

BEFORE THE WAIMAKARIRI DISTRICT PLAN REVIEW HEARINGS PANEL

IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF the hearing of submissions and further submissions on the Proposed Waimakariri District Plan

AND

hearing of submissions and further submissions on Variations 1 and 2 to the Proposed Waimakariri District Plan

Hearing Stream 12E: Rezoning Requests

**FIRST STATEMENT OF EVIDENCE OF DR SEAN FINNIGAN
(SOIL CONTAMINATION)
FOR RICHARD AND GEOFF SPARK
(PDP SUBMITTER 183 / VARIATION 1 SUBMITTER 61)**

Dated 4 March 2024

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Summary Statement

1. Fraser Thomas prepared a Preliminary Site Investigation (PSI) report, dated 30 November 2023 (**Appendix A**) for two blocks of land comprising multiple titles which for the purposes of submissions on the Proposed Waimakariri District Plan and Variation 1 to that plan are referred to as:
 - (i) Block A: North of Boys Road (approximately 25.7 ha);
 - (ii) Block B: South of Boys Road and west of a future Eastern Bypass Arterial Road (approximately 36.4 ha). Block B comprises two portions, a large northern portion and a smaller southern area (Block C). Our Block B findings capture the Block C area.

The approximate location and extent of the subject site, and 'Block A' and 'Block B', are shown on the Fraser Thomas Ltd drawings CH01508-E-01 and 02 appended to the November 2023 PSI report.

2. Our PSI investigation involved a desktop study, site walkover and reporting associated with potential land contamination issues.
3. It found that the majority of the subject site has been used for dairy farming and minor rural residential activities since at least 1941 to present day. Hence, in my opinion, under Regulation 5(7), the NESCS does not apply to the majority of the site (i.e. open paddocks) due to no obvious potential contamination issues being identified.
4. The NESCS may however apply to the following localized potential HAIL activities:
 - *A10 – Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds. This relates to inferred horticultural activity in the north-western corner of Block B from the 1940s to 1960s.*
 - *A17 – Storage tanks or drums for fuel, chemical or liquid waste. This relates to above ground fuel storage tanks, a chemical store and oil drums and other chemical containers (some of which were observed to be leaking) in the vicinity of what appears to be a former motor vehicle workshop in Block B.*
 - *E1 – Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition. This relates to existing and historical buildings constructed at times when asbestos containing materials were commonly used, which have been shown to be in a deteriorated state or have been demolished.*

- *F4 – Motor vehicle workshops. This relates to one of the sheds in Block B having an inferred vehicle inspection pit, indicating possible former use as a vehicle workshop.*
 - *Activity I – Land subject to intentional or accidental release of hazardous substances in sufficient quantity that it could be a risk to human health or the environment. This relates to several burn pile locations, infilling of open drains and/or natural watercourses, stockpiled soils of unknown origin and several existing or historical buildings constructed at times when lead paint was commonly used. Stockpiled used tyres and timber fence posts were also observed being stored on a concrete pad in Block A.*
5. It should be noted that the potential HAIL activities identified during this investigation are the result of visual inspection only, and soil sampling would be required to confirm any soil contamination in these areas, if any.
 6. In my opinion, in relation to potential contamination issues and within the limits of the investigation as outlined in the Fraser Thomas 30 November 2023 PSI report, the site is considered suitable to be rezoned for future residential development, provided the potential/actual localised contamination issues identified are appropriately investigated and managed through appropriate remediation or controls during site development.

Introduction

7. My name is Sean Matthew Finnigan. I am a Senior Environmental Engineer and a director at Fraser Thomas Limited (Fraser Thomas) and have worked at this employment for the past 27 years.
8. I specialise in Environmental Engineering and Contaminated Land work. I have 27 years' experience in contaminated land, hydrology, stormwater, wastewater and solid waste. My qualifications include a First Class Honours degree of Bachelor of Engineering (Chemical and Materials) from the University of Auckland, a Masters in Engineering Science (Hydrology and Waste Management) from the University of New South Wales, and a PhD in membrane filtration from the University of Bath, UK. I am a Chartered Professional Engineer, a Chartered Member of Engineering New Zealand and a Certified Environmental Practitioner in Contaminated Land (since May 2016).
9. I am a Suitably Qualified and Experienced Practitioner in Contaminated Land work (**SQEP**), as defined under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (**NESCS**). I have undertaken

and been responsible for over 550 Contaminated Land projects to date, including a large number of projects directly by myself and the remaining projects by staff under my supervision.

10. My relevant professional experience includes the following contaminated land investigations within Canterbury relevant to rezoning proposals:
 - (a) Undertaking various soil contamination and environmental investigations for the Te Whāriki, Lincoln subdivision over the last 5 years, including review of contamination reports by others, overseeing minor contaminated soil remedial works, responding to accidental discovery events and validation sampling and reporting.
 - (b) Review of contamination reports by others for Arāria Springs Primary school, Lincoln, including site validation reports relating to remediation of asbestos contaminated soil from historic buildings and providing advice to the Ministry of Education.
 - (c) Multiple contamination investigations for similar zoning plan changes of rural or rural residential zoned land in the Canterbury region including:
 - 10 Lot, 28.4 ha block of land along Trices Road, Prebbleton
 - 8 Lot, 17.25 ha block of land along Allendale Lane, Lincoln
 - Single lot, 1.12 ha block of land on Selwyn Road, Rolleston
 - Two lot, 19.4 ha block of land along Tramway Road, Rolleston
 - Single lot 0.9 ha block of land along Bridge Street, Coalgate
11. I have also undertaken multiple contaminated land investigations of existing rural land for major residential developments in west Auckland (13.6ha and 50ha) and south Auckland (50ha) in support of zoning plan changes including preliminary site investigations, detailed site investigations, site management plans, preparation of evidence for Council hearings and ongoing engagement during site redevelopment works, including observation and validation of remedial works relating to soil contamination and accidental contamination discoveries.

Code of Conduct

12. I have read the Code of Conduct for Expert Witnesses (contained in the Environment Court Practice Note 2023) and I agree to comply with it. Except where I state that I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

Scope of Evidence

13. My evidence addresses soil contamination matters. It summarises the findings of a Preliminary Site Investigation (PSI) report, dated 30 November 2023 (**Appendix A**) prepared for the subject site (i.e. Blocks A and B).
14. In preparing my evidence I referred to and considered the following:
 - (a) ECan Listed Land User Register (LLUR)
 - (b) WDC property files
 - (c) Historical Aerial Photographs
 - (d) Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
15. This PSI investigation involved a desktop study, site walkover and reporting associated with potential land contamination issues. It was undertaken by suitably experienced staff from our Christchurch office, under my direction and supervision. I reviewed draft and final reports and supporting documentation, including site photographs, historical aerials and other relevant information.
16. A site walkover of the subject site was undertaken by a FTL Engineering Geologist, Sam Gladwin, experienced in contaminated site investigations, on 4 November 2022. An interview with Geoff Spark, whose family have owned the site for over 80 years, was also undertaken at the time of the walkover.
17. It is understood that the submissions seek to rezone:
 - (a) The land north of Boys Road, and within the South East Rangiora Development Area (Block A), to Medium Density Residential (MRZ); and
 - (b) The land south of Boys Road and west of the eastern bypass (Block B), to MRZ or, in the alternative, rezone this land to MRZ, BIZ (Business Industrial Zone),

Format Retail/Mixed Use or a mix of these zones. Block B comprises two portions, a large northern portion and a smaller southern area (Block C). Our Block B findings capture the Block C area.

18. The main rationale and objectives for this investigation were:
 - (a) To identify the main actual or potential contamination issues due to ongoing and historic use of land within the site.
 - (b) To confirm that the site is suitable or can be made suitable for the proposed rezoning and future development.
19. The NESCS governs a number of activities, including soil sampling, soil disturbance, subdivision and changes of land use on potentially contaminated land in New Zealand. In general, the rules of the NESCS apply to sites on which it is “more likely than not” that a HAIL (Hazardous Activities and Industries List) activity has occurred or is occurring (Regulation 5(7)).
20. This investigation has confirmed that the majority of the subject site has been used for dairy farming and minor rural residential activities since at least 1941 to present day. Hence, in my opinion, under Regulation 5(7), the NESCS does not apply to the majority of the site (i.e. open paddocks) due to no obvious potential contamination issues being identified.
21. The NESCS may however apply to the following localized potential HAIL activities:
 - *A10 – Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds. This relates to inferred horticultural activity in the north-western corner of Block B from the 1940s to 1960s.*
 - *A17 – Storage tanks or drums for fuel, chemical or liquid waste. This relates to above ground fuel storage tanks, a chemical store and oil drums and other chemical containers (some of which were observed to be leaking) in the vicinity of what appears to be a former motor vehicle workshop in Block B.*
 - *E1 – Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition. This relates to existing and historical buildings constructed at times when asbestos containing materials were commonly used, which have been shown to be in a deteriorated state or have been demolished.*

- *F4 – Motor vehicle workshops. This relates to one of the sheds in Block B having an inferred vehicle inspection pit, indicating possible former use as a vehicle workshop.*
 - *Activity I – Land subject to intentional or accidental release of hazardous substances in sufficient quantity that it could be a risk to human health or the environment. This relates to several burn pile locations, infilling of open drains and/or natural watercourses, stockpiled soils of unknown origin and several existing or historical buildings constructed at times when lead paint was commonly used. Stockpiled used tyres and timber fence posts were also observed being stored on a concrete pad in Block A.*
22. The approximate location and extent of these areas is shown on drawing CH01508-E-01 for Block A and drawing CH01508-E-02 for Block B in the Fraser Thomas PSI report. They represent small, localised areas within each block.
23. It should be noted that the potential HAIL activities identified during this investigation are the result of visual inspection only, and soil sampling would be required to confirm any soil contamination in these areas, if any.

Conclusion

24. In my opinion, in relation to potential contamination issues and within the limits of the investigation as outlined in the Fraser Thomas 30 November 2023 PSI report, the site is considered suitable to be rezoned for future residential development, provided the potential/actual localised contamination issues identified are appropriately investigated and managed through appropriate remediation or controls during site development.

Sean Matthew Finnigan

4 March 2024

Appendix A

Fraser Thomas Ltd “Preliminary Site Investigation Report”, dated
30 November 2023

RICHARD AND
GEOFF SPARK



Fraser Thomas

ENGINEERS • RESOURCE MANAGERS • SURVEYORS



PROPOSED DISTRICT PLAN,
REZONING REQUEST – SPARK
DAIRY FARM, BOYS ROAD,
RANGIORA

PRELIMINARY SITE
INVESTIGATION –
CONTAMINATION

RICHARD AND
GEOFF SPARK

PROPOSED DISTRICT PLAN,
REZONING REQUEST – SPARK
DAIRY FARM, BOYS ROAD,
RANGIORA

PRELIMINARY SITE INVESTIGATION - CONTAMINATION

Project No.	CH01508	Approved for Issue	
Version No.	1	Name	Sean Finnigan
Status	Final	Signature	
Authors	S Gladwin	Date	30 November 2023
Reviewer	S Finnigan		

Fraser Thomas Limited

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**PROPOSED DISTRICT PLAN, REZONING REQUEST,
SPARK DAIRY FARM, BOYS ROAD, RANGIORA**

PRELIMINARY SITE INVESTIGATION REPORT - CONTAMINATION

RICHARD AND GEOFF SPARK

EXECUTIVE SUMMARY

In response to instructions from Richard and Geoff Spark, Fraser Thomas Limited (FTL) has undertaken a Preliminary Site Investigation (PSI) for the proposed rezoning submission on Variation 1 to the Waimakariri District Plan for the subject site located at Boys Road, Rangiora.

The subject site comprises multiple titles and is best broken down into two separate areas for the purpose of this report. These areas being:

- (i) Block A: North of Boys Road (approximately 25.7 ha),
- (ii) Block B: South of Boys Road and west of a future Eastern Bypass Arterial Road (approximately 36.4 ha).

The submission is seeking that the above land be rezoned as follows:

- (1) With respect to the land south of Boys Road and west of the eastern bypass, rezone the land to Medium Density Residential (MRZ) or, in the alternative, rezone this land to MRZ, BIZ (Business Industrial Zone), Format Retail/Mixed Use or a mix of these zones,
- (2) All land north of Boys Road, and within the South East Rangiora Development Area, to MRZ.

The approximate location and extent of the subject site, and 'Block A' and 'Block B', are shown on the appended Fraser Thomas Ltd drawings CH01508-E-01 and 02.

This investigation has been managed, reviewed and approved by a Suitably Qualified and Experienced Practitioner (SQEP), as defined in the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS).

This investigation has confirmed that the subject site has been used for pastoral and minor rural residence.

In our opinion, under Regulation 5(7), the NESCS does not apply to the majority of site (i.e. open paddocks) due to no obvious potential contamination issues being identified.

The NESCS may however apply to the following localized potential HAIL activities:

- *A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.* This relates to inferred horticultural activity in the north-western corner of Block B from the 1940s to 1960s.
- *A17 – Storage tanks or drums for fuel, chemical or liquid waste.* This relates to above ground fuel storage tanks, a chemical store and oil drums and other chemical containers (some of which were observed to be leaking) in the vicinity of what appears to be a former motor vehicle workshop in Block B.
- *E1 - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition.* This relates to existing and historical buildings constructed at times when asbestos containing materials were commonly used, which have been shown to be in a deteriorated state or have been demolished.
- *F4 - Motor vehicle workshops.* This relates to one of the sheds in Block B having an inferred vehicle inspection pit, indicating possible former use as a vehicle workshop.
- *Activity I - Land subject to intentional or accidental release of hazardous substances in sufficient quantity that it could be a risk to human health or the environment.* This relates to several burn pile locations, infilling of open drains and/or natural watercourses, stockpiled soils of unknown origin and several existing or historical buildings constructed at times when lead paint was commonly used. Stockpiled used tyres and timber fence posts were also observed being stored on a concrete pad in Block A.

It should be noted that the potential HAIL activities identified during this investigation are the result of visual inspection only, and soil sampling would be required to confirm any soil contamination if any.

A Detailed Site Investigation (DSI), will be required to be undertaken in support of any proposed future subdivision application in order to determine whether it could be undertaken as a Controlled or Restricted Discretionary activity.

Overall, the site is considered suitable for rezoning for future residential development, provided the potential/actual localised contamination issues identified are appropriately investigated and managed through appropriate remediation or controls during site development.

Copyright of this report is held by Fraser Thomas Ltd. The professional opinion expressed herein has been prepared solely for, and is furnished to our client Richard and Geoff Spark, Waimakiriri District Council and Canterbury Regional Council, on the express condition that it will only be used for the works and the purpose for which it is intended.

**NATIONAL ENVIRONMENTAL STANDARD FOR ASSESSING AND MANAGING CONTAMINANTS IN
SOIL TO PROTECT HUMAN HEALTH**

**BOYS ROAD, RANGIORA
PRELIMINARY SITE INVESTIGATION - CERTIFYING STATEMENT**

I, Dr Sean Matthew Finnigan of Fraser Thomas Ltd certify that:

This Preliminary Site Investigation meets the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health, NESCS) Regulations 2011 because it has been:

- a. done by suitably qualified and experienced practitioners, and
- b. reported on in accordance with the current edition of Contaminated Land Management Guidelines No 1 – Reporting on Contaminated Sites in New Zealand, and
- c. the report is certified by a Suitably Qualified and Experienced Practitioner.

This Preliminary Site Investigation has found:

- a. The subject site has only been used for pastoral (dairy) and minor rural residential purposes.
- b. The NESCS does not apply to the majority of site due to no potential contamination issues being identified.
- c. The NESCS may however apply to the following localized potential HAIL activities:
 - *A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.* This relates to inferred horticultural activity in the north-western corner of Area B from the 1940s to 1960s.
 - *A17 – Storage tanks or drums for fuel, chemical or liquid waste.* This relates to above ground fuel storage tanks, a chemical store and oil drums and other chemical containers (some of which were observed to be leaking) in the vicinity of what appears to be a former motor vehicle workshop in Area B.
 - *E1 - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition.* This relates to existing and historical buildings constructed at times when asbestos containing materials were commonly used, which have been shown to be in a deteriorated state or have been demolished.
 - *F4 - Motor vehicle workshops.* This relates to one of the sheds in Area B having an inferred vehicle inspection pit, indicating possible former use as a vehicle workshop.
 - *Activity I - Land subject to intentional or accidental release of hazardous substances in sufficient quantity that it could be a risk to human health or the environment.* This relates to several burn pile locations, infilling of open drains and/or natural watercourses, stockpiled soils of unknown origin and several existing or historical buildings constructed at times when lead paint was commonly used. Stockpiled used tyres and timber fence posts were also observed being stored on a concrete pad in Area A.

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) who have done this investigation and have certified this report can be provided on request.

Signed: 

Date: 30 November 2023



RICHARD AND GEOFF SPARK

PROPOSED DISTRICT PLAN, REZONING REQUEST

PRELIMINARY SITE INVESTIGATION REPORT - CONTAMINATION SPARK DAIRY FARM, BOYS ROAD, RANGIORA

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CH01508-E-02 Block B PSI Site Walkover Plan

APPENDICES

A Ministry for the Environment Contaminated Sites Report Checklist

B Aerial Photographs

C Site Walkover Photos

RICHARD AND GEOFF SPARK

PROPOSED DISTRICT PLAN, REZONING REQUEST

PRELIMINARY SITE INVESTIGATION REPORT - CONTAMINATION SPARK DAIRY FARM, BOYS ROAD, RANGIORA

1.0 INTRODUCTION

In response to instructions from Richard and Geoff Spark, Fraser Thomas Limited (FTL) has undertaken a Preliminary Site Investigation (PSI) for the proposed rezoning submission on Variation 1 to the Waimakariri District Plan for the subject site located at Boys Road, Rangiora.

The subject site comprises multiple titles and is best broken down into two separate areas for the purpose of this report. These areas being:

- (i) Block A: North of Boys Road (approximately 25.7 ha),
- (ii) Block B: South of Boys Road and west of a future Eastern Bypass Arterial Road (approximately 36.4 ha).

The submission is seeking that the above land be rezoned as follows:

- (1) With respect to the land south of Boys Road and west of the eastern bypass, rezone the land to Medium Density Residential (MRZ) or, in the alternative, rezone this land to MRZ, BIZ (Business Industrial Zone), Format Retail/Mixed Use or a mix of these zones,
- (2) All land north of Boys Road, and within the South East Rangiora Development Area, to MRZ.

The approximate location and extent of the subject site, and 'Block A' and 'Block B', are shown on the appended Fraser Thomas Ltd drawings CH01508-E-01 and 02.

This investigation involved a desktop study, site walkover, and reporting associated with potential land contamination issues.

The format of this report is as follows:

- Rationale, objectives and scope of work.
- Investigation methodology.
- Site details.
- Desktop study and site walkover.
- Discussion
- Conclusions and recommendations.

Site plans, representative photographs and other relevant information are presented in appendix form.

2.0 RATIONALE, OBJECTIVES AND SCOPE OF WORK

The main rationale and objectives for this investigation were:

- To identify the main actual or potential contamination issues due to ongoing and historic use of land within the site.
- To confirm that the site is suitable or can be made suitable for the proposed rezoning and future development.

3.0 INVESTIGATION METHODOLOGY

The methodology used for this site assessment is summarised below:

1. Desktop study involving review of existing historical information for the subject site including aerial photographs, certificates of title, Waimakiriri District Council (WDC) property files, and interviews with persons familiar with the site such as current owners.
2. Site walkover investigation of the subject site, with a visual appraisal to identify any disturbed and potentially contaminated areas.
3. Preparation of a PSI report including the results of the desktop study, site walkover survey, conclusions and recommendations.
4. Provision of site plans, relevant documentation and representative photographs as appendices to this report.

Fraser Thomas Limited Health and Safety Management Plan procedures were followed throughout the duration of the investigation.

4.0 SITE DETAILS

4.1 LOCATION AND LAND USE

The subject site comprises multiple titles and is best broken down into two separate areas for the purpose of this report. These areas being:

- (i) Block A: North of Boys Road (approximately 25.7 ha),
- (ii) Block B: South of Boys Road and west of a future Eastern Bypass Arterial Road (approximately 36.4 ha).

The site is zoned “Rural zone” under the Operative Waimakiriri District Plan.

Existing residential subdivisions generally abut the western and northern boundaries of Block A and Block B. The surrounding land use that abuts the remainder of the site generally comprises rural properties.

Existing stormwater detention devices, identified as Northbrook Wetlands, abut the northern boundary of Area A.

The Rangiora Wastewater Treatment Plant is located to the south of Area B.

The approximate location and extent of the subject site is shown on the appended Fraser Thomas Ltd drawings CH01508-E-01 and 02.

4.2 TOPOGRAPHY, GEOLOGY AND SOILS

The topography within the subject site is generally flat.

At the time of the investigation reported herein, the site was generally vegetated with paddock grass.

Several existing open drains bisect the site, generally running parallel to and along paddock edges.

Northbrook Stream bisects Block A and runs along the northern and north-eastern boundaries.

In assessing the geology of the site, reference has been made to the Institute of Geological & Nuclear Sciences Geological Map 16, scale 1:250,000, “Christchurch”.

The geological map indicates that the site is underlain by alluvial deposits comprising “*Brownish-grey river alluvium*” of Late Pleistocene age.

The results of a geotechnical investigation, undertaken for the site by Fraser Thomas, comprising thirteen CPT probes and eighteen machine excavated test pits, in general, indicates that the surficial soils underlying the site are likely to comprise alluvial sediments, inferred to be of Holocene age.

4.3 PROPOSED DEVELOPMENT

The submission is seeking that the above land be rezoned as follows:

- (1) With respect to the land south of Boys Road and west of the eastern bypass, rezone the land to Medium Density Residential (MRZ) or, in the alternative, rezone this land to MRZ, BIZ (Business Industrial Zone), Format Retail/Mixed Use or a mix of these zones,
- (2) All land north of Boys Road, and within the South East Rangiora Development Area, to MRZ.

The approximate location and extent of the subject site, and 'Block A' and 'Block B', are shown on the appended Fraser Thomas Ltd drawings CH01508-E-01 and 02.

It should be noted that 17 Spark Lane, Rangiora (Lot 1 DP 418207) located in the northern part of Block A was not included in the due diligence scope of works, and therefore was not inspected during the site walkover. It is understood that this part of the site will not be part of any future subdivision.

5.0 DESKTOP STUDY AND SITE WALKOVER RESULTS

The results of the desktop study and the site walkover survey are summarised in this section and illustrated in the attached site features plans (CH01508-E-01 and 02), aerial photographs (Appendix B) and site photographs (Appendix C). Throughout the site walkover survey, a visual assessment was used to classify any foreign materials as particular contaminants, without any formal identification. Hence, reference to a specific contaminant in the survey results should essentially be read as "suspected contaminant," unless otherwise stated.

5.1 SITE IDENTIFICATION AND LAND USE

A list of the parcels making up the site, ownership details, current zoning and land use are presented in Table 1.

The CTs for three of the titles (which have historically had dwellings on them) have been reviewed. The CTs, where legible, generally show that the site has been owned by farmers since at least the 1920s.

Table 1: Site Details and Ownership History

Block	Registered Owner	Address	Appellation Title	Area (ha)	ODP Zoning - Land Use
A	Rossburn Trustee Limited	17 Spark Lane, Rangiora	Lot 1 DP 418207	2.077	Rural – Single dwelling and multiple ancillary buildings
A	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	19 Spark Lane, Rangiora	Lot 2 DP 418207	2.108	Rural - Pasture
A	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	162 Boys Road, Rangiora	Part RS 1436*	1.7275	Rural – Pasture, single dwelling and detached sheds
A	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	216 Boys Road, Rangiora	Lot 3 DP 418207	14.195	Rural – Pasture and disused dairy buildings
A	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	234 Boys Road, Rangiora	Lot 1 DP 22100	7.6738	Rural - Pasture
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	197 Boys Road, Rangiora	Part RS 1645	20.6592	Rural – Pasture and single dwelling with detached sheds
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	N/A	Part RS 316*	2.2495	Rural - Pasture
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	N/A	Part RS 316	5.0585	Rural – Pasture and single dwelling with detached garage
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	2 Gefkins Road, Rangiora	Part RS 358A*	2.3193	Rural - Pasture
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	6B Dunlops Road, Rangiora	Lot 1 DP 488220	0.5501	Rural - Pasture
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	N/A	Part RS 358A	2.5191	Rural - Pasture
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	5 Dunlops Road, Rangiora	Part RS 387	12.9499	Rural - Pasture
B	Richard Geoffrey Spark, Waterlea Trustee (2016) Limited	152 Marsh Road, Rangiora	Part RS 387	5.2179	Rural - Pasture

* Current and historical CTs reviewed

5.2 LISTED LAND USE REGISTER (LLUR)

The properties making up the site are not currently listed as potentially contaminated in the ECan Listed Land User Register (LLUR).

5.3 COUNCIL RECORDS

WDC property files were reviewed. The only relevant information found related to building consent applications submitted to Council:

- 1975 – Building permit application for a new “wintering” shed
- 1978 – Building permit application for a new “cattle loose box”
- 1978 – Building permit application for a new spare part shed
- 1979 – Building permit application for an extension to cow shed
- 1981 – Building permit application for an extension to calf house
- 1981 – Building permit application for a new spare part shed
- 1986 – Building permit application for a new building to house vintage machinery
- 1992 – Building permit application for a new workers’ cottage

The 1978 and 1981 building permit applications for a new spare part sheds list Boys Road, but no specific address. The site plans attached to the applications mention an existing workshop, and is therefore inferred to relate to the inferred workshop identified at 197 Boys Road during the site walkover.

The plans included with the 1992 workers’ cottage building permit application state that an existing house was to be demolished, and that the foundations for the proposed new dwelling were to comprise driven H5 (CCA) treated piles. Construction observation records indicate that 42 piles spaced 2m apart were driven to a depth of approximately 2.4m below the existing ground level. The footprint of the building had an area of approximately 108m².

5.4 INTERVIEWS

The following information was provided by Mr Geoff Sparks, the current owner of the site:

- The Sparks family have owned the site for over 80 years, and the predominant land use has been dairy farming.
- The paddocks have generally only been grassed for grazing. The fields have only been ploughed for regrassing purposes, generally to a depth of approximately 150mm below the existing ground surface.
- Council undertook some Northbrook Stream realignment earthworks along the north-eastern boundary of Block A. Mr Sparks recalled that his family backfilled a depression, formed as a result of these earthworks within one of the paddocks adjacent to Northbrook Stream with soil and concrete.
- An existing dwelling located in the eastern corner of Block A (162 Boys Road) is a replacement for a previously existing dwelling that was purposely burnt down sometime in the early 1980s.

- Concrete foundations, which are the remains of a historical flax mill, are located in the vicinity of Northbrook Stream along the northern boundary of Block A.
- Several buildings and structures are located approximately midway along the southern boundary of Block A. These structures were constructed from approximately 1962 to 1975, and generally comprised stockyards, several large sheds including a milk shed and a concrete pad. The buildings are understood to have been disused for approximately 20 years.
- He understood that no sheep dips or foot rot troughs had been present at the site, even prior to the Sparks family ownership.
- Above ground petrol and diesel storage tanks are present in the vicinity of the dwelling located centrally within the northern part of Block B (197 Boys Road).

5.5 AERIAL PHOTOGRAPHS

Historical aerial photographs sourced from the Environment Canterbury website were reviewed as part of the desktop study.

1941 Aerial

Block A (refer drawing CH01508-E-01 for location and extent) is largely paddocked and is vegetated with grass (pasture). There is a single dwelling and at least two detached sheds in the eastern corner (162 Boys Road). An inferred open drain can be seen in the paddock to the west of the dwelling.

The majority of Block B (refer drawing CH01508-E-02 for location and extent) is vegetated with grass (pasture), and two inferred ephemeral watercourses are visible in the southern part of the site. At least one dwelling and several detached sheds are located in the north-western corner, and what appears to be a stream or open drain in the paddock next to the dwelling. Inferred horticulture, in the form of several planted rows, is located west of the dwelling (Figure 1).

A dwelling and several sheds are also present at 197 Boys Road (central northern part of Block B).



Figure 1: Inferred horticultural activity occurring in the north-western corner of Block B (1941).

1963 Aerial

The land use of Block A remained generally unchanged. There is a new large shed along the southern boundary.

In the north-west corner of Block B, the previous horticulture activity has ceased and some of the associated sheds have been removed. At least one new shed/garage has been constructed in the vicinity of dwelling.

1969 Aerial

The land use of Block A remained generally unchanged. There is a new structure along the southern boundary (inferred to be a milking shed). Wastewater ponds have been constructed immediately to the north of Block A.

In Block B, the land use appears to be unchanged. A large structure has been constructed in the north-western corner.

1973 Aerial

The previously observed sheds in the vicinity of the dwelling in Block A have been removed and three new ones have been constructed. The remainder of the Block A site is largely unchanged.

In Block B, several new sheds have been constructed in the vicinity of the dwelling in the north-west corner. The previous horticulture activity and four associated sheds have been removed.

Several open drains that generally run parallel to the paddocks can also be seen in Block B.

1976 Aerial

A large shed has been constructed in the vicinity of the milking shed in Block A. The land use remains unchanged.

There are no significant changes to Block B.

1984 Aerial

There are two small sheds in the vicinity of the milking shed in Block A. The land use remains unchanged.

There are no significant changes to Block B.

1994 and 1995 Aerials

In 1994, no significant changes can be seen in Block A.

The north-west dwelling in Block B appears to have been replaced, and a large shed has been constructed to the south of the central dwelling.

In 1995, there appears to be no significant changes to Blocks A and B.

2000, 2005, 2013, 2018 and 2021 Aerials

The land use and site configuration across Blocks A and B generally remains unchanged.

The large structure in the north-western corner of Block B is no longer visible in 2021.

5.6 SITE WALKOVER RESULTS

A site walkover of the subject site was undertaken by a FTL Engineering Geologist, Sam Gladwin, experienced in contaminated site investigations, on 4 November 2022 as part of earlier due diligence works.

Generally, the land use across Blocks A and B comprises grassed paddocks used to graze dairy cows. Several inferred burn piles were observed in the paddocks across both areas.

A disused milking shed and associated infrastructure, including stockyards, is located along the southern boundary of Block A. Generally, the buildings are in a deteriorated condition, consistent with their age. Several piles of used tyres are also being stored in this area.

Three existing residential dwellings are located across both Blocks. The existing dwellings are located in parts of the site where historical aerial photography indicates the presence of dwellings since at least 1941. The existing dwellings, however, appear to be relatively modern and in good condition, suggesting the original buildings have been demolished. One of the dwellings, located at 162 Boys Road, Rangiora, within the eastern corner of Block A, appeared to have cladding similar in appearance to wood grain hardiplank (a possible ACM product). However, the cladding appeared to be in good condition, with no obvious damage.

Multiple other existing structures are located within the vicinity of the dwellings, generally ranging from small implement sheds to larger workshop and barn type structures.

Four above ground petrol and diesel storage tanks (AST), ranging between approximately 240L and 2,300L in volume, are located in front of the workshop in Block B (Figure 2), which appears to have been used as a vehicle workshop. A chemical storage building is also located in the vicinity of the workshop, but was unable to be accessed at the time of the site walkover. The workshop and chemical storage shed had concrete slab on ground floors which showed signs of cracking.

An earthen ramp, inferred to be used for stock loading, is located immediately to the north of the ASTs. The origin of the soils used to construct the ramp is unknown.

Several chemical containers, and oil drums (Figure 3), some of which were observed to be leaking, are being stored on bare ground to the south workshop.

At least two elongated overgrown soil mounds/stockpiles, inferred to be septic disposal fields were observed within the vicinity of two of the dwellings (one each in Block A and Block B). The origin of the soils used to create these mounds is unknown.

No evidence of the inferred horticultural activity or associated sheds from the 1940s in the north-western corner of Block B was observed during the site walkover.

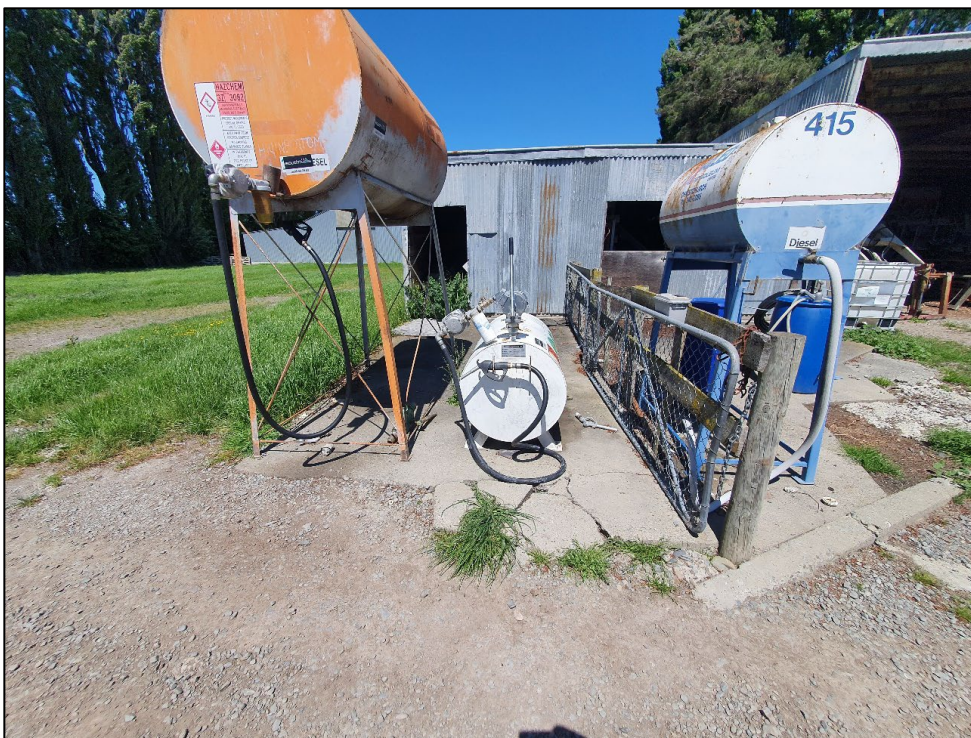


Figure 2: ASTs location showing some discolouration of ground beneath filling points, indicating minor spillage. Note that concrete show signs of cracking and there are no containment bunds.



Figure 3: Example of oil drums observed to be leaking on to ground. The colour indicates likely waste oil.

6.0 DISCUSSION

6.1 SUMMARY OF KEY FINDINGS

The site appears to have been predominantly used for dairy farming since at least 1941.

During this time, multiple buildings, including dwellings and various types of sheds associated with farming, have been present at the site.

There are three existing dwellings located across Blocks A and B. The locations of the dwellings have generally been consistent since 1941. However a review of council property files and information from the owner have confirmed that previously existing dwellings, and some associated detached sheds have been demolished. The existing dwelling, located at 162 Boys Road, Rangiora, within the eastern corner of Block A, appeared to have cladding similar in appearance to wood grain hardiplank (a possible ACM product). However, the cladding appeared to be in good condition with no obvious damage.

Multiple above ground fuel storage tanks, chemical; storage and oil drums all within the vicinity of the workshop. There is visual evidence, that some of the oil drums are leaking.

Historical infilling of inferred streams, open drains and a depression formed as a result of Northbrook Stream realignment, using soils and concrete, has occurred at the site. The composition and origin of the soil material used for infilling is generally unknown.

Stockpiled soils of unknown composition and origin, including those used to form a loading ramp and inferred septic disposal fields were also observed at the site.

The potential/actual HAIL activities identified during the desktop study and site walkover are presented in Table 2.

The approximate location and extent of the potential/actual HAIL activities identified during the desktop study and site walkover are shown on appended Fraser Thomas drawings CH01508-E-01 and CH01508-E-02.

Table 2: Potential/actual HAIL activities identified during the desktop study and site walkover

HAIL Activity	Block	Site observations
A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.	B	Inferred horticultural activity in north-western corner from 1940s-1960s.
A17 - Storage tanks of drums for fuel, chemicals or liquid waste	B	Several above ground fuel storage tanks located in the vicinity of the workshop.
	B	Chemical store located in the vicinity of the workshop.
	B	Oil drums and other chemical containers, some of which were observed to be leaking, being stored on bare ground in the vicinity of workshop.
E1 - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition	A and B	Several existing and historical older buildings, constructed at times when asbestos containing material (ACM) was commonly used, which have been shown to either be in a deteriorated state or have been demolished.
F4 - Motor vehicle workshops	B	One of the sheds/ garages was observed to have an inferred vehicle inspection pit indicating possible use as a workshop.
Activity I - Land subject to intentional or accidental release of hazardous substances in sufficient quantity that it could be a risk to human health or the environment	A and B	Several inferred burn pile locations were observed within the paddocks.
	A	Confirmed infilling of a depression along Northbrook stream with soil and man-made material (concrete).
	A and B	Inferred infilling of open drains and/or natural watercourses with soils of unknown origin.
	A and B	Stockpiled soils of unknown origin (septic field disposal field and earthen loading ramp).
	A and B	Several existing and historical older buildings, constructed at times when lead paint was commonly used, which have been shown to either be in a deteriorated state or have been demolished

6.2 CONCEPTUAL SITE MODEL

Possible sources of soil contamination are heavy metal, hydrocarbon and asbestos contaminated soils in the vicinity of the potential HAIL activities listed in Table 2 and shown on the appended Fraser Thomas drawings CH01508-E-01 and CH01508-E-02.

The following exposure pathways are considered most applicable for the areas of potential contamination identified at the subject site:

- Direct contact with potentially contaminated soils, via inhalation and ingestion of dust, during soil disturbance.
- Contaminant leaching into groundwater and/or surface water bodies (i.e. Northbrook Stream and open drains).

Potential receptors are likely to be future site users (soil disturbance, produce consumption) and ecological (aquatic organisms).

It should be noted that the potential HAIL activities identified during this investigation are the result of visual inspection only, and soil sampling would be required to confirm any soil contamination if any.

6.3 NESCS CONSENTING REQUIREMENTS

The NESCS governs a number of activities, including soil sampling, soil disturbance, subdivision and changes of land use on potentially contaminated land in New Zealand. In general, the rules of the NESCS apply to sites on which it is “more likely than not” that a HAIL (Hazardous Activities and Industries List) activity has occurred or is occurring Regulation 5(7).

In our opinion, under Regulation 5(7), the NESCS does not apply to the majority of site (i.e. open paddocks) due to no obvious potential contamination issues being identified.

The NESCS may however apply to the localized potential and actual HAIL activities listed in Table 2.

Hence, a Detailed Site Investigation (DSI), will be required to be undertaken in support of any proposed future subdivision application in order to determine whether it could be undertaken as a Controlled or Restricted Discretionary activity.

It is recommended that these potential/actual HAIL areas be further investigated and remediated, as necessary, as part of enabling (pre-construction) works prior to any bulk earthworks or other soil disturbance activities.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This investigation has confirmed that the majority of subject site has been used for dairy farming and minor rural residential activities since at least 1941 to present day.

In our opinion, under Regulation 5(7), the NESCS does not apply to the majority of site (i.e. open paddocks) due to no obvious potential contamination issues being identified.

The NESCS may however apply to the following localized potential HAIL activities:

- *A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.* This relates to inferred horticultural activity in the north-western corner of Block B from the 1940s to 1960s.
- *A17 – Storage tanks or drums for fuel, chemical or liquid waste.* This relates to above ground fuel storage tanks, a chemical store and oil drums and other chemical containers (some of which were observed to be leaking) in the vicinity of what appears to be a former motor vehicle workshop in Block B.
- *E1 - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition.* This relates to existing and historical buildings constructed at times when asbestos containing materials were commonly used, which have been shown to be in a deteriorated state or have been demolished.
- *F4 - Motor vehicle workshops.* This relates to one of the sheds in Block B having an inferred vehicle inspection pit, indicating possible former use as a vehicle workshop.
- *Activity I - Land subject to intentional or accidental release of hazardous substances in sufficient quantity that it could be a risk to human health or the environment.* This relates to several burn pile locations, infilling of open drains and/or natural watercourses, stockpiled soils of unknown origin and several existing or historical buildings constructed at times when lead paint was commonly used. Stockpiled used tyres and timber fence posts were also observed being stored on a concrete pad in Block A.

It should be noted that the potential HAIL activities identified during this investigation are the result of visual inspection only, and soil sampling would be required to confirm any soil contamination if any.

A Detailed Site Investigation (DSI), will be required to be undertaken in support of any proposed future subdivision application in order to determine whether it could be undertaken as a Controlled or Restricted Discretionary activity.

It is recommended that these potential/actual HAIL areas be further investigated and remediated, as necessary, as part of enabling (pre-construction) works prior to any bulk earthworks or other soil disturbance activities.

Overall, the site is considered suitable to be rezoned for future residential development, provided the potential/actual localised contamination issues identified are appropriately

investigated and managed through appropriate remediation or controls during site development.

8.0 LIMITATIONS

We have performed our services for this project in accordance with current professional standards for an assessment of the nature and extent of any soil contamination on-site, based upon detailed site assessment investigations and current regulatory standards for site contamination. The scope of the site assessment activities was generally in accordance with the Ministry for Environment Contaminated Land Management Guideline's (Parts 1 (2021), 2 (2011) and 5 (2021)) and the NESCS (2011). Conclusions on actual or potential contamination cannot be applied to areas outside of the site investigation.


We do not assume any liability for misrepresentation or items not visible, accessible or present at the subject site during the time of the site inspection.

Copyright of this report is held by Fraser Thomas Ltd. The professional opinion expressed herein has been prepared solely for, and is furnished to our client Richard and Geoff Spark, Waimakiriri District Council and Canterbury Regional Council, on the express condition that it will only be used for the works and the purpose for which it is intended.

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Figures/Drawings

Legend

 Approximate location of inferred burnpile observed during the site walkover

Approximate location and extent of Area A which was not part of the due diligence scope of works, and therefore was not inspected during the site walkover

Block A

North Brook Stream

Approximate location and extent of depressions inferred to have been formed as a result of Northbrook Stream realignment works, which are understood to have been infilled with soil and man-made material (concrete) - Potential HAIL I

Stockpiled soils of unknown origin, inferred to be associated with a septic disposal field - Potential HAIL I

Several existing buildings, including a milking shed and associated infrastructure including stockyards constructed at times when asbestos containing material (ACM) and lead paint were commonly used, which are in a deteriorated state - Potential HAIL E1 and I

Approximate location and extent of an inferred open drain observed in the 1941 aerial, which appears to have been back filled with soils of unknown origin - Potential HAIL I

Approximate location and extent of existing and historical buildings, constructed at times when asbestos containing material (ACM) and lead paint were commonly used, which are either in a deteriorated state or have been demolished (dwelling burnt down in early 1980s) - Potential HAIL E1 and I

PALMVIEW DRIVE

BOYS ROAD




SURVEYED	FTL	25/11/22	APPROVED	DATE
DESIGNED			MVR	
DRAWN				
CAD	GN	01/12/22		
CHECKED	KT	01/11/22		
REVISION	CHANGES		CHECKED	DATE

- NOTES
1. The location and extent of the site boundaries have been adopted from Landonline and from the available Council road designation information.
 2. The location and extent of the potential HAIL activities have been determined from historical aerial photographs and a visual appraisal, and are therefore considered approximate only.

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PROJECT
**NORTHBROOK SUBDIVISION,
BOYS ROAD, RANGIORA**

TITLE
**BLOCK A
PSI SITE WALKOVER PLAN**



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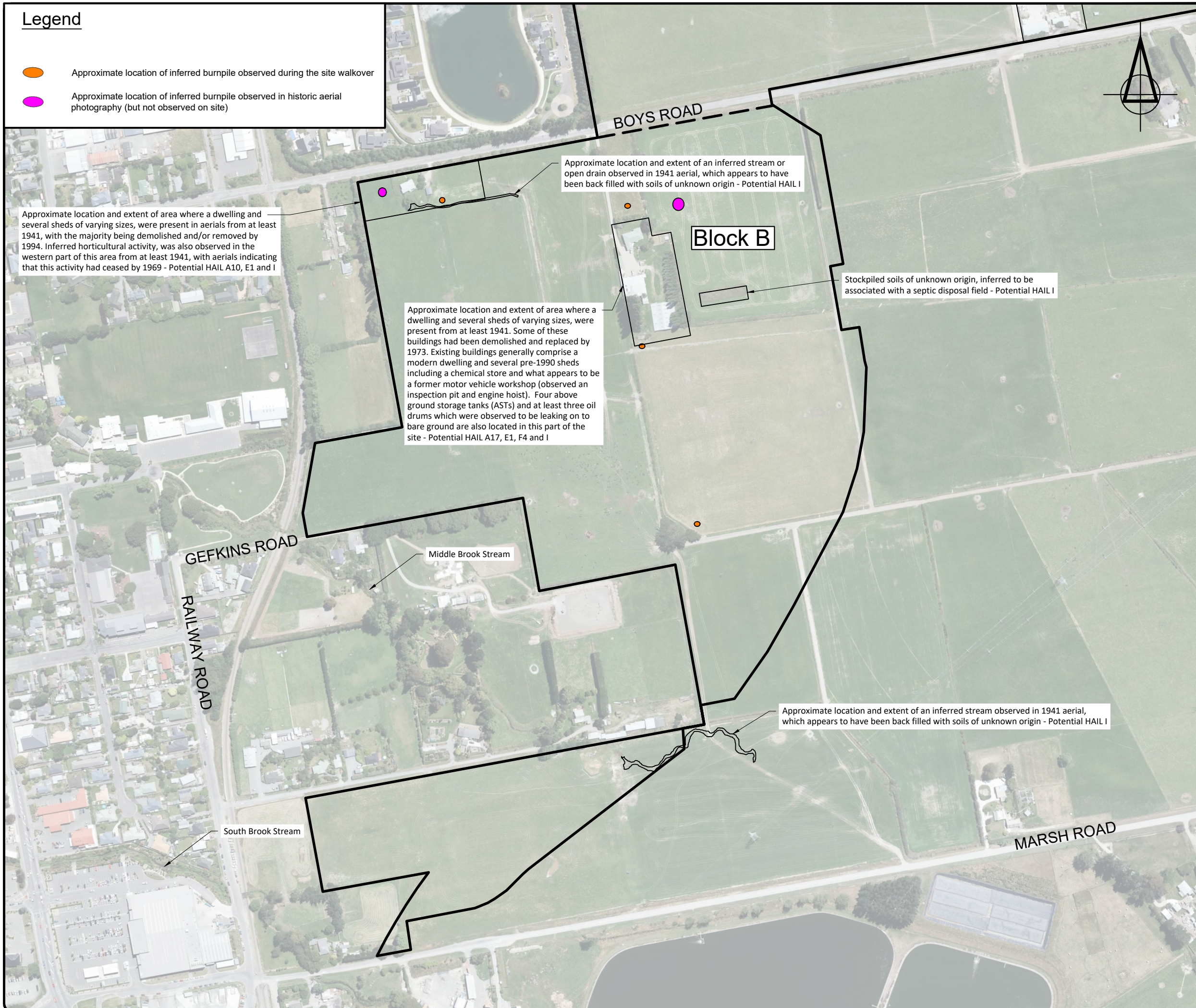
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DRAWING No. CH01508-E-01 REVISION

SHEET 1 of 1

Legend

- Approximate location of inferred burnpile observed during the site walkover
- Approximate location of inferred burnpile observed in historic aerial photography (but not observed on site)



SURVEYED	FTL	25/11/22	APPROVED	DATE
DESIGNED			MVR	
DRAWN				
CAD	GN	01/12/22		
CHECKED	KT	01/11/22		
REVISION	CHANGES		CHECKED	DATE


NOTES

- The location and extent of the site boundaries have been adopted from Landonline and from the available Council road designation information.
- The location and extent of the potential HAIL activities have been determined from historical aerial photographs and a visual appraisal, and are therefore considered approximate only.

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NORTHBROOK SUBDIVISION,
BOYS ROAD, RANGIORA

TITLE
BLOCK B
PSI SITE WALKOVER PLAN



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Appendix A

***Ministry for the Environment
Contaminated Site Report Checklist***

RICHARD AND GEOFF SPARK

PROPOSED DISTRICT PLAN, REZONING REQUEST

PRELIMINARY SITE INVESTIGATION REPORT - CONTAMINATION

SPARK DAIRY FARM, BOYS ROAD, RANGIORA

SUMMARY CONTAMINATED SITES REPORT CHECKLIST

Content	Required	Required if relied on	CLMG 5 section
1. Introduction			
• investigation objectives	<input checked="" type="checkbox"/>		2.1
• site identification (site name, address, legal description; site boundaries; a map reference and geographic coordinates)	<input checked="" type="checkbox"/>		3.3.1
• proposed site use		<input checked="" type="checkbox"/>	3.3.2
2. Site description			
• environmental setting		<input checked="" type="checkbox"/>	3.3.3
• site layout	<input checked="" type="checkbox"/>		3.3.4
• current site uses	<input checked="" type="checkbox"/>		3.3.5
• surrounding land uses	<input checked="" type="checkbox"/>		3.3.6
• geophysical surveys		<input type="checkbox"/>	5.1
• site inspection		<input checked="" type="checkbox"/>	3.3.8
3. Historical site use			
• summary of site history gained from:	<input checked="" type="checkbox"/>		3.3.7
– review of existing investigation reports		<input type="checkbox"/>	
– review of council information		<input checked="" type="checkbox"/>	
– review of aerial photographs		<input checked="" type="checkbox"/>	
– interviews		<input checked="" type="checkbox"/>	
– review of other historical information		<input type="checkbox"/>	
• preliminary sampling (if carried out)		<input type="checkbox"/>	3.3.9
– description (including diagram)			
– justification for sample location and analyte selection			
– results			
– comparison of results to guidelines			
4. Risk assessment			
• evaluate the probability that pursuant to regulation 6 (3):	<input checked="" type="checkbox"/>		3.3.11
• – <i>an activity or industry described in the HAIL is, or is not, being undertaken on the piece of land, or</i>			
• – <i>an activity or industry described in the HAIL has, or has not, been undertaken on the piece of land, or</i>			
• – <i>the likelihood of an activity or industry described in the HAIL being undertaken, or having been undertaken, on the piece of land</i>			

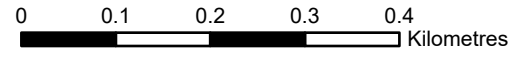
<ul style="list-style-type: none"> evaluate the probability that pursuant to regulation 6 (3): <ul style="list-style-type: none"> – the likelihood that the soil is contaminated as a result of activity or industry occurring description of the limitations of the data collected and the assumptions and uncertainties inherent in the data and models used 	<input checked="" type="checkbox"/>		2.2
	<input checked="" type="checkbox"/>		7.3.1
5. Conclusions		<input checked="" type="checkbox"/>	
6. Recommendations (if relevant to report purpose)		<input checked="" type="checkbox"/>	
7. Report limitations		<input checked="" type="checkbox"/>	
8. SQEP certification of report (refer appendix C)		<input checked="" type="checkbox"/>	1.2
9. References		<input type="checkbox"/>	
Appendices: relevant supporting information			
Supporting information		Required	Required if relied on
Figures			<input checked="" type="checkbox"/>
Land titles			<input checked="" type="checkbox"/>
Historical site information relied upon (if not included in report body)		<input checked="" type="checkbox"/>	
Site photographs (if site inspection carried out)			<input checked="" type="checkbox"/>
Other supporting information			<input type="checkbox"/>
Statement of qualification as a SQEP		<input checked="" type="checkbox"/>	

Appendix B

Aerial Photographs

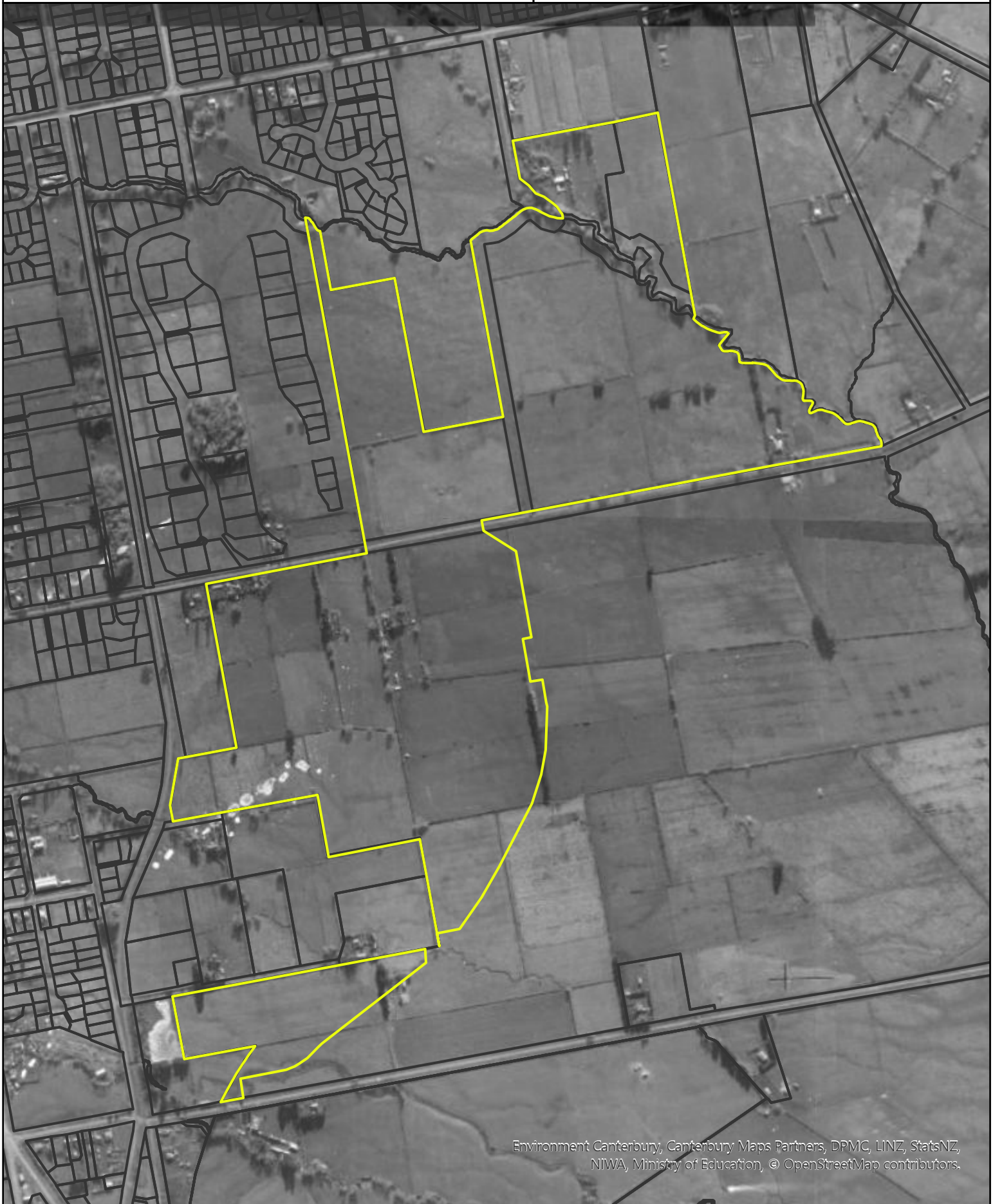
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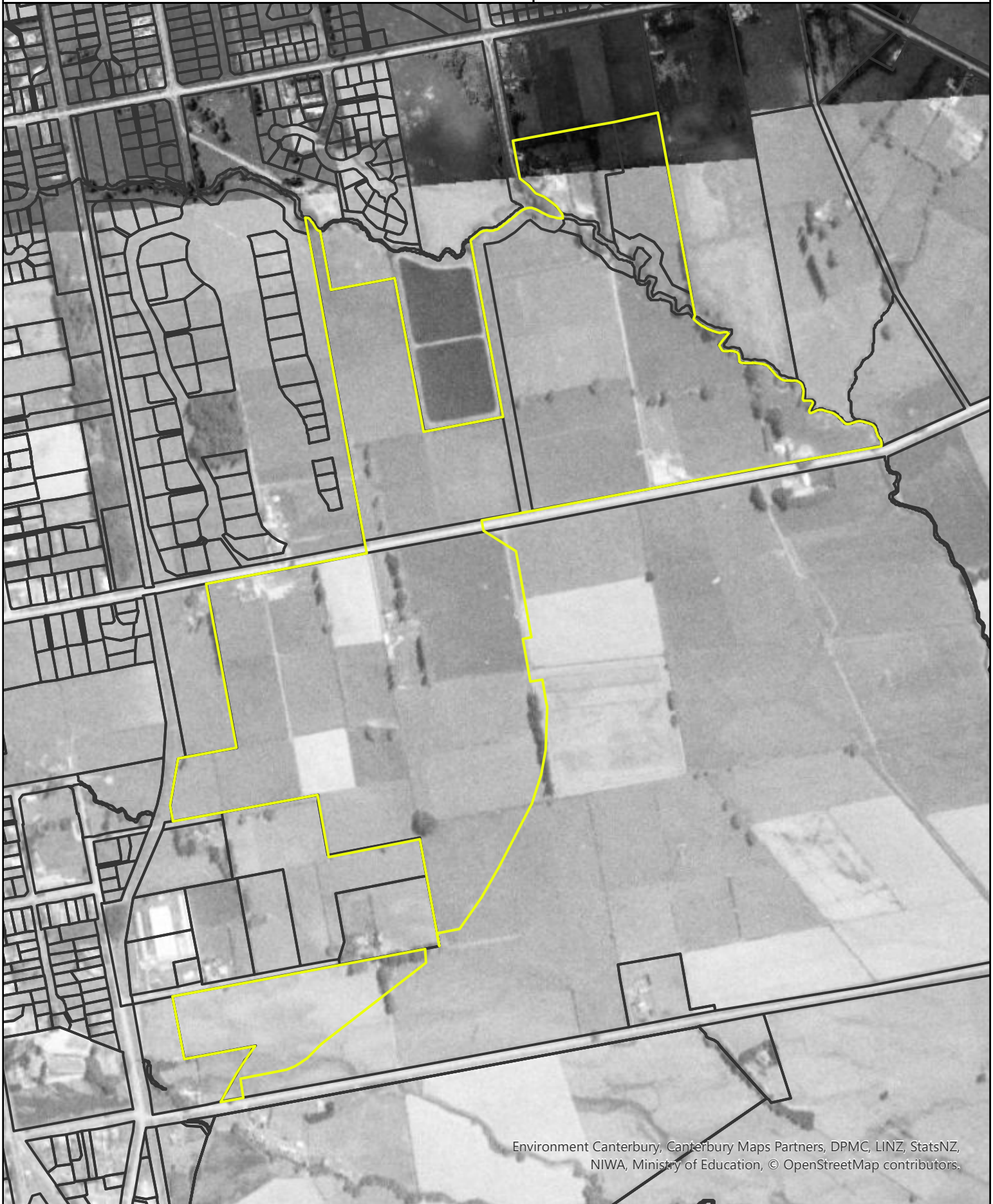
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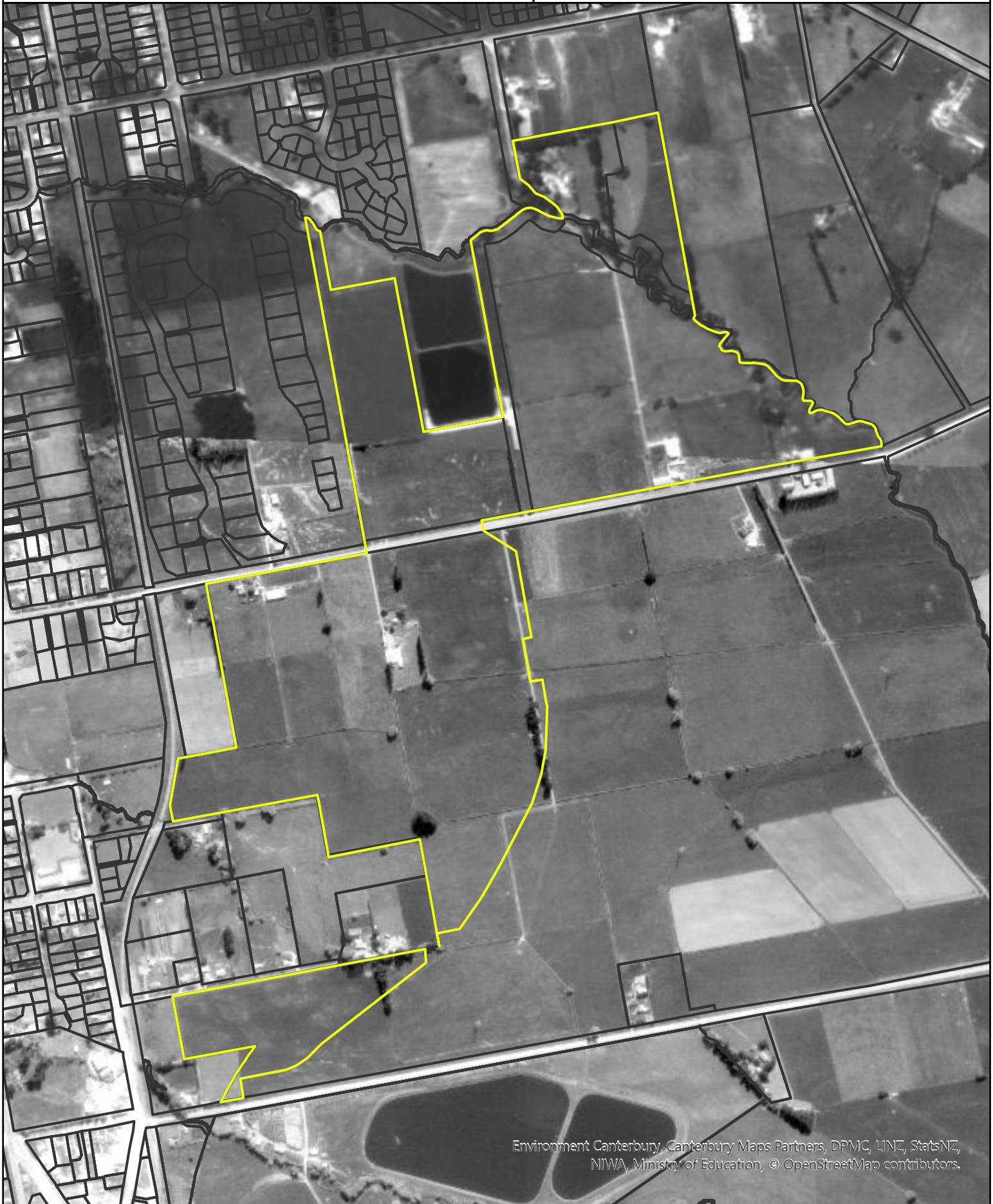
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Scale: 1:8,000 @A4

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Appendix C

Site Walkover Photographs

Site Walkover Photographs – 4 November 2022

Boys Road, Rangiora – Block A



P1: Paddock in eastern corner of Block A.



P2: Inferred area where infilling was undertaken after stream realignment works.



P3: Evidence of buried concrete in infilled area.



P4: Soil mound inferred to be associated with a septic disposal field in eastern corner of Block A.



P5: Small implement style shed at southern end of disposal field



P6: Stockpiled concrete in eastern corner of Block A.

Boys Road, Rangiora – Block A



P7: Old sheds in eastern corner of Block A. Currently used as a chicken coop.



P8: Internal view of sheds.



P9: Close up of smaller shed.



P10: Shed in P9 being used to store various refuse items, presumed on earth floor.



P11: Garage (circa 1970s) in eastern corner of Block A.



P12: Internal view of garage.

Boys Road, Rangiora – Block A



P13: Dwelling located in eastern corner of Block A (162 Boys Road). This dwelling is inferred to be a replacement for a previous dwelling burnt down in the early 1980s.



P14: View looking west across site towards milking sheds (background).



P15: View of milking sheds and stockyards along southern boundary of Block A.



P16: Close up of milking sheds, which appear to be clad with some type of stucco type cladding.



P17: Milking pit, concrete lined.



P18: Large shed, inferred to be used as a calf pen.

Boys Road, Rangiora – Block A



P19: Internal view of shed inferred to have been used as a calf pen.



P20: Concrete pad area associated with milking sheds. Currently used to store covered hay held down with used tyres.



P21: Smaller shed inferred to be used as a calf pen.



P22: Internal view of shed, showing concrete floor.



P23: Small shed.



P24: Internal view of shed, appears to have a concrete floor.

Boys Road, Rangiora – Block A



P25: Used tyres being stored on concrete pad next to a large shed.



P26: Close up view of used tyres stored on concrete pad.



P27: Large shed inferred to have been used for covered feeding.



P28: Internal view of large shed.



P29: Internal view of large shed.



P30: View of used tyre stockpile also showing presence of timber fence posts.

Boys Road, Rangiora – Block A



P31: Inferred burn pile located along northern perimeter of Block A.



P32: Small shed located next to burn pile shown in P31.



P33: Close up of items (old drums and machinery) on top of shed which appear to have been subjected to heat (i.e. possibly burnt in burn pile).



P34: Small shed located along northern perimeter of Block A which is generally used to store lengths of clay pipe.



P35: View looking south-west across the northern part of Block A.



P36: View looking south-west across the southern part of Block A.

Site Walkover Photographs – 4 November 2022

Boys Road, Rangiora – Block A



P37: Stockpiled soils in southern part of Block A, inferred to have come from site.



P38: Looking west across southern part of Block A.



P39: Looking north along the western part of Block A.

Boys Road, Rangiora – Block B



P40: Inferred footprint of burn pile in paddock to north of dwelling (197 Boys Road) in Block B. Plastic and charred timber was observed within the pile.



P41: Modern well-kept dwelling (197 Boys Road) in Block B.



P42: Small garage located to south of dwelling.



P43: Flaking paint on garage doors.



P44: Small chemical storage shed at rear of garage. Could not be accessed at time of site walkover. The paint and oil cans are sitting on a concrete pad.



P45: Large shed structure south of dwelling.

Boys Road, Rangiora – Block B



P46: Western half of large shed. The feature on the floor looks similar to a vehicle inspection pit indicating possible historical use as a workshop.



P47: Eastern half of large shed, generally used for implement storage.



P48: Four petrol and diesel above ground storage tanks (ASTs) located on a concrete pad north of large shed.



P49: Close up view of ASTs showing some discolouration of ground beneath filling points, indicating minor spillage. Note that concrete show signs of cracking and there are no containment bunds.



P50: Earthen loading ramp north of ASTs, constructed with soils of unknown origin.



P51: Lean to implement shed with earthen floor along eastern side of large shed. Used to store various old farm equipment.

Boys Road, Rangiora – Block B



P52: Internal view of lean to implement shed.



P53: Small separate room of implement shed. The chemical containers visible were empty but used to hold chemicals used to sanitise cow teats (e.g. hypochlorite and chlorhexidine).



P54: Dilapidated timber garage behind implement shed.



P55: Area behind the large implement shed/workshop where several items of farm equipment and old oil drums were observed being stored in bare ground.



56: Oil drum lying on its side which has been pierced and is leaking oil.



P57: Two more oil drums observed to be leaking on to ground. The colour indicated likely waste oil.

Boys Road, Rangiora – Block B



P58: Contaminated soil from leaking.



P59: Old shed visible in 1941 aerial. Suspected to have possible ACM roofing.



P60: Suspected possible ACM roofing on shed.



P61: Inferred burn pile south of shed. Note presence of timber fence posts (possibly CCA treated).



P62: Large barn style shed, could not be accessed at time of walkover.



P63: Soil mound inferred to be associated with a septic disposal field in a paddock to the east of the large barn style shed.

Boys Road, Rangiora – Block B



P64: View looking south-west across eastern paddock. P65 shows a burn pile in opposite corner of this paddock.



P65: Inferred burn pile located in eastern paddock



P66: Looking west across southern paddocks.



P67: View looking north across western paddocks.



P68: North-western corner of Block B, where aerials indicate horticultural activity occurred in the 1940s. Secondary dwelling (197 Boys Road) in background.



P69: Burn pile located east of dwelling shown in P68.