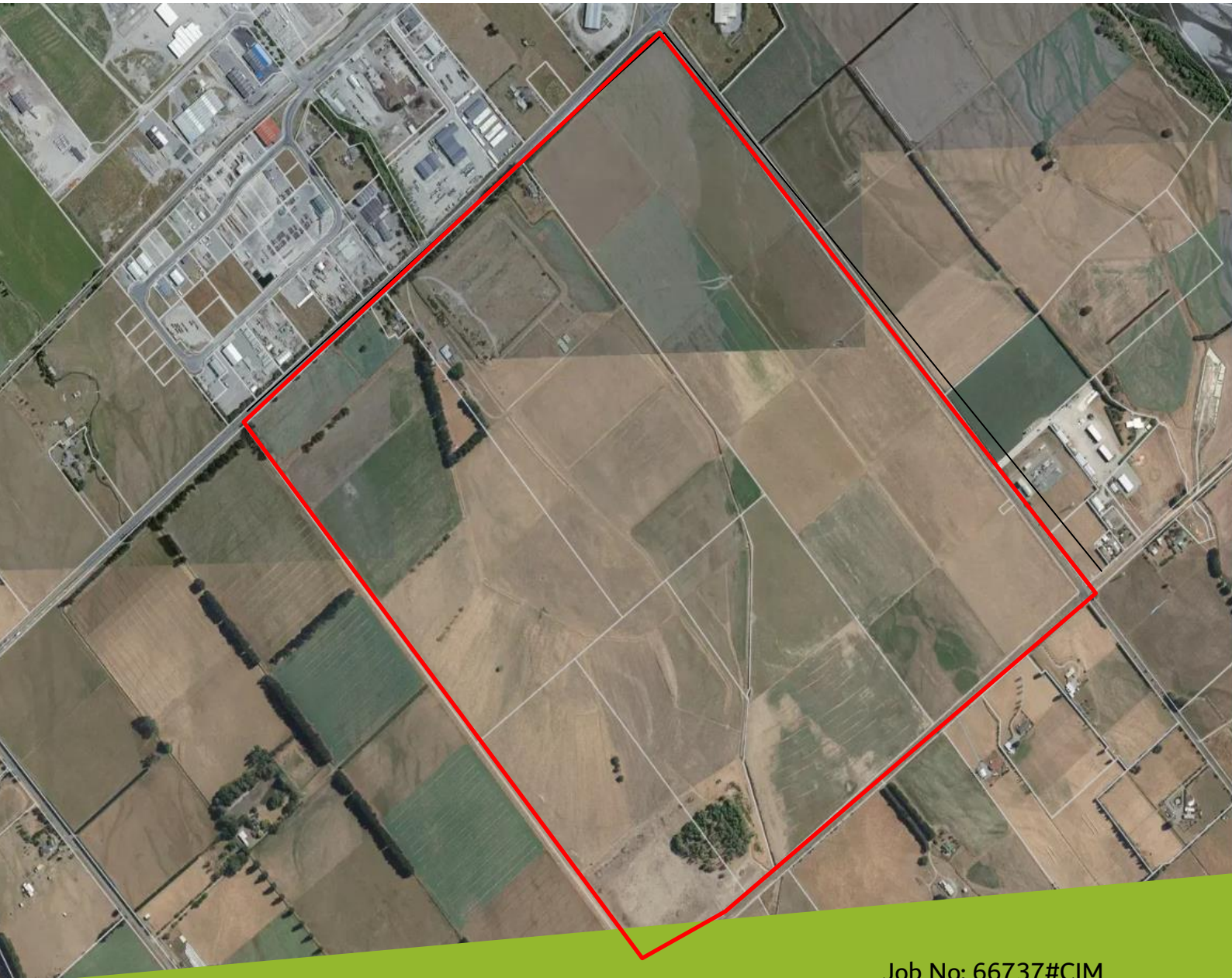
APPENDIX 15 CONTAMINATION – PSI

3954A State Highway 2

Preliminary Site Investigation

for: NZ Clean Energy Limited



Job No: 66737#CIM

Version: Final

eTrack No: 20004690

Date of Issue: 4/10/2023

EXECUTIVE SUMMARY

Babbage Consultants Limited (Babbage) has been engaged by NZ Clean Energy Limited to undertake a Preliminary Site Investigation (PSI) at 3954A State Highway 2, Masterton. The findings of this investigation are summarised as follows:

1 The site was part of fellmongery operations between the 1900's to early 1980's. Horticultural activity was also practiced between 2008-2017.

2 Site history review indicates that the site has been subjected to an activity on the Hazardous Activities and Industry List (HAIL). The NESCS[1] will apply to the site as the proposed development will not meet the NESCS permitted activity thresholds[2].

3 The site has potential contaminants in particular metals, hydrocarbons, sulfides, acids and bleaching agents, cyanides, formaldehyde from fellmongery works, asbestos from existing structures on site and organochlorine pesticides from potential horticultural land use.

4 The conceptual site model indicates that there is a likely source and pathway link to human/ ecological receptors, in particular current and future site users and the environment.

5 Pursuant to regulation 8(4)(b) of the NESCS, is it highly likely that there will be a risk to human health if the activity is done to the piece of land, therefore the activity is not permitted, and a detailed site investigation will be required prior to soil disturbance works on site.

[1] Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

[2] Less than 5 m^3 of soil disposal and 25 m^3 of soil disturbance for every 500m^2 of land.

ACKNOWLEDGEMENT OF SUBMISSION

This report was prepared by Aditi Borker and reviewed by Hiram Garcia.

Respectfully submitted

Babbage Consultants Limited

Aditi Borker
Environmental Consultant

Hiram Garcia
Principal Environmental Scientist

I have assessed the site in accordance with current New Zealand Regulations and guidance documents and reported in accordance with the current edition of Contaminated Land Management Guidelines No 1: Reporting of Contaminated Sites in New Zealand.
I am considered by Babbage Consultants Limited as a suitably qualified and experienced practitioner (SQEP) pursuant to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, based on the company's definition of a SQEP as given below.

Name: Hiram Garcia

Signed:  Date: 3/10/2023

Babbage Consultants Limited: SQEP Definition

Babbage Consultants Limited requires that a SQEP has the following Qualifications/Experience:

- Tertiary education in environmental science, engineering, or other relevant field;
- Ten years of relevant post graduate environmental experience;
- A commitment to continuing professional development; and
- Full membership of an appropriate professional body requiring a commitment to operating in accordance with a professional code of ethics.

Date	Version	eTrack No.	Author(s)	Reviewer(s)
3/10/2023	Final	20004690	Aditi Borker	Hiram Garcia

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

1 INTRODUCTION AND BACKGROUND

Babbage has been engaged by NZ Clean Energy Limited to undertake a PSI at 3954A State Highway 2, Masterton (the site) to support site redevelopment.

The scope of work for the PSI was set out in our proposal dated 12 June 2023 which does not include a site visit. The key aims of the PSI were to determine:

- The site history based on historical aerials and Greater Wellington Regional Council's Search Selected Land Use Register (SLUR) request, determines whether historic use is likely to have resulted in ground contamination and verify whether activities detailed on the HAIL, issued by the Ministry for the Environment (MfE)[3], apply to the site.
- Nature and source of potential contaminants if applicable.
- Known or potential human and ecological receptors that could be exposed to contaminants if applicable.
- Known or potential pathways by which identified receptors could be exposed to potential contaminants under current or known proposed future land use if applicable.

The site identification details are presented in **Table 1**.

Table 1. Site identification.

Address	Legal description	Area (ha)
3954A State Highway 2	PT LOTS 2 3 4 DP 2099, LOT 1 DP 3447, LOT 1 DP 17189, PT LOT 1 DP 46533 LOT 1 DP 27627	147

Note: Source –Grip Maps website[4].

It is understood that the client plans to re-develop the site into a solar power generation facility. The PSI performed follows the general reporting and investigation methodology presented in the MfE Contaminated Land Management Guidelines (CLMG) No. 1[5].

[3] MfE 24 March 2021. Land – Guidance and guidelines on contaminated land. Retrieved from https://www.mfe.govt.nz/land/hazardous-activities-and-industries-list-hail

[4] Grip Maps website 16 August 2023. Retrieved from https://app.grip.co.nz/

[5] MfE 2021. Contaminated Land Management Guidelines No. 1. Reporting on Contaminated Sites in New Zealand (Revised 2021)

2 SITE DESCRIPTION

The site is located on the southern corner of State Highway 2 and Cornwall Road, Masterton. The site is currently used as pastoral land use.

The Greater Wellington Regional Council (GWRC) Web Map Viewer website[6] shows the site is relatively flat. Stormwater surface runoff generated at the site discharges to Waingawa River.

Published geological information[7] shows the site to be underlain by poorly to moderately sorted gravel with minor sand or silt underlying terraces of Late Pleistocene River deposits.

The current surrounding property use is presented in **Table 2**.

Table 2. Surrounding property use.

Direction	Observation
North	To the north of the site are commercial properties with pastoral land beyond.
South	The south of the site is largely pastoral land use with a few residential dwellings.
East	East of the site is largely pastoral land use with a few commercial properties and Waingawa River beyond.
West	To the west of the site is pastoral and horticultural land use.

Note: Source – Based on information from Google Earth.

[6] GWRC Web Map Viewer 16 August 2023. Retrieved from https:// mapping.gw.govt.nz/GW/GWpublicMap_Mobile/?webmap=72ece62d902e4c3fb6506136104abbf9

[7] Edbrook SW 2001. Geology of the Auckland Area, Scale: 1.250:000, Institute of Geological & Nuclear Sciences geological map 3.1 sheet +74 p. Institute of Geologic & Nuclear Sciences, Lower Hutt, New Zealand

3 HISTORICAL SITE USE

Babbage has reviewed historic aerial photographs dating back to 1941 held on the Retrolens website[8] and Google Earth. A summary of selected historic aerial photography is presented in **Table 3**, and the historical aerial photographs are shown in **Appendix A.**

Table 3. Summary of historical aerial photographs.

Year	Site	Surrounding land use
1941	Majority of the site appears vacant apart from two dwellings visible towards the north-western portion of the site. A tree line can be seen separating part of the site. A few tracks are visible to the west of the site. Some activity is observed in southwest portion of the site (structures scattered and what appears to be discharges to land or tracks)	The site is surrounded by mostly pastoral land. State Highway 2 and a few residential properties are visible to the north. Wiangawa River can be seen further east of the site. Some commercial/industrial activity is observed north of the residential properties and southeast.
1969	The western portion of the site appears to be in the process of being used as part of fellmongery operations with what appears to be ponds and potential chemical treatment processes observed towards the central portion of the site. A patch of land towards the eastern site boundary appears to be fallow.	Surrounding site is still predominantly pastoral with further residential properties developed to the north of the site.
1983	The eastern portion of the site now appears to be completely used as part of fellmongery operations. Specific areas potentially used for many stages of the processing, i.e. for washing chemicals and other processes are now visible on site. A few new structures can be seen formed immediately south of the existing dwellings occupying the north-western site corner. A tree shelter belt can also be seen surrounding these structures.	No significant changes apparent in surrounding area.
2003	Fellmongery operations appear to have ceased across majority of the western portion of the site with ponds decommissioned and filled in,	No significant changes apparent in surrounding area.

[8] Local Government Geospatial Alliance 14 September 2023. Retrolens Historic Image Resource. Retrieved from http://retrolens.nz/

	some remnants of site operations can be seen to the northern site corner, immediately adjacent to existing dwellings. A patch of trees can be seen formed towards the south-western site corner. The remainder of the site appears vacant and in pastoral land use.	
2008-2013	Majority of the western portion of the site appears vacant with a few structures visible to the north-west. The eastern portion of the site appears to be used for horticultural purposes.	Commercial development to the north increasing.
2018-2021	Horticultural activity appears to have ceased across the site. Site appears to be in pastoral use.	Commercial development to the north increasing.

A proposed registration of property on the Selected Land Use Register (SLUR) was received from Greater Wellington Regional Council on 29 May 2023. The response is provided in **Appendix B** and is summarised below:

"This letter is to advise you that your property, or a portion of your property, has been identified for potential inclusion as a site on the SLUR as GWRC holds information indicating that your property has been previously or is currently occupied by the following hazardous activity or industry listed on the MfE HAIL.

HAIL category and activity - Chemical manufacture, application and bulk storage - Skin or wool processing including a tannery or fellmongery, or any other commercial facility for hide curing, drying, scouring or finishing or storing wool or leather products; Chemical manufacture, application and bulk storage - Storage tanks or drums for fuel, chemicals or liquid waste.

Based on the information we have it is proposed that your property is registered on the SLUR in the following category:
SLUR category - Contamination Confirmed".

A summary of the information and site history currently available on the SLUR is as follows:

The site was previously the Waingawa Freezing Works. As part of the freezing works operations, the bulk storage of hydrocarbons and mineral acids, and the treatment of hides, took place on site.

Greater Wellington Regional Council is not aware on any environmental investigation having been undertaken. Therefore, it is recommended that prior to any redevelopment, a site investigation is undertaken to determine the nature and extent of any residual contamination. The site investigation should be undertaken in accordance with Contaminated Land Management Guidelines (Ministry for the Environment 2003/4).

June 2015: *Information and brief investigation report received (OurSpace Doc ID: CNMG28451075-108) regarding proposed subdivision. See also subsequent documents.*

October 2016: *An analysis report, Certificate of Analysis (Assure Quality), Waingawa Swamp Contamination Assessment Memo and a summary of Dioxin results was supplied to GW (CNMG284501075-238-CNMG-284501075-241).*

3.1 Previous Investigations

Babbage understands that other investigations have been performed at the site. A summary of known investigations is presented in **Table 4.**

Table 4. Summary of other investigations.

Investigation	Summary
Document prepared by Conell Wagner[9]	Correspondence between Conell Wagner and Wellington Regional Council regarding dioxin concentrations within fellomongery ponds at the Affco, Waingawa site (no results provided). This report recommended ploughing (every six months) and a more comprehensive sampling to delineate the area of dioxin contamination on site.
Report prepared by Terra Aqua Consultants[10]	This report was undertaken to confirm ongoing groundwater impacts across 13 monitoring wells in the East Taratahi area. Wells were monitored for water level, nitrate-nitrogen, nitrite-nitrogen and ammoniacal nitrogen concentrations. This report concluded that a renewal of discharge consent and ongoing monitoring was not required given the declining trends evident in nitrate-nitrogen concentrations across majority of the wells over the last five years. This report also refers to the following information: *"Previous owner, Waitaki International Limited, ceased operating the Waingawa Freezing Works in 1989 with a variety of remedial measures completed on the site of former wastewater and effluent disposal areas. The former anaerobic ponds were excavated of much of the remaining sludge with the sludge spread over 40*

[9] Conell Wagner Ltd, 27 June 1995, titled "Affco, New Zealand Ltd, Waingawa, Fellmongery ponds, Dioxin analysis". Reference.002/004.
[10] Terra Aqua Consultants, 12 June 2000, titled "Assessment of Nitrate Impacts at Waingawa Farm, Masterton, project no. T9643.

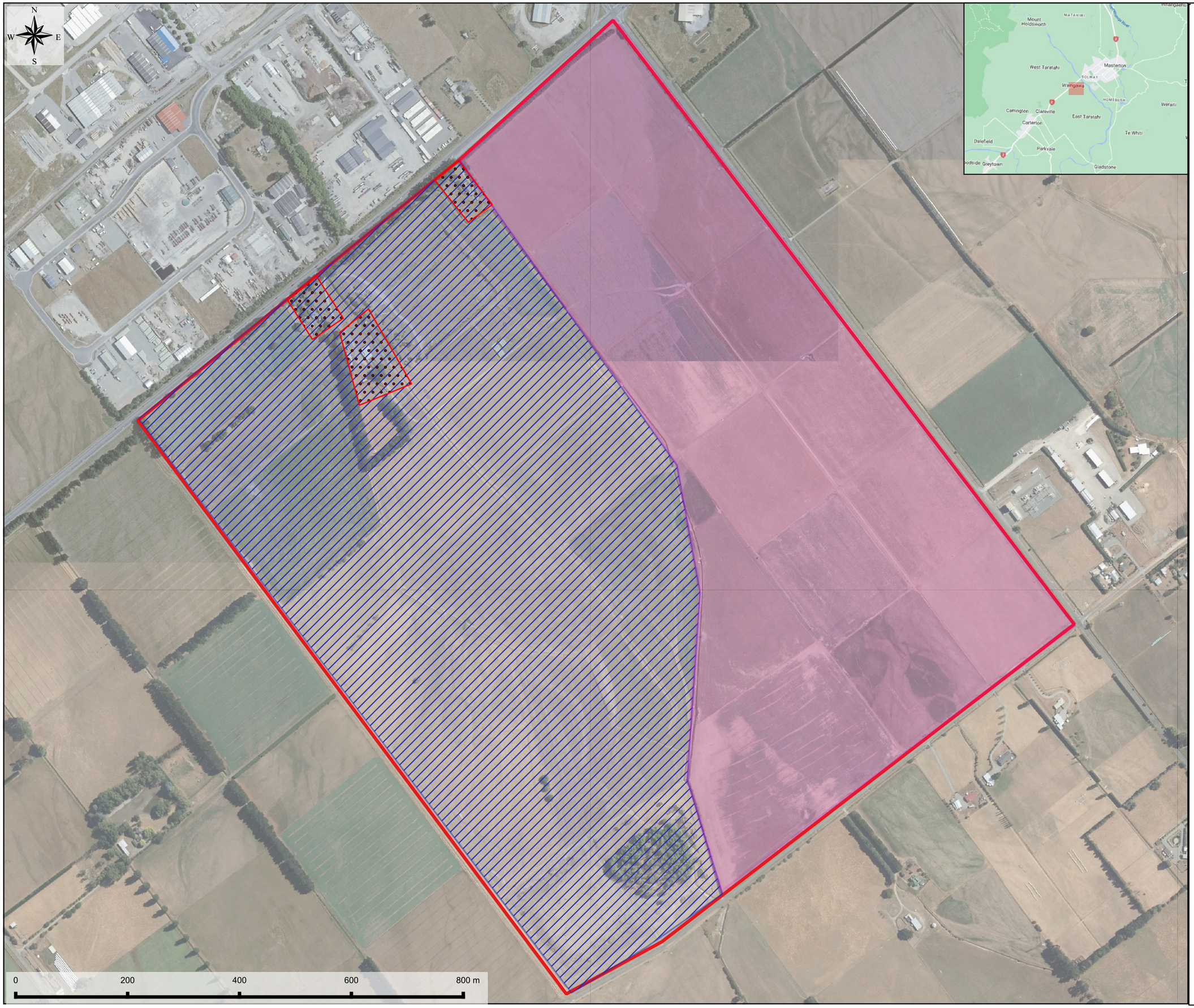
	hectares of adjacent farmland in the winter of 1995. This land was cultivated, sown in crops that were harvested and then returned to pasture by 1996. *Topography is subdued, appearing level, with the site and environs predominantly grassed with all major freezing works buildings demolished and removed off site. The bund walls of the anaerobic pond remain intact and the ponds are currently being filled with a mixture of hard fill.* *The former aerobic ponds have been filled and levelled with the area planted with pine trees.*
Investigation report prepared by Conell Wagner Limited[11]	A total of 21 samples were collected from various fellmongery ponds and tested for the presence of dioxins with results ranging between 0.0009-0.0145 parts per billion (pbb).
Preliminary site investigation report[12]	According to this report, Waingawa site was established in the early 1900's as freezing works (fellmongery) with operations ceasing in the late 1980's.

[11] Connell Wagner Ltd, 28 June 1995, titled "An investigation of Dioxin Concentrations in the Fellmongery Ponds at AFFCO New Zealand Far, Waingawa. Reference ID. 09 524 7815.
[12] Land Contamination Investigation- Preliminary Study, Kiwi Lumber (Masterton Ltd), 2007

4 POTENTIAL FOR CONTAMINATION

Based on review of historical aerial photographs and Greater Wellington Regional Council records, it is concluded that the site is likely to have been subjected to the following HAIL activities listed below and shown on Figure 1.

No	HAIL Activity	Description	Location on site
1.	***HAIL activity A.16-*** Skin or wool processing including a tannery or fellmongery, or any other commercial facility for hide curing, drying, scouring or finishing or storing wool or leather products	The site was part of freezing work operations (fellmongery) between the early 1900's-1980.	Western portion of the site.
2.	***HAIL activity A.17*** – Storage tanks or drums for fuel, chemicals and liquid waste	Potential storage of fuel storage tanks for various activities on site.	Location unknown.
3.	***HAIL activity A.10 -*** Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds- from historical horticultural land use	Aerial images between 2008-2017 show the site potentially used for horticultural purposes.	Eastern portion of the site.
4.	***HAIL activity G.5-*** Waste disposal to land (excluding where biosolids have been used as soil conditioners)	Desktop information indicates the former anaerobic ponds were excavated with the remaining sludge spread over 40 hectares of adjacent farmland in the winter of 1995.	
5.	***HAIL activity E1***- Asbestos products manufacture or disposal, including sites with buildings containing asbestos products known to be in a deteriorated condition.	Existing structures on site were present in the era when ACM (prior to 2000) may have been used. These materials have the potential to impact surface soil, particularly, if they were poorly maintained.	Existing structures present to the north and north-eastern portion of the site.



Babbage

Babbage Consultants Limited
Level 4, 68 Beach Road, Auckland 1010
PO Box 2027, Shortland Street
Auckland 1140, New Zealand
T 09 379 9980 F 09 377 1170
E admin@babbage.co.nz www.babbage.co.nz

CLIENT / PROJECT

NZ CLEAN ENERGY

3954A STATE HIGHWAY 2

MAP TITLE

SITE LAYOUT AND LOCATION PLAN

MAP REVISIONS

28/08/2023 Initial version by AB.

Legend

- Property boundary
- HAIL activity A.16 and A.17- associated with historical fellmongery activity.
- HAIL activity E.1 - associated with potential ACM in existing structures.
- HAIL activity A.10 and G.5- associated with potential persistent pesticide use and waste disposal to land

NOTES
Aerial Images: LINZ Basemap

SOURCES

DISCLAIMER:
This map/plan is not an engineering draft.
This map/plan is illustrative only and all information should be independently verified on site before taking any action.

SCALE

1:6,200 @ A3

MAP NO.

66788#CIM-01

5 RISK ASSESSMENT

A conceptual site model (CSM) for the site has been developed to assess risk. For a contaminant to present a risk to human health or the environment, the following components are required to be present and connected:

- Sources/Contaminants – the known and potential sources of contamination and contaminants of concern.
- Pathways – likely and complete exposure pathways by which the identified receptors could be exposed to the contaminants, under current or known proposed future land use.
- Receptors – human and ecological receptors.

Based on the data for the site, the potential source, pathway and receptor linkages are presented in **Table 5**.

Table 5. Conceptual site model.

Source	Exposure pathway	Potential receptor	Acceptable risk?
Fellmongery activity- Metals, hydrocarbons sulfides, acids and bleaching agents, cyanides, formaldehyde, pentachlorophenol, dioxins, nitrates from fellmongery activity	Direct contact. Ingestion of soil. Inhalation of airborne dust. Off-site discharge.	Site re-development workers. Current site users. Future site users. Surrounding residents. Receiving environment (in surrounds and at disposal facility).	**Unlikely.** Based on the area of the contaminant generating activity and chemicals used it is more likely than not to be a risk to human health or the environment. Soil sampling is required to determine actual risk.
Potential use of persistent pesticides- OCP concentrations in soil from historical horticultural activities	Direct contact. Ingestion of soil. Inhalation of airborne dust. Off-site discharge.	Site re-development workers. Current site users. Future site users. Surrounding residents. Receiving environment (in surrounds and at disposal facility).	**Unlikely.** Based on use of portion of the site for potential horticultural practices it is more likely than not to be a risk to human health or the environment. Soil sampling is required to determine actual risk.

Existing structures- Asbestos in soil from dwelling/structure.	Inhalation of asbestos fines. Direct contact. Ingestion of soil. Inhalation of airborne dust. Off-site discharge.	Site re-development workers. Current site users. Future site users. Surrounding residents. Receiving environment (in surrounds and at disposal facility).	**Likely,** provided regular maintenance has been undertaken on the existing site structures containing ACM.

Based on the source, pathway and receptor linkage, contaminants from previous site uses are likely to have the potential to pose a risk to the health of future land users and/or the environment.

Pursuant to regulation 8(4)(b) of the NESCS, it is highly likely that there will be a risk to human health if the activity is done to the piece of land, therefore the activity is not permitted.

6 CONCLUSIONS

Based on the PSI, Babbage concludes the following:

1 The site history review indicates that the site has been subjected to an activity on the HAIL, in particular HAIL activities A.16, A.10, A.17, G.5 and E.1.

2 The site has potential contaminants in particular metals, hydrocarbons sulfides, acids and bleaching agents, cyanides, formaldehyde, pentachlorophenol, dioxins, nitrates from fellmongery activity and asbestos from existing structures and organochlorine pesticides from potential horticultural land use.

3 The conceptual site model indicates that there is a likely source and pathway link to human/ ecological receptors for current and future site users and the environment.

4 Pursuant to regulation 8(4)(b) of the NESCS, is it highly likely that there will be a risk to human health if the activity is done to the piece of land, therefore the activity is not permitted and a detailed site investigation will be required prior to soil disturbance works on site.

APPLICABILITY AND LIMITATIONS

Restrictions of Intended Purpose

This report has been prepared solely for the benefit of NZ Clean Energy Limited as our client with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such party's sole risk.

Legal Interpretation

Opinions and judgements expressed herein are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions. Where opinions or judgements are to be relied on, they should be independently verified with appropriate legal advice.

Maps and Images

All maps, plans, and figures included in this report are indicative only and are not to be used or interpreted as engineering drafts. Do not scale any of the maps, plans or figures in this report. Any information shown here on maps, plans and figures should be independently verified on site before taking any action. Sources for map and plan compositions include LINZ Data and Map Services and local council GIS services. For further details regarding any maps, plans or figures in this report, please contact Babbage Consultants Limited.

Reliability of Investigation

Babbage has performed the services for this project in accordance with the standard agreement for consulting services and current professional standards for environmental site assessment. No guarantees are either expressed or implied.

Recommendations and opinions in this report are based on discrete sampling data. The nature and continuity of matrix sampled away from the sampling points are inferred and it must be appreciated that actual conditions could vary from the assumed model.

There is no investigation that is thorough enough to preclude the presence of materials at the site that presently, or in the future, may be considered hazardous. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants present and considered to be acceptable may in the future become subject to different regulatory standards, which cause them to become unacceptable and require further remediation for this site to be suitable for the existing or proposed land use activities.

Appendix A

Selected Historical aerials

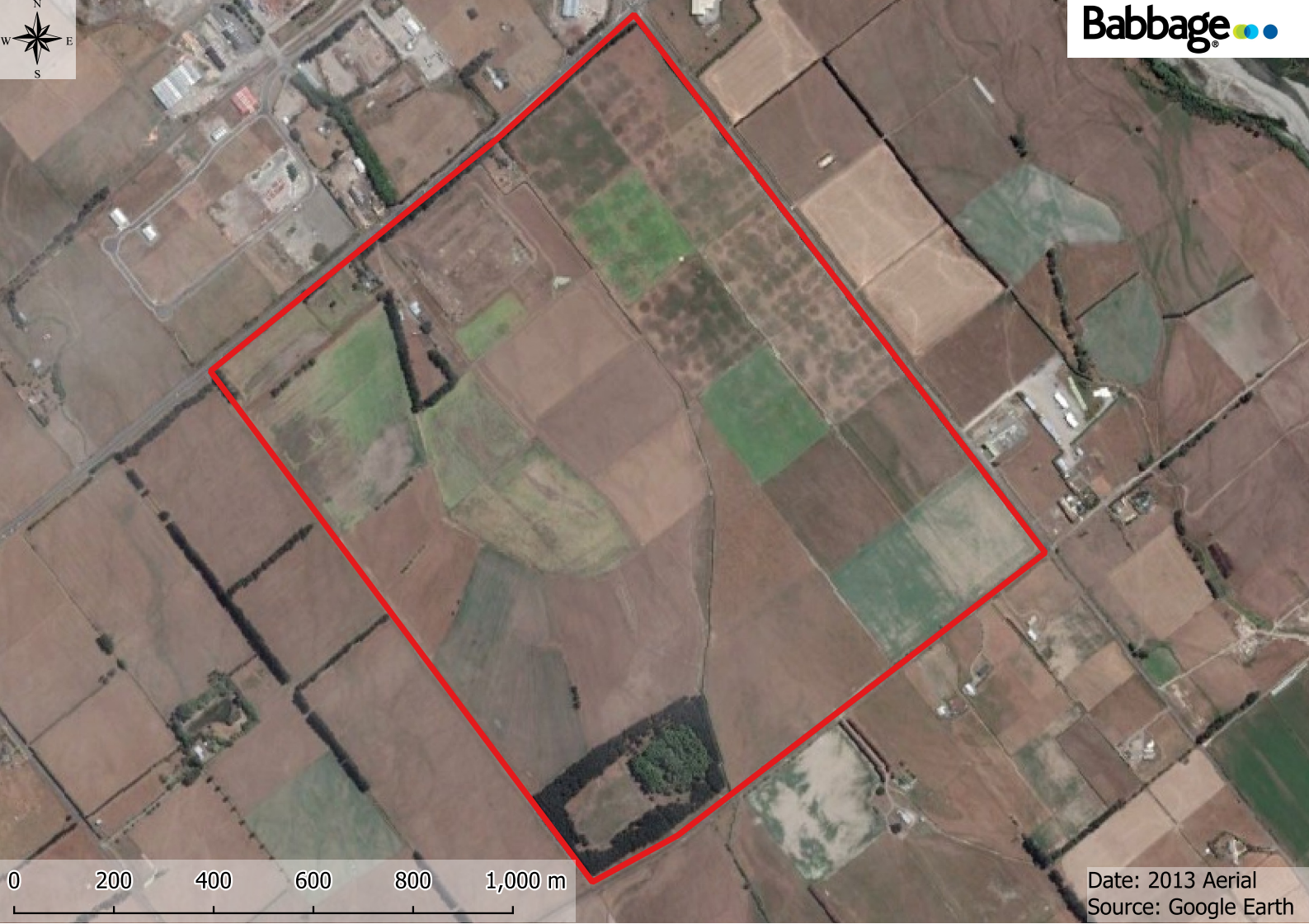

Babbage
N
W
E
S
retrolens.nz and licensed by LINZ CC-BY 3.0
0
200
400
600
800
1,000 m
Date: 1941 Aerial
Source: Retrolens


N
W
E
S
0
200
400
600
800
1,000 m
Date: 1969 Aerial
Source: Retrolens


N
W
E
S
0
200
400
600
800
1,000 m
Date: 1983 Aerial
Source: Retrolens


N
W
E
S
Babbage
0
200
400
600
800
1,000 m
Date: 2003 Aerial
Source: Google Earth


N
W
E
S
Babbage
0
200
400
600
800
1,000 m
Date: 2008 Aerial
Source: Google Earth


N
W
E
S
Babbage
0
200
400
600
800
1,000 m
Date: 2013 Aerial
Source: Google Earth


N
W
E
S
0
200
400
600
800
1,000 m
Date: 2018 Aerial
Source: Google Earth


N
W
E
S
0
200
400
600
800
1,000 m
Date: 2021 Aerial
Source: Google Earth

Appendix B

Geater Wellington Regional Council Contamination Enquiry

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

PO Box 11646
Shed 39
Wellington
New Zealand
T 04 384 5708
F 04 385 6960
www.gw.govt.nz

By email

29 May 2023

File No: SN/07/006/02

Tracey Morse BSc BSocSc(Hons) MNZPI
Senior Planner
NZ Clean Energy

For : <tracey@nzcleanenergy.nz>

Dear Tracey Morse

Proposed registration of property on the Selected Land Use Register

Property/site address: 0 State Highway 2, Carterton District

Legal description: LOTS 1 3 DP 383510 PT LOT 2 DP 5550

File site number: SN/07/006/02

The Greater Wellington Regional Council (GWRC) maintains a register called the Selected Land Use Register (SLUR). The SLUR is a database of sites that have, or may have, been used for activities and industries from the Hazardous Activities and Industries List (HAIL) established by the Ministry for the Environment. Further explanation on the HAIL and each of the categories in the SLUR database are provided in the attached factsheets.

This letter is to advise you that your property, or a portion of your property, has been identified for potential inclusion as a site on the SLUR as GWRC holds information indicating that your property has been previously or is currently occupied by the following hazardous activity or industry listed on the MfE HAIL.

HAIL category and activity - *Chemical manufacture, application and bulk storage - Skin or wool processing including a tannery or fellmongery, or any other commercial facility for hide curing, drying, scouring or finishing or storing wool or leather products; Chemical manufacture, application and bulk storage - Storage tanks or drums for fuel, chemicals or liquid waste*

These activities and industries have the potential to have used, stored or disposed of hazardous substances and therefore have a greater probability of resulting in contamination of soil and water.

Based on the information we have it is proposed that your property is registered on the SLUR in the following category:

SLUR category - *Contamination Confirmed*

A summary of the information and site history currently available on the SLUR is as follows:

The site was previously the Waingawa Freezing Works. As part of the freezing works operations, the bulk storage of hydrocarbons and mineral acids, and the treatment of hides, took place on site. Greater Wellington Regional Council is not aware on any environmental investigation having been undertaken. Therefore, it is recommended that prior to any redevelopment, a site investigation is undertaken to determine the nature and extent of any residual contamination. The site investigation should be undertaken in accordance with Contaminated Land Management Guidelines (Ministry for the Environment 2003/4).

June 2015: Information and brief investigation report received (OurSpace Doc ID: CNMG-28451075-108) regarding proposed subdivision. See also subsequent documents.

October 2016: An analysis report, Certificate of Analysis (Assure Quality), Waingawa Swamp Contamination Assessment Memo and a summary of Dioxin results was supplied to GW (CNMG-284501075-238 - CNMG-284501075-241).

The information on this site is held by GWRC on the SLUR file SN/07/006/02 . As the property owner you have access to all information held about your property.

If you wish to comment on the inclusion of your property or would like to provide additional information to support the reclassification of the SLUR entry, please do so within 20 working days from the date of this letter (DATE RESPONSE DUE).

This information will be available to the Carterton District Council and may be released in response to requests for information, such as a Land Information Memoranda (LIM) or Project Information Memoranda (PIM) about your site. This information may also be available to the public in response to inquiries under the Local Government Official Information and Meetings Act 1987.

GWRC has made every reasonable effort to provide current and accurate information in this letter. However, to the fullest extent permitted in law, GWRC, its officers, employees and agents accept no responsibility or liability for any inaccuracy in, or omission from, the information set out in this letter or liability for any loss or damage suffered by any person which may directly or indirectly result from any person acting or refraining from acting or as a result of reliance placed on such information.

Yours sincerely
Nicole Blackie
Contaminated Land Analyst
slur@gw.govt.nz

Encl: SLUR and HAIL factsheet

Selected Land Use Register (SLUR) factsheet

Sites that are registered on the GWRC's SLUR are known (or suspected) to have been involved (historically or currently) in the use, storage or disposal of substances from one or more hazardous activities/industries identified by the Ministry for the Environment. In some cases the sites on the SLUR will be "contaminated sites" and in others not.

The SLUR classifies sites under six categories:

Category I – Verified History of Hazardous Activity or Industry

A site classified as "Verified History of Hazardous Activity or Industry" is a site for which a past or present use has been confirmed as falling within one of the definitions on the Hazardous Activities and Industries List (HAIL). Assignment to this category does not imply the site is contaminated, but merely that hazardous substances have been used, stored or disposed of on the site and therefore there is a potential for site contamination to have occurred.

Category II – Unverified History of Hazardous Activity or Industry

A site classified as "Unverified History of Hazardous Activity or Industry" is a site for which its past or present use is the subject of an unconfirmed report that indicates that it falls within one of the definitions on the HAIL. Assignment to this category does not imply the site is contaminated, but merely that there is a possibility that hazardous substances have been used, stored or disposed of on the site and site contamination may have occurred. The reports could be from an external source or from a general information search carried out by the GWRC. A site remains under this category until further information is available that enables it to be transferred to another category.

Category III – Contamination Confirmed

A site classified as "Contamination Confirmed" is a site where there is evidence that hazardous substances exist above background concentrations AND it is a likely that adverse effects on human health (subject to exposure path) or the environment will occur based on the current or foreseeable site use. This category is for sites that the council holds information on, typically as a result of a site investigation that shows contaminants are present on the site at concentrations that exceed relevant guidelines. A site remains in this category until it is remediated or managed in such a way that it can be transferred to Category IV.

Category IV – Contamination Acceptable, Managed/Remediated

A site classified as "Contamination Acceptable, Managed/Remediated" is a site where there is clear evidence that residues of hazardous substances exist above background concentrations BUT the level of risk of adverse effects on human health or the environment is shown to be acceptable for the particular land use. Either the concentrations are below relevant guideline levels OR remedial or management action has been taken to reduce the risks to an acceptable level. Sites may be placed in this category either because an investigation report has been received that shows the site has contaminants present in environmental media but the concentrations are below relevant guideline values, or the site has previously been registered in Category I or III and further investigation or remediation has been undertaken.

Category V – No Identified Contamination

Sites are placed in the "No Identified Contamination" category when an investigation report has been received that demonstrates an absence of contaminants above background concentrations. The investigation will have considered contaminants that could have resulted from the past or present use. Sites would be placed in this category either because the site had not been previously registered on the SLUR, but an investigation report has been received, or the site had previously been registered as Category I or II and further investigation was undertaken.

Category VI – Entered on Register in Error

A site classified as "Entered on Register in Error" is a site that has been classified under any other category, but subsequent investigation has found that the site has never been associated with any of the uses on the HAIL and there is no possibility of contamination of the site. This category is used for sites entered onto the SLUR or into the initial registration category as a result of incorrect information. The site is not removed from the register; it remains on the SLUR to correctly record the site's history. The reasons for the original entry and reasons for the change to this category are recorded.

Ministry for the Environment's Hazardous Activities and Industries List

The Hazardous Activities and Industries List (HAIL) is a compilation by the Ministry for the Environment of activities and industries that are considered likely to cause environmental contamination resulting from hazardous substance use, storage or disposal. Further information on the HAIL is available from:

https://www.mfe.govt.nz/land/hazardous-activities-and-industries-list-hail

The HAIL was last updated in October 2011 and contains a range of activities/industries, including:

A. Chemical manufacture, application and bulk storage

1. Agrichemicals including commercial premises used by spray contractors for filling, storing or washing out tanks for agrichemical application
2. Chemical manufacture, formulation or bulk storage
3. Commercial analytical laboratory sites
4. Corrosives including formulation or bulk storage
5. Dry-cleaning plants including dry-cleaning premises or the bulk storage of dry-cleaning solvents
6. Fertiliser manufacture or bulk storage
7. Gasworks including the manufacture of gas from coal or oil feedstocks
8. Livestock dip or spray race operations
9. Paint manufacture or formulation (excluding retail paint stores)
10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds
11. Pest control including the premises of commercial pest control operators or any authorities that carry out pest control where bulk storage or preparation of pesticide occurs, including preparation of poisoned baits or filling or washing of tanks for pesticide application
12. Pesticide manufacture (including animal poisons, insecticides, fungicides or herbicides) including the commercial manufacturing, blending, mixing or formulating of pesticides
13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground
14. Pharmaceutical manufacture including the commercial manufacture, blending, mixing or formulation of pharmaceuticals, including animal remedies or the manufacturing of illicit drugs with the potential for environmental discharges

15. Printing including commercial printing using metal type, inks, dyes, or solvents (excluding photocopy shops)
16. Skin or wool processing including a tannery or fellmongery, or any other commercial facility for hide curing, drying, scouring or finishing or storing wool or leather products
17. Storage tanks or drums for fuel, chemicals or liquid waste
18. Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside

B. Electrical and electronic works, power generation and transmission

1. Batteries including the commercial assembling, disassembling, manufacturing or recycling of batteries (but excluding retail battery stores)
2. Electrical transformers including the manufacturing, repairing or disposing of electrical transformers or other heavy electrical equipment
3. Electronics including the commercial manufacturing, reconditioning or recycling of computers, televisions and other electronic devices
4. Power stations, substations or switchyards

C. Explosives and ordinances production, storage and use

1. Explosive or ordinance production, maintenance, dismantling, disposal, bulk storage or re-packaging
2. Gun clubs or rifle ranges, including clay targets clubs that use lead munitions outdoors
3. Training areas set aside exclusively or primarily for the detonation of explosive ammunition

D. Metal extraction, refining and reprocessing, storage and use

1. Abrasive blasting including abrasive blast cleaning (excluding cleaning carried out in fully enclosed booths) or the disposal of abrasive blasting material
2. Foundry operations including the commercial production of metal products by injecting or pouring molten metal into moulds
3. Metal treatment or coating including polishing, anodising, galvanising, pickling, electroplating, or heat treatment or finishing using cyanide compounds
4. Metalliferous ore processing including the chemical or physical extraction of metals, including smelting, refining, fusing or refining metals
5. Engineering workshops with metal fabrication

E. Mineral extraction, refining and reprocessing, storage and use

1. Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition

2. Asphalt or bitumen manufacture or bulk storage (excluding single-use sites used by a mobile asphalt plant)
3. Cement or lime manufacture using a kiln including the storage of wastes from the manufacturing process
4. Commercial concrete manufacture or commercial cement storage
5. Coal or coke yards
6. Hydrocarbon exploration or production including well sites or flare pits
7. Mining industries (excluding gravel extraction) including exposure of faces or release of groundwater containing hazardous contaminants, or the storage of hazardous wastes including waste dumps or dam tailings

F. Vehicle refuelling, service and repair

1. Airports including fuel storage, workshops, washdown areas, or fire practice areas
2. Brake lining manufacturers, repairers or recyclers
3. Engine reconditioning workshops
4. Motor vehicle workshops
5. Port activities including dry docks or marine vessel maintenance facilities
6. Railway yards including goods-handling yards, workshops, refuelling facilities or maintenance areas
7. Service stations including retail or commercial refuelling facilities
8. Transport depots or yards including areas used for refuelling or the bulk storage of hazardous substances

G. Cemeteries and waste recycling, treatment and disposal

1. Cemeteries
2. Drum or tank reconditioning or recycling
3. Landfill sites
4. Scrap yards including automotive dismantling, wrecking or scrap metal yards
5. Waste disposal to land (excluding where biosolids have been used as soil conditioners)
6. Waste recycling or waste or wastewater treatment

H. Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment.

I. Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

Auckland

Address | Level 4, 68 Beach Road, Auckland 1010

Post | PO Box 2027, Shortland Street, Auckland 1140, New Zealand

Ph | 64 9 379 9980

Fax | +64 9 377 1170

Email | contact-us@babbage.co.nz

Hamilton

Address | Unit 1, 85 Church Road, Pukete, Hamilton 3200

Post | PO Box 20068, Te Rapa, Hamilton 3241, New Zealand

Ph | +64 7 850 7010

Fax | +64 9 377 1170

Email | contact-us@babbage.co.nz

Christchurch

Address | 128 Montreal Street, Sydenham, Christchurch 8023

Post | PO Box 2373, Christchurch 8140, New Zealand

Ph | +64 3 379 2734

Fax | +64 3 379 1642

Email | solutions@babbage.co.nz

Babbage Consultants Australia Pty Ltd – Melbourne

Address | Level 2, 1 Southbank Boulevard, Southbank, Melbourne, Victoria 3006, Australia

Ph | +61 3 8539 4805

Email | contact-us@babbage.co.nz