New Zealand Heritage Properties Ltd
Investing In Our Heritage

Solar Beacons, Tiwai Peninsula

An Archaeological and Historic Resources Assessment for Sites E47/169, E47/44, and other sites as yet unrecorded

Report Prepared for SouthPort Ltd
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Reviewed by: Megan Lawrence

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Project Details

Archaeological Site No.	E47/169, E47/44, and other sites as yet unrecorded
Site Address	LINZ Parcel ID: 3218888 (Closed Road Block XIII Campbelltown Hundred), 3210216 (Pt Section 2 Blk XIII Campbelltown Hundred), 3251370 (Pt Section 4 Blk XIII Campbelltown Hundred).
Client	South Port NZ Limited
Client Contact	Andrew Hill
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Document Control

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A	15/07/2021	Draft for consultation issued to client, HNZPT manawhenua, landowners	AM	ML
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Executive Summary

South Port NZ Limited are proposing to undertake earthworks for the installation of solar power system for marine beacons on Tiwai Peninsula at Awarua (Bluff Harbour). New Zealand Heritage Properties Ltd (NZHP) has been commissioned by Andrew Hill on behalf of South Port NZ Limited to undertake an archaeological assessment of Closed Road Block XIII Campbelltown Hundred, Pt Section 2 Blk XIII Campbelltown Hundred and Pt Section 4 Blk XIII Campbelltown Hundred (LINZ Parcel IDs: 3218888, 3210216, 3251370) to accompany a general archaeological authority application as required by the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014). This assessment also considers historic resources as defined by the Conservation Act 1987, to accompany an application as required by the Department of Conservation (DoC).

There are two project areas where works are proposed; at Beacon 1 and Beacon 2 for the purposes of this assessment. The project area land parcels are all public conservation land administrated by the Department of Conservation - Te Papa Atawhai for conservation purposes as per SO 11173. This assessment considered whether previously recorded sites, in particular the concrete remains of a marine beacon (E47/169) and a midden and artefact scatter associated with an additional marine beacon (E47/44), as well as other unrecorded or subsurface sites or historic resources would be affected. While there have been archaeological authorities granted for work and archaeological investigations on Tiwai Peninsula previously, none of the previous authorities relate directly to the project area land. While the project area is not within a statutory acknowledgement area nor customary marine area, Tiwai has strong cultural values for manawhenua and the project areas is coastal and adjacent to Rakiura/Te Ara a Kiwa and the waters of Foveaux Strait. Awarua, Bluff Harbour is recognised as Wāhi Tapu Me Te Wāhi Taonga (sacred and treasured sites) (Ngāi Tahu ki Murihiku 2008).

This assessment has determined that there is reasonable cause that a beacon site (E47/169) with low archaeological values may be affected by the proposed works. There is also the potential to encounter other subsurface unrecorded sites and historic resources such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites which vary in archaeological and other heritage values from low to medium with kōiwi having high values. Tiwai, and in particular it's cultural and archaeological sites, are of value to manawhenua and the proposed works may affect other cultural and heritage values associated with the Tiwai Peninsula landscape. This archaeological assessment has considered the evidence of pre-1900 occupation and the archaeological and other heritage values against the potential effects of the proposed works and determined that **that there will be a negligible to slight overall significance of effects on the archaeological values of E47/169; a negligible to slight overall significance of effects on the archaeological and other heritage values of unrecorded midden/oven, agricultural pastoral and transport/communication sites.** If kōiwi are encountered **NZHP considers that there will be a moderate to large overall significance of effects on the archaeological or other heritage values.** The effects will be dependent on whether the outcomes of consultation with manawhenua, Heritage New Zealand, DoC and NZ Police, and tikanga and whether reburial in situ or reinternment elsewhere is agreed. An assessment of effects on cultural values can only be provided by mana whenua, who have been consulted via Te Ao Marama Inc as part of the application process.

Sites affected by earthworks to install solar for beacons on Tiwai Peninsula.

NZAA Site Id	Site Name	Site Location	Brief Description
E47/169	Beacon	Tiwai Point	Concrete remains of a marine beacon, with potential subsurface remains in the area.

On the basis of this assessment, NZHP makes the following recommendations:

- **Landowner and consent from DoC**: A copy of this assessment and archaeological authority application should be provided to DoC for landowner consent and conditions prior to submitting an authority application.

- **Authority Application:** An archaeological authority under Section 44 of the HNZPTA 2014 should be obtained from the HNZPT prior to any modification of site E47/169 and potential subsurface unrecorded sites.
    - If development plans are altered from those reviewed by NZHP for this assessment (Appendix A), then HNZPT and NZHP must be alerted.
- **Protection of sites/features:** As a first principle, every practical effort should be made to avoid damage to any archaeological site or historic resource, whether known, or discovered during any redevelopment of the site.
    - Earthworks should be kept to a minimum to achieve the infrastructure requirements.
    - Works should be planned to avoid known structures, such as concrete beacons and the post.
    - If subsurface archaeological remains or historic resources are encountered NZHP recommends that works must stop and consider how further adverse effects can be avoided or minimised through re-design (e.g., moving the pole location slightly).
    - Protocols for the discovery of kōiwi should be agreed upon and confirmed in the site instruction.
- **Site Instruction.** All works must be carried out in accordance with the site instruction. Any amendments to the site instruction will require prior written approval from HNZPT, mana whenua and DoC.
- **Contractor Briefing:** All contractors working on the project must be briefed by the s45 archaeologist (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. Opportunity should be provided for manawhenua and DoC to attend the briefing and share cultural values and other heritage values.
- **Recording of Structures:** NZHP recommends that any subsurface structures be recorded to a Level III standard as defined in HNZPT's guide, *Investigation and Recording of Buildings and Standing Structures* (HNZPT 2018). Details of the recommended recording are provided in the site instruction.
- **Archaeological Monitoring**: All earthworks that may affect an archaeological site must be monitored by the s45 archaeologist, or person nominated on their behalf, in accordance with the Site Instruction.
    - Any archaeological features or post-1900 historic resources and material encountered shall be recorded, analysed, and interpreted in accordance with the Site Instruction.
- **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 HNZPT and manawhenua via Te Ao Marama and DoC in accordance with the Site Instruction.
    - Any taonga tūturu are *prima facie* the property of the Crown and will be notified to the Ministry for Culture and Heritage in accordance with the POA. NZHP, will notify both manawhenua, via Te Ao Marama Inc and DoC, and shall notify the Ministry of Culture Heritage. Manawhenua, in consultation with DoC will 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.
- **Kōiwi (human remains)**. Should kōiwi be encountered, NZHP recommends that all work must stop within 25m of the find. NZHP will assist the authority holder in contacting firstly DOC and manawhenua through Te Ao Marama Inc and HNZPT. DoC's kōiwi policy and processes (as per the archaeological

guidelines series for kōiwi tangata human remains HNZPT 2014b:Section 7.6) shall be followed as well as the Ngāi Tahu policy for kōiwi tangata (Te Rūnanga o Ngāi Tahu 2019b). Specific protocols will be defined in the site instruction.

- **Reporting.**
    - Within 20 working days of the completion of on-site archaeological work, the site record forms must be updated or submitted to ArchSite.
    - Within 12 months of the completion of on-site archaeological work, a full report on any archaeological material that is found should be prepared and submitted to the HNZPT, the ArchSite Central Filekeeper, Te Ao Marama Inc, Department of Conservation and South Port NZ Limited.

Abbreviations

Abbreviation	Definition
DoC	Department of Conservation
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

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 2014a).

Te Reo Māori	English
Hapū	Sub-tribe, extended whānau
Iwi	Tribe
Kāi 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
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
Taonga/Taonga	Treasured object
Tapu	Sacred
Tikaka/Tikanga	Lore, customary values and practices
Tūpuna/Tīpuna	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

Acknowledgements

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1 Introduction

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This assessment documents the history of the project area and its archaeological and other heritage values before assessing the potential effects of the proposed redevelopment on these values. This assessment considers whether archaeological sites documenting the concrete remains of a marine beacon (E47/169) and midden/artefact scatter adjacent to a marine beacon (E47/44) as well as other unrecorded or subsurface sites will be affected. This assessment has determined that there is reasonable cause that a beacon site (E47/169) may be affected by the proposed works, however the known above ground concrete beacon structure associated with this site can be avoided. Tiwai Peninsula is a diverse cultural and archaeological landscape with a density of recorded archaeological site types relating to both manawhenua occupation and early contact period and post contact period European settlement. Although many sites have been previously disturbed through the construction of the Tiwai Aluminium Smelter, coastal erosion, quarrying and infrastructure construction, historical information and previous archaeological investigations suggest that there is potential for unrecorded subsurface sites to be encountered within the project area. There is also the potential to encounter other subsurface unrecorded sites such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites associated with manawheuna occupation and the earliest Pākehā occupation at Tiwai Peninsular. In addition, Tiwai, and in particular it's cultural and archaeological sites, are of value to manawhenua and the proposed works may affect other cultural and heritage values associated with the Tiwai Peninsula landscape. Consultation with Te Ao Marama Inc. and DoC has been undertaken as part of this project. Also with other heritage values, the coastal perimeter has also been used throughout the early twentieth century onwards, and possibly earlier, for marine beacons and other harbour board and quarantine activities. This is not well documented in early historical records. There is reasonable cause to suspect that either nineteenth century or early twentieth century structures or post-1900 historic resources associated with these activities could be affected by the proposed works.

1.1 Project Area

Earthworks are proposed at two project areas on the Tiwai Peninsula: Beacon 1 and Beacon 2 (Figure 1-1). The two project areas encompass three land parcels defined as: part Closed Road, Block XIII Campbelltown Hundred, Part Section 2 Blk XIII Campbelltown Hundred; and, Part Section 4 Blk XIII Campbelltown Hundred on Tiwai Peninsula. A summary of the two project areas is provided in Table 1-1.

Table 1-1. Summary of two project areas.

Site Address	Tiwai Peninsula; LINZ Parcel IDs: 3218888, 3210216, 3251370
Legal Description	Closed Road Block XIII Campbelltown Hundred, Pt Section 2 Blk XIII Campbelltown Hundred and Pt Section 4 Blk XIII Campbelltown Hundred
Territorial Authority	Invercargill City Council
Archaeological Site No.	E47/169, E47/44 and other sites as yet unrecorded assessed
Previous Archaeological Authorities	None
New Zealand Heritage List/Rārangi Kōrero	No
Covenant or Heritage Order	No
Scheduled on District Plan	ArchSites are scheduled in the ICC District Plan APP3-6 (Note: this list is not current ArchSite information)
Post-1900 historic resources	None, potential other subsurface post-1900 archaeological sites as yet unrecorded
Reserve Status	No

Public Conservation Land	Conservation Area – Tiwai Spit (Stewardship Area) • Closed Road Block XIII Campbelltown Hundred: Statutory Vesting, Conservation Purposes; SO 11173 E47 9; 22 August 2016 • Pt Section 4 Blk XIII Campbelltown Hundred: Statutory Vesting, Conservation Purposes; SO 11173 E47 9; 22 August 2016 • Pt Section 2 Blk XIII Campbelltown Hundred: Statutory Vesting, Conservation Purposes; SO 11173 E47 9; 22 August 2016
Statutory Acknowledgement Area	No
Customary Marine Title	No. Adjacent to Rakiura/Te Ara a Kiwa. Environment Southland have been notified of four Customary Marine Title applications for coastal waters in Southland, lodged with the High Court. Two of these, have been made by Te Rūnanga o Ngāi Tahu and Cletus Maanu Paul on behalf of all Māori and take in the waters of Foveaux Strait and the Southland coast including Stewart Island.

Figure 1-1 Location map showing the two project areas, Beacon 1 and Beacon 2, within Tiwai Peninsula.

Land or foreshore is deemed to be held for conservation purposes under s 62(1) of the Conservation Act 1987 as identified on Department of Conservation - Te Papa Atawhai (DOC) allocation plans. The project area land parcels are all administrated by DOC for conservation purposes as per SO 11173. This assessment considers whether archaeological sites documenting the concrete remains of a marine beacon (E47/169) and midden/artefact scatter adjacent to a marine beacon (E47/44) as well as other unrecorded or subsurface sites will be affected. While there have been archaeological authorities granted for work and archaeological investigations on Tiwai Peninsula previously, none of the previous authorities relate directly to the two project areas. While the project areas are not within a statutory acknowledgement area nor customary marine area, Tiwai has strong cultural values for

manawhenua and the project areas are coastal and adjacent to Rakiura/Te Ara a Kiwa and the waters of Foveaux Strait. Awarua, Bluff Harbour is recognised as Wāhi Tapu Me Te Wāhi Taonga (sacred and treasured sites) (Ngāi Tahu ki Murihiku 2008).

1.2 Proposed Activities

South Port NZ Limited are proposing earthworks for the installation of a solar system to supply power to marine beacons. Beacons are permanently fixed to land and shown on charts to assist with safe navigation within New Zealand's coastal waters. The locations of existing beacons within South Port NZ Limited's network on Tiwai Peninsula are critical to the functioning of the system for safety and research results indicate they have been in these positions from the early twentieth century. Currently power is supplied to the existing beacons via overhead poles connected to the Tiwai Aluminium smelter and can be subject to faults. South Port NZ Limited wish to ensure the resilience of their marine beacon system into the future. As part of the proposed works, earthworks are required in the two beacon locations as per plans supplied by South Port NZ Limited (Figure 1-2).

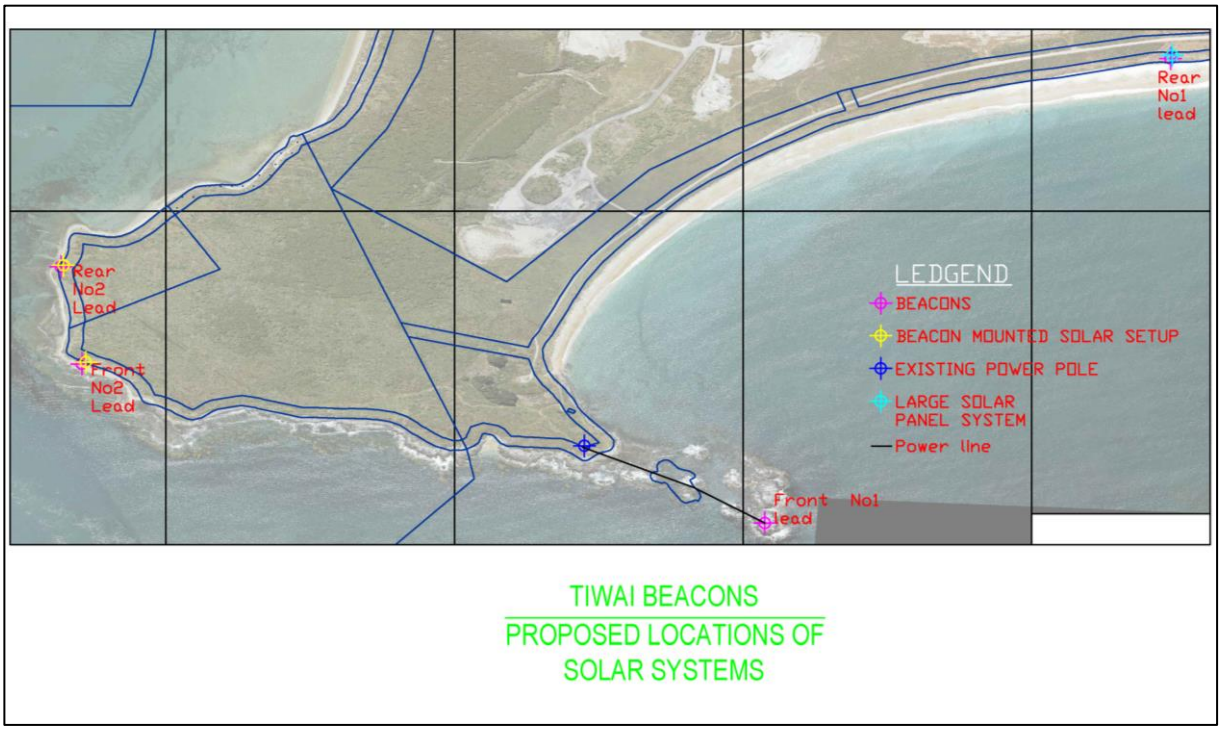

Figure 1-2 Location of beacons and proposed earthworks (Note: works have been redesigned and earthworks are now only proposed at the "Rear No. 1 Lead" (Beacon 1) and near the "exiting power pole" (Beacon 2).

At Beacon 1, the 'Rear No. 1 Lead" (teal marker on Figure 1-2, see also Figure 1-1) a large solar set up is required and earthworks are proposed for geotechnical investigations, site clearance and strip (300-600mm deep, 13x4m area) for the solar panel set up. The solar panels require barrier fencing with posts which will be a maximum of 900mm deep which can be either augured or hand dug.

At Beacon 2, the "Blue Marker" on Figure 1-2 (see also Figure 1-1), geotechnical investigations are required and a 1x1x1m excavation for a concrete foundation for a pole mounted solar system is required.

Geotechnical investigations will involve scala petrometer tests once the desired depth of excavation is reached to ensure the correct bearing capacity is reached (100kpa). If the test is a failure another 100mm will be scraped off and the test repeated. Based on what is known about ground conditions it is not expected that any more than 200mm extra depth will be removed. To minimise earthworks South Port NZ Limited have redesigned plans for earthworks at the "Rear No. 2 Lead" and "Front No. 2 Lead" (Figure 1-2). Solar mounted set ups can be mounted to existing twentieth century beacon structures at those locations. In addition, South Port NZ Limited is proposing

to overground any power cables within ducts between solar systems and the beacons to avoid trenching earthworks and therefore protect potential subsurface archaeology.

Figure 1-3 Examples of pole mounted solar system and large solar panel system.

2 Statutory Requirements

The legislative requirements relating to archaeological sites and artefacts are detailed in the following sections. There are two main pieces of legislation that provide protection for archaeological sites: the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014), Conservation Act (CA 1987)and the Resource Management Act 1991 (RMA 1991). Artefacts are further protected by the Protected Objects Act 1975.

2.1 Heritage New Zealand Pouhere Taonga Act 2014

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

Archaeological sites are defined by this act as

(a) any place in New Zealand, including any building or structure (or part of a building or structure), that--:

  (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and

  (ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and

(b) includes a site for which a declaration is made under section 43(1)

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

(a) was associated with human activity in or after 1900 or is the site of the wreck of any vessel where that wreck occurred in or after 1900; and

(b) provides, or may be able to provide, through investigation by archaeological methods, significant evidence relating to the historical and cultural heritage of New Zealand.

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

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

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

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

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

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

2.2 Conservation Act 1987

The CA 1987 defines 'conservation' as: *"the preservation and protection of natural and historic resources for the purpose of maintaining their intrinsic values, providing for their appreciation and recreational enjoyment by the public, and safeguarding the options of future generations."* This provides for the protection of historic resources, a wide definition, where *historic resource* means a historic place within the meaning of the HNZPTA 2014; and includes any interest in a historic resource.

The CA 1987 sets out the majority of DoC's responsibility and roles. Under Section 6 DoC has a particular responsibility to interpret and administer the CA 1987 to give effect to the principles of the Treaty of Waitangi and build effective conservation relationships with mana whenua. Section 6 sets out the functions of DoC which includes but is not limited to, in relation to historic resources:

- to manage for conservation purposes, all land, and all other natural and historic resources, for land managed by DoC and for land whose owner agrees with the Minister they should be managed by DoC
- to advocate the conservation of natural and historic resources generally:
- to promote the benefits to present and future generations of—the conservation of natural and historic resources generally and the natural and historic resources of New Zealand in particular; and the conservation of the natural and historic resources of New Zealand's sub-antarctic islands and, consistently with all relevant international agreements, of the Ross Dependency and Antarctica generally; and international co-operation on matters relating to conservation:
- to the extent that the use of any natural or historic resource for recreation or tourism is not inconsistent with its conservation, to foster the use of natural and historic resources for recreation, and to allow their use for tourism

The public conservation land DoC administers has different layers of protection, depending on which category or land status it holds under various legislation, which is complex often with additional or multiple layers of protection overlaying each other. Categories or land status may include, but are not limited to, National Parks, specially protected areas, wilderness areas, amenities area, reserves (e.g., historic, scientific, recreation as per Reserves Act), marginal strips, stewardship areas and DoC is also party to land covenants. To implement conservation, the protection of historic resources within public conservation land is guided by DoC's general policy, conservation management strategies (CMS) and conservation plans as statutory documents and may differ between the category or land status of public conservation land. This means that for projects planned on public conservation land, DoC must be contacted to determine their requirements for assessment of effects on historic resources, any requirements such as CMS or conservation plans, for managing historic resources when identified during assessments. Assessments of historic resources may be required for landowner or affected party consultation and

consent for the archaeological authority process under the HNZPTA 2014, Resource Consent, or obtaining a concession or access agreement from DoC.

The project area is also a conservation area associated with Tiwai Spit and managed as a stewardship area by DoC. The Southland Murihiku Conservation Management Strategy (CMS) 2016 developed by DoC identifies Tiwai Conservation Area as part of "Awarua Place". Places that have been identified in the CMS for the purposes of integrated conservation management, which require some specific management direction. Each 'Place' has a description, an outcome statement (outcome), policies and milestones.

Specific policies relating to Tiwai and historic resources include working with Ngāi Tahu and the community to promote and increase awareness of the significant historic and cultural values of the Awarua Place, including interpretation of the Māori cultural landscape (Department of Conservation 2016:Policy 2.8.3). DoC may grant authorisations for structures and utilities within the Awarua Place where:

a) the criteria in Policy 3.10.1 are complied with;
b) the structure or utility is consistent with the outcome for this Place;
c) the structure or utility complements the values present, in particular the:
    i) traditional recreational use of this Place;
    ii) sensitive ecological values, particularly the Waituna–Awarua Plains priority ecosystem unit; and
    iii) cultural values such as such as mahinga kai, wāhi tapu, urupā, whenua tūpuna and tauranga waka…(Department of Conservation 2016:Policy 2.8.7)

2.3 Resource Management Act 1991

The RMA 1991 defines historic heritage as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, and it may include historic sites historic sites, structures, places, and areas; archaeological sites; and sites 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 HNZPT Pouhere Taonga Act 2014. Any historic feature that can be shown to have significant values must be considered in any resource consent application.

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

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

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

The RMA requires local authorities to develop and operate under a district plan. The Invercargill City Council District Plan was made operative on 30 August 2019. ICC District Plan recognises that Invercargill has a rich heritage from both Māori and European cultures and retains significant built heritage which reflects its development. The Invercargill City Centre in particular contains a variety of good examples of architectural styles

from the 1870s to the present day from Victorian, Edwardian, Arts and Crafts, Art Deco and International styles. This variety of examples of architectural styles is what makes Invercargill's streetscape unique and contributes to its character. One of the strengths of built heritage in Invercargill is the proportionally large number of Art Deco styled buildings. The effects of the Depression of the early 1930s on Invercargill were delayed and as a result many buildings of this style were constructed in Invercargill and remain today. Whilst the adaptive re-use of heritage buildings, sites and structures can aid in the enhancement and maintenance of heritage values, land use and subdivision activities could significantly and adversely affect heritage values.

The objective of the ICC including an area or item on the ICC Heritage Record is that: (HH-01) Heritage values are identified and protected from inappropriate subdivision, use and development; (HH-02) The built heritage of Invercargill is appropriately recognised and utilised; (HH-03) Heritage values are appropriately managed to avoid or mitigate the potential adverse effects of natural processes and climate change. Policies that the ICC has established to ensure these objectives are met are outlined in Part 2 of the District Plan (HH-P1 to HH-P10) and this is followed by methods of implementation (HH-M1 to HH-M11).

To implement protection of heritage values, amongst other methods, the ICC District Plan identifies heritage on District Planning maps and identifies sites, structures, places and areas of heritage values in Appendix 3 Heritage Record. The items on the Heritage Record have been assigned to one of five separate lists that have different levels of protection under the Heritage Rules (Part 3):[1]

- **Appendix 3-2 Sites Registered by HNZPT.** This list includes all Category I and II sites on the HNZPT List as of October 2016.
- **Appendix 3-3 Sites of Local Significance**. This list includes items and areas of local historic heritage significance as recognised in *Invercargill City: Central City Area Heritage Buildings Review* (Gray 1997).
- **Appendix 3-4 Street Furniture.** This list includes items of street furniture identified by Gray (1997) requiring protection.
- **Appendix 3-5 War Memorials/Relics.** This list includes war memorials/relics within the city district
- **Appendix 3-6 Archaeological Sites.** This list includes archaeological sites recorded in ArchSite as of May 2013

The rules for historical and cultural values, including matters to be addressed in applications, are provided in Part 3 (Rule HH-R1 to HH-R10). Applications under the rules need to address the matters in HH-R10 in the District Plan. The ICC District Plan requires that Council shall have regard to the principles of the ICOMOS NZ Charter in considering proposals for the adaptive reuse of heritage buildings or structures (ICC District Plan HH-P5, p34). In applications to council the ICC District Plan requires consideration of any relevant Invercargill City Council heritage design guidelines (ICC District Plan HH-R10 (5)) as well as other matters relating to heritage values, effects on heritage values, design for retention and protection, reasons for the proposal and alternative options. The effects are then considered against best practice recommendations, such as the guidelines provided by HNZPT and the ICC Design Guidelines the importance of the buildings or structures, their condition, potential for alternative use, and the benefits of the redevelopment.

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).

[1] In previous versions of the District Plan, items on the Heritage Register were assigned classes, with various levels of protection based upon the assigned class, with Class 1 being the highest level of protection and Class 4 being the lowest.

The four Rūnanga Papatipu o Murihiku; Te Rūnanga o Awarua, Te Rūnanga o Oraka/Aparima, Te Rūnanga o Hokonui and, Te Rūnaka o Waihōpai are collectively involved in the protection/promotion of the region's natural and physical resources by providing input into the processes required by the RMA and other relevant legislation. *Te Tangi a Tauira - The Cry of the People: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan* (Ngāi Tahu ki Murihiku 2008) has been developed by Ngāi Tahu ki Murihiku and is supported by Gore District Council, Southland District Council, Southland Regional Council (Environment Southland), Invercargill City Council and Queenstown Lakes District Council and recognised by iwi authority Te Rūnanga o Ngāi Tahu. The plan describes values, identifies primary issues and provides policies and management guidelines.

Part 2 of the ICC District Plan recognises the Treaty of Waitangi, the Murihiku Ngāi Tahu Treaty principals, manawhenua, The Ngai Tahu Claims Settlement Act 1998, *Te Tangi a Tauira - The Cry of the People,* partnerships and involving tangata whenua throughout resource management processes is an essential part of sustainable management of the region's natural resources. Issues for tangata whenua are covered in TW-11 to TW-13, objectives TW-01 to TW-05, policies TW-P1 to TW-P6 and methods of implementation TW-M1 to TW-M8.

2.4 Protected Objects Act 1975

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

(a) 28 days of finding the taonga tūturu; or

(b) 28 days of completing field work undertaken in connection with an archaeological investigation authorised by HNZPT.

3 Methodology

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

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

- Historical maps and plans (via Prover and online collections);
- Historical certificates of titles and deeds (via Archway, LandOnline);
- Peer reviewed geotechnical, environmental and archaeological reports;
- Documentary historical records such as valuations, newspapers (Invercargill Library and Archives, PapersPast, Archives NZ);
- Historical photographs and documents (Southland Museum and Art Gallery, Invercargill Library and Archives, online digital repositories such as Digital NZ and Hocken Snapshot); and,
- Taonga collection records (Southland Museum and Art Gallery).

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

A site visit was conducted by Amy McStay and David Dudfield on 24 June 2021 and a summary of the on-site observations is provided in Section 7. A brief photographic record was compiled to provide visual documentation of the current state of the project area.

The assessment of archaeological and other historic values is based on criteria established by HNZPT (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.)
- For other heritage values, HNZPT assessment criteria relating to historical, cultural, aesthetic, archaeological, architectural, scientific, social, spiritual, technological and traditional significance or values as also considered.

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 significance (Table 3-1). These levels of significance follow the recommendations proposed by Department for Transport (DfT 2008); although, NZHP has steered away from the use of local, regional, and local importance, which Kerr (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 significance (adapted from DoT, 2008).

Level of Significance	Criteria
Very High	• World Heritage Sites (and proposed sites) • An archaeological site of acknowledged international importance
High	• Listed archaeological sites, including those of listing quality and importance o Category 1: places of special or outstanding historical or cultural heritage significance or value; o 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	• Archaeological sites that can be shown to have moderate values
Low	• 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	• Assets with very little surviving archaeological interest
Unknown	• The importance of the site is not yet known

After determining the history of the site(s) and evaluating values, NZHP assessed the effects of the proposed work on those values. Specifically, NZHP considered the following matters as outlined by HNZPT (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 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.

Risk of affects to archaeology and historic resources represents the potential that archaeology and historic resources will be affected by the proposed works. The magnitude of the impact will be defined as follows:

- **Major** Impact to the site, such that the asset is totally altered (*e.g.*, a site is totally destroyed).
- **Moderate** Impact to the site, such as the asset is significantly modified (*e.g.*, at least half of a site is affected)
- **Minor** Impact to the site, such that the asset is slightly different (*e.g.*, a small portion of the site is affected).
- **Negligible** Slight changes to site that hardly affect it.

Assessing and evaluating the potential effects on values can be very difficult and subjective. To mitigate against this, NZHP follows systems that have been developed for heritage impact assessments by the Department for Transport (DfT 2008) and adopted by others, including ICOMOS (ICOMOS 2011). The matrix proposed here has been adapted from these examples and can be successfully used to assess effects on archaeological values. The assessment of effects considers the magnitude of the proposed work against the overall archaeological or other heritage significance (Table 3-2).

Table 3-2. Matrix of significance of effects on the values.

Significance	Magnitude of Impact

	Negligible	Minor	Moderate	Major
Very High	Slight	Moderate-Large	Large-Very Large	Very Large
High	Slight	Moderate-Slight	Moderate-Large	Large-Very Large
Medium	Negligible-Slight	Slight	Moderate	Moderate-Large
Low	Negligible Slight	Negligible-Slight	Slight	Slight-Moderate
Negligible	Negligible	Negligible-Slight	Negligible-Slight	Slight

4 Physical Environment and Setting

The project area is situated at and to the north of the entrance to Awarua (Bluff Harbour), on the western extent of the Tiwai Peninsula, approximately 20km from central Invercargill. Awarua is used to refer to the Bluff Harbour, but also the wider area surrounding the harbour extending across the project area.

Prior to human occupation, the land around Awarua was predominantly wetlands (Wells 2017). Sand dunes covered Tiwai Peninsula, with light podocarp cover to the south of the bay (Gillies 1981; Wells 2017). As can be seen in Figure 4-1, the Awarua wetlands retracted east over time with a concomitant change in vegetation with exotic grassland and forest taking over; the fens of the peninsula vanished entirely. The geology of the area is dominated by Holocene to Pleistocene marine and non-marine sand and gravels overtop of Neogene sedimentary East Southland Group rock and lignite (Wells 2017). The Bluff Harbour and bay forms an area of low shelving mudflats with associated tidal channels that drain out to the sea between Motupōhue (Bluff Hill) and the Tiwai Peninsula (Huffadine and Watson 1977).

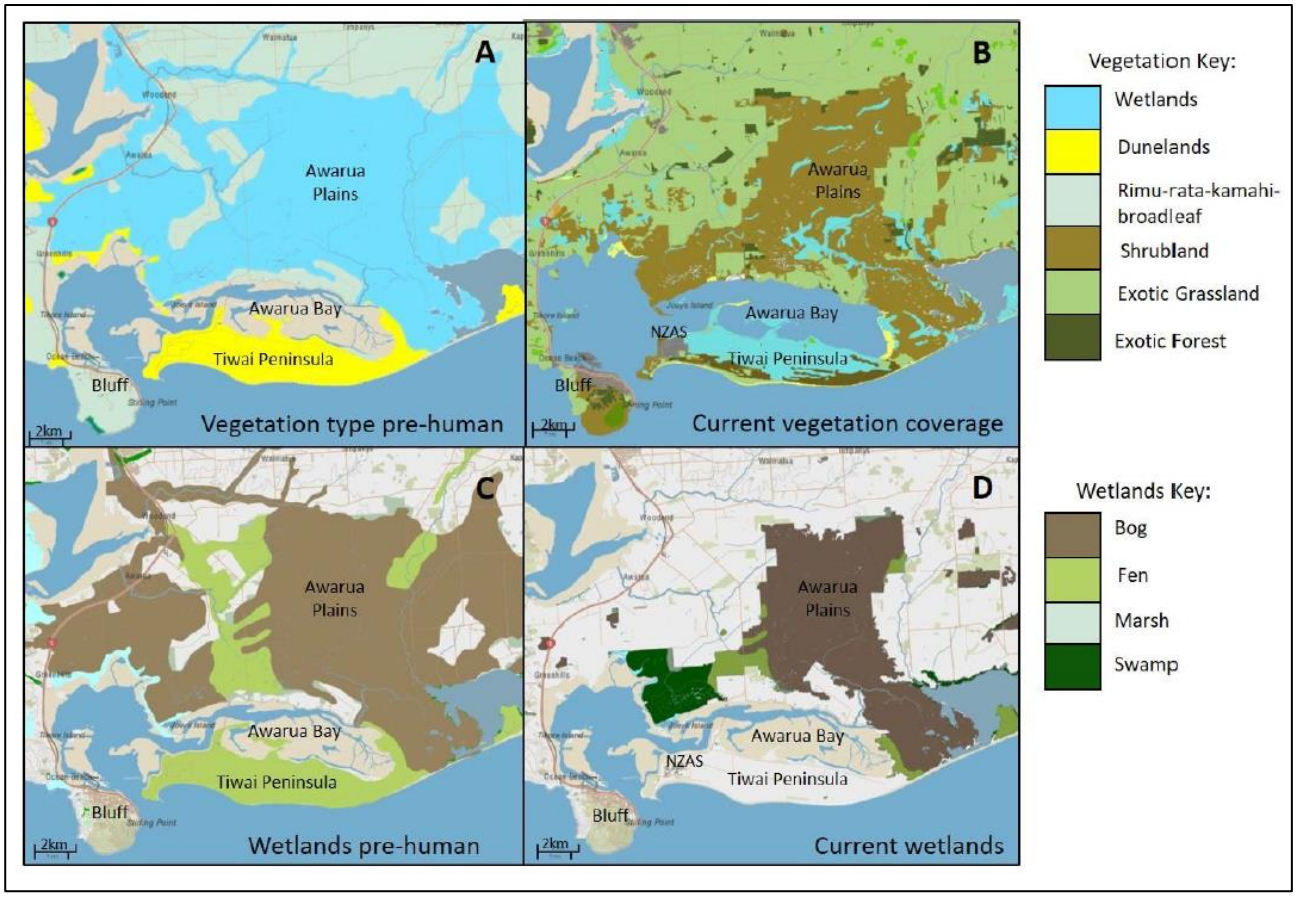

Figure 4-1. Figure shown changing wetland and vegetation extents in the Awarua area (Wells 2017).

4.1 Tiwai Peninsula

The project area is situated on the Tiwai Peninsula, a curved landmass running east-west (Figure 4-2). The peninsula is situated between Awarua Bay and Foveaux Straight, with the mouth of the Bluff Harbour separating Tiwai Peninsula from Bluff. The west end of the peninsula is relatively sheltered from westerlies by Motupōhue (Bluff Hill). The peninsula is approximately 13km long, and 2km wide, and it is also largely flat at 10 A.S.L. (Huffadine and Watson 1977). Prior to the construction of the Tiwai Road Bridge, natural land access to the peninsula was limited as peat bogs dominated the north and east end of the peninsula (Hamel 1969). Instead, access was largely through sea and beach travel; although, as will be shown below, travel routes did run overland as well. The peninsula featured several lagoons and ponds, many of which were lost through twentieth century development.

The Tiwai Peninsula is a series of quartz gravel dunes of a historical prograding shoreline. The beach deposits on the peninsula comprise iron stained quartz gravels mixed with well-graded sands (Wells 2017). The subparallel ridges running along the peninsula are vegetated gravel storm tide ridges (Huffadine and Watson 1977). There is a lack of soil data available for Tiwai Point from Manaaki Whenua Landcare Research, but soils elsewhere on the peninsula have been identified to range between a dark brown loam and a black peat loam with a high fine quartz gravel content (Hamel 1969). Gravel beneath the peat in the area often features an impermeable iron pan (Huffadine and Watson 1977).

On Tiwai Peninsula, low outcrops can be found of the oldest rocks in the area: Permian intermediate to basic volcanoclastic sedimentary rocks. Recent deposits formed the majority of Tiwai Peninsula between 4000 and 6000 BP (Huffadine and Watson 1977). Volcanic and metamorphic rock outcrops located at Tiwai Point include seams of black argillite and grey-green argillite (Park 1969). Tiwai is one of several sources of Greenhills Group Bluff argillite in the area (Figure 4-3); however, the Tiwai source is considered to have been unsuitable for manufacture of adzes (Huffadine and Watson 1977). That said, at least one small outcrop (E47/38) of fine-grained argillite and at least one source of argillite have been identified as viable for adze production (John Hall-Jones 1976; Huffadine and Watson 1977), and others may exist. The largest source of Bluff argillite was Colyers Island to the west of Tiwai Peninsula. Found throughout the Awarua area, Bluff argillite was a major key resource utilised in the early history of New Zealand's settlement, but it is "one of the most difficult raw materials to fashion into adzes" (Jennings and Weisler 2020).

Figure 4-2. 3D imagery showing Tiwai Peninsula and local places in the surrounding Awarua area.

Figure 4-3. 3D imagery showing location of argillite sources in the Awarua area.

To the north, the vegetation is dominated by flax and tussock, predominantly red tussock (*Chionochloa rubra*) and silver tussock (*Poa cita*). Historically, by 1831 there was little bush recorded on the western end of the peninsula

(Hamel 1969). Yet prior to this, the peninsula was likely lightly forested (Gillies 1981). When rabbits were introduced in the 1860s, Tiwai Peninsula was reportedly heavily plagued by these pests (Hamel 1969). The peninsula vegetation has been also reportedly burnt off historically (Hamel 1969).

A quarantine reserve was established on the peninsula by 1882 (Southland Times 1882). Farming of the area meant that by 1850, the peninsula was identified as holding cultivations and grassy land with good pastorage as shown in Figure 4-4. The peninsula was also used for farming into the twentieth century and elements of this can be seen in the derelict twentieth century chicken farm shown in a 1959 plan (Figure 4-5). Further development in the twentieth century included the installation of telephone lines and an airstrip to the southwest of the peninsula (Figure 4-5).

Figure 4-4. Detail of 1850 map showing descriptions of vegetation on the Tiwai Peninsula (Stokes and Thompson 1850).

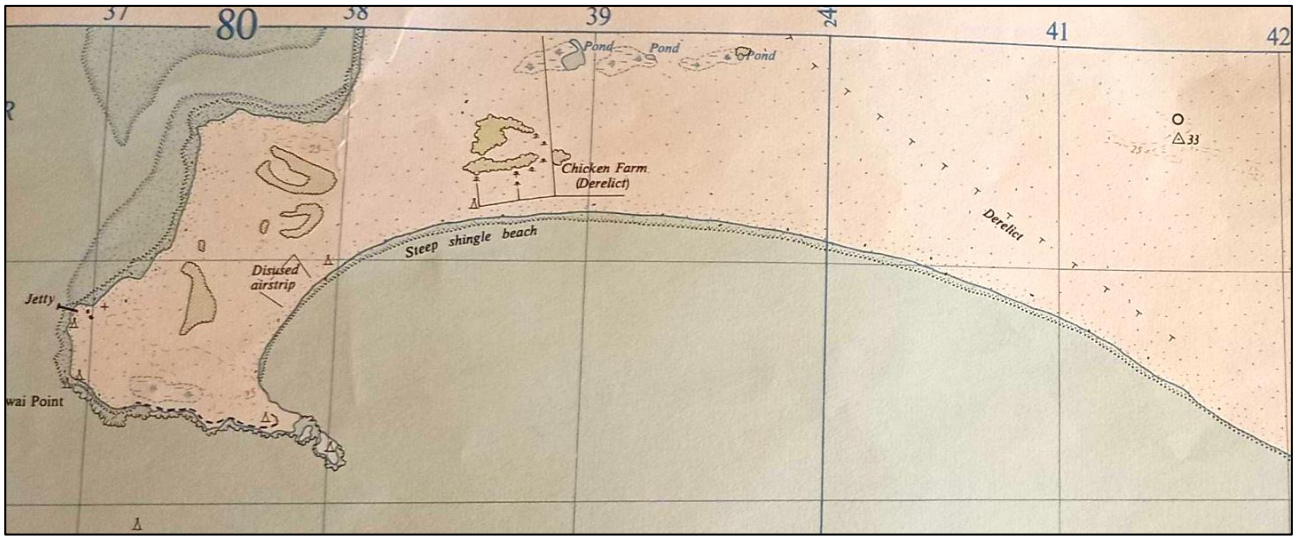

Figure 4-5. Map from 1959 showing the Tiwai Peninsula including several ponds and lagoons, a disused airstrip, a derelict chicken farm and derelict telephone lines.

The most dramatic alteration to the Tiwai Peninsula was the construction of the Tiwai Point Aluminium Smelter in the late 1960s (Lind 1996). This development saw the construction of a smelter complex on the west extent of

the peninsula along with the construction of a wharf out into the harbour and a bridge to the mainland across Awarua Bay. This smelter has been in operation ever since. The project area itself is coastal and to the south of the aluminium smelter.

5 Historical Background

Heritage management is strongly driven from an understanding of place and change through time associated with places. The historical setting of an area, place or site provides invaluable contextual information through which greater understanding of the project area can be achieved. The broader history of Tiwai Peninsula and Awarua area establishes the environment in which the project area was established and guides the interpretation of site significance at a local level. The following sections discuss the results of documentary research carried out. The first sections provide a general history of manawhenua and Pākehā occupation of Murihiku, followed by more detailed look at occupation within Tiwai Peninsula.

5.1 An Overview of Māori Occupation in Murihiku

NZHP recognises the significant rich and deep manawhenua history of Tiwai, Awarua and the surrounding area. Information regarding Māori histories within the Southland District are largely based on oral accounts, lore passed down through generations, and accounts passed on to Pākehā settlers who documented their explorations with flourish and grandeur during the early nineteenth century. Consultation should be undertaken with local rūnanga via Te Ao Marama Inc. to provide detailed oral traditions and whakapapa of manawhenua at Tiwai and the various perspectives of tangata whenua.

Southland, or more precisely the lower portion of Te Waipounamu, was known as Murihiku by manawhenua. Manawhenua in this region are said to trace their arrival back to the chiefs Rākaihautū and Tamatea (Grant 2015). Rākaihautū was a chief of the Waitaha people who is said to have arrived on the waka Uruao (Beattie 1917), with some traditions holding that he carved out the lakes of Te Ana-au and Moturau with his kō (Beck, Macfie, and Esler 2007). Tradition tells of Tamatea as a great navigator, travelling around the country on the waka Takatimu. Tamatea supposedly stopped in Murihiku for a time, naming many of the places he encountered throughout the region (Beattie 1917). The waka, Takatimu, is said to have capsized while travelling around the island, with the Takatimu Mountains said to be the upturned hull of the waka (Te Rūnanga o Ngāi Tahu 2019a). Waitaha moved into Murihiku soon after the initial colonisation of New Zealand circa 1300AD (Anderson 1983; Walter et al. 2017). Manawhenua settlements in Te Waipounamu were generally located on the coast near the mouths of prominent rivers, which provided access to mahinga kai and ara tawhito (traditional travel routes). Pā attributed to Waitaha are known around the mouth of the Molyneux River, Lake Wakatipu, Lake Te Anau, and Oamaru (Pybus 1954).

The Waitaha people found rich sources of food in the local moa and seal populations along with a variety of other resources including fish, shellfish, and bird species. Three large occupation sites which held moa remains have been recorded along the coast to the south of Invercargill at Greenhills, Tiwai Point and Bluff (Anderson 1989). Māori utilised argillite, an indurated metasediment used to produce toki (adzes) during the first few centuries of Polynesian (Māori) colonisation in New Zealand. Stone was quarried from nearby Riverton, Colyers Island, Tikore Island (Te Motu-kāika-kurī) in Bluff Harbour, Mokomoko Inlet, Greenhills and Tiwai Point. Toki blanks and preforms, as well as worked boulders, some of which are now ventifacts, are found throughout the area, especially within Awarua (Bluff Harbour) itself. The types of toki produced from Bluff argillite are thought to exclusively date to the earliest period of Māori occupation in New Zealand ca. 1300-1500 AD (Jennings 2009). Multiple archaeological sites are recorded around Awarua (Bluff Harbour) associated with this period of occupation (see Section 6).

Radiocarbon dates around the Foveaux Strait were examined by Jacomb, Walter and Jennings (Jacomb, Walter, and Jennings 2010). Although the sample of dates was small, they suggested a "bimodal settlement chronology" with a drop in population from around the sixteenth century, which did not increase again until the late eighteenth to early nineteenth century (Jacomb et al. 2010). In the interim, those who remained shifted to more transient settlement patterns which followed seasonal resources such as fish, tuna, shellfish, and birds. Two later waves of settlers (Ngāti Māmoe in the sixteenth century and Ngāi Tahu in the seventeenth century) came south into the

region as a result of conflict and intermarriage with southern hapū. However, there are very few recorded occupation sites along the southern coast which date to the seventeenth and eighteenth centuries (Jacomb et al. 2010), suggesting that most permanent occupation was based in northern Murihiku. Archaeologically most sites in the Foveaux Straight prior to European contact are of short duration and reflect transient activity (Jacomb et al. 2010). Villages and permanent settlements began to reappear along the southern coast just prior to European contact. It has been suggested by some that this re-emergence of settlements in southern Murihiku was in fact caused by the arrival of Europeans and the trade opportunities they presented (Anderson 1998).

The east and south coasts of the South Island have a dynamic history, which is largely due to the stretch of coastland having been abundant with various resources, more accessible land, and far calmer seas than the west coast. This is reflected in a very early map of the South Island (Figure 5-1), which was created in 1842 for Edmund Halswell; the map was drawn with the aid of two Māori guides who hailed from southern New Zealand (Taylor 1952). The map highlights the importance of certain localities and coastal features that could be seen from the ocean. These were well mapped out, although not to scale in districts other than those that had been well traversed, with the east coast showing far greater detail (Taylor 1952). It is interesting to note that Awarua is identified as a "good harbour" (by Māori vessels, European vessels, or both) contrasting with the adjacent Ōreti or New River Estuary identified as a "bad harbour". However, it has been reported that the Ōreti estuary was easier for waka to navigate than the Bluff harbour due to the rip tide of the latter (Parliamentary Commissioner for the Environment Te Kaitiaki Taiao a Te Whare Pāremata 2020).

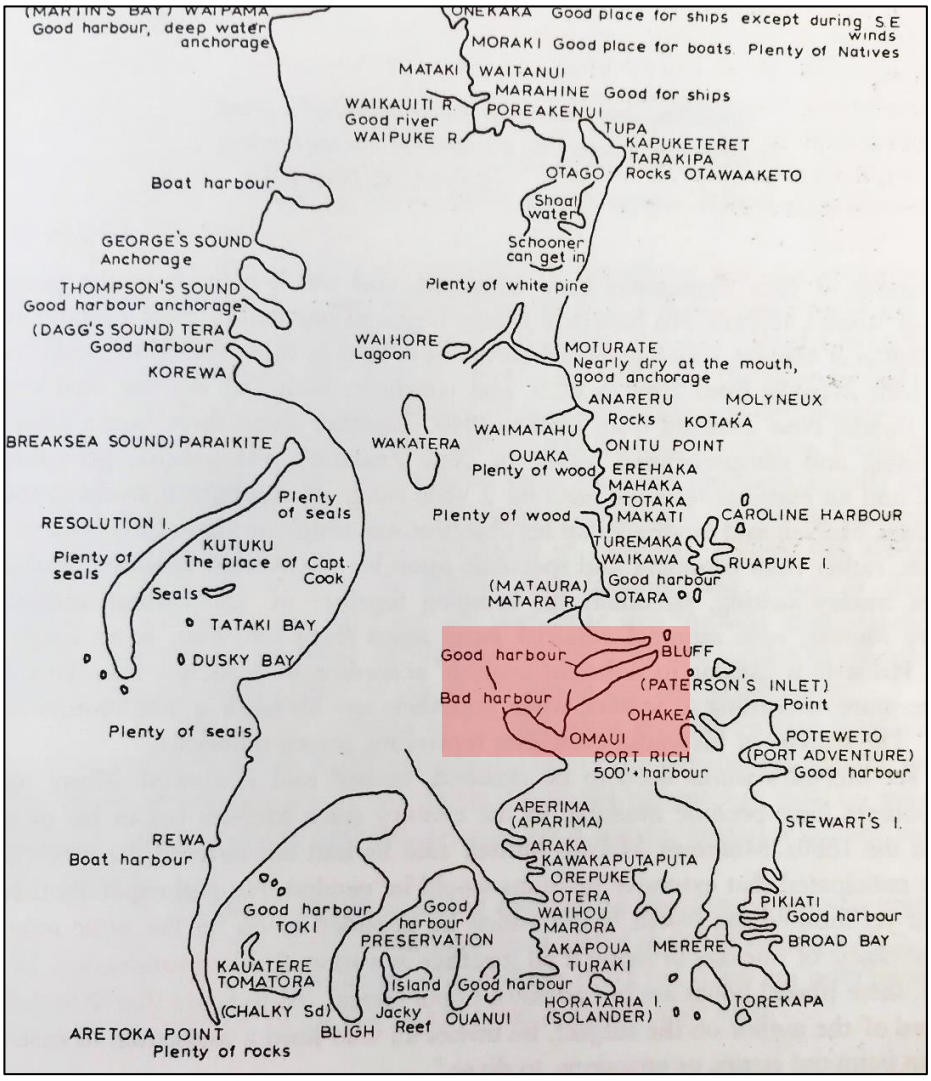

Figure 5-1. Detail of an early map of the South Island drawn with the assistance of two Māori guides in 1842 (Taylor 1952).

5.2 Māori Occupation in Awarua and Tiwai

Awarua traditionally referred to Bluff Harbour and the surrounding region and is shown on Shortland's 1838 map (Figure 5-2). Awarua or "two channels" likely makes reference the two branches of the harbour (Te Ao Marama Inc. 2007; Te Rūnanga o Ngāi Tahu 2020a). The eastern arm of the harbour has two recorded Māori names. Kaumātua Eruera Poko Cameron recorded the area was known as Te Wai-o-te-whawhaki (Te Rūnanga o Ngāi Tahu 2020a). This is the name shown on Beatties' map (Figure 5-3). Cameron also noted the area was an important mahinga kai for Ngāi Tahu in the region, for its abundant fish, bird, and mammal resources. The second recorded name for the bay is Poupoumoana, recorded by J.H. Beattie from an unknown informant referring to the east arm of the harbour and its associated northern shore (Te Rūnanga o Ngāi Tahu 2020a). The harbour would have been an important for a number of permanent occupation sites in the area including Mokomoko, Ōmāui, Te Kaika of Te Wera at Ocean Beach, Te Taranga a Waru as well as Tiwai (Te Ao Marama Inc. 2007).

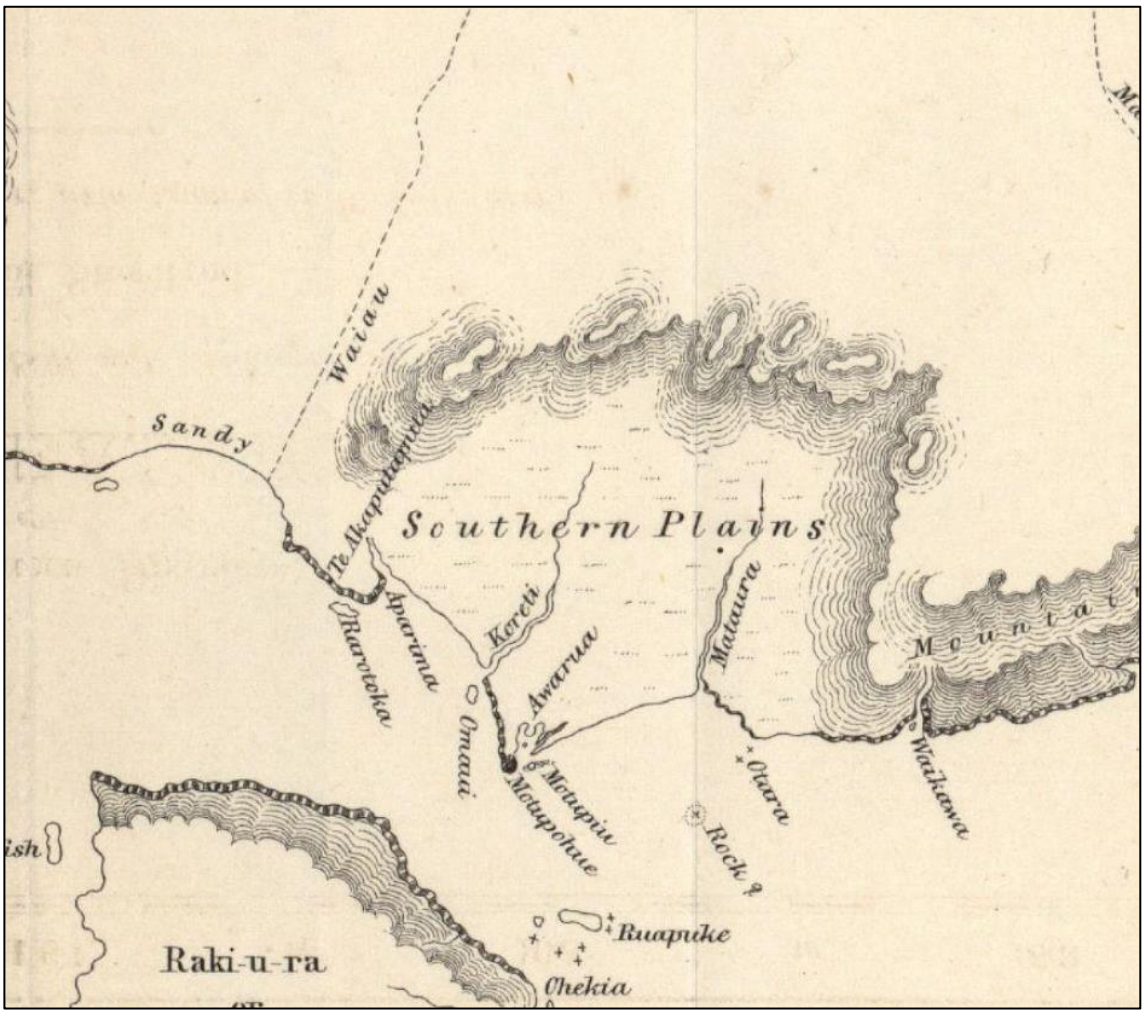

Figure 5-2. Shortland's 1838 map of southern New Zealand showing Awarua (Shortland 1838).

Tiwai was first recorded as "Tiwai" on an 1843 map prepared by Tūhawaiki (Figure 5-1). However, on the 1850 Acheron survey it is recorded as TeWaewae and Tewaewae (Figure 5-5), which means to arrive by foot (Te Ao Marama Inc. 2007; Te Rūnanga o Ngāi Tahu 2020a). Many Ngāi Tahu residents in Bluff referred to the Tiwai Point as "Te Wae's" and certain kaumātua continue to do so. Different versions of Tiwai are abundant and include "Tewai", "Tiwae", "Tiwaewae", "Tewaiwai" and "Tewyai"(Figure 5-6); however, in 1911 the official name of "Tiwai" was set (Te Rūnanga o Ngāi Tahu 2020a).

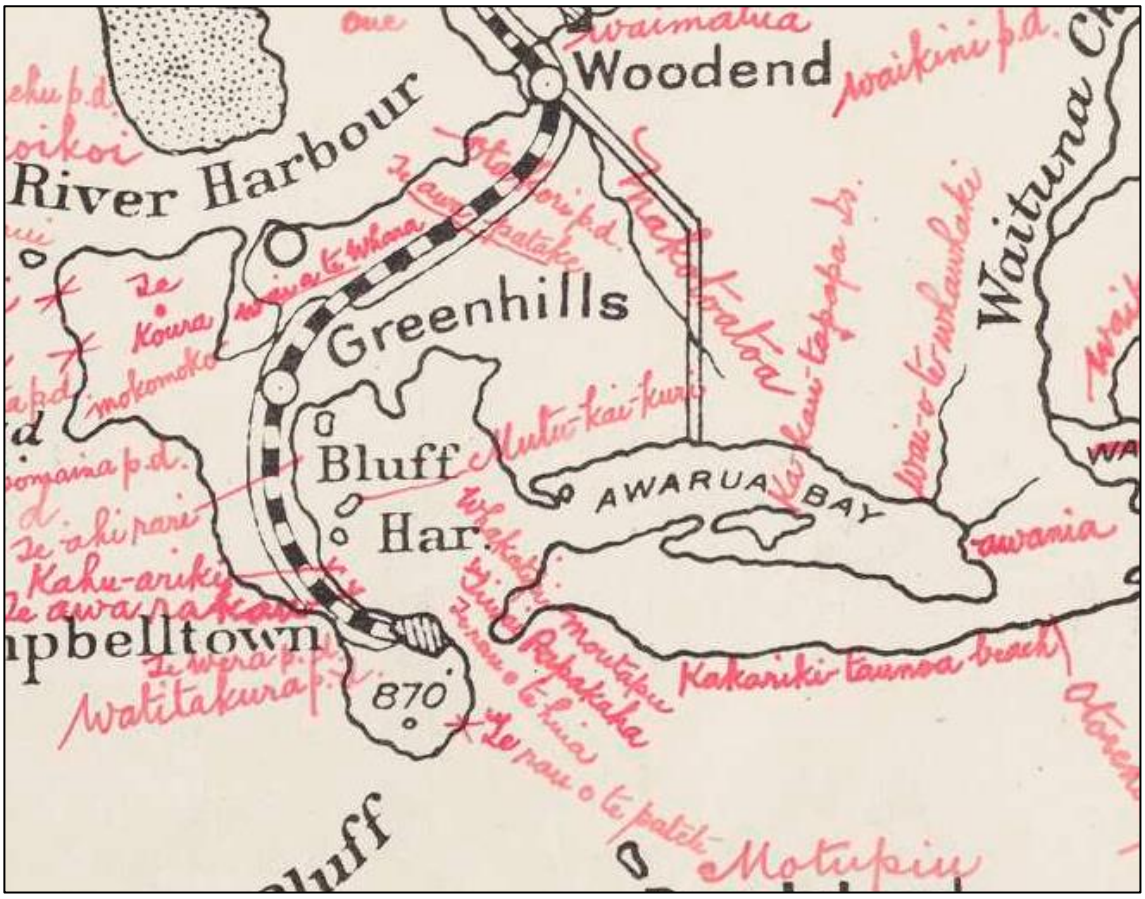

Figure 5-3. Detail of Beattie's annotated map, dated to the early twentieth century (Beattie, n.d.).

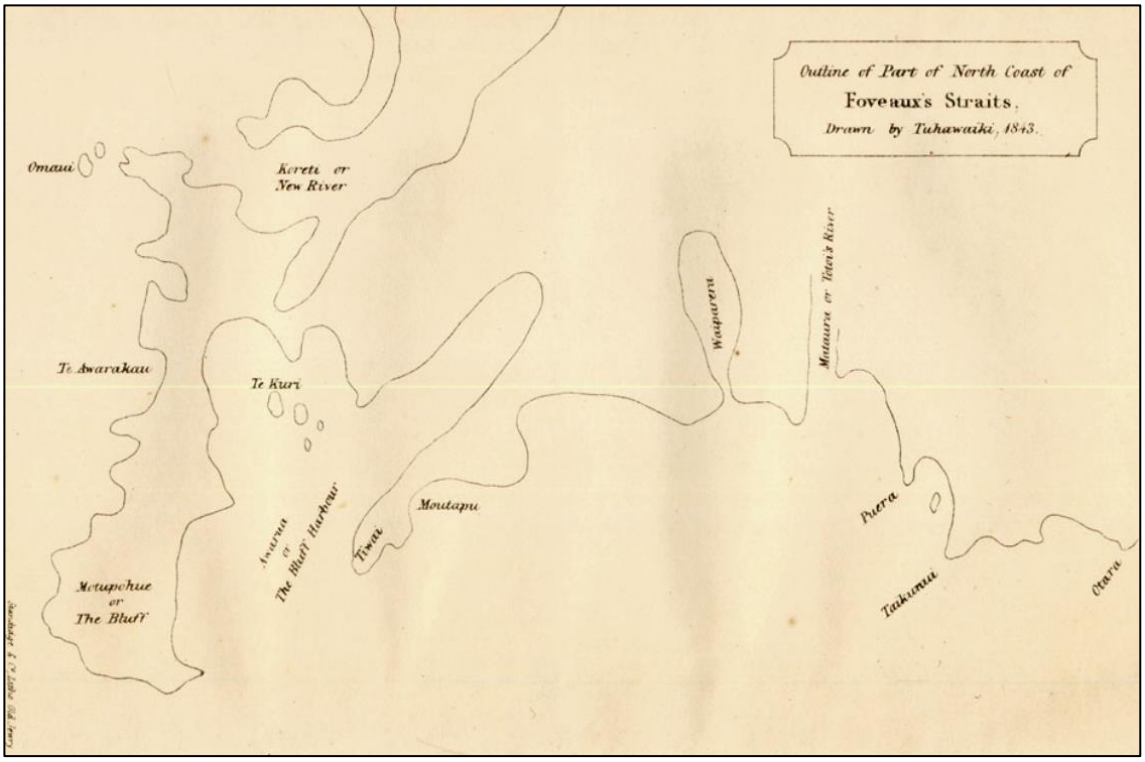

Figure 5-4. Tuhawaiki's plan from 1843 showing "Tiwai".

Figure 5-5. Detail of 1850 Acheron map showing "Tewaewae Pt" (Stokes and Thompson 1850).

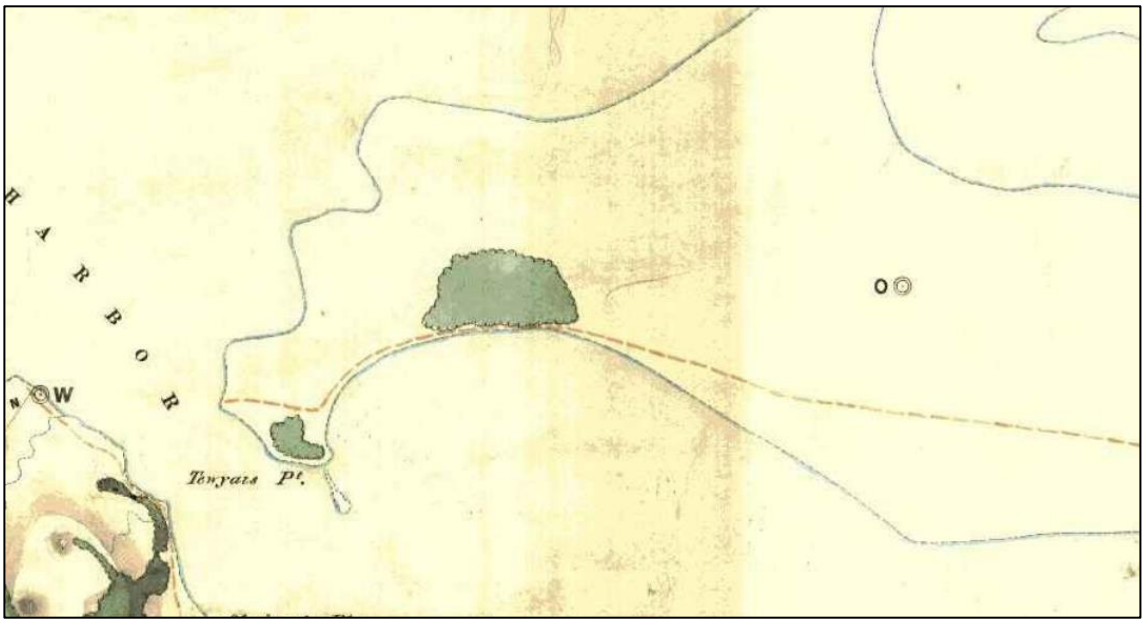

Figure 5-6. Detail of 1860 survey (SO 250) showing "Tewyai" Point.

Beattie's annotated maps of Southland depict various pre-1840 Māori placenames in the vicinity of the Bluff Harbour and surrounding area (Beattie, n.d.). The source of information for Beattie's annotations stem from a combination of the recollections of Māori informants, fragments of Māori tradition, and notes on historical observations, archaeological discoveries, and analyses of placenames. Both Waimatua and Makatoatoa are shown on this map (Figure 5-3). By Tiwai Point, are written are three further lines: "Whakatipi[?] Moutapu/Tiwai Papakaha/Terau o te huia[?]" (Figure 5-3). On Tuhawaiki's 1843 map along the southern coast of Tiwai Peninsula "Moutapu" is also identified, later referred to Tapu Beach (Figure 5-1) – this is the southern beach in which the project areas are adjacent to. In Garven, Nepia, & Ashwell (Garven, Nepia, and Ashwell 1997) refer to the same beach as "Mou Tapui", and the eastern point of the peninsula is "Papa Kahaa" as well. The western shoulder of the peninsula is referred to as "Ka One Umu".

5.2.1 Kāinga

A settlement site is recorded at Tiwai Point. Jacombs, Walter, & Jennings (2010) posit that the site is too small to be identified as a kāinga, but instead suggest this site along with several others in the Foveaux Straight area are likely to be associated with occupation ranging from a few months to a few years, and that may have been intermittent. While small, Tiwai Point was an intensively occupied site, primarily as a stone working and sealing camp (Jacomb et al. 2010).

There are several permanent settlements established in the wider area, in Te Kainga o Te Wera to the west of Bluff township and in particular around the mouth of the Ōreti River. The settlements along the Ōreti river mouth included Ōmāui (on the east bank of the Ōreti estuary; Mokamoka/Mokomoko/Mokemoke) and Ōue (on the opposite bank). Associated with these settlements were several urupā (burial grounds) and nohoanga (temporary campsites). Further south, little is known about permanent settlements around the Bluff area, with archaeological evidence only indicating temporary settlement based on resource gathering (Stevens 2020).

5.2.2 Mahinga Toi

Awarua (Bluff Harbour) was an important source of argillite for stone tools during the earliest period of Māori occupation, with large quarry and stone tool manufacturing sites at Bluff, Tiwai Point, Greenhills and Colyers Island (Anderson 1989). Once moa populations were depleted, lithics from the Bluff Harbour area disappear from the archaeological record outside of the region, which supports the hypothesis that the area was all but abandoned by the sixteenth century (Jacomb et al. 2010).

Archaeological sites at Tiwai hold material relating to adze manufacture, using material sourced from the Tiwai Peninsula itself and other lithic sources in the Harbour. Many of the stone artefacts originated from Colyers Island (Jacomb et al. 2010). Black argillite can be found near the jetty, including the source recorded as E47/38. Material from excavations at a Tiwai Point site (E47/13) has been associated with this source. Tiwai is one of several sources of Greenhills Group bluff argillite in the area (Figure 4-3); however, the Tiwai source is considered to have been unsuitable for manufacture of adzes (Huffadine and Watson 1977). The black argillite forms blocky tabs, which are smaller than other sources and has many partially healed fractures (Jennings 2007). Yet, as identified above, Russell Beck identified the small outcrop (E47/38) as fine-grained argillite on the far western end of the peninsular at approximately the location of the current Tiwai wharf. Moreover, there was at least an outcrop at the end of the peninsula identified by mana whenua as highly suitable for the production of adzes (John Hall-Jones 1976).

Awarua Bay is known for stone resources, and at Tiwai Point, jasper, chalcedony, quartzite and petrified wood have been recorded from archaeological sites (Huffadine and Watson 1977). Other lithic resources display evidence of movement and/or trade and exchange throughout the country. One of the most prolific stone resources identified at Tiwai Point was purple/grey porcellanite. This material possibly originated from Central Otago (Jacomb et al. 2010) From further afield, North Island obsidian has also been recorded at Tiwai Point (Gillies 1981).

One of the most prized stones for Māori, throughout New Zealand, was pounamu. The Ōreti River was an important pounamu trade route between the river mouth and Lake Whakatipu. Nephrite and bowenite sources in New Zealand are contained mainly to the west coast of the South Island, with the main sources being found around Lakes Wānaka and Whakatipu Waimāori and in the Milford Sounds (Beck and Mason 2002). Of the early tribes in the area, it is said that the Waitaha people were the first to be utilising bowenite from the Milford Sounds; however, they weren't aware of the nearby nephrite sources and instead traded for it with other groups (Pearce 1971). According to Pearce, they acquired nephrite in the form of unfinished chunks as well as finished adzes (Pearce 1971). Pounamu is considered taonga to Māori, due to its rarity, strength when used for tools, as well as the time investment taken to carve the stone. Māori prized nephrite for its durability and keen edge. Beck and Mason believe tools made out of nephrite "were as efficient as tools made of metal" (Beck and Mason 2012).

Pounamu sourced from the Great Lakes would have been transported across Murihiku to the south by the river systems, as both a trading commodity and item of prestige (Coutts 1971).

Other resources beyond lithics were utilised around the project areas. On the Tiwai Peninsula this includes fresh water was taken from the lagoon, that was situated where the aluminium shelter is present today, as well as other small ponds/lagoons in the area (Huffadine and Watson 1977). In the surrounding area, north of Tiwai, the stream name, Makatoatoa/Mokotua, provides a possible indication of other resources in use. It is associated with the tree species, toatoa (Te Rūnanga o Ngāi Tahu 2020a). Amongst wider toatoa species are forms that are valued for fishing rods, bridge construction, and boat building. Southern manawhenua have reported toatoa to have a pleasant smell which guided gatherers to its location. The tree bark was collected and carried as a scent. Toatoa could also be processed to produce a strong brown dye could be collected from the bark (Tipa 2014). Dyes were also created from muds of the nearby Awarua Plains Wetlands Complex (Cromarty 1996).

5.2.3 Mahinga Kai

Awarua (Bluff Harbour) supports a variety of shellfish including pipi, kūtai, roro, pāua, kina, as well as pātaki, while in the streams that run into the harbour were īnanga and tuna (Ngāi Tahu ki Murihiku 2008). There are Stewart Island shag colonies on several of the small islands within Awarua; the bay would have also been home to abundant waterfowl populations, which would have been utilised by manawhenua (Hamel 1969). Other resources include edible seaweeds. Kelp sourced from the harbour entrance was suitable for pōhā (a kelp bag used for the preservation and storage of tītī) (Ngāi Tahu ki Murihiku 2008).

Similarly, the Ōreti (New River) and its estuary (also referred to as Kōreti or Wai-o-Pae) were important in providing mahinga kai. The eastern shores of the estuary renowned for tuangi, while also providing pipi and kūtai. The estuary also provided fish: pātaki, īnanga, tuna, and kanae (Parliamentary Commissioner for the Environment Te Kaitiaki Taiao a Te Whare Pāremata 2020).

Archaeological midden recorded on the peninsula has been dominated by tuangi and mud snail; however, other species identified included oyster, pipi, and cats eyes (Huffadine and Watson 1977). Small amounts of fish bone has also been recorded in the Awarua area (Huffadine and Watson 1977). Manawhenua were making extensive use of local resources including the available in the surrounding wetlands complex, such as mudflats in the harbour, as well as the rocky shore of the Tiwai Peninsula (Cromarty 1996; Huffadine and Watson 1977).

Archaeological material from a Tiwai Point site (E47/13) included moa foot bones and vertebrae suggesting that moa had been sourced and consumed locally (Jacomb et al. 2010). Some moa species represented were likely taken from the western end of the peninsula itself, while others from slightly further around the harbour or the western end of the Peninsula (Sutton and Marshall 1980). High proportions of seal bones were also present at this site (E47/13), while an analysis of bird bone has indicated that marine birds dominated the bird bone assemblage at the same site (Sutton and Marshall 1980). Sutton and Marshall (1980) present data that suggests that the occupants of the site made use of a select few seasonal food resources close to the site itself, predominantly seal taken from the colonies on nearby Foveaux Straight rocky promontories. The site is considered to be a short-term occupation, or one that was intermittently occupied anywhere between a several months to a few years (Jacomb et al. 2010).

From further away, small remnants of tītī (mutton bird) have also been also recovered from Tiwai Point. There was strong use of tītī by local Ngāi Tahu; however, only small amounts of faunal material associated with tītī have been reported in early sites (Jacomb et al. 2010). Yet, it became a major source of for mana whenua as well as a key trading commodity within Ngāi Tahu and with North Island mana whenua (Garven et al. 1997). By 1830s mutton-birding had become a significant seasonal resource of local Ngāi Tahu and traded in exchange for other goods included flour, sugar, barracouta, karaka berried and kumara (Jacomb et al. 2010). It has been argued that the mutton-birding grew substantially through the establishment of settlements of Ruapuke Island around 1818 to 1819, as well as better access to the islands and markets through Pākehā ships (Anderson 1998).

5.2.4 Ara Tawhito and Nohoanga

Murihiku, like the rest of New Zealand, is crossed by "a complex infrastructure of ara tawhito (traditional travel routes)" the knowledge of which was passed down from generation to generation and inherited by Ngāi Tahu as they moved south across Te Waipounamu as shown in Figure 5-7 and Figure 5-8 (Kā Huru Manu 2018). These routes over land and along rivers were utilised to access important food and material resources, and to travel between communities (Kā Huru Manu 2018). Ara tawhito followed food resources to sustain their travellers over large distances; the knowledge of food resources came with the knowledge of the routes (Waitangi Tribunal 1991). In terms of movement throughout the southern South Island, complex systems of travel were developed facilitating the regular shifting use of seasonal resources and participating in practices to sustain resources (i.e., only taken excesses of young fish and birds). Resources in Murihiku saw travel to Tuturau or Mataura Falls for kanakana (lamprey), the Waimea plains for tuna; the coast for kelp, inland for weka and Tītī Islands for tītī as well as deep sea fishing trips. Further journeys north were made for Kai-hau-kai (trade and exchange of food) and travellers would come to Murihiku, to trade for important resources as identified above such as tītī. This included Taranaki mana whenua who travelled down the west coast for such trade (Garven et al. 1997). Overall, the Foveaux Straight area, Te Ara a Kiwa, saw travel between various settlement sites and hapū, with many tauranga waka situated along the coast. Many of these were likely associated with nohoanga, mahinga kai, mahinga toi as well as connecting to ara tawhito travelling along the land. Amongst the various forms of waka utilised, was the southern double hulled canoe, waka hunua (Graham 1998).

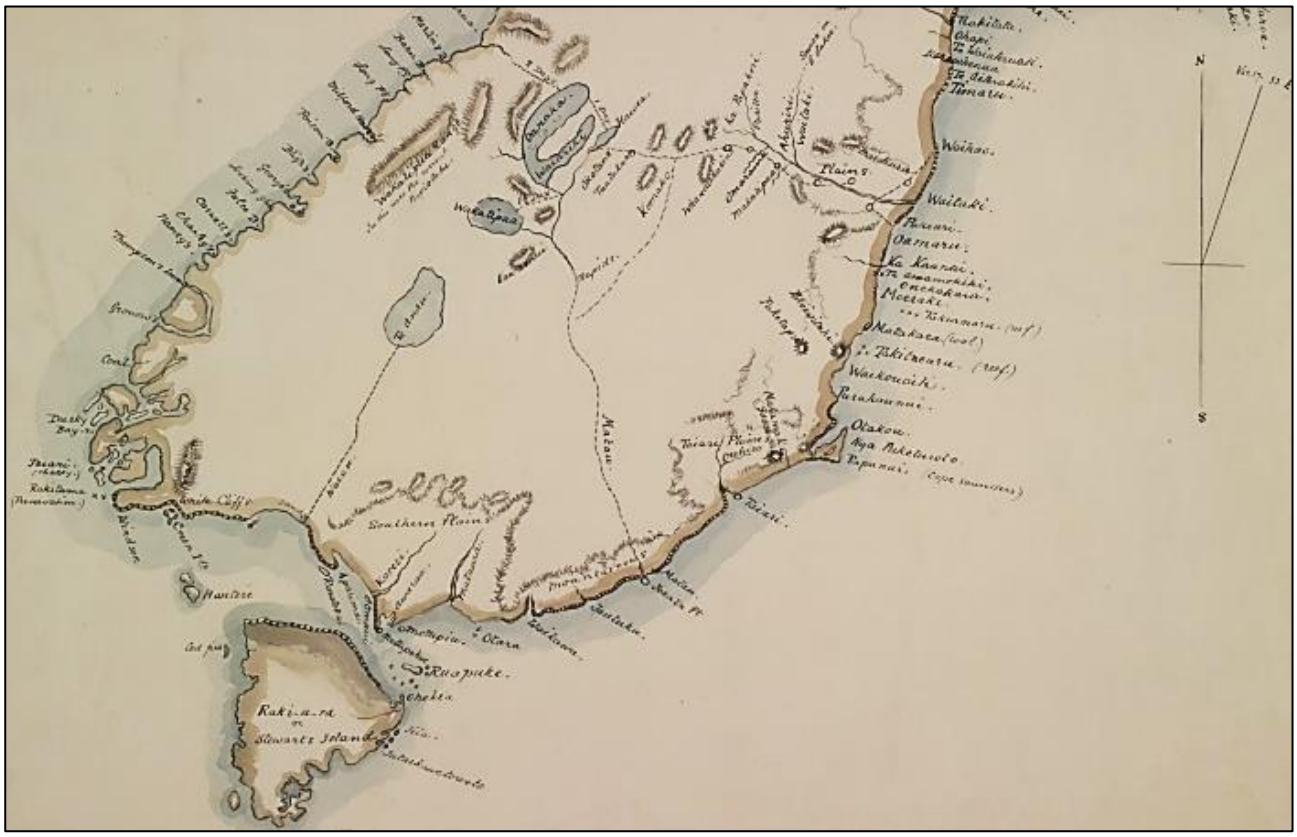

Figure 5-7. Map from 1838 showing some of the traditional ara tawhito and rivers passing through Murihiku (Shortland 1838).

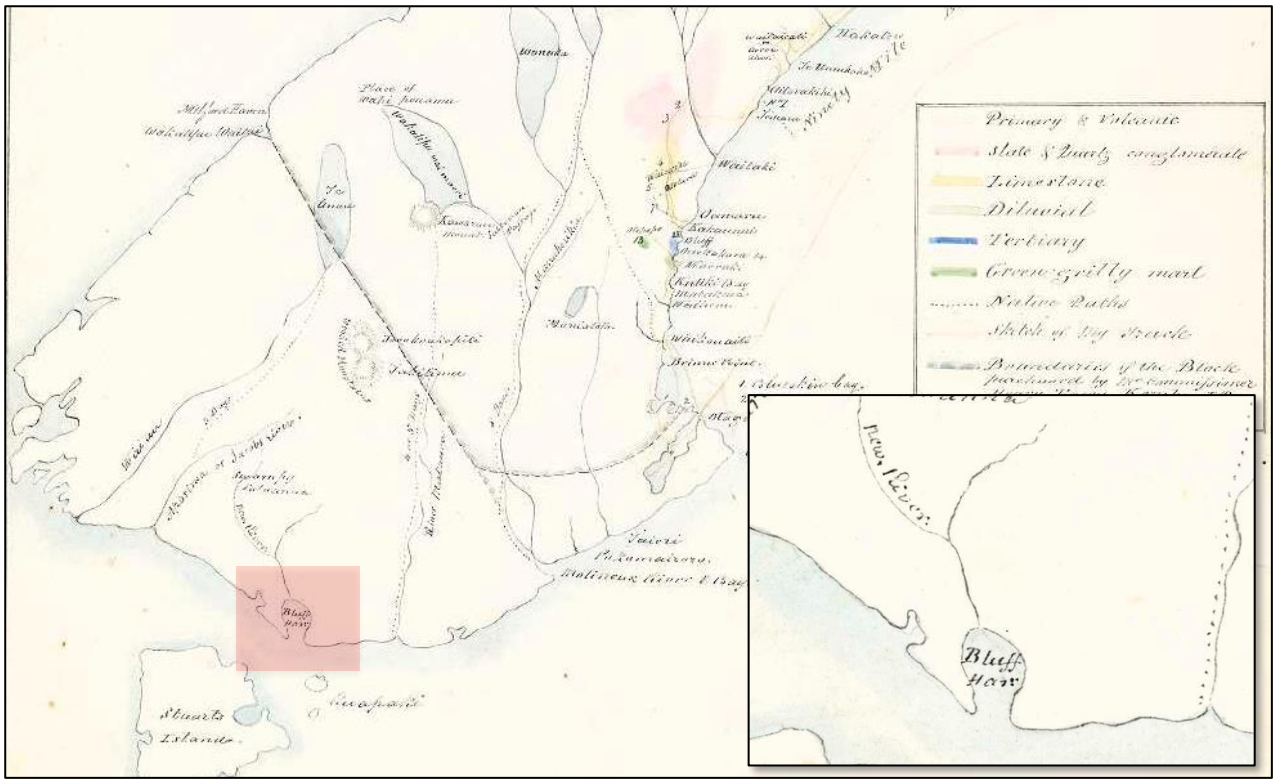

Figure 5-8. Detail of Mantell's ca 1848 sketch map showing ara tawhito of the lower South Island with "Bluff Har" in further detail.

Some ara tawhito followed the coast between the Clutha to Bluff. From Bluff ara tawhito ran up to Ōmāui and ran past the mouths of the Waipaka and Mokotua to the west and north of the project area. Once reaching the Waihopai the route split towards Mataura or Aparima (Te Ao Marama Inc. 2007). The route between the eventual location of Invercargill and Bluff ran along the estuary and was later used by Pākehā settlers (Te Ao Marama Inc. 2007). One survey plan from 1860 (SO 250) shows two tracks leading from Bluff to Invercargill running either (Figure 5-9). These routes were likely established prior to Pākehā arrival and eventually road and railway track formed in the later 1800s would follow a similar route.

Another track is shown on the same 1860 survey plan shown a route from the western point of the Tiwai Peninsula running east. This track is identified to be leading "to the Toitois" (Figure 5-9). This was Toetoe or Fortrose at the mouth of the Mataura. The estuary was the location another important village and mahinga kai (Graham 1998; Ngāi Tahu ki Murihiku 2008) and it is likely that this route or a similar one was travelled between the Toetoe and Awarua. Later plans possibly show the same route, continuing into the twentieth century (Figure 5-10). Another route ran just north of the Tiwai Peninsula and around the Bluff Harbour to Bluff extended from a route running north that continued around the coast, crossed and followed the Mataura inland connecting to the Mimihau, followed the Waiharakeke (Flax Stream) (Te Rūnanga o Ngāi Tahu 2020a).

The Ōreti River ran from Mavora Lakes located between Te Anau and Lake Wakatipu and was another key traditional route providing access inland (Te Runanga o Ngāi Tahu, 2018). This river was deep as well as navigable for a distance inland making it a good travel route and it would be travelled by mōkihi (raupō vessels) (Te Ao Marama Inc. 2007; Southland Times 1911). Travellers of the river would return with mahinga kai from the banks of the river, as there were many places for gathering food as well as sources of pounamu, with the river forming part of important pounamu trade routes. There were a number of important settlements that were situated at mouth of the Ōreti River (such as Ōue at Sandy Point), as well as numerous urupā recorded at the lower reaches of the Ōreti River as a result (Blair 2017). On the route itself, there were further nohoanga, from which travellers would go eeling, water fowling and catch inaka (Te Ao Marama Inc. 2007).

5.2.5 Kōiwi (Burials)

Mou Tapu (Tapu Beach) on the south side of the peninsula and associated with the project area for Beacon 1, the 'Rear No. 1 Lead" (teal marker on Figure 1-2), has been identified as a tauranga waka (canoe landing spot), due to the strong tidal rip at the entrance of the harbour. As the name suggests, the area was sacred and used as a burial ground, including burials encountered when the Tiwai Point Aluminium Smelter was constructed (John Hall-Jones 1976). An urupā has also been identified at the very point of Tiwai Peninsula (Garven et al. 1997) – the project area for Beacon 2 is at this point. Several burials were made at Tiwai before the opening of the Bluff cemetery at Lagan Street (Graham 1974). *Te Tangi a Tauira - The Cry of the People: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan* (Ngāi Tahu ki Murihiku 2008) identifies that "there were also a number of burial sites around Tiwai and the Ōmāui area". Indeed the importance of the area for this and for mahinga kai and mahinga toi means that Awarua, Bluff Harbour is recognised as Wāhi Tapu Me Te Wāhi Taonga (sacred and treasured sites) (Ngāi Tahu ki Murihiku 2008).

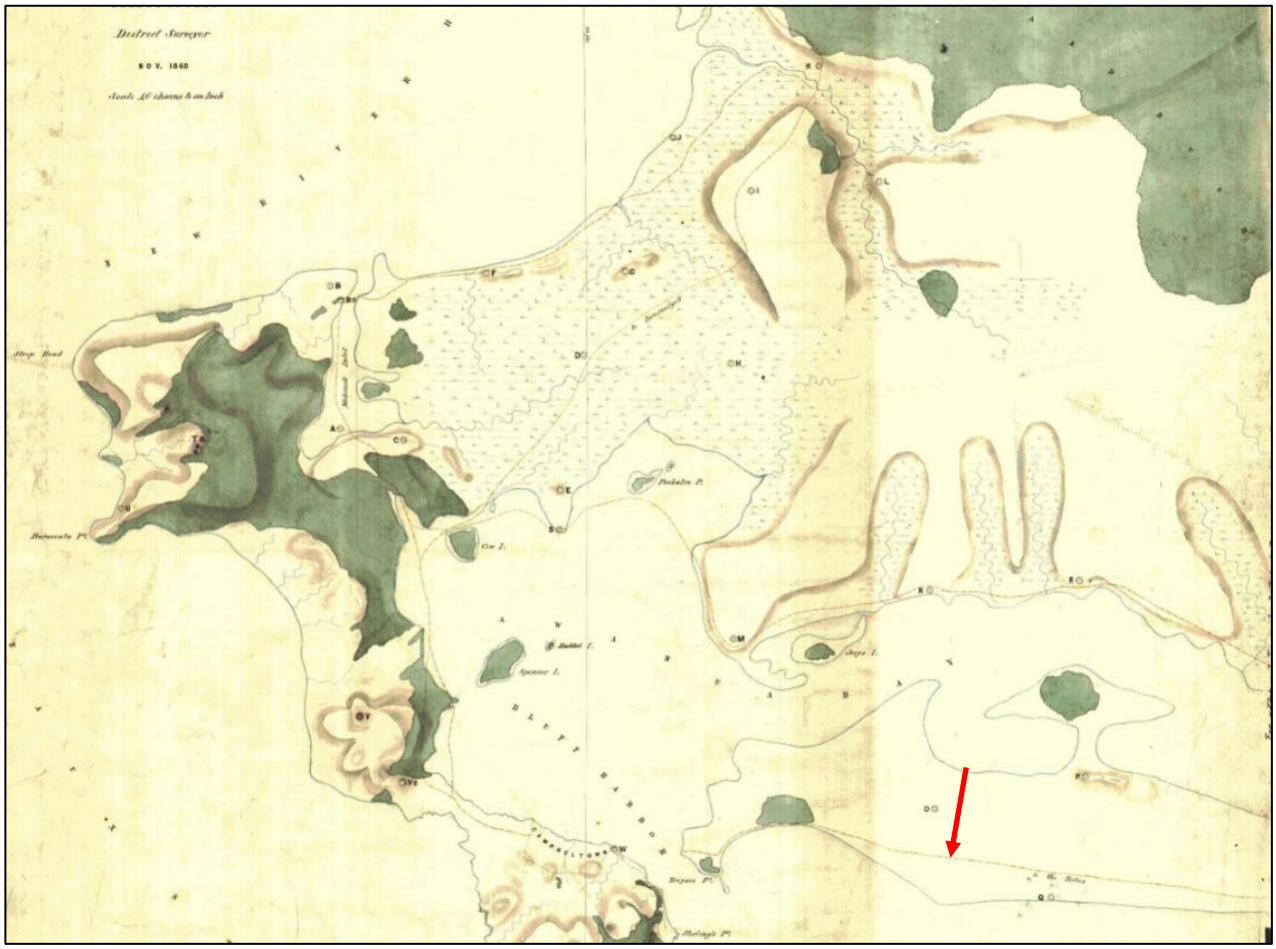

Figure 5-9. Detail of 1860 survey (SO 250), showing track.

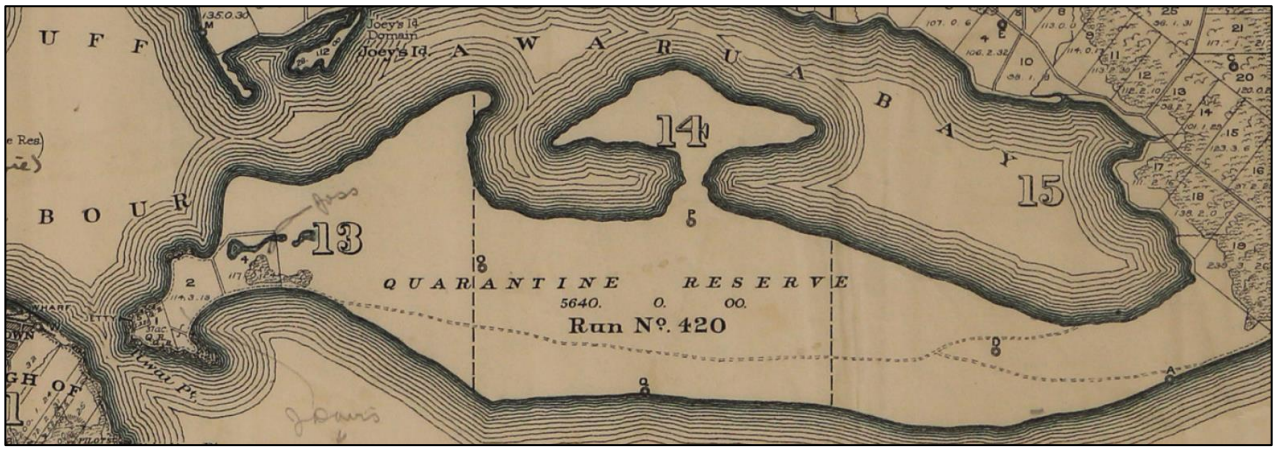

Figure 5-10. Detail of 1914-1935 plan showing the continuation of a similar if not exact same route across the Tiwai Peninsula (Potter 1914).

5.3 Contact Period

Activity throughout the southern portion of the South Island changed in the late eighteenth century with the arrival of the European explorers around the country. During Cook's 1773 visit to the country, he travelled to Dusky Sound in Fiordland, where he reported a large seal population and later potential for commercial gain (Smith 2019). Pākehā interaction with manawhenua during this period was in small areas, dictated, as in the rest of the country, by the resources readily available in each area.

The first Europeans to visit Awarua were sealing gangs in the late eighteenth or early nineteenth century. Unfortunately, few records were kept by the men, but visitors to the area in the 1810s and 1820s recorded that sealers had established a small settlement at Ōmāui and most had married North Island manawhenua women who had brought their agricultural knowledge to the south and began growing European potatoes (Newton Davis 1966). In 1836 Johnny Jones bought the Bluff shore whaling station, which was located near the site of the present town wharf (Bremer 1986). Settlement around the harbour increased and continued to retain a distinctive culture as a result of the equal manawhenua and Pākehā influence. As discussed above mutton-birding grew in importance as a source of food and income during this period, an activity which remains culturally important and valued to the present. The whaling industry (and Bluff's economy) was waning by 1845, and by 1850 whaling was all but over (Bremer 1986).

James Joss was a manager of one of Johnny Jones' whaling stations. He purchased 2000 acres at Tiwai Point for £48 in 1838.[2] The land was on the southern side of the peninsula, ideal for bringing in whales, and it is possible he had his shore station there (Figure 5-11) (John Hall-Jones 1976). Eventually Joss received a Grown grant for the land in 1844, for which the land was eventually confirmed to include 213 acres on May 23 1860 between "the north-east corner of the Ferry Reserve on Te Wai Point and running thence north-easterly to Te Wai Bush" (Otago Witness 1860, 1909).

Despite Joss purchasing the land in 1838, Hall-Jones (1976) reports the first Pākehā settler living on the peninsula to be an ex-whaler John Davis. He settled there in 1838, again on the seaward side of the Tiwai Point on Tapu Beach. His house was constructed in the lee of the small Tiwai Point hill, adjacent to a small stream the ran into the cove (Figure 5-12). He had a family with Tapui, a son named Joseph. Joseph was baptised by Bishop Selwyn in 1844 and he would go on to help J. T. Thomson survey the Ōreti Estuary (John Hall-Jones 1976). The family received notable individuals at their home including Bishop Harper, the first Bishop of Christchurch and the second New Zealand Primate, who had had difficulties at the Waituna Lagoon. John Davis was buried at Tiwai Point, near his hut on a hill visible from Bluff, referred to as "Johnny's hill". The grave was once marked by a

[2] Elsewhere is reported he bought the land at Tiwai Point for £40 (Lind 1996).

white picket fence that has since fallen down. This is the same location marked as Stirling's Grave on Thomsons 1856 map (John Hall-Jones 1976; Richards 1995). Stirling was another whaling station manager for Johnny Jones at Bluff. When the smelter was constructed, a burial was exposed on this hill associated with a clay pipe and button that suggest this was Davis or Stirling (John Hall-Jones 1976).

Figure 5-11. Bay on seaward side of Tiwai Point. The location where Joss possibly landed whales and John Davis' hut was situated. Tapu Beach and aluminium smelter is shown in the background (John Hall-Jones 1976)**.**

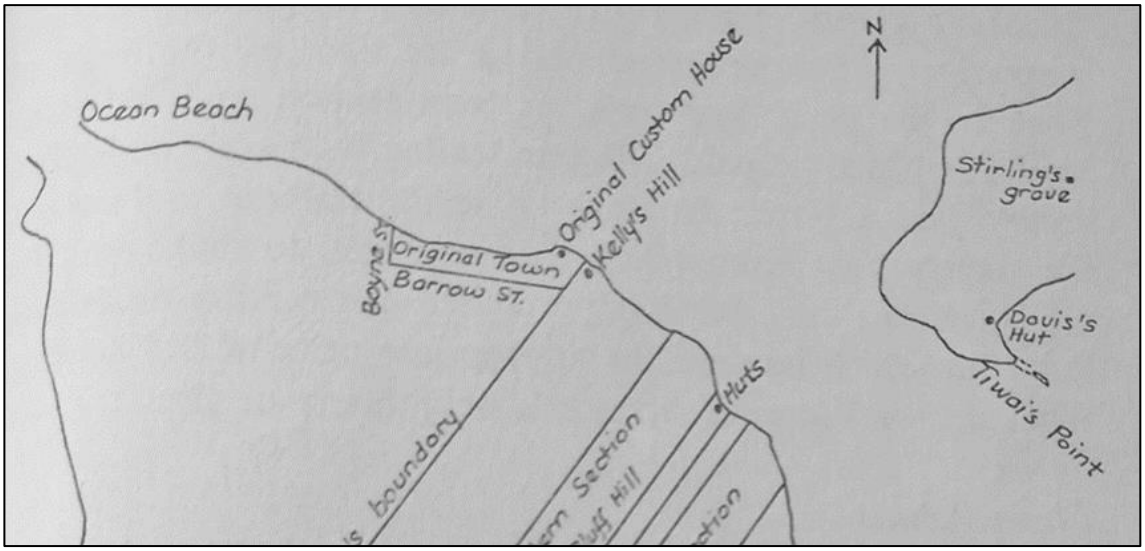

Figure 5-12. Map detailing the end of the Bluff and Tiwai Peninsulas in 1856. Note Davis' hut and Stirling's Grave on Tiwai Point (John Hall-Jones 1976)**.**

During this phase, the early Pākehā gangs and explorers frequently encountered, lived with, worked with, and married manawhenua. The explorers in the early 1800s reported mana whenua were helpful and keen on trade and supply relationships, with the sealers introducing new crops like potatoes and cabbage into the Māori economy (Smith 2019). Manawhenua were involved in the whaling industry in the Foveaux Straight, with Shortland reporting that all Bluff boats partly, or in some instances entirely, manned by manawhenua (Anderson 1998). Manawhenua acquired whaling boats and larger ships. The boats feed into a commercial economy involving existing resources

(i.e., tītī) and new ones too (i.e., pigs). The boats were also used for sealing throughout the west coast as well (Anderson 1998).

At this time, the southern manawhenua also identified the opportunity that many metal objects offered. Despite this opportunistic co-existence, Smith (Smith 2019) records that there were also frequent run-ins between the sealing and whaling gangs, and manawhenua. Where this happened, it is likely this was caused by feelings of animosity caused by the gangs' interactions with manawhenua women, along with their lack of negotiation for securing rights to the resources that were being harvested in the south. Co-existence between the two groups was trying; however, in some cases men from the gangs married into the community and became integrated into manawhenua kāinga.

5.3.1 Te Tiriti o Waitangi and Land Purchases

With the arrival of the Europeans to New Zealand, the British government sought to establish sovereignty for New Zealand in the late 1830s and drafted Te Tiriti o Waitangi (the Treaty of Waitangi). The treaty was first signed on 6 February 1840 at Waitangi. It was to guarantee mana whenua chiefs continued authority and ownership of over their land and resources as well as rights as British subjects (Smith 2019). The treaty stated that Māori would have kāwanatanga. Kāwanatanga was understood by Māori as New Zealand Governance, while the British understood it as New Zealand Sovereignty, a difference that has influenced New Zealand's history ever since (Smith 2019). The biggest immediate impact of the treaty was the surge of immigration to New Zealand, and the establishment of towns and cities far larger than any Pākehā settlement that had come before.

Figure 5-13. Map of the Murihiku Land Purchase (Kettle 1853).

The purchase of the Murihiku block of New Zealand from local Māori was completed in 1853, with the signing of the Deed of Purchase on 17 August (Figure 5-13). In this purchase, Walter Mantell secured for the New Zealand Governance over 7 million acres for £2,600 (Commissioner Alexander Mackay 1888). As part of the purchase negotiations, Mantell had agreed with Ngāi Tahu that a large number of reserves would be granted, with schools and hospitals created alongside each Ngāi Tahu village. For a large part, this did not eventuate, with Mantell setting aside only 4,875 acres of land for the purpose of reserves and no schools or hospitals being provided by the New

Zealand Government. Furthermore, similar to other purchases completed around New Zealand, the boundaries of the Murihiku purchase area were not made clear, and there is still contention over ownership of certain areas of land.[3]

Almost immediately after signing of Te Tiriti o Waitangi, Ngāi Tahu experienced consistent and repeated breaches. These disputes continued for nearly 150 years, only reaching settlement in the late 1990s, including a formal apology from the Crown that acknowledged the breaches to the treaty and suffering caused through the Crown's failures (Deed of Settlement, Section 2, 1997).

5.4 Post-Contact Occupation at the Project Area - Beacon 1 and 2

The following sections outlines the specific histories for the Tiwai Peninsula and the project area. First, the history of Sections 2 and 4 Block XIII Campbelltown Hundred, which was farmed form the nineteenth and into the twentieth century is discussed (Section 5.4.1). The proposed works area for Beacon 1 extends across Part Section 4 Block XIII Campbelltown Hundred. Beacon 2 project area extends across Part Section 2 Block XIII Campbelltown Hundred. Second, the history of the Bluff Harbour Board and chronology of marine beacons at Tiwai is discussed in Section 5.4.2. Third, the Closed Road associated with Block XIII and along the southern coast is also within the project areas for both Beacon 1 and 2. The history of this Closed Road is discussed in Section 5.4.3.

5.4.1 History of Tiwai Peninsula (Sections 2 and 4 Block XIII Campbelltown Hundred)

Records of earlier occupation and ownership of land on Tiwai Peninsula is not clear during the initial period of Pākehā settlement; however, a general overview of key events of the history of the project area is shown in Table 5-1. The project area on the Tiwai Peninsula previously formed part of Run 420 (later shown as Run 581, SO7897) which extended through Block XIII, Campbelltown Hundred as well as Pt Section 2 and Section 4 Block XIII. The two sections formed part of James Joss's land (Figure 5-14 and Figure 5-16). A Crown grant had been issued to Joss in 1844 for 213 acres at Tiwai Point (far fewer than the 2000 acres described earlier), though the validity of that grant was called into question in 1860 following Joss' alleged death (Otago Witness 1860). It was reported that Joss joined the Californian gold rush with his two eldest sons. He never returned as he went missing; his overcoat was all that was found of him (Evening Star 1928). It is unclear if Joss ever occupied the peninsula and if he did, for how long he was there, as he also spent time in Rakiura (Stewart Island) before heading off to California.

The re-examination of the initial grant described it as "on examination of the description in the Grant, it appears so vague that it is not possible accurately to see what was intended to be granted" (Otago Witness 1860). The original land parcel in 1844 had been described as "Bounded on the west by the harbour; on the east by the sea; on the north by a line drawn from Waiperora to the Awania (the harbour), and on the south by Murphey's land" (Otago Witness 1860). The land was eventually declared in 1860 as described above in Section 5.3. Interestingly Joss is only shown to have been granted Section 4 on the Crown grant map (Figure 5-14), which was under half the size of what had been granted in 1860. This may be explained by one memorandum attached to the original grant at the Bluff, which identified that half the land belonged to a C. W. Schultze: possibly Section 2 (Otago Witness 1860). In 1856 it was Schultze who issued a warning in local newspapers around trespassing on Joss' property (Otago Witness 1856). It is unclear if Schultze, Joss, or both men farmed the peninsula, but it is likely they also leased out what would become Run 420 from the government given Joss had originally "purchased" 2000 acres. It is also possible that the whaler John Davis, who settled at the point of the peninsula near the project area worked for Joss, either whaling and/or farming. Survey maps of the area from 1850 show that the land had "cultivations" "good pasturage" suggesting the land was already being farmed at this point (Figure 5-15).

[3] From the Ngāi Tahu website: "Ngāi Tahu have always maintained that the region known as Fiordland was not to be included in the Murihiku Purchase." (Te Rūnanga o Ngāi Tahu 2020b)

The early ownership of the land surrounding Joss' property is also unclear. Hall Jones (1976) identifies that to the southwest of Joss were two sections: one owned by a Murphey, possible Robert A Murphey, and the other McGregor, likely 'Scotch John' McGregor. While to the east of Joss, property was taken by the Weller Brothers, who were also associated with a number of whaling stations throughout Southland and Otago (John Hall-Jones 1976). The latter was likely outside of the project area to the east. What is interesting is that a grant was never issued to a Murphey; however, when Joss' grant was investigated it was found that a claim by "R.A. Murphy and G. Ennis, No. 446" was notified to the Government of New South Wales, but later not investigated (Otago Witness 1856). This claim was described as "All that situated on the North Head of the Bluff Harbour, and known by the name of Tewai's Point, commencing from the centre of the Boat Harbour on the east side bearing west by north to the waters of Bluff Harbour on the north-west side of a long sand spit of said harbour" (Otago Witness 1856). No further records (i.e., early survey maps, pre-emptive rights documents, allotment books, and deed records) have been identified that suggest Murphy, Ennis or McGregor were using or occupying the land.

Table 5-1. Summary of land transactions and key events records for Tiwai Peninsula Project Area.

Year	Event	Source
1838	James Joss purchases 2000 acres of land on Tiwai Peninsula John Davis settles at Tiwai Point (house outside of project area)	(John Hall-Jones 1976)
1844	Crown Grant issued to Joss for 213 acres (Section 2 and 4, Block XIII, Campbelltown Hundred) at Tiwai Point	(Otago Witness 1909) (John Hall-Jones 1976)
1860	Joss allegedly dead, land issued under 1844 grant delineated to 213 acres	(Otago Witness 1860)
1872	James Colyer owns Section 2 and 4 and runs station at Tiwai Peninsula, which extends across Run 420	(SO2401; Allotment Book II, Folio 106; Cromwell Argus, 1880)
1880	James Colyer dies on Tiwai Peninsula	(Southland Times 1880a)
1881	Thomas Vale takes over ownership of the station and lives on the Peninsula	(Southern Cross 1893)
1882	By this time, the Quarantine reserve had been established and Run 420 offered for lease	(Southland Times 1882)
1892	Thomas Vale sells station to Edgar William Brook, poultry farmer	(CT47/131)
1900	Section 2 sold to government for Quarantine Hospital construction and that of ancillary structures	(CT150/198)
1906	Run 420 leased to C. J. Royds	(Mataura Ensign 1906).
1920	Brook sold Section 4 to Robert William Williams	(CT47/131)

Figure 5-14. Detail of Crown Grant Index Record Map from 1864 showing Tiwai Peninsula (Anon 1864)**. Note that some Crown Grants were granted before this date was issued, while some were added at a later date.**

Figure 5-15. Detail of 1850 Acheron map showing "Cultivations" and "good pasturage" (Stokes and Thompson 1850).

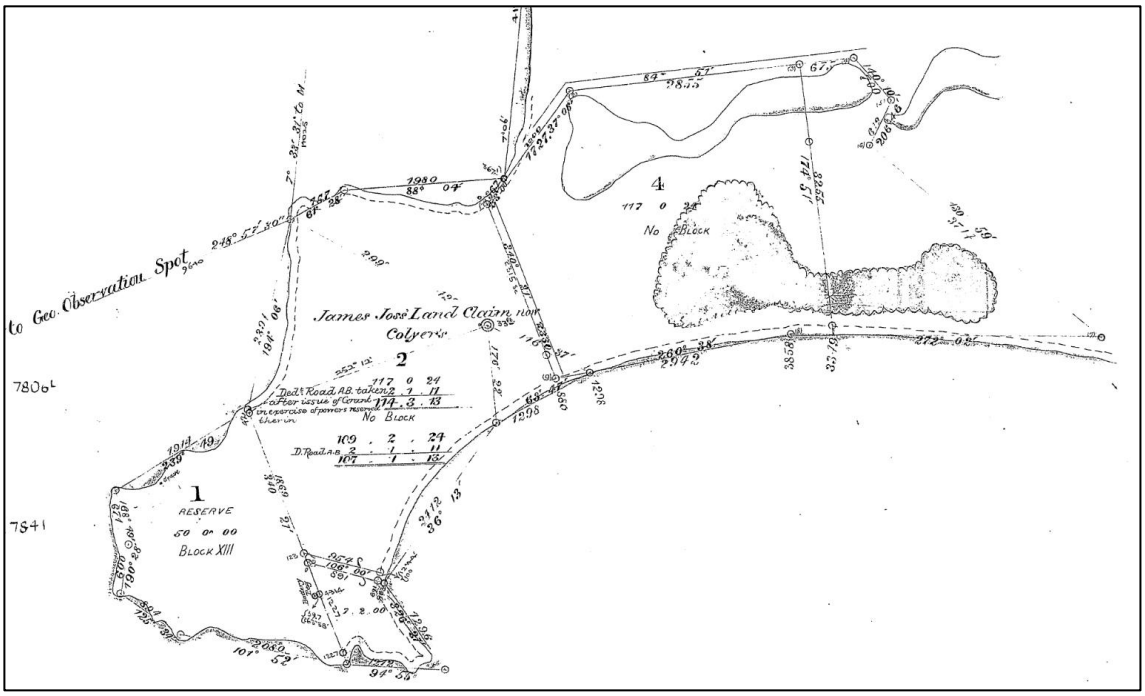

Figure 5-16. SO2401 dating to 1885 showing "James Joss Land Claim".

At some point Joss further acquired Section 2 to the south prior to the land coming into the possession of James Colyer as shown in Figure 5-16. The first property record for Section 2, refers to James Coyler. James Colyer took possession of both Sections 2 and 4 at Tiwai Point in 1872 (Allotment Book A, Folio 106) and that year he was advertising for "a Bullock Driver for a Station" suggesting he may have been farming the property by that time (Southland Times 1872a). Colyer died at Bushy Point, 16 miles from his home with a newspaper report suggesting that James (of Colyer's Island) died of cerebral apoplexy (Southland Times 1880b). When William Ferguson found James body, he "rode on to Te Wai's Point, crossed over to the Bluff, and gave information to the Police". It was described that Colyer's "avocations frequently took him away from his residence, and hence he was not missed on the present occasion" (Southland Times 1880a). This suggests that James nor Jessie lived on the island but may have still used it for farming as James was visiting it at the time of his death "on business on his run" (Cromwell Argus 1880). The hut James was found in was "comprised entirely of iron, and it is surmised that the heat of the

day on which Mr Colyer left home may have resulted in bringing on the attack from which he died" (Southland Times 1880a). While not a residing on the peninsula, Colyer likely had farmhands there operating the run. When his estate was sold the land at Tiwai Point included "all the improvements thereon, consisting of a dwelling-house, men's hut, woold shed and sheep dip, mustering paddock &c., together with 5000 acres of leasehold all conveniently situated immediately opposite Bluff Harbour. Together with About 1500 sheep, 15 head of cattle, and 5 horses" (Southland Times 1880c). Prospective purchasers of Colyer's estate could take a boat from Bluff and reach the homestead in a few minutes (Southland Times 1880c). This description indicates that the farm extended across the extent of Run 420 (Figure 5-18).

Soon after her husband's death, Jessie Colyer sold the property to Thomas Vale (CT19/222) (Figure 5-16). Vale, a Tiwai Point sheep farmer, officially took possession of Section 4 in 1880 (DIB E Folio 905; CT20/20). It is possible he may have already been farming on the peninsula for Colyer. It is in 1880 that the Deed Index Books first recorded that the land had been granted to Joss, but that he had been missing for 30 years (DIB E Folio 905). Thus, effectively skipping the Coyler's use and ownership of the land. Vale bought the "Te Wai Point Station and Stock" and resided on site (Southern Cross 1893). By 1882, Run 420 had become a quarantine reserve that was available for lease and required only to be available if needed for quarantine (Southland Times 1882). In June 1892 both Section 2 and 4 were sold to Edgar William Brook (CT47/131) along with rest of the leased Run 420 (Southland Times 1892). Brook was a poultry farmer, related to the Rajahs of Sarawak (John Hall-Jones 1976), and had a homestead on the edge of Mou Tapu, shown as the derelict chicken farm in Figure 4-5. The presence of the homestead area is shown by macrocarpas trees in 1951 aerial photographs (Figure 5-26) and is close to the project area for Beacon 1, Rear No. 1 Lead (or large solar set up). A later map (ADM, n.d.), thought to date to the 1960s, depicts remains of old post and wire fence, former Maori house site, lagoon, former bush edge (1870s), and location of a north to south running road in close in the area of the chicken farm and the Beacon 1 project area (Figure 5-20). There is little other indication of another farmstead within Sections 2 or 4; however, it is possible that the Burke's homestead was possibly used by Vale, Colyer, or possibly even James Joss. The 1870s bush edge is only a sketch, however this may suggest the homestead location as outside this area or built after 1870s. There may be remnants of the farm to the south of the Tiwai Point Aluminium Smelter and the southern coast within Section 4.

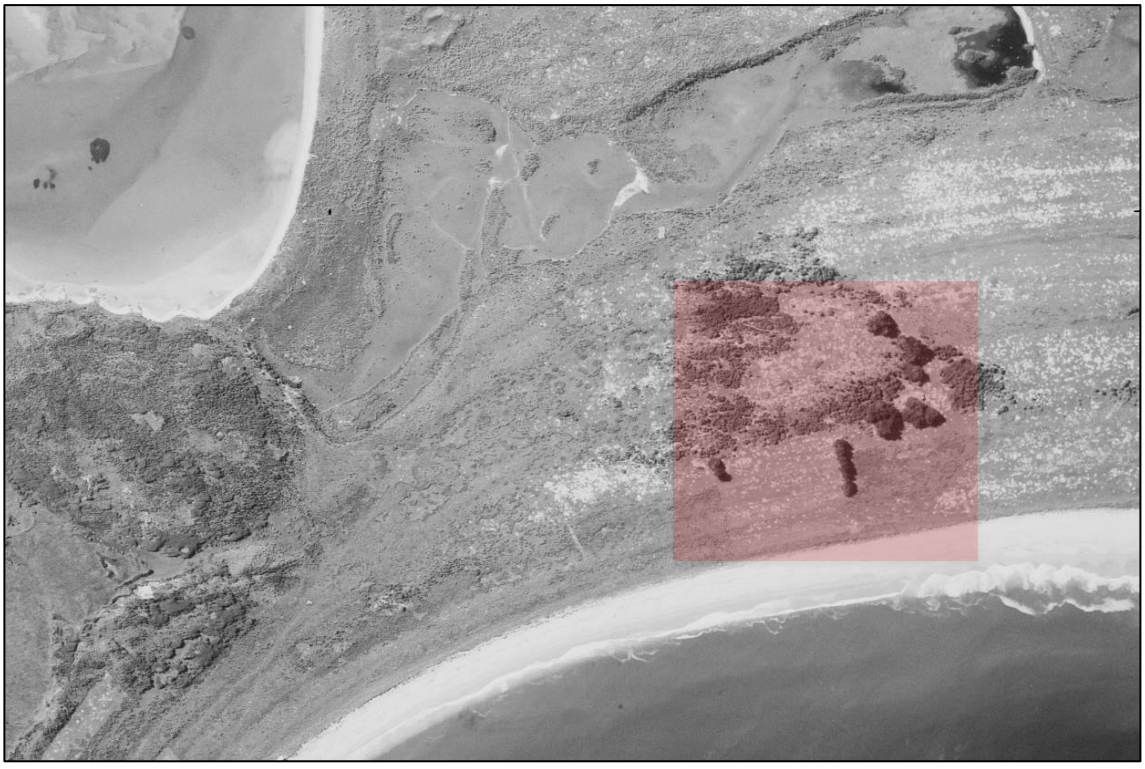

Figure 5-17. Aerial photograph from 1951 showing possible exotic trees and potential location of nineteenth century agricultural/pastoral site (Retrolens 1951b).

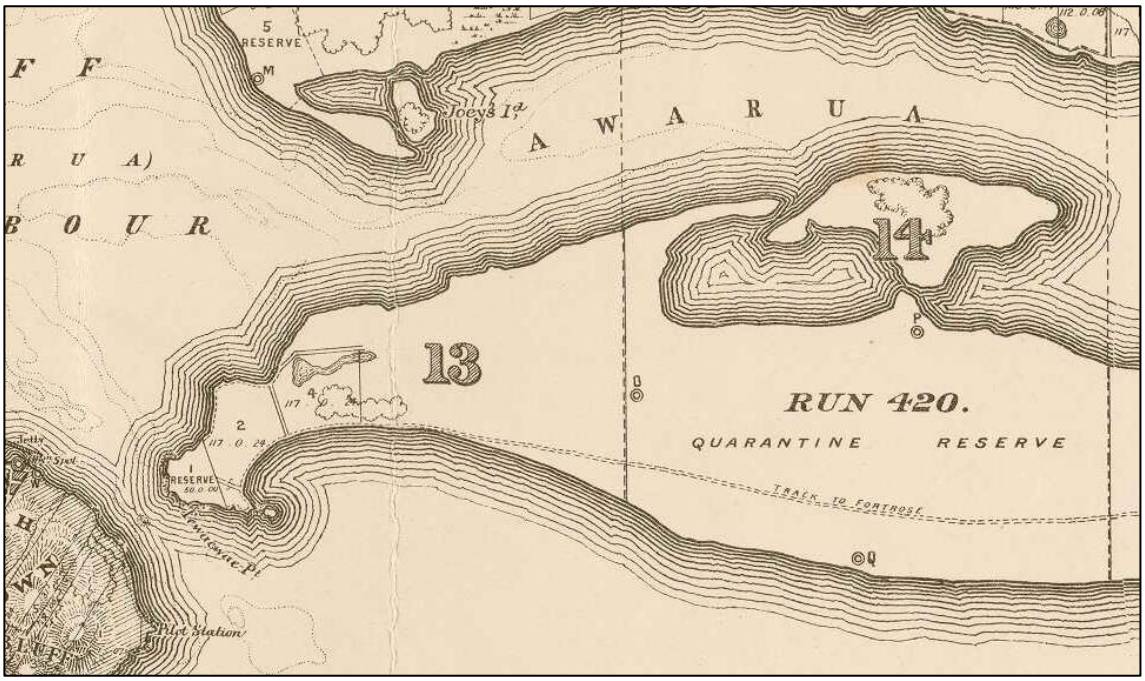

Figure 5-18. Map of Campbelltown Hundred from 1896 showing Run 420 and the Quarantine Reserve (Deverell 1896).

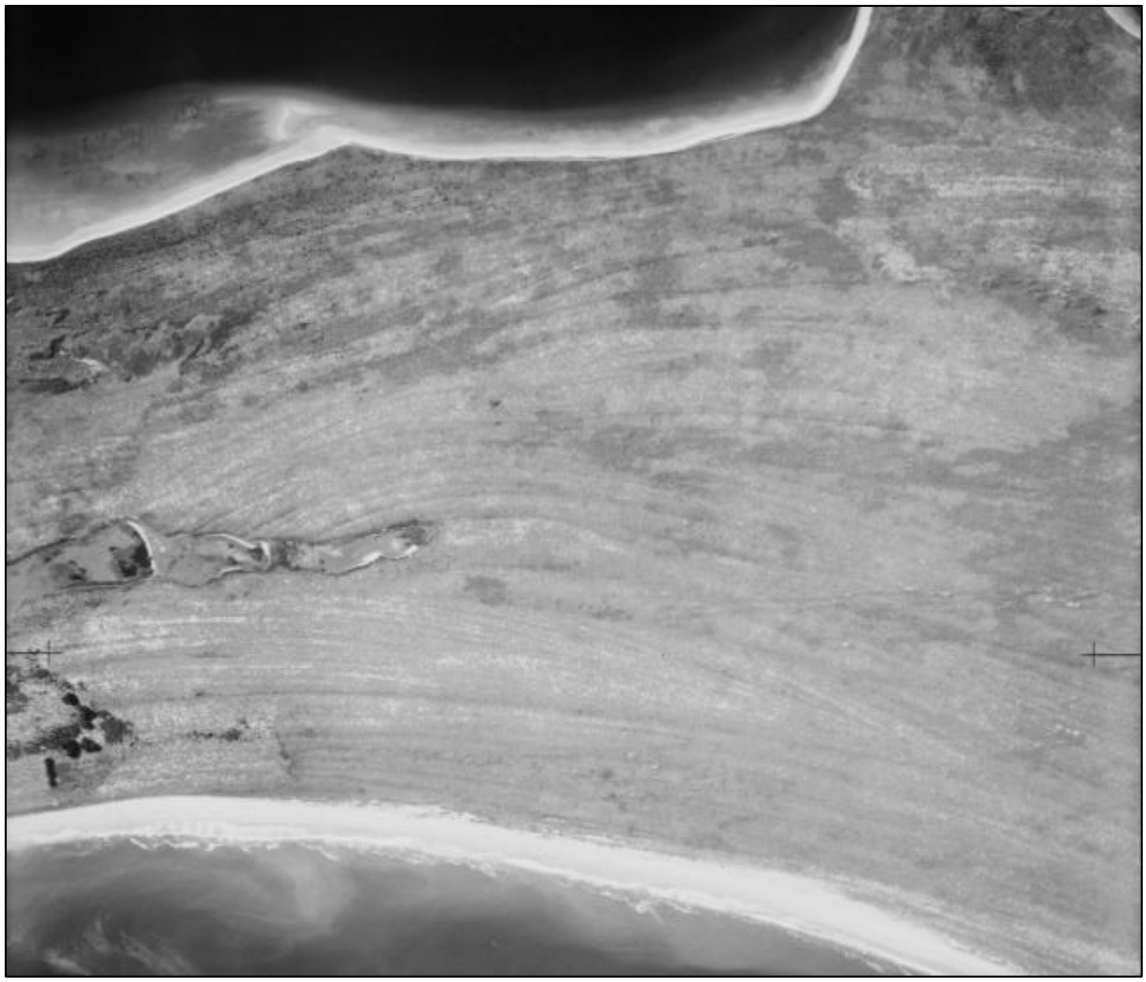

Figure 5-19. Aerial photograph showing a lack of development across Run 420 within the project area (Retrolens 1951a)**.**

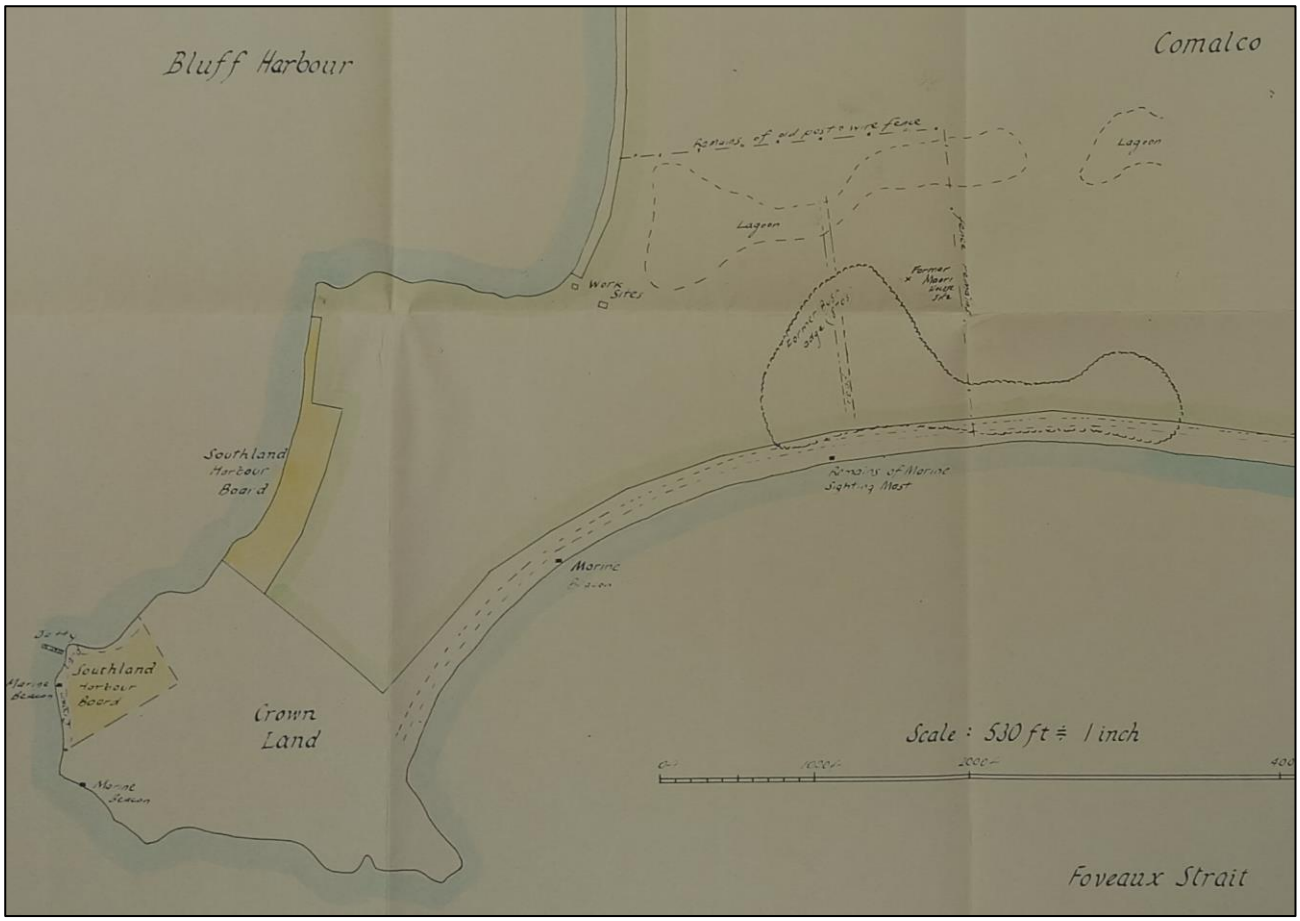

Figure 5-20 Extract of a printed copy of an original hand drawn plan showing Tiwai with Southland Harbour Board land, marine beacons, including 'remains of marine sighting mast', Comalco site, work sites, remains of old post and wire fence, former Maori house site, lagoon, former bush edge (1870s), and approximate location of haul road. Undated, thought to be 1960s (ADM n.d.).

Brook eventually sold Section 4 to another Tiwai Point Sheep farmer, Robert Williams ('Bob' William Williams in 1920 (CT47/131). In contrast Section 2 had been transferred to the Crown in 1900, this was likely for the establishment of a Quarantine Hospital discussed below. Section 2 was later officially leased by Williams in 1945 (CT150/198); however, it is likely that he had leased the land earlier, and Burke may have as well. Burke leased Run 420 from the government until 1906, when he was out bid on the next lease term by C. J. Royds (Mataura Ensign 1906).

The Quarantine Hospital and jetty on Tiwai Point were constructed (Figure 5-23), along with a fumigation shed at the foot of the jetty, in 1900 (John Hall-Jones 1976; Huffadine and Watson 1977). From 1858, a quarantine station had been established for vessels on the north side of the harbour, with a later quarantine reserve established on Tiwai Point. The need for proper facilities for an epidemic became pressing in 1900 with a world-wide outbreak of the bubonic plague (John Hall-Jones 1976). Thus, the hospital was built near the site of Davis' hut, Section 2, with a road leading to the jetty (Figure 5-25) immediately to the north of the proposed pole mounted solar system (Blue Marker) at Beacon 2. The hospital buildings were eventually purchased by 'Bob' Williams to be used as a farmstead around 1920 through until the late 1930s. Bob dismantled and reformed part of the hospital as a wool shed on the peninsula isthmus (John Hall-Jones 1976). The hospital turned farmstead, wharf and shed are visible in the 1951 aerial photographs and plans shown in Figure 5-24 and Figure 5-25. Both the wharf and shed were still standing in 1977. The Quarantine Hospital remains are scattered on the hill above the Tiwai Point quarry (Huffadine and Watson 1977).

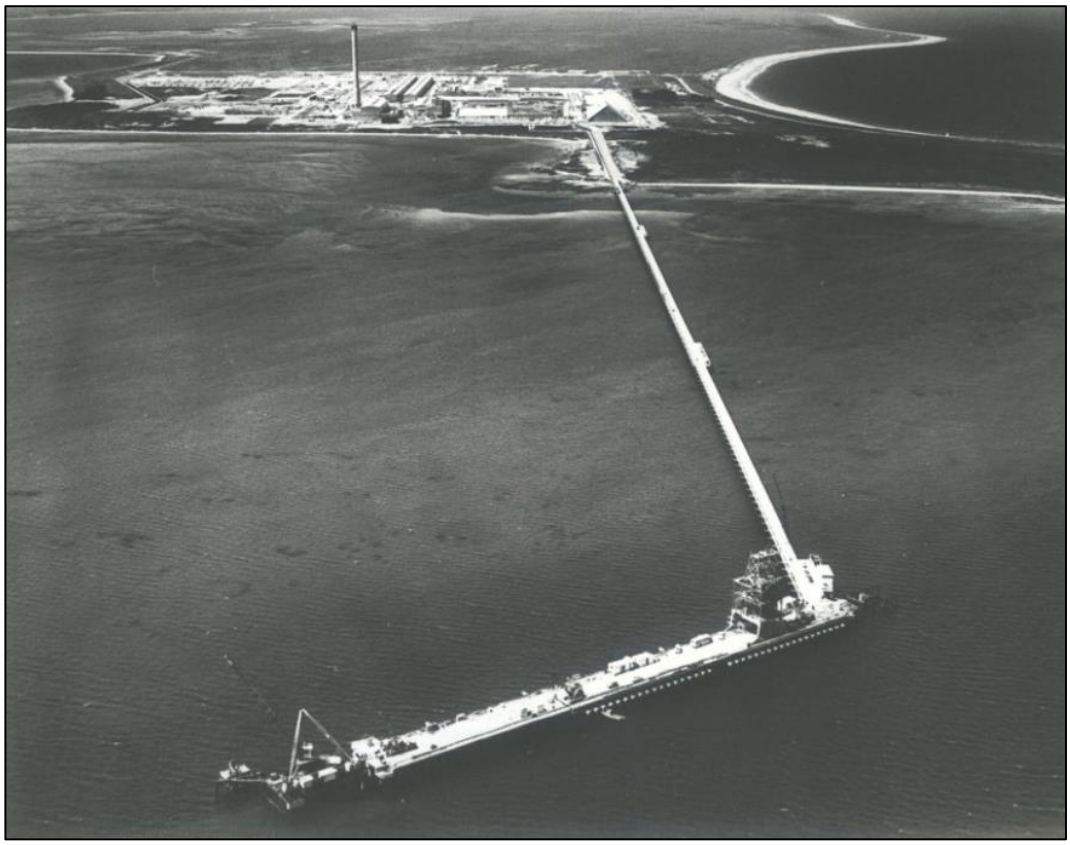

Figure 5-21. Photograph showing the impact of the Tiwai Point Aluminium Smelter on the peninsula (Hazeldines Studios Ltd n.d.)**.**

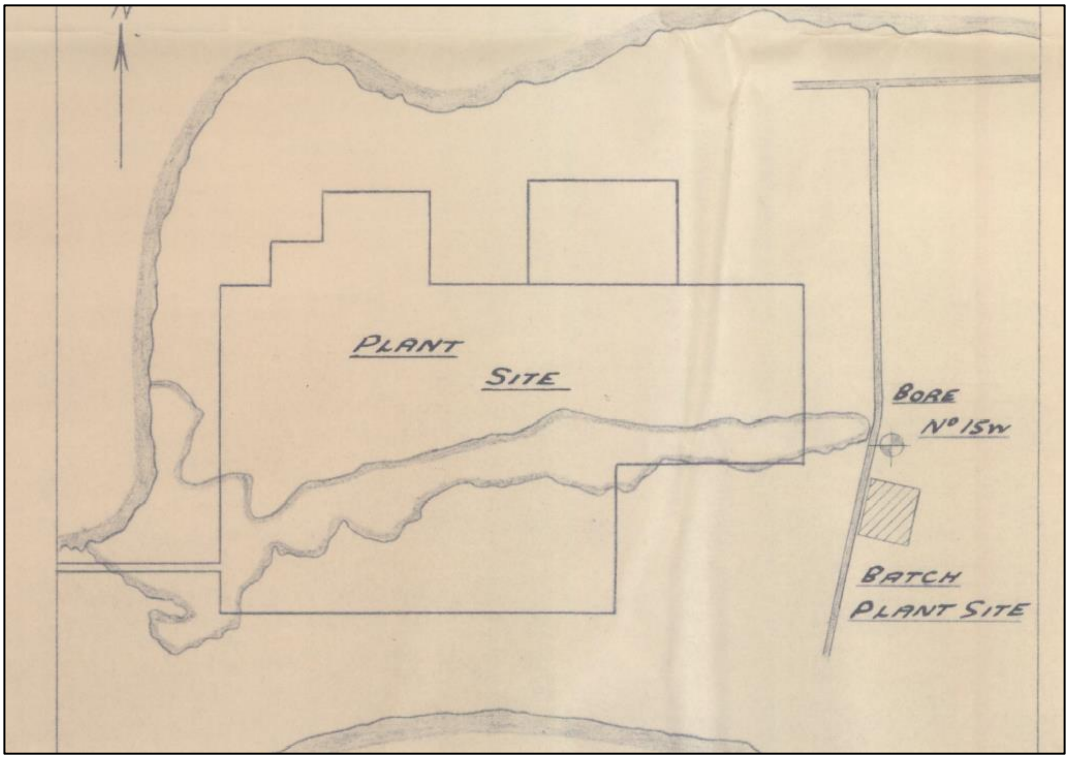

Figure 5-22. Detail of 1969 plan showing plant site on the peninsula (E. R. Garden & Partners 1969)**.**

Figure 5-23. Photograph of the quarantine wharf at Tiwai Point with the smelter wharf behind (John Hall-Jones 1976).

Figure 5-24. Photograph of the quarantine wharf in 2006 (NZAA ArchSite Record Form E47/171).

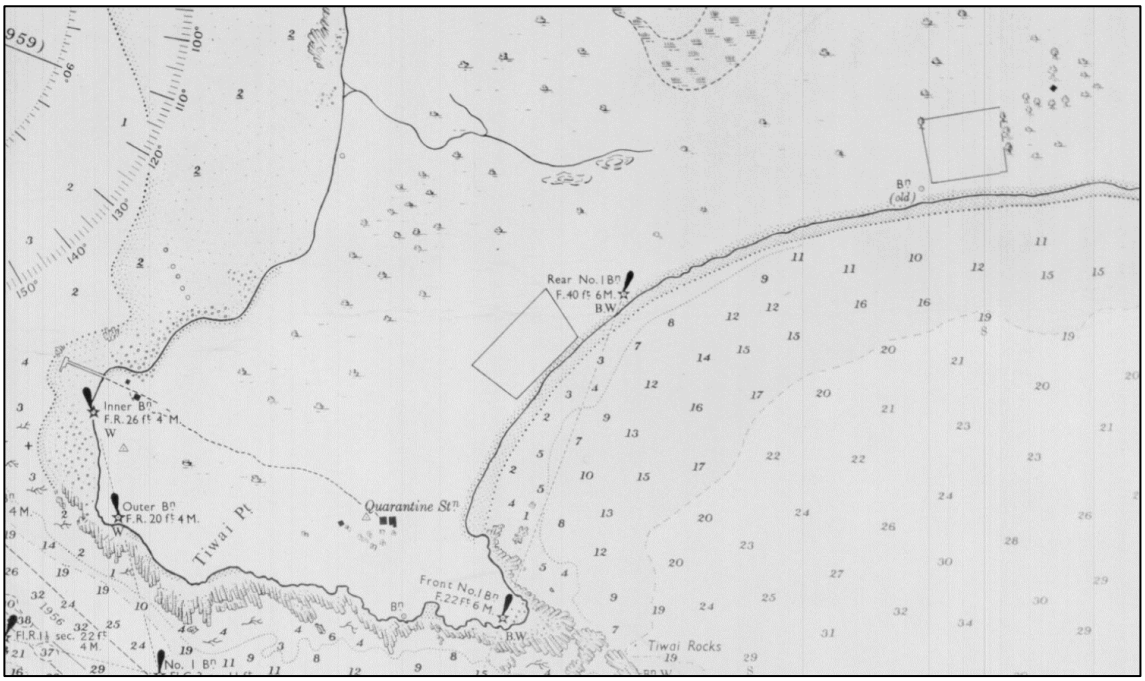

Figure 5-25. Detail of SO6922 from 1951 showing buildings on the peninsula. Each building is shown by a black square.

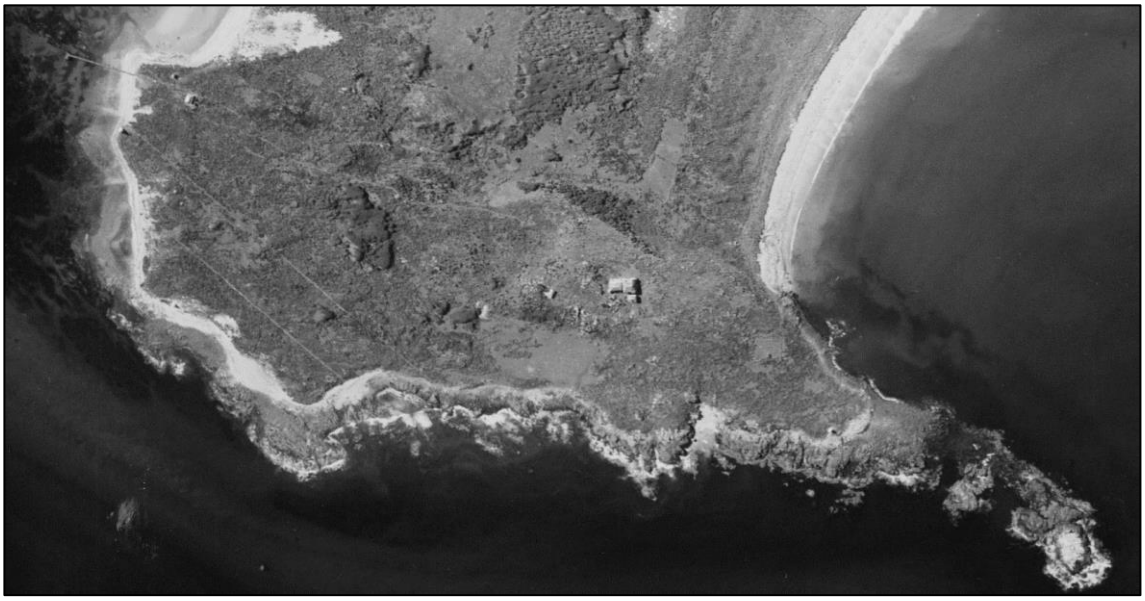

Figure 5-26. Aerial photograph from 1951 showing Quarantine Hospital and associated buildings and features (Retrolens 1951b).

Near the quarantine wharf, are the burials of three immigrants recorded as archaeological site E47/78 and E47/185. One grave is marked by a concrete block, while another features an unmarked headstone and a surrounding wrought iron trellis (Huffadine and Watson 1977). The individuals buried there in 1863 never lived on the peninsula but instead died on their journey to New Zealand or soon after. They include a William Baird, who died of pleurisy; Mrs Gordon who died of dysentery; and Alex Dunlop, who was fatally injured on his trip to New Zealand on the *New Great Britain* (John Hall-Jones 1976).

Figure 5-27. Photograph of Alex Dunlop's grave on Tiwai Point (John Hall-Jones 1976). Note the smelter in the background.

As identified above, one of the biggest transformations of the peninsula was the construction of the Tiwai Point Aluminium Smelter that began in 1969 following the discovery of the world's largest known bauxite deposit in Queensland. A wharf, 650 feet long, was constructed to receive the raw material, while a bridge over Awarua Bay, was 500m long (John Hall-Jones 1976; Sorrell 2006). Alumina powder was brought into Bluff, then carried by conveyor belt to a storage building. Large pot-rooms with lines of furnaces were constructed, as well as a 450 high smokestack – one of the tallest New Zealand chimneys (John Hall-Jones 1976). The construction of the smelter, although outside the project area, significantly altered the landscape as can been see in Figure 5-21.

5.4.2 History of Bluff Harbour Board at Tiwai

The port at Bluff (formerly Campbelltown) was a significant part of local economy and cultural change within the region with manawhenua and Pākehā living and working together at the port (Bremer 1986). Bluff was declared a port in 1856 and a Pilot Station was built at Stirling Point and remained in use until 1863 (Bremer 1986). A project to install a new jetty, at Campbelltown was begun in 1863 and finished by 1864 (Southland Times 1864). By 1867 the port was linked directly to Invercargill by rail.

The early years of the Bluff Harbour were managed differently across the region. For example, by 1859 there was a harbourmaster with double responsibility for New River and Bluff and in 1867-68 Thomas Thomson was appointed harbourmaster across Bluff Harbour, New River and Riverton. Following the joining of Southland with Otago control of the harbour became vested in the Harbour Department of the Otago Provincial Council (Chandler 1973; J Hall-Jones 1976) with Captain Thomson harbourmaster in the 1870s. In 1877 the Bluff Harbour Board was constituted, and over the years the Bluff port and jetty has undergone numerous repairs, improvements, extensions and modifications (Southland Times 1872b). A plan to reclaim some land around the port of Bluff was first suggested in 1876 at a public meeting in the town (Southland Times 1876) and phases of reclamation of the foreshore for the port and railway took place. In 1958 the Bluff Harbour Board became the Southland Harbour Board and plans were progressed, via government bills and loans to reclaim an additional 84 acres as the island harbour; this was completed for the official opening in December 1960 (Bremer 1986; Turnbull; and Allibone 2003). The company South Port NZ Limited was formed in 1988, having taken over the assets and liabilities of the former Southland Harbour Board.

Historical research was unable to confirm nineteenth century marine or harbour related structures at Tiwai, with most of the surviving nineteenth century archives relating the port, wharf, and railway yard at Bluff township itself. By 1864 the channel was marked with buoys (J Hall-Jones 1976). It seems likely there may have been beacons or structures within the project areas in the nineteenth century to ensure safety at the port or later Quarantine Station (Figure 5-30). There were a number of wrecks which occurred at Tiwai, including the *Dorcas* in 1869, *Ann Gambles* in 1878 driven onto the rocks at Tiwai Point and partially salvaged and later breaking up in heavy seas and the *Elizabeth* and *Ulvaria Cameron* wrecked at Tiwai Point in 1889 (J Hall-Jones 1976). In 1901 a request by E.W. Brooke, the caretaker of the Quarantine Station at "Tewais [Tiwai] Point", was made to the secretary of the Bluff Harbour Board for supply of rope and a life-buoy (Department of Internal Affairs 1901). Known nineteenth century signal flagstaff and signal stations were located elsewhere on Motupōhue and at Stirling Point and later used by the Navy (Bluff History Group 2001:73). A lighthouse was established three miles out in Foveaux Straight at Dog Island and first lit up from August 1865 (J Hall-Jones 1976).

In an 1880 report on the harbours of New Zealand (Coode 1880), John Coode proposed a system for night entry of leading lights including three lighthouse buildings (Figure 5-28). He stated that "for facilitating the identification of the main leading light, and to prevent it being mistaken by the mariner for that on Te Waewae Point" Coode suggested the apparatus be fitted with occulting gear, so as to show eclipses of light, for example every 10 seconds, rendering it easily discernible from the other and adjoining station light and side-lights of vessels. The report stated that "it is not practicable, without considerable extra cost, to provide for lighting the east passage; but, when erecting the principal building to contain the occulting apparatus, arrangements would be made for the addition, when required hereafter, of a special light to be visible along this channel, and thus to enable mariners – to approach within a safe distance of Te Waewae Rock"(Coode 1880). The plans show the three proposed lighthouse buildings as a piled light to the north in the channel and two light towers at Tiwai Point as well as a "new beacon" at Tiwai (Figure 5-28). The southernmost proposed light tower is situated at the project area for Beacon 2. The 'new beacon' was not discussed in Coode's report suggesting it was possibly an already constructed new beacon and not a proposal by Coode. This information and "new beacon" may suggest there was already beacons on Te Waewae (Tiwai) Point by this time (1880); however, no information could be found to confirm that "light towers" as proposed had constructed at.

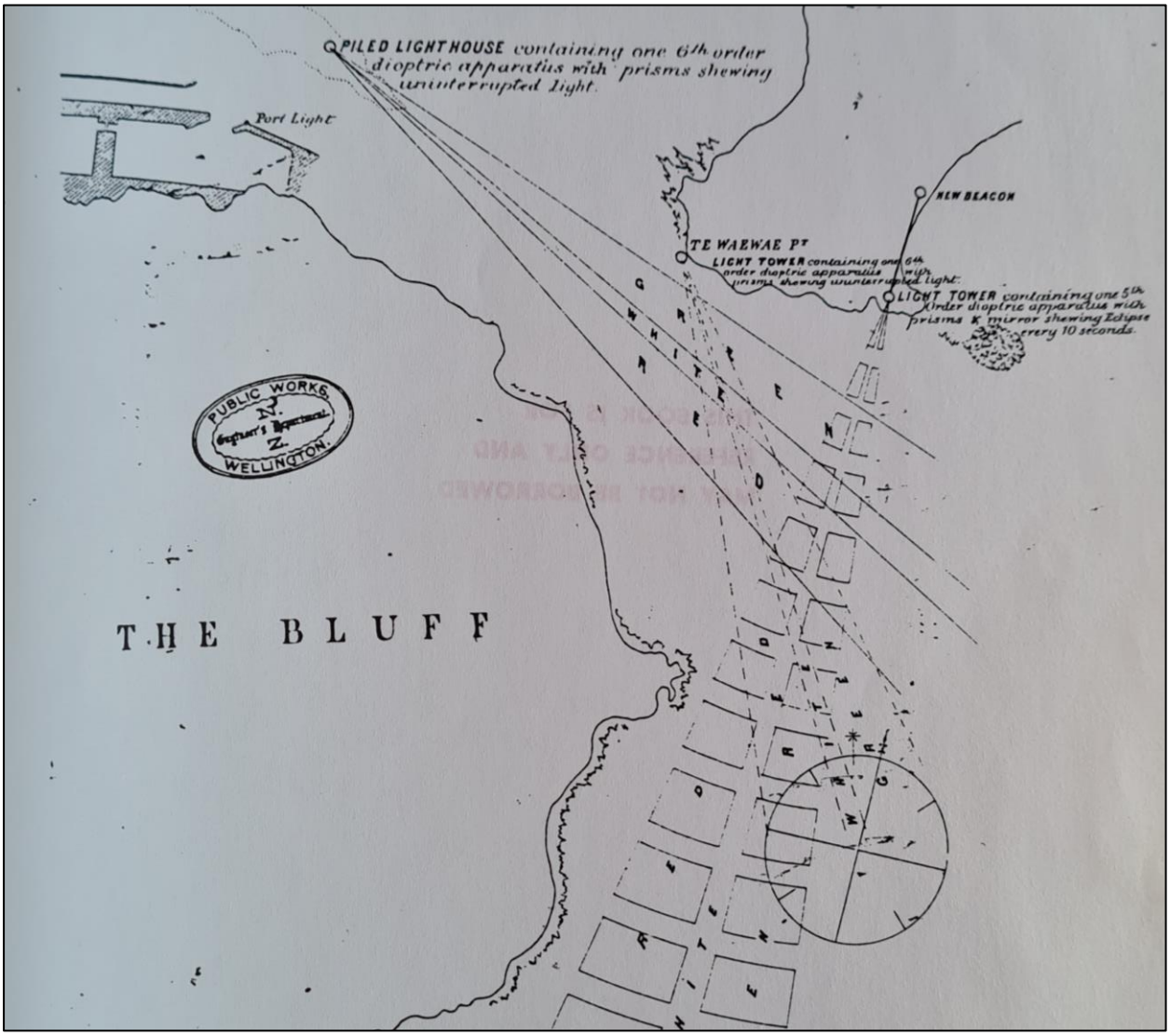

Figure 5-28. Coode's 1880 plan showing proposed light towers and beacons at Tiwai (Extract of Drawing No. 5) (Coode 1880).

A number of beacon sites are recorded in ArchSite at Tiwai, although their histories nor research into the age of concrete structures had previously been undertaken. At the southernmost project area at Beacon 2 near the 'blue marker', E47/169 records a square concrete structure thought to be the remains of a navigation beacon. Outside the project area E47/170 records another square concrete structure possibly a former navigation beacon and E47/172 a probable harbour beacon. ArchSite records suggest that some structures may have connection with World War II installations for coastal defence. However, no evidence for this could be found both historically nor during survey with a radar station and the Bluff gunpit coastal defence camp elsewhere on Motupōhue facing Foveaux Straight. Although it was common that existing lighthouses and other existing structures were subsequently utilised for defence purposes.

Bluff Harbour Board reports from 1913 provide a snapshot of Harbour Board activities at this time at Tiwai. "Tewais Wharf" was reported to have fallen into disrepair and the board took it over repaired it and a reserve of 3 acres of land adjoining the jetty was to be granted to the Bluff Harbour Board. The engineers report did not mention works to any beacons, but the balance sheet listed costs for repairs to "buoys, beacons, etc" and "buoys, beacons and moorings" are listed as assets valued at £1000. An extract of a 1913 map (Figure 5-29) from this report shows white beacons already on Tiwai Point by this time (Bluff Harbour Board 1914). Unfortunately, the project area and the beacons associated are outside this map extent.

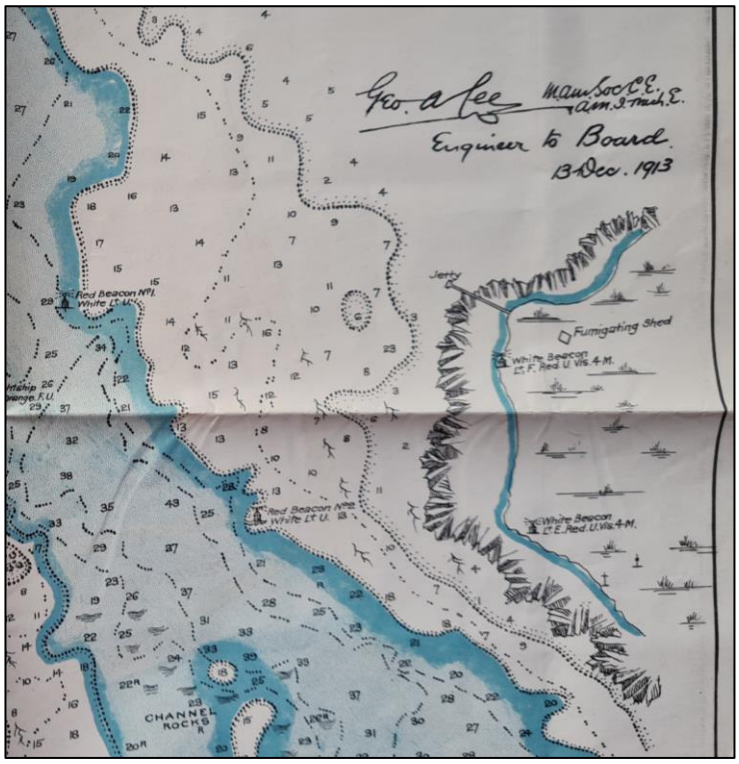

Figure 5-29 Extract of 1913 map showing two white beacons on Tiwai Point at this time. The project area is outside to the east and south of this map (Bluff Harbour Board 1914).

In 1917 reports, a new Channel Rocks beacon to mark the northern harbour extent lasted 6 weeks, but was noted to be valuable and that the "various buoys and beacons have been maintained in good condition" (Bluff Harbour Board 1918). By 1957 reports noted damage sustained to harbour beacons in the channel and that of the nine beacons in the seaway, seven were demolished in the last two years, two were waiting re-sitting following channel widening, of the seven demolished, five had been re-driven, two were fabricated and one positioned with the other awaiting positioning (Bluff Harbour Board 1958). In contrast, it is possible that the beacons on land at Tiwai would have been subject to less modification as a result of sea weather or channel modification. A white beacon is shown on Tiwai Peninsula near the point in a 1916 photograph showing a shipwreck (Figure 5-30). Both buoys and beacons (triangle symbol) are depicted on a map from a British survey in 1904, with corrections up to 1935 (Figure 5-31).

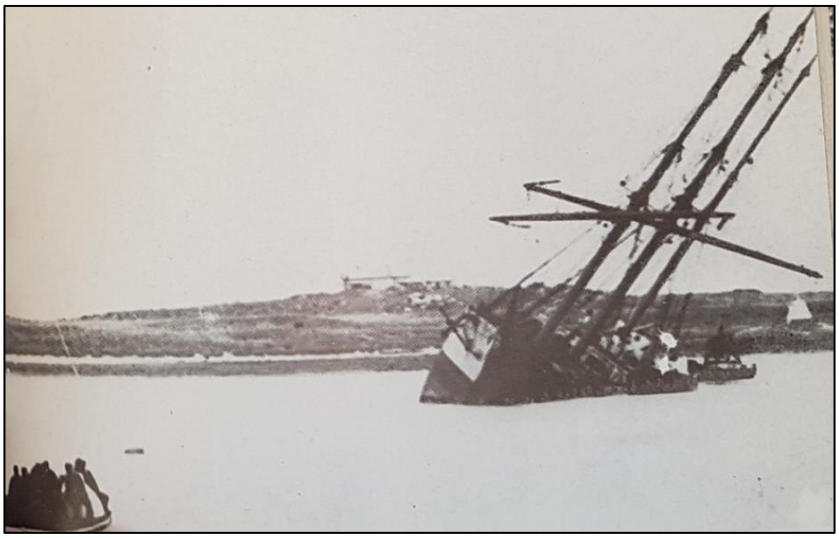

Figure 5-30 The *Antiope* in 1916 with the quarantine hospital on Tiwai Point in the background and small coastal structure to far right – a white beacon (J Hall-Jones 1976).

Figure 5-31 Extract of 1904 map, with additions to 1935, showing white beacons and possible fenced areas at the project area Beacons 1 and 2 (United States Hydrographic Office 1935).

Beacons are depicted on a 1951 map (Figure 5-32). This map shows the 'Front No. 1" beacon where the proposed pole mounted solar system is proposed (Beacon 2 project area). An "Outer" beacon approximately at the location of E47/170 and "Inner" beacon at approximately the location of E47/172. Also, an "old" beacon close to a potential paddock, trees and building which is thought to be associated with the derelict chicken farm and an unrecorded nineteenth century agricultural/pastoral site is shown at the site of the Beacon 1 project area. Southland Harbour Board land, marine beacons, including remains of marine sighting mast' at the Beacon 1 project area, are also shown on an undated map thought to date from 1960s (Figure 5-20). In addition, Southland Harbour Board plans supplied by South Port NZ Limited show that the pole mounted Rear No. 1 Lead, and Front No. 1 and No. 2 Leads were constructed from 1979. Although the construction date of the first beacons or individual beacons constructed on Tiwai Point could be determined, this may signal construction was much earlier than these surviving records. Coode's 1880 report and early turn of the century maps suggests that it is possible that beacons were established in the nineteenth century. Although the history suggests, that as safety assets, subject to coastal weather conditions, beacons would have been subject to ongoing repairs, modifications, and replacement.

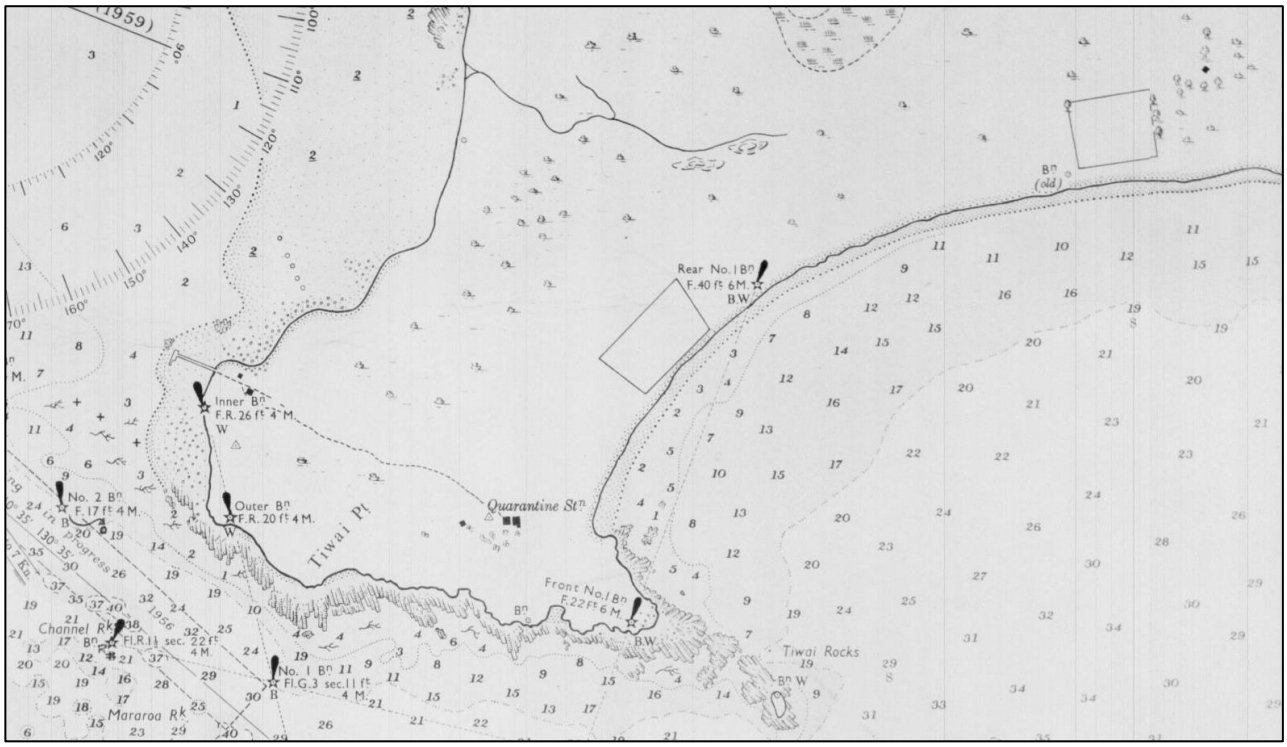

Figure 5-32 Extract of 1951 map of Bluff Harbour, with later annotations up to 1959. Showing beacons present at Tiwai, including an 'old' beacon near the project area at Rear No. 1 Lead.

5.4.3 Closed Road, Block XIII Campbelltown Hundred

Part of the project area is associated with a coastal Closed Road, Block XIII Campbelltown Hundred on the southern coast of the peninsula. It is not known when a road was first formed here, with road formation likely in the twentieth century. However, it is likely that this route was an earlier ara tawhito and it is surveyed as a road on Crown Grant and other nineteenth century maps (Figure 5-14 (1864 map) and Figure 5-16 (1885 map)). Then also depicted as a track, for example "Track to Fortrose" (1896 map in Figure 5-18) on nineteenth century maps into the twentieth century (Figure 5-9 (1860), Figure 5-10 (1914)). No clear road formation is shown in 1950s aerial photographs (Figure 5-17), so it is likely that the closed road was an ara tawhito and track in the nineteenth century until being formed as a modern road in the latter half of the twentieth century. The extant formed road is much narrower than the legal surveyed parcel. As a result, it may be more likely that early activities associated with the adjacent land parcels (Sections 2 and 4) may have extended across surveyed road.

5.5 Summary

Historical research suggests that within Tiwai Peninsula and the project areas there is potential to encounter other unrecorded archaeological sites and historic resources such as midden/ovens; kōiwi; agricultural/pastoral sites, such as homesteads, outbuildings, fences, gardens, orchards, sheep dips; and transport/communication sites, such as ara tawhito, early tracks, drainage and harbour board infrastructure such as marine beacons.

6 Previous Archaeological or Historic Investigations and Context

This assessment considers previously recorded archaeological sites directly within or within proximity to the project areas on the Tiwai Peninsula. There are numerous archaeological sites and historic resources, including beacon sites, midden, working floors, umu and kōiwi, immediately adjacent to the project area and within the surrounding area. These sites reflect the large number of sites recorded around the coast of the peninsula and are related to manawhenua occupation of Tiwai. For Tiwai previous archaeological and historic investigations have primarily focussed on archaeological sites which is the focus of this section. However, due to the long history of occupation many pre-1900 archaeological sites may also have post-1900 features or historic resources. The wider archaeology of the peninsula reflects the potential for high and significant archaeological, other heritage and cultural values, unrecorded archaeological sites (i.e., kōiwi and taonga) to be encountered within the project area. There is further potential for archaeological remains to be encountered within the project area associated with the Pākehā occupation of the site, including features relating to whaling and farming and potentially early harbour board activities.

6.1 The Archaeological Context of Tiwai Point

An earlier survey of the coastline between Greenhills and Fortrose was undertaken in the 1970s by Huffadine and Watson (1977). It is interesting to note that few other sites were identified than those previously recorded prior to their survey (Huffadine and Watson 1977). This was attributed to several possible factors including: human error of surveying the wrong areas, or not recognising ground surface remains of sites; sites lost to erosion; only a few sites; and/or, further sites were not visible on the surface. Another reason was heavy vegetation. Photographs from the 1960s contrasted with the overgrown vegetation less than a decade later, a result of the cessation of the stock grazing in the area (Huffadine and Watson 1977). In spite of this, a high concentration of sites recorded by Huffadine and Watson was on the Tiwai Peninsula.

The ongoing Southland Coastal Heritage Inventory Project (SCHIP) aims to undertake systematic surveys to identify new and relocate previously recorded archaeological along the southland coast to promote informed site management decisions. As part of this project, many of the sites recorded by Huffadine and Watson have been revisited in the 2000s and 2010s. During many of the visits, participants of SCHIP noted the effects of erosion on sites limiting their ability to relocate them.

There are two sites recorded within or near to the project areas (E47/169 and E47/44) that were identified for assessment. E47/169 recorded a beacon site at the location of Beacon 2. E47/44 recorded a midden/artefact scatter extending some metres from a beacon site, extent undocumented, and it needed to be confirmed whether this was a beacon site being affected by proposed works. There are several other sites recorded along the coastline in close proximity to the project area (Figure 6-1); however, full site extents are often not available. The assessment site survey will investigate the relationship of recorded ArchSites to the project areas further. The sites recorded on ArchSite represent only those that have been identified to date and are not a true reflection of the distribution of all archaeology, especially as archaeological recording has predominantly focused on the coastline and has not extended inland across the peninsula. The following section focuses on E47/169 and E47/44 and the sites recorded within close proximity (500mm buffer, Table 6-1) before considering the broader pattern of archaeological sites on Tiwai Point.

Table 6-1. Table of archaeological sites recorded with 500m of the project area.

NZAA_ID	IMPERIAL	NZTM_E	NZTM_N	Short Description	Site Type
E47/14	S181/17	1245294	4828684	Burial(s) with artefacts. Human burial uncovered by bulldozer. Crouch burial of a female, found with adze in hand.	Burial/ cemetery
E47/168		1245391	4828724	Captain Stirling's Grave	Burial/ cemetery
E47/169		1245431	4828633	Concrete remains.	Transport/ communication
E47/2	S181/2	1245293	4829085	Flake Scatter	Working area

E47/44	S181/51	1245562	4829200	Oven - 1.2m long. Widespread scatters of shell, bone, burnt stone, flakes, charcoal.	Midden/Oven

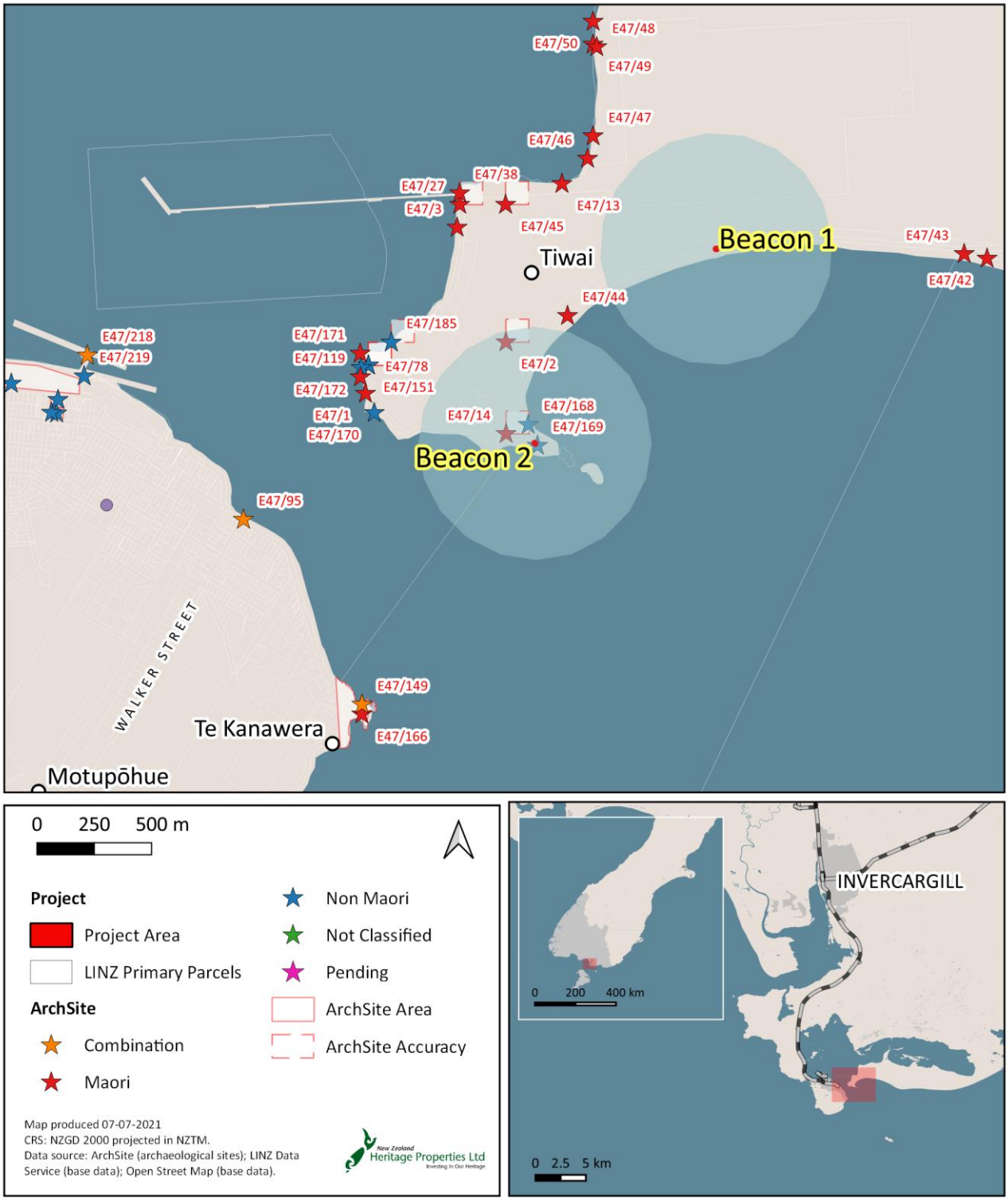

Figure 6-1 Previously recorded archaeological sites within the vicinity of the project areas, Beacon 1 and Beacon 2, showing a 500m buffer around the project areas.

6.1.1 Previous Investigations of E47/169

Near the location of the project area, Beacon 2, the "Blue Marker" on Figure 1-2, E47/169 records a transport/ communication site type immediately on the point. The site was briefly visited on 23 October 2004 during the Southland Coastal Heritage Inventory Project (SCHIP). The site is described as concrete remains consisting of a

square concrete structure that may be the remains of a navigation beacon, a WWII defence installation or building foundations. The condition of the site was described as poor and subject to vandalism, the condition of the concrete and that a wall may continue to collapse. The relationship of this site to the project area, was investigated during the site survey discussed in Section 7.

Figure 6-2 Photo of concrete structure at E47/169 (ArchSite).

6.1.2 Previous Investigations of E47/44

E47/44 (formerly S181/51) records an oven/midden site type. This site was first recorded in December 1976 and was described as 160m west of Beacon 1, exposed in a ditch on the north side of the gravel road, 0.3m below the ground surface. An oven was described as 1.2m long with burnt oven stones, charcoal and a flake. However, the ditch running alongside the road was noted to contain a widespread scatter of shell, bone, burnt stone, flakes, charcoal. In this area of the beacon there are flakes of fine-grained argillite, black argillite, brown porcellanite. The material was noted to be within 100m inland from the beach front. The site was subsequently located during the 2004 SCHIP upgrade project, but no details of that visit are available in ArchSite. The site is currently only recorded by a point with the observed extent not mapped nor sketched. It was initially recorded in the same area as E47/2, 160m west of the beacon tower, by Huffadine and Watson in 1976. The site was relocated in 2004 as part of the SCHIP project and described to be located 300m from E47/168. The relationship of this site, with the location of the Beacon 1 project area, 'Rear No. 1 Lead" (teal marker on Figure 1-2) was investigated during site survey, especially since the extent of the widespread scatter is unknown, and is discussed further in Section 7.

6.1.3 Other Archaeological Sites in Close Proximity to the Project Areas: E47/2, E47/168 and E47/14

Archaeological site E47/2 (Previously S181/2) records a flake scatter. E47/44 was initially recorded in this same area. According to the site record form, the site was visited in 1961 and initially reported on by P. Gathercole in 1968, with a later update by Neville Ritchie in 1976. The site was exposed during the construction of an airstrip and has been referred to as the "lighthouse site" as it is situated around a beacon tower (Figure 6-3). This may suggest some association with E47/44. A bulldozed road for the Tiwai Point Aluminium Smelter cut through the site exposing flaks, adze blanks, and hammer stones across as area of 40m. Argillite comprised the majority of material identified, it was light grey and identified to be possibly from a Mokomoko Inlet source. Brown porcellanite was also identified at the site. Later site visits further identified flakes in the drainage trenches for the roads.

Figure 6-3.NZMS1 1969 showing the location of the beacon tower around which E47/2 is recorded.

On the point itself, close to E47/169 there are two recorded sites which document kōiwi (burials), E47/14 and E47/168. E47/14 (previously S181/17) was recorded on the eastern side of the peninsula in close proximity to the project area. The crouch burial was exposed and damaged by a bulldozer at the end of a road leading to a construction quarry in 1968. The kōiwi at E47/14 was reported to be an adult woman and a toki (adze) was found in her hand. The toki was made of green argillite. This grave was disturbed significantly by the contractors at the time of discovery. The remains of this burial, along with those from E47/27 (formerly S181/30) on the eastern edge of Tiwai peninsular north of the project area, were reburied in 1975. Located on 27m from the shoreline the reburial location of the two burials is situated immediately outside of the project area as well. At both sites there is potential that associated kōiwi and/or taonga still exist at these sites. However, there is potential for further kōiwi associated with these sites to be present at the original site locations.

At Tiwai are two archaeological sites that record the burial of immigrants to New Zealand in 1863. Near E47/14 and immediately adjacent to the project area at the point are Captain Stirling's and John Davis' graves (E47/168). The latter grave is rectangular concrete and marked with a plaque (Figure 6-4). As discussed above, when the smelter was constructed a burial was encountered on this hill associated with a clay pipe and button that suggest this was either John or Stirling (John Hall-Jones 1976). In the 1970s the remains were reinterred and a cemetery reserve was gazetted (Gazzette 30 September 1976, No. 103, p. 2231) at Section 10 Block XIII, Campbelltown Hundred (Anon 1975).

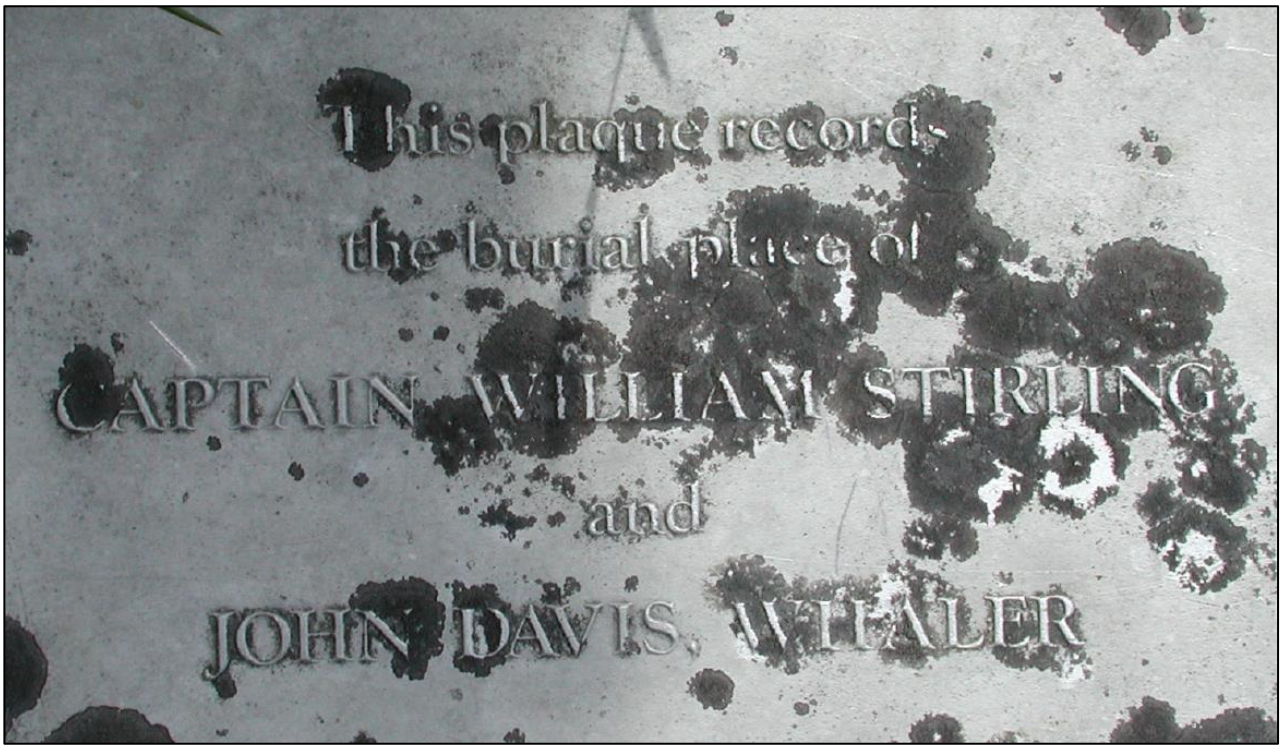

Figure 6-4. Plaque on the grave site at E47/168 (NZAA ArchSite Record Form).

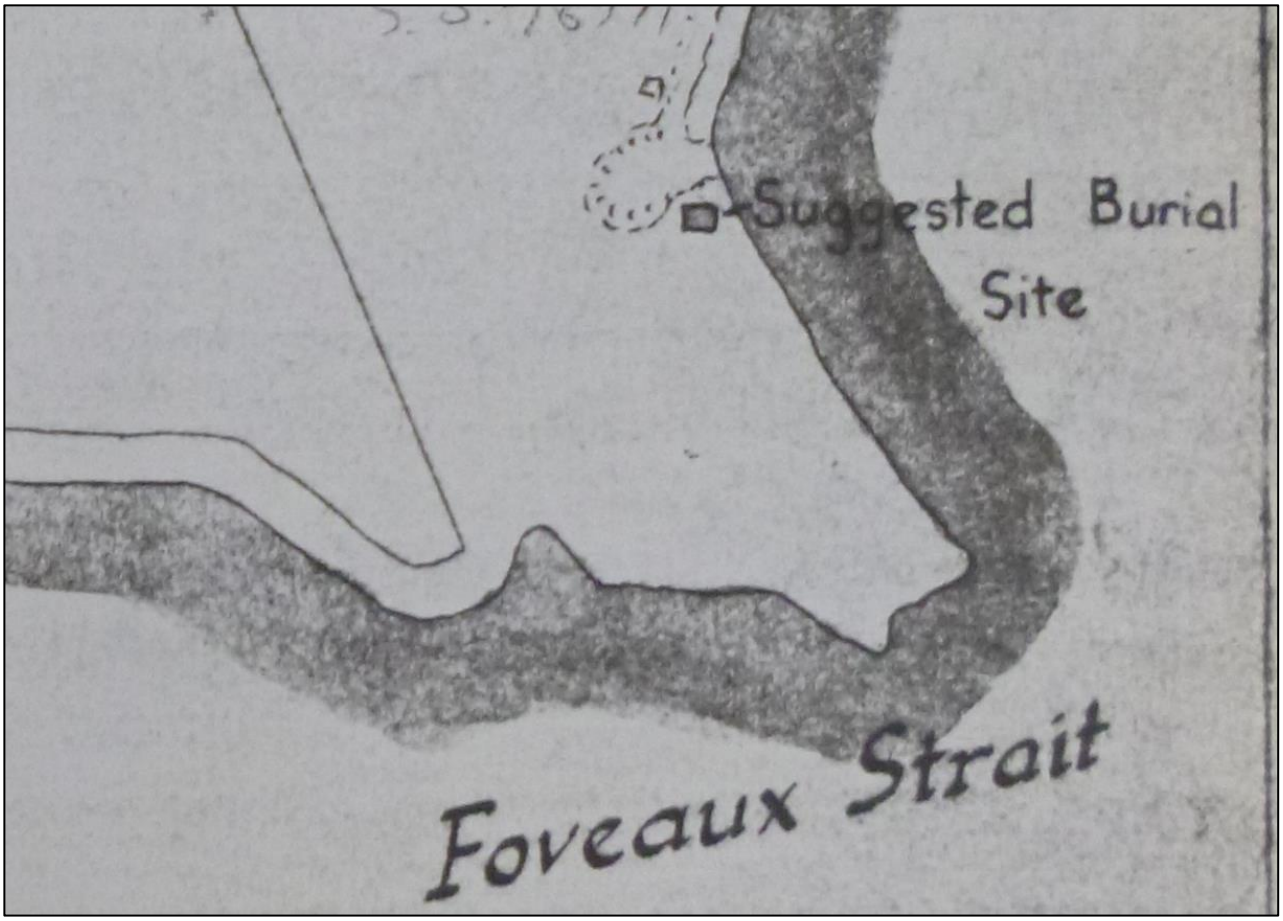

Figure 6-5. Plan showing proposed burial site to reinter remains thought to belong to Captain Stirling (Anon 1975).

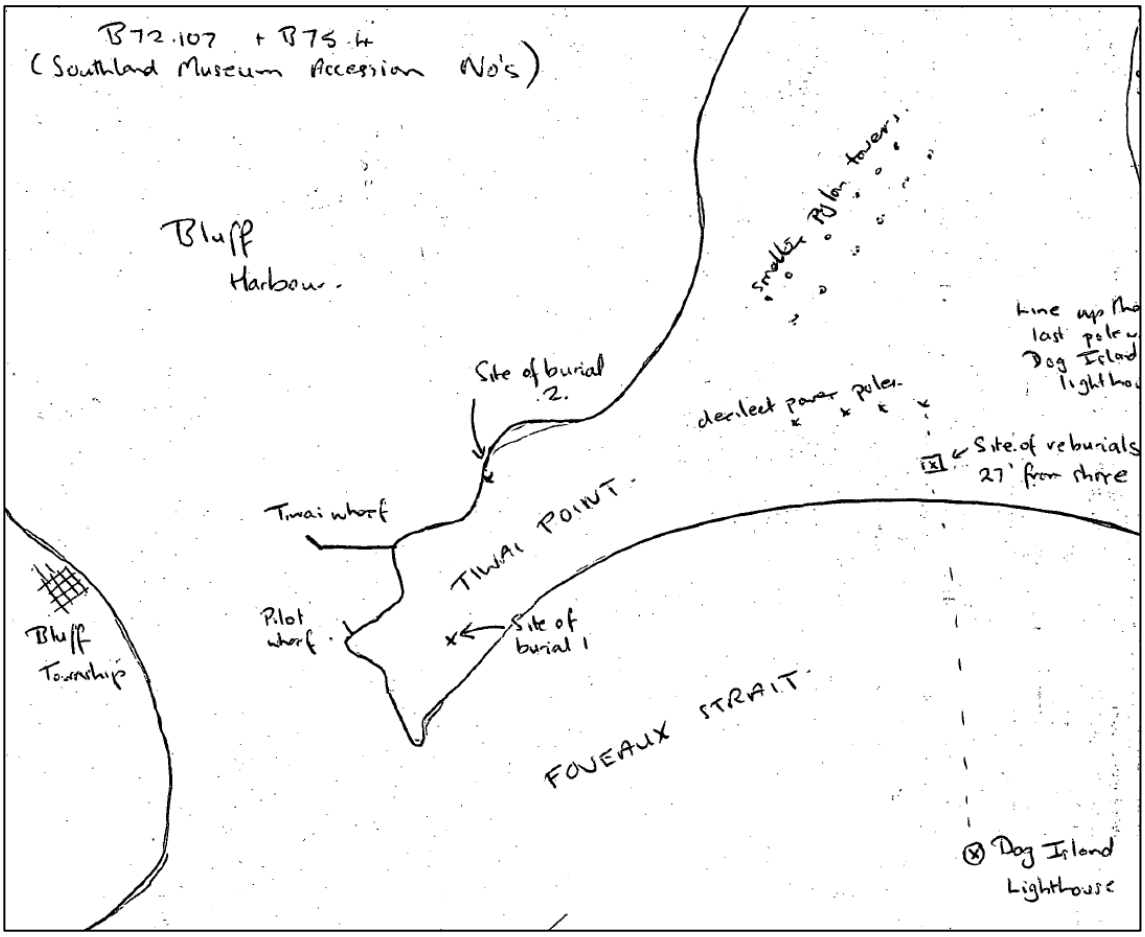

Figure 6-6. Image showing the original locations of E47/27 (Burial 2) and E47/14 (Burial 1).

6.1.4 The Wider Archaeological Context of Tiwai Point

There are several other sites of importance recorded on the peninsula. Many are recorded around the coastline, such as the southern coast and near the point. Almost all were recorded by Huffadine and Watson (Huffadine and Watson 1977) during their 1970s' survey.

A possible flaking floor (E47/45, previously S181/52) was one of the few sites identified by Huffadine and Watson during their 1976 survey of the area. Black argillite dominated the assemblage scattered over a 5m² area, although the site was located on a green argillite outcrop (Huffadine and Watson 1977). The exact location of the site is unknown except that it was recorded on a bulldozed track bearing 226 degrees from Bluff Hill and 154 degrees from the beacon at Tapu Beach. This places the site approximately 450m southeast of the recorded site location on the NZAA Site Recording Scheme, closer to the location of the site in Huffadine and Watsons survey map (Figure 6-7) and much closer to the project area.

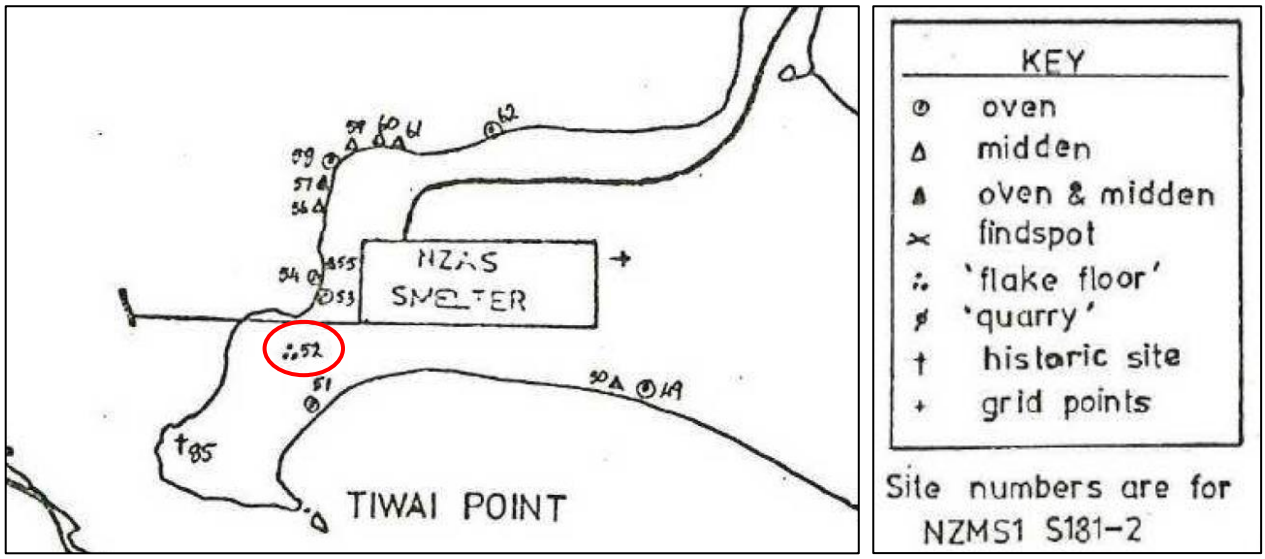

Figure 6-7. Detail of map showing archaeological sites visited and recorded on Tiwai Point by Huffadine and Watson (Huffadine and Watson 1977)**. E47/45, previously S181/52, is circled red.**

On the southern coast, to the east of the project area, of the sites recorded by Huffadine and Watson (Huffadine and Watson 1977) two are located along the southern coastline of the peninsula: E47/42 (formerly S181/49), and E47/43 (formerly S181/50). The former records disturbed oven stones scattered over a 5m^2 area, just 10m from the beach behind a low row of sandhills. Site E47/43 records two areas: a concentration of stone and midden scatters 7m to the east. The site was 8m from the high tide line and the midden contained small oyster shell, as well as bird and fish bone. Neither site could be relocated during the SCHIP project.

Additional burials are known near the quarantine wharf, outside the project area, including the burials of two immigrants recorded as archaeological site E47/78. One grave is marked by a concrete block, while the other features an unmarked headstone and a surrounding wrought iron trellis (Huffadine and Watson 1977). The NZAA site record form records that the unmarked headstone and trellis (Figure 5-27) belongs to Alex Dunlop (John Hall-Jones 1976). A second burial is recorded as E47/185. This records the burial of William Baird which also features a "rusted railings" around the grave site (Figure 6-8). The photo of these appears to be highly similar to those around Dunlop's grave (Figure 5-27). While the site is recorded to the northeast of E47/185, it is also described as being close to the quarantine wharf, so there is potential that the sites have been confused.

Figure 6-8. Photograph showing E47/85 in 2004 (NZAA Site Record Form)

Other sites along the southwest coast, directly away from the project area, include sites associated with manawhenua such as ovens and midden (E47/119, formerly S181/139), other nineteenth century shipping sites such as harbour beacons or structures associated with WWII (E47/170 and E47/172); and the 1900 Quarantine wharf (E47/171). Of the three sites that were recorded prior to the Huffadine and Watson 1970s survey, the first records ovens and workshop recorded as E47/3 (previously S181/3). This site record form indicates that the site was destroyed, and a survey in 2004 for the SCHIP project could not relocate the site. The second site (E47/38, formerly S181/43) records an outcrop, stone of which has been found at E47/2 and E47/3. The source material was initially recorded as an argillitic or fine-grained tuff in 1968. The site is located close to the smelter jetty where numerous flakes are recorded (Figure 6-17).

E47/13 (S181/16), to the north of the project area, records a working area/flaking floor of larger argillite boulders, cores and flakes adjacent to Fossickers Beach extending over an 100m by 150m area. Previous site visits have noted some evidence of fossicking of the site. While the site record form itself only notes one working area, the site was excavated in 1968 and 1969 and two discrete working areas were exposed. The first is located as is on the NZAA site recording scheme while the second area is located approximately 30m east on the edge of a lagoon (Figure 6-9 and Figure 6-10). As below, it was reported that following the construction of the smelter the site was likely completely destroyed.

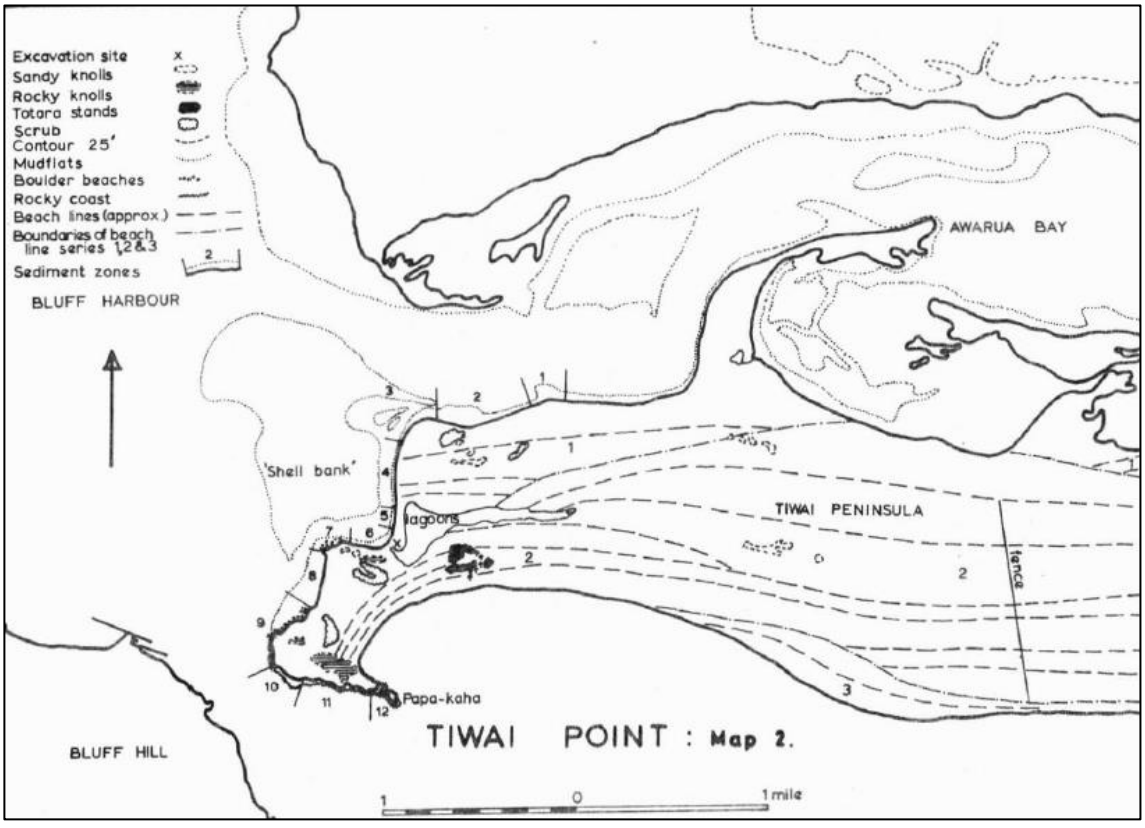

Figure 6-9. Map of Tiwai Point showing the excavation site at E47/13 (Hamel 1969).

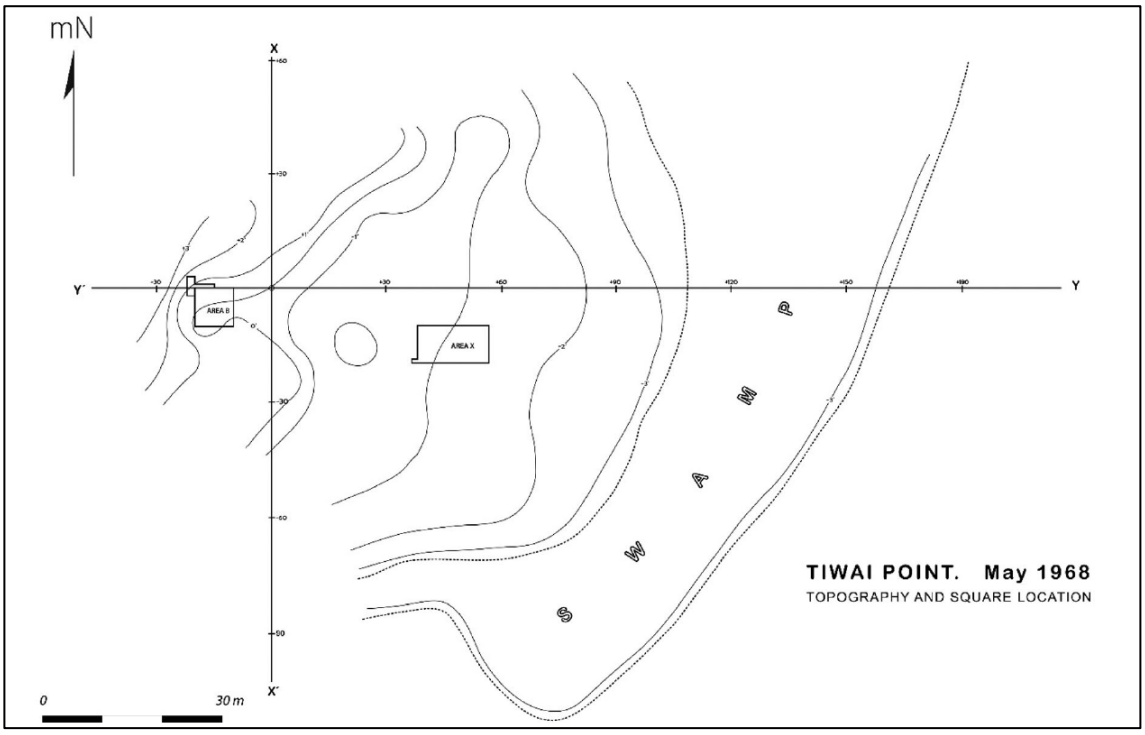

Figure 6-10. Plan showing the two excavation areas excavated in 1968 and 1969 (Jennings and Weisler 2020).

There have been several archaeological investigations at Tiwai, although the largest excavations were undertaken over 50 years ago. In 1968 and 1969, Stuart Park led salvage excavations at Tiwai Point where the aluminium smelter was to be built (Park 1969, 1975). Two areas at the site were recorded including discrete working areas over 115m^2 (Area B), with a posthole and scoop hearths. Closer to the lagoon the excavations encountered a second area of 150m^2 (Area X), within which working floors and oven were identified in associated with a shallow midden deposit. These areas were recorded as E47/13 (S181/16). The large collection of lithic material recovered was dominated by local argillite, specifically Bluff argillite, and as Park (Park 1969) summarises:

> "orthoquartzite, chalcedony, fossil wood, obsidian, rock crystal, granite, porcellanite, norite and sandstone. A number of pieces of mice were also found… Serpentine, coal, quartz, pumice and a possible nephrite were also present."

Amongst the artefacts were chisels, an adze, polished flakes, a minnow lure, and fishhooks (Figure 6-11). Bluff argillite at Tiwai Point is too coarse grained and is considered to be not suitable for adze production. Thus, the material was likely brought in from elsewhere around the harbour (Huffadine and Watson 1977). It has been suggested, that given the lack of large flakes within the assemblage, the Colyers Island source was likely the location of the initial stages of production (Jennings and Weisler 2020).

Chris Jennings and Marshall Weisler (2020) have investigated the production of adzes by examination of the lithic material from this site, which is one of the region's largest adze production site. This study included 3D laser scanning of argillite artefacts (Figure 6-12 and Figure 6-13). It is posited that Tiwai Point was the primary production and distribution site for adzes made with Bluff argillite. Jennings and Weisler (2020) suggest that Duff Type 1 D southland adzes (Figure 6-13) may have been first produced at Tiwai Point, a result of adapting manufacturing techniques to the incredibly tough Bluff argillite. There were a range of skills present at the site, with higher skilled individuals represented by large difficult to produce forms (Figure 6-12); while lower skilled individuals reflected in functional, yet irregular and poorly flaked items (Jennings and Weisler 2020).

Other studies of the lithic material at the site include Huffadine's (1978) analysis of the assemblage as the whole, as well as Gillies' (Gillies 1981) specific examination of obsidian at Tiwai in comparison to other Murihiku sites (Figure 6-14). Jasper, chalcedony, quartzite and petrified wood at the site originated from around Awarua Bay

(Huffadine and Watson 1977). Gillies (Gillies 1981) suggests that the relatively high proportions overall size of unused North Island obsidian flakes indicates that either the occupants of the site had abundant resources of obsidian or had access to other lither resources that could be used for similar tasks as obsidian.

The midden included, pipi, tuangi, cats-eye, paua and oyster as well as moa, kuri, kiore, a variety sea and bush bird (shags, petrels, parakeets and pigeons) and some fish bone. An analysis of bird bone at the site indicates marine birds were by far the most predominant bird species (Figure 6-15). As identified above, the presence of moa vertebrae and foot bones suggests that hunting of moa was done locally (Hamel 1969; Park 1969), though some moa species, only presented in leg bones suggesting they were hunted further around the harbour or the western end of the Peninsula (Sutton and Marshall 1980). Over seventy percent of the meat represented in the faunal assemblage was seal (Figure 6-16), providing the greatest meat source represented in the assemblage (Sutton and Marshall 1980).

Overall, the faunal assemblage indicated that all food resources were represented sources available within 2km of the site. The site is considered to be a short-term occupation, or one that was intermittently occupied anywhere between a several months to a few years (Jacomb et al. 2010). Both the presence of moa bone and radiocarbon dates suggest a fourteenth century occupation of the site (Park 1975).

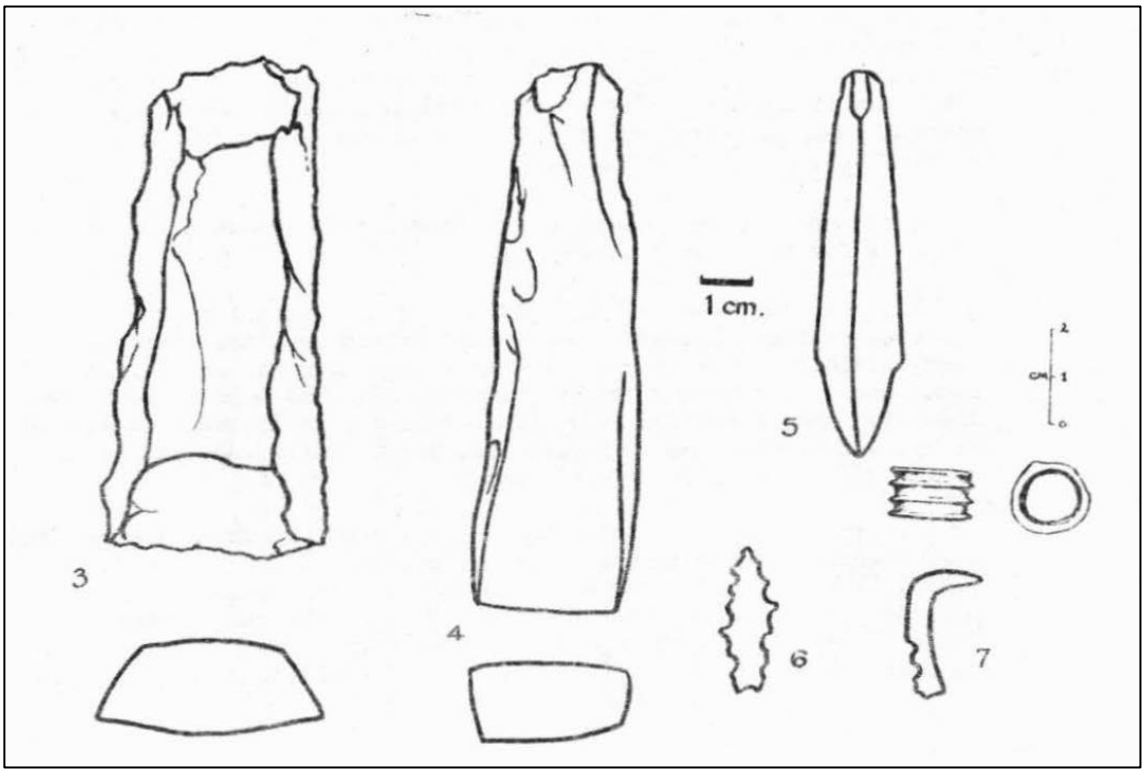

Figure 6-11. Artefacts found at Tiwai Point site in 1968 (Park 1969).

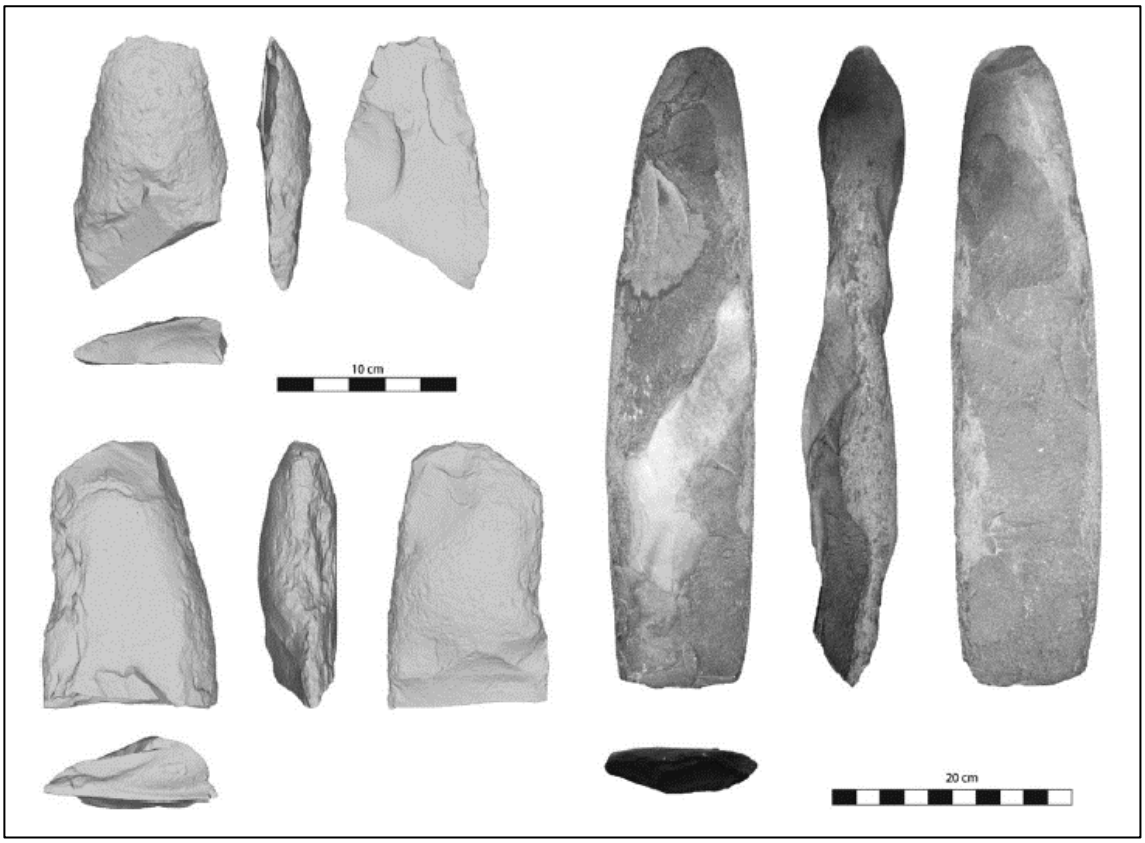

Figure 6-12. 3D models showing "mega" adzes at Tiwai Point (Jennings and Weisler 2020).

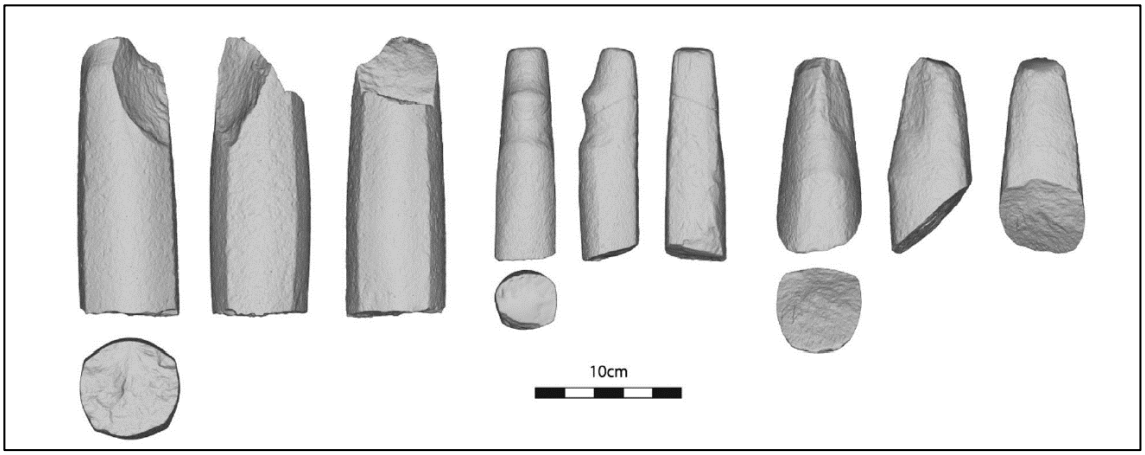

Figure 6-13. 3D models showing Duff Type 1D "Southland" Adze at Tiwai Point (Jennings and Weisler 2020).

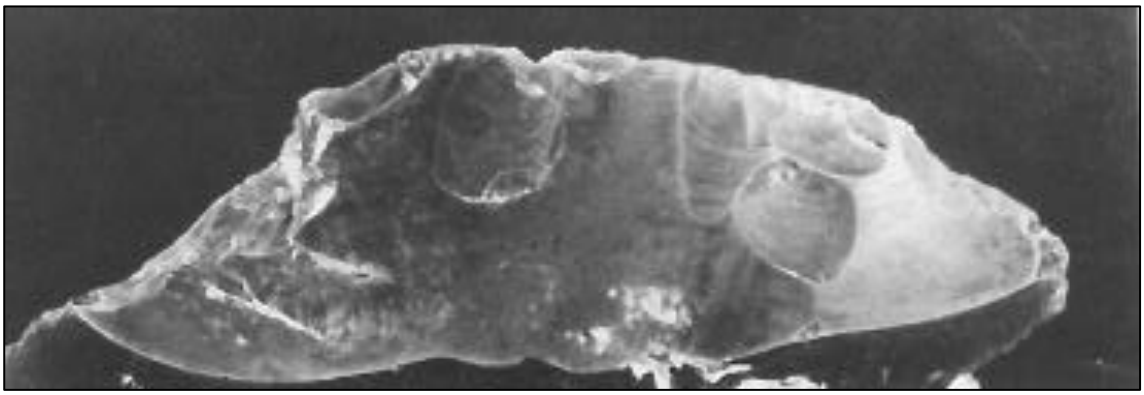

Figure 6-14. Detail of obsidian scraper from Tiwai Point (Gillies 1981).

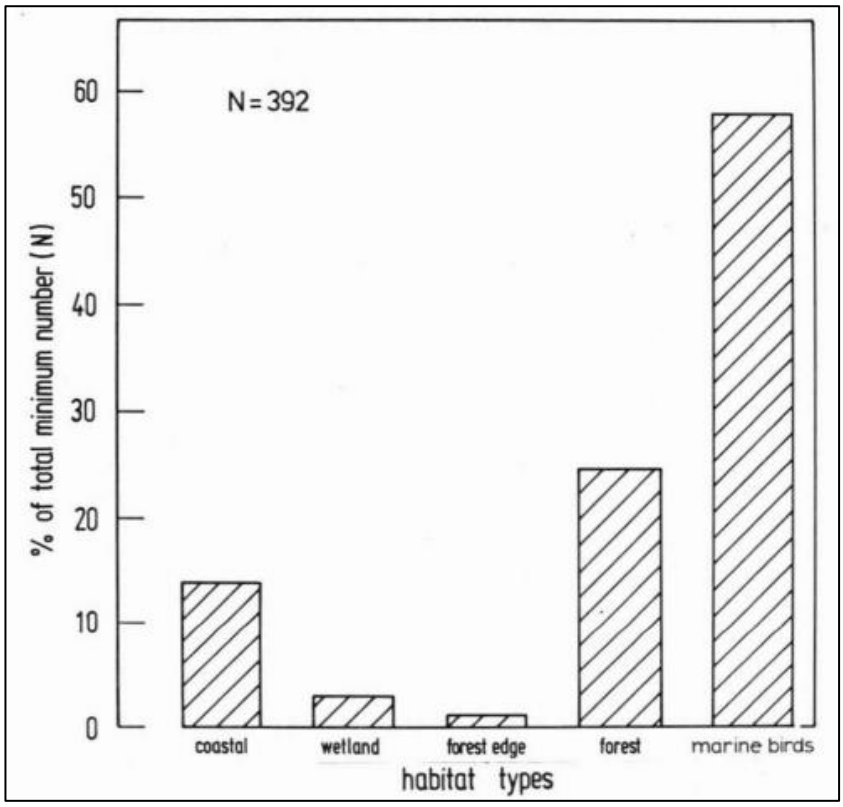

Figure 6-15. Analysis of bird bone from E47/13, Area X, Layer 2 (Sutton and Marshall 1980).

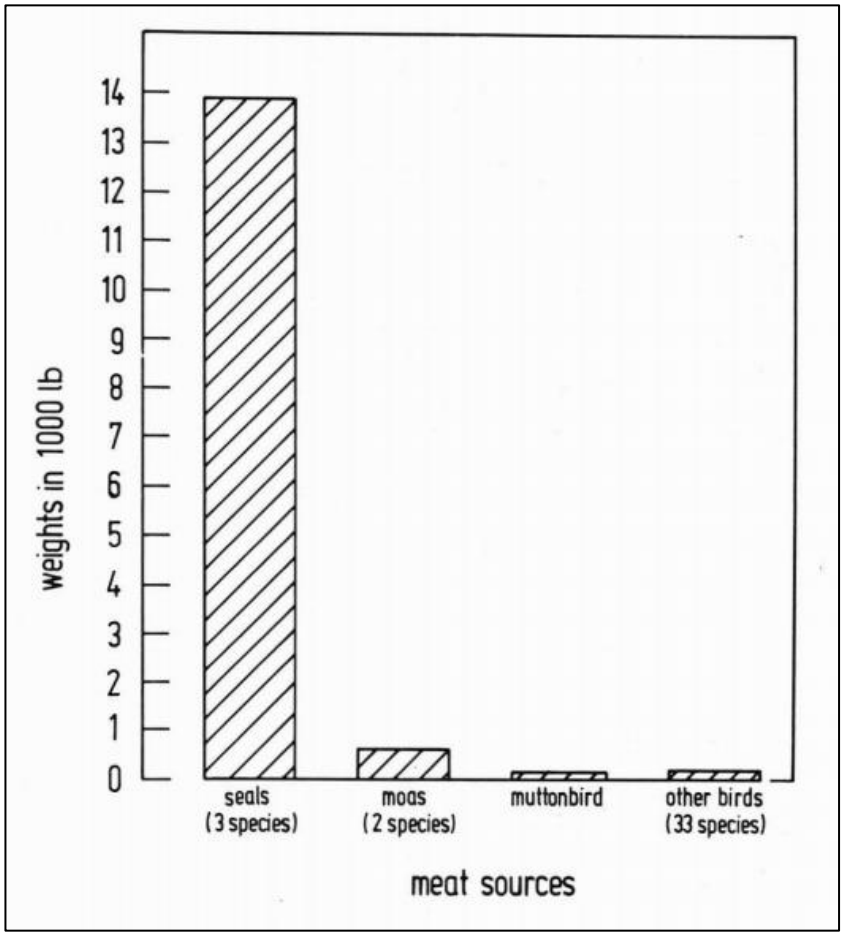

Figure 6-16. Analysis of meat sources at Tiwai Point site E47/13, Area X (Sutton and Marshall 1980).

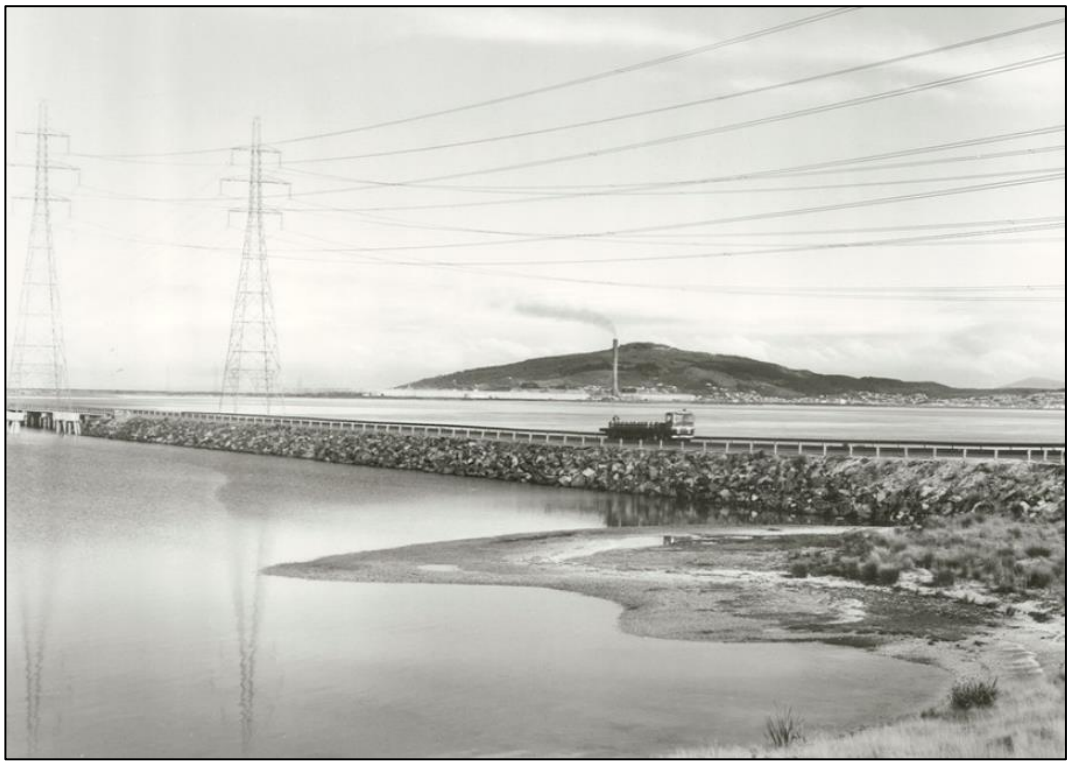

Figure 6-17. Photograph looking southwest at the Tiwai Point Aluminium Smelter wharf and the location of (E47/38) (Waddington n.d.).

Several sites were recorded eroding out the harbourside beaches of the peninsula to the north and west of the project areas. This includes ovens and midden (E44/46, previously S181/53; E47/47, previously S181/54; E47/49, previously S181/55; E47/49, previously S181/56; E47/50, previously S181/57; E47/51, previously S181/58; E47/52, previously S181/59; E47/53, previously S181/60; E47/54, previously S181/61). During subsequent SCHIP surveys between 2004 and 2014, only three sites could be relocated: E47/48, E47/55 and E47/47. E47/48 and E47/55 suffered from erosion, and between 2004 and 2014 site visits the latter site had eroded approximately a metre (Figure 6-18 and Figure 6-19). The only remnants of E47/47 were several flakes on the beach (Figure 6-20) and the site may have been largely destroyed. The remaining unlocated sites have likely been lost to erosion, however E47/46 and E47/52 may not have been visible due to overgrown vegetation. It is unclear how far inland the sites extend if they have not been destroyed by erosion.

Figure 6-18. Midden recorded at E47/48 (NZAA ArchSite Record Form).

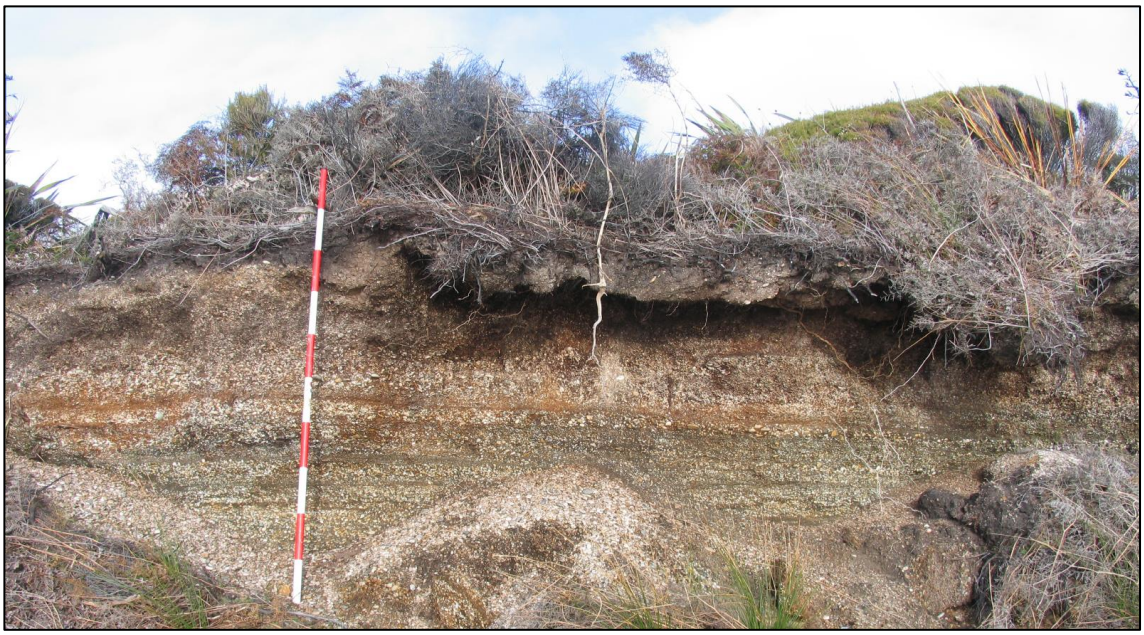

Figure 6-19. Midden recorded at E47/55 (NZAA ArchSite Record Form).

Figure 6-20. Argillite flakes, possible the only remnants of E47/47 (NZAA ArchSite Record Form).

6.1.5 Summary

The extent of archaeological sites recorded on the Tiwai Peninsula indicate the area has a deep history of Māori and Pākehā occupation. The vast majority of sites were recorded in a 1970s coastal survey. Track formation, drainage, the Tiwai Point Aluminium Smelter construction, and coastal erosion have modified and damaged several previously recorded sites. Given the density of occupation and sites, there is potential for archaeological features to remain, especially subsurface relating to these sites and as yet unrecorded sites. Several sites are not well defined in location or extent in their associated site record form and a physical survey of the ground would provide more information as to whether they extend within the project area (i.e., E47/44). An archaeological survey is required as part of this assessment to confirm the location of the existing sites, and to consider if there are any unrecorded sites within the project area. There are two sites recorded that may be immediately adjacent or within the project areas (E47/44 and E47/169). In particular kōiwi are recorded about the point (E47/14 and E47/168) in close proximity to the project area of Beacon 2.

6.2 Recognised Heritage Sites

The project area is coastal and Tiwai Peninsula is adjacent to Rakiura/Te Ara a Kiwa (Rakiura/Foveaux Strait Coastal Marine Area) statutory acknowledgement area. Environment Southland have been notified of four Customary Marine Title applications for coastal waters in Southland, lodged with the High Court. Two of these, have been made by Te Rūnanga o Ngāi Tahu and Cletus Maanu Paul on behalf of all Māori and take in the waters of Foveaux Strait and the Southland coast including Stewart Island. Māui is said to have named several places along the southern coastline, sojourning for a year at Ōmāui (on the north-western shoulder the Bluff Peninsula). Further places and key resources were identified by the explorer Rakaihautu, also providing names to several places. The area between Bluff and Ōmāui was named Te Takiwā o Tarere ki Whenua Uta named following the traveling of the Takitimu waka, captained by Tamatea from northern rangatira (Graham 1998). There are various settlement sites in the area that reflect the traditions and histories of area including Mokamoka (Mokomoko or Mokemoke), Ōue, Awarua (bluff) to the northeast of the project area around the Ōreti estuary (Graham 1998). The estuaries, beaches and throughout the acknowledgement area provided a diversity of resources from fish, shellfish, birds, and marine mammals as well as other resources such as flacks, black mud and tōtara bark. The coastline was a significant trade route described as a "highway" (Graham 1998). Moreover, many of the Foveaux Straight coastal dunes and estuarine complexes contain wāhi tapu, with urupā located on islands and prominent headlands (Graham 1998).

The project area is also a conservation area associated with Tiwai Spit and managed as a stewardship area by DoC. The Southland Murihiku Conservation Management Strategy (CMS) 2016 developed by DoC identifies Tiwai Conservation Area as part of "Awarua Place". Places that have been identified in the CMS for the purposes of integrated conservation management, which require some specific management direction. Each 'Place' has a description, an outcome statement (outcome), policies and milestones. DoC has identified that Awarua Place is strongly connected to the Freshwater Wai Māori Place and the Foveaux Te Ara a Kiwa Place, with high ecological values, plus cultural and historic values and recreation opportunities contributing to the special characteristics of the Awarua Place. In particular:

> Tiwai Point peninsula has a mosaic of indigenous vegetation including areas that are dominated by the largest remaining expanse of red tussock land nationally, as well as lowland harakeke/flax (*Phormium tenax*), shrub species and rārahu/bracken (*Pteridium esculentum*). It is also the southern limit for several plants, such as glaucous speargrass (*Aciphylla glaucescens*) and tūmatakuru/matagouri (*Discaria toumatou*). Tōtara forests are thought to have once been the dominant indigenous vegetation cover, but this was progressively lost following the arrival of humans. However, there are stands of regenerating tōtara forest within this area. The peninsula provides habitat for several threatened and at risk species, including *Libertia peregrinans*, *Raoulia* aff. *hookerii*, southern sand daphne…
>
> There are many cultural sites (including wāhi tapu) and associated stories in this Place, such as at The Bluff/Motupōhue and Omaui. Archaeological evidence reinforces cultural tradition about the importance of this area for settlement, mahinga kai and stone resource use as well as urupā. Two important sites are Tiwai Point and Colyers Island, both of which were stone quarries and workshops for the production of adzes and other tools that were traded as far north as Canterbury from the earliest centuries of Māori settlement of New Zealand. Many of these sites are vulnerable to the effects of coastal erosion and land use. (Department of Conservation 2016:108).

7 Results of the Site Survey

A site visit was carried out by Amy McStay and David Dudfield on 24 June 2021 and accompanied by Andrew Hill, Site Engineer, South Port NZ Limited, to record the current condition of the project area and identify any exposed areas of archaeology. The following section will describe the results of the site survey, documenting the site setting, location and condition of visible pre-1900 structures within and close to the project area. Section 7.1 discusses the survey results at the Beacon 1 project area and Section 7.2 at the Beacon 2 project area.

7.1 Beacon 1 Project Area

The setting of Beacon 1 project area is immediately south of Tiwai Aluminium Smelter, the formed access road on Closed Road and adjacent to the southern coast of Tiwai Peninsula (Figure 7-1). This project area is lightly vegetated by coastal grasses, native shrubs, and gorse (Figure 7-2).

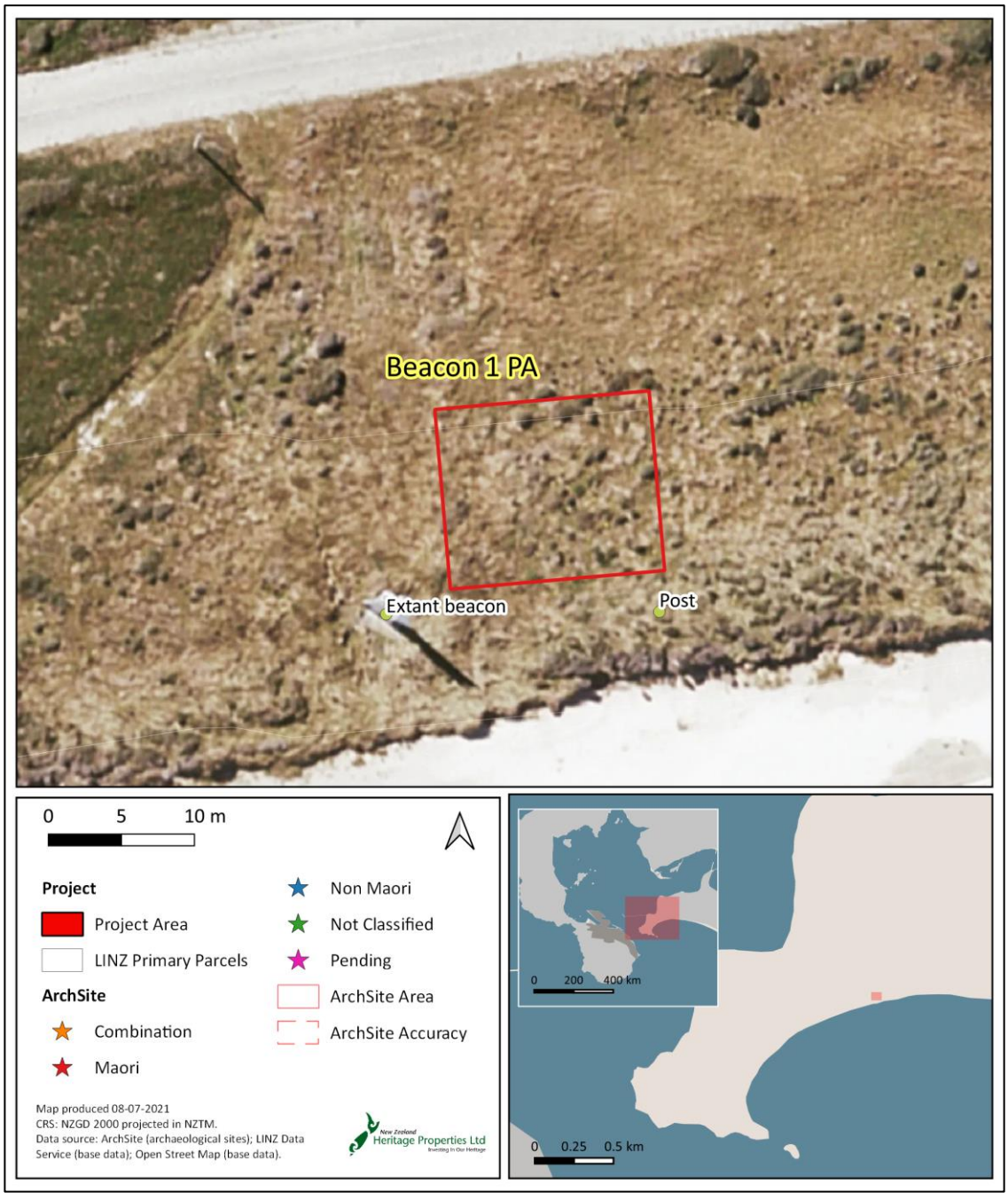

Figure 7-1 Survey plan of Beacon 1 project area with Points of Interest (POI) shown by yellow dots.

Figure 7-2 General view of the project area for Beacon 1, with extant beacon in foreground looking north towards the road, with Tiwai Aluminium Smelter at rear (looking north).

Only the extant twentieth century beacon structure was viewed, with no remains of any earlier or 'old' beacon structures visible. The beacon is mounted on a modern concrete foundation 2950x2950mm 6m from the coastal edge. A rectangular flat double plated glass was observed loose on the surface at the edge of the beacons concrete structure on the inland side (Figure 7-3 and Figure 7-4).

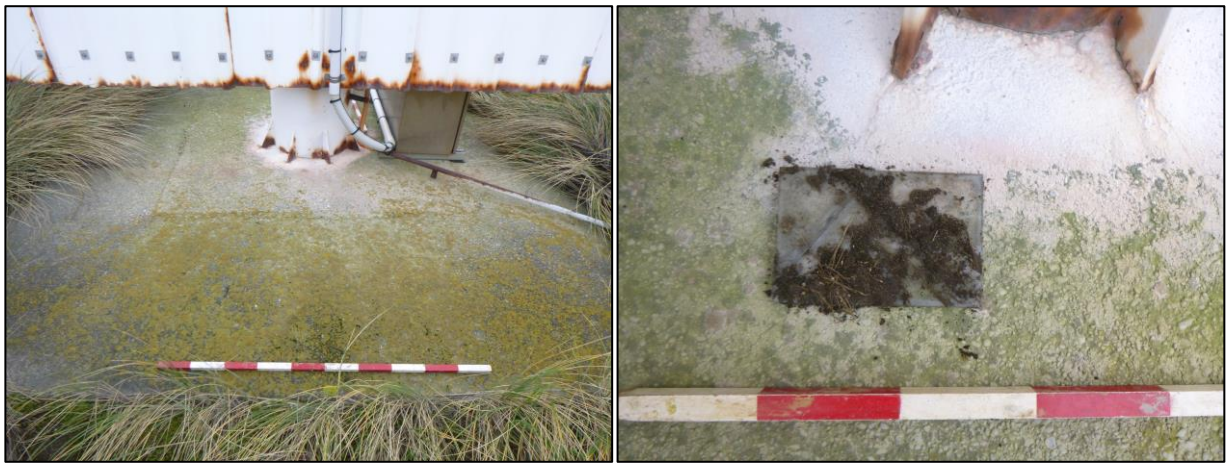

Figure 7-3 View of concrete foundation of extant beacon (left, looking south); close up of glass plate (right).

Figure 7-4 View of the extant beacon at Beacon 1 from the beach (looking north). Note existing overhead power lines, to be replaced with the solar system.

A single timber post (Figure 7-5) with wire was observed near the southeast corner of the project area. The date of this post was not able to be determined but its location aligns well with the 'remains of an old post and wire fence' running north to south observed on a sketch map thought to date to the 1960s (Figure 5-20). Historical research suggests this fenced area, and therefore the project area, may be within the area occupied and associated with earlier potentially nineteenth century agricultural activities at Tiwai. No other fence posts to confirm alignments were observed near the project area.

A survey was also made along the coastal edge to observe stratigraphy at the project area and ascertain whether there may be subsurface sites, such as midden/umu or taonga sites, eroding on the coastal edge which may extend into the project area. Stratigraphy consisted of a surface layer with sandy topsoil and roots over a sandy soil with water rolled pebbles consistent with the natural adjacent coastal beach deposits (Figure 7-5). The southern edge of the road adjacent to the project area was checked for any signs of exposed cultural material in road or drainage cuttings (such as reported in E47/44). However, the area is vegetated. No visible subsurface archaeological sites were observed.

In discussion with Andrew Hill, South Port NZ Limited, the project area was confirmed. The proposed earthworks needed to be situated on the flattest ground close to and adjacent to the existing twentieth century beacon. The project area can avoid the undated post observed.

Figure 7-5 Left: close up of post, facing west with extant beacon at rear; Right: stratigraphic profile on coastal edge adjacent to extant beacon, facing north.

7.2 Beacon 2 Project Area

The setting of Beacon 2 project area is directly on Tiwai Point at the end of a formed access road adjacent to a power pole alignment (Figure 7-7). This project area is mostly grassed and part of a clearing among other lightly vegetated by coastal grasses, harakeke and shrubs. There are large rocky boulders within this area which grades into a rocky coastal edge.

Figure 7-6 Left: pole which will be connected to the pole mounted solar system to feed power to the coastal beacon in the far rear following the pole alignment, looking southeast; right: close up of vegetation and bounders in the project area, looking southeast.

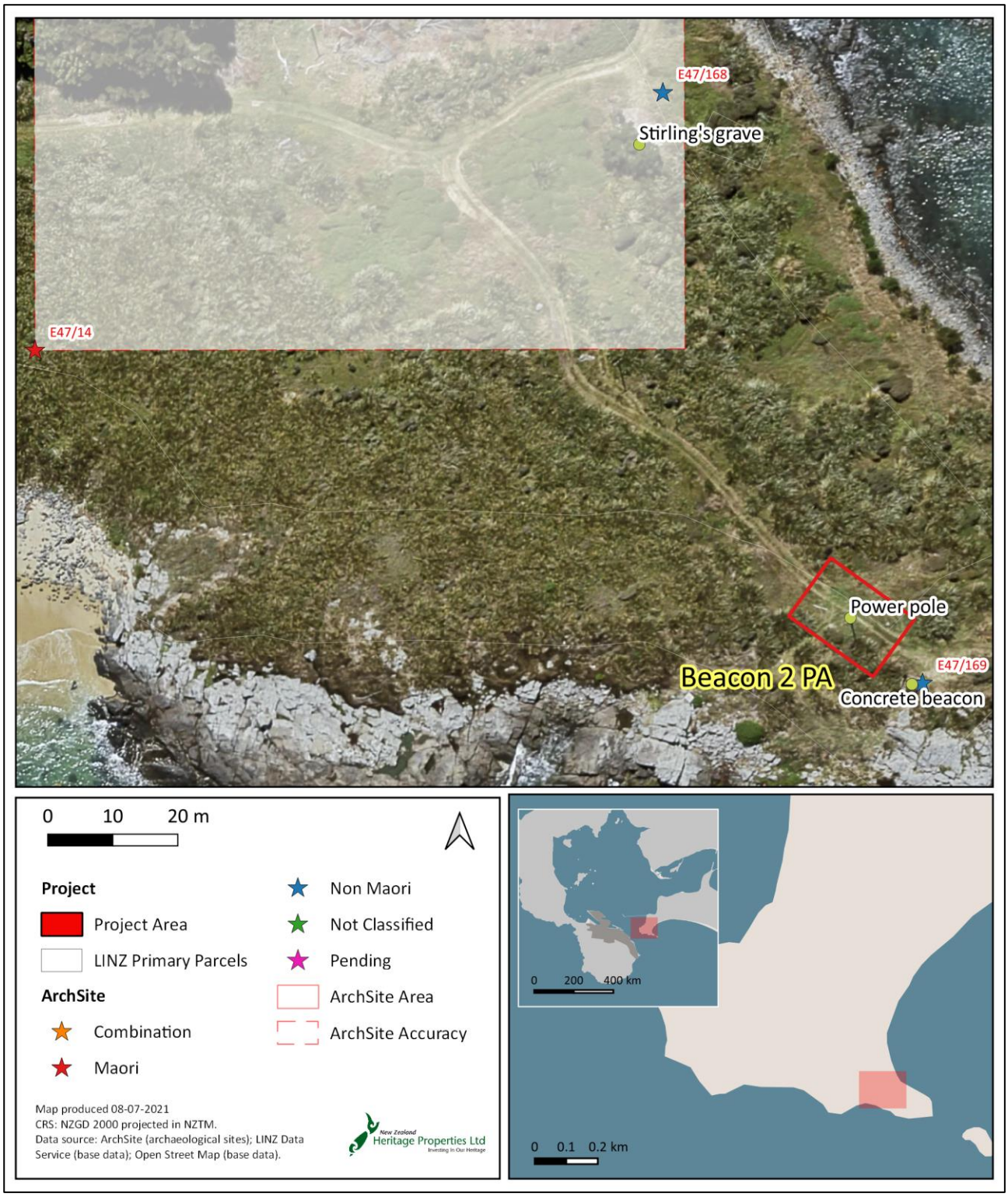

Figure 7-7 Survey plan of Beacon 2 project area with Points of Interest (POI) shown by yellow dots.

Only one above ground structure was observed in close proximity to the project area with no other visible archaeological remains observed within the project area. The location of the recorded archaeological site E47/169, the concrete beacon structure, was observed to the west of the grassed access road and to the south of the project area (Figure 7-8). This location aligns with the historic beacon sites on early twentieth century maps and plans (Section 5.4.2). The project area will be 5m or more away from this concrete structure and South Port NZ Limited will plan to avoid it and any boulders encountered within the project area to situate the pole mounted solar set up here. The project area overlaps with the rectangular feature adjacent to the beacon on the 1904 map with annotations until 1935 (Figure 5-31). The project area is within a relatively cleared area which likely relates to

twentieth century vegetation clearance but may also correspond with the earlier potentially fenced area on historic plan. Although the known beacon concrete feature will be avoided it may be possible that subsurface archaeological or other heritage remains associated with the marine beacon are within the project area.

Figure 7-8 Beacon site (E46/169), looking west with Beacon 2 project area to the rear right beside the power pole.

Figure 7-9 Extract of 1904 map, with additions to 1935, showing white beacon and possible fenced area (red outline) at the project area Beacon 2 (United States Hydrographic Office 1935).

The site of Stirlings grave (E47/168) was also confirmed by GPS. The actual spot places it slightly west of the historic reserve surveyed for the grave and slightly south of the ArchSite record, but still over 65m away from the project area. Stirling's grave and the approximate location of E47/14 (kōiwi, later reinterred) has been shown to South Port NZ Limited so that during works and access these areas can be avoided and protected.

On the way back from the Beacon 2 project area it was confirmed that ArchSite E47/44 is adjacent to another unrecorded historic concrete beacon site outside and between the two proposed project areas. As a result of this assessment this site has been recorded as E47/231. This concrete beacon structure site aligns well with the "new beacon" proposed on Coode's 1880 plan (Figure 5-28) and the white beacon highlighted red on the 1904 plan with additions in 1935 (Figure 5-31). Vegetation around this site prohibited the identification of any surface sites, or stratigraphy. However, it can be confirmed that E47/44 will not be affected by the proposed works as it is associated with a different beacon site. There were no obvious surviving features on the beacon concrete structures that would suggest adequate observation towards the channel for defence purposes. The concrete in the two beacon sites observed consists of pebble aggregate with marine shell inclusions, and larger cobbles and is similar to other early concrete observed in the wider Awarua area, likely using local beach sources for aggregate, such as at the Stirling Point Pilot Station (E47/149) across the channel to the south of Tiwai Point. That site records a whaling station from 1838, Pilot Station then Signal Station from 1856 to the present, with concrete foundations and piles observed across the site.

Figure 7-10 Historic beacon site E47/231 associated with E47/44, looking approximately south towards the channel.

8 Constraints and Limitations

The primary constraint relates to the lack of surviving early contact period to 1900 documentary sources about land use, in particular Bluff Harbour Board use and the chronology of construction of beacons and the location of built structures and buildings and land transactions associated with the early European settlers.

Limited information on archaeological sites that have not been relocated since their initial discovery inhibits our knowledge of their extent and potential to extend within the project area. The site survey was able to reduce this constraint, in particular to confirm the location of beacons and sites recorded in association with beacons and the relationship to the project areas. However, during the site survey much of the land observed was vegetated with few opportunities to observe surface deposits or features.

For various reasons documentation around the locations of kōiwi and reinterments is not readily available. Te Ao Marama have been consulted to ensure such known sites are avoided. The Central Filekeeper (ArchSite) was contacted to determine if there were any silent files for the project area and Tiwai and reported there are none.

9 Archaeological and Other Values

Section 46 of the HNZPTA 2014 requires an assessment of the archaeological, Māori and other relevant values of the archaeological sites in the detail that is appropriate to the scale and significance of the proposed activity and the proposed modification of site E47/169. DoC also requires an assessment of other heritage values of historic resources which may be both pre-1900 and post-1900. Archaeological and other heritage values are determined by, but not limited to, its condition, rarity or uniqueness, contextual value, information potential, amenity value, and cultural association. For other heritage sites, historical, cultural, aesthetic, archaeological, architectural, scientific, social, spiritual, technological and traditional significance or values may also be considered.

This assessment has determined that, while the proposed works will avoid surface features associated with a recorded beacon site (E47/169), there is potential earthworks may encounter subsurface archaeological remains relating to this site. There is also the potential to encounter other pre-1900 and post-1900 subsurface unrecorded archaeological sites and historic resources such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites associated with harbour board infrastructure.

9.1 Assessment of Archaeological Value for E47/169

This site documents the concrete structural remains of a marine beacon. Historical research has shown that there may have been other structures, such as a fenced area, associated with this beacon. Although the construction date of this beacon constructed on Tiwai Point could not be determined, this may signal construction was much earlier than surviving records. During site survey it was observed that the concrete used was similar to other nineteenth century sites in the area. Coode's 1880 report and early turn of the century maps suggests that it is possible that beacons were established in the nineteenth century. Although the history suggests, that as safety assets, subject to coastal weather conditions, beacons would have been subject to ongoing repairs, modifications ,and replacement throughout the twentieth century. There is reasonable cause to suspect that subsurface archaeological remains associated with this marine infrastructure, construction, and renewal from the nineteenth to the twentieth century of beacons as historic resources may be within the project area.

An evaluation of the archaeological values is provided in Table 9-1 based on the criteria defined by HNZPT (HNZPT 2019). Overall, NZHP consider site E47/169 to have **low** archaeological values. This beacon site is not rare, with other examples across Tiwai Peninsula and has contextual value for its connection with other marine structures associated with the Port of Bluff, the diverse cultural and archaeological landscape and sites of Tiwai Peninsula connected with the development of the Port and the Bluff township. It is of significance due to the mixture of coastal activities represented in this one landscape which relate to both Māori and European cultural histories and early interrelationships.

Table 9-1. Summary of archaeological value for E47/169.

Value	Criteria	Assessment
Condition		**Poor.** Part of one known concrete structure remains, in poor condition with some loss and is overgrown. The extent of subsurface archaeological remains is unknown.
Rarity or Uniqueness	Is the site(s) unusual, rare or unique, or notable in any other way in comparison to other sites of its kind?	**Low.** Marine infrastructure for navigation, such as buoys, beacons, light houses are not rare, with these structures and buildings being constructed around New Zealand's coasts and at all ports. However, it is not known how many early beacon sites survive with focus being on identification of larger structures such as lighthouses.

Value	Criteria	Assessment
Contextual Value	Does the site(s) possess contextual value? Context or group value arises when the site is part of a group of sites which taken together as a whole, contribute to the wider values of the group or archaeological, historic or cultural landscape. There are potentially two aspects to the assessment of contextual values; firstly, the relationship between features within a site, and secondly, the wider context of the surroundings or setting of the site. For example, a cluster of Māori occupation sites around a river mouth, or a gold mining complex.	**Low - medium.** This beacon site is one of several historical beacon sites situated across Tiwai peninsula and as part of a group of sites within Awarua, such as the historically significant signal station at Stirling Point and lighthouse at Dog Island, tells the local story of marine navigation at an important historical port in close proximity to Australia and the development of the port and Bluff township.
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.	**Low.** Any subsurface features and further archaeological remains could assist with answering questions about the chronology and construction of marine beacons at Tiwai in the absence of surviving historical records.
Amenity Value	Amenity value (e.g. educational, visual, landscape). Does the site(s) have potential for public interpretation and education?	**Low – medium.** The structures have potential for public interpretation and education within coastal walkway along with other historically important sites adjacent such as Captain Stirling's grave. Currently there is limited access via Tiwai Aluminium Smelter.
Cultural Associations	Does the site(s) have any special cultural associations for any particular communities or groups, e.g. Māori, European, Chinese.	Māori, European

9.2 Archaeological Values of Unrecorded Sites

The wider archaeology of Tiwai Peninsula reflects the potential for high and significant archaeological and cultural values, unrecorded archaeological sites to be encountered within the project area. There is also the potential to encounter other subsurface unrecorded sites such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites associated with harbour board infrastructure.

9.2.1 Midden/Oven Sites

This assessment has identified that there is potential for encountering unrecorded midden/oven sites, as there have multiple previously recorded archaeological sites relating to manawhenua activity across Tiwai. This includes sites with extensive artefact scatters not well documented along the southern coast. Consequently, should such a site be encountered within the project area, it would be considered to have a low rarity value. Midden/oven sites have contextual value, providing insight into resource use across the wider Aparima area. Information potential is difficult to gauge until a site is recorded, ranging from low to small sites with limited features to moderate for larger site complexes. Amenity value is likely to be low, being subsurface. NZHP considers that unrecorded midden/oven sites encountered during this project would have **low to moderate archaeological value**.

9.2.2 Kōiwi

Tiwai Peninsula has multiple kōiwi sites recorded and a record of reinternments. Individuals have been identified as having whakapapa to manawhenua and also early Pakeha settlers. In particular Tiwai Point, the site of Beacon 2 project area, is in close proximity to a marked grave, that of Captain Stirling and within approximately 100m of other kōiwi sites. There may be potential for other undocumented burials across the peninsula and point. Kiwi sites are of high archaeological values and they also have high cultural values. From a scientific archaeological perspective much can be learned from individuals about their lives, including health, diet, cultural values subject to consultation and tikanga. NZHP considers that unrecorded kōiwi sites encountered during this project would have **high archaeological value**.

9.2.3 Agricultural/Pastoral Sites

There is evidence that agricultural/pastoral sites will be encountered during the proposed works where works extend into two land parcels associated with early Pakeha settlers and runholders. Agricultural/pastoral sites may include farms, field boundaries, dwellings, orchards, wells and drains. Despite the long occupation of this rural area, few sites have been recorded in this area or surrounding Bluff and Invercargill City to date, with no orchards, gardens or complexes of agricultural buildings having been examined archaeologically in the area to date. There is potential to investigate how these sites differ from occupation of town sections within Bluff and Invercargill and they have additional contextual values when they are able to be associated with known occupants. NZHP considers that unrecorded agricultural/pastoral sites encountered during this project would have **medium archaeological value**.

9.2.4 Transport/ Communication Sites

Transport/ communicaton sites are common throughout the wider Murihiku area, however, few have been recorded within Awarua. Transport/commuincation sites within Tiwai Peninsular coule related to early tracks, roads, drainage and infrastructure asscociated with the harbour board such as marine beacons, inparticular an old beacon was in the vicinity of Beacon 1 project area. The majority of the transport/communication related sites that could be identified in the project area will likely be modified or damaged to some extent during infrastructure upgrades and maintenance; despite this, most retain identifiable heritage features and/or fabric. Transportation/communication sites have contextual value, as when these sites are considered together, the infrastructure of nineteenth century Awarua is better understood and could show quite distinct differences from nearby Invercargill. Transportation/communication sites have the potential to have amenity value, particularly where above ground structures are present, however such features are subsurface within these project areas. Overall, NZHP considers that the sites that could be encountered in the project area to have **low archaeological value**.

9.3 Other Values – Cultural and Heritage

Tiwai has strong cultural values for manawhenua which have previously and recently been communicated. The project areas are coastal and adjacent to Rakiura/Te Ara a Kiwa and the waters of Foveaux Strait. Awarua, Bluff Harbour is recognised as Wāhi Tapu Me Te Wāhi Taonga (sacred and treasured sites) (Ngāi Tahu ki Murihiku 2008). NZHP recommends that consultation occur with manawhenua, through Te Ao Marama Inc.

Tiwai Peninsula has other historical values associated with the historical development of the Port, wharf, quarantine station and the development of local industry both associated with the Port and Tiwai Aluminium Smelter. Changes proposed to Tiwai are presently in the minds of those in governance, business, employed and the media. This place will have other cultural values associated with workers, their families and descendants connected to this land which have not been assessed as part of this assessment. There are likely also post-1900 archaeological remains of historic and cultural interest, such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites associated with harbour board infrastructure, that the HNZPTA 2014 does not require legal protection or archaeological authorities for, within the project area. However, under the CA 1987 DoC has responsibility for managing historic resources on land it manages. As discussed in the previous section E46/179 and potential unrecorded historic resources, have been assessed as having low to medium other archaeological values and similar other heritage values. These sites have medium other heritage values relating to harbour board or quarantine activities, also medium technological values and information potential for understanding activities not well documented in the historical record such as associated with agricultural/pastoral, harbour board or quarantine occupation. The other values of kōiwi are considered to be high. Cultural values need to be assessed by mana whenua. Consultation has been undertaken with DoC during preparation of this assessment.

10 Assessment of Effects

South Port NZ Limited are proposing earthworks for the installation of solar system to supply power to marine beacons. As part of these works, earthworks are required in two locations at Beacon 1 and Beacon 2. At the Beacon 1 project area, a large solar set up is required and earthworks are proposed for geotechnical investigations, site clearance and strip (300-600mm deep, 13x4m area) for the solar panel set up. The solar panels require barrier fencing with posts (max. 900mm deep), which can be either augured or hand dug within the project area. At the Beacon 2 project area, geotechnical investigations are required and a 1x1x1m excavation for a concrete foundation for a pole mounted solar system is required within the project area.

This assessment has determined that there is reasonable cause that subsurface features associated with a beacon site (E47/169) with low archaeological values may be affected by the proposed works. There is also the potential to encounter other subsurface unrecorded archaeological sites and post-1900 heritage resources such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites which vary in archaeological and other heritage values from low to medium. In addition, Tiwai, and in particular it's cultural and archaeological sites, are of value to manawhenua and the proposed works may affect other cultural and heritage values associated with Tiwai's landscape. The following sections assessment the effects of the proposed works on E47/169 (Section 10.1) and potential unrecorded sites (Section 10.2) followed by a discussion of methods to avoid, minimise and/or mitigate adverse effects (Section 10.3). A summary of the assessment of effects is provided in Section 10.4 before other considerations are made for site management in Section 10.6.

10.1 Assessment of Effects on E47/169

At the Beacon 2 project area at Tiwai Point, the known concrete structure associated with this beacon site will avoided and therefore there will be no effects on this structure. However, earthworks in this area may affect subsurface archaeological remains associated with this beacon. The extent of the ArchSite is not clearly defined, beyond the known structure, and it has not previously been archaeologically investigated. However, if further exposures of the site continue within the project area, the proposed works only a small portion of the site is expected to be affected. However, the work has the potential to increase our understanding of the spatial extent and chronology of this archaeological site.

10.2 Assessment of Effects on Unrecorded Archaeological Sites and Historic Resources

There is also the potential for other subsurface unrecorded sites (pre-1900 and post-1900) such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites to be encountered across the two project areas. In particular kōiwi is more likely to be encountered at Beacon 2, on Tiwai Point. Known structures, such as the post/wire, at Beacon 1 will be avoided. If any subsurface structures are encountered NZHP recommends recording the pre-1900 structure or post-1900 historic resource to a Level III standard, as outlined in *Investigation and Recording of Buildings and Standing Structures* (Heritage New Zealand Pouhere Taonga 2018), prior to an modification as required under the HNZPTA 2014. This level of recording has been deemed appropriate given the archaeological and other heritage values of sites.

Earthworks may affect subsurface archaeological remains or historic resources of unknown extent. However, if further exposures of subsurface features continue within the project area, the proposed works it is expected only a small portion of the site will be affected and there may be some flexibility to redesign to avoid further effects. If kōiwi are encountered consultation will be undertaken to ensure effects to all values are minimised and a plan will need to be put in place prior to works commencing. The work has the potential to increase our understanding of the spatial extent and chronology of this archaeological site.

10.3 Methods to Avoid, Minimise and/or Mitigate Adverse Effects

Earthworks should be kept to a minimum to achieve the infrastructure requirements. To minimise earthworks South Port NZ Limited, have redesigned plans for earthworks at the "Rear No. 2 Lead" and "Front No. 2 Lead" (Figure 1-2). Solar mounted set ups can be mounted to existing twentieth century beacon structures at those locations. In addition, South Port NZ Limited is proposing to overground any power cables within ducts between solar systems and the beacons to avoid trenching earthworks and therefore protect potential subsurface archaeology and historic resources. However, due to engineering requirements the remaining earthworks at Beacon 1 and 2 cannot be avoided. Known structures, such as concrete beacons and the post identified have been identified to South Port so that work can be carefully planned around those structures to avoid effects. During works these known structures should be tapped off with high visibility materials to be avoided. Therefore, by avoidance, the proposed activities can contribute to the retention of an historic structure (Department of Conservation 2016:Policy 3.10.1(h)). Potential archaeological remains are subsurface and if archaeological remains are encountered NZHP recommends that works must stop and consider how adverse effects can be avoided or minimised through re-design (e.g., moving the pole location slightly).

It is not expected that these proposed works will increase the risk to the site in the future. Providing an alternative source of power will reduce the need to undertake further earthworks to replace overhead power poles or for underground cabling in the future. Due to the location requirements for marine beacons, it would not be practical to relocate the beacon infrastructure away from the point and solar setups need to be in close proximity to existing beacons they will service. By recording archaeological sites when they are encountered, it means that future impacts to these sites can be managed, minimised, and avoided by knowledge of site extents.

If kōiwi are encountered NZHP recommends that a buffer be created around locations and that any future developments avoid this area. HNZPT have indicated in pre-application discussions that they require detail on pre-agreed protocols for the discovery of kōiwi such as, but not limited to, whether reinterment or reburial in situ is preferred to protect all values. These protocols will be outlined in the site instruction document as discussed in Section 10.6.1.

10.4 Summary of Assessment of Effects on Archaeological Values

Considering the minimal extent of the earthworks, the magnitude of impact on E47/169 will be negligible to minor. With the archaeological values of E47/169 being low, **NZHP considers that there will be a negligible to slight overall significance of effects on the archaeological values of E47/169.**

It is expected that the magnitude of impact on unrecorded sites, such as midden/ovens, agricultural/pastoral sites and transport/communication sites will be negligible. With the archaeological values of these sites being low to moderate, **NZHP considers that there will be a negligible to slight overall significance of effects on the archaeological values of these unrecorded sites.** If kōiwi are encountered with the archaeological values being high, **NZHP considers that there will be a moderate to large overall significance of effects on the archaeological values.** The effects will be dependent on whether the outcomes of consultation, with manawhenua, Heritage New Zealand, DoC and NZ Police, and tikanga and whether reburial in situ or reinternment elsewhere is agreed.

10.5 Other Values

The archaeological authority process also requires consideration of other values that may be affected by the proposed work within the culturally and historically significant landscape across Tiwai Peninsula. As per the CA, DoC also requires an assessment of effects on the values of historic resources. There is potential that cultural and other heritage values may be affected by the proposed works. An assessment of cultural values and the effect on those cultural values needs to be provided by manawhenua. **NZHP considers that there will be a negligible to slight overall significance of effects on the heritage values of post-1900 archaeological sites or historic resources,** such as on unrecorded subsurface sites, such as midden/ovens, agricultural/pastoral sites and

transport/communication sites. NZHP recommends that if historic resources, structures and sites, for example twentieth century infrastructure sites are encountered that South Port NZ consider taking a precautionary approach and managing other post-1900 heritage values following the same procedures as for the pre-1900 heritage values.

10.6 Other Considerations

After identifying the effects, the proposed works will have on the archaeological values of the project area, further consideration is given to the management of the authority, once it is in place and for historic resources. This section discusses the requirement of a site instruction, engagement with manawhenua, maintaining the archaeological potential zone maps, contractor briefings, and additional work under the authority.

10.6.1 Site Instruction

A site instruction will be required to accompany an application to HNZPT for an archaeological authority. The site instruction is designed to provide the practical steps for managing the archaeological requirements under the authority, defining the roles and responsibilities of the authority holder, contractors, and archaeologists (for example bioarchaeologists on call). The document also outlines the requirements for archaeological briefings and archaeological monitoring, with the latter clearly defining what works are to be monitored by an archaeologist, when a variation may be required, and timeframes associated with the work. Methods to protect archaeological sites and historic resources are also discussed, as are procedures for archaeological monitoring, protocols for the discovery of manawhenua archaeology and kōiwi as agreed with manawhenua, and on-call protocols for the unexpected discovery of archaeology. Any changes to the site instruction will require prior written agreement of HNZPT, mana whenua and DoC.

10.6.2 Engagement with Manawhenua

This assessment has identified that an archaeological site of interest to manawhenua will be affected by the proposed works. As such, it is important that manawhenua are engaged and have the opportunity to be actively involved. The protocols for engagement with manawhenua are provided in the site instruction and have been developed through consultation with manawhenua. In particular HNZPT have indicated in pre-application discussions that the require a detail on pre-agreed protocols for the discovery of kōiwi which will be outlined in the site instruction.

10.6.3 Education through Archaeological Briefings

Education is important to ensure that all parties engaged in the work understand the types of archaeology and historic resources that may be encountered, the processes for engaging with archaeologists and manawhenua. It is essential that appropriate training contractors in the engagement of and consultation with an archaeologist in the planning stages of the project, as well as in the identification and on-site management of archaeological sites. Such steps will ensure that archaeological and other heritage values, such as information value and possible amenity purposes, are increased through appropriate archaeological investigation and cultural engagement.

NZHP recommends that all project managers and contractors (including site managers and those contractors on the ground) undergo an archaeological briefing outlining their requirements under the HNZPTA 2014 prior to any works commencing. The briefing will outline the likelihood of encountering archaeological evidence or other historic resources, how to identify possible archaeological sites during works, the archaeological work required under the conditions of the authority, and contractors' responsibilities with regard to notification of the discovery of archaeological evidence to ensure compliance with the authority conditions.

10.6.4 Future Work

The archaeological authority will stipulate conditions that are required for future work on the basis of this assessment, which will include monitoring of earthworks, recording of archaeology, analysis of archaeological

materials, and completion of a report documenting the results of all work. Given the duration of earthworks it is not expected that an annual interim report will be required. DoC may stipulate conditions in granting consent for managing historic resources.

11 Conclusions and Recommendations

South Port NZ Limited are proposing earthworks for the installation of solar system to supply power to marine beacons. As part of these works, earthworks are required in two locations at Beacon 1 and Beacon 2. At Beacon 1 project area a large solar set up is required and earthworks are proposed for geotechnical investigations, site clearance and strip (300-600mm deep, 13x4m area) for the solar panel set up. The solar panels require barrier fencing with posts which will be a maximum of 900mm deep which can be either augured or hand dug within the project area. At Beacon 2 geotechnical investigations are required and a 1x1x1m excavation for a concrete foundation for a pole mounted solar system is required within the project area. Earthworks will be kept to a minimum to achieve the infrastructure requirements. To minimise earthworks South Port NZ Limited, have already redesigned plans for earthworks to avoid two other sites on Tiwai Peninsula and the need to trench for power cables.

This assessment has determined that there is reasonable cause that a beacon site (E47/169) with low archaeological values may be affected by the proposed works. There is also the potential to encounter other subsurface unrecorded pre-1900 archaeological sites and post-1900 historic resources/archaeological sites such as midden/ovens, kōiwi, agricultural/pastoral sites and transport/communication sites which vary in archaeological and other heritage values from low to medium with kōiwi having high values. Tiwai, and in particular it's cultural and archaeological sites, are of value to manawhenua and the proposed works may affect other cultural and heritage values associated with Tiwai's landscape. This archaeological assessment has considered the evidence of pre-1900 occupation and the archaeological and other heritage values against the potential effects of the proposed works and determined that **that there will be a negligible to slight overall significance of effects on the archaeological values of E47/169; a negligible to slight overall significance of effects on the archaeological and other heritage values of midden/oven, agricultural pastoral and transport/communication unrecorded pre-1900 and post-1900 sites.** If kōiwi are encountered **NZHP considers that there will be a moderate to large overall significance of effects on the archaeological and other heritage values.** The effects will be dependent on whether the outcomes of consultation, with manawhenua, Heritage New Zealand, DoC and NZ Police, and tikanga and whether reburial in situ or reinternment elsewhere is agreed. An assessment of effects on cultural values can only be provided by mana whenua, who have been consulted via Te Ao Marama Inc as part of the application process.

Table 11-1. Sites affected by earthworks for to install solar for beacons on Tiwai Peninsula.

NZAA Site Id	Site Name	Site Location	Brief Description
E47/169	Beacon	Tiwai Point	Concrete remains of a marine beacon, with potential subsurface remains in the area.

On the basis of this assessment, NZHP makes the following recommendations:

- **Landowner and consent from DoC**: A copy of this assessment and archaeological authority application should be provided to DoC for landowner consent and conditions prior to submitting an authority application.
- **Authority Application:** An archaeological authority under Section 44 of the HNZPTA 2014 should be obtained from the HNZPT prior to any modification of site E47/169 and potential subsurface unrecorded sites.
    - If development plans are altered from those reviewed by NZHP for this assessment (Appendix A), then HNZPT and NZHP must be alerted.
- **Protection of sites/features:** As a first principle, every practical effort should be made to avoid damage to any archaeological site or historic resource, whether known, or discovered during any redevelopment of the site.
    - Earthworks should be kept to a minimum to achieve the infrastructure requirements.

- Works should be planned to avoid known structures, such as concrete beacons and the post.
- If subsurface archaeological remains or historic resources are encountered NZHP recommends that works must stop and consider how further adverse effects can be avoided or minimised through re-design (e.g., moving the pole location slightly).
- Protocols for the discovery of kōiwi should be agreed upon and confirmed in the site instruction.

- **Site Instruction.** All works must be carried out in accordance with the site instruction. Any amendments to the site instruction will require prior written approval from HNZPT, mana whenua and DoC.
- **Contractor Briefing:** All contractors working on the project must be briefed by the s45 archaeologist (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. Opportunity should be provided for manawhenua and DoC to attend the briefing and share cultural and other heritage values.
- **Recording of Structures:** NZHP recommends that any subsurface structures be recorded to a Level III standard as defined in HNZPT's guide, *Investigation and Recording of Buildings and Standing Structures* (HNZPT 2018). Details of the recommended recording are provided in the site instruction.
- **Archaeological Monitoring**: All earthworks that may affect an archaeological site must be monitored by the s45 archaeologist, or person nominated on their behalf, in accordance with the Site Instruction.
    - Any archaeological features or post-1900 historic resources and material encountered shall be recorded, analysed, and interpreted in accordance with the Site Instruction.
- **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 HNZPT and manawhenua via Te Ao Marama and DoC in accordance with the Site Instruction.
    - Any taonga tūturu are *prima facie* the property of the Crown and will be notified to the Ministry for Culture and Heritage in accordance with the POA. NZHP, will notify both manawhenua, via Te Ao Marama Inc and DoC, and shall notify the Ministry of Culture Heritage. Manawhenua, in consultation with DoC will 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.
- **Kōiwi (human remains)**. Should kōiwi be encountered, NZHP recommends that all work must stop within 25m of the find. NZHP will assist the authority holder in contacting firstly DOC and manawhenua through Te Ao Marama Inc and HNZPT. DoC's kōiwi policy and processes (as per the archaeological guidelines series for kōiwi tangata human remains HNZPT 2014b:Section 7.6) shall be followed as well as the Ngāi Tahu policy for kōiwi tangata (Te Rūnanga o Ngāi Tahu 2019b). Specific protocols will be defined in the site instruction.
- **Reporting.**
    - Within 20 working days of the completion of on-site archaeological work, the site record forms must be updated or submitted to ArchSite.
    - Within 12 months of the completion of on-site archaeological work, a full report on any archaeological material that is found should be prepared and submitted to the HNZPT, the ArchSite Central Filekeeper, Te Ao Marama Inc, Department of Conservation and South Port NZ Limited.

12 References

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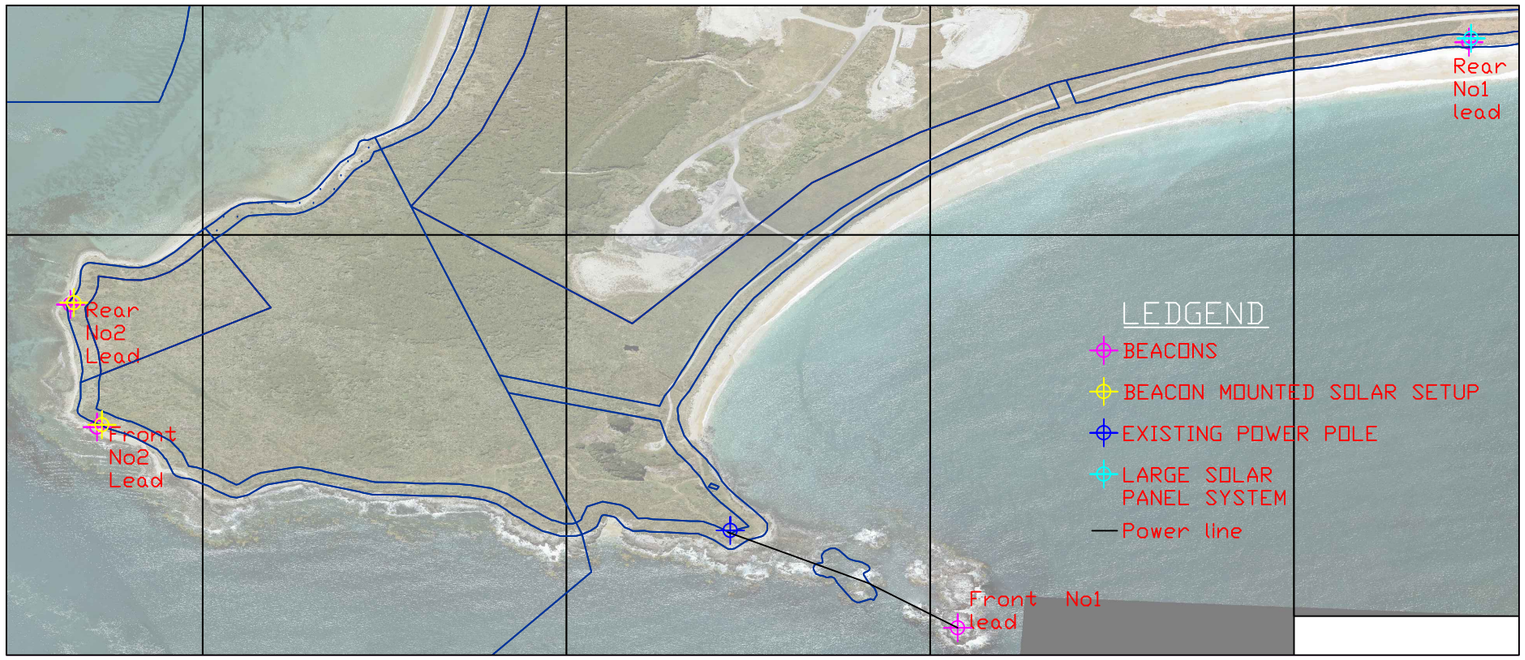
Appendix A Development Plans



TIWAI BEACONS
PROPOSED LOCATIONS OF SOLAR SYSTEMS

NOTES:

POLE MOUNTED SOLAR SYSTEM
1mX1m FOUNDATION FOR POLE

LARGE SOLAR PANEL SYSTEM 13mX4m INCLUDING
1.8m CHAIN LINK FENCE AROUND SOLAR PANELS

TIWAI BEACONS
POLE MOUNTED SOLAR SYSTEM

TIWAI BEACONS
LARGE SOLAR PANEL SYSTEMS

DRAFT FOR DISCUSSION

Revision	Amendment	Approved	Revision Date

DESIGN	Approved	Approved Date
Drawn	**Scales**	
J.PAUL	NTS	

South Port NZ

Project	Sheet	Revision
TIWAI SOLAR SYSTEM		
		Sheet. No.
		1 of 1

Original Sheet Size A1 [841x594] Plot Date 2021-04-29 at 2:18:47 PM Path P:\Operations\Infrastructure\Capital\2020_2021\0023_Tiwai Beacons\drawing\new-zealand-3layers.dwg Layout1

Appendix B Site Record Forms of Previously Recorded Archaeological Sites

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

Table B-1. Sites affected by earthworks to install solar for beacons on Tiwai Peninsula.

NZAA Site Id	Site Name	Site Location	Brief Description
E47/169	Beacon	Tiwai Point	Concrete remains of a marine beacon, with potential subsurface remains in the area.

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

ARCHSITE archaeological site recording scheme

Summary Site Record

NZAA SITE NUMBER: E47/169

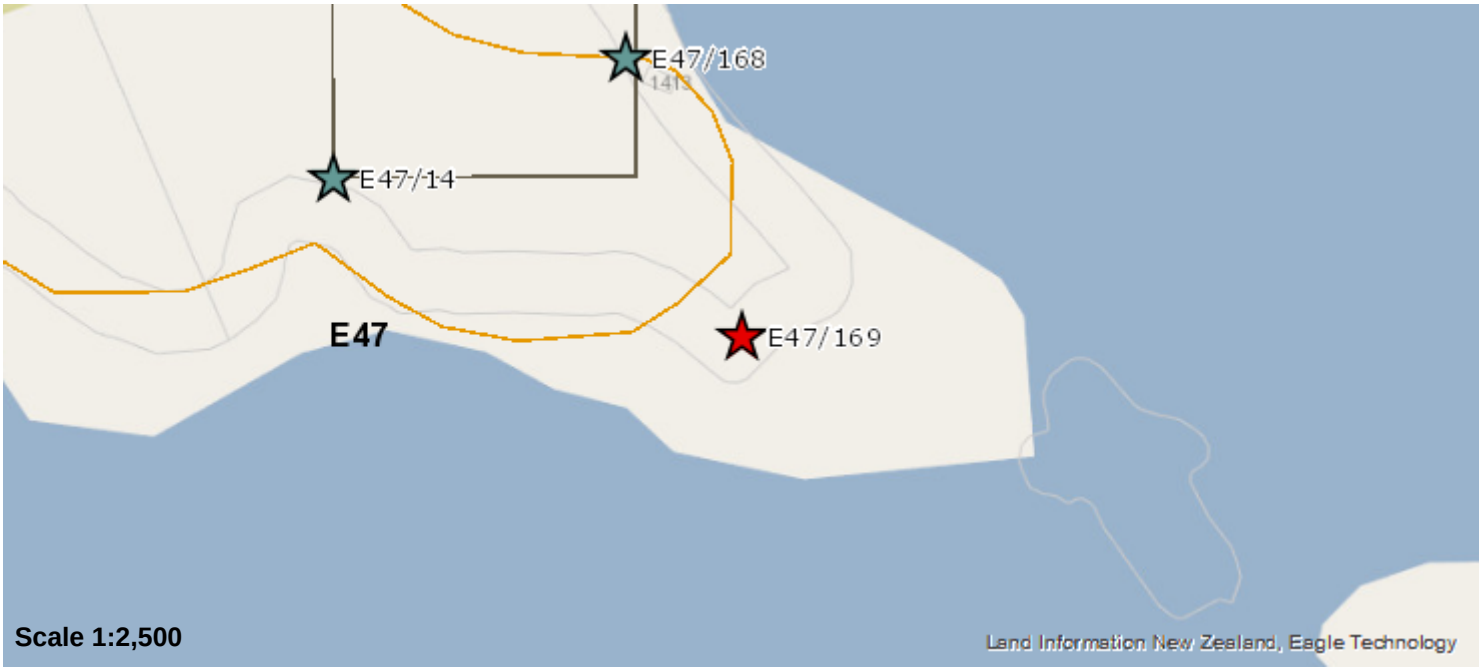
SITE TYPE: Transport/ communication

SITE NAME(s):

Record last updated: 15/07/2021

SITE COORDINATES (NZTM) Easting: 1245429 **Northing:** 4828632 **Source:** Handheld GPS

IMPERIAL SITE NUMBER: **METRIC SITE NUMBER:** E47/169



Finding aids to the location of the site

Enter the restricted zone around Tiwai Point aluminium smelter. Drive to the quarry at the furthest SW point on the roading system and walk around the point approx 100m past the grave of Captain Stirling. Closed Road Block XIII Campbelltown Hundred

Brief description of the site

Concrete remains.

Condition of the site when last visited

Poor

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

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