of the enquiry Southern Geophysical Ltd was retained to undertake with respect to the site. Variations in conditions often occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account. Accordingly, additional studies and actions may be required by the client.

We collected our data and based our report on information which was collected at a specific point in time. The passage of time affects the information and assessment provided by Southern Geophysical Ltd. It is understood that the services provided allowed Southern Geophysical Ltd to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes for whatever reason. Where data is supplied by the client or other sources, including where previous site investigation data have been used, it has been assumed that the information is correct. No responsibility is accepted by Southern Geophysical Ltd for incomplete or inaccurate data supplied by others. This document is provided for sole use by the client and is confidential to that client and its professional advisers. No responsibility whatsoever for the contents of this document will be accepted to any person other than the client. Any use which a third party makes of this document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. Southern Geophysical Ltd accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.





**Legend**

- Areas selected for additional investigations by SGL
- Areas selected for additional investigations by Archeology Solutions Ltd, confirmed by SGL
- Approximate reburial location in 2000 Derived from Archeology Solutions report 2018
- Areas not surveyed due to obstructions (including large brushed covered mounds, trees, bushes and debris)

5473740  
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5473690  
5473680  
5473670  
5473660  
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1769770 1769780 1769790 1769800 1769810 1769820 1769830 1769840 1769850 1769860 1769870 1769880 1769890 1769900 1769910 1769920 1769930 1769940 1769950 1769960 1769970

DRAWING-

**Appendix A: Magnetic Gradiometer Survey Map**  
North section of Figure 2 enlarged

LOCATION-

**Tamati Place, Waikanae Beach, Waikanae**

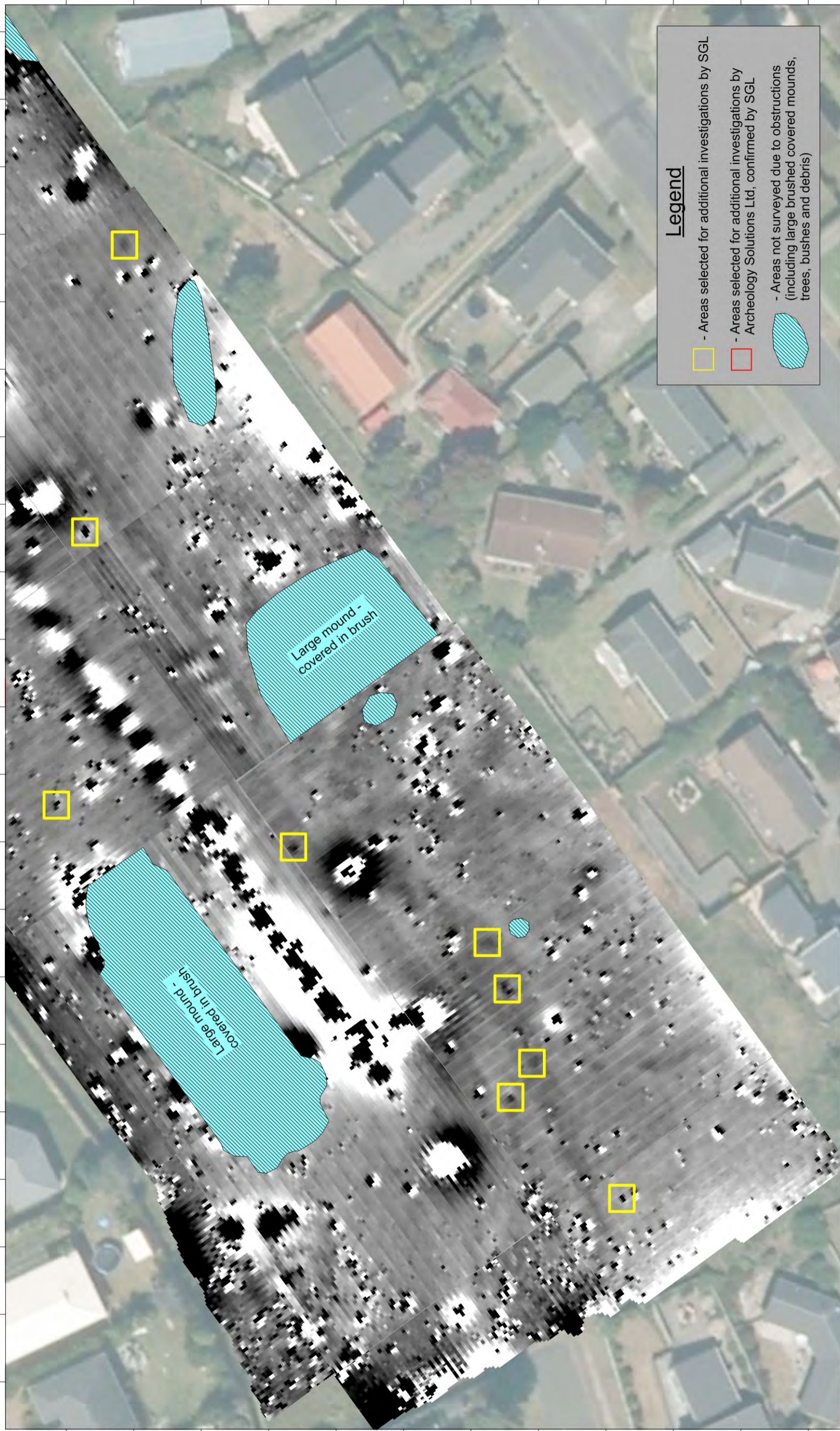
NOTES-

Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©



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1769730 1769740 1769750 1769760 1769770 1769780 1769790 1769800 1769810 1769820 1769830 1769840 1769850 1769860 1769870 1769880 1769890 1769900 1769910 1769920 1769930

**Legend**

- Areas selected for additional investigations by SGL
- Areas selected for additional investigations by Archeology Solutions Ltd, confirmed by SGL
- Areas not surveyed due to obstructions (including large brushed covered mounds, trees, bushes and debris)

DRAWING-

**Appendix B: Magnetic Gradiometer Survey Map**  
 South section of Figure 2 enlarged

LOCATION-

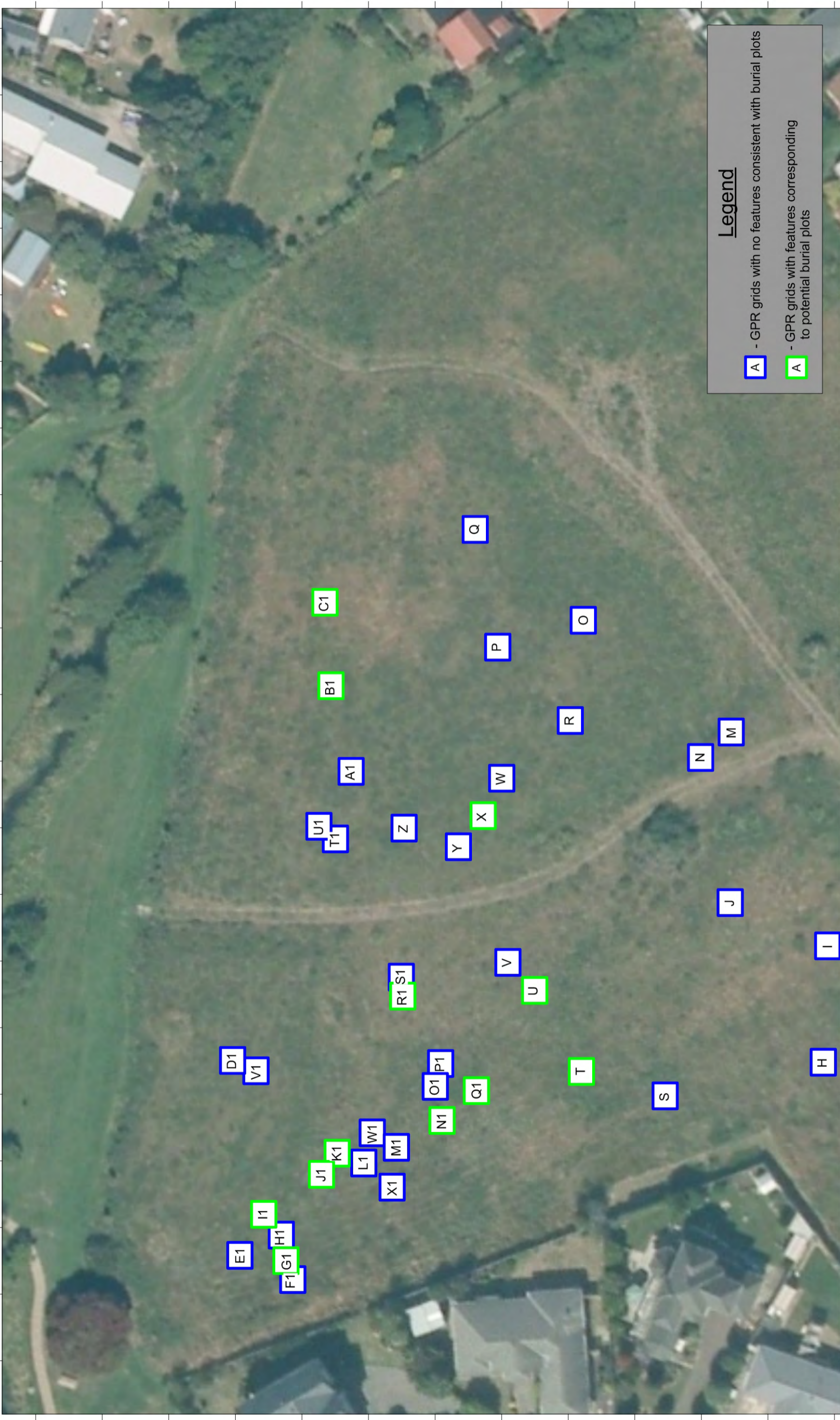
**Tamati Place, Waikanae Beach, Waikanae**

NOTES-  
 Coordinates NZ2000 TM Grid.  
 Aerial photograph sourced from LINZ, Crown Copyright ©



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**Legend**

- A - GPR grids with no features consistent with burial plots
- A - GPR grids with features corresponding to potential burial plots

5473740  
5473730  
5473720  
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5473690  
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1769970 1769960 1769950 1769940 1769930 1769920 1769910 1769900 1768890 1768880 1768870 1768860 1768850 1768840 1768830 1768820 1768810 1768800 1768790 1768780 1768770

DRAWING-

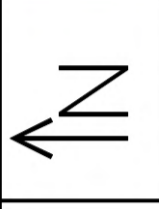
**Appendix C: GPR Survey Map**  
North section of Figure 3 enlarged

LOCATION-

**Tamati Place, Waikanae Beach, Waikanae**

NOTES-

Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©



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5473610

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**Legend**

- A - GPR grids with no features consistent with burial plots
- A - GPR grids with features corresponding to potential burial plots

DRAWING-

**Appendix D: GPR Survey Map**  
South section of Figure 3 enlarged

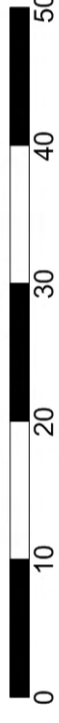
LOCATION-

**Tamati Place, Waikanae Beach, Waikanae**

NOTES-

Coordinates NZ2000 TM Grid.  
Aerial photograph sourced from LINZ, Crown Copyright ©

SCALE (m)



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## APPENDIX E: Gradiometer Field Photographs - Stage 1



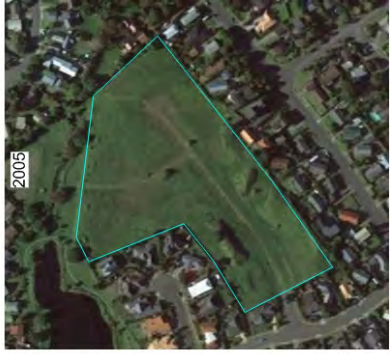


## APPENDIX F: GPR Field Photographs - Stage 2





Appendix C: Aerial photographs of the survey area through time



"15"



**CULTURAL IMPACT ASSESSMENT  
TE KĀREWAREWA URUPĀ**

Te Ātiawa ki Whakarongotai Charitable Trust

---

9 November 2015

*“Te toa o te tangata kei runga ko kārewarewa.”*  
*“Man’s valour soars upwards like the falcon.”*

## 1. The author

This Cultural Impact Assessment (CIA) has been written by Mahina-a-rangi Baker; an Environmental Consultant, that has been mandated by Te Ātiawa ki Whakarongotai Charitable Trust to provide CIAs for resource consent and archaeological authority applications. All intellectual property included in this Statement belongs to Te Ātiawa ki Whakarongotai (TAKW).

## 2. Introduction

### a. Te Ātiawa ki Whakarongotai Charitable Trust

Te Ātiawa are recognised as the kaitiaki of the land and water bodies where development proposed by the Waikanae Land Company would be situated. As kaitiaki, they have the responsibility to protect their taonga and waahi tapu and mitigate any negative impact to them. Te Ātiawa ki Whakarongotai Charitable Trust (TAKW) are the mandated iwi authority that represents the interests of tangata whenua of Te Ātiawa in Waikanae. The Trust deals with public issues of local interest through the management of relevant activities including resource and heritage management, and relationships with central and local government.

Different groups within ‘Te Ātiawa’ have their own respective preference for how they refer to themselves. Within this report the collective of tangata whenua and hapū who are referred to as ‘Te Ātiawa’ includes those groups who are sometimes referred to as:

- Te Ātiawa ki Kāpiti
- Te Ātiawa ki Whakarongotai
- Te Ātiawa ki Waikanae
- Ngāti Awa
- Ngāti Awa ki Kāpiti

### b. Te Kārewarewa Urupā

Waikanae Land Company are proposing to subdivide land centered around Tamati Place. The site is known to contain koiwi (human remains) and is located within the site known to Te Ātiawa as Te Kārewarewa Urupā.

Waikanae Land Company has asked to the author to consider three options for the site:

- leave the koiwi in place and develop the subdivision in accordance with the original scheme plan (Figure 1).
- remove and re-inter the koiwi at a suitable alternative location and develop the subdivision in accordance with the original scheme plan



- provide a Māori reserve on site, leave the koiwi in place and develop the subdivision in accordance with a modified scheme plan (Figure 2).

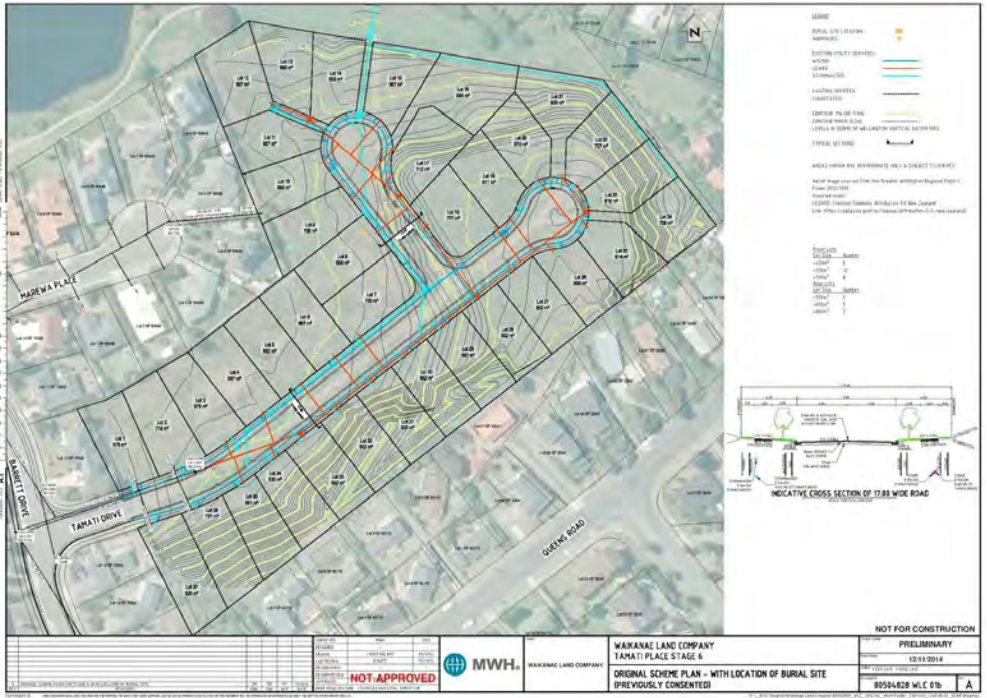


Figure 1: Original scheme plan

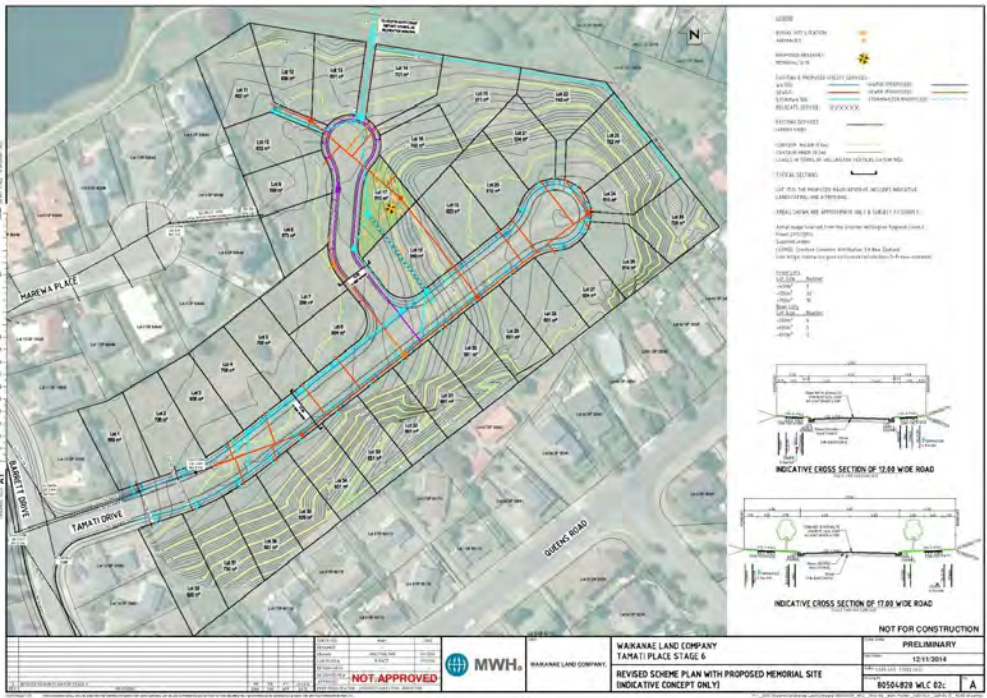


Figure 2: Modified scheme plan

This CIA will consider these three options and provide recommendations on behalf of TAKW. It will not provide a wider assessment of environmental effects of either of the proposed schemes for the purpose of a resource consent application.

### **c. Planning Framework**

The Resource Management Act 1991 requires local government to:

- manage the use, development and protection of natural and physical resources in a way which enables people and communities to provide for their social, economic, and cultural well-being.
- protect historic heritage from inappropriate subdivision, use and development. Historic heritage includes sites of significance to Māori, including waahi tapu.

The Heritage New Zealand Pouhere Taonga Act 2014 contains a consent process for any work affecting sites associated with human activity that occurred before 1900, such as those identified within the site of the Kārewarewa Urupā. As part of that process, this CIA discusses the significance of the site and makes recommendations on how the modification or destruction of the sites can be avoided, mitigated or remedied.

### **d. Objectives**

This Cultural Impact Assessment:

- present information on the history of the site
- presents information from Te Ātiawa about the values they hold in relation to Kārewarewa Urupā
- assesses the potential effects of the three subdivision options proposed by Waikanae Land Company on these values
- makes recommendations based on this assessment
- presents the overall position of TAKW on the proposed subdivision

### **e. Intellectual Property**

This CIA remains the intellectual and cultural property of TAKW. Use of this Assessment in other circumstances (for example for subsequent resource consent or other applications to do with proposed developments at Tamati Place) must be approved by TAKW in writing.

### **f. Methodology**

This Assessment has been informed by:

- information from previous CIAs conducted on behalf of the iwi
- oral history as provided in consultation with the chair of Te Ātiawa ki Whakarongotai Kaunihera Kaumātua (Kaumātua Council) and other appropriate kaumātua
- Māori land court minutes
- waahi tapu reports, accounts and records
- a meeting with Kārewarewa waahi tapu report researcher Pātaka Moore
- archeological records

- plans provided by the land owner's consultants at MWH Ltd.
- national archives
- advice from Te Ātiawa ki Whakarongotai Charitable Trust Trustees
- Mary O'Keefe's archaeological report

The knowledge presented and used to conduct an analysis in this Assessment includes mātauranga Māori, a knowledge base that explains the Māori experience of the world.<sup>1</sup> A full understanding of the key Māori values and concepts presented and used in the assessment of the proposal is limited by the use of English as the main language of this Assessment.

### 3. Consultation

Steve Kerr from MWH Ltd., on behalf of the land owner Waikanae Land Company, made contact with the Trust on the 22 August 2014 to arrange to meet with TAKW and address the issue of the subdivision. The author then met with Steve Kerr on the 29th of September 2014 where it was agreed that this CIA would be produced to assess the proposed subdivision.

### 4. Significance of Te Kārewarewa

Te Kārewarewa Urupā is located within an old dune belt at the confluence of the Waikanae River and the old course of the Waimeha Stream (or Waimea depending on dialect), north of the Waikanae River and estuary, and east of the Waimeha Stream, in the coastal settlement of current day Waikanae Beach . In the early 1800s Te Ātiawa assumed settlement of the wider area of Waikanae from its original inhabitants as part of the wider migrations of the Ngāti Raukawa and Ngāti Toarangatira peoples in the Kāpiti district.

Settlement at the eastern confluence of the Waikanae and Waimeha has been referred to by three names: Te Kuititanga, Waimeha and Te Kārewarewa. This suggests that either the same settlement was referred to by multiple names, or that three pā, kainga or other cultural features such as mahinga kai and urupā were contiguous to one another. This settlement would have been part of the wider network of pā, kainga and mahinga kai in the Waikanae and Otaihanga area. The lifespans of the pā and mahinga kai sites in the area were influenced by warfare; sites where battle occurred were usually abandoned, particularly where there were a large number of casualties. **In accordance with Christian protocols** which were followed at the time, the deceased were buried where they fell, and thus the sites were no longer appropriate for occupation or food cultivation and gathering.<sup>2</sup>

<sup>1</sup> Royal, C., 1998. Te Ao Marama: A Research Paradigm. *Te Ora Rangahau Research and Maori Development*. Presented at Massey University, Palmerston North.

<sup>2</sup> Moore, P. 2012. *Waahi Tapu Project WTS0318 V2.1 Site Report* for: Taewapirau. Confidential copy for Te Āti Awa use.







Figure 2: 'Māori sites about the Waikanae River 1932' Photographed by George Leslie Adkin<sup>4</sup>

Carkeek also locates 'Kuititanga' in this area, adjacent to 'Waimeha Pā' at the eastern confluence of the Waikanae and Waimeha on his map 'Main Waikanae coastal area north of Waikanae River'.<sup>5</sup> The following is an overlay of this map onto a topographical map:



Figure 3: Layover of Carkeek map of Waikanae onto topographical LINZ map. (Moore, P.)

<sup>4</sup> Nat. Lib. reference PA1-f-009-44

<sup>5</sup> Carkeek, W., 2004. The Kāpiti Coast; Māori Place Names and History. AH and AW Reed, Wellington p.231

MacLean locates the Waimeha pā on the “north bank of the Waikanae River” in his publication ‘Waikanae, Past and Present’<sup>6</sup> and tribal accounts locate Waimeha pā as an outpost “within the large cultivation grounds of Ngahuruhuru on the northern side of the Waikanae river (and) stretches west towards the Waikanae river mouth.”<sup>7</sup>

The settlement at Kuititanga lent its name to the battle of Te Kuititanga between Te Ātiawa and Ngāti Raukawa in October 1839 which experts refer to as being “a war of national significance”<sup>8</sup>, and is the most significant in the history of Te Ātiawa due to the key outcome; the establishment of the enduring tribal boundary between Ngāti Raukawa and Te Āti Awa at Kūkūtauākī. Carkeek states that:

*‘Waimeha pa at Kuititanga bore the brunt of the attack. A small outpost of the main Ati Awa pa at Kenakena, it was situated at the junction of the Waimea Stream and the Waikanae River....the pa was surrounded. Ati Awa started firing and very shortly a heap of dead were seen lying in front of the pa.’<sup>9</sup>*

The battle grounds then spread from Kuititanga north to Kūkūtauākī. All accounts tell of a horrific scene of corpses across the landscape, which would have been buried where they fell. The pā and connected cultivation grounds were thus immediately abandoned.<sup>10</sup> The fallen of Te Kuititanga are the first people where there is recorded evidence of burials in the area of interest, and indicate the area not being considered appropriate for occupation from this time onwards.

The abandonment of this area of settlement and its mahinga kai was significant; its settlement had been celebrated by Te Ātiawa who had not intended to settle when they originally arrived, but did so due to the abundance of food available in the area.<sup>11</sup>

Following the abandonment of this area and it being deemed waahi tapu, there were a number of burials from in the mid to late 19th century recorded as being there.

Carkeek notes Eruini (or Herewini) te Marau of the hapū Ōtaraua, referring to Waimeha as a burial ground where his mother Te Ripu, or Meturia, is buried, and Hira Maeka referring to Waimea as a burial ground where chieftainess Metāpere Te Waipunahau, daughter of Te Rangihiroa from Ngāti Toarangatira, and mother of chiefs Wiremu Te Kākākura Parata and Hemi Matenga is buried. Wi Parata is recorded saying that his mother was buried in 1853.<sup>12</sup>

Carkeek also refers to the site Kārewarewa.<sup>13</sup> He notes Wi Parata referring to a village called Kārewarewa “which belonged to his ancestors, Rawiri Toko and Te Pono”, and him claiming

<sup>6</sup> Maclean, C & J, 1988. *Waikanae, Past and Present*. Whitcome Press, Waikanae. p.18

<sup>7</sup> Ngaia, B., 2011. Cultural Impact Assessment; The Takamore Trust.

<sup>8</sup> Ibid 2., 5., 7.

<sup>9</sup> Ibid 5, p.86-7

<sup>10</sup> Ibid 7.

<sup>11</sup> Ibid 5. p.53

<sup>12</sup> Ōtaki Minute Book No.11 of the Māori Land Court. p.196

<sup>13</sup> Ibid 5. p.161



Kārewarewa was “one of the two places where Te Haukaione resided shortly after the gift of land in the Waikanae district by Te Pehi and Rangihiroa.” Carkeek states that the exact location of Kārewarewa was unknown but refers to Mere Pomare testifying in the Māori Land Court in 1890 that she had one time worked at Kārewarewa and it was on the northern side of the Waikanae River. She described the place as a burial ground and testified that she was aware of the following individuals being buried there:

- Her mother, famous chieftainess Kahe Te Rau-o-te-Rangi. She walked on Te Rauparaha’s migration in 1821, and became renowned for her 7 mile swim from Kāpiti Island to Te Uruhi pā on the mainland where Paraparaumu beach is now, with her child Makere strapped to her back, to raise the alarm when Ngāti Toarangatira were attacked by a war party from the south. She was then one of five women who signed the Treaty of Waitangi at Waikanae/Kāpiti, which is an indication of her mana within the Ngāti Toarangatira and Te Ātiawa tribes.<sup>14</sup>
- Ihaia Paihia, his son and wife
- A man named Rangihaeata (not to be confused with Te Rangihaeata, nephew of Te Rauparaha)
- Some of Wi Parata’s ancestors.

She also testifies that Kārewarewa was considered a very tapu place and there were restrictions on the taking of flax or other plants.<sup>15</sup>

The name Te Kārewarewa is that which is used by the descendents of Te Ātiawa today to refer to the site at the eastern confluence of the Waikanae and Waimeha. This site includes the Tamati Place subdivision site. It was common that only a few individuals knew the specific location of the graves of significant tūpuna, as there were instances where graves were desecrated to steal taonga buried with the body or the body itself.

There have been three gravestones found in the area of interest at the confluence of the Waikanae and Waimeha for interments between the mid 19th century and 1911. The headstone in Figure 4 was recovered when Te Kārewarewa was initially dredged in the early 1970s, and relocated to the urupā currently used by Te Ātiawa ki Whakarongotai, Te Ruakohatu.<sup>16</sup>

Whilst it is difficult to read the inscription of the headstone the author interprets the following:

*“Sacred ... .. Memory of  
Whakamaharatanga mō te matenga o ‘name’ he tamaiti na George Ashdown ... .. Pekamu  
(translation: Remembrance for the death of ‘name’, a child of George Ashdown... .. Pekamu)  
... .. 21 Hepetema 18???. Ko ōna tau kotahi i te rau(?) i mate ri Otari.”  
(translation 21 September 18?? One year old on the (day or year) they died (in Otari?))*

<sup>14</sup> Spragg, E. 2012. Te Rau-te-tangi, Kahe. *The Dictionary of New Zealand Biography. Te Ara - the Encyclopedia of New Zealand*. <http://www.teara.govt.nz/en/biographies/1t73/te-rau-o-te-rangi-kahe>

<sup>15</sup> Ibid 5. p.161

<sup>16</sup> Kaumatua account.



Figure 4: Picture taken by the author on the 17th April 2015 at Te Ruakohatu.



George Ashdown was a settler and whaler who had nine children with Te Ātiawa woman Maata Pekamu, one of which was also called George Ashdown. Maata Pekamu was also known as Raukatauri, Te Runanga Marapeka or Emma. She was the daughter of Tamatuhiata, who was a sister of Kawana Hiangarere of Ngāti Mutunga and Ngāti Kura.<sup>17</sup> It is interesting to note that these are the iwi associated with Waimeha Pā. It is unclear from the headstone what the year of the burial was, however it is clear that the headstone belongs to George Ashdown, a child of George and Maata Pekamu who appeared to have died when they were one year old.

The second and third headstones found in the area of interest are shown in Figure 5 below. These two headstones are also referred to in archaeologist Mary O’Keefe’s report from 2012, however the headstones have been moved and partially restored since the publication of that report and the restoration efforts have provided clarification on the identity of those to which the headstones belonged.



Figure 5: The graves of William Browne and Margaret Maria Durie taken by the author on the 23rd of April 2015 at Te Kārewarewa adjacent to the lagoon.

One appears to belong to a William Browne. Research of William Browne has identified two men associated with Waikanae with this name, father and son, who were sometimes referred to as William Franklin Browne. William Franklin Browne I (1844 - 1911) was a settler born in Barbados who married a Te Ātiawa woman named Ellen Erena Jenkins, daughter of Te Ātiawa woman Pairoke and whaler William Jenkins.<sup>18</sup> William Franklin Brown II was born 1869 but the

<sup>17</sup> <http://www.wcl.govt.nz/maori/wellington/tupunabeckham.html>

<sup>18</sup> MSY-6836 Browne family: Biographical material. National Library of New Zealand



author could not find any information regarding his death. Figure 6 is an image of William the I and II.

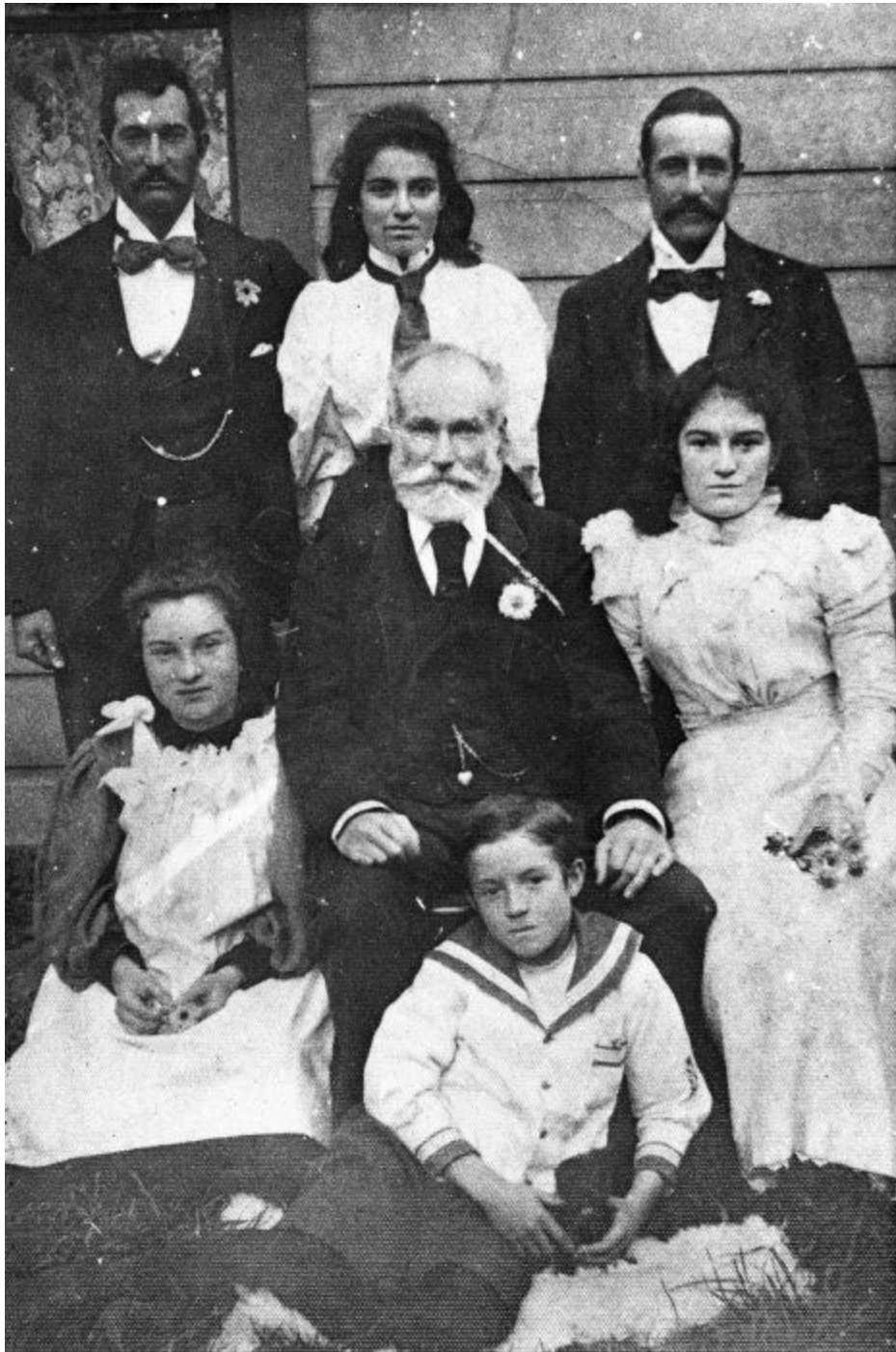


Figure 6: William Franklin Browne I, centre, and some of his children including William Franklin Brown II, back right.<sup>19</sup>

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<sup>19</sup> Wanhalla, Angela, 2013. *Matters of the heart; A history of interracial marriage in New Zealand*. Auckland University Press: Auckland

The information on the new headstone 'Drowned 1852 40 years' is not consistent with any information that can be found on the father and son. The date is too early for the death of either of these men. The date has possibly been interpreted incorrectly, or the headstone could be of a person that was connected to William Browne, for example a wife or child.

The final headstone belongs to Major David Durie's daughter Penelope Durie who drowned in the river near Kārewarewa in 1848.

Since Te Kuititanga and subsequent burials in the area, Te Kārewarewais has been regarded as an urupā and a waahi tapu by members of Te Ātiawa. The author interviewed several kaumātua and members of the iwi. Some recalled the path they would take as children and adults to reach the river mouth, which would cross Te Kārewarewa. They had been told as children that it had been a battleground, that there were people buried there, and that it was waahi tapu and they knew to not take anything from that site. Several iwi members gave accounts of kōiwi being occasionally exposed and visible in the area of interest in their youth. They were instructed to leave them where they found them. One kaumatua however, recalled that her brother had the responsibility of occasionally collected any kōiwi that were highly exposed to take back to another urupā, Takamore, for interment.

#### *Summary of Section 4:*

At the time of settlement in the 1830s, the area at the eastern confluence of the Waikanae and Waimeha River, which includes the site if the Tamati Place subdivision, consisted of a network of pā sites and mahinga kai. This area came under attack at the Battle of Te Kuititanga, which is regarded the most significant battle in the history of Te Ātiawa in the Kāpiti Coast area. There were many who lost their lives and were buried where they fell. The area was then no longer appropriate for occupation of food cultivation and was thus abandoned and deemed waahi tapu. From the mid 19th century the site has been used as an urupā. Several very significant tūpuna of Te Ātiawa are recorded as being buried there, as well as Pākehā that had some connection to Te Ātiawa. Te Kārewarewa is still regarded as an urupā and waahi tapu.

## 5. Development of Te Kārewarewa Urupā

By the end of the 19th century, settlers and the government were pressuring tangata whenua for land, and the Native Land Court at the time facilitated the creation of land title, and thus the partitioning of tangata whenua land into individual title.

The map below, from April 1890, shows how the 'Ngārara West A' block, which covered much of current day Waikanae and Paraparaumu, was partitioned. Te Kārewarewa is situated in the 260 acre land block 'Ngārara West A14'. The map also lists the landowners of the block, who

kaumātua of Te Ātiawa say were identified as the descendants of those that were buried at Te Kārewarewa.



Figure 7: Part of the Ngārara 504A Map (April 1890) (Source: Moore, P.)

As land continued to be partitioned and sold, in 1896 members of Te Ātiawa applied to the Māori Land Court for Te Kārewarewa to be partitioned from the larger Ngārara West A14 block and recognised as an urupā. The Māori Land Court minutes recorded that:

“The object in dividing this section is to set apart a partition of it for a cemetery to include the part to the westward of Section 15 between that boundary and the River Waimea to comprise an area of 10 acres if an area to that extent is comprised within the boundaries indicated, if not then such quantity may be found there whether more or less.

The area on being ascertained to be deducted proportionately from the acreage allotted to each owner.

Ordered that the Section be divided into 2 parcels to be called 14 and 14A the latter parcel to contain 10 acres or thereabouts and be vested in all the owners of the original Section and the



*residue to be vested also in all the owners. The part intended for a cemetery to be made absolutely inalienable.*

## 2 Orders £7

### *Names of owners*

<i>Tutere (Te) Matau</i>	<i>M</i>
<i>Tamihana Te Karu</i>	<i>M</i>
<i>Pare Tawhara</i>	<i>F</i>
<i>Patiana Tuterangi</i>	<i>M</i>
<i>Hira Maeka</i>	<i>M</i>
<i>Hone Ngāpaki</i>	<i>M</i>
<i>Uinga Ngāpaki</i>	
<i>Ropata Ngāpaki</i>	<i>M</i>
<i>Wi Rititona</i>	<i>M</i>
<i>Rākapa Te Puke</i>	<i>F</i>
<i>Takarangi Te Puke</i>	
<i>Mata Te Hawe</i>	
<i>Unaiki Parata</i>	<i>F</i> <sup>20</sup>

The partition order was made as above but it appears that for the partition order to be completed, the land needed to be surveyed to determine the boundaries of the urupā block. It is important to note that the original partition order intended the urupā to be made absolutely inalienable.

By 1905, it appears the necessary survey had yet to be carried out, as on the 6th of February Raniera Erihana went back to the Māori Land Court on behalf of the owners of Ngārara West A14 to make another application for ‘a partition to cut out a certain urupā’. The Court then referred to the original 1896 partition order and stated this order would be complete once a survey of the land was carried out:

*“Ngārara West A, Sec.14*

*- Appn. for Partn.*

*- Appt/ Raniera Erihana*

*Raniera Erihana ex that what is desired by the owners, on whose behalf he made the appn, is a partn. to cut of a certain “urupā” - Explained position.*

*Court determined that Judge Mackay made partn cutting out “urupā” - See Ōtaki Vol. No.31, pp147/8 - What is wanted is a survey to enable those orders to be completed. This appn is not (required?) and will therefore be dismissed.*

*Application dismissed accordingly.”<sup>21</sup>*

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<sup>20</sup> Ōtaki Minute Book No.31 of the Māori Land Court. pp.147-8

<sup>21</sup> Wellington Minute Book No.13 of the Māori Land Court, 6 February 1905

The necessary survey must have been completed by October 1920, as by this time the Department of Land and Surveys New Zealand map below shows a 20 acre block where Te Kārewarewa Urupā is located, and at the site determined in the original partition order from 1896; in between the Western boundary for block 15 and the Waimeha.

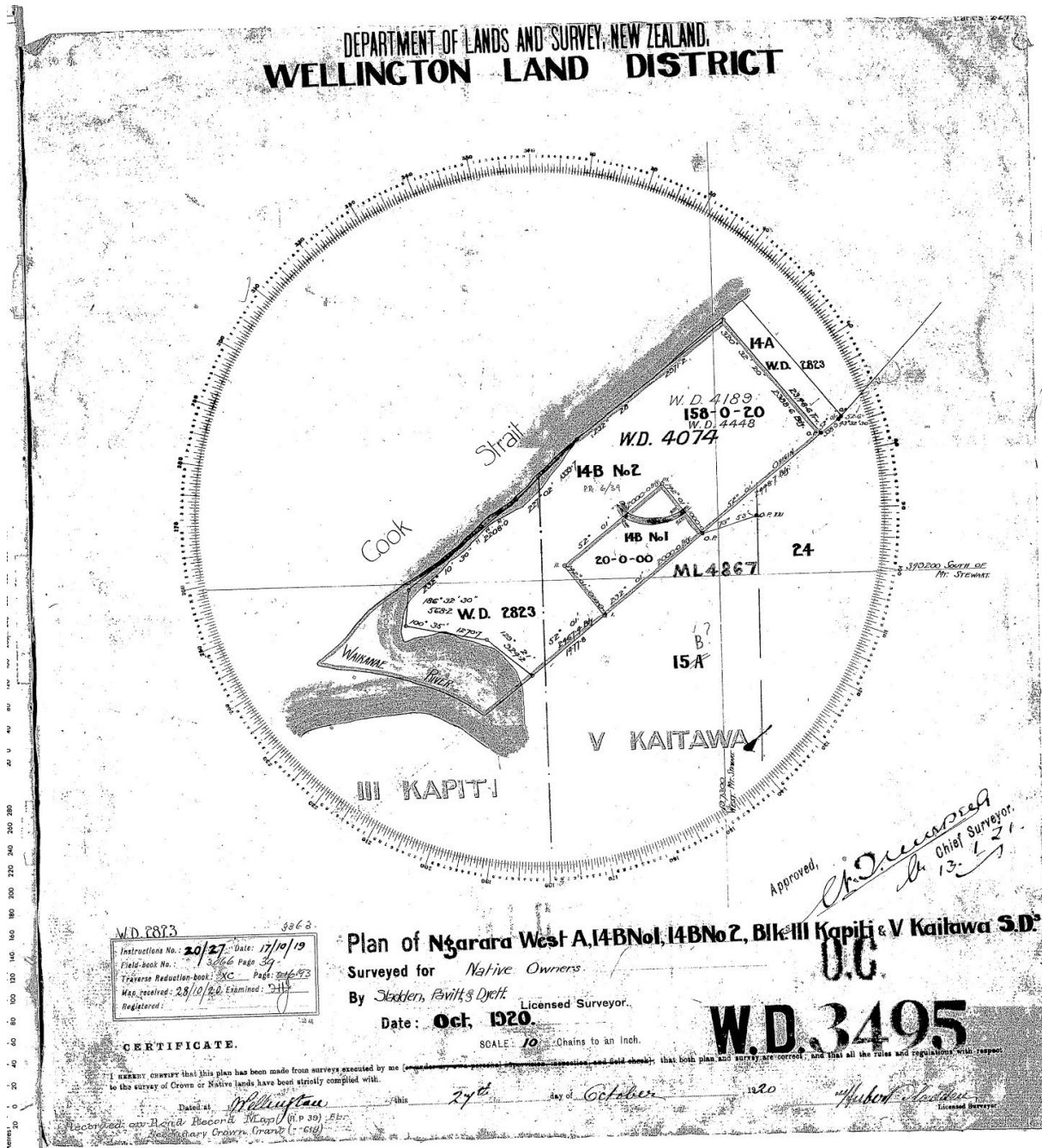


Figure 8: Plan of Ngarara West A, 14BNo1, 14BNo2. W.D. 3485

From the map it appears that the original block 14 has been split into three blocks: 14A, a 75

acre block which was partitioned as payment to surveyors for an outstanding survey lien,<sup>22</sup> (it is not clear if this was to pay for the survey of the urupā or another part of the block); 14B1, the 20 acre block of urupā, and; 14B2, the remaining larger 158 acre block.

By this time, the New Zealand Cemeteries Act 1908, defined ‘every place of burial not being a cemetery’ as a ‘burial-ground’ and subject to all regulation and protections of accordingly. The Act also stated that:

*‘the managers of burial-grounds shall have all the rights, powers, and duties by this Act granted to or imposed upon Trustees of cemeteries, and the provisions of this Act relating to cemeteries shall, as far as applicable, mutatis mutandis, apply in respect of such Managers and burial-grounds.’*<sup>23</sup>

In 1953, two pieces of legislation were introduced in New Zealand which further increased the rate of alienation of land from Māori. The Māori Trustee Act 1953, established the Māori Trustee, a government appointed agent of the Crown, to act as sole agent for owners of Māori land. Under this act, Māori owned land was forced into the management of the Māori Trustee if Māori owners did not have an ‘appropriate’ ownership structure. The Māori Affairs Act 1953, forced Māori owners who had shares in land, to sell them to the Māori Trustee, if the individual shares were worth less than £25, and allowed the Māori Land Court to vest any ‘uneconomic interests’ in Māori Land in the Trustee for administration. The Māori Trustee would then sell these shares to ‘a preferred class of alienees’.<sup>24</sup>

By the 1960s the Māori Trustee had assumed management and administration of Te Kārewarewa land block 14BNo1 on behalf of the owners.

Figure 9 below shows that by 1968, there was still recognition of Te Kārewarewa being a burial-ground, or in fact a cemetery. The District Planning Map clearly marks the area of the land block Ngārara West A 14B1 as a ‘Māori cemetery’.

However, by the 1960s the Waikanae Land Company (WLC), which had been established to develop land at Waikanae Beach, was proposing a marina and residential subdivision in the area within which Te Kārewarewa was located. In 1969 despite objection by Te Ātiawa to the sale and use of the land for anything other than urupā, and the original partition order for the

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<sup>22</sup> Wellington Minute Book No.15 of the Māori Land Court, 21 May 1906

<sup>23</sup> The Cemeteries Act, 1908. New Zealand Government

<sup>24</sup> Boast, R. ‘Te tango whenua - Māori land alienation - 20th-century developments’, Te Arav - the Encyclopedia of New Zealand, updated 22-Sep-12.

<http://www.teara.govt.nz/en/te-tango-whenua-maori-land-alienation/page-9> ; Kingi T., 2008. Māori land ownership and land management in New Zealand. *Making Land Work; Volume two, Case studies on customary land and development in the Pacific*. Commonwealth of Australia: Canberra. p. 146



land block making it clear that the land block was to be inalienable, the Māori Trustee sold Te Kārewarewa to the WLC.<sup>25</sup>



Figure 9: Part of Waikanae County Town and Horowhenua County District Scheme District Planning Map 1968

By this time, the Burial and Cremation Act 1964 had adopted the same definitions for cemeteries and burial-grounds as the Cemeteries Act of 1908. The Act states that cemeteries cannot be legally alienated or diverted to an alternative use, except by an Act of Parliament.

The sale of Te Kārewarewa urupā by the Māori Trustee was therefore illegal and this forms part of the Waitangi Tribunal Treaty of Waitangi claim for the tangata whenua of Te Ātiawa, as it breached their tino rangatiratanga to one of their most culturally significant and sacred sites, and ultimately led to its desecration.

On purchasing the land the WLC then applied to the Horowhenua County Council on the 17th of October 1969, via the Waikanae County Town Committee (WCTC) to have the cemetery designation removed. The WLC attempted to undermine the cemetery status of Te Kārewarewa

<sup>25</sup> Moore, P., 2014. Site Report for Kārewarewa Urupā WTS0319A (v0.3). *Waahi Tapu Project*. On behalf of Te Ātiawa ki Whakarongotai for Kāpiti Coast District Council. p. 19

urupā, denying that it existed. They submitted a letter from the Māori Land Court, dated 23.9.69, claiming that when the block of land was partitioned in 1919 it said in the minutes that the partition was for the purpose of cutting out a graveyard, not protecting an existing one, and since there had been no subsequent action for the purposes of a cemetery, in the Court's records it remained ordinary Māori freehold land.

However, as Section 4 outlines, there is clear and indisputable evidence that Te Kārewarewa is an urupā and had been used for burials long before 1919. It is clear that the efforts by landowners and members of Te Ātiawa to ensure the land block was partitioned and given cemetery designation, were made to protect those buried there, not to reserve the land for future use as an urupā.

The County Clerk, Mr J.H. Hudson, submitted that an application in 1918 to designate the land block as a Māori cemetery was incomplete. The tangata whenua of Te Ātiawa also opposes the suggestion that the designation did not exist, as the Horowhenua County District's own scheme shows the designation very clearly.

The WCTC received a letter of submission on behalf of the iwi regarding the decision. The letter was written by Mrs T.A. Kauri who was a direct descendent of the original owners of block 14. She stated her objection to the application to remove the status, stating that she had several ancestors buried at Te Kārewarewa.

Despite this the WCTC resolved:

*“to promulgate a Change to the District Scheme to lift the designation to enable the land to be subdivided...”*

Once publicly advertised the Horowhenua County Council held a hearing on the decision in May 1970 where the same submission was again received. Mrs T.A. Kauri submitted that:

*“We regard the cemetery block as sacred ground...I have ancestors buried in this cemetery. It is tapu land. It is the resting place of many persons connected with the early history of Waikanae.”*

Despite this opposition the County Council approved the revocation of the cemetery designation.<sup>26</sup> The lifting of the cemetery status by the Horowhenua County Council of Te Kārewarewa also forms part of the Waitangi Tribunal Treaty of Waitangi claim for the tangata whenua of Te Ātiawa due to the County Council's lack of protection of the rights of Te Ātiawa. The lifting of the designation by the County Council is also in breach of Section 21 of the Burial and Cremation Act 1964 which forbids local authorities from making use of any land comprised in a cemetery for any other purpose.

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<sup>26</sup> Horowhenua County Council Hearing of Objections to Proposed Change No.3, 25 May 1970.

Maclean then provides an account of the WLC proceeding with the development of the land which involved removing 350,000 cubic yards of sand, including koiwi, from the Waimeha swamp and lagoon area and filling the sandhill area to create a flat landscape.<sup>27</sup> Author of Te Kārewarewa Urupā Waahi Tapu report interviewed various members of Te Ātiawa in his research, who also gave accounts of bulldozers and dredges finding koiwi at this time. They describe this work as ‘abhorrent’ and having great effect on certain people. Kaumatua Tony Thomas explained that whilst he seldom speaks of the events, it is something that needs to be remembered by the community. These local accounts recalled that many koiwi remained buried, and others were moved within the slurry by trucks to other areas where fill was needed. It is not possible to ascertain specifically which parts of the urupā were affected by the changes as the natural dune system was highly modified during this initial dredging period.<sup>28</sup> The block was modified again in 1990 and 1999, by re-contouring the ground surface of the subdivision. Much of Te Kārewarewa urupā has now had residential properties built on it. This is a substantive grievance for Te Ātiawa.

The ‘Tamati Place’ property, along with the lagoon area, are the only parts of Te Kārewarewa that are not developed. In 2000 the WLC dug trenches for services along the centrelines of the proposed roads of Tamati place and Wi Kingi Place. Kōiwi of at least nine individuals were exposed. A ground penetrating radar survey was undertaken on the site in 2002 and located what the archaeologist report has referred to as a cluster of anomalies that may be further burials.<sup>29</sup>

It has been extremely traumatic for the tangata whenua of Te Ātiawa to have their urupā desecrated in this way, and the remains of potentially some of their most significant tūpuna exposed and disrespected.

The wider community has also been affected by the desecration of Te Kārewarewa urupā. Local kaumātua have recalled in interviews that six or seven times they have been contacted by Pākehā members of the public that reside in and around the part of the urupā that is already developed, to conduct karakia as a result of experiencing some form of adverse effect that they attributed to living on or near the urupā. One resident apparently remarked that had they known it was an urupā they would never have bought property there and subjected their family to those adverse effects, however financially they were now unable to move.

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<sup>27</sup> Ibid 6.

<sup>28</sup> Ibid 2. p.24

<sup>29</sup> O’Keefe, M. 2012. Tamati Place - archaeological issues; Report to Waikanae Land Company and New Zealand Historic Places Trust. Heritage Solutions: Wellington



## 6. Te Ātiawa ki Whakarongotai Charitable Trust position

It is incomprehensible to the tangata whenua of Te Ātiawa that the Waikanae Land Company can still try and argue that Ngārara West A 14B1 is not an urupā. Members of TAKW have been on record since 1896 consistently testifying that it is an urupā and a waahi tapu. This evidence has been ignored through the County Council Hearing process in 1970, and is not adequately addressed in the Waikanae Land Company's archaeological report 'Tamati Place - archaeological issues.' by Mary O'Keefe. TAKW challenges the use of this report by the Waikanae Land Company to make comment on the overall heritage and cultural status of the site. The report has unintentionally excluded significant aspects of evidence, most significantly, the strong evidence of the use of the site as urupā. The uncovering of headstones and exposing of kōiwi on the site in the 1970s and again in 2000, and the detection of anomalies in the GPR survey are further irrefutable evidence of the use of the land as urupā.

The suggestion by the WLC and the archaeologist that the burials are localised at one part of the site, and hence the rest of the site is not significant and does not require protection is outrageous to TAKW. The whole site has been consecrated by Te Ātiawa as urupā, and given the scale of ongoing modification of the site since the 1970s, there is evidence to suggest that the kōiwi are 'clustered' as they have been moved there in previous earthworks. The 'clustering' of the kōiwi does not give any information about the actual extent of burials. TAKW understands that as dredging was used on the site, that many kōiwi may have been processed by the dredge and sprayed across the land block and are no longer in tact. Further to this, TAKW believes that the specific location of human remains is not relevant in ascertaining the protection that the site as a whole warrants.

TAKW believes that the sale and desecration of Te Kārewarewa urupā has been an attempt to systematically deny and extinguish the historical and cultural connection they have to land and the wider area.

## 7. Conclusion

TAKW maintains that Te Kārewarewa warrants full protection from any further development in accordance with its values as:

1. An archaeological site, of high national cultural and heritage significance, due to the site being the location of Te Kuititanga Battle, a war of national significance, and;
2. A waahi tapu tuturu and urupā, a resting place of many significant tupuna and persons connected with the early history of Waikanae.

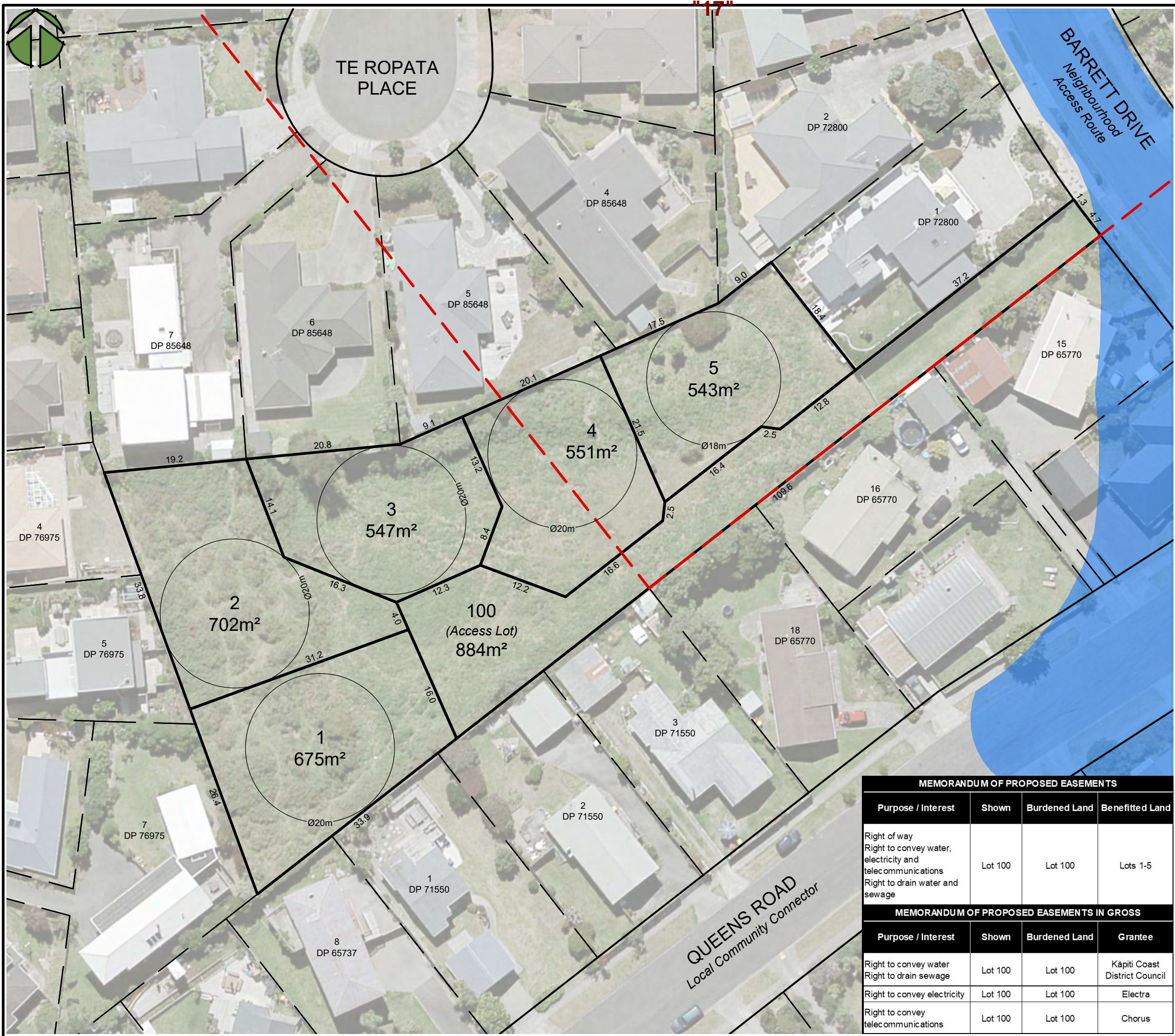
TAKW is vehemently opposed to the three proposals made by Waikanae Land Company on the development of the site, and appeals to Heritage New Zealand and the landowners to halt the extinguishment of their rights and seek resolution to this issue in partnership with TAKW and the Kāpiti Coast District Council.

## Iwi Engagement Log

Date	Topic	Who
4 Dec 2013	File note – call to Kristie Parata (Ātiawa administrator), who says Rūnanga now the Ātiawa Trust, Chaired by Hemi Sundgren. Ben Ngaia chairs another iwi organisation, Ātiawa Trust gets him to deal with certain matters from time to time.	Maurice Rowe
4 Dec 2013	Email providing contact information for Ben Ngaia (Takamore Trust) and Hemi Sundgren (Ātiawa Trust Chair).	Kristie Parata and Maurice Rowe
4 Dec 2013 – 5 Feb 2014	Emails trying to set up meeting with iwi.	Maurice Rowe, Ben Ngaia, Ātiawa Trust Chair, Mary O'Keeffe
22 Aug 2014 – 22 Sept 2014	Emails trying to set up meeting with iwi.	Steven Kerr and Ātiawa Trust personnel
26 and 28 Jan 2015	Email providing a draft of the CIA, and response setting up meeting with Mahina-a-rangi Baker to discuss CIA.	Mahina-a-rangi Baker and Steven Kerr
18 Mar 2015 – 15 May 2015	Emails trying to set up meetings with iwi to discuss CIA.	Steven Kerr, Mahina-a-rangi Baker, Kristie Parata, Maurice Rowe and others
29 June 2015	Email to Mahina-a-rangi Baker giving feedback on CIA.	Steven Kerr to Mahina-a-rangi Baker
7 July 2016	Seeking approval in relation to Hans' geomagnetic survey. Approval was provided.	Mary O'Keeffe Ben Ngaia
13 Jul 2016	Meeting to discuss initial findings of geomagnetic survey. Identified that a test pit was required.	Shannon Johnstone, Steven Kerr, Mary O'Keeffe, Hans-Dieter Bader, Les Mullen
9 August 2016	Email seeking approval for test pit.	Mary O'Keeffe Ben Ngaia
19 Oct 2016	Provided copy of Exploratory Authorisation to Te Atiawa ki Whakarongotai (via email).	Steven Kerr Kristie Parata
4 Nov 2016	Email from Te Atiawa ki Whakarongotai advising it may appeal the Exploratory Authorisation and consultation was inappropriate.	Mahina-a-rangi Baker Andre Baker Steven Kerr
4 Nov 2016	Emailed Andre Baker about above email and offered to meet and discuss the matter with the Trust.	Steven Kerr Andre Baker
7 Nov 2016	Email from Andre Baker accepting applicants offer to meet and discuss.	Steven Kerr Andre Baker
21 Nov 2016	Met with Atiawa ki Whakarongotai (Charitable Trust) trustees.	Shannon Johnston Steven Kerr Andre Baker (chair) Mahina-a-rangi Baker

29 Nov 2016 – 11 Dec 2016	Liaison with Atiawa ki Whakarongotai arrange follow up meeting with the Trust.	Kristie Parata Steve Kerr
18 Dec 2016	Provided Atiawa ki Whakarongotai with explanation of why the test pit is required.	Kristie Parata Steve Kerr
16 Jan 2017	Verbal advice meeting with Atiawa ki Whakarongotai on 16 Jan 2017 postponed.	Kristie Parata Steve Kerr
31 Jan 2017 – 13 Feb 2017	Email liaison seeking confirmation of next meeting with Atiawa ki Whakarongotai.	Kristie Parata Steve Kerr
Exact date unknown	Agreed to request from iwi to hold off with test pit until discussions can take place (phone call).	Steven Kerr Andre Baker
13 Mar 2017	Email advising that despite unsuccessful attempts to talk to Andre and the Trust the test pit is proceeding in April.	Steven Kerr Andre Baker
20 Mar 2017	Letter from Atiawa (via email) advising that iwi did not support the development of the site and the test pit.	Steven Kerr Andre Baker
5 Apr 2017	Email acknowledging letter of 20 Mar 2017 and advising iwi test pit proceeding and they welcome to observe.	Steven Kerr Andre Baker
7 Apr 2017	Email to advise iwi of date of test pit and inviting them to attend.	Steven Kerr Andre Baker
10 Apr 2017	Three Trustees attended the test pit dig (and said a karakia).	Steven Kerr Hans-Dieter Bader Daniel Parker 3 members of iwi
15 June 2017	Provided the Trust with a copy of the report on the test pit (via email).	Steven Kerr Kristie Parata
19 Jul 2018 – 20 Sep 2020	Emails providing Geomagnetic Survey results to Trust. Dr Baker advised Trust did not wish to talk to WLC. Follow up to see if Trust wanted to talk with Russell Gibb, offer declined.	Steven Kerr Kristie Parata Kathryn Hurren (HNZ) Dr Baker Andre Baker Russell Gibb
20 Jul 2020	Email to Trust providing copy of Heritage NZ application for Stage4B	Steven Kerr Admin TAKW
19 Oct 2021	Emails to Trust informing them of the WLC appeal and filing documents including the HNZ decision.	Steven Kerr Linda Kohunui-Hartman (TAKW Admin) Taiao Atiawa (email address)





**GENERAL NOTES**

1. Plan is in terms of New Zealand Geodetic Datum 2000 (NZGD2000).
2. Areas and dimension subject to cadastral survey.
3. Boundaries are from the Land Information New Zealand (LINZ) Digital Cadastral Database (DCDB).
4. Aerial photography is from the LINZ Data Service.
5. Underground services, aerial photography and flood hazards are from Kāpiti Coast District Council records and indicative only.

**AMALGAMATION CONDITION**  
That Lot 100 hereon (legal access) be held as to five undivided one-fifth shares by the owners of Lots 1, 2, 3, 4 and 5 hereon as tenants in common in the said shares and that individual Records of Title be issued in accordance therewith.

**KEY**

	Residual Overflow Path
	Stream Corridor
	Ponding Area
	Residual Ponding Area
	Flood Storage Area
	Ngarara West A 14B1

Issue Description	Ngarara West A 14B1 added			
-	BA	BA	EB	8/09/2020
Surveyed	Designed	Drawn	Checked	Date

1 Ngaio Rd Waikanae + contactus@landlink.co.nz + 04-902-6161

Client

Waikanae Land Company Ltd

Title  
**Proposed Subdivision of Part Lot 1 DP 71625 5 Lot Plan**

Project  
**Barrett Drive, Waikanae Beach**

Scale: 1:500 A3

Drawing No.  
**2540-P1 104 E**

**MEMORANDUM OF PROPOSED EASEMENTS**

Purpose / Interest	Shown	Burdened Land	Benefitted Land
Right of way Right to convey water, electricity and telecommunications Right to drain water and sewage	Lot 100	Lot 100	Lots 1-5

**MEMORANDUM OF PROPOSED EASEMENTS IN GROSS**

Purpose / Interest	Shown	Burdened Land	Grantee
Right to convey water Right to drain sewage	Lot 100	Lot 100	Kāpiti Coast District Council
Right to convey electricity	Lot 100	Lot 100	Electra
Right to convey telecommunications	Lot 100	Lot 100	Chorus



19 July 2022

Matt Conway and Sam Hart  
Simpson Grierson  
Wellington

By email: matt.conway@simpsongrierson.com  
sam.hart@simpsongrierson.com

Dear Matt and Sam

KCDC / Plan Change 2 / Declaration application by Waikanae Land Company

1. I write on behalf of Waikanae Land Company (WLC), whose interests in land at Barrett Drive, Waikanae Beach are known to you. I write to you in your capacity as advisors to Kapiti Coast District council (KCDC).
2. As you know, KCDC is due to notify an intensification planning instrument (IPI) before 20 August 2022 (PC2). KCDC's consultation draft of PC2 proposed to list WLC's land wāhi tapu, together with 39 private residential properties in the vicinity.
3. WLC raised concerns about the proposed listing by letter (copy attached) and also in a meeting on 2 June 2022 (between WLC representatives Maurice Rowe and Steven Kerr, and KCDC's Planning Manager Jason Holland). In both cases, WLC requested that the listing not be included in PC2.
4. As you know, the cultural values associated with some of the Barrett Drive land are already the subject of two related Environment Court proceedings. As those values are clearly contested, and shortly to be the subject of an Environment Court determination, WLC considers it is premature for a wāhi tapu identification to be applied to the land now; particularly as provisions of this sort would take immediate legal effect upon notification. Such an approach would inevitably lead to WLC and other stakeholders having to debate in the IPI process the same matters that are already being litigated through the Environment Court, wasting the time and resources of everyone involved.
5. However, the purpose of this letter is not to engage with the merits of listing the land, but with a more fundamental legal issue.

6. An IPI cannot be used for any purpose outside s 80E of the Resource Management Act 1991 (RMA). KCDC seems to consider that listing the Barrett Drive land wāhi tapu is within those purposes, as it is a qualifying matter. However, KCDC's statutory power to identify qualifying matters in an IPI is strictly constrained by s 77I. It is a power to "make the MDRS less enabling of development" and to do so "only to the extent necessary to accommodate" the qualifying matter.
7. If PC2 is notified in materially the same form as the consultation draft, it will not merely make the MDRS "less enabling". Rather, it will import a host of other existing rules (from the SASM chapter of the Plan) that constrain development and thereby impose additional (non-density-related) restrictions on the underlying residential zoning itself. This would exceed the statutory power conferred on KCDC by s 77I and would amount to KCDC purporting to use an IPI to achieve a purpose outside s 80E.
8. In the circumstances, and given the imminent notification of PC2, can you urgently ascertain whether KCDC intends to notify PC2 in materially the same form as the consultation draft? If so, I urge KCDC to consider and address the issue above. If PC2 is notified incorporating a proposed wāhi tapu listing of WLC's land, in such a way as to import all the relevant provisions of the SASM chapter of the Plan, then my instructions are to seek an Environment Court declaration under s 310(a) of the RMA, that this exceeds the statutory power conferred on KCDC regarding IPIs.
9. I look forward to hearing from you, and if it will assist to discuss matters by phone or face-to-face given the relative urgency of this matter, please let me know.

Yours sincerely



Morgan Slyfield  
Barrister

direct 04 915 9277  
mobile 021 915 927  
email morgan.slyfield@stoutstreet.co.nz



22 July 2022

**Partner Reference**  
M G Conway - Wellington

Morgan Slyfield / Monique van Alphen Fyfe  
Stout Street Chambers

**Writer's Details**  
Direct Dial: +64-4-924 3459  
Email: sam.hart@simpsongrierson.com

Sent by Email

Dear Morgan and Monique

**Plan change 2 - Wāhi tapu land**


1. We write in response to your letter dated 19 July 2022.
2. We confirm that the Council will shortly notify its intensification planning instrument (**IPI**), subject to Council resolution at its 28 July 2022 meeting. An agenda for this meeting has been published on the Council's website today.
3. In response to your question at paragraph 8, we confirm that the Council still intends to add Kārewarewa Urupā to its schedule of sites and areas of significance to Māori. The area of the urupā (as mapped in Appendix B to the draft consultation of Plan Change 2) remains unchanged.
4. We note but do not agree with the assessment at paragraphs 6 and 7 of your letter. As you have identified, the inclusion of a new qualifying matter may lead to limits on development capacity. The RMA does not prevent the inclusion of a new qualifying matter from triggering existing provisions that appropriately provide for the values of the qualifying matter. Rather, providing for those values is a logical consequence of (in this case) section 6 of the RMA. The Council's section 32 evaluation is now available via the Council's website as part of the agenda referred to above.
5. We do not see any need for a declaration about these matters. The merits of the Council's IPI, including its proposal to add Kārewarewa Urupā to the District Plan, can be tested through the Intensification Streamlined Planning Process, and in our view that is the appropriate forum to address these matters.
6. We trust that clarifies the Council's position, but would be happy to discuss this with you if that would assist.

Yours faithfully  
SIMPSON GRIERSON



Matt Conway/Sam Hart  
Partner/Solicitor

36895637\_1.docx

For office use only
Submission No: 104
 Kapiti Coast DISTRICT COUNCIL <small>Te Kaitiaki Take Kōwhiri o Te Kapiti</small>

SUBMISSION OF WAIKANAĒ LAND COMPANY LIMITED ON A PROPOSED  
PLAN CHANGE

To: Kapiti Coast District Council

Name of submitter: Waikanae Land Company Limited("WLC")

1. This is a submission on Kapiti Coast District Plan Proposed Plan Change 2 – Intensification ("PC2").
2. WLC could not gain an advantage in trade competition through this submission.
3. WLC's submission relates to the land at Waikanae Beach that is depicted as Wahanga Tahī and Wahanga Rua in Appendix E of PC2 ("the Subject Land").
4. The specific parts of PC2 to which WLC's submission relates are:
  - 4.1 The proposal in section 18.1 of PC2, to amend Schedule 9 – Sites and Areas of Significance to Māori;
  - 4.2 The proposal in section 19.5 of PC2, to make a corresponding amendment to the District Plan Maps;  
  
(collectively referred to as "the Wāhi Tapu listing");
  - 4.3 All other objectives, policies, rules or other methods under PC2 that apply to the Subject Land, or would apply to the Subject Land but for the Wāhi Tapu listing  
  
(collectively referred to as "the Enabling Provisions").
5. WLC opposes the Wāhi Tapu listing and supports the Enabling Provisions for the following reasons:
  - 5.1 The Wāhi Tapu listing is based on a view that the Subject Land is the Kārewarewa Urupā.
  - 5.2 The Subject Land is not the Kārewarewa Urupā.
  - 5.3 The listing is therefore unjustified, and unjustifiable.

- 5.4 The s 32 analysis on which the Wāhi Tapu listing is based is deficient and wrong to the extent that it proceeds on the basis that the Subject Land is the Kārewarewa Urupā.
  - 5.5 The s 32 analysis is also inaccurate or misleading in its description of WLC's opposition to the Wāhi Tapu listing, as it fails to acknowledge that WLC's opposition is based on independent, objective, expert assessments that refute the Subject Land is Kārewarewa Urupā.
  - 5.6 No other basis for the Wāhi Tapu listing (other than that the Subject Land is the Kārewarewa Urupā) has been provided. In the event that any party attempts to justify the listing on an alternative basis, WLC disputes that the listing is justified.
  - 5.7 Without limiting any of the foregoing, WLC acknowledges that a confined part of the Subject Land is known to have been the site of a small number of burials. These known burials do not support the view that the Subject Land is the Kārewarewa Urupā, and nor do they justify the Wāhi Tapu listing of the entire Subject Land.
  - 5.8 The Subject Land is zoned for residential use, and ought to be the subject of District Plan provisions that enable and encourage residential structures and activity on the Subject Land.
  - 5.9 WLC and Kapiti Coast District Council ("Council") are parties to existing Environment Court proceedings (ENV-2021-WLG-000034 and ENV-2022-WLG-000014, amalgamated) that may authoritatively determine whether the Subject Land (or at least part of it) is the Kārewarewa Urupā. It is inefficient and inappropriate for Council to notify the Wāhi Tapu listing pending the outcome of that litigation.
  - 5.10 The Wāhi Tapu listing is *ultra vires*. It is an improper use of an Intensification Planning Instrument to introduce provisions that have the effect of disabling the underlying residential zoning.
6. WLC seeks the following decision:
    - 6.1 The deletion of the Wāhi Tapu listing from PC2 entirely.
    - 6.2 Alternatively, or in combination with the deletion sought above, amending PC2 so that the District Plan provides some combination of objectives, policies, rules and/or other



methods that provide for residential development of the Subject Land in accordance with Medium Density Residential Standards.

6.3 Such further or consequential relief as may be necessary to address the matters raised in this submission.

7. WLC wishes to be heard in support of its submission.



---

M J Slyfield  
Barrister

For and on behalf of Waikanae Land Company Limited  
15 September 2022

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Postal Address: c/- Morgan Slyfield  
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PO Box 117  
Wellington

**From:** [Morgan Slyfield](#)  
**To:** [Mailbox - District Planning](#)  
**Cc:** ["Maurice Rowe"; steven.kerr@xtra.co.nz](#)  
**Subject:** Submission on PC2 by Waikanae Land Company  
**Date:** Thursday, 15 September 2022 2:44:22 pm  
**Attachments:** [Submission of WLC on PC2 \(mjs584\).pdf](#)

---

I attach for filing a submission by Waikanae Land Company on Proposed Plan Change 2.

Ngā mihi,

**Morgan Slyfield**  
**Barrister**  
Stout Street Chambers

**P.** 04 9159277

**M.** 021 915927

This email and any attachment is confidential and may be legally privileged. If you have received this email in error, please notify me immediately and then delete the email.

FURTHER SUBMISSIONS OF WAIKANAE LAND COMPANY ON A PROPOSED  
 PLAN CHANGE

To: Kapiti Coast District Council

Name of further submitter: Waikanae Land Company ("WLC")

1. These are further submissions in opposition to and in support of submissions on Kapiti Coast District Plan Proposed Plan Change 2 – Intensification ("PC2").
2. The specific parts of PC2 to which WLC's further submissions relate ("the Wāhi Tapu listing") are:
  - 2.1 The proposal in section 18.1 of PC2, to amend Schedule 9 – Sites and Areas of Significance to Māori;
  - 2.2 The proposal in section 19.5 of PC2, to make corresponding amendment to the District Plan Maps.
3. WLC has an interest in the Wāhi Tapu listing that is greater than the interest of the general public, as WLC is the owner of all the land proposed to be subject to the Wāhi Tapu listing that remains undeveloped (or partially developed).

Further Submissions in Opposition

4. WLC opposes the submission points listed below to the extent that those submission points support the Wāhi Tapu listing:

Submitter Name	Submission Point, as per KCDC summary of submissions
Chris Turver	S130.1
A.R.T (Ātiawa ki Whakarongotai, Ngā Hapū o Ōtaki (of Ngāti Raukawa ki te Tonga) and Ngāti Toa Rangatira)	S210.01, S210.08, S210.09
Jennifer Rowan	S049.04
Greater Wellington Regional Council	S097.18
Ātiawa ki Whakarongotai	S100.50
Te Rūnanga o Toa Rangatira on behalf of Ngāti Toa Rangatira	S161.47, S161.48
Ngā Hapū o Ōtaki	S203.05, S203.58



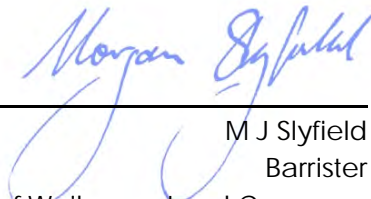
5. The reasons for WLC's opposition are stated in WLC's submission (#104).
6. WLC seeks that these submission points are disallowed to the extent that they support the Wāhi Tapu listing.

Further Submissions In Support

7. WLC supports the submission point listed below to the extent that the submission point opposes the Wāhi Tapu listing:

Submitter Name	Submission Point, as per KCDC summary of submissions
Laurence Petherick	S116.01

8. The reasons for WLC's support are stated in WLC's submission (#104).
9. WLC seeks that this submission point is allowed to the extent that it opposes the Wāhi Tapu listing.
10. WLC wishes to be heard in relation to its further submissions.
11. If others make similar submissions WLC will consider presenting a joint case at the hearing.



M J Slyfield  
Barrister

For and on behalf of Waikanae Land Company  
24 November 2022

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**From:** [Morgan Slyfield](mailto:morgan.slyfield@stoutstreet.co.nz) [morgan.slyfield@stoutstreet.co.nz](mailto:morgan.slyfield@stoutstreet.co.nz)  
**To:** [Mailbox - District Planning](#)  
**Subject:** Further Submission on PC2 from Waikanae Land Company  
**Date:** Thursday, 24 November 2022 2:58:35 pm  
**Attachments:** [Further Submission.pdf](#)

---

Kia ora,

I attach for filing a further submission on PC2 by Waikane Land Company.

Ngā mihi,

**Morgan Slyfield**  
**Barrister**  
Stout Street Chambers

**P.** 04 9159277

**M.** 021 915927

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