



Barrytown Mineral Sands Project – Southern Resources Block

An Archaeological Assessment for the Southern Resource Block (SRB)

Report Prepared for TiGa Minerals and Metals Ltd
c/-Tai Poutini Resources Ltd

Author: Bree Wooller

Reviewed by: Dr Naomi Woods

Barrytown Mineral Sands Project – Southern Resources Block

An Archaeological Assessment for the Southern Resource Block (SRB)

Prepared by **New Zealand Heritage Properties Ltd**

Dunedin | Invercargill | Christchurch & Wellington (trading as Underground Overground Archaeology Ltd)

+643 477 3933 | www.heritageproperties.co.nz

Project Details

Archaeological Site No.	K31/11, K31/12
Site Address	Mining disturbance area within the Southern Resource Block, Barrytown, Greymouth. Encompassing 20 land parcels: Section 7, Block V, Waiwhero SD RS 2930 Lot 1 DP 2719 Part Section 5 Block IX Waiwhero SD RS 2931 Road reserve parcel ID 3700202 Lot 1 DP 406050 RS 2932 Road reserve parcel ID3702892 Part RS 2634 RS 2933 Road reserve parcel ID 3699494 Part RS 2635 RS 4033 RS 2927 Part RS 2639 RS 3316, Part RS 2928 Lot 1 DP 3548 RS 2929
Client	TiGa Minerals and Metals Ltd c/- Tai Poutini Resources Ltd
Client Contact	Luke McNeish, Tai Poutini Resources Ltd
Client Address	100 Mackay Street, Greymouth 7805
Report Authors	Bree Wooller
Reviewed By	Dr Naomi Woods, Megan Lawrence, Victoria Ross
Nominated s45 Approved Person	Bree Wooller
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Cover Photo: Looking west down Cargill Road, towards the project area before dredging. West Coast Recollect (1930) 'Barrytown Hotel 1930s'. Available at: <https://westcoast.recollect.co.nz/nodes/view/20884?type=all>.

Executive Summary

TiGa Minerals and Metals Ltd are proposing to undertake mineral sand mining activities across 411.69ha at Barrytown, Grey District, West Coast. New Zealand Heritage Properties Ltd (NZHP) has been commissioned by Luke McNeish of Tai Poutini Resources Ltd on behalf of the clients to undertake an archaeological assessment of the mining disturbance zone within the Southern Resource Block (SRB), Barrytown, Greymouth (encompassing 20 land parcels, see project detail table above) for an archaeological authority application and resource consent application. The area outside of the mining disturbance zone is not covered by this assessment. This assessment considers the impact that the proposed works will have on any archaeological sites that are present within the project area.

This assessment identified that the project area was traversed by an ara tawhito, with manawhenua travelling through the area. The wetland areas in the east of the project area likely provided sources of mahinga toi and kai, while the dune systems along the western perimeter may have provided nohoanga. The two archaeological sites in the project area (K31/11, K31/12) were both find spots possibly relating to wetland artefact caching behaviours. The site survey found no evidence to suggest either find spot was related to other archaeological features in the vicinity of the recorded site, and therefore neither site will be affected by the proposed works. The site survey identified an area of raised dunes on the western perimeter of the site which might have been a suitable spot for a nohoanga. The coastal margin of the site may contain midden/oven sites, while other findspots may be encountered across the project area including in areas previously disturbed by dredging activity and hump and hollowing.

Later nineteenth century occupation of the project area centred on miners' blacksanding along the foreshore and squatting nearby. The historical record identified several mining claims and hut sites along the foreshore as well as the first Barrytown School. The first school site is in the dredge zone so no archaeology will remain in situ. There is reasonable cause to suspect that unrecorded gold-mining and historic-domestic sites will be encountered along the coastal margin. The location of these sites cannot be identified with certainty due to nature of early transient occupation in the area.

Although the project area has undergone a large amount of surface modification, the dredged areas may contain redeposited archaeological material not in situ. Hump and hollowed areas may have intact archaeology under the humps. As the history of the area records largely transient and ephemeral occupation across the project area, archaeology could be encountered anywhere across the site. NZHP has identified areas where there is a higher potential for archaeological remains to be encountered. Due to the scale of the mining operation, there is no scope for earthworks within the mining disturbance area to avoid archaeology.

This archaeological assessment has identified that there is reasonable cause to suspect that unrecorded artefact find spots, midden/oven sites, mining-gold and historic-domestic sites are present within the project area and will be affected by the proposed mineral sand mining. The unrecorded sites are considered to have **medium** archaeological value. Due to the nature of the proposed works the overall impact of the works on the archaeological values of unrecorded sites will be moderate to major.

For the purposes of the FTAA, archaeological monitoring of high-potential areas, protection to the structure under Cargills Road, recording, analysis, and reporting on any archaeological or heritage features modified by the proposed works (as set out in more detail below) provide sufficient mitigation to offset the impact to the archaeological values. As such NZHP supports approvals being granted under the FTAA, including a resource consent application and archaeological authority to modify these sites.

On the basis of this assessment, NZHP supports this application with the following recommendations:

1. **Authority Application:** As the proposed works described in Section 1.2 could affect unrecorded archaeological sites, an archaeological authority under Section 44 of the HNZPTA 2014 must be obtained from HNZPT prior to any modification of the site.
 - a. The previously recorded sites (K31/11, K31/12) are destroyed so will not be impacted.
 - b. If development plans are altered from those reviewed for this assessment, then HNZPT and NZHP must be alerted, as any changes may alter the assessment of effects or invalidate the authority.
2. **Protection of sites/features:** As a first principle, every practical effort must be made to avoid damage to any archaeological site, whether known, or discovered during any redevelopment of the site.
 - a. **Drystone structure under Cargills Road** - To avoid damaging the structure the Cargill Road bund should not be built up against this structure. The use of heavy machinery should be limited or monitored in proximity to the structure, to limit the potential damage from vibrations. Dust and vibration plans, when finalised by the client, should be provided to NZHP to inform future protections for the structure as necessary.
3. **Site Instruction:** All works must be carried out in accordance with a site instruction. Any amendments to the site instruction will require prior written approval from HNZPT. The site instruction will include the points outlined in Section 10.2.2.
4. **Contractor Briefing:** All contractors working on the project must be briefed by the s45 approved person (or person nominated on their behalf) on the possibility of encountering archaeological evidence, how to identify possible archaeological sites/features during works, the archaeological work required by the conditions of the authority, and contractors' responsibilities with regard to notification of the discovery of archaeological evidence to ensure that the authority conditions are complied with. NZHP recommends that the briefing be undertaken in an office space to best enable the briefing to be presented digitally, thus maximising engagement.
5. **Archaeological Monitoring:** All earthworks that may affect an archaeological site must be monitored by the s45 approved person (or person nominated on their behalf) in accordance with the site instruction.
 - a. Any archaeological features and material encountered shall be recorded, analysed, and interpreted in accordance with current archaeological practice and as outlined in the site instruction.
6. **Archaeology of Māori origin:** If archaeological material of Māori origin is discovered at any stage, all work must stop within 20m of the find. NZHP will assist the authority holder in contacting all relevant parties including tangata whenua via Ngāti Waewae and HNZPT in accordance with the site instruction.
 - a. Any taonga tūturu are *prima facie* the property of the Crown who will be notified of the find. Taonga tūturu will be registered with the Ministry for Culture and Heritage. NZHP, in collaboration with manawhenua, shall notify the Ministry of Culture and Heritage and establish the most appropriate temporary storage, management and care for taonga tūturu, until such time as traditional or actual ownership is determined, with an appropriate institution or kaitiaki.
7. **Kōiwi (human remains):** Should kōiwi be encountered, all work must stop within 30m of the find. NZHP will assist the authority holder in contacting all affected parties as soon as practicable, including tangata whenua via Ngāti Waewae, HNZPT, and the police. The Ngāi Tahu policy for kōiwi tangata shall also be followed (Te Rūnanga o Ngāi Tahu, 2019).
8. **Reporting:**
 - a. Within 20 working days of the completion of on-site archaeological work, the site record forms must be updated or submitted to ArchSite.

- b. Within 12 months of the completion of on-site archaeological work, a final report on any archaeological material that is found must be prepared in accordance with *ASG12 Archaeological Report Guideline* (HNZPT, 2023) and submitted to HNZPT for inclusion in the digital library, Ngāti Waewae and to the Grey District Council.

Abbreviations

Abbreviation	Definition
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
SRB	Southern Resource Block

Glossary

The following terms were sourced from the Kāi Tahu Ki Otago Natural Resources Management Plan (Kāi Tahu Ki Otago, 2005) and Heritage New Zealand Pouhere Taonga (HNZPT, 2014).

Te Reo Māori	English
Hapū	Sub-tribe, extended whānau
Iwi	Tribe
Ngāi Tahu ki Otago	The four Papatipu Rūnaka and associated whānau and rōpū of the Otago Region
Kāika/Kaik/Kāinga	Settlement, place of residence
Karakia	Prayer, incantation
Kaumatua	Respected elder
Kōiwi / kōiwi	Human remains
Mahika kai/ Mahinga kai	Places where food is produced or procured
Mahika toi/ Mahinga toi	Places where non-food resources were gathered
Manawhenua	Those who exercise customary authority or rakātirataka
Papatipu	Original/traditional Māori land
Rakātira/Rangatira	Chief
Rakātirataka/Rangatiratanga	Chieftainship, decision-making rights
Rohe	Boundary
Rōpū	Group
Rūnaka/Rūnanga	Local representative group or community system of representation
Takata whenua/Tangata whenua	The iwi or hapū that holds mana whenua in a particular place
Takiwā	Area, region, district
Taoka/Taonga	Treasured object
Tapu	Sacred
Te Tai o Poutini	West Coast
Tikaka/Tikanga	Lore, customary values and practices
Tūpuna/Tipuna	Ancestor
Umu	Earth oven
Umu-tī	Earth oven used for cooking cabbage tree (tī)
Urupā	Burial place
Wāhi Tapu	Places sacred to takata whenua
Whakapapa	Genealogy
Whānau	Family

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Table of Contents

Project Details	i
Document Control.....	i
Ownership and Disclaimer	i
Executive Summary	iii
Abbreviations	vi
Glossary	vi
Acknowledgements	vi
Table of Contents	vii
List of Figures	viii
List of Tables.....	x
1 Introduction.....	11
1.1 Project Area	11
1.2 Proposed Activities.....	12
2 Statutory Requirements.....	14
2.1 Heritage New Zealand Pouhere Taonga Act 2014.....	14
2.2 Resource Management Act 1991.....	14
2.3 Protected Objects Act 1975	15
3 Methodology	16
3.1 Research to Identify Archaeology and Inform Archaeological Values	16
3.2 Survey Methodology.....	16
3.2.1 Aerial Imagery	16
3.2.2 LiDAR.....	16
3.2.3 Pedestrian Surveys	17
3.3 Assessment of Archaeological Values	17
3.4 Assessment of Effects.....	18
4 Physical Environment and Setting.....	20
4.1 Geomorphology.....	21
4.2 Landscape Transformations.....	21
5 Historical Background.....	22
5.1 Māori Occupation of Te Tai o Poutini.....	22
5.1.1 Pā and Kāinga.....	22
5.1.2 Mahinga Toi.....	22
5.1.3 Mahinga Kai.....	24
5.1.4 Ara Tawhito and Nohoanga.....	24
5.2 Contact and Post-Contact Period Occupation of Te Tai o Poutini	25
5.3 History of the Project Area	26
5.3.1 Block V Waiwhero Survey District.....	29
5.3.2 Block IX Waiwhero Survey District – encompassing Lot 1 DP 406050, Part Section 5, Block IX Waiwhero SD	33
6 Previous Archaeological Investigations and Archaeological Context	36
6.1 Previous Research and Investigations within the Project Area	37
6.2 The Wider Archaeological Context.....	37
6.3 Potential Unrecorded Archaeological Sites.....	38
6.3.1 Artefact Find Spots.....	38

6.3.2	Midden/oven Sites	38
6.3.3	Gold Mining Sites	38
6.3.4	Historic-Domestic Sites	39
7	Results of the Site Survey	40
7.1	Setting	41
7.2	Results	43
7.2.1	Block V Waiwhero Survey District	43
7.2.2	Block IX Waiwhero Survey District	51
8	Research Results	54
8.1	Constraints and Limitations	55
9	Archaeological and Other Values	57
9.1.1	Unrecorded Artefact Find Spots	57
9.1.2	Unrecorded Midden/Oven Sites	57
9.1.3	Unrecorded Mining-Gold Sites	58
9.1.4	Unrecorded Historic-Domestic	58
9.1.5	Other Values	59
10	Assessment of Effects and Other Considerations	60
10.1	Assessment of Effects on Archaeological and Other Values	60
10.2	Recommendations to Avoid, Minimise and/or Mitigate Adverse Effects	61
10.2.1	Sites and Features to be Avoided or Protected	61
10.2.2	Mitigation for Information Loss	61
10.3	Summary of Effects on Archaeological Values	62
11	Conclusions and Recommendations	63
12	References	65
Appendix A	Additional Maps	A-2
Appendix B	Archaeological Site Record Forms	B-6

List of Figures

Figure 1-1.	Project area in Barrytown, Greymouth.	12
Figure 4-1.	The broader geographical setting of the Barrytown Flats.	20
Figure 5-1.	Map showing kāinga, mahinga toi and kai areas, and ara tawhito in Te Tai o Poutini at the time of Pākehā contact (1840s). Note: the project area is indicated by the red arrows (McCaskill, 1954).	23
Figure 5-2.	Beachcombing black sand for gold (West Coast New Zealand History, 2014).....	24
Figure 5-3.	Extent of the township in proximity to the project area illustrated in 1907 (SO 866).....	25
Figure 5-4.	Dredging in the southern portion of the project area for the Barrytown dredge in 1936 (West Coast Recollect, 1936).....	26
Figure 5-5.	Dredged area (blue line) in the project area (red line) in 1951 (Retrolens, 1951).....	27
Figure 5-7.	Barrytown Flats showing dredge ponds and the road along the beach (West Coast Recollect, 1940).	27
Figure 5-8.	The known location of historically recorded pre-1900 activity (left). Twentieth century dredging within the project area (right). Dredge shapefile supplied by the client.....	29
Figure 5-9.	Barrytown School, situated in the education reserve Block V, in 1917 (West Coast New Zealand History, 1917).	30
Figure 5-10.	Claims of Poschich (north) in Section 6, and the education reserve in Block V, Waiwhero SD in 1881 (SO 3687). Approximate extent of PA in Block V outlined in red.	31

Figure 5-11. The small mining settlement adjacent to the school (SO 7948). Approximate western border of the project area in red. Location indicated in inset of the PA.....	32
Figure 5-12. Cargill's house and shed just to the north of Cargill Road in 1905 (SO 866) Project area in red. Location indicated in inset of the PA.....	32
Figure 5-13. Education reserve (red rectangle) within the dredged zone in 1951 (Retrolens, 1951). The yellow rectangle indicates the dredged area which once contained the small mining settlement adjacent to the school.	33
Figure 5-14. Claims of E.H. Lewis (Section 7) in Block IX, Waiwhero SD in 1881 (SO 3687). Extent of PA in Block IX outlined in red.	34
Figure 5-15. Section 7 occupied by E.H. Lewis in 1905 (SO 866). Approximate project area encompassing Block IX, Waiwhero SD in red.	35
Figure 5-16. McKay's claim along the western edge (SO 865).	35
Figure 6-1. Previously recorded archaeological sites within the vicinity of the project area.....	36
Figure 7-1. Map of project area showing areas surveyed. A map of the transects walked is provided in Appendix A.	40
Figure 7-2. Ploughing (left), dredging (centre), and hump and hollowing (right) in the project area as seen in the LiDAR imagery.....	41
Figure 7-3. Hump and hollowing in the eastern fields, looking northeast (Wooller, 2024).....	42
Figure 7-4. Tributaries in RS 2927, looking north. Note the tussocky grass in the foreground and the grazed pasture in the background (Wooller, 2024).	42
Figure 7-5. Foreshore with cobbled beach, looking south (Wooller, 2024).	43
Figure 7-6. Eroded bank along the foreshore adjacent to Lot 5, looking east, scale bar = 500mm (Wooller, 2024).	43
Figure 7-7. Vicinity of K31/11, looking west (Harding, 2024).....	44
Figure 7-8. Modern aerial (left) and LiDAR imagery (right) showing the approximate location of K31/11. Note the site location is an approximation based on an oral account.	44
Figure 7-9. Foreshore in proximity of findspot K31/12, that has not been dredged, looking north (Wooller, 2024).	45
Figure 7-10. Foliage growth and stone coverage in proximity to find spot K31/12. Looking east, scale bar 500mm (Wooller, 2024).....	45
Figure 7-11. The vicinity of find spot K31/12 shown in the 1951 aerial (left) and the LiDAR imagery (right). Note the site location is an approximation based on an oral account.....	46
Figure 7-12. Hump and hollowing in what was Poschich's Claim. Looking southwest. The extent of the ground disturbance can also be seen on the LiDAR, right (Poschich's claim in purple).	46
Figure 7-13. Looking northwest across the former Educational Reserve (Wooller, 2024).....	47
Figure 7-14. LiDAR imagery showing the area of pre-1900 activity (red) as dredged.....	47
Figure 7-15. The location of Cargill's settlement (purple) and the suspected edge of dredging (white dotted line), pictured overlaying the 1981 aerial (left)and the LiDAR imagery (right).....	48
Figure 7-16. Arum lily patch, looking west (Wooller, 2024).	48
Figure 7-17. Looking north across the ridges (Harding, 2024).....	49
Figure 7-18. Undulating slope looking northwest (Harding, 2024).	49
Figure 7-19. Points of interest in relation to modern property boundaries and as shown on shown on LiDAR imagery just within the project area.....	50
Figure 7-20. Aerial imagery 1951 (left) and 1981 (right). Ridge areas circled in red (Retrolens, 1951, 1981).	51
Figure 7-21. Stacked drystone structure beneath Cargill Road (Wooller, 2024).	51
Figure 7-22. The eastern edge of Lewis' Claim shown to be humped and hollowed in the LiDAR data (left) and during the survey, looking west (right). The red line indicates the project area boundary.	52
Figure 7-23. Hump and hollowing within Hannah's claim, looking southeast (Wooller, 2024).....	53

Figure 7-24. LiDAR imagery of the project area (left). The red line indicates the project area, and the yellow dotted line is the eastern side of Hannah’s claim. The southwestern corner of the project area (right), with irrigation channel running through. Looking south (Wooller, 2024). 53

Figure 8-1. High archaeological potential areas and areas of modern disturbance. 55

Figure 12-1. Survey map showing transects walked, Dec 2024. Note the survey covered the SRB beyond the scope of the current project area (mining disturbance zone). A-2

Figure 12-2. Land parcels in northern project area..... A-3

Figure 12-3. Land parcels in central project area. A-4

Figure 12-4. Land parcels in southern project area..... A-5

List of Tables

Table 1-1. Summary of project area. 11

Table 3-1. Levels of overall archaeological value (adapted from DoT, 2008)..... 18

Table 5-1. Summary of key events and land transactions in the project area. Events directly related to archaeological features or deposits are highlighted in blue..... 28

Table 6-1. List of recorded archaeological sites within 2.5km radius of the project area..... 37

Table 9-3. Summary of archaeological value for unrecorded artefact find spots..... 57

Table 9-4. Summary of archaeological value for unrecorded midden/oven sites. 57

Table 9-5. Summary of archaeological values for mining sites. 58

Table 9-6. Summary of archaeological values for historic-domestic sites..... 58

1 Introduction

TiGa Minerals and Metals Ltd are proposing to undertake mineral sand mining activities across 411.69 ha at Barrytown, Grey District, West Coast (Figure 1-1). New Zealand Heritage Properties Ltd (NZHP) has been commissioned by Luke McNeish of Tai Poutini Resources Ltd on behalf of TiGa Minerals and Metals Ltd to undertake an archaeological assessment of the mining disturbance area in the Southern Resource Block at Lot 1 DP 406050 SEC 1 4 4034 PT SEC 5 BLK IX Waiwhero SD, located on Cargill Road, Barrytown, Greymouth. This archaeological assessment has been prepared to assess the archaeological potential of the project area and to consider the impact that the proposed works will have on any archaeological sites. Archaeological sites are areas that witnessed human occupation prior to the year 1900 and can provide information on the history of New Zealand through archaeological investigation; archaeological sites are protected under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014).

1.1 Project Area

The project area is defined as the mining disturbance area located in the Southern Resource Block, Cargill Road, Barrytown, Greymouth, encompassing 20 land parcels, including three road reserves. The area of the Southern Resource Block outside of the mining disturbance zone is not covered by this assessment. A summary of the project area is provided in Table 1-1 and the location of each land parcel is shown in Appendix A. There have been two archaeological sites previously recorded in the project area and the entire project area is in the Pounamu Management Area overlay under the proposed Te Tai o Poutini Plan (TTPP).

Table 1-1. Summary of project area.

Legal Description	Southern Resource Block, Barrytown, Greymouth. Encompassing 20 land parcels:		
	Section 7, Block V, Waiwhero SD	RS 2930	Lot 1 DP 2719
	Part Section 5 Block IX Waiwhero SD	RS 2931	Road reserve parcel ID 3700202
	Lot 1 DP 406050	RS 2932	Road reserve parcel ID 3702892
	Part RS 2634	RS 2933	Road reserve parcel ID 3699494
	Part RS 2635	RS 4033	RS 2927
	Part RS 2639	RS 3316,	
	Part RS 2928 RS 2929	Lot 1 DP 3548	
Landowner	Newall Brothers Limited, Cargill Rd Barrytown Limited, Nikau Deer Farm Limited, Barrytown Farms Limited, Charles Nelan Cabraal, Kim Denise Burnett, Stephen Rex Burnett, Land Information New Zealand, Grey District Council.		
Territorial Authority	Grey District Council		
Archaeological Site No.	K31/11, K31/12		
Previous Archaeological Authorities	NA		
New Zealand Heritage List/Rārangi Kōrero	NA		
Covenant or Heritage Order	NA		
Scheduled on District Plan	Pounamu Management Area overlay under the proposed TTPP		
Reserve Status	NA		
Statutory Acknowledgement Area	NA		
Customary Marine Title	NA		

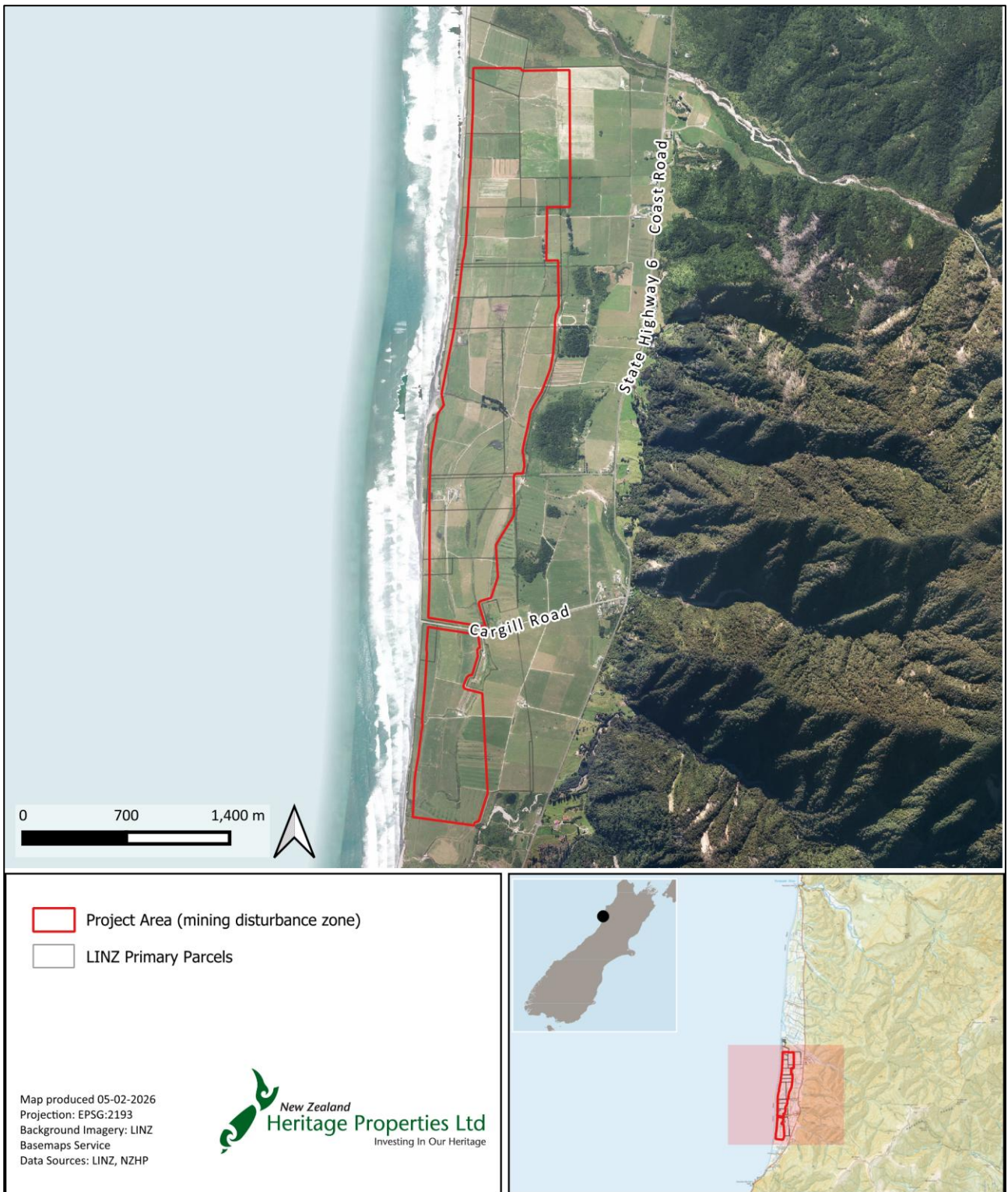


Figure 1-1. Project area in Barrytown, Greymouth.

1.2 Proposed Activities

TiGa Minerals and Metals Ltd are proposing to undertake mineral sand mining on the Barrytown Flats. The project will seek to mine both previously mined and unmined areas across the consent area. The sand mining and processing aims to obtain ilmenite, garnet, and other minerals. The proposed plans for the project are provided in the Project Description of the Application with the location of the project area as shown in Figure 1-1. The following proposed activities have the potential to affect archaeology:

Pre-mining activities

- The excavation of the starter pit area (100m x 100m)

- The excavation of the mine settling pond and water management infrastructure (Mine Water Facility) (**MWF**)
- Removal of topsoil on the site of the Wet Concentrator Plant (WCP)

Mining activities

- Removal of vegetation and topsoil within the mining areas. Earthworks to remove the vegetation and topsoil across the project area will be required to a depth of approximately 0.2 – 0.6m below surface.
- Initiation of mining across approximately 280ha area. Earthworks will be required to a depth of up to 10m below surface to extract the sand ore.
- The removed materials will be either returned to the mined areas or used to build bunding.

2 Statutory Requirements

The legislative requirements relating to archaeological sites and artefacts are detailed in the following sections. While this application is being made under the Fast Track Approvals Act 2024, the two main pieces of legislation that provide protection for archaeological sites are 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

HNZPT administers the HNZPTA 2014, and the purpose of this Act is to promote identification, protection, preservation, and conservation of New Zealand's historical and cultural heritage. The HNZPT Act outlines the archaeological authority process for any work affecting archaeological sites, where an archaeological site is defined 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.

Any person who intends carrying out work that may damage, modify or destroy an archaeological site, or to investigate a site using invasive archaeological techniques, must first obtain an archaeological authority from Heritage HNZPT. The process applies to sites on land of all tenure including public, private and designated land. The Act contains penalties for unauthorised site damage or destruction.

The archaeological authority process applies to all sites that fit the HNZPTA definition, regardless of whether

- the site is recorded in the New Zealand Archaeological Association (NZAA) Site Recording Scheme (ArchSite), listed by HNZPT, or scheduled under a district plan;
- the site only becomes known about as a result of ground disturbance, and/ or;
- the activity is permitted under a district or regional plan, or a resource or building consent has been granted.

HNZPTA also maintains the New Zealand Heritage List/ Rārangī Kōrero (the List) of Historic Places, Historic Areas, Wāhi Tapu, and Wāhi Tapu Areas. The List includes some significant 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 (RMA).

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, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities. Historic heritage includes historic sites, structures, places, and areas; archaeological sites; and sites of significance to Māori (including wahi tapu); and surroundings associated with the natural and physical resources. These categories are not mutually exclusive, and some archaeological sites

may include above ground structures or may also be places that are of significance to Māori. It should be noted that this definition does not include the 1900 cut-off date for protected archaeological sites as defined by the HNZPTA 2014. Any historic feature that can be shown to have significant values must be considered in any resource consent application.

The RMA 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 protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

The RMA 1991 requires local authorities to develop and operate under a district plan. Te Tai o Poutini Plan is a proposed combined district plan for the West Coast. The proposed plan identifies important heritage buildings and sites, and important trees and sites of significance to Poutini Ngāi Tahu. Part 2 of the Proposed Te Tai o Poutini Plan encompasses Historical and Cultural Values, Ngā Uara ā-Ahurea, ā-Hitori Hoki.

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 Māori heritage and are beneficial for providing frameworks for streamlining management processes and codifying Māori 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 hapū who hold mana whenua in Te Tai o Poutini are Ngāti Waewae. Under section 74(2A) of the RMA, territorial authorities, in preparing or changing a district plan, must take into account planning documents recognised by iwi. Ngāti Waewae have been involved in the preparation of Pounamu Management Plans which have been recognised by Te Rūnanga o Ngāi Tahu as planning documents. These iwi management plans have been taken into account in the Te Tai o Poutini Plan through participation of Poutini Ngāi Tahu representatives during development of the plan.

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

This archaeological assessment has been prepared in accordance with HNZPT's (2019) guideline on preparing an archaeological assessment. Presented below are the methods used to gather information to identify the archaeological potential of the project area, determine the archaeological significance, and assess the effects of the proposed work on archaeological values.

3.1 Research to Identify Archaeology and Inform Archaeological Values

The first half of this report provides the information gathered to inform on the archaeological values of the project area, including the setting, historical background, archaeological context, and the site visit. Documentary research was undertaken to inform the background research sections of this assessment. The physical environment section documents the setting of the project area, its land use, and considers environmental factors that may influence how the site was occupied through time. The historical background first provides an overview of human history for the wider area before narrowing down on evidence that is specific to the project area itself to determine the nature and significance of the archaeology. Previous archaeological research and investigation for the project area provide an understanding of research results, areas of modification, and informs on the potential for the proposed works to affect archaeology. This section also considers the wider archaeological context, including the consideration of sites recorded near the project area and how artefact find spots, midden/oven sites, gold mining sites, and historic-domestic sites are represented in the archaeological record at the local, regional, and national level. Sources utilised for this research include:

- Published primary and secondary sources for the West Coast and gold mining,
- Kā Huru Manu,
- Historic newspaper articles through PapersPast,
- Historic photographs on West Coast Recollect
- Historic maps accessed via Prover and from Archives New Zealand,
- ArchSite,
- The HNZPT archaeological reports digital library,
- New Zealand Heritage List/Rārangi Kōrero,
- Retrolens aerials
- LINZ LiDAR imagery

3.2 Survey Methodology

Three key sources of information were compiled and analysed as part of the archaeological surveys. These included aerial imagery, LiDAR and a physical survey of the survey area. Where sites could not be identified or accessed due to health and safety constraints, vegetation, or topography, during the pedestrian survey, the recent LiDAR and historical imagery, alongside information from previous archaeological investigations, were used to inform an understanding of site location and spatial extent.

3.2.1 *Aerial Imagery*

Historic aerial imagery, dating to the 1950s and 1980s of the survey area was accessed via Retrolens. The aerial imagery was compared with features identified during the physical survey, the 2020-2022 LiDAR data, and the drone photos supplied by Tai Poutini Resources. By comparing the historical images with more recent data, it was possible to recognise archaeological potential, and identify features established in the 1950s or onwards and the extent to which mining from the 1950s onwards has impacted archaeological sites throughout the survey area.

3.2.2 *LiDAR*

LiDAR is a useful in identifying points of interest (POI), establishing site extents and spatial relationships of sites and features that are not identifiable or obvious when on the ground. In recording and heritage management of

archaeological sites Jones & Bickler (2018) have identified that while New Zealand archaeologists are proficient and better at detecting individual sites at a local level, “visual manual detection at larger scaler is both time consuming and costly” (Jones & Bickler, 2018). In contrast LiDAR data can generate terrain models for larger areas covered in heavy and dense vegetation, as well as areas of rough terrain that are difficult to physically survey. Not only does LiDAR offer the ability to identify previously unrecorded sites in such areas, it also helps to map previously recorded sites as well as refine data collected prior to GIS and GPS. Even where archaeological sites have in the past been well drawn and mapped these are predominantly not georeferenced and frequently not to scale. LiDAR can be used to refine site extents and boundaries with geographical precision (Jones & Bickler, 2017).

LiDAR data from 2020-2022 was accessed via LINZ. Visual inspection of the LiDAR data provided included examination of raster-derived surfaces (i.e. hillshade) and high-resolution contours in order to identify unrecorded archaeological sites and define recorded archaeological sites. Details attained from the LiDAR data included location, extent and types of possible archaeological sites, which contributed to interpretation of individual sites as well as wider archaeological landscapes throughout the survey area. The LiDAR data also displayed distinguishable evidence of twentieth century dredging, ploughing, and hump and hollowing and its potential impact on archaeological sites.

3.2.3 *Pedestrian Surveys*

A survey of the project area was undertaken in December 2024 by NZHP archaeologists Bree Wooller and Leah Harding.

A GPS unit loaded with previously recorded sites was carried and the survey paused when previously recorded or unrecorded features were encountered to allow for closer inspection. The locations of previously recorded sites were inspected and photographed noting any evidence of in situ archaeology as well as the potential condition of any subsurface material, while features that may be indicative of an unrecorded archaeological site were recorded in detail and plotted on the GPS.

All areas of known pre-1900 activity and areas without extensive twentieth century modification were surveyed by paddock in 20m transects (Figure 7-1). The boggy terrain and non-traversable waterways of the area did not allow for standardised transects to be adhered to in some paddocks. Fields which had been humped and hollowed were surveyed along the humps as the hollows were generally filled with water and foliage. Due to the extent of modern surface modification, after no evidence of archaeology was encountered in fourteen heavily modified paddocks (i.e. humped and hollowed areas), no further modified paddocks were transected. Instead, these were viewed from the perimeter only. Extensive stretches of the project area were dredged in the twentieth century. Eight dredged paddocks were surveyed to determine the extent of the modification and sections of the coastal margin of the dredge zone were transect surveyed to determine the condition of the edge of the project area. Additionally, fields with livestock or without safe access points were not transacted but viewed from the perimeter. Areas that could not be accessed or viewed were studied through the LiDAR imagery and aerial photographs, which went some way to offset these limitations.

3.3 **Assessment of Archaeological Values**

Section 46 of the HNZPTA 2014 requires an assessment of archaeological values as well as Māori and other relevant values to the archaeological site. The assessment of archaeological and other values is based on criteria established by HNZPT (2019):

- 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 criteria outlined above help to build an overall assessment of significance of a site, and NZHP have adopted the following levels of overall archaeological value (Table 3-1). These levels of significance follow the recommendations proposed by Department for Transport (2008); although, this steers away from the use of local, regional, and local importance, which Kerr (2013) argues is irrelevant to the assessment process. It is important to note that it is not possible to fully understand the archaeological significance of subsurface sites, and that the significance of a site may change on the basis of what is found during the work programme.

Table 3-1. Levels of overall archaeological value (adapted from DoT, 2008).

Level of Significance	Criteria
Very High	<ul style="list-style-type: none"> • World Heritage Sites (and proposed sites) • An archaeological site of acknowledged international importance
High	<ul style="list-style-type: none"> • Listed archaeological sites, including those of listing quality and importance <ul style="list-style-type: none"> ○ Category 1: places of special or outstanding historical or cultural heritage significance or value; ○ Category 2: places of historical or cultural heritage significance or value; and • Scheduled archaeological sites, including those of scheduling quality and importance • Archaeological sites with exceptional values
Medium	<ul style="list-style-type: none"> • Archaeological sites that can be shown to have moderate values
Low	<ul style="list-style-type: none"> • Archaeological sites with limited value, including those that are highly represented, have low information potential, have poor preservation, and/or poor survival of contextual association
Negligible	<ul style="list-style-type: none"> • Sites with very little surviving archaeological interest
Unknown	<ul style="list-style-type: none"> • The importance of the site is not yet known

3.4 Assessment of Effects

After determining that there is evidence that archaeology is present within the project area and evaluating its archaeological value, an assessment of the effects of the proposed work on those values was completed. Specifically, consideration was given to the following matters as outlined by HNZPT (2019):

- 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.

The magnitude of impact on archaeology is defined below with a scale ranging from no impact to major impact. In most instances these impacts are adverse; however, there may also be positive impacts on the site.

- **Major** - impact to the archaeological site, such that the site is totally altered (e.g., a site is totally destroyed).
- **Moderate** - impact to the archaeological site, such as the asset is significantly modified (e.g., at least half of a site is affected)

- **Minor** - impact to the archaeological site, such that the asset is slightly different (*e.g.*, a small portion of the site is affected).
- **Negligible** - slight changes to archaeological site that hardly affect it.
- **No impact** - the works will not affect the site.

4 Physical Environment and Setting

The project area is located in Barrytown, Grey District on the West Coast of the South Island (Figure 4-1). Barrytown is a small farming settlement approximately 25km by road north of Greymouth. Barrytown flats is situated on a narrow strip of land to the west of the Paparoa Range. The project area is bounded by Pakiroa Beach (17 Mile Beach) on the western side and the Canoe Creek Scenic Reserve to the north. State Highway 6 runs to the east, albeit not adjacent, of the project area.

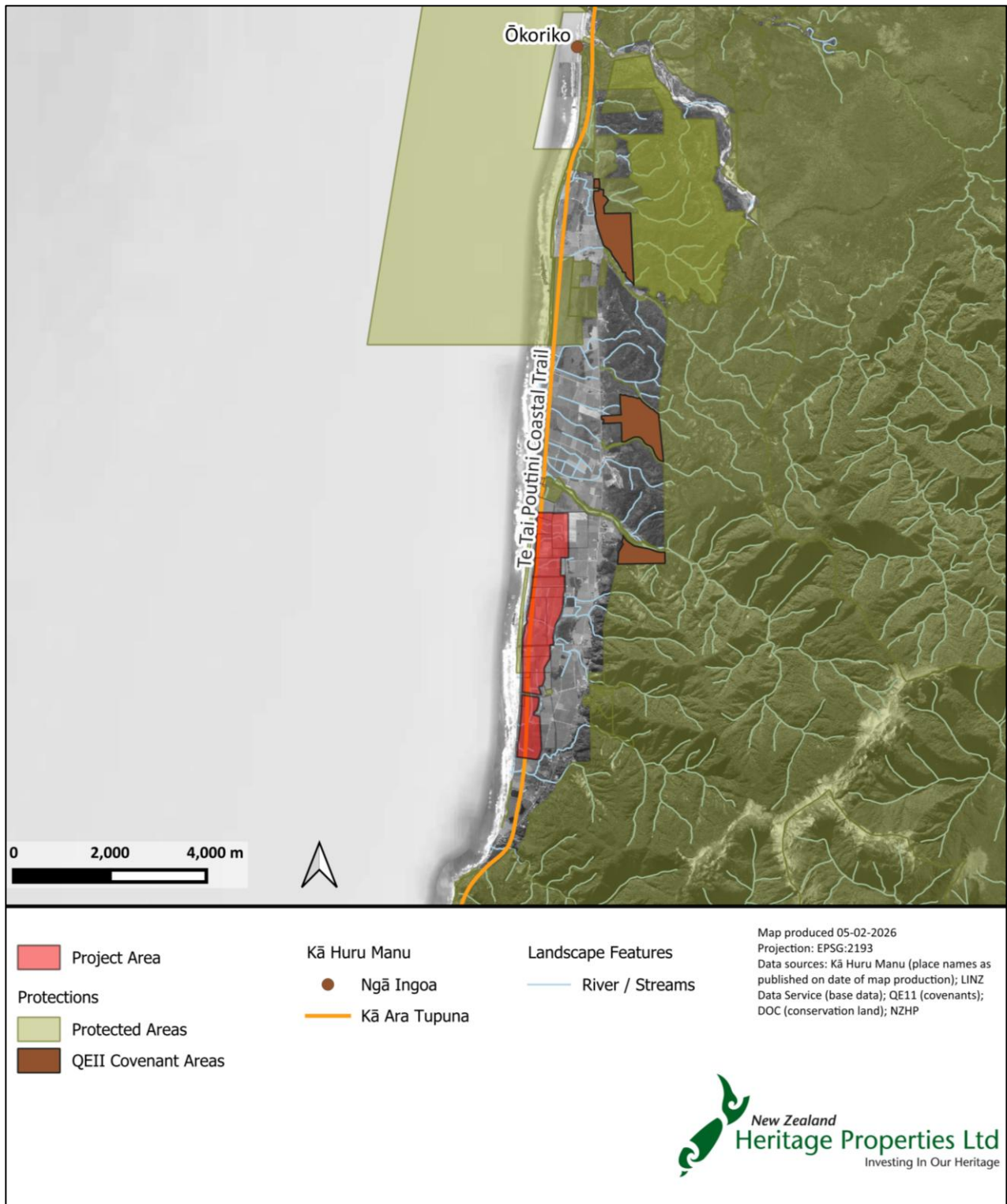


Figure 4-1. The broader geographical setting of the Barrytown Flats.

4.1 Geomorphology

Te Tai o Poutini, the West Coast of Te Waipounamu, lies along the boundary between the Pacific and Australian tectonic plates, with the plate boundary being clearly marked by the Alpine Fault, forming the western edge of the Southern Alps. To the east of the Alpine Fault, the most commonly found type of rock is greywacke, a hard, grey muddy sandstone that contains bands of shale. Closer to the Alpine Fault, the deeply buried greywacke has metamorphosed into schist, while pounamu can be sourced from small areas of schist north-east of Hokitika. The project area is within the Pounamu Management Area overlay under the proposed Te Tai o Poutini Plan (TTPP). To the west of the Alpine fault, the rocks are more varied, with the oldest rock type being greywacke, containing intrusions of several types of granite. These are overlaid by layers of softer sedimentary rocks, including mudstone, sandstone, conglomerate, and limestone. Coal-bearing rocks are widespread, with coal having been mined at a number of locations (Nathan, 2012). Mesothermal gold is contained within the greywacke, which is predominant on Te Tai o Poutini, and is incorporated into the faulted areas of the hard rock source, known as shear zones. When the hard rock sources, such as the West Coast greywacke, are eroded away, it becomes auriferous gravels (Karoro Formation). Alluvial gold is the result of rivers or glaciers having flowed over auriferous gravels, washing, and sorting the gold, which then allows for the formation of concentrations of heavy gold deposits in certain layers. This often meant that alluvial gold deposits were much richer than their hard-rock sources (Walrond, 2012). The majority of gold deposits within the Grey District are alluvial, consequently, the area hosts a dynamic timeline of mining activities throughout recent history which have left irreversible scars across the landscape.

The wider landscape surrounding Barrytown Flat is largely public conservation land with forest and scrub coverage, with three QEII Covenant Areas to the northeast of the project area (Figure 4-1). The native bush is a mix of coastal podocarp, broadleaf, and lowland hardwoods. An area of significant indigenous biodiversity (PUN-49), situated to the west of the boundary of the site is identified as a potential Significant Natural Area (SNA) under the proposed Te Tai o Poutini Plan (TTPP). To the north of the project area, Ōkoriko (Razorback Point) is situated at the outlet of the Punakaiki River (Te Rūnanga o Ngāi Tahu, 2025). To the south, the Motukiekie Rocks are located off the coastline near Waiāniwaniwa (Ten Mile Creek). The island was likely utilised for resource procurement, as kiekie (*Freycinetia banksii*) was highly valued for weaving (Te Rūnanga o Ngāi Tahu, 2025). The Te Tai Poutini Coastal Trail runs through the project area (Figure 4-1).

The project area is crossed by a series of little creeks that originate from the Paparoa Ranges and drain into Tasman Sea (Figure 4-1). Granite Creek and Little Granite Creek flow through the project area, as well as lots of smaller tributaries particularly along the westerns coastal margin. The coastal margins would have originally consisted of sandy loam dune formations; however, these have largely been eroded or modified by twentieth century activities. The terrain is very waterlogged, with peaty sediments noted in the tributaries. The project area is all in pasture with the exception of areas of wetland planting along the margins and in the waterlogged areas. The nature of the pasture varied by paddock with some areas having short grass coverage with a large amount of stock trampling, through to other fields with long, reedy growth, obscuring the ground surface.

4.2 Landscape Transformations

A vast amount of the project area has previously been modified with extensive dredging and hump and hollowing taking place in the twentieth and twenty-first centuries. The waterways running through the site have been modified for drainage and stock supply with most having been straightened to align with the farm layouts. Over the last 50 years some vegetation clearance has been undertaken, primarily gorse removal for farming purposes. The project area is currently being utilised for dairy farming.

5 Historical Background

The following sections give an overview of Māori and Pākehā settlement in Te Tai o Poutini and the Grey District to provide context to understand the history of the area. 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. This chapter then moves on to outline the history of the project area, situated in Barrytown.

5.1 Māori Occupation of Te Tai o Poutini

From the snowy maunga to the sea waters of the taniwha Poutini, Te Tai o Poutini is of immense significance to Poutini Ngāi Tahu. From the earliest times, pounamu was the main reason for settlement on Te Tai o Poutini, with the central region near the project area being at the heart of Poutini Ngāi Tahu legends, customs, and traditions. Te Tai o Poutini lies within the traditional boundaries of Ngāi Tahu, who are the largest iwi in Te Waipounamu (the South Island), comprised of people descended from the tribe's five primary hapū (Ngāti Kuri, Ngāti Irakehu, Ngāti Huirapa, Ngāi Tūāhuriri and Ngāi Te Ruahikihiki) along with earlier Rapuwai, Hawea, Waitaha, and Ngāti Mamoe ancestors. The hapū who hold mana whenua in Tai o Poutini are Ngāti Mahaki o Makaawhio and Ngāti Waewae; together they are known as Poutini Ngāi Tahu. The rohe of Poutini Ngāi Tahu extends over the entire West Coast Region from Kahurangi Point to Piopiotahu (Milford Sound) and inland to Ngā Tiritiri o te Moana (the Southern Alps).

In the eighteenth century, Raureka, a Ngāti Wairangi rangatira was the first person to find a way across Ngā Tiritiri-o-Te-Moana, the Southern Alps. Raureka, who was born at Lake Kaniere to the south of the project area, arrived in the Arowhenua region and was taken in by a party of Ngāi Tūhaitara, who were amazed by her pounamu toki. Word of Raureka's journey, and the pounamu that could be gathered *en route*, soon spread (Madgwick, 2024; Te Rūnanga o Ngāi Tahu, 2022; Te Rūnanga o Ngāi Tahu, Te Rūnanga o Ngāti Waewae, & Te Rūnanga o Makaawhio, 2018).

5.1.1 Pā and Kāinga

A lot of what is known of the settlement of Te Tai o Poutini comes from traditional oral histories and later nineteenth century ethnographic accounts recorded by Pākehā. By the nineteenth century, kāinga (villages) were largely permanently occupied and were situated near the mouths of the major rivers. However, during summer, kāinga could often be sparsely populated as groups dispersed to undertake a range of seasonal activities. When Pākehā arrived in Te Tai o Poutini, Māori settlements were concentrated along the central coastline, although, archaeological evidence also suggests that kāinga and nohoanga (seasonal camps) stretched along the western seaboard (Anderson, 1982). Later Pākehā noted the presence of small, isolated settlements in these areas, where Māori communities stayed while procuring pounamu (Anderson & Prickett, 1982; Ngāi Tahu, 2021). To the south of the project area the closest kāinga was Kararoa, which had been occupied by Ngāti Rārua and Te Āti Awa who had married into Poutini Ngāi Tahu (Madgwick, 2024). To the north, a small seasonal pa, Kawatiri, was occupied near modern day Westport (Madgwick, 2024).

5.1.2 Mahinga Toi

Mahinga toi refer to places where non-food resources were gathered. Pounamu (greenstone) is of particular importance to Māori, with the stone manufactured into tools such as adzes, chisels, and knives, as well as items of ornamentation such as hei tiki (pendant) (Te Rūnanga o Ngāi Tahu, 2022). The major sources for pounamu along Te Tai o Poutini are along the Arahura and Taramakau Rivers (Figure 5-1). Raw pounamu was also traded for other resources, and spread throughout both Te Waipounamu and Te Ika-a-Māui (the North Island) (Jacomb *et al* 2010). There were a number of ara tawhito (traditional routes) that were used to transport pounamu, and those seeking it, over Kā Tiritiri-o-te-moana (the Southern Alps), with the major routes crossing the Haast and Harper's Pass (Figure 5-1). The project area is within the Pounamu Management Area overlay under the proposed Te Tai o Poutini Plan (ITPP).

There are plentiful legends associated with the central region of Te Tai o Poutini, from the hills of Ōhonu (Hohonu Range) to Turiwhate, the entire Arahura and environs, including Kawhaka, Tuhua, Timuaki, Raparapahoe, Mt Tara o Tama (the great mountain of the pounamu explorer Tama Ahua) and as far as Mt Kaniere (Mt Harman), named for sawing the pounamu. Historic sources (West Coast Times, 1903) note a large amount of harakeke (flax) growing across the project area prior to it being cleared. Harakeke was a valued resource to Poutini Ngāi Tahu with it being recognised as a taonga species in the Ngāi Tahu Claims Settlement Act 1988 (Tumahai, 2010).

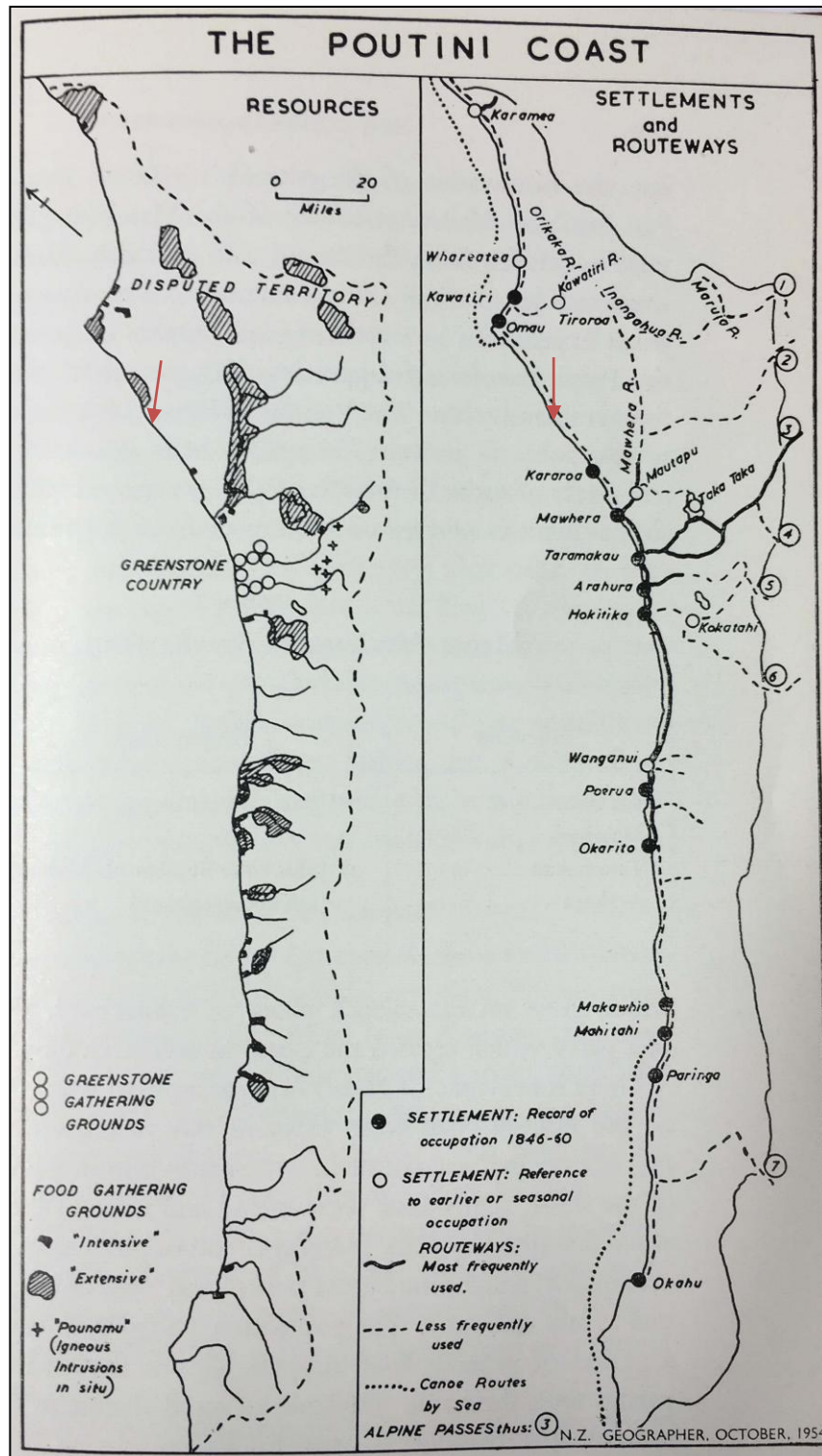


Figure 5-1. Map showing kāinga, mahinga toi and kai areas, and ara tawhito in Te Tai o Poutini at the time of Pākehā contact (1840s). Note: the project area is indicated by the red arrows (McCaskill, 1954).

5.1.3 *Mahinga Kai*

Te Tai o Poutini was also associated with mahinga kai (food gathering places) utilised by people living in the region, as well as travelling parties. Freshwater sources were fished for tuna (eel), grayling, and īnanga (whitebait), while forested areas were fowled for kiw, weka, kākāpō, kākā, kōkō (tūi) and kūkupu (kererū) (Madgwick, 2024). In the vicinity of the project area, tīti were lured into Pakiroa (Barrytown) and disorientated by the lighting of large fires at dusk, before being caught and clubbed (Madgwick, 2024). Berries and vegetables, such as tree fern pith, kōareare (the edible rhizome of raupō), mamaku, podocarp berries, and rarely, bracken fern root and nikau palm, were also gathered. Historic sources note copious amounts of harakeke and raupō in the area during the nineteenth century (SO 7873, SO 7948), which are both valued mahinga kai plant sources to Poutini Ngāi Tahu (Tumahai, 2010). Kokopu, koura, and tuna would have been gathered from the streams in the project area, with bird species such as putakitaki and weka found grazing in the wetlands within the project area (Tumahai, 2010).

Kūmara and Taro were reported to have been grown by Poutini Ngāi Tahu throughout the Poutini coastline, with the temperate climate and less severe winters than the eastern regions allowing for horticulture (Madgwick, 2024). Ethnographic accounts record the use of rocks to keep the crops warm and the tubers were wintered in rua (Madgwick, 2024).

5.1.4 *Ara Tawhito and Nohoanga*

Ara tawhito are traditional travel routes, and these criss-crossed Te Tai o Poutini, connecting the pā of Arahura, Taramakau, and Māwhera with the great Ngāi Tahu trading centre of Kaiapoi Pā. The Te Tai Poutini Coastal Trail traverses the coastline from Māwhera (Greymouth) to Mohua (Golden Bay), including through the western extent of the project area. Madgwick (2024), notes that the section of the ara tawhito which ran along the long smooth beach of pakiroa adjacent to the project area was a stark contrast to the particularly treacherous steep cliffs to the north. As noted, the nearby Taramakau was a major ara tawhito, which was often difficult to traverse, but which did provide a route over Kā Tiritiri o te Moana (Southern Alps) through Nōti Taramakau (Harper Pass). This route, one of the lowest and easiest to traverse, was valued as part of the wider lifeways cycle for access to pounamu.

Nohoanga, literally meaning ‘a place to sit’, traditionally refers to seasonally occupied sites. Nohoanga were an integral part of the mobile lifestyle of tīpuna (ancestors) as they moved around Te Waipounamu undertaking various seasonal expeditions for resource procurement, trade and maintaining social relationships. No inland settlement sites or nohoanga have been investigated in Te Tai o Poutini, although secondary information inferred from artefact findspots suggests that nohoanga would have been close to inland rivers or streams (Department of Conservation, 2010). A cave site in the Razorback Ridge, to the north of the project area, was noted in Nicholl’s 1990 survey of Barrytown Flat (Nichol, 1990) and might have been evidence of a nohoanga.



Figure 5-2. Beachcombing black sand for gold (West Coast New Zealand History, 2014)

5.2 Contact and Post-Contact Period Occupation of Te Tai o Poutini

The settlement of Barrytown begun with the Canoe Creek gold rush in 1867 with miners digging on the beach and in the stream for gold (May, 1962). Canoe Creek is just to the north of the project area, with early mining claims extending into the proposed mining disturbance zone (SO 3682, SO 3687). The first gold seekers moved into the Seventeen Mile beach area to work the black sands of the foreshore; an activity known as “blacksanding” (Mines Department, 1906). Sand was put through a sluice boxes and gold collected (Figure 5-2). Beach mining came to be practised extensively at Barrytown, Brighton, and Charleston (between Cobden and Cape Foulwind), but while several rich pockets were found, the deposits proved exceedingly patchy (Westport Times, 1879). Miners extended their searches to gold to the terraces to the east of the beach flat with mining undertaken in the foothills well into the twentieth century (Harris, 1916). The settlement came into being at the height of the rush in 1879, which at the time there was 2000 residents in the area (Cyclopedia Company Ltd, 1906). The settlement was initially named Barryville after a particularly respectable miner who was among the party that first discovered gold in the area (Grey River Argus, 1880d). Later contention arose when officials tried to rename the settlement Fosberry, resulting in a petition from the locals to retain its original name in 1880 (Grey River Argus, 1880c). The settlement became known as Barrytown from December that year (Grey River Argus, 1880a). By the beginning of the twentieth century there were 64 permanent residents in the township with 60 more in the wider vicinity, with the town containing a hotel, school, post office, and church (Cyclopedia Company Ltd, 1906) (Figure 5-3).

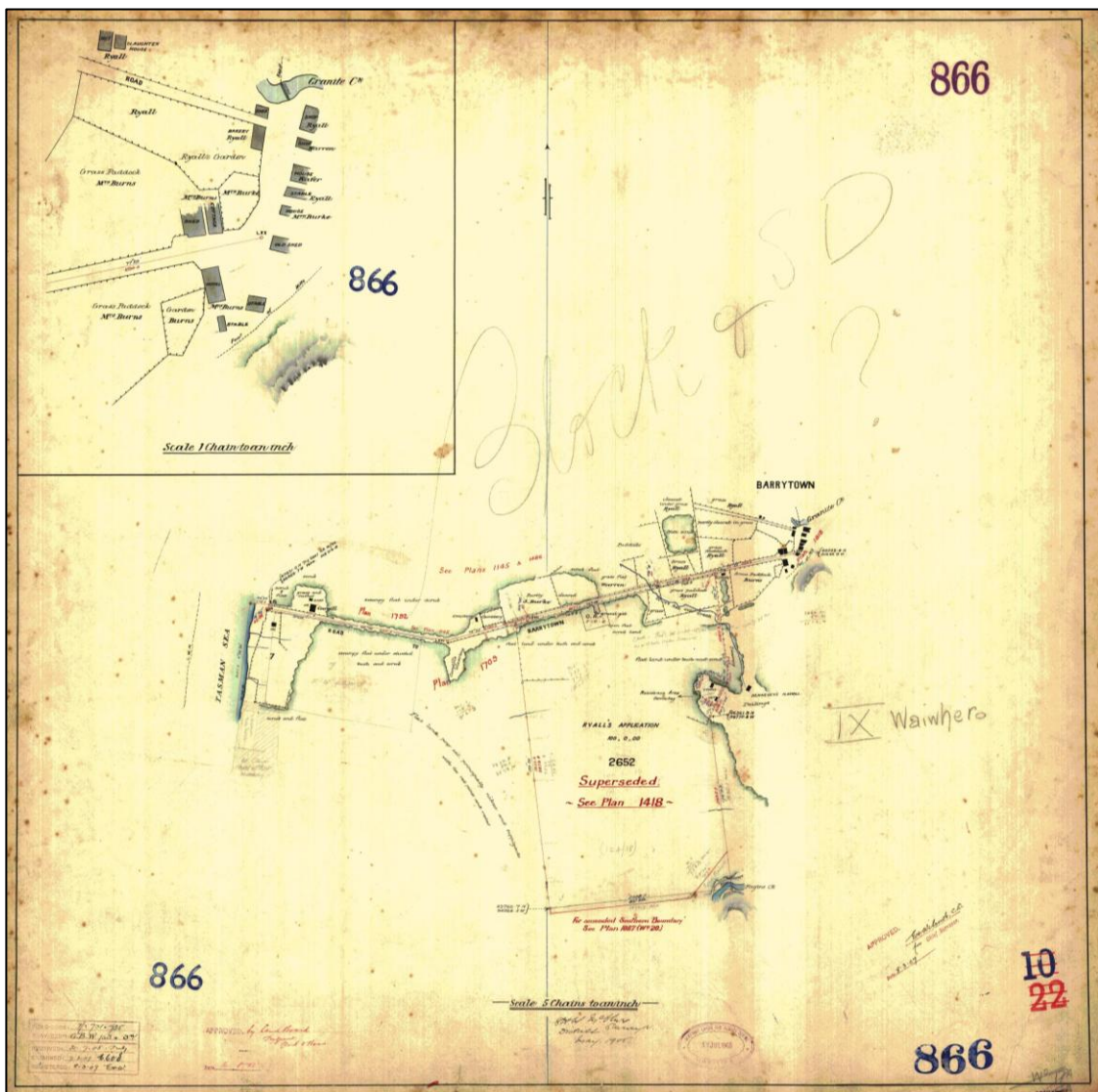


Figure 5-3. Extent of the township in proximity to the project area illustrated in 1907 (SO 866).

5.3 History of the Project Area

The project area is located on the Barrytown Flats on the foreshore of Pakiroa Beach. The Te Tai Poutini Coastal Trail traversed the coastline in the vicinity of the project area. The wetland environment of the project area would have had important mahinga kai and mahinga toi resources for Poutini Ngāi Tahu passing through. Historic sources note copious amounts of harakeke and raupō in the area during the nineteenth century (SO 7873, SO 7948), which are both valued mahinga kai plant sources to Poutini Ngāi Tahu (Tumahai, 2010). Kokopu, koura, and tuna would have been gathered from the streams in the project area, with bird species such as putakitaki and weka found grazing in the wetlands within the project area (Tumahai, 2010).

Following the arrival of Pākehā and the signing of the Arahura Deed, the project area was surveyed as Crown Land, with the project area located in Block V and IX of the Waiwhero Survey District (Mackay, 1860). Early pākehā settlement in the project area was largely transient and associated with the gold rush at Canoe Creek and blacksanding activities along the foreshore (Cyclopedia Company Ltd, 1906). Settlement was primarily focussed along the foreshore with the old coast road running along the western extent of the project area (Figure 5-7). The eastern project area remained as wetland with dense scrub cover until the twentieth century (SO 866, SO 1145, SO 1789). Legal land boundaries were not of significance in early phases with huts and mining activities frequently located in Crown Land (SO 866, SO 3687, SO 7948). The majority of the land parcels in the project area were subdivided in the twentieth century with flax milling, land clearance, and grazing activities taking place (SO 1145, SO 1789, SO 1944).

The largest transformation in the project area occurred from the 1930s after the northern project area was included in the Barrytown Gold Dredging Ltd claim and the southern area in McKechnie's claim (SO 3059, SO 3109). The landscape was permanently altered from 1937 by large scale dredging, with the land being converted back into farms from 1945 (Figure 5-4, Figure 5-5, Figure 5-6, Figure 5-7). Further modification took place with the construction of irrigation ditches, access tracks in the following years with large scale hump and hollowing taking place after 1981 (Retrolens, 1981).

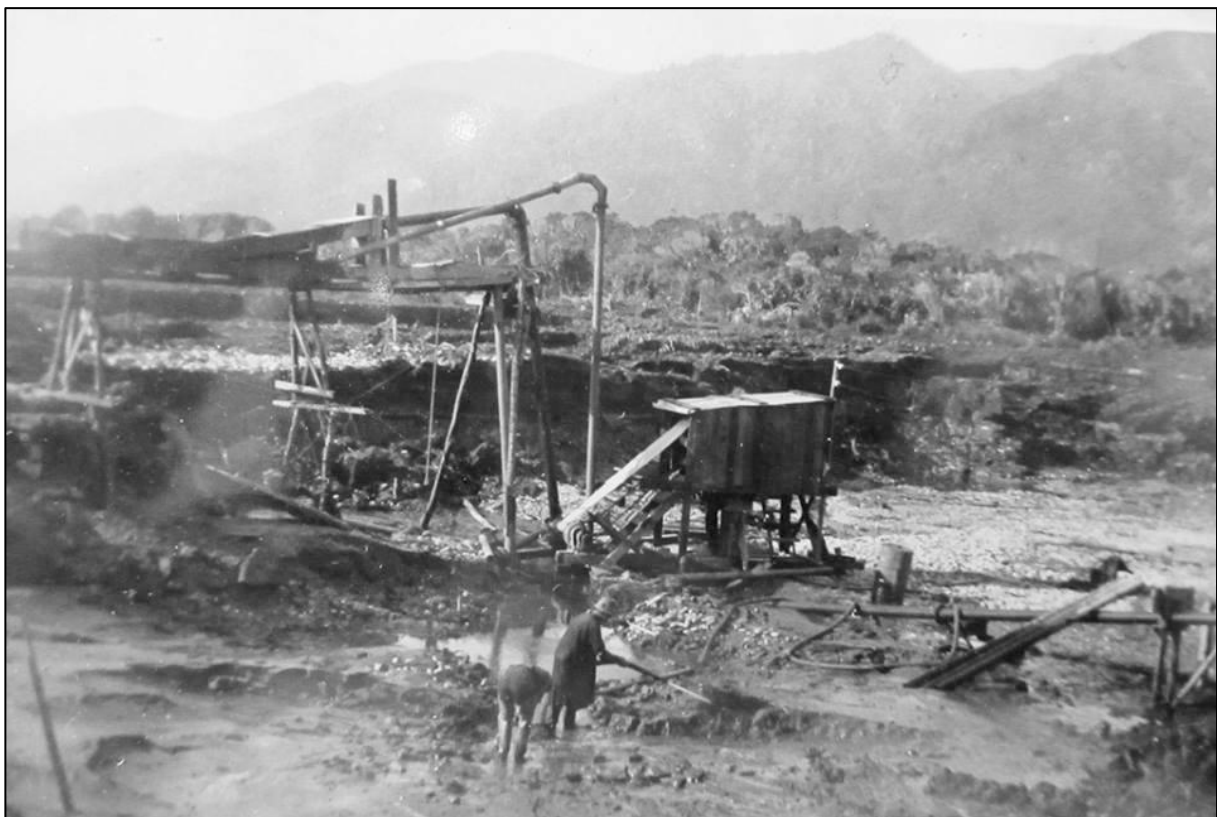


Figure 5-4. Dredging in the southern portion of the project area for the Barrytown dredge in 1936 (West Coast Recollect, 1936).



Figure 5-5. Dredged area (blue line) in the project area (red line) in 1951 (Retrolens, 1951).



Figure 5-6. Barrytown Flats showing dredge ponds and the road along the beach (West Coast Recollect, 1940).

The following sections will detail the history of the project area, and a summary of key events is provided in Table 5-1. Histories have been organised by block in the following sections.

Table 5-1. Summary of key events and land transactions in the project area. Events directly related to archaeological features or deposits are highlighted in blue.

Year	Event	Source
Pre-1860	Māori ara tawhito and nohoanga in use nearby	Te Rūnanga o Ngāi Tahu, 2022
1860	Arahura Deed was signed, project area surveyed as Block V and IX, Waiwhero Survey District	Mackay, 1860
Block V Waiwhero, SD		
1880	Education reserve (Res. 1339) subdivided from Block V. Construction on School started.	Grey River Argus 1880b, SO 3687
1881	School opened in Education reserve (Res. 1339)	Grey River Argus 1881
1881	Section 6 (later becomes Section 7, Block V) in the northern corner of the project area is subdivided by this date and occupied by Raymond Poschich, a miner.	SO 3687
1901	Settlement and old water races illustrated along the foreshore adjacent to the school reserve.	SO 7948
1901	James Trent & George Davies apply for Special Claim G.26 along the foreshore from modern section RS2933, crossing Warren Road, to midway up RS 2932.	SO 7948
1905	Cargill has a home, shed, fence in a cleared area at southern edge of project area.	SO 866
1909	Section 2639 surveyed and occupied by D. Dennehy. Dennehy's Drain cutting through vacant land to the west. Warren Road (ID 3700202) formed.	SO 1145
1916	Remaining land subdivided into RS 2931, 2930, 2929, 2928, 2927, 3316, 3255. Road ID 3702892 also surveyed at this time	SO 1944
1934	All the above land parcels, except for RS 3255, are Surveyed as Part of Special Claim G. 157 for C. McKechnie.	SO 3109
1939	School moved from education reserve to a new site outside of the project area.	
1940	Eastern part of section part of Special Claim No G178, Barrytown Gold Dredging Ltd. Described as swampy with bush.	SO 8611
1952	Education reserve (Res. 1339) re-surveyed as Section 4033, Block V Waiwhero.	SO 4574
Block IX Waiwhero SD		
1875	Evan H. Lewis leases section 7, Block IX Waiwhero. The surrounding land is shown to be unsubdivided and owned by the Crown, with road reserves on the northern and western aspects.	SO 3683, SO 3687
1881	E.H. Lewis occupying northern part of property with a claim in the northwestern corner of the site along Cargill Road.	SO 3687
1889	M. Hannah & others shown as having a claim along the foreshore for the extent of the project area	SO 7873
1905	Section 7 occupied by Lewis has a dwelling house and fences in a clearing in the northwestern area of the property.	SO 866
1905	Several claims are shown along the foreshore, including P.(?) Warren and MacKays. However, these appear to not have been occupied but not subdivided.	SO 865
1913	Section 3201 subdivided along Cargil Road, where Cargill's clearing illustrated in 1905 is sectioned off.	SO 1709
1931	Sections 1657 and 1656 to the south are subdivided.	SO 2881
1934	All land in Sections 3201, 1656 and 1657 are surveyed as part of Special Claim G. 157 for C. McKechnie. The eastern portion of Section 7 is included in Special Claim G. 157. The western portion is not part of the claim and becomes Part Section 5 Block IX Waiwhero.	SO 3109

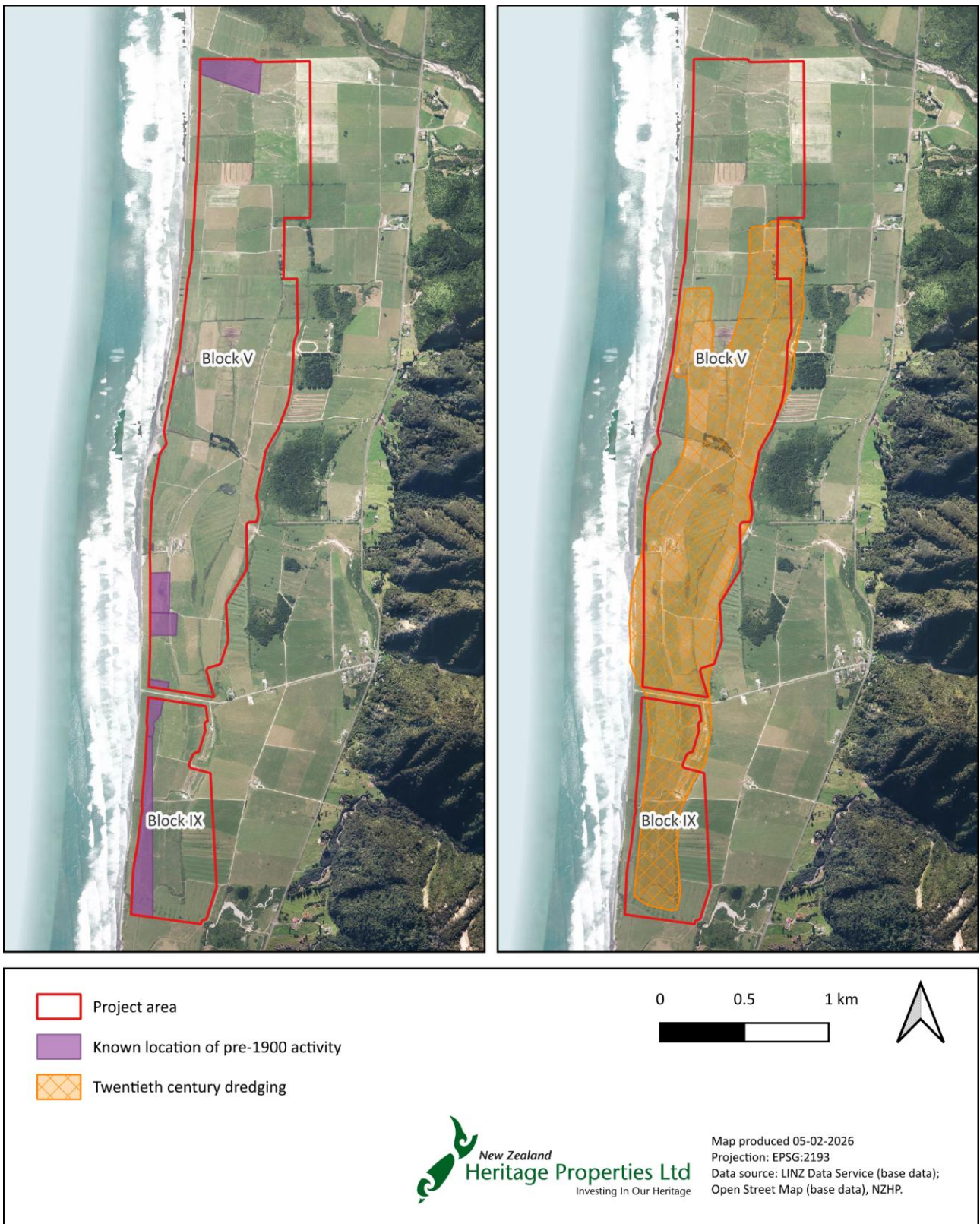


Figure 5-7. The known location of historically recorded pre-1900 activity (left). Twentieth century dredging within the project area (right). Dredge shapefile supplied by the client.

5.3.1 Block V Waiwhero Survey District

The section of the project area to the north of Cargill Road was originally part of Block V Waiwhero Survey District. Pre-1900 occupation occurred at the northern end of the block, at the southern end of the block adjacent to Cargill Road, and in an education reserve just north of Cargill Road (Table 5-1). As mining activities were taking place in the vicinity, such as the early Canoe Creek claims which extend into the northern project area, it is possible

that transient mining occupation, or other associated activities, were taking place within the project area prior to 1900 for which there is little information in the historical record.

The first school in Barrytown was located on the foreshore, approximately 310m north of Cargill's Road (Figure 5-8, Figure 5-9). Construction began in 1880 with the school opening in 1881 (Grey River Argus, 1880b, 1881). From later photos, the school appears to be a single room timber structure with an A-frame roof and sash windows, with a lean-to on its northern end (Figure 5-8). The opening of the school was considered an important milestone within the Barrytown community with one local remarking '*...it was quite a treat to see boys and girls wending their way to the seat of knowledge, instead of roaming about the bush as they did formerly*' (Grey River Argus, 1881).

By 1881, the land south of Canoe Creek, including at the northern aspect of the project area, was occupied by Raymond Poschich (SO 3687, Figure 5-9). Poschich was listed as living in Canoe Creek in the 1878 electoral roll (Grey River Argus, 1878) and along with his sons, was involved with gold mining in the area with several claims and mentions of water races and dams involved with their workings (Grey River Argus, 1881, 1885). Section 7, Block V, was still under the occupation of the Poschich family by 1916, with landscape changes seen in the form of a lagoon crossing into the section (SO 1944).

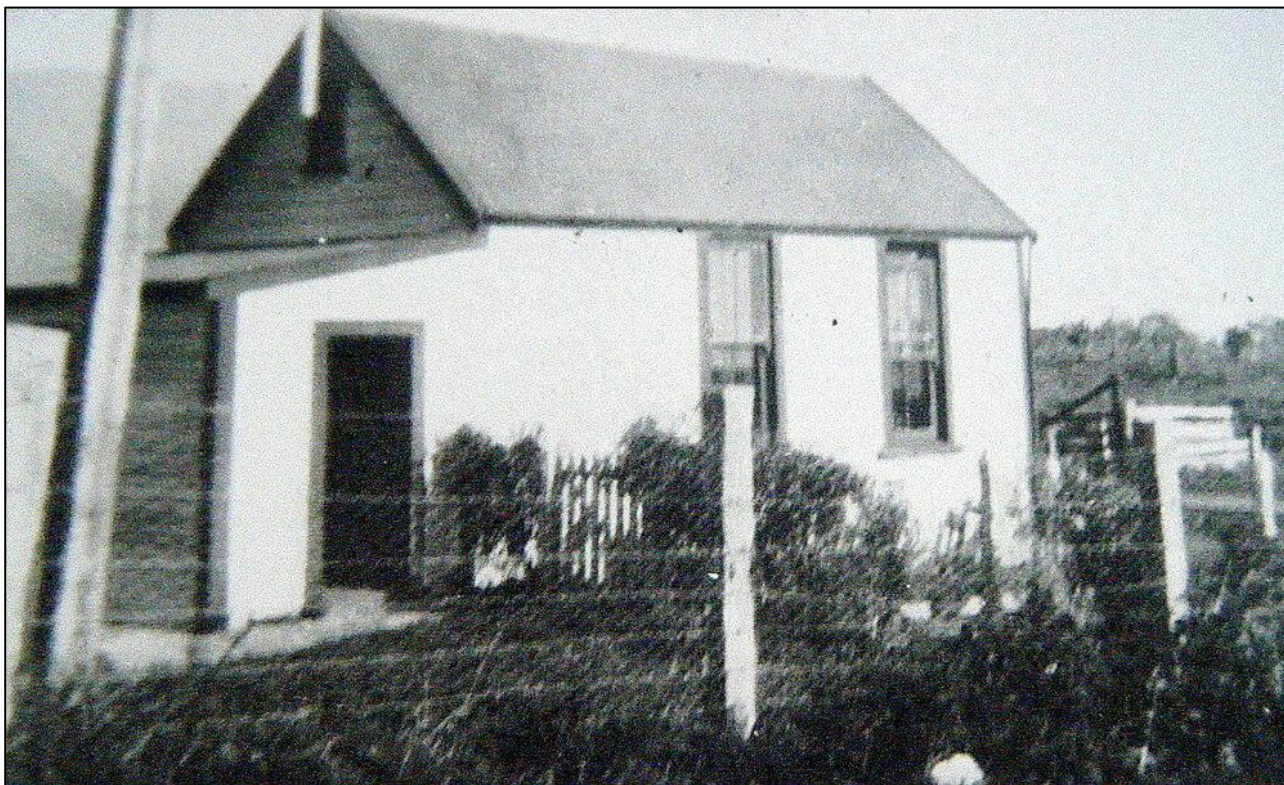


Figure 5-8. Barrytown School, situated in the education reserve Block V, in 1917 (West Coast New Zealand History, 1917).

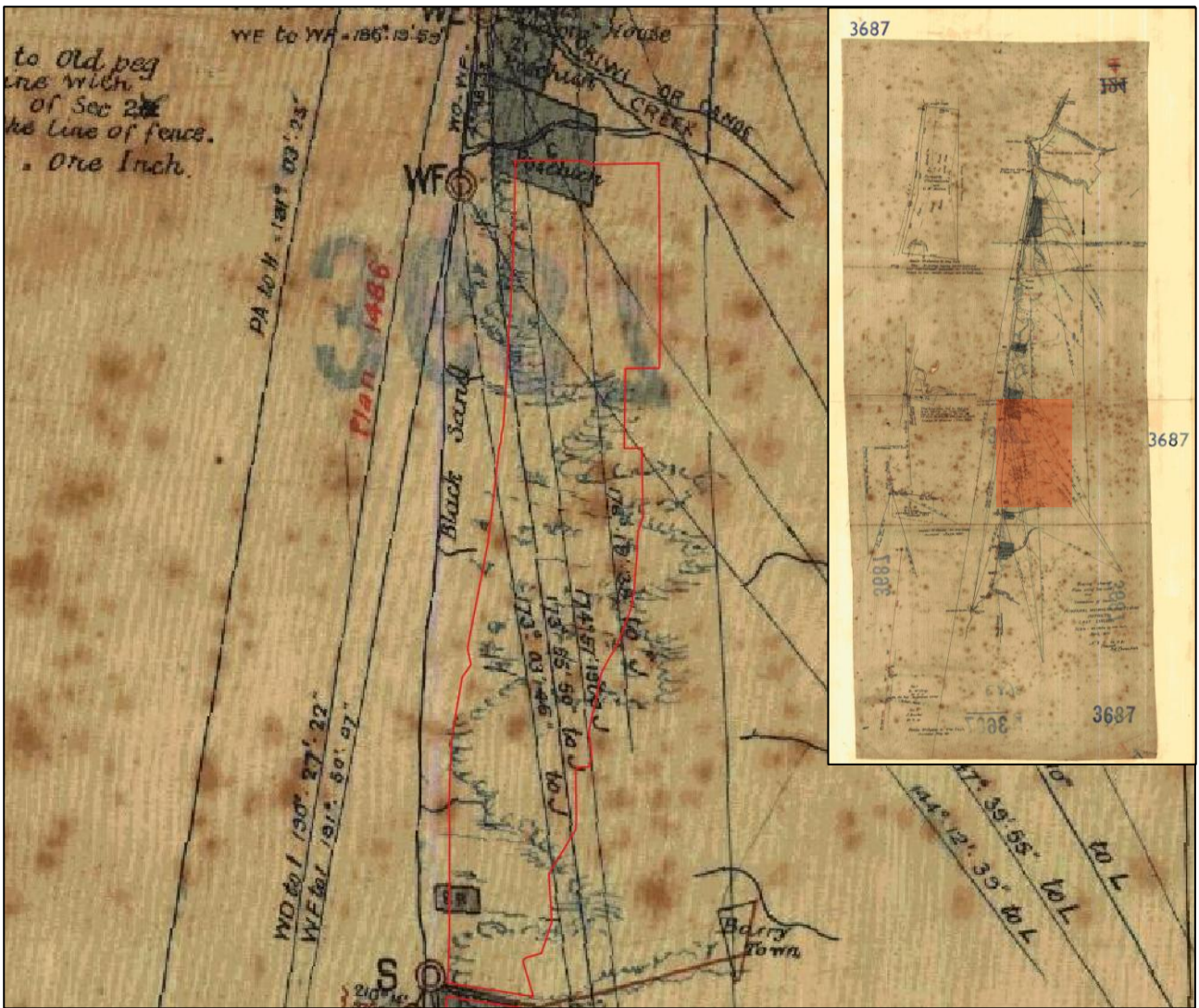


Figure 5-9. Claims of Poschich (north) in Section 6, and the education reserve in Block V, Waihero SD in 1881 (SO 3687). Approximate extent of PA in Block V outlined in red.

Additional pre-1900 activity in Block V was recorded outside of the formal land divisions. A 1901 survey plan of Special Claim G.26 shows a small mining settlement just north of the education reserve with a hut and several water races (SO 7948, Figure 5-10). A hut on the foreshore is labelled as being occupied by 'Millar', as well as two water races, one belonging to Cargill, both labelled as being 'old' (Figure 5-10). The identity of Millar could not be established; however, it is highly likely that these features were present prior to 1900. Peter Cargill was recorded to be living at Seventeen Mile Beach and working as a miner by 1878 (Ancestry.com, 1878). A 1905 survey map shows he had a house, shed, and fence in a cleared area to the north of Cargills Road (SO 866, Figure 5-11). The surrounding land is shown to be swampy flat under flax.



Figure 5-10. The small mining settlement adjacent to the school (SO 7948). Approximate western border of the project area in red. Location indicated in inset of the PA.

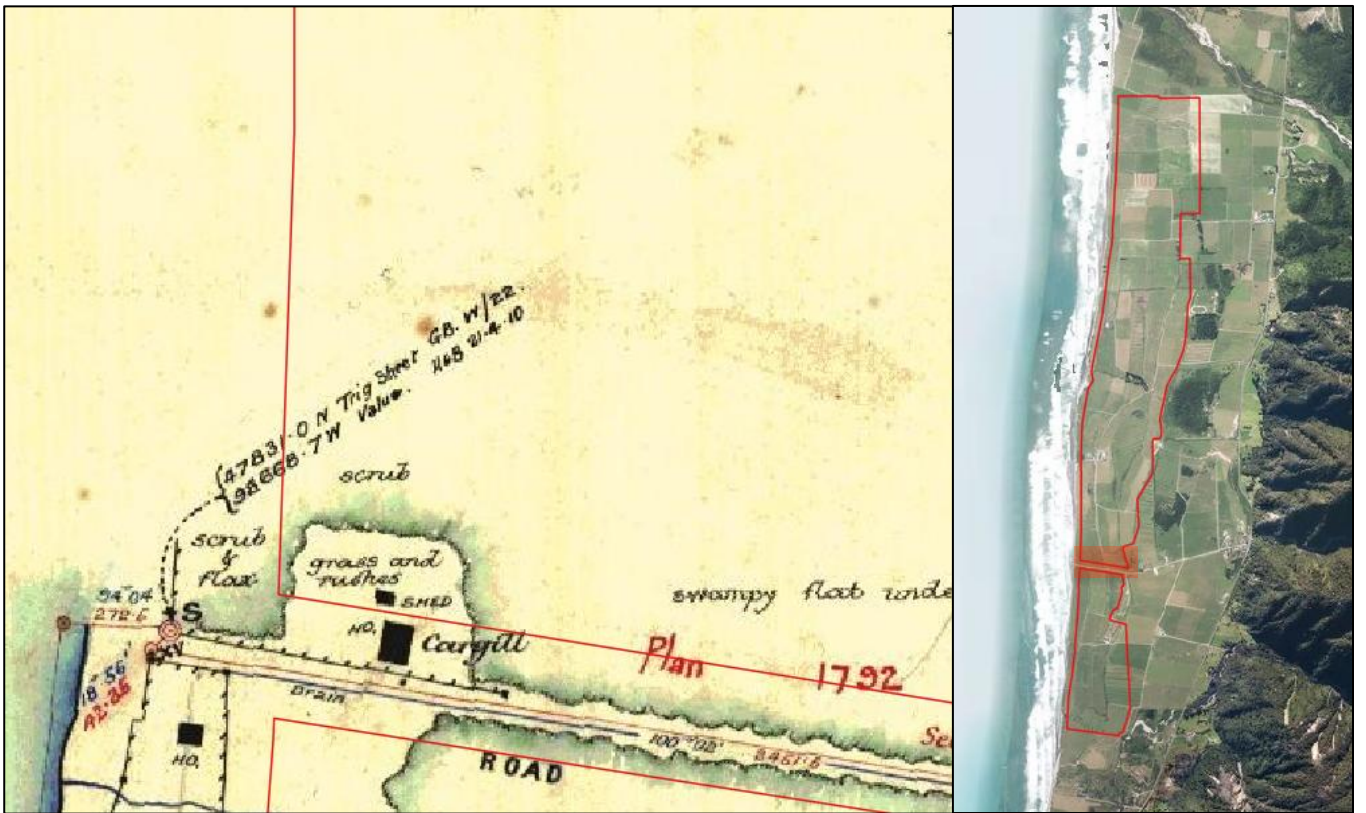


Figure 5-11. Cargill's house and shed just to the north of Cargill Road in 1905 (SO 866) Project area in red. Location indicated in inset of the PA.

The rest of Block V, Waiwhero District was subdivided in the early twentieth century. Section 2639 was surveyed in 1909 and occupied by Dennehy who was undertaking flax milling in Barrytown from 1903 (West Coast Times,

1903). He excavated a drain to the west through what would become RS 2932, to drain the swampy land to gather flax (Greymouth Evening Star, 1914). The initial track, underlying the modern Warren Road (Road ID 3700202) was created to transport flax from the harvesting areas to the mill in Barrytown (Grey River Argus, 1924). The remaining land parcels and road reserves were surveyed to their modern appellations in 1916 (SO 1944), prior to being incorporated into C. McKechnie's Special Claim G. 157 in 1934 (SO 3109). The northern sections of the project area, previously occupied by Poschich, were included as part of Special Claim No G178, Barrytown Gold Dredging Ltd in 1940.

The school was relocated to the eastern end of Cargill Street in 1939 after the old school became too small (Greymouth Evening Star, 1939). Additionally, the surrounding land was surveyed as part of Special Claim G.157 in 1934, with widescale dredging activities taking place around the school thereafter. The old school site was surveyed as Section 4033, Block V, Waiwhero SD in 1952. Although the section was not originally part of Special Claim G.157, 1950s aerials indicate dredging activity across the section (Retrolens, 1951). In the aerials only the foreshore to the west, outside of the project area remains intact and there is no indication of a surviving school building on the site (Figure 5-12).



Figure 5-12. Education reserve (red rectangle) within the dredged zone in 1951 (Retrolens, 1951). The yellow rectangle indicates the dredged area which once contained the small mining settlement adjacent to the school.

5.3.2 Block IX Waiwhero Survey District – encompassing Lot 1 DP 406050, Part Section 5, Block IX Waiwhero SD

The section of the project area to the south of Cargill Road was originally part of Block IX Waiwhero Survey District. Pre-1900 settlement in the project area was centred along Seventeen Mile Beach, with several special

claims and dwellings established along the coast (Figure 5-13, Figure 5-14). The surrounding land moving inland was described as a mix of swampy flat under stunted bush and shrub, and flat land with poor soil, with nikau, supplejack, with a few rimu and rata (Figure 5-14).

Evan H. Lewis had a claim in the northwestern corner of Block IX by 1881 fronting Cargill Road which was subdivided off to become Section 7, Block IX, Waiwhero Survey District (later became Part Section 5) (Figure 5-13). By 1905, Lewis had a cleared section with a dwelling house and fencing just outside of the project area (Figure 5-14). M. Hannah & others had a claim along the foreshore, which had been transferred to Warren and Mackay by 1905, however the land was not further subdivided at this time (Figure 5-15).

Most of Block IX Waiwhero encompassed by the project area was included as part of the Special Claim G.157 for C. McKechnie in 1934 (SO 3109), with the exception of the southern extent which was originally part of McIlroy's claim and the parcel encompassed by Part Section 5, Block IX Waiwhero SD, which was the eastern portion of Lewis' original claim.

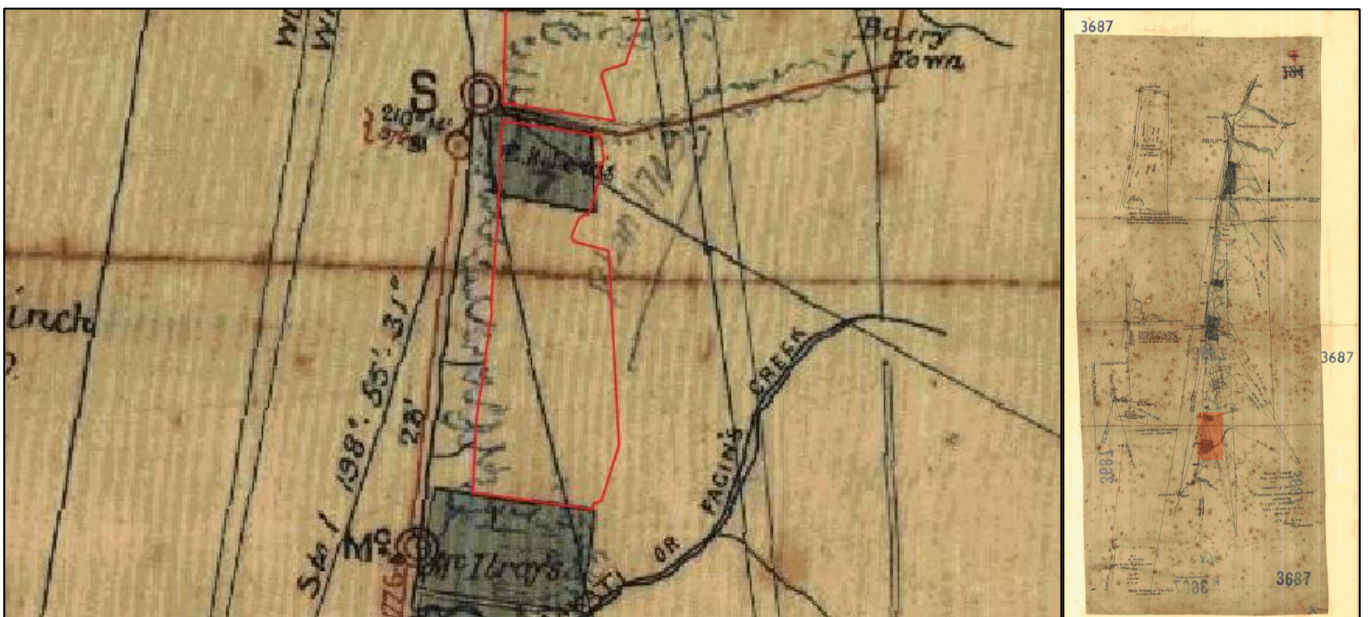


Figure 5-13. Claims of E.H. Lewis (Section 7) in Block IX, Waiwhero SD in 1881 (SO 3687). Extent of PA in Block IX outlined in red.

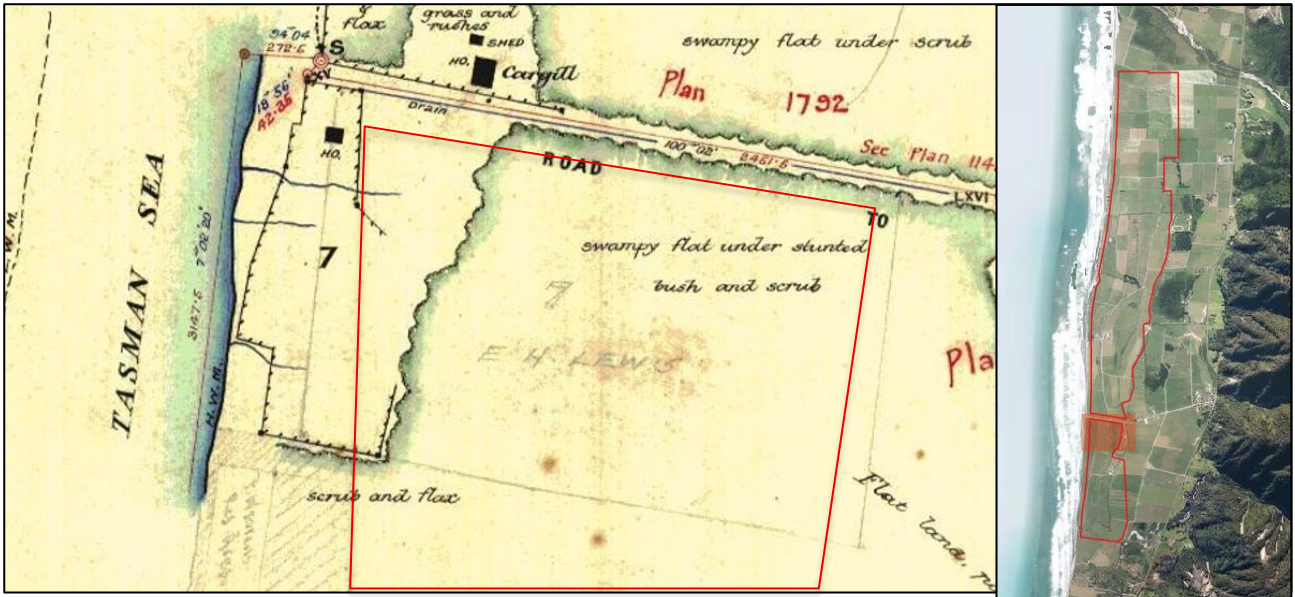


Figure 5-14. Section 7 occupied by E.H. Lewis in 1905 (SO 866). Approximate project area encompassing Block IX, Waiwhero SD in red.



Figure 5-15. McKay's claim along the western edge (SO 865).

6 Previous Archaeological Investigations and Archaeological Context

This section examines the broader archaeological and heritage context of the project area, considering the previously recorded archaeological sites as well as other archaeological and heritage sites within the vicinity. The locations of previously recorded sites near the project area are detailed in Section 6.2. However, please note that the recorded sites only reflect those identified to date and thus may not be a true representation of the distribution of sites in the area.

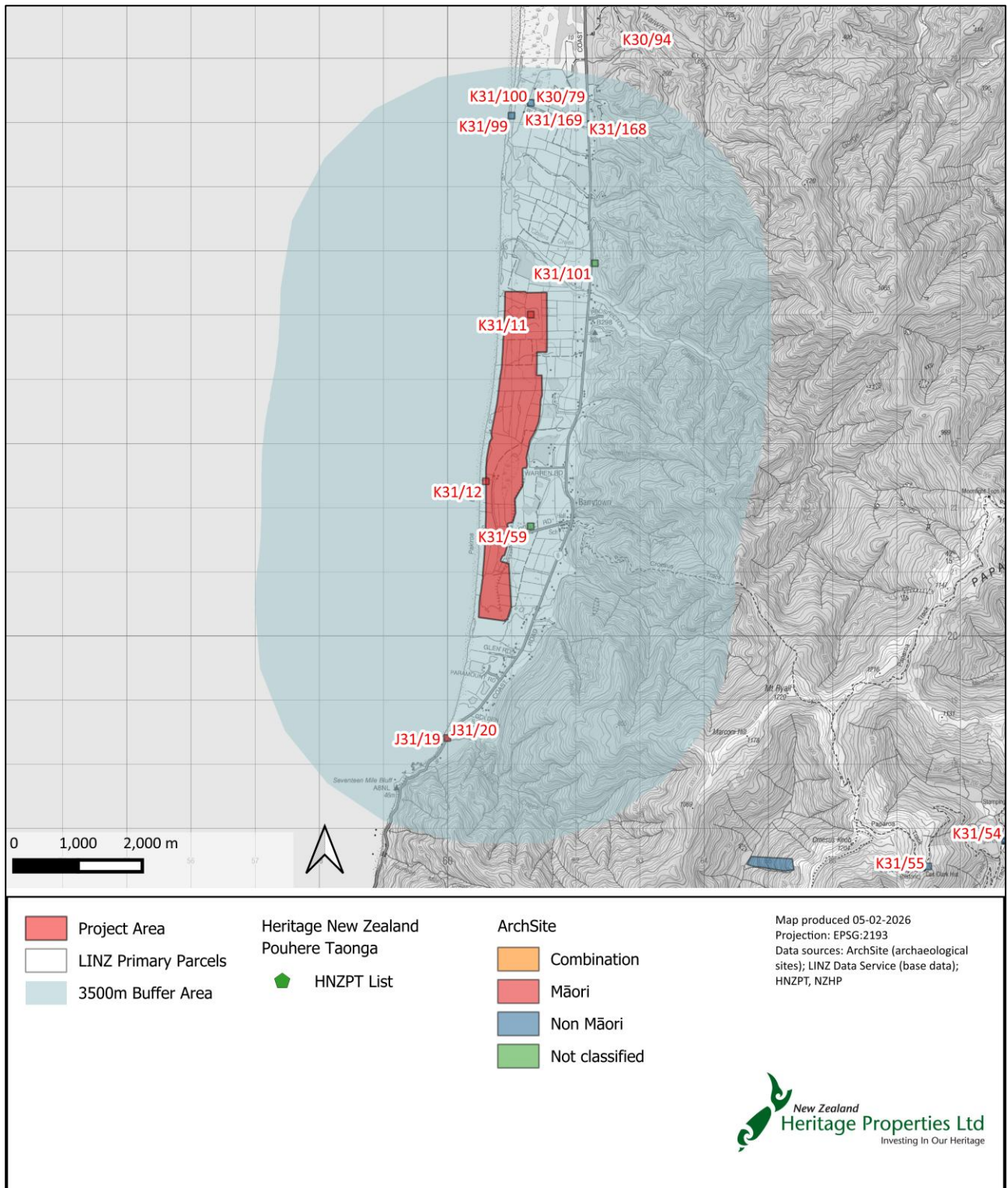


Figure 6-1. Previously recorded archaeological sites within the vicinity of the project area.

6.1 Previous Research and Investigations within the Project Area

There are two archaeological sites recorded within the project area: K31/11 and K31/12. The site records document artefact findspots that were reported in 1981 by a local landowner; neither site has been visited by an archaeologist (Voight, 1981a, 1981b).

Part of a shaped patu and a small greenstone chisel were recorded as K31/11 and a shaped greenstone pendant as K31/12. Additionally, the forms note other pieces of greenstone pebbles from Canoe Creek to Cargill Road (Voight, 1981a, 1981b). Both sites were described as located along the beach. K31/11 is located in the northern part of the project area, to the south of Canoe Creek. The site has been recorded inland, which does not match the description on the context form. The second find spot, K31/12, is further to the south in proximity to Warren Road. The presence of these findspots on the beach suggests that they may have eroded out of the foreshore and therefore increases the potential for other material to be present in the area.

There is no evidence to suggest that archaeological investigations have previously taken place in the project area.

6.2 The Wider Archaeological Context

There are nine recorded sites within a 3.5km radius of the project area (Table 6-1) (Figure 6-1). Only two sites are directly associated with Māori occupation, with two midden/oven site types (J31/19, J31/20) recorded to the south of the project area. The other seven sites are three mining-gold site types, three historic-domestic sites associated with gold mining occupation, and one burial/ cemetery.

It must be noted that these only represent the extent of recorded archaeology and are not representative of the full extent of possible archaeological remains in the area. Just 5km to the north of the project area where extensive surveys were carried out in 1977 and 1990, a large number of archaeological features associated with Māori occupation were encountered including midden, stone working areas, fireplaces, find spots, pits, terraces, and a cave shelter (Nichol, 1990). The lack of sites in proximity to the project area is a result of the area not having been previously surveyed and of extensive disturbances rather than a reflection of the distribution of pre-1900 activity. Nichol (1990) argues that the distribution of sites and findspots in the vicinity of Canoe Creek may suggest the presence of a major unrecorded site in the area, and that the most likely spots for features to be encountered would be along the dune ridges and in the drier areas. Nichol (1990) reasons that due to the large populations inhabiting and traveling through the area it is inevitable that burials will be encountered during any large scale mining work on the Barrytown Flats, however no further evidence has been found to support the presence of burials within the project area.

The midden/oven sites (J31/19, J31/20) were recorded to have eroded out of the dune system at the southern end of Pakiroa Beach. Both noted the presence of mussel and charcoal. The gold mining sites were located to the north of the project area with trenches (K30/79), pits (K31/99), as well as the subsurface remnants of buildings (K31/169) recorded. The hut sites are located to the east of the project area close to Coast Road. The huts have been recorded based on the presence of stone rubble in rectangular arrangements (K31/100, K31/168) and on historical information with further evidence from domestic plant patterning. The cemetery (K31/59) is immediately to the east of the project area; it is noted to largely be derelict with only 21 graves still visible.

Table 6-1. List of recorded archaeological sites within 2.5km radius of the project area

ArchSite	Brief Description	Site Type	Ethnicity
J31/19	Shell midden	Midden/Oven	Māori
J31/20	Midden	Midden/Oven	Māori
K30/79	Curvilinear depression - mining trench	Mining - gold	Non- Māori
K31/100	Hut site	Historic- domestic	Non- Māori
K31/101	Hut sites	Historic- domestic	Non- Māori
K31/168	Possible stone hut site	Historic- domestic	Non- Māori

K31/169	Building remains	Mining - gold	Non- Māori
K31/59	Cemetery	Burial/cemetery	Non- Māori
K31/99	Depressions - possible prospectors' pits	Mining - gold	Non- Māori

6.3 Potential Unrecorded Archaeological Sites

Based on the documentary evidence and previous archaeological investigations in the vicinity, this assessment has identified the possibility of encountering unrecorded artefact find spots, midden/oven, mining-gold, and historic-domestic site types within the project area.

6.3.1 *Artefact Find Spots*

This assessment has found that unrecorded findspots may be encountered in the project area. Find spots are the only previously recorded site types within the project area. Due to the presence of the nearby ara tawhito, Poutini Ngāi Tahu would have ventured across the project area to procure resources while travelling. Artefacts caches have frequently been found in wetland areas across Aotearoa with highly valuable material often cached for safe-keeping or for functional purposes (Gumbley, Johns, & Law, 2004; Phillips, Johns, & Allen, 2002). Additionally, early Pākehā occupation in the area was transitory with little permanent settlement, there is the possibility of finding discarded artefacts from the early gold miners in the project area.

Across Aotearoa there are 1913 find spots recorded in total with 44 of these being in Te Tai o Poutini. The find spots predominantly record adzes and other lithics, while three record the presence of canoe/waka and one records a glass bottle cache.

6.3.2 *Midden/oven Sites*

Unrecorded midden/oven sites may be encountered within the project area. Midden/oven sites are common around the coast of Aotearoa with 3477 recorded in Te Waipounamu, 131 of which are found within Te Tai o Poutini. They are the most common site type in the previously surveyed area of the northern Barrytown Flats with just over half of all sites recorded in the area being midden/oven site types. Several have been recorded in proximity to the project area in the coastal dune system. These sites are common throughout coastal New Zealand. It is not surprising that multiple midden sites have been identified on Barrytown Flats and along Pakiroa Beach due to the ara tawhito crossing the project area and the abundant mahinga kai which would have once been present in the area.

6.3.3 *Gold Mining Sites*

This assessment has determined that there is the potential for encountering unrecorded mining sites. Given that the documentary resources have identified that the project area was occupied by miners with several mining claims within the project area, and that the beach was an area used for blacksanding, there is the potential that mining evidence may be encountered in the project area.

Across Te Waipounamu, there are more than 3800 mining – gold sites and a further 191 sites associated with other forms of mining that have been previously recorded in the ArchSite database. As of December 2024, there were 1721 recorded archaeological sites within Te Tai o Poutini, 810 of which are classified as gold – mining, accounting for 47% of all sites in the district. However, it should be noted that this number will be much higher as this only includes the sites that have been recorded to date. This number does also not consider related sites, such as miner’s huts, ancillary structures, etc. which may be classified differently on ArchSite. The previously recorded sites are largely concentrated in Te Tai o Poutini, Central Otago, and in smaller pockets in the Marlborough, Tasman, and Southland Districts. The nature of gold mining sites is varied as features relate to different working aspects of the gold fields and trace chronological differences in mining technology and equipment. For example, many features relate to the storage and movement of water required for sluicing and hydraulic elevating (e.g., water races, reservoirs, ponds, aqueducts, dams), others relate to the physical remains of mining activities (e.g., sluice faces,

tailings, prospecting pits) or the specific equipment and machinery that was utilised (e.g., dredges, stamper batteries, machinery). In addition, there are also often features and materials associated with the domestic lives of miners living near workings (e.g., stone and sod huts, hut floors, artefacts).

6.3.4 Historic-Domestic Sites

This assessment has determined that there is the potential for encountering unrecorded historic-domestic sites. Given that the documentary resources have identified several small huts in the project area as well as indicating that there were many miners blacksanding along the foreshore and squatting nearby, there is the potential that historic-domestic site types may be encountered in the project area.

Historic-domestic sites are common around Aotearoa but underrepresented in Te Tai o Poutini, with 13376 recorded in Te Waipounamu, only 103 of which are found within the West Coast. Recorded historic-domestic sites in the district primarily relate to mining settlements, with small transitory structures such as hut sites and camp sites being the most common historic-domestic site type.

7 Results of the Site Survey

A site visit was carried out on 10 to 12 December 2024 by Bree Wooller and Leah Harding to record the extent and condition of visible archaeology and to identify areas of modification within the project area that may affect the condition of subsurface archaeology (Figure 7-1). Based on the twentieth century history of the site, large extents of the area were dredged as well as heavily modified for agricultural activities. Both activities involved extensive earthworks which would have modified any archaeology that would have been detectable on the surface, although deeper archaeology may still be present. Sample areas of heavy modification were surveyed, to establish the improbability of identifying archaeology through a transect survey, before they were excluded. Areas of known pre-1900 activity were still surveyed regardless of modification. The following section will describe the results of the site survey, documenting the site setting and condition of potential pre-1900 features.

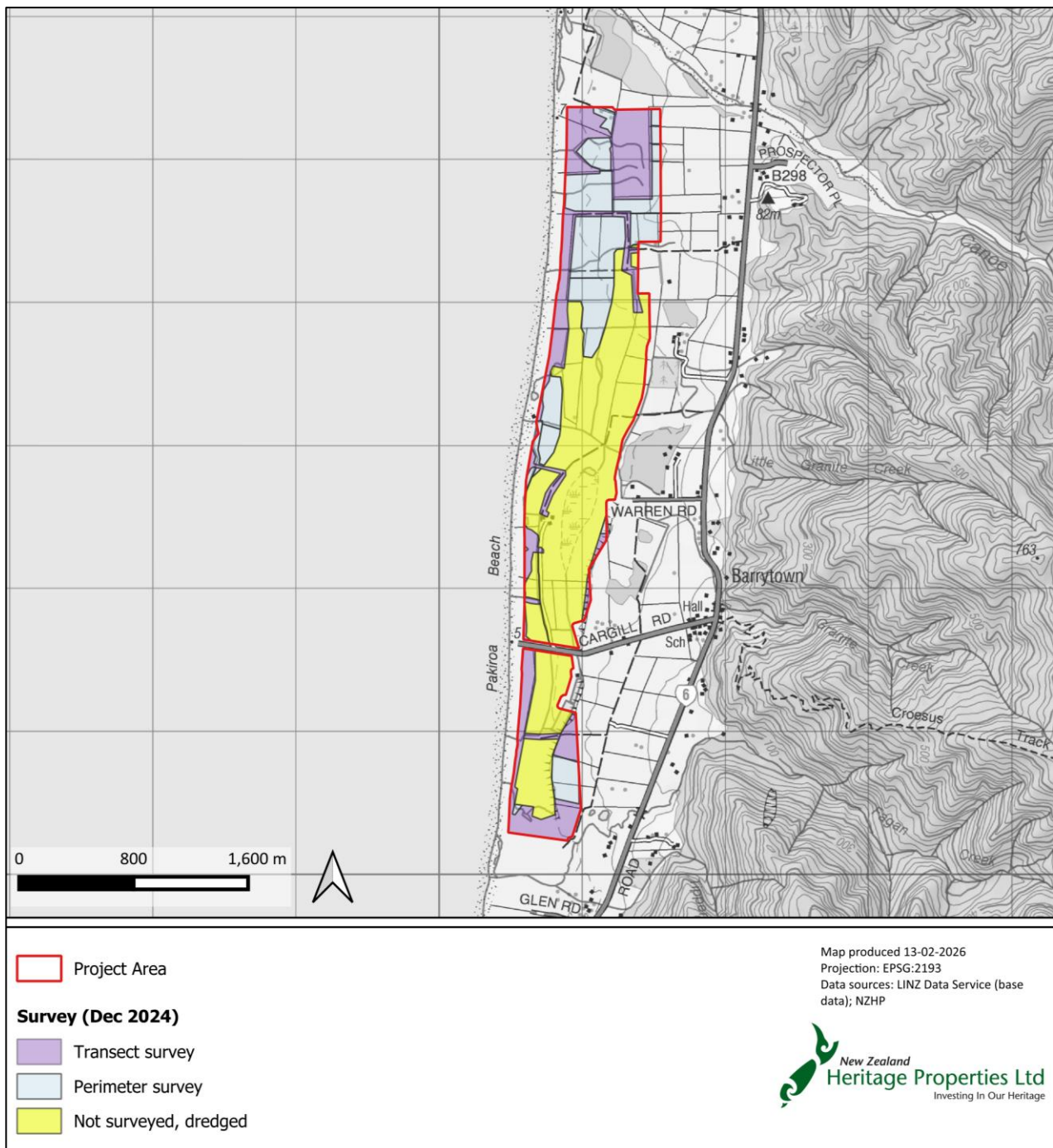


Figure 7-1. Map of project area showing areas surveyed. A map of the transects walked is provided in Appendix A.

7.1 Setting

The project area is situated to the west of the settlement of Barrytown on the flats adjacent to Pakiroa Beach (Seventeen Mile Beach). The land is primarily used for farming and consists of fenced paddocks, with access ways, and drainage ditches transecting the landscape.

The site survey found a large portion of the surface area has previously been disturbed through ploughing, dredging, and hump and hollowing (Figure 7-2). Approximately a third of the project area had been humped and hollowed. In the hollows the deposits were waterlogged and boggy, and at times were overgrown with foliage (Figure 7-3). A large portion of the project area has previously been dredged. A sample of dredged sections were transacted; the terrain was undulating, boggy, and covered in tussock and short grasses.

The terrain and foliage cover varied across the project area. Numerous creeks and tributaries criss-cross the landscape, resulting in large swaths of uneven, boggy terrain covered in long 300-500mm grass and tussocks (Figure 7-4). Some areas were waterlogged to the extent that they were not traversable. Elsewhere the terrain was gently undulating to flat and covered with short tussocky grass (Figure 7-4, Figure 7-5). Some fields appeared to have been extensively grazed and heavily rutted by stock, while others had deep plough lines. No evidence of pre-1900 material was visible in the surveyed disturbed areas.

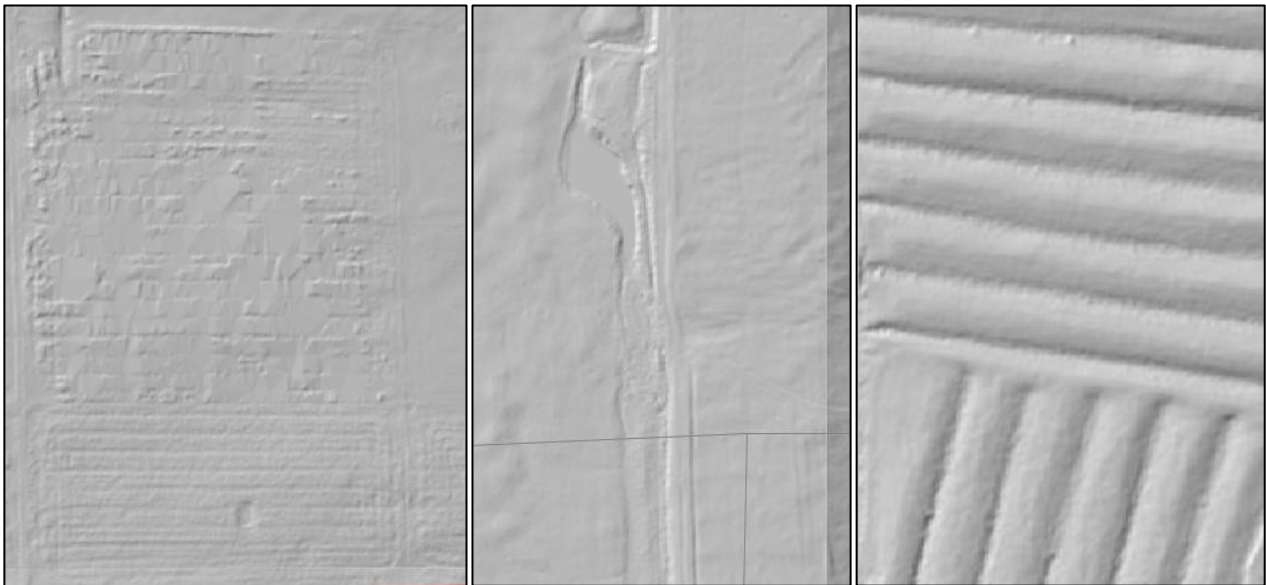


Figure 7-2. Ploughing (left), dredging (centre), and hump and hollowing (right) in the project area as seen in the LiDAR imagery.



Figure 7-3. Hump and hollow in the eastern fields, looking northeast (Wooller, 2024).



Figure 7-4. Tributaries in RS 2927, looking north. Note the tussocky grass in the foreground and the grazed pasture in the background (Wooller, 2024).



Figure 7-5. Foreshore with cobbled beach, looking south (Wooller, 2024).



Figure 7-6. Eroded bank along the foreshore adjacent to Lot 5, looking east, scale bar = 500mm (Wooller, 2024).

7.2 Results

Three points of interest (POI) were identified and recorded during the pedestrian survey of the project area, while the recorded locations of the archaeological sites (K31/11 and K31/12) were revisited with no evidence of archaeology found. The following sections will discuss the survey results by historic block.

7.2.1 Block V Waiwhero Survey District

No archaeological features or material was found in Block V, Waiwhero District. The locations of known activity and recorded archaeological site were revisited and are discussed below.

7.2.1.1 Find Spot K31/11

No evidence of archaeological features or deposits were found in the recorded location of K31/11. The findspot is located in a boggy paddock between two creeks with small tributaries crossing through the vicinity of the

recorded archaeological site (Figure 7-7). The surface was covered in long tussocky grass that obscured the surface; however, sections of eroded creek and stock rutting showed no evidence of archaeological material. A survey of the LiDAR imagery and aerials show no evidence of archaeological features in the vicinity (Figure 7-8).



Figure 7-7. Vicinity of K31/11, looking west (Harding, 2024).

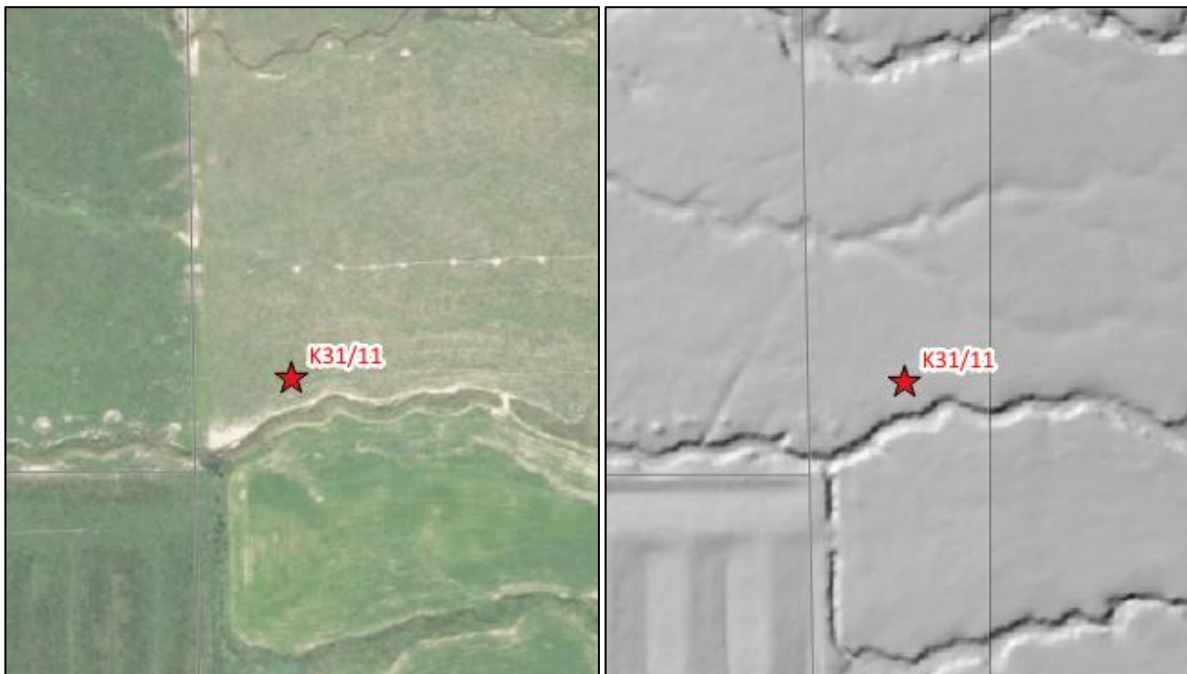


Figure 7-8. Modern aerial (left) and LiDAR imagery (right) showing the approximate location of K31/11. Note the site location is an approximation based on an oral account.

7.2.1.2 Find spot K31/12

No evidence of archaeological features or deposits were found in the recorded location of K31/12. The findspot is on the margin of the dredged zone, with only a small coastal strip and a section of wetland which had not been

dredged. Harakeke, umbrella sedge, and tussock were growing along the foreshore, while the shoreline was covered in cobbles, so visibility was poor (Figure 7-9, Figure 7-10). A survey of the LiDAR imagery and aerials show no evidence of archaeological features in the vicinity (Figure 7-11).



Figure 7-9. Foreshore in proximity of findspot K31/12, that has not been dredged, looking north (Wooller, 2024).



Figure 7-10. Foliage growth and stone coverage in proximity to find spot K31/12. Looking east, scale bar 500mm (Wooller, 2024).

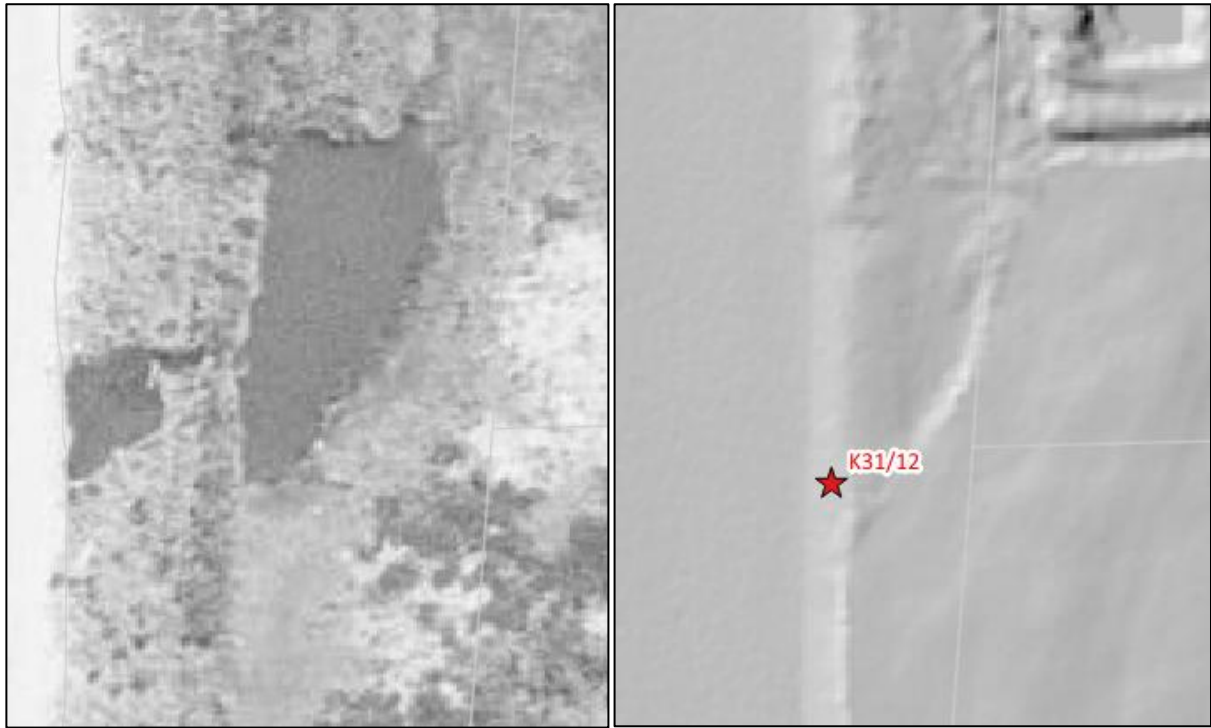


Figure 7-11. The vicinity of find spot K31/12 shown in the 1951 aerial (left) and the LiDAR imagery (right). Note the site location is an approximation based on an oral account.

7.2.1.3 Poschich's Claim

South of Canoe Creek, gold mining activities were undertaken in the northern part of the project area by 1881. The primary occupant was Raymond Poschich who had several claims in the area with historical sources noting water races and dams in relation to the Poschich's workings in Barrytown Flats. Only the southern edge of Poschich's claim is within the project area. No evidence of archaeological deposits or features associated with Poschich's claim were located within the project area. The area was extensively humped and hollowed, which presumably would have destroyed any archaeological evidence, such as water races or hut sites, within the project area (Figure 7-12). However, depending on the mechanism used, pockets of features may remain under the humps, while find spots relating to his occupation and mining activities may be present subsurface.

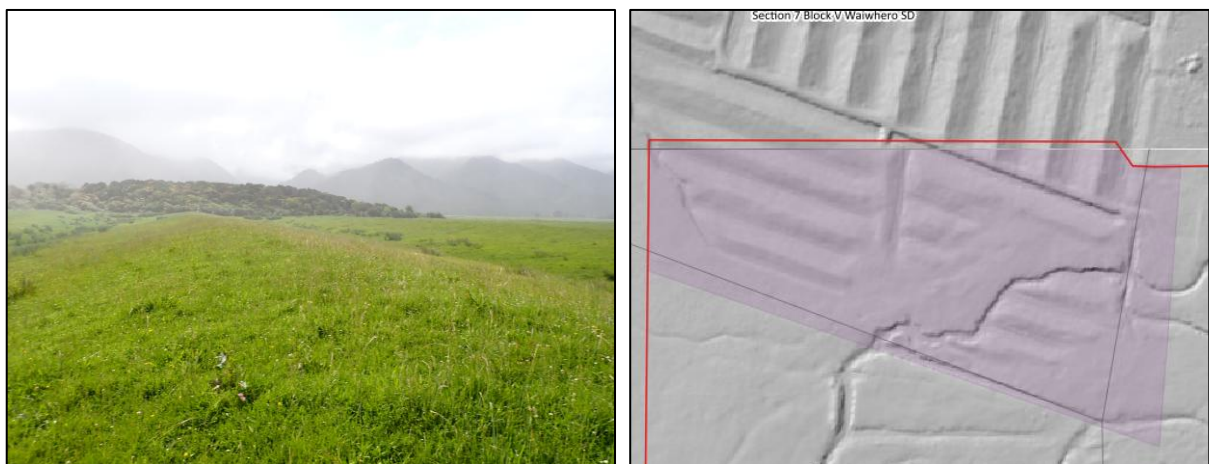


Figure 7-12. Hump and hollowing in what was Poschich's Claim. Looking southwest. The extent of the ground disturbance can also be seen on the LiDAR, right (Poschich's claim in purple).

7.2.1.4 Educational Reserve and the Adjacent Mining Settlement

No evidence of archaeological deposits or features were located at the site of the former school, and the pre-1900 settlement consisting of Millar's hut and Cargill's water races. The area was recorded to have been previously

dredged, and this was supported by the survey results (Figure 7-13, Figure 7-14). The surveyed area was gently undulating, likely the result of redeposited dredge material. The boundary between the dredged zone and the coastal margin was not visible. An irrigation channel ran along the southern perimeter. The field had been ploughed previously, and although there was modern concrete chunks and metal noted along the coastal margin, there was no evidence of pre-1900 material relating to the school on the property.



Figure 7-13. Looking northwest across the former Educational Reserve (Wooller, 2024).

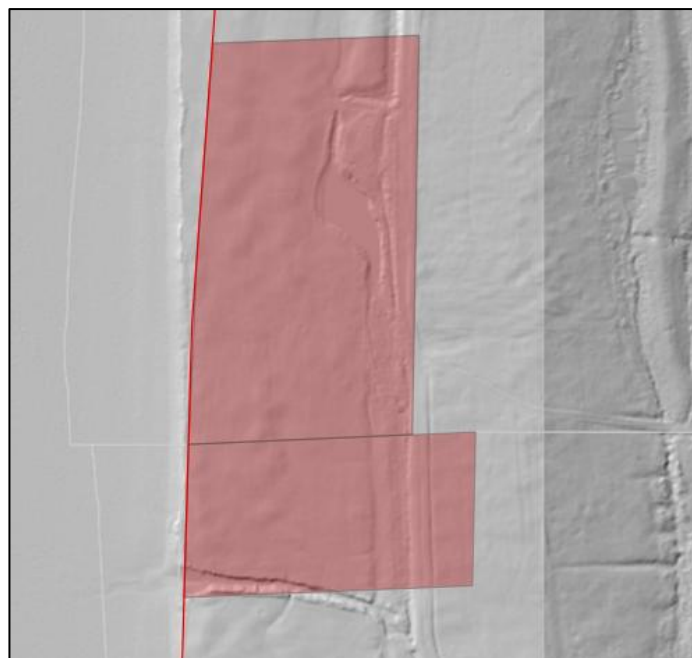


Figure 7-14. LiDAR imagery showing the area of pre-1900 activity (red) as dredged.

7.2.1.5 *Cargill's Hut Site*

No definite evidence of archaeological deposits or features were located at Cargill's hut site. However, the site visit noted that the boundary of the dredging appeared to be further to the east than previously thought, indicating that subsurface remains relating to Cargill's settlement may be present within the project area. Based on historic plans,

the hut site appears to be just outside the project area; however, potential remains for posts or foundations relating to out buildings including the shed, fence posts, or artefacts relating to Cargill's occupation (Figure 5-11). A large cluster of arum lilies were observed just outside the project area in this location. The plants were of interest as arum lilies were not noted elsewhere on the survey and were a common ornamental garden plant favoured by early European settlers in New Zealand. A discrete cluster may be indicative of historic planting.

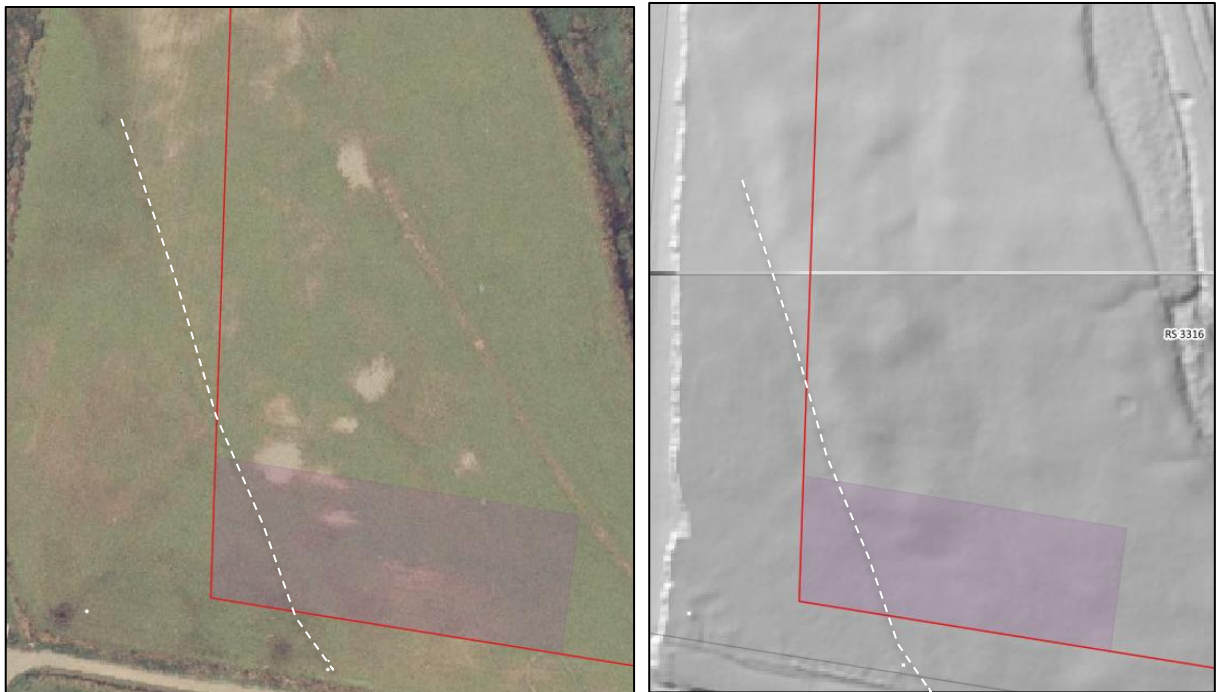


Figure 7-15. The location of Cargill's settlement (purple) and the suspected edge of dredging (white dotted line), pictured overlaying the 1981 aerial (left) and the LiDAR imagery (right).



Figure 7-16. Arum lily patch, looking west (Wooller, 2024).

7.2.1.6 *Dune Ridge System (POI 001-002)*

Along the foreshore in the northwestern corner of RS 2932, there are two high ridge formations within the project area which appear to have been a somewhat unmodified part of the original dune landscape (Figure 7-17, Figure 7-18, Figure 7-19). However, a drain and a pond were excavated directly to the east of the ridges sometime between 1951 and 1981 (Retrolens, 1951, 1981) and there is the possibility the ridges are formed from the spoil from the drain (Figure 7-20). This could not be determined from aerial imagery or historic photos of Barrytown Flats.

If the ridges were dune formations they would be of interest as they may have formed a high point in the surrounding wetland environment, making them a prime spot for a nohoanga for manawhenua travelling up and down the coastline. The dunes are approximately 870m north of the findspot K31/12. However, the landscape to the south of the dunes has been highly modified by the excavation of Dennehy's drain in the early twentieth century, dredging, and then hump and hollowing. The dunes appear to be denser and more compact than the terrain of surrounding paddock which was boggy and heavily rutted from livestock. The area was planted in short grass. The high dune ridges stretch along an extent of approximately 300m, while smaller dunes continue north for a further 200m.



Figure 7-17. Looking north across the ridges (Harding, 2024).



Figure 7-18. Undulating slope looking northwest (Harding, 2024).

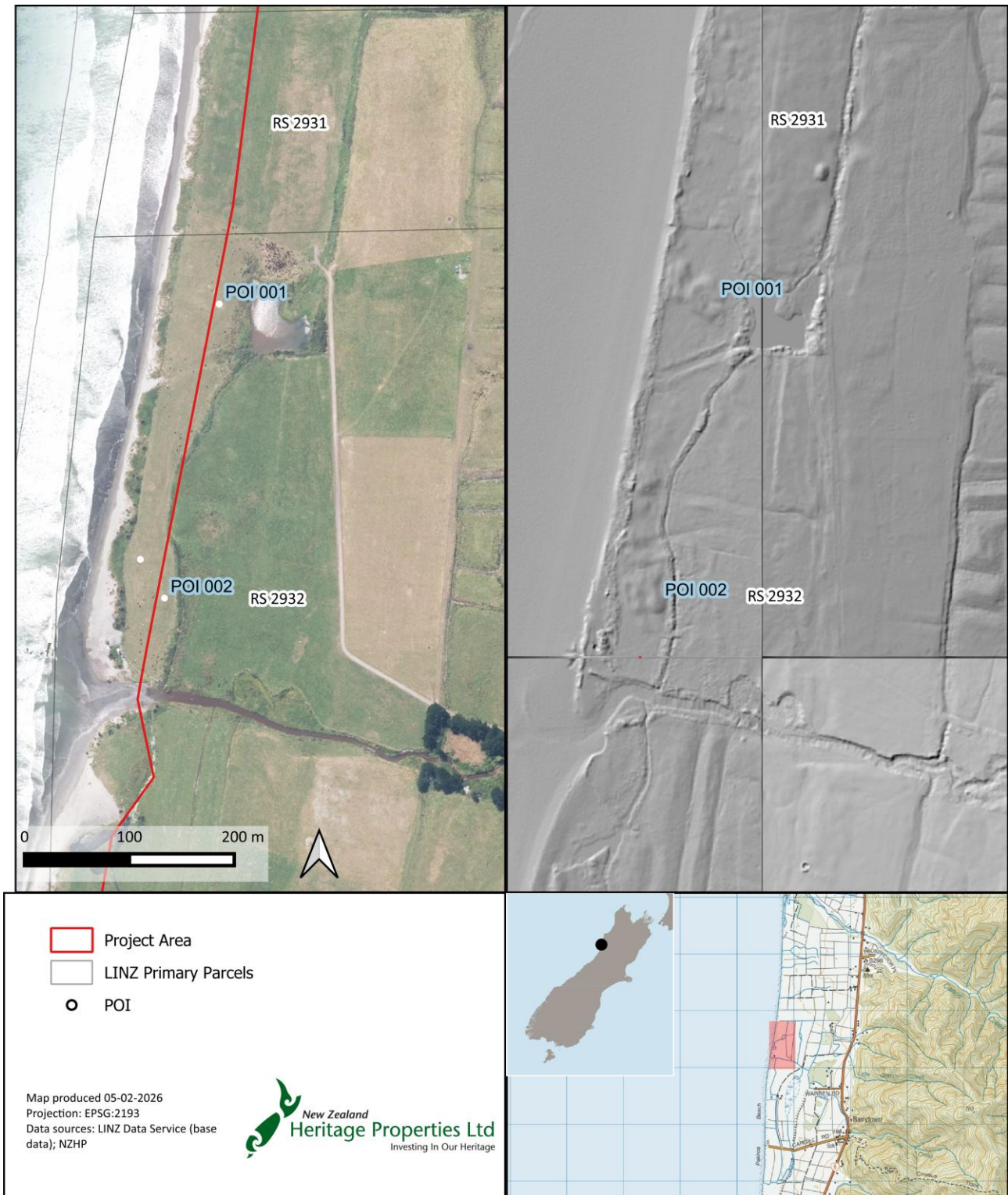


Figure 7-19. Points of interest in relation to modern property boundaries and as shown on shown on LiDAR imagery just within the project area



Figure 7-20. Aerial imagery 1951 (left) and 1981 (right). Ridge areas circled in red (Retrolens, 1951, 1981).

7.2.2 Block IX Waiwhero Survey District

No archaeological features or material was found in Block IX, Waiwhero District. One suspected archaeological feature, a drystone structure (POI 003) was identified. The locations of known activity were revisited and are discussed below.

7.2.2.1 Cargill Road Drystone Structure (POI 003)

Beneath Cargill's Road on its southern aspect the remnants of a stacked drystone masonry structure are visible (Figure 7-21). The feature consists of two walls extending up from the ditch and extending into the road reserve. Although the project area has a twenty-metre setback from Cargill Road and the drystone feature, the feature might inadvertently be modified by the creation of the Cargill Road bund, by vibrations, or dust accumulation.



Figure 7-21. Stacked drystone structure beneath Cargill Road (Wooller, 2024).

7.2.2.2 *Lewis' Claim*

No evidence of archaeological deposits or features were located at the site of Lewis' mining claim (Part Section 5, Block IX Waiwhero SD). The survey indicated that the project area intersecting with the historic claim had been heavily disturbed by hump and hollowing, and this was supported by LiDAR results (Figure 7-22). The surveyed area had regular flattened humps running east-west, with marshy hollows draining into an irrigation channel at the edge of the dredge zone. The margin between the disturbed area and the undisturbed coastal strip was clear, however, only the disturbed zone is within the project area.

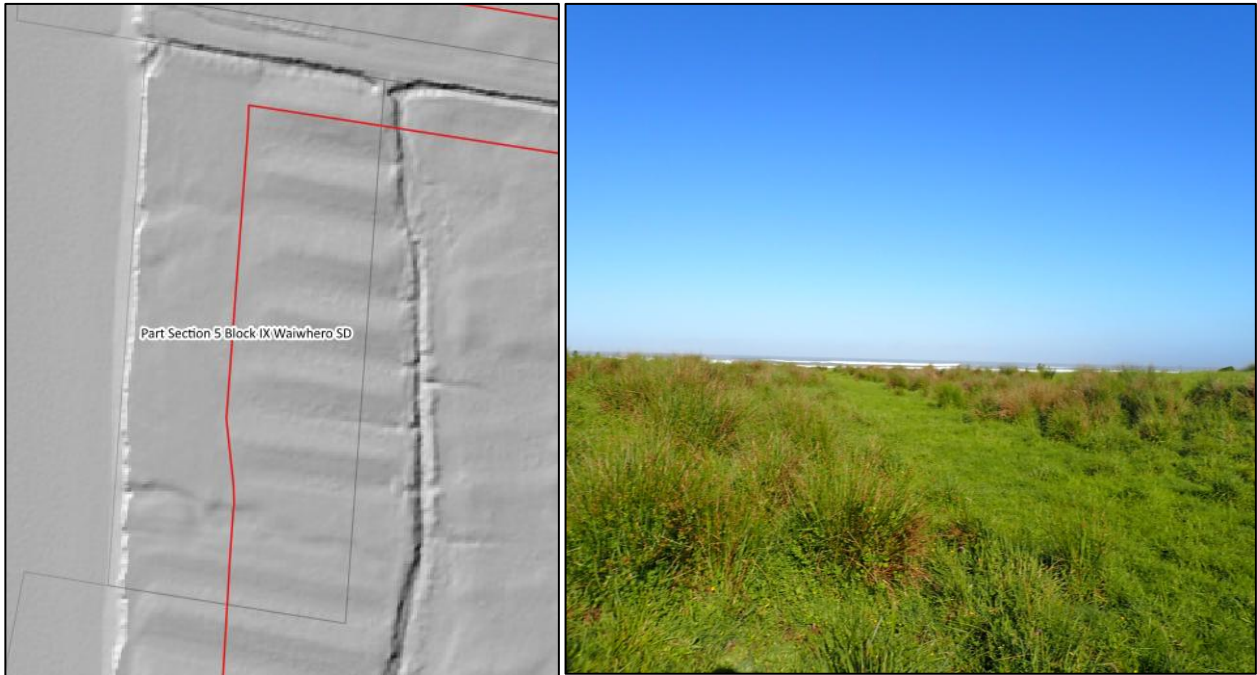


Figure 7-22. The eastern edge of Lewis' Claim shown to be humped and hollowed in the LiDAR data (left) and during the survey, looking west (right). The red line indicates the project area boundary.

7.2.2.3 *Hannah's Claim*

No evidence of archaeological deposits or features were located at the site of Hannah's mining claim (Lot 1 DP 406050, Block IX Waiwhero SD). The survey indicated that the project area intersecting with the historic claim had been heavily disturbed by dredging initially, then hump and hollowing (Figure 7-23, Figure 7-24). The extent of modern disturbance was supported by LiDAR results (Figure 7-24). The surveyed area had marshy undulating ground, associated with the dredging and overgrown waterways in the artificial linear hollows. The humped areas were narrow and steep forming dry high points running north south along the foreshore and along the southern edge of the dredge zone. The southwestern corner had modern irrigation channels excavated parallel to the foreshore but otherwise appears undisturbed. Likewise, a paddock along the western edge is recorded to have been on the margin of the dredge zone, however the site visit identified this area to be less undulating than the surrounding land and may have been undisturbed. This was also observed in the LiDAR imagery (Figure 7-24).



Figure 7-23. Hump and hollowing within Hannah's claim, looking southeast (Wooller, 2024).



Figure 7-24. LiDAR imagery of the project area (left). The red line indicates the project area, and the yellow dotted line is the eastern side of Hannah's claim. The southwestern corner of the project area (right), with irrigation channel running through. Looking south (Wooller, 2024).

8 Research Results

The historical and archaeological research, as well as the results of the archaeological survey, indicate that there is a high potential that pre-1900 archaeological features and deposits survive within the project area and will be impacted by the proposed works. Encountered archaeology will be associated with artefact find spots, midden/oven sites, mining-gold sites, and/or historic domestic sites.

Prior to Pākehā arrival in the area, the coastline was traversed by manawhenua travelling along an ara tawhito, with the dune ridges in the project area possible sites of nohoanga as well as mahinga toi and mahinga kai within the wetland inland area. During the survey the recorded locations of the two find spots (K31/11 and K31/12) in the project area were revisited and no further material was identified. This is not surprising given that the site locations were recorded based on oral reports from landowners in the 1980s, and the extent of land modifications and farming activities that have taken place since then. The sites of the two find spots (K31/11 and K31/12) are considered destroyed on the basis of the site record forms and the site visit, and they will not be further discussed. The site record forms have been updated to reflect the results of the survey. However, the presence of the findspots in proximity to each other is indicative that there is a high potential other subsurface sites are present in the vicinity. Although the project area has undergone a large amount of surface modification, in situ subsurface areas remain intact outside the dredged area, particularly in the northern project area, and may contain artefacts while the dredged areas may contain redeposited archaeological material. As the proposed works involve intensive earthworks within the project area, including in proximity to the coastal margins and historic wetland areas, **there is reasonable cause to suspect that Māori artefacts will be encountered within the project area.** POI 002 – 003 record what appears to be an area of intact dune surface which may have provided a dry sheltered spot with good visibility of the surrounding landscape and may have been utilised as a nohoanga. This is further supported by the presence of the nearby find spot K31/11, **suggesting there is reasonable cause to suspect Māori archaeology will be encountered and affected by the proposed work** along the western margin of the project area in RS 2932 (Figure 8-1).

Early Pākehā activity within the project area was transient and associated with the gold rush at Canoe Creek, with later beach mining activities taking place along the foreshore of Seventeen-Mile Beach. Early mining claims were recorded in the project area to the south of Canoe Creek in the northern project area (Porschich), and along the foreshore to the south of Cargill Road (Lewis, Hannah, Warren). No evidence of archaeological features or deposits were found during the survey of these areas, with a large amount of modern disturbance recorded. However, small sections of land along the western and southern margins of the project area, within the mining claims, appear relatively undisturbed. The surrounding archaeological landscape indicated that archaeological features such as water races, prospecting pits, and hut sites are located within areas of pre-1900 mining activity, with these not always being visible prior to excavation, so **there is reasonable cause to suspect that archaeology relating to mining may be present across the project area, with a higher chance of encountering these** in discrete patches in the western and southern portions of Lot 1 DP 406050, Block IX, Waiwhero SD (Figure 8-1).

With the development of Barrytown and more permanent occupation in the area there was the construction of a schoolhouse and several dwellings in the project area. The site of the first school was in the project area, however the area has been dredged, and it is unlikely any archaeology remains intact. Settlement at this time was along the foreshore, with the western part of the project area remaining as wetland which was not cleared or drained until well into the twentieth century. Formal subdivision was piecemeal and largely occurred in the twentieth century. However, early beach miners, such as Cargill, were squatting within the project area prior to settlement. Although Cargill's hut site appears to be on the boundary of the dredge zone, his shed and other structures may remain intact. The assessment has determined that **there is reasonable cause to suspect that archaeology related to historic-domestic site types may be present across the project area,** with a higher probability in the southwestern corner of RS 3316 (Figure 8-1).

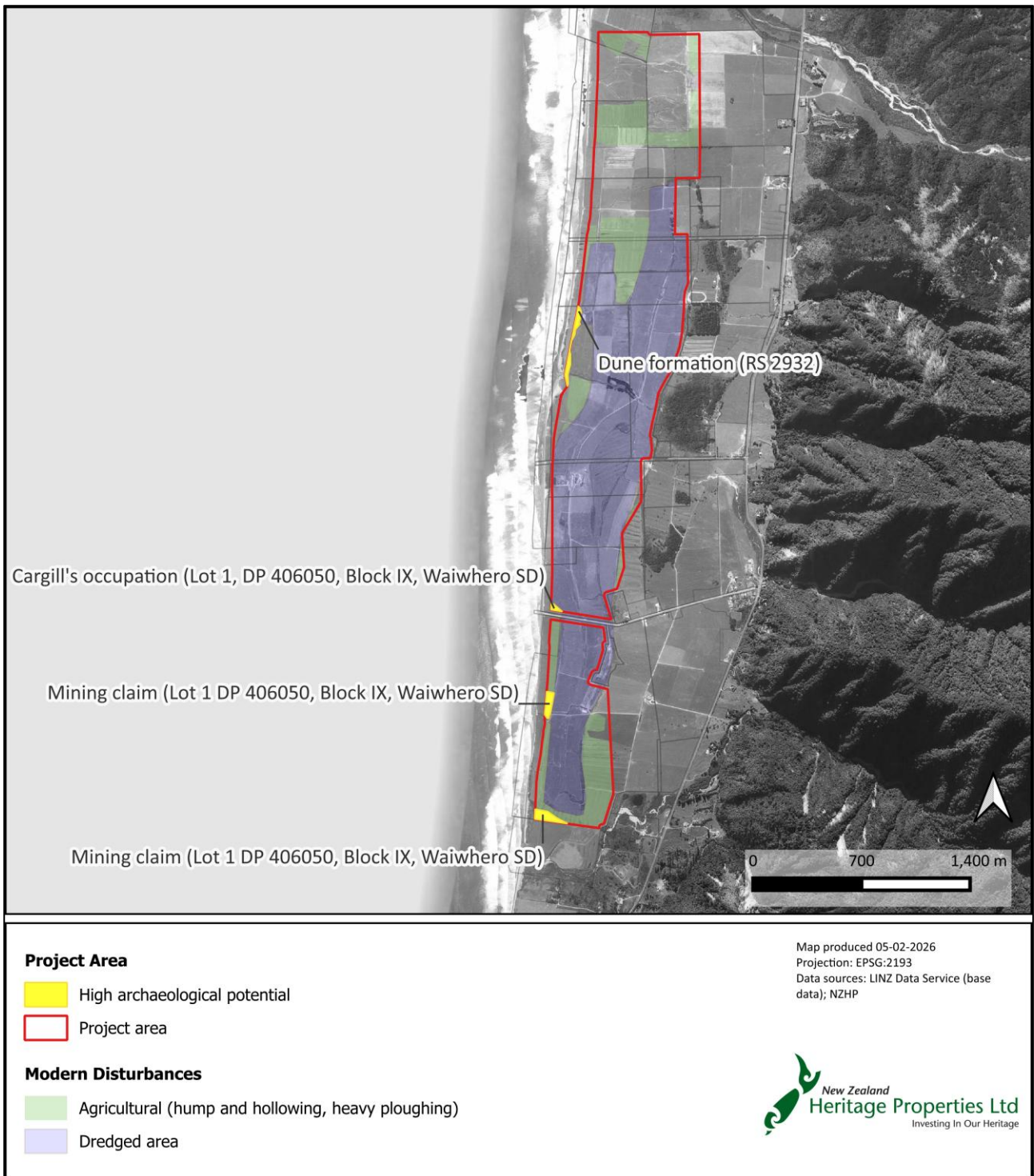


Figure 8-1. High archaeological potential areas and areas of modern disturbance.

8.1 Constraints and Limitations

During documentary research there was a limited number of sources available digitally, this limited the understanding of land transactions and property ownership. However, as most of the occupation was largely transitory during the nineteenth century, the unavailable land transaction data would have added little to the overall understanding of the history of the project area.

The site survey was constrained by a number of factors. Primarily, safe access to survey areas constrained the areas which were able to be transacted. Fields with livestock were not accessed, nor were those with only ponytail fencing separating the livestock from the rest of the paddock. Fields which were deemed to boggy to safely survey, or that

required deep creek crossings, were not accessed. Fields without safe entry points were also not accessed in accordance with NZHP's health and safety regulations. These fields were viewed from an access track or from the fence line. The ground cover in a number of fields had high tussocky grass or other shrub vegetation which limited visibility of archaeological deposits or features. In the first instance, the distance between transects was decreased, however the ground cover still impacted the survey. To minimise the limitations caused by the above factors a thorough desktop survey of LiDAR and aerial photographs was undertaken.

9 Archaeological and Other Values

The following sections summarise the values for unrecorded archaeological sites that may be encountered within the project area.

9.1.1 Unrecorded Artefact Find Spots

An evaluation of the archaeological values is provided for unrecorded artefact finds in Table 9-1. Overall, unrecorded find spots are considered to have **medium** archaeological value depending on their rarity, information potential, and amenity value.

Table 9-1. Summary of archaeological value for unrecorded artefact find spots.

Value	Assessment
Condition	Subsurface/unknown: The project area has undergone a vast amount of modification, as a result encountered findspots may not be in situ but redeposited in dredge fill or while excavating field drainage systems.
Rarity or Uniqueness	Moderate: This site type is relatively uncommon within the Grey District and nationwide in comparison to other site types.
Contextual Value	Low-Moderate: Artefact findspots are recorded as such as they are not found in relation to other features within the context of a wider site. However, Māori artefact find spots in this location would have a higher contextual value than a typical findspot as they would be associated with the ara tawhito that passed through this area. The presence of artefacts provides wider contextual value into the use of a landscape.
Information Potential	Moderate: Artefacts have information potential in revealing how people made use of their environment both through the manufacturing of the artefact as well as the purpose it was created for as well as temporal information for transient occupation in the area.
Amenity Value	Low-Moderate: Most artefact find spots are discrete and once disturbed they are gone and offer no amenity value in situ. Once retrieved, artefacts provide tangible links to the past, and depending on the artefact may be returned to iwi or displayed in the local museum. However, this must be done under the direction of manawhenua and in accordance with tikanga.
Cultural Associations	Māori and Pākehā

9.1.2 Unrecorded Midden/Oven Sites

An evaluation of the archaeological values is provided for unrecorded midden/oven sites in Table 9-2. Overall, unrecorded midden/oven sites are considered to have **medium** archaeological value depending on their condition, context, and extent.

Table 9-2. Summary of archaeological value for unrecorded midden/oven sites.

Value	Assessment
Condition	Subsurface/ unknown: Midden and oven sites are found in a range of conditions, including destroyed, below ground, poor, fair, and good. It is probable many within the project area have been modified or damaged to some extent as a result of erosion as well as impacted by mining and dredging as well as activities as fossicking, ploughing and track cuttings. The presence of such sites near the proposed works, however, is indicative of heightened potential to encounter potentially intact archaeological remains.
Rarity or Uniqueness	Low: This site type is common along the adjacent coastline.
Contextual Value	Moderate: When considering wider interpretation sites of this type in comparisons to other recorded sites, they have a moderate contextual value as they provide insight into resource use on the wetlands, streams and coastline in this locality providing comparative information for changing patterns of such resource use. Additionally, midden/oven sites will have contextual value to as they would be associated with the ara tawhito that passed through this area.

Value	Assessment
Information Potential	<p>Low: Midden/oven sites with single or few features provide limited information on how resources were used and exploited.</p> <p>Moderate: Midden/oven sites that form larger site complexes add to our understanding of occupation and activity, resource use and activity within the wider landscape.</p>
Amenity Value	<p>Low: Most midden/oven sites with single or few features are located below ground, and most others are eroding out of banks and cuttings or scattered and thus have a low amenity value.</p> <p>Moderate: While many larger midden/oven sites are still recorded below ground, they have higher potential to provide more information for public interpretation and education.</p>
Cultural Associations	Māori

9.1.3 Unrecorded Mining-Gold Sites

An evaluation of the archaeological values is provided for unrecorded mining sites in Table 9-3. Overall, unrecorded mining sites are considered to have **medium** archaeological value based on their contextual value, information potential, and amenity value.

Table 9-3. Summary of archaeological values for mining sites.

Value	Assessment
Condition	Subsurface/unknown: Sites of this type are found in a range of conditions, including destroyed, subsurface, poor, fair and good. It is probable many within the project area have been modified or damaged to some extent as a result of erosion as well as impacted by mining and dredging as well as activities as fossicking, ploughing and track cuttings. The presence of such sites near the proposed works, however, is indicative of heightened potential to encounter potentially intact archaeological remains.
Rarity or Uniqueness	Low: This site type is common on the Barrytown Flats.
Contextual Value	Moderate: This site when compared to other mining sites in the surrounding area may provide an in depth look at mining strategies along Barrytown Flats.
Information Potential	Moderate: This site could provide information about mining strategies and provide spatial data about concerning mining locations.
Amenity Value	Low-Moderate: Some unrecorded mining sites may contain features or material that provide good opportunities for public interpretation or education, such as in situ features or artefacts. This will be dependent on their accessibility and condition.
Cultural Associations	Pākehā and potentially Māori

9.1.4 Unrecorded Historic-Domestic

An evaluation of the archaeological values is provided for unrecorded historic-domestic sites in Table 9-4. Overall, unrecorded historic-domestic sites are considered to have **medium** archaeological value based on their underrepresentation in Barrytown, contextual value, and information potential.

Table 9-4. Summary of archaeological values for historic-domestic sites.

Value	Assessment
Condition	Subsurface/unknown: Sites of this type are found in a range of conditions, including destroyed, subsurface, poor, fair and good. It is probable many within the project area have been modified or damaged to some extent as a result of erosion as well as impacted by mining and dredging as well as activities as fossicking, ploughing and track cuttings.
Rarity or Uniqueness	Moderate: Although historic-domestic sites are very common across New Zealand, this site type is underrepresented on the Barrytown Flats with only 5% of identified sites having this site type.

Value	Assessment
Contextual Value	Moderate: Although there are few historic-domestic sites recorded in Barrytown, there are many mining historic-domestic sites recorded in New Zealand. A historic-domestic site in the project area has potential to have contextual value on a regional and national level, as well as in association with the surrounding mining activities.
Information Potential	Moderate: This site could provide information about the physical structure of miners houses as well as information on coastal mining settlements and mining lifestyles.
Amenity Value	Low-Moderate: Some unrecorded domestic sites may contain features or material that provide good opportunities for public interpretation or education, such as in situ features or artefacts.
Cultural Associations	Pākehā and Māori

9.1.5 Other Values

Ngāti Waewae are best placed to comment on the cultural values within the project area and NZHP recommends TiGa Minerals and Metals Ltd provide this assessment to Ngāti Waewae for consultation.

No other relevant values (e.g. historic heritage sites) were identified during the assessment.

10 Assessment of Effects and Other Considerations

Section 46 (g)(ii) of the HNZPTA requires an assessment of the effects of the proposed works, as detailed in Section 1.2, on archaeological and other values, which were assessed in the previous section. The assessment of effects takes into account the criteria established by HNZPT (2019) as outlined in Section 3. Also considered here are methods to avoid, minimise, and mitigate any adverse effects to archaeology.

Ngāti Waewae are best placed to comment on the cultural values, and the effects of the proposed works on these values within the project area. As such, NZHP recommends TiGa Minerals and Metals Ltd provide this assessment to Ngāti Waewae for consultation. No other relevant values (e.g. historic) were identified during the assessment.

10.1 Assessment of Effects on Archaeological and Other Values

This assessment has identified that there is the potential to uncover unrecorded artefact find spots, midden/oven sites, mining-gold, and historic-domestic archaeological sites during the works. However, all archaeological remains across the project area are expected to be subsurface, and their location and condition are unknown. As stated in the research results, findspots K31/11 and K31/12 are destroyed, so will not be impacted by the proposed works. It is probable the condition of a vast number of encountered features will be poor due to natural coastal erosion, stock trampling, previous dredging, and environmental modifications (i.e. hump and hollowing). However, despite the likely poor condition of subsurface features, there is still the potential archaeology is present across the site. Unrecorded archaeology that may be encountered include artefact caches, midden and oven features, flumes or sluice boxes.

Although the project area has undergone a large amount of surface modification, the dredged areas may contain redeposited archaeological material not in situ. Hump and hollowed areas may have intact archaeology under the humps. As the history of the area records largely transient and ephemeral occupation across the project area, archaeology could be encountered anywhere across the site. Higher potential areas for encountering archaeology are addressed below.

Considering the large extent of the earthworks across the majority of the project area, **NZHP considers the magnitude of impact on any potential unrecorded archaeological sites will be moderate to major**, dependant on where the site is located. The complete or partial destruction of encountered sites removes them from the archaeological record, having a negative impact on their contextual value, information potential, and amenity value.

- The high archaeological potential zones are on the margins of the project area and likely extend outside of the mining disturbance zone, so encountered archaeology will only be destroyed within the project area, resulting in a **moderate impact**.
- Proposed works are anticipated to result in the complete destruction of any unrecorded archaeological sites encountered within the project area, resulting in a **major impact**.

NZHP recommends that an archaeologist monitor all earthworks (stripping of topsoil,) that are likely to encounter archaeological remains (see areas of high archaeological, Figure 8-1) until it can be shown that no archaeology survives. NZHP recommends the investigation of all identified areas of archaeological potential to be undertaken in unison prior to the commencement of mining activity.

This assessment has identified that there is potential to encounter unrecorded archaeological sites with importance to mana whenua within the project area. **NZHP recommends that mana whenua should be engaged and have the opportunity to be actively involved**. This includes consultation at the archaeological assessment phase.

10.2 Recommendations to Avoid, Minimise and/or Mitigate Adverse Effects

Recording of archaeological features and deposits along with subsequent analysis and reporting will form a permanent record of the modification of each site. From this record we will increase our understanding of the site and mitigate, to some degree, the loss of contextual value between features and materials at the site level.

10.2.1 Sites and Features to be Avoided or Protected

While it is ideal to plan to avoid archaeological sites, there are no above ground sites in the project area, and it is not possible to plan to avoid the sites due to the scale of the required earthworks within the project area.

A drystone structure (POI 003) was noted under the southern side of Cargills Road, outside of the project area. To avoid damaging the structure the Cargill Road bund should not be built up against this structure. The use of heavy machinery should be limited or monitored in proximity to the structure, to limit the potential damage from vibrations. Dust and vibration plans, when finalised by the client, should be provided to NZHP to inform future protections for the structure as necessary.

10.2.2 Mitigation for Information Loss

NZHP recommends that an archaeologist monitor all earthworks (stripping of topsoil) that are likely to encounter archaeological remains (see areas of high archaeological potential Figure 8-1) until it can be shown that no archaeology survives. NZHP recommends the investigation of all identified areas of archaeological potential to be undertaken in unison prior to the commencement of mining activity.

Based on the historical and archaeological research, as well as the archaeological site survey, NZHP has identified areas where there is a higher potential for archaeological remains to be encountered and any earthworks within these zones should be monitored by an archaeologist (Figure 8-1). The high potential areas include features noted in historical maps and those identified during the archaeological survey, as well as a consideration of environmental features which may indicate an increased probability of archaeological material being encountered. Areas of extensive dredging in the twentieth century, as supplied to NZHP by the client, have been excluded from red zones, as the excavation depths of the twentieth century mining works extended into natural deposits. The exception to this is when the survey identified marginal areas within the dredge zone which appear to be intact. By having an archaeologist on site in high-potential areas, the features can be identified as they are exposed (rather than after they are truncated or heavily disturbed) and recorded following best practice. We consider that the on-call protocol alone is not sufficient to mitigate the information loss on site due to the high likelihood of encountering features, many of which are unlikely to be recognised by contractors in the field, such as water races, hut sites, oven features, and others. Beyond this area of high potential, NZHP recommend that work proceed under an on-call protocol (OCP). Find spots may be encountered anywhere on site, including outside of the red zone and in areas thought to have modern ground disturbance, however as artefacts are generally readily identifiable, OCP will be appropriate.

NZHP recommends that topsoil stripping, in high-potential areas where archaeological monitoring is required, be undertaken over consecutive days, at the beginning of each stage of works and prior to any other earthworks taking place in this stage. Within these zones, where archaeological monitoring is recommended, excavations should be undertaken with a hydraulic excavator (not a bulldozer) so that any features exposed are not immediately disturbed further by bulldozer tracks during the process of excavation. Excavations undertaken by hydraulic excavator should be done in systematic scrapes across the archaeological areas to be monitored until natural deposits are reached. As archaeological features are exposed, they will then be excavated by hand and recorded by the archaeologist(s). If archaeological features extend beyond the red zones, archaeological monitoring and recording should continue until the archaeologist is satisfied that no further archaeological material survives.

All archaeology that is encountered should be investigated and recorded to best practice. NZHP recommends that if structures are encountered, they should be recorded to a Level III standard as defined in HNZPT's guide,

Investigation and Recording of Buildings and Standing Structures (2018). Such structures may include hut remains, water races, fluming, and sluice boxes.

Beyond the recording during fieldwork, mitigation for information loss also includes analysis of all artefactual material recovered during the excavations and reporting on all archaeology in a final report. Where archaeology is encountered, further commensurate historic research will be required to provide context to the finds. Site record forms must be created or updated for all sites where archaeology has been encountered.

NZHP recommends that a site instruction be prepared to provide the practical steps for managing the archaeological requirements under the authority, defining the roles and responsibilities of the client, their contractors, and archaeologists. The site instruction will clearly define the areas when an archaeologist must be present, procedures for archaeological monitoring, protocols for the discovery of Māori archaeology and kōiwi, and OCP for the unexpected discovery of archaeology.

Briefings for contractors and project managers are recommended to ensure that all parties understand the conditions of the authority and their individual responsibilities. The briefing will outline when an archaeologist is required on site, the types of archaeology expected to be encountered, and the OCP. Such steps will ensure that archaeological values, such as information value and possible amenity purposes, are increased through appropriate archaeological investigation. NZHP recommends that the initial briefing should be done in an office space to best enable the digital presentation of the briefing to maximise engagement. Though for those unable to attend in person, the briefing can be done via videoconference (i.e., Zoom, Microsoft Teams, Skype).

10.3 Summary of Effects on Archaeological Values

As discussed, in Section 9, NZHP has identified the potential archaeological values for unrecorded artefact find spots, midden/oven, mining-gold, and historic-domestic sites which may be encountered within the project area. The summary of these values and the impact of the works on these sites is provided here.

The archaeological value for unrecorded find spots, mining-gold, and historic-domestic sites are all considered to have **medium** archaeological value, while unrecorded midden/oven sites are considered to have **medium** archaeological value depending on their condition, context, and extent. Considering the large extent of the earthworks across the majority of the project area, as the works will significantly modify or completely destroy any remains encountered associated with these site types, the impact will be moderate to major.

NZHP considers that the overall impact of the proposed works on encountered archaeology will be moderate to major. However, with the archaeological monitoring of high-potential areas, recording, analysis and reporting on any archaeological or heritage features modified by the proposed works NZHP supports approvals under the FTAA, including a resource consent application and archaeological authority to modify these sites.

11 Conclusions and Recommendations

This archaeological assessment has identified that there is reasonable cause to suspect that unrecorded artefact find spots, midden/oven sites, mining-gold and historic-domestic sites are present within the project area and will be affected by the proposed mineral sand mining. Therefore, an archaeological authority is required. The two previously recorded sites (K31/11 and K31/12) will not be impacted; however, their presence is indicative of other sites in the vicinity. Due to the presence of the ara tawhito, manawhenua would have ventured through the project area and procured resources from the wetland areas while travelling. Find spots are the only previously recorded site types within the project area and as artefacts caches have frequently been found in wetland areas there is reasonable cause to suspect that unrecorded findspots may be encountered and are considered to have **medium** archaeological value. Midden/oven sites are the most common site type in the vicinity, based on the abundance of mahinga kai which would have once been present in the area there is reasonable cause to suspect that unrecorded midden/oven sites may be encountered along the coastal margin. Unrecorded midden/oven sites are considered to have **medium** archaeological value. Historic era occupation of the project area centred on miners' blacksanding along the foreshore and squatting nearby. As a result, there is reasonable cause to suspect that unrecorded gold-mining and historic-domestic sites are encountered, both of which are considered to have **medium** archaeological value. Due to the nature of the proposed works the overall impact of the works on the archaeological values of unrecorded sites if encountered will be moderate to major. However, with the recommended mitigation outlined in Section 10.2, the overall impact of the works on the unrecorded sites if encountered would be reduced but will remain moderate to major.

On the basis of this assessment, NZHP supports this application with the following recommendations:

1. **Authority Application:** As the proposed works described in Section 1.2 could affect unrecorded archaeological sites, an archaeological authority under Section 44 of the HNZPTA 2014 must be obtained from HNZPT prior to any modification of the site.
 - a. The previously recorded sites (K31/11, K31/12) are destroyed so will not be impacted.
 - b. If development plans are altered from those reviewed for this assessment, then HNZPT and NZHP must be alerted, as any changes may alter the assessment of effects or invalidate the authority.
2. **Protection of sites/features:** As a first principle, every practical effort must be made to avoid damage to any archaeological site, whether known, or discovered during any redevelopment of the site.
 - a. **Drystone structure under Cargills Road** - To avoid damaging the structure the Cargill Road bund should not be built up against this structure. The use of heavy machinery should be limited or monitored in proximity to the structure, to limit the potential damage from vibrations. Dust and vibration plans, when finalised by the client, should be provided to NZHP to inform future protections for the structure as necessary.
3. **Site Instruction:** All works must be carried out in accordance with a site instruction. Any amendments to the site instruction will require prior written approval from HNZPT. The site instruction will include the points outlined in Section 10.2.2.
4. **Contractor Briefing:** All contractors working on the project must be briefed by the s45 approved person (or person nominated on their behalf) on the possibility of encountering archaeological evidence, how to identify possible archaeological sites/features during works, the archaeological work required by the conditions of the authority, and contractors' responsibilities with regard to notification of the discovery of archaeological evidence to ensure that the authority conditions are complied with. NZHP recommends that the briefing be undertaken in an office space to best enable the briefing to be presented digitally, thus maximising engagement.

5. **Archaeological Monitoring:** All earthworks that may affect an archaeological site must be monitored by the s45 approved person (or person nominated on their behalf) in accordance with the site instruction.
 - a. Any archaeological features and material encountered shall be recorded, analysed, and interpreted in accordance with current archaeological practice and as outlined in the site instruction.

6. **Archaeology of Māori origin:** If archaeological material of Māori origin is discovered at any stage, all work must stop within 20m of the find. NZHP will assist the authority holder in contacting all relevant parties including tangata whenua via Ngāti Waewae and HNZPT in accordance with the site instruction.
 - a. Any taonga tūturu are *prima facie* the property of the Crown who will be notified of the find. Taonga tūturu will be registered with the Ministry for Culture and Heritage. NZHP, in collaboration with manawhenua, shall notify the Ministry of Culture and Heritage and establish the most appropriate temporary storage, management and care for taonga tūturu, until such time as traditional or actual ownership is determined, with an appropriate institution or kaitiaki.

7. **Kōiwi (human remains):** Should kōiwi be encountered, all work must stop within 30m of the find. NZHP will assist the authority holder in contacting all affected parties as soon as practicable, including tangata whenua via Ngāti Waewae, HNZPT, and the police. The Ngāi Tahu policy for kōiwi tangata shall also be followed (Te Rūnanga o Ngāi Tahu, 2019).

8. **Reporting:**
 - a. Within 20 working days of the completion of on-site archaeological work, the site record forms must be updated or submitted to ArchSite.
 - b. Within 12 months of the completion of on-site archaeological work, a final report on any archaeological material that is found must be prepared in accordance with *ASG12 Archaeological Report Guideline* (HNZPT, 2023) and submitted to HNZPT for inclusion in the digital library, Ngāti Waewae and to the Grey District Council.

12 References

- Ancestry.com. (1878). *New Zealand Electoral Rolls, 1853-2010*. Auckland: BAB microfilming and Electoral Roll Commision. Retrieved from https://www.ancestry.com/discoveryui-content/view/records?recordId=24805718&collectionId=1836&tid=&pid=&queryId=95a4cd6b-8826-4848-a6e9-b0edf3c01dac&_phsrc=izW638&_phstart=successSource
- Anderson, A. (1982). West Coast, South Island. In N. Prickett (Ed.), *The First Thousand Years: Regional Perspectives in New Zealand Archaeology* (First). Palmerston North: Dunmore Press Limited.
- Anderson, A., & Prickett, N. (1982). *West Coast, South Island, in The First Thousand Years: Regional perspectives in New Zealand Archaeology*. Palmerston North, Dunmore Press.
- Cyclopedia Company Ltd. (1906). Barrytown. In *The Cyclopaedia of New Zealand*. Victoria University of Wellington.
- Department of Conservation. (2010). *West Coast Conservation Management Strategy Volume I: 2010-2020*. Hokitika: Department of Conservation Te Papa Atawhai West Coast Tai Poutini Conservancy.
- DfT. (2008). *Design Manual for Roads and Bridges. Volume 11, Environmental Assets; Section 3, Environmental Topics; Part 2 HA 208/7 Cultural Heritage*. Department for Transport and Highways England.
- Grey River Argus. (1878). *ELECTORAL ROLL FOR RIDING Of COBDEN, County of Grey*. olume XXI, Issue 3188, 2 November 1878, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18781102.2.10>
- Grey River Argus. (1880a). *Hospital Committee*. Volume XXIII, Issue 3835, 10 December 1880, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18801210.2.9>
- Grey River Argus. (1880b). *Seventeen-Mile Beach*. Volume XXIII, Issue 3834, 9 December 1880, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18801209.2.9>
- Grey River Argus. (1880c). *THE Grey River Argus*. Volume XXIII, Issue 3708, 14 July 1880, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18800714.2.4>
- Grey River Argus. (1880d). *THE PROPOSED NAME FOR THE SEVENTEEN-MILE TOWNSHIP*. Volume XXIII, Issue 3694, 28 June 1880, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18800628.2.10>
- Grey River Argus. (1881). *THE SEVENTEEN-MILE BEACH*. Volume XXIII, Issue 3903, 2 March 1881, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18810302.2.11>
- Grey River Argus. (1885). *BARRYTOWN REVISITED*. Volume XXXI, Issue 5084, 13 January 1885. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA18850113.2.13>
- Grey River Argus. (1924). *Warren Road*. 26 August 1924, Page 2. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GRA19240826.2.8>
- Greymouth Evening Star. (1914). *MILLER, MINER AND FARMER*. 6 June 1914, Page 3. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GEST19140606.2.9>
- Greymouth Evening Star. (1939). *Barrytown notes*. 27 March 1939, Page 12. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/GEST19390327.2.69>
- Gumbley, W., Johns, D., & Law, G. (2004). Management of wetland archaeological sites in New Zealand. *Science for Conservation*, Vol. 246. Wellington: Department of Conservation. Retrieved from https://www.researchgate.net/publication/288086767_Management_of_wetland_archaeological_sites_in_New_Zealand
- Harris, G. E. (1916). *Geological map of Wainhero and Temiko Survey Districts*. Retrieved from https://ndhadeliver.natlib.govt.nz/delivery/DeliveryManagerServlet?dps_pid=IE1281228
- HNZPT. (2014). *Archaeological Guidelines Series: Koiwi Tangata Human Remains*.
- HNZPT. (2019). *Writing Archaeological Assessments. Archaeological Guidelines Series No. 2*. Heritage New Zealand Pouhere Taonga.
- HNZPT. (2023). *AGS12 Archaeological Report Guideline*. Heritage New Zealand Pouhere Taonga.
- Jacomb, C.; Walter, R. . B. E. . (2010). Living on Pipi (*Paphies australis*): Specialised Shellfish Harvest in a Marginal Environment at Karamea, West Coast, New Zealand. *Journal of Pacific Archaeology*, 1(1).
- Jones, B. D., & Bickler, S. H. (2017). High Resolution LiDAR data for Landscape Archaeology in New Zealand. *Archaeology in New Zealand*, 60(3).
- Jones, B. D., & Bickler, S. H. (2018). *Burrowing into the Data: A Multi-scalar semi-automatic approach to detect archaeological structures in Airborne LiDAR data*.
- Kāi Tahu Ki Otago. (2005). *Kai Tabu Ki Otago Natural Resource Management Plan 2005*. Dunedin, NZ: Kāi Tahu Ki Otago.
- Kerr, J. S. (2013). *The Conservation Plan. A guide to the preparation of conservation plans for places of European Cultural Significance* (Seventh Ed). James Semple Kerr.
- Mackay, J. (1860). *Plan in Margin of the Arapura Deed of Purchase*. A Compendium of Official Documents Relative to

- Native Affairs in the South Island. Volume Two.: New Zealand Electronic Text Collection.
- Madgwick, P. (2024). *Poutini: The Ngāi Tahu History of the West Coast*. Te Rūnanga o Ngāi Tahu.
- May, P. R. (1962). *The West Coast Gold Rushes* (First edit). Christchurch, N. Z.: Pegasus Press.
- McCaskill, M. (1954). The Poutini Coast: A Geography of Maori Settlement in Westland. *New Zealand Geographer*, 10(2).
- Mines Department. (1906). *New Zealand Mining Handbook* (P. Galvin, Ed.). Wellington: Government Printer.
- Nathan, S. (2012). West Coast region - Geology and landscapes.
- Ngāi Tahu. (2021). *Punamu - the Stone, the Legend*.
- Nichol, R. (1990). *Barrytown Flats Archaeological Site Survey*. Department of Conservation West Coast Conservancy.
- NZHPT. (2012). *Sustainable Management of Historic Heritage Guidance Series: Iwi Management Plans*. Wellington: New Zealand Historic Places Trust Pouhere Taonga.
- Phillips, C., Johns, D., & Allen, H. (2002). Why did Maori bury artefacts in the wetlands of pre-contact Aotearoa/New Zealand? *Journal of Wetland Archaeology*, 2(1), 39–60. <https://doi.org/10.1179/jwa.2002.2.1.39>
- Retrolens. (1951). SN265, 853/40. Retrieved from <https://retrolens.co.nz/map/#/1459803.3200832705/5321532.282975711/1462003.2733036613/5322771.9960282445/2193/11>
- Retrolens. (1981). SN C8922 B/7.
- Te Rūnanga o Ngāi Tahu. (2019). *Kōiwi Tangata. Te Wawata o Ngāi Tahu e pa ana ki Ngā Tāonga Kōiwi o Ngā Tūpuna The Policy of Ngāi Tahu Concerning the Human Remains of our Ancestors*. Unpublished report prepared by Te Rūnanga o Ngāi Tahu.
- Te Rūnanga o Ngāi Tahu. (2022). Kā Huru Manu.
- Te Rūnanga o Ngāi Tahu. (2025). The Ngāi Tahu Atlas.
- Te Rūnanga o Ngāi Tahu, Te Rūnanga o Ngāti Waewae, & Te Rūnanga o Makaawhio. (2018). *Te Mahere Whakahaere o Te Tāwiri a Te Makō. Lake Māhinapua Management Plan*. Ōtautahi Christchurch: Te Rūnanga o Ngāi Tahu.
- Tumahai, F. (2010). *Cultural Impact Assessment of Escarpment Mine Project*. Retrieved from tppp.nz/wp-content/uploads/2022/07
- Voight, C. (1981a). *Site Record Form for K31/11*. New Zealand Archaeological Association. Retrieved from <https://nzaa-archsite.hub.arcgis.com/>
- Voight, C. (1981b). *Site Record Form for K31/12*. New Zealand Archaeological Association. Retrieved from <https://nzaa-archsite.hub.arcgis.com/>
- Walrond, C. (2012). *Gold and gold mining - Where you find it: Te Ara - the Encyclopedia of New Zealand*.
- West Coast New Zealand History. (1917). Barrytown School, 1917. Retrieved from <https://westcoast.recollect.co.nz/nodes/view/414?type=all>
- West Coast New Zealand History. (2014). Beachcombing Blacksand for Gold. Retrieved from <https://westcoast.recollect.co.nz/nodes/view/8717>
- West Coast Recollect. (1936). *Sluicing the hole for the Barrytown dredge 1936*. Retrieved from <https://westcoast.recollect.co.nz/nodes/view/11919>
- West Coast Recollect. (1940). *Barrytown flats from the 17 Mile. Pre-1940*. Retrieved from <https://westcoast.recollect.co.nz/nodes/view/12395>
- West Coast Times. (1903). *WESTLAND LAND BOARD*. Issue 12476, 16 April 1903, Page 4. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/WCT19030416.2.15>
- Westport Times. (1879). *Seventeen Mile Rush*. Volume XIII, Issue 1757, 30 December 1879, Page 4. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/WEST18791230.2.14>

Appendix A Additional Maps

Transect survey map and labelled land parcels within the consent area, from north to south.

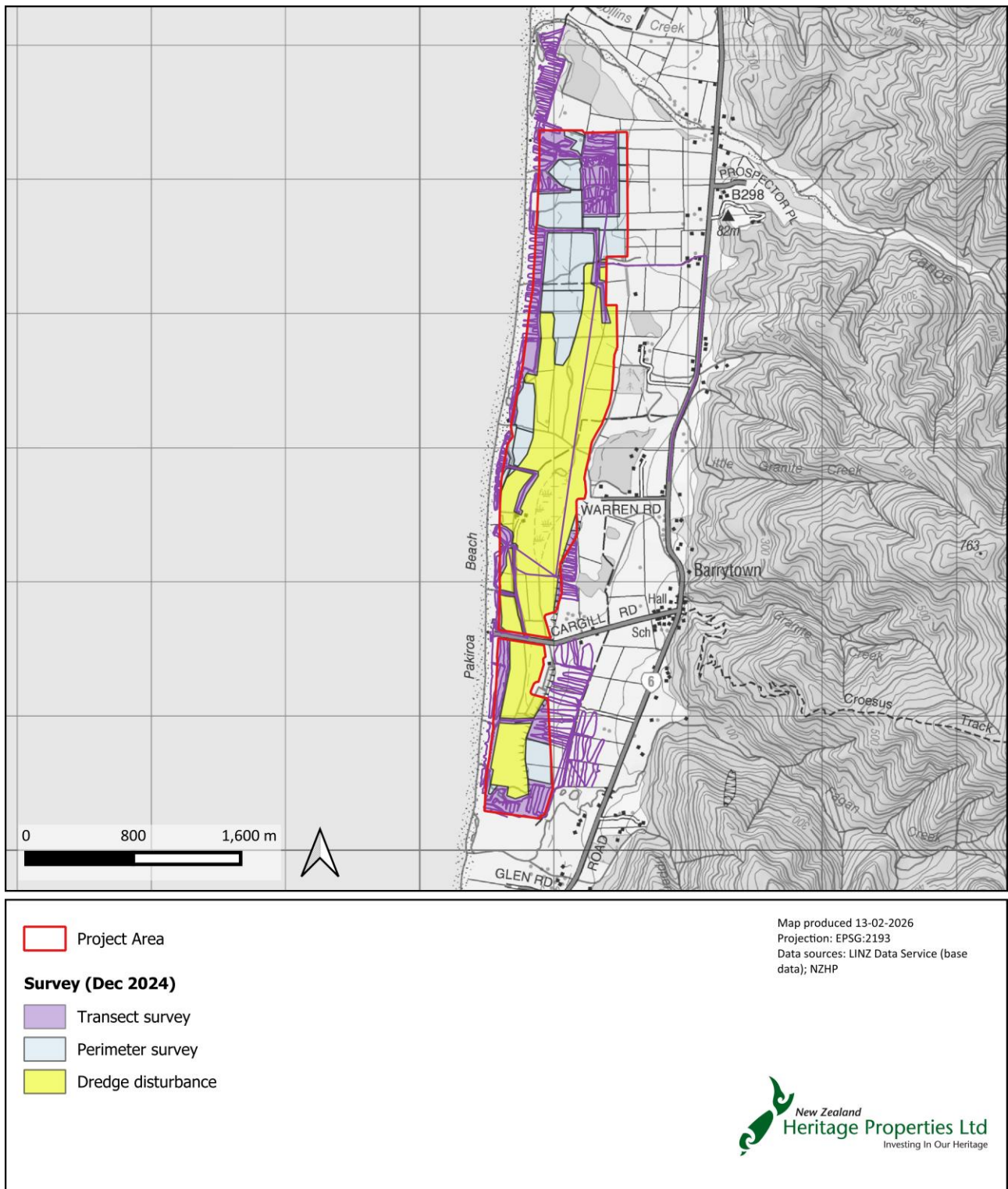


Figure 12-1. Survey map showing transects walked, Dec 2024. Note the survey covered the SRB beyond the scope of the current project area (mining disturbance zone).

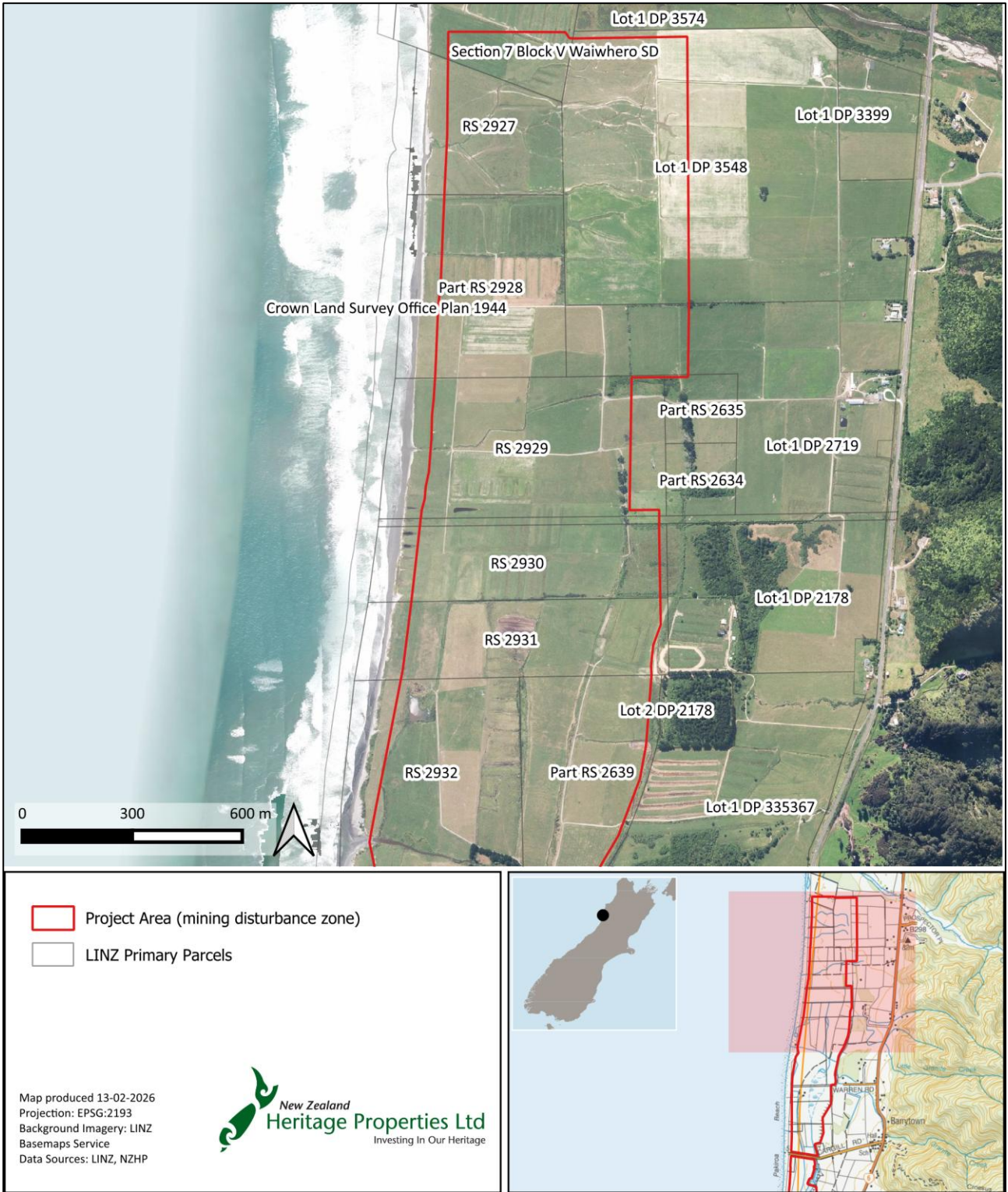


Figure 12-2. Land parcels in northern project area.

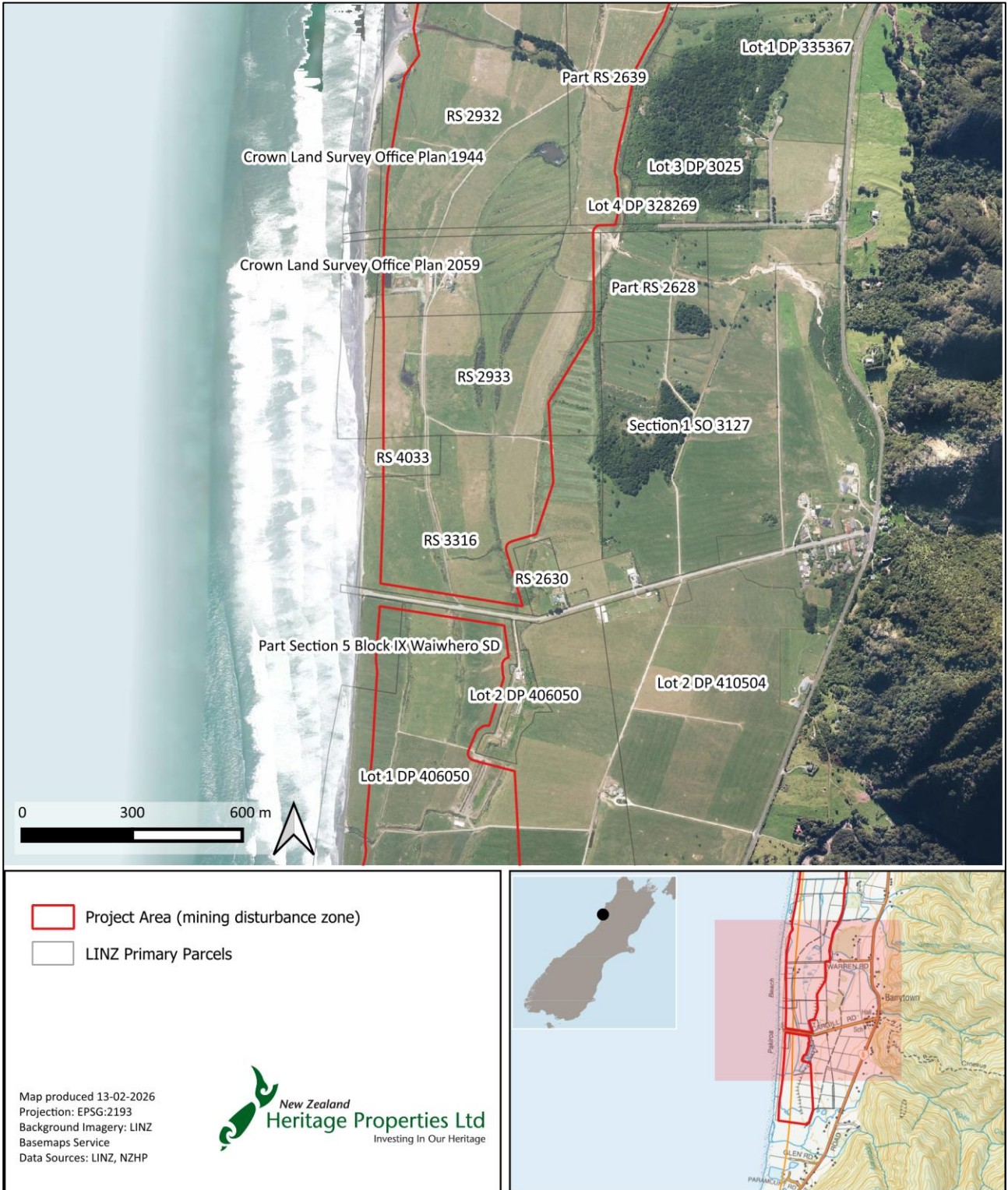


Figure 12-3. Land parcels in central project area.

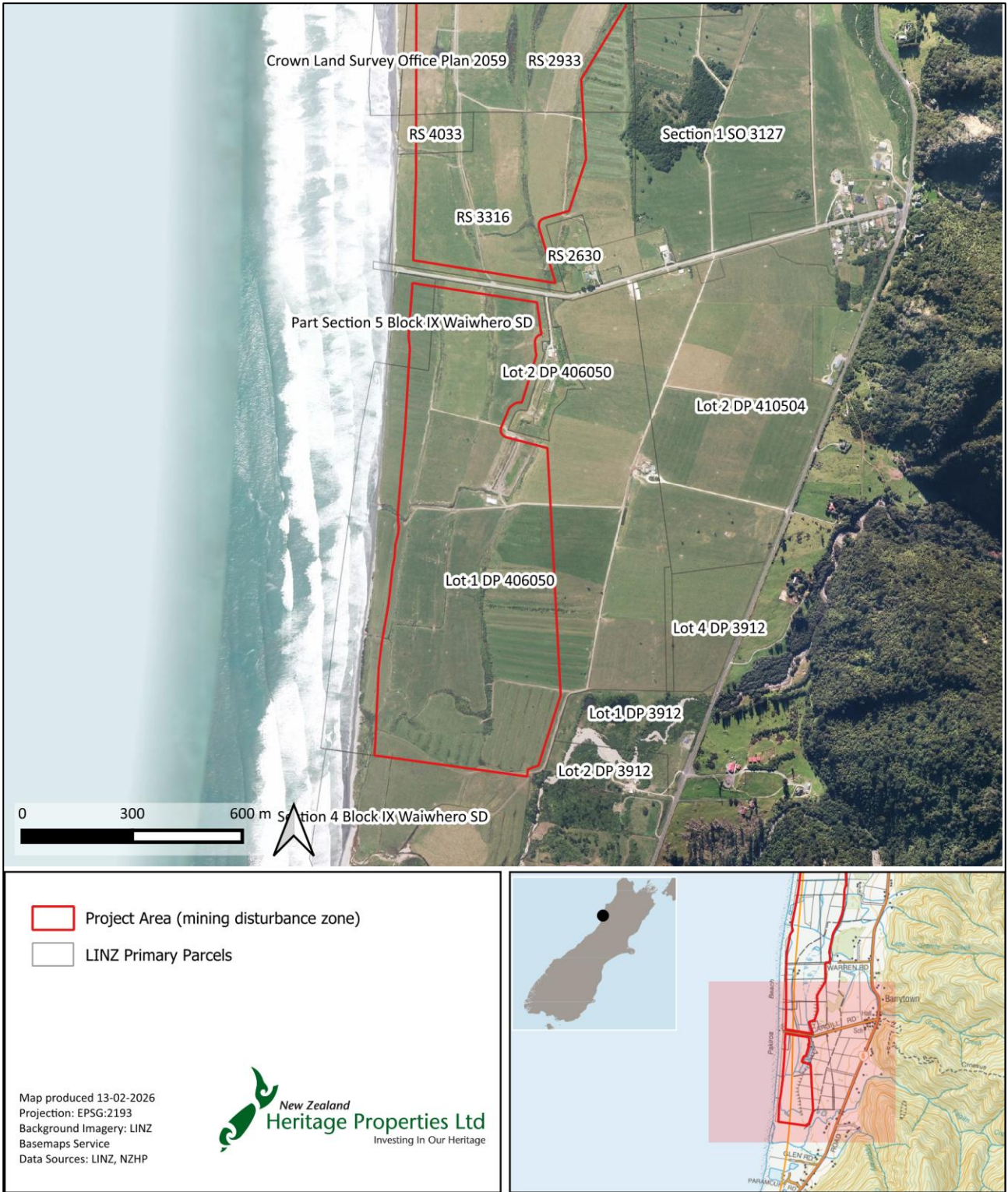


Figure 12-4. Land parcels in southern project area.

Appendix B Archaeological Site Record Forms

Summary Site Record



NZAA Site Number: K31/11
Imperial Site Number: S37/27
Site Type: Artefact find
Site Name(s):

Site Coordinates (NZTM)
Easting: 1461246
Northing: 5324958
Source: CINZAS



Finding Aids to the Location of the Site:

Brief Description:

FINDSPOT

Condition of Site when last visited:

No Recent Info

This report contains a summary of the information about this site held in ArchSite.

For a complete Site Record Form containing all the recorded information, please contact the ArchSite Coordinator.

For further information please contact:

ArchSite Coordinator, PO Box 6337, DUNEDIN

admin@archsite.org.nz

Summary Site Record



NZAA Site Number: K31/12
Imperial Site Number: S37/28
Site Type: Artefact find
Site Name(s):

Site Coordinates (NZTM)
Easting: 1460545
Northing: 5322359
Source: CINZAS



Scale: 1:2,500

Disclaimer: Polygon may not reflect the full extent of the site

Finding Aids to the Location of the Site:

Barrytown, along the sea beach about 0.8 km above the entrance road to the beach.

Brief Description:

Findspot for a shaped greenstone (brown trout) pendant (?), reported in 1980. Finder possesses some 30 pieces of greenstone pebbles found along the beach, among the greenstone is the patu piece and two greenstone chisels.

Condition of Site when last visited:

No Recent Info

This report contains a summary of the information about this site held in ArchSite.

For a complete Site Record Form containing all the recorded information, please contact the ArchSite Coordinator.

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