

RIVERBEND RESIDENTIAL DEVELOPMENT

ENCLOSURE D

PRELIMINARY CONTAMINATION SITE INVESTIGATIONS

- Geosciences Ltd

PRELIMINARY SITE INVESTIGATION (PSI)

FOR 20 WATERWORTH AVENUE, MEEANEE, NAPIER

Reference Number: REP-JH0137A/PSI/DEC20/REV1

PREPARED FOR: TAWANUI DEVELOPMENTS LTD

C/- DEVELOPMENT NOUS LTD

15 DECEMBER 2020



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Statement

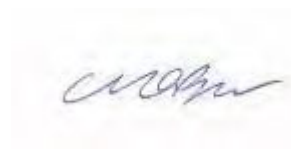
This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the Environment's *Contaminated Land Management Guidelines No.1 – Reporting on Contaminated Sites in New Zealand*.

Report prepared on behalf of GSL
by:



Johan Faurie
Principal
Geosciences Ltd

Report reviewed and authorised
on behalf of GSL by:



Carl O'Brien
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Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 09 475 0222.

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EXECUTIVE SUMMARY

Tawanui Development Limited is seeking to develop some 8.3 Ha of the land at 20 Waterworth Avenue, currently being used for cropping maize, into residential lots. While formal development plans were not available at the time of completing this assessment, it is understood that the proposal will establish nominal residential lots consistent with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES) Soil Contaminant Standard for *Residential landuse with up to 10% homegrown produce*.

The preliminary site investigation of the affected land (also referred to as “the site” in this report), has been conducted to address the regulations of the NES with respect to the proposed subdivision, and change in landuse. The investigation included a search on the property file, review of certificates of titles, review of available historical aerial photographs, a site inspection, and the collection and analysis of a limited number of soil samples from the property.

Desktop assessment identified that the piece of land has been utilised for vacant pastoral landuse for much of its discernible history before being recently utilised for cropping activities. Given the modern nature of cropping, the use of persistent pesticides was considered of negligible risk. No other evidence of any HAIL activity having occurred, currently occurring, or more likely than not to have occurred was encountered within any available information for the site.

Soil assessment undertaken as part of this PSI has identified that soils present on site are consistent with the expected naturally occurring background ranges for the site and therefore meet the definition of cleanfill. Standard earthworks procedures can therefore be implemented, and no controls are required with respect to waste tracking and offsite disposal.

Consequently, it is concluded that the land has not been the location of a HAIL activity and therefore does not meet the definition of land to which the NES applies under regulation 5(7). No further work with respect to soil contamination is considered necessary under the NES, District Plan or RRMP.

1 INTRODUCTION

Geosciences Ltd (GSL) has prepared the following report for Tawanui Development Ltd on behalf of Development Nours Ltd in accordance with the GSL proposal, Ref: *Pro-2211/Oct20*, dated 22 October 2020.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", and No. 5 - "*Site Investigation and Analysis of Soils*" (References 1 and 2).

2 PROPERTY DETAILS

Location:	20 Waterworth Avenue, Onekawa, Napier,
Legal Description:	Lot 1 DP 22039
Size:	8.3 Ha
Zoning:	Main Rural

The piece of land under investigation is located 3.5 Km south west of the Napier CBD, 2.3 Km west of the Hawkes Bay shoreline and on the edge of the Napier City rural/residential southern boundary as shown in Figure 1. The property is hereafter referred to as "the site" in this report.

3 ENVIRONMENTAL SETTING AND SITE INFRASTRUCTURE

The entire site was under recently planted maize crop at the time of the site inspection, with an open drainage channel cutting east-west through the centre of the site. An open water channel (cross country drain) that drains eastward flows along the southern boundary of the site before being discharged into Hawke Bay via pumped outlet.

There is also an open drainage channel (Beatson Drain) along the western boundary between the site and the residential development, that flows into the cross country drain along the southern border of the site.

3.1 GEOLOGY & GEOHYDROLOGY

The available published geological map of the area compiled by Lee *et al* (Reference 5) showd the site is underlain by alluvial swamp deposits of the Heretaunga Plains consisting of peat, mud, silt, sand and gravel. Griffiths also describes the soil as having imperfect drainage with the water table less than 1 m below surface during wet periods.

3.2 TOPOGRAPHY AND DRAINAGE

The site is flat and slopes gently from north to the south with an elevation of 16 metres above sea level (masl) at the northern boundary to and elevation of 13 masl at the southern boundary. Drainage is via soakage and ponding primarily, with any overland flow being directed into the

drainage channels (as described above) that ultimately discharges via the pumped outlet of the Cross-Country drain into Hawke Bay.

4 PROPOSED DEVELOPMENT

While no detailed development plans were available for site at the time this report was completed, a preliminary schematic has been provided outlining a potential residential development extension with small scale commercial node as shown in Appendix A. It is expected that future development will be consistent with standard residential landuse and be of similar configuration to the surrounding residential landuses.

This assessment focusses on the footprint identified as “Area A” on the attached schematic, being the piece of land under investigation. While Areas “B” and “C” are included on the schematic, GSL understands that these are currently being assessed separately for contractual reasons.

5 STANDARDS AND REGULATIONS

Because of the proposed subdivision and change in landuse outlined above it will be necessary to address the requirements of the following standards, rules, and regulations applicable for the site.

5.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

The *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) (MfE, 2012) ensures that land affected by contaminants in soil is appropriately identified and assessed. When soil disturbance and/or land development activities take place it should be, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, any change in landuse, subdivision, or development requires a Preliminary Site Investigation (PSI) of the land to determine if there is a risk to human health as a result of any current or former activities that are occurring, or may have occurred, on the land under investigation.

The NES defines five standard landuse scenarios for which soil contaminant standards have been derived. The most appropriate landuse scenario which is applicable to the proposed change in landuse, subdivision and development at this site is defined by the NES as: *Residential: Standard residential lot with single dwelling sites with gardens, including home grown produce consumption (10 percent)*.

5.2 NAPIER DISTRICT PLAN

Chapter 64 of the Napier District Plan outlines the requirement for assessing and managing contaminants in the soil. The objectives and policies contained in Chapter 64 endorse the requirements of the NES and direct that prior to development, land should be investigated to ensure that risks are appropriately identified and managed.

5.3 HAWKES BAY REGIONAL RESOURCE MANAGEMENT PLAN (RRMP)

Section 30(1)(f) of the Resource Management Act (RMA) 1991 provides the Hawkes Bay Regional Council with a statutory duty to investigate land for the purpose of identifying and monitoring contaminated land and for the control of discharges of contaminants into or onto land or water and discharges to air.

With respect to the Regional Plan, Rules 47 – 52 cover the discharges of contaminants to land. The RRMP outlines the classification status of each activity, conditions, standards, and terms to be met and matters for Council's control / discretion.

6 PSI OBJECTIVES

The objectives of this investigation were to assess:

- if the land is covered by the NES as a result of any current or former HAIL activities;
- the extent of any current or former HAIL activities on site;
- if the proposed development can comply with NES permitted activity conditions;
- what, if any, contaminated land rules of the of the Napier District Plan apply to the proposed development; and
- the need, if any, for further detailed/remedial investigations.

7 SCOPE OF WORKS

To achieve the objectives of the PSI, GSL has undertaken the following:

- a review of historic aerial photographs of the site;
- a review of the property files held by Council for the properties;
- a search of the contaminated land database;
- a visual site inspection of the piece of land;
- the collection of discrete soil samples (from surface and at depth) from 6 locations across the site;
- laboratory analysis of surface soil samples from 4 locations across the site for a suite of seven heavy metals and a suite of organochlorine pesticides in the first instance, in order to inform on soil disposal options during site preparations earthworks for the proposed residential development; and
- the preparation of this report in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", detailing the findings of this investigation and the need, if any, for further work.

8 SITE HISTORY

A desktop study of publicly available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating landuses.

8.1 CERTIFICATE OF TITLE

GSL has reviewed a copies of the Certificates of Titles for the properties, including any instruments on the title which detail relevant property information such as: current ownership, registered interests, easements, covenants, lease restrictions and transmissions, to determine if pre-existing consent notices or other restrictions / notifications which may be relevant to historic uses or potential soil contamination are held against the property.

The title was first registered on 16 January 2007 to a number of members of the Dooney family. There are no notes of interest recorded on the titles. Copies of these documents are attached in Appendix B.

8.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs for the site are available from Napier City Council, the Retrolens website, and Google Earth. A summary of the review of these historic aerial photographs on approximately 10 year intervals are provided below, while copies of the aerial photographs are attached in Appendix C.

1936 The 1936 image is the earliest available image for the site and of limited quality and contrast. The main streets in the area; Riverbend, Willowbank, Bledisloe etc to the east of the site have been established by the time of the image, however, residential developments are sparsely founded along these roads.

The site is located on clearly undeveloped open land. It is dominated by a dark tone on the aerial photograph most likely reflecting swampy water-logged wetlands.

1951 By the time of the 1951 image, the site is still undeveloped and diagonal lines across the site leading to the north-western and south western corners of the site and intersecting the open drainage channel along the western boundary at these points indicate that drainage operations are in progress.

Residential developments surrounding the site are still sparse and concentrated along the main arterial routes.

1964 Imagery from 1964 shows the site remaining undeveloped land pasture, with drainage channels now established. While some market gardens had been established in smaller blocks on the surrounding land, they are removed from the piece of land under investigation while the residential developments are rapidly approaching the northern border of the property.

1977 Imagery from 1977 shows very little change in the site and surrounding environment. The piece of land remains in pasture with no discernible feature or structures while intensification of residential development of the wider area to the north continues to expand. Land to the south remains rural production land in various configurations.

- 1987** This image is similar to the one of 1977 with the exception that horticultural farming to the south of the site has intensified and orchards, market gardens and greenhouses are now abundant.
- 1996** By 1996 the site is still under pasture and drainage operations are in progress at the time of the image. The site is divided in two portions equally in size by an east-west running drainage channel at the centre of the site. It appears that market gardening on the former pasture land to the east has also intensified.
- 2003 - present** The 2004 image is the first colour image of the site and shows the site in the same configuration as the 1996 image, however the site is largely bare of vegetation suggesting that cropping activities are commencing. Google earth images from this time to the present are not of high quality but it appears as if the land had been worked and planted on a regular basis over this period.

8.2.1 SUMMARY OF HISTORIC AERIAL IMAGES

The available historic aerial images of the site show that the site was open pasture until the early 2000s at which point it appears drainage issues could be managed, and the land cultivated for sturdy crops like maize, stock feed etc. Other than this modern cropping activity, no evidence of any HAIL activities having occurred on the site are present in the aerial imagery and no other features (buildings or structures) identifiable at the site during its discernible history.

8.3 PROPERTY FILE

This property file held by Napier City Council contains only a few documents for this property. These documents relate to the installation/construction of three box culverts in 2004, subdivision in 2007, a general hazardous warning that the site is located within a 50 year flood zone and an application for resource consent to plant a shelterbelt including Council's assessment and decision regarding the application.

There is no information on the property file that could relate to any actual or potential for soil contamination on site.

8.4 CONTAMINATED LAND DATABASE SEARCH

Both Hawkes Bay Regional Council and Napier City Council maintain a range of information on their respective Geographical Information Systems (GIS) including suspected filling areas, suspected historic dumping locations, environmental hazards, and known contaminated sites.

A review of hazard information held on the Napier City Council and Hawke's Bay Regional Council geographic information systems (GIS) did not identify any known or suspected areas of filling or contamination on the site.

9 SITE INSPECTION & INFRASTRUCTURE

GSL undertook a site inspection on 25 November 2020 for the purpose of verifying the findings of the desktop assessment and collecting soil samples. At the time of the inspection, heavy consistent

rain was falling, and low cloud was present. At the time of the inspection, the site appeared as it does in the most recent aerial photographs; vacant and under a recent crop of maize. The maize was approximately 300mm high and open soil between the maize rows appeared consistent with the natural described geology for the site.

The open drain described in the aerial imagery was present in the centre of the site with a culvert connecting it to the drainage channel on the western boundary and ultimately the cross country drain. The edges of the drain were pastoral grass and a standard seven wire farm fence was present along the drain edge.

No other features of note were present at the time of the site inspection and advancement of shallow hand augers on site demonstrated a change from topsoil to alluvial subgrade between 200mm and 400mm in the three locations assessed.

Supplementary site photographs were collected in December during a period of fine weather on account of the persistent rain preventing any discernible photos from being collected during the initial visit. Copies of those supplementary photos are provided in Appendix D.

10 SOIL SAMPLING AND ANALYSIS

GSL notes that the historical investigation and the site inspection described above revealed no evidence of any HAIL or potentially contaminating activities occurring on site. However, GSL understands that as a result of the underlying geology, earthworks to facilitate residential development will likely require offsite disposal of significant volumes of soil. To facilitate that assessment, a limited number of soil samples were collected from the sites surface and sub surface for analysis to inform on disposal options for these soils should it be necessary to dispose of soil off-site during the proposed earthworks.

Soil samples were collected from the surface and at six discrete locations across the site with additional depth soil samples collected depth from two of these locations while on site. Given the uniform geology and observations recorded four surface soil samples with subsurface 300mm soil samples from two of those locations (6 soil samples) were dispatched for analysis. Soil sample locations are shown in Figure 3.

Soil samples were collected using a stainless steel hand auger and placed directly into a plastic zipper bag with the date, sample identification number, sample depth, location, and initials of the sampler noted on the label. Sampling equipment was decontaminated in between samples using a soft soap solution in accordance with GSL internal quality control procedures. A brief sample description was recorded in the field at the time of sample collection.

The sampling protocol followed was in accordance with the *'Contaminated Land Management Guidelines (CLMG) No. 5 – Site Investigation and Analysis of Soils'*.

10.1 LABORATORY ANALYSIS AND QUALITY CONTROL

Sample jars were placed in a chilly bin with a chain of custody form (COC) indicating the analysis to be performed. Soil samples were dispatched to Analytica Laboratories in Hamilton for analysis of the contaminants of concern which are a suite of seven heavy metals, and organochlorine pesticides (OCP's).

Analytica Laboratories are accredited by International Accreditation New Zealand (IANZ) for the analysis undertaken.

10.2 ACCEPTANCE CRITERIA AND RELEVANT GUIDELINES

Although the soil samples were collected to determine the soil quality with respect to potential off-site disposal thereof, the results are compared with the NES criteria for standard residential land use, the Draft Evo-SGVs defined by Landcare Research in their Contract Report LC2595 *User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation Draft* (2016) and to the background concentration ranges of inorganic elements in soils in the Hawke's Bay region prepared by Landcare Research in their Contract Report LC1852 for Hawke's Bay Regional Council in Report no. RM14-03, HBRC plan no. 4611, *Hawke's Bay Region: Background Soil concentrations for managing soil quality* (2014).

10.3 ANALYTICAL RESULTS

A comparison of the analytical results with the relevant guideline criteria is provided in Table 1 below. Copies of the laboratory chain of custody (COC) document and analytical transcripts are attached in Appendix E, while a discussion of the results is provided below.

As no soil sample returned a detection of organochlorine compounds at the laboratory limit of reporting, those compounds are omitted from Table 1 below.

Table 1: Analytical Results¹

	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
SS1 (0-150mm)	6.9	0.14	23.1	13.6	19.2	17.6	79.1
SS1 (400mm)	3.9	0.029	16.2	5.9	9.27	12.3	46.1
SS2 (0-150mm)	7.4	0.13	25.9	14.1	22.3	19.5	83.8
SS5 (0-150mm)	5.5	0.11	20.9	10.6	15.9	15.9	65.1
SS5 (350mm)	5.1	0.041	17.7	8.41	12.0	14.4	53.2
SS6 (0-150mm)	6.6	0.12	24.0	12.1	19.8	17.4	74.9
NES ²	20	230	>10,000	>10,000	500	NV	NV
Eco-SGVs ³	60	12	390	270	1,300	NV	400
Background ⁴	9.0	0.7	24	32	27	17	105

Notes:

1. All concentrations measured in mg/kg
2. National Environmental Standards for Assessing and Managing Contaminants in Soil for Assessing and Managing Contaminants in Soil to Protect Human Health – Standard Residential landuse with homegrown produce consumption (10%)
3. LandCare Research; User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation Draft. June 2016.
4. Values in **RED** exceed the NES criteria, values in **BLUE** exceed the Eco-SGV and values in **BOLD** exceed the expected naturally occurring background ranges.
5. NV = No value / ND = not detected / NA = not analysed

10.4 HEAVY METALS

All soil samples revealed analytical results that comply with the NES criteria for standard residential land use as well as with the Draft LandCare Eco-SGVs criteria for the protection of the environment.

Soil samples SS2 (150mm) revealed concentrations of chromium and nickel that marginally exceeds the LandCare derived natural occurring background concentrations for soils from the Hawkes Bay Region. Both soil samples SS1 (150mm) and SS6 (150mm) also revealed concentrations of Nickel that marginally exceeds the LandCare derived natural occurring background concentrations for soils from the Hawkes Bay Region.

GSL regards these minor exceedances as still being within background given that they all fall within the minimum-maximum range of the LandCare data set. It is further noted that the land under investigation was subject to some anthropogenic influences and yet the concentrations of typical anthropogenic indicators (Copper, Cadmium, Zinc and Arsenic – Reference 8) at 20 Waterworth Avenue are all below background. The fact that the nickel concentrations are slightly elevated clearly show that the background concentrations of nickel and chromium at the site are also within background ranges.

10.5 ORGANOCHLORINE PESTICIDES (OCPs)

All soil samples analysed for OCPs revealed concentrations of these compounds below the laboratory instrumentation's detection limit.

11 CONCLUSIONS

GSL has conducted a preliminary site investigation, in accordance with the MfE Contaminated Land Management Guidelines to determine the location and extent of current and / or former HAIL Activities on site. GSL has consequently concluded:

- There is no evidence that any HAIL activities has been, is, or is more likely than not to have ever been conducted on site.
- It is highly unlikely that soil onsite will pose any risk to human health or to the environment.
- Limited soil sampling and analysis revealed concentrations of contaminants within the background range as defined by the LandCare dataset for the Hawkes Bay Region.
- Soil onsite can be disposed of off-site as cleanfill.
- No additional controls other than the standard Hawkes Bay Guidelines for Erosion and Sediment Control will be required for the proposed residential development.

11.1 REGULATORY ASSESSMENT

As this PSI conducted in accordance with the MfE Contaminated Land Management Guidelines has not identified any evidence of actual or potential HAIL activities having been, currently being, or more likely than not to have been undertaken on site, the piece of land meets the definition of *Land not Covered* set out in Regulation 5(7) of the NES and no further works are considered necessary in that regard.

Similarly, as no evidence of any actually or potentially contaminating activities has been identified, the piece of land is not considered to meet the definition of contaminated land under the HBRC RRRMP.

Soil assessment undertaken as part of this PSI has identified that soils present on site are consistent with the expected naturally occurring background ranges for the site and therefore meet the definition of cleanfill. Standard earthworks procedures can therefore be implemented and no controls are required with respect to waste tracking and offsite disposal.

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12 REFERENCES

1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2012) - Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
4. Retrolens Historical Image Resource - www.retolens.co.nz
5. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health*. Ministry for the Environment, Wellington, New Zealand.
6. Gaw, S. K. (2002) - *Pesticide Residues in Horticultural Soils in the Auckland Region*, Auckland Regional Council Working Report No. 96. Auckland Regional Council, Auckland.
7. Land Care Research (2016) – *User Guide Background Soil Concentrations and Soil Guideline values for the Protection of Ecological Receptors (Eco-SGVs) – Consultation Draft*. Envirolink Tools Grant: C09X1402.
8. Land Care Research (2014) – *Hawkes Bay Region: Background soil concentrations for managing soil quality* – Report no. RM 14-03, HBRC plan no. 4611.

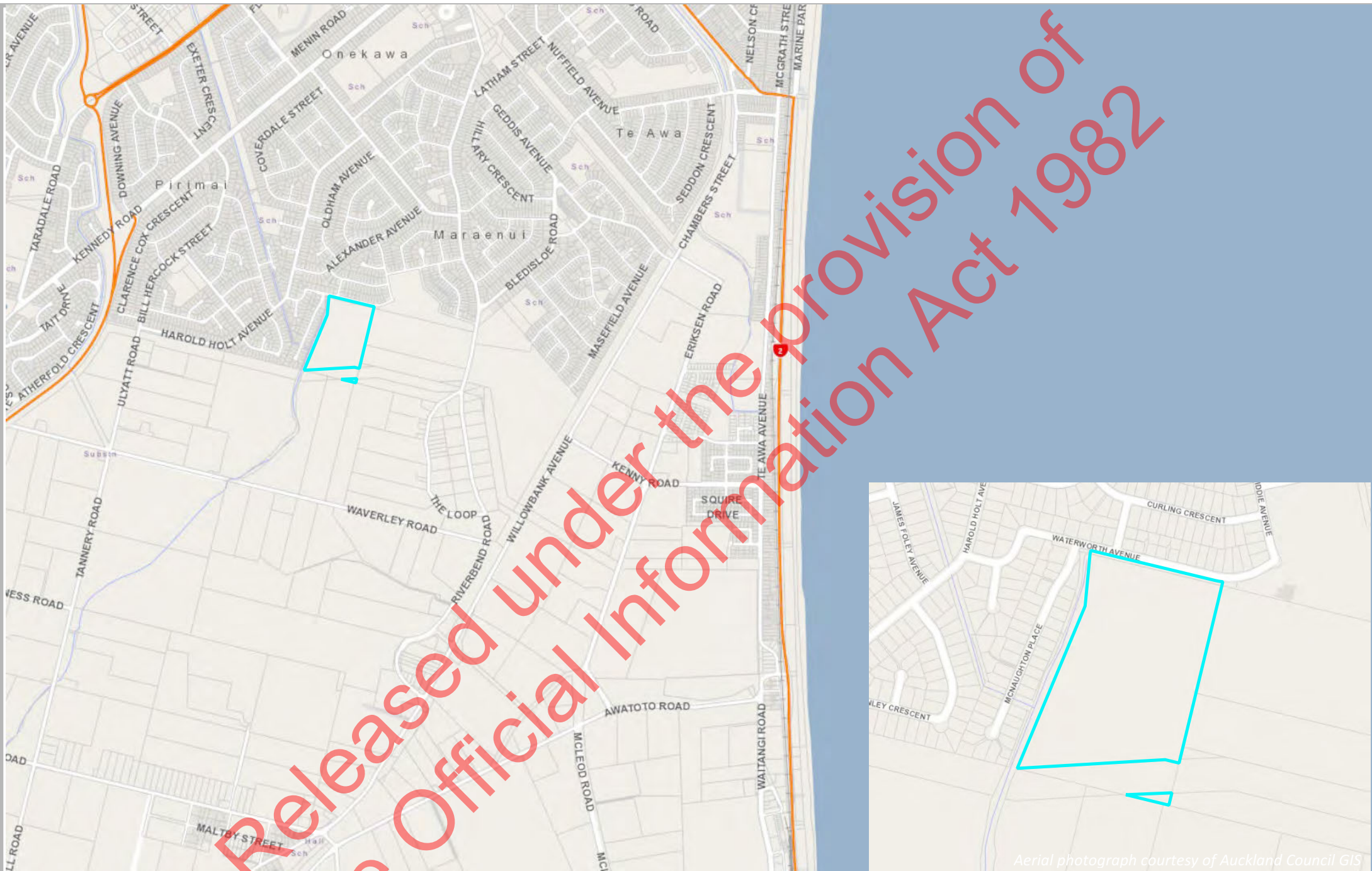
13 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations may differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM.
9. Except as specifically stated in this report, no investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current or proposed use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or planned use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law, no third party may use or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability, or claim may exist or be available to any third party.
16. Except as specifically stated in this section, GSL does not authorise the use of this report by any third party.

FIGURES

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Aerial photograph courtesy of Auckland Council GIS

Figure 1 - Site Locality
20 Waterworth Avenue, Napier



geosciences Ltd
ENVIRONMENTAL

Level 1, 47 Clyde Road, Browns Bay, 0630
Tel: (09) 475 0222

Title:

Project name:

Figure 2 - Soil Sample Locations

20 Waterworth Avenue, Napier

Reference: JH0137

Date: 08/12/2020

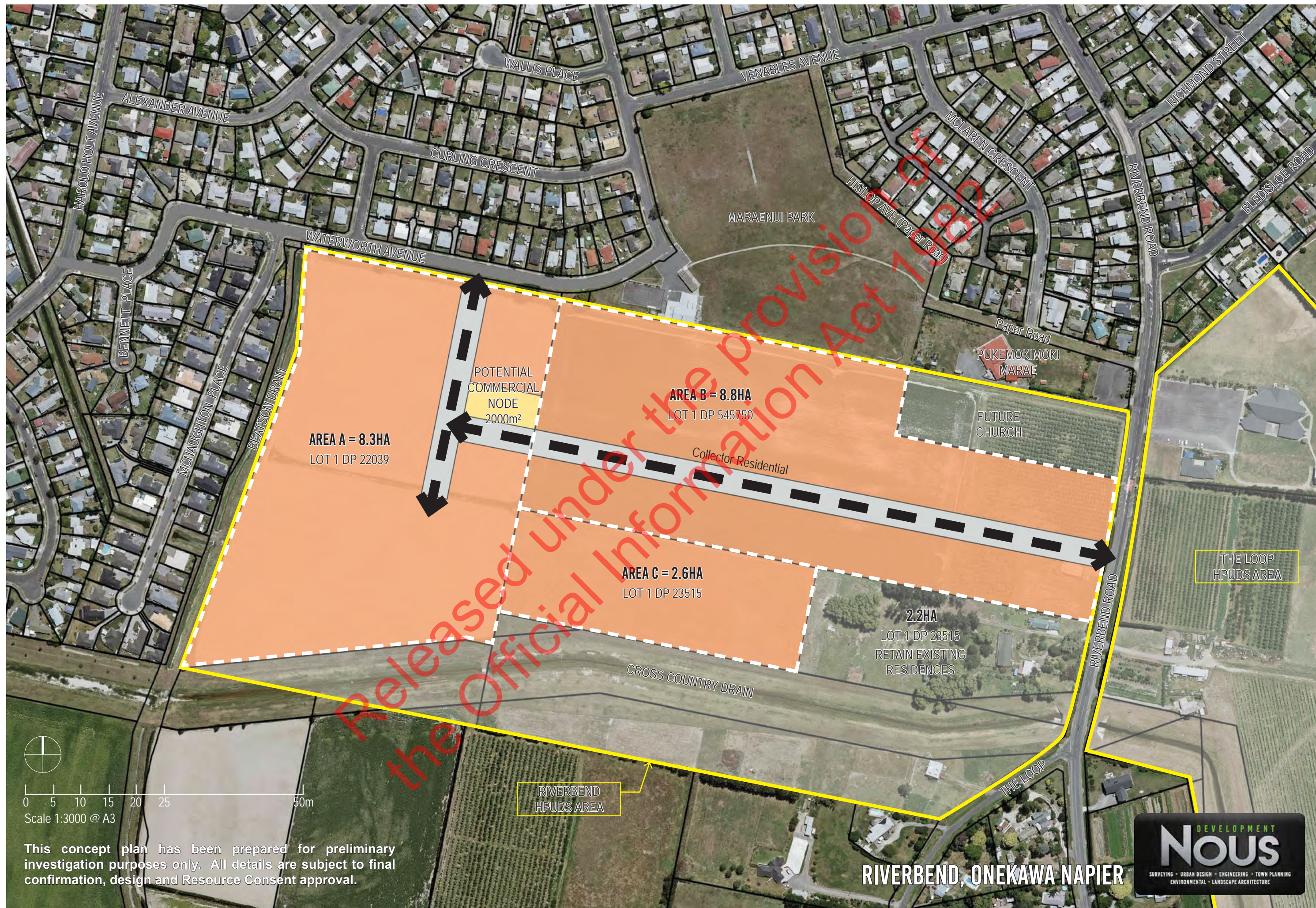
Drawn: KW

Approved: JF

APPENDIX A

PROPOSED DEVELOPMENT PLAN

Released under the provision of
the Official Information Act 1982



This concept plan has been prepared for preliminary investigation purposes only. All details are subject to final confirmation, design and Resource Consent approval.

RIVERBEND, ONEKAWA NAPIER

APPENDIX B

CERTIFICATES OF TITLE

Released under the provision of
the Official Information Act 1982



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy



R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **270171**
Land Registration District **Hawkes Bay**
Date Issued 16 January 2007

Prior References
HBD3/551 HBP1/345

Estate Fee Simple
Area 8.5727 hectares more or less
Legal Description Lot 1 Deposited Plan 366576 and Part Lot
1 Deposited Plan 22039

Original Registered Owners

David Eric Dooney as to a 1/6 share
Graham Mitchell Cowley, Peter James Dooney, Terrence Lawrence Dooney, Michael Prior Dooney and David Eric Dooney as to a 1/4 share
Peter James Dooney as to a 7/36 share
Terence Lawrence Dooney as to a 7/36 share
Michael Prior Dooney as to a 7/36 share

Interests

Subject to Section 59 Land Act 1948 (affects Lot 1 DP 366576)
Subject to a right of way over part Lot 1 DP 366576 marked B, D on DP 366576 created by Transfer 553419.3 - 28.2.1991 at 2.30 pm
Subject to a right (in gross) to convey electric power over part Lot 1 DP 22039 marked F on DP 22039 in favour of The Hawkes Bay Electric Power Board created by Transfer 553419.2 - 28.2.1991 at 2.30 pm
The easements created by Transfer 553419.2 are subject to Section 309 (1) (a) Local Government Act 1974
Appurtenant to part Lot 1 DP 22039 is a right of way created by Transfer 553419.3 - 28.2.1991 at 2.30 pm
Appurtenant to part Lot 1 DP 22039 is a right to take water and convey water specified in Easement Certificate 553419.4 - 28.2.1991 at 2.30 pm
613588.3 Mortgage to Bank of New Zealand - 22.9.1994 at 1.50 pm (affects part Lot 1 DP 22039)
Fencing Covenant in Transfer 7190150.3 - 16.1.2007 at 9:00 am (affects Lot 1 DP 366576)
Subject to a right to convey electricity in gross over part Lot 1 DP 366576 marked A, B, C on DP 366576 in favour of Unison Networks Limited created by Easement Instrument 7190150.1 - 16.1.2007 at 9:00 am
The easement created by Easement Instrument 7190150.1 is subject to Section 243 (a) Resource Management Act 1991
Subject to Section 241(2) and Sections 242(1) and (2) Resource Management Act 1991(affects DP 366576)

10989868.1 Transfer of a 1/4 share/interest Graham Mitchell Cowley, Peter James Dooney, Terrence Lawrence Dooney, Michael Prior Dooney and David Eric Dooney to Peter James Dooney, Terrence Lawrence Dooney, Michael Prior Dooney and David Eric Dooney - 26.1.2018 at 10:06 am

Released under the provision of
the Official Information Act 1982



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy



R.W. Muir
Registrar-General
of Land

Identifier **270171**
Land Registration District **Hawkes Bay**
Date Issued 16 January 2007

Prior References

HBD3/551 HBP1/345

Estate Fee Simple
Area 8.5727 hectares more or less
Legal Description Lot 1 Deposited Plan 366576 and Part Lot
 1 Deposited Plan 22039

Registered Owners

David Eric Dooney as to a 1/6 share
Peter James Dooney as to a 7/36 share
Terence Lawrence Dooney as to a 7/36 share
Michael Prior Dooney as to a 7/36 share
Peter James Dooney, Terrence Lawrence Dooney, Michael Prior Dooney and David Eric Dooney as to a 1/4 share

Interests

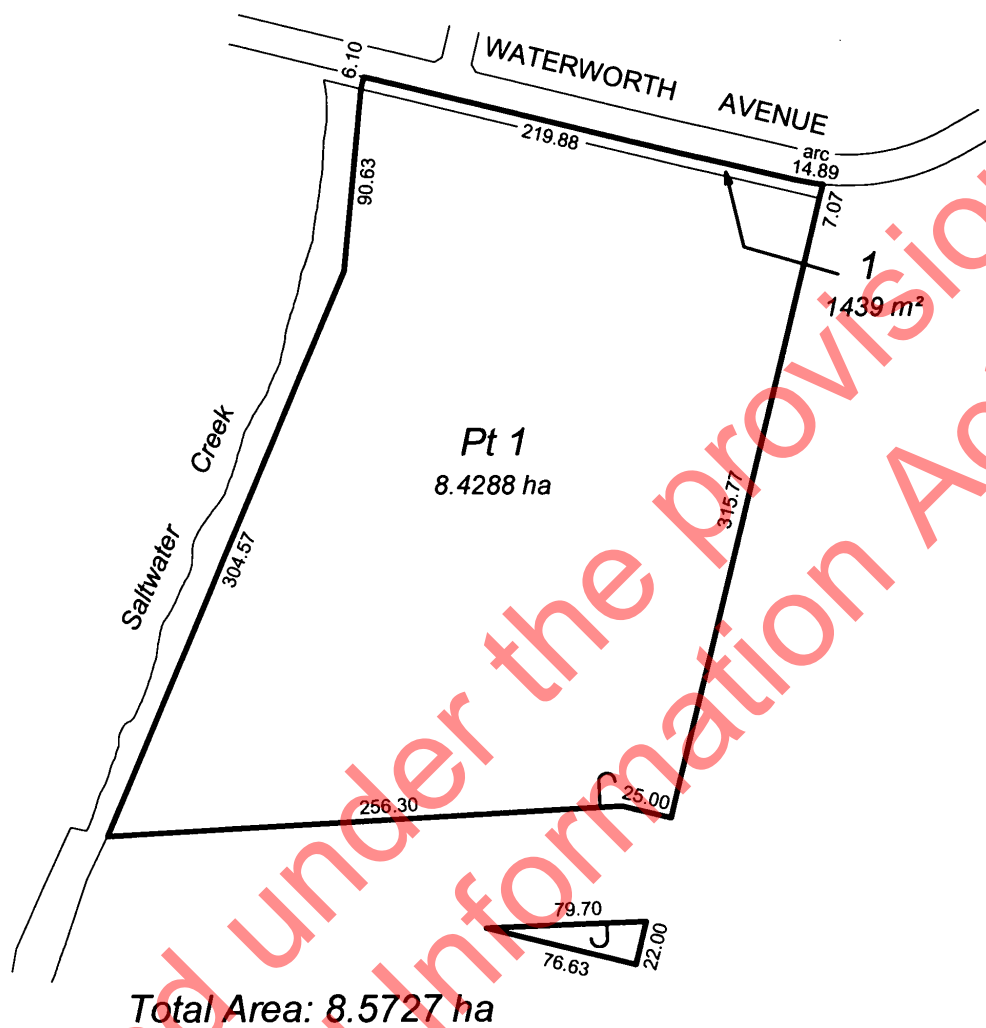
Subject to Section 59 Land Act 1948 (affects Lot 1 DP 366576)
Subject to a right (in gross) to convey electric power over part Lot 1 DP 22039 marked F on DP 22039 in favour of The Hawkes Bay Electric Power Board created by Transfer 553419.2 - 28.2.1991 at 2.30 pm
The easements created by Transfer 553419.2 are subject to Section 309 (1) (a) Local Government Act 1974
Subject to a right of way over part Lot 1 DP 366576 marked B, D on DP 366576 created by Transfer 553419.3 - 28.2.1991 at 2.30 pm
Appurtenant to part Lot 1 DP 22039 is a right of way created by Transfer 553419.3 - 28.2.1991 at 2.30 pm
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Subject to Section 241(2) and Sections 242(1) and (2) Resource Management Act 1991(affects DP 366576)

Title Diagram CT 270171

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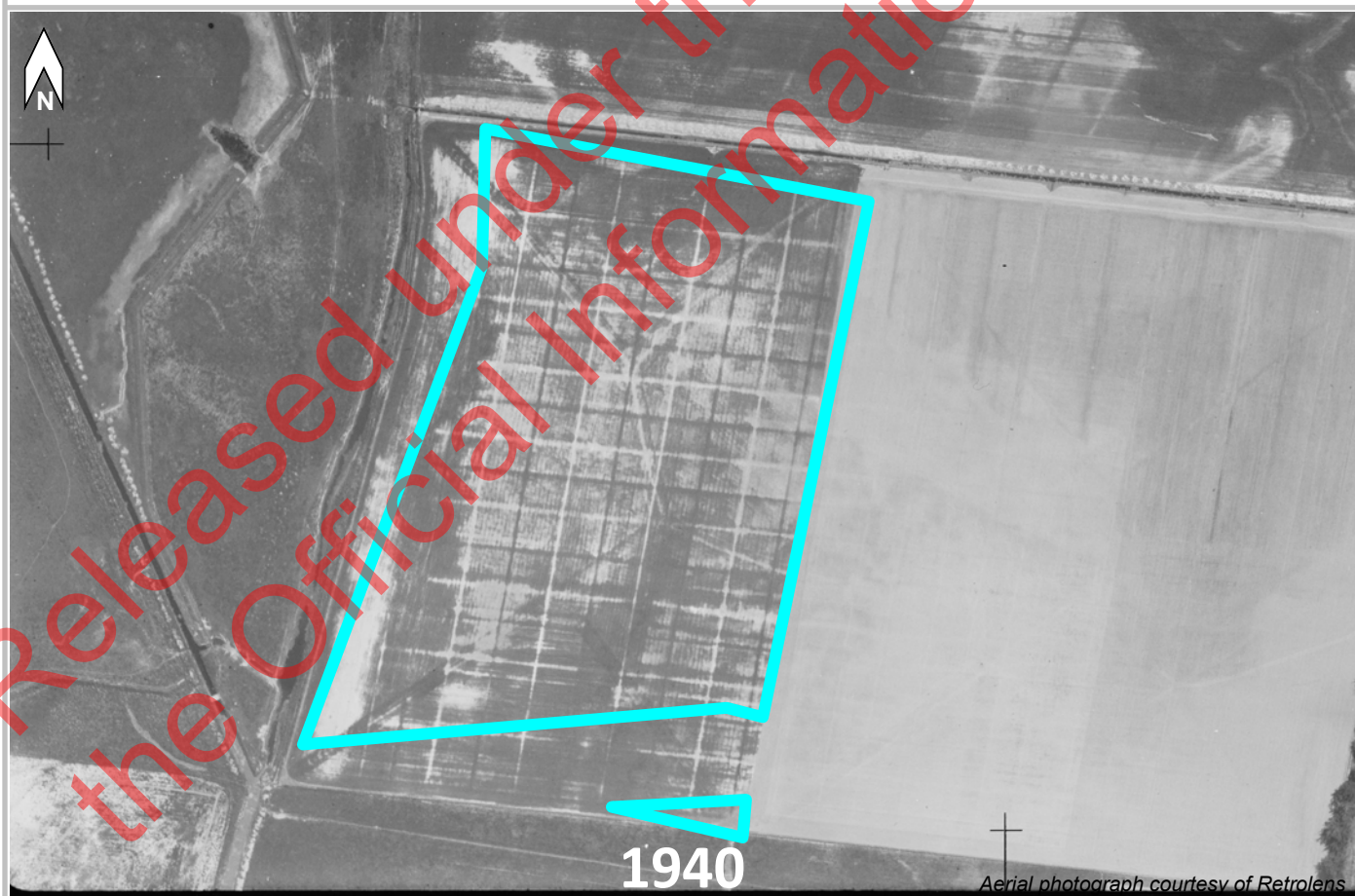
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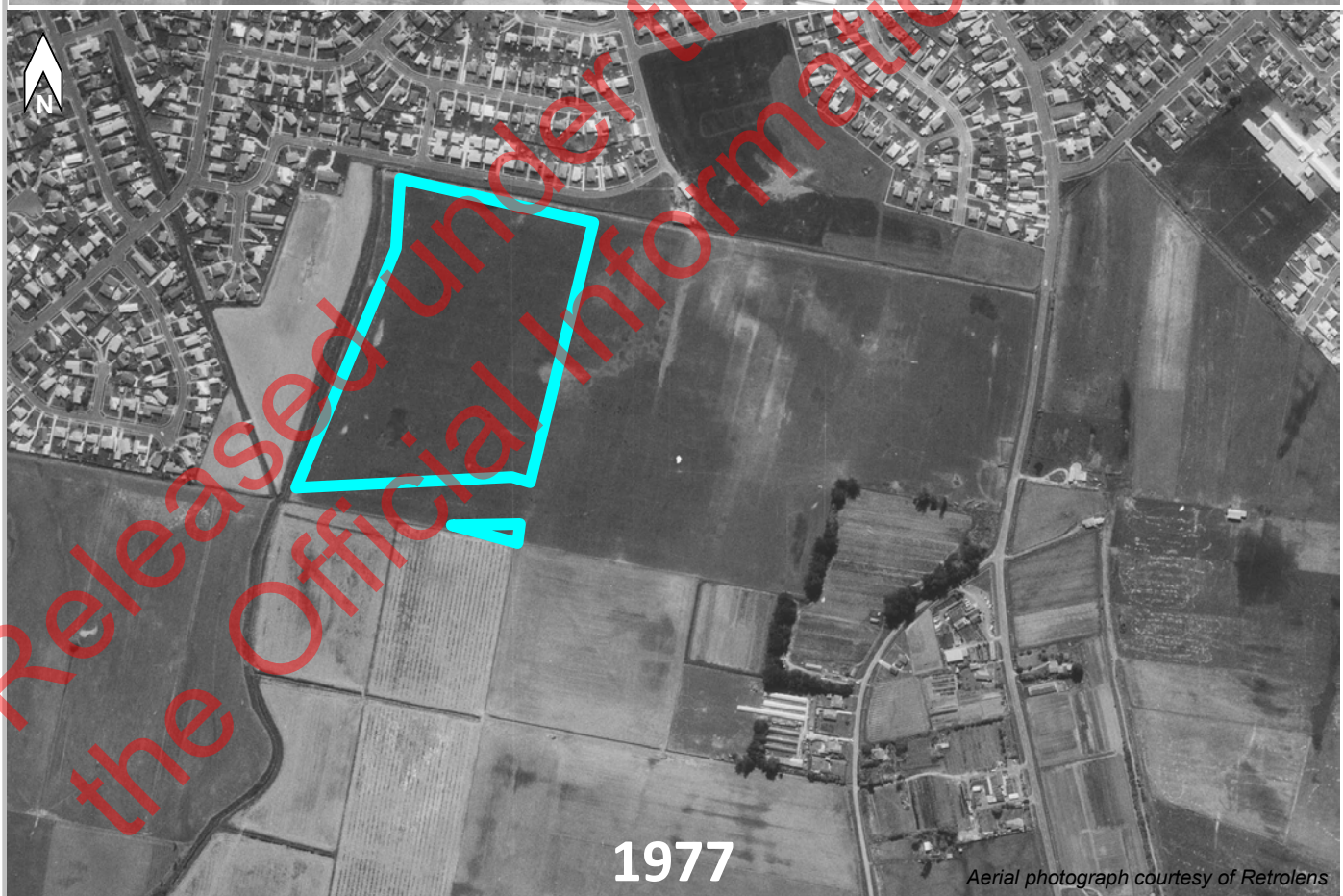
APPENDIX C

HISTORICAL AERIAL PHOTOGRAPHS

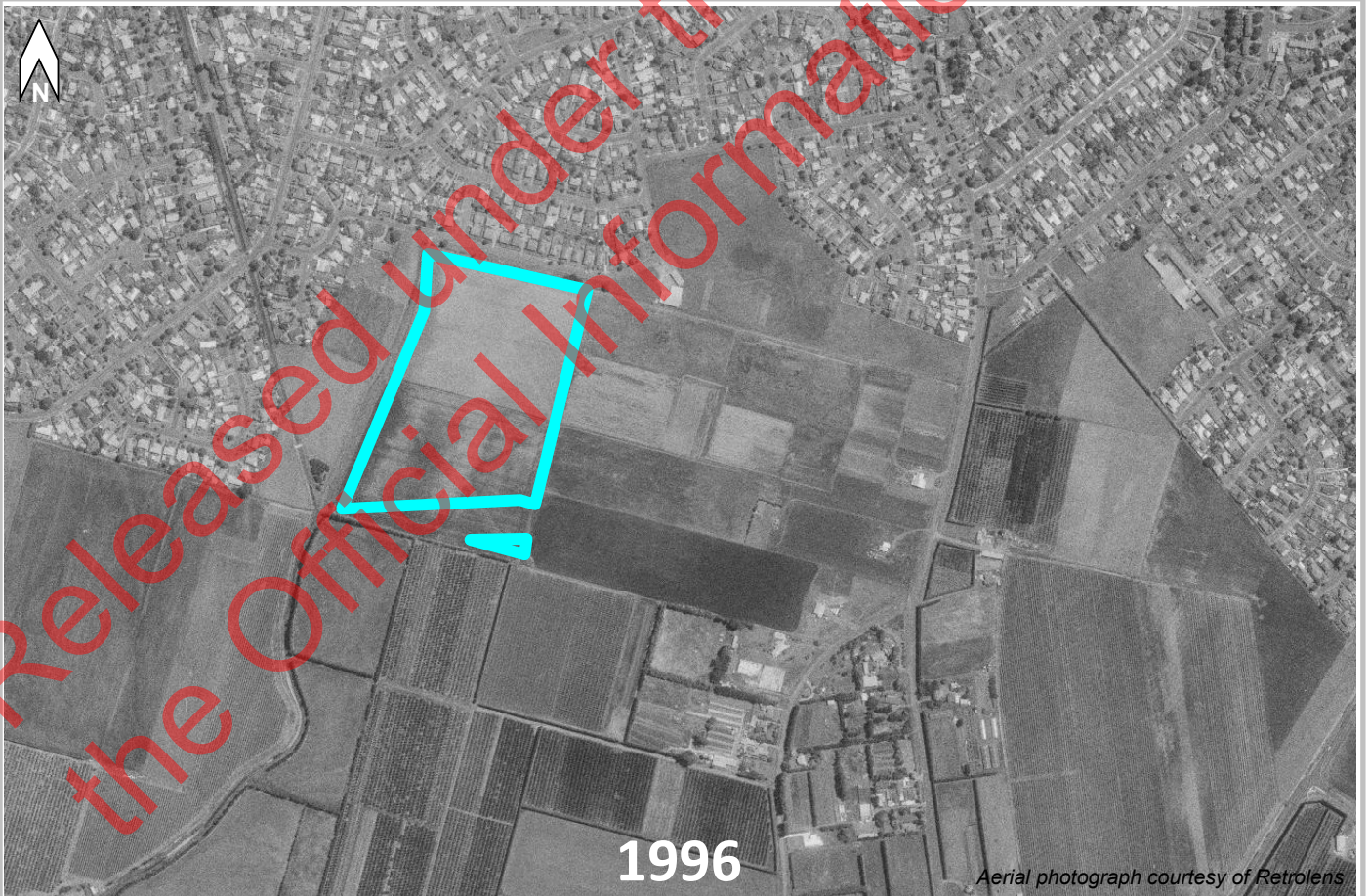
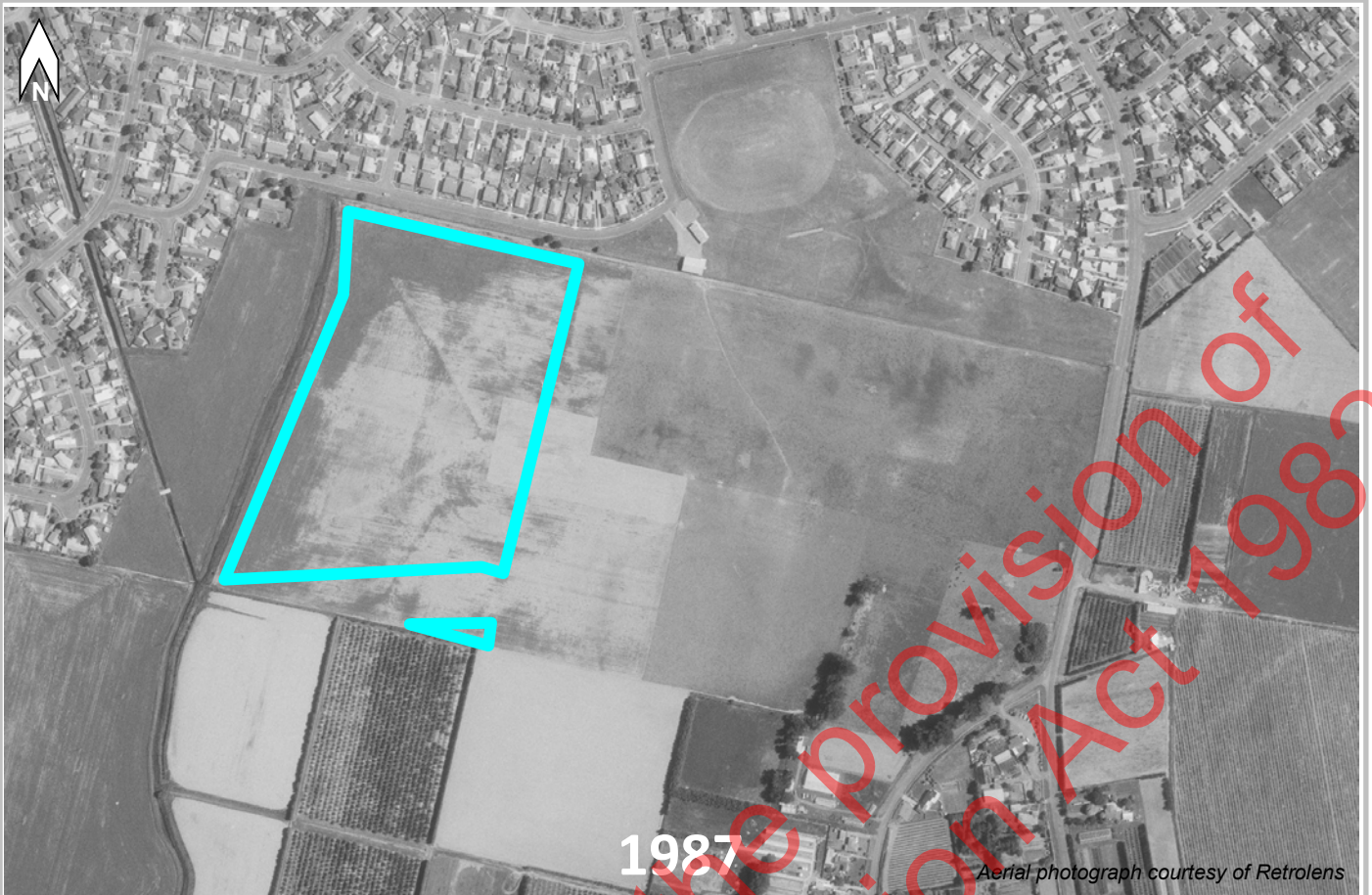
Released under the provision of
the Official Information Act 1982



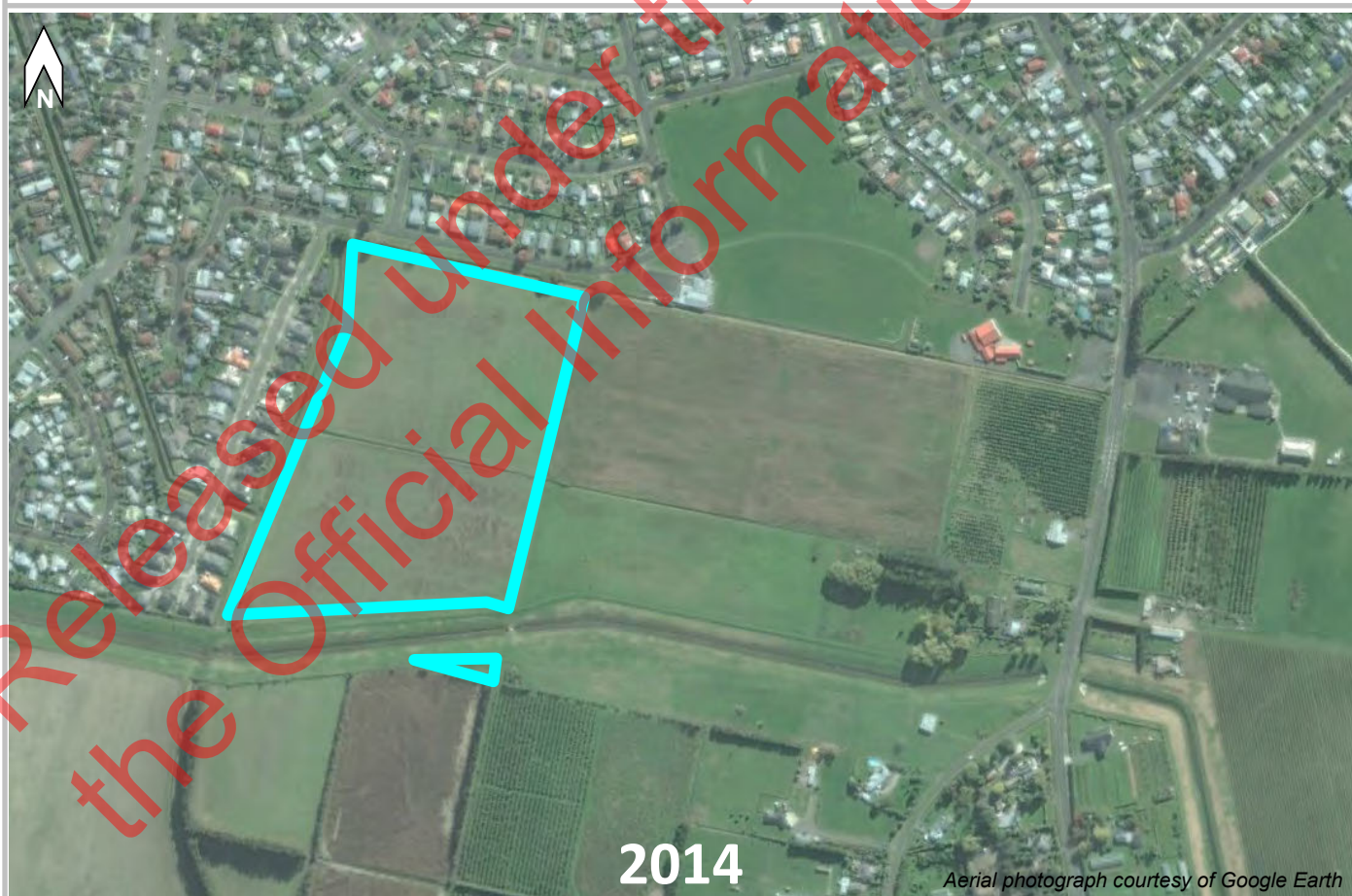
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Project name:	20 Waterworth Avenue, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KW
		Approved: JF



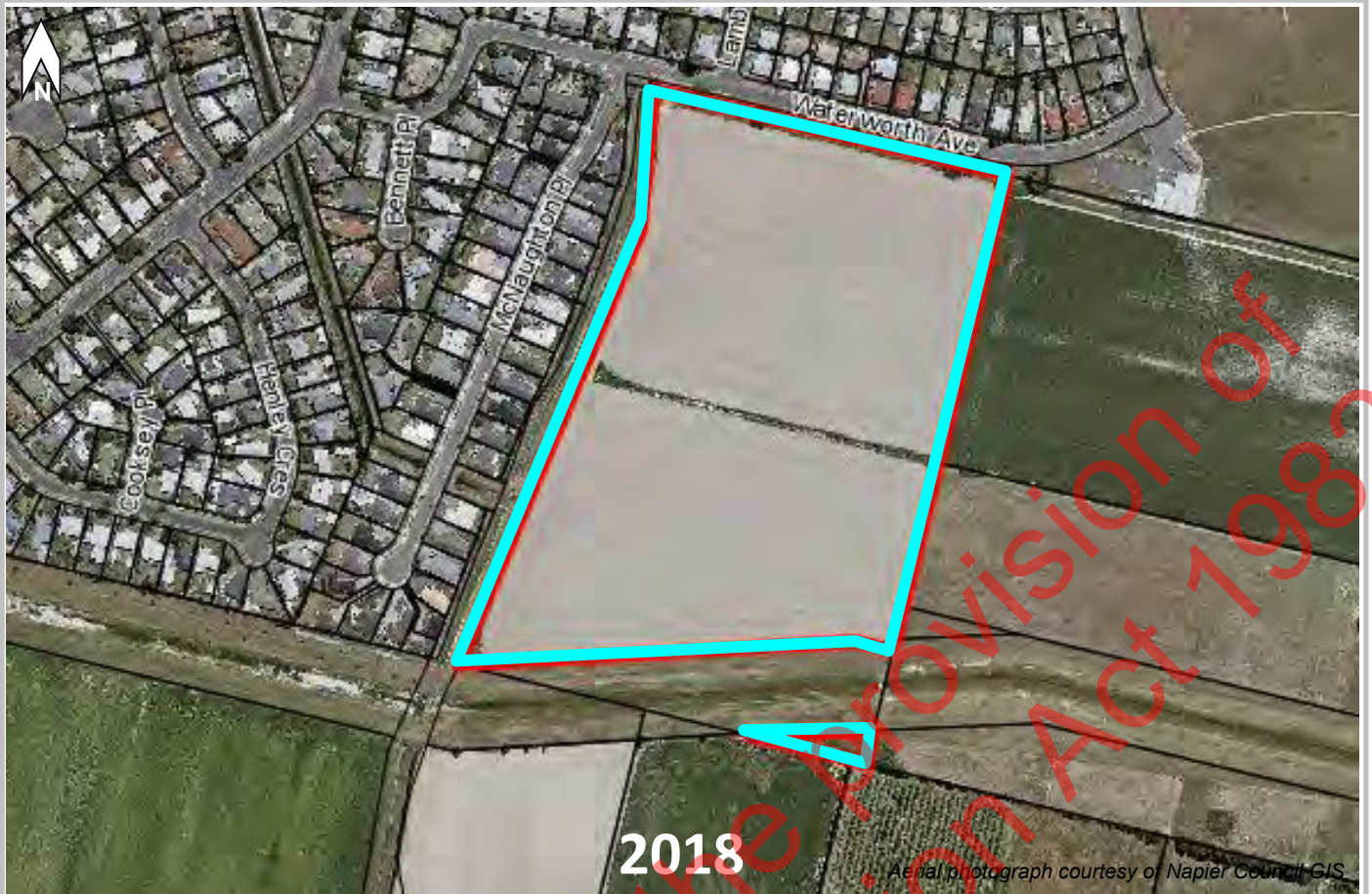
Title:	Appendix C—Historical Aerials	Reference: JH0137
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		Approved: JF



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		Approved: JF



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Project name:	20 Waterworth Avenue, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KWN
		Approved: JF



Title:	Appendix C—Historical Aerials	Reference: JH0137
Project name:	20 Waterworth Avenue, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KWN
		Approved: JF

APPENDIX D

SITE PHOTOGRAPHS



PLATE 1: SITE ENTRANCE LOOKING SOUTH WITH DRAINAGE CHANNEL ON WESTERN BOUNDARY



PLATE 2: MAIZE CROPPING AREA LOOKING EAST.

APPENDIX E

LABORATORY TRANSCRIPTS

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the Official Information Act 1982



Certificate of Analysis

Geosciences Ltd
PO Box 35366, Browns Bay
Auckland 0753

Attention: Carl O'Brien
Phone: 09 475 0222
Email: s 9(2)(a)

Sampling Site: Waterworth Ave

Lab Reference: 20-45275
Submitted by: Carl O'Brien; Brodie Rowse
Date Received: 26/11/2020
Testing Initiated: 26/11/2020
Date Completed: 1/12/2020
Order Number:
Reference: JH0137

Report Comments

Samples were collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples were in acceptable condition unless otherwise noted on this report. Specific testing dates are available on request.

Heavy Metals in Soil

Client Sample ID			SS1 0-150mm	SS1 400mm	SS2 0-150mm	SS5 0-150mm	SS5 350mm
Date Sampled			25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020
Analyte	Unit	Reporting Limit	20-45275-1	20-45275-2	20-45275-3	20-45275-4	20-45275-5
Arsenic	mg/kg dry wt	0.125	6.9	3.9	7.4	5.5	5.1
Cadmium	mg/kg dry wt	0.005	0.14	0.029	0.13	0.11	0.041
Chromium	mg/kg dry wt	0.125	23.1	16.2	25.9	20.9	17.7
Copper	mg/kg dry wt	0.075	13.6	5.9	14.1	10.6	8.41
Lead	mg/kg dry wt	0.25	19.2	9.27	22.3	15.9	12.0
Nickel	mg/kg dry wt	0.05	17.6	12.3	19.5	15.9	14.4
Zinc	mg/kg dry wt	0.05	79.1	46.1	83.8	65.1	53.2

Heavy Metals in Soil

Client Sample ID			SS6 0-150mm
Date Sampled			25/11/2020
Analyte	Unit	Reporting Limit	20-45275-6
Arsenic	mg/kg dry wt	0.125	6.6
Cadmium	mg/kg dry wt	0.005	0.12
Chromium	mg/kg dry wt	0.125	24.0
Copper	mg/kg dry wt	0.075	12.1
Lead	mg/kg dry wt	0.25	19.8
Nickel	mg/kg dry wt	0.05	17.4
Zinc	mg/kg dry wt	0.05	74.9

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation with the exception of tests marked *, which are not accredited.
This test report shall not be reproduced except in full, without the written permission of Analytica Laboratories.

Organochlorine Pesticides - Soil

Client Sample ID			SS1 0-150mm	SS1 400mm	SS2 0-150mm	SS5 0-150mm	SS5 350mm
Date Sampled			25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020
Analyte	Unit	Reporting Limit	20-45275-1	20-45275-2	20-45275-3	20-45275-4	20-45275-5
2,4'-DDD	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDD	mg/kg dry wt	0.003	<0.003	<0.003	<0.003	<0.003	<0.003
4,4'-DDE	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDT	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total DDT	mg/kg dry wt	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
alpha-BHC	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
beta-BHC	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Chlordane	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Nonachlor	mg/kg dry wt	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg dry wt	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg dry wt	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulfate	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg dry wt	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg dry wt	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-BHC	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	mg/kg dry wt	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg dry wt	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
trans-nonachlor	mg/kg dry wt	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	mg/kg dry wt	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane (sum)	mg/kg dry wt	0.02	<0.020	<0.020	<0.020	<0.020	<0.020
TCMX (Surrogate)	%	1	101.0	100.4	100.1	100.7	99.9

Organochlorine Pesticides - Soil

Client Sample ID			SS6 0-150mm
Date Sampled			25/11/2020
Analyte	Unit	Reporting Limit	20-45275-6
2,4'-DDD	mg/kg dry wt	0.005	<0.005
2,4'-DDE	mg/kg dry wt	0.005	<0.005
2,4'-DDT	mg/kg dry wt	0.005	<0.005
4,4'-DDD	mg/kg dry wt	0.003	<0.003
4,4'-DDE	mg/kg dry wt	0.005	<0.005
4,4'-DDT	mg/kg dry wt	0.005	<0.005
Total DDT	mg/kg dry wt	0.02	<0.02
alpha-BHC	mg/kg dry wt	0.005	<0.005
Aldrin	mg/kg dry wt	0.005	<0.005
beta-BHC	mg/kg dry wt	0.005	<0.005
cis-Chlordane	mg/kg dry wt	0.005	<0.005
cis-Nonachlor	mg/kg dry wt	0.01	<0.01
delta-BHC	mg/kg dry wt	0.005	<0.005
Dieldrin	mg/kg dry wt	0.05	<0.05
Endosulfan I	mg/kg dry wt	0.005	<0.005
Endosulfan II	mg/kg dry wt	0.01	<0.01

Organochlorine Pesticides - Soil

Client Sample ID		SS6 0-150mm	
Date Sampled		25/11/2020	
Endosulfan sulfate	mg/kg dry wt	0.005	<0.005
Endrin	mg/kg dry wt	0.05	<0.05
Endrin aldehyde	mg/kg dry wt	0.01	<0.01
Endrin ketone	mg/kg dry wt	0.005	<0.005
gamma-BHC	mg/kg dry wt	0.005	<0.005
Heptachlor	mg/kg dry wt	0.005	<0.005
Heptachlor epoxide	mg/kg dry wt	0.005	<0.005
Hexachlorobenzene	mg/kg dry wt	0.005	<0.005
Methoxychlor	mg/kg dry wt	0.01	<0.01
trans-nonachlor	mg/kg dry wt	0.01	<0.01
trans-Chlordane	mg/kg dry wt	0.01	<0.01
Chlordane (sum)	mg/kg dry wt	0.02	<0.020
TCMX (Surrogate)	%	1	99.3

Method Summary

Elements in Soil

Samples dried and passed through a 2 mm sieve followed by acid digestion and analysis by ICP-MS. In accordance with in-house procedure based on US EPA method 200.8.

OCP in Soil

Samples are extracted with hexane, pre-concentrated then analysed by GC-MSMS. (Chlordane (sum) is calculated from the main actives in technical Chlordane: Chlordane, Nonachlor and Heptachlor). (In accordance with in-house procedure).

Total DDT

Sum of DDT, DDD and DDE (4,4' and 2,4 isomers)



Emily Hanna, B.Sc.

Trace Elements Team Leader



Rong Zhang

Technician

PRELIMINARY SITE INVESTIGATION (PSI)

FOR 195 & 215 RIVERBEND ROADS, MEEANEE, NAPIER

Reference Number: REP-JH0137B&C/PSI/DEC20/REV1

PREPARED FOR: TAWANUI DEVELOPMENTS LTD

C/- DEVELOPMENT NOUS LTD

15 DECEMBER 2020



Geosciences Limited
47 Clyde Road, Browns Bay, Auckland
PO Box 35-366, Browns Bay, Auckland
(09) 475 0222

info@geosciences.co.nz www.geosciences.co.nz

Disclaimer

This report is provided on the condition that Geosciences Ltd disclaims all liability to any person or entity other than the client, Napier City Council and Hawkes Bay Regional Council in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of this report. Furthermore, Geosciences Ltd disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by the client, or any such person in reliance, whether in whole or any part of the contents of this report of all matters not stated in the brief outlined in our proposal and according to our general terms and conditions and special terms and conditions for contaminated sites.

Statement

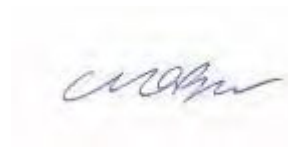
This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); and reported on in accordance with the current edition of the Ministry for the Environment's *Contaminated Land Management Guidelines No.1 – Reporting on Contaminated Sites in New Zealand*.

Report prepared on behalf of GSL
by:



Johan Faurie
Principal
Geosciences Ltd

Report reviewed and authorised
on behalf of GSL by:



Carl O'Brien
General Manager
Geosciences Ltd

Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on 09 475 0222.

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FIGURE 1 SITE LOCATION

APPENDICES

APPENDIX A PROPOSED SCHEME PLAN
APPENDIX B CERTIFICATES OF TITLE
APPENDIX C HISTORIC AERIAL PHOTOGRAPHS
APPENDIX D SITE PHOTOGRAPHS

Released under the provision of
the Official Information Act 1982

EXECUTIVE SUMMARY

Tawanui Developments Limited is seeking to investigate residential land consenting and development processes to permit the change in landuse and development of some 11.4 ha within the properties located at 195 and 215 Riverbend Road from Main Rural production land to residential land use. Consequently, Geosciences Ltd (GSL) was instructed to conduct a Preliminary Site Investigation (PSI) of the land to address the likelihood of any actual or potential contamination risks that may impact on the suitability of the piece of land for residential landuse and provide recommendations on any additional works that may be necessary in light of the regulations of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES) (Ministry for the Environment (MfE) 2012).

The PSI was conducted in accordance with the Ministry for the Environment's contaminated land management guideline No 1 and included a search on the property file, certificates of titles, review of available historical aerial photographs, a site inspection as well as the review of a former site investigation report that included some soil sampling and analysis of limited soil samples collected from the eastern portion of the land under investigation that is currently under orchard as well as a contiguous portion identified for future development into a community hub not encompassed under this investigation. Based on the findings of that PSI scope, GSL concludes:

- The only HAIL activity that potentially occurred on site can be regarded as the bulk storage and application of persistent pesticides to crop and orchard trees on the eastern portion of the land. However, it is highly unlikely that the spraying chemicals utilised on site included persistent pesticides, given the timeframe during which these activities occurred onsite.
- It is highly unlikely that soil onsite poses any risk to human health or to the environment as a result of former HAIL activities conducted on the site.
- Limited soil sampling and analysis from former and current horticultural activities conducted by EAM revealed concentrations of contaminants that complies with the NES most stringent land use criteria (Rural / Residential), but includes concentrations of arsenic that marginally exceed the expected naturally occurring background range as defined by the Landcare dataset for the Hawkes Bay Region.
- As a result of these marginal exceedances the Regulations of the NES may apply to any future development of the eastern portion of the site, on account of the interpretations of Regulations 5(7) and 5(9) of the NES.

Consequently, GSL considers that no evidence of any fundamental flaws exist for this piece of land regarding soil contamination and risks associated with potential future residential landuse. No specific requirements are envisaged as part of any consenting and development processes.

As identified in the sections above, limited soil sampling undertaken in the eastern portion of the piece of land has identified concentrations of arsenic that marginally exceed the expected naturally occurring background ranges. While this area is highly unlikely to present any risk to human health, GSL recommends additional grid-based soil sampling across this area and subsequent statistical analysis of the results using the 95% Upper Confidence Limit. This assessment will determine whether or not soils are consistent with clean fill definitions and the requirements of the NES can be omitted under Regulation 5(9).

1 INTRODUCTION

Geosciences Ltd (GSL) has prepared the following report for Tawanui Development Ltd on behalf of Development Nours Ltd in accordance with the GSL proposal, Ref: *Pro-2211/Oct20*, dated 22 October 2020.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", and No. 5 - "*Site Investigation and Analysis of Soils*" (References 1 and 2).

2 PROPERTY DETAILS

Location:	195 & 215 Riverbend Road, Onekawa, Napier,
Legal Description:	Lot 1 DP 545750 & Lot 1 DP 23515
Size:	8.8 Ha & 2.4 Ha
Zoning:	Main Rural

The properties under investigation are located 3.5 Km south west of the Napier CBD, 2.3 Km west of the Hawkes Bay shoreline and on the edge of the southern Napier City rural/residential boundary as shown in Figure 1. These properties are further referred to as "the site" in this report.

3 ENVIRONMENTAL SETTING AND SITE INFRASTRUCTURE

Portions of the site had recently been planted under maize crop at the time of the site inspection, while residual areas were under orchard at the eastern end 195 Riverbend Road. An open drainage channel is present (Cross Country Drain) that drains eastward flows along the southern boundary of the site before being discharged into Hawke Bay via pumped outlet.

3.1 GEOLOGY & GEOHYDROLOGY

The available published geological map of the area compiled by Lee *et al* (Reference 5) show the site is underlain by alluvial swamp deposits of the Heretaunga Plains consisting of peat, mud, silt, sand and gravel. Griffiths also describes the soil as having a imperfect drainage with the water table less than 1 m below surface during wet periods.

3.2 TOPOGRAPHY AND DRAINAGE

The site is flat and slopes gently from the north-east from an elevation of 16 metres above sea level (masl) to the south-west with an elevation of 12 masl at the southern boundary. Drainage is via soakage and ponding primarily, with any overland flow being directed into the drainage channels (as described above) that ultimately discharges via the pumped outlet of the Cross-Country drain into Hawke Bay.

4 PROPOSED DEVELOPMENT

Tawanui Developments Limited is seeking to investigate change and in landuse and residential development of the properties located at 195 and 215 Riverbend Road from Main Rural production land to residential land use. The area of land affected by the proposal encompasses approximately 11.4 Ha.

This assessment focusses on the footprints identified as “Area B” and “Area c” on the schematic attached as Appendix A. GSL understands that the proposal relates to enabling consenting and development processes to enable future change in landuse, subdivision and development of these areas for a modern residential subdivision layout.

Consequently, this PSI seeks to identify any constraints that may exist for that piece of land and set out a framework for enabling the proposed change in landuse, subdivision and development in the future.

5 STANDARDS AND REGULATIONS

Because of the proposed change in landuse, subdivision and development envisaged by the proposal outlined above it will be necessary to address the requirements of the following standards, rules, and regulations applicable for the site.

5.1 NATIONAL ENVIRONMENTAL STANDARD (NES)

The *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES) (MfE, 2012) ensures that land affected by contaminants in soil is appropriately identified and assessed. When soil disturbance and/or land development activities take place it should be, if necessary, remediated or the contaminants contained to make the land safe for human use.

Under the NES, land is considered to be actually or potentially contaminated if an activity or industry on the MfE Hazardous Activities and Industries List (HAIL) has been, is, or is more likely than not to have been, undertaken on the land. Consequently, any change in land use, subdivision, or development requires a Preliminary Site Investigation (PSI) of the land to determine if there is a risk to human health as a result of any current or former activities that are occurring, or may have occurred, on the land under investigation.

5.2 NAPIER DISTRICT PLAN

Chapter 64 of the Napier District Plan outlines the requirement for assessing and managing contaminants in the soil. The objectives and policies contained in Chapter 64 endorse the requirements of the NES and direct that prior to development, land should be investigated to ensure that risks are appropriately identified and managed.

5.3 HAWKES BAY REGIONAL RESOURCE MANAGEMENT PLAN (RRMP)

Section 30(1)(f) of the Resource Management Act (RMA) 1991 provides the Hawkes Bay Regional Council with a statutory duty to investigate land for the purpose of identifying and monitoring

contaminated land and for the control of discharges of contaminants into or onto land or water and discharges to air.

With respect to the Regional Plan, Rules 47 – 52 cover the discharges of contaminants to land. The RRMP outlines the classification status of each activity, conditions, standards, and terms to be met and matters for Council's control / discretion.

6 PSI OBJECTIVES

The objectives of this investigation were to assess:

- if the land is covered by the NES as a result of any current or former HAIL activities;
- the extent of any current or former HAIL activities on site;
- if the proposed development can comply with NES permitted activity conditions;
- what, if any, contaminated land rules of the Napier District Plan apply to the proposed development; and
- the need, if any, for further detailed/remedial investigations.

7 SCOPE OF WORKS

To achieve the objectives of the PSI, GSL has undertaken the following:

- a review of historic aerial photographs of the site;
- a review of the property file held by Council for the property;
- a review of a former site investigation that included a portion of the land now under investigation;
- a search of the contaminated land database;
- a visual site inspection of the piece of land;
- the preparation of this report in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", detailing the findings of this investigation and the need, if any, for further work.

8 SITE HISTORY

A desktop study of publicly available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating landuses.

8.1 CERTIFICATE OF TITLE

GSL has reviewed copies of the Certificates of Title for the properties, including any instruments on the title which detail relevant property information such as: current ownership, registered interests, easements, covenants, lease restrictions and transmissions, to determine if pre-existing

consent notices or other restrictions / notifications which may be relevant to historic uses or potential soil contamination are held against the property.

There are no notes of interest recorded on the titles. Copies of these documents are attached in Appendix B.

8.2 HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs for the site are available from Napier City Council, the Retrolens website, and Google Earth. A summary of the review of these historic aerial photographs on approximately 10 year intervals are provided below, while copies of the aerial photographs are attached in Appendix C.

- 1936** The 1936 image is the earliest available image for the site and of limited quality. The main streets in the area; Riverbend, Willowbank, Bledisloe etc to the east of the site have been established, however residential developments are sparsely founded along these roads.
- The site is located on clearly undeveloped open land. It is dominated by a dark tone on the aerial photograph most likely reflecting swampy water-logged wetlands.
- 1940** By the time of the 1951 aerial image, the land encompassing the site displays a brighter shade and diagonal lines are evident across the western portion of the land, indicating that drainage operations are in progress.
- Residential developments surrounding the site are still sparse and concentrated along the main arterial routes.
- 1964** This image shows the site open undeveloped land pasture with no discernible structures or features evident. Some market gardens have been established in smaller blocks on the surrounding land while the residential suburb of Onekawa is rapidly approaching the northern border of the property.
- 1977** Imagery from 1977 shows very little change in the site and surrounding environment. The piece of land remains in pasture with no discernible feature or structures while intensification of residential development of the wider area to the north continues to expand. Land to the south remains rural production land in various configurations.
- 1987** This image is similar to the one of 1977 with the exception that horticultural farming activities to the south of the site has intensify and orchards, market gardens and greenhouses are abundant.
- 1996** By 1996 the site is clearly divided into a number of paddocks displaying various patterns of cultivation, most likely market gardening. A large implement shed/roadside stall has been erected on site in the eastern portion of the land along Riverbend Road and is the only structure evident on site.
- The farmhouse on the adjacent land to the south of the site has also been established since the previous image from 1987.

- 2004** - The 2004 image is the first colour image of the site and the open water drain running from east to west across the site has been established. The smaller paddocks are no longer visible and three different planting regimes are clearly distinguished on site. These include broad acres bedding in the most eastern portion of the site, green pasture in the block of land to the south of the open water drainage channel while the majority of land to the north of the drainage channel shows signs of pastoral cultivation.

2009

By 2009 the site remains as described above with the exception that the broad acre cropping in the eastern portion of the site has now been replaced by orchard trees.

There are still no buildings other than the shed noted above on site while two new buildings had been erected on the adjoining property in the vicinity of the farmhouse. Storage activities appear to be occurring behind the shed on a gravel handstand footprint.

- 2012** - Google earth holds numerous plates between 2012 and 2020 for the piece of land which all show the same general configuration. That is, the eastern portion of the site adjacent to Riverbend Road is utilised for orchard activities while the wider areas to the west are utilised for a mix of cropping activities and pasture grazing. Imagery suggests that the orchard is only lightly utilised given areas of disrepair are evident and some trees have died and been cleared out.

2020

8.2.1 SUMMARY OF HISTORIC AERIAL IMAGES

The available historic aerial images of the site show that the site was open pasture until the mid 1990s when development activities constructed the shed on site and market gardening activities commenced. Portions of the site were then developed into an orchard between 2005 and 2009 and cropping was expanded across the rear portion of 195 Riverbend Road. Between 2012 and 2020, the rear portion of 215 Riverbend Road encompassed within this investigation was left under consistent pastoral cover.

While no distinct evidence of any actual or potential HAIL activities is noted on the available aerial imagery, the bulk storage and use of persistent pesticides associated with horticultural activity can be encompassed under HAIL Item A.10. GSL notes that as this activity is modern, the use of the more traditional persistent pesticides is considered highly unlikely, however the more modern copper-based sprays can not be ruled out.

8.3 PROPERTY FILE

The property files of both properties were obtained from Napier City Council and are individually described below.

8.3.1 195 RIVERBEND ROAD

Most of the information on the property file relates to purchasing a 12,000m² block of land from the property for the construction and use of a community hub. This piece of land is not included in the land subject to this investigation as defined on Figure 1 and Appendix A, rather relating to the north eastern corner of the former title.

As part of that development, a preliminary site investigation report was held on file that covers the entirety of the property. The findings of this PSI report are further discussed in Section 9 of this report.

Additionally, the property file holds records relating to a subdivision in 2007 and a hazardous information note identify that the site is located within a 50 year flood zone. Beyond the PSI report assessed in other sections of this report, no information is held on the property file relating to actual or potential soil contamination.

8.3.2 215 RIVERBEND ROAD

This property file contains many files on subdivision of the land in 1991 and 1993 alongside documentation for the construction of a residential dwelling and garage in 1997, granny flat in 2003, installation of a wood burner, notations on opening the gardens to the public alongside serving tea and the same hazardous information note regarding the property being located within the 50 year flood zone. All of this information relates to areas of the site that are outside of the piece of land under investigation as defined on Figure 1 and Appendix A.

No information is held on the property file that could relate to any actual or potential soil contamination on site.

8.4 CONTAMINATED LAND DATABASE SEARCH

Both Hawkes Bay Regional Council and Napier City Council maintain a range of information on their respective Geographical Information Systems (GIS) including suspected filling areas, suspected historic dumping locations, environmental hazards, and known contaminated sites. A review of hazard information held on the Napier City Council and Hawke's Bay Regional Council geographic information systems (GIS) did not identify any known or suspected areas of filling or contamination on the site.

9 FORMER INVESTIGATIONS

As identified in the property file, EAM conducted an investigation of the north eastern block of land of 195 Riverbend Road. The findings of the investigation id summarised in their report entitled: *"Combined Preliminary & Detailed Site Assessment with national Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health – 195 Riverbend Road Street, Napier, Hawkes Bay"* dated May 2019 and referenced 'EAM1919-Rep-01'.

Review of that report demonstrates the same desktop findings as set out Section 8 above and does not identify any additional areas of concern. EAM also undertook limited soil sampling and analysis of surface soil samples collected within the identified orchard area with seven discrete soil samples collected from within the orchard block. Soil sample numbers 1, 2, 4 and 5 are all located within the land under investigation while soil sample numbers 3, 6 and 7 are located within the community hub development footprint outside of this investigation.

All seven soil samples were submitted to an accredited laboratory (Hills Laboratories in Hamilton) for assessment of arsenic, lead, and organochlorine pesticides.

No soil sample returned any detection of organochlorine pesticides at the instrument level of detection while all concentrations of heavy metals complied with the most restrictive of the NES Soil Contaminant Standards for rural residential landuse.

EAM concluded that concentrations of arsenic and lead were *consistent with uncontaminated soils of the Hawke's Bay Region*, however GSL notes that raw results show marginal exceedances of the threshold values provided for arsenic and lead. As this report is held on the property file, a copy can be provided upon request

10 SITE INSPECTION & INFRASTRUCTURE

GSL undertook a site inspection on 25 November 2020 at which time the weather was raining heavily and low cloud was prevalent. The site was in the same general configuration as shown in the most recent aerial imagery for the site as follows:

- The eastern portion of the site adjacent to Riverbend Road is under orchard with mature apple trees present across the bulk of this area. As identified in the aerial imagery, portions of the orchard are in disrepair, suggesting the activity is not undertaken intensively;
- The western portion of 195 Riverbend Road was under recent maize plantation with plants ranging from 300mm to 500mm in height. Exposed soils appeared consistent with the expected natural geology;
- An open channel drain separates 195 Riverbend Road from 215 Riverbed Road with a standard 7 wire farm fence constructed along the bulk of its length;
- The western portion of 215 Riverbend is under pastoral grass with lifestyle animals grazing its extent; and
- The storage shed located on 195 Riverbend Road appears to have been converted for residential landuse.

No distinct evidence of any actual or potential HAIL activities remained on site at the time of the inspection, beyond the storage / implement shed that may have been utilised for packing activities as part of the historic production activities undertaken across the site.

Because of the heavy rainfall, supplementary site photos were collected in December 2020 during a period of fine weather, copies of which are included in Appendix D.

11 POTENTIAL FOR CONTAMINATION

GSL has conducted a PSI encompassing portions of 195 and 215 Riverbend Road for a proposed residential land consenting and development process and its subsequent change in landuse, subdivision and development for residential purposes as defined in the NES. Desktop assessment and supplementary site walkover did not identify any distinct evidence of actual or potential HAIL activities beyond a recent use of the site for market garden and orchard activities.

While the bulk storage and use of persistent pesticides is encompassed under HAIL Item A.10, GSL notes that traditional persistent pesticides (such as DDT, lead arsenate etc) were banned by the 1970's whereas the piece of land under investigation was not converted to such use until the late 1990's. From that time, a portion of the 195 Riverbed Road property was utilised for a small-scale

apple orchard while the wider portions of the property have been intermittently utilised for maize crops.

When assessed in the context of the intrusive soil sampling undertaken by EAM on the orchard, that demonstrated no detectable concentrations of organochlorine pesticides and concentrations of arsenic and lead were *consistent with uncontaminated soil of the Hawke's Bay Region*, GSL considers any risks associated with historic horticulture to be low. Concentrations of arsenic and lead were recorded in the four soil samples within the piece of land under investigation that range between 9 and 12 mg/kg and 21 and 30 mg/kg respectively. Background concentrations for arsenic are noted to be up to 10.2 mg/kg and lead up to 36.5 mg/kg within the Landcare Research Report *RM 14 – 03, HBRC Plan No 4611, Hawkes Bay Region: Background Soil Concentrations for managing Soil Quality*.

As this area was consistently utilised for horticultural purposes, GSL consider these results to be representative of the wider site area.

12 CONCLUSIONS

GSL has conducted a preliminary site investigation, in accordance with the MfE Contaminated Land Management Guidelines to determine the location and extent of current and / or former HAIL Activities on site. GSL has consequently concluded that:

- The only HAIL activity that potentially occurred on site can be regarded as the bulk storage and application of persistent pesticides to crop and orchard trees on the eastern portion of the land. However, it is highly unlikely that the spraying chemicals utilised on site included persistent pesticides, given the timeframe during which these activities occurred onsite.
- It is highly unlikely that soil onsite poses any risk to human health or to the environment as a result of former HAIL activities conducted on the site.
- Limited soil sampling and analysis from former and current horticultural activities conducted by EAM revealed concentrations of contaminants that complies with the NES most stringent land use criteria (Rural / Residential), but includes concentrations of arsenic that marginally exceed the expected naturally occurring background range as defined by the Landcare dataset for the Hawkes Bay Region.
- As a result of these marginal exceedances the Regulations of the NES may apply to any future development of the eastern portion of the site, on account of the interpretations of Regulations 5(7) and 5(9) of the NES. Recommendations are included in Section 12.2 below to determine the assessment under Regulation 5(9).

12.1 REGULATORY ASSESSMENT

Preliminary site investigation has identified a portion of the piece of land may have been subjected to HAIL activities historically, but is considered highly unlikely to present any risk to human health or the environment. Consequently, GSL considers that no evidence of any fundamental risks exist for this piece of land regarding soil contamination and potential future residential landuse.

No specific requirements are envisaged as part of any change in landuse, subdivision or development consenting processes.

12.2 RECOMMENDATIONS

As identified in the sections above, limited soil sampling undertaken in the eastern portion of the piece of land has identified concentrations of arsenic that marginally exceed the expected naturally occurring background ranges. While this area is highly unlikely to present any risk to human health, GSL recommends additional grid based soil sampling across this area and subsequent statistical analysis of the results using the 95% Upper Confidence Limit. This assessment will determine whether or not soils are consistent with clean fill definitions and the requirements of the NES can be omitted under Regulation 5(9).

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the Official Information Act 1982

13 REFERENCES

1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2012) - Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
4. Retrolens Historical Image Resource - www.retrolens.co.nz
5. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health*. Ministry for the Environment, Wellington, New Zealand.
6. Gaw, S. K. (2002) - *Pesticide Residues in Horticultural Soils in the Auckland Region*, Auckland Regional Council Working Report No. 96. Auckland Regional Council, Auckland.
7. Land Care Research (2016) – *User Guide Background Soil Concentrations and Soil Guideline values for the Protection of Ecological Receptors (Eco-SGVs) – Consultation Draft*. Envirolink Tools Grant: C09X1402.
8. Land Care Research (2014) – *Hawkes Bay Region: Background soil concentrations for managing soil quality* – Report no. RM 14-03, HBRC plan no. 4611.

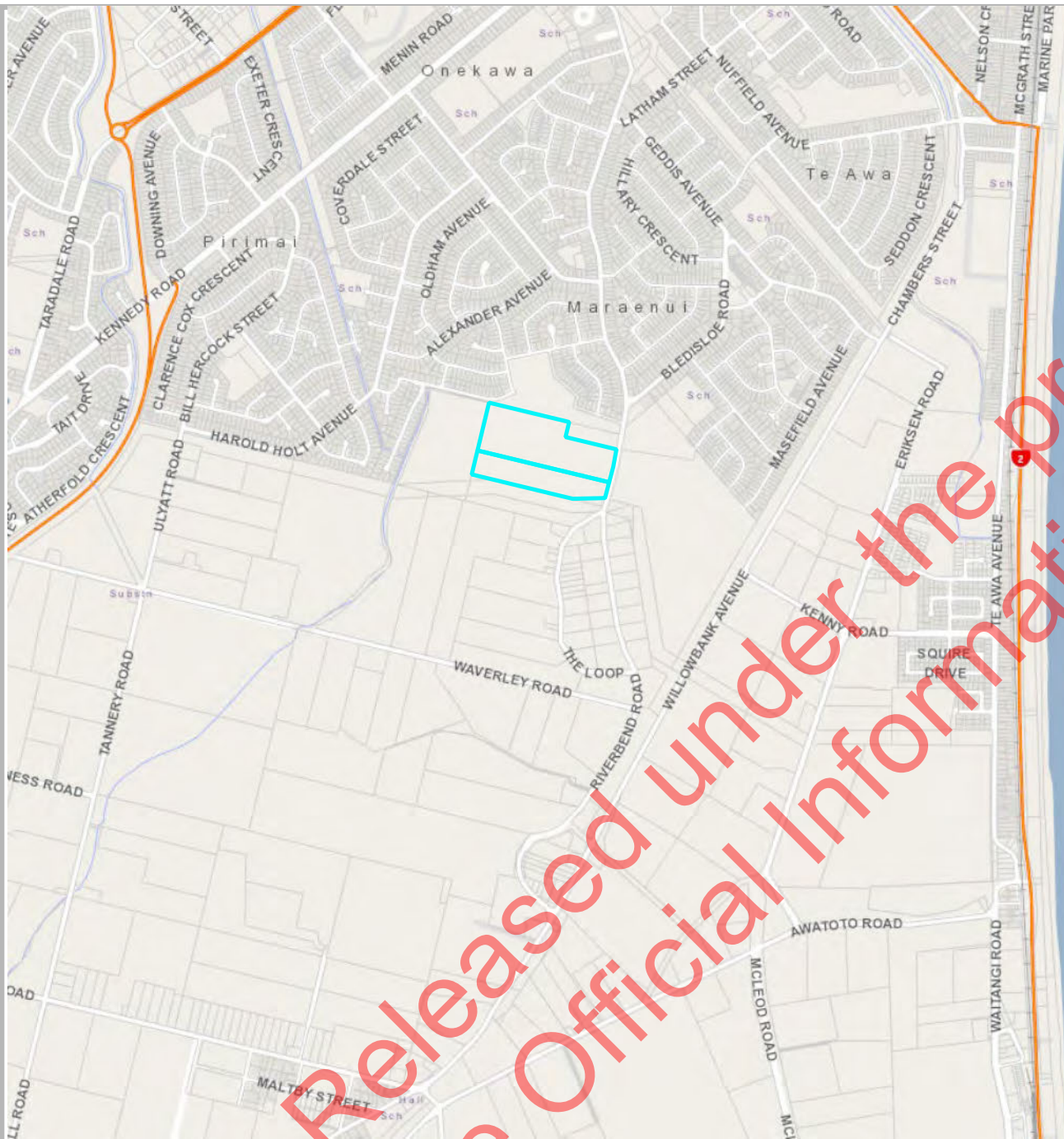
14 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations may differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM.
9. Except as specifically stated in this report, no investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current or proposed use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or planned use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law, no third party may use or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability, or claim may exist or be available to any third party.
16. Except as specifically stated in this section, GSL does not authorise the use of this report by any third party.

FIGURES

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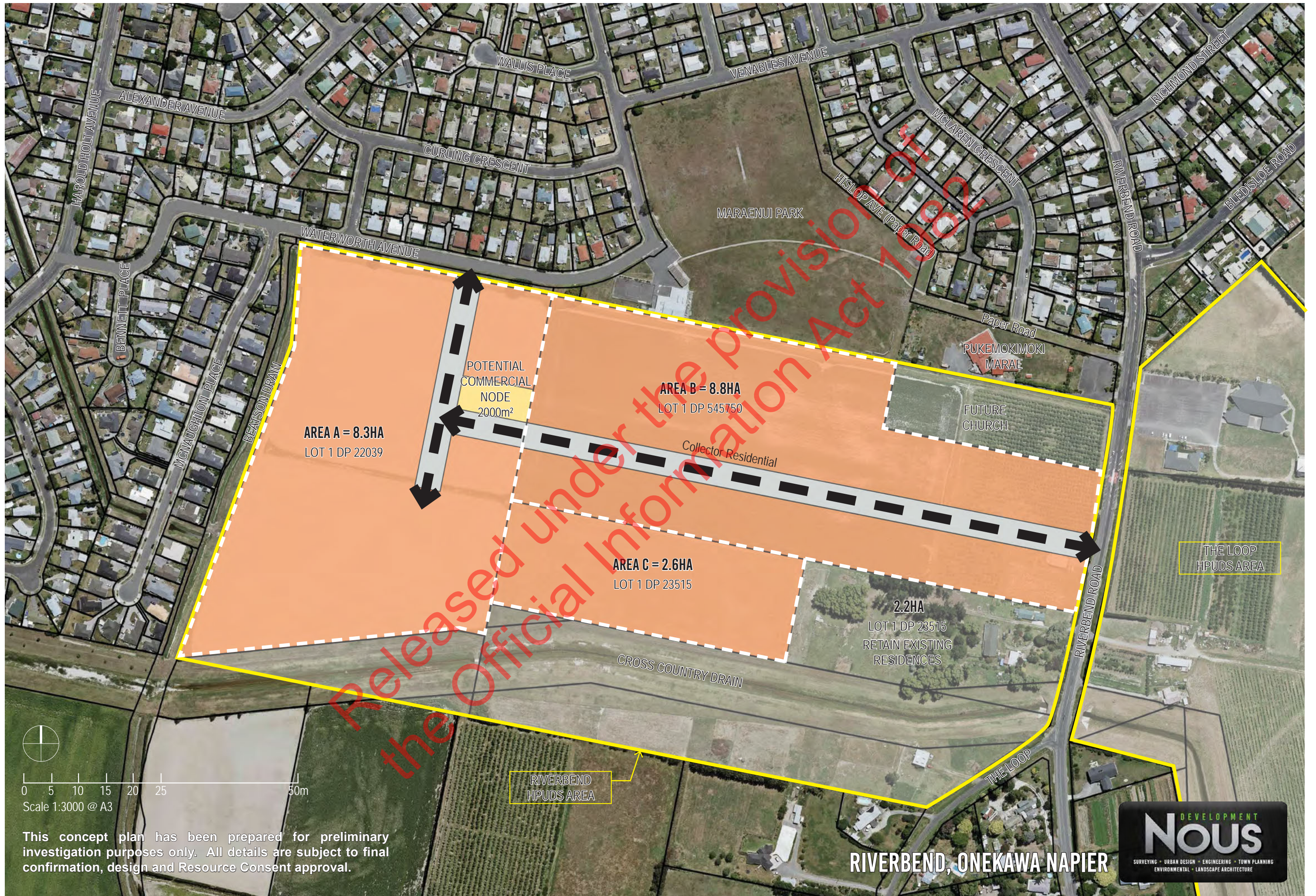


Aerial photograph courtesy of Auckland Council GIS

APPENDIX A

PROPOSED DEVELOPMENT PLAN

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This concept plan has been prepared for preliminary investigation purposes only. All details are subject to final confirmation, design and Resource Consent approval.

RIVERBEND, ONEKAWA NAPIER



APPENDIX B

CERTIFICATES OF TITLE

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RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy




R.W. Muir
Registrar-General
of Land

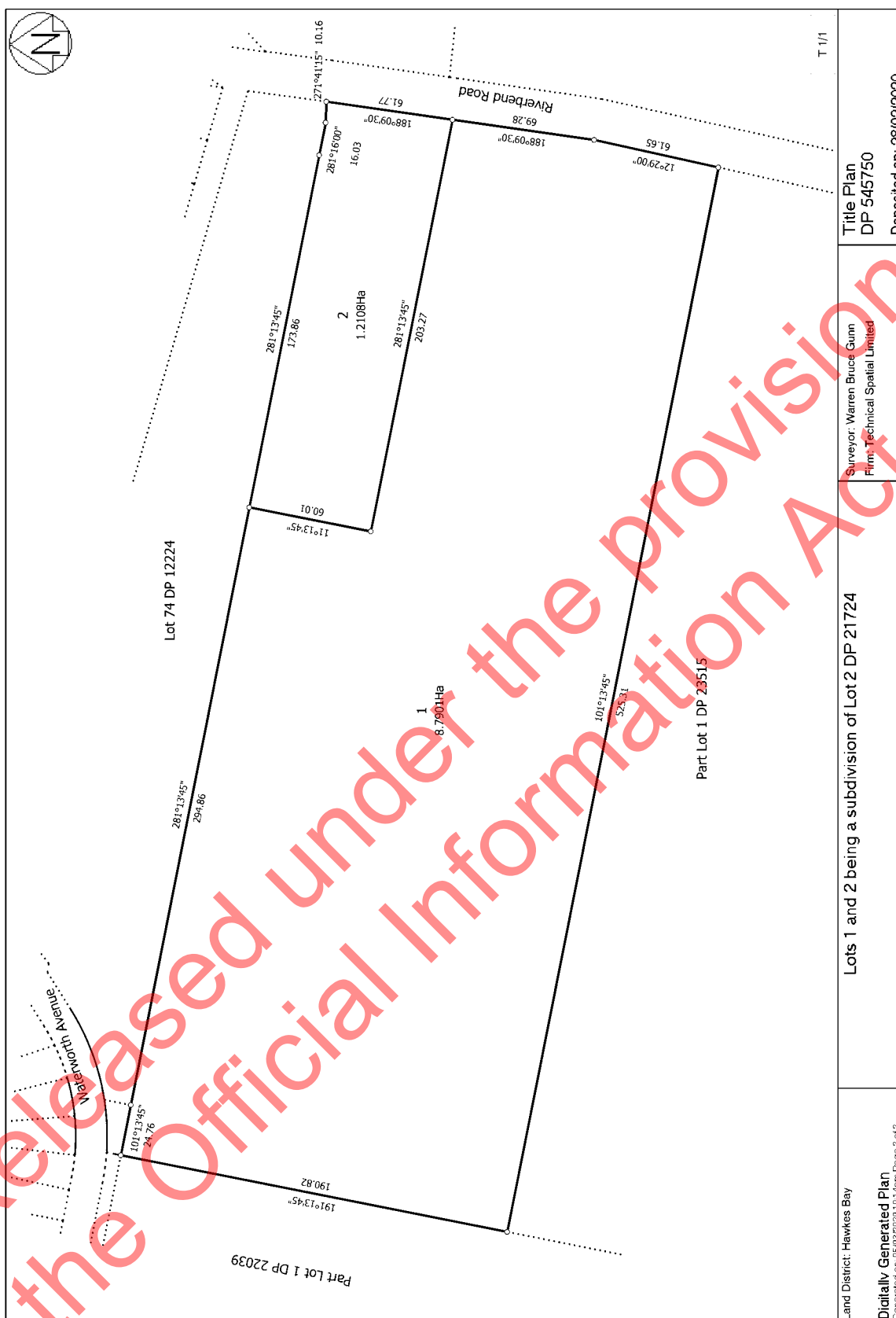
Identifier 927606
Land Registration District Hawkes Bay
Date Issued 28 February 2020

Prior References
HBM4/625

Estate Fee Simple
Area 8.7901 hectares more or less
Legal Description Lot 1 Deposited Plan 545750
Registered Owners
Raymond Young

Interests

Appurtenant hereto are rights to take water and convey water specified in Easement Certificate 553419.4 - 28.2.1991 at 2.30 pm





RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy




R.W. Muir
Registrar-General
of Land

Identifier **HBP4/1097**
Land Registration District **Hawkes Bay**
Date Issued 23 August 1993

Part-Cancelled

Prior References
HBP1/346

Estate Fee Simple
Area 5.0000 hectares more or less
Legal Description Lot 1 Deposited Plan 23515
Registered Owners
Melody Lyn Townsend, Thomas Michael Semmens and WTR Trustee Services Limited

Interests

Subject to rights to take and convey water over part specified in Easement Certificate 553419.4
Subject to a right to take water over part marked A and a right to convey water over part marked B and a right to drain water over part marked C on DP 23515 specified in Easement Certificate 594363.2 - 23.8.1993 at 2.00 pm
7641327.3 Gazette Notice 2007 page 3311 declaring Section 3 SO 368373 (0.1905 ha) is hereby acquired for drainage purposes and vested in the Napier City Council CIR 396347 issued - 4.12.2007 at 9:00 am
8457883.4 Mortgage to ASB Bank Limited - 8.4.2010 at 12:17 pm

NOTE (A) (B) are centrelines of easements 100 wide
(C) is centrelines of easement 200 wide

PURPOSE	SERVIENT TENEMENT	DOMINANT TENEMENT
Right to Take Water	Lot 1	Lot 2
Right to Convey Water	Lot 1	Lot 2
Right to Drain Water	Lot 1	Lot 2

SCHEDULE OF EXISTING EASEMENTS

PURPOSE	SERVIENT TENEMENT	DOMINANT TENEMENT
Right to Take Water	Lot 1	Lot 2
Right to Convey Water	Lot 1	Lot 2

APPROVALS

Registered Proprietors
I.B. Richardson
V.L.J. Richardson

Approved pursuant to Section 223 of the Resource Management Act 1991 on the 25th day of July 1993 SUBJECT to the granting of resumption of the easements set out in the above schedule of easements and the affixing of the common seal of the City of Napier was

Mayor
City Manager

Pursuant to Section 224 (c) of the Resource Management Act 1991 the City of Napier has been complied with to the satisfaction of the Napier City Council

Dated this 25th day of July 1993

City Manager

APPROVED AS TO SURVEY
12.12.1993
Deposited this 25th day of July 1993

TERMINAL AUTHORITY Napier City Council
Surveyed by C.G. Shanley & Co
Sale 15.2000 Date May 1993

PLAN OF LOTS 1 & 2 FORMERLY LOT 2 DP22039

DIAGRAM NOT TO SCALE

LAND DISTRICT Hawkes Bay
SURVEY BLK. & DIST VIII Herefordunga
NZMS 261 SHTY 21.732 RECORD MAP No 70.14.71.14

W.A. ARBUTHNOT, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51

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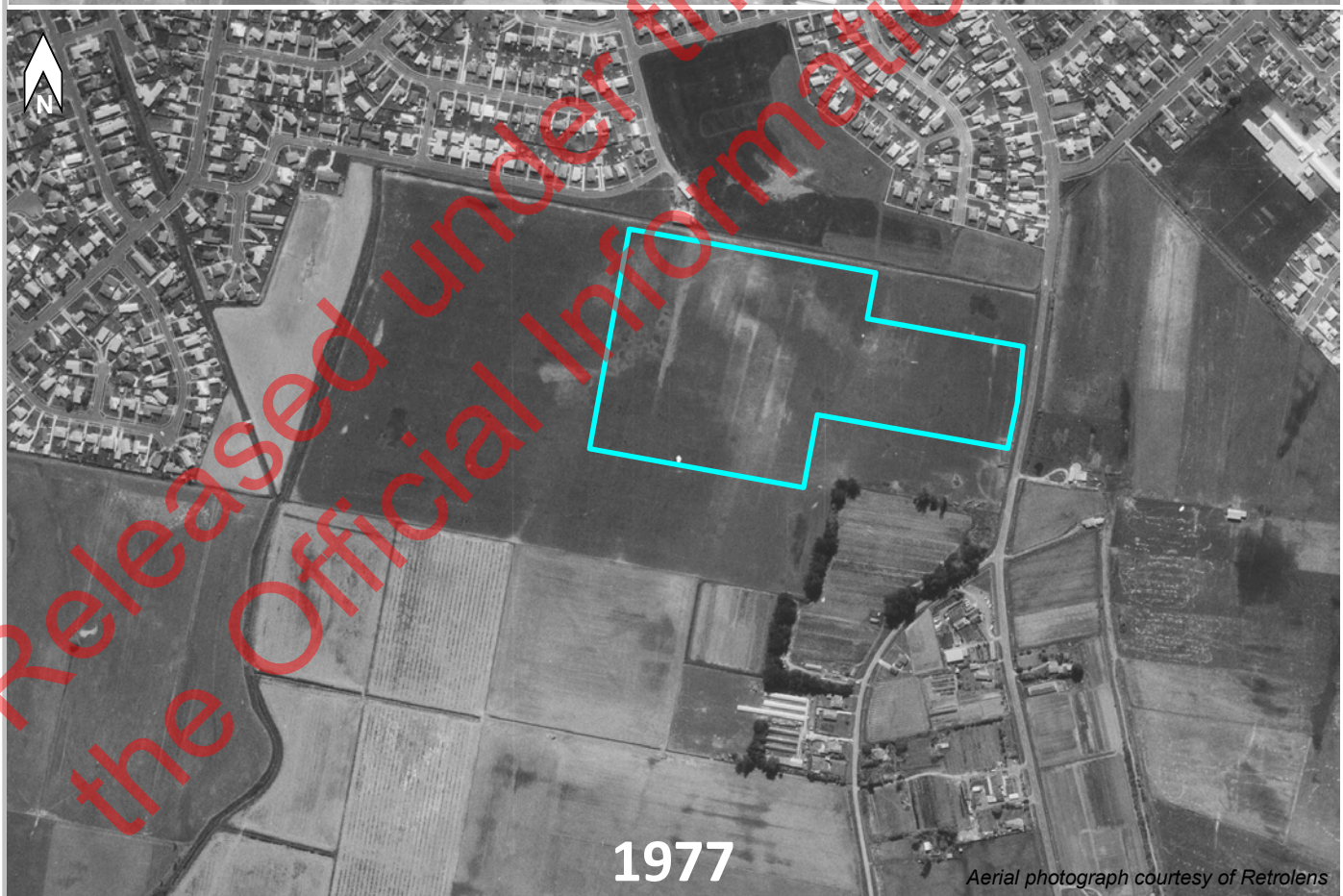
APPENDIX C

HISTORICAL AERIAL PHOTOGRAPHS

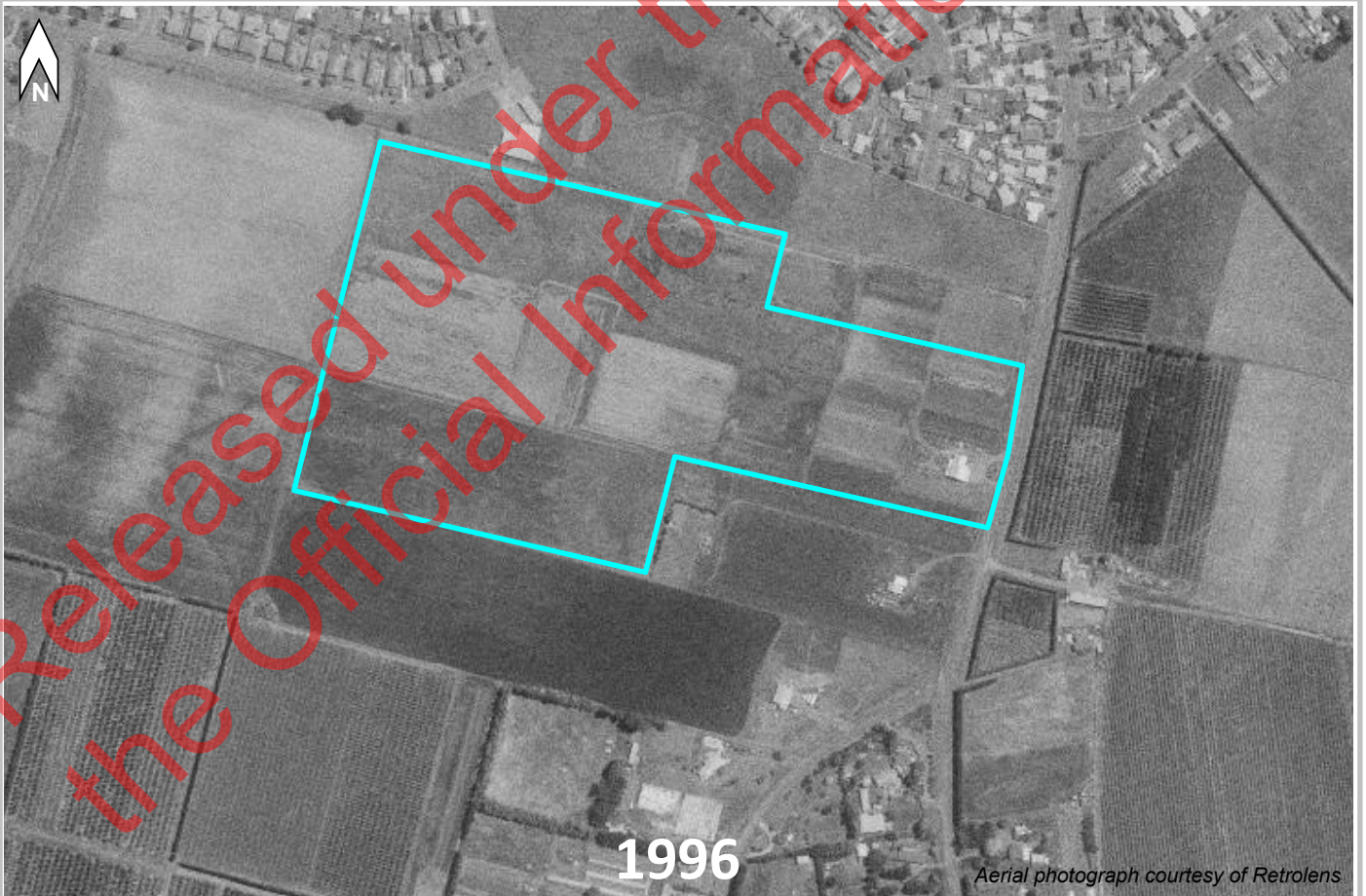
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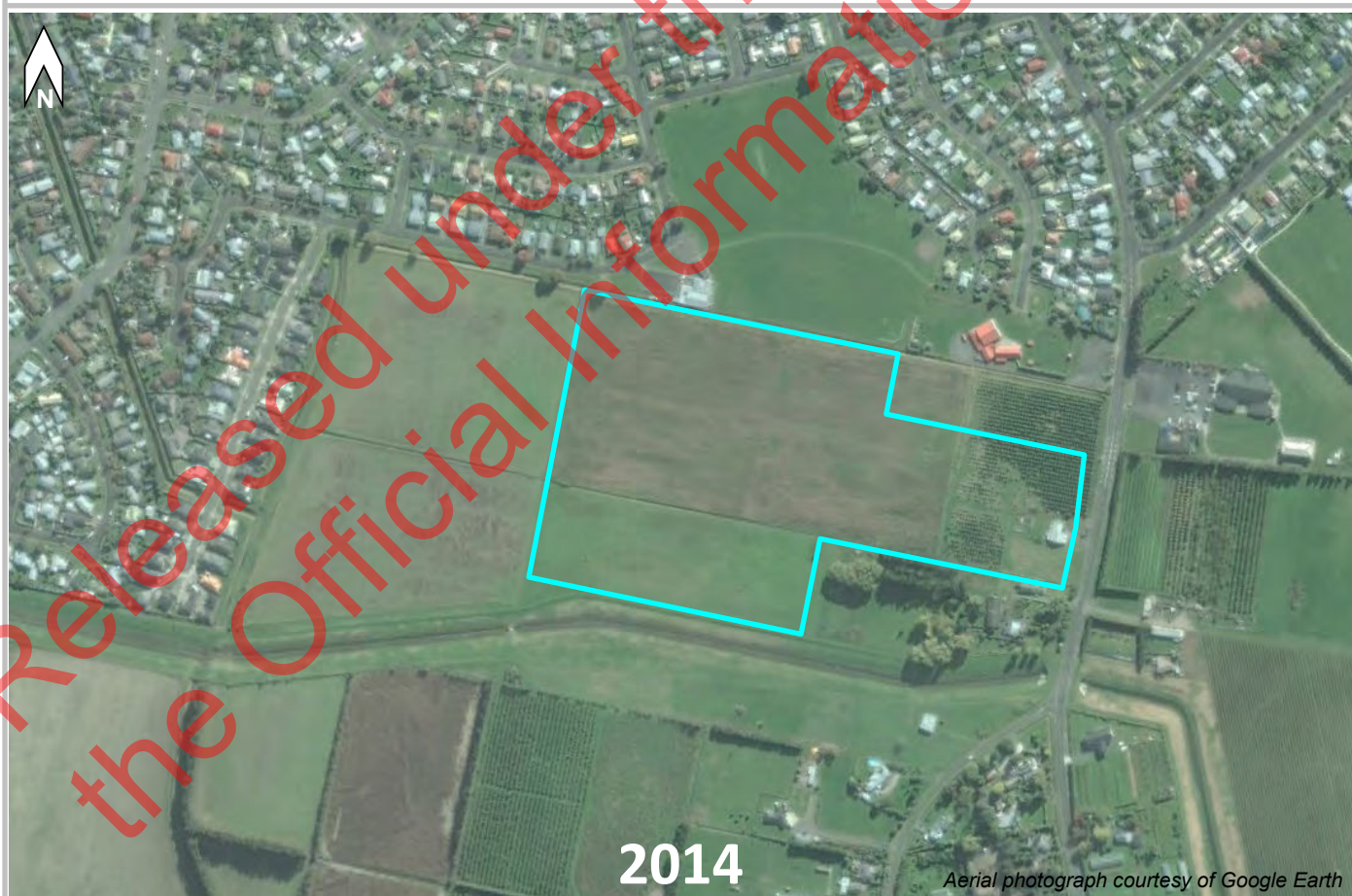
Title:	Appendix C—Historical Aerials	Reference: JH0137
Project name:	195 & 295 Riverbed Road, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KW
		Approved: JF



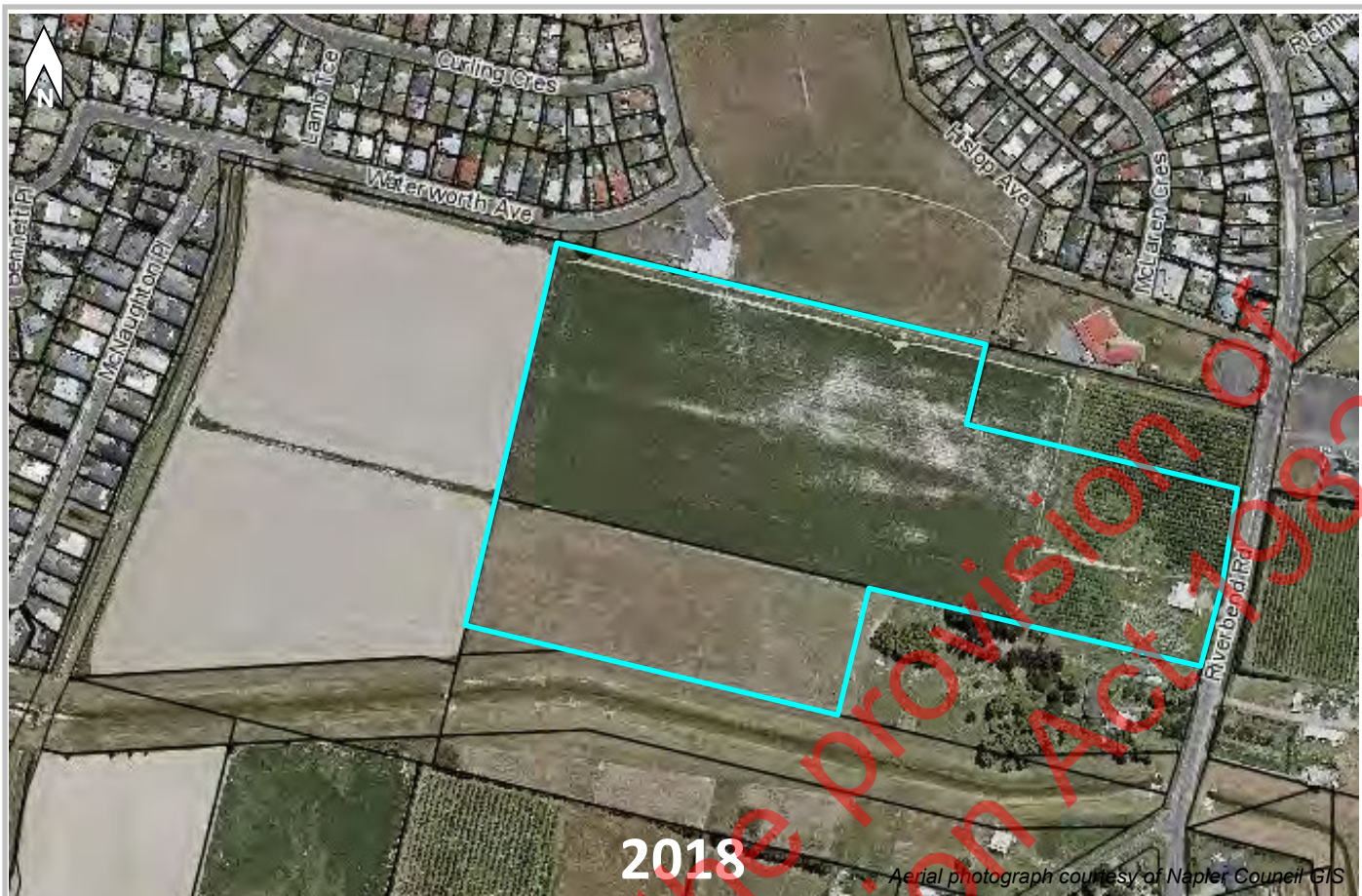
Title:	Appendix C—Historical Aerials	Reference: JH0137
Project name:	195 & 295 Riverbed Road, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KW
		Approved: JF



Title:	Appendix C—Historical Aerials	Reference: JH0137
Project name:	195 & 295 Riverbed Road, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KW
		Approved: JF



Title:	Appendix C—Historical Aerials	Reference: JH0137
Project name:	195 & 295 Riverbed Road, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KW
		Approved: JF



Title:	Appendix C—Historical Aerials	Reference: JH0137
Project name:	195 & 295 Riverbed Road, Napier	Date: 08/12/2020
geosciences <small>ltd</small> <small>ENVIRONMENTAL</small>	Level 1, 47 Clyde Road, Browns Bay, 0630, Tel: (09) 475 0222	Drawn: KW
		Approved: JF

APPENDIX D

SITE PHOTOGRAPHS



PLATE 1: STORAGE SHED AT 195 RIVERBEND ROAD, APPLE ORCHARD VISIBLE AT REAR.



PLATE 2: MAIZE CROP WITH PASTORAL LAND VISIBLE AT REAR OF PLATE

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