

Appendix 13: Archaeological Assessment Report

Smooth Hill Landfill

Archaeological Assessment for Site No.
I45/71, I45/72, I45/67, I45/80, I45/81, I45/82

Report Prepared for Boffa Miskell
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Submitted: August 2020

Smooth Hill Landfill

Archaeological Assessment for Site No. I45/71, I45/72, I45/67, I45/80,
I45/81, I45/82

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Project Details

Archaeological Site No.	I45/71, I45/72, I45/67, I45/80, I45/81, I45/82
Site Address	200 McLaren Gully Road; 700 and 750 Big Stone Road; Big Stone Road; McLaren Gully Road, Paper Road (Lot 4 and 5, DP 21420; Lots 1 and 2, DP 457417; Sections 1 and 2, Section 21, Block III, Ōtokia SD; Big Stone Road Reserve; McLaren Gully Road Reserve; Paper Road)
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Approved Archaeologist	Megan Lawrence
Report Submitted	August 2020
Report Submitted To	Boffa Miskell; Heritage New Zealand Pouhere Taonga; Aukaha; Dunedin City Council; Otago Regional Council

Ownership and Disclaimer

This report has been prepared for Boffa Miskell in relation to a specific work program at I45/71, I45/72, I45/67, I45/80, I45/81, and I45/82 (at 200 McLaren Gully Road, 700 and 750 Big Stone Road as well as the road reserves of Big Stone Road and McLaren Gully Road). This report and the information contained herein are subject to copyright. Ownership of the primary materials created in the course of the research remains the property of the named researchers and New Zealand Heritage Properties Ltd. This report remains the property of Boffa Miskell and New Zealand Heritage Properties Ltd.

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Executive Summary

The Dunedin City Council (DCC) propose to undertake the construction, operation and aftercare of a Class 1 landfill at Smooth Hill, located in the coastal ranges between State Highway 1 to the west and Taieri Mouth Road and the coast to the east. The landfill will be accessed from off State Highway 1 via McLaren Gully Road and Big Stone Road, requiring improvements to the State Highway junction as well as the widening and realignment of McLaren Gully Road and Big Stone Road. New Zealand Heritage Properties Ltd (NZHP) has been commissioned to undertake an archaeological assessment of the Smooth Hill Landfill area at 700 and 750 Big Stone Road, Brighton as well as the road reserves of Big Stone Road and McLaren Gully Road, Brighton and Ōtokia and two paper roads (Lots 1 and 2, DP 457417; Big Stone Road Reserve; McLaren Gully Road Reserve; Paper Road ID 4213; Paper Road ID 9838) to accompany the archaeological authority application as required by the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014) and support the applications for resource consent and notice of requirement.

Two previously recorded archaeological sites were recorded within the existing designation area: I45/71 and I45/72. Historical research of these sites indicates that they were associated with the Flett family in the second half of the nineteenth century and the early twentieth century. An exact date was not identified for the construction of the buildings of which partial remains still stand today. However, I45/72 is likely associated with early Flett occupation on the farm in the mid-1860s. This is supported by the fact the structure recorded at this site (and still present today) is an earth-walled construction. The earth-walled structure will be demolished as a result of the proposed works.

The Flett family likely constructed a new farmstead in 1885. The partial remains of this timber, roughcast and corrugated iron building are still present on the site which is now recorded as I45/71. As mitigation for adverse effects on archaeological values elsewhere, this building will be retained. Other archaeological remains associated with the Flett occupation of both sites (I45/71 and I45/72) may also exist subsurface within the wider site extent. Such remains may be impacted as a result of the earthworks within the landfill operational extent.

There were several archaeological sites associated with farmstead recorded in the properties adjacent to McLaren Gully Road (I45/67, I45/80, I45/81, and I45/82). Historical research shows the brick and slate roofed building recorded at I45/67 still present on the site today was likely constructed by Peter McLaren the Younger in the late 1870s or early 1880s, though there was likely an earlier building on the premise from possibly as early as 1864. Following Peter the Younger's insolvency, the property was occupied by several leases into the twentieth century. There were no pre-1900 physical remains visible within or immediately adjacent to the road boundary. Three other farms adjacent to the road reserve project area were recorded during the course of this assessment, Rileys', Guthries', and the Souness' farms all likely occupied from the 1860s and 1870s onwards. No physical remains were noted in current aerial photographs or from the road reserve on these properties except for large exotic trees demarcating the general extent of where buildings were located historically. Adjacent to the road boundary, any road widening has the slight potential to modify archaeological remains associated with these farmsteads such as fenceposts or rubbish pits that have extended, or were purposefully dumped, into the road reserve in the past.

The Palmers' farm also extends into the project area. However, no physical remains were identified within the project area and the recorded archaeological site for this farm (I45/79) is located outside of project area, on either side of State Highway 1 where the farmstead and other ancillary farm buildings were located.

There are no scheduled items on the Dunedin City District Plan or on the 2GP within the project area, however an archaeological alert layer surrounds archaeological site I45/67 in the 2GP. There are further no listed items on the New Zealand Heritage List/Rārangī Kōrero.

Two sites (I45/71 and I45/72) were identified to have **medium** archaeological values given the presence of archaeological structural remains, which although in poor condition, have the potential to contribute to our

understanding of the development of farming by individual families and the wider district. One site (I45/67) was assessed to have **medium-high** archaeological values as the entirety of a pre-1900 building still remains on the property and the exterior of which is easily visible from the road and appears to be in good condition. The remainder of the sites (I45/80, I45/81, and I45/82) have been identified to have **low-medium** archaeological values as there were no structural remains visible from the roadside or current aerial images. However, they too may contribute our knowledge of small family run farms in the Ōtokia district. While the proposed works will impact or have a high likelihood of impacting archaeological remains associated with I45/71 and I45/72 (especially the latter), it is less likely that archaeological remains associated with I45/67, I45/80, I45/81, and I45/82 will be impacted.

Sites affected by the Smooth Hill Landfill development

NZAA Site Id	Site Name	Site Location	Brief Description
I45/71	Fletts' Farm	700 Big Stone Road	1880s farmstead associated with the Flett family
I45/72	Fletts' Farm	750 Big Stone Road	Likely pre-1880s farmstead associated with the Flett family
I45/67	McLarens' Farm	109 McLaren Gully Road	Farmstead associated with the McLaren family from the 1860s
I45/80	Rileys' Farm	Part 200 Christies Gully Road	Farmstead associated with the Riley family from the 1860s
I45/81	Guthries' Farm	Part 949 Allanton-Waiholā Road	Farmstead associated with the Guthrie family from the 1870s
I45/82	Souness' Farm	Part 949 Allanton-Waiholā Road	Farmstead associated with the Souness family from the 1860s

As such, NZHP makes the following recommendations:

1. As a first principle, every practical effort should be made to avoid damage to any archaeological site, whether known, or discovered during any redevelopment of the site.
2. An archaeological authority under Section 44 of the HNZPTA 2014 should be obtained from the HNZPT prior to any modification of the site.
3. If re-development plans are altered from those reviewed by NZHP for this assessment (Appendix A), the HNZPT need to be alerted in the first instance.
4. Prior to the commencement of work, an archaeological site briefing should be delivered to all contractors undertaking earthworks that may affect archaeology. The briefing will outline: the history of the site and its archaeological potential; the standing archaeological remains to be retained; the role of the archaeologist and requirements for archaeological involvement; what sort of archaeological features could be expected and what they might look like; what to do if they find a possible archaeological site and the archaeologist is not on site; and the process required to record and investigate these archaeological deposits should any be discovered.
5. Specific Recommendations for Red, Yellow, and Green Hazard Zones
 - a. All works within **red zones** require archaeological monitoring, and an archaeologist must be consulted during all works in red zones. Over the course of works, the archaeologist may identify that a variation in archaeological involvement is necessary.
 - b. An archaeologist should be alerted to works occurring within the **yellow zone**. While works in the yellow zone require no formal archaeological monitoring on-call protocols (OCP) shall be adhered to. If suspected archaeological material is encountered at any stage and an archaeologist is not present, works must stop in the immediate area of the find (25m for burials, 10m for all other finds), and the approved archaeologist must be alerted in the first instance ascertain whether it is archaeological and if so, to record the material.
 - c. **Green zones** require no formal archaeological monitoring; however, OCP shall be adhered to. If, at any stage, suspected archaeological material is encountered in a green zone, works must stop in the immediate area of the find (25m for burials, 10m for all other finds), and an archaeologist be alerted to ascertain whether it is archaeological and record the material if it is.
6. Any archaeological features or recovered material in any red, yellow or green zone should be appropriately recorded and analysed.
7. If at any stage during the redevelopment Māori material is discovered, NZHP should be called in the first instance. NZHP will assist the Dunedin City Council to contact all relevant parties, including HNZPT and local iwi through Aukaha. If Māori material does exist in the area to be developed, damage to this

should be minimised. Any Māori artefacts will be, prima facie, property of the Crown and will be submitted to the appropriate institutions.

8. A full report on any archaeological material that is found should be prepared and submitted to the HNZPT within one year of the completion of archaeological site works.

Specific recommendations have been made for archaeological sites I45/71 and I45/72:

1. For archaeological site I45/71:
 - a. A baseline survey and periodic monitoring should be undertaken for the standing structures on the site. The baseline survey will involve a non-invasive Level III standard recording as outlined in the guidelines established by Heritage New Zealand Pouhere Taonga (2018).
 - b. The standing structures should be preserved as a ruin. This would involve vegetation removal, stabilisation and would benefit from the construction of a protective cover established overhead.
 - c. Plans for such a protective structure should be approved by HNZPT prior to the start of works and any associated earthworks monitored by an archaeologist.
 - d. During works establishing the Smooth Hill Landfill, protection measures should be implemented to protect the building. This should be in the form of temporary site fencing to enclose the standing structure preventing inadvertent collisions with the standing remains and contractors from entering the site unnecessarily.
 - e. A 10m archaeological buffer zone should be established around the standing building to reduce the chance of future impacts to the site. Infrastructure works such as the establishment of the landfill facilities and proposed access road as well as planting of productive pine forest, must remain outside of the 10 m buffer. However, landscaping, pathways and other amenity upgrades should be permitted within the buffer zone subject to appropriate monitoring under the HNZPTA 2014.
 - f. Public Interpretation should be provided for the archaeological site.
2. For archaeological site I45/72
 - a. Prior to demolition the building remains associated with this site should be recorded to a minimum of a Level III standard as outlined in the guidelines established by Heritage New Zealand Pouhere Taonga (HNZPT, 2018).
 - b. An archaeological hand excavation should be undertaken immediately around the footprint of the earth-walled building to determine the building extent and to investigate construction methods and modifications, as well as a more specific age for the building.

Overall if the recommended mitigation steps outlined in this report are followed, including the protection and retention of I45/71 as a ruin, NZHP considers that the potential adverse effects of the Smooth Hill Landfill project on the archaeological values will be low.

Abbreviations

Abbreviation	Definition
DCC	Dunedin City Council
HNZPT	Heritage New Zealand Pouhere Taonga
HNZPTA 2014	Heritage New Zealand Pouhere Taonga Act 2014
NZAA	New Zealand Archaeological Association
NZHP	New Zealand Heritage Properties Limited
RMA 1991	Resource Management Act 1991

Qualifications

Megan Lawrence is a Principal Archaeologist at New Zealand Heritage Properties Limited (NZHP). She has been with this company for almost two years but has worked as heritage consultant for five years. From the University of Otago, Megan holds a Masters with Distinction in Archaeology concentrating on nineteenth-century material culture remains, as well as a first-class BA Honours degree in Anthropology focusing on pXRF analysis of obsidian artefacts.

Russell Cook has been working for NZHP since March 2019 as an Associate Archaeologist. He has been working as an archaeologist in New Zealand, Australia, and Canada from 2011. Russell holds his Masters in Northern Environments and Cultures focusing on organic residue analysis from Lakehead University in Thunder Bay, Canada. He also holds a BA Honours degree in North American pre-contact archaeology from Wilfrid Laurier University in Waterloo, Canada.

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Dr Hayden Cawte is managing director of NZHP. Hayden has over 18 years' experience in national and international heritage and archaeological consulting. He has a first-class BA Honours degree in anthropology, a post-graduate diploma in commerce, and a doctorate in archaeology from the University of Otago. Dr Cawte attended University College London as a Marie Curie Fellow and the University of Cambridge post-doctorally as an Evans Fellow. He has also lectured at the University of Otago and James Cook University, Australia prior to establishing the firm.

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1 Introduction

The Dunedin City Council (DCC) propose to undertake the construction, operation and closure of a Class 1 landfill at Smooth Hill, located in the coastal ranges between State Highway 1 to the west and Taieri Mouth Road and the coast to the east. The landfill will be accessed from off State Highway 1 via McLaren Gully Road and Big Stone Road, requiring improvements to the State Highway junction as well as widening and realignment of McLaren Gully Road and Big Stone Roads. New Zealand Heritage Properties Ltd (NZHP) has been commissioned by Tim Vial on behalf of Boffa Miskell to undertake an archaeological assessment of Smooth Hill Landfill area at 700 and 750 Big Stone Road, Brighton as well as the road reserves of Big Stone Road and McLaren Gully Road, Brighton and Ōtokia and two paper roads (Lots 1 and 2, DP 457417; Big Stone Road Reserve; McLaren Gully Road Reserve; Paper Road ID 4213; Paper Road ID 9838) to accompany the archaeological authority application as required by the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014).

Currently the physical road boundaries do not always follow the establish road reserves but instead run through or partially within the additional adjacent properties of 200 McLaren Gully Road, Ōtokia; 949 Allanton-Waiholā Road, Taieri; 108, 109, 200, 211 McLaren Gully Road, Ōtokia; 200 Christies Gully Road, Henley; 350, 645 and 689 Big Stone Road, Brighton (Lot 1, 2, 4, 5, 6, 7 DP21420; Section 1 of 13 Block 2, Ōtokia; Lot 1 DP 19819; Section 21, Block 2, SO 1372 Ōtokia; Section 2 of 19, Block 2, SO 1372 Ōtokia; Part Section 2 of 25 Block 2, Ōtokia; Part Section 34 Block 2, Ōtokia; Section 2 of 22, Block 2 Ōtokia; Section 2 of 23, Block 2, SO 1372 Ōtokia; Section 1 and 2 of 21, Block 2, Ōtokia; Lot 1 DP 21447; Lot 8 and 9 DP 427870). As part of the proposed works the legal road parcel boundary will be altered to match the existing road alignment and the proposed road widening works. Even though the roads run through private property, they are still open to the public and thus could be surveyed as part of this assessment.

This archaeological assessment provides a detailed historical background of the archaeological sites that may be affected by the proposed works and documents the results of the site survey and assesses the values of each archaeological site. Using the development plans provided to NZHP (see 10.1.1.1.1.1) the effects of the development on these archaeological sites has been assessed, and recommendations have been made for their management. Because of the scale of the proposed works, hazard zones have been identified (based on the methodology outlined in Section 3.1) to effectively manage the archaeological requirements for the project.

1.1 Archaeology within the Project Area

This archaeological assessment has identified that the proposed construction of a landfill at Smooth Hill has the potential to affect several archaeological sites. There are two previously recorded archaeological sites located within the designation area: I45/71 and I45/72. Another previously recorded archaeological site (I45/67) and three further sites recorded as a result of this assessment (I45/80, I45/81, and I45/82) are situated immediately adjacent to McLaren Gully Road. These sites may be affected by earthworks associated with proposed road widening.

Historical research indicates that I45/71 and I45/72 were associated with the Flett family in the second half of the nineteenth century and the early twentieth century. An exact date was not identified for the construction of the buildings of which partial remains still stand today. However, I45/72 is likely associated with early Flett occupation on the farm in the mid-1860s. This is supported by the fact the structure recorded at this site (and still present today) is an earth-walled construction. This building will be demolished as a result of the proposed landfill works.

The Flett family likely constructed a new farmstead in the mid-1880s. The partial remains of this timber and corrugated iron building are still present on the site now recorded as I45/71 and as mitigation for adverse effects on archaeological values elsewhere, this building will be retained. Other archaeological remains associated with the Flett occupation of both sites may also exist subsurface. Such subsurface remains may be affected by the proposed earthworks

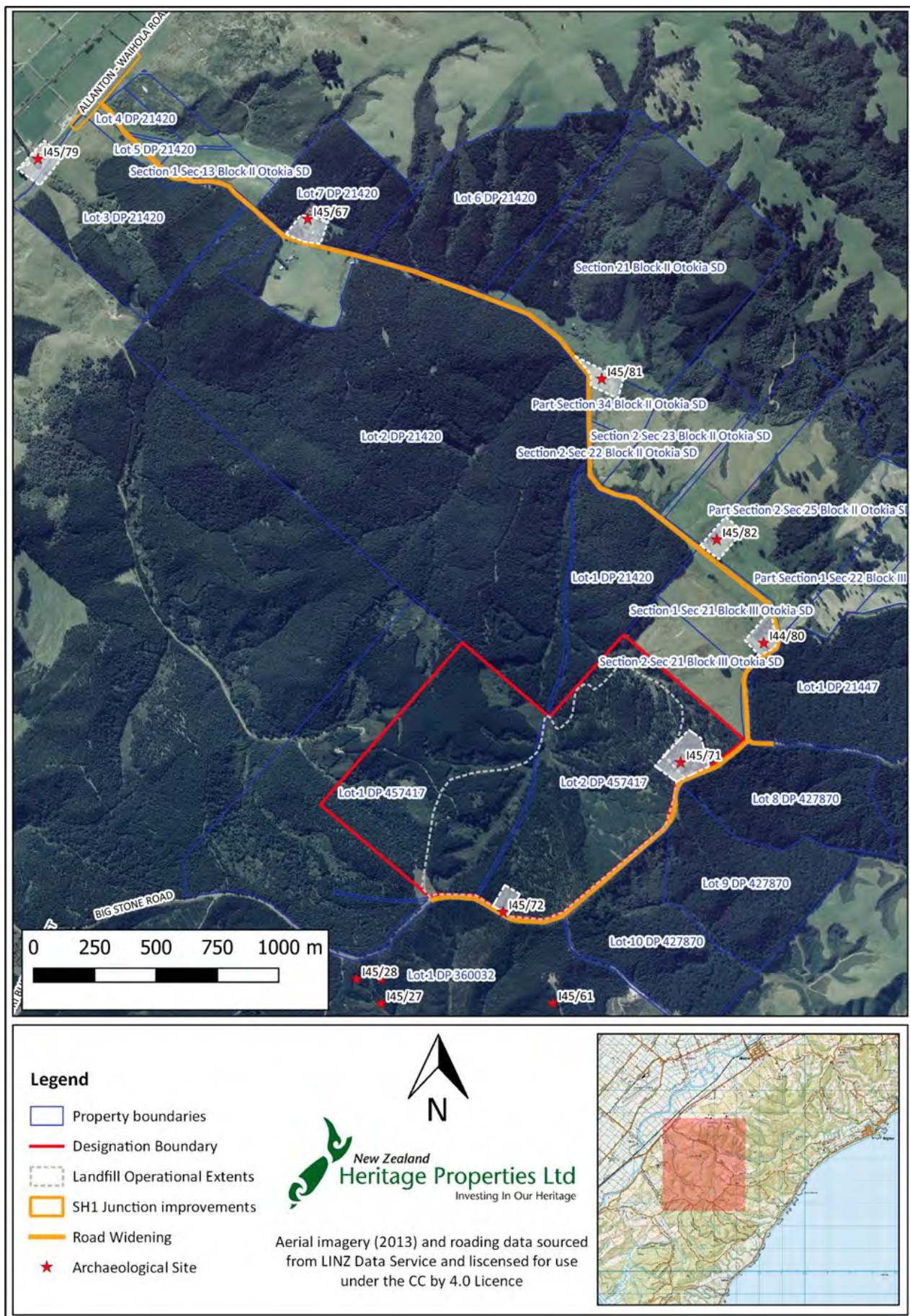


Figure 1-1. Location of the proposed Smooth Hill Landfill development.

Historical research shows the brick and slate roofed building recorded at I45/67 still present on the site today was likely constructed by Peter McLaren the Younger in the late 1870s or early 1880s, though there was likely an earlier building on the premise from possibly as early as 1864. Following Peter the Younger's insolvency, the property was occupied by several leases into the twentieth century.

NZHP identified three farms adjacent to the road reserve proposed to be widened: Rileys' (I45/80), Guthries' (I45/81), and Souness' farms (I45/82), all likely occupied from the 1860s and 1870s onwards. No physical remains were noted in current aerial photographs or from the road reserve on these properties except for large exotic trees demarcating the general extent of where buildings were located historically. Any road widening has the slight potential to modify archaeological remains associated with these farmsteads such as fenceposts or rubbish pits that have extended, or were purposefully dumped, into the road reserve in the past. The Palmers' farm also extends into the project area. However, no physical remains were identified within the project area and the recorded archaeological site for this farm (I45/79) is located outside of project area, on either side of State Highway 1 where the farmstead and other ancillary farm buildings are located.

There are no scheduled items on the Dunedin City District Plan or on the 2GP within the project area, However an archaeological alert layer surrounds archaeological site I45/67 in the 2GP. There are further no listed items on the New Zealand Heritage List/Rārangī Kōrero.

1.2 Project Outline

The client proposes to undertake the construction, operation and aftercare of a Class 1 landfill at Smooth Hill, and 700 and 750 Big Stone Road Brighton (Lots 1 and 2, DP 457417) have been previously designated for this purpose. The operational landfill will cover a smaller area within the designated land as shown in Figure 1-2.

There will be considerable cutting and filling required across the site as part of initial site enabling works, and prior to the instalment of the landfill liner for each stage as Figure 1-3 and Figure 1-4 illustrate. The landfill development requires earthworks involving 1.9 million m³ of cut and 0.85 million m³ of fill (Boffa Miskell & GHD, 2019 in prep.). Associated works for the construction of the landfill will include, vegetation clearance, topsoil stripping; bore hole drilling for the leachate and landfill gas collection system, and groundwater monitoring; and, diversion of surface water around the landfill site.

A spoil dump is proposed to the north of the designation boundary, while facilities including an administration building, stores, workshop, truck wash, heavy machinery parking, leachate storage and dispatch at the northeast extent of the landfill itself are proposed (Figure 1-5 and Figure 1-6).

The proposed works will also require the establishment of roads through the designation area, the widening and realignment of McLaren Gully Road and Big Stone Road (Figure 1-7) as well as junction improvements at the intersection of State Highway 1 (SH1) and McLaren Gully Road (Figure 1-8). The road widening extends further than is shown in Figure 1-2, as current plans indicate that the road to be widened runs between Chainage 0 to 6220 on McLaren Gully Road, and between 5750 and 5800 along Big Stone Road. Other earthworks may include stormwater management and landscaping work.

Full draft development plans assessed in this report are provided in Appendix A.

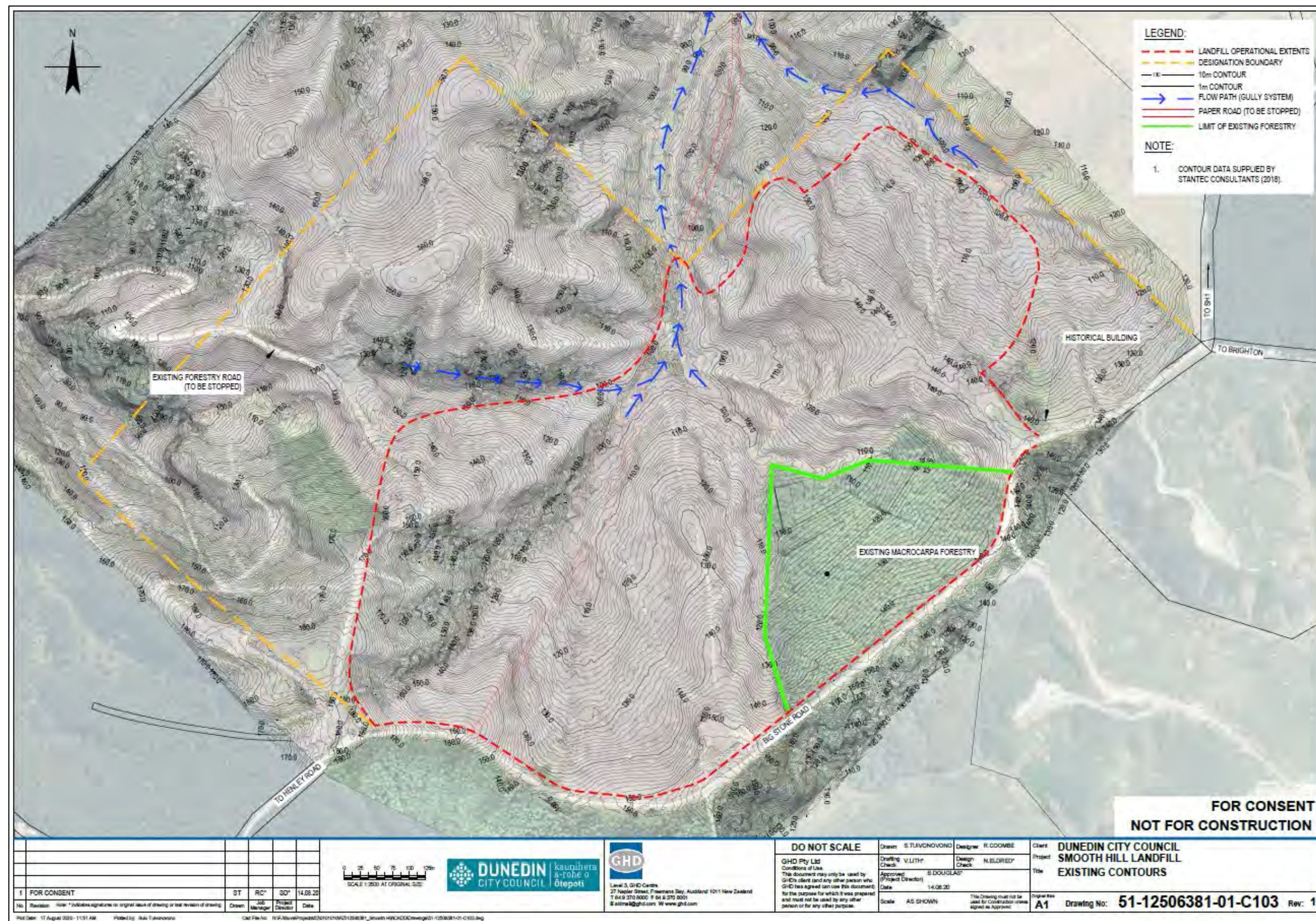


Figure 1-2. Plans of proposed works area provided by Boffa Miskell showing existing contours, designation area and landfill operational extents.

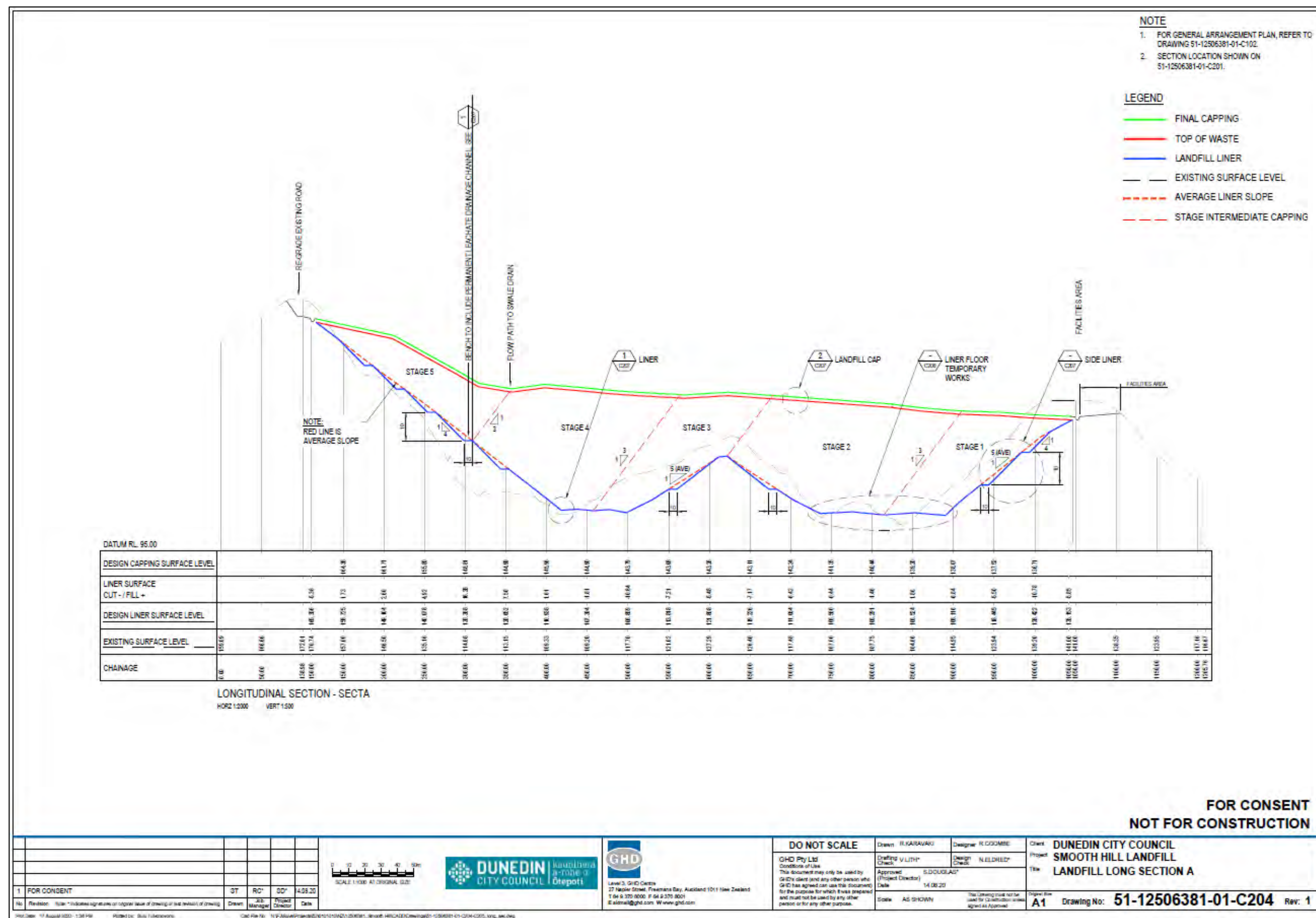
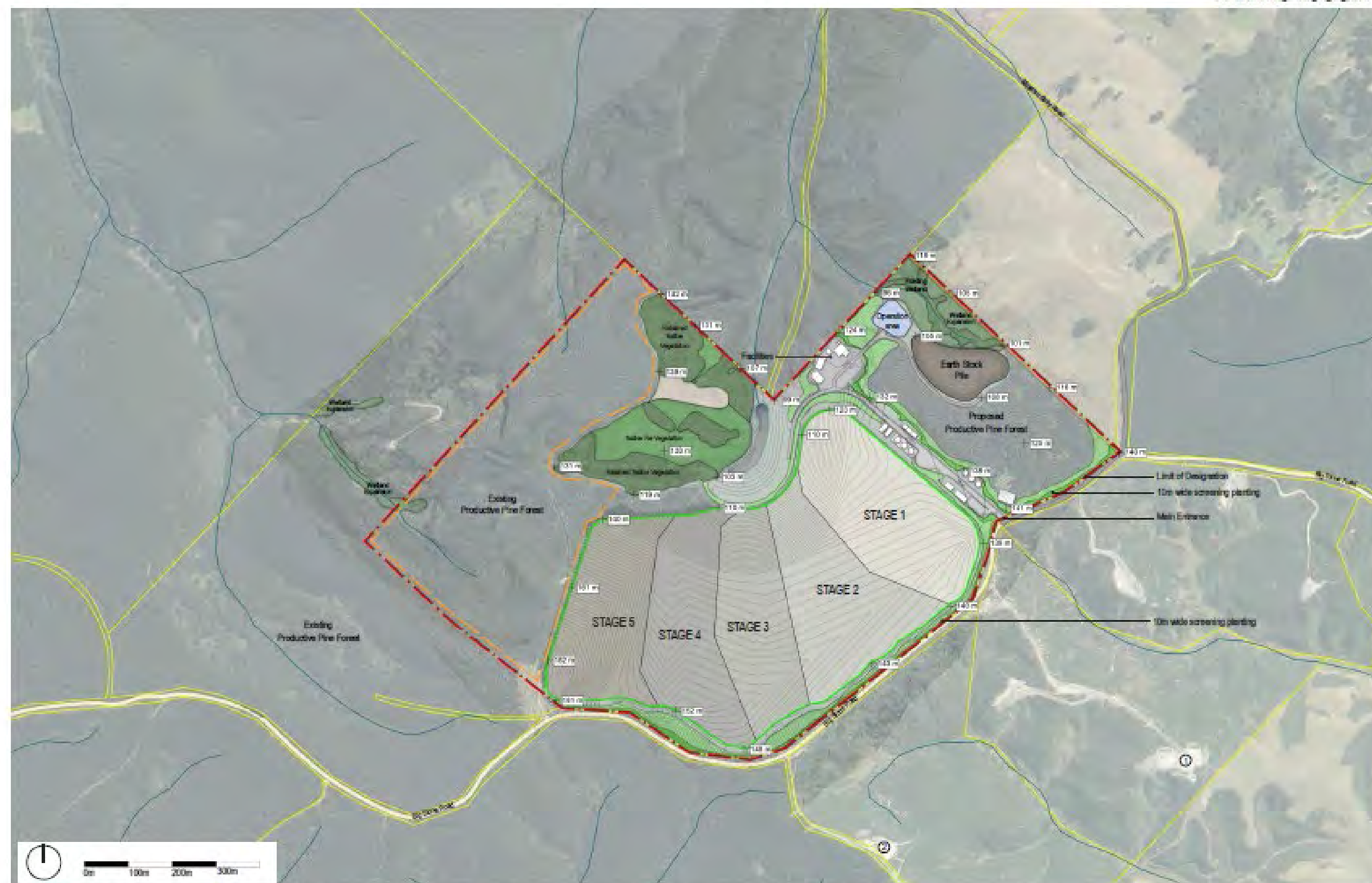


Figure 1-3. Plans provided by Boffa Miskell showing the changes to the existing surface level of the land fill indicating the cut and fill modifications to the ground required before the landfill liner will be installed.



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Ōtepoti

LEGEND

- Native Re-Vegetation
- Existing Native Vegetation
- Pine screening
- Designation Boundary (dashed red line)
- Landfill extent
- Water Course
- Contours
- Landfill Stages 1-6 (30 year time frame)
- Existing Productive Pine Forest
- Rural-Residential Neighbourhood

SMOOTH HILL LANDFILL

GENERAL ARRANGEMENT PLAN STAGES 1-6

Date: 18 August 2020 | Revision: 7

Plan prepared for Dunedin City Council by Boffa Miskell Limited

Scale: 1:4,000 @ A1, 1:8,000 @ A3

Project Manager: michael.eaton@boffamiskell.co.nz | Drawn: ETL | Checked: RDa

Figure 1-5. General arrangement plan provided by Boffa Miskell showing the location of retained native vegetation and native re-vegetation as well as existing and proposed productive pine forest.

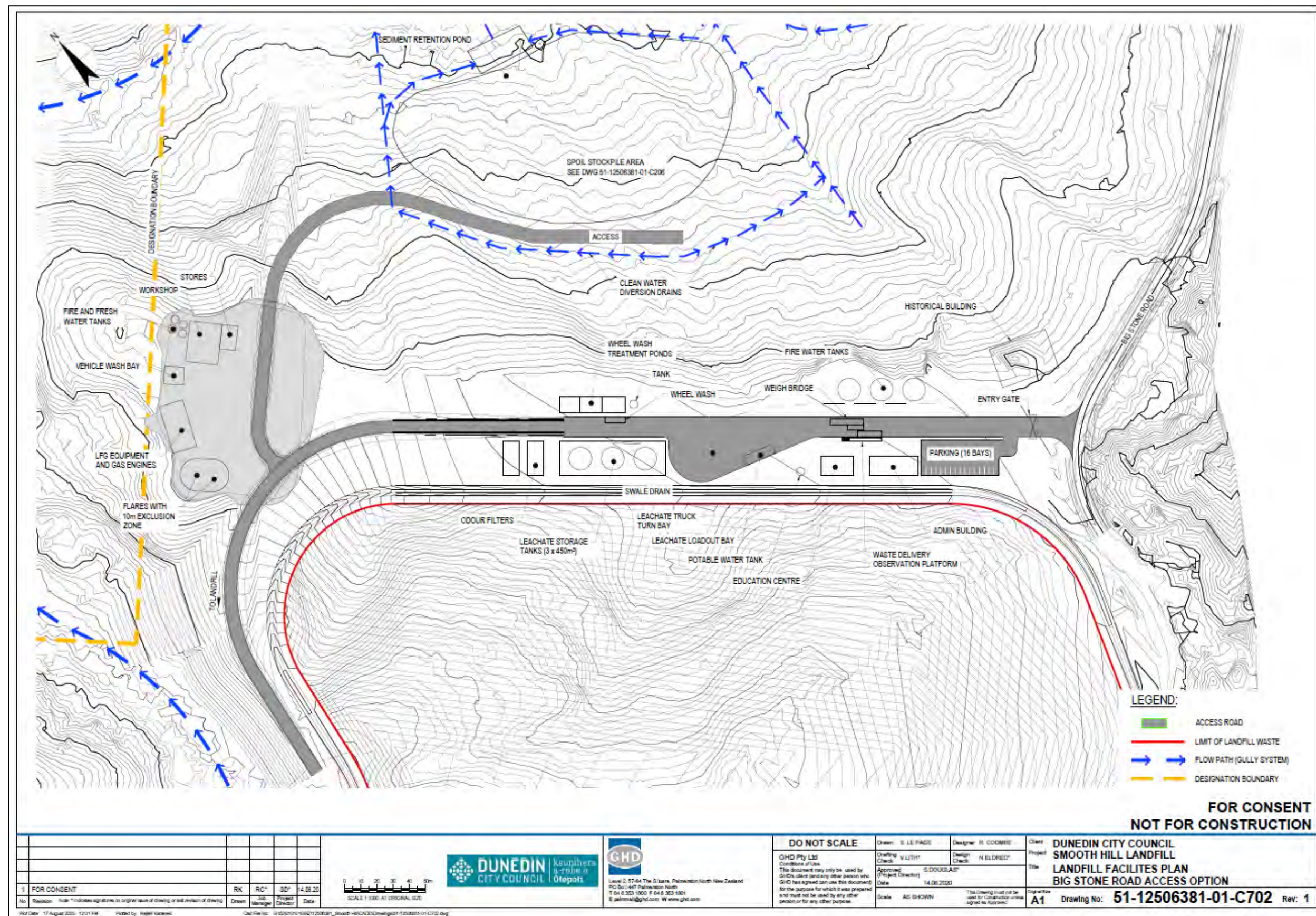


Figure 1-6. Plans provided by Boffa Miskell showing the proposed landfill facilities at the northeast extent of the landfill extent.

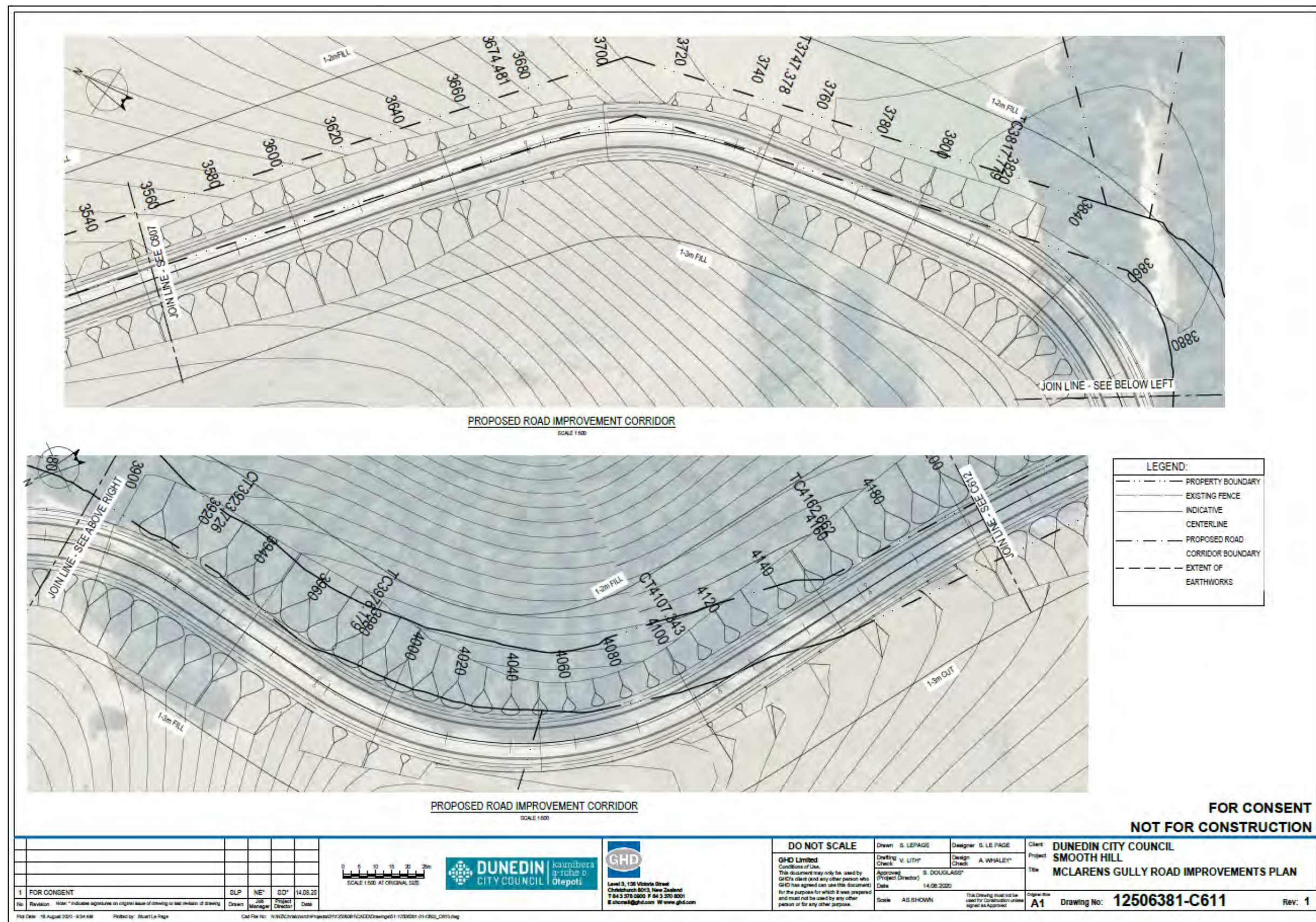


Figure 1-7. Section of McLaren Gully Road showing proposed widening showing example of works. Plans provided by Boffa Miskell.

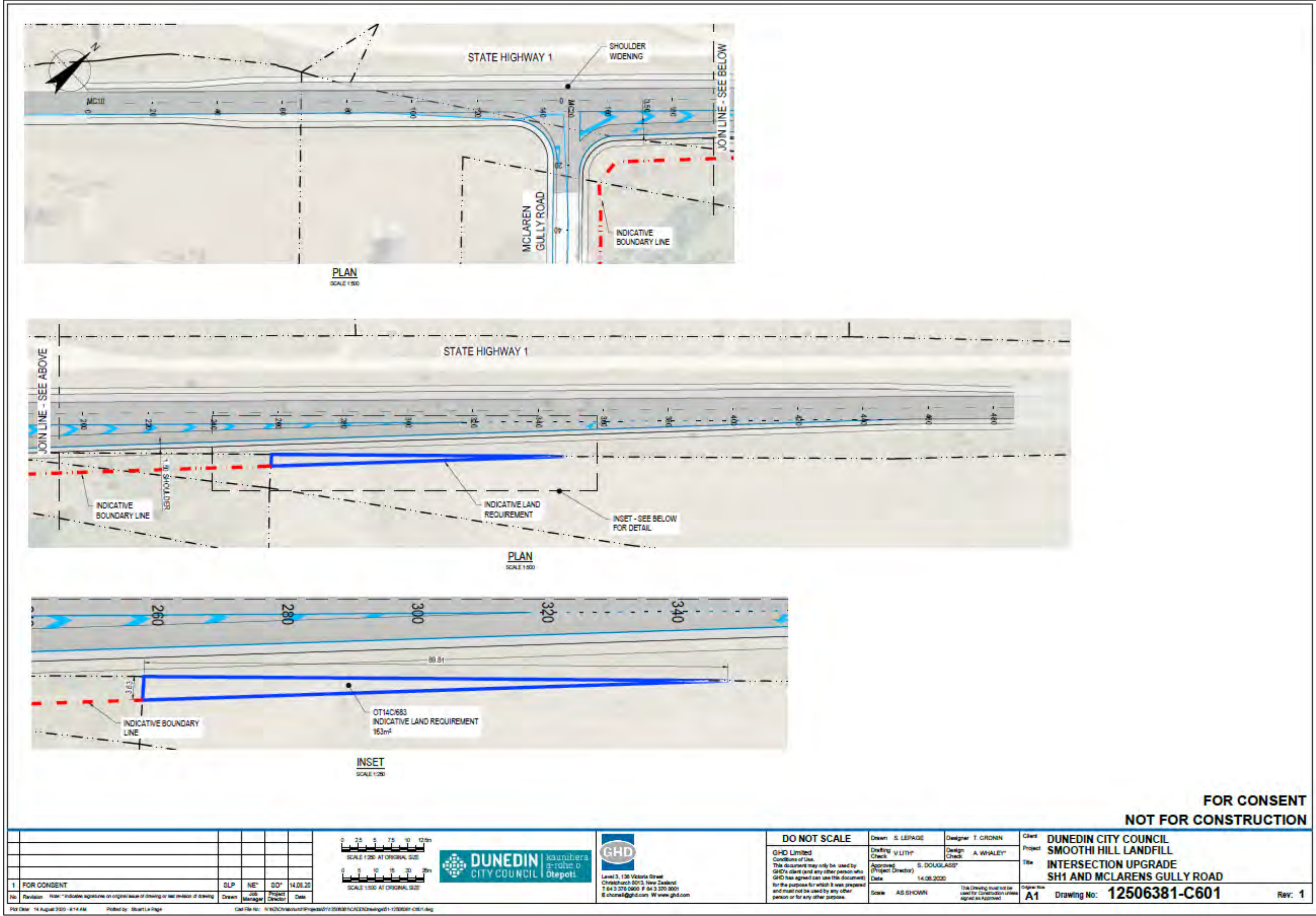


Figure 1-8. Plans provided by Boffa Miskell showing the proposed McLaren Gully Road and State Highway 1 Intersection.

2 Statutory Requirements

The legislative requirements relating to archaeological sites and artefacts are detailed in the following sections. There are two main pieces of legislation that provide protection for archaeological sites: The Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014) and the Resource Management Act 1991 (RMA 1991). Artefacts are further protected by the Protected Objects Act 1975.

2.1 Heritage New Zealand Pouhere Taonga Act 2014

The HNZPTA 2014 came into effect in May 2014, repealing the Historic Places Act 1993. The purpose of this act is to promote identification, protection, preservation, and conservation of New Zealand's historical and cultural heritage. Heritage New Zealand Pouhere Taonga (HNZPT) administers the act and was formerly known as the New Zealand Historic Places Trust (Pouhere Taonga).

Archaeological sites are defined by this act as

- (a) any place in New Zealand, including any building or structure (or part of a building or structure), that--:
 - (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
 - (ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
- (b) includes a site for which a declaration is made under section 43(1)

Additionally, HNZPT has the authority (under section 43(1)) to declare any place to be an archaeological site if the place

- (a) was associated with human activity in or after 1900 or is the site of the wreck of any vessel where that wreck occurred in or after 1900; and
- (b) provides, or may be able to provide, through investigation by archaeological methods, significant evidence relating to the historical and cultural heritage of New Zealand.

Archaeological sites are protected under Section 42 of the act, and it is an offense to carry out work that may “modify or destroy, or cause to be modified or destroyed, the whole or any part of that site if that person knows, or ought reasonably to have suspected, that the site is an archaeological site”, whether or not the site has been previously recorded. Each individual who knowingly damages or destroys an archaeological site without having the appropriate authority is liable, on conviction, to substantial fines (Section 87).

Any person wishing to carry out work on an archaeological site that may modify or destroy any part of the site, including scientific investigations, must first obtain an authority from HNZPT (Sections 44(a,c)). The act stipulates that an application must be sought even if the effects on the archaeological site will be no more than minor as per Section 44(b). A significant change from the Historic Places Act (1993) is that “an authority is not required to permit work on a building that is an archaeological site unless the work will result in the demolition of the whole of the building” (Section 42(3)).

HNZPT will process the authority application within five working days of its receipt to assess if the application is adequate or if further information is required (Section 47(1)(b)). If the application meets the requirements under Section 47(1)(b), it will be accepted and notice of the determination will be provided within 20 to 40 working days. Most applications will be determined within 20 working days, but additional time may be required in certain circumstances. If HNZPT requires its own assessment of the mana whenua values for the site, the determination will be made within 30 working days. If the application relates to a particularly complex site, the act permits up to 40 days for the determination to be made. HNZPT will notify the applicant and other affected parties (*e.g.*, the landowner, local authorities, iwi, museums, *etc.*) of the outcome of the application.

Once an authority has been granted, modification of an archaeological site is only allowed following the expiration of the appeals period or after the Environment Court determines any appeals. Any directly affected party has the right to appeal the decision within 15 working days of receiving notice of the determination. HNZPT may impose conditions on the authority that must be adhered to by the authority holder (Section 52). Provision exists for a review of the conditions (see Section 53). The authority remains current for a period of up to 35 years, as specified in the authority. If no period is specified in the authority, it remains current for a period of five years from the commencement date.

The authority is tied to the land for which it applies, regardless of changes in the ownership of the land. Prior to any changes of ownership, the landowner must give notice to HNZPT and advise the succeeding landowner of the authority, its conditions, and terms of consent.

An additional role of HNZPT is maintaining the New Zealand Heritage list, which is a continuation of the Register of Historic Places, Historic Areas, Wahi Tapu, and Wahi Tapu Areas. The list can include archaeological sites. The purpose of the list is to inform members of the public about such places and to assist with their protection under the Resource Management Act 1991.

2.2 Resource Management Act 1991

The RMA 1991 defines historic heritage as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, and it may include historic sites, structures, places, and areas; archaeological sites; and sites of significance to mana whenua. It should be noted that this definition does not include the 1900 cut-off date for protected archaeological sites as defined by the HNZPT Pouhere Taonga Act 2014. Any historic feature that can be shown to have significant values must be considered in any resource consent application.

The heritage provisions of the RMA 1991 were strengthened with the Resource Management Amendment Act 2003. The Resource Management Amendment Act 2003 contains a more detailed definition of heritage sites and now considers historic heritage to be a matter of national importance under Section 6. The act requires city, district, and regional councils to manage the use, development, and protection of natural and physical resources in a way that provides for the well-being of today's communities while safeguarding the options of future generations.

The Partially Operative Otago Regional Policy Statement (2019) requires the recognition and protection of places and areas of historic heritage and sets out in Schedule 5 criteria for the identification of historic heritage values. The Regional Policy Statement is given effect through district plans.

Under the RMA 1991, local authorities are required to develop and operate under a district plan, ensuring that historic heritage is protected. This includes the identification of heritage places on a heritage schedule (or list) and designation of heritage areas or precincts and documents the appropriate regulatory controls. All heritage schedules include, but are not limited to, all items on the New Zealand Heritage List/Rārangī Kōrero. Additional sites of significance to the local authority may also appear on the schedule.

The regulatory controls for historic heritage are specific to each local authority. However, most local authorities will require resource consent under the RMA 1991 for any alterations, additions, demolition, or new construction (near a listed place) with HNZPT being recognised as an affected party. Repair and maintenance are generally considered permitted activities.

The Second Generation Dunedin City District Plan identifies the significance of heritage buildings and structures to the character of Dunedin. The plan aims to both protect heritage values and to encourage and allow changes that are necessary to facilitate appropriate reuse. Buildings are scheduled on the Schedule of Protected Heritage Items and Sites (Schedule A1.1) for several reasons, including their architectural quality, historical associations, or

other intrinsic values worthy of protection. The schedule includes all HNZPT Category 1 and Category 2 listed buildings in Dunedin, which have been evaluated according to criteria outlined in the HNZPTA 2014.

Iwi/hapu management plans are planning documents that are recognised by an iwi authority, relevant to the resource management issues, including heritage, of a place and lodged with the relevant local authority. They have statutory recognition under the RMA 1991. Iwi Management Plans set baseline standards for the management of mana whenua heritage and are beneficial for providing frameworks for streamlining management processes and codifying mana whenua values. Iwi Management Plans can be prepared for a rohe, heritage inventories, a specific resource or issue or general management or conservation plans (NZHPT, 2012). The Kāi Tahu ki Otago Natural Resource Management Plan 2005 is a relevant Iwi Management Plan for this development.

2.3 Protected Objects Act 1975

The Protected Objects Act 1975 was established to provide protection of certain objects, including protected New Zealand objects that form part of the movable cultural heritage of New Zealand. Protected New Zealand objects are defined by Schedule 4 of the act and includes archaeological objects and taonga tūturu. Under Section 11 of the Protected Objects Act 1975, any newly found Māori cultural objects (taonga tūturu.) are automatically the property of the Crown if they are older than fifty years and can only be transferred from the Crown to an individual or group of individuals through the Māori Land Court. Anyone who finds a complete or partial taonga tūturu, accidentally or intentionally is required to notify the Ministry of Culture and Heritage within:

- (a) 28 days of finding the taonga tūturu; or
- (b) 28 days of completing field work undertaken in connection with an archaeological investigation authorised by HNZPT.

3 Methodology

An archaeological assessment is required to accompany an application for an archaeological authority, as stipulated in the HNZPTA 2014. In order to assess the archaeological resources of the project area, NZHP conducted detailed documentary research, examined records of previously recorded sites within the vicinity of the project area, and carried out an on-site visit.

NZHP consulted numerous sources of documentary evidence in order to determine the historical context of the project area. The results of the documentary research are provided in Section 5. The sources utilised in this research include:

- QuickMap for survey plans
- ArchSite for previously recorded archaeological sites
- Local histories
- Paperspast for historical newspapers
- Archives New Zealand for assistance in accessing public works records, original deeds and certificates of title for adjacent properties
- Retrolens for historical aerials
- Toitū Otago Settlers Museum for historical photographs
- The Hocken Collections for historical documents and photographs

Previously recorded archaeological sites near the project area can provide information that is valuable for assessing the archaeology. NZHP carried out a search of ArchSite to identify if there are any previously recorded sites on or near the project area. The results of the ArchSite search are documented in Section 6.

A pedestrian survey was conducted by NZHP archaeologists Megan Lawrence, Russel Cook, Robyn Cooper, Jasmine Weston and Braden McLean on the 5th, 6th and 11th of November 2019, and a summary of the on-site observations is provided in Section 5. Each day three archaeologists walked over the project area in 10 to 15m intervals depending on vegetation and topography. If a potential archaeological site or feature was encountered, the survey stopped, and the potential feature or site recorded. Locations of such potential features were recorded using a handheld GPS (Garmin 700). Limitations of the survey are discussed in detail in Section 6.

The assessment of archaeological and other values is based on criteria established by HNZPT (NZHPT, 2006):

- The **condition** of the site(s).
- Is the site(s) unusual, **rare or unique**, or notable in any other way in comparison to other sites of its kind?
- Does the site(s) possess **contextual value**? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; the relationship between features within a site, and the wider context of the surroundings.
- **Information potential**. What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.
- **Amenity value** (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?
- Does the site(s) have any special **cultural associations** for any particular communities or groups (e.g., Māori, European, Chinese.)

The overall level of significance was determined based on the evaluation of the criteria listed above; however, it is not possible to fully understand the archaeological significance of subsurface sites, features, and materials uncovered during the site works. It is important to recognise that the significance of a site may change on the basis of what is found during the work programme.

After determining the history of the site(s) and evaluating its archaeological value, NZHP assessed the effects of the proposed work on the site. Specifically, NZHP considered the following matters as outlined by HNZPT (NZHPT, 2006):

- How much of the site(s) will be affected, and to what degree, and what effects this will have on the values of the site(s).
- Whether the proposed work may increase the risk of damage to the site(s) in future. For example, change from farming to residential use may make sites vulnerable to increased pedestrian and vehicular activity.
- Whether a re-design may avoid adverse effects on the site(s). It is recognised that detailed evaluation of alternatives may be beyond the scope of the archaeological assessment, however, some consideration of alternatives should be considered where possible.
- Possible methods to protect sites, and avoid, minimise or mitigate adverse effects should be discussed. These will form the basis of any recommendations in the final section.

Measures of reducing the potential adverse effects on the site(s), management of the archaeological resources, and mitigation of information loss were considered.

3.1 Hazard Zones and Managing Archaeological Requirements

This section will discuss the determination of archaeological hazard zones by NZHP, which takes into account recorded archaeological sites as identified through documentary research and the presence/absence/type of human activity as deduced from historical maps. Due to the large sizes of land parcels that are included within the project area, zones have been determined by areas that are likely to have archaeological material present based on historical research, the archaeological survey and previous archaeological investigations.

This assessment uses the RAG system for identifying risks to archaeology and managing archaeological involvement for the works undertaken for the Smooth Hill Landfill Development by considering the research results against the potential impacts of the works undertaken identified in the assessment of effects. The RAG (red, amber, and green) rating is a traffic light system that identifies areas of high (red), moderate (amber), and low (green) risk of encountering archaeology. Recommendations for archaeological monitoring and management are tied to these RAG hazard zones. Each of these zones is defined below along with a discussion of the types of pre-1900 activity that are included with the zone (Figure 3-1).

Figure 3-1. Archaeological hazard zones and evidence of pre-1900 activity based on the results of the historical mapping for the project area.

Evidence of Pre-1900 Activity		Hazard Zone
Code	Description	
1	Pre-1900 European occupation or activity (building, built structure, quarry, kiln etc.).	Red Zone
2	Pre-1900 roads and areas within 10m of recorded archaeological sites or historical features or a potential archaeological feature (points of interest) identified during the field survey.	Yellow Zone
3	Area that are beyond 10m from a recorded archaeological site of historical feature	Green Zone

3.1.1 Red Zone

The red zone includes areas where NZHP has identified that there is a high risk of the site works effecting archaeological sites. This zone includes land parcels and areas that intersect with or are encompassed by recorded

archaeological sites that include the location of nineteenth century construction on the property identified during the historical research for this assessment.

3.1.2 Yellow Zone

In the yellow zones NZHP have identified that the Smooth Hill Landfill Development is less likely to negatively impact an archaeological site. The yellow zone includes areas that are within 10m of a recorded archaeological site, historical features (structures, orchards etc.). Areas where potential archaeological features (points of interest) were identified yet a possible date of construction or deposition could not be determined during the field survey have also been flagged as a yellow zone along with a 10m buffer. Nineteenth century roads have also been identified as yellow zones as there is the potential to encounter roading materials and associated features such as culverts or drains.

3.1.3 Green Zone

The green zone includes all areas where there is a low risk of encountering archaeological sites. Green zones cover areas where the land has been used as pastoral land in the nineteenth century yet there is with no evidence of historical features having been recorded within 10m. The uses of these properties are likely to have left no archaeological features or remains on the property. The land parcels or area also do not exhibit any of the other attributes that may elevate the chance of encountering archaeology, such as close proximity to waterways.

4 Physical Environment and Setting

The Smooth Hill Landfill project area is situated approximately 22km southwest of Dunedin (Figure 4-1). State Highway 1 (SH1, Allanton-Waihola Road) and the Taieri River run to the west of the project area, and while SH1 continues south, the river turns east and heads out towards its river mouth on the east coast. McLaren Gully Road runs southeast from SH1 directly into the low-lying coastal Ōtokia hills and continues past the project area until it meets Big Stone Road. Big Stone Road runs northeast from SH1, curving round the project area and continues northeast to meet Brighton Road on the coast.

The project area is situated in the range of coastal hills at Ōtokia, between the coast and the SH1. Smooth Hill itself, at 172m in height is located to the southwest of McLaren Gully Road and northwest of the proposed landfill site. Smooth Hill is the second tallest hill in the area, the first is an unnamed hill that reaches 187m and whose peak is situated just west of the proposed landfill. The project area itself comprise a shallow basin and a number of gullies. Many of the historic farmsteads are located on the higher points, rather than the lower portions on the gullies. The slope of the basin and gullies vary but are largely not steep.

The proposed landfill site is situated within the Ōtokia Creek headwaters. Several tributaries feed the 13km creek, which run a similar path to Big Stone Road, heading northeast to the coastline where it meets McColl Creek and forms a tidal lagoon. The creek then flows through Brighton and into the ocean. The climate is dominated by north-east and west prevailing winds, and gains approximately 600-800mm of rain each year (Beca Steven, 1992).

4.1 Geomorphology

Henley Breccia forms the underlying geology of the area. It comprises breccia and conglomerate interspersed with carbonaceous mudstone horizons (Beca Steven, 1992). The proposed landfill area predominantly comprises Kaitanagataf soil type, which is a slightly stony silty loam, that is moderately well draining (Landcare Research, 2014). McLaren Gully Road also runs through Kaitanagataf soil type; however, it further cuts through Claremontf soil at its northwest end. This soil type is another silty loam, however, it is stoneless and drains poorly (Landcare Research, 2014).

As a result of the forestry in the area the project area is covered with pine trees (*Pinus radiata*) or recently felled pine; however, the landscape is varied and other vegetation cover included gorse (*Ulex* sp.), broom (*Cytisus scoparius*) other introduced trees, grassland, and small patches of native trees including manuka or flax (Figure 4-2). As will be explored below macrocarpa and other introduced species such as periwinkle (*Vinca major*), macrocarpa (*Cupressus macrocarpa*) and eucalyptus (*Eucalyptus* sp.), are still present on the property in areas of historic pastoral occupation. It is interesting to note that gorse (on top of a number of other weeds), has historically been a problem in the area, with numerous farmers being charged under the Noxious Weeds Act, 1900 for failing to effectively remove gorse from their properties including one farm just north of the project area (Otago Witness, 1907).

The Ōtokia vegetation has changed dramatically from that which was encountered by European newcomers in the 1840s and in the 1850s started to look to the land for pastoral use. The vegetation was diverse across the hills as a result of variable soils. It included such species as silver tussock (*Poa cita*), bracken fern (*Pteridium esculentum*), flax (*Phormium* sp.), matagouri (*Discaria toumatou*), Spaniard grass (*Aciphylla*), totara (*Podocarpus totara*), rimu (*Dacrydium cupressinum*), raupo (*Typha orientalis*) as well as broadleaves and rushes. Tutu (*Coriaria* sp.) was also encountered in some areas and this poisonous plant resulted in severe stock losses for settlers. To establish farmland in this area much of the vegetation was quickly removed (Stuart, 1981).

4.2 Built Environment

There are very few buildings around the project area. Indeed, most buildings located within or in close proximity to the project area are those which relate to historical pastoral occupation of the landscape. Some farmland still

surrounds the site, however much of the nearby land and the project area itself is used for forestry. The closest settlement to the project area is Allanton, 5.5km to the north, although Brighton is just 6km to the northeast.

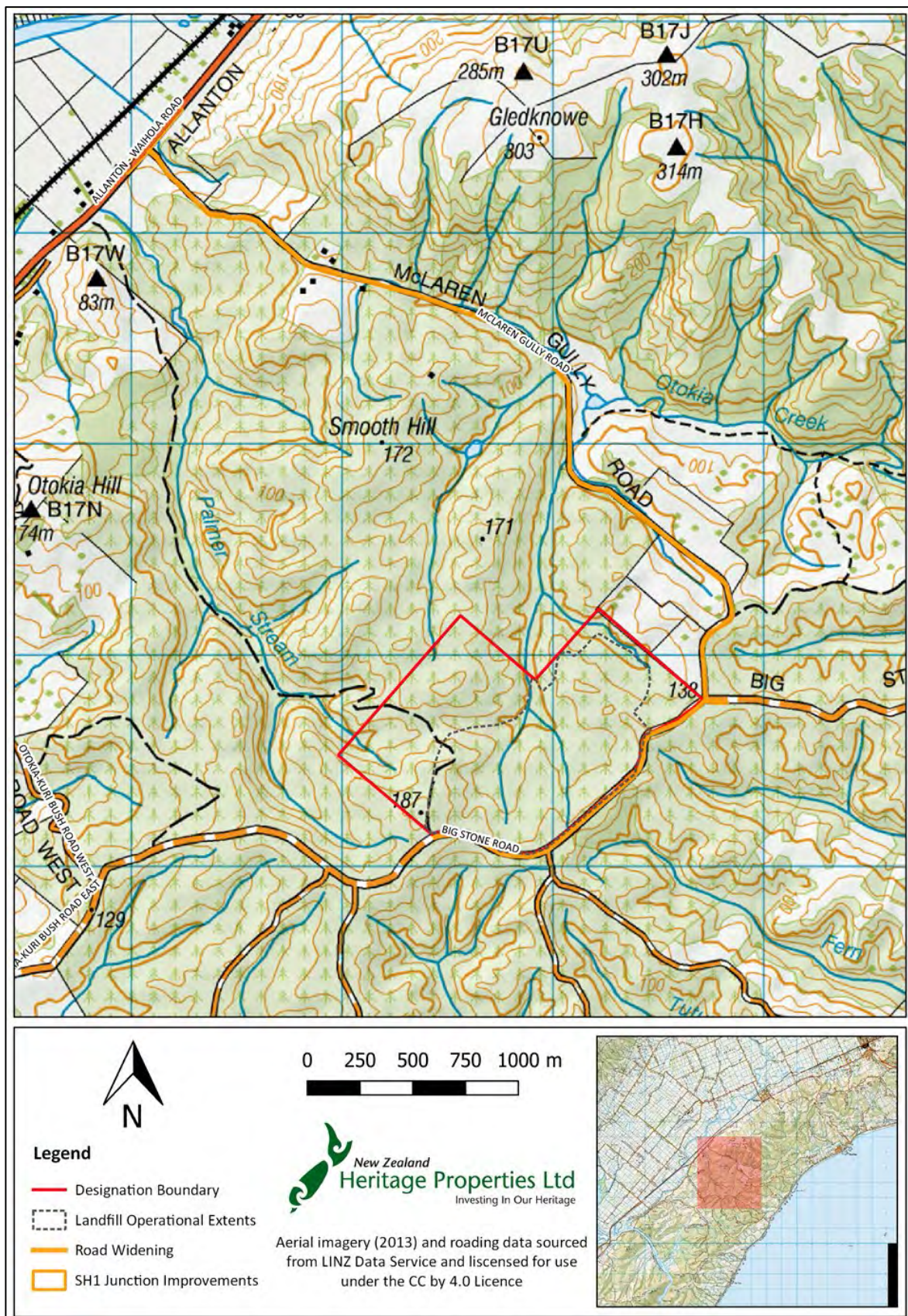


Figure 4-1. Location of the proposed Smooth Hill landfill showing the topography of the area. Allanton is located approximately 5.5km to the north.



Figure 4-2. Photograph showing the physical environments within the Smooth Hill Designation area. Top left: hillside covered predominantly in gorse and broom. Top Right: pine tree plantation still present and long grass. Middle left: pine tree and native plants. Middle right: Area covered in pine tree slash, young pine trees, grass, gorse and broom. Bottom left: unharvested pine trees. Bottom right: Area of felled trees not cleared.

5 Historical Background

The project area is situated in what was historically referred to as the Ōtokia District between the Taieri River to the west, a mana whenua reserve to the south (just above the Taieri river) and the east coast up until Brighton (Figure 5-1). This is an area of diverse history that spans from Māori to European settlement and the wider region has been occupied from the initial arrival of Māori. Through this research, it is possible to begin to identify what type of physical, cultural, and social processes have shaped the form and distribution of archaeological material. Additionally, historical background can be used to inform the interpretation of archaeological contexts and material whenever they are encountered.



Figure 5-1 Plan from 1882 (revised in 1917) showing the Ōtokia District (Flanagan, 1882).

5.1 Mana Whenua Occupation in the Archaeology Record

NZHP recognises the significant rich and deep Māori history of Ōtokia and the surrounding area. Information regarding mana whenua histories within Otago are largely based on oral accounts, lore passed down through generations, and accounts passed on to European pioneers who documented their explorations with flourish and grandeur during the early nineteenth century. The historical background below does not present the detailed oral traditions and whakapapa of mana whenua in the Ōtokia area nor does it cover the various perspectives of tangata whenua. Instead this section has focused on aspects of mana whenua histories that will help to interpret and understand archaeological remains, providing an overview of the broad patterns of early occupation of the wider Taieri area and more specifically Ōtokia.

5.1.1 The Wider Taieri

Mana whenua settlement of the Taieri appears to have centred at the mouth of the Taieri River and the confluence of the Waipori and Taieri rivers to the southwest and southeast of the project area (Parkes & Hislop, 1980). This junction was the site of the preeminent kāika, or settlement, in the region named either Takāihitau or Mataipapa

(Parkes & Hislop, 1980; Stuart, 1981; Figure 5-1 and Figure 5-2). This settlement provided access to both the resources of the Taieri Plains as well as marine resources, mana whenua would travel from the settlement down to Taieri River Mouth and out to the ocean for fishing. The inhabitants of the area also travelled further to the Tītī or Muttonbird Islands for muttonbirding (Stuart, 1981). Within the kāika lived a variety of residents. While initially inhabited by those identifying themselves as Ngāti Māmoe, a later influx of whalers from a number of regions (including Jamaica, America, Canada, and Antigua) arrived and intermarried with the local populace (Shaw & Farrant, 1949). The community continued in the twentieth century. They had a large enough population in 1876 to establish two native schools and in the 1900s they further established “Te Waipounamu”, the Māori Hall (Potiki, 2012). Located at Taieri Ferry, it was opened in 1901 by Henare (Potiki, 2012). Several houses and cemetery were also established at the kāika. Little evidence of these survive today (Shaw & Farrant, 1949).

Other mana whenua settlement on the Taieri Plain include additional pā, of Whakapaupuku on Ram Island (H45/5), and Motupara Pā at the Taieri River Mouth (based on ethnographic traditions) (Potts, 2013). Materials encountered at the mouth of the Taieri River and along the riverbanks, included middens, adzes as well as a female burial (Sutherland 1962). Archaeological evidence in the form of ovens and adze remains have been found to the north of Mosgiel, on a farm near School Road (I44/6 and I44/7). In the wider area a number of oven sites are located on ridges or low spurs and along old stream banks, paleochannel terraces. Figure 5-6 shows a particular area of ovens to the north of the project area, however research suggests there is also likely ovens in the Ōtokia area (Potiki, 2012).

Anecdotal evidence suggests that Māori used various tracks throughout the plain and routes between Henley and the Strath-Taieri were used especially during the weka season (Shaw & Farrant, 1949; Te Runanga o Ngāi Tahu, 2018). Additionally, Figure 5-6 a map compiled by Davis (1973) from a number of sources, shows the location of a number of otherwise unknown settlements including Makakaitoa, approximately where Outram would be today.

Evidence of early occupation of the coast between Dunedin and the Taieri Mouth has been encountered in the form of moa bone recorded at I44/5 in Brighton, on the Ōtokia Creek Islet. Although moa is sparse at this site, archaeological investigations provided a look into early resource use (von Haast, 1879). Along with shell sea mammal bones recorded at the site, were the more rare remains of sea lion and dolphin bones (Hamel, 2001). The presence of cockle, pipi, as well as mussel reflecting use of both rocky and sandy shore kaimoana in the local diet (Hamel, 2001). While fish is recorded at numerous coastal Otago sites, indicating the importance of fishing in local diets, at many sites fish have not been recorded to species but only reported as part of wider midden (Hamel, 2001). However, barracouta bone was identified at I44/5. This is unsurprising as it was the most common species caught offshore along the Otago coastline (Hamel, 2001). The site itself is recorded as a basalt working floor or adze manufacturing site (associated with midden and ovens). The basalt was most likely to have originated from a Scroggs Hill source 3.5km inland from Brighton.

The Otago Purchase was one of ten through which the South Island was purchased from Ngāi Tahu by the Crown between 1844 and 1864. In 1844, the New Zealand Company agent William Wakefield along with Frederick Tuckett and several others negotiated the sale of the Otago Block at Kōpūtai, with multiple Ngāi Tahu chiefs, including Treaty of Waitangi signatures Tuhawaiki, Karetai, as well as Taiaroa (Entwisle, 1998). On July 31st 1844, a deed was signed between the local mana whenua and the New Zealand Company transferring ownership of the Otago Block to the settlers. The contract was signed at Kōpūtai, what is now known as Port Chalmers, and set aside three areas to remain as mana whenua land. These villages were Ōmate (Omakau), Te Karoro (South Otago), and a block of land (Onumia) along the Taieri River between Henley the Ōtokia District and the Taieri River Mouth (Parkes & Hislop, 1980).

In the years following the purchase, the Crown failed to keep meet their obligations established in the purchase agreements. The Otago Deed comprised over 400,000 acres of land and was sold for £2,400. Specific care was taken when drawn up the purchase are to establish the boundaries of land to be sold and reserved. Ngāi Tahu, looked to keep 21,250 acres of land across the Otago Peninsula, yet the Europeans would not agree unless the

peninsula was included (Te Runanga o Ngāi Tahu, 2018). As a result, Ngāi Tahu only retained 9,615 acres of land as part of the final purchase agreement. However, it was understood by the signees that further reserves, totalling one-tenth of the land sold, would further be set aside as reserve land. The agreement was not honoured and for over a hundred years Ngāi Tahu fought for recognition and compensation of the wrongdoings as a result (Potiki, 2012; Te Runanga o Ngāi Tahu, 2018).



Figure 5-2. 1868 plan of the Kāika Takāhītau or Maitapapa also showing the location of the burial ground (MacLeod, 1868).



Figure 5-3. Survey Map from 1868 showing the Taieri Native Reserve, 1868.



Figure 5-4. 1893 Map showing the extent of the Taieri Native Reserve between Henley and the Taieri River Mouth (Barr, 1893).

5.1.2 *Ōtokia*

Of the 27 archaeological sites within the Ōtokia District, 15 record mana whenua activity. Most are situated along the coastline, one on the Taieri River, and a small concentration of sites situated immediately south west of the project area (I45/27, I45/28, and I45/29) (Figure 5-62). These sites record pipi, cockle and gastropods and join eleven other sites that record midden or ovens.

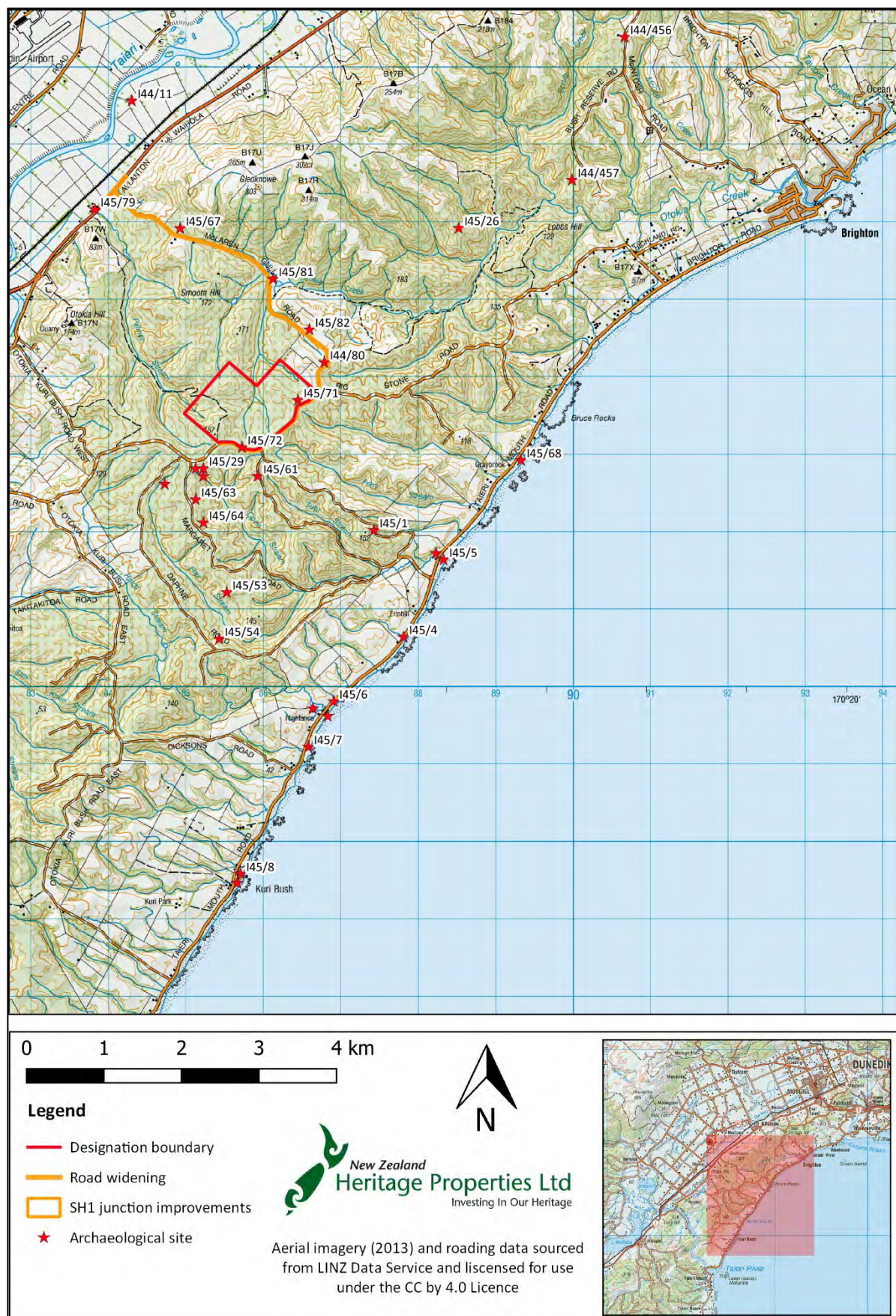


Figure 5-5. Recorded archaeological sites within in Ōtokia.

Of the midden sites in the Ōtokia District only I45/8, situated to the southwest of the project area on the coastline, is associated with activity during or following the contact period. Of its two midden layers, the upper layer

contained cockle, mussel shell, large faunal remains, as well as iron and bottle glass fragments. However, the lower deposit did not contain any historic artefacts, only fragmented mussel shell indicating earlier occupation.

The project area was located in the Ōtokia Creek headwaters and runs towards the coastline in a similar path to Big Stone Road. Near the coastline McColl Creek, forms a tidal lagoon and then flows through Brighton and into the ocean. The creek would have been part of a natural path for mana whenua through the coastal ranges. Archaeological oven site I45/26 is situated between Ōtokia Creek and its tributaries, and it may reflect the use of the creek to move between the coast and more inland areas of the region. The site records a 0.25m deep hollow that is 3.5m in diameter. In the hollow, black soil with charcoal present and a reddened stone situated in the centre was described in the site record form for the feature.

The closest occupation site recorded to the project area is Pā a Tu Pari Taniwha (I44/11) recorded at Amoka, (Figure 5-6). As will be discussed below in Section 5.7.1, archaeological investigations have shown that the exact location of Pā a Tu Pari Taniwha is not certain despite being recorded on ArchSite. Another pā noted in the Ōtokia District is Ōmoua or Te Moua, located on a hill behind what is now Henley and is recorded slightly further away at I45/25 (Parkes & Hislop, 1980; Stuart, 1981).



Figure 5-6. Map of the Taieri Plain showing the location of Pā a Tu Pari Taniwha (Te Rua Taniwha) to the north, Ōmoua or Te Moua to the southeast, and Mataipapa to the south of Ōtokia (Davis, 1973). Note the presence of oven sites in the north.

5.2 Brief Overview of the European Occupation of Ōtokia

When settlers first arrived in the Ōtokia area (also referred to as Otakia or Moeraki Bush), the Taieri Plain was predominantly undrained swamp land and protections had not been put in place for the severe flooding that still occurs today in the area (Shaw & Farrant, 1949; Stuart, 1981). This marshy landscape restrained early settlement in the late 1840s and early 1850s to the periphery of the plains on the higher land at the base of the hills, places like East Taieri, Wingatui and the hills of Ōtokia. As a result the hills were cleared of native fern, tussock and forest to make way for the new and dense pastoral occupation, with the land worked to its fullest capacity supporting the large families that settled there (Shaw & Farrant, 1949; Stuart, 1981).

Development was limited by the absence of infrastructure in this early period and homesteads were generally of sod or cob. Yet over time more timber buildings were constructed as more land was cleared and more timber felled (Stuart, 1981). The farmers were able to make use of the migratory workforce that arrived with the onset of the gold rush in the early 1860s to help clear more and more land then quickly planted with wheat, oats, and chaff, as well as used for dairy, poultry and meat production. The area found a plentiful market with the rapidly growing Dunedin not too far away (Stuart, 1981). The early families of the district are represented in the earliest of school rolls. They included the Palmers, Rileys, Fletts, Sounesses, Howes, Blacks and Guthries (Shaw & Farrant, 1949), all names that will come up in the specific histories of the project area presented below.

The establishment of a train between Balclutha and Dunedin was a very important milestone for the district. A station was established in Ōtokia, with the first train operating in 1875. Not only did this new transportation infrastructure allow for record numbers of grain and other goods to be exported from Ōtokia, but the construction of the railway itself fuelled the economy. The railway was constructed out of local timber posts and sleepers (Stuart, 1981).

Over time however, it was soon realised that the many small holdings in the Ōtokia hills were not economical. As people sold up, neighbours acquired their land in the hopes it would allow them to remain. Younger generations also saw the allure of different occupations beyond the farms on the hills. Along with the slow profits and labour shortages, there was also gorse, bidi-bidi, broom, scrub and bracken to contend with. These plants invaded the farms and could not be held at bay. All of these factors resulted in the decline of farming of the area so that there were few occupants of the hills by the 1930s (Stuart, 1981). Meanwhile, farming had taken off on the Taieri Plain with the development of drainage systems and many productive farms were established where it continues today. Modern techniques allowed for some hill areas to be reclaimed in the 1940s, however it was determined that the soil conditions of many hill areas were only practical for forestry works (Stuart, 1981).

By 1901 there had been numerous nineteenth century farms located across Ōtokia and many of these are shown in the military map of this date (Figure 5-7). Two farms in particular ran through the project area: that of the Fletts and Palmers. A history for each of the farms are provided below. Further brief histories for the farms neighbouring the project area are then presented, and lastly a short history of the McLaren Gully Road reserve is outlined. A summary of key land transactions and events are provided in Table 5-1.

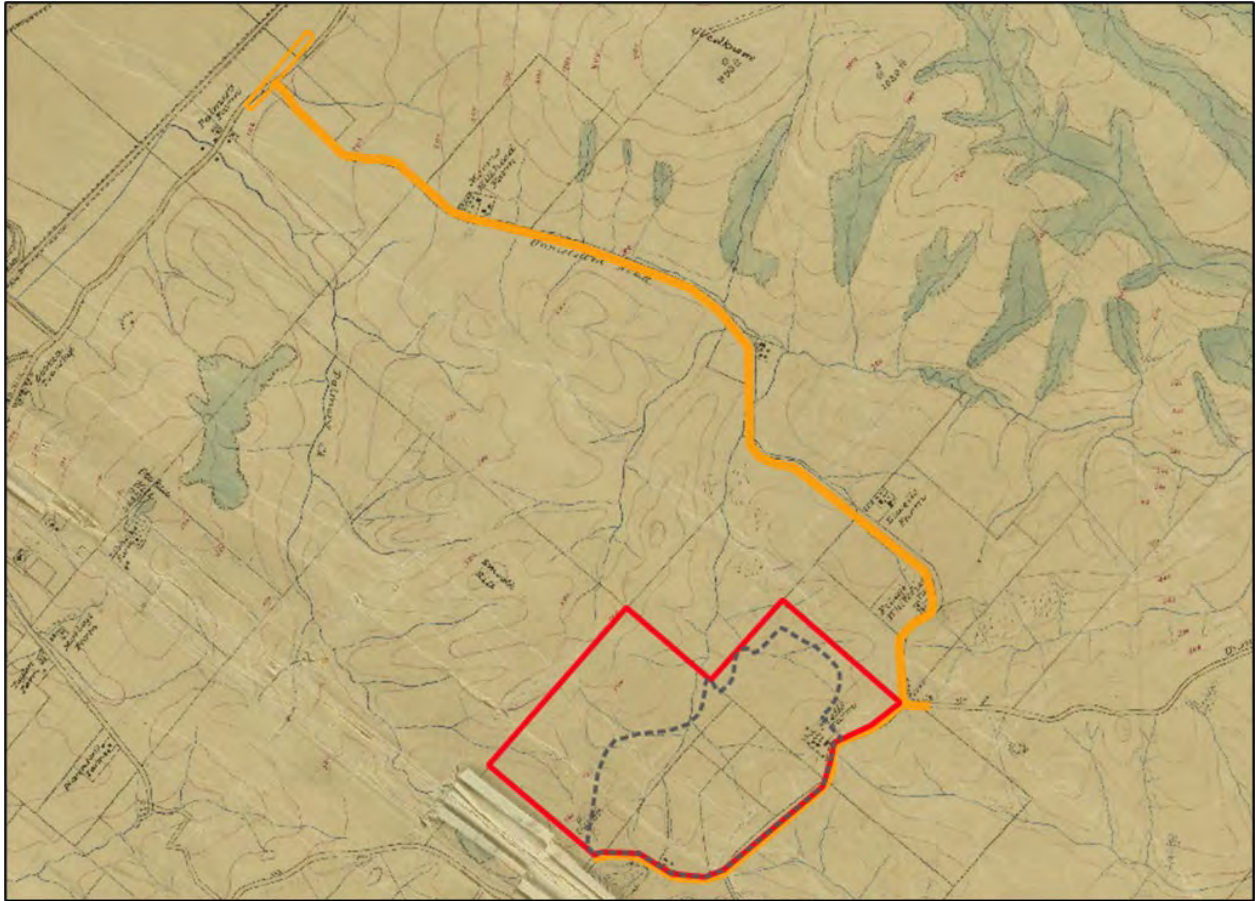


Figure 5-7. 1901 military map showing various farms located within and near to the project area (outlined red and yellow).

5.3 History of Fletts' Farm (I45/71 and I44/72) – 700 Big Stone Road

As identified above, the Fletts were early European settlers of the Ōtokia District and the Fletts' farm extended over a number of properties from the 1860s onwards. The earliest property owned by the George Edward Flett was Section 2 of 35 and Section 36, Block 4, Ōtokia (Table 5-1 and Figure 5-8). A crown grant for this land was issued to Flett in 1865 (Deed Index Book F Folio 232). In 1872, Flett purchased Section 1 of 35, Block 4, for which the Crown Grant had been issued three years prior to How (Deed Index Book O Folio 393; CT 15/12). Flett also acquired a ten-year lease for grazing on Sections 2 and 3 of 45 Block 4 Ōtokia, to the southwest of his property, just across Big Stone Road (outside of the project area). As part of this lease he allowed local settlers to cut down the timber on this land (Otago Daily Times, 1873). Some of this timber may have been used in the railway construction through Ōtokia. When Flett looked to renew the lease in 1882, it was recommended that the land be sold instead (Otago Daily Times, 1882). This is likely why Flett leased Section 20, Block 3, Ōtokia District from Alexander Fairbairn the following year in 1883 along with several other sections in the surrounding area (Deed Index Book K Folio 426, 427 and 428; Deed Index Book L Folio 865). Fairburn had initially been granted the land for this property in 1866 (Deed Index Book K Folios 426). When Fairburn died in 1902 the property was eventually sold the following year to George Flett, who continued to own the property until 1917 (Deed Index Book K Folio 426).

The 1901 military plan shows the Fletts' farm located within Section 20, Block 3 and separate unlabelled buildings on the Fletts' land in Section 36 (Figure 5-8). The buildings in Section 36, Block 4 were possibly the original Flett homestead. The 1897 valuation rolls does not identify any buildings on this section (Valuation Department, 1897). This may indicate it was an earlier building, possibly as early as 1865 when the crown grant was issued, that was already in ruin by the time the valuation survey was undertaken. No buildings are shown on the property on an earlier 1861 plan (Figure 5-9).

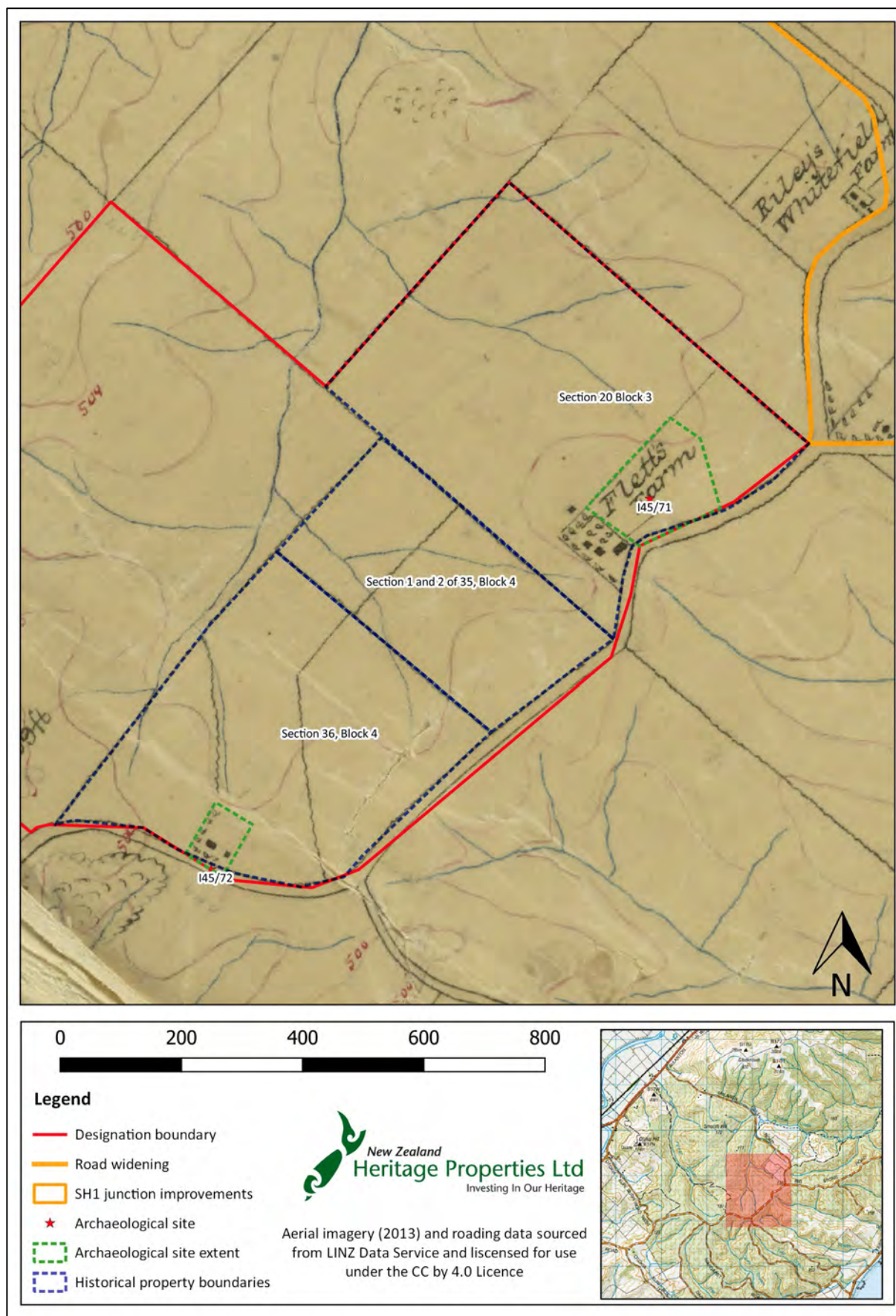


Figure 5-8. 1901 military plan showing the location of the Fletts' Farm (dashed blue line) within the designation area (outlined red), the recorded locations of I45/71 located within Section 20 Block 3 and I44/72 located within Section 36 Block 4 (red star), and the updated archaeological site extent (dashed green line). Note the site boundary for I45/72 is based on aerial photographs rather than the 1901 plan as discussed in text.

Table 5-1. Summary of land transactions and key events records associated with the Fletts' Farm I45/71 and I44/72 within and immediately surrounding the project area (Section 20, Block 3; Sections 1 and 2 of 35, Section 36, Block 4, Ōtokia District).

Year	Event	Source
1865	Crown Grant issued to George Flett for Section 2 of 35 and Section 36, Block 4 Ōtokia District	Deed Index Book F Folio 232
1866	Alexander Fairburn receives Crown Grant for Section 20	Deed Index Book K Folios 426
1869	How receives Crown Grant for Section 1 of 35, Block 4	Deed Index Book O Folio 393; CT 15/12
1872	Flett purchases Section 1 of 35, Block 4 from How	Deed Index Book O Folio 393; CT 15/12
1883	Flett leases Section 20, Block 3 from Fairburn	Deed Index Book K Folio 426
1885	Flett constructs house and two other buildings on Section 20, Block 3 from Fairburn	Valuation Department, 1897
1902	Fairburn passes away and Section 20 comes under ownership of the Flett Family	Deed Index Book K Folio 426
1917	George Flett passes away, though farm likely being run by sons William and/or James Flett	Otago Daily Times, 1917b; Otago Daily Times, 1917a; CT15/4
1918	William Flett holds clearance sale for their property. He and his wife move to Mamona and Austin Sellers takes over the property.	Otago Daily Times, 1918; Otago Witness, 1918a
1920	Robert Orr purchase property.	Deed Index Book K Folio 426; Deed Index L Folio 865; CT 15/4; CT 15/12
1926	The Crown takes over the property.	Deed Index Book K Folio 426; Deed Index L Folio 865; CT 15/4; CT 15/12426
1927	The Crown sells the land to Robert Nourish	Deed Index Book K Folio 426; Deed Index L Folio 865; CT 15/4; CT 15/12

The 1897 valuation rolls identify one house and two other buildings on Section 20, Block 3 at this time, all constructed of wood and iron. The buildings were 12 years old placing their construction around 1885 soon after Flett first leased the property in 1883 (Valuation Department, 1897). The new buildings were possibly constructed to provide more space for the growing family or to be situated at a better location. The older buildings were possibly used as farm buildings or lived in by the oldest children of the Fletts during and following the construction of the new buildings.

George E. Flett was married to Janet Flett, and over 20 years (1861-1881) they had 12 children (Department of Internal Affairs, 2016). In 1917, George Flett passed away and the following year his son, William Flett had a clearing sale for their property (Otago Daily Times, 1917b, 1918). The sale included six horses, numerous cattle, and farm implements such as ploughs, scufflers, harrows, drills, milk cans, a wheelbarrow, saddle and breaching, harnesses, household furniture, and even old iron providing a clear image of both domestic and pastoral life on the Fletts' farm (Otago Daily Times, 1918). Williams father was reported to be living in Allanton at the time of his death at the age of 84, suggesting that William and/or his brother James had taken over the farm much earlier on, likely as George was getting too old to manage the property (Otago Daily Times, 1917a; CT15/4). William and his wife moved to Momona and were given a farewell social when they left. At the party William was presented with a gold albert and his wife, a travelling rug (Otago Witness, 1918a). This may be an instance where the lure of more productive land or other job opportunities proved too greater pull factors for the farmers of Ōtokia.

In 1918 Austin Sellers took over the property, but soon passed it to Robert Orr in 1920. Orr only held the property for six years, at which point the Crown took over the property and the following year sold it to Robert Nourish in 1927 (Deed Index Book K Folio 426; Deed Index L Folio 865; CT 15/4; CT 15/12).

An aerial photograph from 1942 (Figure 5-10) shows the location of both sets of buildings, delineated by large trees immediately surrounding the structures. These are likely macrocarpa and other introduced species still present today. The fields of the farm are demarcated by a number of fence lines visible in this photograph as well.

On Section 20 are two large buildings that are visible in 1942 (Figure 5-11). Further buildings may be present in the area at the time but hidden by overgrown vegetation. It is interesting to note that the buildings shown on the aerials are slightly further northeast of the buildings shown on the 1901 plan (Figure 5-8). The aerials align with those recorded for archaeological site I45/71 (a historic homestead). These are likely the same buildings as those shown on the 1901 military plan as the 1901 plan can be slightly inaccurate in the location of buildings. By 1951, the two buildings on the 1940s aerial are no longer visible. However, as will be discussed again in Section 6 below,

partial remnants of the buildings on this section are still present and were recorded in 2009 as part of archaeological site I45/71 (Figure 5-12).



Figure 5-9 SO 1374 dating to 1861 showing the later approximate location of unnamed buildings at I45/72 located within Section 36 Block 4. The green dashed line shows the approximate location of the buildings shown on the 1901 plan.

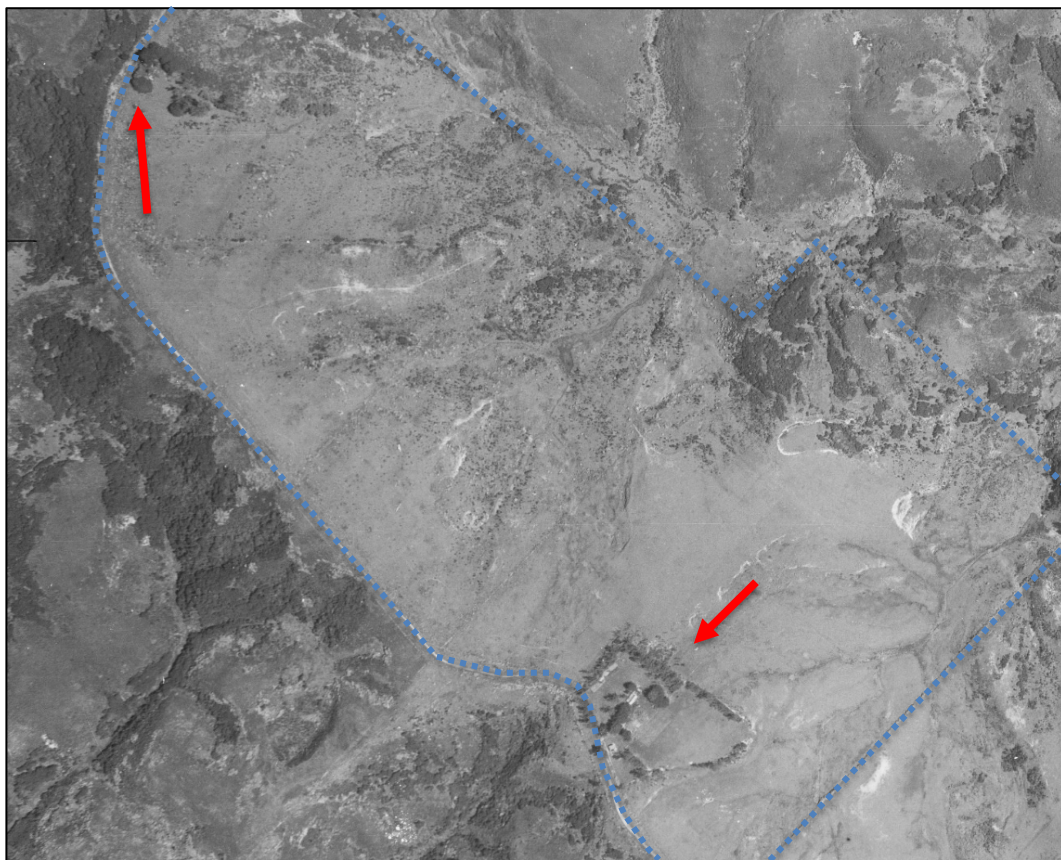


Figure 5-10. Aerial photograph from 1942 showing the Fletts' farm including locations of two building clusters (Retrolens, 1942).



Figure 5-11. Detail from 1942 aerial photograph showing the Fletts' farm at the location of the buildings on Section 20, Block 3, Ōtokia Block (Retrolens, 1942).

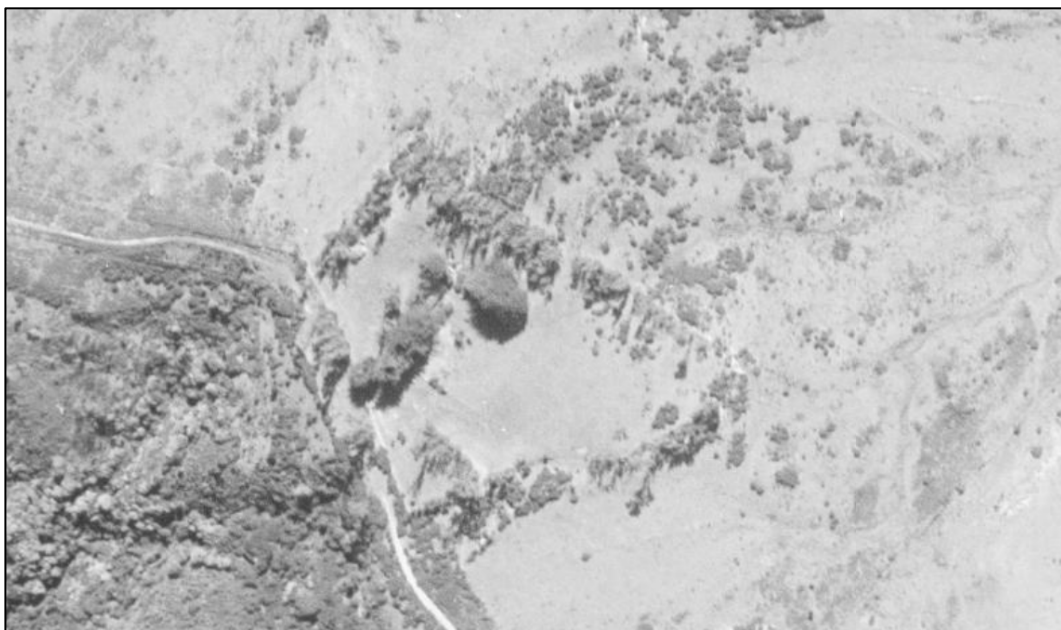


Figure 5-12. Detail from 1951 aerial photograph showing the Fletts' farm at the location of the buildings on Section 20, Block 3, Ōtokia Block. The two buildings in the 1942 aerial are no longer visible (Retrolens, 1951).

In contrast, the location of the buildings shown in the 1942 aerial photographs on Section 36 align neatly with those shown on the 1901 plan and the recorded archaeological site I45/72 (an earth-walled building) (Figure 5-13 and Figure 5-8). As will be discussed below, the visibility in this area is low due to the overgrown trees, but the remains of at least one building are still present on Section 36 and were recorded in 2009 as part of archaeological site I45/72 (Figure 5-13).

As a result of this assessment the recorded archaeological site boundaries have been updated on ArchSite for sites I45/71 and I45/72 to include the densest areas of occupation across the farm as shown by the dashed green lines on the 1942 aerial photographs (Figure 5-13 and Figure 5-11). These areas have recorded surface features and/or are most likely areas to contain further subsurface archaeological material.

Figure 5-14 is a photograph taken in 1900 showing a farmstead similar to the Fletts' that can provide us with a general sense of what the farmstead may have been like on the ground. This photograph shows the Reids' Farm (another early Ōtokia District European family), Garden Vale, on Kuri Bush farm only 2km south east of the Fletts' farm. This photograph provides a look at early farm structures and landscaping including a dwelling, other farm buildings (i.e. barn), fence lines and exotic trees. It is worth noting the roof thatching that is present on some of the buildings in the left of the photograph as well.



Figure 5-13. Detail from 1942 aerial photograph showing the Fletts' farm at the location of the buildings on Section 36, Block 4, Ōtokia Block (Retrolens, 1942).



Figure 5-14 Photograph of what was likely a similar farmstead to the Fletts' farm (Unknown, 1900). This photograph was taken in 1900 of the Reids' Farm, Garden Vale, on Kuri Bush farm only 2km south east of the Fletts' farm.

5.3.1 Previous Archaeological Investigations

Both archaeological sites I45/71 and I45/72 had been recorded on ArchSite. I45/71 had been recorded as a historic homestead (in 2009) near the northeast corner of the project area and 300m southwest of the McLaren Gully Road and Big Stone Road. The site originally could not be directly associated with particular occupation of the area and the age of the building could not be determined except that it possibly associated with a pastoral small holding between Allanton and the sea. However as discussed above the building is likely associated with the Flett family. The building was recorded as a timber-framed building on a cut terrace, with an adjacent brick-lined reservoir and surrounding exotic trees, predominantly eucalyptus (Figure 5-15). When Peter Mitchell returned to the site in 2017, the site condition had deteriorated. The structure was even more overgrown with vegetation and the roof had collapsed (Figure 5-16).

I45/72, an earth-walled (mud brick) building, was recorded in 2009 near the south corner of the project area. Again, this was possibly associated with another pastoral small holding, as was suggested for the wooden homestead (I45/71). While an age for the building could not be determined, it was identified that it was likely to pre-date 1900 as early accounts for the area identify the earliest homesteads as mud brick. Again, historical research above suggests this building may have formed an earlier homestead for the Flett family. The building itself was recorded on a cut terrace with exotic plantings surrounding it including cedar and macrocarpa. Only the southwest corner of the building is visible however, the building extended to approximately 7m east-west. Periwinkle covered the building and surrounding area as well, a plant often used as a fire break around early homesteads. When the site was revisited in 2017 it was noted that the remaining walls appeared as though they may collapse in the near future.

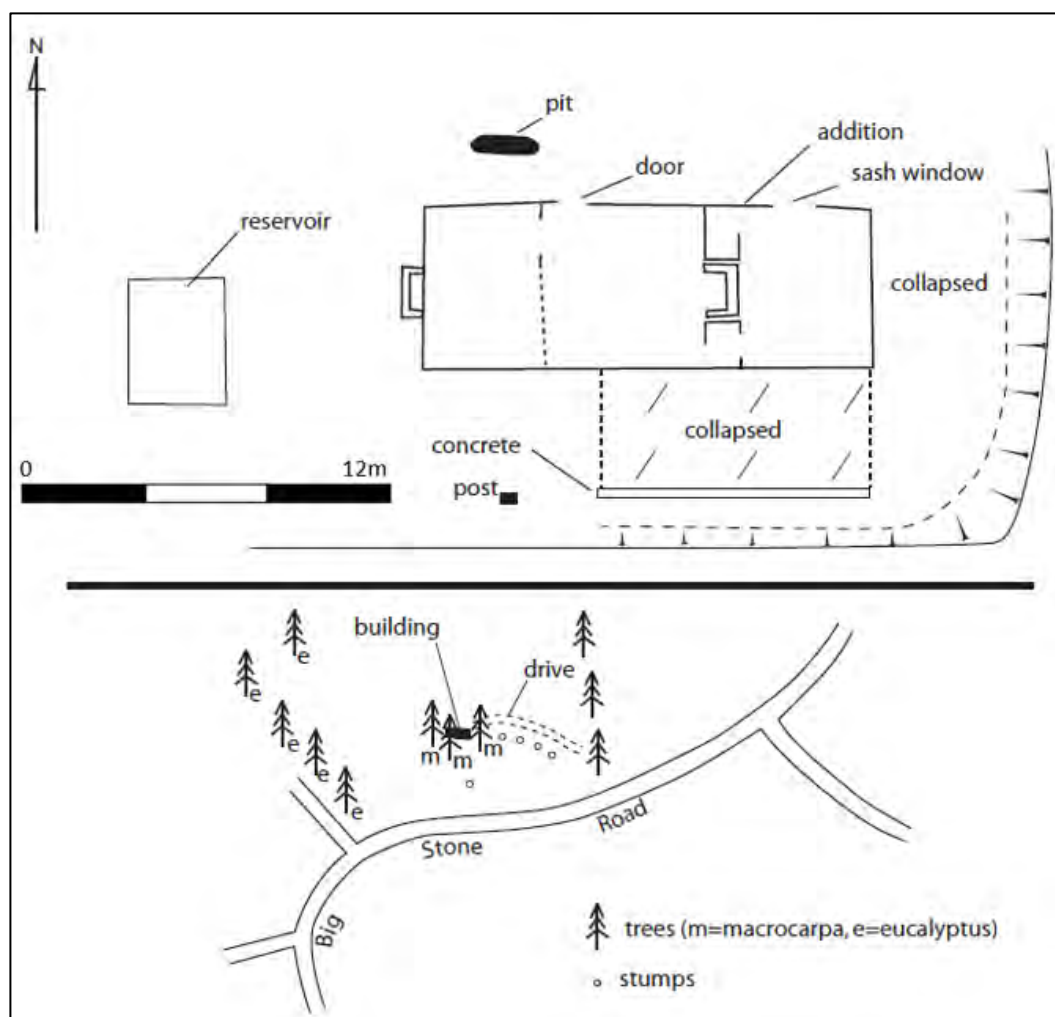


Figure 5-15. Plan of the historic homestead and reservoir recorded as archaeological site (I45/71) (Jacomb, 2009).



Figure 5-16. Photograph taken looking south in 2009 (Jacomb, 2009) and northwest in 2017 showing the deteriorating condition of the site (Mitchell, 2017).

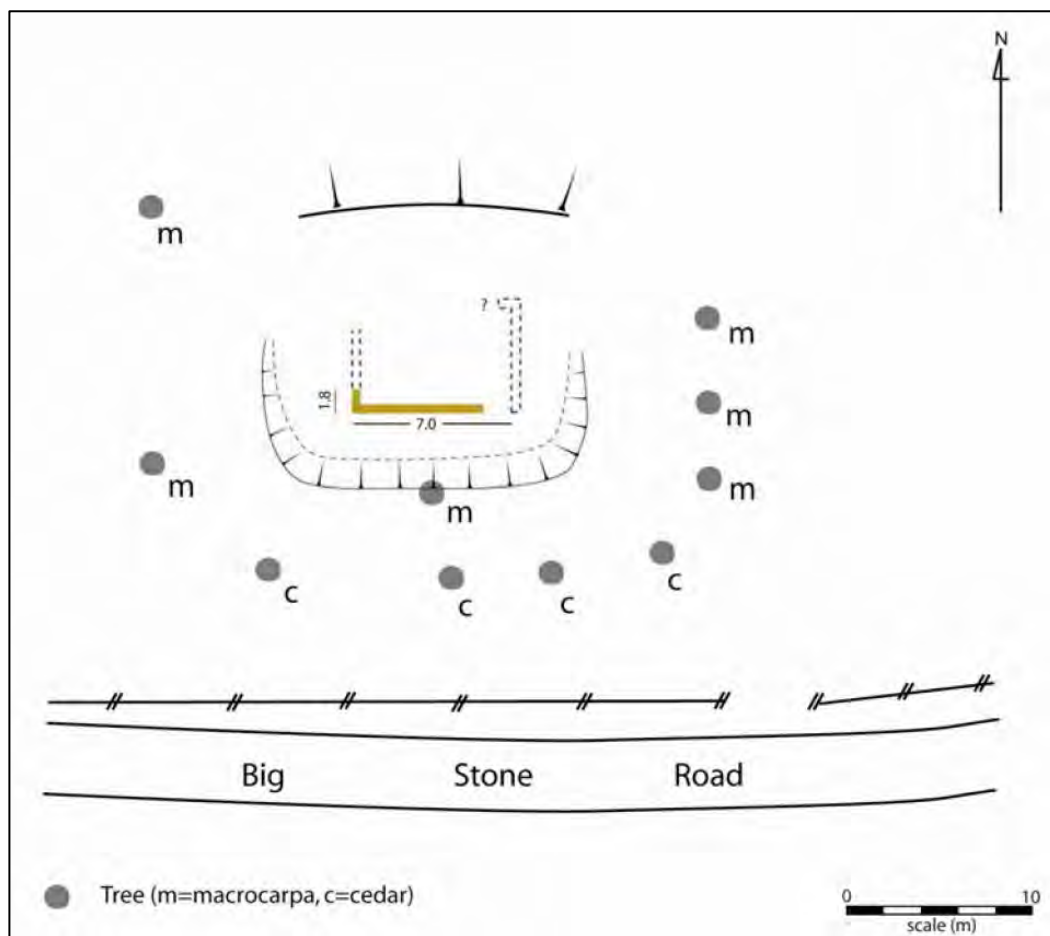


Figure 5-17. Plan of the earth-walled (mud brick) building recorded as archaeological site (I45/72)

5.3.2 Results of the Site Survey

The farmstead building still present at I44/71 is located approximately 50m from the Big Stone Road Reserve surrounded with heavy vegetation and two large eucalyptus trees growing to either side. The timber-framed cottage was originally clad in weatherboard and has since been roughcast (Figure 5-18). The corrugated iron roof noted in the last site visit has since collapsed. The building has continued to degrade since it was last recorded with many of the wall sections having collapsed (Figure 5-19). The portions still standing are currently leaning inward and appear extremely unstable. Heavy ivy growth covers several of the walls and is likely contributing to the degradation while other plant growth is present throughout the interior, also likely hastening the structure's collapse. During the 2009 a brick and concrete lined reservoir was recorded to west. The feature is in the same state indicated in

the 2009 site recording; however, it is unclear if it is a reservoir, as an eastern wall was not apparent, and the structure looked to abut bare earth. The structure may be instead associated with another farm building such as a dairy.

A large flat platform measuring 18.24m long and 9.23m wide was recorded approximately 70m north west of the house (Figure 5-20). While still covered in relatively heavy vegetation the ground was uncharacteristically flat given the undulating topography of the surrounding area and was roughly rectangular in shape. There is nothing shown at this location in the 1942 aerial photographs (Figure 5-21). However, in the 1901 military map a building is shown just to the north west of the exotic trees situated around the main farmstead, as the platform is today (Figure 5-22). As such as the platform may be a lasting remnant of the building and subsurface archaeological remains may exist at this location. No other remains of building structures as shown on the 1901 plan or 1942 associated with I44/71 were visible during the site survey.



Figure 5-18 Current condition of the homestead structure with the ceiling collapsed and walls listing heavily, looking north (top left) Structure barely visible through thick vegetation, looking south (top right) and the current state of brick and concrete lined structure looking north (bottom).

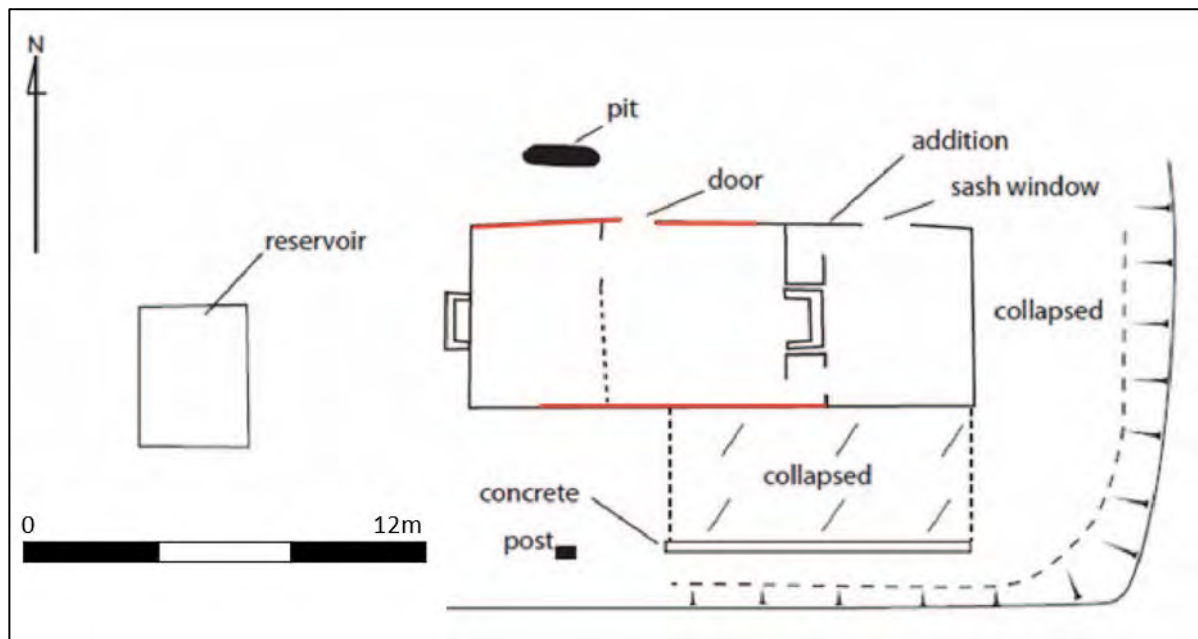


Figure 5-19 Site plan from site record form. Walls highlighted in red have since collapsed.



Figure 5-20 Looking west over the platform area although the extent is difficult to make out with the volume of plant growth.



Figure 5-21. Platform area (dashed white line) identified during the survey to the northwest of the recorded structures at I45/71.



Figure 5-22. 1901 military plan showing building possibly associated with the platform identified during the survey (red arrow). Note that the property is not shown in the correct location in the map as discussed in Section 5.3 above however the relative location of the platform identified during the survey generally aligns with the relative location of the building to the northwest.

The structural remains at I45/72 are located approximately 15m from Big Stone Road and 120m from the property boundary. The site consists of the remains of an earthen (possibly mud brick) structure. The site appears to be in roughly the same state recorded in the site record form in 2009. A single low wall 7m in length with an east west orientation to a corner and a 1.8m length with a north south orientation are all that remains of the original building.

The remainder of the structure is collapsed as shown while the walls are leaning inwards slightly and there are several large cracks in the wall. A wooden beam approximately 12cm wide was found approximately 23m to the northeast of the earth walls, however its possible association with the site is unknown.



Figure 5-23 Earth wall remains looking east (left) and north east (right).



Figure 5-24. Wooden beam found to the northeast of earth walled building

5.3.3 *Archaeological and Other Values*

The significance of an archaeological site is determined by, but not limited to, its condition, rarity or uniqueness, contextual value, information potential, amenity value, and cultural association. A brief evaluation of the site is provided in Table 5-2 and Table 5-3 the criteria defined by HNZPT (NZHPT, 2006). The two sites (I45/71 and I45/72) were identified to have **medium** archaeological values given the presence of archaeological structural remains, which although in poor condition, have the potential to contribute to our understanding of the development of farming by individual families as well as in the wider district. While I45/72 was identified to have

slightly higher rarity and information potential values given its early age and less common building construction type, like I45/71, the condition and amenity values of the site are lower given the current condition of the site.

Table 5-2. Summary of archaeological values for I45/71.

Value	Criteria	Assessment
Condition		Poor. The roof of the dwelling has caved in as have several of the walls. Those that remain standing are leaning inward and appear unstable. Heavy ivy growth covers several of the walls and is likely contributing to the degradation while other plant growth is present throughout the interior, also likely hastening the structure's collapse. The brick and concrete lined structure is in the same state indicated in the 2009 site recording. There is the potential subsurface remains may exist intact, however the condition of any such remains is unknown.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Medium. There are several farmsteads recorded in historical records throughout the Ōtokia area. However, until this assessment many remained unrecorded archaeologically. Of those that have been recorded only two other contains existing physical remains.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	Medium. This site offers the potential to examine the history of various buildings and operations of the Flett family homestead in the context of this site but also the wider farm area where further occupation has been recorded (I45/72). This site can also be considered in the wider context of Ōtokia, with archaeological remains contributing to the agricultural landscape recorded historically and archaeologically.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Medium. This site can contribute to wider understandings of small family run farms throughout the Ōtokia as well as the wider agricultural sector developed through Ōtokia from the mid-1800s to the early 1900s and potentially an examination of the commercial viability of farming in the area. Potential information offered may provide insight into how the Flett farm developed and commercial viability of farming in the area.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	Low-moderate. This site has become dilapidated over time with collapsed walls and overgrown vegetation. However, if the vegetation is removed, strengthening is undertaken and protections put in place there is the potential that the site could have moderate amenity values, especially as it is not far from Big Stone Road.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	European.

On the balance of these values archaeological site I45/71 has been assessed to have medium archaeological values.

Table 5-3. Summary of archaeological values for I45/72.

Value	Criteria	Assessment
Condition		Poor. Only partial remains of two walls of the earth walled exist on the site today. Subsurface remains may exist intact, however, the condition of any such remains is unknown.

Value	Criteria	Assessment
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Medium-High. This house is a rear example of an example of an earth-walled building that may be associated with early occupation of the area. While several farmsteads recorded in historical records throughout the wider Ōtokia area. However, prior to this assessment many remained unrecorded archaeologically. Of those that have been recorded only two other contains existing physical remains, neither are sod walled buildings.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	Medium. This site offers the potential to examine the history of various buildings and operations of the Flett family homestead in the context of this site but also the wider farm area where further occupation has been recorded (I45/71). This site can also be considered in the wider context of Ōtokia, with archaeological remains contributing to the agricultural landscape recorded historically and archaeologically.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	High. This site can contribute to wider understandings of small family run farms such as the Flett farm throughout the Ōtokia and wider Taieri area, and potentially an examination of the commercial viability of farming in the area.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	Low-moderate. Only partial remains of two walls remain, however if the surrounding vegetation is cleared, they would be visible from Big Stone Road.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	European.

On the balance of these values archaeological site I45/72 has been assessed to have medium archaeological values.

5.4 History of Palmers' Farm (I45/79) - 3 Henley Road and 200 McLaren Gully Road

Edwin Palmer owned extensive farmland throughout Ōtokia, extending north towards Momona, but the mainstay of his land was situated to the south of the Taieri River (Hamel, 1986). South of the river, in and around the project area, Palmer received crown grants in the Ōtokia District for two sections within the project area in 1866 (Section 2 of 13 and Section 34, Block 4 shown in Figure 5-25 and Table 5-4) (Deed Index Book G Folios 129 and 358). Palmer may have settled in the area prior to the issuing of the Crown Grants as Section 2 of 13 in particular was leased out to Andrew Grieve in the year prior, 1865 (Deed Register 17 Folio 250).

Edwin Palmer was not only a farmer but a land and stock dealer in Ōtokia (Figure 5-26). Born in Sydney to two convicts, he came to southern New Zealand in 1825 and took up whaling with John Jones in the south around the 1830s (Evening Star, 1886; Hamel, 1986; Stuart, 1981; Toitu Otago Settlers Museum, 2019). He stayed with mana whenua and formed a relationship with Patahi of Ngāi Tahu and they eventually settled at Ōtākou, where they had two children. Palmer continued sailing but suffered heavy losses when the whaling industry collapsed. By 1851, Palmer and Patahi separated and within the year he had married his second wife Beatrix Fowler. Following his career as a ship and whaling station owner, Palmer became a manager on a Waikouaiti farm and around 1853 settled at Moeraki Bush (an early name for Otakia/Ōtokia) where he continued to live until his death in 1886 (Evening Star, 1886; Hamel, 1986; Stuart, 1981; Toitu Otago Settlers Museum, 2019). He was outlived by his five sons, one daughter, and his wife Beatrix (Stuart, 1981). In his obituary, Edwin was described as “being of a most enterprising nature, extremely liberal and large-hearted, and, as a consequence was held in the highest respect by all his neighbours”(Evening Star, 1886). While Edwin died in 1886, Section 34 and Section 2 of 13 remained in the Palmer family, passing to his son Henry, and his descendants into the twentieth century (Deed Index Book G Folios 129 and 358; Deed Register 87 Folio 767; Deed Register 191 folio 478).

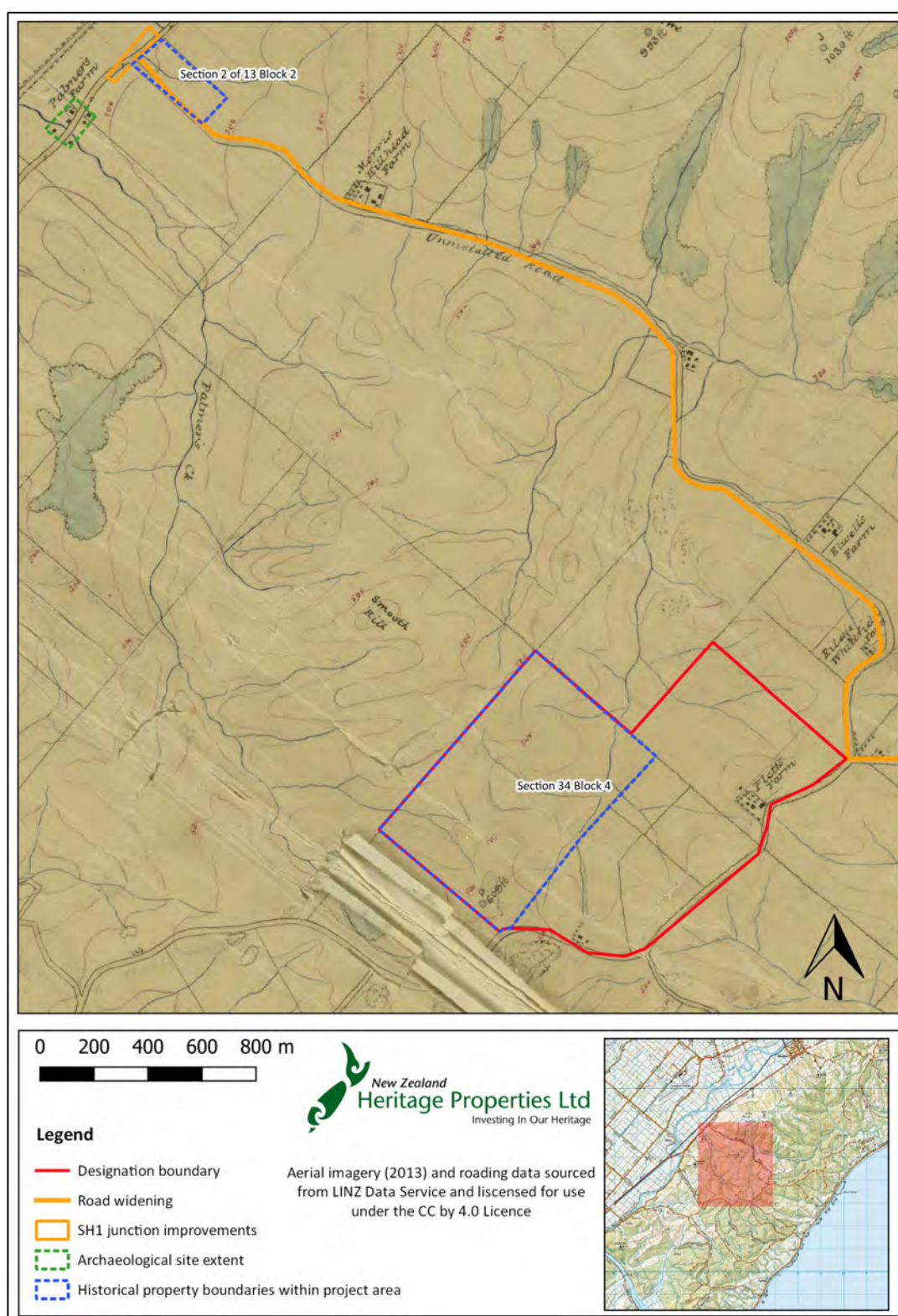


Figure 5-25. 1901 military plan showing the location of the Palmers Farm sections (outlined blue) that extend within the project area (outlined red and yellow) and alongside the road widening works. The main locality of buildings recorded on ArchSite and associated with the Palmer Farm is located outside of the project area (outlined green).

Table 5-4. Summary of land transactions and key events records associated with the Palmers' Farm I45/79 within and immediately surrounding the project area (Section 34, Block 4; Section 2 of 13, Block 2 Ōtokia District).

Year	Event	Source
1865	Section 2 of 13, Block 2 leased by Edwin Palmer to Andrew Grieve	Deed Register 17 Folio 250
1866	Edwin Palmer issued crown grant for Section 34, Block 4, and Section 2 of 13, Block 2 in 1866	Deed Index Book G Folios 129 and 358

1886	Edwin Palmer dies and land passes to his son Henry Palmer	Deed Index Book G Folios 129 and 358; Deed Register 87 Folio 767; Deed Register 191 folio 478
1902	The Palmer family sells portion Section 2 of 13 to the Taieri and Peninsula Dairy Company; Taieri and Peninsula Dairy Company build a creamery in Ōtokia, possibly on Section 2 of 13	Deed Index Book G Folio 129; Otago Daily Times, 1902, 1934a
1922	Taieri and Peninsula Dairy Company sell portion of Section 2 of 13 to Taylor (blacksmith)	Hamel, 1986; Deed Index Book T Folio 653
1930	Taylor passes away and the entirety of Section 2 of 13 comes under the ownership of Binney. They would lease out the property.	Hamel, 1986
1967	Land sold to the Cuttances	Hamel, 1986
1970-9	McLaren Gully Road realigned through Section 2 of 13	Retrolens, 1970; 1979

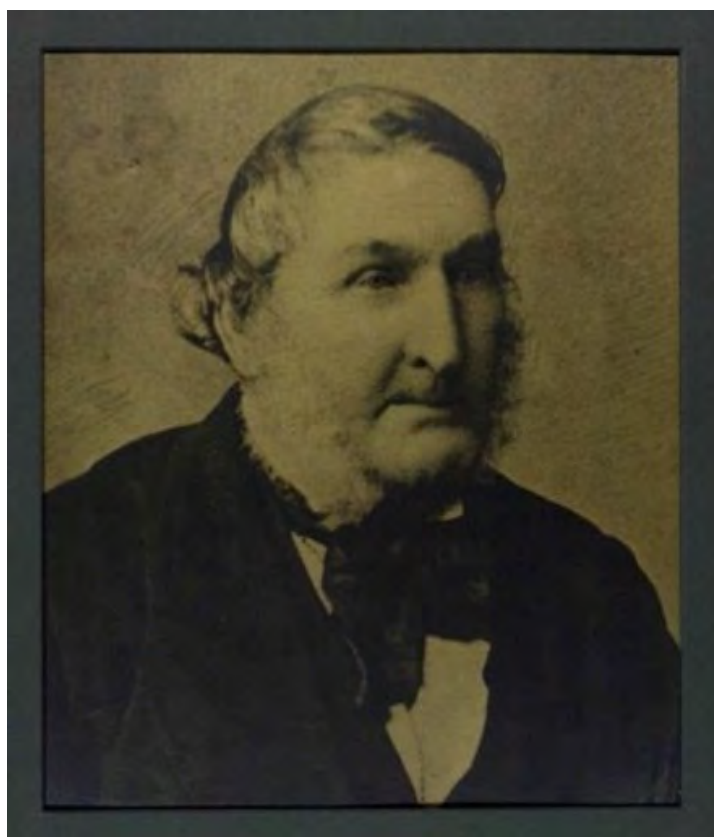


Figure 5-26 Photograph of Edwin Palmer (Toitu Otago Settlers Museum, 2019).

There are two sets of buildings in the 1901 military plan belonging to the Palmers. One is adjacent to the Allanton-Waihola Road (and close to McLaren Gully Road), with Smooth Hill between the buildings and the project area (Figure 5-25). These buildings are referred to as Palmers Farm and are situated within the land owned by Edwin Palmer and his descendants. The other set of building is referred to as Palmers House and are located immediately adjacent to the Taieri River, with Palmers Hill in between the buildings and the project area (Figure 5-27). Those to the south belonged to William Palmer and though he was related to Edwin, the family connection is unclear (Parkes & Hislop, 1980). No buildings are shown on Section 34 with the project area in the 1901 plans, earlier plans, valuation rolls, and later aerial photographs examined during the preparation of this assessment. It is unlikely that the Palmers ever had a homestead on this land, and it was instead used for grazing stock or growing produce. However, is possible that ancillary farming buildings and other features such as fence lines may have been located in the area.

As a result of this assessment, Palmers farmstead has been recorded as an archaeological site on ArchSite as I45/79. The site boundaries include the densest areas of occupation across the farm as shown by the dashed line in the 1901 military plan (Figure 5-35). This site is recorded outside of the project area and thus will not be affected by proposed works however there is a slight potential that ancillary buildings or fence lines associated with the farm may be encountered in the project area.

In the course of this research little was found on Grieve's lease of the Section 2 of 13, Block 2. However early 1860s or 1901 plans do not show any occupation on the property (Figure 5-28), nor are there any buildings listed on this property in the 1897 valuation rolls (Valuation Department, 1897). It is interesting to note that Grieve was a storekeeper in the township of Ōtokia (Shaw & Farrant, 1949), and the land may have been leased and farmed to supplement his income or his store produce. In 1902 the Palmer family sold the western part of this property to the Taieri and Peninsula Dairy Company and by 1916 survey plans show the property was occupied by T & P Dairy Company (Deed Index Book G Folio 129). The Taieri and Peninsula Dairy Company or Taieri and Peninsula Milk Supply Company was first established in 1884 for delivering milk to Dunedin (Otago Daily Times, 1934a). The first hurdle faced by the company was over supply: too much milk. However, instead of restricting suppliers the company looked towards the production of butter to supplement the business and when this was not enough to make use of the heavy supply of milk, the company turned to cheese making as well (Otago Daily Times, 1934a). The company's butter and cheese manufacture "was carried out along the most elementary lines" (Otago Daily Times, 1934a), and as a result they still could not keep up with their large supply. Thus in 1889 the company started building butter and cheese plants, and so began their chain of creameries around Dunedin.

Between 1899 and 1903 the company built an extensive number of creameries, including one in Ōtokia in 1902 (Otago Daily Times, 1902, 1934a). It is not certain, but it is possible that a creamery was constructed in 1902, or as suggested by Hamel (1986), a cream and skim milk separation plant, by the Taieri and Peninsula Dairy Company on Section 2 of 13. This is supported by the request of the company "to metal the road at the approach to their new creamery" during the same year (Otago Witness, 1902b). As will be discussed below, McLaren Gully Road was an unmetalled road at this time and still is today. While they were denied the metalling, the company were allowed to put in a crossing (Otago Witness, 1902b).

The land purchased in 1902 continued under the company's ownership until 1922, when it was sold to Taylor, a blacksmith, who held on the land until he died in 1930 (Hamel, 1986; Deed Index Book T Folio 653). The land passed to a Dunedin accountant Eric Binney with the remainder of Section 2 of 13 (Hamel, 1986). The land was used as a rental property, with a poor quality building occupied by the Reilly Family (Hamel, 1986). It is not certain, but this is likely the same Riley/Reilly family of the Whitefield farm who lost their farm in the 1930s but continued to reside in the area and will be discussed below. Aerial photographs show two buildings on the property in 1942 (Figure 5-31). It is not clear when these buildings were constructed, except that it was after 1902. It's possible that they may have been established by the dairy company and converted by later occupants or they may have been built by Taylor or Binney. Eventually the land was sold to the Cuttances in 1967 (Hamel, 1986), and between 1970 and 1979 McLaren Gully Road was realigned (Figure 5-32 and Figure 5-33), and at this time the building was removed, and the road now runs through where the building was located.

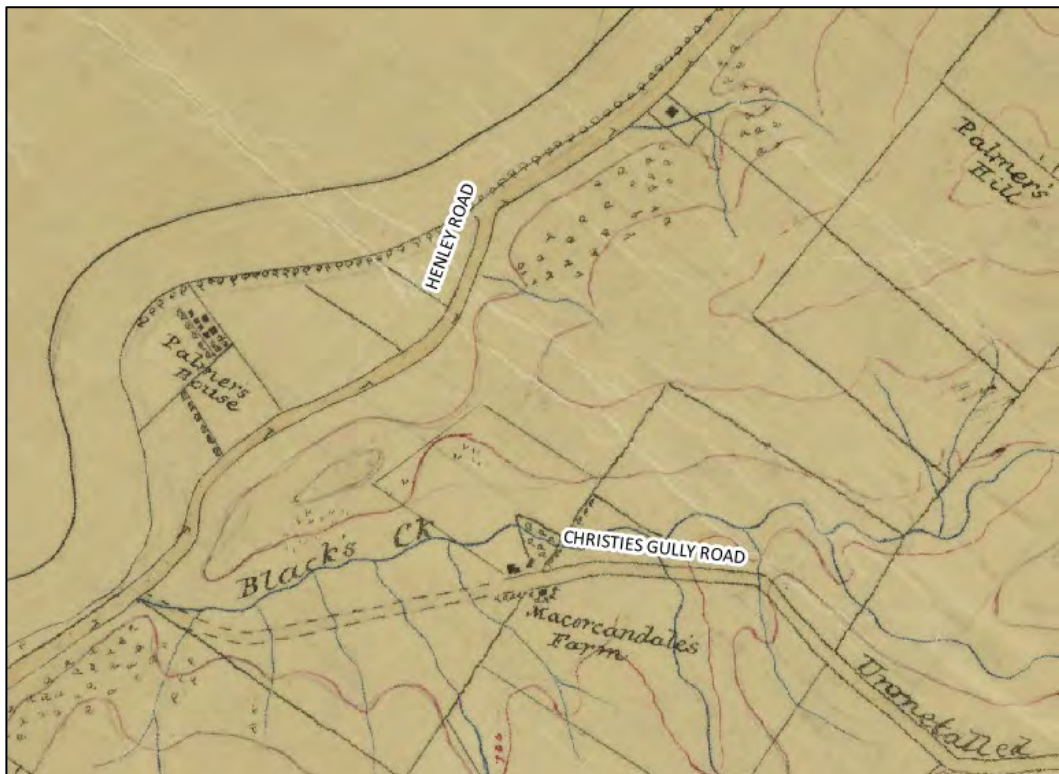


Figure 5-27. Military Plan from 1901 showing Palmer's House near the intersection of Henley Road and Christies Gully Road.

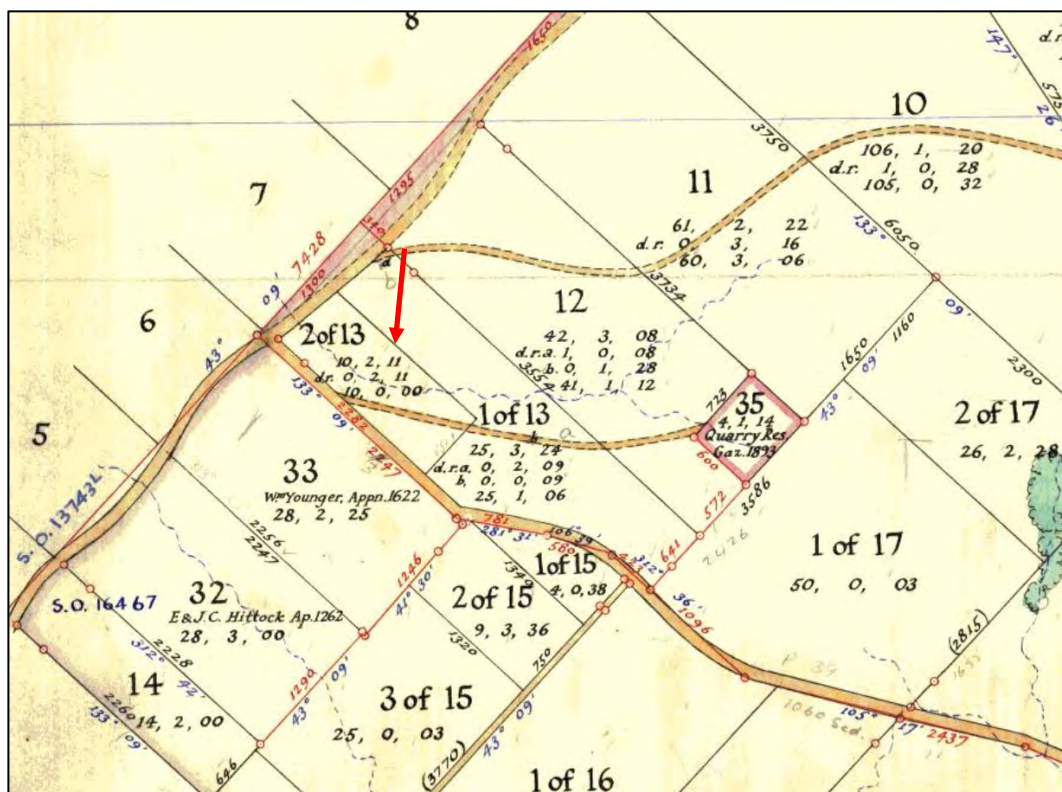


Figure 5-28. SO 1372 (1860) showing Section of Palmer's land (Section 2 of 13, Block 2) that was leased to Grieve in 1865.

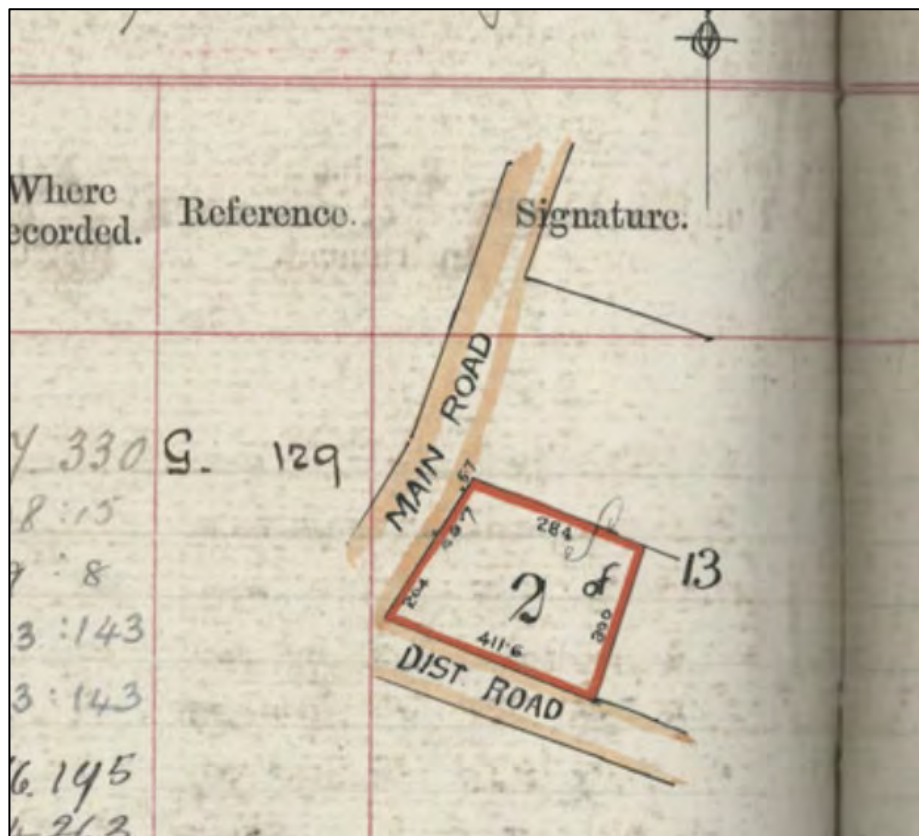


Figure 5-29. Part of Section 2 of 13, Block 2 sold by Palmer to the Taieri and Peninsula Dairy Company (Deed Index Book T Folio 63).

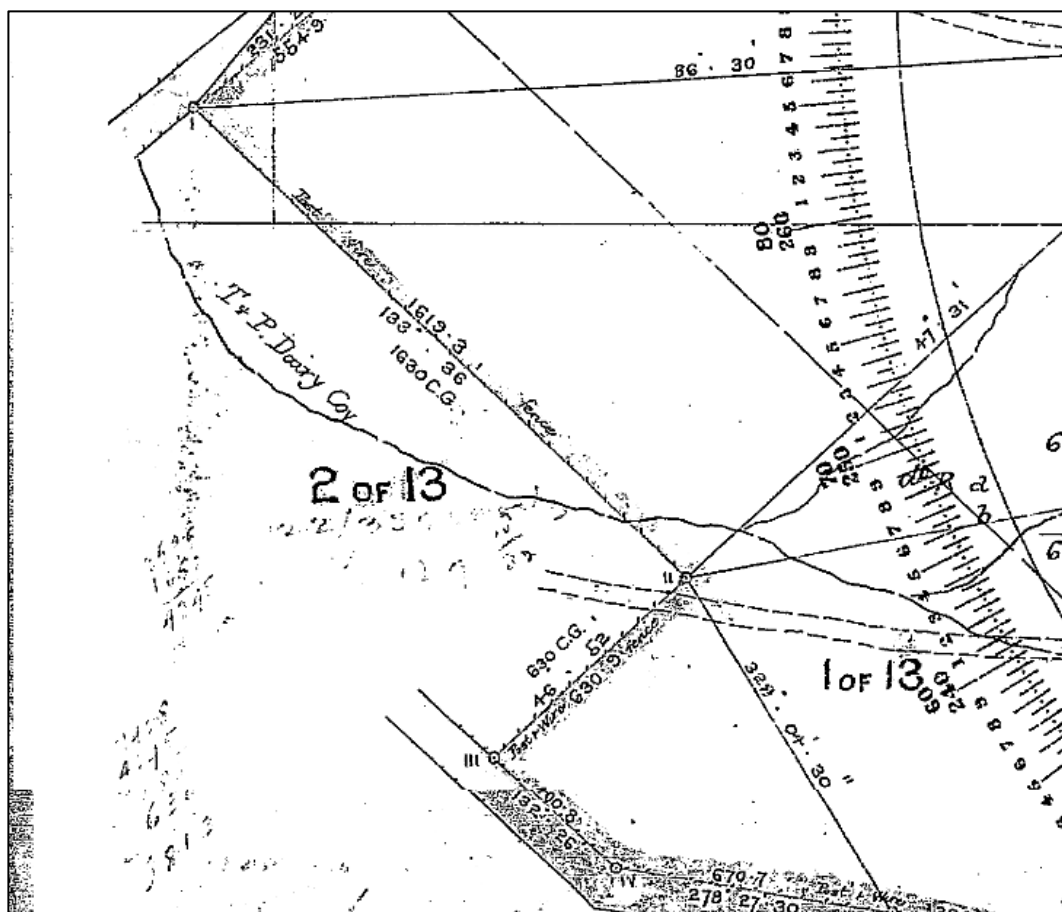


Figure 5-30. Deposited plan 2677 showing occupation of Section 2 of 13, Block 2 by T & P Dairy Company.



Figure 5-31. Aerial photograph from 1942 showing buildings on Section 2 of 13 Block 2, that likely relates to the T & P Dairy Company (Retrolens, 1942).



Figure 5-32 Aerial photograph from 1970 showing the intersection of McLaren Gully Road with Allanton-Waiholo Road (Retrolens, 1970). The buildings on a building on Section 2 of 13 Block 2 (outlined red) are still present.



Figure 5-33 Aerial photograph from 1979 showing the intersection of McLaren Gully Road with Allanton-Waihola Road. Not the slight realignment of the end of McLaren Gully Road at the intersection (Retrolens, 1979). The buildings on Section 2 of 13 Block 2 (outlined red) are still present.

5.4.1 Results of the Site Survey

In what would have been Section 34, Block 4 of the Palmers' farm, a farm shed/pen was located approximately 110m from the roadway at the driveway for 750 Big Stone Road on the flat top of a hill next to a triangulation station (Figure 5-34). There are two interior compartments separated by a low timber wall and gate. The northern compartment is floored with timber slats while the southern half is floored with thin timber sheeting. The roof and walls of the structure are clad with corrugated iron. There is a single skylight in the southern compartment. In total the structure measured 2.6m wide by 4.55m long. The roof sloped towards the west with the eastern height being 2.3m and the western 2m. The north wall had been completely removed while the western wall is full of numerous bullet holes. Further historical research determined that this was not a pre-1900 building. It is not present in 1942 aerial photographs, the 1901 military plan, nor is it mentioned in the 1897 valuation rolls for this land parcel.



Figure 5-34 Site 7 Structure exterior (left) and interior (right).

No other potential archaeological features were identified in association with the Palmers' farm throughout the project area. As such as the site boundaries were not extended and the site still will not be affected by the proposed works. As a result, the archaeological values for I45/79 has not been assessed here.

5.5 Other Farms

The following sections provide a brief summary on the other farms adjacent to the project area, specifically along McLaren Gully Road. While the designation area does not extend into any of the other farms, road widening will extend beyond the road boundary. As a result, any road widening may encounter features associated with these farms.

5.5.1 *History of The Rileys' Whitefield Farm (I45/80) - 200 Christies Gully Road*

This farm is located within the land parcel that was originally Sections 1 and 2 of 21, Block 3, Ōtokia District. The crown grant for this property was first issued in 1866 to John Riley/Reilly (Figure 5-35 and Table 5-5). The property continued under the Riley family name into the twentieth century as the land passed to John's wife Jessie Riley in 1887, then their son John Riley in 1925 (Deed Register 89 Folio 745; Deed Register 230 Folio 361; Deed Index Book N folio 782). However, that same year a memorial of bankruptcy was filed by John Riley. While the Order of Adjudication was annulled in 1929 (Evening Star, 1929), the property was in Administration (care of J. M. Adams) until April 1930 at which point the Rileys' estate was released (Otago Daily Times, 1930). Within two months, McLeod took possession of the land (Deed Index Book N folio 782).

The 1901 military plan shows the Rileys' farmstead at the bend of McLaren Gully Road. The farm buildings are described in the 1897 valuation rolls as a house and two outbuildings constructed of wood and iron built in 1885 (Valuation Department, 1897). Fences around the farm were also noted in the valuation rolls. These buildings likely replaced earlier structures given John received the crown grant for the property in 1866. The farm is referred to as Whitefield in the 1901 plan (Figure 5-35) and soon after John Riley was advertising for a housekeeper at Whitefield (Otago Daily Times, 1913).

Following the departure from his property John Riley did not have the best of luck. In 1932 he also got himself into trouble for fighting with an Alexander McGregor on the Ōtokia Road (Otago Daily Times, 1932). In 1934 he was convicted and fined for failing to pay instalments of his unemployment levy (Otago Daily Times, 1934b). Two years later in Ōtokia, he was charged for stealing two steers, and was committed for trial (Evening Star, 1936). The following year John Riley, at 60 years of age, received "nine months of reformatory detention on a charge of receiving two steers" while known they belonged to Eliza Walker (Evening Star, 1937). It is interesting to note that when charged of the offense he was living near the Cuttances who owned the property northeast along McLaren Gully Road. This was likely Section 2 of 13, Block 2 owned by Binney (Evening Star, 1936). This was not the first-time his family had gotten themselves in trouble for stealing before, with his brother Henry charged of similar transgressions over ten years prior, but the case was dismissed due to insufficient evidence (Otago Daily Times, 1924). Little had changed in the family as almost eighty years earlier it appears his father, John Riley was accused of stealing a heifer; the charge was again withdrawn as the owner of the animal could not be found (Otago Daily Times, 1865).

As with the aerial photographs of the Fletts' farm, the location of the buildings associated with the Rileys' Whitefield farm are visible in the 1942 aerials (Figure 5-36), and they align with those shown in the 1901 plan. The immediate surrounding area is demarcated again with macrocarpas and other exotic trees. Fences lines of the farm are also visible in the aerials. Despite this, the buildings themselves are difficult to discern amongst the overgrown trees, and it is not possible to say if they are present at this time. As a result of this assessment, Rileys' Whitefield farm has been recorded as an archaeological site on ArchSite as I45/80. The site boundaries include the densest areas of occupation across the farm as shown by the dashed line in the 1901 military plan (Figure 5-35).

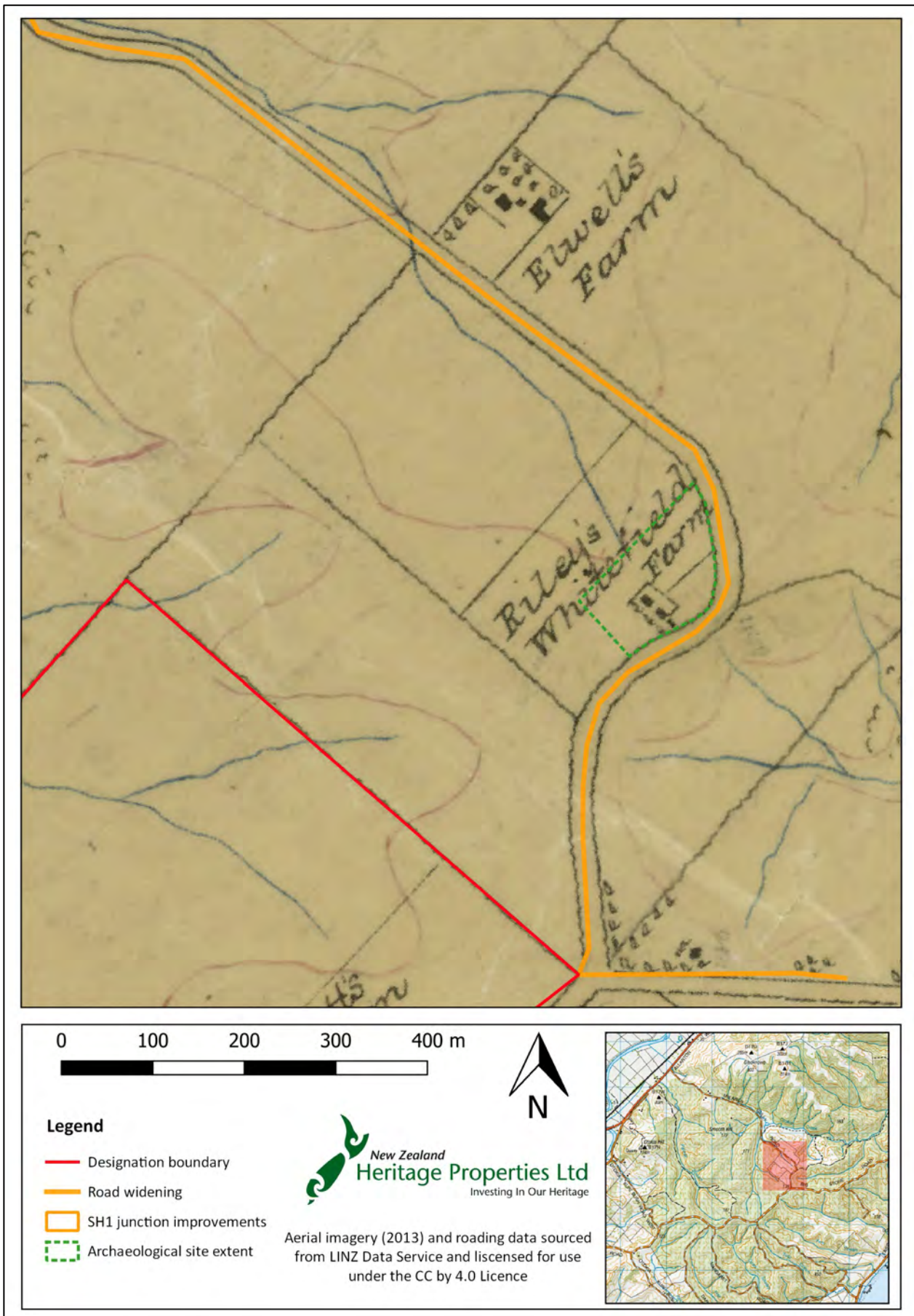


Figure 5-35. 1901 military map showing the Rileys' Whitefield Farm in relation to the designation area (outlined red) and McLaren Gully Road (orange). The site extent recorded on ArchSite is outlined in green.

Table 5-5. Summary of land transactions and key events records associated with the Rileys' Whitefield Farm I45/80 within and immediately surrounding the project area (Sections 1 and 2 of 21, Block 3, Ōtokia District).

Year	Event	Source
1866	Crown grant for Sections 1 and 2 of 21, Block 3 issued to John Riley/Reilly	Deed Index Book N folio 782
1885	A house and two outbuildings constructed of wood and iron	Valuation Department, 1897
1887	Land comes under the ownership of John's wife Jessie Riley	Deed Register 89 Folio 745
1925	Land comes under the ownership of their son John Riley; memorial of bankruptcy filed by John Riley	Deed Index Book N folio 782
1930	Estate released from administration in April and two months later comes under the ownership of McLeod	Otago Daily Times, 1930; Deed Index Book N folio 782



Figure 5-36. Aerial photograph from 1942 showing the Rileys' Whitefield farm, outlined blue and the site extent recorded on ArchSite, outlined green (Retrolens, 1942).

5.5.1.1 Results of the Site Survey

The location of the farmstead at Rileys' Whitefield farm is located approximately 400m to the north of the intersection of Big Stone and McLaren Gully Roads. The area was not directly accessible as it is within private property. There was no evidence of former structures or fence line visible from the roadside associated with historical occupation. However large macrocarpa and other exotic trees still line the location of the dwellings (Figure 5-26).



Figure 5-37 Photographs looking south (left) and west (right) at the trees that still surround the location of the Rileys' farmstead.

5.5.1.2 Archaeological and Other Values

A brief evaluation of the site is provided in Table 5-6 below based on the criteria defined by HNZPT (NZHPT, 2006). The site (I45/80) was identified to have **low-medium** archaeological values as there were no structural remains visible from the roadside or current aerial images. However, they subsurface remains encountered during the proposed works may contribute to our knowledge of small family run farms in the Ōtokia district.

Table 5-6. Summary of archaeological values for I45/80.

Value	Criteria	Assessment
Condition		Unknown. This site could not be accessed and fully surveyed as such it is not possible to comment on the condition of the site except to say that from the road reserve and aerial photographs there do not appear to be any structures remaining associated with the pre-1900 occupation of the site. The presence and condition of subsurface remains is unknown.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Low-moderate. There are several farmsteads recorded in historical records throughout the Ōtokia area. However, until this assessment many remained unrecorded archaeologically.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	Medium. This site offers the potential to examine the history of various buildings and operations of the Rileys family homestead. This site further offers the opportunity to study how the Riley farm developed, but also how the wider agricultural sector developed through Ōtokia from the mid-1800s to the early 1900s.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Medium. This site can contribute to wider understandings of small family run farms throughout the Ōtokia and wider Taieri area, and potentially an examination of the commercial viability of farming in the area.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	Low. There are no visible surface remains from the road reserve.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	European.

5.5.2 *History of Peter McLaren the Younger's Hillhead Farm (I45/67) - 109 McLaren Gully Road*

The crown grant for the land immediately adjacent the project area, Section 1 of 17 Block 2, Ōtokia District, in which the homestead at I44/67 is located, was issued to Peter McLaren Senior along with Section 1 of 16, 18, and 20 in 1865 (Figure 5-38 and Table 5-7). However, a mortgage had been taken out against these four sections a year earlier by McLaren, suggesting he occupied the land prior to the issuing of the crown grant (Deed Index Book E Folio 375). In 1877 the land was transferred to Peter McLaren the Younger, who would go on to take out a number of mortgages against the property (Deed Index Book O folio 524).

The house currently on the property recorded as archaeological site I45/67 was suggested to have been built in around 1890; however, there is no secure information on this date, only personal communications to Hamel (1986). This date seems unlikely as Peter McLaren was declared insolvent in 1885 (Evening Star, 1885b). Moreover, Hamel (1986) suggests any inheritance when Peter Senior died had been spent on the house. He passed away in 1884 (Otago Daily Times, 1884). Thus, while it is likely the construction of the house contributed to his bankruptcy, the construction probably occurred soon after Peter the Younger took over the property in the late 1870s or early 1880s requiring the mortgages taken out against the property. As the McLarens had owned the property from at least 1864, there was also likely a preceding building situated on the property.

The 1870s or 1880s building still on the property is plastered double brick house with a tiled roof. The roof itself has two transverse gables and hip roof (Figure 5-39). A bay window is situated at the front of the building while the interior features three living rooms, three bedrooms, a sun porch as well as ornate plastered ceilings and a black marble fireplace (Hamel, 1986). The front of the building with veranda is visible in the 1900 photograph shown in Figure 5-40. By this time, it was known as Hillhead Farm.

In the lead up to Peter's insolvency a Warrant of Writ with Edward Coward a creditor of Peter, who was the defendant. Unless the writ was satisfied a "quantity of household furniture, about 30 head of mixed sheep, 36 head mixed cattle, 8 draught horses, 3 light horses, gig, and set harness, 7 sets leading and cart harness, double plough, self-binder (Reid and Gray), etc., etc.," would be sold (Evening Star, 1885a). There was also meeting held at his estate at Ōtokia surrounding Peter's debt. At this meeting Peter's assets were listed including an eight-roomed dwelling-house and 452 acres at Hillhead farm (Evening Star, 1881).

The land came under the ownership of Edward Coward following Peter's bankruptcy. The following year he tried to sell the property with an "entirely new and substantially built with brick and cement, slate roof and every other convenience, together with underground water-tank" (Otago Daily Times, 1886). This supports the suggestion that the house currently on the property was built just before Peter became insolvent. Coward did not manage to sell the farm but instead leased out the property. When selling the property, it was occupied by a Mr. Martin, but the following year the property was to be sold or leased suggesting Martin had moved on (Otago Witness, 1887).

Eleven years later the valuation rolls from 1897 indicate that Joseph Allan occupied a wood and iron dwelling on the property that was 10 years old (Otago Daily Times, 1886; Valuation Department, 1897). This description does not match the present building on the property, however, this reference to the building was crossed out along with another portion of the 453-acre farm, Section 1 of 22 Block 2 further along McLaren Gully Road. A different occupant was added for this section: Miss Busck. As the building does not match that present today, it is unlikely they are the same building and indeed there was another dwelling on Section 1 of 22. This property was first issued in 1868 to Allan, however, it was sold just two years later to Peter McLaren Junior and became part of Hillhead farm (Deed Index Book K Folio 41). In 1899, both Misses Busck and Gether sold their lease to part of the farm and sold numerous items by auction including a grand piano, a carved coalscuttle, a sewing machine, linoleum, a complete set of Sir Walter Scott's work, and "novels by standard authors" to list just a few items (Otago Daily Times, 1899b). It is unclear why there is no mention of the building present on 1900 photographs and 1901 plans. However, Allan was stated to be the occupier he is identified to be living in East Taieri rather than Ōtokia suggesting he never lived on the property but instead used it as farmland or even sublet the property.

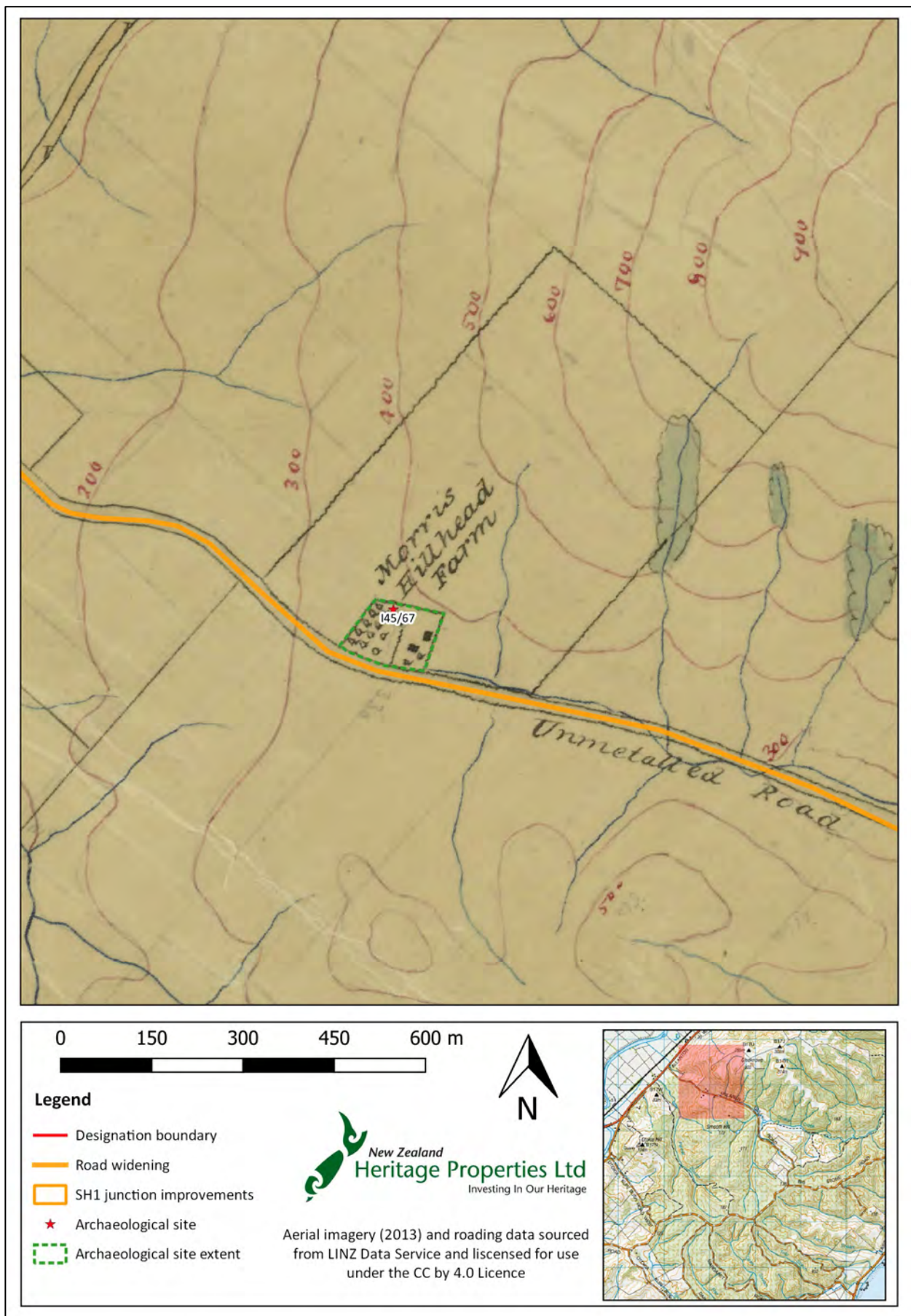


Figure 5-38. 1901 military map showing several buildings at the recorded homestead I45/67, at this point referred to as Morris Hillhead Farm. The site extent updated on ArchSite is outlined in green.

Table 5-7. Summary of land transactions and key events records associated with the McLaren's Farm I45/67 within and immediately surrounding the project area (Sections 1 of 17, Section 1 of 22, Block 2 Ōtokia District).

Year	Event	Source
1864	Mortgage taken out against Sections 1 of 17, 1 of 16, 18 and 20, Ōtokia District by Peter McLaren the Senior	Deed Index Book E Folio 375
1865	Crown grant issued to McLaren Senior for Sections 1 of 17, 1 of 16, 18 and 20	Deed Index Book E Folio 375
1868	Crown Grant issued to Allan for Section 1 of 22	Deed Index Book K Folio 41
1870	Allan sells Section 1 of 22 to Peter McLaren Junior	Deed Index Book K Folio 41
1877	Land transferred from Peter McLaren Senior to Peter McLaren the Younger	Deed Index Book O folio 524
1884	Peter McLaren Senior passes away	Otago Daily Times, 1884
1885	Peter McLaren the Younger declared insolvent; Property went to creditor Edward Coward	Evening Star, 1885b
1886	Coward tries to sell property currently occupied by Mr. Martin	Otago Daily Times, 1886
1887	Coward advertising farm for sale or lease; wood and iron dwelling constructed on Section 1 of 22, Block 2; farm possible occupied by Joseph Allan	Otago Witness, 1887; Otago Daily Times, 1886; Valuation Department, 1897
1898	Miss Busck occupying Section 1 of 22, Block 2; Mr. Gibson occupying remainder of Hillhead farm including Section 1 of 17.	Valuation Department, 1897
1899	Miss Busck and Gether selling lease to Hillhead farm	Otago Daily Times, 1899b
1901	Morris occupies Hillhead farm	Neil, 1901
1902	McColl occupies Hillhead farm	Otago Witness, 1902a
1908	Coward sells land to Aitken in July, but Aitken dies in December	Deed Index Book O folio 524
1924	Land sold to the Cuttance Family	Hamel 1986

Following Joseph Allan, a Mr. Gibson occupied the property, and by 1901 the military plan indicates the property was occupied by Morris (Valuation Department, 1897). Coward looked to sell the property again in 1902, at which point a Mr McColl occupied the premises including Section 1 of 22. The brick and cement house is again mentioned in the documents though it appears a room had been added to the building at this time. Other buildings and features of the property include “all conveniences, garden etc.; stables, sheds and farm steading” (Otago Witness, 1902a). It was not until 1908 that Coward managed to sell the property, a total of 453 acres, to John Aitken in 1908 for £679 (Deed Index Book O folio 524; Hamel 1986). Within the year Aitken had passed away but his wife, Margaret Garden Reid of Garden Vale (see Figure 5-14 above), continued to run the farm with her son until 1919 when she passed away during the flu epidemic (Hamel, 1986; Stuart, 1981). The farm was eventually sold to the Cuttance family in 1924 for £1260 (Hamel, 1986). Between 1942 and 1983 aerial images show that all possible pre-1900 buildings aside from the house itself visible in the 1942 photograph were removed from the property (Figure 5-41). The buildings were replaced with concrete piled, corrugated iron structures. The only physical evidence on the property identified by Hamel (1986), beyond the house itself were the old split posts of the sheep yards. As a result of this assessment the recorded archaeological site boundaries have been updated on ArchSite for site I45/67 to include the densest area of occupation across the farm as shown by the dashed green lines on the 1942 aerial photographs and the 1901 military plan (Figure 5-38 and Figure 5-41)



Figure 5-39 2018-2019 aerial showing the pre-1900 building still present on the property today (DCC, Aerial Surveys Ltd, & ORC, 2019).



Figure 5-40. Hillhead farm building in 1900 (Stuart, 1981).



Figure 5-41 Aerial images showing other possible pre-1900 buildings on the property and the pre-1900 house (red arrows) in 1942 (left) and modern ancillary farm buildings replacing all earlier structures by 1983 (right) (Retrolens, 1942).

5.5.2.1 *Previous Archaeological Investigations*

Archaeological site I45/67 was recorded prior to the preparation of this assessment. I45/67 was recorded the homestead of Peter McLaren the Younger (I45/67). The site record form identifies that the homestead was established around 1870 while a large double brick house with slate roof was constructed around 1890. However, historical research suggests that the house was more likely to have been constructed in the mid-1880s or even the late 1870s.

While the house was modified in 1986, the interior was largely in its original state when it was recorded in the same year. The building is doubled brick and features a tiled roof. When visiting the site in 1986, Hamel identified that while the slate roof was in poor condition, the plaster in the front room was drooping and the floors were “bouncy”, it was likely that the bones of the building were sound (Hamel, 1986). The building had been heavily altered and doors replaced, the exterior has been little modified except for the veranda which was then a sun porch. While old farm buildings have been removed and replaced by corrugated iron and concrete pile buildings there are remnants of the original farmstead. This included the sheep yards that retained slit posts. Up behind the building is an airstrip put in around 1980. While the 1890s farmstead building is not within the project area, there is a high potential that archaeological remains associated with the farm, such as fence lines, stock pens, or earlier farm buildings and outbuildings, may extend into the project area.

5.5.2.2 *Results of the Site Survey*

The farmstead building located at 109 McLaren Gully Road appears to exist in the same format as that shown in the photograph with a possible extension added to the portion left of frame (Figure 5-42).

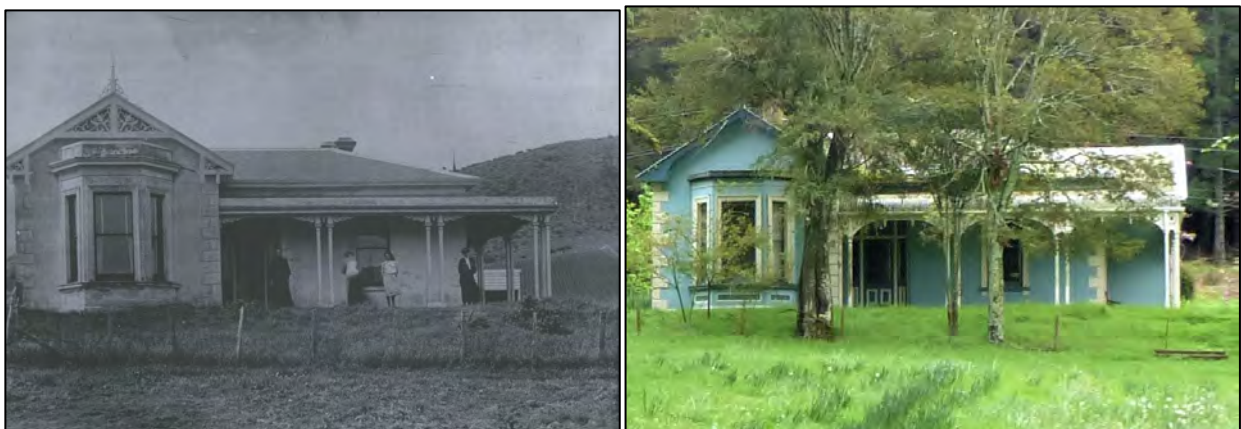


Figure 5-42 Photograph of the house as it existed in 1900 (left) photo taken during survey (right)

A timber-framed horse float was located within the road reserve immediately adjacent to the southwestern property boundary of I45/67 (109 McLaren Gulley Road). The structure has no floor or foundations and was likely designed to sit on a trailer bed. The float is supported by two horizontal metal poles currently resting on two timber fence lines (Figure 5-43). Two thirds of the side facing the roadway consists of a door/ramp that hinged at the base of the structure. This door is divided into two parts allowing the top two thirds to hinge downwards while the bottom portion remains fixed in place. In total the structure measures 3m 2.57m wide by 2.1m tall. One of the fence boards has come detached, causing the structure to lean inwards at the centre. The float sits on a sloped platform that leads through the private property towards the road reserve. This structure was not mentioned by Hamel in her 1986 survey and due to tree coverage, the float is not visible in historical aerials. As the float would have been pulled by motorised vehicles it post-dates 1900.



Figure 5-43 Horse float. Note that the roof would normally be flat however the structure is damaged causing the roof to sag in the centre of the side facing the road (left) but remain relatively flat at the opposite side (right). The nails used for the construction of the structure and associated fences appear to be modern.

5.5.2.3 Archaeological and Other Values

A brief evaluation of the site is provided in Table 5-8 below based on the criteria defined by HNZPT (NZHPT, 2006). Each of the farmstead sites were assessed separately. The site (I45/67) was assessed to have **medium-high** archaeological values as the entirety of pre-1900 building remains on the property and the exterior, easily visible from the road, appears to be in good condition.

Table 5-8. Summary of archaeological values for I45/67

Value	Criteria	Assessment
Condition		Unknown. This site could not be accessed and fully surveyed as such it is not possible to comment on the condition of the site except to say that the exterior of the main farmstead appeared to be in good condition. The presence and condition of subsurface remains is also unknown.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Medium-High. This house is a rare example of a pre-1900 brick building in the Ōtokia area. Many in its immediate vicinity were made of wood and iron, making this a stand apart building. Of those that have been recorded only two other contains existing physical remains.

Value	Criteria	Assessment
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	Medium. This site offers the potential to examine the history of various buildings and operations of the McLaren family homestead and those who occupied the site following the McLarens. This site further offers the opportunity to study how the McLaren farm developed, but also how the wider agricultural sector developed through Ōtokia from the mid-1800s to the early 1900s.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Medium. This site can contribute to wider understandings of small family run farms throughout the Ōtokia and wider Taieri area, and potentially an examination of the commercial viability of farming in the area.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	High. The pre-1900 structure is highly prominent from McLaren Road, and is not too far from the main state highway.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	European.

5.5.3 History of The Guthries' Farm I45/81 - 949 Allanton-Waibola Road

The Crown Grant for Section 34 Block 2, Ōtokia District was issued to E. Johnston in 1867 (Deed Index Book M Folio 377; Deed Register 30 Folio 524) (Figure 5-44 and Table 5-9). However prior to this, as shown in Figure 5-45, the property was under the ownership of James Buchanan Blair by 1860, who farmed multiple sections across Ōtokia (Stuart, 1981). Johnston held on to the property until 1872 when the property was purchased by Thomas Guthrie in February. It is interesting to note that this is the same year that a Thomas Guthrie of Ōtokia filed for bankruptcy in June (Otago Witness, 1872). The purchase of the land possibly contributed to the insolvency, however despite this Thomas managed to retain the land until his death in 1896. Following Guthrie's death, the property went to his wife Jane Guthrie.

The valuation rolls in 1897 indicate that there was one wood and iron dwelling on the property and one ancillary farm building, also constructed of wood and iron, both constructed 12 years earlier (Valuation Department, 1897). While it is not clear how accurate the valuation roll is in terms of age, this would place the construction of the building around 1885. However, given the property was owned by the Guthries from 1872, it is possible the buildings were constructed far earlier or earlier buildings later were replaced soon after Souness purchased the property.

As a result of this assessment, The Guthries' farm has been recorded as an archaeological site on ArchSite as I45/81. The site boundaries include the densest areas of occupation across the farm as shown by the dashed line in the 1901 military plan (Figure 5-44).

The property eventually came into the hands of Croft in 1899 who sold the property to Cook just three years later in 1902 (Otago Daily Times, 1899a; Deed Index Book M Folio 377). While the farmland itself extends over McLaren Gully Road, the road has always run through the property and the farm buildings associated with this property are shown in a 1901 plan just to the east of the road (Figure 5-44). It is possible buildings were constructed on the property as early as 1860 by Buchanan or possibly when the Guthries purchased the property in 1872, perhaps contributing to their insolvency. By 1942, no buildings are present at this location in aerial photographs however there are a number of fence lines visible that align with those shown in the 1901 plan (Figure 5-46).

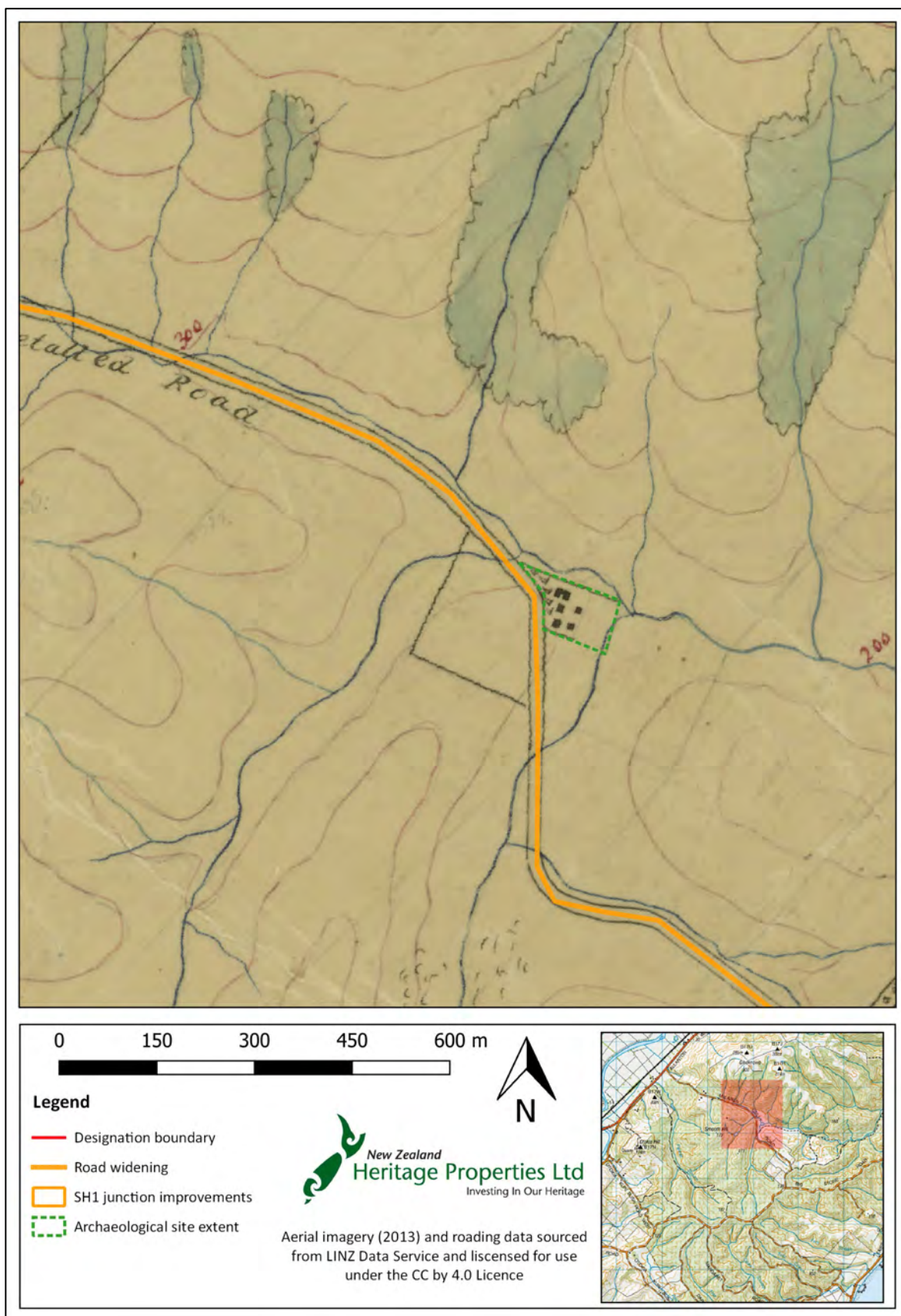


Figure 5-44. 1901 military map showing the Guthries' Farm with numerous buildings present in 1901 with McLaren Gully Road adjacent. The site extent recorded in ArchSite is outlined green

Table 5-9. Summary of land transactions and key events records associated with The Guthries' Farm I45/81 within and immediately surrounding the project area (Section 34, Block 2, Ōtokia District).

Year	Event	Source
1860	Section 34, Block 2, Ōtokia District under ownership of James Buchanan Blair	SO 1372
1867	E. Johnston issued crown grant for land	Deed Index Book M Folio 377; Deed Register 30 Folio 524
1872	Land sold to Thomas Guthrie	Deed Index Book M Folio 377
1885	Wood and iron dwelling and farm building constructed	Valuation Department, 1897
1896	Thomas Guthrie passes away and land is passed to his wife Jane Guthrie	Deed Index Book M Folio 377
1899	Land sold to Croft	Deed Index Book M Folio 377
1902	Land sold to Cook	Deed Index Book M Folio 377

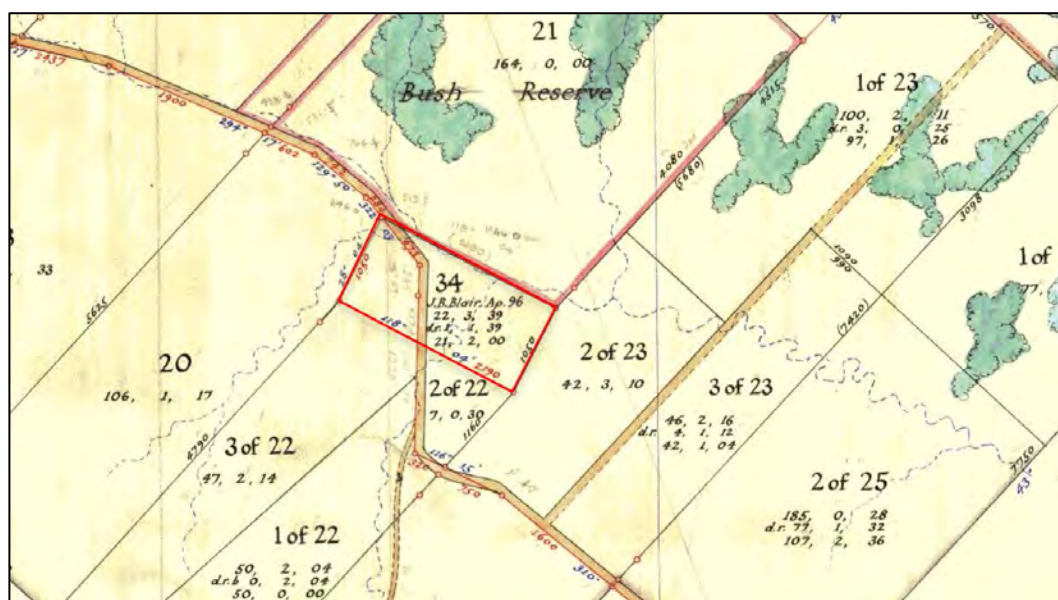


Figure 5-45. SO 1372 showing the location the Blair farm in 1860. The farm extends over McLaren Gully Road outlined red.



Figure 5-46. Aerial photograph from 1942 showing Guthrie farm (Retrolens, 1942). No buildings are present, however there are a number of fence lines visible along with trees near the corner of the road that align with those shown in the 1901 plan. The site extent recorded in ArchSite is outlined green.

5.5.3.1 Results of the Site Survey

Following McLaren Gully Road, the farmstead at the Guthries' farm is located approximately 1.9km to the northwest of the intersection with Big Stone Road. The area was not directly accessible as it is within private property. There was no evidence of former structures or fence lines visible from the roadside associated with historical occupation (Figure 5-47). However, what appeared to be maimai was spotted approximate 100m from the road east (Figure 5-48).



Figure 5-47. Photograph looking east at what was once the location of the Guthries farm.



Figure 5-48. Photograph looking east at what was once the location of the Guthries' farm showing the possible maimai (red arrow).

5.5.3.2 Archaeological and Other Values

A brief evaluation of the site is provided in Table 5-10 below based on the criteria defined by HNZPT (NZHPT, 2006). The site (I45/81) was identified to have **low-medium** archaeological values as there were no structural remains visible from the roadside or current aerial images. However, they subsurface remains encountered during the proposed works may contribute our knowledge of small family run farms in the Ōtokia district.

Table 5-10. Summary of archaeological values for I45/81.

Value	Criteria	Assessment
Condition		Unknown. This site could not be accessed and fully surveyed as such it is not possible to comment on the condition of the site except to say that from the road reserve and aerial photographs there do not appear to be any structures remaining associated with the pre-1900 occupation of the site. The presence and condition of subsurface remains is unknown.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Low-moderate. There are several farmsteads recorded in historical records throughout the Ōtokia area. However, until this assessment many remained unrecorded archaeologically.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	Medium. This site offers the potential to examine the history of various buildings and operations of the Guthries family homestead. This site further offers the opportunity to study how the Guthrie farm developed, but also how the wider agricultural sector developed through Ōtokia from the mid-1800s to the early 1900s.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Medium. This site can contribute to wider understandings of small family run farms throughout the Ōtokia and wider Taieri area, and potentially an examination of the commercial viability of farming in the area.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	Low. There are no visible surface remains from the road reserve.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	European.

5.5.4 History of Souness' Farm I45/82 - 949 Allanton-Waihola Road

The Crown Grant for this property on Section 2 of 25 and Section 3 of 23, Block 2, Ōtokia District was initially issued to Alexander Fairbairn on the 29 November 1866 (Deed Index Book K Folio 427). In 1868 Fairbairn sold Section 3 and the north part of Section 2 of 25 to John Souness, who owned the property from 1868 to 1899 (Figure 5-49, Figure 5-50 and Table 5-11). A list of items to be auctioned from his farm was advertised in 1869 that included dairy cows, fat bullocks, yearlings, draught mares, foals, pigs, poultry, light harnesses and hacks, ploughs, harrows, drays and more in 1869 (Bruce Herald, 1869). These items indicate the types of activities that may have been undertaken on the farm, however, it is interesting to note that John was selling these item as he was to leave the "leave the colony". However in the 1897 valuation rolls suggest he still occupied the property (Valuation Department, 1897). It is possible however, that he left for a time, leasing the property, eventually returning to the farm or indeed that he never left.

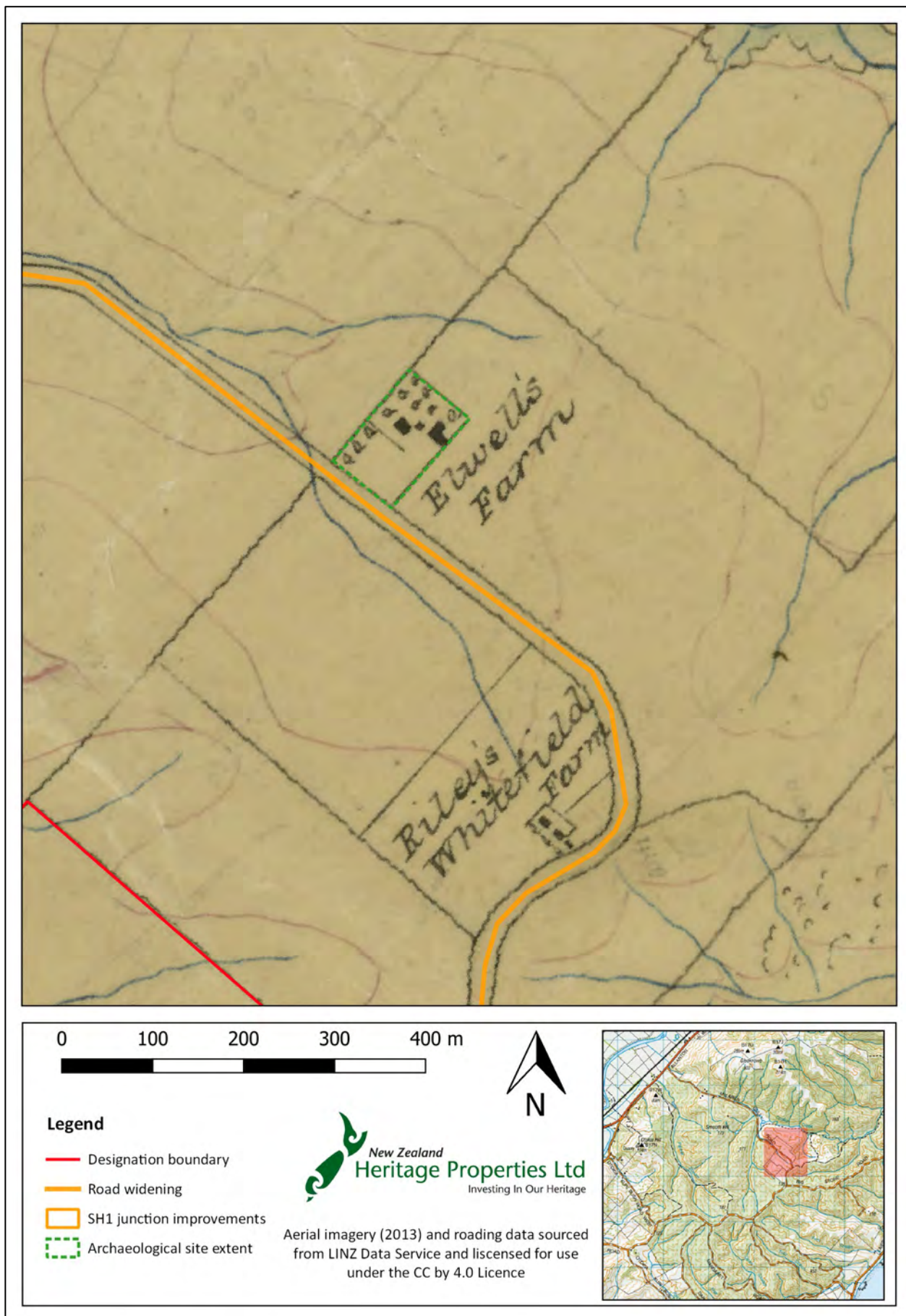


Figure 5-49. 1901 military map showing the farm in relation to the project area.

Table 5-11. Summary of land transactions and key events records associated with Souness' Farm I45/82 within and immediately surrounding the project area (Section 2 of 25 and Section 3 of 23, Block 2, Ōtokia District).

Year	Event	Source
1866	Crown grant for Section 2 of 25 and Section 3 of 23, Block 2, Ōtokia District issued to Alexander Fairburn	Deed Index Book K Folio 427
1868	Section 3 of 23 and the northwest part of Section 2 of 25 sold to John Souness	Deed Index Book K Folio 448
1899	Land sold to Arthur Elwell; Elwell passes away; Land sold to Ryan and then on to Botting	Deed Index Book K Folio 448
1911	Land sold to Nichol	Deed Index Book K Folio 448

In 1897 the valuation rolls for this property indicate that there was one wood and iron dwelling and one wood and iron ancillary farm building on the property. Both buildings were constructed 12 years prior (Valuation Department, 1897). While it is not clear how accurate the valuation roll is in terms of age, this would place the construction of the building around 1885. However, given the property was owned by Souness for 31 years, it is possible the buildings were constructed far earlier or earlier buildings were replaced soon after Souness purchased the property in 1868. 1901 plans show farm buildings on this property referred to as Elwell's Farm, but it is likely they retained Souness' buildings (Figure 5-50). These buildings and can be seen 1942 in aerial photographs, along with a number of fence lines visible that align with those shown in the 1901 plan (Figure 5-51). Further aerial photographs show that sometime between 1962 and 1970 the buildings are removed (Retrolens, 1970).

Following Souness, the property was sold to Arthur Elwell. Elwell owned the property for seven years. The property then passed through three separate owners (Ryan, Botting and Buchan) until 1911 when Nichol took ownership and held on to the property for 29 years (Deed Index Book K Folio 448).

As a result of this assessment, Souness' farm has been recorded as an archaeological site on ArchSite as I45/82. The site boundaries include the densest areas of occupation across the farm as shown by the dashed line in the 1901 military plan (Figure 5-51).

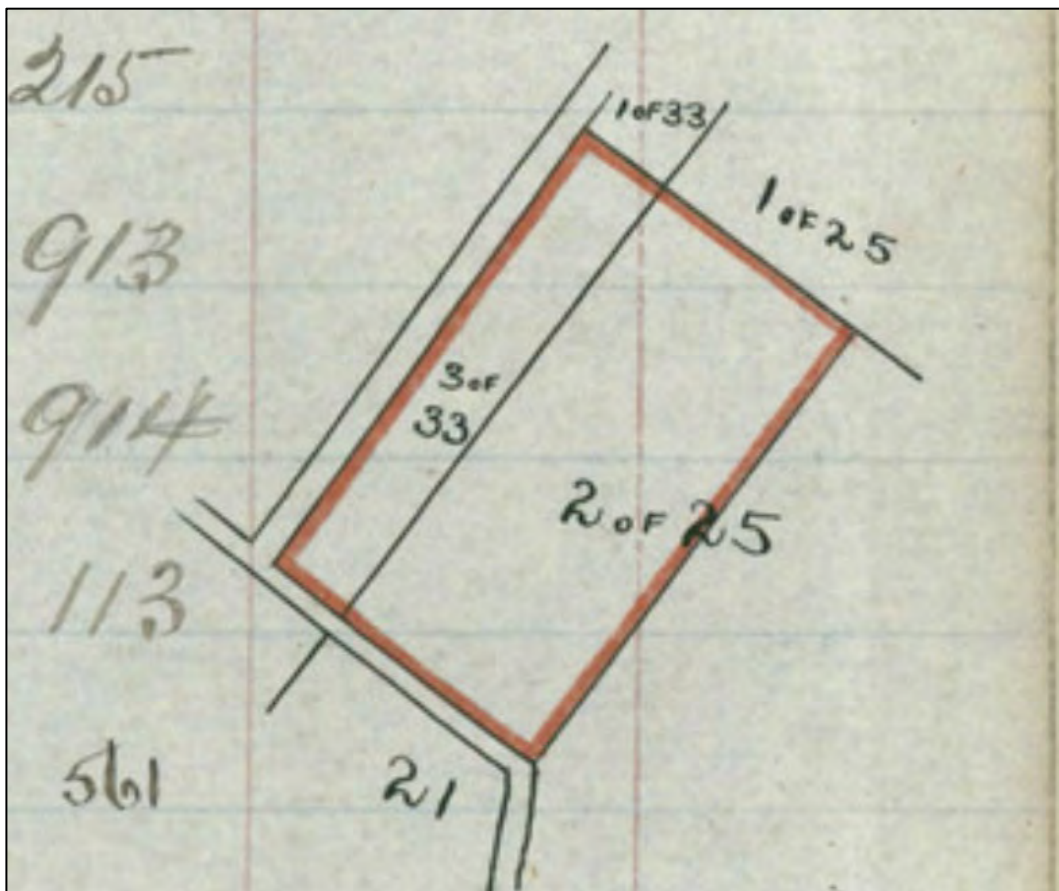


Figure 5-50. Land sold by Fairburn to Souness in 1868 (Deed Index Book K Folio 448). Note that the reference to Section 3 or 33 should be 3 of 23.



Figure 5-51. Aerial photograph from 1942 showing Souness farm (Retrolens, 1942) showing buildings and fence lines that align with the 1901 plan. The site extent recorded in ArchSite is outlined green.

5.5.4.1 Results of the Site Survey

Following McLaren Gully Road, the farmstead at Souness farm is located approximately 1km to the northwest of the intersection with Big Stone Road. The area was not directly accessible as it is within private property. There was no evidence of former structures or fence lines visible from the roadside associated with historical occupation. The fence comprised both modern concrete and waratah posts indicating the fence had been replaced post-1900. However large macrocarpa and other eucalyptus trees still line the location of the dwellings (Figure 5-52).



Figure 5-52 Photographs looking northeast (left) and north (right) at the trees that still surround the location of the Elwell's farmstead. Modern concrete and waratah posts are shown lining the property.

5.5.4.2 Archaeological and Other Values

A brief evaluation of the site is provided in Table 5.12 below based on the criteria defined by HNZPT (NZHPT, 2006). The site (145/82) was identified to have **low-medium** archaeological values as there were no structural

remains visible from the roadside or current aerial images. However, they subsurface remains encountered during the proposed works may contribute our knowledge of small family run farms in the Ōtokia district.

Table 5-12. Summary of archaeological value for I45/82

Value	Criteria	Assessment
Condition		Unknown. This site could not be accessed and fully surveyed as such it is not possible to comment on the condition of the site except to say that from the road reserve and aerial photographs there do not appear to be any structures remaining associated with the pre-1900 occupation of the site. The presence and condition of subsurface remains is unknown.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	Low-moderate. There are several farmsteads recorded in historical records throughout the Ōtokia area. However, until this assessment many remained unrecorded archaeologically.
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	Medium. This site offers the potential to examine the history of various buildings and operations of the Souness family homestead. This site further offers the opportunity to study how the Souness farm developed, but also how the wider agricultural sector developed through Ōtokia from the mid-1800s to the early 1900s.
Information Potential	What current research questions or areas of interest could be addressed with information from the site(s)? Archaeological evaluations should take into account current national and international research interests, not just those of the author.	Medium. This site can contribute to wider understandings of small family run farms throughout the Ōtokia and wider Taieri area, and potentially an examination of the commercial viability of farming in the area.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	Low. There are no visible surface remains from the road reserve.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	European.

5.6 History of Road Reserves

The earliest plans identified during the course of this assessment show both McLaren Gully Road and Big Stone Road present by 1860 and 1861 (Figure 5-53 to Figure 5-55). The actual roads deviate very little from these survey plans. Indeed, the only difference to the present-day roads, which remain unmetalled, is the north east extent of McLaren Gully Road that runs further to the north than the original plans. The 1901 plans show the road reserve running in the same alignment as the pre-1860s plans, as do all plans identified during this assessment up to 1989 (i.e., DP21420). Indeed, the earliest plan showing the realigned road is not until 1996 (DP25502). Yet aerials show that the road was altered between 1970 (Figure 5-32) and 1979 (Figure 5-33). This occurred at the same time the Waiholo-Allanton Road was widened slightly. As a result, the road runs outside the legal road reserve and into 200 McLaren Gully Road, in particular into what was once Section 2 of 13, Block 2, Ōtokia District. There is little evidence of pre-1900 occupation on this property as described above. On the 1860s plan an unnamed road also cuts through Sections 24, 34 35 and 36, as well as the project area. However, this road is still identified as an unformed legal road in the 1990s (SO23463).

There is potential to find archaeological remains associated with the early construction, maintenance and use of McLaren Gully or Big Stone Roads. Infrastructure had been built along the roadways as indicated by William Flett when he requested a bridge “be attended to as soon as timber could be delivered” in the early twentieth century

(Otago Witness, 1918b). There was no bridge identified along McLaren Road however it may have been located at a number of places where streams were recorded to cross the road as identified in the 1860s (Figure 5-53) and early 1901 plans (Figure 5-56). The bridge may have been replaced by a more recent culvert. There may also be other pre-1900 infrastructure such as small crossings, culverts or drainage trenches present at a number of places along McLaren Gully Road where the road crosses small streams.

The 1901 plans further indicate that the road was unmetalled (Figure 5-56). However, that did not mean the road was not maintained. A John Ryley (possibly a John Riley/Reilly discussed above) requested that the Taieri County Council look at the bad state of the road between Davey's Barn and George Fletts' property. The council sent an inspector to "notify the parties offending to clear the gorse off the road and get it ready for the grader" (Otago Witness, 1897). It is not clear where Davey's barn is located but it may relate to the unnamed buildings further northwest of the Rileys' Farm, suggesting that the road in reference was McLaren Gully Road. Similarly, Arthur Elwell requested that the gorse be cut off McLaren's Hill Road in 1900 (Otago Witness, 1900). The Elwells, Fletts and Rileys were joined in their care for the district's roads by Edwin Palmer, who joined Otakia Road Board in 1871 (Bruce Herald, 1871). The concern for the roads in the district is likely reflective of the importance of their role in keeping sparsely scattered farms and families connected to the wide communities. Poor roads would have made travelling to difficult and made farms less profitable as moving stock, farming materials and general supplies would have been far more challenging.

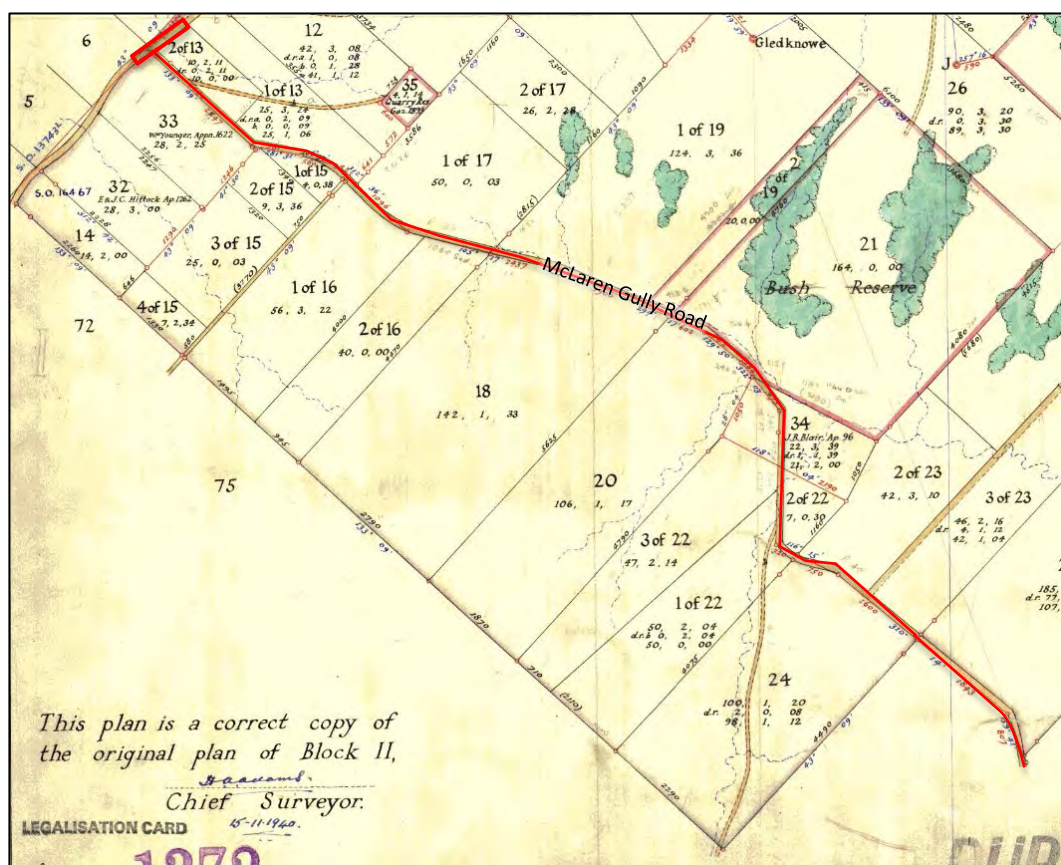
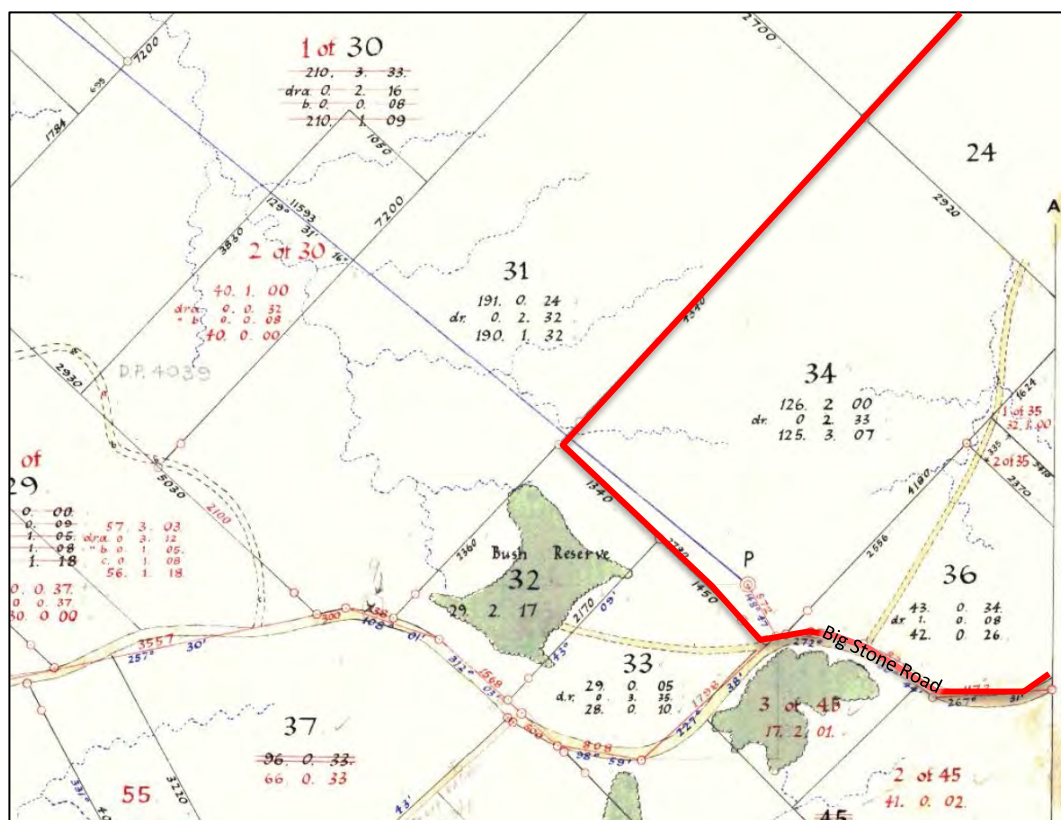


Figure 5-53. SO 1372 (1860) showing McLaren Gully Road which will be widened as part of the proposed works (outlined red).



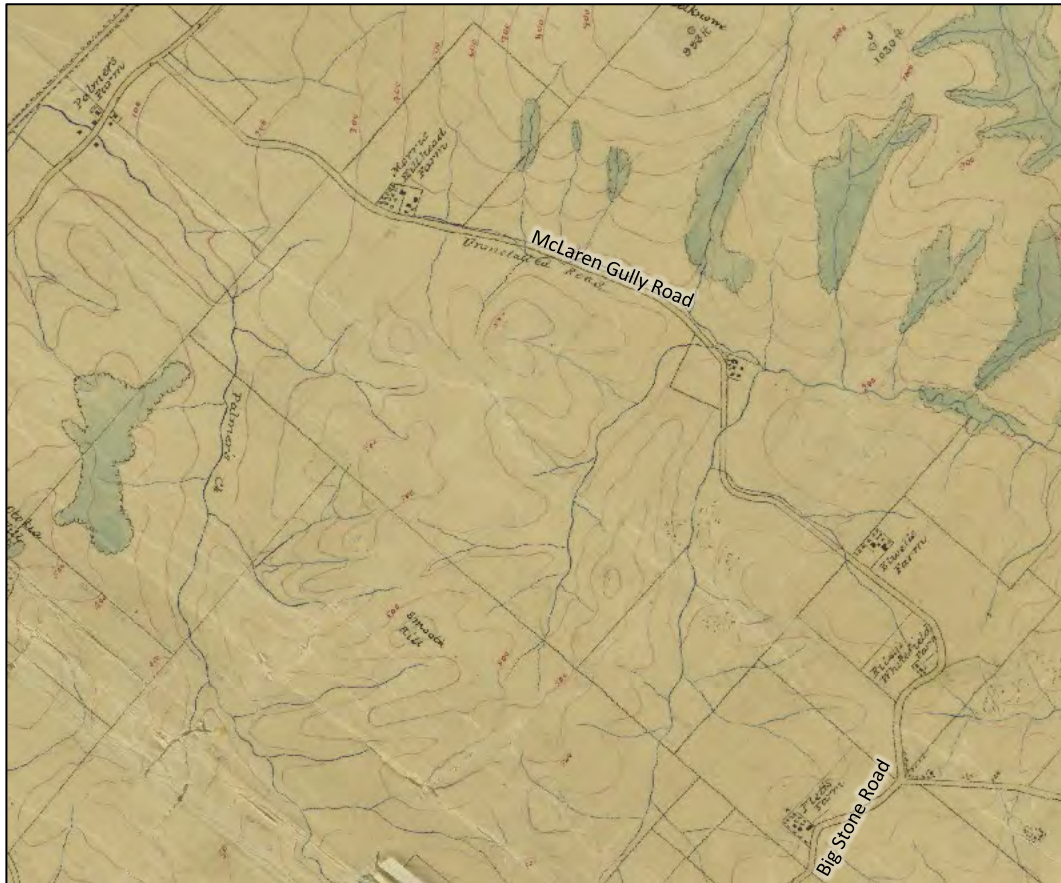


Figure 5-56. Military Plan from 1901 showing numerous streams crossing McLaren Gully Road.

5.6.1 Results of the Site Survey

Approximately 4.5km of McLaren Gully and Big Stone Roads were surveyed beginning at the intersection with Highway 1, continuing to the south east and ending south of the Intersection of McLaren Gully Road and Big Stone Road. The roadway is gravel with road drainage ditches primarily overgrown with grass (Figure 5-57). The elevation changing frequently on either side of the road. Due to the vegetation and changes in elevation there was limited visibility within the immediate road reserve. The possible location of pre-1900 farm outbuildings (*Point of Interest 4*) were identified from the roadway however further historical research suggests this building is modern. A possible pre-1900 fence post was also identified (*Point of Interest 5*).

5.6.1.1 Point of Interest 1

A corrugated iron barn and wooden sheep ramp (*Point of Interest 1*) was identified during the survey in a property adjacent to the McLaren Gully Road (Figure 5-58). The building and ramp were approximately 2.1km from the intersection with Highway 1 and 2.2km from the intersection with Big Stone Road. The area was not directly accessible as it is within private property and another building that was not visible from the roadside however is visible in more recent aerial photographs. On examination of the historical records the structure visible from the roadside was not present in 1942 aerial photographs while the second building is visible (Figure 5-59). However, the 1901 military plan does not show any buildings at this location (Neil, 1901), and the 1897 valuation rolls do not list any dwellings or other buildings at this location (Valuation Department, 1897), however it is possible the building was too small or insignificant to be mentioned or shown.



Figure 5-57 Looking south east up McLaren Gully Road.



Figure 5-58 Barn located to the south east of I45/67.

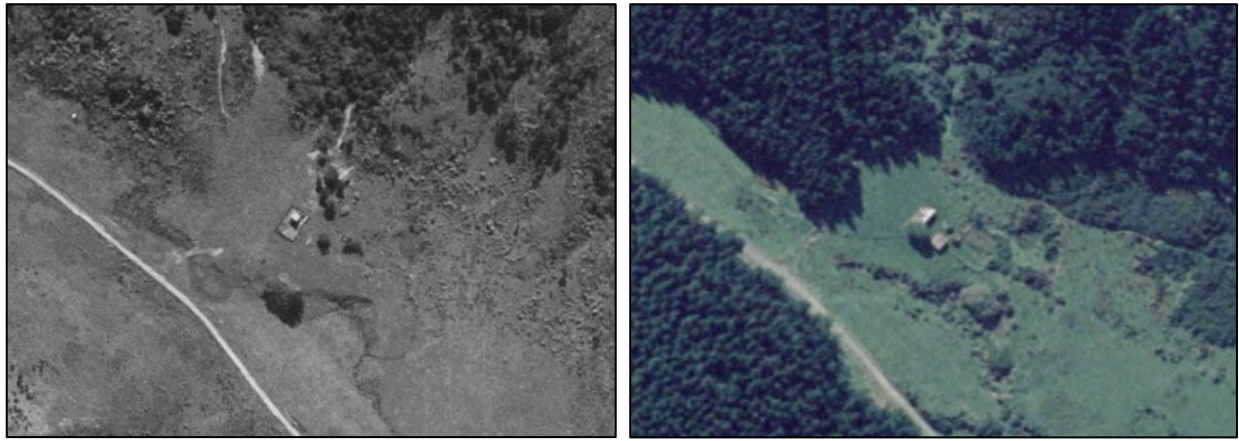


Figure 5-59 Aerial photographs from 1942 (left) and 2000s (right) (Retrolens, 1942; LINZ, 2019).

5.6.1.2 Point of Interest 2

A possible historic fence post was identified approximately 2 to 3m to the north McLaren Gully Road (*Point of Interest 2*). Following McLaren Gully Road, the post is located approximately 1.5km to the northwest of the intersection with Big Stone Road. The area was not directly accessible as it is within private property. This post aligns with what was the former boundary between Sections 2 of 22 and 2 of 23, Block 2. Thus, this fence may pre-date 1900 and may have delineated two farm or prevented stock from walking in the stream that ran adjacent to the road today and historically. Both sections were first owned by McKenzie and others in 1867, however they were sold on quickly to Waters, then Capstick then Chitlock, all in 1868, followed by Johnston in 1870 and Thomas Guthrie in 1872 (Deed Index Book K Folio 797). This is the same Guthrie who owned the buildings nearby at I45/81. The age of the fence post could not be confirmed during the course of this assessment.



Figure 5-60. Photograph looking northeast at possible pre-1900 fence post (red arrow).



Figure 5-61. 1901 military plan showing the Guthrie farmstead to the top of the image, and the location of the possible pre-1900 fencepost (red arrow). Note at this location the feint fence line that delineates Sections 2 of 22 and 2 of 23, as well as the stream that still runs alongside the road today.

5.7 Other areas

The following sections discuss areas that are not encompassed by the recorded archaeological sites and Road Reserves outlined in Sections 5.3 to 5.6 above. While there are no further previously recorded archaeological sites within the project area, an examination of archaeological sites within the wider area is discussed to provide an understanding of the wider archaeological landscape and identify the potential for further unrecorded features to be encountered during the project works. Following this is a description of points of interest identified during the site survey that are not or cannot be directly associated with an archaeological site.

5.7.1 Previous Archaeological Investigations

There are number of sites recorded in the wider area (Figure 5-62 and Table 5-13). These include several pastoral sites, in particular, sod wall features: Sites I45/55, I45/61, I45/63, and I45/64. Both I45/55 and I45/61 record sod enclosures with several associated drainage features, with I45/55 demarcating Section 1, Section 45, Block IV, Ōtokia S.D and I45/61 demarcating the southern boundary of Section 2, Section 45, Block IV. The other two sites, I45/63 and I45/64 also record sod walls (respectively straight and T-shaped), as well as associated posts and barbed wire. The initial site record form suggests that they may be associated with I45/61. These sites indicate that there is a high potential for non-residential agricultural/pastoral archaeological features to be identified throughout the project area.

Although there are no archaeological sites associated with mana whenua occupation within the project area, there are several recorded in close proximity. This includes several midden sites (I45/27, I45/28, and I45/29) recording pipi, cockle and gastropods. All three sites had been exposed by either a walking track or ditch. Ovens were also recorded to the southeast of the project area (I45/1). There were three or four ovens, around 2m in diameter. It was reported that this site had been damaged as a result of land development and was then planted in pine trees. The most significant Māori occupation site is Pā a Tu Pare Taniwha. The site location was recorded as a natural mound at the curve of the Taieri River, that would have formed an island referred to as Amoka. The pā site is

recorded on ethnohistoric sources and is associated with a 240 strong force of Ngati Kahununu who had travelled south and led by Chief Tapari Taniwha (Potts, 2013).

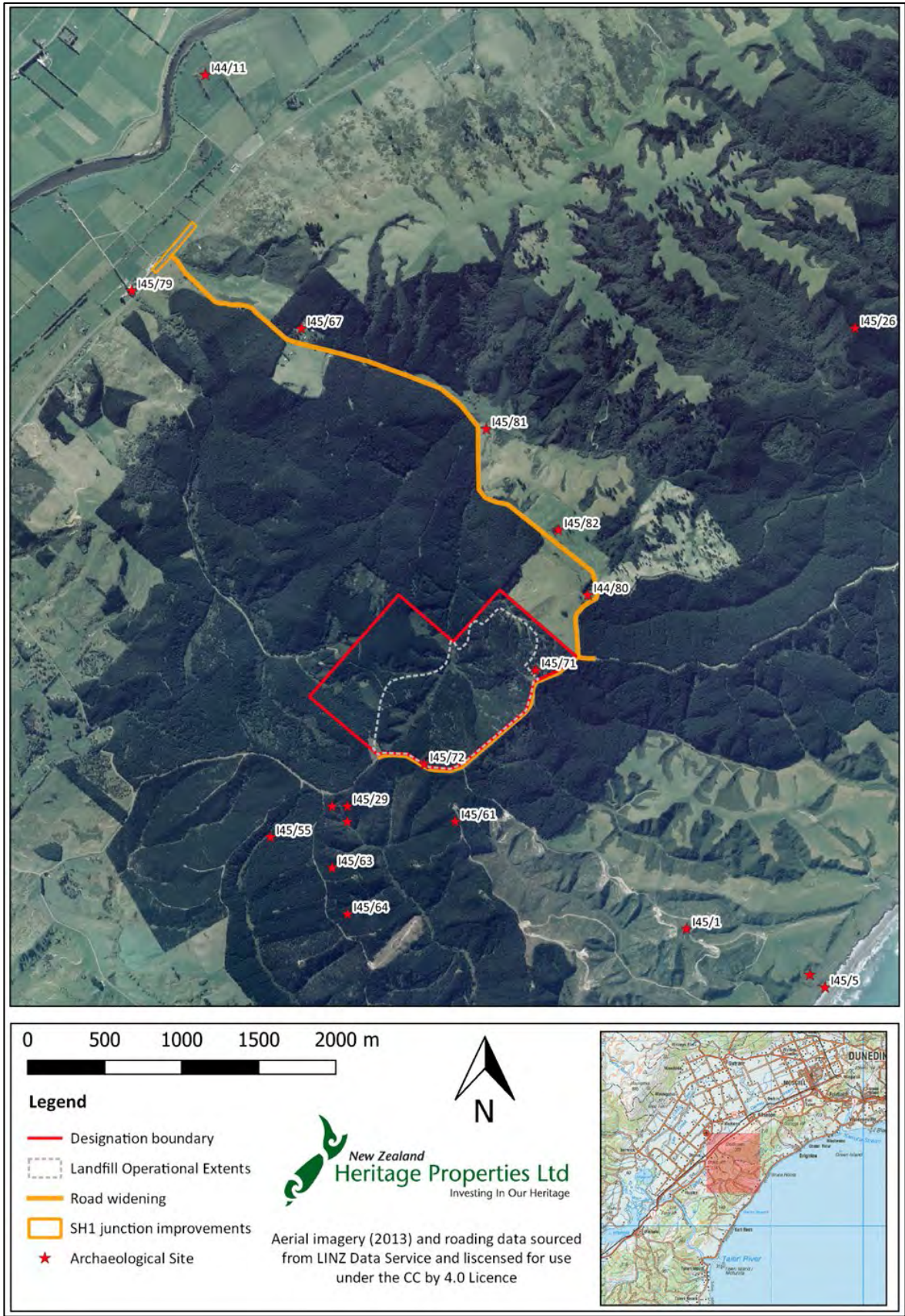


Figure 5-62. Previously recorded archaeological sites within 2km of the project area.

Table 5-13. Previously recorded archaeological sites within 2km of the project area.

NZAA Site No	Distance from Project Area	Site Type	Site Description
I45/71	Within project area	Historic – Domestic	Timber historic homestead and reservoir.
I45/72	Within project area	Historic – Domestic	Earth walled building (possibly mud-brick).
I45/67	50m north	Agricultural/pastoral	1890s homestead associated with Peter McLaren the Younger.
I45/61	350m south	Agricultural/pastoral	Sod wall and associated drains.
I45/28	400m south	Midden	Midden comprising pipi, cockle, and gastropods exposed on walking track for 1.25m.
I45/29	400m south	Midden	Shell scatter comprising pipi and cockle.
I45/27	456m south	Midden	Midden comprising pipi, cockle and gastropod shell exposed in channel. Adze found in site when ditch constructed.
I45/63	800m south	Agricultural/pastoral	Sod wall.
I45/55	850m south	Agricultural/pastoral	Sod wall enclosure demarcating Section 1, Section 45, Block IV, Ōtokia S.D. on either side of Flax Stream.
I44/11	1050m north	Pā	Pā a Tu Pare Taniwha. Site associated with Ngati Kahunguni.
I45/64	1050m south	Agricultural/pastoral	Sod walls in T-Shape.
I45/1	1850m southeast	Midden/oven	Three or four ovens around 2m in diameter.

Adzes were reportedly found in the southwest corner of Amoka and a group from the Otago Museum encountered small adzes on Amoka in the early 1950s and more recent ploughing encountered possible fire affected rocks and dark soils (Potts & McCoy, 2011). In 2011, an archaeological geophysical survey, nineteen shovel test pits, and three excavation areas were undertaken (Potts & McCoy, 2011). No surface or subsurface archaeological remains were noted at Amoka. As result Potts and McCoy (2011) conclusive argue that the pā is not located at Amoka but somewhere else in the near vicinity. In support of this they refer to a reference (Parker and Hislop, 1980 in Potts & McCoy, 2011) of the pā that does not include the mound, but instead lagoons. Furthermore, during the construction of the state highway reportedly encountered several oven where Palmers Creek reaches the plains (Potts & McCoy, 2011), just 300m south of the project area at the intersection of McLaren Gully Road and SH1. This suggests there is potential of finding associated remains during the proposed road widening and intersection improvements.

5.7.2 Results of the Site Survey

Several points of interest were noted throughout the project area. This included platforms (*Points of Interest 1*), dam and platform (*Point of Interest 2*), fence lines (*Point of Interest 3*), and midden scatters (*Point of Interest 6, 7 and 8*). Only *Point of Interest 5* could conclusively be identified as modern.

5.7.2.1 Points of Interest 3 and 4

Points of Interest 3 is a square platform area with mounds, possibly the remains of collapsed walls which measure approximately 1m in height (Figure 5-63). Located approximately 130m south of the northwest corner of the survey area on a spur ridge midway down to the bottom of a gully. A forestry track ran to the north, curving around that extent of the site. Heavy vegetation, primarily gorse and other brambles, obscured all detail. There is no evidence of activity at this location in the 1942 aerial. However, if a structure was located at this point it may have been removed by this time, and the historical aerial may not show enough detail to show any remnants of a structure.

A potentially associated dam (*Point of Interest 4*) is located approximately 100m to the north, just beyond the fence line of the designation area. From this dam a platform led south in from the dam into the designation area (Figure 5-63). This is potentially the location of a now disused track. Even in recent aerals it is difficult to identify this dam, so while not apparent in the 1942 aerial the dam along with the possible associate track may still be present. However, given how few trees there are in the 1942 aerial, this seems unlikely.



Figure 5-63 View of platform looking north east, person is standing in the approximate centre (left). View of dam across fence line with associated platform in the left of frame (right).



Figure 5-64. Aerial photograph from 1942 that does not show any evidence of activity at the location of the platform area 130m south of the northwest corner of the property (dashed white line), and the platform towards the northeast boundary (red diamond) that connects to a dam on the other side of the fence line. Neither the dam nor possible associated track is visible at this time.

5.7.2.2 *Point of Interest 5*

A fence line with concrete and waratah posts that was in certain places topped with barbed wire (*Point of Interest 5*) was recorded along west and north extents of survey area with another line running north-south through the centre of the survey area. Additional examples were seen along the surrounding roadways. One heavily damaged example showed that the posts were reinforced with rebar, indicating they are twentieth century in origin. This is supported by the fact that most of the concrete fence lines, aside from those along the roadside do not align with the pre-1900 fences shown on the 1901 plans.

5.7.2.3 *Point of Interest 6, 7 and 8*

A scatter of pāua shells (*Point of Interest 6*) over an area approximately 25m east west and 8m north south was encountered near the top of a low ridge line at the western end of the project area directly adjacent to Big Stone

Road (Figure 5-65). Only a limited volume of shell was identified, and no other shell species were observed. No other artefacts or charcoal were observed in the area. It is possible that these shells are not archaeological as they are located in close proximity to the road reserve. There was also limited evidence of dumping visible at the top of the slope which they were found on.

Another complete pāua shell was identified as *Point of Interest 7* at the top of a gully that ran down from a forestry track (Figure 5-66). The shell was within 50m of the track. It is possible that these shells are not archaeological as they are located in close proximity to the track. No other faunal material was identified surrounding the shell.

A scattering of bone (possibly sheep), undiagnostic shell fragments and a stone fruit pit was identified along the top of a ridge line approximately 150m northwest of the pāua shell scatter (*site 6*) and approximately 15m north of the Big Stone Road reserve (Figure 5-67). The scattering is very sparse and spread over a 2.4m by 2.45m patch. The area has been heavily disturbed by forestry activities with tree felling and excavator tread exacerbating the disturbance and fragmentation of the finds. The only indication of a possible deposition date was the likely sheep bone indicating it was possibly a historical midden. However, it could not be confirmed if the site pre-dated 1900. Modern plastic was also found within the midden scatter indicating that the midden was post-1900 or that there has been modern disturbance at the site.

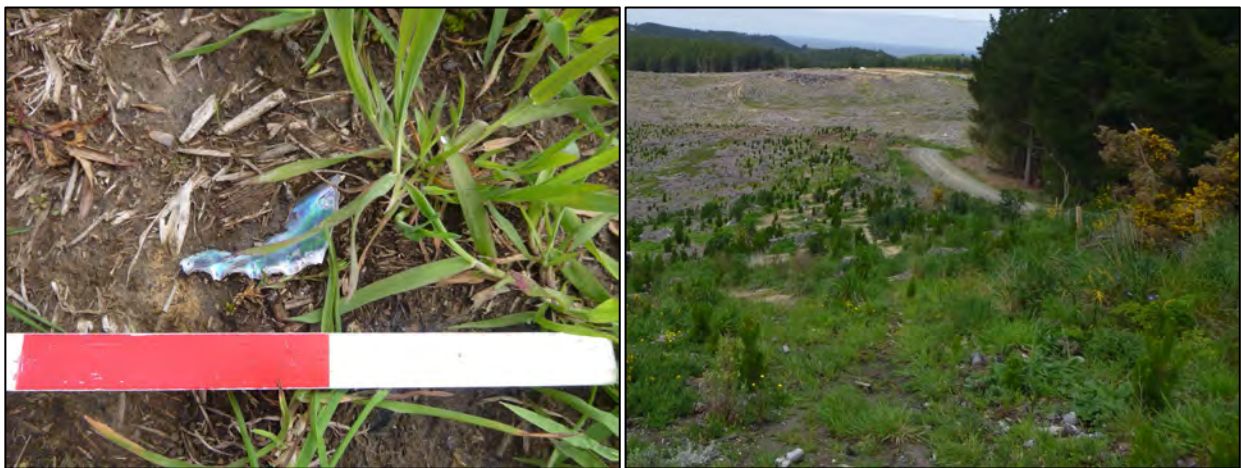


Figure 5-65 Pāua shell surface find (left) and area of scatter (right) identified as Point of Interest 6.



Figure 5-66. Complete paua shell identified as Point of Interest 7.



Figure 5-67 Bone fragment, possibly sheep (left) as well as shell fragment and plastic (right).

6 Constraints and Limitations

The main constraints experienced during the preparation of this assessment relate to the archaeological survey. The survey was severely limited by vegetation cover, both of plants still growing on site and those that had been felled recently. Vegetation such as gorse, broom, pine trees, and long grass meant that several areas could not be accessed. This was a predominant limitation in the west of the project areas, especially in areas where such vegetation covered masked steep drop offs (Figure 6-2). In these areas visibility of the ground surface was so low that even if they were surveyed it is unlikely archaeological features could have been identified. In such areas where old forestry tracks were encountered, these were followed as far as was possible, until restricted again by overgrown vegetation.

Throughout the rest of the project area that was surveyed visibility of the ground surface was hampered by the similar, yet less dense, vegetation as well as slash from recent felling that had not been windrowed and that of forest management in pine tree plantation areas (i.e. trees felled as they were too close together, yet had not been removed from the site). In a number of places, straight 10-15m transects had to be abandoned. The amount of debris also made surveying the area hazardous to navigate in straight transects, so the closest route to the transects were navigated. As a result, there is potential that further unrecorded archaeological remains are present within the surveyed areas. It should be noted that a full survey of archaeological sites adjacent to the project area could not be undertaken as the sites are situated within private property.

The McLaren Gulley Road and Big Stone Road were also surveyed with an archaeologist either side of the road. Currently the physical road boundaries do not always follow the establish road reserves but instead run through or partially within the legal boundaries of the adjacent properties. As part of the proposed works the legalisation road parcel boundary will be altered to match the existing road alignment and the proposed road widening works. Even though the roads run through private property, they are still open to the public and thus could be surveyed as part of this assessment, without crossing the fence lines presently demarcating private land. In many areas the land adjacent to the road was farmland or an area of felled pine trees and any potential surface archaeological features immediately adjacent to the road reserve would have been visible during the survey. This was not the case where pine plantations still grow adjacent to the roadside and in these areas, visibility was restricted.

Consideration was also given during the survey to faunal protections under the Wildlife Act 1953. On consultation with Boffa Miskell, Department of Conservation and faunal specialists it was determined that a 20m buffer should be given to artificial lizard retreats or artificial cover objects (ACOs) and rank grass (a potential lizard habitat). The locations of the ACOs were provided by Boffa Miskell and a shapefile with the 20m buffer outlined was uploaded to the handheld GPS used on the survey. Generally, the ACOs were located in dense vegetation areas in which archaeological features would have been hard to see on the ground surface. Thus, the impact of the ACO buffer zones on the survey was minimal.

During the survey, archaeologists also kept a look out for potential nesting falcons as required by the Department of Conservation. If falcons were found to display territorial or nest guarding behaviours (calling and dive bombing), it was decided that the archaeologists must immediately move out of the area, providing a 200m buffer around the nesting location. Only in one instance were falcons noted during the survey. This was around archaeological site I45/71. While the bird did not show territorial or nesting behaviour, the site recording was kept to a minimum and the area was surveyed as quickly as possible in the surrounding 200m area.

When it came to historical research there was a lack of photographs of any of the pre-1900 farmsteads identified. The valuation rolls and 1901 military plan, while very useful for identifying pre-1900 structures and occupation, did appear to have slight discrepancies that could not be accounted for. For many of the Point of Interest sites it was not possible to determine an age of construction or deposition through further historic either. Thus, it was not possible to identify if they are archaeological or not.

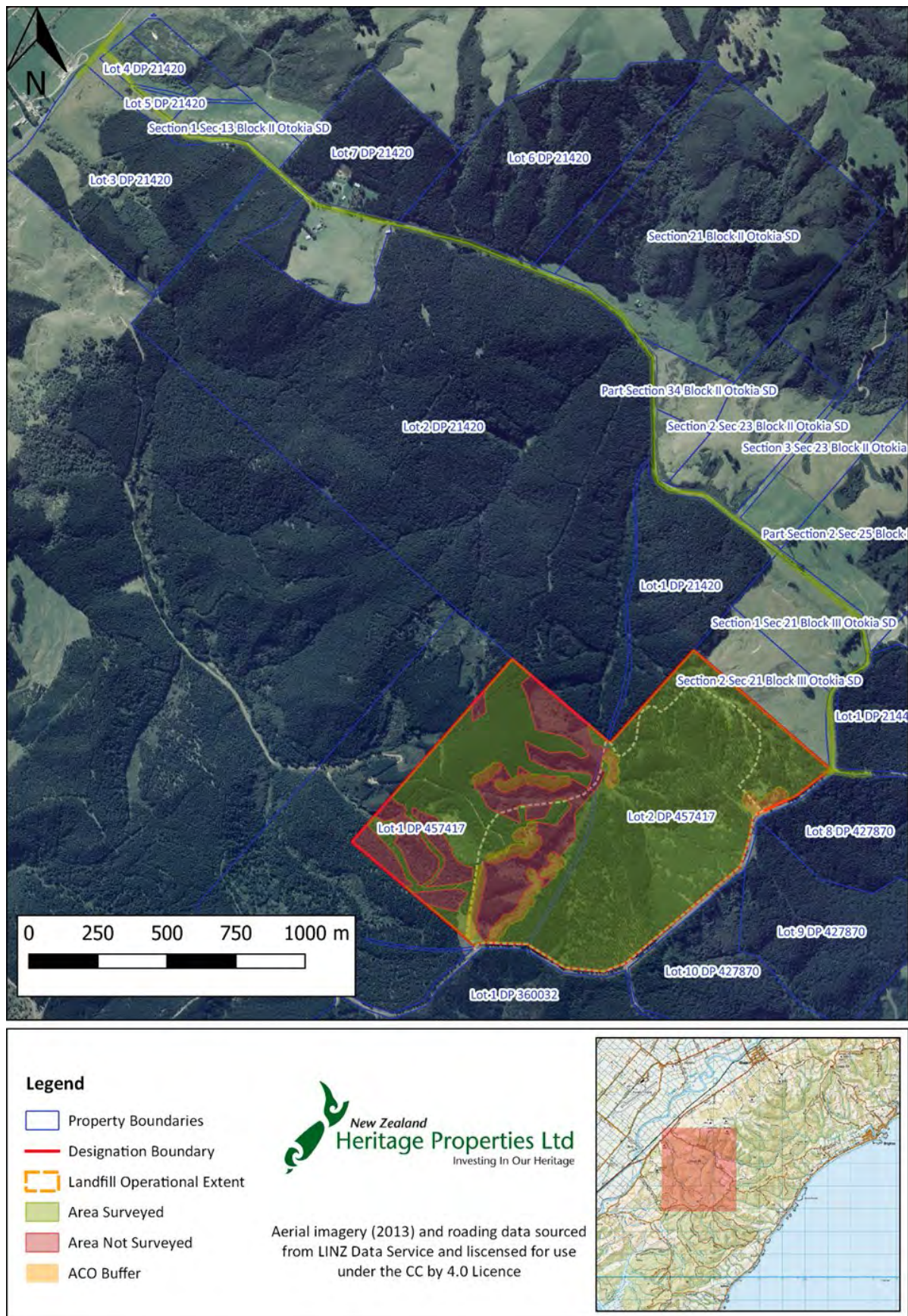


Figure 6-1. Plan showing the project area, approximate areas surveyed and areas that could not be surveyed due to vegetation cover or ACO buffer areas.



Figure 6-2 Photographs showing the various terrain types encountered that limited or prohibited the site survey.

7 Summary of Archaeological and Other Values

The significance of an archaeological site is determined by, but not limited to, its condition, rarity or uniqueness, contextual value, information potential, amenity value, and cultural association. A brief evaluation of the site is provided in Sections 5.3 to 5.5 above based on the criteria defined by HNZPT (NZHPT, 2006). Each of the farmstead sites were assessed separately. Two sites (I45/71 and I45/72) were identified to have **medium** archaeological values given the presence of archaeological structural remains, which although in poor condition, have the potential to contribute to our understanding of the development of farming by individual families as well as in the wider district. One site (I45/67) was assessed to have **medium-high** archaeological values as the entirety of pre-1900 building remains on the property and the exterior, easily visible from the road, appears to be in good condition. The remainder of the sites (I45/80, I45/81 and I45/82) have been identified to have **low-medium** archaeological values as there were no structural remains visible from the roadside or current aerial images. However, they too may contribute to our knowledge of small family run farms in the Ōtokia district.

8 Assessment of Effects

The DCC proposes to undertake the construction, operation and aftercare of a Class 1 landfill at Smooth Hill. While the existing designation boundary encompasses 700 and 750 Big Stone Road Brighton (Lots 1 and 2, DP 457417), the operational landfill covers a smaller area within the designation boundary. There will be considerable cutting and filling required across the site as part of the site enabling works, and prior to the instalment of the land fill liner for each stage. The landfill development requires earthworks involving 1.9 million m³ of cut and 0.85 million m³ of fill (Boffa Miskell & GHD, 2019 in prep.).

Associated works for the construction of the landfill will include, vegetation clearance, topsoil stripping; bore hole drilling for the leachate and landfill gas collection system, and groundwater monitoring; and, diversion of surface water around the landfill site. A spoil dump is proposed to the north of the designation boundary, while a facilities including an administration building, stores, workshop, gas engines, truck wash, heavy machinery parking, leachate storage and dispatch at the northeast extent of the landfill itself are proposed (Figure 1-5 and Figure 1-6).

The proposed works will also require the establishment of roads through the designation area, the widening and realignment of McLaren Gully Road and Big Stone Road (Figure 1-7) as well as junction improvements at the intersection of State Highway 1 (SH1) and McLaren Gully Road (Figure 1-8). The road widening extends further than is shown in Figure 1-2, as current plans indicate that the road to be widened runs between Chainage 0 to 6220 on McLaren Gully Road, and between 5750 and 5800 along Big Stone Road. Other earthworks may include stormwater management and landscaping work.

8.1 I41/72: Fletts' Farm

Archaeological site I45/72 is associated with the Flett family from the second half of the nineteenth century to the early twentieth century. An exact date was not identified for the construction of the building of which partial remains still stand today. However, I45/72 is likely associated with early Flett occupation on the farm in the mid-1860s. This is supported by the fact the building was an earth-walled construction. The Flett family likely constructed a new farmstead in the mid-1880s. The site was identified to have **medium** archaeological values.

Located within the operational landfill, the earth-walled building at archaeological site I45/72 will be demolished. Prior to demolition the remaining structure should be recorded to a minimum of a Level III standard as outlined in the guidelines established by Heritage New Zealand Pouhere Taonga (2018). For further mitigation of information and archaeological values impacted a result of these proposed works it is recommended that an archaeological investigation directly around the earth-walled building is hand excavated by an archaeologist to identify the full extent of the building and associated information such as function, construction and modifications.

Earthworks in the surrounding area also have the potential to affect subsurface archaeological remains associated with the occupation of this building. It is further recommended that an archaeologist monitor and record any archaeological remains encountered during works within the site extent of I45/72 beyond the immediate vicinity of the earth-walled building. Any artefacts encountered during the excavations may also provide information on the date of occupation on the building. The types of archaeological remains which may be encountered during these works include foundations of outbuildings as well as on-site rubbish disposal features such as rubbish pits.

8.2 I41/71: Fletts' Farm

Archaeological site I45/71 is also associated with the Flett family from the second half of the nineteenth century into the early twentieth century. An exact date was not identified for the construction of the structures (a timber and roughcast building as well as a brick and concrete lined structure). However, the Flett family likely constructed

a new farmstead in the mid-1880s when the first leased the land. Partial remains of the structures still stand on the property today. The site was identified to have **medium** archaeological values.

The extent of the operational land fill does not affect the building associated with archaeological site I45/71, nor does the proposed road just to the south. However, the works for operation landfill and proposed road would affect the wider archaeological site associated with I45/71.

For further mitigation against any information and archaeological values NZHP makes the following recommendations for I45/71:

- A **baseline survey** and **periodic monitoring** should be undertaken for the standing structures on the site. The baseline survey will record the present state of the standing structures to ensure that comparisons can be made as to their condition. This will involve a non-invasive Level III standard recording as outlined in the guidelines established by Heritage New Zealand Pouhere Taonga (2018). The periodic monitoring undertaken by an appropriately qualified person will provide updated evaluations of the condition of the building and its components and will provide recommendations that inform maintenance required. This may be done through a photographic record. Problems or changes to the buildings and site should be identified and managed in accordance with professional heritage advice.
- The **standing structures are preserved as a ruin**. This would involve careful removal of vegetation covering the site and stabilisation of the walls still standing. The site would also benefit from the construction of a protective cover overhead. Plans for such a protective structure should be approved by HNZPT prior to the start of works and any associated earthworks monitored by an archaeologist. Drainage and runoff should also be considered so that there is no standing water across the ruin.
- During works establishing the Smooth Hill Landfill, protection measures should be implemented to protect the building. This should be in the form of temporary site fencing to enclose the standing structure preventing inadvertent collisions with the standing remains and contractors from entering the site unnecessarily.
- A 10m archaeological buffer zone should be established around the standing building to reduce the chance of future impacts to the site. Infrastructure works such as the establishment of the landfill facilities and proposed access road as well as planting of productive pine forest, must remain outside of the 10 m buffer. However, landscaping, pathways and other amenity upgrades should be permitted within the buffer zone subject to appropriate monitoring under the HNZPTA 2014.
- It is further recommended that **an archaeologist monitor earthworks** within the site extent of I45/71 and record any archaeological remains encountered. The types of archaeological remains which may be encountered during these works include foundations of outbuildings as well as on-site rubbish disposal features such as rubbish pits.
- **Public Interpretation** should be provided. Commonly used methods include interpretative panels with photographs and text documenting the history of the site and the significant associations and established paths through the site for example. These panels could be installed in the education centre currently planned as part of the proposed facilities on site. However, if the building is not constructed, off site interpretation could be done through via Dunedin City Council webpages or displays in public buildings such as libraries.

8.3 I45/67, I45/80, I45/81, and I45/82: McLaren's, Rileys', Guthries' and Sourness' Farms

There were several archaeological sites associated with farmsteads recorded in the properties adjacent to McLaren Gully Road (I45/67, I45/80, I45/81, and I45/82). Historical research shows the brick and slate roofed building recorded at I45/67 still present on the site today was likely constructed by Peter McLaren the Younger in the late 1870s or early 1880s, though there was likely an earlier building on the premise from possibly as early as 1864. Following Peter the Younger's insolvency, the property was occupied by several leases into the twentieth century. There were no pre-1900 physical remains visible within or immediately adjacent to the road boundary. The site was assessed to have **medium-high** archaeological values

The Rileys' (I45/80), Guthries' (I45/81), and the Souness' farms (I45/82) were all likely occupied from the 1860s and 1870s onwards by the eponymous families in the nineteenth century. No physical remains were noted in current aerial photographs or from the road reserve on these properties except for large exotic trees demarcating the general extent of where buildings were located historically. These three sites were identified to have **low-medium** archaeological values

While the proposed works lie predominantly within the current road boundary (please note that this does not align exactly with the Road Reserve) there is slight potential that archaeological remains will be encountered during the proposed road widening works. Archaeological remains associated with these farmsteads may include fenceposts or rubbish pits that have extended, or were purposefully dumped, into the road boundary in the past.

8.4 Hazard Zones and Managing Archaeological Monitoring Requirements

Due to the large size of the project area and the restricted positioning of nineteenth century features in historical documents within this area, it was decided that hazard zones would be appropriate for archaeological management of the proposed development works (Figure 8-1). There are three zones used for this project: **Red Zones** cover recorded archaeological sites which include the location of nineteenth century construction on the property identified during the historical research for this assessment; **Yellow Zones** cover areas close to these archaeological site or historical features, and point of interest sites for which it could not be determined if they pre-dated 1900; and, **Green Zones** cover areas where the land has been used as pastoral land or road reserves in the nineteenth century yet there is with no evidence of archaeological features having been recorded within 10 metres.

As detailed in the methodology chapter (see Section 3.1), the hazard zone maps utilise a traffic light rating system, whereby:

- The **red zone** represents a high risk of encountering archaeological features and materials,
- The **yellow zone** represents a moderate risk of encountering archaeological features and material, and
- The **green zone** represents a low risk of encountering archaeological features and materials.

The two **red zones** identified are associated with historical farmstead occupation within the landfill designation area. Physical remains associated with archaeological sites I45/71 and I45/72 are still present in these areas on the ground surface, and there is potential for subsurface remains to be encountered including further structural remains, latrines, rubbish pits, and landscaping features.

The **yellow zones** were recorded as such due to the close proximity to the previously recorded sites within the project area (I45/71 and I45/72) and those immediately adjacent to the project area (I45/67, I45/80, I45/81, and I45/82). In these areas there is the possibility of encountering such remains as post holes for fence lines, and rubbish dumped over the fence in the road reserve. The historic road parcels were also included as yellow zones as there is the potential to encounter pre-1900 road surfaces and infrastructure such as culverts or drains. Several points of interest where it could not be determined if they were archaeological were also flagged as yellow zones as there may be potential for intact subsurface archaeological remains associated with these points of interest. Remains found in these areas would likely relate to the farming occupation of the area and may include foundations or other remnants of sheds as well as fence and animal pen post holes. There is further potential to encounter midden associated with both European and earlier mana whenua occupation of the area.

The **green zones** have no recorded evidence of being used for anything other than pastoral land and the chance of encountering archaeology is low.

8.4.1 Recommendations for Archaeological Monitoring

NZHP recommends that the requirement for archaeological monitoring be based on the identified hazard zones, which are displayed in the Hazard Zone Map (Figure 8-1), whereby:

- All works within **red zones** require archaeological monitoring, and an archaeologist must be consulted during all works in red zones. Over the course of works, the archaeologist may identify that a variation in archaeological involvement is necessary, and further details are provided in Section 8.4.3.
- An archaeologist should be alerted to works occurring within the **yellow zone**. While works in the yellow zone. require no formal archaeological monitoring, on-call protocols (OCP) shall be adhered to. If suspected archaeological material is encountered at any stage and an archaeologist is not present, works must stop in the immediate area of the find (25 m for burials, 10 m for all other finds), and the approved archaeologist must be alerted in the first instance ascertain whether it is archaeological and if so, to record the material.
- **Green zones** require no formal archaeological monitoring; however, OCP shall be adhered to. If, at any stage, suspected archaeological material is encountered in a green zone, works must stop in the immediate area of the find (25m for burials, 10m for all other finds), and an archaeologist be alerted to ascertain whether it is archaeological and record the material if it is.

The OCP to be followed for yellow and green zones is described in the following section.

8.4.2 *On-Call Protocol (OCP)*

If, at any time, archaeological or suspected archaeological material is encountered without an archaeologist on site, NZHP recommends that the following OCP apply:

1. Work must stop within the immediate area of discovery and no works shall commence within 10 m of the located material OR 25 m if the find is a suspected burial.
2. The contractor must shut down all machinery, secure the area.
3. The contractor shall ensure that the site is secure and notify the s45 approved archaeologist and the Site Manager.
4. If the site is Māori in origin, the Site Manager, with the help of the NZHP archaeologist, shall notify the HNZPT Archaeologist and iwi through Aukaha of the discovery and ensure site access to enable appropriate cultural procedures and tikanga to be undertaken, as long as all statutory requirements under legislation are met (HNZPTA, Protected Objects Act).
5. If human remains (kōiwi tangata) are uncovered, the Site Manager with help of the NZHP archaeologist, shall advise the HNZPT Regional Archaeologist, NZ Police and iwi through Aukaha and the above process under Step 4 shall apply. Remains are not to be moved until such time as iwi and HNZPT have responded.
6. Archaeological recording will be undertaken if the remains are deemed to be archaeological.
7. Work can recommence for European sites once NZHP is satisfied, and for Māori archaeological sites, once NZHP, Aukaha, and HNZPT are satisfied.

8.4.3 *Monitoring in the Red Zone*

The red zone represents areas that are considered to have a high risk of encountering archaeological features and materials. NZHP recommends that at the commencement of all work in a red zone, an archaeologist must be present. Over the course of earthworks, the archaeologist may determine that a change of archaeological involvement is required. A range of possible scenarios and recommendations are provided below.

- The archaeologists identifies a high density of artefacts or archaeological features.
 - Additional archaeologists may be needed on site to ensure that archaeological recording and monitoring can be carried out. The archaeologist may also request that work slows in an area so that the archaeological remains can be appropriately recorded.
- The archaeologist has monitored a red zone area and no artefacts, features or archaeological materials/deposits are being found.
 - The archaeologist will re-assess the potential for encountering archaeology and recommend that works can continue without an archaeologist on site under the OCP as described above. Should

there be any change (e.g., the soil profile changes, an artefact is identified, etc.), monitoring would resume.

- The archaeologist has identified that works are extending through an area that has been heavily disturbed in the past.
 - The archaeologist may stipulate that work can proceed without an archaeologist, and that monitoring will resume until the soil profile changes (i.e., work has passed the previously disturbed area and there is now potential for uncovering archaeology).
- The archaeologist will communicate this recommendation via email to the contractor, DCC, and HNZPT.

It is important that that contractors undertaking the earthworks are aware that the presence of archaeology on the site may mean that there are times in which work must stop or slow, and there may be stand down periods to allow time for an archaeologist to record material encountered. Given that works may be stopped for a time to allow NZHP archaeologists to record archaeological material, it may be a good idea to have a contingency plan in place for where work could be carried on elsewhere. Every effort will be made to reduce stand down periods and ensure there is immediate clear communication about what work can continue elsewhere. NZHP will ensure appropriate staffing levels so that archaeology can be recorded, while earthworks continue.

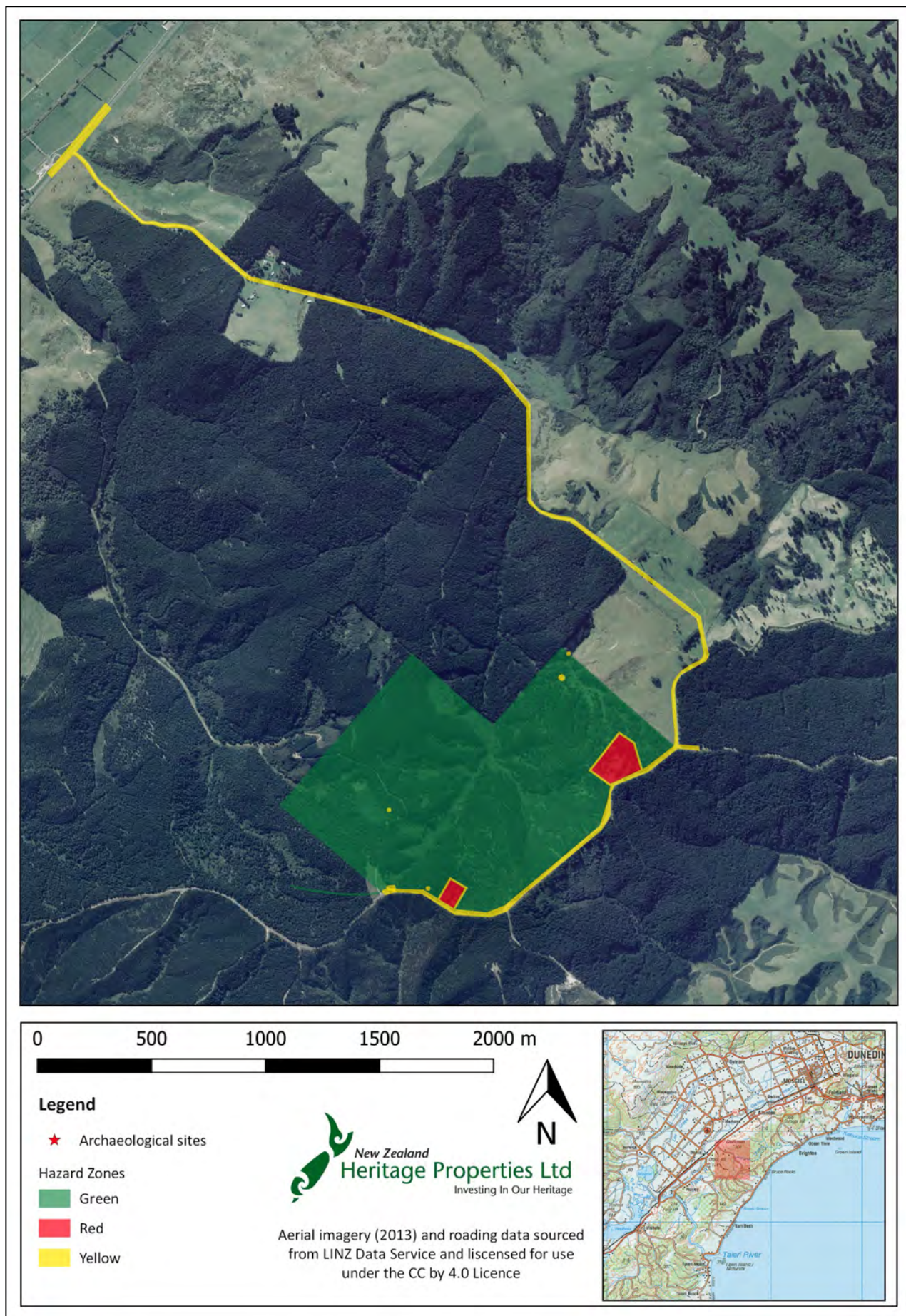


Figure 8-1. Hazard Zones identified for the Smooth Hill Landfill.

9 Conclusions and Recommendations

The proposed Smooth Hill Landfill area is located at 700 and 750 Big Stone Road, Brighton as well as the road reserves of Big Stone Road and McLaren Gully Road, Brighton and Ōtokia and two paper roads (Lots 1 and 2, DP 457417; Big Stone Road Reserve; McLaren Gully Road Reserve; Paper Road ID 4213; Paper Road ID 9838). Currently the physical road boundaries do not always follow the establish road reserves but instead run through or partially within the additional properties of 200 McLaren Gully Road, Ōtokia; 949 Allanton-Waiholā Road, Taieri; 108, 109, 200, 211 McLaren Gully Road, Ōtokia; 200 Christies Gully Road, Henley; 350, 645 and 689 Big Stone Road, Brighton (Lot 1, 2, 4, 5, 6, 7 DP21420; Lot 1 DP 19819; Section 21, Block 2, SO 1372 Ōtokia; Section 2 of 19, Block 2, SO 1372 Ōtokia; Part Section 34 Block 2, Ōtokia; Section 2 of 22, Block 2 Ōtokia; Section 2 of 23, Block 2, SO 1372 Ōtokia; Section 1 and 2 of 21, Block 2, Ōtokia; Lot 1 DP 21447; Lot 8 and 9 DP 427870). As part of the proposed works the legal road parcel boundary will be altered to match the existing road alignment and the proposed road widening works. Even though the roads run through private property, they are still open to the public and thus were surveyed as part of this assessment.

This archaeological assessment has identified that the proposed construction of a landfill at Smooth Hill has the potential to affect several archaeological sites. There are two previously recorded archaeological sites located within the designation area: I45/71 and I45/72. Another previously recorded archaeological site (I45/67) and three further sites recorded as a result of this assessment (I45/80, I45/81, and I45/82) are situated immediately adjacent to McLaren Gully Road.

Two previously recorded archaeological sites were recorded within the designation area: I45/71 and I45/72. Historical research of these sites indicates that they were associated with the Flett family in the second half of the nineteenth century and the early twentieth century. An exact date was not identified for the construction of the buildings of which partial remains still stand today. However, I45/72 is likely associated with early Flett occupation on the farm in the mid-1860s. This is supported by the fact the structure recorded at this site (and still present today) is an earth-walled construction. The earth-walled structure will be demolished as a result of the proposed works.

The Flett family likely constructed a new farmstead in 1885. The partial remains of this timber, roughcast and corrugated iron building are still present on the site which is now recorded as I45/71. As mitigation for adverse effects on archaeological values elsewhere, this building will be retained. Other archaeological remains associated with the Flett occupation of both sites (I45/71 and I45/72) may also exist subsurface within the wider site extent. Such remains may be impacted as a result of the earthworks within the landfill operational extent.

There were several archaeological sites associated with farmsteads recorded in the properties adjacent to McLaren Gully Road (I45/67, I45/80, I45/81, and I45/82). Historical research shows the brick and slate roofed building recorded at I45/67 still present on the site today was likely constructed by Peter McLaren the Younger in the late 1870s or early 1880s, though there was likely an earlier building on the premise from possibly as early as 1864. Following Peter the Younger's insolvency, the property was occupied by several leases into the twentieth century. There were no pre-1900 physical remains visible within or immediately adjacent to the road boundary. Three other farms adjacent to the road reserve project area were recorded during the course of this assessment, Rileys', Guthries', and the Souness' farms all likely occupied from the 1860s and 1870s onwards. No physical remains were noted in current aerial photographs or from the road reserve on these properties except for large exotic trees demarcating the general extent of where buildings were located historically. Adjacent to the road boundary, any road widening has the slight potential to modify archaeological remains associated with these farmsteads such as fenceposts or rubbish pits that have extended, or were purposefully dumped, into the road reserve in the past.

The Palmers' farm also extends into the project area. However, no physical remains were identified within the project area and the recorded archaeological site for this farm (I45/79) is located outside of project area, on either side of State Highway 1 where the farmstead and other ancillary farm buildings were located.

Two sites (I45/71 and I45/72) were identified to have **medium** archaeological values given the presence of archaeological structural remains, which although in poor condition, have the potential to contribute to our understanding of the development of farming by individual families and the wider district. One site (I45/67) was assessed to have **medium-high** archaeological values as the entirety of a pre-1900 building still remains on the property and the exterior of which is easily visible from the road and appears to be in good condition. The remainder of the sites (I45/80, I45/81, and I45/82) have been identified to have **low-medium** archaeological values as there were no structural remains visible from the roadside or current aerial images. However, they too may contribute our knowledge of small family run farms in the Ōtokia district. While the proposed works will impact or have a high likelihood of impacting archaeological remains associated with I45/71 and I45/72 (especially the latter), it is less likely that archaeological remains associated with I45/67, I45/80, I45/81, and I45/82 will be impacted.

Table 9-1. Sites affected by the Smooth Hill Landfill development

NZAA Site Id	Site Name	Site Location	Brief Description
I45/71	Fletts' Farm	700 Big Stone Road	1880s farmstead associated with the Flett family
I45/72	Fletts' Farm	750 Big Stone Road	Likely pre-1880s farmstead associated with the Flett family
I45/67	McLarens' Farm	109 McLaren Gully Road	Farmstead associated with the McLaren family from the 1860s
I45/80	Rileys' Farm	Part 200 Christies Gully Road	Farmstead associated with the Riley family from the 1860s
I45/81	Guthries' Farm	Part 949 Allanton-Waihola Road	Farmstead associated with the Guthrie family from the 1870s
I45/82	Souness' Farm	Part 949 Allanton-Waihola Road	Farmstead associated with the Souness family from the 1860s

As such, NZHP makes the following recommendations:

1. As a first principle, every practical effort should be made to avoid damage to any archaeological site, whether known, or discovered during any redevelopment of the site.
2. An archaeological authority under Section 44 of the HNZPTA 2014 should be obtained from the HNZPT prior to any modification of the site.
3. If re-development plans are altered from those reviewed by NZHP for this assessment (Appendix A), the HNZPT need to be alerted in the first instance.
4. Prior to the commencement of work, an archaeological site briefing should be delivered to all contractors undertaking earthworks that may affect archaeology. The briefing will outline: the history of the site and its archaeological potential; the standing archaeological remains to be retained; the role of the archaeologist and requirements for archaeological involvement; what sort of archaeological features could be expected and what they might look like; what to do if they find a possible archaeological site and the archaeologist is not on site; and the process required to record and investigate these archaeological deposits should any be discovered.
5. Specific Recommendations for Red, Yellow, and Green Hazard Zones
 - a. All works within **red zones** require archaeological monitoring, and an archaeologist must be consulted during all works in red zones. Over the course of works, the archaeologist may identify that a variation in archaeological involvement is necessary.
 - b. An archaeologist should be alerted to works occurring within the **yellow zone**. While works in the yellow zone require no formal archaeological monitoring on-call protocols (OCP) shall be adhered to. If suspected archaeological material is encountered at any stage and an archaeologist is not present, works must stop in the immediate area of the find (25m for burials, 10m for all other finds), and the approved archaeologist must be alerted in the first instance ascertain whether it is archaeological and if so, to record the material.
 - c. **Green zones** require no formal archaeological monitoring; however, OCP shall be adhered to. If, at any stage, suspected archaeological material is encountered in a green zone, works must stop in the immediate area of the find (25m for burials, 10m for all other finds), and an archaeologist be alerted to ascertain whether it is archaeological and record the material if it is.

6. Any archaeological features or recovered material in any red, yellow or green zone should be appropriately recorded and analysed.
7. If at any stage during the redevelopment Māori material is discovered, NZHP should be called in the first instance. NZHP will assist the Dunedin City Council to contact all relevant parties, including HNZPT and local iwi through Aukaha. If Māori material does exist in the area to be developed, damage to this should be minimised. Any Māori artefacts will be, prima facie, property of the Crown and will be submitted to the appropriate institutions.
8. A full report on any archaeological material that is found should be prepared and submitted to the HNZPT within one year of the completion of archaeological site works.

Specific recommendations have been made for archaeological sites I45/71 and I45/72:

1. For archaeological site I45/71:
 - a. A baseline survey and periodic monitoring should be undertaken for the standing structures on the site. The baseline survey will involve a non-invasive Level III standard recording as outlined in the guidelines established by Heritage New Zealand Pouhere Taonga (2018).
 - b. The standing structures should be preserved as a ruin. This would involve vegetation removal, stabilisation and would benefit from the construction of a protective cover established overhead.
 - c. Plans for such a protective structure should be approved by HNZPT prior to the start of works and any associated earthworks monitored by an archaeologist.
 - d. During works establishing the Smooth Hill Landfill, protection measures should be implemented to protect the building. This should be in the form of temporary site fencing to enclose the standing structure preventing inadvertent collisions with the standing remains and contractors from entering the site unnecessarily.
 - e. A 10m archaeological buffer zone should be established around the standing building to reduce the chance of future impacts to the site. Infrastructure works such as the establishment of the landfill facilities and proposed access road as well as planting of productive pine forest, must remain outside of the 10 m buffer. However, landscaping, pathways and other amenity upgrades should be permitted within the buffer zone subject to appropriate monitoring under the HNZPTA 2014.
 - f. Public Interpretation should be provided for the archaeological site.
2. For archaeological site I45/72
 - a. Prior to demolition the building remains associated with this site should be recorded to a minimum of a Level III standard as outlined in the guidelines established by Heritage New Zealand Pouhere Taonga (HNZPT, 2018).
 - b. An archaeological hand excavation should be undertaken immediately around the footprint of the earth-walled building to determine the building extent and to investigate construction methods and modifications, as well as a more specific age for the building.

Overall if the recommended mitigation steps outlined in this report are followed, including the protection and retention of I45/71 as a ruin, NZHP considers that the potential adverse effects of the Smooth Hill Landfill project on the archaeological values will be low.

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Appendix A. Development Plans

Appendix B. Site Record Forms of Previously Recorded Archaeological Sites

NZHP has identified that the sites listed in Table B-1 below may be affected by the proposed works, and site record forms for each site are provided in the following pages.

Table 1. Sites affected by the Smooth Hill Landfill development.

NZAA Site Id	Site Name	Site Location	Brief Description
I45/71	Fletts' Farm	700 Big Stone Road	1880s farmstead associated with the Flett family
I45/72	Fletts' Farm	750 Big Stone Road	Likely pre-1880s farmstead associated with the Flett family
I45/67	McLarens' Farm	109 McLaren Gully Road	Farmstead associated with the McLaren family from the 1860s
I45/80	Rileys' Farm	Part 200 Christies Gully Road	Farmstead associated with the Riley family from the 1860s
I45/81	Guthries' Farm	Part 949 Allanton-Waihola Road	Farmstead associated with the Guthrie family from the 1870s
I45/82	Souness' Farm	Part 949 Allanton-Waihola Road	Farmstead associated with the Souness family from the 1860s

