From: Zoe Anderson
To: applications
Cc: Nigel Wilson; Karen Baverstock; Ashleigh Johnston; Richard Reinen-Hamill
Subject: NPDC Application for Resource Consent: Weld Road Recreation Reserve
Date: Friday, 20 October 2023 7:44:14 pm
Attachments: image001.png
image002.png

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Kia ora,

I am lodging a Land Use Resource Consent application on behalf of New Plymouth District Council for the construction of a new rock revetment supporting a shared pathway for public access at Weld Road Reserve, Tataraimaka and the replacement of a swing bridge above Whenuariki Stream.

Link to download application documents:
https://transfer.tonkinandtaylorgroup.com/message/uZk5bdfs5Ri8mP2fG7hZU6
The application forms are included in **Appendix A.**

I have copied Nigel Wilson into this email as the NPDC contact person. Please contact Nigel directly to arrange payment of the required lodgement fees.
Name: Nigel Wilson (NPDC)
Email: Nigel.Wilson@npdc.govt.nz
Mobile: + 64 21 410 450

I look forward to hearing from you.

Ngā mihi | Kind regards,

Zoe Anderson she/her **| Planner**
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REPORT

Tonkin+Taylor

Weld Road Pathway and Ahu Ahu Bridge

Assessment of Effects on the Environment

Prepared for
New Plymouth District Council

Prepared by
Tonkin & Taylor Ltd

Date
October 2023

Job Number
1017346.3000 v2

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Document control

Title: Weld Road Pathway and Ahu Ahu Bridge					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
29/09/2023	1.0	Draft for client review	Z. Anderson D. Burdett	A. Brabant K. Baverstock	R. Reinen-Hamill
20/10/2023	2.0	Final for lodgement	Z. Anderson	K. Baverstock	R. Reinen-Hamill

Distribution:

New Plymouth District Council	1 electronic copy
Tonkin & Taylor Ltd (FILE)	1 electronic copy

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Schedule 4 Requirements

Schedule 4 of the RMA sets out the information required in an application for a resource consent. All relevant matters required to be included have been addressed in the assessments and descriptions in this AEE. The following table provides a summary of the information required in Schedule 4 and a quick reference to its location in this report.

Schedule 4 Item	Location within report
A description of the activity	Section 3
A description of the site at which the activity is to occur	Section 2
The full name and address of each owner or occupier of the site	Section 1
A description of any other activities that are part of the proposal to which the application relates	Section 3
A description of any other resource consents required for the proposal to which the application relates	Section 4
An assessment of the activity against the matters set out in Part 2	Section 6
An assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b). This must include: • Any relevant objectives, policies, or rules in a document • Any relevant requirements, conditions, or permissions in any rules in a document • Any other relevant requirements in a document (for example, in a national environmental standard or other regulations)	Section 6
An assessment of the activity's effects on the environment that includes the following information: • If it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity. • An assessment of the actual or potential effect on the environment of the activity. • If the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use. • If the activity includes the discharge of any contaminant, a description of— – The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and – Any possible alternative methods of discharge, including discharge into any other receiving environment. • A description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect.	Section 5
• Identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted.	

Schedule 4 Item	Location within report
• If the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved. • If the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	Section 7
An assessment of the activity's effects on the environment that addresses the following matters: • Any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects. • Any physical effect on the locality, including any landscape and visual effects. • Any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity. • Any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations. • Any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants. • Any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	Section 5
If any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)).	Section 4
If the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).	Section 6
An application for a resource consent for reclamation must also include information to show the area to be reclaimed, including the following: • The location of the area. • If practicable, the position of all new boundaries. • Any part of the area to be set aside as an esplanade reserve or esplanade strip.	Section 3

1 Introduction

1.1 Overview of proposed works

This Assessment of Effects on the Environment (AEE) report has been prepared on behalf of New Plymouth District Council (NPDC) to support a resource consent application to authorise the construction of a new rock revetment supporting a shared pathway for public access at Weld Road Reserve, thereby helping protect Hauranga Pā from the damage caused by informal access tracks. The project also involves the replacement of the swing bridge above Whenuariki Stream which was damaged during a storm event in early 2022.

The rock armour revetment is approximately 140 m long, with a 2 m wide shared pathway formed on its crest. This pathway will be integrated with existing paths that connect the foreshore to the carparks at Lower Weld Road and Ahu Ahu Road.

The new bridge, referred to as ‘Ahu Ahu Bridge’, is approximately 21 m long. In order to tie into the car park on the eastern side and coastal pathway on the western side, the approach ramps are required to be approximately 10 m (east) and 19 m (west).

This report has been prepared in fulfilment of section 88 of the Resource Management Act 1991 (RMA), and in accordance with Tonkin & Taylor Ltd (T+T) letter of engagement dated 19 May 2023.

1.2 Background

The Weld Road Reserve is the location of Hauranga Pā, which was a large, heavily populated pre-European Māori settlement in the Taranaki region. Today, archaeological features remain present within the site. The foreshore around Weld Road Beach also forms part of the 10 km Ōākura Coast Trail, which traverses the coastline on either side of the site and is of high community value.

In recent years there has been an increased frequency of inundation, often leaving debris on Weld Road Beach in periods of high tide or storm surges. This often means the foreshore is unsuitable for access by the general public. Accordingly, the primary access between Lower Ahu Ahu Road (in the east) and Weld Road Lower (in the west) has become via the swing bridge above Whenuariki Stream and across Hauranga Pā. Stream

Due to years of public access, informal walking and cycling trails that have developed across Hauranga Pā. These tracks have resulted in damage to archaeological features within the site, and the exposure of in-situ artefacts and archaeological evidence (see Appendix I). If public access is allowed to continue, degradation of the Pā site is expected to be exacerbated, endangering the artefacts and harming the sacred site. In addition, the bridge over Whenuariki Stream that was constructed in circa 2000 was badly damaged in a storm event in 2022, further jeopardizing this coastal route.

In order to address these issues, NPDC has installed signage and fencing to help prevent public access across the reserve (authorised by resource consent LUC21/48042) while working towards a long-term solution to provide a safe and effective pathway and bridge replacement. Notably, NPDC explored a number of design options for the works which are detailed in Section 3 below.

The chosen option involves the construction of a coastal rock revetment across the Weld Road foreshore. The proposed revetment will be topped with a 2 m-wide concrete pathway to provide an alternate passage around the headland that can be safely used during a range of tidal and wave conditions, recognising the Hauranga Pā cannot be traversed. Additionally, the existing swing bridge will be replaced with increased dimensions to improve resilience.

1.3 Applicant and property details

Table 1.1: Applicant and property details

Applicant	New Plymouth District Council
Owner / occupier of application site	Her Majesty the Queen (owned by Department of Conservation and administered by NPDC under the Reserves Act 1977)
Site address / map reference	NZTM 1679803, 5669588
Site area	Weld Road Reserve & Ahu Ahu Bridge (approximately 1.3 ha)
Legal description	Section 176-177 Oakura District and Section 182-184 Oakura District
Gazette Notice reference	Recreation Reserve: New Zealand Gazette, No 34, 17 March 1983, p 761-762
Record of Title reference	582245 and 582244
District Council / Plans	**New Plymouth District Council (NPDC)** New Plymouth Operative District Plan (ODP) New Plymouth Proposed District Plan – Appeals Version (PDP)
Regional Council / Plans	**Taranaki Regional Council (TRC)** Regional Coastal Plan for Taranaki (CPT)
Address for service during consent processing	**Tonkin & Taylor Ltd** PO Box 5271, Victoria Street West, Auckland 1142 Attention: Zoe Anderson Phone: +64 9 5298109 Email: zanderson@tonkintaylor.co.nz
Address for service during consent implementation and invoicing	**New Plymouth District Council** Private Bag 2025, 84 Liardet Street, New Plymouth 4340 Attention: Nigel Wilson Phone: 021 410 450 Email: nigel.wilson@npdc.govt.co.nz

We attach copies of the Application Forms in **Appendix A** and the Gazette Notice and Record of Title (RoT) in **Appendix B**.

1.4 Overview of resource consent requirements

Resource consents are sought under the Regional Coastal Plan for Taranaki (CPT), Operative New Plymouth District Plan 2005 (ODP) and New Plymouth Proposed District Plan – Appeals Version (PDP) to enable the proposal. The resources consents are assessed in Section 4 and listed in Table 1.2 below.

All necessary resource consents for the Project are sought as part of this application. Although specific consent triggers have been set out in Section 4 and summarised in the table below, to the extent that further consent matters are identified post lodgement of the application, these should also be considered as forming part of the application.

Table 1.2: Summary of resource consents required under the CPT, OPD, and PDP

Rule reference / description	Activity status
Regional Coastal Plan for Taranaki	
Rule 27 Placement or erection of a hard protection structure **Rule 38** Structure placement (bridge abutments) and for Rules 27 and 38, any associated: (a) occupation of space (including renewal of occupation) in the common marine and coastal area; (b) disturbance of the foreshore or seabed; (c) deposition in, on or under the foreshore or seabed; and (d) discharge of sediment.	Discretionary
New Plymouth Operative District Plan	
Rule OL17 Erection of structures, excavation and filling, and clearance of vegetation within a Coastal Policy Area that does not meet the permitted conditions.	Restricted Discretionary
Rule OL81 Erection of structures on or within the specified distance of any waahi taonga/ sites of significance to Māori or archaeological site in the rural area within 50 m.	Restricted Discretionary
Rule OL85 Excavation and filling, and clearance of trees on or within 50 m of any waahi taonga/ site of significance to Māori or archaeological site is a restricted discretionary activity.	Restricted Discretionary
Rule RUR5 All other structures are permitted, provided it does not create a barrier to flood flows or redirect the flood water onto, or increase the impact of the flood event on, another property.	Discretionary
New Plymouth Proposed District Plan – Appeals Version	
Rule RPROZ-R30 Any activity not otherwise listed in this table.*	Discretionary
Rule HH-R24 Erection of a structure and associated earthworks within the extent of a scheduled archaeological site, or within 50 m of the extent of a mapped archaeological site.	Discretionary
Rule SASM-R11 Erection of a structure and associated earthworks within the extent of a scheduled site or area of significance to Māori, or within 50 m of the extent of a mapped SASM.*	Discretionary
Rule ECO-R2 Indigenous vegetation disturbance[1] in the coastal environment in Rural Zones where the extent of indigenous vegetation disturbance per site exceeds 100 m^2.*	Discretionary
Rule CE-R5 Building activities in the coastal environment in Rural Zones where the activity is not permitted under all relevant rules in the underlying zone.*	Discretionary
Rule CE-R10 NPDC has transferred the power to administer and enforce control over the erection of hard protection structures which straddle the Coastal Environment Area and the Coastal Marine Area to the Taranaki Regional Council under section 33 of the Act.	Discretionary
Rule CE-R31 Erection of a structure (excluding accessory buildings) in Coastal Erosion Hazard Area where the activity is not permitted under CE-R4.	Restricted Discretionary

[1] Indigenous vegetation disturbance is defined as: means disturbance, damage to and/or destruction or felling of indigenous vegetation, including trees, shrubs, grasses, and other plants by any means including cutting, burning, crushing or spraying.

*Subject to appeal therefore the New Plymouth Operative District Plan rules have been included.

Overall, resource consent is required from TRC as a **Discretionary Activity** under the CPT and from NPDC as a **Discretionary Activity** under the OCP and PDP.

1.5 Consent duration

Pursuant to section 123 of the RMA, resource consent is sought for a duration of 35 years.

2 Environmental setting

2.1 Site location and description

Weld Road Reserve is located near Ōākura approximately 10 km southwest of New Plymouth in the Taranaki Region. As shown in Figure 2.1, Weld Road Reserve is bordered by Timaru Stream to the west and Whenuariki Stream in the east. Rural farmland is the predominant surrounding land use.

Figure 2.1: Site location plan. (Source: T+T, 2021).

Figure 2.2 below shows the relevant properties (outlined in blue) extend from Timaru Stream along the foreshore of Weld Road beach to Lower Ahu Ahu Road. The red dashed line in Figure 2.2 shows that the proposed area of works is primarily located within the parcel immediately adjacent to the Weld Road Reserve and foreshore. However, the works also extend across Whenuariki Stream and slightly encroach into private land in the south-east.

The project site is within Rural Zone and Coastal Policy Area, as identified within the ODP maps. The PDP maps also show that the site is located within the Rural Production Zone and Coastal Environment.

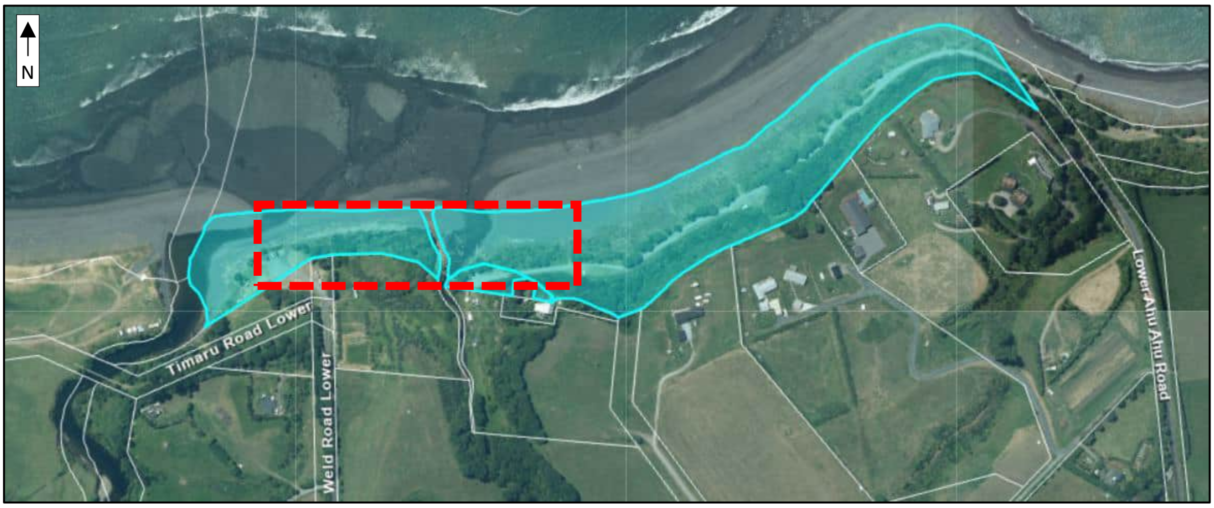

Figure 2.2: Site boundary plan. (Source: Taranaki Regional LocalMaps, 2023).

2.2 Site ownership and administration

Excluding the private land in the south-east, the application site is classified as a recreation reserve under the New Zealand Gazette, No 34 (17 March 1983). The underlying title of the reserve identifies it as Crown Land, but it is administered and maintained by NPDC under the Reserves Act 1977.

2.3 Foreshore environment

The foreshore of Weld Road Beach is primarily sand-covered, progressively turning into medium-sized rounded pebbles towards the marine environment. As shown in Figure 2.3 and Figure 2.4 below, the foreshore is often littered with driftwood and vegetation debris of varying sizes. Several larger boulders are also located near the beach at the eastern end.

Figure 2.3: The western portion of Weld Road Beach. Photograph taken facing west. (Source: T+T, 2021).

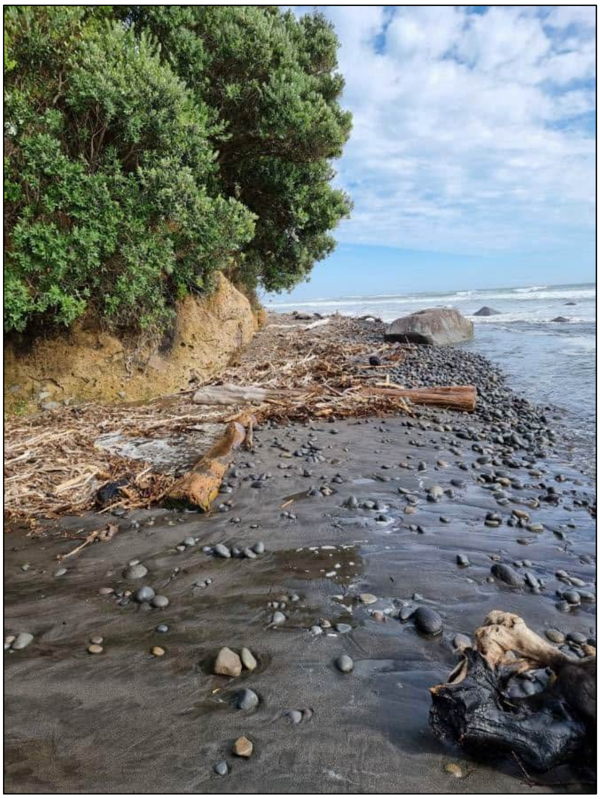

Figure 2.4: The eastern portion of Weld Road Beach. Photograph taken facing west. (Source: T+T, 2021).

2.4 Existing site access

As noted in Section 1.2, access across the Hauranga Pā site has been closed for its protection. The swing bridge over Whenuariki Stream was badly damaged during a storm event in 2022, resulting in its collapse into the stream. Previously, access around the Weld Road reserve was achieved using the swing bridge and informal tracks along Hauranga Pā (as shown in Figure 2.3 below). Currently, access can only be achieved along the foreshore or by travelling significantly inland. Unfortunately, the access along the foreshore is inconsistent and inconvenient due to the impact of tidal and wave processes and may pose a safety risk to users in adverse weather conditions. Notably, the driftwood and vegetation debris discussed in Section 2.3 above also impedes access along Weld Road beach.

Figure 2.5: Previous site access. (Source: T+T, 2021).

2.5 Landscape character and visual setting

The Landscape and Visual Effects Assessment (LVEA) attached in Appendix H identifies that the area is generally modified agricultural landscape with remnant dune systems, and sparse indigenous vegetation. This vegetation is mostly confined to dunes, low relief cliff faces, and the riparian margins of water courses, but is undergoing a process of natural regeneration.

The Weld Road foreshore is clearly defined by the Whenuariki Stream to the east and Timaru Stream to the west (see Section 2.7 below). Hauranga Pā is also a dominant landscape feature to the south of the reserve. The Ahu Ahu Road side of the reserve is framed by high escarpments covered in native bush. The beach areas are also buffered from the road and open space areas by dunes and native shrubs and trees. It is noted in the LVEA that the location of the reserve, behind the headlands and beneath high banks, gives a sense of being in a remote and undeveloped place despite its proximity to Ōākura in the east.

Due to the actual and perceived naturalness of the landscape, as well as the natural regeneration of indigenous vegetation cover and resultant landscape patterns, the site displays a high degree of natural character. However, the reserve area is not identified as having outstanding natural character, or any outstanding natural features or landscapes under the relevant district or regional plans.

2.6 Coastal processes

The Weld Road Reserve headland is located approximately 10 m above the surrounding beach levels, with steep slopes descending to the beach along the coastal edge.

The Coastal Processes Effects Assessment (CPEA) as attached in Appendix G notes that judging from past trends, beach levels are likely to fluctuate by several meters predominantly due to changes in channel alignment of the adjacent Whenuariki Stream (see Section 2.7). Due to strong coastal waves, the beach is identified as an area of Coastal Erosion Hazard within the OPD and PDP. During some high tides (and storm surges), access along the foreshore is unsafe due to the water level encroaching up the beach to the cliff toe (see Figure 2.6 and Figure 2.7).

Figure 2.6 (left): Impact of high tides on access across the Weld Road Foreshore. (Source: Clive Neeson, 2018).

Figure 2.7 (right): Access around the foreshore becomes almost impossible when water levels encroach up to the cliff toe. (Source: Clive Neeson, 2016).

Additionally, the Taranaki region has historically experienced 1.5± 0.1 mm/year rate of sea level rise (SLR) which is expected to increase in coming years with continued climate change, resulting in higher overall water levels contributing to these issues. The combination of all these factors identifies the foreshore of Weld Road Beach as a dynamic coastal environment with significantly variable beach levels.

2.7 Streams

As noted in Section 2.1, the site is bordered on either side by two freshwater streams, with Whenuariki Stream to the east and Timaru Stream to the west (see Figure 2.8). Both streams rise from the Pouakai Range in The Egmont National Park and are fed by tributaries along the South side of the Kaitake Range flowing out to the Tasman Sea.

Figure 2.8: Oblique image of the site and the nearby watercourses. (Source: Neeson, 2021).

Prior to the wash-out of the Whenuariki Stream bridge, there were swing bridges over both streams which allowed for public walking and cycling access across the length of the reserve as part of the 10km Ōākura Coast Trail. This trail was previous affected by tidal and wave processes along the Weld Road beach foreshore and is now completely disjointed due to the storm surge that badly damaged Whenuariki Stream swing bridge.

Figure 2.9: Images of before the existing bridge failure (left) and post-failure (right). (Source: WSP, 2023).

The observed flow characteristics within the Whenuariki Stream were slow runs and pools. The section of the Timaru stream within the pathway project site is near the steam mouth. Where the stream mouth flows out through the beach, it is considered to be an estuarine environment. Timaru estuary is mostly open to the sea but can become restricted during periods of low flow, upstream of the estuary the flow characteristic were also slow runs and pools.

As evidenced by historical investigations, the mouths of these streams naturally fluctuate over time, rapidly removing or contributing sediment which can significantly influence the surrounding beach levels by several meters. This trend indicates that depending on where the stream mouth is positioned, the bed levels around the headland can show up to 3 meters of variation. The T+T CPEA attached in Appendix G provides additional information on this dynamic process.

2.8 Ecology

An Assessment of Ecological Values and Effects (AEcE) is attached as Appendix EAppendix F and summarised below.

2.8.1 Vegetation

The coastal vegetation around the site is highly modified, comprised of treeland / duneland species such as pōhutukawa ('Threatened' – Nationally vulnerable) / puka ('At Risk' – Nationally uncommon) / karo / puahou with exotic grass, rank pasture and herbaceous species interspersed with duneland complex. There also appears to be a sparse understory of native and exotic grasses, sedges and ferns including pingao ('At Risk' – Declining) and kokihi ('At Risk' – Naturally Uncommon). Harakeke is also throughout and/or adjacent to both project sites. Example photographs of the vegetation types across the two project sites are presented in Figure 2.10.

Duneland vegetation adjacent to the laydown area within the pathway project site

Duneland vegetation, a small area of which is to be removed for the pathway laydown area. View towards Weld Road carpark.

Coastal vegetation around the headland of the pathway project site, view from the ocean.

Coastal vegetation around the headland, view from the ocean.

	
Treeland/rank grass on the corner of the Weld Road reserve/near the bridge abutment on Whenuariki Stream (western side of the bridge project site).	*Treeland/rank grass on the western side of the bridge project site, adjacent to the Whenuariki Stream.*

Figure 2.10: Vegetation types present within and immediately adjacent to the project sites. (Source: T+T, 2021).

2.8.2 Terrestrial avifauna

The AEcE (Appendix F), states that a total of 12 terrestrial bird species were identified from online records and/or observed during the on-site visits within or nearby the two project sites. One 'At Risk' – Declining species was identified within the pathway project site and confirmed during the site walk over. The remaining avifauna were either 'Not Threatened' or introduced and naturalised species. While not seen or heard on the site visit, tūī could be expected in the pathway and bridge project sites as they are found within the surrounding habitat.

2.8.3 Herpetofauna

The AEcE (Appendix F) notes that no lizards were observed during the site visit to the pathway project site and western side of the bridge project site. However, as shown in Figure 2.13, potential lizard habitat has been identified within the periphery of the Whenuariki Stream and amidst exotic-dominated shrubland and grasslands, and debris/rock piles across these areas (across the pathway project site and western side of the bridge project site).

A desktop review of online herptofauna records did identify potential species of frogs and lizards, including lizard species that are 'Threatened' or 'At Risk'. All native lizard and reptile species are protected under the Wildlife Act 1953. The frog species identified are exotic and not protected.

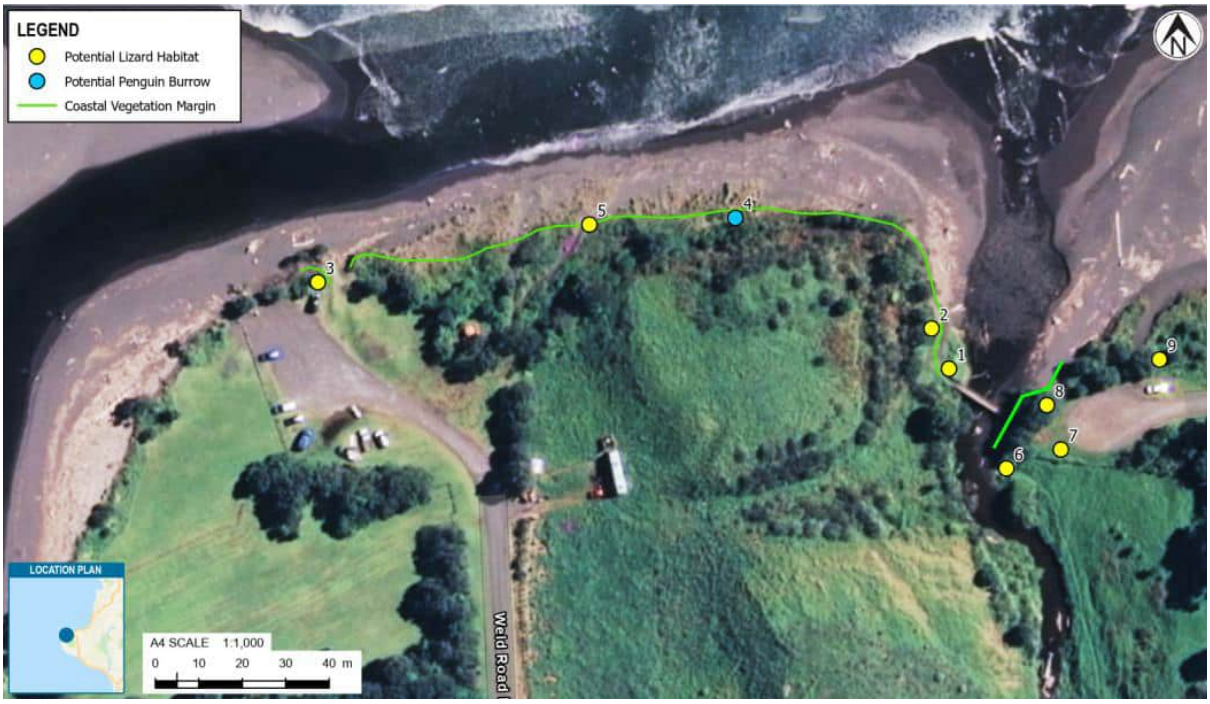

Figure 2.11: Location of potential lizard habitat and penguin burrow identifying during the site visit and from site visit images provided from NPDC. The coastal margin vegetation that is expected to be impacted by the rock revetment (on the western and eastern sides of Weld Road Reserve) and pathway works, and the bridge replacement works is also outlined.

2.8.4 Coastal avifauna

Overall, 11 exotic and native/naturalised coastal bird species (including seabirds and waders) were identified within the pathway and bridge project sites from online records and observations. One of the identified species was a Reef Heron which is considered 'Threatened' – Nationally Endangered. A further three species are considered 'At Risk' – Recovering, Relict or Naturally Uncommon (including the Northern New Zealand Dotterel, Common-Diving Petrel, Blag Shag) and another is Nationally At Risk – Declining (Red-billed gull).

Little Penguins (kororā) ('At Risk' – Declining) may also be present within the pathway and bridge project sites and/or surrounding areas given the available habitat and historical presence of these species in the area. Figure 2.14 shows one confirmed potential penguin burrow identified during a site visit by T+T ecologists.

Figure 2.12: Potential kororā nest identified at the bottom of the reserve headland. (Source: T+T, 2021).

2.8.5 Coastal fauna invertebrates

Various marine invertebrates including bivalves, gastropods, molluscs, echinoderms, and crab species have been identified within and in similar habitats near to these project sites (<1 km away). These resources provide potential food resources for coastal avifauna, as confirmed from bird feeding observations on site.

2.8.6 Benthic fauna

Benthic ecology and the associated sandy-beach habitats are largely unmodified, with no invasive or disturbance tolerant species observed. The benthic ecology across the bridge and pathway project sites provides resources including food and habitat to 'At Risk' and 'Threatened' species. However, it is noted that the rock revetment and Ahu Ahu Bridge replacement locations are areas of high recreational use, with high levels of disturbance from heavy foot traffic.

2.8.7 Freshwater ecology

As outlined in Section 2.7, The Timaru and Whenuariki Streams flow through agricultural land and surrounding mixed native forest, draining a moderately farmed catchment as well as receiving point-source treated dairy waste discharges.

A visual assessment undertaken during a site visit on 29 October 2021 identified that instream habitat diversity was limited within the lower tidal sections of both streams. Across the two streams, substrates comprised of fine substrates / coarse sand. There was also evident undercutting of the banks and woody debris (including large logs), providing structural habitat for freshwater fauna. There were also several relatively small pockets of high tide saltmarsh vegetation observed in the mid-to-upper reaches of the Timaru Stream. The riparian margins of both streams were dominated by native/exotic treeland with a sparse understory of native and exotic grasses; sedges and ferns; and harakeke.

No īnanga spawning habitat has been identified directly within the pathway or bridge project sites. However, potential spawning habitat was located upstream of the Whenuariki Stream (which lies within the bridge project site) within the dense thick riparian vegetation that is tidally inundated at or near the upstream edge of the saltwater wedge.

The AEcE (Appendix F) identifies one 'Threatened - Nationally Vulnerable', four 'At Risk- Declining', and two 'Not Threatened' freshwater fish species within the wider Timaru and Whenuariki stream catchments.

Freshwater invertebrate species were identified in the catchment of Timaru Stream and Whenuariki Stream. Specifically, koura or freshwater crayfish. While this species is 'Not threatened' in terms of its conservation threat status, it does hold important value as mahinga kai and is a taonga species. Several other identified species are known taonga species, central to the identity and wellbeing of local iwi groups. For example, Īnanga and eel species are recorded as being potentially within or nearby the project site.

2.9 Archaeology

An Assessment of Archaeological Effects (AAE) has been prepared for the shared pathway and Ahu Ahu Bridge. The AAE is provided in Appendix I and summarised below.

As indicated in Section 1.2, the headland of Weld Road Reserve contains a number of archaeological features from the former Hauranga Pā in various states of preservation, including three small living terraces, a levelled terrace/tihi, and visible rua[2]. However, continued public access across informal pathways has contributed to degradation of these features. While the proposed revetment is to be located on the foreshore to the north of the reserve, works will be undertaken in close proximity to these features.

Several site visits were undertaken in February 2022 following the initial loss of the existing Whenuariki Stream bridge and subsequent exposure of archaeological evidence along the coastal dune. In-situ archaeological evidence of Māori occupation was identified within the project extent, on the eastern bank of the stream. Archaeological evidence, in the form of cooking stones, lenses of charcoal, and charcoal stained soils can be seen eroding from the eastern bank of the stream, below the abutments of the former bridge and in at least two other exposures located five metres and 20 m west of the former bridge. No archaeological evidence was noted within the project area on the western bank of the stream. However, unrecorded archaeological evidence may exist under sediments or within the foreshore at the northern end of the Pā.

The New Zealand Archaeological Association Site Recording Scheme (ArchSite 2023) indicates that three archaeological sites are recorded within or nearby the project area. The sites P19/54 and P19/193, comprise of Hauranga Pā, separated into two separate site records. Site P19/422 (pending) is an oven / midden located on the eastern side of Whenuariki Stream. The two confirmed recorded archaeological sites are also shown on the PDP maps as being archaeological sites as well as sites and areas of significance to Māori (SASMs) (Figure 2.13). Notably, the sites are located within 50 m and 200 m of the proposed area of works.

Figure 2.13: Archaeological sites and SASM under the PDP. (Source: PDP maps).

[2] "Archaeological Assessment of Hauranga Pā, Weld Road Recreation Reserve, Ōākura" dated September 2008, prepared for NPDC by Ivan Bruce, Archaeological Resource Management.

2.10 Cultural values

The reserve is contained within the tribal rohe of the Taranaki Iwi, and the area is of significant historic and cultural value to Ngā Māhanga and Ngāti Tairi Hapū. Hauranga Pā is considered as wāhi tapu[3], and is identified as such in the District Plan.

The Taiao Taiora Iwi Management Plan (IMP) prepared by Taranaki Iwi (examined in Section 6.1.9) highlights some of the key values which tangata whenua hold for the wider region. These include the natural character of the region's oceans, forests, and coastal habitats, as well as the fauna which inhabit them, and the relationship people have with these systems which should be protected and restored.

Section 7.1 and the Consultation Summary attached in Appendix J provide details on engagement with mana whenua.

2.11 Recreation

As noted in Section 1.2, access around the foreshore of Weld Road Beach for recreational purposes is highly valued by the community as part of the Ōākura Coast Trail, including motorbikes, mountain bikers, horse riders, and walkers (including dog walking activity) who access the foreshore primarily during low tide (refer to Appendix J). However, at present this access is impeded at times by tidal and wave conditions, restricted access across the Hauranga Pā site and the loss of Whenuariki bridge.

The surf breaks off the coast of the Weld Road beach (Hauranga and Oraukawa breaks) are identified as Regionally Significant by the CPT (see Table 4.1). The CPEA (Appendix G) indicates that these surf breaks are utilised by a wide range of swimmers and board sports that include surfers, kite surfers and wind surfers primarily at mid to low tide.

2.12 Contaminated Land

A review of the Taranaki Regional Council Register of Selected Land Uses (RSLU) has been undertaken using the dedicated layer on Taranaki Regional Local Maps. The application site is not identified on the RSLU as having existing soil contamination, and there is no historical evidence of a HAIL activity occurring on the site.

[3] A sacred place or site.

3 Description of proposed works

There are two major components to this proposal: the shared pathway and revetment, and Ahu Ahu Bridge. The works are expected to be undertaken and co-ordinated by the same contractor, but these details are yet to be finalised. Accordingly, the description of the proposed works is separated for clarity. Section 3.1 provides a description of the shared pathway and revetment. Section 3.2 describes the proposed Ahu Ahu Bridge.

3.1 Proposed shared pathway and revetment

The preliminary design of the proposed shared pathway and revetment is provided in the Pathway Preliminary Design Report and Drawings (Appendix C) and summarised below.

A number of options had been explored for the formalised shared pathway access between Weld Road and Lower Ahu Ahu Road. These options were primarily constrained by the reserve boundaries to avoid encroaching into private land as well as the steep topography and archaeology of the existing informal track. A coastal shared pathway around the base of the headland has been assessed by NPDC as being the least disruptive way of providing safe shared pathway access to connect the existing public access.

NPDC therefore proposes the construction of a rock revetment and footpath around the base of the Weld Road Reserve headland, supporting a shared pathway linking the Lower Weld Road (near Timaru Stream) to Lower Ahu Ahu Road (via the proposed Ahu Ahu Bridge described in Section 3.1.4). As shown in Figure 3.1 and Figure 3.2, the revetment is proposed to begin at the sand ramp at Lower Weld Road carpark in the west, wrapping around the headland, connecting into the proposed Ahu Ahu Bridge at Whenuariki Stream. This design is in alignment with the community outcome of providing safe and easy access around the foreshore, as well as strengthening partnerships with tangata whenua (Ngā Māhanga and Ngāti Tairi) by responding to cultural sensitivities on council administered land and providing for the protection of the Hauranga Pā archaeological site.

Figure 3.1: Approximate revetment location. (Source: Taranaki Region LocalMaps 2021).

Figure 3.2: Approximate revetment location as seen from the Weld Road foreshore. (Source: T+T, 2021).

As shown in Figure 3.3 and detailed in Appendix C, the revetment is approximately 140 m long and approximately 12 m wide, although the lower part of the structure will usually be below beach sand level. The revetment will have a gradient of 1(V):2(H) and comprise of locally sourced rock armour. Along the Whenuariki Stream the revetment is proposed to be steepened to 1(V):1.5(H) to reduce the hydraulic impact to the stream. The toe will be keyed 1 m into the below lahar bedrock and geotextile will be installed behind the rock armour. The crest of the rock revetment is at a height of 3.4 m RL (Reduced Level[4]). A 2 m wide concrete pathway will be embedded below the top of the rock armour directly adjacent to the crest of the rock revetment on the inland side at a height of 2.9 m RL.

The design reflects a balance between an acceptable degree of wave overtopping and reducing visual impacts associated with the overall height of the pathway. Specifically, the revetment design anticipates that medium levels of overtopping are unlikely under present day conditions. However, with beach lowering, such events could occur in conjunction with the 1-year ARI water level. As a result, public use during stormy conditions at higher tides is not assumed and the structure is considered to be a non-essential, “fair weather” amenity. Signage identifying this potential hazard will be placed at either end of the revetment advising users not to use the path in periods of storm conditions. This approach is consistent with similar structures in New Plymouth such as the pathway seaward of Woolcombe Terrace and Octavius Place, which has signage (as well as barriers) advising users to not use that section during storm events. Section 5.5.1 provides further assessment of the expected magnitude of overtopping effects on the proposed revetment, alongside mitigation of this hazard.

Construction of the shared pathway and revetment structure is likely to take approximately three to four weeks to complete.

3.1.1 Earthworks

Construction of the revetment structure will require excavation of the existing beach material, to volumes of approximately 1,150 m^3. Additionally, approximately 1,400 m^3 of fill will be required for construction of the revetment structure itself.

3.1.2 Vegetation

The works will require the removal and trimming of some trees and coastal vegetation around the headland bank on the beach front, including pōhutukawa trees. Vegetation clearance is limited to

[4] The elevation of a point relative to the Mean Sea Level

small patches across the site to a total removal area of approximately 240 m^2. This proposed clearance is limited, but necessary to the installation of the revetment.

3.1.3 Traffic movement

Approximately 190 truck and trailer loads are estimated over the construction period to bring rock and other materials to site, alongside light vehicle movements for staff and supervision (approximately 5 per day). Approximately 5 truckloads are also required for the site establishment and disestablishment periods.

3.1.4 Construction methodology

The shared pathway and revetment construction sequencing and methodology is provided below. A detailed construction methodology will be prepared by the contractor.

Site preparation:

- Lower Weld Road carpark will be used as a construction laydown area, with alternative public parking and beach access provided on the adjacent grassed area (shown in the Pathway Preliminary Design Report and Drawings in Appendix C).
- Revetment rock and other materials will be stockpiled in the laydown area and taken to the works area by Moxy truck along the foreshore.

Site clearance:

- Construction vehicles will access the foreshore via an existing pedestrian access point over the dunes, which will need to be widened and some dune vegetation removed.
- The works will also require the removal and trimming of some trees and coastal vegetation, including pōhutukawa trees. This clearance will be undertaken via two methods:
  - Digging and removal (and sometimes replanting); or
  - Trimming.

Installation:

- As stated in Section 3.1.1, existing beach material and part of the streambed will be excavated where the revetment is proposed.
- The slope will be regraded with supplementary granular fill if required.
- The toe will be keyed 1 m into the below lahar bedrock and geotextile will be installed behind the rock armour.
- The LVEA (Appendix H) states that the construction of the revetment structure may also involve strategic placement of components to create natural, informal ‘steps’ part way along the shared pathway to provide for access down to the foreshore.
- Excavated sandy material will be replaced in front of the revetment.

General methodology:

- Construction will be undertaken at low tide only.
- Machinery will not be maintained, refuelled on the beach, or stored on the beach overnight.
- While not expected, it is possible that the revetment structure will extend into the stream bed at the time of construction. If this is the case, the banks immediately adjacent to the proposed structure will be temporarily trained using sandbags to prevent the stream flow encroaching on the works site.

- Construction works will be timed to avoid key avifauna breeding, nesting and moulting seasons, if possible, as well as the adverse weather conditions often experienced in the area throughout the winter months.
- Following the completion of construction, any excess excavated beach material will be distributed back onto the Weld Road Beach foreshore.

Construction is likely to take approximately 3-4 weeks to complete, which reflects the need to work around the tides and sea conditions.

3.1.5 Maintenance and monitoring

While rock armour will be sized according to the wave climate, some damage to the revetment resulting in relocation of rock onto the beach face is possible during large storm events. Similar to nearby existing revetments along this section of coastline, these rocks would be replaced periodically as required.

NPDC proposes to monitor the revetment every two years, with a formal inspection report being prepared by a chartered engineer. Additionally, following significant storm events visual checks of the structure will also be undertaken. Maintenance requirements will be determined as a result of this monitoring.

Provided this monitoring and maintenance work is undertaken, the long-term integrity of the structure should be maintained.

3.2 Ahu Ahu Bridge

As outlined in Section 1.2, the bridge over Whenuariki Stream that was constructed in circa 2000 was badly damaged in a storm event in 2022. NPDC is proposing to replace this damaged structure. The replacement bridge will connect the shared pathway (described in Section 3.1) on the western side of the Whenuariki Stream to Lower Ahu Ahu Road.

WSP New Zealand Ltd (WSP) has prepared the Ahu Ahu Bridge Preliminary Design Report and Drawings attached in Appendix D. Figure 3.4 shows the WSP preliminary concept design drawing, however, the detailed design and construction methodologies will be provided at a later date by a bridge specialist company.

WSP’s preliminary concept design plans for the Ahu Ahu Bridge replacement works includes increasing the bridge length (to approximately 21 metres) allowing the east abutment to be relocated approximately 1.5 m east of the original bridge. The deck of the new bridge is proposed to be raised by approximately 0.7 m at the abutments. The new bridge deck will be flat while the original bridge had a sag of up to 0.8 m, therefore, the deck in the middle of the new bridge may be up to 1.5 m higher than the original.

For the proposed bridge deck level of 5.0 m RL, the freeboard from deck to the 1 in 25-year Serviceable Limit State (SLS) event is approximately 1.52 m. Depending on the thickness of the bridge deck (to be determined in detailed design), this is anticipated to meet the 1.2 m minimum freeboard requirements to the lowest part of the bridge superstructure (as per the Waka Kotahi Bridge Manual).

The new bridge deck height will require raised approaches to tie back into the car park (east end) and shared coastal pathway (west end). Based on a 1(V):9(H) gradient, this will require boardwalk ramps in the order of 10 m (east) and 19 m (west) to tie into existing levels.

3.2.1 Earthworks

As stated in Section 3.1 of the WSP Ahu Ahu Bridge Preliminary Design Report and Drawings (Appendix D), the area of earthworks directly associated with the construction of the footbridge (i.e., approach ramps on both sides and abutments) are expected to be approximately 150 m^2. The volume of excavation is estimated to be 14 m^3.

3.2.2 Vegetation

WSP has also detailed the area of vegetation trimming (refer to Appendix D). Notably, on the eastern side of the stream, a corridor of trees & shrubs (approximately 28 m^2) will need to be trimmed or removed, in order to install the new footbridge. In addition, approximately 80 m^2 of grassland will be impacted, most of which will be reinstated after the works are complete.

On the western side of the stream, it's not expected that any trees or shrubs will need to be trimmed or removed as a result of the proposed Ahu Ahu Bridge. However, approximately, 70 m^2 of grassland will be impacted, some of which will be reinstated after the works are complete.

Therefore, a total of approximately 28 m^2 of tree trimming or removal will be required and approximately 150 m^2 of grassland will be disturbed as a result of the bridge construction.

3.2.3 Construction methodology

The contractor has prepared an Ahu Ahu Bridge Construction Method Statement (Appendix E). A summary of the Ahu Ahu Bridge construction sequencing and methodology is provided below.

Site preparation:

- Lower Ahu Ahu Road carpark will be used as a construction laydown area, with alternative public parking and beach access provided further east along Ahu Ahu Road.
- Materials will be stockpiled in the laydown area and taken to the works area.
- Signs will be posted warning pedestrians that the track is closed due to construction.
- Site fencing will be used to prevent unauthorised access to the construction site.

Site clearance:

- The works will require the removal and/or trimming of some trees and coastal shrubland vegetation around the western and eastern sides of the Whenuariki Stream.
- The pōhutukawa on the eastern bank of Whenuariki Stream will be retained as it provides erosion protection, significant amenity, and other ecological benefits.
- Cutting and removal of dead roots may be required, including of the retained pōhutukawa. An arborist will confirm which roots can be removed and which are to remain to maintain good tree health.
- 'No Go area' to be observed in order to reduce surrounding vegetation damage.

Traffic Management:

- Trucks carrying materials to be stored in the laydown area will remain on the formed road.
- The excavator is to follow the formed track to the excavation sites. Access is not expected to be required to Whenuariki Stream for this component of works.
- Construction vehicles required to access the foreshore (i.e., excavator to carry bridge materials) will use the formed tracks.

Installation:

- A service check is to be completed prior to excavations.
- Silt fences are to be installed around the excavation areas.
- Excavation is required for the anchor blocks, concrete will be poured for the blocks and then backfilling (using the excavated material).
- Pile holes will be drilled, and the timber posts will be concreted in place.
- No concrete is to be pumped over the water or within 4 m of the river.
- Existing exposed tree roots may be backfilled from on-site material (sand/ash).

General methodology:

- Project work replacing the Ahu Ahu Bridge is expected to take place alongside the bank sides/riparian zone of Whenuariki Stream and within the steam bed.
- The Whenuariki Stream is highly dynamic and the banks of the Whenuariki Stream may need to be temporarily trained using sandbags/bunding to prevent the stream from encroaching on the works site.
- Construction will be undertaken at low tide only.
- Excavation will not be undertaken during wet weather conditions.
- Machinery will not be maintained, refuelled on the beach, or stored on the beach overnight.
- A spill kit is required to be on site at all times. Diggers and hydraulic machinery shall be monitored at all times for hydraulic oil leaks.
- Construction works will be timed to avoid key avifauna breeding, nesting and moulting seasons, if possible, as well as the adverse weather conditions often experienced in the area throughout the winter months.

Construction is likely to take between 4 to 6 weeks to complete, which reflects the need to work around the tides and sea conditions.

3.2.4 Maintenance and monitoring

The same monitoring provisions outlined for the shared pathway and rock revetment (Section 3.1.5) apply to the Ahu Ahu Bridge.

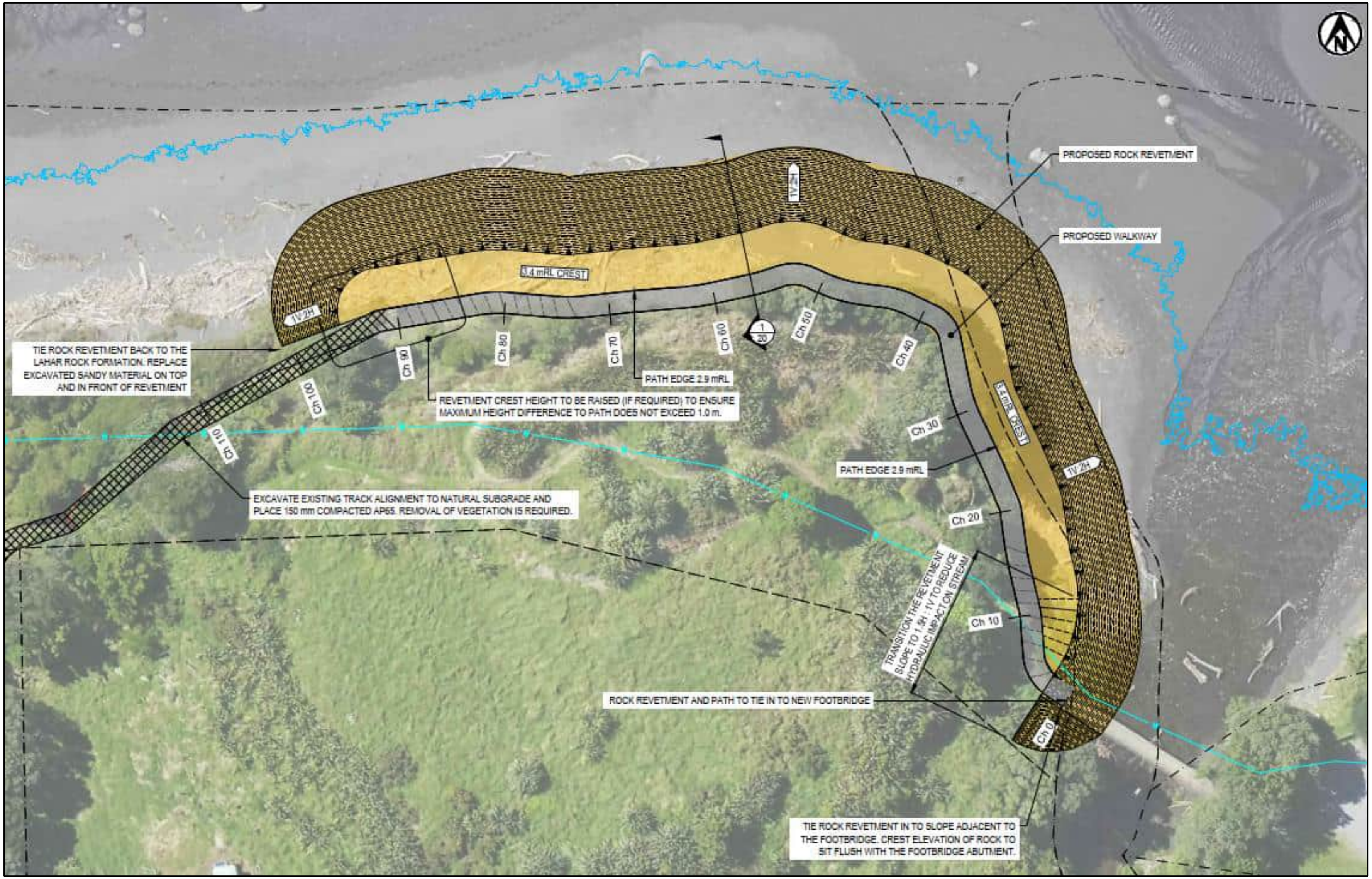

Figure 3.3*: Shared pathway and revetment proposed concept design. (Source: Appendix C*).

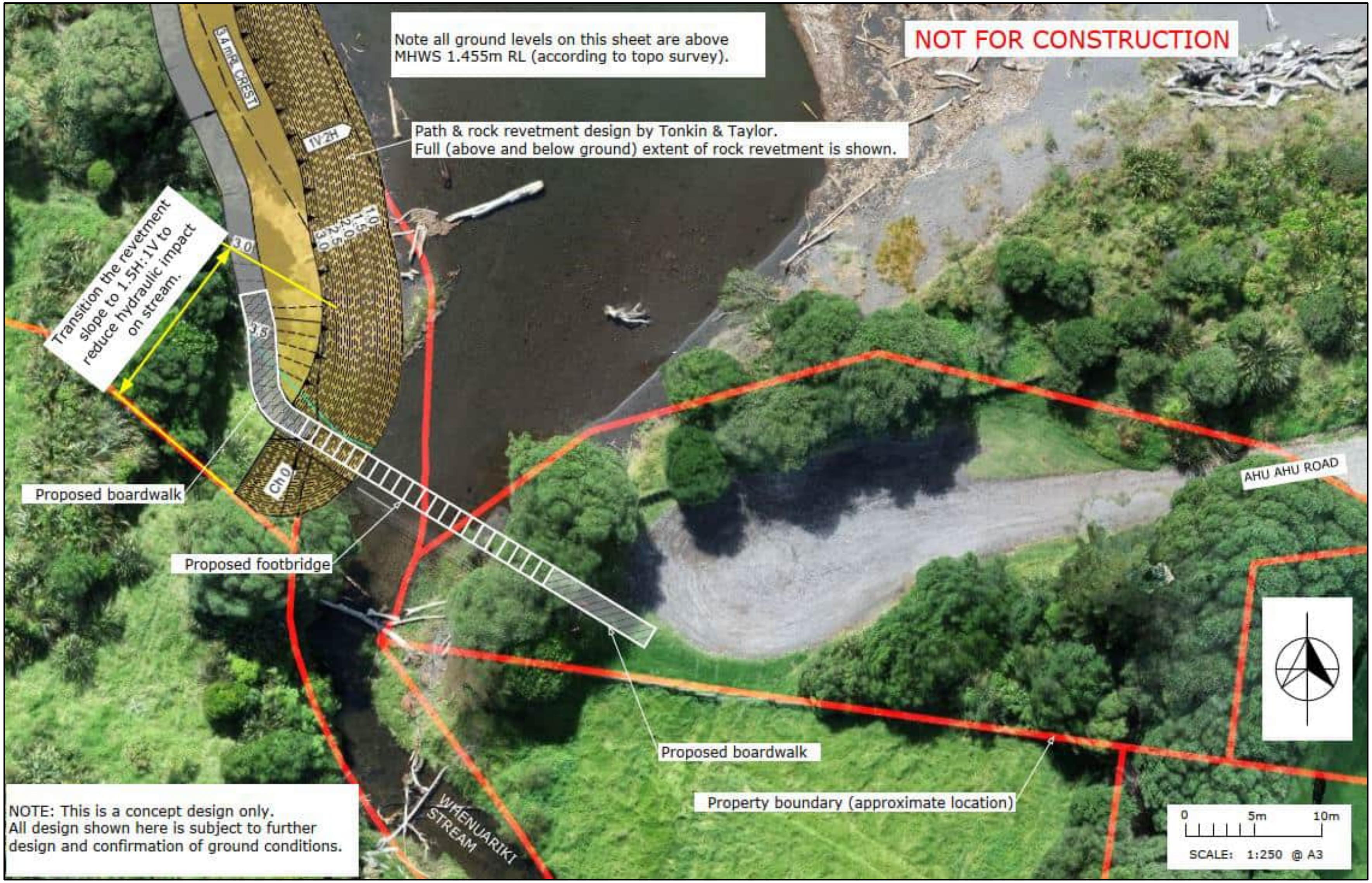

Figure 3.4: Proposed concept design.(Source: WSP footbridge concept design, dated 30/08/23, Appendix D).

4 Resource consent requirements

4.1 Overview

In the coastal area, the line of mean high water springs (MHWS) forms the jurisdictional boundary between district and regional councils. NPDC is responsible for managing activities on the landward side of MHWS through its District Plan, and TRC is responsible for activities in the CMA (seaward of MHWS) through its Regional Coastal Plan. TRC also has regional plans regulating activities affecting freshwater, soil and air quality.

This area of coastline is highly dynamic, with beach sand levels and the alignment of stream mouths varying greatly, and the line of MHWS moving with it. At the time of a survey of beach sand levels undertaken in April 2021, MHWS was found to be below the proposed work area, however, it would at times be as high as the foot of the cliff. For the purpose of this consent application, we have therefore assumed that the proposed rock revetment, and Ahu Ahu Bridge over the Whenuariki Stream may be within both the NPDC and TRC jurisdictional areas to ensure the necessary resource consents are obtained.

The resource consent requirements of the applicable Regional and District Plans are assessed in Section 4.2 and 4.3. Should further consent matters are identified post-lodgement of the application, these should also be considered as forming part of the application.

4.2 Taranaki Regional Council

TRC has regional plans regulating activities affecting freshwater, soil and air quality[5]. As set out above, the area seaward of the cliff toe is deemed to be in the CMA. Under the regional plans, where the MHWS line crosses a river (including streams), the landward boundary at that point will be whichever lesser; one kilometre upstream from the mouth of the river or the width of the river mouth multiplied by five. Given the width of the Whenuariki Stream mouth is approximately 12 m, the CMA extends approximately 60 m upstream. Therefore, the only relevant regional plan for this application is the CPT.

TRC released an Updated Interim Version of the CPT dated December 2022 which incorporated decisions that have been made by way of Environment Court Consent Order. All rules in the CPT were beyond legal challenge and were to be treated as operative. Therefore, the relevant provisions were prepared using this version. On 4 September 2023, the Regional Coastal Plan for Taranaki became operative. Based on the guidance from TRC (refer to Section 7.6) this assessment did not need to be updated as no changes to the provisions had occurred.

The zoning and planning notations that apply to the site are set out in Table 4.1 below. The resource consent requirements under the TRC are identified in Table 4.2 below.

Overall, resource consent will be required as a **Discretionary activity** under the CPT.

[5] The following regional plans are assessed as not being relevant to the proposal:

- The Taranaki Regional Soil Plan does not contain any rules that apply to the works.
- The Taranaki Regional Freshwater Plan: Section 1.4 of the TRFP states that the plan does not apply to the CMA of the Taranaki region. Using the methods described in Appendix 2 of the Proposed Taranaki Regional Coastal Plan, it has been determined that the CMA extends up both the streams in proximity to the site, meaning that in this location the Coastal Plan instead applies to the management of these streams.

Table 4.1: Zoning and planning notations- CPT

Zoning/ Planning notation	Comment
Regional Coastal Plan for Taranaki	
Indicative Coastal Marine Area Boundary Line	The project encroaches into the seaward side of the indicative Coastal Marine Area Boundary Line. Where the MHWS line crosses the Whenuariki Stream, the boundary of the CMA is approximately 60 m landward. Therefore, the Ahu Ahu Bridge works are also considered to be within the CMA.
Coastal Environment Line	The project is entirely on the seaward side of the Coastal Environment Line.
Coastal Management Area – Open Coast (Schedule 1)	The CMA at this location is within the “Open Coast” – the area of the CMA not covered by any other Coastal Management Area.
Significant Indigenous Biodiversity Areas (Schedule 4B)	A Near Shore Reef is located offshore northwest of the project site. No works are proposed within this area.
	Significant marine mammal and seabird area, known as ‘The West Coast North Island Marine Mammal Sanctuary’, lies offshore from the project site. No works are proposed within this area.
Sites of Significance to Māori (Schedule 6B – Taranaki Iwi)	There are several Sites of Significant to Māori within the subject site, as follows: • TRC No. D27 – Hauranga Pā (Taranaki iwi). Located between Oākura River and Hangatāhua River, including within the CMA. The proposed works are within this extent. • TRC No. D28 – Timaru Stream (Taranaki iwi). Located between Oākura River and Hangatāhua River, including within the CMA. Generally, covers the mouth of the Timaru Stream and adjacent foreshore. Access to the proposed area of works may be within this extent. • TRC No. D131 – Hauranga Pūkāwa (reef) (Taranaki iwi). Located offshore between Oākura River and Hangatāhua River within the CMA. No works are proposed within the extent of this site.
Coastal Sites with Significant Amenity Values (Schedule 7)	Several coastal sites with significant amenity values are identified within proximity of the subject site, as follows: • Weld Road Beach: Swimming, surf casting, horse riding. • Timaru/ Weld Rd Reef: Fishing, mahinga kai. • Timaru Stream: Whitebaiting, swimming.
Regionally Significant Surfbreak (Schedule 8A)	Regionally significant surf breaks; Weld Road Breaks (Hauranga) and Ahu Ahu Multiple Breaks (Oraukawa) are located offshore from the subject site to the northwest and northeast respectively. No works are proposed within this area.
Non-statutory layers on TRC GIS Viewer	
Rivers and Catchments	Timaru Stream is located to the west of the site. Works are proposed adjacent to the stream. Whenuariki Stream is located to the east of the site. Works are proposed within and above the stream.
Riparian Farm Boundary	Several Riparian Farm Boundaries are located to the southeast and west, in proximity to the proposed works.
Taranaki Iwi Rohe	The entire site and its immediate surrounds are within the tribal rohe of Taranaki Iwi and are of historic and cultural significance to Ngāti Tairi and Ngā Māhanga Hapū.

Zoning/ Planning notation	Comment
Coastal bird feeding and nesting area	The whole site and its surrounds are identified as an area in which little penguins (kororā) and other coastal birds feed and nest.
Fundamental soil layers	The soil layers identified beneath the Weld Road Reserve/Hauranga Pā headland are split almost down the centre of Weld Road Lower, with areas to the east around the existing beach access identified as Kairanga silt and clay loam (gley soil), while those to the west towards Lower Ahu Ahu Road are identified as New Plymouth brown loam (allophanic soil).
Potential ecosystems- acutely threatened	The western portion of the site (as covered above) is categorised as an area with acutely threatened ecosystem values.
Potential ecosystems- chronically threatened	The eastern portion of the site (as covered above) is categorised as an area with chronically threatened ecosystem values.
LENZ Level 4	Land Environment New Zealand classification of the entire site and its surrounds is identified as having less than 10% of the indigenous vegetation remaining.
Estuarine Habitats	Timaru Stream, located to the west of the site is an Estuarine Habitat. Works are proposed adjacent to the stream.
Intertidal Rocky Reef	An Intertidal Rocky Reef (same extent as the Near Shore Reef) is located offshore northwest of the project site. No works are proposed within this area.

Table 4.2: Resource consent requirements – CPT

Proposed activity	Rule reference/ description	Comment	Overall activity status
Regional Coastal Plan for Taranaki			
Rock revetment and bridge abutments including associated construction activities	**Rule 27 and Rule 38** Placement or erection of a hard protection structure and any associated: (a) Occupation of space (including renewal of occupation) in the common marine and coastal area. (b) Disturbance of the foreshore or seabed. (c) Deposition in, on or under the foreshore or seabed. (d) Discharge of sediment.	**Pathway** Rock revetment structure will be erected in a coastal area, in proximity to the common marine area. Disturbance of the foreshore will occur as a result of construction machinery. **Ahu Ahu Bridge** The bridge abutments may be located within the coastal marine area (which extends 60 m upstream of the mouth of Whenuariki Stream). The construction if the bridge is expected to involve disturbance of the stream bed.	Discretionary Activity

4.3 New Plymouth District Council

4.3.1 New Plymouth Operative District Plan

NPDC is currently working with two sets of district plan provisions; the ODP and the PDP – Appeals Version 2023. Accordingly, the proposed area of works, landward of MHWS, is subject to the rules in the ODP.

The rules which apply are determined by the zoning of the site, any identified notations in the plan and the nature of the activities proposed. The zoning and notations that apply are identified in Table 4.3 below. The resource consent requirements under the ODP are identified in Table 4.4 below.

Overall, resource consent is required under the ODP as a **TBC activity**.

Table 4.3: Zoning and planning notations – ODP

Zoning/planning notation	Comment
New Plymouth Operative District Plan	
Rural Zone	The entire site and its surrounds are zoned as Rural under the ODP.
Coastal Policy Area	The entire site and its surrounds are within the Coastal Policy Area of the NPDP that identifies environments in which the coast is a significant part or element and gives effect to the New Zealand Coastal Policy Statement. Appendices 2 and 20 of the ODP set out specific objectives and policies pertaining to preservation and enhancement of the natural character of the Coastal Policy Area.
Coastal Hazard Area (H1)	The entire site and its immediate surrounds are within the Coastal Hazard Area which has its own set of objectives and policies to control activities and avoid the adverse effects of erosion, sea level rise and other coastal hazards on development within the next 100 years.
Priority Water Bodies	Timaru Stream to the west of the site is identified as a Priority Water Body in Appendix 18 of the ODP, which denotes it as having special significance in terms of natural character or public access and recreation values, consistent with the values in the Regional Freshwater Plan's identified "regionally significant waterbodies". The project does not involve any works in the Timaru Stream.
Waahi Taonga/ Sites of Significance to Māori & Archaeological Site	Several Waahi Taonga/ Sites of Significance to Māori & Archaeological Sites in proximity to the area of works include: • Site 54: Located approximately 30 m to the south of the project area: Pā on the Weld Road Reserve headland; mana whenua iwi is Ngā Māhanga ā Tairi; NZAA ref. P19/54. • Site 181: Located approximately 190 m to the south of the project area: Pā on the Weld Road Reserve headland; mana whenua iwi is Ngā Māhanga ā Tairi; NZAA ref. P19/193. • Site 69: Located approximately 180 m to the west of the project area: Pā; mana whenua iwi is Ngā Māhanga ā Tairi; NZAA ref. P19/80. • Site 43: Located approximately 548 m to the south of the project area: Military redoubt; mana whenua iwi is Ngā Māhanga ā Tairi, NZAA ref. 43. As per Appendix 26, the extents for these sites have not been verified, and the accuracy of the location of these sites is therefore +/- 200 m. Activities within this setback are subject to rules OL81-OL87. These sites are not silent files.

Zoning/planning notation	Comment
Statutory Acknowledgements: Taranaki Iwi coastal marine area (OTS-053-55).	The Crown has acknowledged the Taranaki Iwi coastal marine area as a statutory area with particular ancestral, cultural, historical and spiritual associations. The area extends from Paritūtū in the north, around the western coast of Taranaki Maunga to Rāwa o Turi stream in the south, and from these boundary points out to the outer extent of the exclusive economic zone. The Hauranga Pā site located upon the Weld Road Reserve is further identified as a particular area of coastal marine significance in Appendix A of the Taranaki Iwi Deed of Settlement.

Table 4.4: Resource consent requirements – ODP

Proposed activity	Rule reference/ description	Comment	Overall activity status
New Plymouth Operative District Plan			
OL – Overlays			
Erection of the rock revetment structure, and replacement bridge and associated earthworks, vegetation clearance within the Coastal Policy Area	**Rule OL17** Erection of structures, excavation and filling, and clearance of vegetation within a Coastal Policy Area Is a permitted activity if the following conditions can be met: 1) Does not result in adverse disturbance, modification or destruction of dune, wetland or estuarine ecosystems.	**Pathway** The proposed works require the disturbance, modification or destruction of dune vegetation, consent is required as a restricted discretionary activity. **Ahu Ahu Bridge** The replacement bridge may require the removal of dune vegetation to accommodate the abutments and approach area.	Restricted Discretionary Activity
Erection of the rock revetment structure and the replacement bridge on or near a waahi taonga/site of significance to Māori and/or archaeological site.	**Rule OL81** Erection of structures on or within the specified distance of any waahi taonga/ sites of significance to Māori or archaeological site in the rural area within 50 m.	**Pathway** The proposed erection of the revetment structure is within close proximity (within 50 m) of the waahi taonga/ sites of significance to Māori. **Ahu Ahu Bridge** The proposed replacement bridge is within close proximity (within 50 m) of the waahi taonga/ sites of significance to Māori.	Restricted Discretionary Activity

Proposed activity	Rule reference/ description	Comment	Overall activity status
Excavation and filling and clearance of trees on or near waahi taonga/site of significance to Māori and/or archaeological site.	**Rule OL85** Excavation and filling, and clearance of trees on or within 50 m of any waahi taonga/ site of significance to Māori or archaeological site is a restricted discretionary activity.	**Pathway** Excavation and filling and clearance of trees are required to construct the revetment structure and will be within 50 m) of the waahi taonga/ sites of significance to Māori. **Ahu Ahu Bridge** Excavation and filling and clearance of trees are required to construct the replacement swing bridge and will be within 50 m) of the waahi taonga/ sites of significance to Māori.	Restricted Discretionary Activity
RUR – Rural Environment Area			
Construction of revetment along the western bank of Whenuariki Stream	**Rule RUR5** All other structures are permitted, provided: 1) Does not create a barrier to flood flows or reduce the capacity of the area to contain stormwater; and 2) Does not redirect the flood water onto, or increase the impact of the flood event on, another property.	**Pathway** The rock revetment was designed to minimise changes in the channel shape or reduction in the channel width in order to maintain existing flow conditions. However, there is potential for upstream ponding during storm events (i.e., 1 in 250-year flood event) slightly beyond what would otherwise occur as indicated in Appendix D.	Discretionary Activity

4.3.2 New Plymouth Proposed District Plan

The PDP – Appeals Version was publicly notified on 14 September 2023. In accordance with section 86B of the RMA, all the provisions of the PDP have legal effect. Rules which are not subject to appeal are now treated as operative, pursuant to section 86F of the Resource Management Act 1991.

The zoning and notations that apply are identified in Table 4.5 below. The resource consent requirements under the PDP are outlined in Table 4.6 below.

Overall, resource consent is required under the PDP as a **Discretionary activity**.

Table 4.5: Zoning and planning notations – PDP

Zoning/planning notation	Comment
New Plymouth Proposed District Plan	
Rural Production Zone	Applies to the entire site and surrounding area.
Local Road	Weld Road (Lower) is a Local Road type in the roading hierarchy.
Coastal Erosion Hazard Area	Applies to a 20-30 m wide strip of land, extending inland from approximately the landward edge of the beach. Applies to the site and adjacent coastline.

Zoning/planning notation	Comment
New Plymouth Proposed District Plan	
Coastal Environment	Applies to all parts of the coast, extending inland from approximately the landward edge of the beach. Applies to the entire project area and adjacent coastline.
Waterbody – River/ Stream	Timaru Stream is identified as a Significant Waterbody. Schedule 9 of the PDP identifies the particular values of the waterbody as Biodiversity, Ecological or Natural Character Values; Recreational, Public, Access, Scenic or Amenity Values; Cultural Values; and Water Quality Values (i.e., all of the values). Whenuariki Stream is not identified as a Significant Waterbody.
Archaeological Site: ID 54, ID 181 and Archaeological Site Extent	Archaeological Site 54 (NZAA ref P19/54) is the Hauranga Pā. The site is located on the headland adjacent to the works, with the Archaeological Site Extent extending to the property boundary on the western side of the Whenuariki Stream. Archaeological Site 181 (NZAA ref P19/193) is a Pā site, located below Site 54 and adjacent to Weld Road Lower. Ngā Māhanga ā Tairi is identified as mana whenua for both sites. The extent of the sites have been verified, and it do not have silent files. The proposed revetment structure and the western edge of the proposed Ahu Ahu Bridge will be within the extent of Site 54 and within 50 m of Site 181. The proposed upgrade of the walking track over the headland is outside of the extent.
Sites of Significance to Māori: ID 54, ID 181 and Site of Significance to Māori Extent	The Site of Significance to Māori and Site of Significance to Māori Extent relates to Archaeological Site 54 and 181, summarised above.
Statutory Acknowledgements: Taranaki Iwi coastal marine area (OTS-053-55).	The Crown has acknowledged the Taranaki Iwi coastal marine area as a statutory area with particular ancestral, cultural, historical and spiritual associations. The area extends from Paritūtū in the north, around the western coast of Taranaki Maunga to Rāwa o Turi stream in the south, and from these boundary points out to the outer extent of the exclusive economic zone. The Hauranga Pā site located upon the Weld Road Reserve is further identified as a particular area of coastal marine significance in Appendix A of the Taranaki Iwi Deed of Settlement.

Table 4.6: Resource consent requirements – PDP

Proposed activity	Rule reference/ description	Comment	Overall activity status
New Plymouth Proposed District Plan			
RPROZ – Rural Production Zone			
Construction of the revetment structure and bridge abutments within the Rural Production Zone	**RPROZ-R30** Any activity not otherwise listed in this table	**Pathway** The proposed erection of the revetment structure is within the Rural Production Zone. **Ahu Ahu Bridge** The abutments and approach area are expected to encroach into the Rural Production Zone.	Discretionary Activity

Proposed activity	Rule reference/ description	Comment	Overall activity status
New Plymouth Proposed District Plan			
HH – Historic Heritage			
Erection of the revetment structure and replacement bridge, including associated earthworks	**Rule HH-R24** Erection of a structure and associated earthworks within the extent of a scheduled archaeological site, or within 50 m of the extent of a mapped archaeological site.	**Pathway** The proposed erection of the revetment structure and associated earthworks is within the Archaeological Site Extent (Site ID: 54). **Ahu Ahu Bridge** The western bridge abutment and associated earthworks are proposed within the Archaeological Site Extent (Site ID: 54). In addition, the replacement bridge, abutments, and approach ramp will be constructed within 50 m of the extent of a mapped archaeological site (Site ID: 54 and 181).	Discretionary Activity
SASM - Sites and Areas of Significance to Māori			
Erection of the revetment structure and replacement bridge, including associated earthworks	**Rule SASM-R11** Erection of a structure and associated earthworks within the extent of a scheduled site or area of significance to Māori, or within 50 m of the extent of a mapped SASM	**Pathway** The erection of the revetment structure and associated earthworks is proposed within the Site of Significance to Māori Extent (Site ID: 54) and within 50 m of the extent of a mapped SASM (Site ID: 181). **Ahu Ahu Bridge** The western bridge abutment and associated earthworks are proposed within the Archaeological Site Extent (Site ID: 54). In addition, the replacement bridge, abutments and approach ramp will be constructed within 50 m of the extent of a mapped archaeological site (Site ID: 54 and 181).	Discretionary Activity
ECO - Ecosystems and Indigenous Biodiversity			
Removal and trimming of indigenous trees and vegetation	**Rule ECO-R2** Indigenous vegetation disturbance[6] in the coastal	**Pathway** The indigenous vegetation disturbance required for conservation activities and	Discretionary Activity

[6] Indigenous vegetation disturbance is defined as: *means disturbance, damage to and/or destruction or felling of indigenous vegetation, including trees, shrubs, grasses, and other plants by any means including cutting, burning, crushing or spraying.*

Proposed activity	Rule reference/ description	Comment	Overall activity status
New Plymouth Proposed District Plan			
	environment is permitted in Rural Zones where: 1) The extent of indigenous vegetation disturbance per site does not exceed 100 m^2 in area in any five year period […]; and 2) The vegetation disturbance is necessary for: a) Conservation activities[7]; b) Customary activities; c) The operation, maintenance or repair of existing pasture, fences, drains, structures, network utilities and infrastructure, including existing roads or tracks (including walking or cycling tracks); d) The operation, maintenance, repair or upgrading of existing network utilities; or e) The avoidance or loss of life, injury or serious damage to property.	operation of a walking track exceeds the permitted standard of 100 m^2 (approximately 240 m^2).	
CE - Coastal Environment			
Building Activities in the Coastal Environment	**Rule CE-R5** Building activities in the coastal environment is permitted in Rural Zones where: 3) The height above ground level of any new structure (including masts, support structures and attachments, but excluding buildings) does not exceed 8 m; and 4) The activity is permitted under all relevant rules in the underlying zone	**Pathway** The height of the rock revetment structure does not exceed 8 m, however the activity is not permitted under all relevant rules in the underlying zone. **Ahu Ahu Bridge** The height of the swing bridge does not exceed 8 m, however the activity is not permitted under all relevant rules in the underlying zone.	Discretionary Activity
Hard protection structures	**Rule CE-R10** **Note:** NPDC has transferred the power to administer and enforce control over the erection of hard protection structures which	**Pathway** TRC will administer and control of erection of the rock revetment under this rule.	Discretionary Activity

[7] Conservation activities is defined as: *means the use of land and/or buildings for any activity undertaken for the purposes of maintaining, protecting and/or enhancing the natural, historic and/or ecological values of a natural or historic resource.* It includes ancillary activities and activities which assist to enhance the public's appreciation and recreational enjoyment of the resource.

Proposed activity	Rule reference/ description	Comment	Overall activity status
New Plymouth Proposed District Plan			
	straddle the Coastal Environment Area and the Coastal Marine Area to the Taranaki Regional Council under section 33 of the Act.		
Erection of a structure in Coastal Flooding Hazard Area	**Rule CE-R26** Erection of a structure (excluding accessory buildings) in a Coastal Flooding Hazard Area is permitted where: 1) It is demonstrated that: a) The ground level at which any structure and access is located is above the 1 per cent AEP coastal inundation event including an additional sea level rise of 1 m; b) The minimum freeboard height for any building is compliant with the Council's Land Development and Subdivision Infrastructure Standard Local Amendments; and c) New buildings are relocatable; and 2) The activity is permitted under all relevant rules in the underlying zone.	This rule is not applicable to the works as the site is not subject to the Coastal Flooding Hazard Area overlay. However, NPDC previously advised that it would be prudent to locate the structure taking guidance from CE-R26, as the area of the bridge is susceptible to coastal flooding. Accordingly, this has been considered as discussed in Section 5.5.	N/A
Erection of a structure in the Coastal Erosion Hazard Area	**Rule CE-R31** Erection of a structure (excluding accessory buildings) in Coastal Erosion Hazard Area is permitted where: 1) The structure is a permitted activity under CE-R4; or 2) The structure is a fence […].	**Pathway** The rock revetment is not permitted under CE-R4 as the earthworks are not permitted under the relevant rules in the Overlay Chapters, Earthworks Chapter, or Rural Production Zone. The structure is located within the Coastal Erosion Hazard Area. **Ahu Ahu Bridge** Similarly, the replacement bridge is not permitted under CE-R4, nor is it a fence. The majority of the area of works are proposed within the Coastal Erosion Hazard Area.	Restricted Discretionary Activity

4.4 Permitted activities

The applicable permitted activities under the relevant plans are identified in Table 4.7 below.

Table 4.7: Permitted activities relevant to the proposed activity

Proposed activity	Rule	Comment
New Plymouth Operative District Plan		
ECO - Ecosystems and Indigenous Biodiversity		
Removal and trimming of indigenous trees and vegetation	**Rule ECO-R2** Indigenous vegetation disturbance[8] in the coastal environment is permitted in Rural Zones where: 1) The extent of indigenous vegetation disturbance per site does not exceed 100 m^2 in area in any five year period […]; and 2) The vegetation disturbance is necessary for: a) Conservation activities[9]; b) Customary activities; c) The operation, maintenance or repair of existing pasture, fences, drains, structures, network utilities and infrastructure, including existing roads or tracks (including walking or cycling tracks). d) The operation, maintenance, repair or upgrading of existing network utilities; or e) The avoidance or loss of life, injury or serious damage to property.	**Ahu Ahu Bridge** The indigenous vegetation disturbance required for the replacement bridge is up to approximately 28 m^2. The activity is also to repair and existing walking/ cycling track.
OL – Overlays		
Erection of the rock revetment structure on or near a waahi taonga/site of significance to Māori and/or archaeological site.	**Rule OL82** Erection of structures on or near a waahi taonga/site of significance to Māori and/or archaeological site within 100 m permitted activity (to a maximum height of 10 m)	**Pathway** Permitted activity as the maximum height of the proposed revetment structure (approximately 2.9 m RL) will not exceed 10 m.
RUR – Rural Environment Area		
Erection of the rock revetment structure and swing bridge	**Rule RUR6** Maximum height permitted (excluding buildings and temporary structures) is whichever is the greater of: a) Up to 15 m; or b) 10 m divided by the average width of the structure.	**Pathway and Ahu Ahu Bridge** The maximum permitted height of the proposed revetment structure (approximately 2.9 m RL) and swing bridge will not exceed 15 m in height.

[8] Indigenous vegetation disturbance is defined as: *means disturbance, damage to and/or destruction or felling of indigenous vegetation, including trees, shrubs, grasses, and other plants by any means including cutting, burning, crushing or spraying.*

[9] Conservation activities is defined as: *means the use of land and/or buildings for any activity undertaken for the purposes of maintaining, protecting and/or enhancing the natural, historic and/or ecological values of a natural or historic resource.* It includes ancillary activities and activities which assist to enhance the public's appreciation and recreational enjoyment of the resource.

Proposed activity	Rule	Comment
Earthworks- maximum limits	**Rule RUR62** Maximum quantity (of excavation and filling) measured in a non-compacted form. Up to 20 m^3 per 100 m^2 of site area in any 12-month period is permitted. Consent is required as a restricted discretionary activity if this quantity is exceeded.	**Pathway** The proposed quantity of excavation (approximately 1,150 m^3) and filling (approximately 1,400 m^3) do not exceed the permitted limit for the construction of the pathway. **Ahu Ahu Bridge** The proposed quantity of excavation (approximately 14 m^3) does not exceed the permitted limit for the construction of bridge. Backfilling using the excavated material will occur and therefore no additional fill is required.
Construction noise	**Rule RUR88** Noise generated by construction work, measured in accordance with NZD 6803P:1984 The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work. Noise is permitted provided that it meets Standards 1.1-1.4 of Table 12.1, Appendix 12.	**Pathway and Ahu Ahu Bridge** Permitted activity as the construction work will be managed to comply with the noise standards.
Traffic generation	**Rule RUR93** Vehicle Access Point Permitted provided it meets the conditions as specified in Part A in Appendix 23.	**Pathway and Ahu Ahu Bridge** Permitted activity as the proposed truck movements will not exceed the Traffic Count of >200/day set out by Table 23.5, Appendix 23.

4.5 Other consents and approvals required

4.5.1 Archaeological authority

As stated in Section 2.9, there are several archaeological sites and SASM's in proximity to the proposed site investigation area, namely Hauranga Pā (P19/54 and P19/193) and Ovenstone and charcoal features within matrix of charcoal-stained dune sand (P19/422).

A General Authority to "modify or destroy" an archaeological site is required under section 42(1) of the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA 2014) to carry out the proposed works. This authority is being applied for and will be provided prior to the works being undertaken. Further information on this application and the anticipated archaeological effects of the proposal are outlined in Section 2.9 and in the Archaeological Report (Appendix I).

4.5.2 Building consent

The building consent department at NPDC has confirmed that building consent will not be required for the construction of the proposed revetment structure. For the Ahu Ahu Bridge component, NPDC has confirmed that a building consent exemption will be applied for and therefore, this consent is not anticipated to be required.

5 Assessment of effects on the environment

5.1 Introduction

The following assessment identifies and assesses the types of effects that may arise from the proposed works. This assessment also outlines the measures that the applicant proposes to avoid, remedy or mitigate any potential adverse effects on the environment.

Actual and potential effects on the environment have been identified as including:

- Positive effects.
- Construction effects.
- Ecological effects.
- Coastal process effects.
- Natural character and landscape effects.
- Archaeological effects.
- Cultural effects.

5.2 Positive effects

The proposed revetment pathway and Ahu Ahu Bridge are expected to have several positive effects for tangata whenua and the local community. Primarily, the revetment provides an alternative route around the Weld Road foreshore which, in addition to the existing fencing, helps preclude public access across Hauranga Pā. Specifically, the proposed pathway helps to avoid further degradation of archaeological features caused by informal walking and cycling trails that have developed across the site.

In terms of amenity, the proposed works will provide safe and convenient public access to and through the coastal environment, forming part of the 10 km Ōākura Coast Trail. Specifically, the replacement of the previously well-utilised bridge over Whenuariki Stream will reconnect Lower Ahu Ahu Road to the Weld Road headland. Then, the provision of a raised concrete pathway will allow walkers and dismounted cyclists to easily and safely navigate the area, including during high tide (but excluding during storm conditions).

The works have been designed with a view to creating a resilient connection. Notably, increasing the length of the bridge (to 21 metres) allows the abutment to be relocated 1.5 m east of the original bridge, improving the bridges resilience against scour.

5.3 Construction effects

The proposed construction work has the potential to result in adverse environmental effects if not appropriately managed. Accordingly, the appointed contractor for the Ahu Ahu Bridge component of the works has prepared a Construction Method Statement (refer to Appendix E), which details the management measures that will be carried out during the works, including traffic management. A Construction Management Plan (CMP) will also be prepared for the shared pathway/ revetment. The construction methodology for both aspects of the is provided in Section 3.1.4 and 3.2.3 and discussed below.

Public access along the Weld Road foreshore and Whenuariki Stream will be restricted while construction is being undertaken, to ensure public safety. As these is limited access to the site, alternative public parking and beach access will be provided while the Weld Road Lower and main Lower Ahu Ahu Road carparks are closed to be utilised as construction laydown areas. The construction areas will be clearly marked, and the site office / construction lay down area will be fenced off to avoid public access risk. This disruption is limited to the construction period, expected to be approximately 3-4 weeks for the shared pathway / revetment and approximately 4-6 weeks for the proposed Ahu Ahu Bridge works.

Regarding noise, vibration, and light, the site is not located in proximity to residential dwellings, with the ocean and coastal area situated to the north, and an open rural area to the south. However, the works will be undertaken during daylight hours and in accordance with NZS 6803 Construction Noise Standards. Given the works will be undertaken during daylight hours, lighting is not anticipated to be required.

To manage construction effects on the foreshore, all construction work will be undertaken around low tide, scheduled appropriately around weather conditions, machinery will not be stored on the beach overnight, and materials will be returned to the laydown area at the end of each working day. Given the limited construction hours in each daylight tidal window, it will not be possible to lay protective matting (such as swamp mats) on the foreshore. However, moxy trucks (rather than road vehicles) will be used to carry material along the foreshore to reduce damage to the foreshore. As the tide rises to the construction area, there is the potential for some unavoidable erosion and entrainment of sediment to occur. This is anticipated to be minor and not cause a visible plume. However, an erosion-sediment control plan (ESCP) has been prepared by the contractor for the Ahu Ahu Bride component of works. Notably, silt fences are to be installed around the excavation areas such that they prevent the flow of silt into the waterways, which in lieu of any NPDC guidelines, will be prepared in accordance with 'Erosion and Sediment Control Guide for Land Disturbing Activities in the Wellington Region' dated February 2021. An ESCP will also be prepared by the contractor for the shared pathway/ revetment.

Controls will also be in place for dust as required, such as covering trucks when loose materials are being carted to prevent dust being discharged to the wider environment. Stockpiles will also be covered where required as a dust management measure. Generally, dust suppression will be undertaken as and when required.

Overall, when considering the temporary and relatively short duration of construction works and the proposed management provisions, the overall level of adverse effects expected from construction works are deemed as being no more than minor.

5.4 Ecological effects

The key findings of the AEcE (Appendix F), as well as measures to avoid, remedy or mitigate the actual and potential adverse effects of the proposed works are summarised below.

5.4.1 Terrestrial ecology effects

5.4.1.1 Vegetation disturbance / removal effects

As outlined in Section 3, construction of the proposed revetment will require the trimming and removal of small patches of coastal vegetation, totalling approximately 240 m^2. The construction of the Ahu Ahu Bridge requires approximately 28 m^2 of tree trimming or removal and disturbance of approximately 150 m^2 of grassland.

While most of the existing vegetation at the site is highly modified and heavily disturbed, some plant species are considered as "At Risk" or "Threatened". For example, pōhutukawa may need to be removed in some instances.

Without appropriate management there is potential to generate actual adverse ecological effects, including decreased landscape and habitat connectivity. Potential effects also include recolonisation by exotic weedy species after vegetation clearance and reduction in erosion control in a dynamic coastal landscape.

To manage these effects, unnecessary vegetation clearance will be avoided and mitigated through:

- Physical delineation of the footprint boundary as well as clear delineation of any vegetation to be retained.
- Site management and appropriate construction methodology.
- Replanting of lost vegetation with the same or similar species is also proposed following the completion of construction, where it is practicable to do so. Notably, NPDC in conjunction with hapū have prepared a Landscape Restoration and Planting Methodology, which is provided in Appendix 3 of the LVEA (Appendix H).

Based on the proposed management measures, the AEcE determines that the overall magnitude of effects is **Low**. Due to the relatively constrained scale of vegetation clearance, including minimising the impacts on “At Risk” or “Threatened” plant species, and the proposed management measures, the adverse effects on vegetation are considered to be no more than minor.

5.4.1.2 Avifauna effects

The vegetation works and long-term loss discussed in Section 5.4.1.1 above may also result in actual and potential effects on avifauna without appropriate management. Notably, there will be habitat loss and a potential rise in pest populations until new habitat is established. There is also potential for disturbance to avifauna from construction noise and vibration, dust and sediment disturbance. Additionally, the works have the potential to result in injury or mortality of terrestrial avifauna.

The AEcE outlines specific measures to avoid and minimise these effects are proposed, including:

- Delineation of the areas of vegetation clearance to minimise unintended damage to habitat.
- An Avifauna Management Plan (AMP) is also proposed and will include provisions such as:
  - Scheduling vegetation clearance to avoid peak bird breeding / nesting season (September to March inclusive). Should such restrictions not be practicable, breeding and nesting bird surveys are proposed to be undertaken by a suitably qualified ecologist prior to construction activities commencing.
  - Noise / vibration deterrents to be used prior to vegetation clearance.
  - Accidental discovery procedures for harm to ‘At Risk’ and ‘Threatened’ birds.
- A Penguin Management Plan (PMP) is also proposed and will include provisions such as:
  - It is recommended that a penguin detection survey be undertaken by a suitably qualified contractor prior to the commencement of construction.
  - Construction to be undertaken outside of coastal bird moulting timeframes (January to March) where practicable.
  - Accidental discovery protocols.

In order to mitigate remaining effects on terrestrial avifauna, vegetation removal and trimming will be limited as far as practical. Where practicable, replanting with the same or similar species is also proposed following the completion of construction as outlined in the Landscape Restoration and Planting Methodology provided in Appendix 3 of the LVEA (Appendix H). Passive mitigation is also expected to occur given that bird species are likely to self-relocate to similar habitat which is available within the surrounding environment.

The AEcE determines that based on the overall magnitude of effects on terrestrial avifauna is **Negligible**. Given the relatively constrained scale of clearance, the availability of surrounding habitat, and the proposed management measures, the adverse effects on terrestrial ecology are deemed to be less than minor.

5.4.1.3 Herpetofauna effects

As outlined in Section 3, no lizards have been observed across the pathway and western side of the bridge project site to date, but based on habitat assessments and desktop data several species may be present across the wider project site. As a result, actual and potential effects from the proposed shared pathway / revetment and Ahu Ahu Bridge without appropriate management. Specifically, there will be some habitat loss and there is also potential for disturbance, injury and / or mortality of herptofauna, potential increases in pest populations (until revegetation has occurred) and loss of territory.

The AEcE outlines specific measures to avoid and minimise these effects are proposed, including:

- Delineation of the areas of vegetation clearance to minimise unintended damage to habitat.
- Preparation of a Lizard Management Plan (LMP), which will include provisions such as:
  - Limiting vegetation clearance during warmer months when lizards are more active and easier to capture / can self-relocate.
  - Noise / vibration deterrents to be used prior to vegetation clearance.
  - Mowing of rank and / or pasture grass to a long length to aid salvage or lizard dispersal, where practical.

To mitigate any further actual or potential effects, the proposed Landscape Restoration and Planting Methodology provided in Appendix 3 of the LVEA (Appendix H) includes reference to vegetation that is suitable for lizard habitat. A Wildlife Act Authority permit (WAA) for the handling and relocation of lizards will be acquired from the Department of Consecration (DoC) prior to the commencement of works. Any manual, destructive and machine-assisted salvaging will be undertaken by a suitably qualified ecologist, if required. If lizard relocation is required, the relocation site will also be approved prior to this activity.

The ecological value of the species that may occupy the project site is High, but with the proposed management measures, the AEcE states that the magnitude of effects is **Low**. In addition, no lizards have been identified at the site to date, and the habitat to be disturbed is minimised as far as practicable. Therefore, it is considered that the adverse effects on herpetofauna are no more than minor.

5.4.2 Freshwater ecological effects

As described in Section 3, the works for the shared pathway / revetment will take place in the foreshore of Weld Road beach and within the riparian zone of Whenuariki Stream. Additionally, the construction of Ahu Ahu Bridge will take place from the stream bank and from within the stream. Additionally, depending on the alignment if the stream at the time of the works, the active stream channel may need to be diverted using sandbags to ensure there is no encroachment into the area of works.

Without management measures, the actual and potential effects on freshwater ecology is detailed in the AEcE, and summarised as follows:

- Water and sediment quality effects on freshwater fauna and habitat.
- Temporary and localised changes to the hydraulic complexity of the Whenuariki Stream.
- Potential temporary effect on the migration of fish species.
- Potential long-term impacts on freshwater fish community dynamics during construction works (resulting from unintentional injury or mortality).

Several measures are proposed avoid, remedy, and mitigate to manage these effects, including the preparation of the ESCP to minimise the discharge of sediment-laden water. A site-specific Freshwater Fish Management Plan (FFMP) will also be developed to address finding, capturing and relocating of fish which may be required. The FFMP will also confirm īnanga spawning habitat upstream and ensure fish passage is provided for (i.e., by maintaining a flowing channel through the bridge pathway).

Changes in hydraulic conditions are also part of riverine systems near coastal edges. It is expected that once specific construction activities cease (after approximately 6 weeks) and objects needed for construction, such as sandbags, are removed from within the Whenuariki Stream, this stream will naturally revert back to conditions similar to that occurring prior to construction activities.

Given that the AEcE finds that the magnitude of effects on freshwater ecology is **Low**, the temporary nature of the foreshore and stream disturbance, and the proposed mitigation measures, the adverse effects of the proposal upon freshwater ecology are considered to be no more than minor.

5.4.3 Coastal ecological effects

Alongside the removal of dune vegetation as covered in Section 5.4.1.1, the proposal has the potential to generate adverse effects upon the surrounding coastal environment.

Without controls, the proposed works may result in temporary disturbance and injury or mortality of coastal birds. As discussed in Section 5.4.1.2, the AEcE recommends establishing clear limits on the extent of site works to ensure impacts can be contained. An AMP is also proposed to manage those bird species which are unable to self-relocate to surrounding undisrupted habitats. Works are anticipated to be scheduled to avoid coastal bird breeding and moulting seasons (September to March inclusive. Specific Little Penguin management measures are also proposed, including a PMP as noted in Section 5.4.1.2 above.

Uncontrolled sediment discharge has the potential to impact benthic ecology. The construction methodology provided in Section 3 and proposed ESCP will minimise the discharge of sediment, such as by avoiding working when the tide is high.

Additionally, the proposed revetment pathway creates a permanent change in the surrounding substrate type of Weld Road Beach from a sandy, intertidal habitat to an artificial, hard-rock substrate. This change may impact food sources and foraging habitats for wading and coastal birds. However, the affected area is small compared to the available surrounding coastal habitat, and the ecological effects resulting from the altered substrate are therefore assessed as being acceptable.

The AEcE finds that the magnitude of effects is **Low** for benthic ecology and associated beach habitat and **Negligible** for coastal avifauna (breeding and feeding). Considering the findings of the AEcE, temporary and constrained nature of the proposed works, and proposed management measures, the adverse effects of the works upon coastal ecology are assessed as being no more than minor.

5.4.4 Ecological effects conclusion

The AEcE finds that the residual effects from the project after the proposed measures to avoid, remedy or mitigate are anticipated to be between **Low** and **Very Low**. Accordingly, the AEcE concludes that the proposed management measures adequately address the potential adverse effects on ecology at the site.

Overall, based on the AEcE, availability of surrounding habitat, relatively short duration of construction works, and proposed management measures (including the AMP, PMP, LMP and FFMP which will be captured in an Environment Management Plan (EMP)), the adverse effects of the proposed shared pathway / revetment and temporary bridge on terrestrial, freshwater, and coastal ecology is considered to be no more than minor.

5.5 Coastal process effects

A CPEA was prepared for the proposed shared pathway / revetment (Appendix G). The proposed Ahu Ahu Bridge has not specifically been assessed and a site-specific assessment is proposed to be undertaken as part of the detailed design process. The findings of the CPEA are summarised below.

5.5.1 Access and pedestrian hazard

Overtopping involves the combination of high coastal water levels and large waves, resulting in waves breaking over the structure. Overtopping of the revetment pathway by waves may present an impediment to access and even a potential hazard for users, particularly during periods of strong weather conditions. Long-term increases in this hazard are anticipated due to sea level rise and associated beach level lowering.

To mitigate the effects of overtopping on pedestrian safety, the proposed revetment structure has been designed with a wide crest width of 4 m which separates the embedded pathway from the sloping face. This feature not only provides a buffer to prevent falling but allows for improved visibility of sea conditions before pedestrians elect to utilise the pathway. Since the revetment will not be relied upon to provide vital “life-line” access, it is expected to be used only in fair weather conditions by pedestrians and dismounted cyclists. This will be reinforced by the erection of appropriate signage at either end of the revetment to convey this information, further reducing the risk of overtopping hazard upon users. As stated in Section 3.1, this approach is consistent with similar structures in New Plymouth such as the pathway seaward of Woolcombe Terrace and Octavius Place, which has signage (as well as barriers) advising users to not use that section during storm events.

As a result of these inbuilt mitigation measures, the non-essential use of the pathway as a “fair weather amenity”, and the low likelihood of hazardous overtopping under present conditions, the anticipated adverse effects of overtopping upon pedestrian users of the proposed structure is considered to be less than minor.

5.5.2 Surf break

The proposed revetment structure has the potential to affect coastal wave processes. The CPEA notes that introduction of a rock armour structure may contribute to “backwash” waves being reflected offshore or into adjacent areas, such as the regionally significant Hauranga and Oraukawa surfbreaks. However, the reflective impact of this change is likely to be less than the existing lahar cliff face, due to the sloping design and permeable construction materials utilised by the proposed structure.

For this reason, the anticipated adverse impacts upon the nearby offshore surf breaks are considered to be less than minor.

5.5.3 Effects on Whenuariki Stream

The CPEA notes that tidal and riverine currents may be reduced, concentrated or deflected by barriers to flow. Although the rock revetment was designed to minimise changes to the channel shape or reduction of the channel width, a portion of the lower part of the revetment structure will be within an area that is, at times, occupied by the natural stream channel.

Constriction of Whenuariki River flows due to the structure has the potential for small, short-duration increases in stream currents adjacent to the eastern end of the proposed revetment, typically only following large rainfall events. Water levels upstream of works may also be affected to a small degree due to the encroachment of the structure. Additionally, Section 3.3 of the WSP Report (Appendix D) discusses the potential for ponding upstream during flood events. Notably, a

Ponding Map shows that upstream ponding during a 1 in 250-year flood event as a result of the works is slightly greater than what would otherwise occur (i.e., without any works). However, it is noted that the modelling scenario utilises a previous design that had considerable encroachment of rock riprap into the stream on the eastern embankment. The eastern rock riprap has been removed in the final design. Therefore, the effects will be less than what is shown.

In addition to avoiding adverse effects through the design, mitigation of these effects will occur passively due to the highly dynamic stream alignment. Specifically, the stream has the freedom to move to the east, as it has done naturally in the past.

As a result, the anticipated adverse effects of the proposed structure upon the Whenuariki Stream are considered to be less than minor.

5.5.4 Sediment process changes

Increased accretion of sediment and debris is likely to occur in places along the foreshore which would be sheltered from wave action by the proposed structure, such as the eastern extent of the revetment. This effect is most likely to occur following large storm events. However, the CPEA states that this excess sediment is also likely to be removed again through erosion associated with similar storm events, resulting in a minor impact overall.

Additionally, constriction of the Whenuariki Stream is likely to result in down-cutting of more erodible materials to the east of the structure, and potential channel realignment in this direction. However, the effect is expected to be comparably less than the natural channel dynamics of this waterbody which are already highly variable as noted in Section 2.7.

As a result of this dynamic natural state of the coastal and riverine environments at Weld Road Beach, the level of anticipated adverse effects arising from the proposed structure are considered to be less than minor.

5.5.5 Shoreline changes

The CPEA identifies the potential risk of shoreline scour along the toe of the structure and increased erosive degradation of dunes at each end of the pathway, particularly following large storm events. Such a process would involve incoming wave energy being refracted sideways from the coastal revetment into the adjacent unprotected length of sand dune, eroding it towards the west and increasing the ongoing degradation of this portion of the shoreline. Such changes would also contribute towards altering the current position of the shoreline and Mean High Water Springs (MHWS).

However, as a result of the naturally dynamic existing shoreline at Weld Road Beach and the changeable location of MHWS as currently observed, the level of adverse effects of the proposal on coastal processes is considered to be no more than minor. Furthermore, the structure will protect landward areas, reducing erosion and shoreline change in that location.

5.5.6 Summary of coastal effects

Overall, as a result of the dynamic existing conditions at the site, the infrequent nature of adverse effects, and the small scale and temporary duration of construction works proposed, the adverse effects of the proposed revetment upon coastal processes observed at Weld Road Beach and its surrounds are considered to be no more than minor.

5.6 Landscape and visual effects

The LVEA referenced throughout this report is provided in Appendix H and summarised below.

5.6.1 Visual effects

The proposed structures located at the base of the headland and across the stream may result in adverse visual effects without appropriate management measures. Key elements that contribute to the generation of visual effects include; the overall scale, height, form, colour and reflectivity of the structure in relation to surrounding natural environment.

The LVEA report states that due to natural topography, the proposal site has a relatively small visual catchment within the broader area. Accordingly, the primary viewing audience for the revetment structure and Ahu Ahu Bridge would be users of the pathway, coastal reserves, foreshore, and ocean environment which are immediately adjacent to the proposed location.

To this audience, the proposed Ahu Ahu Bridge is assessed as appearing similar to the previously existing bridge with the exception of some additional structural height at the abutments and associated timber ramps up to the bridge. The swing bridge design will also have a relatively light look and presence compared to solid bridge structures. However, the revetment pathway will appear as a new, visibly man-made structure around the foreshore. However, due to the presence of the vegetated lahar cliff face of the Weld Road reserve, the visual impact from a distance is reduced as the structure recedes against a strong natural backdrop (see Figure 5.1, below). Additionally, the chosen design for the revetment has made concessions around feasible RL height of the pathway to ensure the least possible visual intrusion will result, despite an increased risk of overtopping when compared with a taller structure.

Figure 5.1 *A visual simulation image of the proposed revetment, facing north towards the Weld Road Reserve headland. (Source: NPDC, 2022).*

To further mitigate against visual impacts, the structures will be constructed with sympathetic materials which blend into the natural environment. Notably, Ahu Ahu Bridge will be a mix of timber and steel while the revetment will primarily be made of locally sourced natural volcanic rocks. The rocks will be randomly placed to hide the underlying material and help create a more organic appearance. The LVEA also notes that the concrete pathway will be treated with a black oxide to reduce reflectivity and allow it to integrate better with the natural rocks in the structure and surrounding foreshore. Over time, these design features are expected to become more effective as the structure ages and blends further into colour palate of the surrounding environment, with a similar process being observed on other comparable revetments in the district (See Figure 5.2, below).

Figure 5.2 A similar style of rock revetment along a segment of the New Plymouth coastal walkway which appears visually integrated with the vegetated backdrop after aging. (Source: NPDC, 2022).

Temporary visual effects are anticipated during the construction period, with machinery and material stockpiles required for works impacting upon views of the site for users of the Weld Road Beach, reserve, and Ahu Ahu Road carpark. However, as noted in Section 3.1.4, these effects will be limited to approximately 4-6 weeks.

The LVEA report concludes a Moderate level of visual effects is anticipated from the proposed works. Given the Ahu Ahu Bridge is anticipated to be visually similar to the previous structure and the revetment materials are not inconsistent with the visual expectations of the coastal environment, the level of adverse effects of the proposal on the visual amenity are considered to be no more than minor.

5.6.2 Landscape character effects

Alongside visual effects, the LVEA report attached as Appendix H also considers the potential impacts of the proposed revetment upon the physical landscape of the site and its surrounds, which may give rise to changes in character and experience of the area.

The LVEA notes that this section of the coastline displays a high degree of natural character. Specifically, indigenous vegetation at the site is naturally regenerating despite historic modification. Without appropriate management, there may be significant adverse effects on terrestrial areas and therefore overall natural character.

Firstly, the proposed design has helped minimise these adverse landscape effects. Notably, the proposed swing bridge is located across the Whenuariki Stream, and the proposed shared pathway is located at the very base of the headland with a generally low-profile. As such, the integrity of the headland including cliffs and vegetation will remain and form a natural backdrop to the proposed structures. Additionally, the proposed revetment helps minimise erosion of the cliff and stream thereby better maintaining the existing landscape character.

NPDC in conjunction with hapū have prepared a Landscape Restoration and Planting Methodology, which is provided in Appendix 3 of the LVEA (Appendix H). One of the central aims of this Methodology is to help mitigate landscape effects by maintaining a vegetated edge along the headland behind the shared path. Several of the key provisions include:

- Meet on site with hapū and contractors during construction works to identify tree removals and confirm with hapū the species for replacement planting. Plant selection will also take into account habitat for native birds and herpetofauna as identified in the AEcE.
- Maintain a record of location and species being removed.
- Order the plants as soon as full range of species required and numbers are confirmed.
- Planting to be undertaken in the first planting season following construction.
- Plant in partnership with hapū.
- Follow up through a Reserve Management Plan to be prepared in collaboration with hapū.

Although the LVEA concludes that the proposal will have moderate effects on the landscape character of the site, it also states that the character and style of the proposal is considered to be appropriate and sympathetic to the local area. It is also not expected to detract from the overall quality of the natural environment. Accordingly, it is considered that the adverse effects of the proposal on landscape character are no more than minor.

5.7 Archaeological effects

Hauranga Pā located within the Weld Road Reserve area was of significant strategic and symbolic importance to Māori before and post-European settlement. Because of this history, it remains an important marker of whakapapa and a waahi tapu place to local Māori. As described in Section 2.9, ArchSite 2023 indicates that three archaeological sites are recorded within or nearby the project area. Accordingly, an AAE is provided in Appendix I and summarised below.

In order to avoid the adverse effects of earthworks associated with the proposed shared pathway / revetment, the works will be undertaken in the foreshore dunes north of Hauranga Pā (recorded sites P19/54 and P19/193). These dunes primarily comprise of re-deposited sands which are shifting and impermanent, making it unlikely that any in-situ archaeological evidence has remained in the same location since pre-1900. However, encountering archaeological deposits in a secondary context cannot be discounted due to the shifting nature of these dunes. The works associated with Ahu Ahu Bridge on the eastern embankment also have the potential to damage or destabilise recorded site P19/422 if tree removal is required. Excavation to establish the bridge abutments may also impact the site, although the area of works is limited.

Given the proximity of the project area to recorded archaeological sites P19/54 and P19/422, the works may affect these sites. Therefore, as a precaution for the shared pathway / revetment and for the works associated with the Ahu Ahu Bridge, a general Archaeological Authority to modify the sites is being applied for under section 42(1) of HNZPTA 2014. Notably, the scope of the authority application covers all earthworks, vegetation removal, and construction as recommended in the AAE.

Additionally, further precautionary controls such as an Accidental Discovery Protocol will be implemented. This protocol requires the works to cease if any archaeological material is found, and for Heritage New Zealand Pouhere Taonga (HNZPT) to be notified.

On the basis of the Authority to Modify being granted and the implementation of Accidental Discovery Protocols, the adverse archaeological effects of the proposed site investigation works upon any existing archaeological features are assessed as no more than minor.

5.8 Cultural effects

As set out in Section 2.10, the Weld Road Reserve (Hauranga Pā) and foreshore holds special significance to tangata whenua, and minimising adverse cultural effects is one of the central aims of the project. However, only mana whenua can provide a determination as to the cultural effects of this proposal. Therefore, NPDC engaged with Ngāti Tairi, Ngā Mahanga and Oakura Pa Trustees (refer Section 7), including inviting the hapū groups to prepare a Cultural Impact Assessment (CIA) for the project (not provided to date).

In addition, several of the environmental management measures discussed above also address some of the potential adverse cultural effects identified in the Taiao Taiora Taranaki Iwi management plan (refer to Section 6.1.9, below). For example, avoiding key periods for birds and adhering to an Accidental Discovery Protocol for archaeological material to ensure the mouri[10] of terrestrial and coastal elements within the site is cared for. Tangata whenua representatives will also be invited to be on site during construction to undertake cultural monitoring, should they wish.

In the absence of a CIA at the time of lodgement it is difficult to quantify the exact level of effects of the proposed works upon tangata whenua. However, to manage any actual or potential effects on cultural values NPDC is facilitating ongoing consultation with hapū as potentially affected parties. As outlined in Section 5.6, NPDC in conjunction with hapū prepared a 'Landscape Restoration and Planting Methodology' (provided in Appendix 3 of the LVEA (Appendix H)). Furthermore, hapū are working alongside NPDC to provide proposed conditions of consent. Once available, these conditions will be provided to the relevant Councils.

Overall, it may be concluded that the effects on cultural values as a result of the proposal are no more than minor.

5.9 Effects conclusion

Overall, when considering the existing character, values, and locational context of the site, the constrained scale and temporary duration of construction works, and the range of proposed mitigation measures, it is considered the actual and potential adverse effects from the proposed revetment pathway and Ahu Ahu Bridge to be no more than minor. In addition, the works offer substantial positive effects through the protection of an important archaeological site and site of significance to iwi, as well as provision of public access along the coastal foreshore.

[10] Essential character or shared relationship with community.

6 Statutory assessment

6.1 RMA assessment

Section 104 of the RMA sets out the matters to which a consent authority must have regard to, subject to Part 2 of the RMA, when considering an application for resource consent. These are:

- Any actual and potential effects on the environment of allowing the activity (refer Section 5 above).
- Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity.
- Any relevant provisions of:
  - A national environmental standard.
  - Other regulations.
  - A national policy statement.
  - A New Zealand coastal policy statement.
  - A regional policy statement or proposed regional policy statement.
  - A plan or proposed plan.
- Any other matter the consent authority considers relevant and reasonably necessary to determine the application.

6.1.1 Part 2 of the RMA

Section 104(1) of the RMA requires that consideration of applications for resource consent be 'subject to Part 2'. Part 2 of the RMA sets out the purpose and principles of the Act. The purpose of the RMA is to promote the sustainable management of natural and physical resources.

With respect to Section 104(1)(a) of the RMA, the actual and potential effects of the proposed works on the environment are set out in Section 5 of this AEE. In summary, it is concluded that the adverse effects on the environment can be appropriately avoided, remedied or mitigated such that the project will promote the sustainable management purpose of the RMA. Furthermore, and based on the conclusions reached with respect to the actual and potential environmental effects of the project, no additional compensatory or offsetting measures are proposed or considered necessary in terms of Section 104(1)(ab) of the RMA.

The CPT and PDP have both been made operative recently. Accordingly, these plans are considered to contain provisions that were prepared having regard to Part 2, and a coherent set of policies designed to achieve clear environmental outcomes. An assessment of the application against the provisions of the CPT, ODP and PDP (being the relevant plans for the purpose of Section 104(1)(b) of the RMA) is set out in Section 6.1.6 and 6.1.7. Based on the direction established by the Court of Appeal in the R J Davidson Family Trust v Marlborough District Council decision[11], no further analysis of the application in the context of the Part 2 RMA provisions is considered necessary.

6.1.2 Section 104B (discretionary activities)

The overall activity status of the resource consent application to both Taranaki Regional Council and New Plymouth District Council is discretionary. In accordance with section 104B of the RMA, a consent authority may grant or refuse the application and may impose conditions under section 108.

[11] R J Davidson Family Trust v Marlborough District Council [2018] NZCA 316, particularly at [74] and [75].

6.1.3 National Environmental Standards

6.1.3.1 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

The purpose of the NES-Soil is to regulate activities undertaken on potentially contaminated land, to enable safe use of contaminated land and remediation where necessary.

As outlined in Section 2.12, the site and its surrounds are not identified on TRC's Register of Selected Land Uses (RSLU) database as being potentially contaminated. Accordingly, the NES-Soil for projects involving earthworks (and other activities) is not considered relevant to the proposed works.

6.1.3.2 National Environmental Standards for Freshwater

The NES-FW came into force on the 3 September 2020 and provides national planning controls to regulate activities that pose risks to the health of freshwater and freshwater ecosystems.

The proposed revetment structure and the Ahu Ahu Bridge abutments may extend into the bed of the Whenuariki Stream. However, there is not anticipated to be any impairment to fish passage within the stream during or post-construction as a flowing channel will be maintained at all times. Additionally, there are no (coastal or otherwise) wetlands located in proximity to the site. Accordingly, the NES-FW is not considered to contain applicable rules/ requirements for the proposed works.

6.1.4 National Policy Statements

6.1.4.1 New Zealand Coastal Policy Statement

The entire area of works is located within the coastal environment as shown on the CPT, ODP and PDP. Therefore, examination of the New Zealand Coastal Policy Statement 2010 (NZCPS) is required. The NZCPS guides local authorities in their day-to-day management of the coastal environment. An assessment of the key relevant objectives and policies of the NZCPS in relation to the proposed activity is included in Table 6.1 below.

Table 6.1: NZCPS Objectives and policies assessment

Key Theme	Reference	Comment
Natural character of the coastal environment	Objective 2, Policy 6(1)(h), Policy 13, Policy 15, Policy 18(a).	Although the proposed revetment and pathway is a deviation from the existing natural character of the coastal environment, it will ultimately help protect the natural features and landscape values by limiting erosion. Additionally, the revetment design reflects a balance between an acceptable degree of wave overtopping and reducing visual impacts associated with the structures overall height. Natural features and colours are also utilised to further avoid adverse visual impacts. Ahu Ahu Bridge will be visually similar to the previously existing bridge. Although the scale is slightly greater, it is mitigated through proposed replanting. As such, the project is in accordance with these objectives and policies of the NZCPS.
Sustainable management of natural and physical resources	Objective 1, Objective 6, Policy 3(2), Policy 11.	The proposed revetment pathway seeks to provide long-term pedestrian access to the CMA and foreshore to protect the Weld Road Reserve headland and Hauranga Pā. The Ahu Ahu Bridge also

Key Theme	Reference	Comment
		restores an existing accessway in a more resilient manner (i.e., increasing the bridge length to relocate the abutments and reduce the impact of scour). The proposal is therefore considered to represent sustainable management of resources.
Treaty of Waitangi principles	Objective 3, Policy 2.	As detailed in Section 7 below, the proposal has provided for tangata whenua involvement through the extensive consultation that NPDC has undertaken to date and will continue. Section 2.10 also notes that Ngā Māhanga and Ngāti Tairi have been invited to prepare a CIA. Additionally, the parties with applications under the MACA which are relevant to the application site have been identified, and their views on the proposed works sought as per Section 6.1.10. The proposal is therefore in accordance with the principles of the Treaty of Waitangi.
Public access and open space	Objective 4, Policy 6(2)(b), Policy 18(c), Policy 19.	As noted in Section 5.2, the proposed pathway provides an access route around the Weld Road headland that is accessible in all fair weather conditions. As such, the project is strongly aligned with these objectives of the NZCPS.
Protecting heritage and sites of significance	Policy 6(1)(j), Policy 17.	The proposed works are located in proximity to a site of significance and may affect recorded archaeological sites. Accordingly, an Archaeological Authority is being sought as part of this proposal and Accidental Discovery Protocols will be implemented. Additionally, as stated in Section 5.2, the project aims to help protect Hauranga Pā from inappropriate access by providing a suitable alternative route. Additionally, the works are designed to provide protection from coastal erosion, particularly in light of SLR. Overall, the proposal clearly aligns with these objectives.
Reclamation	Policy 10.	Policy 10 directs the reclamation of land in the CMA to be avoided unless in particular circumstances. Many alternatives for the shared pathway / revetment were considered by NPDC. However, it was not viable to achieve convenient, sustainable access without some reclamation of the CMA mainly due to the limited land available to undertake these works. Accordingly, the proposed pathway is considered the best practicable option. Its form and design reflect a desire to reduce its footprint and height, while providing safe access in most sea conditions. Additionally, during the pre-application meeting (see Section 7.6), TRC confirmed that the reclamation rule in the CPT (Rule 68) does not need to be assessed separately, as the effects are essentially covered by the associated 'occupation of coastal space' in Rule 27. Overall, the proposal aligns with these objectives.

Overall, the proposed works are considered to be consistent with the NZCPS.

6.1.4.2 National Policy Statement for Indigenous Biodiversity

The National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB) came into force on 4 August 2023. It provides increased clarity and direction to councils on their roles and responsibilities for identifying, protecting and maintaining indigenous biodiversity under the RMA.

The NPS-IB is limited to land (terrestrial) ecosystems and some aspects of wetland and will apply across all land types / tenures. Notably, the Significant Indigenous Biodiversity Areas (Schedule 4B) under the CPT (see Table 4.1) relates to the marine environment and is located outside the area of works. Therefore, the works are not within what may be considered a Significant Natural Area (SNA). Additionally, no natural inland wetlands have been identified in proximity to the proposal. Accordingly, no further assessment is required.

6.1.5 Taranaki Regional Policy Statement

The Taranaki Regional Policy Statement 2010 (RPS) sets out the resource management issues of the region, and the policies and methods that will be adopted to address those issues. In the coastal environment, these issues relate to natural character, coastal water quality, and public access to and along the coast.

Appendix II to the RPS identifies coastal areas of local or regional significance. Ahu Ahu, Weld and Timaru Road Beaches are identified on Figure 12 of Appendix II of the RPS as a coastal area of local or regional significance, as well as having a high quality or high value surfbreak.

The site is not identified within any of the Statutory Acknowledgement areas set out in Appendix IV of the RPS.

The RPS is required to give effect to the NZPS under s 62(3) of the RMA, and the proposal is assessed in detail against the NZCPS in Section 6.1.4 above. With the exception of the RPS objectives and policies relating to coastal natural character, the matters that the RPS addresses are not more specific or materially different to those contained within the NZCPS. We have therefore limited our detailed assessment of the proposal against the RPS to the natural character objectives and policies.

Table 6.2: RPS Assessment (Coastal Environment)

Key Theme	Reference	Comment
Protection and management of the natural character of the coastal environment	CNC Objective 1, CNC Policy 1, CNC Policy 2.	Firstly, the works provide an alternate route around the Weld Road headland, helping protect Hauranga Pā from inappropriate use. This is critical for the natural character of the site as the LVEA describes it as a dominant landscape feature. Additionally, the proposed revetment will ultimately help protect the natural features and landscape values by limiting erosion. The revetment design also reflects a balance between an acceptable degree of wave overtopping and reducing visual impacts associated with the overall height of the pathway. Notably, natural features and colours are utilised to further avoid adverse visual impacts. Ahu Ahu Bridge will be visually similar to the previously existing bridge. Although the scale is slightly greater, it is also mitigated through proposed replanting. As such, the project is in accordance with these objectives and policies.

Key Theme	Reference	Comment
Protection of coastal areas that are important to the region	CNC Policy 5.	As noted above, Ahu Ahu, Weld and Timaru Road Beaches are identified on Figure 12 of Appendix II of the RPS as a coastal area of local or regional significance, as well as having a high quality or high value surfbreak. It is noted that these important areas are anticipated to be protected by the proposed works. Specifically, the proposed coastal revetment will have a less than minor effect upon the regionally significant Hauranga and Oraukawa surfbreaks, as its anticipated influence on reflecting waves is likely to be less than currently experienced as a result of the existing cliff face. Accordingly, the proposal is in keeping with this Policy.
Provide for appropriate use, development and occupation of the coastal environment	Objective 2.	The pathway and Ahu Ahu Bridge will enhance the public's use and enjoyment of the coastal environment by providing convenient access around the headland in all fair-weather conditions. The structures will also provide a connection to the well-established 10 km Ōākura Coast Trail. Lastly, this development is appropriate in the coastal environment given it is the most viable solution to protect Hauranga Pā from degradation as a result of informal access tracks. Overall, the proposal is well aligned with this objective.

Overall, it is considered that the proposal is consistent with the RPS.

6.1.6 Taranaki Regional Coastal Plan

6.1.6.1 Objectives and policies assessment

The CPT sets out the resource management goals and actions for the coastal marine area and wider coastal environment within the region. An assessment of the relevant objectives and policies of the CPT in relation to the proposed activity are included in Table 6.3 below. Overall, the proposed works are consistent with the CPT.

Table 6.3: Taranaki Regional Coastal Plan assessment

Key Theme	Reference	Comment
Natural character of the coastal environment	Objective 6, Objective 7, Policy 9, Policy 18(b), Policy 32(f).	As discussed above, the proposed revetment and pathway is a deviation from the existing natural character of the coastal environment, it will ultimately help protect the natural features and landscape values by limiting erosion. Additionally, the revetment design reflects a balance between an acceptable degree of wave overtopping and reducing visual impacts associated with the overall height of the pathway. Natural features and colours are also utilised to further avoid adverse visual impacts. Ahu Ahu Bridge will be visually similar to the previously existing bridge. Although the scale is slightly greater, it is mitigated through proposed replanting. As such, the project is in accordance with these objectives and policies.

Key Theme	Reference	Comment
Sustainable management of natural and physical resources	Objective 2, Policy 1(d), Policy 41, Policy 42, Policy 45.	As covered above, the proposed revetment pathway and Ahu Ahu Bridge has a functional need to be located within the coastal environment in alignment with Objective 2. As covered by Section 5.3, disturbance of the foreshore and seabed as part of the proposed works will not unreasonably restrict users of the CMA, nor result in adverse effects which are any more than minor, and these effects are able to be managed by the short duration of construction and mitigation measures proposed.
Indigenous biodiversity	Objective 8, Policy 16,	As assessed in Section 5.4, the anticipated adverse effects of the proposed revetment upon the indigenous biodiversity of the site are no more than minor, as only small pockets of vegetation are removed with manageable effects on avifauna and herpetofauna.
Treaty of Waitangi principles	Objective 9, Objective 10, Policy 5(e), Policy 19.	As noted in Section 7, the proposal has provided for tangata whenua to express their kaitiakitanga involvement through the extensive consultation that NPDC has undertaken to date and will continue. Additionally, Section 2.10 identifies the invitation extended to Ngā Māhanga and Ngāti Tairi to prepare a CIA. Additionally, the parties with applications under the MACA which are relevant to the application site have been identified, and their views on the proposed works sought as per Section 6.1.10, further involving tangata whenua in the management of the coastal environment. In alignment with Policy 5(e), the proposed revetment pathway aims to protect the adjacent waahi tapu Pa site of significance by providing an alternative access route.
Coastal hazards and public safety	Objective 13, Policy 5(f), Policy 23.	As discussed in Section 5.2, the proposed revetment structure will provide safe public access around the foreshore in all fair-weather tide levels and will improve access and safety.
Amenity values	Objective 12, Policy 21(c), Policy 22	The pathway will enhance the public's use and enjoyment of the coastal environment by providing convenient access around the headland. Section 5.5.2 notes that the proposed coastal revetment will have a less than minor effect upon the regionally significant Hauranga and Oraukawa surfbreaks, as its anticipated influence on reflecting waves is likely to be less than currently experienced as a result of the existing cliff face.
Public access and open space	Objective 12, Policy 5(h), Policy 20, Policy 34(a), Policy 35.	The functional need of the proposed revetment pathway and Ahu Ahu Bridge is to provide a safe route of access around the Weld Road headland that is accessible at all tides. Allowing these structures aligns with the objectives to maintain and enhance appropriate public access within the CMA.

Key Theme	Reference	Comment
Protecting heritage and sites of significance	Objective 11, Policy 5(g), Policy 15(b), Policy 18, Policy 44(c).	As noted in Section 5.2, the proposal directly contributes to the 'buffering' and protection of the adjacent Hauranga Pā from inappropriate use by providing an alternate route around the Weld Road headland. Accordingly, the proposal strongly aligns with these objectives.

Overall, it is considered that the proposal is consistent with the CPT.

6.1.7 District Plan assessment

6.1.7.1 Objectives and policies

An assessment of the relevant objectives and policies of the ODP and PDP in relation to the proposed activity are included in Table 6.4 below.

Table 6.4: ODP and PDP objectives and policies assessment

Key Theme	Reference	Comment
New Plymouth Operative District Plan		
Natural character of the coastal environment	Objective 1, Policy 1.2, Objective 14, Policy 14.1, Policy 18.1.	In alignment with Policy 1.2, the proposal is not expected to result in flooding of other properties due to only minor changes in water level and the ability of the Whenuariki Stream to naturally re-align itself. As a result, the proposed works are not inconsistent with these provisions.
Indigenous vegetation and habitats	Objective 16, Policy 16.1, Policy 16.2.	Small areas of indigenous vegetation and habitats will be disturbed during construction, and Section 5.4.1.1 concludes that due to the constrained scale of works and mitigation measures proposed, these are anticipated to be no more than minor. This aligns with the relevant policies.
Treaty of Waitangi principles	Objective 19, Policy 19.2, Policy 19.4.	The proposed works recognise and provide for cultural and spiritual values through the extensive consultation that NPDC has undertaken to date and will continue (as per Appendix J). Overall, the primary purpose of the proposal aligns with Policy 19.2, by protecting the adjacent waahi tapu site of significance from further degradation and providing an alternative access route around the coastal headland.
Natural coastal hazards and coastal processes	Objective 12, Policy 12.1, Objective 13, Policy 13.1.	The proposed revetment pathway is not expected to increase natural hazards. Section 5.5.1 notes that the pedestrian hazard presented by overtopping of the pathway is of a minor extent and can be appropriately mitigated due to the design of the structure and signage proposed. The Ahu Ahu Bridge freeboard is also planned to be 0.3 m above the 1% AEP flood level and the eastern abutment is set-back to reduce scour. As such, the proposal aligns with these policies.

Key Theme	Reference	Comment
Public access and open space	Objective 18, Policy 18.1.	The primary purpose of the proposed revetment pathway is to provide public access along the coast. It is not considered necessary to restrict access for any of the reasons listed in Policy 18.1 (including to preserve natural character, safeguard intrinsic attributes, to protect values of tangata whenua). Accordingly, the proposed works align with these matters.
Protecting heritage and sites of significance	Objective 11, Policy 11.3, Policy 11.5	The proposal clearly aligns with the need to protect and promote sites with heritage and archaeological values by providing alternate public access around the headland to reduce degradation of the Hauranga Pā site.
Construction period	Policy 20.1.	As noted in Table 4.7, the number of vehicle trips generated by the proposed works will comply with the standards set by Rule RUR93 of the PDP, in alignment with this policy.
New Plymouth Proposed District Plan		
Natural character of the coastal environment	Objective CE-01, Policy CE-P4, Policy CE-P7, Policy CE-P8.	The works provide an alternate route around the Weld Road headland, helping protect Hauranga Pā – a dominant landscape feature. Additionally, the proposed revetment will ultimately help protect the natural features and landscape values by limiting coastal erosion. The revetment design also reflects a balance between an acceptable degree of wave overtopping and reducing visual impacts. Notably, natural features and colours are utilised to further avoid adverse visual impacts. Ahu Ahu Bridge will be visually similar to the previously existing bridge. Although the scale is slightly greater, it is also mitigated through proposed replanting to restore the natural character of the coastal environment.
Sustainable management of natural and physical resources	Objective NE-5, Objective CE-02, Objective EW-01, Policy EW-P3, Policy EW-P5.	The proposed works ensure a well-functioning and resilient natural environment is able to be sustained, and potential adverse effects upon it are avoided, remedied and mitigated in alignment with Objectives NE-5, CE-02 and EW-01. In alignment with EW-P3, the discharge of sediment from works upon the site will be managed by an ESCP, and an accidental discovery protocol will be implemented during construction works.
Tangata whenua values	Objective CE-03, Objective HC-3, Objective SASM-01, Policy SASM-P2(1), Policy SASM-P5.	The proposed works recognise and provide for tangata whenua's relationship with and interest in the Hauranga Pā site through ongoing consultation. The parties with relevant applications under the MACA have been identified, and their views on the proposed works sought as per Section 6.1.10. Overall, the primary purpose of the proposal aligns with policy SASM-P2, by protecting the adjacent waahi tapu site of significance from further degradation and providing an alternative access route around the coastal headland. Furthermore,

Key Theme	Reference	Comment
		the revetment will provide some protection to subsurface features from coastal erosion, particularly with SLR.
Natural coastal hazards and coastal processes	Objective NH-01, Objective NH-03, Objective NH-04, Policy NH-P4, Policy EW-P2.	As stated above, the proposal is not expected to increase the likelihood of flooding hazard to neighbouring properties. Additionally, the pedestrian hazard presented by overtopping of the pathway is of a minor extent and can be appropriately mitigated due to the design of the structure and signage proposed. Lastly, in keeping with NH-04 replanting will occur of dune vegetation, which over time will help re-establish as a form of natural hazard defence.
Public access and open space	Objective PA-01, Objective PA-02, Objective PA-03.	As described above, the proposal will provide scenic public access along the coast through the district's shared pathway network. As a result, the proposed works are clearly aligned with these objectives.
Protecting heritage and sites of significance	Objective HC-2, Objective SASM-03, Policy SASM-P2(1).	Discussed in 'Tangata whenua values' above, the primary purpose of the proposed revetment clearly aligns with the need to protect sites with cultural and historic heritage values such as the Hauranga Pā.

Overall, the proposed works are consistent with the PDP and ODP.

6.1.8 Reserves Act 1977

The proposed works take place on the foreshore of Weld Road Beach and streambank of Whenuariki Stream, near the Weld Road Reserve located on the headland. The New Plymouth District Council Coastal Reserves Management Plan (CRMP, 2006) identifies the Weld Road Reserve as a recreational area and highlights the reserve as one of the most popular in the district, due to large areas of landscaped space, easy beach access for a range of coastal activities, and the area's inherent natural beauty.

The primary objective expressed by the plan for the site is to "provide an accessible area of beachfront in a natural setting for day use and access to the beach and ocean" (Objective 5.6.3 (1)). Clearly, the proposed works align strongly with this objective through the provision of a formalised route of access around the Weld Road headland that allows safe and consistent public access across the foreshore area.

Additionally, Policy 5.6.4(e) within the CRMP notes that where possible, measures should be undertaken to enable ongoing protection and rehabilitation of dune areas at the application site. Policy 5.6.4(f) also explicitly states that planting should be carried out to protect and stabilise erosion prone areas of the site. As identified in Section 5.4.1, the proposed works also align with these polices by proposing to replant areas of vegetation which have been disturbed or cleared during construction with the same or similar species, where it is practicable to do so.

6.1.9 Iwi management plans

Taiao Taiora is the Iwi Environmental Management Plan (IMP) prepared by Taranaki Iwi which assists the Iwi in their role as kaitiaki by articulating their vision for the environment, describing the key environmental issues for the Taranaki rohe, and their positions on and desired outcomes for these issues. An assessment of the relevant objectives and policies of Taiao Taiora is included in Table 6.5 below. Overall, the proposed works are consistent with this Taranaki IMP.

Table 6.5: Taiao Taiora Taranaki IMP Objectives and policies assessment

Reference	Objective/Policy	Comment
Objective 11.4.2 (1)	"Mai i te Kāhui Mounga ki Tangaroa" – the capacity and integrity of the aquatic environment, habitats and species are sustained and enhanced at levels that provide for current and future use;	As concluded by Section 5.9, as a result of the temporary and constrained scope of construction works, the existing values of the site, and the proposed mitigation measures, the anticipated environmental effects terrestrial, freshwater and coastal species and habitats arising from the proposed coastal revetment are expected to be minor. In this way, the essential character of the habitats within and surrounding the site are protected from "external threats" and adverse development so to provide for current and future use, and the continued relationship with these values is maintained in alignment with the objectives of Taiao Taiora.
Objective 11.4.2 (2)	The mouri[12] of Tangaroa-ki-tai[13] [14]in the Taranaki Iwi rohe will be protected, cared for and restored;	
Objective 11.3 (4)	Coastal habitats are protected from adverse development and introduced species;	
Objective 11.6.2 (1)	The mouri of Tāne[15] in the Taranaki Iwi rohe will be protected, cared for and restored;	
Objective 11.6.2 (5)	Important habitats for wildlife will be protected from external threats so they are sustained and are able to flourish;	

6.1.10 Customary interests under the Marine and Coastal Area (Takutai Moana) Act

Under the Marine and Coastal Area (Takutai Moana) Act 2011 (MACA) those seeking a resource consent in the common marine and coastal area need to notify and seek the views of any group that has applied for recognition for customary marine title in the area.

As shown on the Kōrero Takutai or Arc Map[16], there are customary marine title application areas within the area of proposed works for part of the revetment. Specifically, we note that the following parties have Takutai Moana applications (through the Crown Engagement pathway):

- Taranaki Iwi (MAC-01-10-013).

Ngā Māhanga and Ngāti Tairi hapū of the Taranaki iwi have been engaged and their views on the project sought. As stated in Section 5.8 and 7.1, NPDC is engaging with these hapū on an ongoing basis.

6.2 Notification assessment

6.2.1 Public notification

Section 95A of the RMA is relevant when a consent authority is considering whether a consent application should be considered with or without public notification.

Section 95A identifies a four step process. In relation to these steps we note the following:

- The applicant does not request public notification of the application.
- There is no rule or national environmental standard that precludes or requires public notification of this application.

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[12]*Essential character or shared relationship with community.*
[13] *Atua of the ocean and all taonga within. Coastal Marine Area and out to the Exclusive Economic Zone and to Hawaiki.*
[14] Atua: *Traditional domains of personified influence.*
[15] *Atua of the forests and all taonga and birds within.*
[16] Source: Te Kete Kōrero a Te Takutai Moana Information Hub (Kōrero Takutai) (arcgis.com).

- An assessment of effects on the environment is provided in Section 5 of this AEE report. This assessment concludes that the adverse effects on the environment are likely to be no more than minor.
- The application is not for any of the activities identified in section 95A(5)(b).
- No special circumstances are considered to exist in relation to the application.

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without public notification.

6.2.2 Limited notification

For applications that are not publicly notified, under section 95B, the consent authority must determine whether to give limited notification of an application to any affected parties. Section 95B identifies a four step process. In relation to these steps we note the following:

- The application does not need to be notified to any parties under section 95B(4). The proposed change will not affect any customary rights.
- The proposed activity is located within land that is the subject of a statutory acknowledgement (the Taranaki Iwi coastal marine area) as per Section 4 above.
- There are no applicable rules or national environmental standards precluding limited notification.
- No special circumstances are considered to exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification.

Section 95E(1) states that a consent authority must consider a person to be an affected person if the activity’s adverse effects on the person are minor or more than minor (but not less than minor). As noted in Section 5.8, at this stage a CIA has not yet been prepared which quantifies the expected level of adverse effects on tangata whenua arising from the proposed works. We note that the coastal marine area at Weld Road headland is identified as a Taranaki Iwi Statutory Acknowledgement area. Hauranga Pā is also identified as a particular area of coastal marine significance in Appendix A of the Taranaki Iwi Deed of Settlement. Accordingly, NPDC have engaged with Ngā Māhanga and Ngāti Tairi Hapū since late 2020. As noted in the Consultation Summary (Appendix J), hapū have indicated they are supportive in principle with providing some form of formal walkway at the base of the headland and have requested involvement in any design and consenting associated with that option. NPDC remain engaged with hapū, including on preparing proposed conditions of consent.

Given that Taranaki Iwi are involved in the project on an ongoing basis, they are not considered to be a directly affected party.

6.2.3 Section 95 conclusions

Following the steps set out in sections 95 A and 95 B, we consider that the application should be processed without public or limited notification.

7 Consultation

As shown in the Consultation Summary (Appendix J), extensive consultation has been undertaken with a number of stakeholders since the early stages of the project. A brief description of this consultation is outlined below.

7.1 Mana whenua

As noted in Section 2.10, the Weld Road Reserve area is of significant historic and cultural value to Ngā Māhanga and Ngāti Tairi hapū. Accordingly, NPDC engaged in early consultation with mana whenua.

On the 22 November 2020, NPDC invited Ngāti Tairi, Ngā Mahanga and Oakura Pa Trustees to a meeting to have initial discussions about the project. In 2021, NPDC had multiple site visits with hapū representatives and attended subsequent meetings with hapū at Ōākura marae. During the consultation process, hapū representatives confirmed their collective concern that this site of significance was being damaged due to the steep topography of informal tracks and requested that Council considers restricting public access to Hauranga Pā. Hapū also indicated they were supportive in principle with the concept of providing some form of formal walkway at the base of the headland and have requested involvement in any design and consenting associated with that option.

Accordingly, in late 2022 into 2023, NPDC carried out further site visits, hui and email communications with hapū to discuss the design progress (including providing the preliminary concept designs), the alignment of both the bridge and walkway projects, and consideration of consent requirements.

It is also noted that hapū were invited to prepare a CIA for the project, but this has not been prepared to date. However, as previously stated, NPDC in conjunction with hapū prepared a Landscape Restoration and Planting Methodology (provided in Appendix 3 of the LVEA (Appendix H)). Furthermore, hapū are working alongside NPDC to provide proposed conditions of consent. Once available, these conditions will be provided to the relevant Councils. Mana whenua will also be invited to be present on-site during construction to undertake cultural monitoring, should they wish. Accordingly, engagement with hapū is ongoing.

7.2 Local community

Consultation with the local community has also been undertaken since 2020. Notably, between 13 November 2020 and 24 December 2021, a targeted letter-drop survey was completed to inform surrounding residents of the ongoing damage of the Hauaranga Pā and seek their feedback on the creation of formal access around the headland. Additionally, project information was provided to the general public through newspapers articles in the Taranaki Daily News, online articles on Stuff and RNZ, and several publicly accessible Council reports. As a result, the NPDC survey received 355 submission responses (online and written), with 79% indicating support for formal access around the headland.

As noted in Section 1.2, access around the foreshore of Weld Road Beach is highly valued by the community as part of the 10 km Ōākura Coast Trail, which was established by a group of local volunteers. The volunteers have a vested interest in the project, as without access between Ahu Ahu Road and Lower Weld Road the 10 km trail route would be reduced to approximately 2 km. This group has also been involved in consultation with Council with a view to designing a walkway that responds appropriately to the natural character of the location.

Lastly, during a board meeting in mid-2023, it was noted that the Kaitake Community Board Plan 2023 - 2026 includes the Ahu Ahu Bridge Replacement and Weld Rd/ Hauranga Pa Pathway projects. Specifically, it states that the Board will work with NPDC to keep the community informed of progress and plans of the projects, and to work collaboratively with Council officers on delivery. Notably, this project is listed in the plan as resulting the following community outcomes; 'Thriving Communities and Culture' and 'Environmental Excellence'.

7.3 Department of Conservation

The Weld Road Reserve is administered by NPDC but is owned by the Crown through DoC. Council officers have been consulting with DoC throughout the project, who indicated they would require further details of any proposed coastal structures for alternative access options around the headland before being able to provide support. In September 2023, NPDC had a meeting with DoC where the latest proposed plans were discussed. Since this time, the latest documentation was provided to DoC. In principle, DoC is supportive of the proposal and NPDC is expecting to receive a written email response to this effect.

7.4 Heritage New Zealand Pouhere Taonga

Throughout the project NPDC Council officers have also been liaising with HNZPT in regard to works in proximity to the Hauranga Pā archaeological site, and an Archaeological Authority is being sought from HNZPT as a precautionary measure to authorise the works.

7.5 Landowner

Landowner consultation has occurred with the property owner of 385 Lower Ahu Ahu Road, Kaitake. This property is located in proximity to the area of works associated with the Ahu Ahu Bridge component in the east. On 21 August 2023, the landowner verbally confirmed they were supportive of both projects but noted that the ramp to the bridge on the eastern side should not obstruct the gate into her property. If there was to be an obstruction, NPDC offered to arrange for the gate to be relocated slightly to the east on the fence line, which the landowner acknowledged.

On 26 September 2023, NPDC sent an email with the latest preliminary concept design to confirm that the approach to the bridge on the eastern side does not interfere with the property access gate. It was noted that the layout remains indicative and may be subject to changes. Accordingly, NPDC re-iterated that if there is interference with the gate associated with the construction design that further consultation would be carried out and, if required, NPDC would arrange for the gate to be moved slightly to the east.

Other than Hauranga Pā, no other properties are located in close proximity to the works.

7.6 Pre-application meeting

On 29 August 2023, a pre-application meeting was held with Zoe Anderson (T+T), Nigel Wilson and Sean Cressy (NPDC in a client capacity), Richard Watkins (NPDC Planner), Kim Giles (TRC Planner), and Jesu Valdes (TRC Marine Ecologist).

A brief overview of the proposed shared pathway with a revetment and Ahu Ahu Bridge to NPDC and TRC, including the specialist inputs and key management plans outlined in this AEE. The preliminary concept design drawings were also shared with the Councils. It was also noted that the applicant is currently engaging with mana whenua and DoC.

NPDC advised that an update was expected to which would provide new guidance on which rules of the Proposed District Plan (PDP) have immediate legal effect. Accordingly, some of the Operative District Plan rules listed in the AEE at the time may be able to be removed. NPDC also agreed to provide further information on the Waterbodies.

TRC provided general planning guidance, including that no changes will be occurring to the content of the CPT as it was signed off from an interim version to become operational. TRC agreed to check the interpretation of reclamation under Rule 68 of the CPT.

Overall, NPDC and TRC advised that the following matters would ideally be included in the application:

- Construction Management Plan – including traffic management.
- Mana whenua engagement – TRC in particular would like to see written approval (it was noted that it is likely that communications with mana whenua which state that there's no concern/ the concerns are managed would be provided).
- Penguin considerations – Survey provisions.
- Maintenance and monitoring provisions.
- Alternatives assessment[17].
- Recommended to lodge with NPDC and TRC concurrently.

On 30 August 2023, TRC provided the follow-up information that the reclamation rule in the CPT (Rule 68) doesn't need to be assessed separately, as the effects are essentially covered by the associated 'occupation of coastal space' in Rule 27. Rule 27 is included in this AEE.

[17] Only required where there are significant adverse effects on the environment. The assessment in Section 5 concludes adverse effects are no more than minor.

8 Proposed conditions of consent

The following matters form the basis for a set of appropriate conditions to manage the anticipated effects of the proposed coastal revetment as covered in Section 5.

Waahi Taonga and Archaeological Sites

- The consent holders shall provide Taranaki Iwi a schedule of the proposed works prior to commencing any works.
- If the proposed schedule changes, the consent holder shall notify Taranaki Iwi as soon as possible with a revised schedule.
- An Accidental Discovery Protocol shall be provided to all contractors, and the consent holder shall ensure that all persons working on the project are informed of this protocol prior to construction.
- Taranaki Iwi shall be given the opportunity for representatives from each hapū to be present onsite for monitoring purposes during construction.

Construction management

- Construction works shall be undertaken in general accordance with the delineated site boundary.
- Construction of the proposed revetment pathway within the coastal area shall not be undertaken during periods of high tide, strongly adverse weather conditions, or when the area being worked in may be subject to tidal inundation.
- All machinery and construction materials shall be removed from the foreshore at the end of each working day, unless they are appropriately covered and secured to avoid being inundated by tides.
- Any excess excavated beach material shall be redistributed back onto the beach following completion of construction.
- The consent holder shall ensure that the area and volume of foreshore disturbance shall be minimised as far as practicable.
- During construction the area subject to works shall have sufficient signage to advise the public of the potential hazards.

Noise

- Construction shall comply with the relevant construction noise standards.

Coastal Marine Area

- The consent holder shall notify Taranaki Regional Council, in writing at least 48 hours prior to commencement and upon completion of any works which would involve disturbance of, or deposition, or discharge to the coastal marine area.

Ecological Matters

- The consent holder shall ensure that the area of vegetation disturbance shall be minimised as far as practicable.
- Any native plants requiring removal for the purpose of construction or construction access shall be replanted or replaced where practicable.
- The consent holder shall prepare an Environmental Management Plan (EMP) which covers measures for Avifauna Management (AMP), Penguin Management Plan (PMP), Lizard Management Plans (LMP) and Freshwater Fish Management Plan (FFMP) to ensure any adverse effects on these species is minimised as far as is practicable.

- All construction works shall avoid avifauna breeding and moulting seasons and fish migration seasons (September to March inclusive) as far as is practicable. Should this not be possible, the consent holder shall undertake surveys to identify and relocate potentially vulnerable species upon the site as per the requirements of the aforementioned EMP.
- Salvage of herpetofauna species shall be undertaken prior to and during vegetation clearance in accordance with the requirements of the aforementioned LMP.
- The consent holder shall ensure that as far as is practicable, the construction of the coastal protection works does not impact on areas, or access to areas, where penguins breed.

Monitoring and Maintenance

- The consent holder shall maintain the structure in a safe and sound state so that it continues to function effectively for its intended purpose.

As noted in Section 7.1, hapū are working alongside NPDC to provide proposed conditions of consent. Once available, these conditions will be provided to the relevant Councils in addition or in place of some of the proposed conditions above.

9 Conclusion

This AEE report has been prepared on behalf of NPDC to accompany a resource consent application to TRC and NPDC for the construction of a new rock revetment supporting a shared pathway at Weld Road Reserve and replacing the swing bridge above Whenuariki Stream. The proposed works are required to enable alternative public access around the Weld Road headland, thereby helping protect Hauranga Pā from the damage caused by informal access tracks.

The proposed revetment / shared pathway at Weld Road Reserve and bridge replacement above Whenuariki Stream requires resource consent from TRC as a Discretionary Activity under the CPT and from NPDC as a Discretionary Activity under the ODP and PDP.

This AEE report draws the following conclusions:

- The works are consistent with Part 2 of the Resource Management Act 1991.
- The works are consistent with the relevant objectives and policies of the NZCPS, RPS, CPT, ODP and PDP.
- The proposed works will have a positive effect on the environment by providing and enhancing public access while helping protect Hauranga Pā.
- The identified potential and actual adverse effects on the environment will be appropriately avoided, remedied and mitigated.
- The works are considered to have a no more than minor adverse effect on the environment.

Accordingly, it is requested that this resource consent application be granted on a non-notified basis, subject to fair and reasonable conditions. The opportunity to comment on draft conditions prior to any consent being granted is appreciated.

10 Applicability

This report has been prepared for the exclusive use of our client New Plymouth District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Taranaki Regional Council and New Plymouth District Council as the consenting authorities will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
....	....
Zoe Anderson Planner	Richard Reinen-Hamill Project Director

20-Oct-23
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Appendix A Application Forms

Form No: A

Taranaki Regional Council

Administration

All sections must be completed in full and accompanied by the initial deposit fee and the relevant activity form (Form B). Failure to do so may result in your application not being accepted and/or returned.

Please name the Consents Officer or TRC staff member you have discussed your application with	Kim Giles (Planner), and Jesu Valdes (Marine Ecologist).

1) Applicant Details - Please complete either (A), (B) or (C)

I apply for resource consent(s) under section 88 of the Resource Management Act 1991 (RMA)

A – For individuals, you must provide the full names of all individuals such at John Robert Smith & Mary Jane Williams	
Full name/s of applicant (consent holder name) *(Surname & First & Middle names)*	
B – For Trusts/Partnerships you must provide the full name of the Trust along with the Trustees or Partners	
Trusts/Partnership Name (if application will be on behalf of a trust	
Full name of Trustees/Partners *(Surname, First & Middle names)*	
C – For Companies and other incorporated entities you must provide the company name and registration number	
Company name	New Plymouth District Council
Contact Person	Nigel Wilson
NZ Company Registration Number	

Office use only			
Consent No:		Amount Paid:	
Date Received:		Date Paid:	
Document No:		Eftpos / Cash / Int Banking / Credit Card	

2) Applicant Contact Details

Applicants Contact Details (not consultants details)		
2.1 Applicants Postal address	Private Bag 2025, 84 Liardet Street, New Plymouth 4340	
2.2 Applicants Residential Address (If different from postal address)		
2.3 Primary Contact Person (not consultant)	Nigel Wilson	
2.4 Email Address	nigel.wilson@npdc.govt.co.nz	
2.5 Phone Numbers	Home/Business	Mobile 021 410 450

3) Consultant/Agent Details

Consultant/Agent Details (or person authorised to apply on behalf of applicant)		
3.1 Company Name	Tonkin & Taylor Ltd	
3.2 Contact Person	Zoe Anderson	
3.3 Postal address	PO Box 5271, Victoria Street West, Auckland 1142	
3.4 Phone Numbers *(please select preferred contact number)*	☑ Home/Business +64 9 5298109	☐ Mobile
3.5 Email Address	zanderson@tonkintaylor.co.nz	

3.6 Send all correspondence relating to this application(s), including invoices, to:	☑	Applicant	Email Address (Invoices) nigel.wilson@npdc.govt.co.nz
	☑	Consultant	Email Address (All other) zanderson@tonkintaylor.co.nz

3.7 Send correspondence and invoices once consent is granted to:	☑	Applicant	Email Address nigel.wilson@npdc.govt.co.nz
	☐	Consultant	Email Address

3.8 Please provide an email address for any future invoicing required. (Eg. monitoring of this consent)	Email Address nigel.wilson@npdc.govt.co.nz

4) Territorial Authority

4.1 The District the activity is located in:	☑	New Plymouth District
	☐	Stratford District
	☐	South Taranaki District

4.2 Resource Consent(s) also required from a Territorial Authority	☑ **Yes**	☐ **No**		
4.3 Type of consent required	Land Use			
4.4 Has it been applied for?	☑ **Yes**	☐ **No**		
4.5 Has it been granted?	☐ **Yes**	☑ **No**		
(state where in the AEE the information can be located)			**AEE Page Number**	**Section**
If Yes, it has been granted, provide a copy of the consent(s)				

5) Location of Activity

Where will the activity occur?		
5.1 Site address (Including: Street/road name, number, and nearest settlement/town)	Weld Road Reserve & Ahu Ahu Bridge (approximately 1.3 ha) Section 176-177 Oakura District, Section 182-184 Oakura District, Lot 1 Deposited Plan 409412 and Lot 2 Deposited Plan 532806, Road Reserve	
5.2 Assessment/Valuation number (refer to land title or rates notice)	Recreation Reserve: New Zealand Gazette, No 34, 17 March 1983, p 761-762	
5.3 Map reference/s NZTM Co-ordinates at point of activity	E 1679803	N 5669588
5.4 Closest Waterbody *Provide the name of the closest river or stream to the activity*	Whenuariki Stream	

5.5 If the owner and/or occupier of the activity site differ from the applicant please provide their name and contact details ***Please note that written approval is required from this landowner and should accompany this application***		
Owner names(s)		
Postal Address		
Email address		
Phone Numbers	**Home/Business**	**Mobile**

6) Type of Resource Consent you are seeking

If you are replacing or changing any existing consent(s), please also record the consent number(s) in the space below. Please note that your existing consent will be surrendered on the granting of this application. <u>Remember that for each consent application you must complete the relevant 'Activity form' (Form B).</u> You will also be required to prepare a further supporting assessment of environment effects (AEE) in accordance with Schedule 4 of the RMA.

	Resource Consent	Previous Consent Number/s
☑	**Coastal Permit** *For activities that are within the coastal marine area (CMA)*	
☐	**Discharge Permit** *For activities outside the CMA that ay discharge contaminants into the air, water and onto or into land*	
☐	**Land Use** *For activities and structures outside the CMA that are in, on or over a river or lake bed*	
☐	**Water** *For activities outside the CMA that involve the abstraction, impoundment (damming), diversion and/or use of ground or surface water*	
		Consent Number(s)
☐	**Change to an existing consent**	

7) Consultation/Affected parties

Cultural Effects Assessment		
The Regional Policy Statement is clear that only tangata whenua can identify their relationship with an area. It is good practise to consult with tangata whenua about the application so that you can provide an accurate assessment of cultural effects		
7.1 Please state the name of the local iwi you have consulted with	☐	Ngaruahine
	☐	Te Atiawa
	☐	Ngati Tama
	☐	Ngati Maru
	☑	Taranaki
	☐	Ngati Ruanui
	☐	Ngaa Rauru Kiitahi

A list of iwi and hapu in the Taranaki regional can be found on our website or here at https://www.tkm.govt.nz/
Iwi and hapu management plans are on our website www.trc.govt.nz

(state where in the AEE the information can be located)		AEE Page Number	Section
7.2 AEE Iwi consultation information/ included	☑ Yes	Page 68 & Appendix J	7.1
7.3 A Cultural Awareness Report associated with the proposal has been submitted	☐ Yes		

Affected Parties		
For your application to be considered for non-notification you must gain written approval from all persons who may be affected by the proposal. We can help you identify people/organisations likely to be affected. Affected persons may include neighbouring land owners and occupiers, organisations such as the Department of Conservation, Land Information New Zealand (LINZ), Fish and Game Council, iwi, hapū and/or community groups. The form 'Affected Person's Written Approval' can be filled out by the affected party and attached to this application. It is on our website: www.trc.govt.nz		
(state where in the AEE the information can be located)	**AEE Page Number**	**Section**
7.4 Provide details of persons who may be affected by your proposal. If you have discussed your proposal with any of these persons, record their comments and your response, and submit with your application	Page 68	7
7.5 Written approvals provided	N/A	

8) Processing timeframes

The RMA specifies timeframes for processing resource consent applications. Timeframes can be extended with the applicant's agreement.		
8.1 May we extend the consent processing timeframe	☐	Yes, if I can use my existing consent until this application is processed (replacement applications only).
	☑	Yes, if the extension is to discuss and try to agree on consent conditions.
	☐	Yes, if the application is processed before
	☐	No

9) Deposit

A deposit is required with this application. This can be paid online, by cash or eftpos at our reception desk.	
▪	Taranaki Regional Council's bank account number is **02 0756 0040555 002.** Use the applicant's name as the reference. We'll send you a GST invoice marked "PAID" shortly after you have paid.
▪	The application will not be accepted until the deposit is paid. We're happy to hold the forms, but processing will not start until we receive payment.
▪	**Additional charges are usually incurred**, depending on the resource we use processing your application *(e.g. staff time, complexity of application)*. Staff may be able to give you an estimate of expected costs. Please see the schedule of fees attached.

9.1 Deposit paid (Assume your application is non-notified unless Council has informed you otherwise.)	
Non notified application	*$1,725.00 including GST* **per application** *x* 1 *no of applications lodged* **Total Amount Paid $** 1,725.00 **Payment date** 20/10/23
Notified application	*$9,200.00 (GST inclusive)* **per proposal** **Payment date** ____________________

9.2 Purchase order number		
Purchase order number supplied *Please note a p/o number will not be accepted in lieu of the consent deposit*	☑	No
	☐	Yes
	Number ____	

10) Checklist

10.1 Checklist		
The following information must be included with your application		
☑	Attached any pre-application correspondence/advice	
☑	Completed all details in this form (Form A)	
☑	Completed and attached all other related activity forms (Form B) for each consent required	
☑	Completed and supplied an Assessment of Environmental Effects (AEE) as set out in Schedule 4 of the RMA, and includes but not limited to the following:	
	☑	Location map that shows exactly where your activity will take place
	☑	Assessment of cultural effects including how your proposal gives effect to Te Mana o Te Wai (if your proposal affects freshwater)
	☑	Consultation with all interested and affected parties, and included their comments and/or written approval
	☑	Assessment of the activity against the relevant objectives and policies in the relevant regional plan(s)
	☑	Activity status of your consent application
	☑	Listed any activities that are part of your proposal and are permitted (allowed without a resource consent) under any relevant regional plan(s)
	☑	Assessment of the activity against any relevant National Policy Statement(s) and National Environmental Standards
	☑	Provided an assessment of your proposed activity against the matters sent out in Part 2 of the RMA
	☑	Site plan, engineering plans and calculations
	☑	Consent duration sought
☑	Provided a site sediment and erosion control plan if required	
☑	Applied for any district council consents that are also required for your proposal	
☑	Signed and dated this form below (Form A)	
☑	Paid the required deposit	
☑	Other relevant information *(e.g. Certificate of Title, details from the Companies Register)*	
Unchecked boxes may result in your application being returned under s88 of the RMA.		

Information privacy

The RMA requires this information to process the application.

Taranaki Regional Council ("TRC") will use the information provided with your application to process your application and to assist in managing the region's natural and physical resources. Information in this application is regarded as **official information** and available to the public on request in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 2020. In addition, you agree that the information in your activity application (Forms 1A to 7B) (and any documentation provided in support) will be published and made available on our website. **It is important that you let us know if your application includes trade secrets, commercially sensitive information, and/or any other information that you would like to remain confidential.**

Signature

1. **I have authority to sign on behalf of the party/ies named as applicants for this consent.**
2. **I have read, and understand, all information in this application form, including the requirement to pay additional costs.**
3. **I agree to my Riparian Plan for this property being released to all interested/affected parties to help determine whether any effects of the discharge have been mitigated.**
4. **All information provided is true and correct. I understand that inaccurate information could result in my resource consent being cancelled**

Signature ………………… **Date** 19/10/23

Send your application to Consents@trc.govt.nz

You can also lodge the application by the following methods

Mail: Taranaki Regional Council, Private Bag 713, Stratford 4352.

In person: Taranaki Regional Council offices, 47 Cloten Road Stratford

If you have not received an email acknowledgement for this application within 5 working days (for new applications) or 10 working days (for replacements) please contact consents@trc.govt.nz.

Notes to Applicant – Important information – Please read carefully before filling out the application forms – email the consents team at consents@trc.govt.nz with consent questions
We'll not start processing your application until the deposit is paid. Processing costs are likely to exceed the deposit; we'll invoice you for the balance.
The coastal marine area is the area from the outer limit of the territorial sea (12 nautical miles) to the line of mean high-water springs. For activities at river mouths, contact the Consents team at consents@trc.govt.nz for clarification.
Let us know if your application includes trade secrets and/or commercially or culturally sensitive material. Section 42 of the RMA enables protection of sensitive information.
Schedule 4 of the RMA sets out the information you must provide. If insufficient information is provided, we may put the application on hold or return it as incomplete.
Identify every consent required for the proposal. We may put the application on hold until you apply for all resource consents required (s91 of the RMA).
If we request further information (s92 of the RMA), the application will be put on hold and processing will not restart until all information is received.
An application does not need to be publicly notified if the environmental effects are minor and written approval has been obtained from everyone adversely affected by the granting of the consent (s95D and s95B of the RMA). Written approval forms are on our website: https://www.trc.govt.nz/assets/Documents/Environment/ConsentApplicationForms/ConsentApplicationForm008-Sept2015.pdf
We may review any consent at any time if the application contains inaccuracies that materially influence the decision made (s128(1)(c) of the RMA).
All collection costs incurred in the recovery of a debt will be added to the invoice amount due. Overdue invoices will incur an interest charge of 12% per annum. Details of Council's charging policy are in its 2015/2025 Long-Term Plan. *(www.trc.govt.nz/council/plans-and-reports/strategy-policy-and-plans)*
Ongoing responsibilities
Once granted, most resource consents will incur a yearly compliance monitoring charge.
If your application is granted you will be responsible for complying with your consent's conditions and payment of your consent's charges until your consent expires. If you wish to cancel (surrender) your consent, transfer responsibilities to another party or make changes to your consented activity before it expire, you must submit notice to us in writing or make an application to change your consent.

Appendices

Appendix 1: Charging policies

Resource Management Act charging policy

Schedule of charges pursuant to section 36 of the Resource Management Act 1991

SCHEDULE 1: SCALE OF CHARGES FOR STAFF TIME

	Rate for processing resource consents and responding to pollution incidents.	Rate for all other Council work.
Professional staff	$101/hr	$96/hr
Professional/supervisory staff	$128/hr	$120/hr
Managers	$185/hr	$173/hr
Support staff	$101/hr	$96/hr
Directors	$307/hr	$286/hr

EXPLANATION

This scale of charges is used to calculate the Council's actual and reasonable costs when carrying out functions under the *Resource Management Act 1991*, including any functions transferred to it under section 33. Where those actual and reasonable costs exceed any specified charges, the Council may recover those costs as additional charges under section 36(3) of the *Resource Management Act 1991*. Staff time is recovered at the charge appropriate to the task which they are undertaking. The charges are calculated as per the IPENZ method with a multiplier of 2.1. All collection costs incurred in the recovery of a debt will be added to the amount due. Overdue invoices will incur an interest charge at 12% per annum. All charges exclude GST. Effective from 1 July 2022.

SCHEDULE 2: FIXED MINIMUM CHARGES FOR THE PREPARATION OR CHANGE OF POLICY STATEMENT OR PLANS AND THE PROCESSING OF RESOURCE CONSENTS

Request for preparation or change to a plan/policy statement	$55,000
For non-notified farm dairy discharge consent	$1,040
For non-notified consent other	$1,300
For notified consents (limited and public)	$7,425
Renewal or change consent:	
• Non-notified	$1,300
• Notified (limited and public)	$7,425
Non-notified review of consent	$646
Notified review of consent	$7,425
Extension of a consent lapse date	$520
Certificate of compliance	$1,300
Serve notice of a permitted activity	$320
Approvals under *Resource Management Act*:	
Water Measuring Regulations	$381
Transfer of consent to another party or change of consent holder name (1 to 5 consents)	$100 per consent
Transfer of consent to another party or change of consent holder name (6 to 20 consents)	$83 per consent
Transfer of consent to another party or change of consent holder name (more than 21)	$67 per consent

EXPLANATION

Applicants, in accordance with Council policy, are required, where necessary, to pay all actual and reasonable charges for staff time, consultants, cultural and other experts, legal, hearing costs (including legal, administration, hearing commissioners (and disbursements and councillors acting as hearing commissioners costs), plant and laboratory analyses where these costs exceed the fixed minimum charges set out in Schedule 2. The above charges include those arising from any functions transferred to the Council under section 33 of the *Resource Management Act 1991*. Where independent commissioners are requested by submitters, these additional costs

Form No: 401

Taranaki Regional Council

Office use only
Consent number: ____________________
Application number: ____________________
Date received: ____________________
Document number: ____________________
AEE Document number: ____________________
New/Renewal
Draft report to be viewed: Yes / No
Eftpos / Cash / Int Banking / Credit Card
Amount Paid $__________ Date Pd __________

Resource Consent Application

(Pursuant to sections 12 and 88 of the Resource Management Act 1991)

Coastal Permit

[to erect a structure and to occupy the associated coastal space]

(A separate application form is required for each consent being applied for)

Important: Please read carefully before completing the form

All applicants need to respond to all of the questions. If a particular section is not applicable to your application, please say so; do not leave the question blank. Questions may be answered in attached documentation if it is more convenient or insufficient space is provided on the form. If that is done, state specifically on the application form where the answer can be found **(include page numbers if referring to a separate report).**

If you have any questions relating to completion of this application form, please contact the Consents Department, Taranaki Regional Council on telephone (06)765-7127 or email consents@trc.govt.nz.

Marine and Coastal Area (Takutai Moana) Act 2011

Before lodging this application you must seek comment from applicants for customary title under the Marine and Coastal Area (Takutai Moana) Act 2011. Please contact consents Administration Staff at consents@trc.govt.nz for their contact details.

Lodge the application by signing below and sending the completed form to:

Mail: Taranaki Regional Council, Private Bag 713, Stratford 4352.
Attention: Consents Administration Officer

Email: consents@trc.govt.nz **(if application is emailed please do not mail a hard copy unless requested to do so by the consents department.)**

If you have not received an email acknowledgement for this application within 5 working days (for new applications) or 10 working days (for renewals) please contact consents@trc.govt.nz.

Application is hereby made for the resource consent detailed in this form

Signature of applicant or authorised agent: [signature]

Name: Nigel Wilson Date: 19/10/23

Please print full name of person who signed above.

1 Application Purpose

1.1 What is the purpose of this application?

New consent ☑

Replacement for expiring consent (renewal) ☐ Consent number of expiring consent ______________

Note: If you are applying to change the conditions of your consent, do not complete this form. You will need to complete form 510 instead.

2 Applicant Details

2.1 Applicant's name *(full name of proposed consent holder)*

Please complete either (a), (b) or (c) to whom consent is to be issued.

(a) Company New Plymouth District Council

First Name *Middle Name* *Surname*

(b) Individual(s) ______________________________

____

(c) Trust/Partnership Name ______________________________

____

If Trust/Partnership: Full names of Trustees/Partners:

First Name *Middle Name* *Surname*

____

____

____

2.2 Applicant's address for service *[not consultant's address]*

E-mail nigel.wilson@npdc.govt.co.nz

Postal Private Bag 2025, 84 Liardet Street, New Plymouth 4340

____

Phone ______________________________ Mob. 021 410 450

Name of person to contact regarding this application

Contact Person ______________________________

Phone ______________________________ Email. ______________________________

(if different from 2.2) *(if different from 2.2)*

2.3 Address for service *(if different from above, i.e. consultant, lawyer, or other person handling application)*

Contact Person Zoe Anderson

E-mail zanderson@tonkintaylor.co.nz

Postal PO Box 5271, Victoria Street West, Auckland 1142

Phone ______________ Mob. +64 9 5298109

The Council will serve all formal documents electronically via the email address in 2.2 and 2.3 (if provided).

3 Site Details

3.1 Name and address of owner or occupier at the site *(if different from 2.1 and 2.2)*

The Weld Road Reserve is administered by NPDC but is owned by the Crown through DoC.

3.2 Location of activity *(Including: Street/road name, number, and locality)*

Weld Road Recreation Reserve between 402 Weld Road Lower, Tataraimaka 4374 and 385 Lower Ahu Ahu Road, Kaitake 4374

3.3 Map Co-ordinates at point of works *(either Longitude/Latitude or NZTM)*:

______________ Longitude ______________ Latitude OR

______________ E ______________ N (NZTM)

3.4 Legal description of property at site of activity *(refer to land title or rates notice)*

Section 176-177 Oakura District, Section 182-184 Oakura District, Lot 1 Deposited Plan 409412 and Lot 2 Deposited Plan 532806, Road Reserve

3.5 Assessment/Valuation number of property *(refer to land title or rates notice)*

New Zealand Gazette, No 34, 17 March 1983, p 761-762

3.6 What is the name of the closest river or stream to where the structure is to be installed?

Whenuariki Stream

4 Location Map

4.1 The application must include an aerial photograph or clear map showing the location of the proposed works.

An aerial photograph of the site can be obtained free of charge from Taranaki Regional Explorer; https://maps.trc.govt.nz/LocalMapsGallery/.Alternatively, contact the Consents Department at the Council and request an aerial photograph to be provided.

Aerial photograph (or map) included ☑

Please make sure the following is shown on your aerial photograph or map:

- Site of proposed works ☑
- Local Roads ☑
- Property boundaries ☑
- Any other relevant features ☑

5 Details of the Activity

5.1 If you have discussed this proposal with council staff, please give the person's name here:
Kim Giles (Planner), and Jesu Valdes (Marine Ecologist).

5.2 In your own words, briefly describe the activity you are undertaking:
Construction of a new rock revetment supporting a shared pathway for public access at Weld Road Reserve and replacement of a swing bridge above Whenuariki Stream. Refer AEE S3.

5.3 Describe the proposed structure and its purpose.
Please refer to Section 1 and 3 of the AEE.

5.4 A detailed drawing of the structure, including dimensions, must be included with this application. This can be done by completing the diagram on page 6, or by attaching other drawings. *(Tick the applicable box)*

Completed diagram provided on page 6 ☐ Drawings attached ☑

5.5 The structure is to be *(Tick the applicable box)*

☑ Permanent

☐ Temporary Give details of duration ____________________

5.6 Describe how the construction will be undertaken, including details of machinery to be used, any dewatering of the site during construction, and any excavation that is to occur.

Please refer to Section 3 of the AEE.

5.7 Indicate your intended post construction maintenance programme to ensure the structure continues to function as intended.

Please refer to Section 3 of the AEE.

6 Dimensions of proposed structure

Please fill in the diagram below showing all dimensions. Or attach any engineering plans if available. *Ensure drawing shows all dimensions including depth of any excavation or piling.*

7 Works Timetable

7.1 How long will the work take? up to approx 70 Days

7.2 Proposed start date for work? TBC- 2024

7.3 Proposed duration of works in the water?

Less than approx 70 Days or No work in water proposed ☐

8 Assessment of Environmental Effects

An assessment of environmental effects [AEE] in accordance with schedule 4 of the Resource Management Act 1991 must be provided with the application. The AEE detail must correspond to the scale of the effects that the activity may have on the environment.

Completing the AEE section of this form will be sufficient for most applications. However for activities with actual or potential effects that are significant, a separate comprehensive AEE report including specific investigations may be required.

Schedule 4 can be viewed at www.trc.govt.nz/resource-consent-application-forms

8.1 If the application is to renew a consent, summarise the monitoring that has been undertaken and the environmental effects as identified by that monitoring.

OR

☑ New Consent/No monitoring data

8.2 Identify any other structures and the following coastal features in the vicinity: archaeological sites of significance, surf breaks, significant surfing areas, sites of significance to Maori, reefs, marine reserves and marine protected areas. Their locations are shown at:
https://maps.trc.govt.nz/LocalMapsViewer/?map=14083dae18734b83a3a7a0fc51b34283

Specifically consider the environmental effects on these features when responding to the questions below.

Please refer to Section 4 of the AEE.

8.3 Will the work cause any conspicuous change in colour or clarity of water

No ☑ Explain why not below

Yes ☐ Describe below, including description of the extent and duration of any change

Please refer to Section 3 of the AEE.

8.4 Will the activity restrict public access to the coast, either temporarily *[eg, during works activity]* or permanently?

A) No ☐

B) Yes ☑ Describe effects and any mitigation proposed

Please refer to Section 5 of the AEE.

8.5 Will the activity result in any change of wave pattern?

A) No ☐

B) Yes ☑ Detail the changes, the effects of the change and any mitigation proposed

Please refer to Section 5.5 of the AEE and Appendix G (Coastal Process and Effects Assessment).

8.6 Could the work cause adverse erosion or deposition effects?

A) No ☐

B) Yes ☑ Detail how and what mitigation is proposed

Please refer to Section 5.3 and 5.5 of the AEE.

8.7 Describe any noise effects from the activity, and how they will be mitigated.

Please refer to Section 3 of the AEE.

8.8 Are there any other environmental effects likely to occur and if so, how will they be mitigated? *Eg. effects from concrete being used in Coastal Marine Area*

A) No ☐

B) Yes ☑ Detail other effects and what mitigation is proposed

Please refer to Section 5 of the AEE.

9 Assessment of Part 2 Matters and Policy

An assessment of the activity against the matters set out in Part 2 of the RMA and against any relevant provision of policy documents and regulations must be provided with the application. The assessment must be in sufficient detail to satisfy the purpose for which its required.

For most applications, the brief assessment provided below will be adequate. However for activities with significant policy implications, a specific, more comprehensive assessment is likely to be required.

The proposal is consistent with Part 2 of the RMA (the focus of which is to promote sustainable management of natural resources) and supported by the relevant Regional Plan.

☐ I will adopt the RMA assessment above; or

☑ I will attach an alternative assessment

10 Other Consents Required

10.1 What consents are required from other authorities for the proposed activity?

None ☐

Consent Required	Authority	Applied for?
Land Use Consent	NPDC	Yes ☑ No ☐
		Yes ☐ No ☐
		Yes ☐ No ☐

11 Consultation / Affected Parties

11.1 Please provide details of consultation with people/organisations who have made applications for customary rights under the Marine and Coastal Area (Takutai Moana) Act 2011. Include how you consulted, who you consulted with and their response.

Please refer to Section 6.1.10 and Section 7 of the AEE.

11.2 Detail the consultation undertaken with any other interested/affected parties, and the views of those consulted. Attach correspondence if appropriate. The consultation undertaken and the information provided is to aid the Council in determining who may be adversely affected by the proposal.

Please refer to Section 7 of the AEE.

Please note: *Council may determine that your application is to be notified. But generally it will be non-notified if there are no more than minor adverse effects beyond the adjacent land, and if written approval is obtained from all those people who are likely to be adversely affected in a minor or more than minor way. Council will determine the people who are likely to be adversely affected and you will have the option of obtaining their written approval so that your application can be non-notified.*

12 Draft report and conditions

12.1 Do you wish to review and make comment on a draft report and recommendation [including consent conditions] before any consent is issued?

Yes ☑ No ☐

If you answered 'Yes' please consider agreeing to a timeframe extension [See section 13 below.]

13 Processing Timeframes

The RMA specifies timeframes for processing resource consent applications, [for example 20 working days for a non-notified application], however these timeframes can be extended with the applicant's agreement.

13.1 Do you agree to the Taranaki Regional Council extending RMA consent processing timeframes?

☐ Yes, provided that I can continue to exercise my existing consent until processing of this application is completed *[renewal applications].*

☑ Yes, provided that the extension is for the specific purpose of discussing and trying to agree on consent conditions.

☐ Yes, provided that the application process is completed before ____/_____/_____ *[enter date]*

14 Value of investment (renewal applications)

Please complete this section only if your application is to renew an existing consent

14.1 Provide an assessment of the value of your investment that is dependent on this consent.

- ☐ < $10,000
- ☐ $10,000 to $50,000
- ☐ $50,000 to $250,000
- ☐ $250,000 to $1,000,000
- ☐ $1 M to $5 M
- ☐ $5 M to $50 M
- ☐ >$50 M

15 Surrender of existing consent [renewal applications only]

Please note that your existing consent is to be surrendered on the granting of this application.

16 Fees and charges

16.1 Initial Deposit payment – All applications must have a deposit paid before processing of the application will begin.

☑ **Non-notified applications**

Amount to be Paid $ 1,725.00 (GST incl.) per application x 1 no. of applications lodged

= Total Amount Paid $ 1,725.00 **Payment date** 20/10/23

☐ **Notified applications**

Amount to be Paid $ 9,200.00 GST inclusive) per proposal

= Total Amount Paid **$9,200.00** **Payment date** ____________________

Note:

1) *Assume your application is non-notified unless Council has informed you otherwise.*
2) *Purchase orders are not acceptable as payment for the deposit.*
3) *An invoice/receipt for the deposit will be issued shortly after payment has been received.*

16.2 Payment method for initial deposit

☐ Cash/Eftpos *(to be made at Taranaki Regional Council offices, 47 Cloten Rd, Stratford)*

☐ Credit card payment made via Online Services at *https://onlineservices.trc.govt.nz*

☑ Internet Banking – **please complete below, and enter all details on your internet banking payment to enable us to correctly identify your payment, otherwise processing of your application may be delayed.**

Payer Particulars:	**C**	**O**	**N**	**S**	**E**	**N**	**T**		**D**	**E**	**P**	

Payer Reference:	T	O	N	K	I	N	+	T	A	Y	L	O R

Enter the reference you have used for your internet banking payment above. We suggest using your company name or surname, or if you make multiple applications use the location (road name or river) where activity is occurring, or consent number if known.

Taranaki Regional Council Account Details for Internet Banking

Bank	*Branch*	*Account No.*	*Suffix*
0 2	**0 7 5 6**	**0 0 4 0 5 5 5**	**0 0 2**

Please note this is a separate account for consent deposits only. It is a different account number to where you may make other Council payments, such as annual monitoring fees, or plant purchases.

16.3 Invoicing details: *(where to send the invoice for this consent application)*

Applicant ☑ or Consultant ☐

16.4 Is the Council required to quote a purchase order number on future invoices for this application?

Yes ☐ Order Number:

No ☑

The deposit amount is required when an application is submitted and is an **initial deposit** towards the final cost of processing the application. Processing of the application will begin when the deposit is received. Purchase orders are not acceptable as payment for the deposit and we are unable to issue you an invoice/receipt until payment has been received. The final cost of processing is based on actual and reasonable staff time and disbursements spent processing the application. The final cost (less the deposit) is invoiced at the end of the application process, but there may also be interim invoices during the process.
Where there is more than one application required for the same proposal, an initial deposit is required for each application (non notified applications).
If the consent is notified, a larger deposit will be required. We will advise if the application is to be notified.
Withdrawn applications will incur the cost for work done up to the date of withdrawal.
Applications returned due to inadequate information will incur the cost of work done in receiving the application, assessing the information and returning the application.
All collection costs incurred in the recovery of a debt will be added to the invoice amount due. Overdue invoices will incur an interest charge of 12% per annum. Details of Council's charging policy are in its 2015/2025 Long-Term Plan. *(www.trc.govt.nz/council/plans-and-reports/strategy-policy-and-plans)*
In accordance with statutory requirements a copy of this application may be sent to iwi for their information.

Official information

The information you provide with your application is official information. It is used to help process your resource consent application and assess the impact of your activity on the environment and other people.
Your information is held and administered by the Taranaki Regional Council in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993. This means that your information may be disclosed to other people who request it in accordance with the terms of these Acts. It is therefore important you let us know if your application includes trade secrets, commercially sensitive material or any other information you consider should not be disclosed.

Please lodge the application by signing the front page and sending the completed form to:

Mail: Taranaki Regional Council, Private Bag 713, Stratford 4352.
Attention: Consents Administration Officer

Email: consents@trc.govt.nz **(if application is emailed please do not mail a hard copy unless requested to do so by the consents department.)**

Te Kaunihera-ā-Rohe o Ngāmotu
New Plymouth District Council

FORM
Application cover page
(required with all other forms)

Incorporates requirements of Form 2, sections 33 or 45, Building Act 2004

1. Property details

1a.	Site address (Specify unit/level number, location of building within site/block number, building name and street name)	Weld Road Recreation Reserve (between 402 Weld Road Lower, Tataraimaka 4374 and 385 Lower Ahu Ahu Road, Kaitake 4374)
1b.	Current lawfully established use	Recreation Reserve: New Zealand Gazette, No 34, 17 March 1983, p 761-762
1c.	Legal description	Section 176-177 Oakura District, Section 182-184 Oakura District, Lot 1 Deposited Plan409412 and Lot 2 Deposited Plan 532806, Road Reserve
1d.	Rapid number	

2. Property owner details

2a.	Owner name	First name(s): / Surname:
2b.	Name of additional owner(s)/company/trust	Department of Conservation- administered by NPDC (Reserves Act 1977)
2c.	Contact person (if different from above)	Nigel Wilson
2d.	Postal address (include postcode)	Private Bag 2025, 84 Liardet Street, New Plymouth 4340
2e.	Contact details	Phone: / Mobile: 021 410 450 / Fax:
2f.	Email	nigel.wilson@npdc.govt.co.nz

3. Payer details

3a.	Required for invoice	○ Applicant - proceed to 4 ○ Owner - proceed to 4 ☑ Other - provide details below
3b.	Name in full	Nigel Wilson (NPDC)
3c.	Postal address	Private Bag 2025, 84 Liardet Street, New Plymouth 4340

4. Description of project

4a.	Detailed description of the development/ project	Construction of a new rock revetment supporting a shared pathway for public access at Weld Road Reserve and replacement of a swing bridge above Whenuariki Stream. Refer AEE Section 3.

4b. Will business activities take place when building is completed? ○ Yes ☑ No

Please turn over

Liardet Street, Private Bag 2025, New Plymouth 4340, New Zealand. Telephone 06-759 6060, Email enquiries@npdc.govt.nz, Website www.npdc.govt.nz

5. NPDC applications for this project

OFFICE USE ONLY

5a. Common applications

Common applications	Application attached	Have applied already (write the application number if known)	Information provided
Project information memorandum	☐		☐
Building consent	☐		☐
Vehicle crossing	☐		☐
Encroachment licence	☐		☐
Land use resource consent	☑		☐
Deemed permitted boundary activity notice	☐		☐
Subdivision resource consent	☐		☐
Sewer connection/disconnection	☐		☐
Stormwater connection/disconnection	☐		☐
Water connection/disconnection	☐		☐

5b. Non-residential applications

Non-residential applications	Application attached	Have applied already	Information provided
Discharge of trade waste consent	☐		☐
Alcohol licensing	☐		☐
Food premises registration	☐		☐
Health Act registration (Hairdressing, camping ground, funeral parlour, offensive trade)	☐		☐
Beauty registration	☐		☐

5c. Other project authorisations

Other project authorisations	Application attached	Have applied already	Information provided
Swimming pool registration	☐		☐
Temporary obstruction on road reserve	☐		☐
Temporary road closure	☐		☐
Easements through NPDC-owned reserve land	☐		☐

5d. Other project requirements

Other project requirements	Application attached	Have applied already	Information provided
Rapid number request	☐		☐
Contractors parking space reservation	☐		☐
Existing street damage declaration	☐		☐

Te Kaunihera-ā-Rohe o Ngāmotu
New Plymouth District Council

FORM 9
Application for a land use resource consent or fast-track resource consent

Section 87AAC & 88, Resource Management Act 1991

This form must be submitted with a completed application cover page form.

1. Applicant details

1a. I am the ( ) Property owner ( ) Lessee (✓) Agent authorised by owner/lessee

1b. Full name: Zoe (First name(s)) | Anderson (Surname)

1c. Electronic service address - this must be provided for fast-track consent applications:

1d. Telephone: Mobile: | Landline: +64 9 5298109

1e. Postal address or alternative method of service under Section 352 of RMA 1991: PO Box 5271, Victoria Street West, Auckland 1142

2. Property owner details

Provide details below for the property owner if different to 1. above

2a. Full name: Owned by Department of Conservation (First name(s)) | Administered by NPDC (Surname)

2b. Electronic service address: Private Bag 2025, 84 Liardet Street, New Plymouth 4340

2c. Telephone: Mobile: 021 410 450 | Landline: (Nigel Wilson- NPDC)

3. Fast-track application details

3a. Is this a fast-track controlled land use application? ( ) Yes (✓) No (proceed to 4.)

3b. If yes, please indicate whether you opt out or do not opt out of the fast-track resource consent process ( ) I opt out ( ) I do not opt out

Under the fast-track resource consent process the Council must give notice of the decision within 10 working days after the date the application was first lodged, unless the applicant opts out of the process at the time of lodgement. A fast-track application may cease to be a fast-track application under Section 87AAC(2) of the RMA.

4. Description of proposed activity

4a. Description of activity: Construction of a new rock revetment supporting a shared pathway for public access at Weld Road Reserve and replacement of a swing bridge above Whenuariki Stream. Refer AEE Section 3.

4b. Description of the site at which activity is to occur: Refer to AEE Section 2.

4c. Description of any other activities that are part of the proposal: Refer to AEE Section 4.

4d. Details of additional resource consents required for this activity:
( ) No additional resource consents are required.
(✓) Additional resource consents are required.
Please provide details of the resource consents required, and whether these have been lodged.

Coastal Permit being sought from Taranaki Regional Council- AEE S4.

Please turn over

OFFICE USE ONLY

Date received		Application #		Planner's Pre-check	
Time received		Document #		Signature	
Received by		Property ID		Date	
Receipt #		Land ID			
Amount paid	$				

Liardet Street, Private Bag 2025, New Plymouth 4340, NZ, Telephone 06-759 6060, Email enquiries@npdc.govt.nz, Website www.npdc.govt.nz

4. Description of proposed activity - continued

4e. District Plan rule(s) not being met	Refer to AEE Section 1.4 and Section 4.
4f. Proposed start date	TBC- early 2024.

5. Information included in application

I confirm that I have assessed my proposed activity against the relevant matters of the RMA:

- ☑ Part 2 Purpose and Principles.
- ☑ Section 104 Consideration of Applications.
- ☑ Schedule 4, including an Assessment of Environmental Effects (AEE).

I have attached this assessment and all other required information as listed below:

- ☑ Site plan. Your site plan must show the following items:
  - Scale and north orientation.
  - Existing and proposed buildings.
  - Building dimensions and distances to boundaries.
  - Trees, fences, landscaping, screening and contours.
  - Car parking, loading facilities and access points.
  - Signs.
- ☑ Floor plan.
- ☑ Elevation plan. Your plan must show the groundlines and the view of your site, from the ground up, from all boundaries.
- ☑ Written approvals from affected parties. Contact the Council if you are unsure of who the potentially affected parties might be.
- ☑ Application fee. Refer to the land use consents fees and charges schedule.

6. Post-approval contact details for monitoring purposes

6a. Full name	Nigel (First name(s))	Wilson (Surname)
6b. Electronic service address	Private Bag 2025, 84 Liardet Street, New Plymouth 4340	
6c. Telephone	021 410 450 (Mobile)	(Landline)

7. Privacy statement

The Privacy Act 2020 applies to the personal information provided in this application. For the purposes of processing this application the Council may disclose that personal information to another party. If you want to have access to, or request correction of, that personal information, please contact the Council.

8. Applicant's declaration and privacy waiver

By signing this application, or by submitting this application electronically, I confirm that I am authorised to make such an application, that the information contained in this application is true and correct and that I have read, understood and agree to such terms and conditions applying to this application. I acknowledge and agree to the disclosure of my personal information in respect of this application.

A signature is not required if this application is submitted electronically.

If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

Nigel (First name(s))	Wilson (Surname)
Signature	19/10/23 (Date)

Appendix B Gazette Notice and Records of Title

Dated at Auckland this 18th day of February 1983.

J. P. BRENT, Commissioner of Crown Lands.

(L. and S. H.O. Res. 2N/8/3/17; D.O. NP 229/2/7)

3/1

Classification of Reserve and Declaration that the Reserve be Part of the Rainbow Falls Scenic Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby classifies the reserve, described in the Schedule hereto, as a reserve for scenic purposes, subject to the provisions of section 19 (1) (b) of the said Act, and further, declares the said reserve to form part of the Rainbow Falls Scenic Reserve.

SCHEDULE

NORTH AUCKLAND LAND DISTRICT—BAY OF ISLANDS COUNTY—PART RAINBOW FALLS SCENIC RESERVE

1.6847 hectares, more or less, being Lot 1, D.P. 86015, situated in Block XI, Kerikeri Survey District. All certificate of title 43D/500.

Dated at Auckland this 28th day of January 1983.

J. P. BRENT, Commissioner of Crown Lands.

(L. and S. H.O. Res. 2N/8/3/17; D.O. NP 243)

3/1

Appointment of the Whakatane District Council to Control and Manage a Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, and Assistant Director of National Parks and Reserves of the Department of Lands and Survey hereby appoints the Whakatane District Council to control and manage the reserve, described in the Schedule hereto, subject to the provisions of the said Act, as a reserve for recreation purposes.

SCHEDULE

SOUTH AUCKLAND LAND DISTRICT—WHAKATANE DISTRICT

14.0300 hectares, more or less, being Allotment 850, Matata Parish (formerly part Allotment 63, Matata Parish), situated in Block IV, Waihi South Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50774.

23.0700 hectares, more or less, being Allotment 851, Matata Parish (formerly part Allotment 63, Matata Parish), situated in Blocks IV and VIII, Waihi South Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50775.

16.2100 hectares, more or less, being Allotment 852, Matata Parish (formerly part Allotment 63, Matata Parish), situated in Block VIII, Waihi South Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50776.

19.2400 hectares, more or less, being Allotment 853, Matata Parish (formerly part Allotment 63, Matata Parish), situated in Block VIII, Waihi South Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50777.

26.1200 hectares, more or less, being Allotment 854, Matata Parish (formerly part Allotment 63, Matata Parish), situated in Block VIII, Waihi South Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50778.

18.5300 hectares, more or less, being Allotment 855, Matata Parish (formerly part Allotments 11 and 63, Matata Parish), situated in Block VIII, Waihi South Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50779.

22.8500 hectares, more or less, being Allotment 856, Matata Parish (formerly part Allotments 11 and 13, Matata Parish), situated in Block I, Awaateatua Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50780.

27.0800 hectares, more or less, being Allotment 857, Matata Parish (formerly part Allotments 2, 9, 13, and 18, Matata Parish), situated in Block I, Awaateatua Survey District. Part *New Zealand Gazette,* 1981, page 1814. S.O. Plan 50781.

Dated at Wellington this 23rd day of March 1982.

W. T. DEVINE,
Assistant Director of National Parks and Reserves,
Department of Lands and Survey.

(L. and S. H.O. Res. 3/2/310; D.O. 8/5/255/17)

3/1

Declaration That Private Land Shall be Projected Private Land

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Director of National Parks and Reserves of the Department of Lands and Survey hereby declares that the private land, described in the Schedule hereto, shall be protected private land for historic purposes, subject to the provisions of the said Act.

SCHEDULE

OTAGO LAND DISTRICT—VINCENT COUNTY

115.25 hectares, more or less, being Section 32 (formerly part Run 238L), Block III, Wakefield Survey District. Part Registered Volume 386/117, subject to prospecting licence contained in Registered Volume 5D/212 and Mining Licence contained in Registered Volume 5D/236, and subject to a right to convey water contained in Transfer 434616. S.O. Plan 20026.

Dated at Wellington this 1st day of March 1983.

W. T. DEVINE,
Assistant Director of National Parks and Reserves,
Department of Lands and Survey.

(L. and S. H.O. Res. 12/4/17/19; D.O. 8/201/13)

3/1

Classification of Parts of a Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares that part of the reserve, described in the First Schedule hereto, to be classified as a reserve for scenic purposes subject to the provisions of section 19 (1) (a) of the said Act, and further, declares that part of the reserve, described in the Second Schedule hereto, to be classified as a reserve for recreation purposes, subject to the provisions of the said Act.

FIRST SCHEDULE

HAWKE'S BAY LAND DISTRICT—DANNEVIRKE COUNTY—MAKIRIKIRI SCENIC RESERVE

7.8913 hectares, more or less, being Section 19 (formerly part Section 13), Block II, Tahoraiti Survey District. Part *New Zealand Gazette,* 1911, page 3570. S.O. Plan 3304.

SECOND SCHEDULE

MAKIRIKIRI RECREATION RESERVE

7.5372 hectares, more or less, being Section 20 (formerly part Section 13) and Section 21, Block II, Tahoraiti Survey District. Part *New Zealand Gazette,* 1911, page 3570 and balance certificate of title 84/184. S.O. Plan 3304.

Dated at Napier this 24th day of February 1983.

J. GRAY,
Assistant Commissioner of Crown Lands.

(L. and S. H.O. Res. 5/3/11, Res. 5/2/87; D.O. 13/12, 8/3/108)

3/1

Classification of Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for recreation purposes, subject to the provisions of the said Act.

SCHEDULE

TARANAKI LAND DISTRICT—TARANAKI COUNTY

23.0486 hectares, more or less, being Sections 176, 177, 182, 183, and 184, Oakura District, part New Plymouth Harbour Reserve C, all situated in Block I, Wairau Survey District; Section 258, Town of Oakura, part Section 12, Oakura Town Belt, Section 1, Oakura Town Belt and accretion thereto, Section 28, Oakura Town Belt, part Lot 38, D.P. 6580, Lots 1 and 2, D.P. 5183, parts New Plymouth Harbour Reserve C, all situated in Block II, Wairau

Survey District, and accretion to parts New Plymouth Harbour Reserve C, situated in Blocks I and II, Wairau Survey District.

Reserves and Other Lands Disposal Acts 1959 and 1962. All *New Zealand Gazettes,* 1980, page 1149, 1966, page 1526, 1964, page 671, 1963, page 188, and 1958, page 1241. Balance *New Zealand Gazettes,* 1959, page 1476 and 1958, page 1655. All certificate of title 223/81. S.O. Plans 11477, 9768, 9599, 9481, 9480, 9101, 8974, and 7709.

Dated at New Plymouth this 28th day of February 1983.

R. LANCASTER,
Assistant Commissioner of Crown Lands.

(L. and S. H.O. Res. 6/2/5; D.O. 8/1/54)

3/1

Classification of Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for recreation purposes, subject to the provisions of the said Act.

SCHEDULE

TARANAKI LAND DISTRICT—ELTHAM COUNTY

6.2726 hectares, more or less, being Section 83, Block X, Ngaere Survey District. Reserves and Other Lands Disposal and Public Bodies Empowering Act 1916. S.O. Plan 893.

Dated at New Plymouth this 21st day of February 1983.

R. LANCASTER,
Assistant Commissioner of Crown Lands.

(L. and S. H.O. Res. 6/2/8; D.O. 8/196/5)

3/1

Classification of Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for recreation purposes, subject to the provisions of the said Act.

SCHEDULE

TARANAKI LAND DISTRICT—ELTHAM COUNTY—MANGAMINGI DOMAIN RECREATION RESERVE

5.6555 hectares, more or less, being Sections 40 and 62, Mangamingi Suburban, situated in Block XII, Ngaere Survey District. Part *New Zealand Gazettes,* 1933, page 1366 and 1898, page 1948. S.O. Plan 994.

Dated at New Plymouth this 28th day of February 1983.

R. LANCASTER,
Assistant Commissioner of Crown Lands.

(L. and S. H.O. Res. 6/2/24; D.O. 8/123)

3/1

Classification of Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for local purpose (site for a public hall), subject to the provisions of the said Act.

SCHEDULE

TARANAKI LAND DISTRICT—ELTHAM COUNTY

1998 square metres, more or less, being Section 28, Mangamingi Village, situated in Block XII, Ngaere Survey District. Part *New Zealand Gazette,* 1933, page 1366. S.O. Plan 994.

Dated at New Plymouth this 1st day of March 1983.

R. LANCASTER,
Assistant Commissioner of Crown Lands.

(L. and S. H.O. Res. 6/2/24; D.O. 8/123)

3/1

Classification of Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for local purpose (site for a scout hall), subject to the provisions of the said Act.

SCHEDULE

TARANAKI LAND DISTRICT—CITY OF NEW PLYMOUTH

2706 square metres, more or less, being Lot 24, D.P. 5000, situated in Block V, Paritutu Survey District. All certificate of title 120/71. Subject to a building line restriction created by Proclamation No. 933.

Dated at New Plymouth this 7th day of February 1983.

R. LANCASTER,
Assistant Commissioner of Crown Lands.

(L. and S. H.O. Res. 6/44/3; D.O. 8/189/16)

3/1

Classification of Reserve and Declaration that the Reserve be Part of the Crail Bay Historic Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for historic purposes, subject to the provisions of the said Act, and further, declares the said reserve to form part of the Crail Bay Historic Reserve to be administered as an historic reserve by the Marlborough Sounds Maritime Park Board.

SCHEDULE

MARLBOROUGH LAND DISTRICT—MARLBOROUGH COUNTY

16.36 hectares, more or less, Lot 1, D.P. 5703, situated in Block II, Orieri Survey District. Reserve for the purposes of the Reserves Act 1977, by all Transfer 106430. All certificate of title 3D/1055.

Dated at Blenheim this 8th day of February 1983.

I. B. MITCHELL, Commissioner of Crown Lands.

(L. and S. H.O. Res. 8/8/4/5; D.O. LP 749, 8/4/3)

3/1

Classification of Reserve

PURSUANT to the Reserves Act 1977, and to a delegation from the Minister of Lands, the Assistant Commissioner of Crown Lands hereby declares the reserve, described in the Schedule hereto, to be classified as a reserve for scenic purposes pursuant to section 19 (1) (b) of the said Act and subject to the provisions of the said Act.

SCHEDULE

MARLBOROUGH LAND DISTRICT—KAIKOURA COUNTY—PART GOOSE BAY - OMIHI SCENIC RESERVE

4.8615 hectares, more or less, part Section 9, Block XI, Hundalee Survey District. Reserve for the preservation of scenery by part *New Zealand Gazette,* 1900, page 13. S.O. Plans 490D, 4867, and 4625.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**582245**
Land Registration District	**Taranaki**
Date Issued	01 May 2012

Prior References
GN 127273

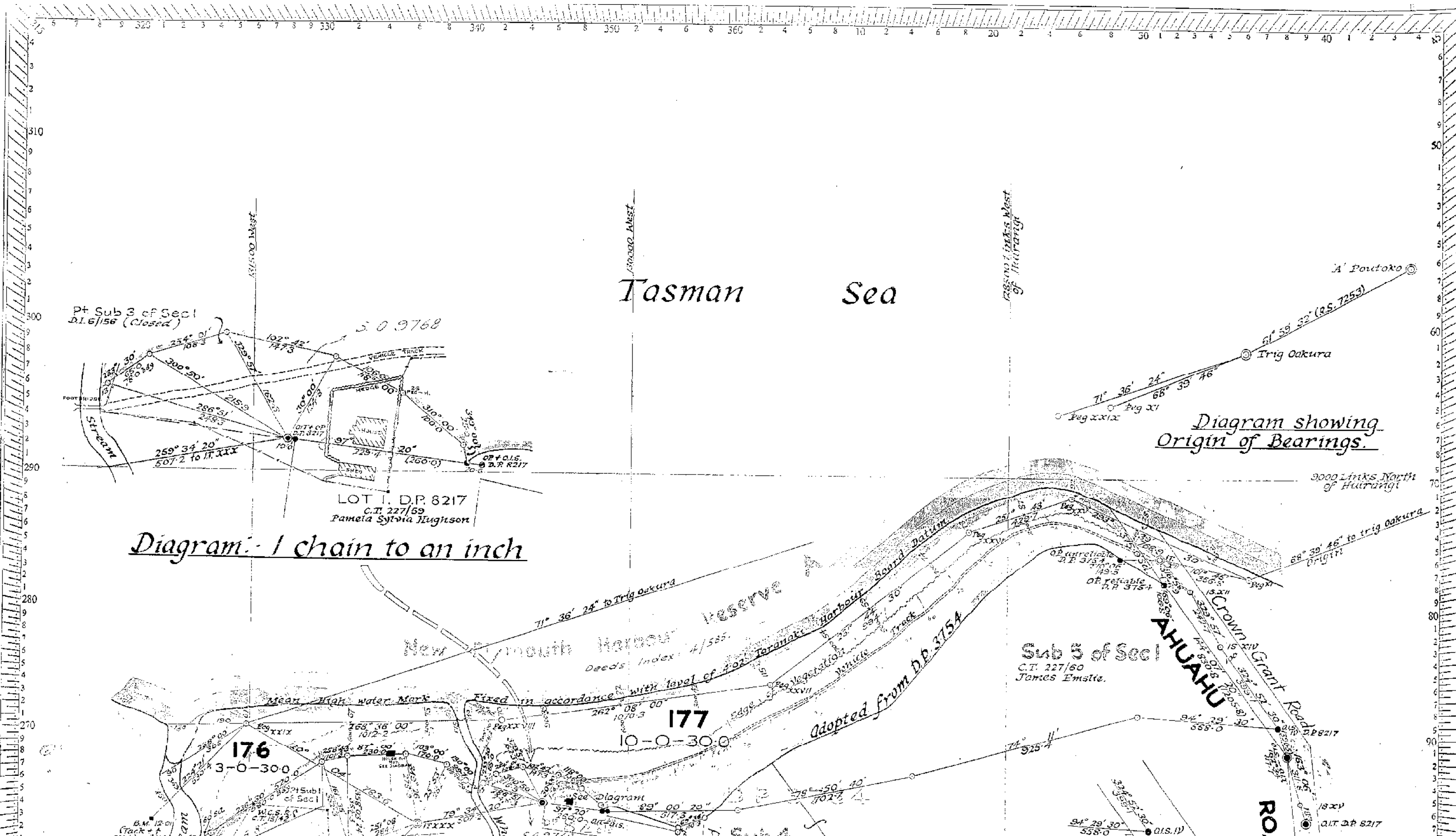
Estate	Fee Simple
Area	5.4127 hectares more or less
Legal Description	Section 176-177 Oakura District
Purpose	Recreation Reserve

Registered Owners
New Plymouth District Council

Interests

Subject to the Reserves Act 1977

10785700.1 Certificate under section 142(1) of the Taranaki Iwi Claims Settlement Act 2016 that the within land is RFR land as defined in section 119 and is subject to Subpart 2 of Part 3 of the Act (which restricts disposal, including leasing, of the land) - 10.5.2017 at 7:00 am


Tasman Sea
Diagram showing Origin of Bearings.
'A' Poutoko
Trig Oakura
Diagram: 1 chain to an inch
LOT 1, D.P. 8217
C.T. 227/59
Pamela Sylvia Hughson
Pt Sub 3 of Sec I
New Plymouth Harbour Reserve
Deeds' Index 4/585
Mean High water Mark Fixed in accordance with level of 4 oz Taranaki Harbour Board Datum
177
10-0-30.0
176
3-0-30.0
Adopted from D.P. 3754
Sub 5 of Sec I
C.T. 227/60
James Emslie.
AHUAHU Crown Grant Road
ROAD
Sub 2 of Sec
Sub 4 of Sec I
Timaru Stream
TIMARU ROAD
Public Road Gaz. 1912 p10
WELD ROAD
Crown Grant Road
ROAD
Crown Grant Road
Diagram not to scale
Diagram 50 Links to an inch
House
garage
In Sectional Index
On Index Maps
On 40 Chain Maps
On Road Record
Final No. in Register
Recording Checked
TOTAL AREA
13-1-20
PLAN OF SECS 176 & 177
OAKURA DISTRICT
Pt Corbett Park Domain Gaz. 1963 p 188
Note.
Bearings in terms of 1949 Geo. Datum. Deduct 1' to bring in terms of old work.
Approved
Chief Surveyor 31/8/62
This space reserved for plan numbers
9480
Survey Block & District I WAIRAU
Land District TARANAKI
Local Body TARANAKI COUNTY COUNCIL
Scale 3 chain to an inch
Surveyed by T. T. Bright
Date February 1961
Received
File
Instructions
Reference Plans D.P.S. 3754, 8217
Field book
Traverse book
Examined by
Recorded
Plan in order for approval 31.8.62
I, Trevor Thomas Bright of New Plymouth Registered Surveyor and holder of an annual practising certificate, hereby certify that this plan has been made from surveys executed by me; that both plan and survey are correct and have been made in accordance with the regulations under the Surveyors Act, 1938
Dated at New Plymouth this 5th day of July 1962
Registered Surveyor.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**582244**
Land Registration District	**Taranaki**
Date Issued	01 May 2012

Prior References
GN 151160

Estate	Fee Simple
Area	1857 square metres more or less
Legal Description	Section 182-184 Oakura District
Purpose	Recreation Reserve

Registered Owners
New Plymouth District Council

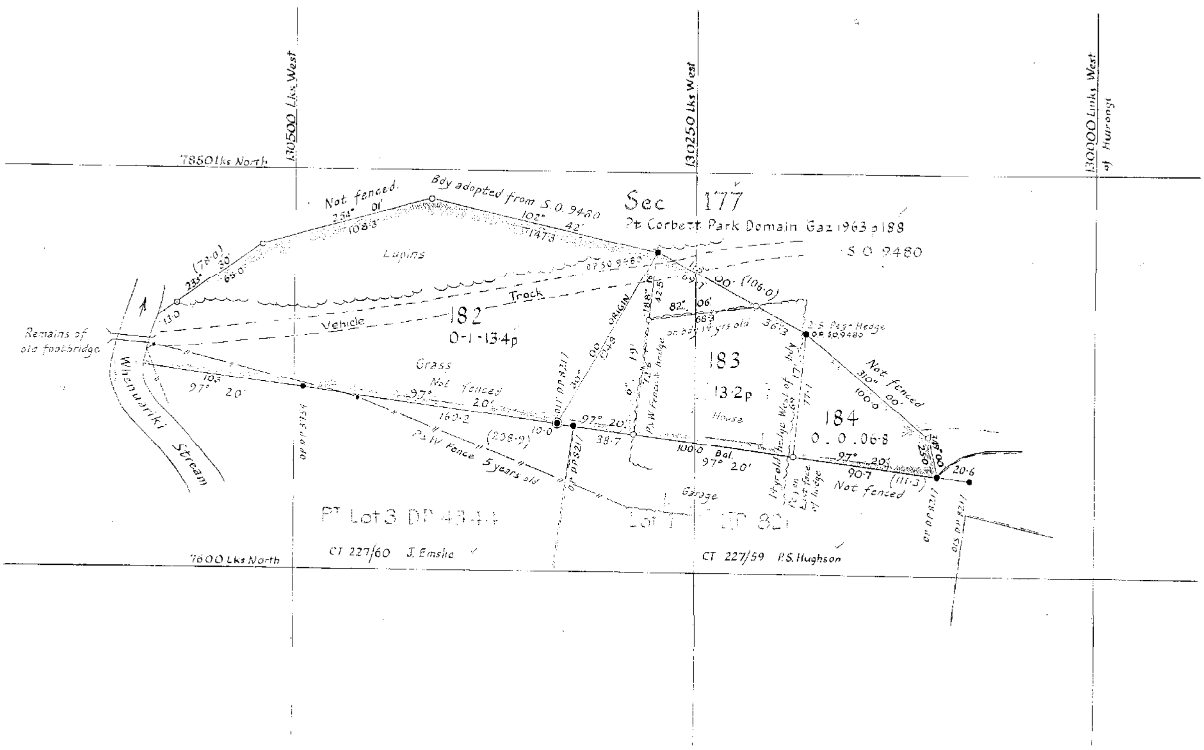
Interests

Subject to the Reserves Act 1977

10785700.1 Certificate under section 142(1) of the Taranaki Iwi Claims Settlement Act 2016 that the within land is RFR land as defined in section 119 and is subject to Subpart 2 of Part 3 of the Act (which restricts disposal, including leasing, of the land) - 10.5.2017 at 7:00 am

This information is provided from TechnologyOne ECM

L&S Form N. 31



Part Corbett Park Domain
Gaz 3rd October 1966 Pg: 1526

In Sectional Index		16.9.65
On Index Maps		16.9.65
On 40 Chain Maps		
On Road Record		
Final No. in Register for Line Checked		16.9.65

Plan of
Sections 182, 183, 184 Oakura District

Total Area 0 - 1 - 33·4

File 3/393 folio 265

Approved
Chief Surveyor
15.9.65

Received 3.9.65
Reference plans SO 9480, DP 8217, 3754
Field book 120 p. 44
Traverse book 132 p. 155
Examined by
Recorded
Correct
E. T. Surveyor

Comprised in ... Crown Land

Survey Block & District IWAIRAU

Land District TARANAKI Local Body TARANAKI COUNTY COUNCIL

Scale 50 Links to an inch Surveyed by G. Henderson Date Jan. 1965

I, Graham Henderson of New Plymouth Registered Surveyor and holder of an annual practising certificate, solemnly and sincerely declare that this plan has been made from surveys executed by me; that both plan and survey are correct, and have been made in accordance with the regulations under the Surveyors Act 1938. And I make this solemn declaration, conscientiously believing the same to be true and by virtue of the Oaths and Declarations Act 1957.

Declared at New Plymouth this 15th day of February 1965 before me—

Justice of the Peace, (or other person authorised to take a statutory declaration.)

Registered Surveyor.

Approved
For, and on behalf of, H.M. the Queen

Commissioner of Crown Lands
Applicant ~~or Registered Owner~~

This space reserved for plan numbers

9768

Appendix C Pathway Preliminary Design Report and Drawings

REPORT

Tonkin+Taylor

Weld Road - Coastal Walkway

Preliminary Design Report

Prepared for

New Plymouth District Council

Prepared by

Tonkin & Taylor Ltd

Date

October 2023

Job Number

1017346.3000.v3

Exceptional thinking together

www.tonkintaylor.co.nz

Document Control

Title: Weld Road - Coastal Walkway – Preliminary Design Report					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
25/03/2022	1	Draft report for client review	A Brown	P Quilter	R Reinen-Hamill
15/09/2023	2	Draft Preliminary Design Report update for client review	A Brown	R Reinen-Hamill	R Reinen-Hamill
20/10/2023	3	Final Preliminary Design Report for Resource Consent	A Brown	R Reinen-Hamill	R Reinen-Hamill

Distribution:

New Plymouth District Council 1 PDF copy

Tonkin & Taylor Ltd (FILE) 1 electronic copy

Table of contents

1 Introduction

1.1 Background

New Plymouth District Council (NPDC) engaged Revolution Civil Engineering (RCE) to provide them with a range of conceptual design options for a coastal walkway that allows for high tide access linking an existing pedestrian suspension bridge at the western end of Ahu Ahu Road, around the adjacent headland, to the carpark at the northern end of Weld Road. This work by RCE resulted in NPDC identifying a preferred solution that involves the construction of a rock revetment structure seaward of the headland to support and protect a pedestrian pathway.

NPDC then engaged Tonkin & Taylor Ltd (T+T) to provide a preliminary coastal assessment[1] with respect to coastal erosion at and adjacent to the site, overtopping, and potential coastal effects associated with the rock revetment. Subsequently, NPDC engaged T+T to prepare and lodge the resource consent application.

1.2 Scope of work

To develop the design suitable for resource consent, NPDC has engaged T+T to provide preliminary design services (consent level). This design report accompanies our Consent Issue Drawings (Appendix A) and draft specification (Appendix B).

Since progressing our design, the suspension bridge to the east of the site were both damaged. This has subsequently been conceptually designed by WSP. We have prepared Consent Issue Drawings that account for inclusion of the newly designed footbridge at Detailed Design stage.

Following the Resource Consent process Detailed Designs will be prepared which will be suitable for Tendering the construction works for the coastal path and rock revetment. Design development of the footbridge will be progressed by others.

1.3 Site information

Weld Road headland is approximately 10 km southwest of New Plymouth on the west coast of the North Island, New Zealand (Figure 1.1). The headland contains the Weld Road Reserve which is a popular area for walkers and bikers. Prior to a storm event in early 2022, a footbridge crossed Whenuariki Stream from the Weld Road bush track in the west to the eastern side of the headland. The only existing access connecting the two walkways is via the beach route around the headland, however during some high tides the beach access way is unsafe for walkers and unfeasible for bikes.

[1] Weld Road Beach Access – Preliminary Coastal Process and Effects Screening, June 2021, T+T ref: 1017346.

Figure 1.1: Location of Weld Road headland.

2 Design basis

2.1 Design life

The rock revetment has been designed assuming a working life of <50 years. Monitoring and maintenance are recommended to prolong the working life, particular attention should be paid to the termination points at either end of the rock revetment. A usual monitoring regime for this type of structure would include yearly inspections and post storm inspection to check rock armour stability and outflanking (by erosion) at the termination points.

2.2 Design event

2.2.1 Rock armour sizing

The 100-year average return interval (ARI) storm event in combination with storm surge and allowance for sea level rise (RCP 8.5 scenario) over the design life has been used to determine the rock armour size.

2.2.2 Wave overtopping

Wave overtopping occurs when higher water levels and larger waves coincide. Water that passes over the crest of the structure at these times present a safety hazard to people that may be standing on the access path at this time.

Due to uncertainty regarding future beach levels, we have considered severe beach lowering in conjunction with a less conservative RCP4.5 sea level rise projection. Calculations indicate overtopping to be more critical in this case, than sea level rise associated with RCP8.5 and a high beach level as surveyed.

Accounting for both severe beach lowering and an RCP8.5 in combination is considered disproportionately conservative, particularly noting future provision for crest raising in this design as indicated by NPDC to off-set decadal changes in water levels, sediment supply and their impact on the frequency and severity of overtopping.

However, the path is a 'fair-weather' amenity, and not relied upon for life-line access, with a design life of less than 50 years, and potential asset relocation considered amongst future adaptation management options beyond 2070. On that basis, tolerable wave overtopping limits of 1 l/s/m for the 1-year ARI storm event in combination with storm surge and allowance for sea level rise (RCP 4.5 scenario) over the design life has been used to assess wave overtopping. This assessment was undertaken as part of T+T's previous coastal processes engagement and NPDC selected a crest elevation for the footpath of 2.9 m RL based on those results. It is anticipated that the path will not be used during storms with high water levels.

2.3 Datum and coordinate system

The project vertical datum is the New Zealand Vertical Datum that was set in 2016 (NZVD-16). In this report NZVD-16 is defined as the Reduced Level (RL). The coordinate system used is the New Zealand Transverse Mercator 2000 (NZTM2000).

3 Design method

The following steps were followed to design the proposed coastal walkway:

1. Compilation of existing topographic data and geotechnical information.
2. Establishing the design water levels.
3. Determination of the nearshore wave climate and design wave.
4. Assessing potential for erosion, scour of seabed, beach lowering and required revetment toe elevation.
5. Review of available and suitable rock from nearby quarries.
6. Calculation of the required primary armour and underlayer rock size.
7. Confirming the crest armour details for wave overtopping thresholds.
8. Designing the end details of the revetments to tie into the headland and suspension bridge
9. Preparing the drawings.
10. Specifying materials – geotextile, rock, concrete.

The following design guides and standards have been used in preparing our design.

- Australian Standard (2005) Guidelines for the design of maritime structures (AS-4997).
- CIRIA, CUR, CETMEF (2007) The rock manual. The use of rock in hydraulic engineering.
- EurOtop (2018) Manual on wave overtopping of sea defences and related structures. An overtopping manual largely based on European research, but for worldwide application. Van der Meer, J.W., Allsop, N.W.H., Bruce, T., De Rouck, J., Kortenhaus, A., Pullen, T., Schüttrumpf, H., Troch, P. and Zanuttigh, B., www.overtopping-manual.com.

4 Environmental conditions

This section summarises the environmental conditions, survey, investigations, and other design data relied upon for design.

4.1 Topography and bathymetry

The coastal walkway and rock revetment has been preliminary designed according to the topographic survey provided by RCE, LiDAR from LINZ and UAV survey by Drone Technologies. The

Detailed Design drawings will rely on the 2023 topographic survey commissioned by WSP. Differences between the two survey datasets have been compared and erosion has been observed in some areas, this would only reduce the footprint of the revetment and therefore not change the resource consent process.

4.2 Geology and beach sediment

The Weld Road headland is formed of Lahar formation rock. The foreshore is comprised of mixed sand and gravel overlaying boulders.

A series of test pits were undertaken by RCE and have been relied upon for design, these are summarised in the below table where the interpreted lahar rock elevation is provided. Their locations are shown on the drawings and photographs from each test pit are provided in Appendix C.

There is a lack of geotechnical information within the Whenuariki Stream. To account for this a falling toe detail for the revetment has been designed.

Table 4.1: Test pit results

Test pit number	Rock elevation (m RL) NZVD-16
1	1.11
2	1.15
3	0.09
4	-0.25
5	1.16

4.3 Design water levels

The astronomical tide, storm tide and future sea level rise scenarios used for design are provided in Table 4.2, Table 4.3 and Table 4.4 respectively. The design water level for the rock armour sizing is 2.41 m RL and design water level for assessing wave overtopping is 2.04 m RL (refer to greyed out cells of Table 4.4).

Table 4.2: Astronomical tidal levels at Port Taranaki

Tide stage		Elevation (NZVD-16)
HAT	Highest Astronomical Tide	1.775
MHWS	Mean High Water Spring	1.455
MHWN	Mean High Water Neap	0.665
MSL	Mean Sea Level	-0.165
MLWN	Mean Low Water Neap	-1.025
MLWS	Mean Low Water Spring	-1.815
LAT	Lowest Astronomical Tide	-2.155

Table 4.3: Extreme storm surge and storm tide levels including wave setup for Port Taranaki

ARI (years)	Surge (m MSL)	Storm tide level (NZVD-16)
1	0.52	1.76
10	0.69	1.92
100	0.86	2.05

Table 4.4: Summary of present day and future extreme static water levels

	Present day 2020 water level (NZVD-16)	2070 water level (NZVD-16)			
		Associated with SLR scenarios			
		RCP 2.6	RCP 4.5	RCP 8.5	RCP 8.5+
SLR relative to 2020 MSL (m)	0	0.24	0.28	0.36	0.50
MHWS	1.46	1.70	1.74	1.82	1.96
1 year ARI	1.76	2.00	2.04	2.12	2.26
10-year ARI	1.92	2.16	2.20	2.28	2.42
100-year ARI	2.05	2.29	2.33	2.41	2.55

4.4 Design wave height

The offshore wave characteristics are provided in Table 4.5. The nearshore wave characteristics have been estimated based on depth limited wave calculations at the toe of the rock revetment structure for the design water level in combination with the offshore peak wave period.

As the beach levels have been shown to fluctuate significantly, we have used the bedrock level inferred from the test pits as 0.00 m RL to determine the depth at the toe of structure for the design wave calculation.

Using the design water level of 2.41 m RL (100-year ARI, RCP 8.5) for rock armour sizing, the depth limited wave has a significant wave height of 1.45 m.

Using the design water level of 2.04 m RL (1-year ARI, RCP 4.5) for wave overtopping, the depth limited wave has a significant wave height of 1.22 m.

Table 4.5: Offshore wave characteristics (10 m depth contour) for Weld Road[1]

ARI (years)	Significant wave height, Hs (m)	Peak wave period, Tp (s)
1	4.45	13.10
10	5.10	13.80
100	5.50	14.20

[1] Provided by MetOcean Solution Ltd to T+T (2016).

5 Design details

5.1 Erosion, scour and beach lowering

In lieu of detailed ground investigations we have inferred the lahar formation from the data we have to determine the erosion and scour potential. For our design we have assumed the bedrock level to sit around 0.00 m RL in the location of the rock revetment toe. Based on the coastal processes assessment beach levels can fluctuate significantly and as such we have keyed the toe of the revetment 0.5 m into the bedrock. Should rock at the toe not be found within the Whenuariki Stream then a falling toe detail will provide an alternative solution.

5.2 Rock armour sizing

The armour rock and underlayer for the revetment were assessed using the method of Van der Meer as set out in the Rock Manual (CIRIA, 2007). We have based our rock armour calculations on the semi-rounded Andesite rock that is available from South Taranaki Quarries. It is expected that once a quarry has been selected the relevant tests and quality checks are undertaken to inform the parameters used in the Detailed Design. The draft Specification is provided in Appendix B which outlines the requirements. The following assumptions were made at this stage:

- Rock density is 2,650 kg/m^3.
- Rocks are semi-rounded.
- Notional permeability factor P = 0.1 (based on 2 x D_{50} thick armour layer placed on 2 x D_{50} thick underlayer on geotextile).
- Typical slope is 1V:2H.
- Design wave height is depth limited, H_s = 1.45 m, T_p = 14.20.
- Storm duration is 4 hours (i.e., across a single high tide). Due to the location of the coastal works at the top of the beach, wave height is controlled by water level and therefore peak wave heights will only occur for a short duration).
- Start of damage criteria (S_d = 2) is adopted.

Table 5.1 shows the resulting rock armour sizing required for a 1(V):2(H) sloped structure. The primary armour would need to be placed in two layers, approximately 1.27 m thick, on top of the underlayer rock, approximately 0.51 m thick, overlying a geotextile filter fabric such as that specified on the drawings. Along the Whenuariki Stream the revetment is proposed to be steepened to 1(V):1.5(H) to reduce the hydraulic impact to the stream. Armour sizing checks for this section will be undertaken during Detailed Design.

Table 5.1: Rock armour grading

Rock gradings	Median rock weight W_{50} (i.e., 50% by number above)	Range	>60% by number to be between
Primary armour	1,025 kg	470 kg to 2,600 kg	470 kg to 1,525 kg
Underlayer	70 kg	27 kg to 200 kg	27 kg to 110 kg

5.3 Wave overtopping

NPDC decided to set the path elevation at 2.90 m RL based on the wave overtopping assessment undertaken as part of T+T coastal processes assessment, along with consideration for a range of other factors such as visual impact, required level of service and future adaptation options.

To achieve the design criteria of 1 l/s/m during a 1-year ARI storm event accounting for sea level rise to the year 2070 using the RCP 4.5 scenario, the crest of the rock armour needs to be a minimum of 4 m wide. The crest of the rock armour seaward of the path has been designed to an elevation of 3.40 m RL. The empirical methods of the EurOtop (2018) Wave Overtopping Manual for rock armoured structures were used for this analysis.

Should sea levels rise beyond those predicted under the RCP 4.5 scenario over the design life then adaptation of the structure may be required to achieve the same level of resilience to wave overtopping. The need for future adaptation would be triggered by intolerable levels of wave overtopping which based on our current understanding would be during extreme storms at a time when beach levels are severely lowered.

5.4 Path alignment

The alignment of the path around the headland has been based on that proposed by RCE who surveyed the site. There may be minor cut required to the headland to locate the path along this alignment, it is expected that this would largely be vegetation hugging the edge of the slope over anything that would cause geotechnical instability of the headland. Localised adjustments to the alignment may be required to avoid any issues with headland instability. This would be confirmed during the setting out of the works at construction.

5.5 End details

5.5.1 Suspension bridge to walkway

The rock revetment has been designed to hug the bank of the Whenuariki Stream and terminate adjacent to the suspension bridge. The width and elevation of the rock revetment have been adjusted to tie in with the abutment of the suspension bridge and the path elevation adjusted to slope at an appropriate grade to match that of the bridge. This end detail is shown in the 3D visual in Figure 5.1. This design relies upon the levels and location of the bridge pre-storm damage and will be updated at Detailed Design stage to incorporate the newly design footbridge.

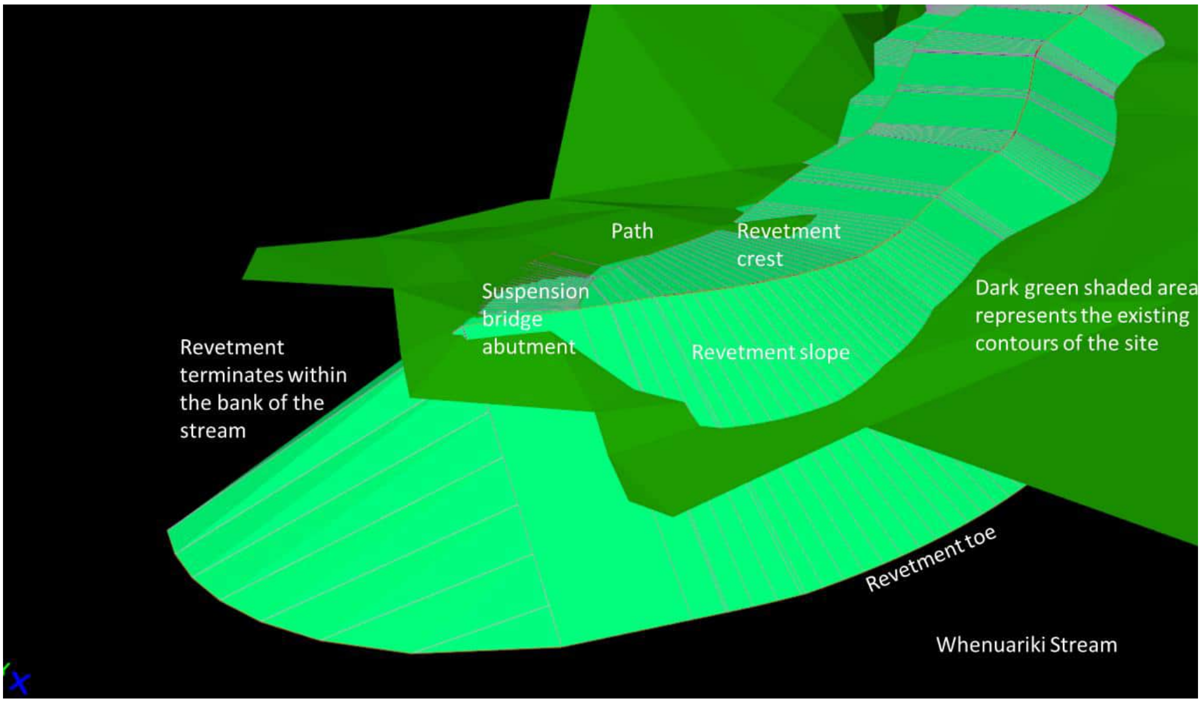


Figure 5.1: 3D visual of the rock revetment end detail as the path transitions to the suspension bridge.

5.5.2 Walkway to bush track

To mitigate the western end of the rock revetment being outflanked as beach levels fluctuate and the shoreline erodes, we have designed the revetment to tie into the lahar rock formation inferred from the available data. If during excavation, this lahar material is deeper and extends less seaward then inferred from investigative information, the alignment of the western termination would likely require modification (extension landward). After the rock has been placed in this location the excavated material should be replaced to recreate the gently sloping dune that has been disturbed. Care should be taken to minimise any fall height from the existing bush track to the rock revetment and beach below. The elevation of the path has been adjusted to create an appropriate slope to tie in with the existing track. This end detail is shown in the 3D visual in Figure 5.2.

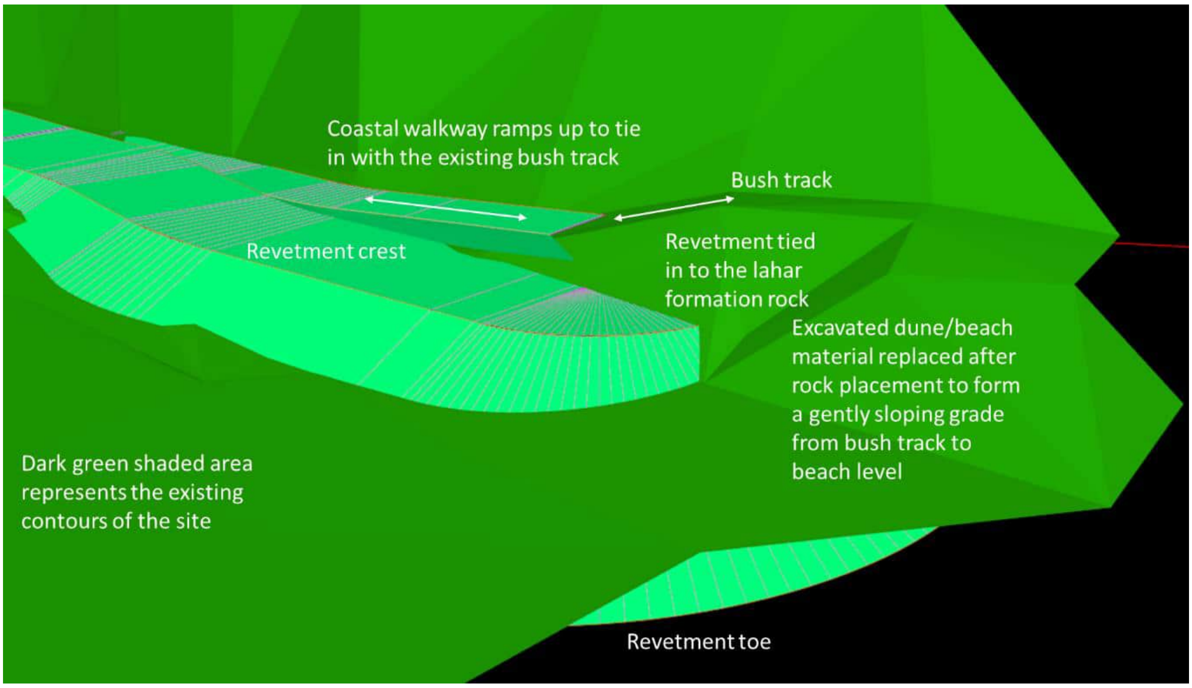


Figure 5.2: 3D visual of the rock revetment end detail as the path transitions to the bush track.

5.6 Safety in design

Safety in design is a standard that integrates hazard identification and risk assessment methods early in the design process. The standard considers how to eliminate, isolate or minimise the risks of death, injury and ill health to those who will construct, operate, maintain, decommission or demolish an asset.

Key hazards and mitigation measures that we have identified for this project are provided in Table 5.2.

Table 5.2: Safety in design considerations

Phase	Hazard	Mitigation
Construction	On some sands it has been found that any areas of the beach undercut to allow construction has a tendency to become quicksand after backfilling. This effect is only evident once the tide has reached the backfilled sand. At this time the sand, that was perfectly firm and safe to walk on, can lose all ability to support load resulting in people and animals sinking instantly through the sand to almost the base of the excavation.	Historically, the passage of two tidal cycles (i.e., 24 hours) has remedied this and rendered the beach safe to walk on. The Contractor shall be alert to this hazard and shall take measures to preclude access until the sand is safe to walk on.

Phase	Hazard	Mitigation
	As the site is within the public realm there is a risk of public accessing the site being exposed to unsafe/unsupervised plant or environment.	To mitigate this clear signage, fencing and notification to the public should be undertaken.
	The site is within the Coastal Marine Area and adjacent to a stream. The contractor will be subject to varying water levels, waves, and stream flows, all of which are weather dependent.	The contractor must be aware of the weather conditions in advance of any works and plan around water level fluctuations.
Operation	Walkers may decide to use the rock revetment crest and slope to access the beach. This has an irregular surface and voids between as well as the potential to be slippery when wet.	Reinstating the excavated beach material at the toe and at the end details of the revetment will reduce the distance and fall height from rock crest to the beach. While this doesn't avoid the hazard it reduces it. Signage that outlines this hazard may be an option to help raise awareness to users.
	The path ramps at either end to match the suspension bridge and bush track levels.	We have designed the path to have slopes ~ 8% which will provide a suitable grade for walkers and cyclists.
	Should sea levels rise at faster rates and coincide with larger storm events at a time of serve beach lowering than that considered in the design then the path may be overtopped by waves.	The path is considered a fair-weather amenity, and not relied upon for life-line access and would be shut to the public in these instances. Should wave overtopping become an issue in the future, the structure can be adapted to mitigate this. This would likely include raising the path and crest elevation.
Maintenance	Rock revetments are dynamically stable structures that require maintenance over their design life to maintain performance. Poor construction through for example a lack of interlocking between rocks or clustering of smaller rocks within the revetment slope, can increase the maintenance requirements or in extreme cases lead to failure. Failure of a rock revetment would be considered where sufficient rocks have been displaced to expose the geotextile.	Our rock armour specification (refer Appendix B) sets out measures to ensure the revetment is constructed to requirements. In addition to this we recommended construction observations are undertaken and hold points are used.
Decommission	The rock revetment has a design working life of <50 years. Over this time sea levels will continue to increase posing a greater hazard than present day in terms of proximity to tidal fluctuations.	Should the structure be decommissioned then greater care will be required to plan the works around inclement weather and water level fluctuations.

6 References

Australian Standard (2005) Guidelines for the design of maritime structures (AS-4997).

CIRIA, CUR, CETMEF (2007) The rock manual. The use of rock in hydraulic engineering.

EurOtop (2018) Manual on wave overtopping of sea defences and related structures. An overtopping manual largely based on European research, but for worldwide application. Van der Meer, J.W., Allsop, N.W.H., Bruce, T., De Rouck, J., Kortenhaus, A., Pullen, T., Schüttrumpf, H., Troch, P. and Zanuttigh, B., www.overtopping-manual.com.

Tonkin + Taylor (2016) New Plymouth District Plan Review: Coastal Management. Report prepared for NPDC.

Tonkin + Taylor (2019) First Pass Coastal Erosion Assessment and Identification of High-Risk Areas. Report prepared for NPDC.

7 Applicability

This report has been prepared for the exclusive use of our client New Plymouth District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that New Plymouth District Council as the consenting authority will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
....	....
Andrew Brown	Richard Reinen-Hamill
Senior Coastal and Maritime Engineer	Project Director

ANBR
\\ttgroup.local\files\aklprojects\1017346\1017346.3000\issueddocuments\final for lodgement\prelim report & drawings\20.10.2023 weld rd, coastal path - prelim design report and drawings [final for lodgement].docx

Appendix A: Consent issue drawings

NEW PLYMOUTH DISTRICT COUNCIL
WELD ROAD COASTAL WALKWAY

Resource Consent Issue

DRAWING	Rev	Title
• 1017346.2000-01	1	DRAWING LIST AND SITE LOCATION
• 1017346.2000-05	1	EXISTING SITE PLAN AND WORK AREA
• 1017346.2000-10	1	PROPOSED SITE PLAN
• 1017346.2000-20	1	TYPICAL SECTIONS
• 1017346.2000-30	1	WALKWAY LONGSECTION
• 1017346.2000-41	1	WALKWAY CROSS SECTIONS SHEET 1
• 1017346.2000-42	1	WALKWAY CROSS SECTIONS SHEET 2

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• Denotes drawing this issue: 25/03/2022

A3 SCALE 1:25000

0 0.5 1.0 1.5 (km)

ORIGINAL IN COLOUR

Tonkin+Taylor
Exceptional thinking together www.tonkintaylor.co.nz

REV	DESCRIPTION	CAD	CHK	DATE
1	RESOURCE CONSENT ISSUE - PRELIMINARY DESIGN	CYAX	RRH	25.03.2022

DESIGNED	ANBR	Feb.22
DRAWN	CYAX	Feb.22
DESIGN CHECKED	PWQ	23.03.22
DRAWING CHECKED	BLI	17.03.22
APPROVED		DATE

DRAWING STATUS: RESOURCE CONSENT
PROJECT PHASE: PRELIMINARY DESIGN

NOT FOR CONSTRUCTION

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS SIGNED AS APPROVED

CLIENT: NEW PLYMOUTH DISTRICT COUNCIL
PROJECT: WELD ROAD COASTAL WALKWAY
TITLE: DRAWING LIST AND SITE LOCATION
SCALE (A3): 1:25000 DWG No. 1017346.2000-01 REV 1

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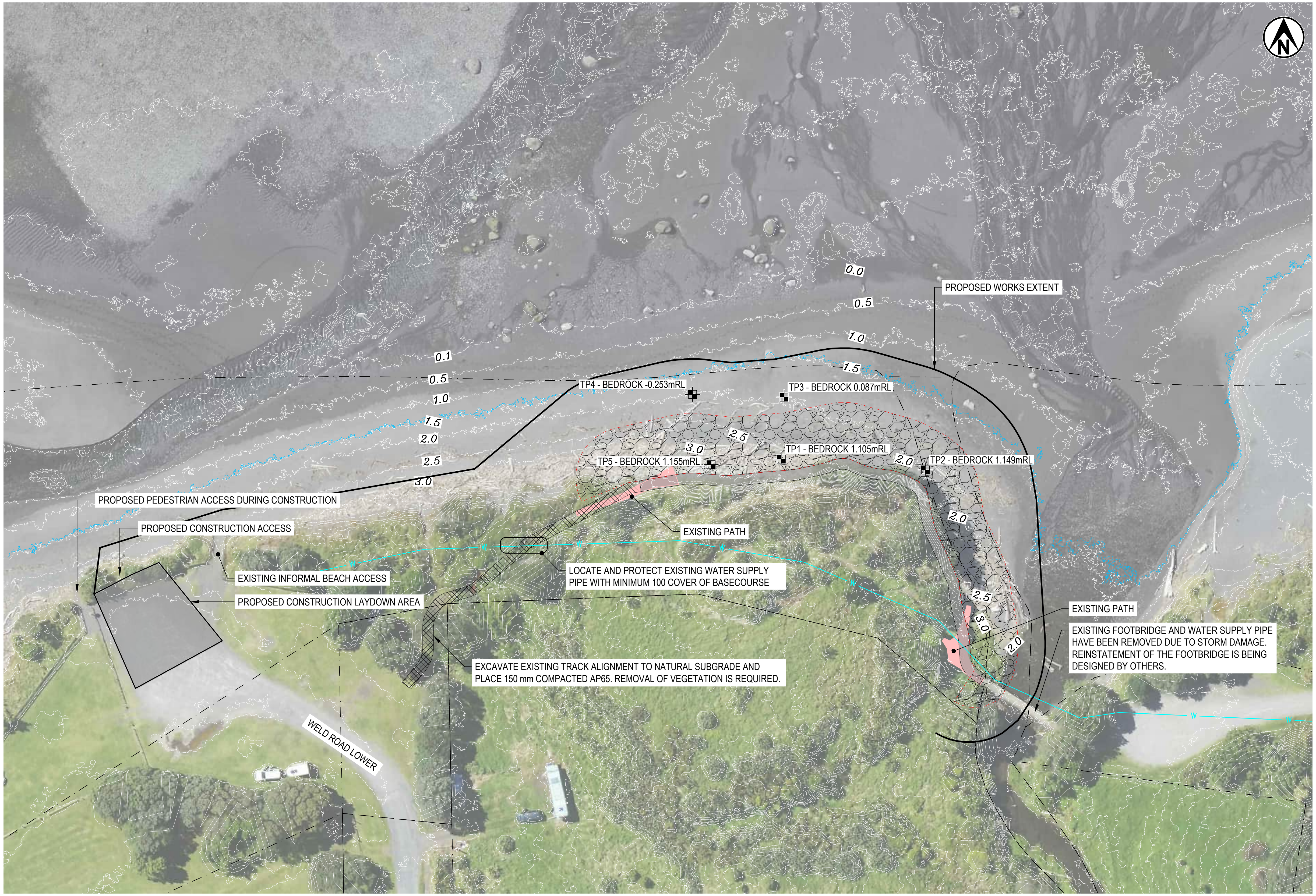

NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. AERIAL PROVIDED BY DRONE TECHNOLOGIES NZ LTD ON 3/12/2021.
3. EXISTING GROUND CONTOURS PROVIDED BY DRONE TECHNOLOGIES NZ LTD, FLOWN 18/01/2022.
4. CONTRACTOR TO CONFIRM LOCATION OF ANY AND ALL SERVICES ON SITE AND TO PROTECT DURING CONSTRUCTION.
5. WATER PIPE LOCATION SOURCED FROM NPDC GIS VIEWER AND MUST BE CONFIRMED ON SITE BY THE CONTRACTOR.
6. HEIGHTS ARE IN TERMS OF NZVD2016.
7. COORDINATES ARE IN TERMS OF NZTM2000.

LEGEND
- EXISTING PROPERTY BOUNDARY
- PROPOSED WORKS EXTENT
- 2.0 SURVEY CONTOUR 0.5m INTERVAL
- MHWS 1.455mRL
- EXISTING PATH
- PROPOSED CONCRETE PATH
- PROPOSED ROCK REVETMENT
- PROPOSED AP65 PATH
- W EXISTING WATER SUPPLY PIPE
- TP1 BEDROCK 1.0mRL TESTPIT / MEASURED BEDROCK RL

A3 SCALE 1:750
0 5 10 15 20 25 30 35 40 (m)

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REV	DESCRIPTION	CAD	CHK	DATE
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DESIGN CHECKED	PWQ	23.03.22
DRAWING CHECKED	BLI	17.03.22
APPROVED		DATE

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PROJECT PHASE: PRELIMINARY DESIGN

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CLIENT: NEW PLYMOUTH DISTRICT COUNCIL
PROJECT: WELD ROAD COASTAL WALKWAY
TITLE: EXISTING SITE PLAN AND WORK AREA
SCALE (A3): 1:750 DWG No. 1017346.2000-05 REV 1

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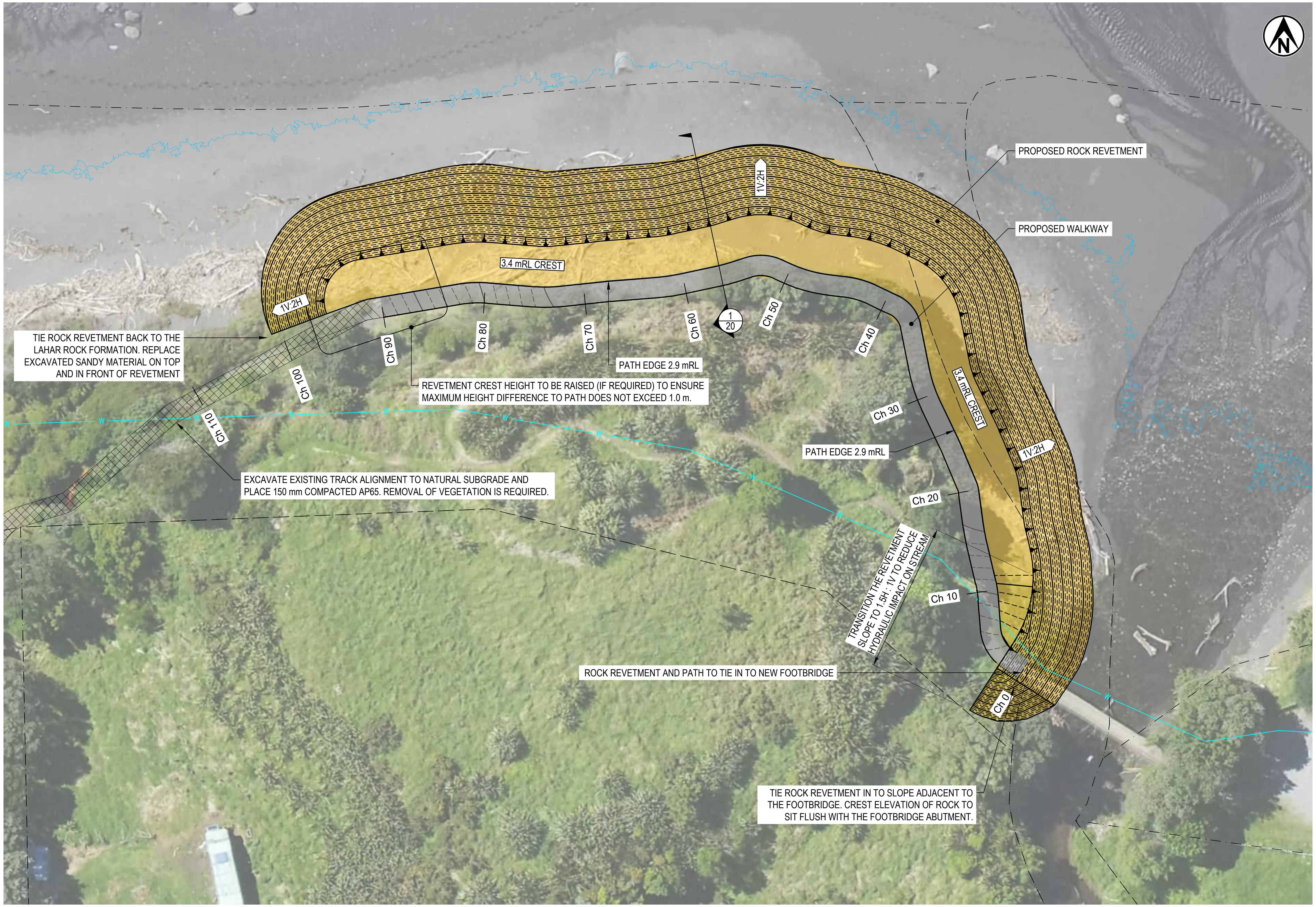

NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. AERIAL PROVIDED BY DRONE TECHNOLOGIES NZ LTD ON 3/12/2021.
3. EXISTING GROUND CONTOURS PROVIDED BY DRONE TECHNOLOGIES NZ LTD, FLOWN 18/01/2022.
4. CONTRACTOR TO CONFIRM LOCATION OF ANY AND ALL SERVICES ON SITE AND TO PROTECT DURING CONSTRUCTION.
5. WATER PIPE LOCATION SOURCED FROM NPDC GIS VIEWER AND MUST BE CONFIRMED ON SITE BY THE CONTRACTOR.
6. HEIGHTS ARE IN TERMS OF NZVD2016.
7. COORDINATES ARE IN TERMS OF NZTM2000.

LEGEND
- EXISTING PROPERTY BOUNDARY
- FINISHED CONTOUR 0.1m INTERVAL
- FINISHED CONTOUR 0.5m INTERVAL
- MHWS 1.455mRL
- TOP OF REVETMENT CREST BATTER
- PROPOSED CONCRETE PATH
- PROPOSED ROCK REVETMENT
- PROPOSED AP65 PATH
- EXISTING WATER SUPPLY PIPE

A3 SCALE 1:400
0 4 8 12 16 20 (m)

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REV	DESCRIPTION	CAD	CHK	DATE
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DESIGN CHECKED	PWQ	23.03.22
DRAWING CHECKED	BLI	17.03.22
APPROVED		DATE

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PROJECT PHASE: PRELIMINARY DESIGN

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CLIENT: NEW PLYMOUTH DISTRICT COUNCIL
PROJECT: WELD ROAD COASTAL WALKWAY
TITLE: PROPOSED SITE PLAN

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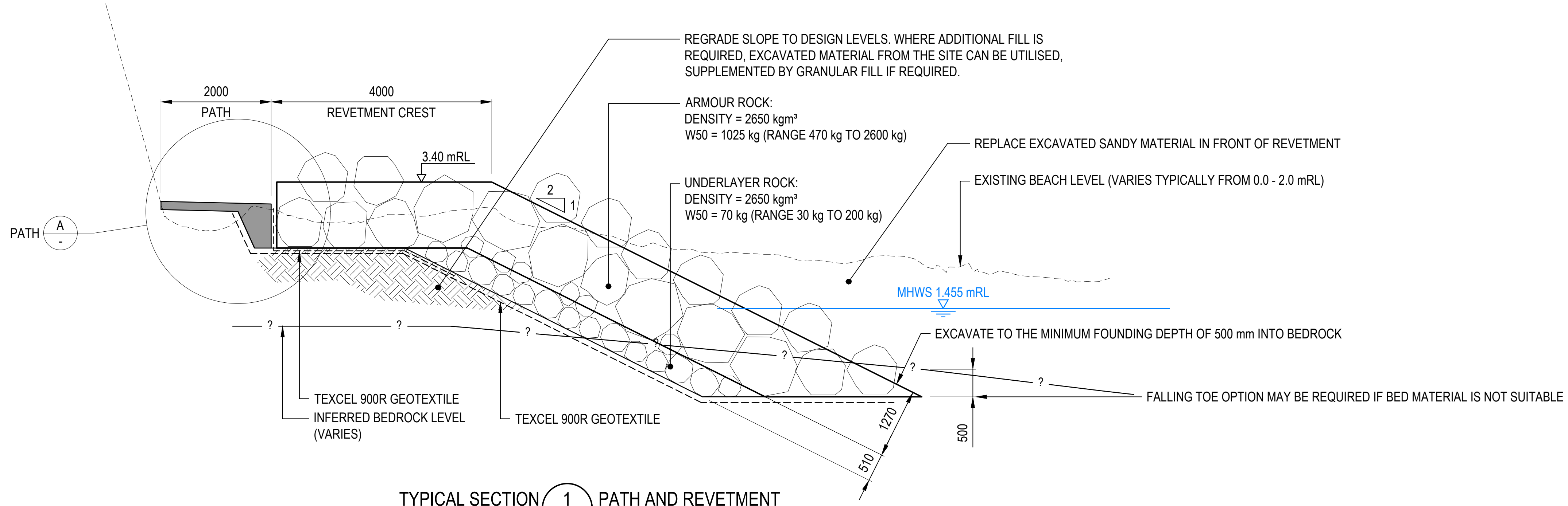
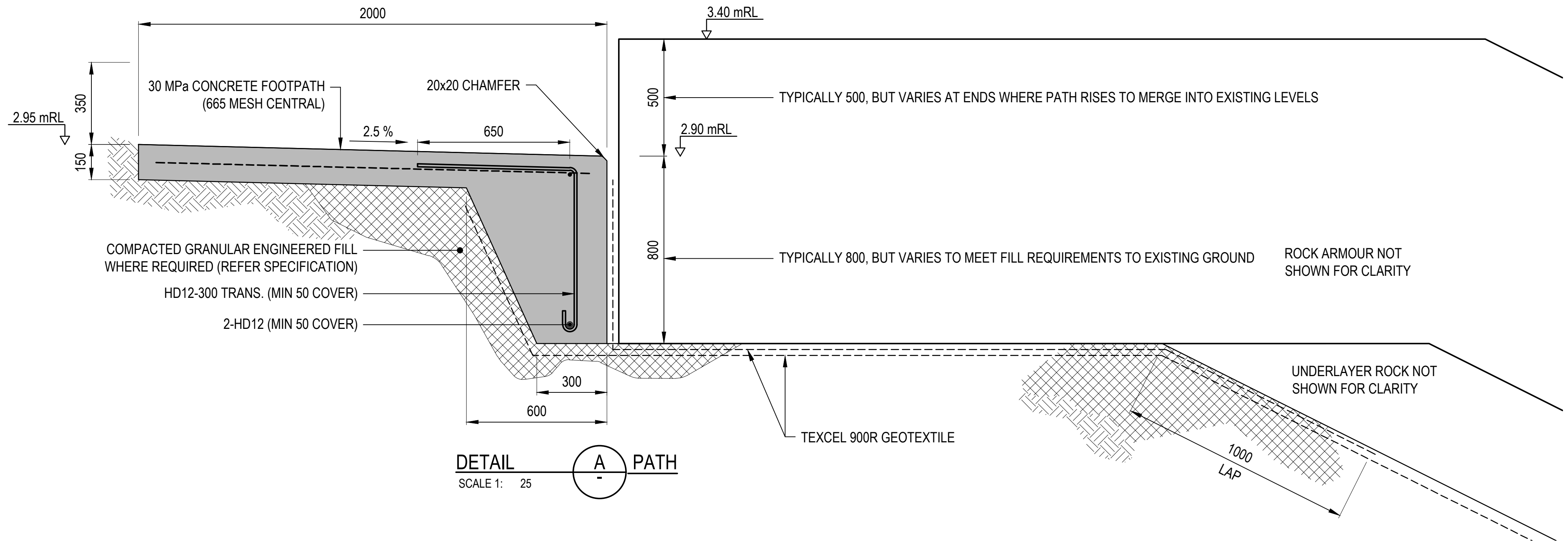


TYPICAL SECTION 1/10 PATH AND REVETMENT
SCALE 1: 100



DETAIL A/- PATH
SCALE 1: 25

NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. HEIGHTS ARE IN TERMS OF NZVD2016.

A3 SCALE 1:100
0 1 2 3 4 5 (m)

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DESIGN CHECKED	PWQ	23.03.22
DRAWING CHECKED	BLI	17.03.22

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PROJECT PHASE: PRELIMINARY DESIGN

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CLIENT: NEW PLYMOUTH DISTRICT COUNCIL
PROJECT: WELD ROAD COASTAL WALKWAY
TITLE: TYPICAL SECTIONS
SCALE (A3): AS SHOWN DWG No. 1017346.2000-20 REV 1

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NOTES:
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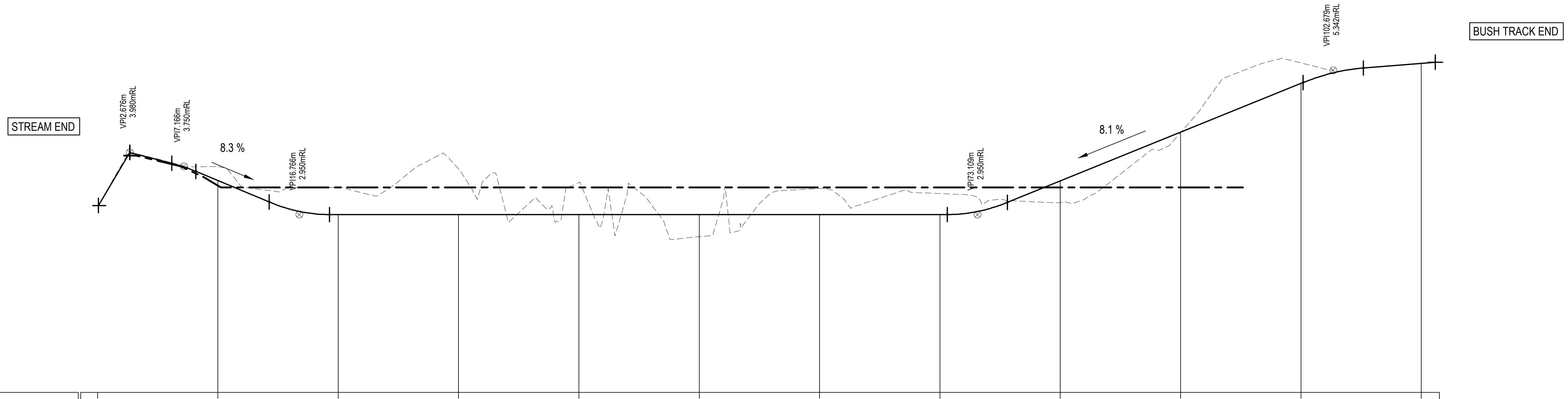
2. EXISTING GROUND SURFACE PROVIDED BY REVOLUTION CIVIL ENGINEERING (RECEIVED 30/11/2021).
3. HEIGHTS ARE IN TERMS OF NZVD2016.



Datum RL(m) 0

2021 SURVEYED RL (m)		3.74	3.4	3.71	3.48	2.59	3.38	3.3	3.15	4.31	5.47	
ROCK CREST RL (m)		3.43	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40		
FINISHED PATH RL (m)		3.51	2.95	2.95	2.95	2.95	2.95	2.95	3.51	4.32	5.12	5.46
CHAINAGE (m)	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00

LONGITUDINAL SECTION: FOOTPATH LANDWARD EDGE

Horizontal Scale 1:400

Vertical Scale 1:80

A3 SCALE 1:400

0 4 8 12 16 20 (m)

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REV	DESCRIPTION	CAD	CHK	DATE
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DRAWING CHECKED	BLI	17.03.22
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PROJECT PHASE: PRELIMINARY DESIGN

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CLIENT: NEW PLYMOUTH DISTRICT COUNCIL

PROJECT: WELD ROAD COASTAL WALKWAY

TITLE: WALKWAY LONGSECTION

SCALE (A3): AS SHOWN DWG No. 1017346.2000-30 REV 1

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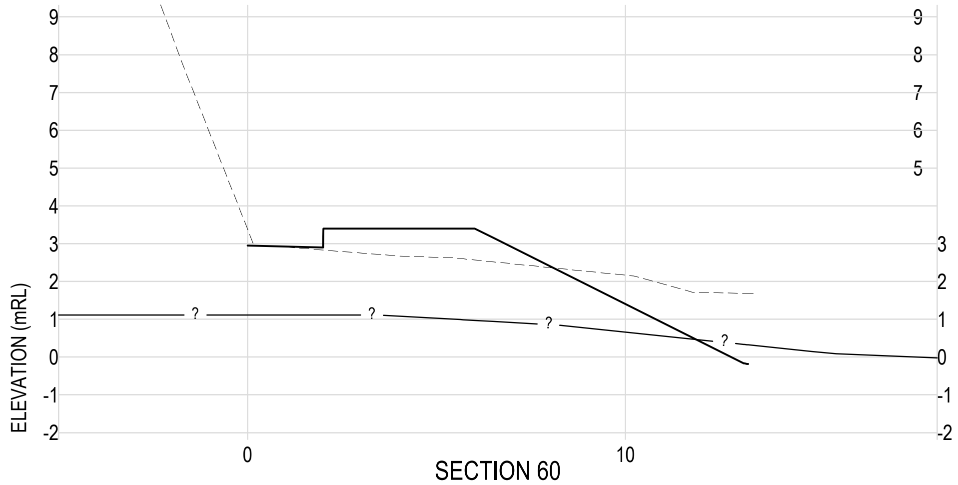
LEGEND

- EXISTING GROUND SURFACE
- FINISHED PATH AND REVETMENT SURFACE
- BEDROCK (INFERRED)

SECTION 30



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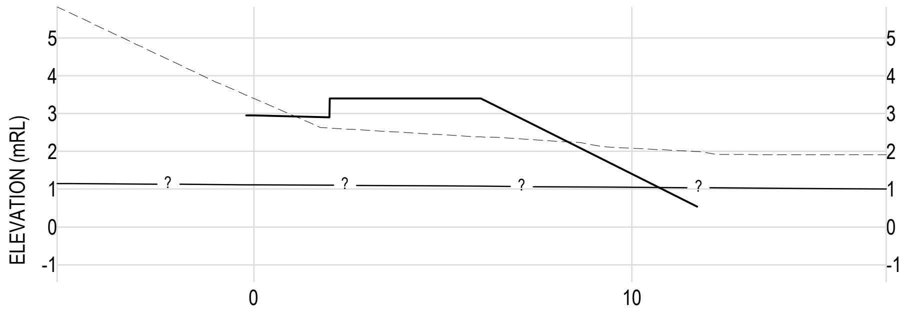

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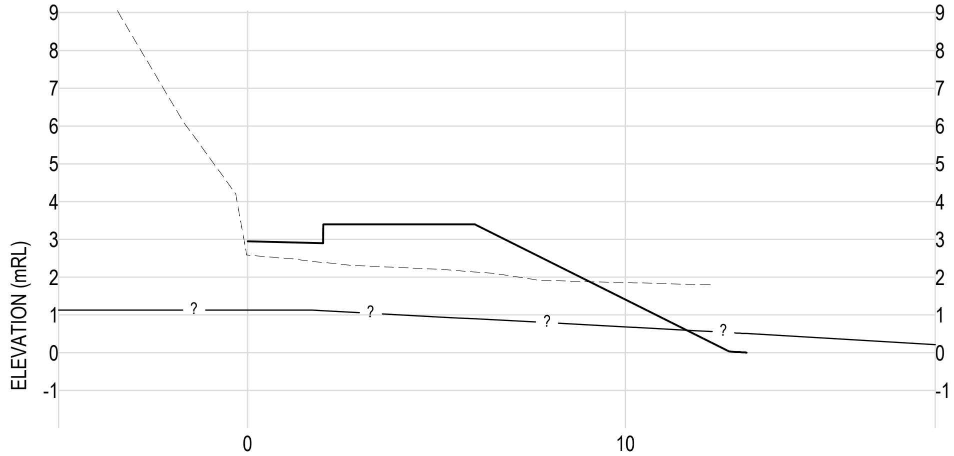

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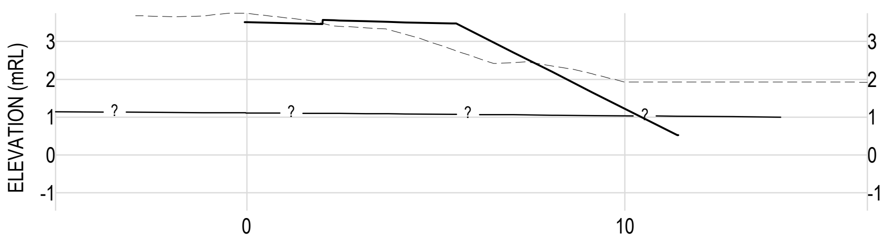

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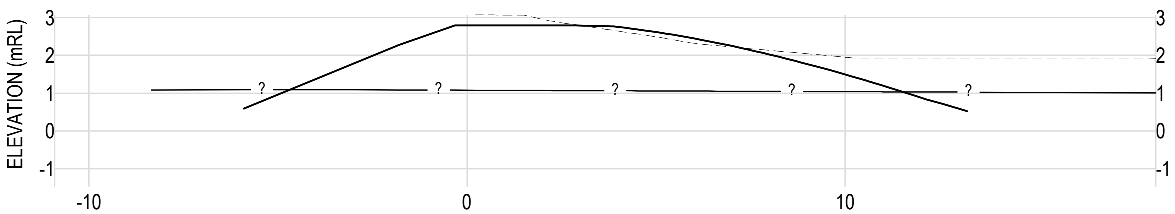

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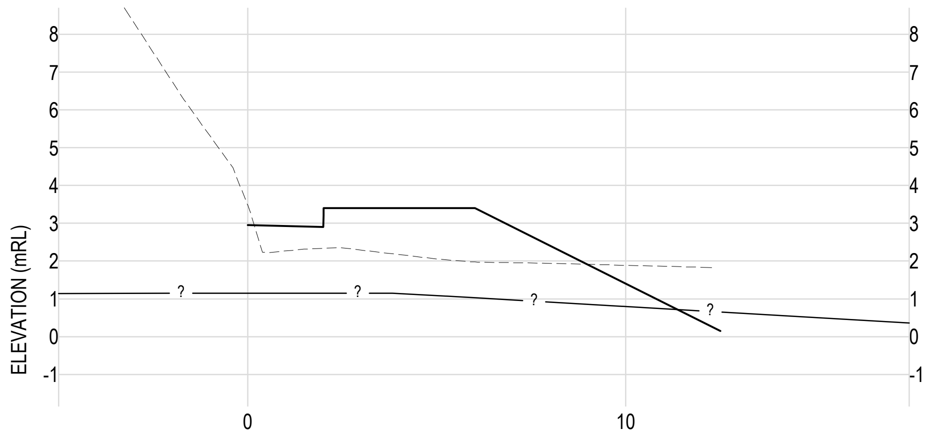

SECTION 40

A3 SCALE 1:200

0 2 4 6 8 10 (m)

NOTES:
1. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE.
2. EXISTING GROUND SURFACE PROVIDED BY REVOLUTION CIVIL ENGINEERING (RECEIVED 30/11/2021).
3. HEIGHTS ARE IN TERMS OF NZVD2016.

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DRAWN	CYAX	Feb.22
DESIGN CHECKED	PWQ	23.03.22
DRAWING CHECKED	BLI	17.03.22
APPROVED		DATE

DRAWING STATUS: RESOURCE CONSENT

PROJECT PHASE: PRELIMINARY DESIGN

NOT FOR CONSTRUCTION

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CLIENT: **NEW PLYMOUTH DISTRICT COUNCIL**

PROJECT: **WELD ROAD COASTAL WALKWAY**

TITLE: WALKWAY CROSS SECTIONS SHEET 1

SCALE (A3): 1:200 DWG No. 1017346.2000-41 REV 1

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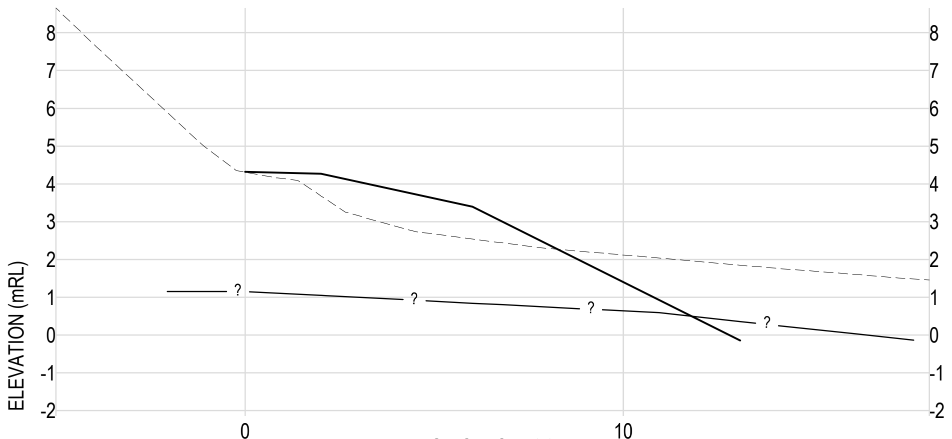
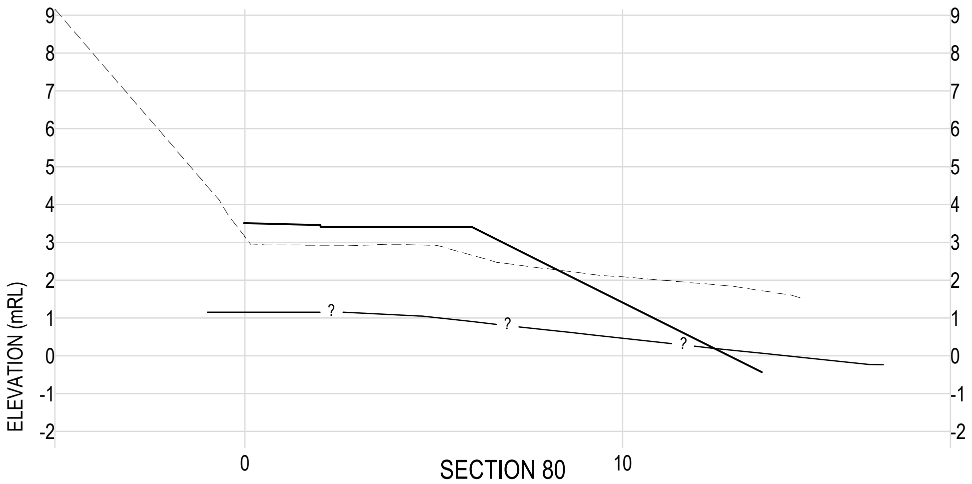
LEGEND

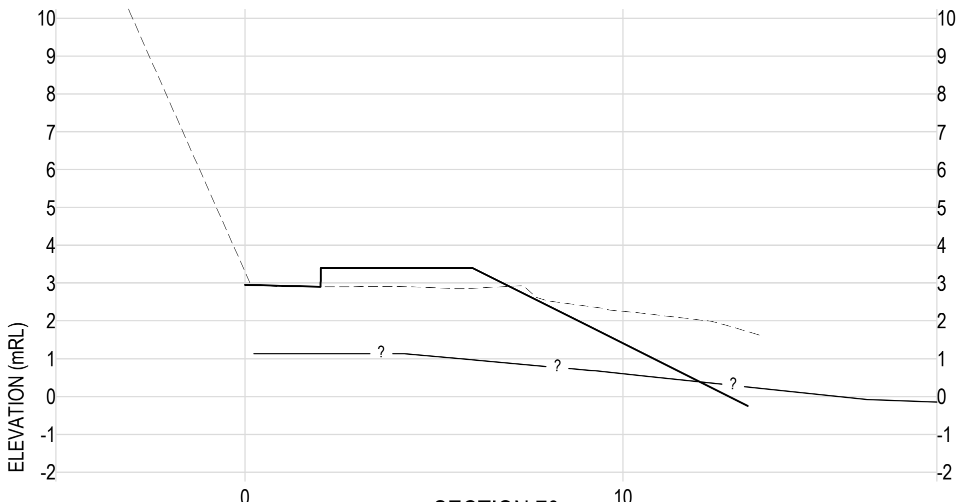
- - - - - EXISTING GROUND SURFACE
——— FINISHED PATH AND REVETMENT SURFACE
— ? — BEDROCK (INFERRED)



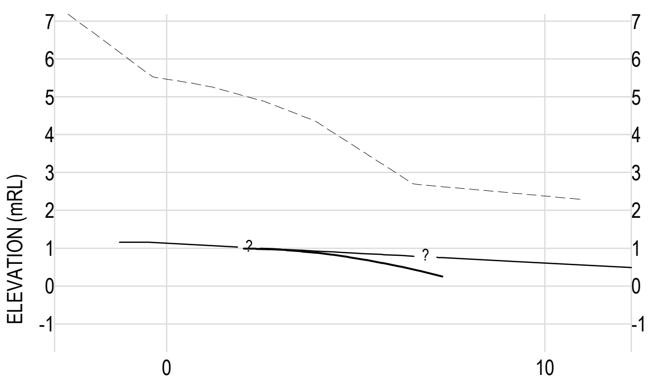
SECTION 90



SECTION 80



SECTION 70



SECTION 100

A3 SCALE 1:200
0 2 4 6 8 10 (m)

NOTES:
1. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE.
2. EXISTING GROUND SURFACE PROVIDED BY REVOLUTION CIVIL ENGINEERING (RECEIVED 30/11/2021).
3. HEIGHTS ARE IN TERMS OF NZVD2016.

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REV	DESCRIPTION	CAD	CHK	DATE
1	RESOURCE CONSENT ISSUE - PRELIMINARY DESIGN	CYAX	RRH	25.03.22

DESIGNED	ANBR	Feb.22
DRAWN	CYAX	Feb.22
DESIGN CHECKED	PWQ	23.03.22
DRAWING CHECKED	BLI	17.03.22
APPROVED		DATE

DRAWING STATUS
RESOURCE CONSENT
PROJECT PHASE
PRELIMINARY DESIGN

NOT FOR CONSTRUCTION

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS SIGNED AS APPROVED

CLIENT **NEW PLYMOUTH DISTRICT COUNCIL**
PROJECT **WELD ROAD COASTAL WALKWAY**
TITLE WALKWAY CROSS SECTIONS SHEET 2
SCALE (A3) 1:200 DWG No. 1017346.2000-42 REV 1

Appendix B: Specification

B1 Rock armouring specification

B1.1 Scope

This specification covers supply and construction of rock for construction of the rock revetment, including supply and placement of fill material, geotextile, underlayer and rock armour.

B1.2 Compliance

Materials and construction work performed under this section shall be tested to the general requirements of the following documents and the specific requirements of this section:

- NZS 4407 — Methods of testing road aggregates.
- AS 1141 — Methods for sampling and testing aggregates
- NZS 3111:1986 — Methods of test for water and aggregate for concrete
- AS 2758.6-2008 — Aggregates and rock for engineering purposes, Part 6: Guidelines for the specification of armourstone
- AS 3706 — Geotextiles – Methods of test
- AS 2001 — Methods of test for geotextiles – Physical tests
- EN 1367-2:2009 — Tests for thermal and weathering properties of aggregates
- TNZ F/7:2003 — Specification for geotextiles
- ISRM (1981) — Methods for determining hardness and abrasiveness of rocks

B1.3 Materials

B1.3.1 Rock armour and underlayer

Rock type and mineralogy

Rock armour and underlayer material shall generally be well graded, angular, quarried rock of igneous or high-grade thermal metamorphic origin, and shall conform to the requirements of this specification. Generally good quality basalt, andesite or greywacke will often be acceptable. Sedimentary rock such as shales, mudstones, claystone’s, bedded sandstones or slates are not suitable.

Density

The rock density of all sources of armour and underlayer rock shall be determined in accordance with NZS 4407:2015, Test 3.7.2. All armour and underlayer rock shall have a density as specified on the Drawings. Where no density requirement is specified on the Drawings, the required density of rock shall be not less than 2550kg/m^3. The rock density of a rock source shall be determined from a series of 5 density tests on different randomly selected stones, with 80% of the rocks having a density of greater than 2550kg/m^3 and no rock with a density lower than 2500kg/m^3.

Rock of lesser density may be approved, at the sole discretion of the Design Engineer, however rock density affects indicative ‘square opening sieve size’ values in Table 1-2, and lower density rock will result in the need for larger diameter rock and greater placed thicknesses. If lower density rock is accepted the indicative ‘square opening sieve size’ stated in Table 1-2 will require updating as will the required rock layer thicknesses.

Weathering resistance

For rock sourced from a quarry, rock weathering resistance shall be tested in a laboratory in accordance with the requirements of NZS 4407:2015 Test 3.11, and the resulting quality index shall be AA, AB, or BA.

Where required by the Design Engineer, water absorption shall be tested in a laboratory in accordance with the requirements of Section 12 of NZS 3111:1986 and the results shall be less than 1.5%.

In addition, if water absorption results are greater than 0.5% (and if required by the Design Engineer), the sodium sulphate soundness test according to AS1141.24 shall be undertaken. The resulting percentage loss shall be less than 6%.

Weathering resistance alternative for variable quality rock source

As an alternative to the specified weathering resistance test, and for all sources of site won, river sourced, or paddock rock, a 'Schmidt' hammer may be used utilising the following test procedure, "Suggested Method For Determination of the Schmidt Rebound Hardness - Rock Characterization Testing and Monitoring, I.S.R.M. ,2008".

Minimum acceptable Schmidt hardness is 50. Sampling shall be taken randomly throughout each batch and shall be representative of the general consistency of the stabilised material produced.

Abrasion resistance

If required by the Design Engineer, rock shall be tested for abrasion resistance in a laboratory in accordance with a Los Angeles Abrasion Test in accordance with NZS4407:2015 Test 3.12. The weight loss after 500 revolutions is to be less than 25%.

Unconfined compressive strength

The rock unconfined compression strength of all sources of armour and underlayer rock shall be greater than 80MPa, unless approved otherwise by the Design Engineer.

Material grading

Rock armour and underlayer material shall be well graded, angular, quarried rock, unless approved otherwise by the Engineer, and shall conform to the following grading limits:

Table 7-1: Rock and underlayer grading requirements

Rock Gradings		Median Rock Weight W_{50} (i.e. 50% by Number Above)	Range	>60% by Number to be Between	W_{50} Range (for test sample), W_{50} min to W_{50} max
Primary armour	Block weights (kg)	1,025	470 - 2,600	470 – 1,525	923 – 1,128
Underlayer	Block weights (kg)	70	27 - 200	27 - 110	63 - 77

The rock gradings shall conform to the block weights shown in Table 1-1 above. Where individual rocks are able to be weighed at the Quarry, the grading of any rock stockpile shall be tested by weighing a sample of stones as described in section C1.5.2. Measurement by weight is the preferred method of determining the rock grading.

Where rocks are unable to be weighed at the quarry, an estimation of the stones "square opening sieve size" shall be made by measuring to stone as described in section C1.5.2 in order to check the stockpile grading conforms to the size grading limits in Table 1-2 below.

The "square opening sieve size" for each rock size in Table 1-2 is based on the assumed rock density of 2650kg/m^3. If the tested density of the rock source is different to that specified the Design Engineer may revise the 'square opening sieve size' values in Table 1-2, at the sole discretion of the Design Engineer.

Poorly graded or gap graded armour and underlayer rock shall not be permitted except as approved by the Engineer.

In all cases where rocks are able to be weighed, the weight of the individual rock shall take precedence over the estimated square opening sieve size.

Table 7-2: Rock and underlayer grading requirements

Rock Gradings		**Median (i.e. 50% by Number Above)**	**Range**	**>60% by Number to be Between**	**W_{50} range (for test sample), W_{50} max to W_{50} min**
Primary armour	Block weights (kg)	1025	470 - 2,600	470 – 1,525	923 - 1128
	Indicative "square opening sieve size " *(mm)*[1]	*870*	*690 – 1,220*	*690 – 1,020*	*840 - 900*
Underlayer	Block weights (kg)	70	27 - 200	27 - 110	63 - 77
	Indicative "square opening sieve size" *(mm)*[1]	*350*	*260 - 500*	*260 - 410*	*340 - 370*

[1] Indicative square opening sieve size is given for guidance only and is based on the rock density specified and estimate of rock shape.

Roundness (Angularity)

All armour and underlayer rock shall be quarried angular rock unless shown otherwise on the Drawings. Semi-rounded or rounded rock will only be permitted if specifically approved by the Engineer. Note that the hydraulic stability of semi-rounded or rounded rock varies from that of angular rock, and larger weights and sizes will be required if used in the works. If other than quarried angular rock is proposed to be used the degree of angularity should be evaluated, and revised weights and sizes for each grading should be obtained from the Designer prior to the acceptance of semi-rounded or rounded rock in the works.

The angularity of the rock shall be determined based on visual inspection of each source of rock by the Engineer. Examples of angular (fresh), semi-rounded and fully rounded rock according to Bradbury et al. (1988) are shown in Supporting Information at the end of this specification.

Shape

All rock shall be essentially equi-dimensional with elongated or thin slabs of rock being unacceptable. The rock armour shall not contain stones with a length to thickness (L/d) ratio greater than 3; where the length, L, is defined as the greatest distance between any two points on the stone (and could be measured on a diagonal) and the thickness, d, as the minimum distance between two parallel straight lines through which the stone can just pass, see Figure 1.2 below. The orientation of the maximum length dimension and the thickness dimension are totally independent of one another.

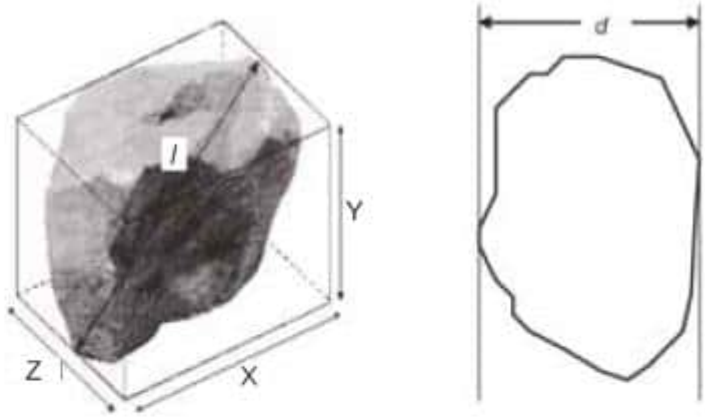

Figure 1.2: Illustration of armour stone shape measurements.

Armour rocks showing clear signs of significant edge or corner wear or of severe rounding on more than one face shall not be used, except as approved by the Engineer.

Rock integrity

At least 95% of rocks in the stockpile shall be free from visually observable cracks, veins, fissures, laminations, unit contacts, cleavage planes, or other such flaws which could result in breakage during loading, unloading or placing.

All rock damaged and broken during handling to the extent that the remaining intact pieces no-longer comply with the rock grading, shall be rejected, and removed from the works.

Impurities

Rock shall be visually clean and free from impurities such as clays and soils when placed in the construction works. If impurities are present, the Engineer reserves the right to require a Petrographic assessment of the impurities be undertaken at an approved University.

Geotextile filter fabric

The geotextile fabric shall be as shown on the Drawings. Where approved alternative geotextiles are permitted, these shall be Designer approved non-woven, needle-punched, continuous filament polyester or polypropylene geotextile, and shall as a minimum comply with the requirements for “Geotextile Strength Class” E, as specified in the Transit New Zealand Specifications TNZ F/7:2003, and TNZ F/7 NOTES:2003.

Storage and handling of geotextile fabric shall be in accordance with the manufacturer's recommendations except that in no case shall the fabric be exposed to heat or direct sunlight to the extent that its strength or toughness is diminished. Fabric which is not to be installed immediately shall not be stored in direct sunlight.

Geotextile fabric shall not be stored in contact with the ground. The storage area shall be such that the geotextile fabric is protected from mud, soil, dust, debris and direct sunlight. Torn or punctured geotextile fabric shall not be used.

B1.4 Construction

B1.4.1 General

The works shall be constructed in the locations and to the dimensions shown on the Drawings. The Contractor is responsible for arranging stockpile areas and work areas with the Principal and local authorities.

B1.4.2 Construction tolerances

Rock materials shall be placed to the levels, dimensions and slopes shown on the Drawings. When the surface profile is measured using the techniques specified, the following vertical tolerances shall be achieved.

Subgrade levels	-0.1 m to +0.1 m
Underlayer rock thickness (average per profile):	-0.1 m to +0.2 m
Primary armour rock thickness (average per profile):	-0.1 m to +0.5 m

B1.4.3 Subgrade preparation

Approved seawall toe excavated material or embankment trimmings may be used as fill beneath the geotextile filter layer, if shown on the drawings or as directed by the Engineer. All placed material shall be placed to the lines and levels as shown on the Drawings and shall be compacted/track rolled/tamped down to form a stable fill beneath the geotextile. If the placed fill slumps/slips or settles prior to the placement of the overlying geotextile and underlayer rock, the Contractor shall make good prior to placing subsequent layers.

The subgrade shall be shaped and prepared for the subsequent placing of geotextile fabric, underlayer and armour rock layers as specified, and to the lines and levels as shown on the Drawings. All prepared surfaces shall be trimmed to a smooth surface, to receive the geotextile.

All trimmed and prepared subgrade surfaces shall be even and smooth and shall not contain any protrusions or material that may damage the geotextile. Large diameter stones which extend beyond the trimmed profile shall be removed and either placed elsewhere within the fill or disposed of as directed by the Engineer.

Should additional fill be required to meet design levels a suitable granular fill may be used as approved by the Engineer.

B1.4.4 Geotextile handling and placement

Geotextile fabric delivered to site shall be stored in a dry condition and shall remain in its protection wrapper until use. Geotextile fabric shall be carefully handled at all times. Damage such as rips, tears or holes shall be repaired as directed by the Engineer. When patching of the geotextile fabric is permitted, to repair damage, the patch shall extend a minimum of 300 mm in all directions from the damaged area and shall be sewn in place to the manufacturer’s recommendations.

All geotextile fabric sheets shall be placed loosely and flat against the prepared slope without any folds or wrinkles. All adjacent geotextile fabric sheets shall be lapped to form a continuous membrane. Laps in all directions shall be a minimum of 1000 mm when the subgrade consists of cohesive silts or clays, or pit run or graded aggregate with top size 40 mm or larger. For other subgrade materials (including sand), the minimum lap shall be 1500 mm.

If approved by the Engineer, the geotextile fabric may be sewn into sheets prior to placement in the works, with the size of the sheet being determined by the Contractor to suit his placement method.

All sewn joints shall be to the manufacturer's recommendations a copy of which shall be forwarded to the Engineer. The Engineer shall inspect and approve the joints prior to the sheets being placed in the works.

The geotextile fabric sheets shall be firmly held in place to prevent movement during the placement of overlying rock. If movement occurs prior to or during placement of rock, then the rock shall be removed and the geotextile fabric re-laid.

If the geotextile fabric needs to be placed underwater, the contractor shall provide a method statement to be approved by the Engineer prior to commencing placing.

Geotextile fabric shall only be placed on Designer approved, prepared subgrade.

B1.4.5 Protection of placed material

Each layer shall be protected by the subsequent layer as soon as possible after placement, with a maximum unprotected length of each material of 20 metres, in order to minimise wave damage or slumping in the event of storms during the construction period.

The Contractor shall obtain daily weather forecasts and if storms are predicted every effort shall be made to complete armour layers to protect partially completed works. Where the Contractor is to leave the works for the weekend and there is a possibility of storm erosion of the constructed works, particularly the exposed subgrade or underlayer construction, the Contractor shall provide all necessary temporary protection in the form of temporary placement of geotextile and armour across the end of the construction, or other methods, as may be necessary. These temporary protection works shall be removed prior to construction commencing again. No payment will be made for temporary protection works.

Material eroded by wave action or other causes shall be made good before placing the subsequent layer. All material eroded and deposited on the foreshore or seabed outside the area of the Works shall be removed by the Contractor.

B1.4.6 Rock armour and underlayer material

The placement method of armour and underlayers placed directly on geotextile filter fabric shall be approved by the Engineer prior to placement and shall NOT include, end tipping, drifting or rolling stones down the slope.

Armour and underlayer rock shall be carefully placed to avoid damage to any already placed geotextile, rock or underlayers, with rock sizing well distributed throughout the layer being constructed. All rock armour units shall be placed to ensure a minimum of three points of contact with adjacent rock. No rocking of unstable rock is permitted.

Armour rock shall be placed to form the required thickness made up of a minimum of two layers of stones (unless otherwise directed), and all voids in the first layer of armour rock shall be substantially covered by the second layer of armour rock. Any voids in the final surface shall be kept to a minimum, and it should not be possible to see through the two-layer armour rock to the underlayer beneath.

The finished surface texture shall be irregular and rough and shall NOT present a smooth sloping face to the waves. The layer thickness lines and dimensions shown on the Drawings are average rock layer thicknesses (allowing for irregular rock shapes and voids between rock), and it is expected that the tips of individual rocks will protrude above the general layer thickness dimensions and lines shown on the Drawings.

Where armour directly contacts the geotextile, armour stones shall be individually placed onto the geotextile with a maximum drop height of 300 mm.

B1.5 Testing requirements

B1.5.1 Testing

The Contractor shall arrange all required testing and shall supply results to the Engineer for approval.

The Contractor shall interrupt or divert his operations as necessary to permit any tests required with complete safety. The following tests shall be used as a minimum to confirm material properties and construction accuracy.

Table 7-2: Testing requirements

	Test No.	Test	Test Method	Frequency of Testing	Target
LABORATORY	1	Solid density	NZS 4407: 2015, Test 3.7.2 (non-vesicular aggregate)	*Five per source [1]*	Refer Section 02
	2	Weathering resistance	Weathering Quality Index, NZS 4407: 2015, Test 3.11	*One per source [1]*	AA, AB or BA
	3	Weathering resistance	Water absorption, NZS 3111:1986 Section 12	*One per source [1](if required by the Design Engineer)*	<1.5%
	4	*Weathering resistance*	*Sodium Sulphate Soundness Test, AS1141.24*	*One per source (subject to results of Test 3).*	<6%
	5	*Abrasion resistance*	*LA Abrasion Test, NZS 4407:2015, Test 3.12*	*One per source [1]*	*<25% loss after 500 revolutions*
AT QUARRY	1	Rock angularity	Visual inspection	*Once per source (at least 20 stones).*	Refer Section 08
	2	Stockpile Grading	Visual inspection and rock weigh (refer Section B1.5.2)	*Once per 1000 m^3 in stockpile (at least 50 stones).*	Compliance with grading
	3	*Weathering resistance*	*Schmidt Rebound Hardness, I.S.R.M 2008*	*Twenty for each 500 m^3 of rock sourced.*	>50
ON SITE	1	Rock shape	Visual inspection (incl. measurements)	*In stockpile prior to inclusion in the works, and when checking grading at approximately 10 m intervals along the wall.*	L/d<3
	2	Rock integrity	Visual inspection	*In stockpile prior to inclusion in the works.*	See Section 0
	3	Armour rock grading	See following notes	*In stockpile prior to inclusion in the works, at least 1 test per 500 m^3. Visually inspect grading distribution at approximately 10 m intervals along the wall.*	See Table 7-1

	Test No.	Test	Test Method	Frequency of Testing	Target
	4	Underlayer rock grading	NZS 4407: 2015, Test 3.8 or visual inspection depending on underlayer rock size	*One per 500 m^3 per source [1] or in stockpile prior to inclusion in the works.*	See Table 7-1
	5	Set out dimension	Survey	*One section per 10 m of wall.*	See drawings
	6	Layer thicknesses	Survey as specified in following notes	*One section per 10 m of wall.*	See drawings
	7	Rock interlock	Visual inspection	*Completed face of seawall/revetment at 10 m intervals of wall during construction.*	See Section B1.4.6

[1] A rock "source" is defined as each new face opened within a quarry, or each 5,000 m3 of rock from the same face or lava flow

B1.5.2 Testing armour grading

Stockpiles of rock sorted into the required size grading shall be tested at the Quarry and on site. In all cases where it is possible to accurately weigh individual stones, the stone weight shall be used for sorting and grading testing in preference to dimensional measurement. Dimensional measurements of stones selected to test the rock grading are still required to check compliance with rock shape (refer C1.3.1). The process for testing conformance with the armour rock grading is as follows:

a Individual rock weighing shall be done where possible at the quarry and at the site stockpiles, to test specific armour grading, together with an estimation of the rock indicative square opening sieve size of the stones by measurement in accordance with the quarry grading testing information provided below.

b Rocks representative of design grading shall be set aside at quarry and site stockpile locations to assist the operator eye selection and grading of rocks during sorting of stockpiles.

Quarry grading testing

Armour rock grading shall be checked in the Quarry prior to transport to site to determine compliance with the specified grading of each rock armour/underlayer size.

The contractor shall assist the Engineer to complete the grading check on the sorted stockpiles of the various rock armour/underlayer gradings, by supplying machinery to select and spread out a sample from each stockpile of at least 50 randomly selected stones for measurement. Each rock shall be weighed with a suitable calibrated load cell (or equivalent) or weighed by the machine and the weight recorded and sprayed on the stone.

Where stones are unable to be weighed at the quarry, or as an additional check of rock delivered to site, estimation of the smallest equivalent square sieve size through which the stone could pass shall be determined, by measuring the stone about its smallest square cross-section. Each stone shall be measured as shown in Figure 1.3 below.

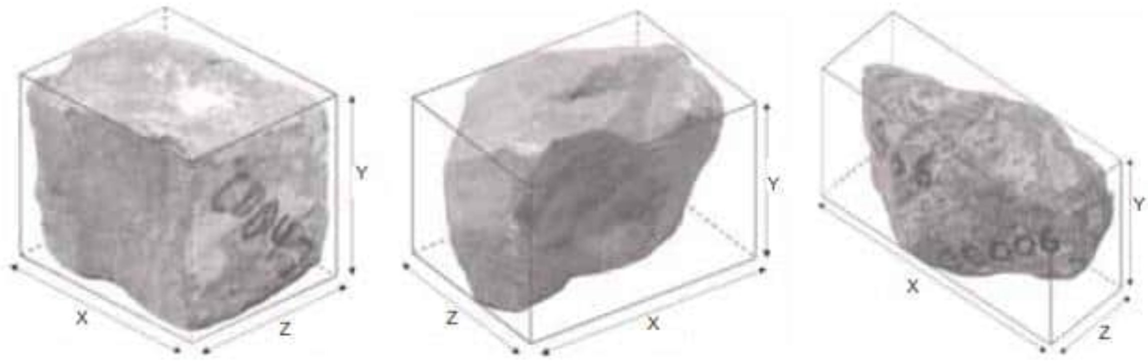

Figure 1.3: Measurement of an equivalent rectangular box that encapsulates the stone being measured.

The longest dimension of the stone shall be ignored, and the square sieve size shall be the larger of the other two dimensions, i.e., if dimension 'X' is the largest measurement, the square sieve size is the larger of 'Y' or 'Z'.

The Contractor shall record weight and measurement results for each rock tested. A spreadsheet for recording these results can be provided by the Designer.

When all sample stones from the stockpile have been measured, select 3 stones that are representative of the lower mass limit, three at about the mean mass and three at about the maximum acceptable weight, spray paint the stones with their size, and keep these 9 stones separate from but adjacent to the loading/stockpiling area as reference stones to assist the operator in achieving the required grading. The reference stones shall remain by the stockpile for each rock grading and shall not be included in the works.

Site stockpile testing

In addition to quarry measurements, the rock grading shall be checked once the rock has arrived on site and is sorted into stockpiles of the various rock sizes. A grading check shall be undertaken approximately every 500 m^3 of rock delivered to site by selecting a sample of at least 20 rocks each stockpile and weighing the rock or evaluating the "square opening sieve size" through which the rock would pass by measurement. This shall be undertaken prior to the rocks being placed in their final position in the works.

To assist sorting stockpiles on site, reference stones shall be set up adjacent to each stockpile location, as described above.

Following installation

All completed rock faces shall be visually inspected for distribution and randomness of large and small sized rock. Any groupings of smaller sized rock shall be avoided and shall be replaced as directed by the Engineer.

B1.5.3 Survey technique for both setout and as-builts

Land based surveys shall be carried out at the frequencies specified to measure any underlayer and armour layer thicknesses. Cross-section profiles shall be surveyed at the specified intervals across the profile, as follows:

- Prior to placement of rock armour.
- After placement of each rock armour layer.

When surveying subgrade, fill, core material and underlayers, a conventional survey staff or target (including boning rod) shall be used.

When surveying armour rock the staff or target shall include a spherical end of diameter equal to $0.5D_{50}$ of the armour being surveyed. Zero on the staff or target shall be at the base of the sphere. The sphere on the staff or target shall be inserted between rocks when surveying (refer to Supporting Information at the end of this Specification). The value of D_{50} for each rock grading shall be advised by the Design Engineer.

B1.6 Particular safety issue

On some sands it has been found that any areas of the beach undercut to allow construction have a tendency to become quicksand after backfilling.

This effect is only evident once the tide has reached the backfilled sand. At this time the sand, that was perfectly firm and safe to walk on, can lose all ability to support load resulting in people and animals sinking instantly through the sand to almost the base of the excavation.

Historically, the passage of two tidal cycles (i.e., 24 hours) has remedied this and rendered the beach safe to walk on.

The Contractor shall be alert to this hazard and shall take measures to preclude access until the sand is safe to walk on.

Supporting information

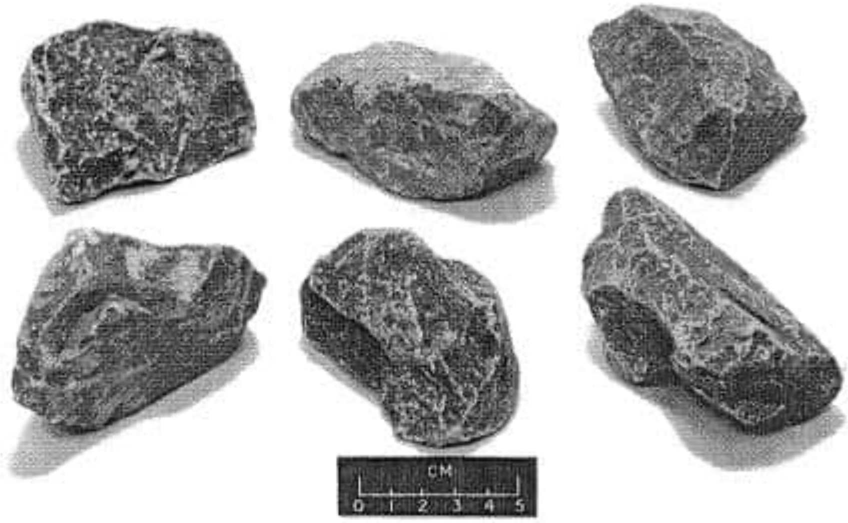

PLATE 1 Fresh rock

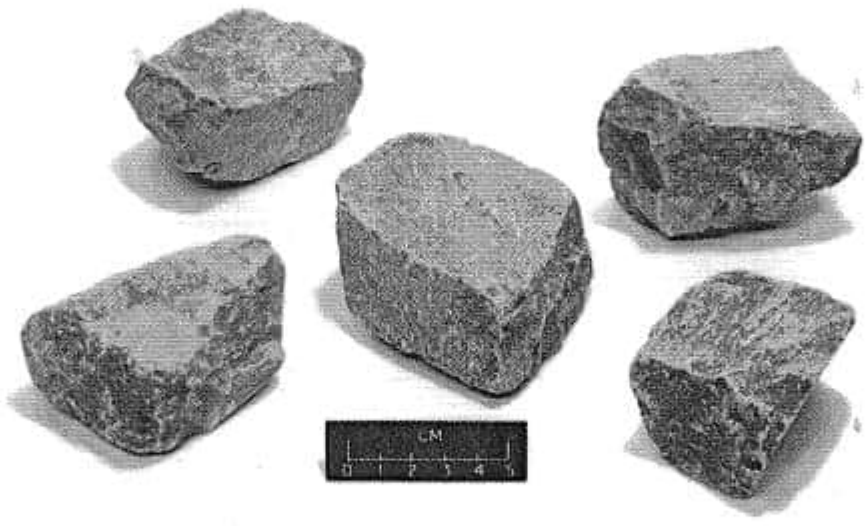

PLATE 2 Equant rock

PLATE 3 Semi-rounded rock (7% weight loss)

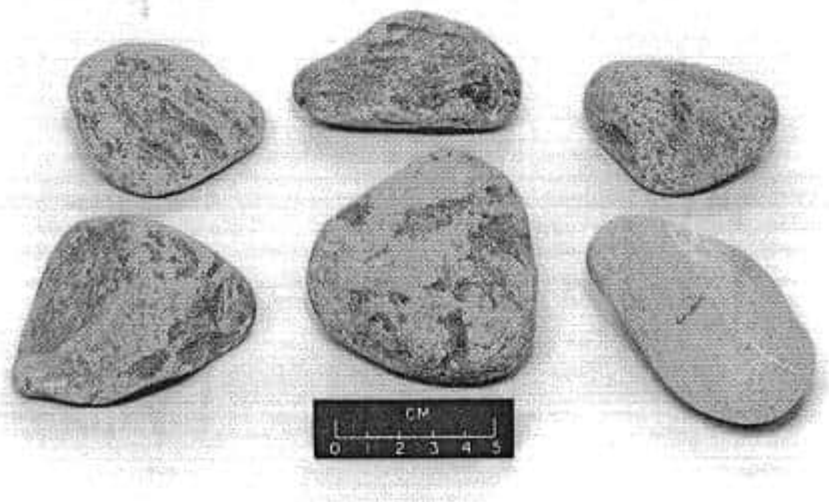

PLATE 4 Rounded rock (23% weight loss)

Figure 3: Angularity of rock examples. (Source: Bradbury et al. 1988)

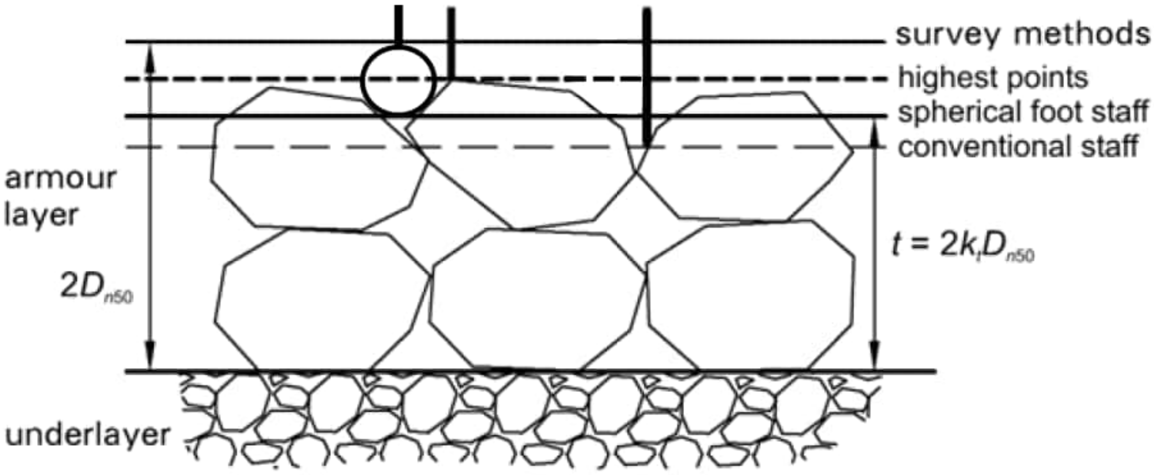

Figure 4: Spherical ball survey method compared with conventional staff showing effect on measured layer thickness. (Source: Figure 9.71, CIRIA Rock Manual 2012).

Appendix C: Geotechnical investigation photos


Test Pit 1


Test Pit 2


Test Pit 2


Test Pit 3


Test Pit 4


Test Pit 5

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Appendix D Ahu Ahu Bridge Preliminary Design Report and Drawings

New Plymouth District Council

Ahu Ahu Road end – Footbridge Reinstatement

Supplementary Information for Resource Consent

27 SEPTEMBER 2023

CONFIDENTIAL

Ahu Ahu Road end – Footbridge Reinstatement

Supplementary Information for Resource Consent

New Plymouth District Council

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REV	DATE	DETAILS
RC rev	1 September 2023	-Revised to become Supplementary Information for Resource Consent. -All reference to riprap on eastern side of footbridge is removed. -Drawings in Appendix A are revised. -Riprap specification removed. -Vegetation impact information in Appendix B. -Bridge level updated and added to Appendix C.
RC Rev A	13 September 2023	-Remove reference to impacts of the revetment.

	NAME	DATE
Prepared by:	Kama Burwell	27.09.2023
Reviewed by:	Kelly Sutherland	27.09.2023
Approved by:	Kelly Sutherland	27.09.2023

1 Introduction

WSP New Zealand Ltd (WSP) was engaged by New Plymouth District Council to undertake Concept Design of riprap armouring to protect the east abutment of the proposed footbridge across Whenuariki Stream, at the end of Ahu Ahu Road. A decision was made that the riprap on the east side of the stream would not be installed. However much of the information included in the Riprap Concept Design Report is useful to support the resource consent application for the proposed footbridge. Therefore, the Riprap Concept Design Report has been adapted to create this document.

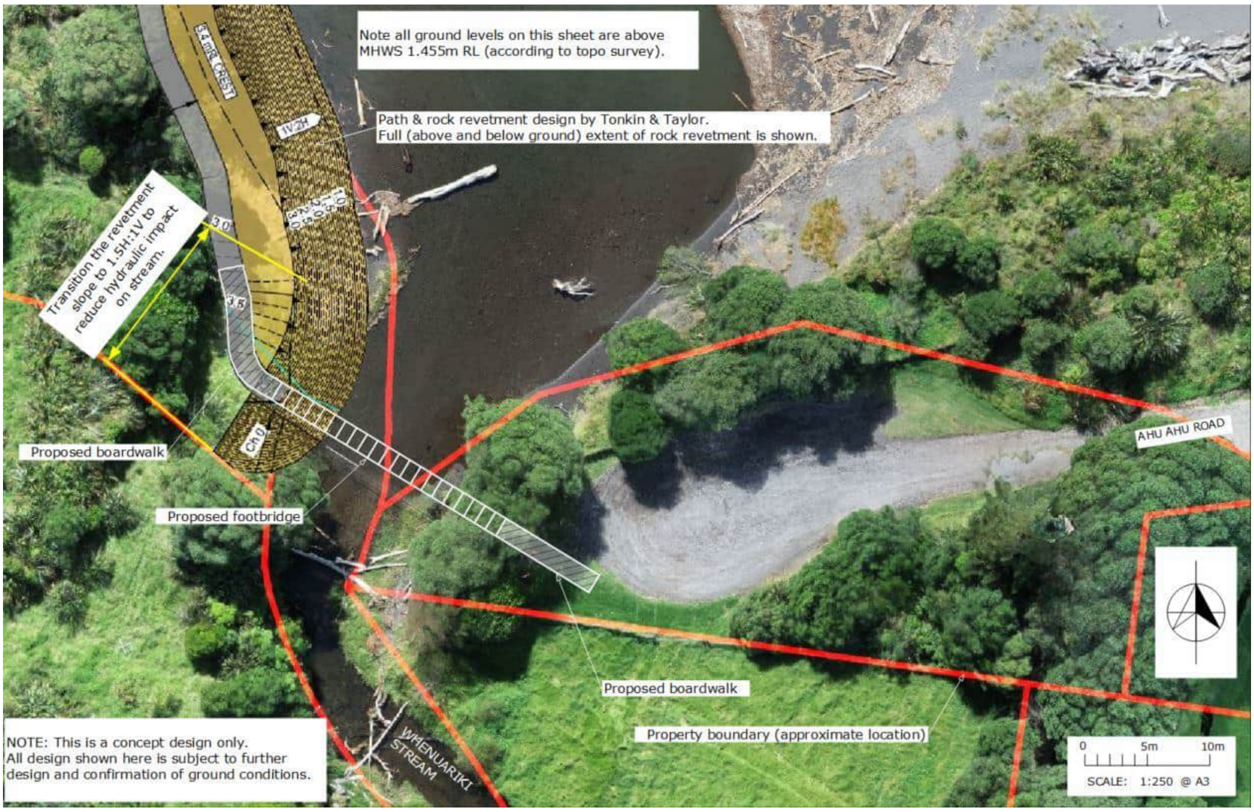


Figure A – Proposed footbridge on Whenuariki Stream

1.1 Project Background

The Whenuariki Stream springs from the forested Kaitake Ranges, and then flows through pastoral farms, before flowing into the Tasman Sea, at the end of Ahu Ahu Road. The footbridge site is at the mouth of the stream, the behaviour of which is influenced by both coastal and streamflow factors.

The previous footbridge across the Whenuariki Stream was washed away in a storm event in early 2022. A new footbridge is proposed and is currently being designed. See the Ahu Ahu Bridge Report Letter by WSP (28 April 2023).

The new footbridge will connect the end of Ahu Ahu Road with a proposed coastal pathway on the west side of Whenuariki Stream, which leads to the end of Weld Road, see Figure A. Tonkin & Taylor (T&T) have undertaken design of the proposed pathway, which includes a rock revetment structure to protect the proposed pathway from potential coastal erosion. The proposed rock revetment structure will wrap around to protect the west abutment of the proposed footbridge over Whenuariki Stream. The proposed pathway and revetment are described in the T&T report “Weld Road – Coastal Walkway – Detailed Design Report” (March 2022).

Figure B – Footbridge location on Whenuariki Stream

1.1.1 *Coastal & stream erosion*

An earlier T&T report "Weld Road beach Access – Coastal Processes and Effect Assessment" (December 2021), indicates that, based on a high-level "first-pass" assessment utilising a conceptual model that was identified as providing a conservative set of outputs based on the potential response of unconsolidated dunes (and not the headland itself), there is potential for coastal erosion at the Whenuariki Stream mouth. Given these factors, the T&T report recommended "*a site-specific erosion assessment is recommended to inform design and the ends of the structure*".

In Figure C (Figure 4-1 from Tonkin & Taylor's report) below, the previous footbridge is visible near the right-hand side of the image. The pink line represents current areas susceptible to coastal erosion based on this initial conservative high-level assessment, and it's noted that this line is positioned upstream of the footbridge site.

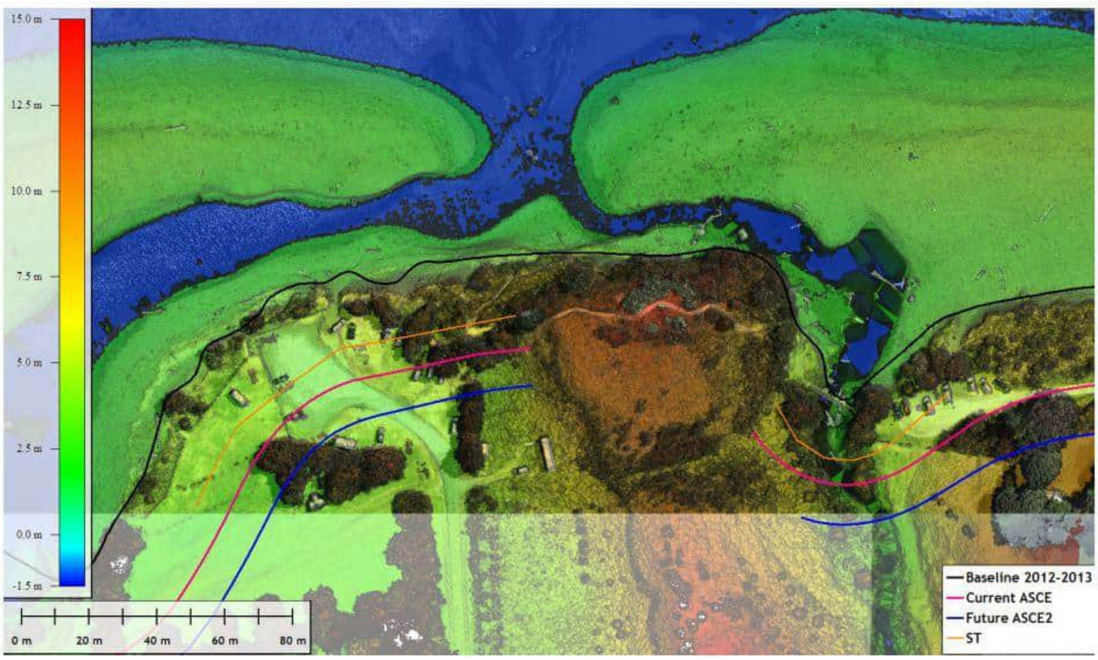


Figure 4-1: Areas Susceptible to Coastal Erosion (ASCE) at Weld Road Reserve (orange line 'ST' shows 18 m storm cut component for dune area)

Figure C – Coastal erosion modelling image from Tonkin & Taylor's report.

Downstream and east of the footbridge site, active erosion is visible on the stream/beach bank, with the roots of trees being exposed. See Figure D below. The existing trees and shrubs are playing a part in slowing down coastal erosion and also provide significant amenity and ecological habitat.

Figure D – The footbridge site, looking upstream. The white pipe indicates the footbridge location. Photo taken April 2023.

Upstream of the footbridge site (once off the footbridge abutments), the stream banks are of a low gradient, well vegetated, and show no signs of erosion. See Figure E below.

Figure E– Looking upstream of the footbridge site. Photo taken June 2023.

1.1.1 Archaeological / Waahi Tapu Site

The western abutment of the footbridge is adjacent to Hauranga Paa (archaeological site P19/54). Another archaeological site P19/422 (most likely ovens associated with the occupation of Hauranga Paa) is visible in the eastern bank in two locations: one immediately below the existing eastern footbridge embankment; and the other is east/downstream of the footbridge, north of the carpark. An archaeological report has been provided by Ivan Bruce of Archaeological Resource Management.

1.1.1 Ground conditions

According to Tonkin & Taylor's December 2021 report, the Weld Road headland (on the west side of Whenuariki Stream) is formed of Lahar formation rock, while the beach is comprised of unconsolidated beach materials (i.e. sand and gravels). The stream location through the beach changes over time, and beach levels can vary up to 3m in height over time too.

Test pits excavated along the northern edge of the Weld Road headland have determined bedrock levels there ranging between -0.25m RL and 1.16m RL. The closest test pit was approximately 40m away from the proposed footbridge. the footbridge.

According to WSP's August 2023 Geotechnical Assessment Memorandum, at the footbridge abutments the site is generally underlain by sand and silty sand to 1.6m BGL, where there is transition to sandy gravel and sandy boulders (debris avalanche deposits). Based on the regional geology, the Memorandum inferred that the debris avalanche deposits are more than 50m thick.

1.1.1 Penguin habitat

The general vicinity is known to be a nesting site for Little Blue Penguins. Therefore construction will only take place in autumn, when nests have been vacated and penguins are not present.

2 Stream Hydraulics

2.1 Catchment Analysis

The Whenuariki Stream catchment is 7.22km^2 with approximately half pastoral farms and half forested ranges. We have determined that the footbridge is an Importance Level 1 (IL1) structure as per the Waka Kotahi Bridge Manual. Scour protection is to be designed for a 25-year Annual Return Interval (ARI) Serviceable Limit State (SLS) and a 250-year ARI Ultimate Limit State (ULS). The bridge is required to have a freeboard of minimum 1.2 m from the lowest part of the bridge super structure to the SLS water surface level.

Flows for the site were estimated using the following methods:

- Griffith and McKerchar Rational Method (2012)
- Regional Flood Frequency Method (NIWA 2019)
- Scaled donor catchment.

Griffiths and McKerchar (2012) was used to estimate the catchments peak flow rates for the 100-year (Q100 SLS) and 1000-year (Q1000 ULS) flood events. Design rainfall depths have been obtained from NIWA's HIRDSV4 design rainfall using the 2081-2100 RCP6.0 scenario to estimate the Mean Annual Flood (MAF) event. This flow was then scaled by the NIWA Regional Flood Frequency Model growth factors to estimate flows for the annual recurrence interval (ARI) 1 in 25-year and 250-year events.

These flows were compared with the results from the NIWA Regional Method and two nearby flow gauges (donors) with historical data scaled by area. The donor sites were the Timaru and Oakura streams. These flows are in the Table 1 below.

Table 1 Catchment Flows

	Q25 (m^3/s) SLS	Q250 (m^3/s) ULS
Rational Method (Griffith & McKerchar 2012)	60	100
Regional Method (+20% for Climate Change)	22	28
Timaru Stream (donor site, 0.24 km from bridge site	41	55
Oakura Stream (donor site, 3 km from bridge site	41	51

2.2 Stream depth and velocity

A one-dimensional Hydrologic Engineering Centre River Analysis System (HEC-RAS) model was used for the stream depths and velocities. The model extends to the ocean and inland to for 180m, this extent and location is deemed appropriate to assume normal flow for the upstream boundary condition. The area close to the bridge has a UAV detailed surface and the inland stream uses the Taranaki 2022 LIDAR information. Sample cross-sections were used from Civil3D. The HEC-RAS model assessed both low tide and high tide conditions by assuming normal flow and a set water surface elevation respectively for the downstream boundary conditions.

The model assumed:

- Rock revetment on both sides of the stream
- An overall channel Manning's n of 0.04
- Steady state flow, for Q25 design flow ranging 40 – 60 m^3/s and Q250 ranging 50 – 100 m^3/s
- Normal flow with an upstream slope of 0.014 and downstream slope 0.002
- High tide of 1.775m RL (highest astronomical tide)

The low tide condition at the chainage immediately upstream of the bridge gave the highest velocity so was used for the assessment. The results of the model are in the Table 2 below.

Table 2 Flow characteristics at low tide

Model Output	Q25 SLS Lower Limit (40 m^3/s)	Q25 SLS Upper Limit (60 m^3/s)	Q250 ULS Lower Limit (50 m^3/s)	Q250 ULS Upper Limit (100 m^3/s)
Average Velocity at bridge (m/s)	2.52	2.97	2.79	3.86
Max flow depth at bridge (m RL)	3.17	3.48	3.32	3.99

Top Width of Flow (m)	18.85	21.14	19.07	27.65

2.3 Implications for bridge deck level

Depending on the design of the bridge, this should meet the 1.2m minimum freeboard requirements to the lowest part of the bridge superstructure.

For a bridge deck level of 5.0m RL (see the updated bridge level information in Appendix C), the freeboard from deck to the 1/25 year SLS event is 1.52m. Note that the above modelling assumed that rock revetment would be placed on both sides of the stream. As rock revetment is now proposed for only the west side of the stream, the flood levels will be lower and the freeboard achieved will be greater.

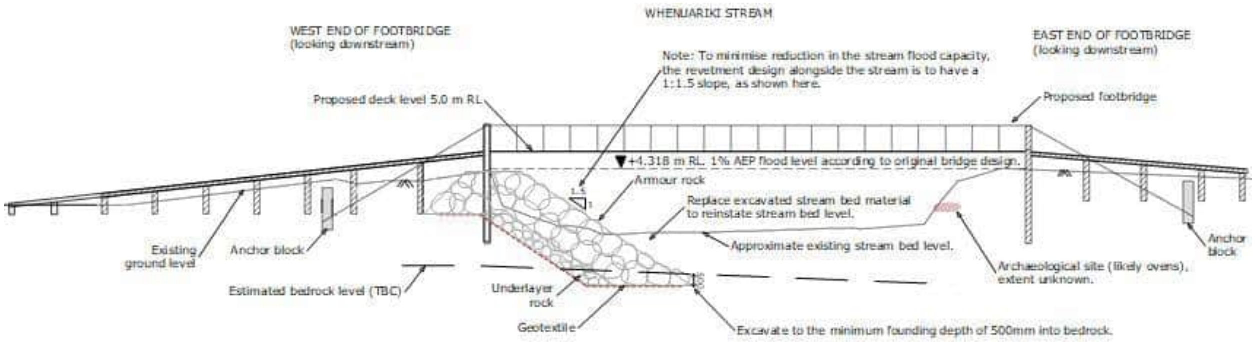


Figure F– Cross section of proposed bridge and rock revetment (full size drawing is in Appendix)

3 Impacts of proposed footbridge

3.1 Earthworks and Vegetation

During construction of the footbridge, the area of earthworks is estimated to be 150 m^2. The volume of excavation is estimated to be 8 m^3.

See Figure G below for the extent of earthworks and impacts on vegetation (from the footbridge only).

Vegetation on east side of stream:

On the east side of the stream, a corridor of trees & shrubs (28 m^2) will need to be trimmed or removed, in order to install the new footbridge. In addition, 80 m^2 of grassland will be impacted, most of which will be reinstated after the works are complete.

Vegetation on west side of stream:

On the west side of the stream, it's not expected that any trees or shrubs will need to be trimmed or removed. 70 m^2 of grassland will be impacted, some of which will be reinstated after the works are complete.

See Figure G below for details. Also see Appendix B for an earlier vegetation impact assessment, with photos with trees/shrub species identified.

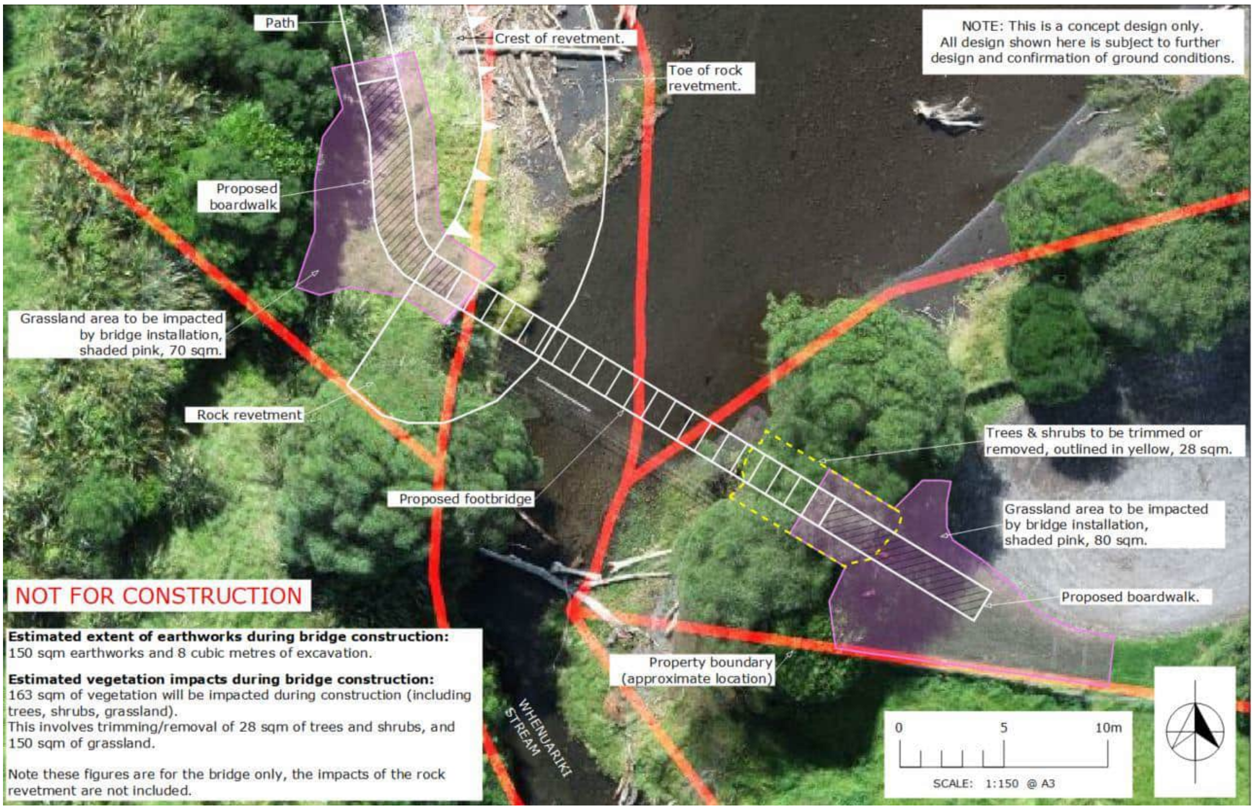


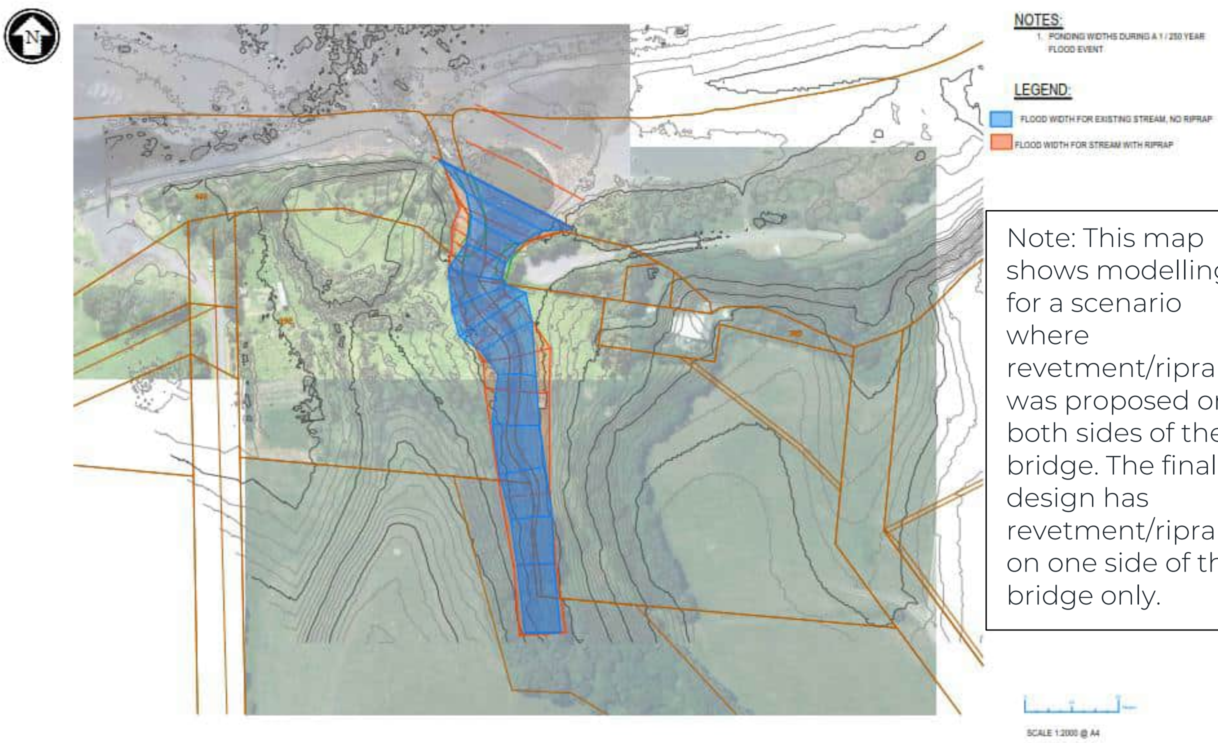
Figure G– Extent of earthworks and vegetation impacts (full size drawing is in Appendix)

3.2 Impacts on the stream and on fish passage

The proposed footbridge is not expected to have any adverse impacts on fish passage during construction or after. All earthworks for the footbridge take place on the flatter surfaces at the top of the stream bank.

3.3 Ponding upstream during flood events

Figure H (also Appendix D “Ponding Map”) shows a comparison of the 1/250 year flood widths between the existing stream (with no rock revetment) and the earlier design where rock revetment was proposed for both sides of the footbridge. The existing flood widths were modelling in HEC-RAS with same assumptions as the design but with the existing surface instead.



Note: This map shows modelling for a scenario where revetment/riprap was proposed on both sides of the bridge. The final design has revetment/riprap on one side of the bridge only.

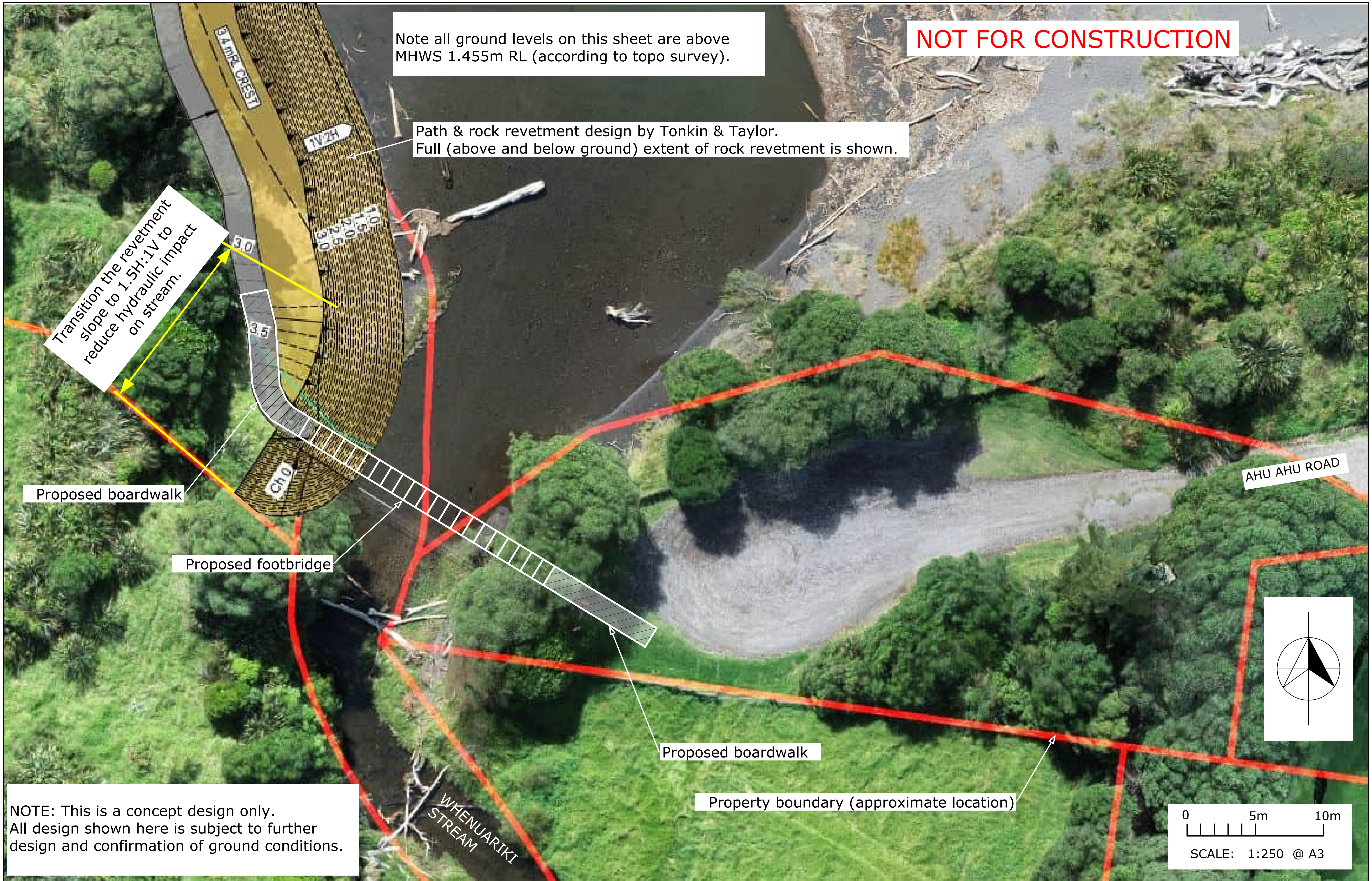
Figure H – Ponding Map comparing the 1/250 year flood widths of the existing stream (blue) with the stream with the rock revetment proposed on both sides of the footbridge (orange). Full size drawing is in Appendix.

This plan shows there is minor change in flood width at the bridge. About 50m upstream of the bridge, there is a location where the flood width with riprap may reach about 7m horizontally further east than the existing floods into a flat area. The rest of the 200m stream length has less than 4m difference in the flood widths. These results are for a significant flood event (1 in 250-year ARI). As the rock revetment is now proposed for the west side of the footbridge only, the 1/250 year flooding area would be smaller than that shown in Figure H.

Appendix A

Drawings

CLIENT:	LOCATION / PROJECT:	DRAWING TITLE:	CONSULTANT:		BY	DATE	SCALE:
NEW PLYMOUTH DISTRICT COUNCIL	AHU AHU ROAD END - NEW FOOTBRIDGE.	FOR RESOURCE CONSENT	wsp	FIELDWORK	Burwell/Malthus	07/06/2023	1 : 250 (A3)
		10. AERIAL PHOTO - UAV.	CONSULTANT PROJECT NUMBER: 5-NPDC7.OE	DRAWN	K Burwell	29/08/2023	
				VERIFIER	K Sutherland	31/08/2023	
				DWG CHECK	L Malthus	30/08/2023	

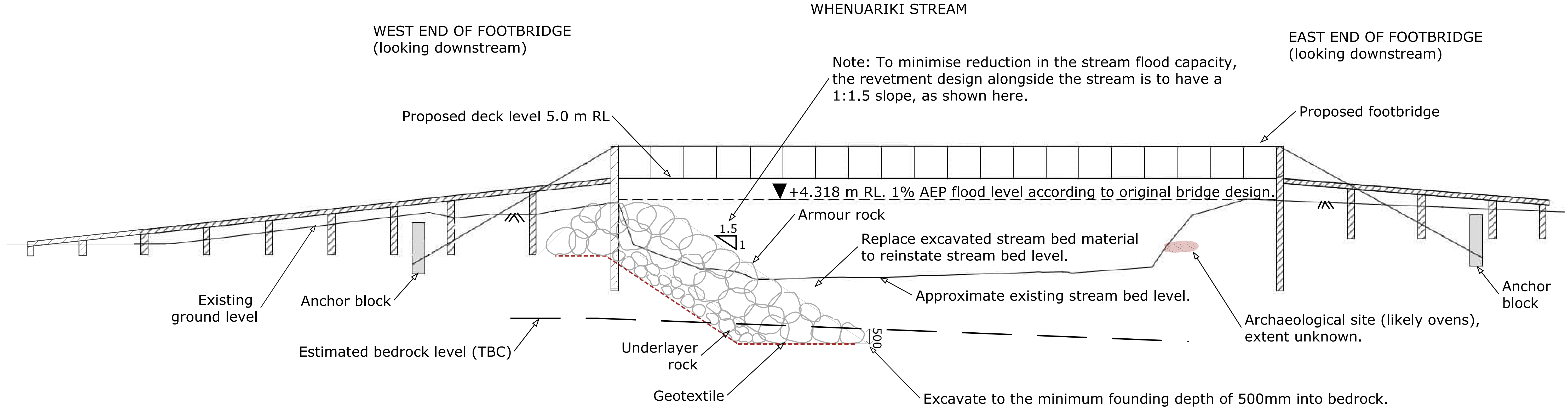


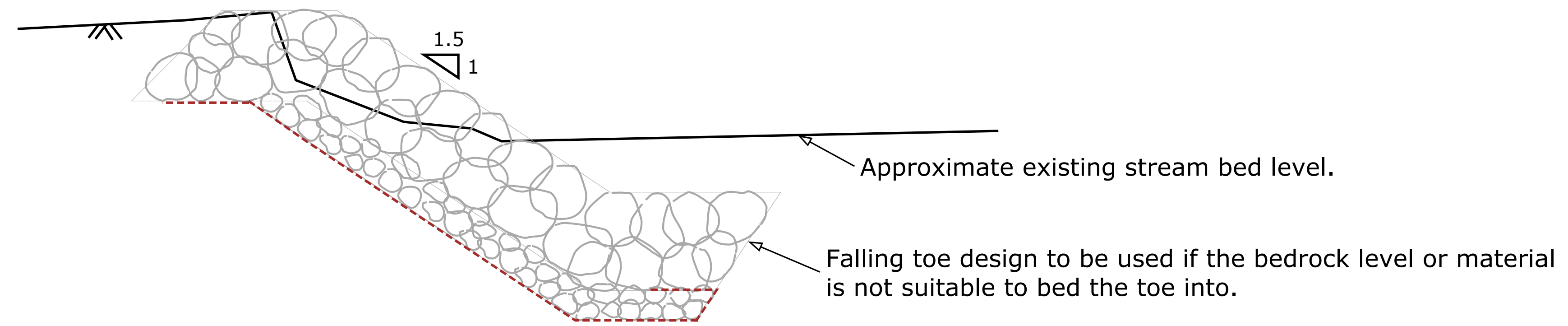
CLIENT:	LOCATION / PROJECT:	DRAWING TITLE:	CONSULTANT:		BY	DATE	SCALE:
NEW PLYMOUTH DISTRICT COUNCIL	AHU AHU ROAD END - NEW FOOTBRIDGE.	FOR RESOURCE CONSENT 11. CONCEPT PLAN.	wsp CONSULTANT PROJECT NUMBER: 5-NPDC7.OE	FIELDWORK	Burwell/Malthus	07/06/2023	1 : 250 (A3)
				DRAWN	K Burwell	29/08/2023	
				VERIFIER	K Sutherland	31/08/2023	
				DWG CHECK	L Malthus	30/08/2023	

CROSS SECTION AT PROPOSED FOOTBRIDGE:

NOTE: This is a concept design only.
All design shown here is subject to further design and confirmation of ground conditions.

- The footbridge site at Whenuariki Stream.
- Primarily exposed to stream flow impacts, but also exposed to coastal impacts.





Falling toe option

0 5m 10m

SCALE: 1:125 @ A3

NOT FOR CONSTRUCTION

CLIENT:	LOCATION/PROJECT:	DRAWING TITLE:	CONSULTANT:		BY	DATE	SCALE:
NEW PLYMOUTH DISTRICT COUNCIL	AHU AHU ROAD END - NEW FOOTBRIDGE.	FOR RESOURCE CONSENT 12. CROSS SECTION - FOOTBRIDGE.	wsp CONSULTANT PROJECT NUMBER: 5-NPDC7.OE	FIELDWORK	Burwell/Malthus	07/06/2023	1 : 125 (A3)
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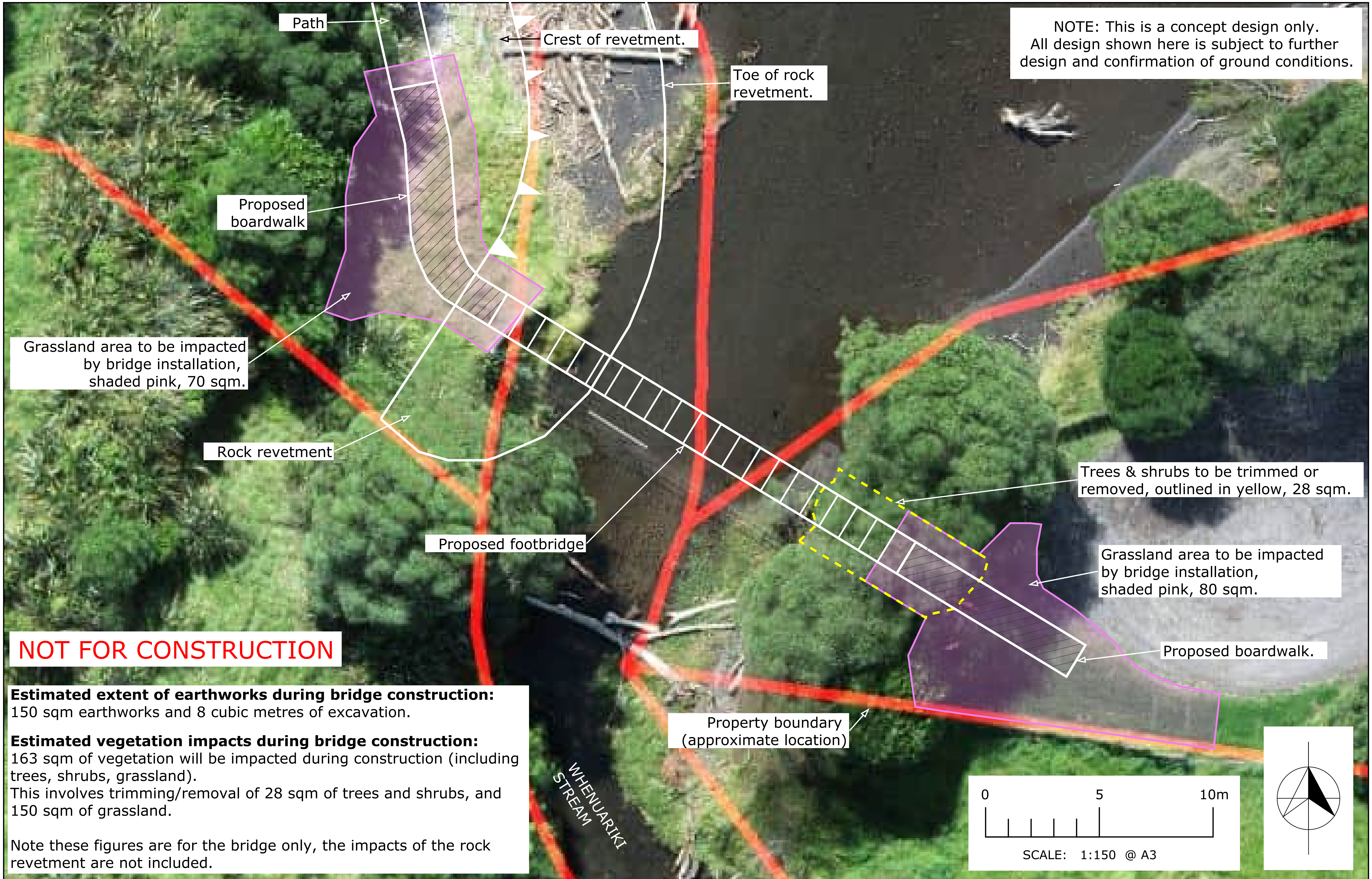
				DWG CHECK	L Malthus	31/08/2023	



Estimated extent of earthworks during bridge construction:
150 sqm earthworks and 8 cubic metres of excavation.

Estimated vegetation impacts during bridge construction:
163 sqm of vegetation will be impacted during construction (including trees, shrubs, grassland).
This involves trimming/removal of 28 sqm of trees and shrubs, and 150 sqm of grassland.

Note these figures are for the bridge only, the impacts of the rock revetment are not included.

CLIENT:	LOCATION / PROJECT:	DRAWING TITLE:	CONSULTANT:		BY	DATE	SCALE:
NEW PLYMOUTH DISTRICT COUNCIL	AHU AHU ROAD END - NEW FOOTBRIDGE.	FOR RESOURCE CONSENT 13. VEGETATION & EARTHWORKS IMPACTS REV A.	wsp CONSULTANT PROJECT NUMBER: 5-NPDC7.OE	FIELDWORK	Burwell/Malthus	07/06/2023	1 : 150 (A3)
				DRAWN	K Burwell	12/09/2023	
				VERIFIER	K Sutherland	13/09/2023	
				DWG CHECK	L Malthus	12/09/2023	

Document Set ID: 9099772
Version: 1, Version Date: 24/10/2023

Appendix B

Early vegetation impact information

EARLY ASSESSMENT OF VEGETATION IMPACTS – FOR FOOTBRIDGE REINSTATEMENT PLUS ROCK REVETMENT/RIPRAP PROTECTION ON BOTH SIDES OF THE STREAM.
(Note rock revetment is now proposed on west side of stream only)

The area to the East (car park turn-around Ahu Ahu Road side): the trees will need to be trimmed backed and some will need to be removed all together. This will not be confirmed until the detailed design phase.

On the West side: the Flax will need removing along with trimming of the grass. If the abutments are going to be moved to the side, the tree may also have to go.

East Side – mixed native shrubs and trees to remove (several self-seeded five finger PA (*Pseudopanax arboreus)*, several Karo PC (*Pittosporum crassifolium)*, several Flax PT (*Phormium tenax)*, 1x Puka MS (*Meryta sinclairii)* and 2x Pohutukawa ME (*Metrosideros 14xcels asp.)*

West Side- 1 clump of flax PT (*Phormium tenax*) to remove.
Potential mitigation planting can be done after the bridge installation away from the aproaches to the bridge if required.

Please see the aerial shots below of the area.


ME
PC
PA
MS
ME
PT
PT

Appendix C

Bridge level update and updated bridge concept plan

Table: Comparison of Original bridge drawing levels, T&T levels and WSP levels

LOCATION	ORIGINAL BRIDGE DRAWING	T&T SURVEY (1017346.2000-30_REV 2)	WSP SURVEY (5NPDC7.OE-V1_REV A)
TOP OF CONCRETE (BUSH TRACK END)	50.200 m	3.980 m	4.348 m
TOP OF CONCRETE (BEACH ACCESS END)	50.300 m	-	4.446 m
1% AEP FLOOD LEVEL	50.170 m	3.950 m (SEE NOTE 5 & 6)	4.318 m
PROPOSED DECK LEVEL	-	-	5.000 m

ORIGINAL BRIDGE DRAWINGS – Levels are in terms of assumed RL 50.000m

T&T and WSP SURVEY LEVELS – Reduced Levels and coordinates are in terms of NZVD 2016 and NZTM 2000 respectively.

NOTES:

1. The original bridge drawings gave an RL of the Bush Track end bridge abutment of 50.2 m and a 1% AEP flood level of 50.17 m.

2. The T&T data supplied showed an RL of 3.98 mRL at the Bush Track end bridge abutment. T&T acknowledged that the survey data they were supplied with was inadequate and they repurposed UAV survey they had captured elsewhere to fill in the gaps.

3. It was envisaged that for the detailed design a new survey would be undertaken. WSP completed a detailed survey at the Ahu bridge location, results attached (see 5NPDC7.OE-V1_REV A).

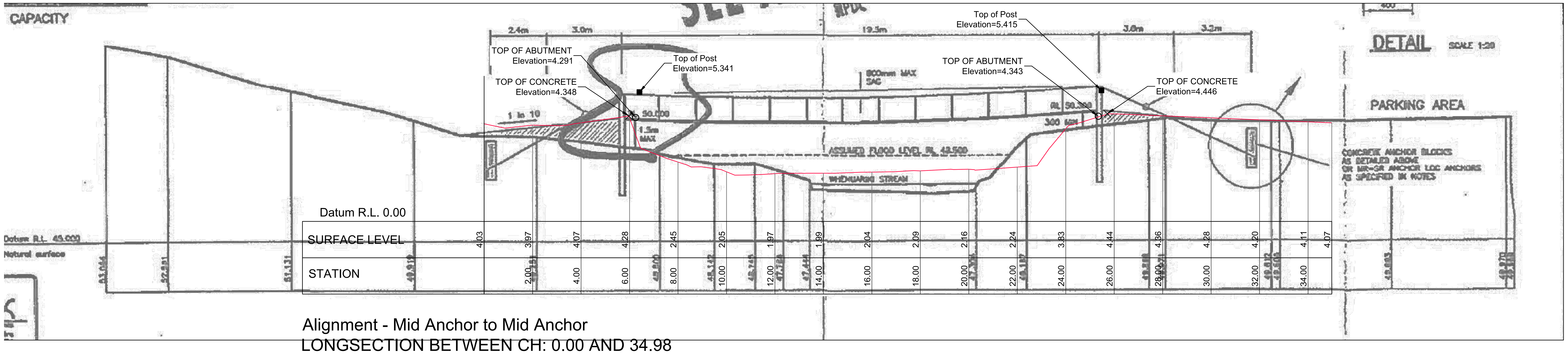
4. WSP survey of the Bush Track end bridge abutment recorded a level of 4.348 m at the same point (i.e., 0.368 m higher than T&T data)

5. T&T's Weld Road Coastal Walkway report informs that the finished path level of 2.95 m RL is over the majority of footpath. This level rises to where it meets the bridge /stream. The design water level of 2.41 m refers to is for the main walkway and not at the Ahu Bridge location. The ground naturally rises on the West side of the stream and the site pictures of the Ahu bridge suggested that the original bridge was higher than the T&T's design levels.

6. T&T report (section 2.2.2) sets out the rationale for the footpath levels. It states "This assessment was undertaken as part of T+T's previous coastal processes engagement and NPDC selected a crest elevation for the footpath of 2.9 mRL based on those results. It is anticipated that the path will not be used during onshore storms with high water levels". The report informed that the path will be overtopped and be unusable in annual storm events. This explains the difference between T&T footpath level and the 1% AEP flood level on the original bridge drawing.

7. T&T's design assumption for the footpath that it is unusable in annual storm event contradicts the design philosophy adopted for the bridge which is an asset that needs to be protected.

8. The proposed deck level 5.000 m RL still have 600 mm freeboard above 'original' 1% AEP flood level and 1 m above the 1:250-year event level supplied by the hydrology team. This would tie in better with the existing ground profile. It is not recommended to lower the bridge to its original level as it has already failed through debris loading.



Alignment - Mid Anchor to Mid Anchor
LONGSECTION BETWEEN CH: 0.00 AND 34.98
Vertical Exaggeration: 1

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

NOTES:

COORDINATES: Geodetic Datum (NZTM2000)
REDUCED LEVELS: NZVD2016
ORIGIN OF COORDINATES:
RM 5 SO 11407 (D1M0)
5669542.01mN
1681393.36mE
LEVEL:
26.77

SURVEY DATA CAPTURED BY GPS AND UAV METHODS. ALL REASONABLE MEANS HAVE BEEN TAKEN TO ENSURE DATA IS WITHIN EXPECTED ACCURACIES OF ITS CAPTURE METHOD.

IN ADDITION, IT IS THE RESPONSIBILITY OF THE USER TO COMPARE ALL DATA ON SITE TO ENSURE RELIABILITY. ANY DISCREPANCIES DETERMINED SHALL BE REPORTED IMMEDIATELY TO WSP NZ LTD.

REV.	REVISION	BY	CHK	APPD	DATE
A	FOR INFORMATION	LA	LA	LA	11.04.23

CONSULTANT: wsp

CONSULTANT JOB No.		BY	DATE
-	FIELDWORK	LA & NC	22.03.23
CO-ORDINATE SYSTEM: -	DESIGN	N/A	N/A
	DRAWN	LA	22.03.23
DATUM: -	DSG VERIFIER	LA	22.03.23
	DWG CHECK	LA	22.03.23

ORIGINAL SCALE (A1) -
REDUCED SCALE (A3) -
APPROVED BY: -
DATE: -

LOCATION / PROJECT:
5-NPDC7.OE
Ahu Ahu Road Walkway
Oakura

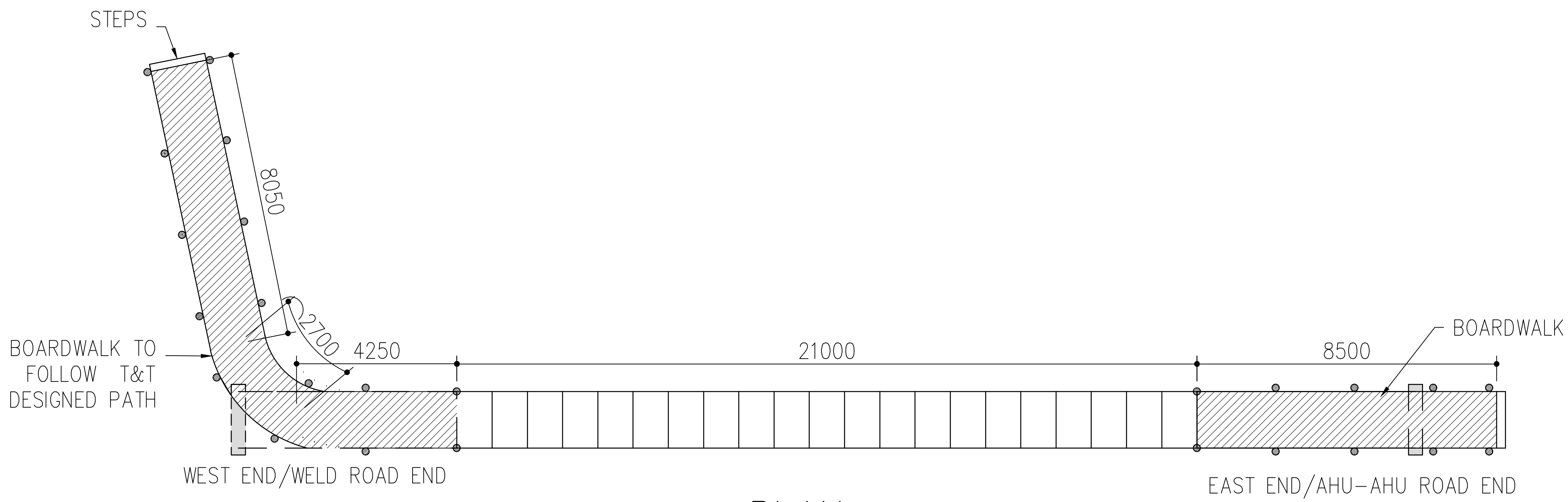
DRAWING TITLE:
Topographical Survey and UAV Flight

CLIENT:
REVIEWED BY: -
DATE: -
APPROVED BY: -
DATE: -
CONTRACT No. -
PROJECT No. -

DISCIPLINE:
Survey

DRAWING No.	CONSULTANT DRAWING No.	REV.
5-NPDC7.OE-V-1		A

DO NOT SCALE OFF DRAWING



PLAN

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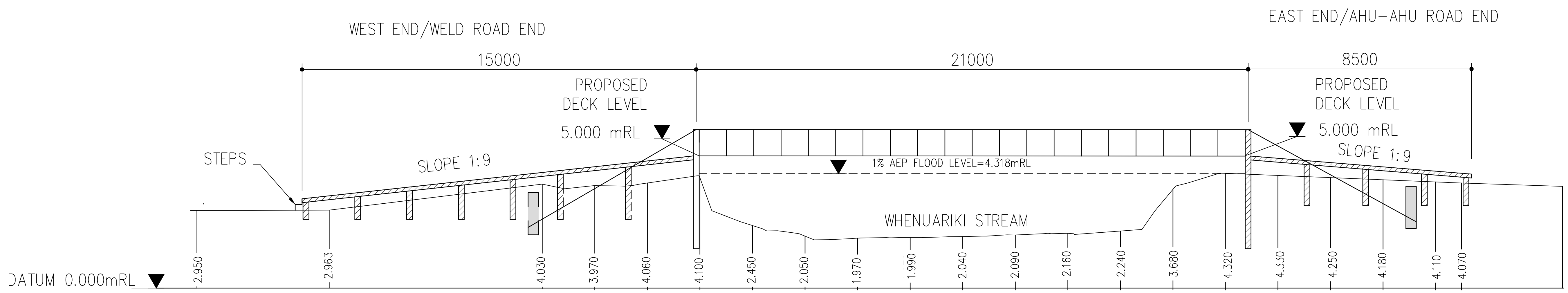


ELEVATION

SCALE 1:200

wsp

Wanganui Office
+64 6 349 6600

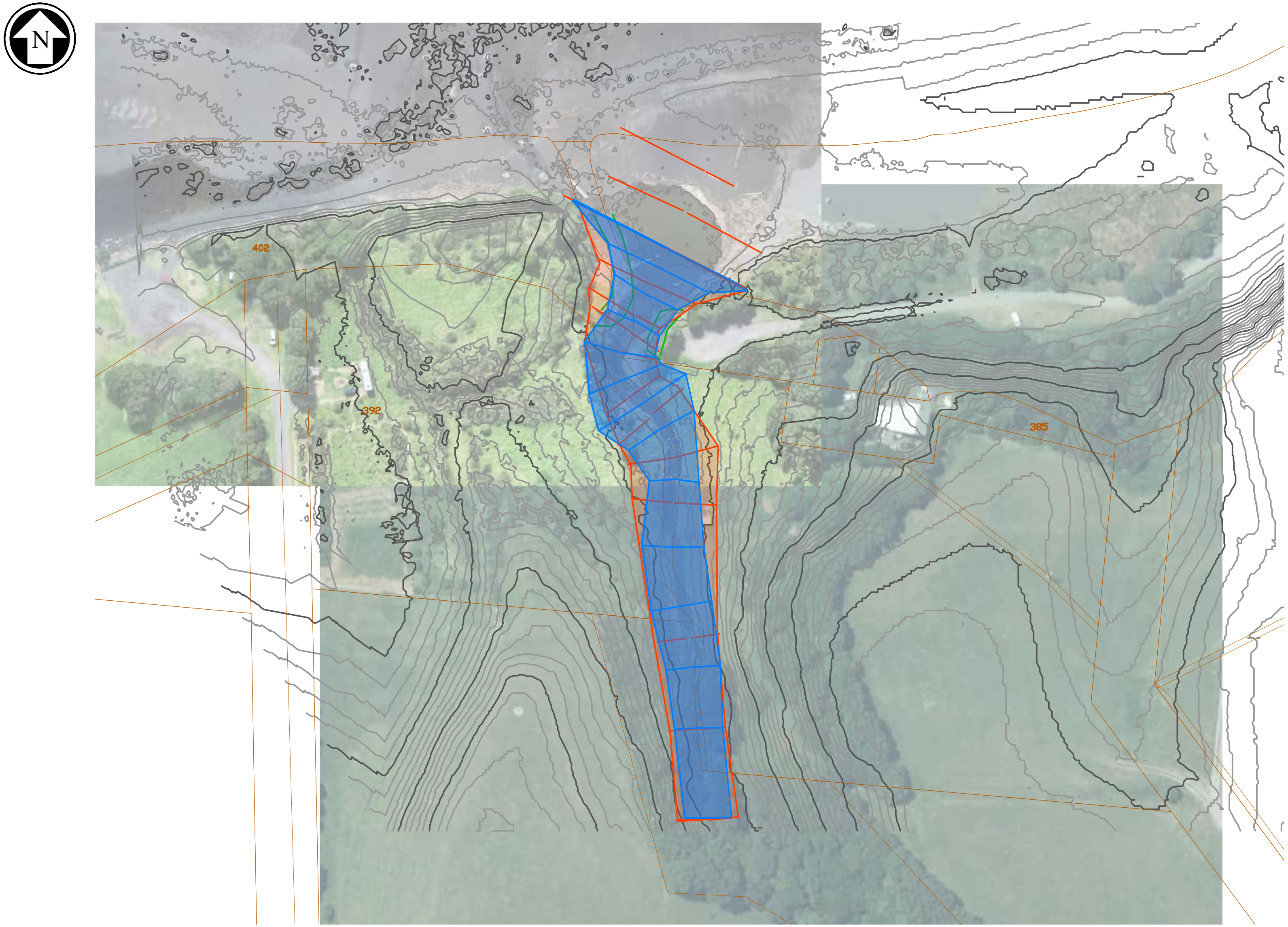
PO Box 654
Wanganui 4540
New Zealand

NEW PLYMOUTH DISTRICT COUNCIL
AHU AHU BRIDGE
RAISE CROSSING BY 0.7m AND INCREASE BRIDGE LENGTH ON THE EAST END

PROJECT No.
5-NPDC7.OE
SKETCH No.
SK02 REV B

Appendix D

Ponding Map – assumes rock revetment on both sides of stream.



NOTES:

1. PONDING WIDTHS DURING A 1 / 250 YEAR FLOOD EVENT

LEGEND:

- FLOOD WIDTH FOR EXISTING STREAM, NO RIPRAP
- FLOOD WIDTH FOR STREAM WITH RIPRAP

SCALE 1:2000 @ A4

REV.	REVISION DESCRIPTION	BY	CHK	ACC	DATE
A	FOR DISCUSSION ONLY	LM	-		–

CONSULTANT: wsp
NEW PLYMOUTH OFFICE +64 6 759 8880
1 LIARDET STREET NEW PLYMOUTH 4310
CONSULTANT PROJECT No. -

	BY	DATE
FIELDWORK	-	-
DESIGN	-	-
DRAWN	LM	18/07/23
DSG VERIFIER	-	-
DWG CHECK	-	-

CONSTRUCTION ISSUE APPROVED BY: -
DATE: -

ORIGINAL SCALE (A1) -
REDUCED SCALE (A3) -
CO-ORDINATE SYSTEM: -
DATUM: -

CLIENT: NPDC
NPDC CONTRACT No. -
NPDC PROJECT No. -
SITE No. -

CONSTRUCTION ISSUED REVIEWED BY: -
DATE: -
CONSTRUCTION ISSUE ACCEPTED BY: -
DATE: -

Te Kaunihera-ā-Rohe o Ngāmotu
New Plymouth District Council

LOCATION / PROJECT:
AHU AHU RIPRAP
OAKURA
NEW PLYMOUTH
-

DRAWING TITLE:
PONDING MAP
1/250 YEAR FLOOD WIDTHS
COMPARISON WITH EXISTING
CONCEPT

DISCIPLINE: -
NPDC DRAWING No.
CONSULTANT DRAWING No. 5-NPDC7.OE
REV.

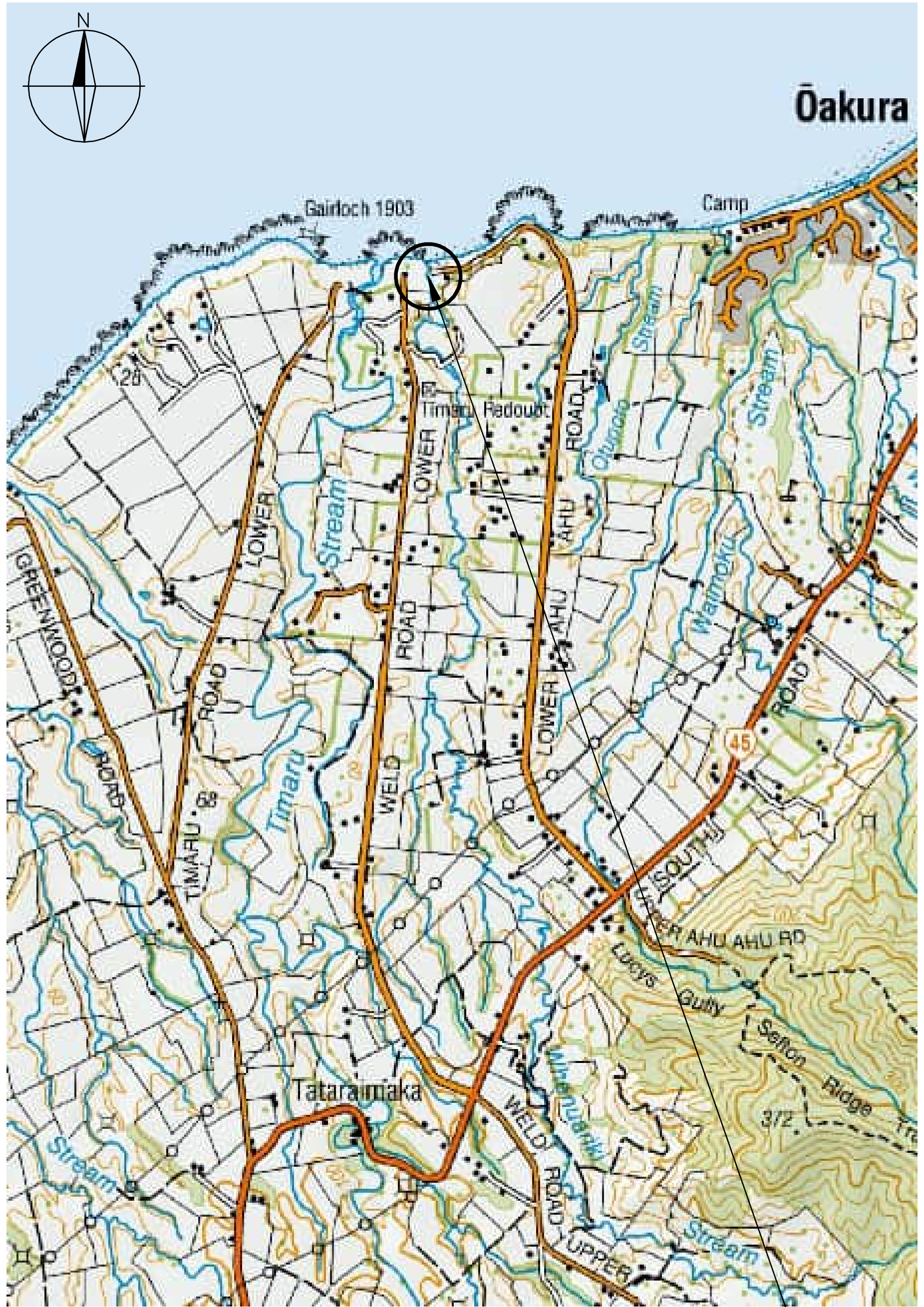
DO NOT SCALE OFF DRAWING

Document Set ID: 9099772
Version: 1, Version Date: 24/10/2023

Whenuariki Stream bridge

20.9m Suspension bridge

DESIGN PARAMETERS	
Standard	SNZ HB 8630:2004
User Group	2. Short Stop Traveller
Deck Length	20.9m
Deck Design Load	10 Person
Fall Surface	Favourable
Effective Fall Height	~3m
Barrier Type	A
Load Test	TBC

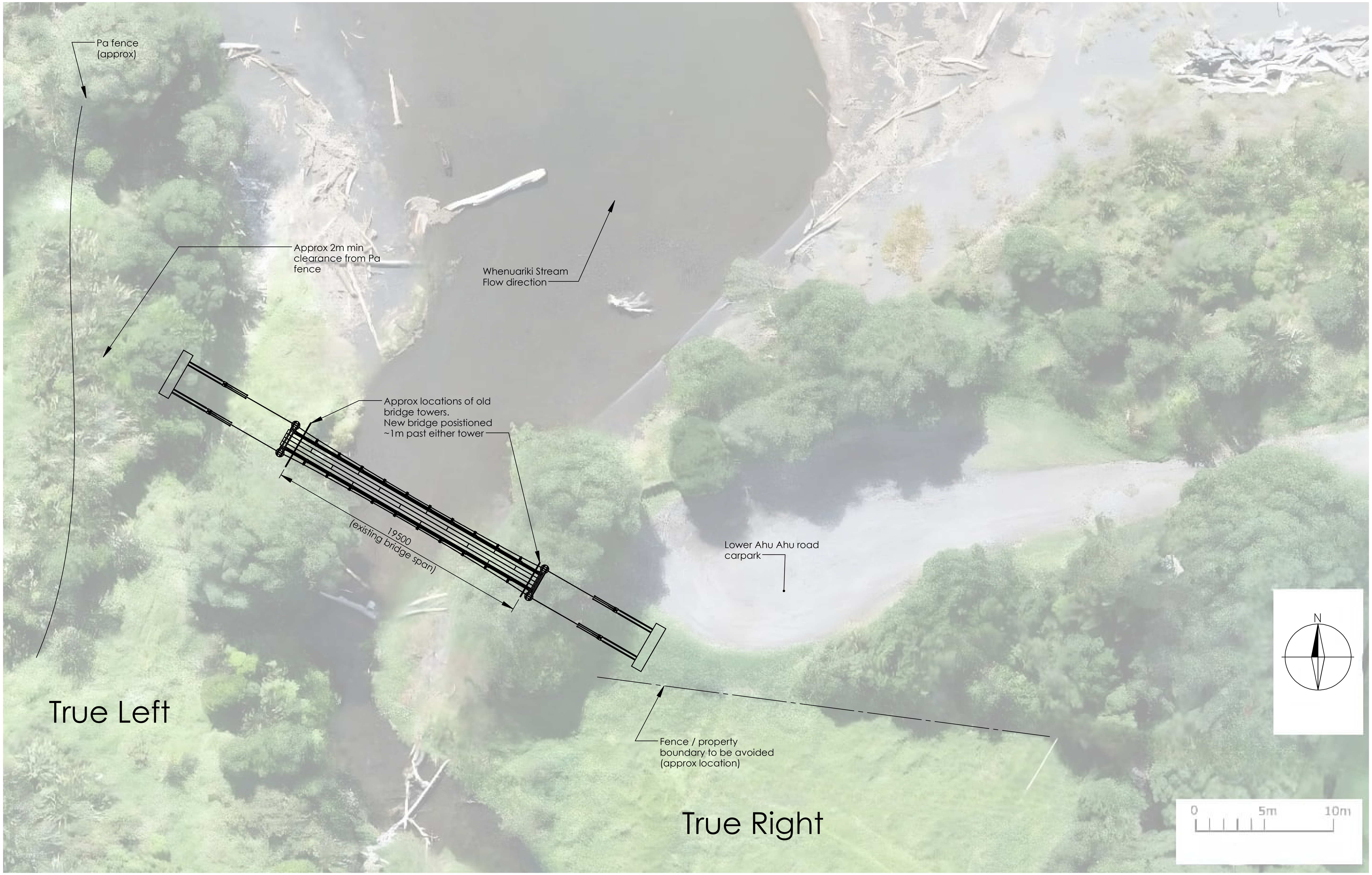


REVISION TABLE		
REV.	DESCRIPTION	DATE
A	Concept for Resource Consent	12/10/2023

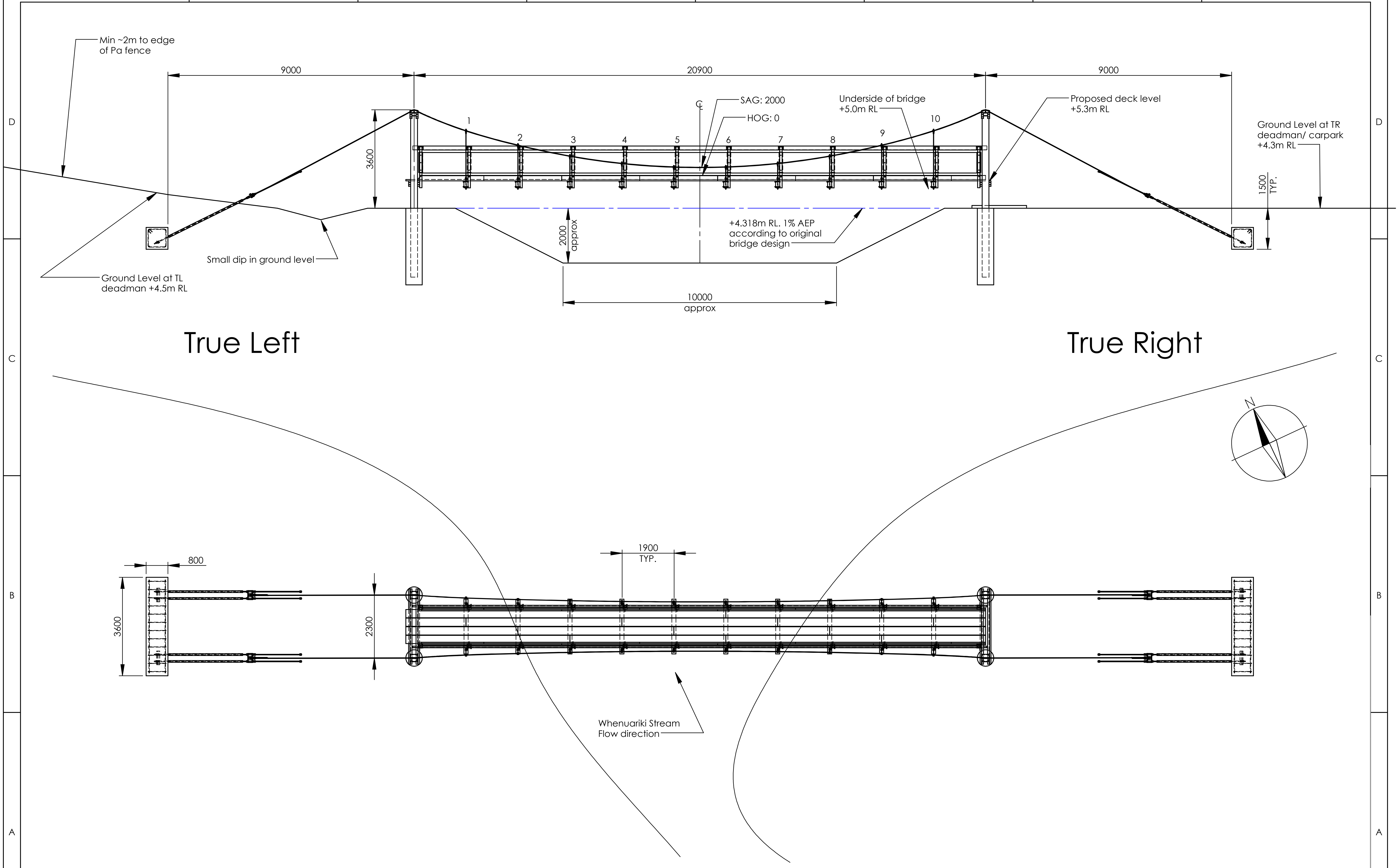
Bridge Location

5669555N, 1679915E
S 39°07'10.2", E 173°55'28.0"
-39.11950, 173.92444

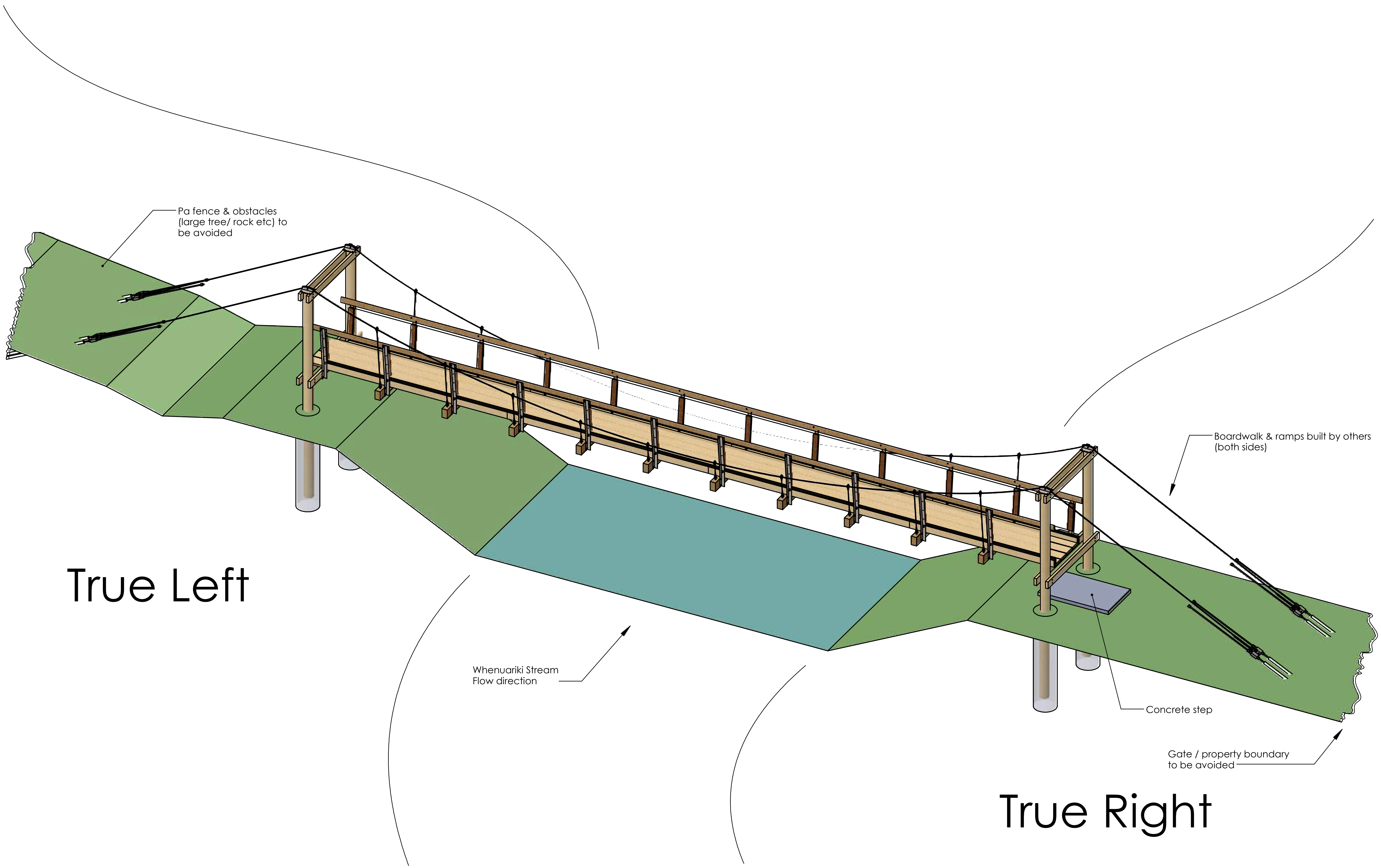
ABSEIL ACCESS
CIVIL · INFRASTRUCTURE · ENVIRONMENTAL



Client: NPDC	Sheet Title: Concept Drawing Set	Location: Lower Ahu Ahu Rd	ABSEIL ACCESS	Design	Drawn: DC
				Checked: MW	Date: 12/10/2023
Project: Whenuariki Stream Bridge	Overhead Shot	Drawing Number: AA-1889-DWG-0-2		Approved	Scale: 1:260 on A3
				Status: For RC	Revision: A



Client	NPDC
Project	Whenuariki Stream Bridge
Sheet Title	Concept Drawing Set General Layout
Location	Lower Ahu Ahu Rd
Drawing Number	AA-1889-DWG-0-3
Design	
Checked	MW
Approved	
Status	For RC
Drawn	DC
Date	12/10/2023
Scale	1: 125 on A3
Revision	A



Client: NPDC	Sheet Title: Concept Drawing Set	Location: Lower Ahu Ahu Rd	Design	Drawn: DC
			Checked: MW	Date: 12/10/2023
Project: Whenuariki Stream Bridge	3D Overview	Drawing Number: AA-1889-DWG-0-4	Approved	Scale: VARIOUS
			Status: For RC	Revision: A

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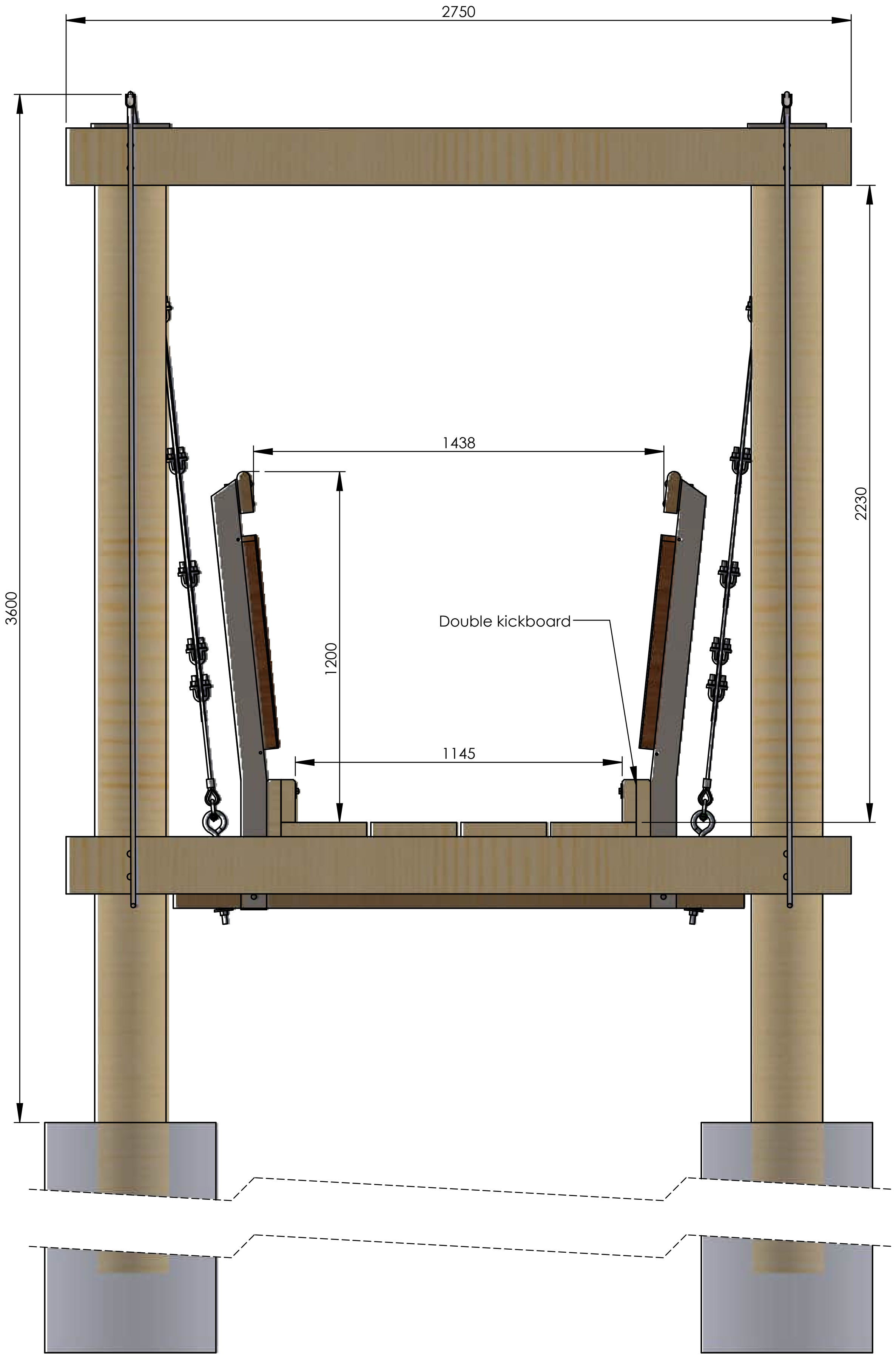
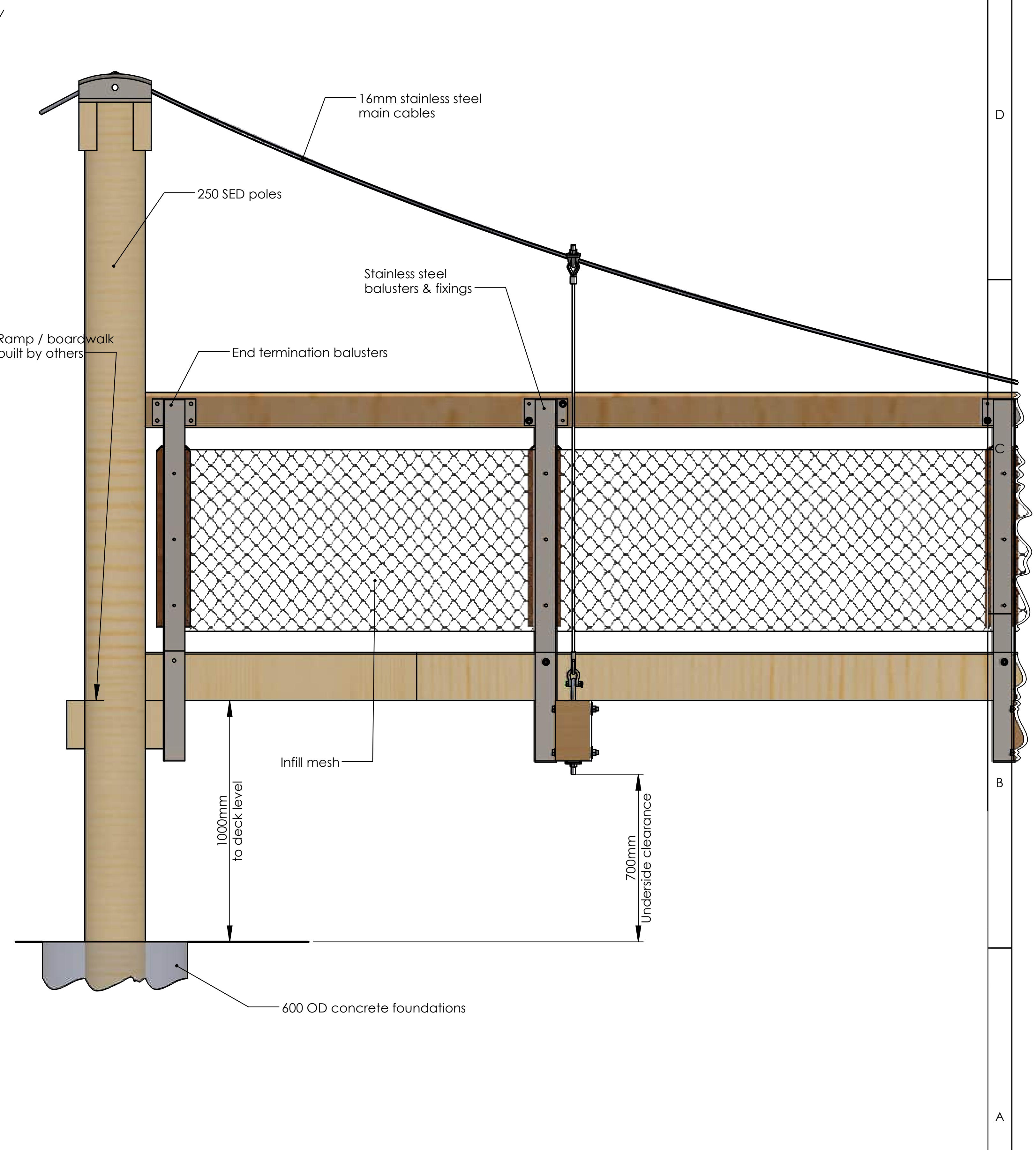




Client: NPDC	Sheet Title: Concept Drawing Set	Location: Lower Ahu Ahu Rd	Design	Drawn: DC
			Checked: MW	Date: 12/10/2023
Project: Whenuariki Stream Bridge	Tower & Side view	Drawing Number: AA-1889-DWG-0-5	Approved	Scale: VARIOUS
			Status: For RC	Revision: A

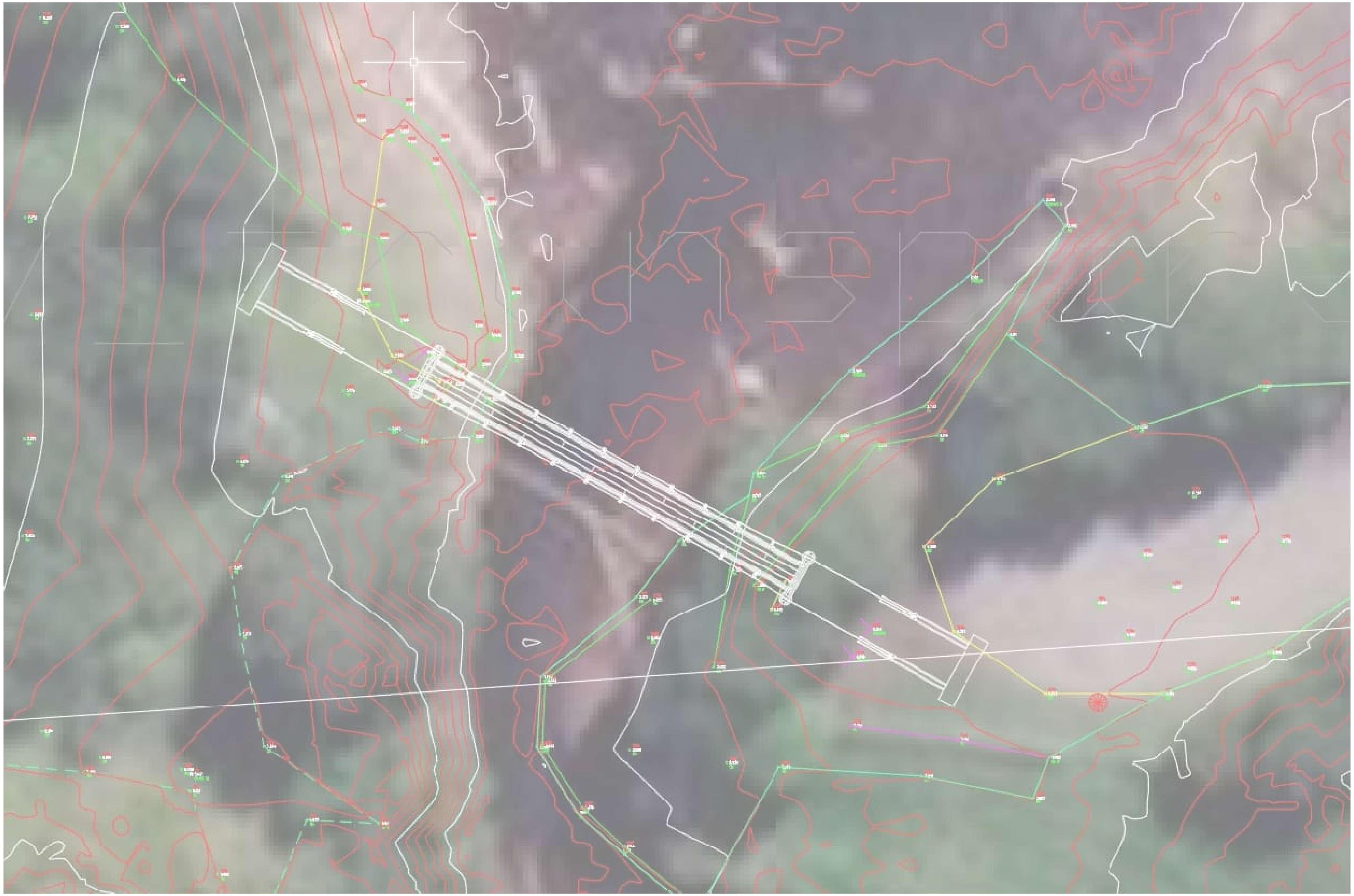
8 7 6 5 4 3 2 1

Client: NPDC	Sheet Title: Concept Drawing Set	Location: Lower Ahu Ahu Rd	ABSEIL ACCESS
Project: Whenuariki Stream Bridge	Concept Render 1 (TL)	Drawing Number: AA-1889-DWG-0-6	

Design		Drawn	DC
Checked	MW	Date	12/10/2023
Approved		Scale	VARIOUS
Status	For RC	Revision	A

Client: NPDC	Sheet Title: Concept Drawing Set	Location: Lower Ahu Ahu Rd	Design
			Checked: MW
Project: Whenuariki Stream Bridge	Concept Render 2 (TL)	Drawing Number: AA-1889-DWG-0-7	Approved
			Status: For RC

Drawn	DC
Date	12/10/2023
Scale	VARIOUS
Revision	A



True Left

True Right

Client: NPDC	Sheet Title: Concept Drawing Set	Location: Lower Ahu Ahu Rd	Design
Project: Whenuariki Stream Bridge	Site Overview	Drawing Number: AA-1889-DWG-0-8	Checked: MW
			Approved
			Status: For RC

Drawn	DC
Date	12/10/2023
Scale	1:200 on A3
Revision	A

ABSEIL ACCESS

Appendix E Ahu Ahu Bridge Construction Method Statement

Ahuahu Rd Suspension Bridge

Construction Method Statement

Document Ref:	AA-MS-Ahuahu
Revision:	1
Issue Date:	24/03/2023

Uncontrolled Document

Contents

1 Introduction

The construction of a 21m suspension bridge over the Whenuariki Stream is required as part of the walking trail that follows the coast

Abseil Access has been engaged by New Plymouth District Council to design and build the new suspension bridge.

The Weld Road Reserve is the location of Hauranga Pā, which was a large, heavily populated pre-European Māori settlement in the Taranaki region. Today, archaeological features remain present within the site. The foreshore around Weld Road Beach also forms part of the 10 km Ōākura Coast Trail, which traverses the coastline on either side of the site and is of high community value. The True left anchor block is close to the boundary fence of the Pa.

Several middens have been exposed in the close vicinity of the tower foundations.

The waterways in this area have significant cultural value to **Ngā Māhanga ā Tairi and Ngāti Tairi Hapū** and the wider river iwi. These values are articulated in the Taiao Taiora Iwi Management Plan (IMP) prepared by Taranaki Iwi. On this basis all efforts will be taken to ensure that there will be no negative impacts on the quality of the water which flows within these awa. The importance of protecting these waterways and the values of Iwi is reflected in both the design of the bridges and also the construction methodology.

Prior to work starting on bridges there will be an 'orientation' session with local iwi so that the team understand the values and stories associated with the place and the awa where the work is to be done.

Work will be done under the conditions of the wider resource consent including any cultural condition.

Project Information				
Project Name:	**Whenuariki bridge at Ahuahu rd end, Oakura**	Project Number:	1889	
HWN:	n/a			
	Address:	Whenuariki stream, Ahuahu road		

Location of Project:	GPS Location	
	Location at Address:	At end carpark

	Project Management	Project Supervisor	Client	Engineer
Contact	Martin Wilson	Matt Thom	Nigel Wilson	Malcolm Neilsen
Company	Abseil Access	Abseil Access	New Plymouth District council	MNCE
Position	Director	Site Supervisor, H&S and Environmental management	Client	CPENG
Ph #	0274495408	027 486 4803		027 289 0264
Email	Martin.wilson@abseilaccess.co.nz			

2 Scope of Work

This Scope of Work has been broken down into the below categories and specific controls and methodologies have been outlined in this document. The works will be completed by Abseil Access who are being directly engaged by New Plymouth District Council

- Pre Works
- Site setup and clearing vegetation.
- Anchor and tower foundation installation
- Tower construction and erection
- Cable installation
- Deck Formations
- Load testing and final inspection

3 Health & safety

Abseil Access have achieved ISO 9001, 14001 and 45001 quality health and safety and environmental management systems, 3

NZTA 1C, 3C & 4C. This is now recognised in the CHASNZ Totika system.

NZ TRANSPORT AGENCY
WAKA KOTAHI

PREQUALIFICATION CERTIFICATE
PHYSICAL WORKS

This is to certify that

Abseil Access Ltd

Has successfully achieved prequalification for
physical works contracts at classification levels:

Routine & Minor Works	1C
Bridge Construction	3C
Construction	4C

Brett Gliddon
NZTA, General Manager, SD&D

Date of Prequalification: 1 July 2019
Date of Expiry: 30 June 2021

DNV

MANAGEMENT SYSTEM CERTIFICATE

Site certificate No.:
275460-2018-AE-AUS-JAS-ANZ-CC5

Valid:
15 May 2022 – 14 May 2025

Belongs to main certificate number:
275460-2018-AE-AUS-JAS-ANZ

This is to certify that the centrally implemented management system for

Abseil Access Ltd
15 Bute Street, Te Aro, Wellington, New Zealand, 6011

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following site scope:
Management, development, research and engineering operations relating to access, maintenance, geotechnical and bridge-building services.

Place and date:
North Sydney, 11 April 2022

JAS-ANZ

For the issuing office:
DNV - Business Assurance
Level 7, 124 Walker Street, North Sydney, NSW, 2060, Australia

Yngve Amundsen
Management Representative

It is the management system of the whole organisation which is certified. The validity of this certificate depends on the validity of the main certificate.
Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
Accreditation by the joint accreditation system of Australia and New Zealand (www.jas-anz.org/register)
ACCREDITED UNIT: DNV Business Assurance Australia Pty Limited, Level 7, 124 Walker Street, North Sydney, NSW, 2060, Australia
TEL:+61 2 9900 9500. https://www.dnv.com.au/assurance/

DNV

MANAGEMENT SYSTEM CERTIFICATE

Site certificate No.:
275461-2018-AQ-AUS-JAS-ANZ-CC5

Valid:
15 May 2022 – 14 May 2025

Belongs to main certificate number:
275461-2018-AQ-AUS-JAS-ANZ

This is to certify that the centrally implemented management system for

Abseil Access Ltd
15 Bute Street, Te Aro, Wellington, New Zealand, 6011

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following site scope:
Management, development, research and engineering operations relating to access, maintenance, geotechnical and bridge-building services.

Place and date:
North Sydney, 11 April 2022

JAS-ANZ

For the issuing office:
DNV - Business Assurance
Level 7, 124 Walker Street, North Sydney, NSW, 2060, Australia

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TEL:+61 2 9900 9500. https://www.dnv.com.au/assurance/

DNV

MANAGEMENT SYSTEM CERTIFICATE

Site certificate No.:
275462-2018-AHSO-AUS-JAS-ANZ-CC5

Valid:
15 May 2022 – 14 May 2025

Belongs to main certificate number:
275462-2018-AHSO-AUS-JAS-ANZ

This is to certify that the centrally implemented management system for

Abseil Access Ltd
15 Bute Street, Te Aro, Wellington, New Zealand, 6011

has been found to conform to the Occupational Health and Safety Management System standard:
ISO 45001:2018

This certificate is valid for the following site scope:
Management, development, research and engineering operations relating to access, maintenance, geotechnical and bridge-building services.

Place and date:
North Sydney, 11 April 2022

JAS-ANZ

For the issuing office:
DNV - Business Assurance
Level 7, 124 Walker Street, North Sydney, NSW, 2060, Australia

Yngve Amundsen
Management Representative

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ACCREDITED UNIT: DNV Business Assurance Australia Pty Limited, Level 7, 124 Walker Street, North Sydney, NSW, 2060, Australia
TEL:+61 2 9900 9500. https://www.dnv.com.au/assurance/

A Site-Specific Safety Plan will be developed prior to works starting and submitted NPDC for review. The safety plan is to include safe work method statements for any high-risk activities and a site-specific hazard register for bridge building activities.

Daily toolbox meetings will be held, and minutes kept.

All workers will complete a site induction. New workers, visitors and subcontractors will need to complete a site induction and sign on to the safety plan.

Subcontractors: these firms will have to complete the AA subcontractor assessment and follow SSSP procedures.

Expected subcontractors:

- Concrete Supplier & Pumpers
- Various delivery trucks and digger contractor

3.1.1 Covid Management

A specific Covid Management Plan will be implemented prior to the works to reflect the current government guidelines on management of work sites. Due to the changing nature of Covid-19 and government guidelines and specific plan will be prepared close to the anticipated start date and submitted to the client for review.

4 Site Setup and General layout

4.1 Site access

The bridge site can be access by either side on foot with excavator access available along the coast

Site office and site induction station will be positioned in the laydown area on the Ahuahu carpark.

Pedestrian management: Signs will be posted warning pedestrians that the track is closed due to construction.

Site fencing will be used to prevent unauthorised access to the construction site.

4.2 Traffic Management Requirements

4.2.1 Overview

The traffic management requirements are not required on nearby roads. There will be offroad parking. All site vehicles and delivery vehicles will use the carpark at end of Ahuahu rd.

4.2.2 Materials drop off

During delivery of materials to site a medium size hi-ab truck will be required to lift off materials. The truck will stay on the formed road.

4.2.3 Concrete delivery

During construction of the foundations and anchors concrete is required to be delivered to the site by truck

No concrete to be pumped over the water or within 4m of the river.

4.2.4 True Right Site Layout

Site fencing to be installed around the extents of the excavations.

Track closures will need to be in place and site fenced off with 2m site fencing.

Underground services will be located prior to any excavation.

4.2.5 True Left Site Layout

Site fencing is to be constructed around this area to exclude the public from construction activities.

5 Erosion and Sediment Control Plan (E&SCP). Tower and anchor excavations.

5.1 Underground Services checks

A service check is to be completed prior to excavations for all four areas to be excavated. The water pipe position will be located and marked to avoid damaging it.

5.2 Excavation method

All excavation will be completed using a 1.7t – 5T tracked excavator. The excavator is to follow the formed track to the excavation sites. There will be no access required to the river. Four areas are to be excavated to a maximum depth of 1.8 meters. Tower pile holes will be augered with 600mm blade. All spoil is to be stored beside excavation on the non-river side, all spoil will then be used at backfill and ballast on the anchor blocks. Back fill be compacted to reduce future erosion.

5.3 Control of runoff from spoil piles, sediment control plan.

1. Waterways: Silt fences are to be installed around the excavation areas such that they prevent the flow of silt into the waterways.

   Silt fences to follow the 'Erosion and Sediment Control Guide for Land Disturbing Activities in the Wellington Region' dated February 2021.

2. No excavation to happen during wet weather
3. Minimal vegetation to be removed - see aerial plan
4. 'No Go area' to be observed in order to reduce surrounding vegetation damage
5. No Clean fill on site without prior planning
6. All spoil piles to be covered each night in case of rain. Spoil pile locations indicated on the sediment management plan. Spoil piles positioned such that run off returns to the excavation.
7. In the event of a heavy rain forecast return the spoil to the excavation hole and compact down. Cover with tarp. Check run off direction is not directly toward waterways.
8. No discharge of dirty water or run off into the Wainuiomata river.
9. Erosion and Sediment control plan and site environmental protection to be checked every morning before work starts and during any new excavations. Note changes or improvements on the daily toolbox form.
10. Matt Thom to be responsible for environmental management operations and maintenance and all sediment control structures.
11. Concrete spill. When pumping and pouring wet concrete precautions should be in place for the immediate reactive management to spills. Grout socks are required to immediately contain the spill and prevent it spreading. Excess concrete should be removed from site.

5.4 Reinstatement of disturbed ground

All ground that has been cleared will be reinstated by planting or sowing at the discretion of the client. This is to be done as soon as the bridge is constructed and further site work is minimised.

Excavation summary:

Excavation	Volume	Distance from riverbed	comments
True right Deadman trench	5m3	15m+	
True right tower holes	2m3	5m+	
True left tower holes	2m3	5m+	
True left Deadman trench	5m3	10m+	

6 Approach track (TL&TR)

Approach tracks will be built by others.

7 Tower Erection and Main Cable installation

7.1 Tower Erection

Tower materials will be carried to site using an excavator down the formed tracks. The towers will be assembled on site in a horizontal orientation.

Towers are to be raised using a combination of lifting with the excavator and then winching up to vertical. The tower feet lowered into the holes.

Winch cables are to remain on place holding the tower until the towers are secured by the main bridge cables.

7.2 Main Cable Installation

The main cables are to be lifted into place after the towers are erected using ropes and pulleys.

8 Deck Construction

The deck will be built out from either end in stages using fall arrest lines and harnesses once towers and main cables have been secured.

All persons working at height must be trained and competent and rope access techniques may be required for work in the tower structure or for accessing the main cables.

9 Quality Assurance

Item	QA
Timber	Tanalising certs
Stainless steel	Mill certs
Concrete	Mix certs
Main Cables	Mill Certs

10 Load test

The bridge will be load tested once completed using waterbags and bulk containers filled with water pumped from the river. It is expected to take approx. 4 hrs.

After load test has been completed the bridge deck height can be adjusted to its final position and engineer can complete final inspection.

11 Refuelling

No storage, refuelling or servicing of machinery in locations which could lead to a spill to the watercourse

Spill management:

A spill kit is required to be on site at all times. Diggers and hydraulic machinery shall be monitored at all times for hydraulic oil leaks.

12 Construction Duration

The construction will be delivered in 2024 and this bridge build is estimated at four weeks on site.

13 Completion

All construction materials will be removed from site and a sweep of the greater area will be done to ensure nothing is left behind.

14 Heritage Archaeological Findings

Should we discover any archaeological objects (te mea), we will comply with the Heritage New Zealand Act 2014. We will stop work as required and inform local authorities and iwi/hapu immediately of the findings.

Due to the known proximity of middens it is expected that there will be archaeological stand-over during excavations.

15 Appendix

15.1 Silt Fences: design and construction criteria

The following points are design essentials:

- Make sure that the silt fence height is 600 mm above ground level.
- Apply the maximum slope lengths and spacing of returns and angles given in Silt fence design criteria table.
- If there is a change in slope, no section of the fence should exceed a grade of 5% for a distance of more than 15 m.
- Put supporting posts/waratahs for silt fences 2–4 m apart, and use tensioned wire (2.5 mm HT) for support along the top.
- If you are using a strong woven fabric with a wire support, the distance between posts can be up to 4 m. Double the silt fence fabric over and fasten it to the wire with silt fence clips, 500 mm apart.
- Embed supporting posts/waratahs at least 400 mm into the ground.
- Always install silt fences along the contour (at a break in slope). If this is not possible, or if there are long sections of silt fence, install short silt fence returns projecting upslope from the silt fence to minimise the concentration of flows. Silt fence returns should be at least 2 m long, and can incorporate a tie back. You usually make them by continuing the silt fence around the return and doubling back, to eliminate joins.
- Join lengths of silt fence by doubling over fabric ends around a waratah or by stapling the fabric ends to a batten and butting the two battens together.
- Install silt fence returns at either end of the fence, projecting upslope high enough to prevent outflanking.
- If the catchment is over 0.3 ha, you need to consider whether a silt fence works well enough for that particular site. A different control measure may be better, eg a super silt fence.

Battens joining silt fence fabric ends (Source: Southern Skies).

Doubling the fabric over at the end around the waratah (Source: SouthernSkies).

- 

  Contours create the same effect as returns in this case; in other situations ensure returns are installed (Source: Southern Skies).

Silt fence design criteria table

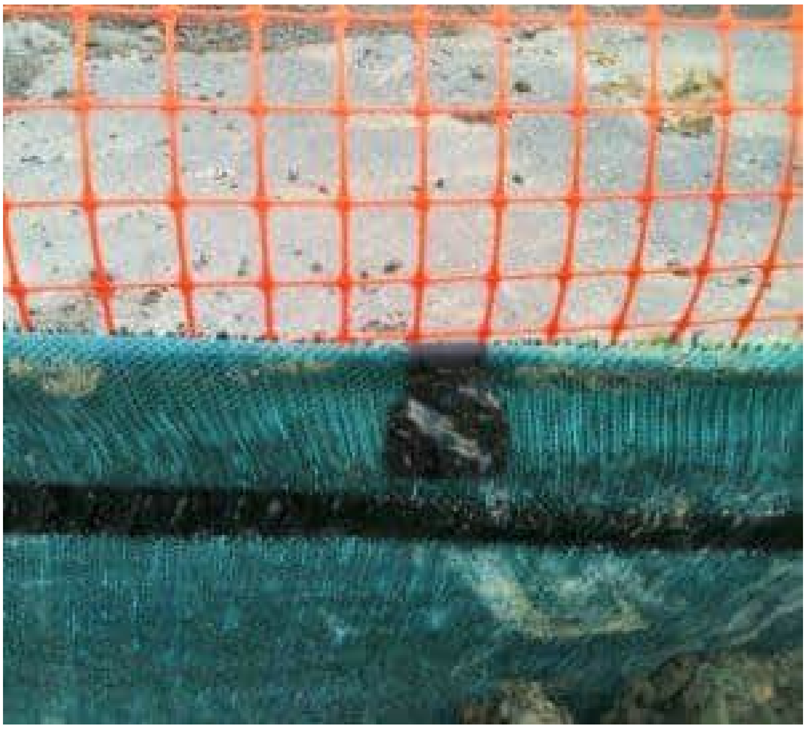
Slope steepness	Slope length (m) (maximum)	Spacing of returns (m)	Silt fence length (m) (maximum)
Flatter than 2%	Unlimited	N/A	Unlimited
2–10%	40	60	300
10–20%	30	50	230
20–33%	20	40	150
33–50%	15	30	75
>50%	6	20	40

- If water might pond regularly behind the silt fence, give the fence extra support with tie backs from the silt fence to a central stable point on the upward side. You can also string wire between the support stakes and connect the filter fabric to this wire.
- As a minimum, the silt fence cloth must meet the following criteria for geotextile fabric:
    - Grab tensile strength: >440N (ASTM D4632)

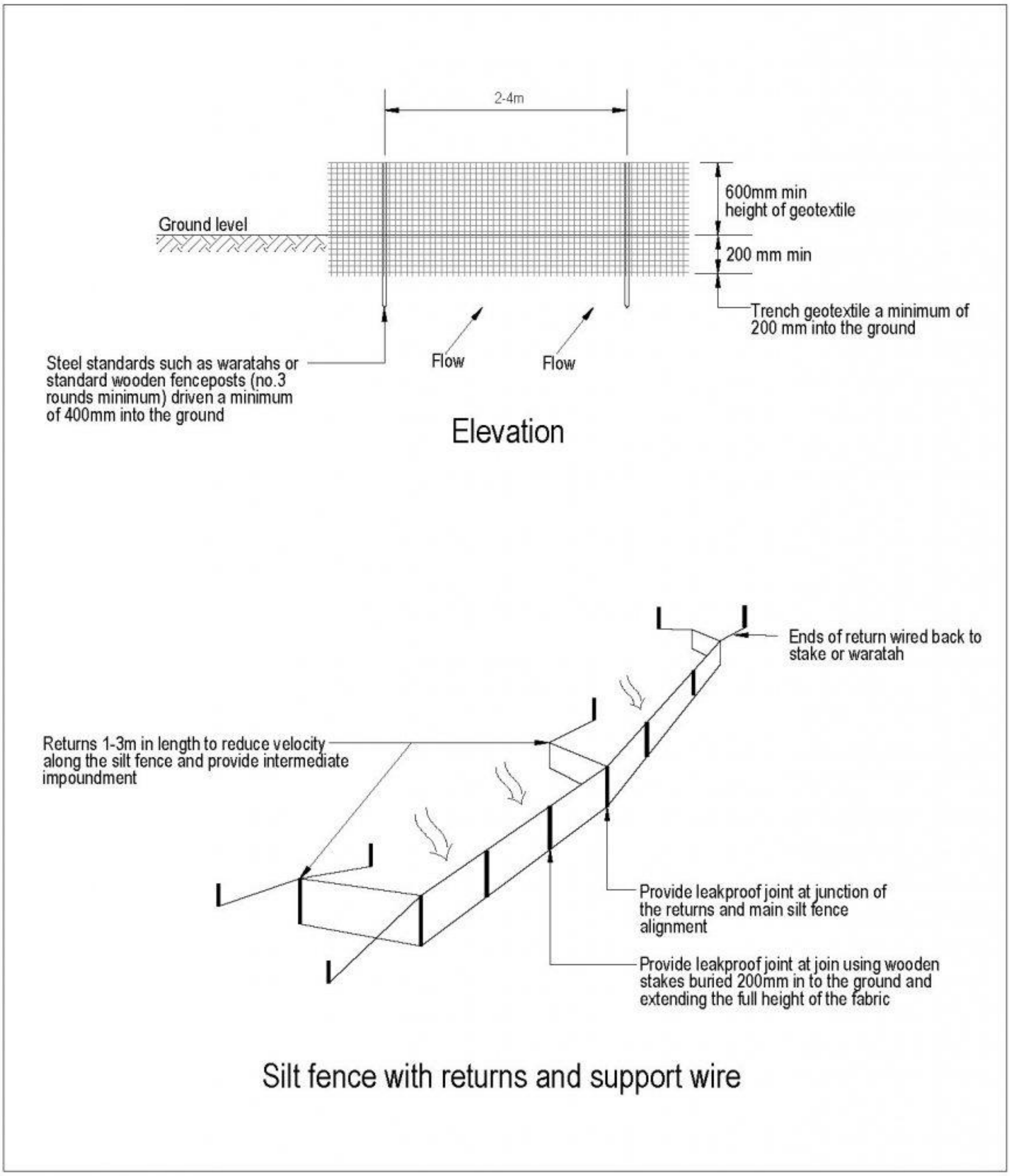
- Tensile modulus: 0.140 pa (minimum)
- Apparent opening Size: 0.1–0.5 mm (ASTM D4751).

Construction and operation of silt fences

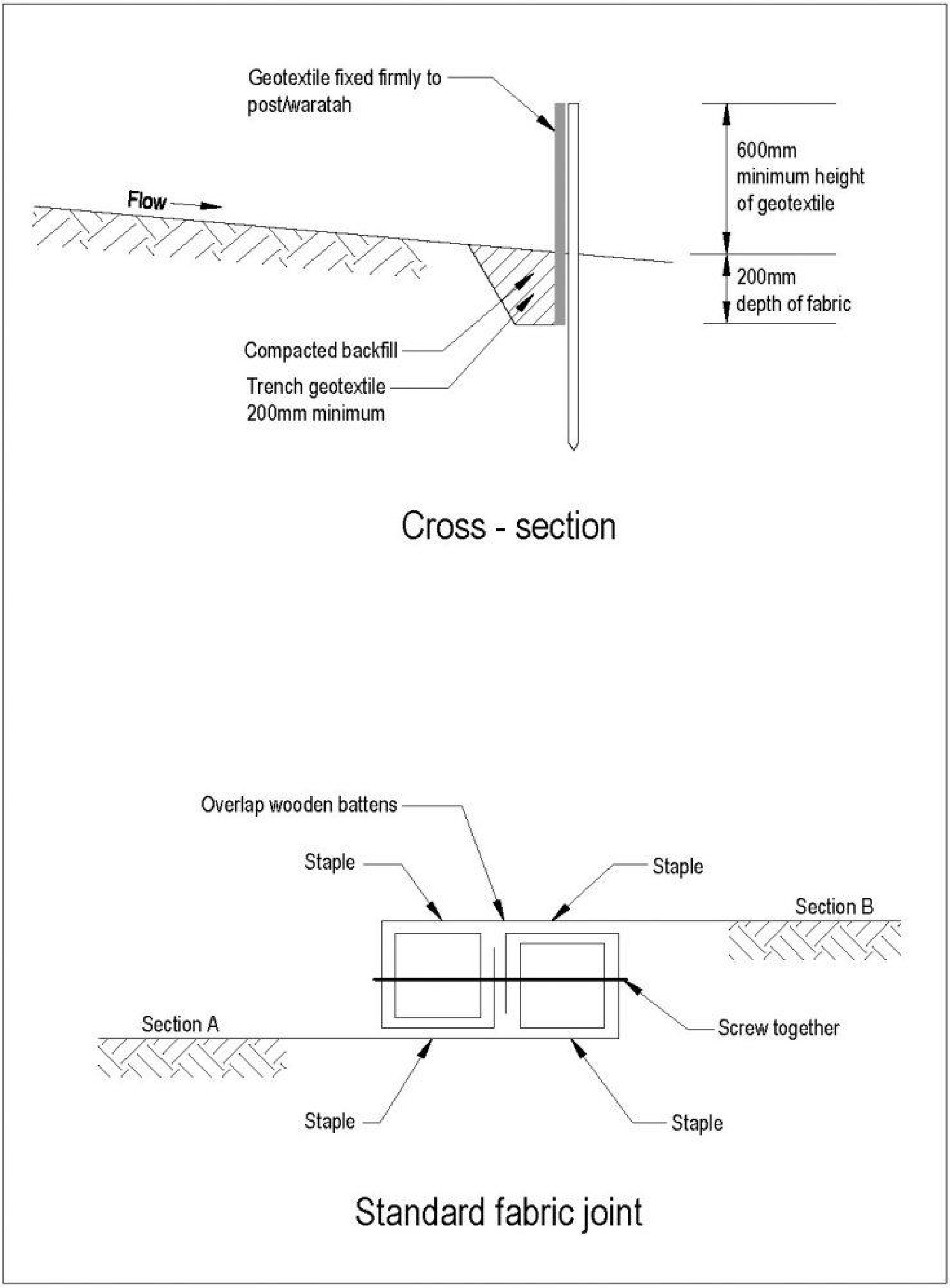
- Use silt fence material appropriate to the site conditions and according to the manufacturer's specifications.
- Always install silt fences along the contour.
- Excavate a trench at least 100 mm wide and 200 mm deep along the proposed line of the silt fence.
- Use waratahs at least 1.5 m long.
- Install the support waratahs on the **downslope edge of the trench** and silt fence fabric on the **upslope side of the support waratahs** to the full depth of the trench. Then backfill the trench with compacted soil.
- **Install the waratahs so that they are as flat as possible against the silt fence.** If the waratah edge is against the silt fence, it will rub and eventually rip against the waratah.
- Use the right silt fence clips to secure the fence material to the top wire. Don't use wire ties and staples because these rip the material if the weight of the impounded water pushes against it.
- Reinforce the top of the silt fence fabric with a support made of high tensile 2.5 mm diameter galvanised wire. Tension the wire using permanent wire strainers attached to angled waratahs at the end of the silt fence.
- Where the ends of silt fence fabric come together, make sure that they are overlapped, folded and stapled or screwed to stop sediment bypass.



Silt fence correctly secured to the top wire using silt fence clips (Source: SouthernSkies).



Schematic of silt fence construction, showing returns and support wires.



Silt fence cross section and fabric joint.

STEP 1

Dig a 200mm deep trench

STEP 2

Hammer in 1m waratahs or wooden fence post 200mm into the trench, therefore 400mm below original ground level

STEP 3

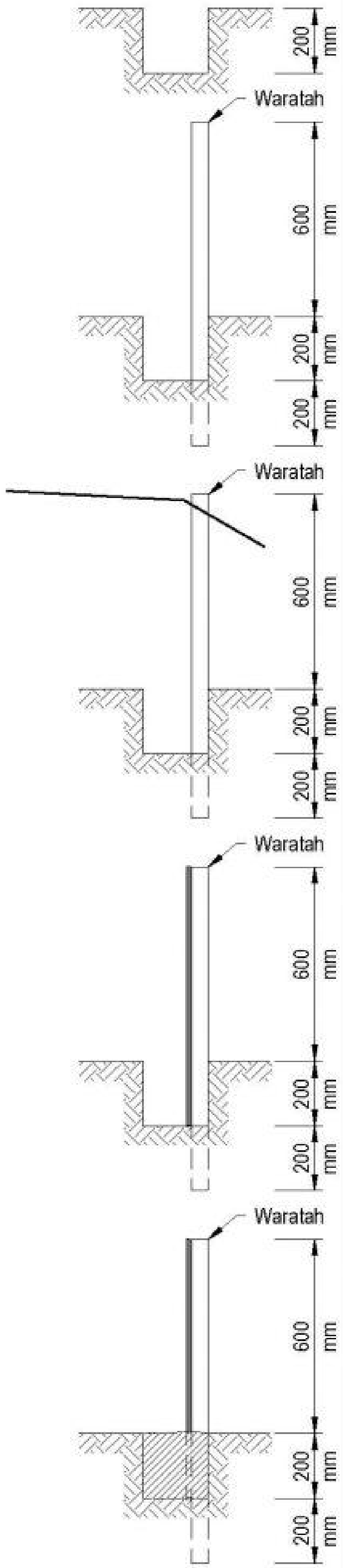
Install single galvanised wire and tension it at 50m intervals

STEP 4

Install single layer of geotextile fabric hard against the side of the trench (800mm total height)

STEP 5

Back fill and compact well (critical)



Appendix F Assessment of Ecological Values and Effects

REPORT

Tonkin+Taylor

Weld Road Beach Access

Assessment of ecological values and effects

Prepared for
New Plymouth District Council
Prepared by
Tonkin & Taylor Ltd
Date
October 2023
Job Number
1017346.1000 v3

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www.tonkintaylor.co.nz

Document control

Title: Weld Road Beach Access					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
07.12.21	1	Assessment of Ecological Values and Effects	A Johnston	J Markham D Miller S McMillian	R Reinen-Hamill
27.09.23	2	Assessment of Ecological Values and Effects	A Johnston	J Markham D Miller K Baverstock	R Reinen-Hamill
17.10.23	3	Assessment of Ecological Values and Effects final	A Johnston	R Reinen-Hamill	R Reinen-Hamill

Distribution:

New Plymouth District Council 1 PDF copy

Tonkin & Taylor Ltd (FILE) 1 PDF copy

Table of contents

Executive summary

New Plymouth District Council (NPDC) is proposing to construct a new rock revetment and shared pathway around the base of the Weld Road Reserve headland comprising a 140 m long and 12 m wide shared pathway connecting Ahu Ahu Road and Lower Weld Road. In addition, NPDC is planning to replace the Ahu Ahu footbridge, which crosses Whenuariki Stream and was damaged during a storm in 2022. These construction activities are within the same project site.

The shared pathway is to be constructed at the edge of a coastal headland known as Weld Road Reserve. This reserve and the adjacent coastal beach are recreationally valuable. The reserve is also a culturally and historically significant site for local tangata whenua and has been enhanced over time through community planting activities. The bridge replacement will be adjacent to the pathway, providing access over the Whenuariki Stream, connecting the lower Ahu Ahu road to the Weld Road Reserve.

Tonkin & Taylor Ltd (T+T) has been engaged by NPDC to prepare a technical assessment of the terrestrial, freshwater and coastal ecological values and effects of these proposed works on these values after recommended effects management measures are implemented.

The assessment of ecological values within the project site comprised both a desktop review and site assessment which was conducted on 29 October 2021, (prior to the Ahu Ahu bridge storm damage). The assessment of effects is in accordance with the EIANZ Ecological Impact Assessment Guidelines framework.

Habitat types across the project site and immediately adjacent to this, broadly comprise highly modified treeland/dune land vegetation interspersed with exotic grassland, rank pasture, shrubland and herbaceous species. The coastal habitat includes wide sandy beaches backed by small, degraded remnant dunes (adjacent coastal vegetation described above) and offshore cobble and boulder reefs. The Timaru Stream borders the western side and Whenuariki Stream borders the eastern side of the pathway to be construction. Both are tidally influenced with potential īnanga spawning habitats present upstream of the project site.

Terrestrial vegetation within the project site was assessed as being of **'moderate'** value. This was due to the presence of some protected plant species and the habitat provision for 'Threatened' and 'At Risk' terrestrial and coastal fauna. Terrestrial avifauna and herpetofauna values on site ranged from **'low** to **'high'.** These values resulted from the conservation threat status associated with species identified and/or potentially present within the project site.

Freshwater habitat within the project site was assessed as having **'high'** ecological value due to the potential presence of 'Threatened' and 'At Risk' fish species, the migratory pathway provided by the streams, and potential īnanga spawning habitat located upstream of the project site.

The coastal benthic ecology and beach habitat within the project site was assessed as being of **'moderate'** value. This habitat provides food and habitat resources to various species, including 'At Risk' coastal avifauna such as New Zealand dotterel and little penguins (*Eudyptula minor*, Nationally At Risk – Declining), but is also exposed to high levels of disturbance from heavy foot traffic. Coastal avifauna have been assigned a **'moderate'** to **'very high'** ecological value based on the potential (but unlikely) presence of Reef Heron in the vicinity of the project site (classified as 'Threatened – Nationally Endangered'), and 'At Risk' species either permanently or occasionally present in the site vicinity.

Without the proposed ecological management measures, adverse effects from the proposed rock revetment installation and bridge replacement on ecological values could occur primarily through:

- Removal of approximately 240 m^2 of mixed native/exotic treeland, grassland and dune land vegetation for the pathway construction;

- Removal/or trimming of approximately 28 m^2 of mixed native/exotic treeland, and removal of 150 m^2 grassland and shrubland and potentially some dune land vegetation for the bridge replacement construction (70 m^2 on the western bridge side and 80 m^2 on the eastern);
- Potential injury and/or mortality of native fauna (avifauna, herpetofauna) during vegetation clearance and site works, including the loss of eggs and chicks if vegetation clearance is undertaken during bird breeding season;
- Disturbance related effects on coastal birds, including effects on breeding/nesting and moulting species (penguins) and effects on food sources (intertidal habitat);
- Potential injury and/or mortality of native freshwater fish during river diversion activities;
- Effect on freshwater habitat diversity and condition through temporary modification as a result of construction activities potentially occurring in the Whenuariki Stream mouth;
- Potential uncontrolled discharge of sediment laden water to the surrounding environment during works; and
- Permanent change in the project site substrate from a soft sandy-beach habitat in the intertidal zone to a hard artificial structure (for the rock revetment and associated pathway).

The following measures are proposed to avoid, remedy or mitigate the above effects:

- Vegetation clearance and construction undertaken outside of bird breeding season (September to March inclusive) and if this cannot be avoided, then a breeding/nesting bird survey will be undertaken ahead of construction to direct appropriate bird management responses;
- Construction undertaken outside of coastal bird moulting timeframes (penguins; January to March).
- The implementation of an erosion and sediment control plan that meets best practice guidance to minimise the potential for sediment discharges;
- The preparation and implementation of an Environmental Management Plan (EMP) including an Avifauna Management Plan (AMP), Penguin Management Plan (PMP), Lizard Management Plans (LMP) and Freshwater Fish Management Plan (FFMP).
- Restricting works to the delineated project site boundary and restricting access to the project site to minimise the disturbance footprint;
- Managing the works to minimise any loss of key local aquatic habitat types (including bankside cover for freshwater habitat and key vegetation types) through site management and appropriate construction methodology;
- Replanting efforts for some removed dune land species, where practical;
- Carry out herpetofauna searches and salvage (if lizards present) prior to and during vegetation clearance in accordance with the LMP; and
- Application for herpetofauna salvage and translocation permits from the Department of Conservation, confirmation of an appropriate relocation site and undertaking these works as required.

The project site is anticipated to have the following residual effects after the above measures to avoid, remedy or mitigate adverse ecological effects are implemented:

- **'low'** level of effects on terrestrial habitats (terrestrial and coastal vegetation);
- **'low'** to **'very low'** level of effects on terrestrial and coastal birds respectively;
- **'low'** to **'very low'** level of effects on herpetofauna;
- **'low'** level of effect on the freshwater ecology from sedimentation and potential diversion; and

- **'low'** to **'very low'** effects on coastal benthic ecology and intertidal habitat.

Construction works are expected to be short in duration, lasting 3-4 weeks for pathway activities and up to 6 weeks for the bridge replacement. This timeframe has been considered when reviewing the level of effects on ecological features within the project site.

In conclusion, we consider that the measures proposed to avoid, remedy, and mitigate will reduce and adequately address the potential adverse ecological effects to 'low' and 'very low' such that no further effects management is required.

1 Introduction

1.1 Scope and purpose

Tonkin & Taylor Ltd (T+T) has been engaged by New Plymouth District Council (NPDC) to prepare resource consent applications for construction of the following:

1. A rock revetment wrapping around the base of the Weld Road Reserve headland, supporting a coastal walkway connecting lower Ahu Ahu Road with the Lower Weld Road car park ('the pathway construction); and
2. Replacement of the Ahu Ahu Bridge ('the bridge replacement') extending over Whenuariki Stream and connecting Ahu Ahu Road to Weld Road Reserve.

Both construction activities are occurring within the same project site.

This report provides an assessment of ecological values and effects on the environment (AEcE) for the pathway construction and bridge replacement to inform resource consent applications for Tasmin district Council (TDC) and NPDC. It also provides an assessment of effects on these values after the implementation of recommended effects management measures. The report includes:

- A description of the values of the existing terrestrial, freshwater, and coastal environment and ecology within project site and surrounding areas;
- A description of the actual and potential ecological effects expected to result from the pathway construction and bridge replacement; and
- Recommended measures to address effects where required/appropriate (with further detail to be provided in an Environmental Management Plan (EMP)).

This report has been prepared in accordance with our letter of engagement with NPDC dated 20 October 2021 (T+T ref. 1017346.1000) and updated agreement dated 19 May 2023 (T+T ref. 1017346.3000).

1.2 Site description and ecological context

Weld Road Headland is near Ōākura approximately 10 km southwest of New Plymouth on the west cost of the North Island, New Zealand (Figure 1.1). The project site is 10 m below the Weld Road Headland extending from the Lower Ahu Ahu Road to Lower Weld Road reserve and carpark area (Figure 1.1; Figure 1.2).

The project site and surrounding area is within the Egmont Ecological District[1] which holds important amenity values as a recreational reserve administered by the NPDC. The project site is heavily used by recreational motorbikes, mountain bikers, horse riders, surfers, swimmers and walkers (including dog walking activity) during low tide. TRC biodiversity layers identified two potential ecosystems within the project site. These include the kahikatea, pukatea forest (western portion of the project site) and tawa, kohekohe, rewarewa, hinau, podocarp forest (eastern portion of the project site), which are acutely threatened and chronically threatened, respectively[2]. However, a site visit confirmed these ecosystems and associated species are likely to be historical records given the present vegetation has been highly modified. A QEII National Trust Covenant is located approximately 150 m northeast of the project site[3].

[1] McEwen, WM (1987) Ecological Regions and Districts of New Zealand.
[2] https://maps.trc.govt.nz/LocalMapsViewer/?map=8c336441e5d44a699354ef777d8ac868, downloaded 16.09.20.
[3] Taranaki Regional Council Biodiversity Map layers: https://maps.trc.govt.nz/LocalMapsViewer/?map=8c336441e5d44a699354ef777d8ac868, downloaded November 2021.

Aerial images, online records, photographs and a site visit undertaken in October 2021 confirmed the project site is surrounded by wide sandy beaches backed by small, degraded remnant dunes with adjacent coastal vegetation, intertidal debris and offshore cobble and boulder reefs. The coastal shoreline adjacent to the project site is highly dynamic. The available habitat within and adjacent to the project site includes degraded dune lands, pockets of coastal grassland, shrubland and treeland. In addition, two waterbodies, Timaru Stream (western side) and Whenuariki Stream (eastern side), border the pathway construction area. The bridge replacement area overhangs the Whenuariki stream. The various habitats within and surrounding the project site provide potential refugia, foraging, breeding, and nesting grounds for avifauna, herpetofauna and fish fauna.

Figure 1.1: Location of the project site as indicated in red.

Figure 1.2: Location of the project site relating to New Plymouth (red square outlined in the inset) and the Weld Road Reserve and surrounding features within and/or nearby the project site (outlined in red).

1.3 Proposed activity

NPDC proposes construction of a new rock revetment supporting a shared pathway at Weld Road Reserve to enable alternative public access, thereby helping protect Hauranga Pā from the damage caused by informal access tracks. They also propose works to replace the Ahu Ahu bridge which was damaged during a storm event in early 2022. This section describes the proposed construction activities and associated loss or modification to ecological habitats within and surrounding the areas of these proposed works.

1.3.1 Shared pathway

The rock revetment and shared pathway will wrap around Weld Road Reserve, extending from the replaced Ahu Ahu Bridge (crossing the Whenuariki Stream) on the eastern side of the Reserve around the headland and into an existing bush track on the western side of the Reserve, leading to the Weld Road car park (Figure 1.3). The rock revetment is approximately 140 m long and approximately 12 m wide, with a 2 m wide concrete pathway formed on its crest (Figure 1.4). T+T has designed the proposed shared pathway around Weld Road headland and bridge abutment.

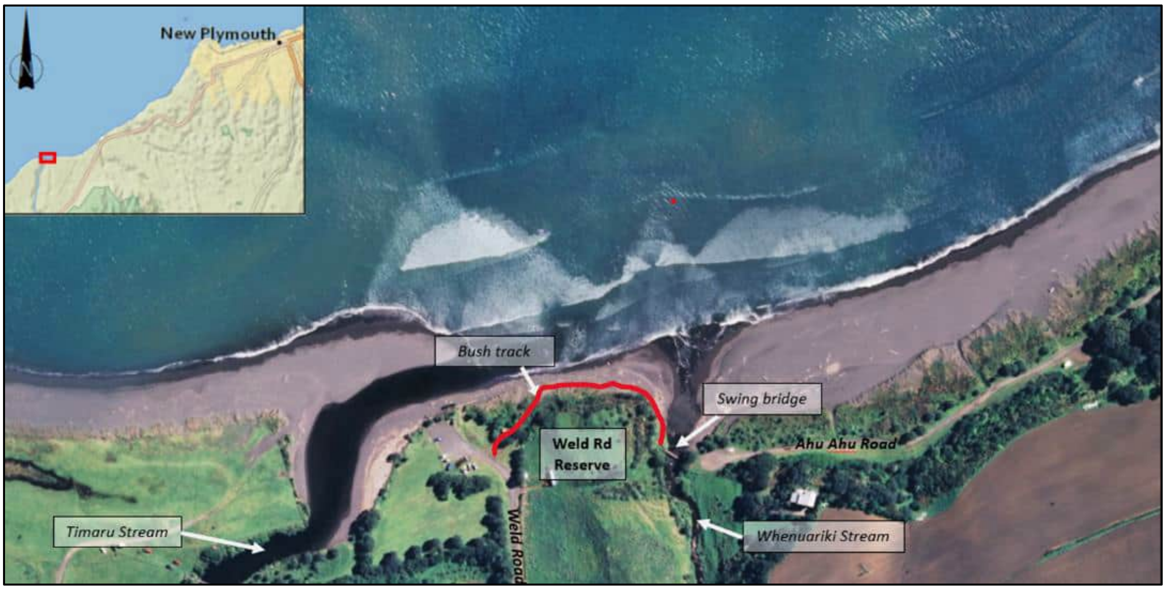

Figure 1.3: General outlined in red shows the pathway and rock revetment work taking place on the western side of the bridge replacement site (identified as 'swing bridge.').

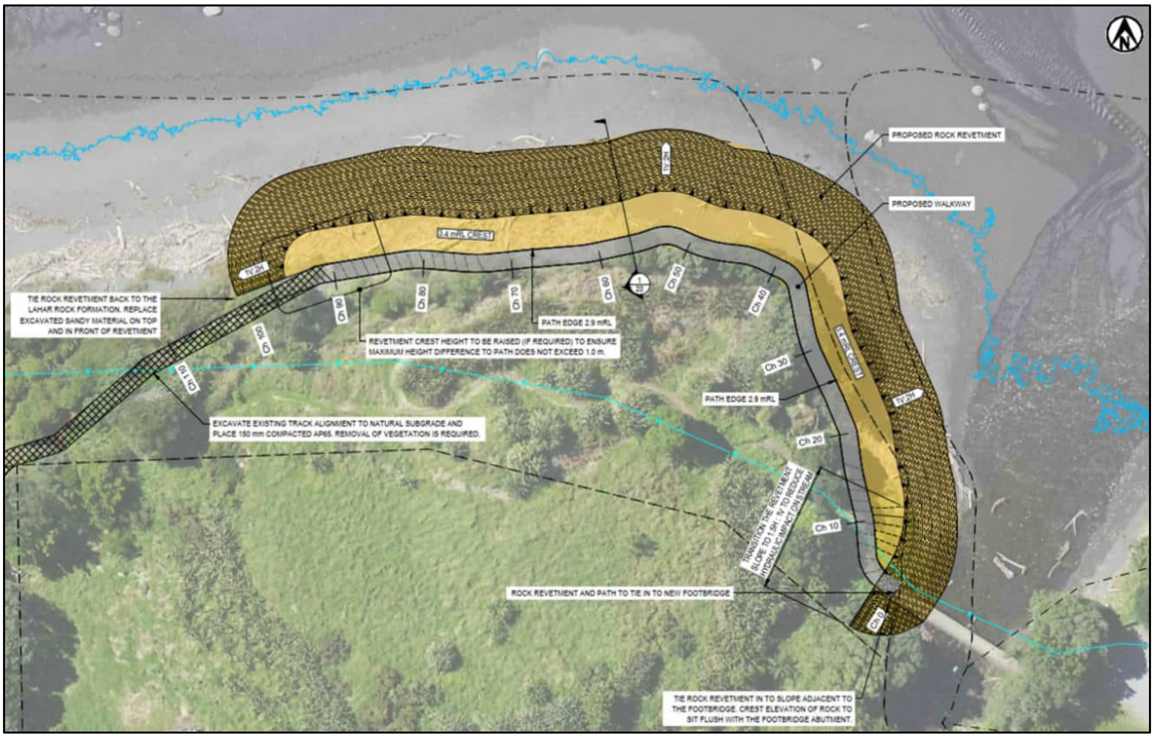

Figure 1.4: Concept design for the rock revetment and pathway installation around Weld Road Reserve headland and the extent of works within the coastal marine area (CMA).

The Lower Weld Road carpark will be used as a construction laydown area, with alternative public parking and beach access provided on the adjacent grassed area. Revetment rock will be stockpiled in the laydown area and taken to the works area by Moxy truck. Construction vehicles will access the foreshore via an existing pedestrian access point over the dunes, removing approximately 10 m^2 of dune land vegetation to widen that access.

The works will require the removal and trimming of some trees and coastal vegetation around the headland bank on the beach front, including Pōhutukawa trees.

It is expected that works required to complete the rock revetment and pathway will take place alongside and within the edge of Whenuariki Stream. The Whenuariki Stream is highly dynamic and the banks of the Whenuariki Stream may need to be temporarily trained using sandbags to prevent the stream from encroaching on the works site.

It is proposed for construction to be undertaken around low tide, and construction machinery will return to the laydown area at the end of each day. Construction is likely to take 3-4 weeks to complete.

In summary, based on the preliminary construction methodology the project will result in the loss and modification of the following ecological habitats:

- Small pockets of native vegetation will be removed or trimmed back along the coastal edge of the Weld Road headland to enable installation of the rock revetment;
- Disturbance to the beach habitat within and above the high tide mark (upper-beach habitat) and permanent change to the substrate type within this part of the project site (change from intertidal habitat to a rock revetment and pathway structure);
- Disturbance to Whenuariki Stream with a temporary and small-scale diversion to train the stream away from the construction site; and
- Permanent change to a small section of the bank side of the Whenuariki Stream (within the bridge abutment area) during works.

1.3.2 Ahu Ahu Bridge replacement

The replacement bridge will connect the Ahu Ahu Road carpark area with the reposed coastal rock revetment pathway (described in Section 1.3.1) on the western side of the Whenuariki Stream, leading to the Weld Road car park (Figure 1.5). WSP New Zealand Ltd (WSP) has provided concept design options for the bridge replacement including details regarding the viability of raising the bridge to mitigate the impacts of potential future storm events. NPDC selected one of the options provided by WSP (specifically option #3 from the report provided by WSP[4]) and details of this option are included below as preliminary designs (Figure 1.6). However, finalised detailed bridge designs and construction methodologies will be provided later by a bridge specialist company working alongside NPDC.

Figure 1.5: Bridge replacement location and surround areas.

[4] Ahu Ahu Bridge Reinstatement-concept options and sketches (28 April 2023) written by WSP for NPDC.

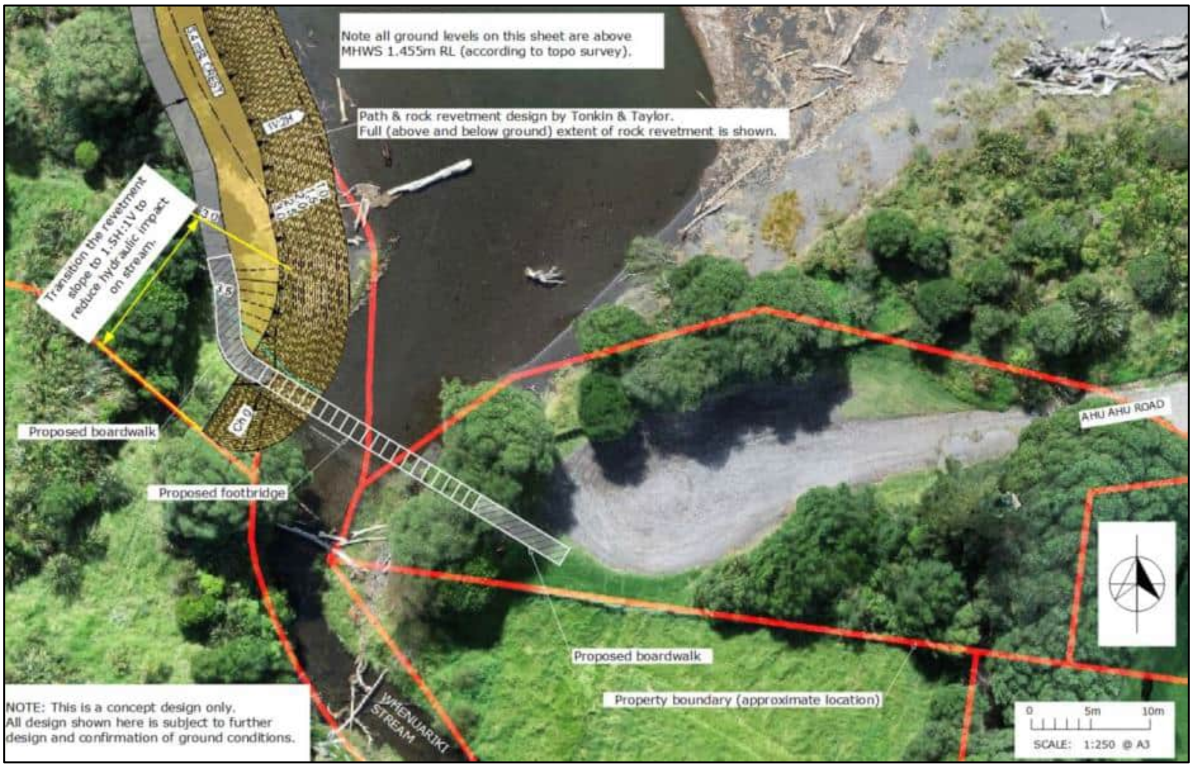

Figure 1.6: Concept design for the eastern abutment of the bridge and proposed bridge being replaced above the Whenuariki Stream.

The original Ahu Ahu Bridge was designed as a single 19.5 m span bridge constructed circa 2000 enabling access over the Whenuariki Stream to the Weld Road Reserve/adjacent coastal area. WSP has provided preliminary conceptual plans for the bridge replacement works and this includes increasing the bridges length to 21 m allowing the east abutment to be relocated 1.5 m east of the original bridge, improving the bridges resilience against scour. The abutment of the bridge is proposed to be raised approximately 0.7 m at the abutments. The new bridge deck will be flat while the original bridge had sagged of up to 0.8 m, therefore, the deck in the middle of the replacement bridge may be up to 1.5 m higher than the original.

For the proposed bridge deck level of 5.0 m RL, the freeboard from deck to the 1 in 25-year Serviceable Limit State (SLS) event is approximately 1.52 m. Depending on the thickness of the bridge deck (to be determined in detailed design), this is anticipated to meet the 1.2m minimum freeboard requirements to the lowest part of the bridge superstructure.

Raising the abutments will require raised approaches to tie back into the car park (east end) and shared coastal pathway (west end). Based on a 1(V):9(H) gradient, this will require ramp lengths in the order of 10 m (east) and 19 m (west) to tie into existing levels. WSP have recommended boardwalk ramps (instead of earth ramps).

The works will require removal and/or trimming of some trees and coastal shrubland vegetation around the western and eastern sides of the Whenuariki Stream. A small area of vegetation is being impacted on the eastern side (approximately 28 m^2) comprised of potential five finger (*Pseudopanax arboreus*), karo (*Pittosporum crassifolium*), giant flax (*Phormium tenax*), Puka (*Meryta sinclairii*) and/or Pōhutukawa *(Metrosideros excelsa*.) tree species. In additional, some grassland, shrubland and potentially duneland vegetation may be removed (approximately 80 m^2). On the western side of the Whenuariki Stream approximately 70 m^2 of grassland and/or shrubland vegetation is expected to be impacted with the potential for removal of specific trees including giant flax and Pōhutukawa (Figure 1.7).

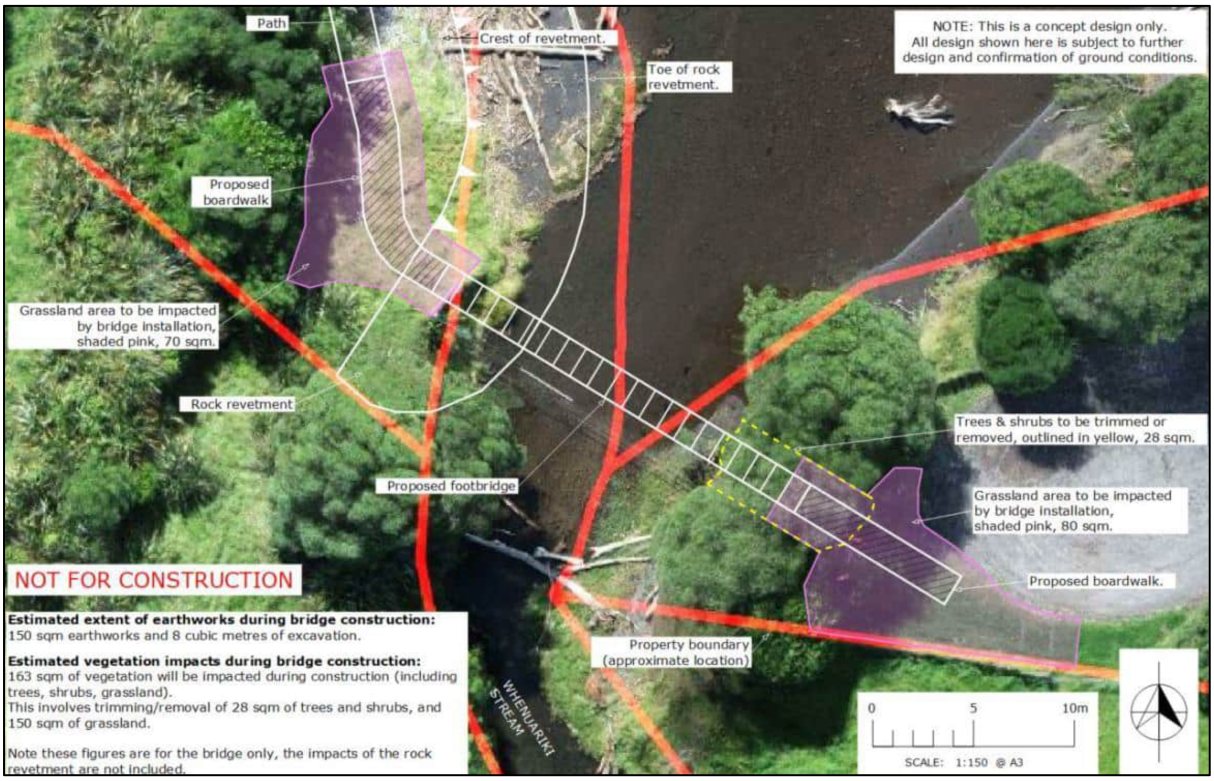

Figure 1.7: WSP concept design of the bridge abutments and replacement area.

Project work replacing the Ahu Ahu Bridge is expected to take place alongside the bank sides/riparian zone of Whenuariki Stream and within the steam bed. The Whenuariki Stream is highly dynamic and the banks of the Whenuariki Stream may need to be temporarily trained using sandbags/bunding to prevent the stream from encroaching on the works site.

It is proposed for construction to be undertaken at low tide and expected that construction machinery will return to a designated laydown area (within the existing Ahu Ahu carpark) at the end of each day. Construction is likely to take approximately 6 weeks.

In summary, on the basis of the construction methodology the project will result in the loss and modification of the following ecological habitats:

- Removal and/or trimming of pockets of native vegetation and scrubland along the stream and adjacent coastal edges on the western and eastern side of Whenuariki Stream. This will enable installation of the bridge abutments;
- Disturbance to Whenuariki Stream with a temporary and small-scale diversion to train the stream away from the construction site;
- Temporary change to the streambed and bank sides of Whenuariki Stream during construction activities;
- Permanent change to the eastern and western bank sides of Whenuariki Stream with the placement of rock armouring and bridge abutments; and
- Change in the flood width of the Whenuariki Stream at the site of the proposed bridge replacement.

1.4 Regulatory context

The following documents have been considered in the preparation of this report:

- TRCs Proposed Coastal Plan for Taranaki – interim version (2019)[5] ;
- TRCs Freshwater Plan (2021);
- TRCs Regional Soil Plan for Taranaki (2021);
- TRCs Progressive Implementation Programme for the NPS-FW (2018);
- NPDC Operative District Plan (volume 1 – policies)[6] and NPDC Proposed Plan[7];
- The National Policy Statement for Freshwater Management;
- The National Policy Statement for Indigenous Biodiversity (NPS IB)[8]; and
- TRCs Key Native Ecosystem programme.

[5] https://www.trc.govt.nz/assets/Documents/Plans-policies/CoastalPlanReview/Interim-Version-of-the-Proposed-Coastal-Plan.pdf. Downloaded October 2021.
[6] https://www.npdc.govt.nz/planning-our-future/district-plan/operative-district-plan/. Downloaded October 2021.
[7] https://districtplan.npdc.govt.nz/eplan/. Downloaded October 2021.
[8] Ministry for the Environment (2023). National Policy Statement for Indigenous Biodiversity. Minister for the Environment 7 July 2023. https://environment.govt.nz/publications/national-policy-statement-for-indigenous-biodiversity/. Downloaded August 2023.

2 Methods

2.1 Desktop review

A review of relevant and available desktop literature and databases was undertaken for the project site. Key information sources included:

- Aerial imagery (including historical imagery of the vegetation types and habitat suitability for terrestrial fauna);
- Historical lizard records from the Department of Conservation (DOC) BioWeb Herpetofauna Database;
- Ecological observations from inaturalist.org and eBird within the project site and immediate vicinity;
- Birds NZ known range distribution reviews for site overlap comparison;
- Review of data records relating to the distribution of seals and haul out areas in New Zealand[9];
- Herpetological Society herpetofauna index distribution reviews for site overlap comparison;
- New Zealand Plant Conservation Network Database (NZPCND);
- New Zealand Freshwater Fish Database (NZFFD);
- Specific flora and fauna layers deemed relevant on council maps;
- Any relevant, readily accessible reports and literature;
- Updated site images and descriptions for the Ahu Ahu Bridge replacement project site from NPDC and WPS; and
- Review of historical bat records from the Department of Conservation (DOC) National Bat Database.

Information from these sources was reviewed, used to guide/scope any subsequent field investigations, and considered in conjunction with findings from ecological surveys within the site.

The conservation significance of individual reptile[10,11], fish[12] ,bird[13] and coastal flora[14,15] species found in the desktop review were based on the most recent New Zealand conservation threat status documents.

2.2 Field assessments

An appropriately experienced and qualified T+T ecologist undertook a site visit on 29 October 2021 to assess ecological values of the project site. The site visit was completed during calm and sunny

9 https://teara.govt.nz/en/interactive/6187/distribution-of-seals-in-new-zealand - downloaded July 20 2023.

10 Hitchmough.R., Barr. B., Knox, C., Lettink.M., Monks.J.M., Patterson, G.B., Reardon, J.T., Winkel, D., Rolfe, J., Michel, P. (2021) New Zealand Threat Classification Series 17. Conservation status of New Zealand reptiles.

11 Burns, R.J., Bell, B.D., Haigh, A., Bishop, P.J., Easton, L., Wren, S., Germano, J., Hitchmough, R., Rolfe, J.R. and Makan, T., 2018. Conservation status of New Zealand amphibians, 2017. Publishing Team, Department of Conservation.

12 Dunn, N. R., Allibone, R. M., Closs, G. P., Crow, S. K., David, B. O., Goodman, J. M., Griffiths, M., Jack, D. C., Ling, N., Waters, J. M., and Rolfe, J. R. (2018). Conservation status of New Zealand freshwater fishes.

13 Robertson.H., Baird.K., Dowding.J., Elliott.G., Hitchmough.R., Miskelly.C., McArthur.N., O'Donnell.C., Sagar.P., Scofield.P., Taylor.G. (2021) New Zealand Threat Classification Series 19. Conservation status of New Zealand birds.

14 De Lange P.J., Rolfe J.R., Barkla J.W., Courtney S.P., Champion P.D., Perrie, L.R., Beadel S.M., Ford, K.A., Breitwieser, I., Schönberge, I., Hindmarsh-Walls, R., Heenan, P.B., Ladley, K (2017) Conservation status of New Zealand indigenous vascular plants. Publishing Team, Department of Conversation.

15 Nelson, W.A., Neill, K., D'Archino, R. and Rolfe, J.R. (2019). Conservation status of New Zealand macroalgae. Department of Conservation.

weather, with no rain in the last 24 hours and during low tide. The following sections describe each of the methods used during the site visit to assess specific habitats and species.

2.2.1 Vegetation

Vegetation was recorded across the project site and the likely presence of nationally 'Threatened' or 'At Risk' plants was assessed. A broad description of vegetation types was made, and plant species observed were compiled into a list (Appendix A Table 5.1). The site visit served to ground truth desktop assessments of vegetation made from online records, aerial and high-resolution UAV imagery.

2.2.2 Bats

A desktop assessment reviewing historical bat observation records was completed to assess potential presence across the project site or within the immediate vicinity. No formal surveys were undertaken.

2.2.3 Avifauna

Based on the suitable habitat observed, and one hour of opportunistic observations (visual and bird call identification) as ground truthing, and consideration to seasonality, a list of avifauna species was compiled (Appendix A Table 5.1). This data was then integrated with the avifauna species identified through desktop review as possibly within the project site and surrounding area to provide a more comprehensive assessment.

2.2.4 Herpetofauna

A qualitative assessment of habitat values for native lizards (skinks and geckos) was carried out during the site visit. The habitat assessment focused on identifying suitable groundcover habitat comprising rotting logs, deep leaf litter, rock crevices, scrub vegetation, dense thick clump forming grasses and artificial debris that may offer suitable refugia for lizard species.

Online records of detected species within and nearby the project site were compiled into a species list ahead of the site visit (Appendix A Table 5.1). During the site visit completed in October 2021, no formal lizard survey was undertaken, but opportunistic manual and visual encounter searching was carried out while on site where suitable habitat was found, such as logs and deep leaf litter.

A lizard survey was later conducted in January 2022[16] to confirm the presence/absence of herpetofauna previously recorded (see Appendix A Table 5.1) across the pathway project site and western side of the bridge project site. This survey was completed prior to storm damage to the Ahu Ahu bridge.

2.2.5 Freshwater habitat and fauna

A qualitative assessment of the freshwater habitats within the project site was conducted. This included:

- Walking the length of the intertidal zone at low tide and making observations of any freshwater fauna observed; and
- Walking along the edge of the Timaru and Whenuariki streams to assess habitat and record any observed fish fauna.

Due to the extent of records upstream of the site, and its direct connectivity with the sea, formal fish surveys were not considered necessary to determine the expected fish community. The desktop

[16] Tonkin + Taylor (2022) Weld Road Beach Access: Lizard Survey Results. Report for New Plymouth District Council.

assessment included assessing the New Zealand Freshwater Fish Database (NZFFD) for the presence of fish species within or potentially migrating through the project sites (Appendix A Table 5.1).

2.2.6 Coastal habitat and fauna

Visual observations of coastal flora, fauna and habitat were made during the site visit, assessing these areas within the project site and immediate surrounding vicinity during low tide. This was undertaken to compliment desktop records and a species list was compiled (Appendix A Table 5.1). No formal intertidal sampling was undertaken.

2.3 Assessment of effects methodology

Our assessment of ecological effects for the pathway and bridge project sites is in accordance with the Ecological Impact Assessment Guidelines (EcIAG)[17] with some adaptation for different fauna and ecosystem types (Tables of Appendix B). Whilst these guidelines are designed for freshwater and terrestrial systems, we have broadly followed a version of the guidelines for marine systems developed by Boffa Miskell[18], and have tailored them for this project (Appendix B Table 5.4)

Using a standard framework and matrix approach such as this provides a consistent and transparent assessment of effects and is considered good practice. The framework for assessment provides structure but needs to incorporate sound ecological judgement to be meaningful. Deviations or adaptions from the methodology are identified within each of the following sections as appropriate.

The guidelines have been used to ascertain the following:

- The level of ecological value of the environment;
- The magnitude of ecological effect from the proposed activity on the environment after measures to avoid, remedy or mitigate adverse effects from the rock revetment installation; and
- The overall level of residual effect after measures to avoid, minimise and mitigate effects.

2.3.1 Assigning ecological value

Ecological values are assigned on a scale of ‘low’ to ‘very high’ based on species, communities and habitats present in the project footprint and immediate surrounds (see Appendix B Table 5.2).

Terrestrial habitat values (Appendix B Table 5.2) are assessed in terms of:

- Representativeness of the habitat including species assemblages;
- Rarity/distinctiveness, whether the area represents a threatened ecosystem (naturally or induced), rarity of the species the area supports;
- Diversity and pattern, biotic and abiotic diversity; and
- Ecological context, how the area contributes to ecosystem functioning through its relationship with the surrounding landscape.

[17] Roper-Lindsay, J., Fuller, S.A., Hooson, S., Sanders, M.D., and Ussher, G.T. (2018). Ecological Impact Assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition.

[18] The characteristics of estuarine sites with very low to very high ecological values have been developed by Dr Sharon De Luca, Boffa Miskell Ltd, to guide valuing estuarine environments, and to provide a transparent approach that can be replicated. The characteristics have been accepted by decision-makers in Environment Court and Board of Inquiry hearings, including a number of NZTA State Highway projects (Transmission Gully, MacKays to Peka Peka, Puhoi to Warkworth) and the Queens Wharf Mooring Dolphin. Table 2 in Appendix B is based on the approach taken in these projects but was modified to improve its application to the current project.

Specific ecological values are also based on threat status[19] classification for species identified within the vicinity of the site.

Freshwater and intertidal values are assessed in terms of:

- Freshwater and coastal ecological species values are assigned a level on a scale of 'very low', 'low', 'moderate', 'high' or 'very high' based on assessing the value of species identified against criteria set out in Appendix A Table 5.1; and
- Freshwater and coastal ecological *habitat* values are assigned a level on a scale of '**very low'**, '**low', 'moderate', 'high' or 'very high'** based on assessing the value of coastal habitats identified against criteria set out in Appendix B Tabe 5.4, respectively.

2.3.2 Assessment of magnitude of effects

Magnitude of effect is a measure of the extent or scale of the effect of an activity and the degree of change that it will cause. The magnitude of an effect is scored on a scale of '**negligible'** to **'very high'** (Appendix B Table 5.5).

Magnitude of effects are assessed in terms of:

Level of confidence in understanding the expected effect:

- Spatial scale of the effect, including the Zone of Influence (ZOI)[20];
- Frequency, duration and intensity of the effect (Appendix B Table 5.6);
- The relative permanence of the effect; and
- Timing of the effect in respect of key ecological factors.

The spatial scale for effects is considered in the context of the local and landscape scale effects as appropriate.

The magnitude of actual or potential adverse effects is assessed after measures to avoid, remedy and mitigate identified actual or potential adverse effects are applied.

2.3.3 Assessment of the level of effects

An overall level of effects (Appendix B Table 5.7) is identified for each activity or habitat/fauna type after factoring in proposed efforts to avoid, remedy or mitigate for adverse effects. The level of effects is based on a matrix system that combines the ecological values with the magnitude of effects after measures to avoid, minimise and mitigate are applied.

The matrix describes an overall level of effect on a scale of **'net gain or very low'** to **'very high'**. Positive effects are also accounted for within the matrix.

The level of effect is then used to guide the extent and nature of further ecological management response that may be required. If the overall level of residual effect (i.e., the level of potential or actual adverse effect after measures to avoid, remedy or mitigate) is assessed as being **'moderate'** or greater in Appendix B Table 5.7, this suggests that further effects management may be warranted.

2.3.4 Assessment against the NPS FM and NES FM

The NPS FM and NES FM have recently been amended, with amendments coming into effect on 5 January 2023. The proposed works will not result in any effects on natural wetlands or result in any

[19] Per the DOC New Zealand Threat Classification System (NZTCS).

[20] EIANZ defines the ZOI as the area or resources that may be affected by the biophysical changes caused by the proposed project and associated activities.

permanent loss of stream habitat. Relevant provisions of NPS FM and NES FM therefore primarily relate to the effects management hierarchy as presented in NPS-FM (avoid, minimise, remedy, offset, compensate) and fish passage.

2.3.5 Assessment against the NPS IB

As the NPS IB came into effect on 4 August 2023 we have:

- Reviewed the site characteristics present against the QSNA/SNA criteria (provided in Appendix 1 of the NPS IB) to address section 3.8 of the NPS IB;
- Reviewed possible species and species observed on site against the Specified Highly Mobile Fauna listed in Appendix 2 of the NPS IB;
- Applied the principles of the effects management hierarchy as required to address section 3.16 regarding managing biodiversity values (QSNA/SNA irrespective); and
- After determining the overall level of effect for this project, considered in consultation with a planner whether Rule 3.24 was applicable[8].

3 Assessment of ecological values and effects

The values and effects for terrestrial, freshwater and marine environments within the project site are described below, separated into individual sections.

3.1 Terrestrial ecology values and effects

3.1.1 Terrestrial ecology characteristic and values

The terrestrial ecology characteristics and values below cover both the pathway construction and bridge replacement areas ('the project site'), unless otherwise specified throughout this section.

3.1.1.1 Vegetation and habitat

According to TDC biodiversity maps, <10 % indigenous vegetation remains within and surrounding the project site[21]. Historically, the coastal vegetation within the Weld Road Reserve headland (adjacent to and for parts including the pathway and bridge project sites) included potential kahikatea, pukatea forest with an understory of kiekie, whekī and supplejack, and broadleaved–podocarp forest with tawa, kohekohe, rewarewa and hinau species. Mature and mid-succession pōhutukawa and some puka trees have also been planted historically and remain present around the headland. While these tree species are identified as 'Threatened' and 'At Risk', respectively (Appendix A Table 5.1), this location is outside of their natural ranges and therefore they not considered relevant for threat status in this assessment[22]. Historically, the site would have also hosted pohuehue-spinifex-pingao dune, however land use change and infrastructure has altered the vegetation community significantly[1].

The coastal vegetation observed on site was highly modified and disturbed comprised of treeland/dune land species such as pōhutukawa/karo/puahou with exotic grass, rank pasture and herbaceous species interspersed with occasional dune land complex specimens (Appendix A Table 5.1). The dune land comprised rank grasses, sedges and ferns including *Carex sp.*, pampus, bracken and included occasional spinifex and pingao ('At Risk' species). Harakeke or New Zealand flax were also throughout and/or adjacent to both project sites. Overall, the degraded vegetation type can be considered exotic-native treeland/scrub/grassland[23].

Some ecological functions such as slope stability and buffering from king tide and storm events was provided, however these functions are likely limited by the degradation of the habitat, and bisection of the remaining vegetation by infrastructure and regular disturbance.

Example photographs of the vegetation across the two project sites are presented in Photograph 3.1(a-f) and a species list of plants observed on site is presented in Appendix A Table 5.1.

[21] www.trc.govt.nz/seabird-areas.
https://maps.trc.govt.nz/LocalMapsViewer/?map=8c336441e5d44a699354ef777d8ac868, downloaded November 2021.

[23] Leathwick, J. Clarkson, B. and Whaley, P. 1995: Vegetation of the Waikato Region: Current and Historic Perspectives. Landcare Research Contract Report LC9596/022. Landcare Research, Hamilton.

Dune land vegetation adjacent to the laydown area for the pathway construction.

Dune land vegetation, a small area of which is to be removed for the laydown area (10 m²) for the pathway construction. View towards Weld Road carpark.

Coastal vegetation around the reserve headland, view from the ocean looking towards the headland.

Coastal vegetation around the reserve headland, view from the ocean looking towards the headland.

Treeland/grassland near the bridge abutment on the western edge of Whenuariki Stream.

Treeland/grassland on the western side of the bridge replacement area, adjacent to the Whenuariki Stream.

Photograph 3.1 (a-f): Vegetation types present within and adjacent to the pathway construction and bridge replacement areas.

3.1.1.1.1 Threatened/At Risk plants

Despite degradation, some 'At Risk' and 'Threatened' species were present within the project site. These included pingao ('At Risk' – Declining) and kokihi/New Zealand spinach ('At Risk' – Naturally Uncommon) specimens (Table 3.1). The abundance of these specimens was low (few individuals across the project site). In addition, 'At Risk' puka and 'Threatened' pōhutukawa trees were also present. However, there presence is likely the result of local planting activities as they are outside of their natural range. Therefore, these species have not been considered for their treat status value. Overall, the area of vegetation to be removed across the project site is small.

Table 3.1: Ecological values of terrestrial avifauna potentially within the project site and their conservation threat status

Common name	Species name	National threat status	Ecological value
Pingao	*Ficinia spiralis*	At Risk -Declining	**High**
Kokohi/ New Zealand Spinach	*Tetragonia tetragonioides*	At Risk Naturally Uncommon	**Moderate**

3.1.1.1.2 Summary of ecological value of vegetation

In assessing the value of the vegetation within the project site, the following ecological aspects have been included:

- The species and plant community present;
- The presence of threatened and or at risk has been considered in the valuation process.
- Ecological functioning of the area as the interface between terrestrial, aquatic and marine environments;
- The origin of plant species (i.e., whether natural or purposely planted e.g., pohutakawa, puka)[24] [25]; and
- Provision of food and refugia for terrestrial avifauna and potential herpetofauna provided by the available vegetation.

With the above considerations assessed against Appendix B Table 5.2, the vegetation value of the project site has been valued as **'moderate.'**

3.1.1.2 Bats

No bats detected directly within the project site. One bat (unknown species) was detected in 2020 approximately 23km away, but no other detections were recorded from numerous past surveys within a 30 km radius [26]. Therefore, no pre-felling bat monitoring has been proposed for this project.

3.1.1.3 Terrestrial avifauna

A total of 12 terrestrial bird species were identified from online records and/or observed during the on-site visit within or nearby the project site.

[24] https://www.nzpcn.org.nz/flora/species/metrosideros-excelsa/. Downloaded and re-reviewed July 2023.
[25] https://www.nzpcn.org.nz/flora/species/pittosporum-crassifolium/. Downloaded and re-reviewed July 2023.
[26] Review of DOC National Bat Database. Downloaded and re-reviewed August 2023.

3.1.1.3.1 Threatened/At Risk terrestrial avifauna

Of the 12 terrestrial bird species, one 'At Risk' species was identified within the project site and confirmed during the site walk over. The remaining avifauna were either 'Not Threatened' or introduced and naturalised species.

While not seen or heard on the site visit, tūī could be expected in the project site they are found within the surrounding habitat.[27] While 'Not Threatened', tūī are important keystone species[28] as essential pollinators and seed dispersers. These ecological functions result in a higher ecological value than other 'Not Threatened' species.

Assessed against Appendix B Table 5.2 this results in avifauna values of '**low'**, '**moderate'** and '**high'** (Table 3.2).

Table 3.2: Ecological values of terrestrial avifauna potentially within the project site and their conservation threat status[10]

Common name	Species name	National threat status	Ecological value
New Zealand pipit	*Anthus novaeseelandiae*	Nationally At Risk-Declining	**High**
Tūī	*Prosthemadera novaeseelandiae*	Not Threatened, keystone species.	**Moderate**
All other Not Threatened species		Not Threatened	**Low**

3.1.1.4 Herpetofauna

No lizards were observed during the site visit. However, potential lizard habitat was identified within the periphery of the Whenuariki Stream and amidst exotic-dominated shrubland and grasslands, and debris/rock piles across the project site (Photograph 3.2; Figure 3.1).

The desktop review of online herpetofauna records within a 10 km radius of the project site identified potential species of snake, sea turtle, lizard and frog (Appendix A Table 5.1). Some of the species recorded are 'Threatened' or 'At Risk', and all native lizard and reptile species are protected under the Wildlife Act 1953. The frog species identified are exotic and not protected (Appendix A Table 5.1). It is unlikely that sea turtle or frog species will be encountered given the habitats being impacted and the specific locations these species were encountered. In addition, records of both species are very old (1800's-1900's).

Potential lizard habitat has been identified across the project site (Photograph 3.2), though this is marginal and is predominantly within the grassland and shrubland habitat (Figure 3.1).

[27] https://ebird.org/hotspot/L7266490 accessed October 2021.

[28] Science learning hub (2011). Bird's roles in ecosystems. Retrieved August 2021 from https://www.sciencelearn.org.nz/resources/1163-birds-roles-in-ecosystems.

Figure 3.1: Location of potential lizard habitat and penguin burrow identifying during the site visit and from site visit images provided from NPDC. The coastal margin vegetation that is expected to be impacted by the rock revetment and pathway works, and the bridge replacement works is also outlined.

Potential lizard habitat at the edge of Weld Road Reserve (grass/ pampas). Number 2 within Figure 3.1.

Potential lizard habitat adjacent to Whenuariki Stream on the western side (grass). Number 1 within Figure 3.1.

Potential lizard habitat at the start of the bush track (rank grass and log debris). Number 5 within Figure 3.1.

Potential lizard habitat due to be removed near Weld Road carpark. Number 3 within Figure 3.1.

Potential lizard habitat on the eastern side of the bridge replacement area. Number 6 within Figure 3.1.

Potential lizard habitat on the eastern side of the bridge replacement area, downstream. Number 8 within Figure 3.1.

Photograph 3.2 (a-g): Potential lizard habitat identified on site includes pampas skirts, rank grass and coarse woody debris. The location of some of these habitats, as outlined in Figure 3.1, has also been referenced.

3.1.1.4.1 Threatened/At Risk herpetofauna

Potential habitat for lizard species was identified within the project site. Local records and known distribution range data identified that eight 'At Risk' and one 'Not Threatened' species have the potential for presence (BioWeb Herpetofauna Database; iNaturalist, the Herpetofauna Index[29]).

No lizard species were observed, and no indicators of presence were found during manual hand-searching or from the tracking tunnel survey completed across the project site in January 2022.

Herpetofauna are unlikely to be present in high numbers given the marginal habitat identified within the project site, and as supported by the lack of species observation during the lizard survey. The leatherback sea turtle identified from desktop data is listed as 'Migrant' but under the international union for conservation of nature (IUCN) as 'Vulnerable.' Given the sea turtle is unlikely to be present on site, this has not been considered when assessing herpetofauna values.

On the basis that presence (while unlikely) cannot be ruled out, we have concluded ecological values of '**high**' and '**low**' as a conservative approach (Table 3.3).

Table 3.3: Ecological values of potential herpetofauna species recorded online or within known range relative to the project site and their conservation threat status[10]

Common name	Species name	National threat status	Ecological value
Forest Gecko, Elegant gecko, Striped skink, Copper skinks, Gold-striped gecko, Northern grass skink, Glossy brown skink	*Hoplodactylus granulatus, Naultinus elegans, Oligosoma striatum, Oligosoma aeneum, Woodworthia chrysosiretica, Oligosoma polychrome, Oligosoma zelandicum*	Nationally At Risk – Declining.	**high**
Pacific gecko	*Dactylocnemis pacificus.*	Not Threatened Nationally, common locally.	**low**

3.1.2 Terrestrial ecology values summary

Terrestrial ecological values range from **'low'** to **'high'** within the project site and immediately surrounding areas.

The vegetation areas are predominantly a mix of exotic and native mid-succession treeland/ and dune land species interspersed with grasses, sedges, ferns, rank pasture and herbaceous species. Small areas of 'At Risk' and 'Threatened' vegetation are present within the project site, though some of these species have been anthropogenically introduced (planted) to the area. The ecological value of the vegetation is **'moderate'** given not only the value of these species and their origin (planted) but for the potential food and refugia they potentially provide for 'At Risk' herpetofauna and terrestrial avifauna.

The terrestrial avifauna seen during the site visit were a mix of exotic or native/naturalised 'Not Threatened' species and native 'At Risk' species. The desktop review also highlighted keystone bird species utilising habitat within the project site either for foraging or possible breeding, confirmed by

[29] New Zealand Herpetological Society. (2021). Herpetofauna Index. https://www.reptiles.org.nz/herpetofauna-index accessed August 2023.

the site walkover (for the pathway project site and western side of the bridge project site). Terrestrial avifauna across the project site has been given a value ranging from **'low'** to **'high.'**

- 'At Risk-Declining' species have a **'high'** ecological value;
- 'At Risk-Naturally Uncommon', 'At Risk-Recovering' and keystone 'Not Threatened' species have **'moderate'** ecological value; and
- All other 'Not Threatened' species have a **'low'** ecological value.

Herpetofauna are unlikely to be present in high numbers given the marginal habitat identified within the project site but may be present given online records. No species were located on the site visit or during survey works; however, habitat was identified for both skinks and geckos. The value assigned to potential herpetofauna within the project site ranged from the **'low'** to **'high'** in relation to the conservation treat status associated with each species (Table 3.3).

- 'At Risk-Declining' herpetofauna have a **'high'** ecological value; and
- 'Not Threatened' species have a **'low'** level.

3.1.3 Assessment of effects on terrestrial ecology

3.1.3.1 Magnitude of effects assessment

The previous section provides an overview of the terrestrial ecological values within the project site and immediate vicinity. This section focusses on assessing the effects of the project works (rock revetment installation/shared pathway and replacement of the Ahu Ahu Bridge) on these ecological values and determining the magnitude of effects based on the extent, intensity, duration and timing of effects associated with the project. The magnitude of effects on each value is assessed after efforts to avoid, minimise or mitigate effects. This section includes an overview of potential adverse effects, an overview of measures to avoid, minimise or mitigate effects, and the overall level of effects on terrestrial ecology.

We note this assessment of ecological effects has been undertaken in the absence of a detailed construction methodology or final design details for the rock revetment works. Therefore, use of preliminary construction methods (section 1.3) and a conservative approach have been followed when determining the magnitude of impact and the measures required to adequately address these effects.

3.1.3.2 Overview of actual and potential adverse effects

An overview of the potential adverse effects associated with project works (rock revetment installation/shared pathway and replacement of the Ahu Ahu Bridge) and corresponding measures to further avoid, remedy, or mitigate effects is provided below.

The assessment of effects includes consideration of effects during the construction phases of the project works and associated direct and indirect effects on terrestrial habitat and fauna in the short and long term.

Actual and potential effects on terrestrial ecology values are set out below in Table 3.4 and Table 3.5). Small patches of vegetation will be removed and/or treeland species trimmed from across the pathway construction area to enable the rock revetment installation and site access, and on the western and eastern sides of the bridge replacement area to enable the bridge replacement/support abutment placement. This will result in short and long-term loss of and modification to existing terrestrial vegetation, though some revegetation plans are expected to assist in the regrowth of species removed.

Table 3.4: Summary of actual and potential effects on terrestrial ecology from the proposed pathway construction works

Terrestrial ecology feature	Actual effects	Potential effects
Vegetation	Long term loss and/or trimming of approximately 240 m^2 of mixed vegetation comprising: • 10 m^2 of mixed coastal dune land species • 10 m^2 of mixed dune land/shrubland and rank grass vegetation (including pampus species) • Approximately 220 m^2 of coastal treeland and grassland including native pōhutukawa, karo and harakeke, and exotics such as karaka, exotic kikuyu grass, rank grass, hawthorn and taupata. Part of this vegetation removal will include the trimming of treeland species. Decreased landscape and habitat connectivity and loss of sources of food/refugia and potential habitat for terrestrial fauna (limited).	Potential recolonisation by exotic weedy species after vegetation clearance; and Potential reduction in erosion control in a dynamic coastal landscape.
Avifauna	Long-term loss and/or trimming of approximately 240 m^2 of vegetation offering potential food/refugia and habitat for native birds. This consists of: • Native dominant canopy tree species as well as native/exotic shrubland and grassland species. • Decreased landscape and habitat connectivity until new habitat is established (community plantings and/or regrowth of trimmed vegetation).	Potential disturbance to avifauna from construction noise and vibration, dust and sediment disturbance during vegetation removal and the rock revetment installation. Potential for disturbance, injury and/or death during vegetation clearance. Outside of bird breeding season bird mortality will be low, but there is potential for nests, eggs and fledgling destruction during breeding season. Potential increase in pest populations (e.g., rats, feral cats) and associated predation pressure on birds until vegetation on the site has re-established.
Herpetofauna	Long-term loss and/or trimming of approximately 240 m^2 of vegetation, some of which may be providing potential habitat for herpetofauna. This consists of: Native treeland, mixed dune land, shrubland and grassland species.	Potential for disturbance, injury and/or death during vegetation clearance.

Terrestrial ecology feature	Actual effects	Potential effects
	Decreased landscape and habitat connectivity until new habitat areas are established.	Potential for disturbance to herpetofauna from dust, vibration, and noise during construction. Potential increase in pest populations (e.g., rats, feral cats, hedgehogs) and associated predation pressure until vegetation on-site has established. Potential loss of territory for individuals and/or populations.

Table 3.5: Summary of actual and potential effects on terrestrial ecology from the proposed bridge replacement works

Terrestrial ecology feature	Actual effects	Potential effects
Vegetation	Long term loss and/or trimming of approximately 175 m^2 of mixed vegetation across the bridge replacement area (either side of the abutments) comprising: • Removal/or trimming of approximately 28 m^2 of mixed native/exotic treeland, including species such as native pōhutukawa, puka, karo, and exotics such as karaka. • Removal of 150 m^2 coastal dune land, shrubland and grassland vegetation (70 m^2 on the western bridge side and 80 m^2 on the eastern); Decreased landscape and habitat connectivity and loss of sources of food/refugia and potential habitat for terrestrial fauna (limited).	Potential recolonisation by exotic weedy species after vegetation clearance; and Potential reduction in erosion control in a dynamic coastal landscape.
Avifauna	Long term loss and/or trimming of approximately 175 m^2 of mixed vegetation across the bridge replacement area (either side of the abutments) offering potential food/refugia and habitat for native birds. This consists of: • Native dominant canopy tree species as well as native/exotic shrubland and grassland species. • Decreased landscape and habitat connectivity until new habitat is established (community plantings and/or regrowth of trimmed vegetation).	Potential disturbance to avifauna from construction noise and vibration, dust and sediment disturbance during vegetation removal and bridge replacement works. Potential for disturbance, injury and/or death during vegetation clearance. Outside of bird breeding season bird mortality will be low, but there is potential for nests, eggs and fledgling destruction during breeding season.

Terrestrial ecology feature	Actual effects	Potential effects
		Potential increase in pest populations (e.g., rats, feral cats) and associated predation pressure on birds until vegetation on the site has re-established.
Herpetofauna	Long term loss and/or trimming of approximately 175 m^2 of mixed vegetation across the bridge replacement area (either side of the abutments), some of which may be providing potential habitat for herpetofauna. This consists of: • Native treeland, mixed dune land, shrubland and grassland species. • Decreased landscape and habitat connectivity until new habitat areas are established.	Potential for disturbance, injury and/or death during vegetation clearance. Potential for disturbance to herpetofauna from dust, vibration, and noise during construction. Potential increase in pest populations (e.g., rats, feral cats, hedgehogs) and associated predation pressure until vegetation on-site has established. Potential loss of territory for individuals and/or populations.

3.1.3.3 Overview of the proposed measures to avoid, minimise and mitigate adverse effects

Efforts to avoid, remedy or mitigate effects within the project site during construction will include:

- Minimisation of vegetation loss through site management and appropriate construction methodology. This will include avoidance of unnecessary vegetation clearance through the physical delineation of the footprint boundary and clear delineation of any vegetation to be retained;
- Restricting works to the delineated project site boundaries and restricting site access;
- Mitigation of effects will occur through replanting efforts within the project site. This will specifically include replacing disturbed/removed dune land, grassland/shrubland and treeland vegetation, as practicable.
- Implementation of an EMP with a specific Avifauna Management Plan (AMP) outlining how each of the construction works will avoid, remedy and/or mitigate effects to avifauna and will include the following details:
  - An ecological site walk over by a suitably qualified ecologist ahead of construction works to check for any 'Threatened', 'At Risk' and/or taonga species residing within the project site;
  - Incidental discovery and harm protocols for 'Threatened' and 'At Risk' avifauna. These protocols will include best practice methodologies commonly used on construction projects and will be adapted for local site conditions;
  - Vegetation removal protocols and seasonal restrictions on the timing of vegetation clearance and works to avoid breeding/nesting season for 'Threatened' and 'At Risk' species identified within the project site (Appendix A Table 5.1). A pre-vegetation clearance check will be done by a suitability qualified ecologist if breeding/nesting season cannot be avoided; and
  - Other beneficial mitigation methods such as restoration planting and habitat enhancement; and personnel undertaking avifauna survey works (if works occur during bird breeding or nesting season).
- Implementation of an EMP with a specific Lizard Management Plan (LMP) outlining how the project will avoid, remedy and/or mitigate effects on herpetofauna and will include the following details:
  - Pre-construction surveys carried out for potential herpetofauna species identified within Appendix A Table 5.1 and/or species most likely to be present within the available habitat on the project site using the methods deemed most appropriate by the project herpetologist;
  - Vegetation removal protocols and timings for both skinks and geckos (geckos cannot remove themselves far from construction-related impacts so are vulnerable to effects);
  - Salvaging and relocation methodology for herpetofauna species identified within the project site;
  - Application for herpetofauna salvage and translocation permits, confirmation of an appropriate relocation site with the Department of Conservation;
  - Incidental discovery and harm protocols for herpetofauna species; and
  - Other beneficial mitigation methods such as restoration planting and habitat enhancement; and personnel undertaking lizard salvaging.

3.1.3.4 Magnitude of effects on terrestrial ecological values after impact management

The magnitude of effects on ecological values is assessed based on the extent, intensity, duration, and timing of effects associated with the project, after efforts to avoid, remedy or mitigate. A summary of effects associated with the project works and an assessment of the magnitude of effect for terrestrial ecology within the project site following effects management measures can be found in Table 3.6.

3.1.3.4.1 Vegetation

Vegetation within the project site is highly modified, comprised of treeland/dune land species such as pōhutukawa/karo with exotic grass, rank pasture and herbaceous species interspersed with dune land complex. Vegetation within the site provides potential refuge, resources, and breeding/nesting habitat for native fauna.

The vegetation that needs to be moved for construction will be cleared using two methods, comprising either digging and removal, or trimming. Removal or trimming of the available mixed vegetation across the pathway area is limited to a total of 240 m^2 or less. Removal of mixed vegetation across the bridge replacement area is largely concentrated around the stream edges (where bridge abutments will be placed) to a total of 80 m^2.

The proposed removal of vegetation within the project site will represent a loss or alteration to existing baseline conditions though the underlying character, composition and/or attributes of the existing baseline condition and will be similar to pre-development circumstances.

If the recommendations to avoid, minimise and/or mitigate effects outlined in this report (Section 3.1.3.3) are implemented in full, then the magnitude of effect on each vegetation type within these sites will be **'low'**.

3.1.3.4.2 Terrestrial avifauna

The proposed clearance of vegetation (removal and/or trimming) within the project site will result in the loss of potential food resources, habitat, and nesting sites for terrestrial avifauna. However, the removed vegetation represents a small proportion of similar habitat within the immediate surrounding environment, therefore it is unlikely that works within the project site will impact the avifauna community at a population level.

There is potential for the loss of individual birds and nests during vegetation clearance within the project site, particularly if works are undertaken during the bird breeding season when eggs, chicks and nesting birds are vulnerable. However, these effects can be avoided and minimised (see Section 3.1.3.3). Treeland vegetation and associated bird habitat/food resources that will be trimmed within the project site will not be permanently lost as these plants will regrow with time.

Given the small scale of the vegetation removal across the pathway construction area (240 m^2) and bridge replacement area (80 m^2 either side of the Whenuariki Stream.) compared to the available surrounding vegetation, the short-term duration of the works (3-4 weeks for the pathway construction and 6 weeks for the bridge replacement), and provided mitigation recommendations listed in Section 3.1.3.3 are implemented, the magnitude of effect on birds will be **'negligible'.**

3.1.3.4.3 Herpetofauna

Avoiding disturbance and potential injury/death of herpetofauna is the best way to reduce the magnitude of effect. Carrying out a pre-work lizard survey will also give an indication of likely species presence (not captured during the survey completed in January 2022). Lizards are highly cryptic and may be present even if not found during the pre-works survey. Therefore, machinery assisted salvage (during construction) and a LMP will be prepared within the EMP and implemented to avoid, remedy, and mitigate impacts to native lizards within the pathway and bridge project sites. Given the marginal lizard habitat on these two sites, the lack of species detected during the lizard survey and the implementation of an LMP, with potential for salvage and relocation of lizards, the magnitude of effect on lizard species potentially present will be **'low.'**

Table 3.6: Summary of terrestrial effects, proposed measures to avoid, remedy and mitigate adverse effects, and the magnitude of effects after mitigation across the project site

Ecological feature	Effects summary	Ecological value	Avoidance/minimisation measures	Mitigation measures	Magnitude of effects
Vegetation					
Mixed (native/exotic) treeland/dune land vegetation	Long term loss and/or trimming of approximately 415 m^2 of mixed vegetation across the project site. Of this, 240 m^2 is located within the pathway construction area and 175 m^2 across the bridge replacement area. Decreased landscape and habitat connectivity until new habitat areas establish (via regrowth and/or community planting).	**moderate**	Avoidance of unnecessary vegetation clearance through the physical delineation of the pathway and bridge project site areas and vegetation to be retained. Minimisation of vegetation loss through site management (for both sites) and appropriate construction methodology.	Replanting disturbed dune land species within the laydown/site access points across the two project sites. Replanting removed grassland, shrubland and treeland vegetation as practicable, across or nearby the project site. This will enhance vegetation within surrounding areas of the project site and/or within the project site if practicable. The specific area of replanting is yet to be determined the project sites. Removed vegetation is expected to be replaced with like for like species. The EMP will detail all fauna management measures and specifics around replanting specs in accordance with best practice.	**low**

Ecological feature	Effects summary	Ecological value	Avoidance/minimisation measures	Mitigation measures	Magnitude of effects
Terrestrial avifauna					
Nationally At Risk- Declining species: New Zealand pipit Not Threatened, keystone species: Tūī All other Not Threatened species listed in Table **Appendix A Table 5.1**	Long term loss and/or trimming of approximately 415 m^2 of mixed vegetation across the project site, some of which is potentially offering suitable habitat for native birds. Decreased landscape and habitat connectivity until new habitat areas are established. Potential for disturbance, injury and/or death during vegetation clearance for any birds nesting within trees to be cleared. Potential for indirect effects from dust and noise during site works.	**'low', 'moderate'** and **'high'** relating to specific species conservation status.	Protection of vegetation immediately adjacent to the project site through physical delineation and felling procedures to minimise unintended damage to habitat. Production and following of instructions outlined within an AMP for each site. Avoidance of vegetation clearance during peak bird breeding/nesting season (September to March inclusive). The use of noise/vibration deterrents prior to vegetation clearance. Accident discovery protocols for accidental harm to At Risk and Threatened birds.	Limited removal and/or trimming of vegetation where possible. Replanting of certain coastal dune land species within the laydown/site access points within the project site, where practical. Area yet to be determined. Replanting removed shrubland and treeland vegetation as practicable, across or nearby the project site. This will increase available avifauna habitat within surrounding areas of the project site and/or replace that which has been removed within the project site, if practicable. The EMP will detail all fauna management measures and replanting specs in accordance with best practice.	**negligible**
Herpetofauna					
No lizards have been observed across the pathway and western side of the bridge project sites to	Long term loss of approximately 415 m^2 of mixed vegetation	**'low'** to **'high'** relating to specific	Protection of vegetation immediately adjacent to the project footprint through physical delineation and	Replanting of certain coastal and/or dune land species (some of which is suitable lizard	**low**

Ecological feature	Effects summary	Ecological value	Avoidance/minimisation measures	Mitigation measures	Magnitude of effects
date, but based on habitat assessments and desktop data the following species may be present across the project site: -Copper skink -Northern grass skink -Elegant gecko -Goldstripe gecko -Striped skink -Pacific gecko -Northern grass skink -Glossy brown skink	across the project site, some of which is offering suitable habitat for herpetofauna. Potential for disturbance, injury and/or death during vegetation clearance for any lizards living on trees or in grassland to be cleared. Potential for indirect effects from light, dust and noise during site works. Habitat fragmentation, isolation and increase in habitat edge effects.	species conservation status.	felling procedures to minimise unintended damage to habitat. Vegetation clearance only during earthworks season during warmer months when lizards are more active and easier to capture/can relocate themselves. The use of noise/vibration deterrents prior to vegetation clearance. Mowing of rank and/or pasture grass to a long length to aid salvage or lizard dispersal, where practical. Accident discovery protocols for any lizards not identified as part of this assessment. Production and following of instructions outlined within LMP for each site.	habitat) within the laydown/site access point for the pathway construction area, where practical. Area yet to be determined for replanting of removed vegetation across the project site. Replanting removed grassland, shrubland and treeland vegetation as practicable, across or nearby the project site. This will increase available lizard habitat within surrounding areas of the project site and/or replace that which has been removed within the project site, if practicable. The EMP will detail all fauna management measures and replanting specs in accordance with best practice. Application for lizard handling and relocation permit (WAA). Manual, destructive and machine-assisted salvage by a suitably qualified ecologist, if required.	

Ecological feature	Effects summary	Ecological value	Avoidance/minimisation measures	Mitigation measures	Magnitude of effects
				Relocation of lizards to a pre-approved relocation site, if required.	

3.1.4 Overall level of effects on terrestrial ecology

The table below (Table 3.7) sets out the potential overall level of effects for each ecological feature within the bridge and pathway project sites after efforts to avoid, minimise or mitigate for effects have been included (following EIANZ guidelines). Following the EIANZ guidelines (summarised in Section 2.3), the level of residual effects ranges are:

- Vegetation: **'low';**
- Terrestrial avifauna: **'very low';** and
- Herpetofauna: **'very low' to 'low'.**

No residual levels of effects have been assessed as being potentially 'moderate' or higher (after avoidance, minimisation and mitigation measures are put in place); therefore, offset or compensation have not been considered, which is in line with the EIANZ guidelines.

Table 3.7: Summary of the terrestrial ecology values, the magnitude of effects and residual level of effects following measures to avoid, minimise and mitigate effects

Ecological feature	Ecological value	Magnitude of effects (after measures to avoid, minimisation and mitigate)	Level of residual effects (after measures to avoid, minimise and mitigate)
Vegetation			
Mixed (native/exotic) treeland/dune land vegetation	**Moderate**	**Low**	**Low**
At-Risk-Declining	**High**	**Low**	**Low**
At Risk Naturally Uncommon	**Moderate**	**Low**	**Low**
Terrestrial avifauna			
Nationally At Risk – Declining	**High**	**Negligible**	**Very Low**
Not Threatened, keystone species	**Moderate**	**Negligible**	**Very Low**
All other Not Threatened species	**Low**	**Negligible**	**Very Low**
Herpetofauna			
Nationally At Risk – Declining species	**High**	**Low**	**Low**
Not Threatened Nationally, common locally	**Low**	**Low**	**Very Low**

3.2 Freshwater ecology values and effects

3.2.1 Freshwater ecology characteristics and values

This section describes the ecological characteristics and values of the Timaru and Whenuariki Streams. The Timaru and Whenuariki Streams are located immediately adjacent to the pathway construction area. The Whenuariki Stream runs within the bridge replacement area. Any project construction activities will therefore occur near and/or within the lower tidal reaches of both streams. The desktop assessment and qualitative freshwater habitat assessment were used to inform the following assessment of ecological values.

3.2.1.1 Freshwater habitat condition

The Timaru and Whenuariki Streams rise from the Pouakai range in The Egmont National Park. These streams are fed by tributaries along the South side of the Kaitake range flowing through agricultural land out to the Tasman Sea. Both streams drain a moderately farmed catchment, as well as surrounding mixed native forest and receive point-source treated dairy waste discharges.

Bankside and instream habitat within both streams was visually assessed from the bank during the site visit undertaken on 29 October 2021. At this time, both streams had natural large, permanent channels located within the tidal zone at the time. (Photograph 3.3). The riparian margins were dominated by native/exotic treeland with a sparse understory of native and exotic grasses; sedges and ferns; and harakeke. Instream habitat diversity was limited within the lower tidal sections of both streams. Across both streams, substrates were comprised of fine substrates/coarse sand (< 2 mm in size), some undercutting of the banks and woody debris (including large logs) providing some structural habitat. There were several relatively small pockets of high tide saltmarsh vegetation (*Phormium tenax* – New Zealand flax, *Baumea juncea* – Bare twig rush) observed in the mid-to-upper reaches of the Timaru Stream.

Observed flow characteristics within the Whenuariki Stream were slow runs and pools. The section of the Timaru stream within the pathway construction area is near the steam mouth, where the stream flows out through Tataraimaka Beach (an estuarine environment, also known as Timaru estuary). Timaru estuary is mostly open to the sea but can become restricted during periods of low flow, upstream of the estuary the flow characteristic were also slow runs and pools.

Whenuariki Stream, updateam view, taken from the old Ahu Ahu bridge within the bridge project site.

The lower reaches of Whenuariki Stream, view towards the sea.

Timaru Stream from the Weld Road Reserve, looking South from the pathway construciton area.

Timaru Stream from the coastal beach in front of the Weld Road Reserve, looking South from the pathway construction area.

Photograph 3.3 (a-d): Freshwater habitat within the project site, looking upstream and downstream.

Īnanga are present within the wider Whenuariki Stream catchment (see Section 3.2.1.2), therefore, the presence of any potential spawning habitat was assessed during the habitat assessment. No īnanga spawning habitat has been identified directly within the project site within available council layers or based on site observations. However, potential īnanga spawning habitat was located upstream of the bridge replacement area within the dense thick riparian vegetation that is tidally inundated at or near the upstream edge of the saltwater wedge.

3.2.1.2 Freshwater fish community

The fish community within the Timaru and Whenuariki Streams and their wider catchments were assessed using desktop data (NZFFD) and opportunistic observations during a site visit in 2022 (refer to Section 2.3 for more details). The NZFFD identified one 'Threatened – Nationally Vulnerable', four 'At Risk- Declining', and two 'Not Threatened' freshwater fish species within the wider Timaru and Whenuariki stream catchments (Appendix A Table 5.1, Table 3.8).

Many of the fish species recorded are diadromous and must migrate to sea to complete their life cycle. Therefore, unimpeded access to downstream and upstream habitats is important for these species so that regional populations can be maintained (especially during peak migration timeframes, approximately August to December). Given the size of the Timaru and Whenuariki streams, and their proximity to the marine environment, they likely provide good connectivity for the local fish species to the wider catchments.

No exotic pest fish species were observed during the site visit, nor have they been historically identified within the catchment from online records. However, brown trout (*Salmo trutta*) were identified within the catchments.

Freshwater invertebrate species were identified in the catchment of Timaru Stream and Whenuariki Stream. Specifically, koura or freshwater crayfish (*Paranephrops planifrons*). While this species is 'Not Threatened' in terms of its conservation threat status, it does hold important value as mahinga kai and is a taonga species (Table 3.8). In addition, several other freshwater species identified within the project site are known taonga species. These include the various galaxiid and eel species recorded to be potentially within or nearby the project site (specific species cultural value outlined in Table 3.8).

Table 3.8: Ecological values of freshwater fish identified within and/or adjacent to the project site from online records and an indication if they are diadromous, their culture value, conservation threat status

Common name	Species name	Cultural value	Diadromous (native species)	National threat status and/or species value
Shortjaw kokopu	*Galaxias postvectis*	Taonga species	Yes	Threatened – Nationally Vulnerable.
Koaro, Īnanga, Longfin eel, Torrentfish,	*Galaxias brevipinnis, Galaxias maculatus, Anguilla dieffenbachia, Cheimarrichthys fosteri*	Taonga species, with the exception of torrent fish.	Yes	At Risk – Declining.
Koura*	*Paranephrops planifrons*	Taonga species	Yes	Not Threatened, holds mahinga kai value
Brown trout	*Salmo trutta*			Not Threatened, but of high recreational value and protected by Fish and Game.
Banded Kokopu	*Galaxias fasciatus*	Taonga species,	Yes	Not Threatened Nationally, common locally.

* Invertebrate species.

3.2.2 Freshwater ecology values summary

The freshwater habitats in the vicinity of the project works include the Whenuariki and Timaru Streams and associated estuarine environments resulting from the connection of these streams to the Tasman Sea (e.g., Timaru estuary). Both stream habitats comprised permanent open channels with predominantly fine substrates and areas of undercut banks and woody debris. Potential īnanga spawning habitat was identified upstream of the bridge project sites within the Whenuariki Stream.

The desktop assessment of the NZFFD showed a sparse native fish community was present within the wider catchment; however, this fish and invertebrate community did include the 'Threatened –

Nationally Vulnerable' short jaw kōkopu and several 'At Risk'-Declining species (Koaro, Īnanga, Longfin eel, Torrentfish,). All these species are diadromous and must migrate from freshwater habitats within the wider stream catchments to the sea to complete their lifecycles. Therefore, the Timaru and Whenuariki Streams in the vicinity of the bridge and pathway project sites are, at times, providing important migratory habitat and a pathway to habitat located further upstream for these 'Threatened' and 'At Risk' species.

There is value in the importance of the Timaru and Whenuariki Streams and their provision of migratory pathways for 'Threatened' and 'At Risk' species (some of which are taonga). However, the area of impact from project works has the potential to effect īnanga spawning habitat upstream, and to a lesser extent the resident and migratory fish community. Therefore, the freshwater ecological values were assessed as **'high'.**

3.2.3 Assessment of effects on freshwater ecology

This section presents our assessment of the freshwater ecological effects from the proposed construction of the shared pathway and bridge replacement works. The assessment is based on the freshwater ecological values and condition as described in Section 3.2.1, the description of the proposed activity (Section 1.3), and as is guided by the EIANZ framework described in Section 2.3 and Appendix B.

3.2.3.1 Overview of the actual and potential adverse effect

The magnitude and overall level of actual and potential effects from the proposed construction of the shared pathway and bridge replacement works have been assessed with the implementation of effect's management procedures.

The assessment of potential effects includes consideration of effects due to the construction of the project (pathway construction and bridge replacement) and associated direct and indirect effects on freshwater habitat and fauna in the short and long term. Final construction methodology has not been confirmed and will not be until closer to construction dates, but intended methodology was discussed with the client in July 2023 (pers comms NPDC client meeting 27.07.23) and has been described below.

It is expected that construction works for the pathway will take place within the riparian zone of the Whenuariki stream. This zone extends approximately 5 m from the true left side of the stream and reaches 16 m upstream to where the Ahu Ahu bridge is to be replaced. No works are expected to take place directly within or nearby the Timaru Stream.

The bridge replacement works largely takes place at the mouth of the stream, but some work will take place on the true left and right banks, and above, the Whenuariki stream. Depending on the alignment of the Whenuariki Stream at the time of these works, the banks of the Whenuariki Stream will likely need to be trained/diverted temporarily using sandbags to prevent it from encroaching onto either of these two work sites.

The actual and potential adverse effects resulting from the proposed construction works include:

1. Indirect temporary construction related effects on freshwater fauna and habitat within Whenuariki and Timaru streams, including water and sediment quality effects as a result of potential sediment discharges;
2. Temporary and localised changes to the flow complexity within the Whenuariki Stream during construction and decommissioning activities (through diversion activities and following completion of these works for both the pathway and bridge replacement works). Potential effects from stream diversion on flow conditions will be most acute during and immediately following the construction phase of the project;

3 Potential to temporarily effect on the migration of diadromous fish species known to inhabit the wider Whenuariki stream catchment during the construction process; and

4 Potential long-term impacts on freshwater fish community dynamics within the Whenuariki stream resulting from unintentional injury or mortality during construction works .

3.2.3.2 Overview of proposed measures to avoid, minimise or remedy adverse effects

Efforts to avoid or minimise the actual and potential adverse ecological effects will be undertaken through the development of a Site Specific Management Plan (SSMP). Effects management within the SSMP will include:

- The preparation and implementation of a detailed erosion-sediment control plans (ESCP) for each site. The ESCP(s) should include detail on measures to contain sediment from discharging to both Whenuariki and Timaru streams.
- The ESCP (and construction methodology, once confirmed) will detail the approach to stream works and how any instream works will be undertaken. Any instream works will follow the NPDC guidelines. To minimise any effects on freshwater fauna and habitat the following controls should be considered within the ESCP and construction methodology:
  - Works in flowing water during peak diadromous fish migration timings (1 August to 31 December) should be avoided. If they cannot be avoided, they should be limited to no more than 30 hours of in stream works over the period of 1 August to 31 December inclusive;
  - Works in flowing water (outside of peak diadromous fish migration timings) will be restricted to a maximum period of 6 hrs per every 24 hours. This will provide a period of time where sediment released from the site can move through the downstream environment, minimising the cumulative impact of construction derived sediment; and
  - Potential īnanga spawning habitat has been identified upstream of the proposed bridge replacement work. To minimise the impact of construction derived sediment becoming remobilised on the incoming tide and being deposited on this habitat, the ESCP will include a specific standdown period during times when īnanga a spawning. Inanga spawning generally occurs two to three days after the highest spring tides associated with the new or full moon (sometimes both). Therefore, it is recommended that the ESCP include an īnanga spawning shutdown period of three days before and three days after the new or full moon cycle. This will reduce the cumulative effect of sediments smothering any potential spawning habitat.
- Preparation of a site-specific Fish Management Plan (FFMP) given construction plans require construction works within the Whenuariki Stream. This plan will detail steps to:
  - Find, capture, and relocate any fish from instream works areas.
  - Provide confirmation of potential īnanga spawning habitat upstream of the proposed bridge so that management of this area is included in the ESCP. This should include:
    - Identifying any potential īnanga habitat before construction to ensure that ESCP measures can be incorporated into the SSMP;
    - Assessing whether the proposed īnanga spawning shutdown period in the ESCP is providing appropriate protection of the identified potential spawning sites from construction derived sediment. This will be completed by undertaking visual assessments of potential habitat during the spawning period; and
    - Confirm that once construction is completed, any identified potential īnanga spawning sites provide habitat similar to that observed before construction. Enabling support for successful spawning in the current season (i.e., the site has not compromised successful spawning).

- Provide fish passage during construction and any site works including:
  - Undertaking site works within the designated project sites (for both pathway and bridge project works) in the dry, as much as is practical;
  - Maintaining a flowing channel through the bridge and/or pathway project site during works with similar flow conditions to the existing stream at all times; and
  - Limiting activities that disturb the wetted channel of Timaru and Whenuariki streams to no more than 30 hours of in stream works over the peak native fish migration period of 1 August to 31 December inclusive.

Changes in localised flow conditions and/or variability may occur at the river margins and near coastal edges of the streams. It is expected that once specific construction activities cease (after approximately 6 weeks) and objects needed for construction, such as sandbags, are removed from within the Whenuariki Stream, this stream will naturally revert back to conditions similar to that occurring prior to construction activities.

3.2.3.3 Magnitude of effects of freshwater ecological values after measures to avoid, minimise or remedy

The magnitude of effects on ecological values is assessed based on the extent, intensity, duration, and timing of effects associated with the project, after implementation of efforts to avoid, minimise or remedy effects. The magnitude of effects on each freshwater ecology value are set out in Table 3.9 below.

The current draft construction plans outline that works within a freshwater system are expected to include the following areas within Whenuariki Stream:

- Approximately 15-20 m on the true right and left side of the stream will be temporarily altered during construction works (moving the stream to enable project works for the Ahu Ahu bridge replacement); and
- There may be additional impacts to the Whenuariki Stream in association with confirmed construction designs and methodologies for the bridge replacement (to be confirmed by NPDC and their contractor ahead of project works). These potential impacts will be covered within the EMP, and more specifically the FFMP, as much as practicable.

In addition, sedimentation from construction activities may affect both Whenuariki and Timaru streams if unmanaged during works for pathway project and bridge replacement project.

Given the short duration of works (3-4 weeks for pathway construction and 6 weeks for the bridge replacement), the spatial scale (within and across the Whenuariki stream edge) and with recommendations to avoid, minimise and/or remedy effects via the implementation of the SSMP in full (Section 3.2.3.1), the magnitude of effect on freshwater values is expected to be **'low'** or **'negligible.'**

3.2.4 Overall level of effects on freshwater ecology

The table below sets out the potential overall level of effects for freshwater ecological values after efforts to avoid, minimise or remedy for effects (following EIANZ guidelines). The level of residual effects overall is considered to be **'low'**. No further effects management is considered necessary.

Table 3.9: The potential overall level of effects for freshwater ecological values across the project site after efforts to avoid, minimise or remedy for effects (following EIANZ guidelines and NPS-FM)

Ecological feature	Ecological value	Magnitude of effects	Level of residual effects with proposed management measures
Freshwater habitat type and effect			
Indirect temporary construction related effects on freshwater fauna and habitat within Whenuariki and Timaru streams, including water and sediment quality effects as a result of potential sediment discharges.	**High** (due to the potential īnanga spawning habitat upstream). Taonga species are also potentially present, except for torrent fish.	Construction works around and within the stream has the potential to result in the uncontrolled discharge of sediment laden water to the streams, which could alter instream habitat and fauna, therefore the potential magnitude of effect is **'moderate'**. The implementation of sediment control measures, including a SSMP ESCP is considered sufficient to reduce the potential magnitude of effects to **'low'**	**Low**
Temporary and localised changes to the flow complexity within the Whenuariki Stream during construction and decommissioning activities (through and following diversion activities for project works).	**High**	There may be changes to the water quality or bank stability due to potentially increased peak flows at times during works on the stream. Therefore, the potential magnitude of effects is **'moderate'.** Given the short duration of the works (3-6 weeks) and implementation of an SSMP and EMP/FFMP, the potential magnitude of effects is reduced to **'low'**.	**Low**
Potential to temporarily effect the migration of diadromous fish species known to inhabit the wider Whenuariki stream catchment during the construction process.	**High**	The proposed work has the potential to restrict or prevent fish migration activities and therefore the potential magnitude of effect is **'moderate'** Implementation of the EMP/FFMP and avoidance of works during migration periods is expected to reduce to magnitude of effects to **'low.'**	**Low**

Ecological feature	Ecological value	Magnitude of effects	Level of residual effects with proposed management measures
Potential long-term effects on the freshwater fish community dynamics within the Whenuariki stream (including injury or mortality) resulting from construction activities.	**High**	The proposed work has the potential to impact on fish through removal of habitat and direct mortality if works encroach on fish habitat, therefore the potential magnitude of effects is **'high'**. Implementation of an EMP/FFMP, outlining a fish relocation plan to remove fish during works, and the provision of fish passage and enhanced habitat following construction is considered sufficient to reduce the potential magnitude of effects to **'low'.**	**Low**

3.3 Coastal marine ecology values and effects

3.3.1 Coastal marine ecology characteristics and values

The shared pathway project work will be taking place around the high tide mark beneath the headland of the Weld Road Reserve, extending out into the Coastal Marine Area (CMA). The bridge replacement area will include work on the western and eastern sides of, and within, the Whenuariki stream with most of the work taking place at the mouth of the stream. The sections below provide a summary of the coastal habitat types and fauna within and adjacent to the overall project site, as well as the ecological values assigned to these features.

3.3.1.1 Coastal vegetation

Coastal vegetation across the project site and the associated value of these species has been described in detail within section 3.1.1.1, with species listed within Appendix A Table 5.1. The vegetation value of the project site has been valued as **'moderate.'**

3.3.1.2 Coastal habitats

The coastal environment within the project site comprises wide sandy beaches backed by small, degraded remnant dunes with adjacent coastal vegetation and offshore cobble and boulder reefs. The Whenuariki stream, which is adjacent to and runs within the bridge replacement area connects the coastal land to the sea (i.e., forming an estuarine environment) (Photograph 3.4, a-f). The coastal shoreline adjacent to the project site is highly dynamic and has direct linkages to freshwater, marine and terrestrial systems, forming an important network of coastal habitats for indigenous avifauna and a corridor for a number of indigenous freshwater migratory fish.

The upper beach habitat closest to the reserve headland (the area proposed to be replaced by the rock revetment) is covered by soft sand and large sections of woody debris backed by dune land, grassland and sections of vegetation covered-rocky outcrops (Photograph 3.4,a-f).

Sandy beach environments can support a range of intertidal organisms, depending on tidal level. These may include various bivalves (i.e., shellfish), gastropods and polychaete worms. From the site walk over and desktop assessments, common marine invertebrates including bivalves, gastropods, molluscs, echinoderms, and crab species have been identified within and in similar habitats near to the project site (<1 km away) (Appendix A Table 5.1). These species provide potential food resources for coastal avifauna, as confirmed from bird feeding observations on site.

Dune land vegetation within the pathway construction area. View looking towards Weld Road Reserve car park.

Sandy beach with cobble and boulder reefs within the project site. View looking from the Weld Road reserve headland towards the beach.

View adjacent to the rock revetment and west of the bridge replacement areas. Downstream/ocean end of Whenuariki stream.

View looking upstream towards the missing/damaged Ahu Ahu bridge, showing coastal habitat within the bridge replacement area.

View of upper beach habitat closest to Weld Road Reserve. Habitat being reaplced by rock revetment.

Upper beach habitat adjcaent to Weld Road Reserve. Habitat being reaplced by rock revetment.

Photograph 3.4 (a-f): Coastal habitat within the project site showing dune land, sandy beach, cobble and boulder reef habitat.

Benthic ecology and the associated sandy-beach habitats across the project site are largely unmodified, with no invasive or disturbance tolerant species observed. However, these are areas of high recreational use, with high levels of disturbance from heavy foot traffic, including horse riding, bike riding and walking activities.

Resources, including food and habitat, provided by the benthic ecology and associated habitat within and immediately surrounding the project site for 'At Risk' and 'Threatened' bird species (Table 3.2) has also been included in this assessment, contributing to the value. The 'moderate' ecological value assigned is a conservative assessment in the absence of more quantitative benthic ecology data for these areas.

3.3.1.3 Coastal avifauna

Avifauna records retrieved from eBird, iNaturalist and council layers, as well as those observed on site revealed five 'At Risk' and one 'Threatened' coastal bird species utilising beach, shrubland and/or treeland habitats within the project site or immediate surroundings (Appendix A Table 5.1, Table 3.10).

Verbal notification was provided by the Department of Conservation (DOC, August 2021), that kororā were/have been found present, within the project site and surrounding area.

Our site visit confirmed one potential penguin roost habitat, identified beneath established vegetation around the coastal headland within loose sand habitat within the pathway project site (Photograph 3.5; Figure 1.3). Northern New Zealand dotterel feeding, and nesting habitat was also confirmed at this time.

Overall, 11 coastal bird species were identified within the project site from online records and observations. Coastal avifauna considered in this section comprise seabirds (birds that spend most of their time on open ocean waters and come to shore only to breed) and waders (birds that spend much of their time near bodies of water for foraging and roosting).

The bird species seen during an onsite survey were exotic or native/naturalised 'Not Threatened' and 'At Risk' species (Appendix A Table 5.1, Table 3.10). The desktop review highlighted bird species of higher conservation risk that utilise the habitat either for foraging or possible breeding (Appendix A Table 5.1, Table 3.10).

When assessed against Appendix A Table 5.1, this results in avifauna values of **'moderate'**, **'high'** to **'very high'** (Table 3.10).

Table 3.10: Ecological values of Threatened or At Risk coastal avifauna potentially present within or frequenting the pathway and bridge project sites based on database records and their conservation threat status[10]

Species	National threat status	Ecological value
Reef Heron	Threatened – Nationally Endangered	**Very high**
Black Shag	Threatened -Naturally uncommon	**Moderate**
Little Penguin, Red-billed gull	Nationally At Risk – Declining.	**High**
Northern New Zealand Dotterel,	Nationally At Risk – Recovering.	**Moderate**
Northern-Diving Petrel	Nationally At Risk - Relict.	**Moderate**

Photograph 3.5: Potential Little Penguin roost habitat identified underneath vegetation, at the bottom of the reserve headland.

3.3.2 Coastal marine ecology values summary

Based on the coastal values described in Section 1.1, the following values have been assigned:

- Coastal vegetation across the project site and the associated value of these species has been described in detail within section 3.1, with species listed within Appendix A Table 5.2. The coastal vegetation value of the project site has been valued as **'moderate.**';
- Benthic ecology and the associated sandy-beach habitats[30] across the project site (including upper beach areas) have been assigned '**moderate**' ecological value. This reflects the largely unmodified nature of the habitat, with no invasive or disturbance tolerant species observed, but also accounts for the high recreational use and regular disturbance of the areas where the rock revetment and Ahu Ahu bridge replacement is occurring. Resources, including food and habitat, are also provided for by the benthic ecology within and immediately surrounding the project site for 'At Risk' and 'Threatened' bird species (Table 3.10); and
- Coastal avifauna have been conservatively assigned a **'moderate'** to **'very high'** ecological value across both project sites based on the potential (but unlikely) presence of Reef Heron in the vicinity of these project sites (classified as 'Threatened – Nationally Endangered'), and 'At Risk' species either permanently or occasionally present in the vicinity of these two sites (Table 3.10).

3.3.3 Assessment of effects on coastal marine ecology

This section presents our assessment of the magnitude of ecological effects and the overall level of effects on coastal marine values following the EIANZ framework.

[30] Value does not take into account benthic community (richness or abundance), or water quality status on the basis that this information was not readily available and/or not sampled for this site.

3.3.3.1 Overview of actual and potential adverse effects

An overview of the potential adverse effects associated with the project works (pathway construction and bridge replacement) and corresponding measures to further avoid, remedy, or mitigate effects is provided below.

The assessment of effects includes consideration of effects during the construction phases of the proposed project and associated direct and indirect effects on coastal fauna in the short and long term. Note that coastal vegetation has been included within and the values covered as part of section 3.1.1.1, and an assessment of effects on these values has been covered within section 3.1.1.1.2.

The actual and potential adverse effects resulting from the construction of the rock revetment and pathway include:

- Temporary construction related effects on coastal habitat and intertidal benthic ecology, including water and sediment quality effects as a result of sediment discharges;
- Permanent change from current sandy-beach, high tide environment to a 140 m long and 12 m wide artificial and hard-substrate rock revetment for the pathway project site; and
- Permanent change from current sandy-beach and grassland habitat either side of the Whenuariki stream to hard-substrate rock revetment and footpath; and
- Temporary disturbance related effects on coastal birds, including effects on breeding / nesting species and effects on food sources (intertidal habitat).

3.3.3.2 Overview of proposed measures to avoid, minimise or mitigate effects

Efforts to avoid, minimise or mitigate effects on coastal ecology values will include:

- Restricting works to the delineated project site boundaries for both project works and restricting access to these sites to minimise the disturbance footprint;
- A detailed ESCP developed prior to works being undertaken on the pathway and bridge project sites. The ESCP should include detail on measures to contain sediment from discharging to the CMA; and
- Due to the potential presence of little penguin within the project site, a presence/absence survey will need to be undertaken by a certified penguin handler (certified by the Department of Conservation, DOC) ahead of works. Daily site penguin checks (undertaken by informed construction crew) may need to be undertaken as part of pre-start checklists if penguins are detected on site. Advice around this will be provided by the project ecologist in accordance with DOC requirements following survey works.
- Development and implementation of EMP which will include the AMP (terrestrial and coastal avifauna management plan) and a Penguin Management Plan (PMP), specifically outlining the following for coastal features:
  - To avoid the risk of harming protected wildlife, construction should occur outside of the bird breeding period (September to March inclusive). If this is not possible, a pre-vegetation clearance/pre-coastal works checks should be undertaken by a suitably qualified ecologist prior to construction activities commencing. If a nest is found within the coastal area/vegetation clearance zone, then the associated area must be fenced off and avoided until the nest is no longer in use;
  - Avoidance of or consideration for the timing of any penguins found to be moulting on site, which is between January and March for little penguin. If not possible, the project ecologist and DOC will advise on management requirements in this event;

- Accidental discovery protocols should be implemented in the event of the discovery of a nest or eggs of protected wildlife i.e., isolate the nest and allow breeding to continue until chick(s) successfully reared or the nest is abandoned); and
- Little penguins have been observed/recorded burrowing into rock revetment crevices to nest and roost within similar projects[31]. Locally sourced volcanic rock is therefore expected to replace some of the lost penguin habitat across the project site. In addition, penguin nest boxes (up to three) will be added across the project site and an additional two outside of the project site to further enhance penguin habitat. Nesting boxes placed away from the project site are expected to also reduce the level of human/penguin interactions currently experienced within the project site due to the high recreational use this area at low tide. Penguin habitat suitable for nesting and roosting activities, equivalent to that being removed, is present within adjacent areas surrounding the project site (i.e., identified penguin habitat within the project site is not unique to the area).

3.3.3.3 Magnitude of effects on coastal marine ecological values after management

3.3.3.3.1 Temporary construction related effects on coastal habitat and benthic ecology, including water and sediment quality effects as a result of sediment discharges

As identified in Section 3.3.3.1 the potential for uncontrolled discharge from construction activities (for the pathway construction and bridge replacement works) into CMA has potential impacts on the benthic ecology within the project site and immediate vicinity. Discharges may include increased suspended sediment and sediment deposition on the intertidal habitat. Increased sedimentation can clog the gills and feeding apparatus of fauna and reduce visibility for feeding. Deposited sediment can smother organisms, reduce oxygen levels and increase the muddiness of the sediment, excluding species that are sensitive to mud.

Any effect would be temporary but potentially impact both upstream areas of the Whenuariki and Timaru streams and downstream to the estuary/ intertidal beach area. It is noted though that the scale of effects within the project site and nearby are small relative to the available coastal habitat in the wider area.

There is potential for discharge of sediment to the CMA during site set up for the pathway construction and bridge replacement works and the proposed diversion of the Whenuariki stream. However, the discharge is likely to be minor as it will be short in duration and extent and can be managed by avoiding rainfall and high tide event.

Given the short duration of works (3-4 weeks for the pathway construction and approximately 6 weeks for the bridge replacement) and small scale of construction works compared to the available surrounding coastal habitat, and provided mitigation measures outlined in Section 3.3.3.2 are followed, it is considered that the magnitude of effects on benthic ecology and the beach habitat would be **'low'**.

[31] NPDC Coastal structures monitoring programme annual reports 2018-2019, 2019-2020, New Plymouth District Council reports for Taranaki Regional Council.

3.3.3.3.2 Permanent change from current sandy-beach, high tide environment to hard-substrate rock revetment and footpath for the pathway project site

3.3.3.3.3 Permanent change from current sandy-beach and grassland habitat either side of the Whenuariki stream to hard-substrate rock revetment and footpath

There will be a permanent change in the substrate and habitat type within the project site. Specifically, the sandy-beach high tide habitat with dune land and some rocky out crops will be replaced with an artificial hard rock revetment pathway structure (140 m long and 12 m wide). This change in substrate /habitat will alter the species present and diversity of these species within this local area. Similarly, the substrate either side of the Whenuariki stream providing the bridge abutments, will change this substrate type from sandy-grassland habitat to an artificial hard rock revetment/pathway structure.

The sandy-beach high tide habitat currently within the project site supports the normal and expected assembles of common sandy beach species, such as bivalves, gastropods, molluscs, echinoderms, and crab species. These species are also resources for coastal birds (food). In addition, the dune land vegetation and rocky outcrop areas on the edge of the high tide habitat (i.e., the headland of the reserve) being removed may provide refuge for various coastal bird species (such as little penguin, which hold a **'high'** ecological value). While these habitat types are important, these areas are not unique and are abundant within the vicinity of the project site and wider surrounding environment.

The rock type being used to build the rock revetment within this project is natural, volcanic rock. This type of rock has been recorded to provide a suitable artificial habitat for penguin nesting and roosting.[31] In addition, rock revetments using natural materials have shown to support diverse and healthy subtidal communities with their large surface areas and complexity in their structural design.

Give small scale of construction works compared to the similar surrounding coastal habitat (i.e., given this stretch of beach habitat is not unique within its surroundings), and the potential for the rock revetment structure to provide a suitable artificial habitat for some marine flora and fauna, and provided mitigation measures outlined in Section 3.3.3.2 are followed, it is considered that the magnitude of effects on the coastal habitat and associated intertidal benthic ecology would be **'low'**. The value of coastal bird species potentially impacted by the permanent chance of this section of habitat type has been accounted for in the outcome above. Recommendations with the EMP will include consideration for enhancing penguin habitat within the project site where practical to account for impacts to these species.

3.3.3.3.4 Temporary disturbance related effects on coastal birds, including effects on breeding / nesting species and effects on food sources (intertidal habitat)

Potential impacts on coastal birds are expected to encompass both disturbance (and potentially injury and/or mortality) effects during bird breeding season, if vegetation removal and works within the CMA are undertaken during bird breeding/nesting seasons (September to March inclusive). There is also potential for a reduction in the quality of foraging habitat through effects on benthic invertebrates. In addition, depending on the timing of works, little penguin in the process of moulting may be impacted by construction work (if undertaken between January to March inclusive). There is also expected to be a reduction in some of their available habitat through vegetation removal.

Impacts on foraging wading birds (such as oystercatchers and stilts) that may be utilising the intertidal, beach or water column are limited to indirect effects:

- At low tide, the beach habitat provides intertidal feeding habitat for coastal birds; and

- At high tide, this area predominantly provides feeding habitats for birds feeding in the water column.

There is the potential for an indirect effect of poorer foraging quality habitat for birds due to sedimentation caused by poorly controlled construction activities. Although the effect would be temporary in nature and the area impacted small in scale (compared to the available surrounding habitat), the direct receiving environment and zone of influence (ZOI) could be reduced in habitat quality given the tidal nature of the area.

Outside of the project site there is sufficient foraging habitat for coastal bird species. The works area impacts a very small proportion of available, similar habitat and if birds are disturbed, they can self-relocate to other areas of the beach. Minor foraging displacement of coastal bird will be brief due to the short duration of the works (3-4 weeks for the pathway construction works and approximately 6 weeks for the bridge replacement).

On the basis of the above and following implementation of mitigation measures outlined in Section 3.3.3.2, as well as Section 3.1.3.3, which covers coastal vegetation, it is expected that the magnitude of effect on coastal birds, breeding and/or feeding, would be **'negligible'**.

3.3.4 Overall level of effects on coastal ecology

Table 3.11 outlines the potential overall level of effects for coastal ecological values within the project site after efforts to avoid, minimise or mitigate for effects (following EIANZ guidelines) as set out in section 3.3.3.2. Following the EIANZ guidelines, the level of residual effects overall is expected to be '**low**' to **'very low.'**

No residual level of effects have been assessed as being potentially **'moderate'** or higher (after avoidance, minimisation and mitigation measures are put in place), therefore; no further effects management is required, which is in line with the EIANZ guidelines.

Table 3.11: Summary of the ecological value, magnitude of effects and residual effects for coastal ecology within the pathway and bridge project sites

Ecological features	Ecological value	Magnitude of effects (after measures to avoid, minimise and mitigate)	Level of residual effects (after measures to avoid, minimise and mitigate)
Coastal habitat and fauna			
Benthic ecology and associated upper beach habitat	**High**	**Low**	**Low**
Coastal avifauna breeding	**Very High**	**Negligible**	**Low**
Coastal avifauna feeding	**Very High**	**Negligible**	**Low**

3.4 Assessment against the NPS FM and NES

Construction works will likely result in a change in the flood width of the Whenuariki Stream at the site of the proposed bridge replacement. This may impact fish passage during this time, but it is not expected that fish passage impacts will continue or occur during any other times throughout construction works or following completion of the project The project is therefore consistent with policies related to fish passage in NPS FM.

Our assessment of ecological effects has considered effects management measures in accordance with the effects management hierarchy in NPS FM. Measures to avoid, minimise and remedy effects on freshwater values are identified in Section 3.2.3.2

3.5 Assessment against the NPS IB

Reviewed the site characteristics present against the QSNA/SNA criteria (provided in Appendix 1 of the NPS IB) to address Section 3.8 of the NPS IB which concludes that the site qualifies as an SNA due to the presence of multiple Threatened/At Risk indigenous fauna (Please refer to Appendix A)

On-site Specified Highly Mobile Fauna as listed in Appendix 2 of the NPS IB include red-billed gull, pipit, northern New Zealand dotterel, and reef heron. Management as required to minimise and avoid risk to these fauna shall be described in Section 3 of this report, and detailed in an ecology management plan that will be enacted in accordance with best practice.

For wider indigenous biodiversity values present as discussed above, the effects management hierarchy, required by Section 3.16 of the NPS IB, has been adhered to as detailed in Section 3 of this report.

Following determination of the level of overall effects for this project being '**low**' to **'very low'**, we consider that Section 3.24 of the NPS IB does not apply.

4 Summary and conclusion

New Plymouth District Council is proposing to construct a new rock revetment around the base of the Weld Road Reserve headland, comprising a 140 m long and 12 m wide shared pathway connecting Ahu Ahu Road and Lower Weld Road. This shared pathway will be connected to the Ahu Ahu Bridge, which is being replaced following storm damage in 2022.

Overall ecological values range from **'low'** to **'high'** across the project site. Measures to avoid, minimise and remedy or mitigate effects on ecological values within the project site have been proposed. These include minimising vegetation clearance by clearly delimiting the site and areas of vegetation to be retained on site, replacing lost vegetation where practical, and measures and controls to be undertaken during construction (including implementation of the EMP document).

We consider that the avoidance, minimisation, remediation, and mitigation measures proposed will adequately address the potential adverse effects resulting from project works. An EMP, with a coastal and terrestrial avifauna management plan (AMP), a freshwater fish management plan (FFMP), penguin management plan (PMP) and lizard management plan (LMP), shall be developed ahead of construction and provide detailed measures to either avoid or mitigate effects during construction works at the project site. The overall residual effects are reliant on the EMP which shall be appropriately designed and implemented to ensure all adverse residual ecological effects will be '**low**' at most.

Overall, following measures to avoid, minimise, remedy or mitigate effects, the residual effects from the project are anticipated to be between '**low**' and **'very low'** for terrestrial, freshwater and coastal ecology.

5 Applicability

This report has been prepared for the exclusive use of our client New Plymouth District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Taranaki Regional Council and New Plymouth District Council as the consenting authorities will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

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This document has had technical review by the following senior ecologists:

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Appendix A Species table

Appendix A Table 5.1: Freshwater fish, avifauna, herpetofauna and coastal flora and fauna potentially present in and/or around the project site according to available online data and from an ecology site visit. Species conservation status and location in relation to the project site is also indicated

Common name	Species	Conservation Status	Location
Fish			
Īnanga	*Galaxias maculatus*	At Risk - Declining	Wider catchment of Timaru Stream
Longfin eel	*Anguilla dieffenbachii*	At Risk - Declining	Wider catchment of Timaru Stream and Whenuariki Stream
Torrentfish	*Cheimarrichthys fosteri*	At Risk - Declining	Wider catchment of Timaru Stream
Koura	*Paranephrops planifrons*	Not Threatened, but of mahinga kai importance.	Wider catchment of Timaru Stream and Whenuariki Stream
Shortjaw kokopu	*Galaxias postvectis*	Threatened - Nationally Vulnerable	Wider catchment of Timaru Stream
Koaro	*Galaxias brevipinnis*	At Risk - Declining	Wider catchment of Timaru Stream
Brown trout	*Salmo trutta*	Introduced – Protected by New Zealand freshwater fisheries regulations.	Wider catchment of Timaru Stream
Banded kokopu	*Galaxias fasciatus*	Not Threatened	Wider catchment of Timaru Stream
Herpetofauna			
Yellow-bellied sea snake	*Pelamis platurus*	Introduced (NZ visitors on occasion) – Not Threatened	1km southeast of project site (late 1800, early 1900 records).
Leatherback sea turtle	*Dermochelys coriacea*	Vulnerable under the international union for conservation of nature (IUCN) - https://www.doc.govt.nz/nature/native-animals/marine-fish-and-reptiles/sea-turtles/ - downloaded August 2023.	2km west of project site (late 1800, early 1900 records).
Southern Bell frog	*Litoria raniformis*	Introduced and naturalised, Not Protected	2km west of the project site (late 1900)
Forest Gecko	*Hoplodactylus granulatus*	At Risk-Declining	1km east of project site (late 1800, early 1900 records).
Copper Skink	*Oligosoma aeneum*	At Risk – Declining	2km west of the project site (record late 1990).

Common name	Species	Conservation Status	Location
Northern grass skink/Common skink	*Oligosoma polychroma* (complex)	Not threatened	Within known distribution range
Elegant Gecko	*Naultinus elegans*	At Risk- Declining	2km east of the project sites (record late 1900s)
Goldstripe Gecko	*Woodworthia chrysosiretica*	At Risk – Declining	2km west of the project site (record late 1990).
Striped skink	*Oligosoma striatum*	At Risk -Declining (rare)	9.5 km northeast of the project site
Pacific gecko	*Dactylocnemis pacificus*	Not Threatened	7.5 southeast of the project site.
Avifauna **Coastal avifauna**			
Variable oyster catcher	*Haematopus unicolor*	At Risk - Recovering	Adjacent to the project site (40 m)
Reef Heron	*Egretta sacra*	Threatened – Nationally Endangered	Adjacent to the project site (<40 m)
Red-billed gull	*Larus novaehollandiae*	At Risk - Declining	Adjacent to the project site (<50 m)
Northern-Diving Petrel	*Pelecanoides urinatrix urinatrix*	At Risk - Relict	Dead bird (200 m from the pathway construction area)
Little Penguin	*Eudyptula minor*	At Risk - Declining	Habitat identified as potentially within the project site.
Pied Stilt	*Himantopus himantopus*	Not Threatened	< 1km west of the project site
Black Shag	Phalacrocorax carbo	Threatened -Naturally uncommon	<0.5 km west of the project site
Southern black-backed gull	*Larus dominicanus*	Not threatened	0.5 km west of the project site
Graylag goose	*Anser anser*	Introduced and naturalised	0.5 km west of the project site
Paradise shelduck	*Tadorna variegata*	Not Threatened	0.5 km west of the project site
Northern New Zealand Dotterel	*Charadrius obscurus*	At Risk - Recovering	Observed within the project site

Common name	Species	Conservation Status	Location
Terrestrial avifauna			
Tūī	*Prosthemadera novaeseelandiae*	Not Threatened - Keystone species.	0.5 km west of the project site
New Zealand Fantail	*Rhipidura fuliginosa*	Not Threatened	0.5 km west of the project site
Kingfisher	*Todiramphus sanctus*	Not threatened	Observed within the project site
New Zealand Pipit	*Anthus novaeseelandiae*	At Risk - Declining	Observed within the project site
Silvereye	*Zosterops lateralis*	Not threatened	0.5 km west of the project site
Eurasian Blackbird	*Turdus merula*	Introduced and naturalised	0.5 km west of the project site
House sparrow	*Passer domesticus*	Introduced and naturalised	0.5 km west of the project site
Grey Warbler	*Gerygone igata*	Not Threatened	Observed within the project site
European Goldfinch	*Carduelis carduelis*	Introduced and naturalised	Observed within the project site
Mallard	*Anas platyrhynchos*	Introduced and naturalised	Observed within the project site
Chaffinch	*Fringilla coelebs*	Introduced and naturalised	Observed within the project site
Yellowhammer	*Emberiza citrinella*	Introduced and naturalised	Observed within the project site
Crabs			
Iron crab	*Ozius deplanatus*		Adjacent to the project site (all within 40- 200 m)
Common crab	*Hermigrapsus sexdentatus*		Adjacent to the project site
Smooth shore crab	*Cyclograpsus lavauxi*		Adjacent to the project site
Purple rock crab	*Leptograpsus variegatus*		Adjacent to the project site
Big hand crab	*Heterozius rotoundifrons*		Adjacent to the project site
Gulfweed crab	*Planes minutus*		Adjacent to the project site
Red rock crab	*Guinusia chabrus*		Adjacent to the project site
Hairy seaweed crab	*Notomithrax ursus*		Adjacent to the project site
Echinoderm			

Common name	Species	Conservation Status	Location
Cushion Sea Star	*Patiriella regularis*		Adjacent to the project site (within 50 m)
Gastropods			
Spotted top snail	*Calliostoma punctulatum*		Adjacent to the project site (all within 40- 100 m)
Sea Snail	*Diloma arida*		Adjacent to the project site
Cart-rut snail	*Dicathias orbita*		Adjacent to the project site
Marine snail – oyster borer	*Haustrum albomarginatum*		Adjacent to the project site
Violet Sea Snail	*Janthina janthina*		Adjacent to and 25 m west of the project site
Ornate limpet	*Cellana ornata*		Adjacent to the project site
Arthrpods/Mollusc			
Pelagic Gooseneck Barnacle	*Lepas anatifera*		Adjacent to the project sites (all within 40- 200 m)
Blue Green Chiton	*Chiton glaucus*		Adjacent to the project site
Bivalves			
Pacific oyster	*Crassostrea gigas*		Adjacent to the project site (all within 50 m)
New Zealand Fan Scallop	*Pecten novaezelandiae*		Adjacent to the and 20 m west of the project site (online records)
Coastal Flora			
Pingao	*Ficinia spiralis*	At Risk – Declining	Observed during the site visit, within the project site.
New Zealand Spinach/ Kokihi	*Tetragonia tetragonioides*	At Risk- Naturally Uncommon	Observed during the site visit, within the project site.
Pōhutukawa	*Metrosideros excelsa*	Threatened – Nationally vulnerable (potential threat of Mrytle rust)	Observed during the site visit, within the project site.

Common name	Species	Conservation Status	Location
Puka	*Meryta sinclairii*	At Risk – Nationally uncommon	Observed during the site visit, within the project site.
Puahou	*Pseudopanax arbor*	Not Threatened	Observed during the site visit, within the project site.
Spinifex	*Spinifex sericeus*	Not Threatened	Observed during the site visit, within the project site.
Cutty grass/Rautahi	Carex geminata	Not Threatened	Observed during the site visit, within the project site.
Bare twig rush	*Machaerina juncea*	Not threatened	Observed during the site visit, within the project site.
Pampas	*Cortaderia* spp	NA - exotic	Observed during the site visit, within the project site.
Karaka	*Corynocarpus laevigatus*	Not Threatened	Observed during the site visit, within the project site.
Karo	*Pittosporum crassifolium*	Not Threatened	Observed during the site visit, within the project site.
Browntop grass	*Agrostis capillaris*	NA - exotic	Observed during the site visit, within the project site.
	Muehlenbeckia sp.	NA - exotic	Observed during the site visit, within the project site.
Pohuehue	*Muehlenbeckia australis*	Not Threatened	Observed during the site visit, within the project site.
Hawthorn	*Crataegus monogyna*	NA - Exotic	Observed during the site visit, within the project site.
Lace Fern	*Paesia scaberula*	Not Threatened	Observed during the site visit,

Common name	Species	Conservation Status	Location
			within the project site.
Bracken (course fern)	*Pteridium sp.*	Not threatened	Observed during the site visit, within the project site.
Garden Nasturtium	*Tropaeolum majus*	NA - exotic	Observed during the site visit, within the project site.
Kawakawa	*Piper excelsum*	Not Threatened	Observed during the site visit, within the project site.
Kikuyu grass	*Cenchrus clandestinus*	NA – exotic grass	Observed during the site visit, within the project site.
Iris	*Watsonia sp.*	NA – exotic	Observed during the site visit, within the project site.
Onion Weed	*Nothoscordum × borbonicum*	NA – exotic	Observed during the site visit, within the project site.
White clover	*Trifolium repens*	NA – exotic	Observed during the site visit, within the project site.
Taupata	*Coprosma repens*	Not Threatened	Observed during the site visit, within the project site.
Harakeke/New Zealand Flax	*Phormium tenax*	Not Threatened	Observed during the site visit, within the project site.
Sea bindweed	*Calystegia soldanella*	Not Threatened	Observed during the site visit, within the project site.
Wild radish	*Raphanus raphanistrum*	NA - exotic	Observed during the site visit, within the project site.
Climbing dock	*Rumex sagittatus*	NA - exotic	Observed during the site visit, within the project site.

Common name	Species	Conservation Status	Location
Cap-ivy	*Delairea odorata*	NA - exotic	Observed during the site visit, within the project site.
Knobby Clubrush/Wiwi	*Ficinia nodosa*	Not Threatened	Observed during the site visit, within the project site.
Gorse	*Ulex europeus*	NA - exotic	Observed during the site visit, within the project site.
Sow thistle	*Sonchus sp.*	NA - exotic	Observed during the site visit, within the project site.
Unidentified exotic pasture grass	*Unknown*	NA - exotic	Throughout project site.

‘The reserve’ refers to the Weld Road Reserve headland.

Appendix B Ecological impact assessment guidelines

Appendix B Table 5.2: Terrestrial ecological values assigned to species and habitats

Value	Species values	Habitat values
Very high	Nationally Threatened - Endangered, Critical or Vulnerable.	Supporting more than one national priority type. Nationally Threatened species found or likely to occur there, either permanently or occasionally.
High	Nationally At Risk - Declining.	Supporting one national priority type or naturally uncommon ecosystem and/or a designated significant ecological area in a regional or district Plan. At Risk - Declining species found or likely to occur there, either permanently or occasionally.
Moderate	Nationally At Risk - Recovering, Relict or Naturally Uncommon.	A site that meets ecological significance criteria as set out in the relevant regional or district policies and plans.
Moderate	Not Nationally Threatened or At Risk, but locally uncommon or rare.	A site that does not meet ecological significance criteria but that contributes to local ecosystem services (e.g. water quality or erosion control).
Low	Not Threatened Nationally, common locally.	Nationally or locally common with a low or negligible contribution to local ecosystem services.
Negligible	Not Threatened Nationally, common locally, poor habitat with few species.	Nationally or locally common with a negligible contribution to local ecosystem services.

Appendix B Table 5.3: Freshwater ecological values assigned to in relation to species representativeness, rarity, diversity and pattern, and ecological context

Value	Habitat values	Species values
Very high	A reference quality watercourse in condition close to its pre-human condition with the expected assemblages of flora and fauna and no contributions of contaminants from human induced activities including agriculture. Negligible degradation e.g. stream within a native forest catchment.	Benthic invertebrate community typically has high diversity, species richness and abundance. Benthic invertebrate community contains many taxa that are sensitive to organic enrichment and settled sediments. Benthic community typically with no single dominant species or group of species. MCI scores typically 120 or greater. EPT richness and proportion of overall benthic invertebrate community typically high. Fish communities typically diverse and abundant. Riparian vegetation typically with a well-established closed canopy. Stream channel and morphology natural. Stream banks natural typically with limited erosion. Habitat natural and unmodified.
High	A watercourse with high ecological or conservation value but which has been modified through loss of riparian vegetation, fish barriers, and stock access or similar, to the extent it is no longer reference quality. Slight to moderate degradation e.g. exotic forest or mixed forest/agriculture catchment.	Benthic invertebrate community typically has high diversity, species richness and abundance. Benthic invertebrate community contains many taxa that are sensitive to organic enrichment and settled sediments. Benthic community typically with no single dominant species or group of species. MCI scores typically 80-100 or greater. EPT richness and proportion of overall benthic invertebrate community typically moderate to high. Fish communities typically diverse and abundant. Riparian vegetation typically with a well-established closed canopy. No pest or invasive fish (excluding trout and salmon) species present. Stream channel and morphology natural. Stream banks natural typically with limited erosion. Habitat largely unmodified.

Value	Habitat values	Species values
Moderate	A watercourse which contains fragments of its former values but has a high proportion of tolerant fauna, obvious water quality issues and/or sedimentation issues. Moderate to high degradation e.g. high-intensity agriculture catchment.	Benthic invertebrate community typically has low diversity, species richness and abundance. Benthic invertebrate community dominated by taxa that are not sensitive to organic enrichment and settled sediments. Benthic community typically with dominant species or group of species. MCI scores typically 40-80. EPT richness and proportion of overall benthic invertebrate community typically low. Fish communities typically moderate diversity of only 3-4 species. Pest or invasive fish species (excluding trout and salmon) may be present. Stream channel and morphology typically modified (e.g., channelised) Stream banks may be modified or managed and may be highly engineered and/or evidence of significant erosion. Riparian vegetation may have a well-established closed canopy. Habitat modified.
Low	A highly modified watercourse with poor diversity and abundance of aquatic fauna and significant water quality issues. Very high degradation e.g. modified urban stream.	Benthic invertebrate community typically has low diversity, species richness and abundance. Benthic invertebrate community dominated by taxa that are not sensitive to organic enrichment and settled sediments. Benthic community typically with dominant species or group of species. MCI scores typically 60 or lower. EPT richness and proportion of overall benthic invertebrate community typically low or zero. Fish communities typically low diversity of only 1-2 species. Pest or invasive fish (excluding trout and salmon) species present. Stream channel and morphology typically modified (e.g., channelised). Stream banks often highly modified or managed and maybe highly engineered and/or evidence of significant erosion. Riparian vegetation typically without a well-established closed canopy. Habitat highly modified.
Negligible	Not Threatened Nationally, common locally, poor habitat with few species.	Nationally or locally common with a negligible contribution to local ecosystem services.

Appendix B Table 5.4: Characteristics of estuarine and marine areas/habitats and associated ecological values

Ecological Value	Characteristics
Very High	• Benthic invertebrate community typically has very high diversity, species richness and abundance. • Benthic invertebrate community is dominated by taxa that are sensitive to organic enrichment, contaminants and mud and/or rated as 'Extremely Good' using the AC Benthic Health Index. • Marine sediments typically comprise < 20% silt and clay grain sizes (mud). • Surface sediment oxygenated with no anoxic sediment present. • Annual average sedimentation rates typically less than 1 mm above background levels. • Contaminant concentrations in surface sediment significantly below DGV and AC ERC-Orange effects threshold concentrations[32]. • Water column contaminant values typically at or better than ANZWQG 99% species protection level and/or scored as 'Excellent' on the Auckland Council (AC) Water Quality Index (WQI). • Fish community typically has very high diversity, species richness and abundance. • Invasive opportunistic and disturbance tolerant species absent. • Vegetation likely to be nationally important and recognised as such. • Macroalgae sequences intact and provides significant habitat for native fauna. • Habitat unmodified.
High	• Benthic invertebrate community typically has high diversity, species richness and abundance. • Benthic invertebrate community contains many taxa that are sensitive to organic enrichment, contaminants and mud and/or rated as 'Good' using the AC Benthic Health Index. • Marine sediments typically comprise < 40% silt and clay grain sizes. • Surface sediment oxygenated. • Annual average sedimentation rates typically less than 2 mm above background levels. • Contaminant concentrations in surface sediment rarely exceed DGV and AC ERC-Orange effects threshold concentrations. • Water column contaminant values typically between ANZWQG 95% and 99% species protection levels and/or scored as 'Good' on the AC WQI. • Fish community typically has high diversity, species richness and abundance. • Invasive opportunistic and disturbance tolerant species largely absent. • Vegetation likely to be regionally important and recognised as such. • Macroalgae provides significant habitat for native fauna. • Habitat largely unmodified.
Moderate	• Benthic invertebrate community typically has moderate species richness, diversity and abundance. • Benthic invertebrate community has both tolerant and sensitive taxa to organic enrichment, contaminants and mud present and/or rated as 'Moderate' using the AC Benthic Health Index.

[32] ANZWQG (2018) Default Guideline Value concentrations, or Auckland Council's Environmental Response Criteria contaminant threshold concentrations (Auckland Regional Council, 2004).

Ecological Value	Characteristics
	• Marine sediments typically comprise < 60% silt and clay grain sizes. • Shallow depth of oxygenated surface sediment. • Annual average sedimentation rates typically less than 5 mm above background levels. • Contaminant concentrations in surface sediment generally below DGV-high or AC ERC-Red effects threshold concentrations. • Water column contaminant values typically between ANZWQG 90% and 95% species protection levels and/or scored as 'Fair' on the AC WQI. • Fish community typically has moderate species richness, diversity and abundance. • Few invasive opportunistic and disturbance tolerant species present. • Vegetation likely to be important at the level of the ecological district. • Macroalgae provides moderate habitat for native fauna. • Habitat modification limited.
Low	• Benthic invertebrate community degraded with low species richness, diversity and abundance. • Benthic invertebrate community dominated by organic enrichment tolerant, contaminant tolerant, and mud tolerant organisms with few/no sensitive taxa present and/or rated as 'Poor' using the AC Benthic Health Index. • Marine sediments dominated by silt and clay grain sizes (>60%). • Surface sediment predominantly anoxic (lacking oxygen). • Annual average sedimentation rates typically less than 10 mm above background levels. • Elevated contaminant concentrations in surface sediment, above DGV-high or AC ERC-Red effects threshold concentrations. • Water column contaminant values typically between ANZWQG 80% and 90% species protection levels and/or scored as 'Marginal' on the AC WQI. • Fish community depleted with low species richness, diversity and abundance. • Invasive, opportunistic and disturbance tolerant species dominant. • Vegetation has limited ecological value other than as local habitat for tolerant native species • Macroalgae provides minimal/limited habitat for native fauna. • Habitat highly modified.
Negligible	• Benthic invertebrate community degraded with very low species richness, diversity and abundance. • Benthic invertebrate community dominated by organic enrichment tolerant, contaminant tolerant and mud tolerant organisms with no sensitive taxa present and/or rated as 'Unhealthy with low resilience' using the AC Benthic Health Index. • Marine sediments dominated by silt and clay grain sizes (>80%). • Surface sediment anoxic (lacking oxygen). • Annual average sedimentation rates typically greater than 10 mm above background levels. • Elevated contaminant concentrations in surface sediment, above DGV-high effects threshold concentrations. • Water column contaminant values typically at or worse than ANZWQG 80% species protection levels and/or scored as 'Poor' on the AC WQI. • Fish community depleted with very low species richness, diversity and abundance. • Invasive, opportunistic and disturbance tolerant species highly dominant.

Ecological Value	Characteristics
	• Vegetation/macroalgae absent or so sparse as to provide very limited ecological value. • Habitat extremely modified.

Appendix B Table 5.5: Criteria describing magnitude of effect[17]

Magnitude	Description
Very high	Total loss of, or very major alteration to, key elements/features/ of the existing baseline[1] conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known population or range of the element/feature.
High	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element/feature.
Moderate	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element/feature.
Low	Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; AND/OR Having a minor effect on the known population or range of the element/feature.
Negligible	Very slight change from the existing baseline condition. Change barely distinguishable, approximating the 'no change' situation; AND/OR Having negligible effect on the known population or range of the element/feature.

Appendix B Table 5.6: Timescale for duration of effects[17]

Timescale	Description
Permanent	Effects continuing for an undefined time beyond the span of one human generation (taken as approximately 25 years).
Long-term	Where there is likely to be substantial improvement after a 25 year period (e.g. the replacement of mature trees by young trees that need > 25 years to reach maturity, or restoration of ground after removal of a development) the effect can be termed 'long term'.
Temporary[1]	Long term (15-25 years or longer – see above). Medium term (5-15 years). Short term (up to 5 years). Construction phase (days or months).

Note: In the context of some planning documents, 'temporary' can have a defined timeframe.

Appendix B Table 5.7: Criteria for describing overall levels of ecological effects[17]

Magnitude \ Ecological value	Very high	High	Moderate	Low	Negligible
Very high	Very high	Very high	High	Moderate	Low
High	Very high	Very high	Moderate	Low	Very low
Moderate	High	High	Moderate	Low	Very low
Low	Moderate	Low	Low	Very low	Very low
Negligible	Low	Very low	Very low	Very low	Very low
Positive	Net gain	Net gain	Net gain	Net gain	Net gain

Appendix C NPS IB criteria addressed

1. An area qualifies as an SNA if it meets any one of the attributes of the following four criteria:

(a) Representativeness;

(b) Diversity and pattern;

(c) Rarity and distinctiveness; and

(d) Ecological context.

Exclusions:

- If an area would qualify as an SNA solely on the grounds that it provides habitat for a single indigenous fauna species that is At Risk (declining), and that species is widespread in at least three other regions, the area does not qualify as an SNA unless:

  (a) The species is rare within the region or ecological district where the area is located; or

  (b) The protection of the species at that location is important for the persistence of the species as a whole.

- If an area would qualify as an SNA solely on the grounds that it contains one or more indigenous flora species that are Threatened or At Risk (declining), and those species are widespread in at least three other regions, the area does not qualify as an SNA unless:

  (a) The species is rare within the region or ecological district where the area is located; or

  (b) The protection of the species at that location is important for the persistence of the species as a whole.

2. Context for assessment

(1) The context for an assessment of an area is:

(a) Its ecological district; and

(b) For the rarity assessment only, its ecological district, its region and the national context.

3. Manner and form of assessment

(1) Every assessment must include at least:

(a) A map of the area; and

(b) A general description of its significant attributes, with reference to relevant criteria (as specified below); and

(c) A general description of the indigenous vegetation, indigenous fauna, habitat, and ecosystems present; and

(d) Additional information, such as the key threats, pressures, and management requirements; and

(e) For SNAs in areas of Crown-owned land referred to in clause 3.8(8), the conservation management strategy or plan or national park management plan that applies to the area.

Significance Assessment for both sites

Criteria	Attributes	Met or not met (Y/N)[33]	Application notes[34] [1]
Representativeness – is the indigenous vegetation or fauna habitat typical or characteristic of the ED?	Indigenous vegetation that has ecological integrity that is typical of the character of the ecological district.	N	This area has low integrity due to the infrastructure for and use of the coastal walkway and beach access. High this site is more disturbed with more exotic species and weeds than typical of the costal matrix within the local ED. While some native vegetation plantings have been undertaken, this is insufficient to constitute regeneration given the presence and dominance of exotic and weed species.
	Habitat that supports a typical suite of indigenous fauna that is characteristic of the habitat type in the ecological district and retains at least a moderate range of species expected for that habitat type in the ecological district.	Uncertain – likely N	Pipit are present within the site, red-billed gull utilise the site, however, some of the typical suite of species that could be expected to utilise such habitat were not observed (fernbird, grey warbler, kereru for example), others may not utilise the site due to high disturbance and human activity. Other typical species not observed (and considered unlikely to be present following surveys), that would normally be expected to be present include northern grass skink, copper skink, gold-stripe gecko.
Diversity and pattern – is the expected range of diversity present?	At least a moderate diversity of indigenous species, vegetation, habitats of indigenous fauna or communities in the context of the ecological district.	N	While specimens of the expected natural plant community are present, the overall composition is skewed by exotic species and the diversity of habitat is limited by modification. With the historic clearance, small area of the site, edge effects of continued use/disturbance and the establishment of exotic and weed species a more diverse community expected of a typical dune land system of this ED is not present.
	Presence of indigenous ecotones, complete or partial gradients or sequences.	N	The site lacks ecotones, gradients and sequences due to its small size and fragmentation. Additionally, it is highly modified and degraded to the degree that no such features would be identifiable.
Rarity and distinctiveness	Provides habitat for an indigenous species that is listed as Threatened or At Risk (declining) in the New Zealand Threat Classification System lists.	Y	Pipit, Pingao, blue kororā within site. Pohutakawa, karo and puka excluded as outside of natural range and planted as specimens.
	An indigenous vegetation type or an indigenous	N/A uncertain	Insufficient data currently available on the proportional representation of different

[33] This assessment takes into account habitats and species known to be present.

[34] The Taranaki Tree Trust. (N.D). Restoration planting in Taranaki: A guide to the Egmont Ecological District. https://wildfortaranaki.nz/wp-content/uploads/2022/05/FRODO-2263234-v1-Plant_book_1_Egmont_ecological_.pdf accessed August 2023.

Criteria	Attributes	Met or not met (Y/N)[33]	Application notes[34 1]
	species that is uncommon within the region or ecological district.	– awaiting data	vegetation types/habitats of the Egmont ED. Irrespective of depauperate data, the site would not qualify under this attribute as there isn't dominance of indigenous vegetation and vegetation present is too highly modified and degraded to be considered uncommon indigenous vegetation.
	An indigenous species or plant community at or near its natural distributional limit.	N/A uncertain – awaiting data	Awaiting data, however most species found are common of the ED and not on fringe of distribution range based existing on available data.
	Indigenous vegetation that has been reduced to less than 20 per cent of its pre-human extent in the ecological district, region, or land environment.	N/A uncertain data limited	Within highest LENZ TEC class of <10% remaining, however onsite vegetation is not naturally indigenous dominated vegetation and is highly modified and degraded.
	Indigenous vegetation or habitat of indigenous fauna occurring on naturally uncommon ecosystems.	N/A uncertain – data lacking	Not on a naturally uncommon ecosystem as far as available information suggests, uncertainty remains.
	The type locality of an indigenous species.		
	The presence of a distinctive assemblage or community of indigenous species.	N	Community not dominated by indigenous species. Or distinctive assemblage, too impacted by exotic species and weed species.
	The presence of a special ecological or scientific feature.	N	None identified in TRC mapping service.
Ecological context – size, shape, and configuration with ability to maintain indigenous biodiversity within or surrounds	At least moderate size and a compact shape, in the context of the relevant ecological district.	N	Small, elongated narrow site with considerable fragmentation relative to size.
	Well-buffered relative to remaining habitats in the relevant ecological district.	N	Not buffered due to: size, extent of land use change in surrounds, infrastructure presence and ongoing human activity.
	Provides an important full or partial buffer to, or link between, one or more important habitats of indigenous fauna or significant natural areas.	N	While the general surrounds of the site is identified as kororā habitat and coastal bird feeding, there is insufficient quality of habitat for the site to act and a buffer or effective link to other habitats and there are no linked SNAs.
	Important for the natural functioning of an ecosystem relative to remaining habitats in the ecological district.	N	The site and is impacted such that natural ecosystem function is limited and negligible compared to wider habitat of the ED.

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Appendix G Coastal Processes and Effects Assessment

REPORT

Tonkin+Taylor

Weld Road Beach Access - Coastal Processes and Effects Assessment

Prepared for
New Plymouth District Council

Prepared by
Tonkin & Taylor Ltd

Date
October 2023

Job Number
1017346.3000 v3

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Document control

Title: Weld Road Beach Access - Coastal Processes and Effects Assessment					
Date	**Version**	**Description**	**Prepared by:**	**Reviewed by:**	**Authorised by:**
June 2021	1	Draft report for client review	R. Haughey P. Quilter	T. Shand	R. Reinen-Hamill
September 2023	2	Draft report for client review	P. Quilter	R. Reinen-Hamill	R. Reinen-Hamill
October 2023	3	Final Coastal Processes and Effects Assessment	P. Quilter	R. Reinen-Hamill	R. Reinen-Hamill

Distribution:

New Plymouth District Council 1 electronic copy

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Executive summary

Background

New Plymouth District Council (NPDC) engaged Revolution Civil Engineering (RCE) to undertake the consent level design of a rock revetment structure. Tonkin & Taylor Ltd (T+T) has since provided updated consent level drawings of this structure.

Following damage to the swing bridge above Whenuariki Stream during a storm event in early 2022, WSP New Zealand Ltd (WSP) was engaged to provide options for replacing Ahu Ahu Bridge that tie into the proposed pathway and revetment.

These works will provide high tide access linking the western end of Ahu Ahu Road, around the adjacent headland, to the carpark at the northern end of Weld Road.

T+T Scope

NPDC previously engaged T+T to provide a coastal processes and effects assessment to inform an assessment of effects as part of the consent application for the RCE consent level design. NPDC also requested that a preliminary review of erosion hazard and overtopping be included within the coastal processes assessment in relation to the RCE consent level design, noting that site specific assessment would be required as part of detailed design. In accordance with the most recent letter of engagement dated 19 May 2023, this assessment has been updated to include reference to the bridge replacement works.

Erosion hazard

We understand from RCE that the proposed revetment is to be founded into Lahar material several metres below existing beach levels. Our review of historical information also indicates beach levels are likely to fluctuate in response to changes in stream channel alignment and sediment supply in the order of several metres, which also has implications for detailed design relating to the founding depth of structures (if a continuous founding layer of Lahar material is not encountered). As part of detailed design, a site-specific erosion assessment is recommended to inform the design of the ends of this structure, where they 'return' into the unprotected shoreline, and how these structures are terminated in a way that does not result in them becoming vulnerable following potential beach lowering or erosion.

Overtopping hazard

Overtopping typically occurs when high coastal water levels and large waves coincide, resulting in waves breaking over the structure and a pedestrian hazard. Long-term increases in this hazard are likely with sea level rise and beach level lowering. For medium levels of overtopping that have the potential to wash pedestrians off their feet, this assessment indicates the potential for such events as being unlikely under present day conditions. With beach lowering however, such events could occur in conjunction with 1 year ARI water level. Sea level rise by 2070 could result in such events occurring in conjunction with MHWS water levels. We understand that the width of the path has been designed to allow for the future raising of this structure to enable higher levels of service associated with overtopping if this is deemed necessary.

Effects

The potential effects from the proposed coastal walkway on coastal processes have been considered including effects on water levels, currents, sediment transport processes, shoreline changes and the local surf break. The level of effect has been determined by considering the likelihood and consequences of the works with the works found to have a low level of effect.

1 Introduction

1.1 Purpose

New Plymouth District Council (NPDC) proposes to construct a coastal walkway around the base of Weld Road Headland (Figure 1-2). NPDC engaged T+T to complete a coastal process assessment to support resource consent applications for these works.

Following a storm event in 2022, the footbridge above Whenuariki Stream was badly damaged. Accordingly, the scope of the proposal was expanded to include replacing Ahu Ahu Bridge. This coastal process assessment has been updated to include reference to the bridge replacement works (noting the bridge is above the stream and will not impact on coastal processes).

Weld Road Headland is approximately 10 km southwest of New Plymouth on the west coast of the North Island, New Zealand (Figure 1-1). The headland contains the Weld Road Reserve which is a popular area for walkers and bikers. On the eastern side of the headland was a footbridge which crossed the Whenuariki Stream and on the western side is the Weld Road bush track. The only access connecting the two walkways is via the beach route around the headland, however during some high tides the beach access way is unsafe for walkers and unfeasible for bikes.

Figure 1-1: Location of Weld Road Headland.

Figure 1-2: Oblique image of site (from Neeson, 2021).

The assessment includes the following scope of works:

- Background data assimilation.
- Coastal processes assessment including consideration of water levels, wind, and wave climate.
- Estimation of beach lowering and erosion.
- Consideration of overtopping with respect to 'fair-weather' amenity, in conjunction with sea level rise.
- Assessment of potential effects on the coastal environment in relation to a preferred NPDC solution.

1.2 Topography and datums

Lidar data captured in 2016 shown in Figure 1-3 shows the headland itself approximately 10 m above surrounding beach levels, with steep slopes descending along the coastal edge. All references to RL in this report are in metres and relate to the Taranaki Vertical Datum 1970. For reference a typical cross section is shown in Figure 3-5.

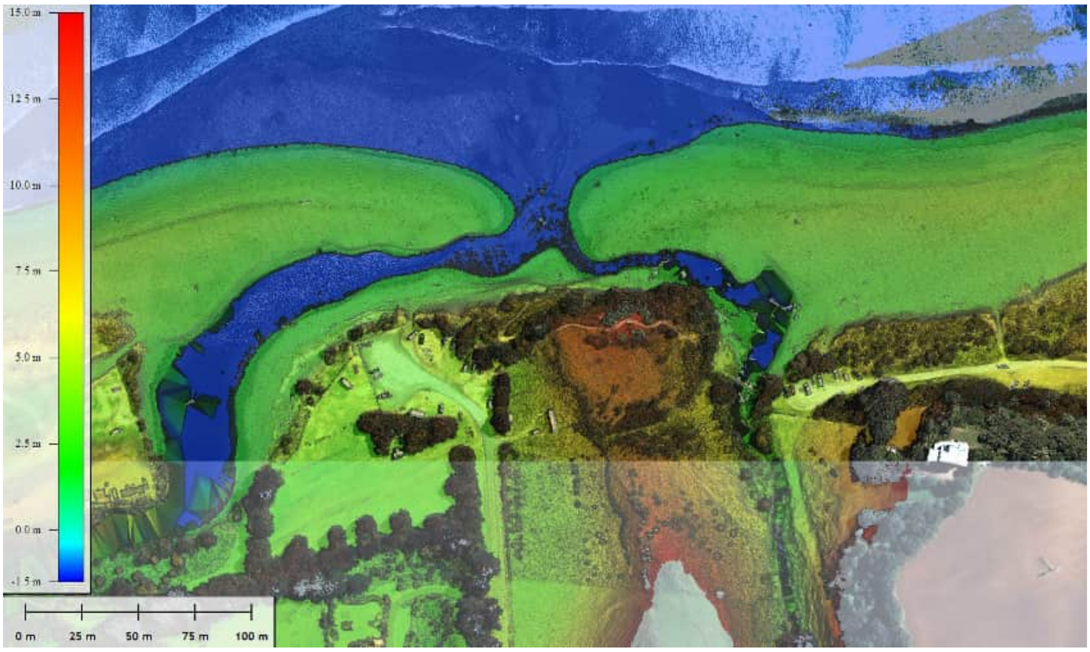

Figure 1-3: Lidar of the site and surrounding area.

1.3 Existing structures

Prior to the storm event in 2022, there was a swing bridge that crossed the Whenuariki Stream next to Weld Road (Figure 1-4). The footbridge was approximately 10 m long and joined onto the grass landing near the Weld Road Headland.

Figure 1-4: Before the existing bridge failure (left) and post-failure (right) (image from WSP, 2023).

2 Proposed development

2.1 Proposed shared pathway and revetment

Drawings of the proposed shared pathway and revetment have been prepared by T+T (Figure *2-1*). They indicate rock armour underlain by a granular underlayer and geotextile, placed on a slope not exceeding 1(V):1.5(H), or 30 degrees measured from horizontal, and keyed 1 m into lahar 'bedrock', which is assumed at 0 m RL. The upper part of the structure is placed over granular engineered fill as required. The crest of the rock revetment is at a height of 3.4 m RL (Reduced Level[1]). A 2 m wide concrete pathway will be embedded below the top of the rock armour directly adjacent to the crest of the rock revetment on the inland side at a height of 2.9 m RL. Overall, the structure measures approximately 12 m in width, over an alignment length of approximately 140 m.

2.2 Ahu Ahu Bridge

The replacement bridge will connect the reposed coastal rock revetment pathway on the western side of the Whenuariki Stream to Lower Ahu Ahu Road. WSP New Zealand Ltd (WSP) has provided a concept design for the proposed footbridge across Whenuariki Stream at the end of the Ahu Ahu Road (Figure 2-2). This indicates that earthworks will not change the eastern side of the existing stream.

WSP also provided concept options and sketches for the Ahu Ahu bridge replacement which are included as part of the resource consent application. Finalised detailed bridge designs will be provided at a later date by a bridge specialist company.

WSP's preliminary conceptual plans for the Ahu Ahu bridge replacement works includes increasing the bridges length (to approximately 21 metres) allowing the east abutment to be relocated approximately 1.5 m east of the original bridge.

Raising the abutments will require raised approaches to tie back into the car park (east end) and shared coastal pathway (west end). Based on a 1(V):9(H) gradient, this will require ramp lengths in the order of approximately 10 m (east) and approximately 19 m (west) to tie into existing levels. WSP has recommended boardwalk ramps (instead of earth ramps).

[1] The elevation of a point relative to the Mean Sea Level.

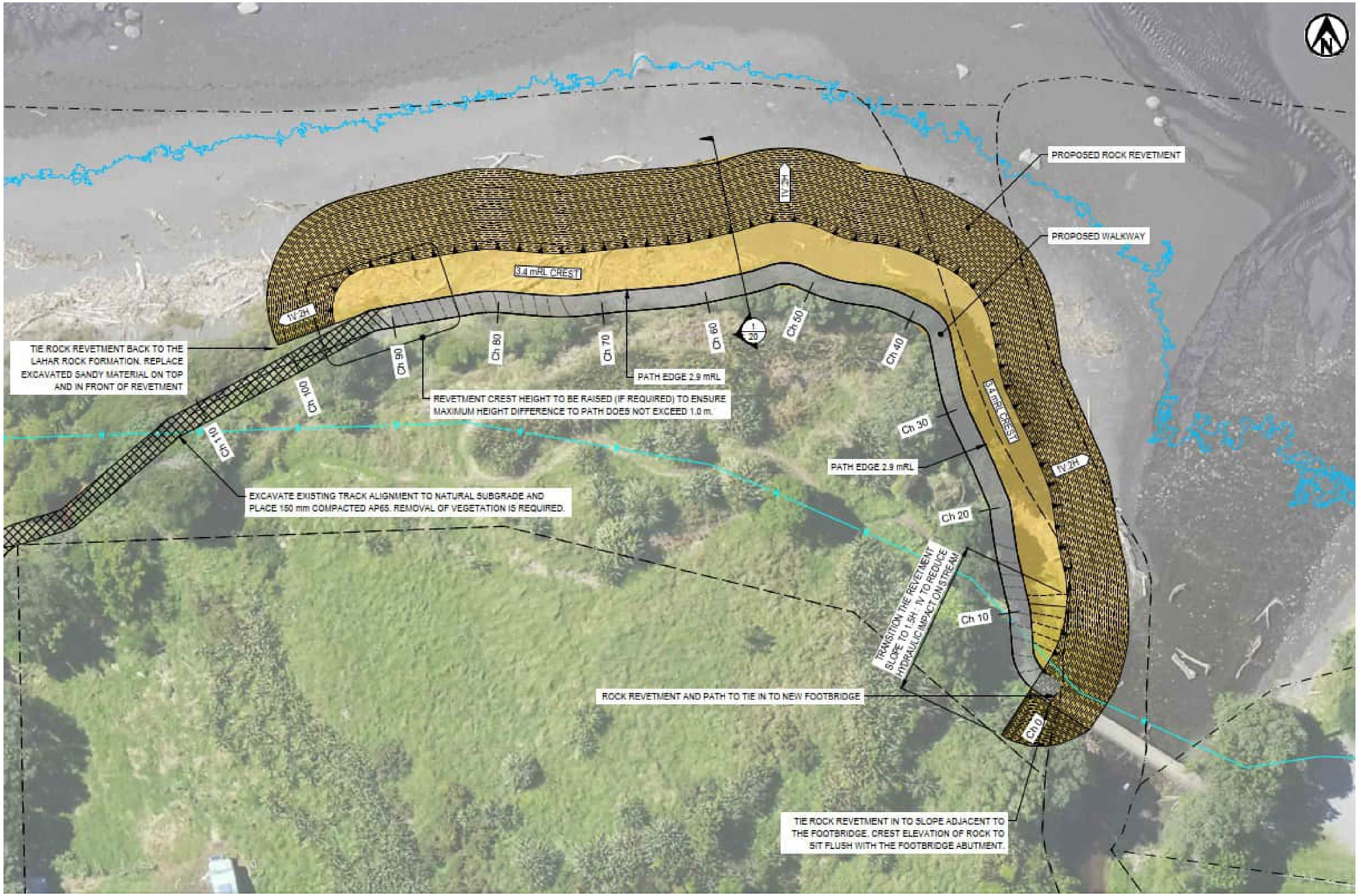

Figure 2-1: Shared pathway and revetment proposed concept design.

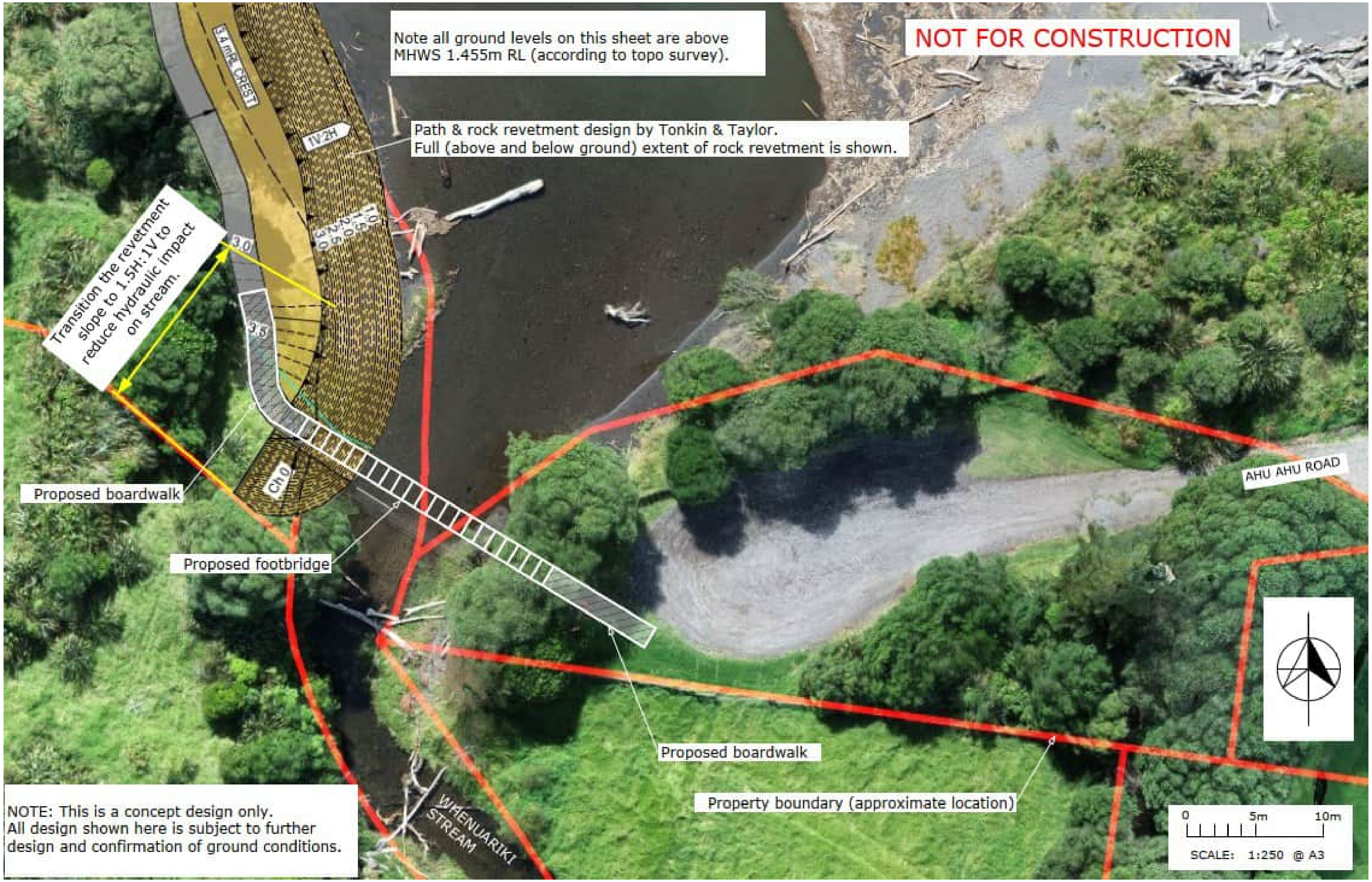

Figure 2-2: Proposed concept design.(Source: WSP footbridge concept design, dated 30/08/23).

3 Coastal processes

3.1 Wave climate

Waves approaching the Taranaki coast from the west are dominated by long period swell waves and locally generated storm waves. Based on T+T (2016) the deep water mean significant wave height (Hs) for the North Taranaki coast is 1.6 m, with swell waves (peak period of 11 to 13 s) occurring 40% of the time. As part of T+T (2016), MetOcean Solutions Ltd completed a detailed wave model using SWAN to assess the nearshore wave heights ('location 1' data closest to this site). The model included a 37-year wave hindcast from 1979 to 2015. Outputs from the model include wave heights at the 10 m depth contour calculated for different return period values. The calculated wave heights offshore from Weld Road are summarised in Table 3-1.

Table 3-1: Extreme wave characteristics for 10 m depth contour offshore from Weld Road (provided by MetOcean Solutions Ltd in T+T (2016))

ARI (years)	Hs (m)	Tp (s)
1	4.45	13.1
10	5.10	13.8
100	5.50	14.2

While the offshore wave climate is relatively large, wave focusing over shallow offshore reefs (Figure 3-1) result in wave breaking and energy dissipation that reduces wave heights that reach the coastal edge. Wave refraction is also likely to reduce wave heights as the they wrap around the reef northwest of Timaru Road.

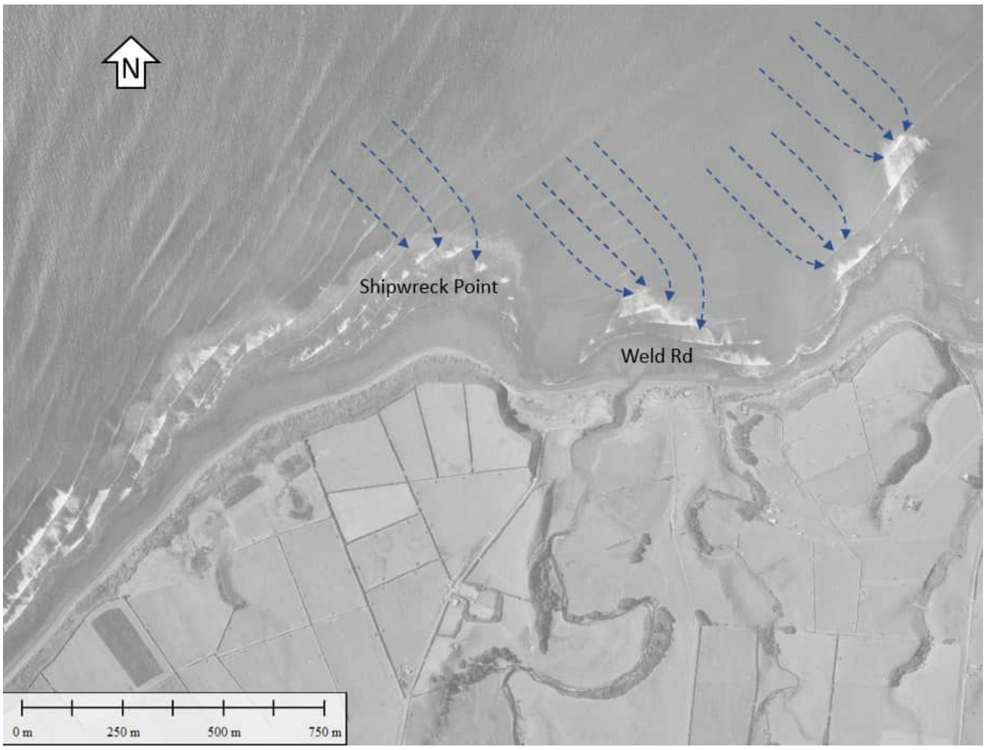

Figure 3-1 Wave focusing on offshore reefs and refraction (Crown photograph SN3232, 1970).

3.2 Water levels

Water level at any coastal location varies across a range of timescales. Key components that determine water level relevant to a coastal hazard assessment are:

- Astronomical tide.
- Barometric and wind effects, generally referred to as storm surge.
- Medium term fluctuations, including El Niño–Southern Oscillation (ENSO) and Interdecadal Pacific Oscillation (IPO) effects.
- Long-term changes in sea level due to climate change.
- Wave breaking contributing to water level through wave setup and run-up.

3.2.1 Astronomical tide

Tides along the NPDC coast are semi-diurnal with fortnightly spring-neap cycles and monthly perigean – apogean cycles apparent. Tides for Port Taranaki are presented in Table 3-2 and show the mean spring tide range is 3.26 m or 1.62 m above MSL.

Table 3-2: Astronomical tidal levels at Port Taranaki (T+T, 2018)

Tide stage		Level (m)		
		CD[1]	TVD-70[2]	NZVD-16[3]
HAT	Highest Astronomical Tide	3.88	2.065	1.775
MHWS	Mean High Water Spring	3.56	1.745	1.455
MHWN	Mean High Water Neap	2.77	0.955	0.665
MSL	Mean Sea Level	1.94	0.125	-0.165
MLWN	Mean Low Water Neap	1.08	-0.735	-1.025
MLWS	Mean Low Water Spring	0.29	-1.525	-1.815
LAT	Lowest Astronomical Tide	-0.05	-1.865	-2.155

[1] Chart Datum at Port of Taranaki defined at 2.065 m below TVD-70.

[2] Taranaki Vertical Datum 1970.

[3] New Zealand Vertical Datum 2016. Offset of 0.29 m from TVD-70 applied based on LINZ conversion.

3.2.2 Storm surge

Storm surge results from the combination of barometric setup from low atmospheric pressure and wind stress from winds blowing along or onshore which elevates the water level above the predicted tide (Figure 3-2). The combined elevation of the predicted tide and storm surge is known as the storm tide. Storm-surge applies to the general elevation of the sea above the predicted tide across a region but excludes nearshore effects of storm waves such as wave set-up and wave run-up at the shoreline.

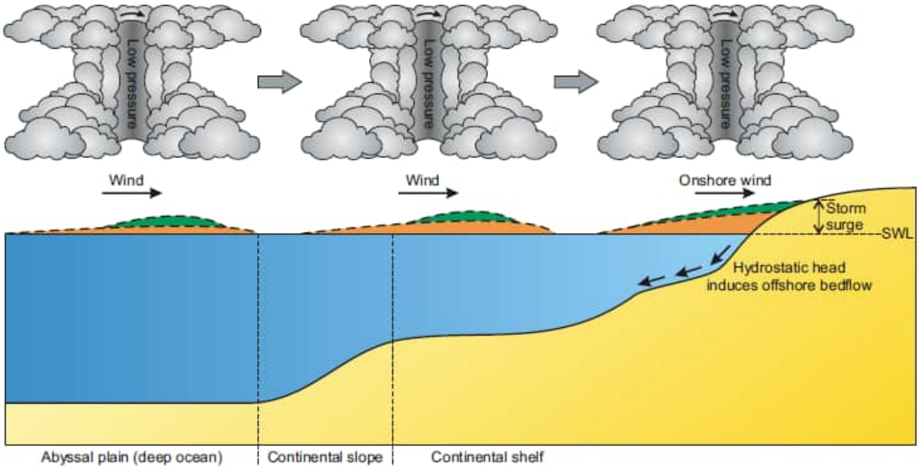

Figure 3-2: Processes causing storm surge (Source: Shand, 2010).

As part of the district-wide coastal inundation assessment, T+T (2016) assessed the extreme static water level at select locations along the coast. The assessment was based on wave and storm tide data sourced from MetOcean Solutions Ltd for the period 2002 to 2016. A summary of the storm tide levels relevant to Weld Road is provided in Table 3-3.

Table 3-3: Extreme storm surge and storm tide levels including wave setup for Port Taranaki (T+T, 2016)

ARI (years)	Surge (m MSL)	Storm tide level (NZVD-16)[1]
1	0.52	1.76
10	0.69	1.92
100	0.86	2.05

[1] Levels based on T+T (2016) with offset of 0.29 m applied to compare relative to NZVD-16.

3.2.3 Wave effects

Waves can both super-elevate the mean water level during the breaking process (termed wave setup) and cause impulsive damage due to momentum (termed wave run up). Wave set-up is a super-elevation of the mean water surface over normal 'still' water level due to wave action alone. Following wave breaking, on-shore directed momentum flux or radiation stress is induced due to dissipation of wave energy. To balance this momentum flux, a pressure gradient is created by elevation of the water level. Water level is highest at the beach face, and drops towards the break point, creating an offshore gradient (Figure 3-3).

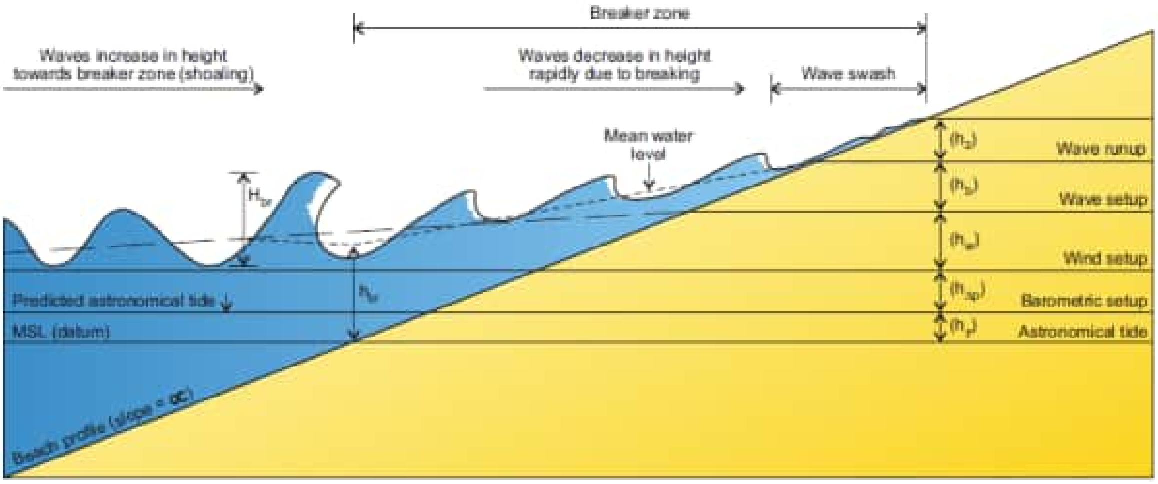

Figure 3-3: Schematic diagram showing components of wave set-up and run-up (Frisby and Goldberg, 1981).

Wave run-up occurs as waves travel across the surf zone and are then carried by momentum above the still water level until such forces are exceeded by gravity. Coastal run-up hazard differs from static flooding as run-up is a dynamic process. An incident wave running up the shoreface reaches a maximum potential height at the coastal edge before decreasing with distance inland due to friction and energy loss. It is therefore not recommended to use wave run-up when determining areas subject to static coastal inundation.

3.2.4 Sea level rise

Historical SLR in New Zealand has averaged 1.7 ± 0.1 mm/yr with Taranaki exhibiting a slightly lower rate of 1.5± 0.1 mm/yr (Bell and Hannah, 2012). Climate change is predicted to accelerate this rate of SLR into the future.

The Ministry for the Environment (2017) guideline recommends four SLR scenarios to cover a range of possible sea-level futures. The scenarios are based on the most recent IPCC report (IPCC, 2013) (Figure 3-4). Three of the scenarios (RCP2.6, RCP4.5, RCP8.5) are derived from the median projections of global SLR for the RCPs presented by the IPCC in its Fifth Assessment Report (IPCC, 2013). The fourth scenario, NZRCP8.5H+ is at the upper end of the 'likely range' (83rd percentile) of SLR projections based on RCP8.5. This higher scenario is representative of a situation where more rapid rates of SLR could occur early next century due to dynamic ice sheet processes and instability thresholds that were not fully quantified in the IPCC AR5 projections (MfE, 2017).

For this assessment NPDC requested in 2021 that we consider an RCP 4.5 (mid-range) sea level rise scenario extending to 2070. This considers that this path is a 'fair-weather' amenity, and not relied upon for life-line access, with a design life of less than 50 years, and potential asset relocation considered amongst future adaptation management options beyond 2070.

Extreme water levels, coastal erosion and overtopping in this report has been based on APCC AR5 scenarios.

More recent guidance from the Ministry for the Environment (2022) is based on the concept of Shared Socio-Economic Pathways (SSPs). There are five emission scenarios starting in 2015: High and very high emissions (SSP3-7.0 and SSP5-8.5): intermediate emissions SSP2-4.5 and very low and low emissions (SSP1-1.9 and SSP1-2.6). The SSPs were developed to describe five broad narratives for future socio-economic development that span a wide range of plausible societal and climatic futures from below 1.5C to over 4°C by 2100. Although the AR6 scenarios are defined differently to AR5 scenarios, corresponding colouring has been added to assist with broad comparison in Figure 3-4.

This comparison indicates approximately similar projected sea level rise values between AR5 and AR6 projections.

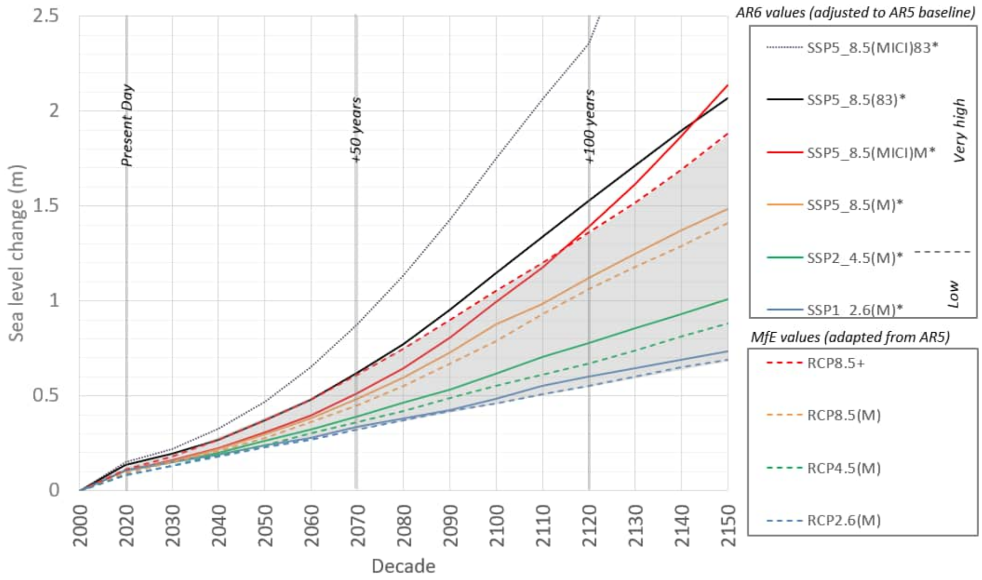

Figure 3-4: Comparison between AR5 and AR6 sea level rise projections.

MfE (2022) recommends consideration of vertical land movement (VLM), such as tectonic uplift or subsidence, as changes in land level can accelerate or decelerate the local effects of a rise in absolute sea level. The NZ SeaRise data shows negligible rates of VLM (~0.1 mm/year) near the proposed site (ref 2735), and therefore no correction has been applied to SLR projections to account for VLM.

Noting the similarities between AR5 and AR6 in Figure 3-4 and negligible VLM for this location, we consider our assessments of erosion and overtopping (Sections 4 and 5 of this report) under the AR5 scenarios to be adequate for the purposes of this coastal process effects assessment.

3.2.5 Extreme water levels

Extreme static water level is the combination of storm tide, wave setup and sea level rise. A summary of the present day and future (2065) extreme static water levels, based on T+T (2016) is provided in Table 3-4.

Table 3-4: Summary of present day and future extreme static water levels (m rel. to NZVD-16)

	Present day 2020 water level (NZVD-16) N/A	2070 water level (NZVD-16) Associated with a range of SLR scenarios			
		RCP2.6	**RCP4.5**	**RCP8.5**	**RCP8.5+**
SLR relative to 2020 MSL (m)	***0***	*0.24*	*0.28*	*0.36*	*0.5*
MHWS	**1.46**	1.7	1.74	1.82	1.96
1 year ARI	**1.76**	2	2.04	2.12	2.26
10 year ARI	**1.92**	2.16	2.2	2.28	2.42
100 year ARI	**2.05**	2.29	2.33	2.41	2.55

3.3 Sediment transport

Sand and gravel is present along much of surrounding coastline, though levels fluctuate depending on sediment supply. In 1998 a landslide on the side of Mount Taranaki resulted in a massive injection of sand and gravel directly into the Stony River which resulted significant volumes of sediment being delivered to the coast. Since 1998 sandy sediment derived from the Stony River has been moving north as a thinning wedge of sediments extending up to 16 km north of Stony River (T+T, 2016).

The Weld Road Headland is approximately 11 km northeast from the Stony river and is characterised by sand overlaying boulders. The dominant direction of littoral drift along this section of coast is towards the northeast.

In addition to Stony River, there are multiple rivers and streams between Weld Road and Stony River which also discharge sediment to the coast. The two local streams, Timaru and Whenuariki are likely to contribute sediment as well as influencing the beach levels along the Weld Road Headland.

3.3.1 Beach levels

Photographs provided by Neeson (2021) indicate the Ahu Ahu and Weld Road beaches were devoid of sand and characterised by boulders in the 1950s. The 1964 photographs indicate some sand accretion, which is even more apparent in the 1970s and 1980s.

Based on observations provided by Neeson (2021) and comparison of satellite imagery it is apparent that the stream mouths each side of the headland fluctuate over time and this significantly influences the surrounding beach levels (Figure 3-5 and Figure 3-6). Figure 3-5 shows that during the 2020 survey, the Whenuariki Stream mouth wrapped around the toe of the headland, whereas during the 2021 survey the Whenuariki Stream was discharging on a northward orientation. This indicates that depending on where the stream mouth is positioned, the bed levels around the headland can show up to 3 m variation.

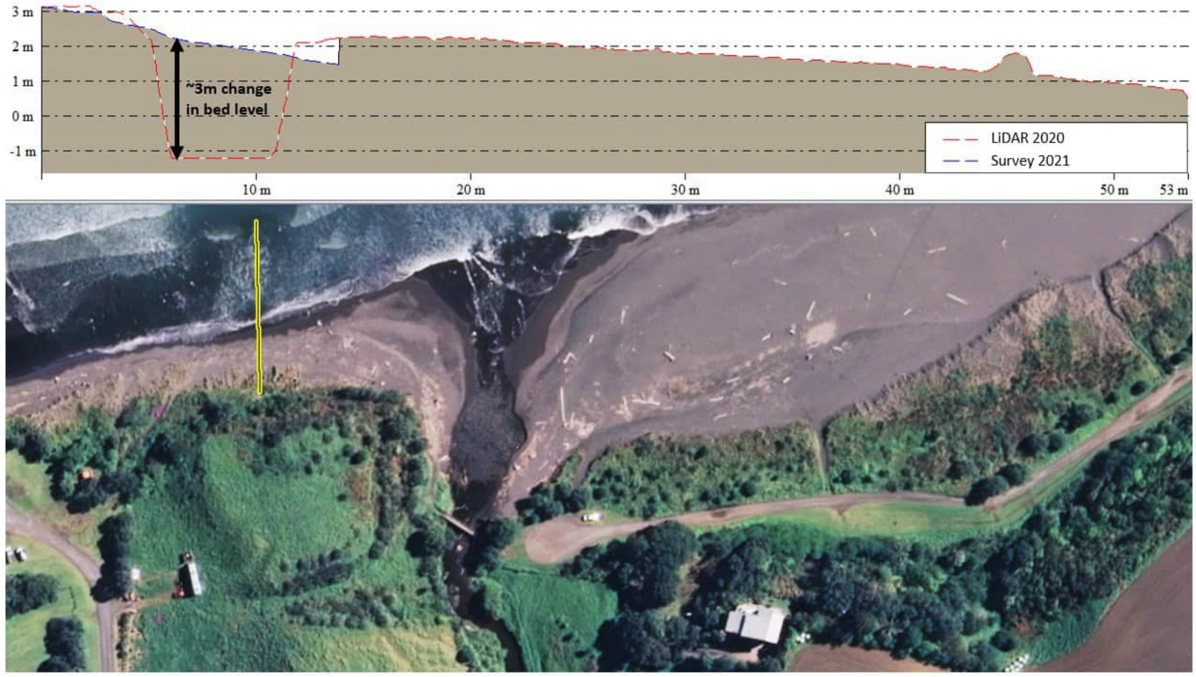

Figure 3-5: Cross-section through the 2020 and 2021 elevation survey showing the change in bed level in front of the headland as the stream channel shifts position (Imagery 2021).

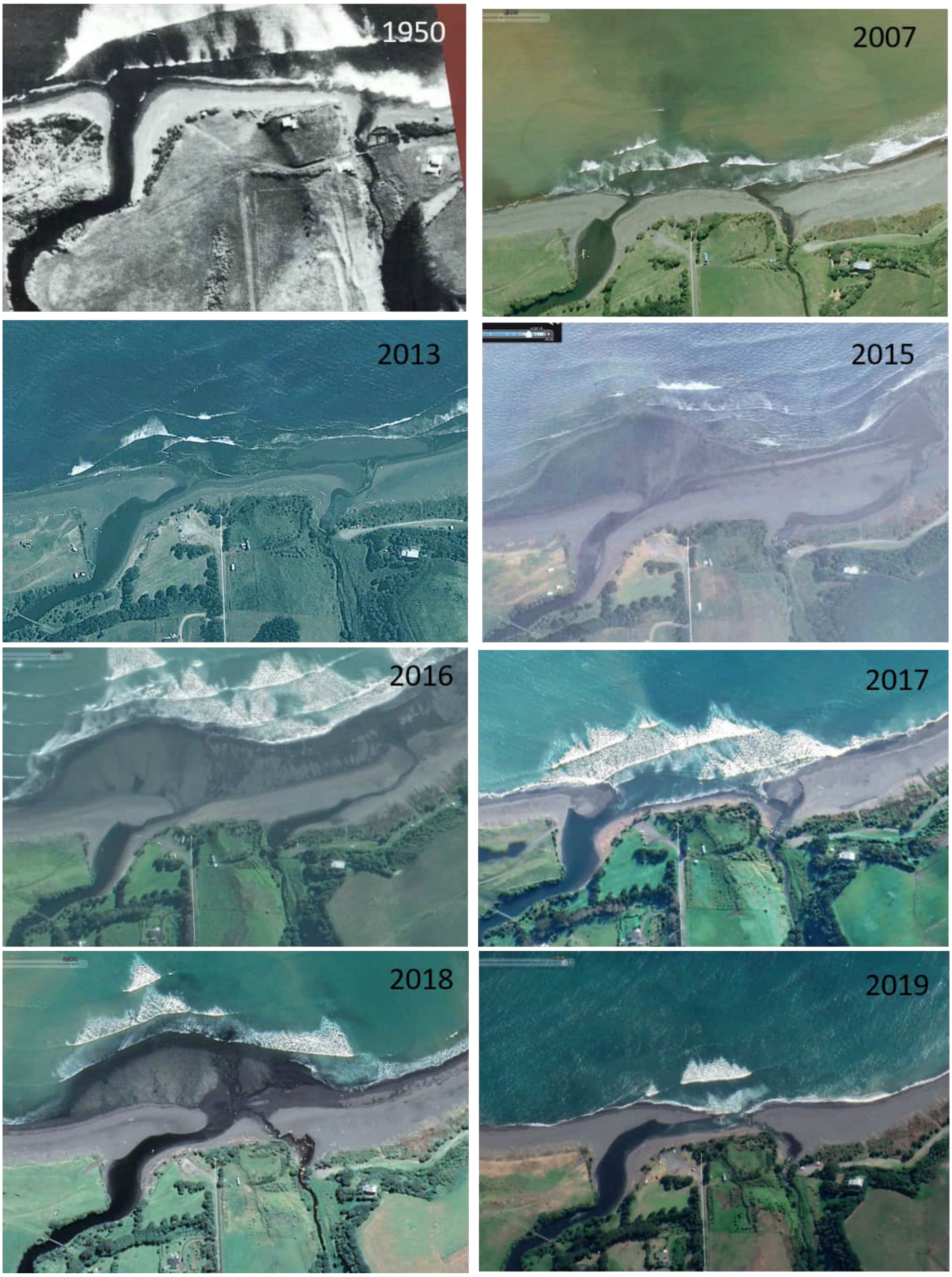

Figure 3-6: Aerial and satellite imagery (sourced from Google Earth) showing the fluctuations in stream mouth positions.

4 Coastal erosion

T+T (2019) completed a first-pass regional coastal erosion assessment to identified areas potentially susceptible to coastal erosion along the New Plymouth district coastline. The desktop assessment was based primarily on previous assessments, historical shoreline data, bathymetry, and topographic data. A conceptual model based on industry best-practice was adopted for assessing the erosion susceptibility. The model consisted of four, essentially independent, components:

1 Long-term shoreline trends.
2 Short-term shoreline fluctuations (only applicable to unconsolidated shorelines).
3 Shoreline response to sea level rise (SLR).
4 Slope stability.

As this was a first-pass assessment, high-end values were selected for each component within each coastal cell. The outputs from the assessment consisted of three lines which define the following:

- Current Areas Susceptible to Coastal Erosion (ASCE), defining the area currently susceptible to coastal erosion.
- Future ASCE1, defining the future (2130) area susceptible to coastal erosion excluding the effects of projected sea level rise.
- Future ASCE2, defining the future (2130) area susceptible to coastal erosion including the effects of projected future sea level rise.

The resulting ASCE lines were intended to be conservative as this approach is consistent with NZCPS (2010) Policy 24 which requires: the identification of areas that are potentially affected by coastal erosion hazards giving priority to high-risk areas. The Weld Road Reserve is one area that has been identified as being at risk to coastal erosion. In the first-pass assessment the site of interest is referred to as *Cell 1, Stony River to Weld Road.* A summary of the resulting ASCE distances is provided in Table 4-1 and a map of the ASCE at Weld Road Reserve is shown in Figure 4-1. The resulting ASCE are representative for the unconsolidated dunes and include an allowance for 18 m storm cut.

Table 4-1: Summary of ASCE outputs for Stony River to Weld Road (T+T, 2019)

Cell No.	ASCE	$ASCE_1$	$ASCE_2$			
	2030 Current (m)	2130 No SLR (m)	2130 RCP2.6 (m)	2130 RCP4.5 (m)	2130 RCP8.5 (m)	2130 RCP8.5H+ (m)
1	-28	-28	-33	-34	-40	-44

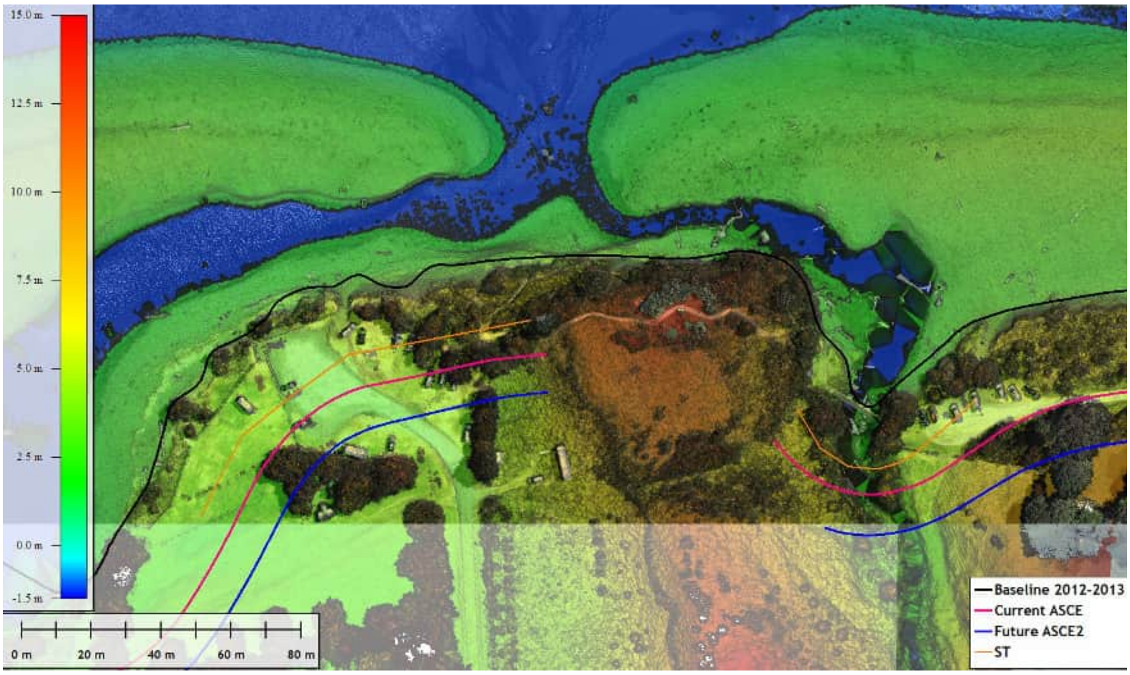

Figure 4-1: Areas Susceptible to Coastal Erosion (ASCE) at Weld Road Reserve (orange line 'ST' shows 18 m storm cut component for dune area).

While the hazard lines shown in Figure 7.1 are useful when understanding erosion within unconsolidated beach materials (e.g., sand and gravels) in front of and each side of the headland, it is not appropriate for the geology of the headland itself. As part of detailed design, a site-specific erosion assessment is recommended to inform the design of the ends of this structure, where they 'return' into the unprotected shoreline, and how these structures are terminated in a way that does not result in them becoming vulnerable following potential beach lowering or erosion.

5 Wave overtopping

Wave overtopping of the proposed rock revetment structure was assessed using the Overtopping Neural Network (Deltares, 2021). Overtopping of the rock revetment is measured as a volume discharge in litres per second per linear metre across the structure, with periodic larger volumes associated with individual waves overtopping the structure. Tolerable overtopping limits have been based on guidance from EurOtop (2018) and the Coastal Engineering Manual (USACE, 2006). Critical average overtopping discharges and their potential consequence are shown in Table 5-1 below.

Table 5-1: Critical average discharge values for assessing overtopping hazard (USACE, 2006)

Overtopping rate (l/s/m)	Consequence	Description
< 1	Low	Possible pedestrian hazard, some scattering of debris.
1-20	Medium	Very dangerous to pedestrians on crest, damage to exposed surfaces seen.
20-50	High	Large amounts of debris seen over crest, damage to fences, signposts, etc.
50 +	Extreme	Damage to paved surfaces behind crest, possible damage to crest of revetment.

Overtopping has been considered based on 1 year ARI wave heights (Section 3.2.3). In all instances considered, wave heights were considered to be depth limited (taken as 60% of the water depth) to an eroded beach level of 0 m RL. Due to depth limited effects on wave heights, we note little material difference between 1 year and 10 year ARI design wave heights with respect to overtopping discharge. Thresholds of 1 l/s/m associated with pedestrian safety has been agreed with NPDC as appropriate, considering:

- Good visibility of potential approaching waves from the path.
- Cyclists will dismount.
- A wide crest width that separates the path from the sloping face of the revetment that minimises risk of falling.
- The low reliance of this track due to road access at each end.
- The use of this as a ‘fair-weather’ amenity with no use during bad weather.
- The intention to erect appropriate signage and public information.

The design crest level has been considered in relation to the present day and 0.3 m of sea level rise (2070 RCP 4.5 scenario). While the permeable crest level (the top surface of armour rock) is not confirmed in the concept design, this assessment has allowed for 0.4 m above the level of the path in the absence of specific design information. This assessment has been under the condition of depth limited waves over a range of design water levels presented in the following Table 5-2):

- The present day (2020) existing beach levels.
- The present day (2020) with lowered beach levels.
- 2070 with lowered beach levels.

Table 5-2: Preliminary assessment of overtopping (average discharge in l/s/m)

Consent level design crest level 3.4 m RL	2020	2020 with lower beach levels	2070 with lower beach levels
MHWS	< 1	< 1	1-20
1 year ARI water level	< 1	1-20	1-20
10 year ARI water level	< 1	1-20	20-50
100 year ARI water level	< 1	1-20	50 +

Medium levels of overtopping have the potential to wash pedestrians off their feet. This assessment indicates the potential for such events to be unlikely under present day conditions. With beach lowering, such events could occur in conjunction with 1 year ARI water level. Sea level rise at 2070 could see these events in conjunction with MHWS water levels.

During larger swell/storm events, high levels of overtopping can result in damage to surfacing on the footpath or structures such as signposts, balustrades, seating areas etc. and deposition of debris such as driftwood logs. Extreme levels of overtopping can result in the displacement of armour material along the crest of the structure. This assessment indicates the likelihood of this occurring to be limited to particularly rare severe events resulting in water levels equivalent to the 100-year ARI levels with both beach lowering and sea level rise at 2070.

We understand that the width of the path anticipates future raising of this structure may be necessary to enable higher levels of service associated with overtopping. This overtopping assessment is sensitive to structure geometry and will require updating as part of detailed design.

6 Surf break

Information on the surf break was collected from a recent drone survey, historical imagery and through consultation with two surfers who have lived in the area for more than 20 years. Based on this information, Figure 6-1 provides shows the various names used to typically describe local waves, common access routes to and from the water's edge, and common 'paddle out' points.

The surf break at Weld Road is used by a wide range of board sports that include surfers, kite surfers and wind surfers. This wave is favoured for its protection from prevailing southwest winds and offshore conditions around these times. The wave is mostly surfed on mid to low tides, and as wave heights increase and the breaking extent enlarges offshore, the majority of waves ridden become 'reformed' waves.

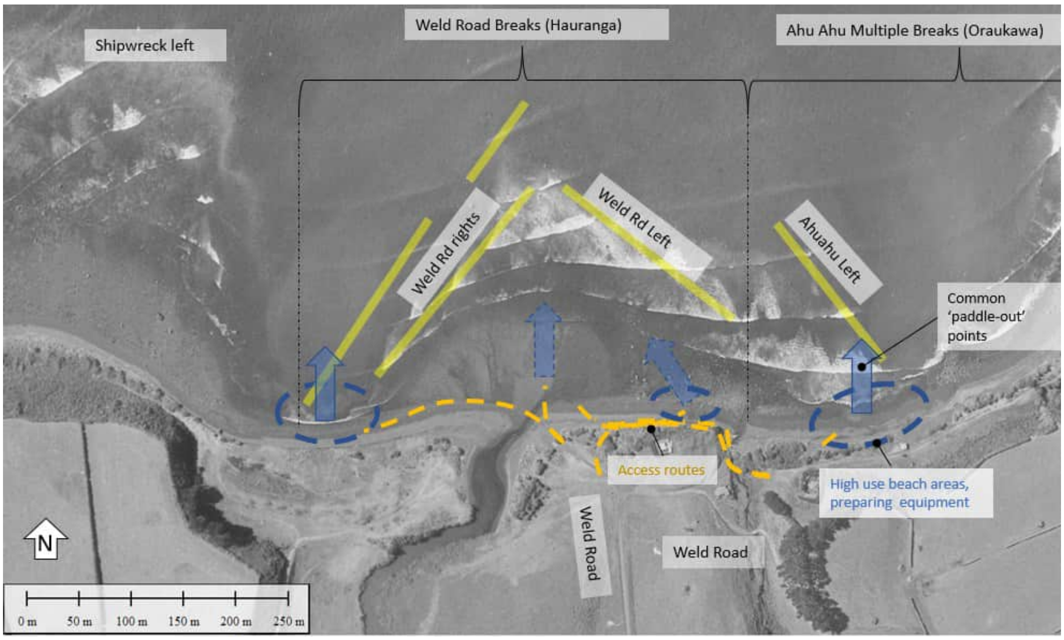

Figure 6-1 Weld Road (Hauranga) and Ahu Ahu (Oraukawa) surf breaks.

Physical elements contributing to the use and enjoyment of the Weld Road surf break have been set out in the Appendix A. These have been based on a combination of those provided in literature (Atkin, 2018, Shand et al.,2019)), and feedback from local surfers on Weld Road specifically (undertaken on 17 November 2021).

Three key potential effects discussed in this assessment related to the potential for:

- Wave reflection from the proposed revetment structure affecting the smoothness of face and ride length for small swell days on Weld Road Left (Yellow area in Figure 6-1). The likelihood of this was considered to be low as the proposed structure is likely to be largely covered with sand, and if exposed the rock surfacing is considered less reflective than the Lahar cliff behind it.
- Disruption of present-day high tide beach access for surfers between each side of the headland (yellow dash lines in Figure 6-1). It was noted that allowing for access point(s) onto this structure had the potential to enhance access to and from the water.
- Adverse effects on the look and feel of the break if material used to construct the structure were not in keeping of the local geology and coastal setting. It was noted that an elevated viewing platform (i.e., from the proposed pathway) could enhance the look and feel of this break.

7 Coastal effects assessment

This section discusses potential coastal effects from the proposed development (Section 2), based on our understanding of coastal processes, erosion, overtopping and the surf break (Sections 3 through 7 respectively).

Noting typical present day beach levels along the toe of the proposed structure of around 2 m RL, exposed parts of the structure are expected to be generally above MHWS (1.75 m RL). Potential beach lowering in the future could see more of this structure exposed. In this instance, a landward shift in the MHWS position could result in parts of this structure falling within the upper intertidal portion of the beach profile.

The proposed work involves the occupation of a natural mixed sand gravel beach area with a formed structure. This section considers potential effects arising from coastal processes that may be affected by engineering works where these are interrupted, changed, amplified, or reduced. The level of effect has been derived in a similar manner to those outlined in NZTA (2017). The risk level for an identified coastal environmental effect is determined by combining the likelihood and consequence rating using the risk matrix, reproduced from NZTA (2017) in Table 7-1. *Consequences are indicated in italics*, ***likelihood in bold italics*** and ***level of effect underlined***.

Table 7-1 Risk level matrix (reproduced from NZTA, 2017)

		CONSEQUENCE		
		Low	Medium	High
LIKELIHOOD	Unlikely	Low	Moderate	High
	Likely	Low	Moderate	High
	Very likely	Moderate	High	High

7.1 Water levels

Water levels upstream of works may be affected to a small degree by potential constriction of the Whenuariki Stream due to encroachment of the structure. Increased tailwater levels can also raise river levels upstream, noting no apparent structures upstream. As indicated in Figure 3-6, the stream alignment is dynamic and has freedom to move to the east as it has done naturally in the past, minimising potential consequence of these effects.

Consequences of potential small changes in water level in the Whenuariki Stream are considered to be of low consequence, ***an unlikely occurrence, and a low effect****.*

7.2 Surf break

Rock structures may cause reflection of waves offshore from the structure, or onto adjacent areas, or may block waves from reaching other areas. A surf break is situated offshore from this site.

The particular surf break is identified as a surf break of regional significance and is considered a valuable community amenity and reflection effects would be regarded as having a medium consequence. ***Given the proposed rock revetment will be less reflective than the existing lahar cliff due to the sloping face of the structure and the irregular rocky and permeable surface, the likelihood of reflection affecting the surf break is considered to be low. The level of this effect is therefore considered as low.***

Interrelated effects between waves and sediment process changes are discussed in Section 7.4.

7.3 Currents

Tidal and riverine currents may be reduced, concentrated, or deflected by barriers to flow. Constriction of Whenuariki River flows due to the structure has the potential for short-duration small (low) increase in stream currents adjacent to eastern end of the proposed revetment, typically only following large rainfall events. As indicated in Figure 3-6, the stream alignment is dynamic and has freedom to move to the east as it has done naturally in the past, minimising potential consequence of these effects.

Effects are considered to have low consequence on account of the erodibility of materials in the adjacent channel, ***likely to occur,*** ***and a low effect.***

7.4 Sediment process changes

Changes to hydrodynamic processes such as waves and currents may change sediment processes resulting in scour or erosion or accretion. Examples include scour in front of coastal protection, or erosion due to 'end effects' (sediment confinement by the structure). Accretion may also occur where additional shelter from wave action is provided.

Potential effects above background erosion/sedimentation dynamics:

- *Scour along the toe of the structure (relating to wave reflection discussed separately above) is regarded of no consequence,* ***likely to occur,*** ***and a low effect.***
- *Sediment and debris (driftwood etc.) deposition may periodically occur around the eastern extent of this structure if additional shelter from wave action is provided by the structure, particularly following large storm events when high coastal water levels occur. This is regarded of low consequence (riverine flows, amenity) as this sediment is also likely to be removed again through erosion by river discharge associated with similar storm events.* ***This is regarded as being unlikely,*** ***and a low effect.***
- *As indicated in Section 7.3, constriction of river flows and increased currents has the potential for down-cutting of more erodible materials east of the structure, resulting in potential channel realignment. These effects are expected to be comparably less than existing natural river channel dynamics observed in* Figure 3-6 *and of low consequence,* ***likely in occurrence,*** ***and a low effect.***

7.5 Shoreline change

This structure can protect landward areas from erosion and resulting shoreline change. Additional changes to the hydrodynamic and sediment processes described above such as 'end effects' can also change the shoreline position in surrounding areas due to the displacement and/or confinement of natural beach material. This can result in changes to the position of mean high-water spring or other feature (i.e., the vegetation line).

This structure will likely reduce erosion of areas landward of the structure.

*Shoreline change of the surrounding area due to end effects has also been considered. Shoreline change around the high amenity parking area and footbridge access point approximately 50 m to the east is considered to be of medium consequence****. These effects are regarded as unlikely due to the corresponding small amount of existing beach material confined beneath the structure and the hard nature of the rocky headland behind the structure*** ***and a low effect.***

7.6 Summary of effects

Table 7-2 provides a summary of the effects noted and the relative significance/importance of these effects. Potential effects of the proposal on coastal processes in a similar manner to those outlined in NZTA (2017) as discussed above.

Table 7-2: Assessment of level of effect of the proposal

Potential effect considered	Consequence	Likelihood	Level of effect
Water levels	Low	Unlikely	Low
Surf break	Medium	Unlikely	Low
Currents	Low	Likely	Low
Sediment process change	Low	Likely	Low
Shoreline change	Medium	Unlikely	Low

8 Conclusions

Erosion hazard

We understand from RCE that the proposed revetment is to be founded into Lahar material several metres below existing beach levels. Our review of historical information also indicates beach levels are likely to fluctuate in response to changes in stream channel alignment and sediment supply in the order of several metres, which also has implications for detailed design relating to the founding depth of structures (if a continuous founding layer of Lahar material is not encountered). As part of detailed design, a site-specific erosion assessment is recommended to inform the design of the ends of this structure, where they 'return' into the unprotected shoreline, and how these structures are terminated in a way that does not result in them becoming vulnerable following potential beach lowering or erosion.

Overtopping hazard

Overtopping typically occurs when high coastal water levels and large waves coincide, resulting in waves breaking over the structure and a pedestrian hazard. Long-term increases in this hazard are likely with sea level rise and beach level lowering. For medium levels of overtopping that have the potential to wash pedestrians off their feet, this assessment indicates the potential for such events as being unlikely under present day conditions. With beach lowering however, such events could occur in conjunction with the 1-year ARI water level. Sea level rise by 2070 could result in such events occurring in conjunction with MHWS water levels. We understand that the width of the path has been designed to allow for the future raising of this structure to enable higher levels of service associated with overtopping if this is deemed necessary.

Effects

The potential effects from the proposed coastal walkway on coastal processes have been considered including effects on water levels, currents, sediment transport processes, shoreline changes and the local surf break. The level of effect has been determined by considering the likelihood and consequences of the works with the works found to have a low level of effect.

9 Applicability

This report has been prepared for the exclusive use of our client New Plymouth District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Taranaki Regional Council and New Plymouth District Council as the consenting authorities will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

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Appendix A Surfbreak consultation

Physical elements defining the use and enjoyment of a surf break	General description of ways by which surf breaks may be affected	Likelihood at Weld Road	Level of effect at Weld Road	Options to reduce level of effect	Level of effect with mitigating options
Incoming swell energy	Controlled by swell corridor affecting energy reaching break. Can be affected by an offshore obstacle or change in seabed.	NA	NA	NA	NA
Incoming wave form	Controlled by offshore and nearshore bathymetry prior to breaking. Can be affected by change in seabed.	NA	NA	NA	NA
Breaking point/type	Dependent on seabed morphology at breakpoint and offshore pre-conditioning (refer incoming wave form).	NA	NA	NA	NA
Smoothness of face	Affected by wind, reflected waves, prior breaking inducing decomposition, irregularity in seabed.	Low. Not typically surfed on north swells when water levels are typically high enough for wave reflection to occur. When upper beach levels have been higher wave reflection has not been noticeable.	Low	None suggested	Low
Ride line/length	Affected by structures or other objects in the ride line or change in bathymetry along ride line.				
Currents	Can be affected by surf zone circulation, modification of tidal flows.	NA	NA	NA	NA
Access onto foreshore	Interruption of access between backshore (or arrival) and the foreshore (of surf access).	High. Reduces high tide beach width.	Low	Multiple entry and exit points onto/off	Low

Physical elements defining the use and enjoyment of a surf break	General description of ways by which surf breaks may be affected	Likelihood at Weld Road	Level of effect at Weld Road	Options to reduce level of effect	Level of effect with mitigating options
Access along foreshore	Interruption of safe access along the foreshore.			walkway structure.	
Access into/out of surf	Interruption of safe access into/out of water.	High	Low	None suggested	Low
Water quality	Can be affected by discharges into the CMA.	NA	NA	None suggested	NA

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Appendix H Landscape and Visual Effects Assessment

Weld Road Reserve Coastal Shared Pathway and Swing Bridge

For NPDC

Landscape and Visual Effects Assessment

September 2023

Te Kaunihera-ā-Rohe o Ngāmotu
New Plymouth
District Council

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1 INTRODUCTION

New Plymouth District Council (NPDC) landscape architect (planning and design lead), Renée Davies has undertaken a Landscape and Visual Effects Assessment for the proposed coastal shared pathway and associated reinstated swing bridge at and around the headland of Weld Road Reserve, Oākura, New Plymouth. NPDC is the applicant for the resource consent, however Renée has been involved in numerous site visits and undertaken community consultation in relation to the site and proposed development and therefore is well placed to be able to document and assess the visual and landscape effects of the proposal.

The proposal includes:

- Construction of 140m of rock sea wall;
- Removal of approximately 240 m2 of mixed native/exotic treeland, grassland and dune land vegetation for the pathway construction;
- A 2m wide concrete pathway at crest of seawall and 12 total width of walkway and rock revetment; and
- 1,150m^3 of earthworks including fill volumes of approximately 230m^3.
- Replacement of the Ahu Ahu bridge extending over Whenuariki Stream and connecting Ahu Ahu Road to Weld Road Reserve.
- Removal/or trimming of approximately 28 m2 of mixed native/exotic treeland, and removal of 150 m2 grassland and shrubland and potentially some dune land vegetation for the bridge replacement construction (70m2 on the western bridge side and 80m2 on the eastern);

1.1 Purpose of the Report

The purpose of this report is to provide a landscape and visual effects assessment of the proposed new coastal shared pathway and swing bridge reinstatement situated at the end of Ahu Ahu Road and Weld Road Lower, within the coastal environment and at the base of Weld Road Reserve. This report will focus on the visual and landscape impact of the proposed development in relation to the site's location within a coastal zone and adjacent to a waahi taonga site as identified under the New Plymouth Operative (ODP), Proposed District Plan (PDP) and the Regional Coastal Plan for Taranaki (CPT).

1.2 Proposal

The site is located at the end of both Ahu Ahu road and Lower Weld Road and adjacent to Weld Road Reserve.

Weld Road Reserve forms a small section of approximately 160m within a broader walking network that includes both formed and informal sections along this coastline.

It connects to a paper road access from Weld Road that crosses the Timaru Stream bridge and connects with Timaru Road lower. This walkway is used by both pedestrians and cyclists. Pedestrians also access and utilise the 3km walk along Sandy beach (south of Weld Road Reserve) to Lower Greenwood Reserve (affected by tides).

There is public access around the headland of Weld Road Reserve via the beach. This is approximately a 1-2 minute walk. At very high tides wave action can extend right up to the base of the headland/cliff. This is dependent on the state of the beach and stream mouth variability.

As such for periods of time some high tides can temporarily prevent public access along the beach and driftwood beach debris can affect access along the beach.

Figure 1 Photograph looking north showing headland and driftwood debris on beach blocking easy access along beach
Figure 2 Photo of swing bridge (before storm damage) looking east from western stream side.2: Photograph looking north showing headland and driftwood debris on beach blocking easy access long beach and

A number of options have been explored for formalised shared pathway access between Ahu Ahu Road and Lower Weld Road. These include potential purchase of land, other routes within the reserve and coastal structures at the base of the headland.

There are no esplanade reserves along the Whenuariki stream directly to the north of Weld Road Reserve headland, which means any access from the western side of the Ahu Ahu swing bridge that is outside of the reserve would be required to go on private land.

Options have also been explored in relation to providing a formalised walkway that follows the route of the steep informal access track. Due to the steep topography and archaeology along this track, formalised walkway structures in this location are not feasible. This is reinforced by the earlier archaeological report (September 2008).

The proposed coastal shared pathway around the base of the headland has been assessed by Council as being the least disruptive way of providing safe shared pathway access around the headland to connect the existing public access connections.

In addition to the shared pathway, due to the existing Ahu Ahu road swing bridge being destroyed by a storm, reinstatement of the swing bridge has been included in the project works. It is proposed to increase the free board height of the bridge (to mitigate against future damage from storm surges) and at the request of hapū, to take the revetment for the bridge on the eastern side of the stream further away from the stream. Due to the increased height of the bridge revetments, the western side is proposed to have a boardwalk section that links from the end of the bridge to the proposed coastal shared pathway.

As such, the proposal includes creation of a 140 m long coastal revetment and pathway around the base of Weld Road Reserve headland and the reinstatement of the swing bridge in the same location but with higher abutments and extended span across stream as shown diagrammatically in Figure 1. Appendix A includes the proposed design drawings for the shared pathway and bridge.

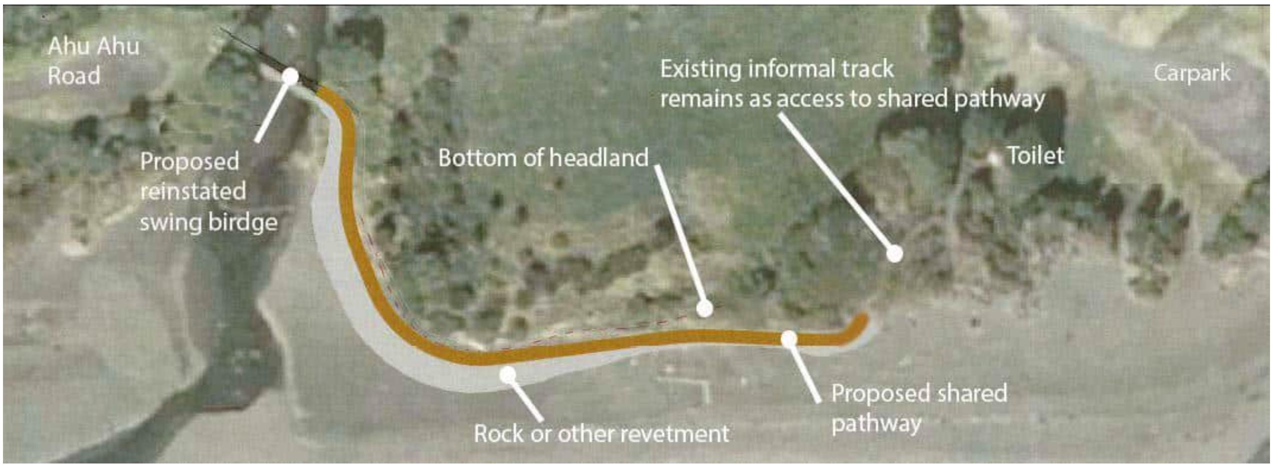

Figure 3 Diagram showing proposed location of shared pathway and location of the proposed reinstated swing bridge.

The proposed rock revetment will have an overall length of approximately 140 m, and a width of approximately 12 m, (although the lower part of the structure will be below the beach sand level and therefore not visible unless beach levels change). It is to be composed of large natural volcanic rock (locally sourced), with a gradient of approximately 30 degrees. The rock is to be supported by sandbags filled with excavated sand from the site and will not be visible as located behind the rock revetment.

An in-situ concrete pathway of 2 m in width will be supported at the crest of the structure, at a height of 2.9 m RL (Reduced Level[1]) and embedded approximately 0.4 m below the top of the rock armour.

The original Ahu Ahu bridge was designed as a single 19.5 m span bridge enabling access over the Whenuariki Stream to the Weld Road Reserve/adjacent coastal area. The bridge reinstatement works proposes to increase the bridges length to 21 m allowing the east abutment to be relocated 1.5 m east of the original bridge, improving the bridges resilience against scour. The abutment of the bridge is proposed to be raised approximately 0.7 m at the abutments. The new bridge deck will be flat while the original bridge had sagged of up to 0.8 m, therefore, the deck in the middle of the replacement bridge may be up to 1.5 m higher than the original.

For the proposed bridge deck level of 5.0 m RL, the freeboard from deck to the 1 in 25-year Serviceable Limit State (SLS) event is approximately 1.52 m.

Raising the abutments will require raised approaches to tie back into the car park (east end) and shared coastal pathway (west end). Based on a 1(V):9(H) gradient, this will require ramp lengths in the order of 10 m (east) and 19 m (west) to tie into existing levels. Boardwalk ramps (instead of earth ramps) are proposed to allow for improved protection of the surrounding archaeology and landscape.

The proposed structure is located within the coastal environment and as such triggers a range of natural character considerations.

As such, a landscape and visual effects assessment is required to be provided to support the resource consent application. This assessment needs to establish the landscape context taking into account the proposed activity and the affected landscape elements applicable to the development site and the immediate surrounding area.

1.3 Methodology

The assessment of landscape and visual effects are a separate, although linked, processes. The existing landscape and its visual context or visual envelope all contributes to the existing 'baseline' for the landscape and visual assessment studies. The assessment of the potential effects on the landscape is carried out as an effect on an environmental resource (i.e. landscape features or character). Visual effects are assessed as one of the interrelated effects on the

[1] The elevation of a point relative to the Mean Sea Level

surrounding viewing audience. The differences between these types of effects can be summarised as follows: *Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape. Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity*.

The following methodology was implemented in the preparation of this landscape and visual assessment:

- Desktop review of relevant statutory documents (District Plan text and mapping);
- Site visit and assessment of visibility and local character;
- Field survey of the local area;
- Identification of the visual catchment and viewing audience;
- Assessment of landscape and visual effects; and
- Identification of proposed design and mitigation measures if required.

The scope of this assessment includes:

- A description of the site and setting
- analysis of the existing landscape character and visual characteristics of the area;
- A description of the proposal;
- A detailed assessment of the potential effects of the proposal concerning landscape, visual amenity and natural character considerations; and
- Consideration of the proposal in relation to key relevant planning provisions applicable to this assessment.

The assessment considers the potential landscape and visual effects of the proposal in the context of the site and the wider landscape setting, as well as effects on key public views.

This assessment has been prepared with reference to the NZILA Best Practice Note Landscape Assessment and Sustainable Management 10.1 in conjunction with Information requirements for the assessment of landscape and visual effects"[2]. The effects ratings and definitions used in Table 1 are provided in **Appendix B**. To determine the overall nature and significance of the landscape and visual effects, an understanding of the sensitivity of the landscape or viewing audience has been combined with an assessment of the magnitude of change resulting from the proposal in order to determine the overall significance of effects.

A site visit and field survey of the local area was undertaken by Renée Davies on a number of occasions during 2021, 2022 and 2023 at different times of the year.

2 SITE LOCATION AND LANDSCAPE CONTEXT

2.1 Local Area Landscape Description

This section describes the landscape setting and the subject site ('the site') and considers the landscape values, character and quality of the landscape.

The site is located near the coastal township of Oākura. The area is 1.35 km west of Oākura and the broader landscape context consists of rural land. The landscape character of the area has been largely modified for farming activity but a dominant landscape feature is the Hauranga pā site (partially located within Weld road reserve headland, Whenuariki and Timaru streams that bound either side of the headland site and the sand and large rock beach environment.

[2] NZILA Best Practice Note Landscape Assessment and Sustainable Management 10.1 for the assessment of landscape and visual effects",

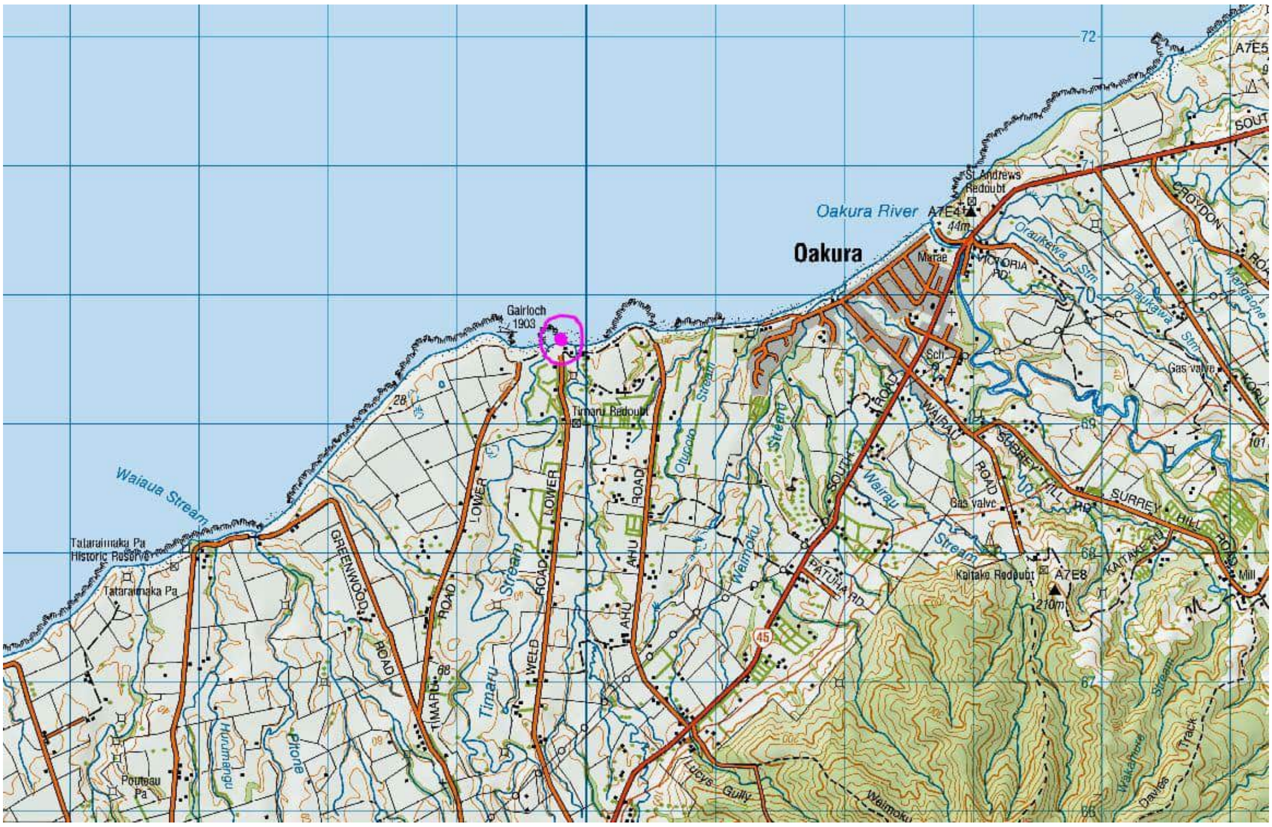

Figure 4 Location of the site. (source NPDC maps)

The area comprises a generally modified agricultural landscape with remnant dune systems located between mean high water springs and low cliffs. Although there has been modification of the landscape the beach and dune systems with associated vegetated cliff edges provides a strong sense of natural character.

The streams which flow down through the lowland ring plain terraces end with estuaries that weave through the beach environment. They are characterised by natural elements, processes and patterns such as highly dynamic sand, the ebb and flow of the tides, and the periodic appearance of wading birds. The containment of views within the creeks by the fringing vegetation increases perceptions of natural character.

Figure 5 Photograph looking north with Weld road reserve and headland to right of image (directly behind vehicles) and mouth of the Timaru stream in foreground.

Figure 6 Wider Context and Site Location.

In the preparation of the review of the Regional Coastal Plan for Taranaki a Regional landscape study of the Taranaki coastal environment was undertaken. This study identified areas of high and outstanding natural character and outstanding natural features and landscapes.

The study identified 12 coastal units with particular landscape characterisations. The site is located in Coastal Unit 6 – being Oakura River to Hangatahua (Stony river). The study identified the character of this coastal unit to comprise of low relief cliffs up to 5m in height with a narrow and patchy frontal dune system directly adjacent to the cliff faces. Where present dunes were relatively stable and covered in indigenous vegetation. The study identified that there is a relatively flat contour except where streams dissect the laharic terrace. Indigenous vegetation is sparse and mostly confined to dunes, cliff faces and riparian margins of some of the watercourses.

The site is not identified as an area of high and outstanding natural character, and does not contain any outstanding natural features or landscapes.

An inventory of coastal areas of local or regional significance in the Taranaki Region (January 2004) identifies Ahu Ahu, Weld and Timaru road beaches as having wide sandy beaches backed by small dunes with offshore cobble and boulder reefs. The study identified high amenity, recreation and cultural/historical values with moderate ecological and scientific values. It also noted excellent public access in the area.

2.2 The Site and Immediate Surrounds

Hauranga Pā is located on the Weld Road Reserve. Hauranga Pā is an “archaeological site” as defined in section 6 of the HNZPT in that it is pre-1900s. This part of the reserve (Section 176 Oakura District) is listed in Appendix 26 of the ODP (as Site ID 54), which sets out Wāhi Taonga/Sites of Significance to Māori and Archaeological Sites. Site ID 54 has been identified as an archaeological site in the Council’s PDP.

Hauranga Pā was a large, heavily populated Māori settlement in North Taranaki before the arrival of Europeans and the Pā played an important role in post-settlement history until after the New Zealand Wars. The remnants of the pā are evident on the site including a large number of archaeological features in good surface condition.

DoC owns the reserve and the Council administers the reserve under the Coastal Reserves Management Plan 2006 (Management Plan). Although the Management Plan is not specific to Hauranga Pā, the General Policies for Council Administered Reserves 2006 has a specific section that covers conservation and cultural heritage values.

Figure 7 Photograph looking west with the Ahu Ahu swing bridge (before destroyed by storm) to left of photo and Weld road reserve headland and adjacent archaeological site of Hauranga Pā.

The reserves at Weld Road and Ahu Ahu Road represent the western portion of an area of reserve gazetted as Corbett Park Domain. The overall reserve comprises a long band of foreshore extending from the mouth of the Timaru Stream to Ahu Ahu Road and includes the entire width of the waterfront, from the top of the escarpments to the beach.

This reserve area is accessed in three ways by vehicle:

- through a farmer's field at the end of Lower Timaru Rd;
- via Weld Rd; and
- via a gravel road at the end of Ahu Ahu Rd. There are swing bridges over Timaru Stream and Whenuariki Stream that allow visitors to walk the length of the reserve.

The Ahu Ahu side of the reserve is framed by high escarpments covered in native bush. Some landscaping and planting of cultivars has occurred on the Weld Rd side and along Ahu Ahu Road. The beach areas are buffered from the road and open space areas by dunes and native shrubs and trees. Dune areas are fenced off from human access as part of an ongoing dune restoration project and visitors are encouraged to stay to marked access trails.

The mix of easy access to the beach and natural beauty makes this one of the most popular reserves in the district. Despite its proximity to Oakura, its location behind headlands and beneath high banks gives a sense of being in a remote and undeveloped place.

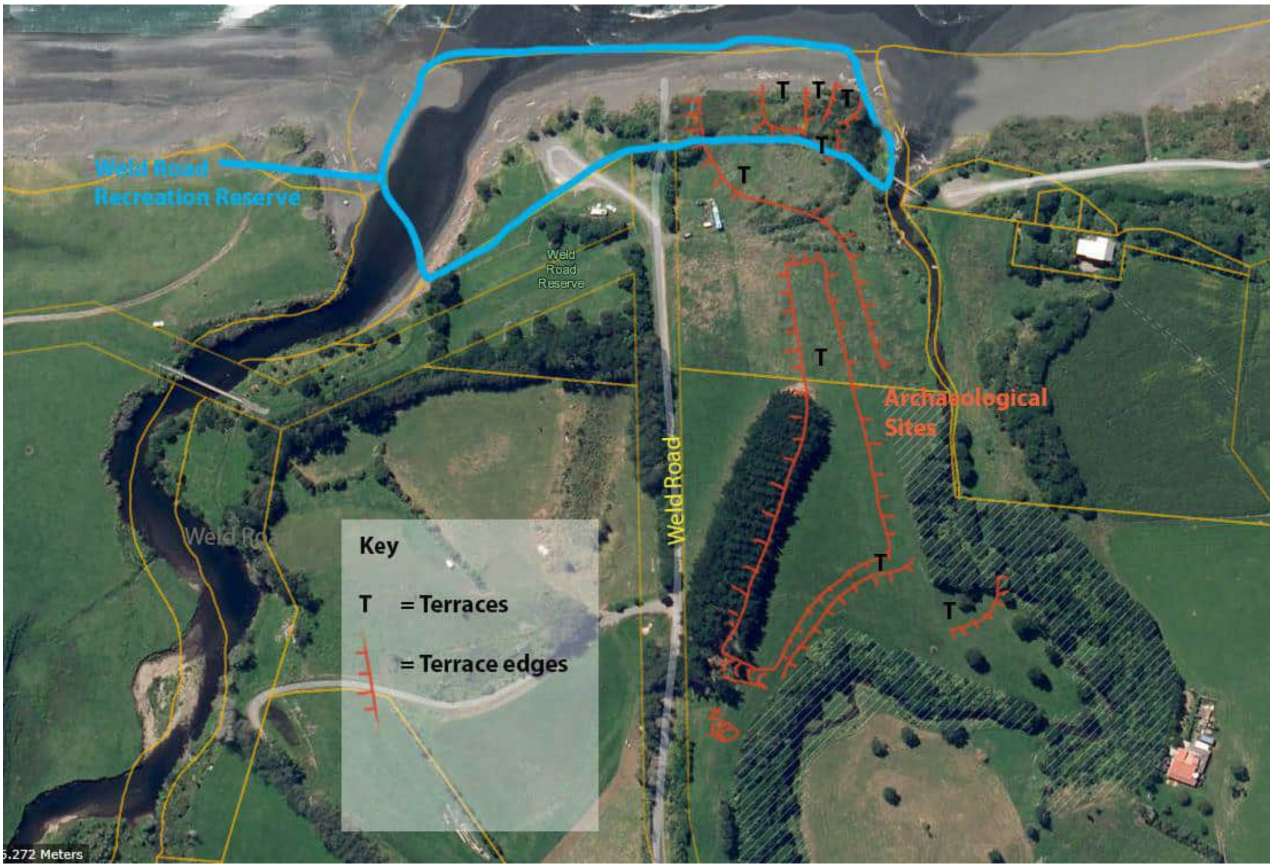

Figure 8 Site and adjacent archaeological site of Hauranga Pā.

3 SUMMARY OF PROPOSED DEVELOPMENT

Resource consent is sought to create a rock revetment protected shared pathway and to reinstate a swing bridge across the Whenuariki stream in order to provide safe public access around the headland of Weld road reserve. This is required due to the reserve itself being a highly sensitive environment with archaeological and cultural sites that were being damaged by informal walkways across the headland. Those tracks are now closed off and as such a safe alternative route at beach level is required to ensure continued connection between existing trails. With the previous swing bridge being destroyed by a storm an opportunity was identified to be able to reinstate the bridge with an improved design that removes the abutments on the eastern side of the stream away from the edge of the stream and to raise the level of the bridge.

The rock revetment will have an overall alignment length of approximately 140 m, and a width of approximately 12m. Importantly, in terms of visual effects, the lower part of the structure will be below the beach sand level. The height of the rock revetment has been minimised to the lowest possible while still ensuring safe access in normal sea conditions. The rock revetment will be composed of large local volcanic rock, with a surface gradient of approximately 30 degrees. Beneath the rock will be sandbags (excavated sand from within the site), and a geotextile cloth layer that will provide support but not be visible.

An in-situ concrete pathway of 2m in width will be supported at the crest of the structure, at a height of 2.9m RL (Reduced Level[3]) and sunk below the top of the highest rock by approximately 0.4m.

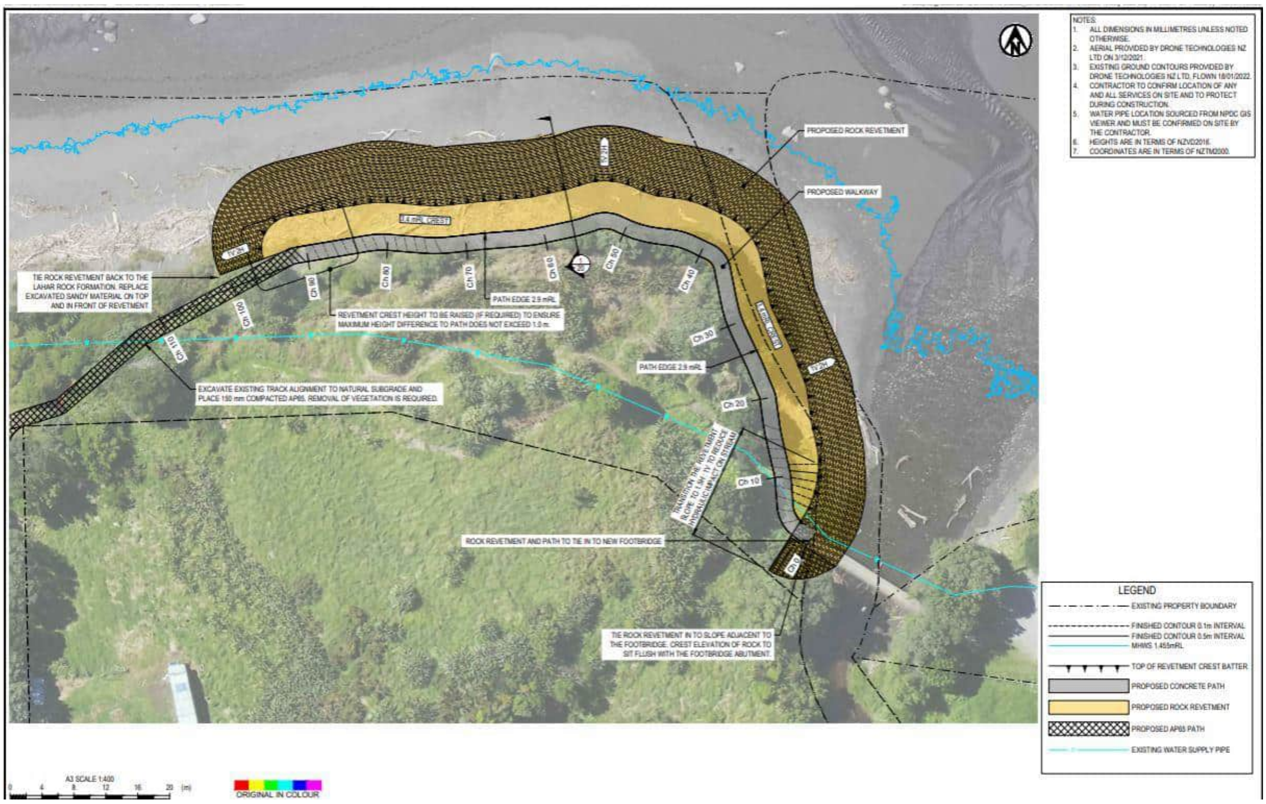

Figure 9 Diagram from engineers showing overall proposed shared pathway design.

[3] The elevation of a point relative to the Mean Sea Level

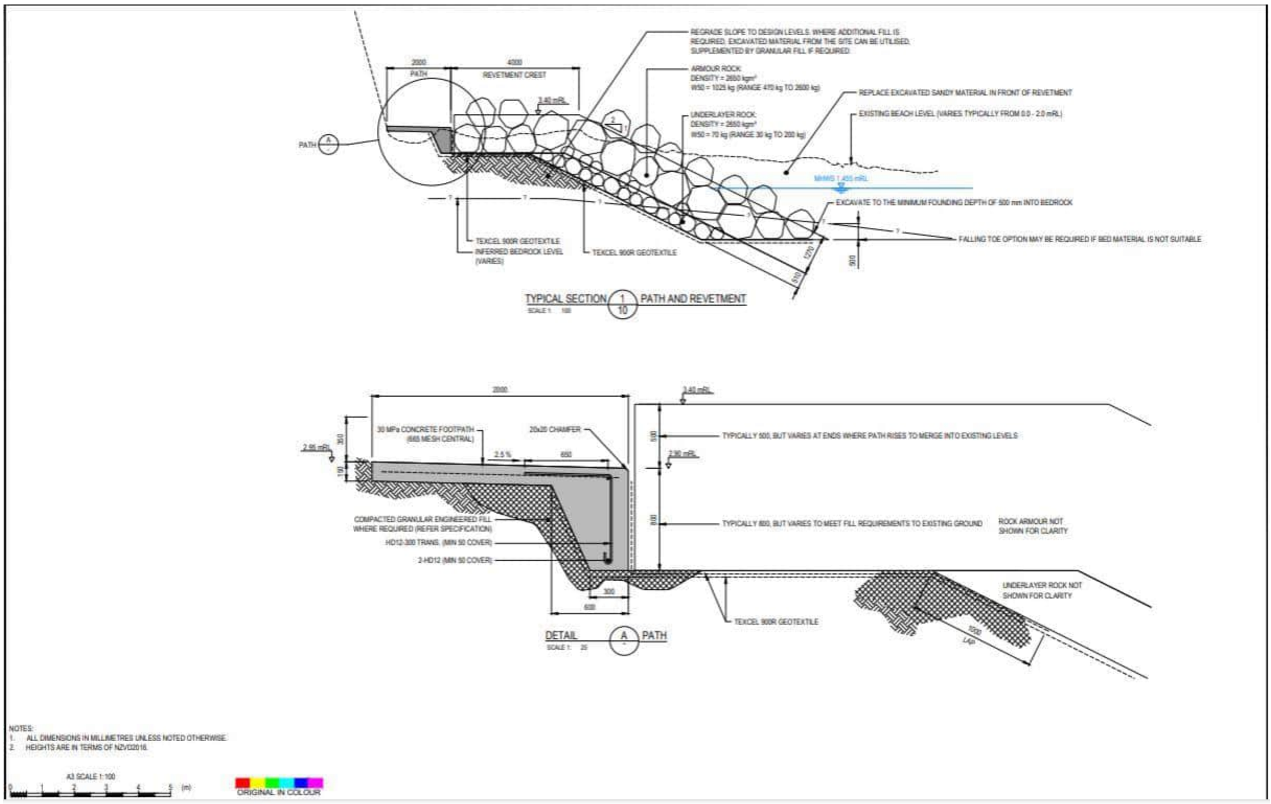

Figure 10 Diagram from engineers showing cross sections of proposed shared pathway design.

The proposed development is designed to break up the bulk and scale of the buildings by creating two built forms structures that are surrounded by vegetation.

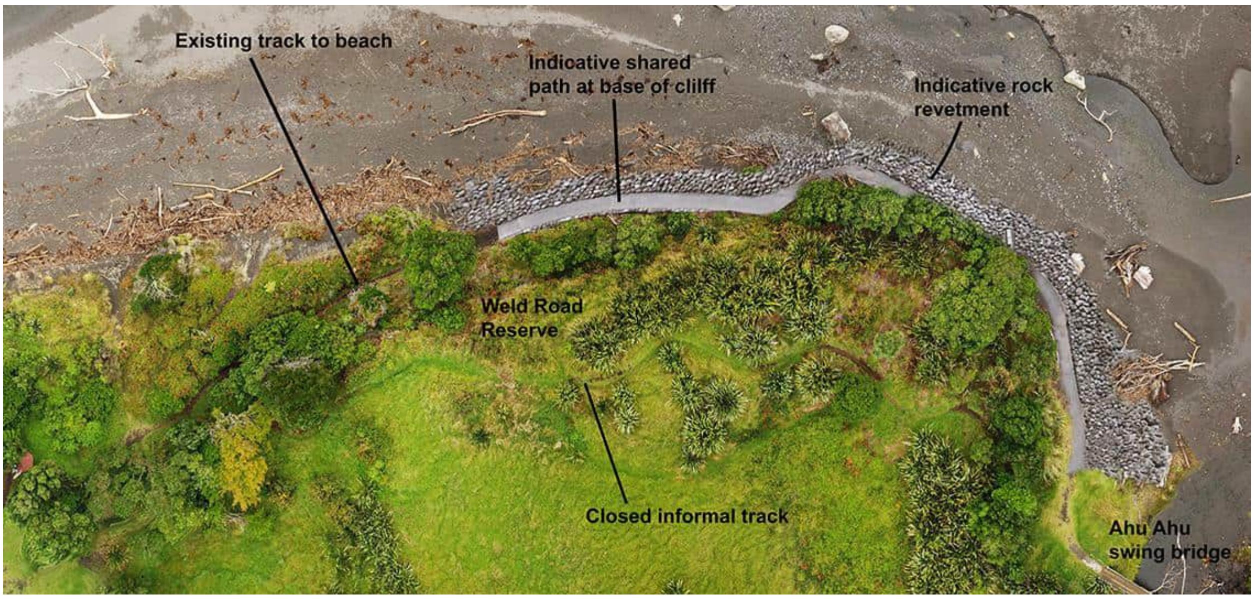

Figure 11 Drone photograph showing indicative location of proposed shared pathway in relation to Weld road reserve.

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3.1 Vegetation Removal

As part of the proposed development of the shared path, there will be some minimal lower level vegetation that will need removal and/or trimming, totalling approximately 240 m^2 of mixed native / exotic treeland, grassland and duneland vegetation. For the proposed bridge, removal and/or trimming of approximately 28 m^2 of mixed native/exotic treeland, and removal of 150 m^2 of grassland and shrubland and potentially some dune land vegetation is required (70 m^2 on the western bridge side and 80 m^2 on the eastern). The degree of vegetation removal and/or trimming is difficult to assess at this concept/developed design stage and as such the mitigation for this is proposed to be determined on site in partnership with Ngati Tairi as works progress. A landscape restoration and planting methodology is included in Appendix 3 to provide guidance on how that will occur. The trimming and removal of the vegetation is not expected to have any effect on the overall vegetated character of the site as the removal and trimming will be restricted and the remaining vegetation and proposed landscape and planting restoration proposed as mitigation will maintain a sense of vegetated edge to the headland behind the shared path.

3.2 Earthworks

Construction of the revetment structure will require excavation of the existing beach material, to volumes of approximately 1,150 m^3, and uncompacted fill volumes of approximately 230 m^3 to an approximate total of 1,400 m^3 of material impacted. Additionally, approximately 1,400 m^3 of imported rock will be required for construction of the revetment structure itself. It is proposed for this construction to be undertaken at low tide only, and for construction machinery to return to the laydown area at the end of each day. Construction is likely to take 3-4 weeks to complete and the visual effects associated with this construction period have been assessed as part of the viewing audience visual effects assessment.

The area of earthworks directly associated with the construction of the footbridge (i.e., approach ramps on both sides and abutments) are expected to be approximately 150 m^2. The volume of excavation is estimated to be 14 m^3.

Approximately 190 truck and trailer loads are estimated over the construction period to bring rock and other materials to site, alongside light vehicle movements for staff and supervision.

3.3 Reflectivity, Colour and Materials Palette

The visible aspect of the proposed shared pathway will be restricted to the rock that forms the rock revetment and the concrete pathway (from certain angles of view). The rock proposed to be used is sourced locally and consists of volcanic andesite boulders. The final look will be similar to other rock seawalls in the District and will age over time and although identifiable as man-made structures, due to the use of natural rock material and random placement is perceived as a more natural structure with relationship to the pebble, rock and cliff environments in which they are generally placed.

The low reflectivity and colouring of the rock is expected to blend well with the foreground rock, pebble and sand environment and be softened by driftwood that will collect at the base of the rock revetment. The backdrop of clay and grey coloured cliff lahar will have a similar colouring to the rock. From a distance this is expected to reduce the visual impact of the rock revetment as it will recede against the strong backdrop of vegetation and cliff and foreground of beach.

Concrete of the pathway will include a dark oxide to ensure that it is not highly reflective, this will ensure it has a more natural look and relate in terms of colour palette to the surrounding environment and black sand beach.

Figure 12 Photographs showing examples of colour, form and character of local rock revetment in context of beach and river environments.

Figure 13 Photograph showing rock revetment along New Plymouth coastal walkway with backdrop of vegetation.

The proposed swing bridge will be of similar style and material as the previous swing bridge. This is a mix of timber and steel and has a relatively light look and presence compared to solid bridge structures. The bridge location has a strongly vegetated backdrop.

4 STATUTORY PLANNING CONTEXT

The proposal is considered a Discretionary activity under the CPT, PDP and ODP. A full statutory assessment is provided in the planner's report that accompanies the resource consent application. The relevant planning provisions relating to landscape and visual matters are outlined and assessed in Table 2 .

Resource Management Act (RMA)

Section 6(a) - the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development

Section 6(b) - the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development

Section 7(c) - the maintenance and enhancement of amenity values

Section 7(f) - the maintenance and enhancement of the quality of the environment

The Fourth Schedule lists a number of matters that should be considered when preparing an assessment of effects on the environment, including:

(7)(1)(b) Any physical effect on the locality including landscape and visual effects.

These RMA provisions are given effect by the relevant planning provisions of the

Taranaki Regional Plan the NPDC ODP and PDP.

New Zealand Coastal Policy Statement (NZCPS)

The New Zealand Coastal Policy Statement (NZCPS) was released in December 2010, at that time local authorities were tasked under Policy 13 to map or otherwise identify (at least) areas of high natural character in the coastal environment. The NZCPS also introduced the new term, 'outstanding natural character'. In defining natural character, the NZCPS clarifies that natural character is not the same as natural features and landscapes or amenity values and provides a list of eight matters which may apply in Policy 13 (2).

Guidance prepared by the Department of Conservation on how NZCPS Policy 13 is applied, identifies that the degree or level of natural character depends on:

1. The extent to which the natural elements, patterns and processes occur;
2. The nature and extent of modification to the ecosystems and landscape/seascape;
3. The degree of natural character is highest where there is least modification;
4. The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community

NZCPS Policy 13 lists a number of matters considered components of natural character. The list within the policy is a mix of factual (or natural science based) and perceptual, although there is a cross-over in many places.

There are three main categories arising: **Abiotic** (or non-living elements, processes or patterns); **Biotic** (or living elements, processes or patterns) and **Experiential** (derived from human senses).

Reserves Act 1977

The Reserves Act is administered by DOC for the general purpose of:

(a) providing, for the preservation and management for the benefit and enjoyment of the public, areas of New Zealand possessing—

(i) recreational use or potential, whether active or passive; or

(ii) wildlife; or

(iii) indigenous flora or fauna; or

(iv) environmental and landscape amenity or interest; or

(v) natural, scenic, historic, cultural, archaeological, biological, geological, scientific, educational, community, or other special features or value

As well as the preservation of the natural environment it also places considerable emphasis on public access and appropriate use where as a key function of reserves. Weld Road Reserve is included in the Coastal Reserves Management Plan 2006. There is no specific policy or objective within that Plan that identifies specific intentions for the archaeological or cultural values. The Coastal Reserves Management Plan does however reference the September 2006 General Policies for Council Administered Reserves. This Policy document includes section (2.4) that identifies specific approaches in relation to conservation of cultural heritage values.

2.4(1) As far as practicable, identified areas of cultural heritage value on reserves will be protected, preserved or maintained as appropriate.

2.4(2) Mana whenua will be consulted prior to any decision regarding a significant development on a reserve.

2.4(4) If, on or adjacent to a proposed development site, an archaeological assessment reveals an archaeological site, the Historic Places Trust and tangata whenua will be notified and a decision made, through direct dialogue between the council, mana whenua, the Historic Places Trust and other affected parties as to how to proceed. Each incidence will be decided on a case by case basis according to criteria (still to be developed through discussion with tangata whenua) regarding the type of site, its cultural heritage significance and any other considerations brought forward by mana whenua.

2.4(7) The Council will work with individual iwi/hapū to develop a protocol regarding the management of vegetation on waahi tapu sites.

The proposed shared pathway is consistent with the policies and objectives of the Reserve Management Plan.

Regional Coastal Plan for Taranaki (CPT)

The CPT identifies the site as being within the coastal management area (CMA) of Open Coast. The site is adjacent to the regionally significant surf breaks of Weld Road Breaks (Hauranga) and Ahu Ahu multiple breaks (Oraukawa) under Schedule 8A of the CPT. The proposed shared pathway is relevant to consideration within the PRCP – interim from an amenity, access and natural character perspective and in regards to a site of significance to Māori.

The objectives and policies of the PRCP apply to all activities in the coastal environment which includes the inland boundary of the coastal environment, which is also defined in the NPDC PDP.

It is assumed that the PRCP has given effect to the NZCPS 2010. As such the NZCPS has not be specifically evaluated in terms of assessment within the LVEA.

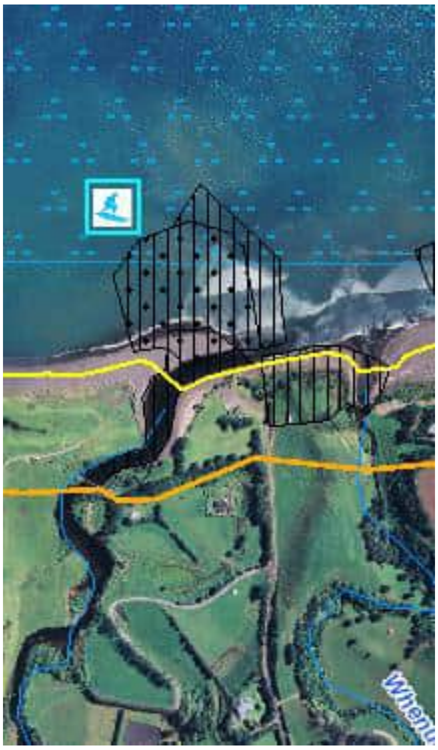

Figure 14 CPT map showing the identified surf breaks and sites of significance to Māori. Orange line being the coastal environment and yellow being the CMA.

New Plymouth District Council ODP and PDP

The land subject to the proposed shared pathway down to the line of MHWS, is subject to the rules in the NPDC ODP and PDP. Assessment considerations of relevance to the LVEA from these plans focus on coastal policy areas, coastal hazard areas, priority water bodies and waahi taonga site of significance to Māori.

Figure 15 Map from the NPDC PDP and ODP showing waahi taonga sites, coastal hazard zones..

5 VISUAL EFFECTS

There is one main viewing audience for the proposed shared pathway and swing bridge, being users of the adjacent coastal reserves, beach and ocean. This viewing audience is grouped as one due to the viewpoint although varying in orientation depending on location within the coastal environment, will maintain the same degree of effect in relation to natural character and there is generally no significant change in terms of the amount of background in the view and the distance of the view from the viewing audience location.

The key consideration in this assessment is the scale and height of the proposed structures in relation to existing natural backdrop and form, colour and reflectivity in relation to the existing natural character of the coastal environment.

The site has a relatively small visual catchment within the broader area and in particular, the existing topography of Weld road reserve headland. The predominant visual effects of the proposed developments and the associated additional height of the bridge and abutments are restricted to views from users of the Ahu Ahu reserve, beach and ocean (swimmers, surfers and kite-boarders). The existing topography and vegetation contributes a high degree of backdrop for the proposed shared pathway.

It is anticipated that there will be some adverse effects visually during construction with the required machinery and materials stock-piling all impacting on the views of site for users of the reserve and beach. These effects will however, be temporary in nature and the autumn/winter construction period proposed will go a long way to mitigating those temporary and short term effects as this is a less used period of time for the beach.

Based on the visual catchment described the potential viewing audiences are comprised of the following main groups:

- **Viewing Audience A:** Recreational users of the trail network either side of the Weld road reserve;
- **Viewing Audience B:** Users of beach adjacent to the site; and
- **Viewing Audience C:** Ocean and surf break users.

Figure 16 Aerial photograph showing viewing audiences.

Visual Simulation

The assessment of visual effects focuses mainly on these audiences and a photo-simulation has been prepared to demonstrate the likely visual effects from one of the main viewing points looking back to the proposed shared pathway from the beach at the mouth of the Waiongana stream. The visual effect of the bridge is assessed as being similar to the previously existing bridge and imagery of that provides the guidance for what the bridge will look like with the exception of some additional structural height at the abutments and associated timber ramps up to the bridge. The viewpoint selected for the photo-simulation is located where these audiences would be exposed to the most extensive potential visual effects of the proposal.

In order to inform the decision on height options, a preliminary assessment of the degree of visual effect on the natural character of the coastal environment was undertaken through a visual simulation of the proposed shared pathway, as shown below. This has utilised surveyed eye-level heights to provide a relatively accurate interpretation of the visual effects and change in character that the proposed shared path would have.

Figure 17 Visual simulation of proposed shared pathway.

Figure 18 Visual simulation of proposed shared pathway (an A3 size copy is provided in Appendix A)

Figure 19 Photograph showing the surveyed points where height has been determined. The propoed rl of the rock revetment that has been designed is located at the bottom of the top white line on the lower cone.

Figure 20 Photograph showing the previous swing bridge in place (with the white line being the water pipe running under the platform of the bridge).

The image above shows the highly vegetation visual backdrop to the location of the proposed swing bridge and an image of the previously existing bridge that provides a comparable visual effect as to what is proposed for the reinstatement.

5.1 Viewing Audience A: Recreational users of the trail network either side of the Weld road reserve

This viewing audience includes those that are using the trails to the west and east of the Weld road reserve. Views of the proposed shared pathway and swing bridge are visible from the Ahu Ahu road reserve that leads to the proposed shared pathway site. As the bridge and shared pathway curves around the headland, the views are limited to the eastern and beginning of the shared pathway from Ahu Ahu road until the pathway disappears around the edge of the headland. The same situation exists from the western end of the reserve where views will be visible as users move from Lower Weld road reserve through the beach access trails and where the proposed shared pathway connects into the Weld road reserve trail. From this western access there is more of the proposed shared pathway visible for longer as the headland length is longer.

For both these viewing audience the proposed bridge and shared pathway will create visibly new (and in the case of the swing bridge reinstated) man-made structures within the environment. The low profile and natural rock material and retention of majority of existing vegetation will provide a degree of mitigation to the visual effect and ensure that the broader amenity of the coastal environment is maintained. The visual effects for this viewing audience is assessed as being moderate.

The short term construction effects for this viewing audience will be moderate - high, reducing to moderate in the medium to long term once construction is completed.

Figure 21 Photograph looking west with western access track and Weld road reserve headland to left.

Figure 22 Photograph looking east from western track that will access proposed shared pathway.

Figure 23 Photograph looking west from end of swing bridge to eastern entry to proposed shared pathway.

Figure 24 Photograph looking west from Ahu Ahu road across the previous swing bridge (now destroyed) towards site of proposed shared pathway.

5.2 Viewing Audience B: Users of beach adjacent to the site

This viewing audience consists of users who are walking along the beach to the east and west of the site and directly adjacent to the north of the site. This includes, walkers, picnickers, swimmers and waders in the streams, horse-riders and dog-walkers.

For this viewing audience, the proposed swing bridge and shared pathway will be visible as you look towards the Weld road reserve headland. As with viewing audience A, the proposed swing bridge and shared pathway will be visible man-made structures within the environment. The dominance of the both the structures will be minimised by the backdrop of vegetation and cliff that is located respectively behind and directly adjacent to the the structures.

Although the proposed swing bridge and shared pathway will be visible, the broader views out to the landscape and beachscape beyond will ensure that the visual effects associated with the rock revetment will be minimised and enable the broader amenity of the coastal environment to be retained with minimal effects on that scene.

The short term construction effects for this viewing audience will be high, reducing to moderate in the medium to long term once construction is completed.

Figure 25 Photograph from beach looking back to Weld road reserve headland.

5.3 Viewing Audience C: Ocean and surf break users

Surf breaks are host to many user groups who participate in many different forms of recreation with positive qualities for physical and mental health for people of all ages and walks of life. The ocean directly off Weld road reserve is a well-known and used surf break.

Surf breaks contribute to visual and oral expressions of place – interconnected to wider landscape and seascape values

- Surf breaks contribute to the nature and memorability of experiences in the coastal environment
- Raw and undeveloped natural landscapes and seascapes contribute to the opportunities for wilderness experiences

For this viewing audience the proposed swing bridge and shared pathway will consist of a visible length of rock revetment located at the base of the Weld road reserve headland and a less visible line of structure sitting across the stream. The overall broader natural character and amenity of the coastal environment will be retained and the backdrop of the headland itself and the vegetated edges of the Whenuariki streamwill remain as a dominant feature of the scene as viewed from the ocean environment.

It is considered that the low profile of the revetment and natural materials will ensure that the contribution of the Weld road reserve and headland and beach area in front of the proposed shared pathway will continue to contribute to the enjoyment of the surfing and overall recreational experience.

The visual effects for this viewing audience is assessed as being moderate.

The short term construction effects for this viewing audience will be high, reducing to moderate in the medium to long term once construction is completed.

Figure 26 Photograph from Weld road surf break to site.

Figure 27 Photograph from Weld road surf break to site.

Figure 28 Photograph from Weld road surf break to site.

A slight loss to the existing character, features or landscape quality. The proposal constitutes only a minor component of or change to the wider view. Awareness of the proposal would not have a marked effect on the overall quality of the scene.

Table 1 – Visual Effects Summary

Viewpoint	Ranking	
	Short Term (construction effects)	**Medium – Long Term**
Viewing Audience A: Recreational users of the trail network either side of the Weld road reserve	Moderate - High	Low - Moderate
Viewing Audience B: **:** Users of beach adjacent to the site	High	Moderate
Viewing Audience C: Ocean and surf break users	Moderate	Low

6 NATURAL CHARACTER AND AMENITY EFFECTS

The landscape and amenity effects summary is provided as a table assessed against relevant assessment criteria from the relevant statutory documents.

Natural Character Effects

Although not defined in the RMA natural character values are recognised as a Matters of National Importance (Part 2, Section 6) in relation to managing the use, development and protection of natural and physical resources. Natural character relates to the degree of 'naturalness' of a landscape. Natural character is primarily determined by the nature and extent of modification to a landscape and comprises natural elements appearing in natural patterns, underpinned by natural processes.

The highest levels of natural character are where there is the least modification. Natural character effects relate to the degree to which a proposal alters the biophysical and / or perceived naturalness of a landscape.

The purpose of an assessment on effects on natural character is to determine whether an activity is appropriate. This is dependent on the extent to which a location can absorb development without adverse effects on the natural qualities of the setting. The following considerations are useful to assist in determining whether adverse effects on natural character are of this proposal are significant.

This section of the coastline displays a high degree of natural character. However from a broader perspective this will not be directly affected in any significant way by the proposal. Potential effects are limited to the associated terrestrial areas. Despite historic modification of these areas, they are undergoing the process of natural regeneration of indigenous vegetative cover. This process and the resultant landscape patterns therefore also represent a significant degree of natural character. Nonetheless, based on the consideration of the above criteria it is considered that the significance of the overall effects of the proposal on the natural character of these areas would be **moderate**.

The natural boundary of the Weld road reserve headland (coastal escarpments) provides a clearly defined and inland boundary to the coastal environment for this site as do the two streams that contain and bound the eastern and western ends of the site. On the eastern end of the site the presence of the previous presence of the swing bridge over the Whenuariki stream indicates a degree of modification and human influence within the landscape and this would be similar with the proposed reinstated swing bridge. In terms of natural character, the site is considered to be partially modified and a medium level of natural character on the continuum from modified (very low) to pristine (very high). The site retains a level of natural character with the remnant dunes (being restored and containing indigenous dune vegetation) and the Weld road reserve headland with its associated geological formations visible from the beach and regenerating native vegetation (planted and naturally occurring).

Figure 29 Photograph showing natural character of the beach environment off Weld road reserve.

Figure 30 Photograph showing natural character of the beach environment with Weld road reserve headland.

Figure 31 Photograph showing natural character and geological form of the headland cliff.

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Table 2 - Summary of Findings in Relation to Landscape

HEADING	MATTER	ASSESSED EFFECTS
Taranaki Regional Coastal Plan (Operative)		
Objective 1(b)	To recognise and provide for the preservation of the natural character of the coastal marine area, to protect that character from inappropriate use and development of the coastal marine area and to restore or rehabilitate the natural character of the coastal marine area where practicable.	The proposed swing bridge and shared pathway will have a moderate effect on the natural character of the coastal environment with a man-made structure (albeit with natural rock, timber and steel) being located at the base of the headland and across the stream. The anticipated low level above existing beach and across the stream (in the same location as previous bridge was located) and materials used for the proposal, associated with the dominant topography of the headland behind the structure means that although it will be a visible change to the character, the overall broader scene will retain its character.
Objective 3(a)	To maintain and enhance the natural character and amenity values of the coastal environment.	The proposed swing bridge is located across the Whenuariki stream and the proposed shared pathway is located at the very base of the headland of Weld road reserve. As such, the integrity of the headland including cliffs and vegetation will remain and form a significant backdrop to the proposed structure. The stream will have some rock revetment on the western side to protect the bridge abutment, and this will connect in visually with the rock revetment of the proposed shared pathway It is considered that the natural character of coastal environment is maintained, despite having a minor change in amenity. The proposed shared pathway provides for an alternative access around the headland that reinforces the prevention of public access over the sensitive archaeological and cultural site of Hauranga Pā located partially within the Weld road reserve. This provides for ongoing protection of the topography, geology and vegetation that forms part of the natural character of the area and allows for enhancement through appropriate

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		weed removal and native restoration of the site through an management plan developed in conjunction with DOC, NPDC and hapū.
Policy 1.1(d)	Management of the coastal marine area will be carried out in a way that recognises that: (d) The open coastline: (i) is subject to a high energy westerly wave environment and the coastal land behind the foreshore is generally eroding; (ii) includes areas that are valued for recreation, particularly the beaches adjacent to urban areas or to which vehicle access exists; (iii) includes reef systems that provide habitat to marine life, and are valued by Maori for kaimoana gathering; (iv) includes a large proportion of the total foreshore area, which is mostly unmodified by human activity except in the vicinity of the New Plymouth urban area, and generally is under no significant pressure for use, development or protection; (v) includes some areas of outstanding coastal value; (vi) contains fisheries that are both recreationally and commercially valuable; (vii) is utilised for defence purposes in accordance with the Defence Act 1991.	The proposed swing bridge and shared pathway have been designed to ensure that it is located at as lower level as possible while still providing safe access around the headland for the public and ability to withstand storm surges (in the case of the bridge). This respective rl's, means that there is limited effect on the headland cliff or stream and if in future it needed to be removed, would be able to be done and the cliff and natural character of the stream remain unaffected. The proposed rock revetment will provide a degree of protection for the cliff and stream preventing any further erosion. The proposed shared pathway provides an opportunity for the public to see close up the cliff geology, which has a high amenity and interest. The site of the proposed swing bridge and shared pathway is not located in an area of outstanding coastal value. The area is a high use recreation area, for both walking, cycling and activities on the beach and within the ocean environment (particularly surfing). The area of the proposed swing bridge and shared pathway are restricted to a small section of beach between two streams and as such has a limit to its extent. The remainder of the beach to the north and south of those respective streams remains unchanged, but the shared pathway provides a key link between existing trails for access to and along the coastal environment for recreation use.
Policy 1.2	In the management of the coastal marine area, recognition will be given to the restoration or rehabilitation of the natural character of the coastal marine area where appropriate.	There is limited opportunity for mitigation measures, however restoration of dune areas at either end of the proposed shared pathway and appropriate restoration on Weld road reserve (whatever is considered appropriate as part of a co-management plan with DOC, hapū and NPDC) would provide an opportunity to enhance to a small degree, existing natural character values. In addition, ensuring a more natural colour

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		palette with low reflectivity for concrete used in the construction will assist in integrating the build form into the natural palette of cliff, rock and sand found within the environment and will reduce any glare.
NPDC Proposed District Plan		
Policy NFL-P2	Protect natural features and landscapes in the coastal environment from inappropriate activities by: 1. in relation to outstanding natural features or landscapes: a. avoiding adverse effects of activities on their values and characteristics 2. in relation to other natural features or landscapes: a. avoiding significant adverse effects of activities on their values and characteristics; and b. avoiding, remedying or mitigating other adverse effects of activities on their values and characteristics.	There are no outstanding natural features or landscapes affected by the proposed swing bridge and shared pathway. Despite not being specifically identified as being outstanding, the site is considered to have natural character values. The proposed swing bridge and shared path are assessed as creating a partial change to the existing natural character of the coastal environment in which they sit. This results in a small reduction in amenity and is therefore considered at a moderate level of effect. The proposed shared pathway will add a new element within the scene. The proposed swing bridge is a replacement of an existing one that has been within the environment for a number of years. These structures will be noticeable, but when viewed from a distance and due to the natural materials used and the low profile, is not considered to detract from the overall quality of the scene/natural character of the area.
Objective CE-01	The natural character, landscape, historic, cultural and ecological values of the coastal environment are recognised and preserved, and where appropriate enhanced and restored.	The proposed shared pathway is being proposed in order that the cultural and geological feature of the Weld road esplanade reserve headland that includes part of Hauranga Pā, is able to be more effectively enhanced and restored. The proposed swing bridge replaces a bridge that has been in place for a number of years providing public access across the stream (thus removing the need for access within the stream bed by the public). The enhancement results from the removal of informal tracks that public used over the headland that were damaging sensitive archaeological sites, native vegetation and adding to erosion of the headland formation. As such, although the proposed shared pathway is not enhancing the natural character, it will ensure enhancement of the adjacent Weld road reserve,

		by re-directing damaging public access activity into a less sensitive environment (outside of the Waahi tapu site and headland). There is a subtle balance here between effects on natural character and amenity, but overall the benefits are considered to improve outcomes for the more sensitive natural landscape of the headland that would otherwise have demand for public access.
Policy CE-P2	Protect natural character in the Coastal Environment by ensuring: 1. any adverse effects on the natural characteristics, processes and values which contribute to Areas of Outstanding Natural Character are avoided; 2. any significant adverse effects on the natural characteristics, processes and values which contribute to other coastal natural character are avoided; and 3. any other adverse effects on the natural characteristics, processes and values which contribute to coastal natural character are avoided, remedied or mitigated.	As the landscape and visual effects are determined to be moderate, there are no significant effects on the natural character and values. There is acknowledged intrusion of man-made structures within the environment. Proposed mitigation for this relates to the height of the proposed shared pathway and associated rock revetment being kept as low as possible (while still being functional) and also use of natural local rock and a minimisation of the extent of pathway to the narrowest length possible to achieve public access around the headland. Other mitigation proposed relates to the resulting ability to protect and enhance the site of significance to Māori (Hauranga Pā) with a co-management plan for the site and where appropriate restoration planting on any disturbed areas adjacent to the proposed shared pathway. A landscape restoration and planting methodology will ensure that the vegetation removal and/or trimming required for the works can be mitigated with replacement planting.
Policy CE-P4 (5)	Manage the scale, location and design of activities within the Coastal Environment that have the potential to adversely affect coastal natural character, landscape, amenity, historic, cultural and ecological values and/or that have the potential to increase or be vulnerable to coastal hazards, including: 5. earthworks	The proposed shared pathway has been designed at the lowest height possible while still achieving safe public access. The proposed swing bridge is located in the same location as the previous bridge with the eastern side being removed further away from the edge of the stream. The reduced height of the walkway means that at times of extreme weather conditions the proposed shared pathway will be closed from use (similar to other portions of the New Plymouth coastal walkway). This has ensured that the rock revetment that will be visible above the existing beach level will be

		relatively low and with the backdrop of the existing cliff will have a much reduced visual impact for viewers and users. The location of the proposed swing bridge and shared pathway are outside of the Hauranga Pā site and as such is considered unlikely to have any adverse effects on the natural character, amenity or cultural integrity of that site.
Policy CE-P6	Only allow hard protection structures in the Coastal Environment when: 1. the use of 'soft' protection options, such as beach re-nourishment and planting, will be ineffective; 2. any adverse effects on natural character, indigenous biodiversity and amenity values will be avoided, or when avoidance is not possible, appropriately mitigated or remedied; 3. they do not result in public access to and along the coast being limited or compromised; and 4. they are designed and located to: a. minimise the risk of increased coastal hazard exposure elsewhere along the coastline; and b. take into account the dynamic nature of coastal processes, including the effects of climate change and accelerated sea-level rise over a 100 year timeframe.	The proposed hard structure of the shared pathway had been identified through a thorough options analysis and public consultation process as being the most appropriate mechanism to provide for public access in this location. The current beach environment with significant driftwood and soft sand means that public access for such a highly used trail network along the beach reduces accessibility significantly. The provision of a rock revetment protected pathway ensures good access in the majority of conditions. Mitigation of effects on natural character with the placement of a man-made structure in this location is proposed to be mitigated by ensuring the lowest possible height is chosen and ensuring natural rock and dark, non-reflective colours. The proposed swing bridge is constructed of timber and steel and of similar design and style to the original bridge destroyed by a storm. The retention of a swing bridge style of structure means the structure will stay open and relatively light visibly as opposed to a solid span bridge structure. The new design has reduced the potential of storm damage and has taken into account storm surges and the changing nature of the Whenuariki stream. Public access to and along the coast will be enhanced with the proposed swing bridge and shared pathway. The proposed shared pathway has been designed to use the lowest height level to ensure reduced natural character effects compared with a height that sits at a level that accommodates 100 year timeframes. The approach taken assumes that

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		Preferred options for the construction approach to the proposed shared pathway have been explored. These options were discussed with both hapū and engineering experts from the local community. The general principles by both stakeholders was that the shared pathway construction be as low as possible and be made of natural materials utilising, where possible, materials such as sand from the site. These principles ensure the lowest cost options and the least visual impact on the natural character of the site. Three height profiles of the preferred design option were assessed to inform recommended design option of the lowest height profile.
Policy CE-P7	Ensure activities are not located inappropriately within the Coastal Environment, having regard to: 1. the effects of the activity and its impact on the particular natural character, landscape, amenity, historic and ecological values and/or recreational values of the area; 2. the outcomes of any consultation with and/or cultural advice provided by tangata whenua, including the extent to which the activity may compromise tangata whenua's relationship with their ancestral lands, water, sites, wāhi tapu, and other taonga, and/or tangata whenua's responsibilities as kaitiaki and mana whenua in the coastal environment; 3. the extent to which the values of the area are sensitive or vulnerable to change and/or any whether any adverse effects can be avoided, or where avoidance is not possible, appropriately remedied or mitigated; 4. opportunities to enhance, restore or rehabilitate the particular values of the coastal environment of the area; 5. the presence of any natural hazards and whether the activity will exacerbate the hazard and/or be vulnerable to it;	The most important aspect when considering the proposed swing bridge and shared pathway is to reduce the impact of both overtopping and storm surge impacts as this will affect the serviceability of the proposed shared pathway and swing bridge. Overtopping typically occurs when high coastal water levels and large waves coincide, resulting in waves breaking over the structure which can become a hazard to pedestrians. Long-term increases in this hazard are likely with sea level rises and beach levels lowering. A range of potential path levels were considered to inform an acceptable level of service in relation to overtopping. The preferred option provides for a shared pathway that minimises encroachment into the marine area. It is estimated that it will be overtopped by waves in a 1 in 1 year return storm. In instances like this in other parts of the Coastal Walkway, signage is used to indicate risk in storms and guide user caution. In 50 years, assuming current estimates for sea level rise, the shared pathway would be overtopped on a mean high water springs tide. The preferred option is a small scale structure that will enable public access in the short-medium term (up to 50 years) as modelled against Climate

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	6. the adoption of a risk-based approach to hazard management, including consideration of climate change and sea level rise; and 7. whether the activity maintains and/or enhances public access to and along the coast and recreation within the coastal environment, including to the Waiwhakaiho surf break, and regionally significant surf breaks within the New Plymouth District as identified in the Proposed Coastal Plan for Taranaki (as notified).	Change projections. It is a localised solution as there are no current options for access to be provided outside of the coastal hazard zone or coastal marine area. Balanced against the protection of cultural values this is an acceptable level of effect to provide community benefit for the foreseeable future. The proposed shared pathway provides for improved public access to a regionally significant surf break and ensures ongoing safe public access between a highly used and popular trail network along the coast and between Ahu Ahu road and Lower Weld road. Opportunities to enhance and restore the values of Weld road reserve exist with the provision of the proposed shared pathway, as it will enable a full restoration approach to be designed with hapū for Weld road reserve without needing to accommodate public access and its associated impacts on the archaeological and cultural site. The reserve provides a significant backdrop and contribution to the natural character of the area and restoration and protection of this area will enable enhancement over time of the natural character values.
Policy CE-P8	Require activities within the Coastal Environment to minimise any adverse landscape, biodiversity, visual and amenity effects by: 1. ensuring the scale, location and design of any built form or land modification is appropriate in the location; 2. integrating natural processes, landform and topography into the design of the activity, including the use of naturally occurring building platforms; 3. limiting the prominence or visibility of built form from public places and the coast; 4. where possible, limiting expansion of existing urban coastal settlements; and 5. retaining existing indigenous vegetation, and/or restoring and rehabilitating indigenous vegetation, using coastal plant species sourced from the relevant ecological district.	The scale and location of the proposed swing bridge and shared pathway have been determined based on the previously existing swing bridge and a location that has the least impact on the adjacent Hauranga pā. The prominence and visibility from the beach and ocean environment adjacent (predominant viewing audience) has been minimised by using the lightest and most open open bridge structure to span the stream and also by using natural rock materials to form the basis of the shared pathway that with the backdrop of cliff should recede relatively well into the landscape. Some limited vegetation removal will be required for the works, the intention being to minimise this and determine on site with hapū what can be retained and if removed, what can be replanted to mitigate this loss.

Policy CE-P13	Encourage restoration and rehabilitation of natural character, indigenous vegetation and habitats, cultural landscape features, dunes and other natural coastal features or processes.	Opportunities to enhance and restore the values of Weld road reserve exist with the provision of the proposed swing bridge and shared pathway, as it will enable a full restoration approach to be designed with hapū for Weld road reserve without needing to accommodate public access and its associated impacts on the archaeological and cultural site. The reserve provides a significant backdrop and contribution to the natural character of the area and restoration and protection of this area will enable enhancement over time of the natural character values. There is opportunity for additional dune restoration with appropriate indigenous dune vegetation at each end of the proposed shared pathway where it meets in with existing dune environments.
Objective RPROZ-04	The predominant character and amenity of the Rural Production Zone is maintained, which includes: 1. extensive areas of vegetation of varying types (for example, pasture for grazing, crops, forestry and indigenous vegetation and habitat) and the presence of large numbers of farmed animals; 2. low density built form with open space between buildings that are predominantly used for agricultural, pastoral and horticultural activities (for example, barns and sheds), low density rural living (for example, farm houses and worker's cottages) and community activities (for example, rural halls, domains and schools); 3. a range of noises, smells, light overspill and traffic, often on a cyclic and seasonable basis, generated from the production, manufacture, processing and/or transportation of raw materials derived from primary production; 4. interspersed existing rural industry facilities associated with the use of the land for intensive indoor farming, quarrying, oil and gas activities and cleanfills; and 5. the presence of rural infrastructure, including rural roads, and the on-site disposal of waste, and a general lack of urban infrastructure, including street lighting, solid fences and footpaths.	There are no landscape or visual effects on the rural production zone.
NPDC Operative District Plan		

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Policy 1.1	Activities should be located in areas where their effects are compatible with the character of the area.	The location of the proposed swing bridge and shared pathway has a significant visual backdrop of the Weld road reserve headland and vegetated edges of the Whenuariki stream. These features, with their highly vegetated character and rock coloured cliff geology is a landscape that will help to absorb the visual effects of the proposed swing bridge and shared pathway. The rock revetment of the shared pathway will be located in front of this feature and as such the most visually dominant feature is expected to remain the headland. The site location is therefore considered to be a compatible environment for this type of rock revetment, as compared with a natural dune environment, where the hard structure would have a more contrasting visual effect.
Policy 1.2	Activities within an area should not have adverse effects that diminish the amenity of neighbouring areas, having regard to the character of the receiving environment and cumulative effects.	The proposed swing bridge and shared pathway is located in a contained site between two streams and across the Whenuariki stream. This containment and the high visual dominance of the streams and their associated natural character will ensure that the proposed swing bridge and shared pathway will have limited effect on the amenity to the east and west of the site. In addition the headland of Weld road reserve and vegetated character of the bounding streams ensures that visibility from neighbouring properties to the south are negligible.
Objective 4	To ensure the subdivision, use and development of land maintains the elements of RURAL CHARACTER.	The proposed swing bridge and shared pathway is located within a coastal marine area that has natural character values of a duneland, vegetated coastal environment. The rural character areas sit behind the coastal area and as such the proposed shared pathway will not have any effect on rural character.
Policy 14.1	The natural character of the coastal environment should not be adversely affected by inappropriate subdivision, use or development and should, where practicable, be restored and rehabilitated.	The proposed swing bridge and shared pathway is being proposed in order that the cultural and geological feature of the Weld road esplanade reserve headland that includes part of Hauranga Pā, is able to be more effectively enhanced and restored. The enhancement results from the removal of informal tracks that public used over the headland that were damaging

		sensitive archaeological sites, native vegetation and adding to erosion of the headland formation. As such, although the proposed swing bridge and shared pathway is not enhancing the natural character, it will ensure enhancement of the adjacent Weld road reserve, by re-directing damaging public access activity into a less sensitive environment (outside of the Waahi tapu site and headland). There is a subtle balance here between effects on natural character and amenity, but overall the benefits are considered to improve outcomes for the more sensitive natural landscape of the headland that would otherwise have demand for public access.
Policy 18.1	Public access should be provided to and along the coast and PRIORITY WATERBODIES except where such access should be restricted: • To preserve natural character. • To protect SIGNIFICANT COASTAL AREAS. • To protect SIGNIFICANT NATURAL AREAS. • To safeguard ecological, intrinsic or recreational attributes. • To avoid conflicts between competing uses. • To protect cultural and spiritual values of TANGATA WHENUA. • To protect human health and safety. • For reasons of security. • To prevent aggravation of a natural hazard. • To protect the integrity of RIVER and flood control works. • To provide for any other exceptional circumstances that are sufficient to justify the restriction, not withstanding the national importance of maintaining access.	The proposed shared pathway provides for enhanced public access between Ahu Ahu road and Lower Weld road.

7 MITIGATION MEASURES AND RECOMMENDED CONDITIONS

It is considered that the proposed use of natural volcanic rock will age over time to blend well with the backdrop of the headland cliff and therefore provide a degree of mitigation for visual effects and in particular, to provide for integration of the proposed built form within the landscape. There is minimal vegetation disturbance proposed within the project, however where there may be some earthworks which result in exposed sand/ground areas, there is opportunity to consider use of appropriate coastal species to be planted.

The following conditions are recommended to ensure any visual and landscape effects of the proposed development are mitigated:

- That provision is made for assessment of opportunities post construction for appropriate indigenous coastal species to be re-instated adjacent to the cliff and on any disturbed land.
- That a co-management plan with hapū be developed for Weld road reserve taking into consideration weed removal, indigenous coastal planting (appropriate to preservation of archaeology).
- That the concrete pathway includes a black oxide to reduce the reflectivity of the concrete and ensure better integration with the rock colour and adjacent colour palette of the beach environment.
- That volcanic rock is sourced locally and where possible includes a range of sizes and smooth edges to allow public movement over the rocks to the beach.
- That some of the natural driftwood on site is replaced at the base of the rock revetment to create a more natural character to the newly established rock revetment.
- Increased potential for easy access to the beach from the proposed shared pathway with provision of informal strategically place rock revetment components to create natural rock steps part way along the shared pathway.
- That the landscape restoration and planting methodology is followed during construction.

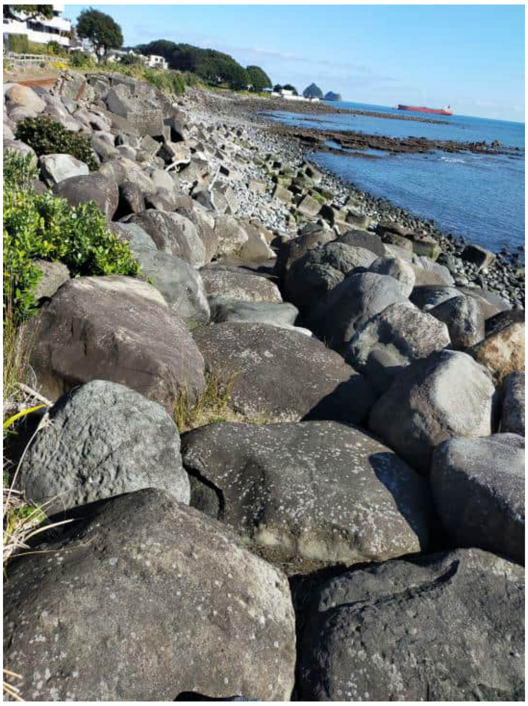

Figure 35 – Photograph showing example of rocks placed in revetment to allow for informal public access down revetment.

8 CONCLUSION

The application proposes to create a rock revetment and concrete shared pathway around the base of Weld road headland and to reinstate a swing bridge across the Whenuariki stream, to provide for safe public access across the stream and around the headland.

The design of the proposed swing bridge and shared pathway retains the large majority of vegetation within the coastal cliff environment of Weld road reserve/Hauranga Pā and will utilise natural shaped volcanic rock sourced from the District. The resulting structures have a backdrop of the cliffs of Weld road reserve and vegetated stream sides of the Whenuariki stream that reduces the visual effect of the proposed swing bridge and rock revetment that will be visible at the base and front of the cliff. This ensures the retention of the existing broader landscape character of the coastal environment of the site and ensures a mature vegetated backdrop to the proposed swing bridge and shared pathway from the reserve, beach and ocean viewpoints.

The addition of the rock revetment, although designed to be low profile and have a colour and material palette to blend as much as possible with the cliff-face behind, will have **moderate** effects on the local landscape. The proposed swing bridge and shared pathway materials and design are considered to be sympathetic to the location but will still generate a slight reduction in amenity in relation to the existing natural character. There will be benefits to the existing natural character by providing opportunities for enhancement of values on the adjacent Weld road reserve. This opportunity is related to the provision of the proposed swing bridge and shared pathway that will support removal of public access from that sensitive archaeological and cultural site. Development of a co-management plan with hapū for the site will explore opportunities for restoration of natural and cultural values for the site. In addition a landscape restoration and planting methodology will ensure mitigation of any affected vegetation during works.

The proposal will give rise to landscape and visual effects that are assessed to be of **moderate** degree.

Taking into account the natural materials and minimal structural elements of the proposed swing bridge and shared path and the bulk and scale being minimised and reduced in impact by the backdrop of the Weld road headland cliff and associated vegetation, the character and style of the proposal is considered to be appropriate and sympathetic to the local area and will not detract from the overall quality of the natural environment.

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Appendix A:

Visual Simulation

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Proposed Weld Road Pathway - Indicative Visual Simulation

50mm DSLR camera lens and 3 merged photos
Heights determined by survey on site
Date: 23rd June 2021
Version 1.0
Prepared by: Renee Davies - Planning and Design

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Appendix B:

Effects Ranking

Table: 7-Scale Effects Assessment Reference

The Best Practise Guideline for Visual and Landscape Assessments from the New Zealand Institute of Landscape Architects (NZILA) indicate that a 7-scale effects ranking is usual for Visual and Landscape Assessments. The ranking table below and used in this Assessment report uses the 7-scale of effects outlined in the NZILA Best Practise Guide and then provides explanations for the rankings based on the review of a number of effects ranking tables with common and complementary explanations.

Report descriptor NZILA[4]	Dictionary Definition (Oxford English)	Landscape Effects Explanation
Negligible	So small or unimportant as to be not worth considering; insignificant.	The proposed development is barely discernible or there are no changes to the existing character, features or landscape quality.
Very low		The proposed development is barely discernible with little change to the existing character, features or landscape quality. The proposal constitutes only an insignificant component of, or change to the wider view. Awareness of the proposal would have a very limited effect on the overall quality of the scene.
Low	Below average in amount, extent, or intensity. Lacking importance, prestige, or quality; inferior.	A slight loss to the existing character, features or landscape quality. The proposal constitutes only a minor component of or change to the wider view. Awareness of the proposal would not have a marked effect on the overall quality of the scene.
Moderate	Average in amount, intensity, or degree.	Partial change to the existing character or distinctive features of the landscape and a small reduction in the perceived amenity. The proposal may form a visible and recognisable change or new element within the overall scene which may be noticed by the viewer, but does not detract from the overall quality of the scene.
High	Extending above the normal level. Great in amount, value, size, or intensity. Great in rank, status or importance.	Noticeable change to the existing character or distinctive features of the landscape or reduction in the perceived amenity or the addition of new but uncharacteristic features and elements. The proposal may form a visible and recognisable change or new element within the overall scene and may be readily noticed by the viewer and which detracts from the overall quality of the scene
Very High		Major change to the existing character, distinctive features or quality of the landscape or a significant reduction in the perceived amenity of the outlook. The proposal forms a significant and immediately apparent part of, or change to, the scene that affects and changes its overall character
Extreme	Extensive or important enough to merit attention.	Total loss of the existing character, distinctive features or quality of the landscape resulting in a complete change to the landscape or outlook. The proposal becomes the dominant feature of the scene to which other elements become subordinate and it significantly affects and changes its character

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Appendix C:

Landscape and Planting Methodology

Landscape Restoration and Planting Methodology

1.0 Introduction

The coastal vegetation around the site is highly modified, comprised of treeland / duneland species such as pōhutukawa (‘Threatened’ – Nationally vulnerable) / puka (‘At Risk’ – Nationally uncommon) / karo / puahou with exotic grass, rank pasture and herbaceous species interspersed with duneland complex. There also appears to be a sparse understory of native and exotic grasses, sedges and ferns including pingao (‘At Risk’ – Declining) and kokihi (‘At Risk’ – Naturally Uncommon). Harakeke is also throughout and/or adjacent to both project sites. Example photographs of the vegetation types across the two project sites for the proposed swing bridge and shared pathway are provided below.

Duneland vegetation adjacent to the laydown area within the pathway project site

Duneland vegetation, a small area of which is to be removed for the pathway laydown area. View towards Weld Road carpark.

Coastal vegetation around the headland of the pathway project site, view from the ocean.

Coastal vegetation around the headland, view from the ocean.

	
Treeland/rank grass on the corner of the Weld Road reserve/near the bridge abutment on Whenuariki Stream (western side of the bridge project site).	Treeland/rank grass on the western side of the bridge project site, adjacent to the Whenuariki Stream.

2.0 Vegetation Removal

As part of the proposed development of the shared path, there will be some minimal lower level vegetation that will need removal and/or trimming, totalling approximately 240 m^2 of mixed native / exotic treeland, grassland and duneland vegetation. For the proposed bridge, removal and/or trimming of approximately 28 m^2 of mixed native/exotic treeland, and removal of 150 m^2 of grassland and shrubland and potentially some dune land vegetation is required (70 m^2 on the western bridge side and 80 m^2 on the eastern). The degree of vegetation removal and/or trimming is difficult to assess at this concept/developed design stage and as such the mitigation for this is proposed to be determined on site in partnership with Ngati Tairi as works progress. A landscape restoration and planting methodology is included in Appendix 3 to provide guidance on how that will occur. The trimming and removal of the vegetation is not expected to have any effect on the overall vegetated character of the site as the removal and trimming will be restricted and the remaining vegetation and proposed landscape and planting restoration proposed as mitigation will maintain a sense of vegetated edge to the headland behind the shared path.

3.0 Landscape Restoration Methodology

As the exact plants that will require removal and/or trimming for the proposed works will be determined on site during the construction works, it is proposed to establish a restoration methodology that will inform the restoration and species that make up the mitigation restoration.

The proposed restoration methodology is as follows:

a. Met on site with hapū and contractors during construction works to identify tree removals and at that time confirm with hapū the species for replacement planting. Plant selection will also take into account habitat for native birds and herpetofauna as identified in the ecological report.

b. Maintain a record of those removals and identified plant species and numbers in those locations to be planted in the next planting season following construction.

c. Order the plants as soon as full range of species required and numbers are confirmed. Eco-sourced to the Taranaki ecological district.

d. Planting to be undertaken in the first planting season following construction.

e. Plant in partnership with hapū.

f. Follow up through the Reserve Management Plan to be prepared in collaboration with hapū, an extended restoration plan for the broader site appropriate to both ecological conditions, archaeological considerations relating to Hauranga pā and cultural values.

4.0 Possible Plant Palette

The planting list below provides an overview of the range of species potentially suitable for the site based on the Restoration Planting in Taranaki: A guide to the Egmont Ecological District.

The final plant selection would be determined on site in partnership with hapū.

Table 1 : Range of potential coastal species for use within the landscape restoration.

Trees	
Maori /Common Name	**Latin Name**
Ti Kouka	*Cordyline australis*
Ngaio	*Myoporum laetum*
Mahoe	*Melicytus ramiflora*
Karaka	*Corynocarpus laevitagus*
Whau	*Enterlea arborescens*
Shrubs	
Coastal tree daisy	*Olearia solandri*
Hangehange	*Geniostoma ligustrifolium*
Karamu	*Coprosma robusta*
Karo	*Pittisporum crassifolium*
korikio	*Corokia cotoneaster 'Paritutu'*
Koromiko	*Hebe stricta*
Pinatoro	*Pimelea carnosa*
Rangiora	*Brachyglottis repanda*
Tauhinu	*Ozmanthus leptophyllus*
Taupata	*Coprosma repens*
Small leaved pohuehue	*Muehlenbeckia complexa*
Grasses	
Toetoe	*Austroderia toetoe*

Kowhangatara	*Spinifex sericeus*
Sedges	
Sand sedge	*Carex pumila*
Wiwi	*Ficinia nodosa*
Pingao	*Ficinia spiralis*
Herbs	
Harakeke	*Phormium tenax*
Native ice plant	*Disphyma australe*
Native spinach	*Tetragonia implexicoma*
New Zealand spinach	*Tetragonia tetragonioides*

Appendix I Assessment of Archaeological Effects

Weld Road Pathway and Ahu Ahu Bridge - Assessment of Archaeological Effects.

Project Area: Whenuariki Stream Mouth.

Proposed Works: Pathway, Bridge and Seawall Construction.

Commissioned by: NPDC.

Author: Ivan Bruce, Archaeological Resource Management, June 2023.

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Executive Summary

The New Plymouth District Council (NPDC) intend to replace the pedestrian bridge over the Whenuariki Stream, at the end of Ahu Ahu Road, recently washed away by flooding. At the same time, a rip-rap wall will be installed on the left (west) bank of the stream to protect the new bridge and pathway linking Ahu Ahu Road with Lower Weld Road. This assessment was undertaken to advise the NPDC whether this project will affect archaeological sites and whether a Heritage New Zealand Pouhere Taonga (HNZPT) authority application will be required to undertake earthworks involved in this project.

The project skirts the foreshore along the northern end of Hauranga Pa, and archaeological deposits in the form of middens, ovens and artefact finds spots, have been exposed in the project area in the past, and were apparent in active erosion faces as recently as May 2023. It can be expected that an archaeological site, P19/422, will be affected by these works, but that the effects will be relatively minor.

NPDC are advised to undertake these works under a general archaeological authority granted by the HNZPT.

Cover photo: Whenuariki Stream mouth, image taken looking west across P19/422 to Hauranga (P19/54) on the opposite bank, (Image: Ivan Bruce, May 2023).

1. Introduction

1.1 This evaluation was undertaken to advise the NPDC on the archaeological record of the project area, and of any likelihood that this project may affect an archaeological site or sites.

1.2 The evaluation is based on desktop research and a pedestrian archaeological survey of the project area.

1.3 The affected property appellations are:

Section 176 Oakura District
Section 177 Oakura District
Section 182 Oakura District

1.4 The areas affected by proposed earthworks are on situated on Council reserve land comprising coastal foreshore dunes, modified on the eastern side (true right bank) of the Whenuariki Stream to provide vehicle access from Ahu Ahu Road.

1.5 The project will require earthworks operations including: vegetation clearance; rock wall construction; bridge construction; and pathway construction.

1.6 This desktop evaluation was conducted specifically to identify potential archaeological sites, as defined by the Heritage New Zealand Pouhere Taonga Act (2014).

1.7 While some aspects of traditional Māori history relating to the area are discussed in this report, statements describing the cultural significance of this location to Māori are beyond the scope of this assessment.

1.8 This assessment was completed by Ivan Bruce in June 2023. The following report outlines the results.

2. Statutory requirements

2.1 There are two pieces of legislation in New Zealand that control work affecting archaeological sites. These are the *Heritage New Zealand Pouhere Taonga* Act 2014 (HNZPTA) and the *Resource Management Act* 1991 (RMA)

2.2 HNZPT administers the HNZPTA. It contains a consent (authority) process for any work affecting archaeological sites, where an archaeological site is defined as:

> Any place in New Zealand, including any building or structure (or part of a building or structure), that:
>
> a. 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
>
> b. Provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
>
> c. Includes a site for which a declaration is made under section 43(1)

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

2.4 The archaeological authority process applies to all archaeological sites, regardless of whether:

- The site is recorded in the New Zealand Archaeological Association Site Recording Scheme or included in the Heritage New Zealand List.
- The site only becomes known about because of ground disturbance, and/ or
- The activity is permitted under a district or regional plan, or a resource or building consent has been granted.

2.5 The heritage places assessed in this report are archaeological sites as defined under the HNZPTA.

2.6 The protection of archaeological sites and waahi taonga are specifically provided for within the proposed New Plymouth District Plan. All rules relating to historic heritage have had legal effect since the plan was notified on 23 September 2019. Following hearings, a decisions version of this plan has been released and adopted by the NPDC on 2 May 2023.

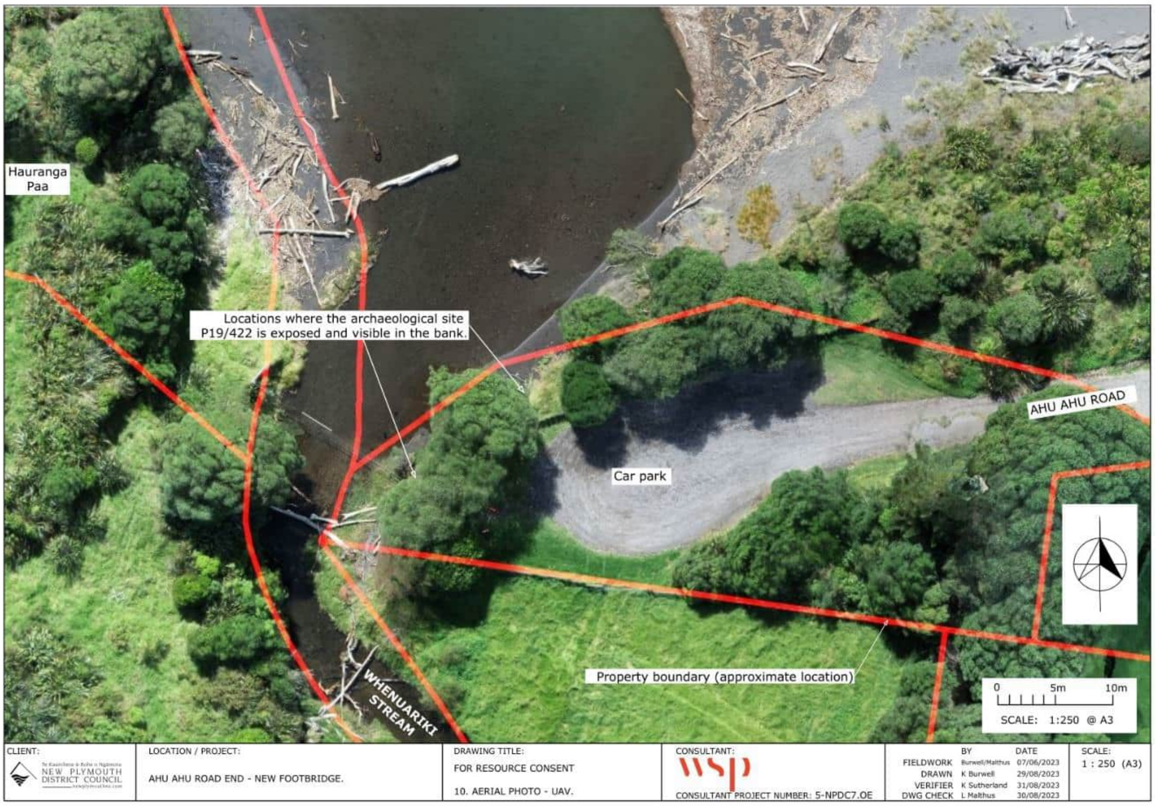

Figure 1: Arial photo showing location of archaeological site P19/422 and Hauranga pa (P19/52).

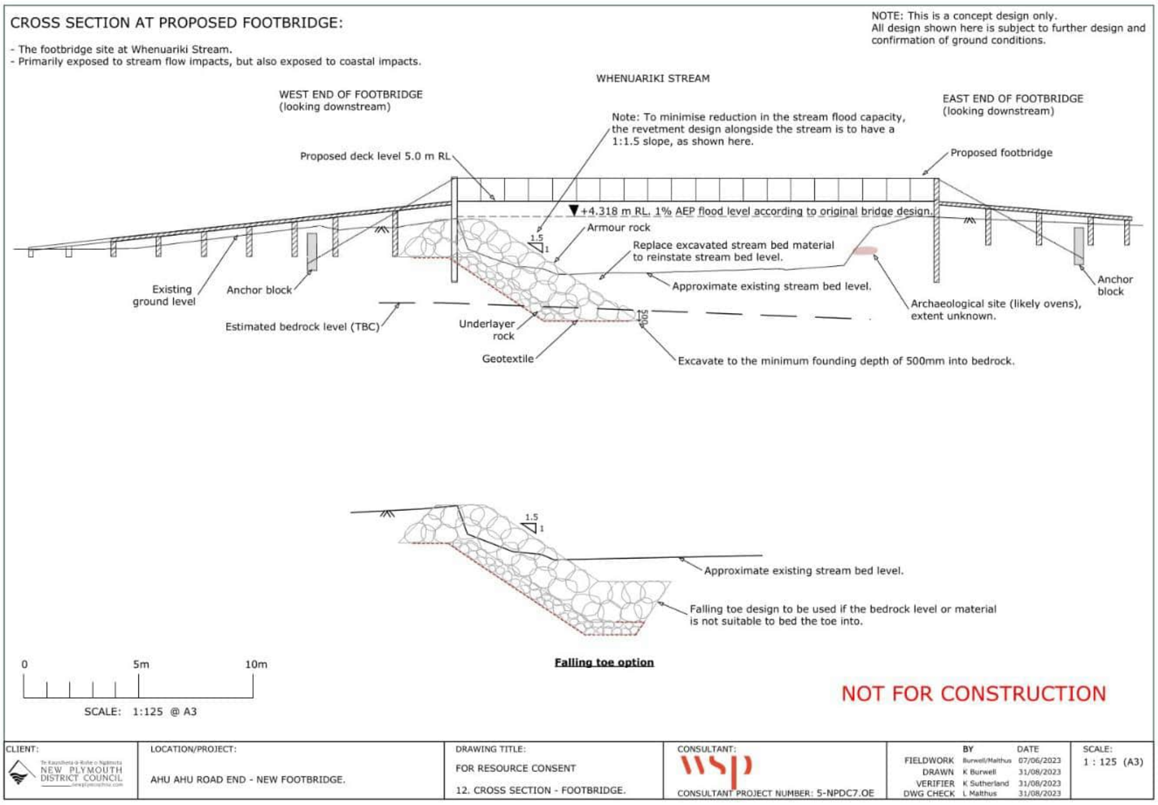

Figure 2: Plan of the proposed bridge construction as assessed.

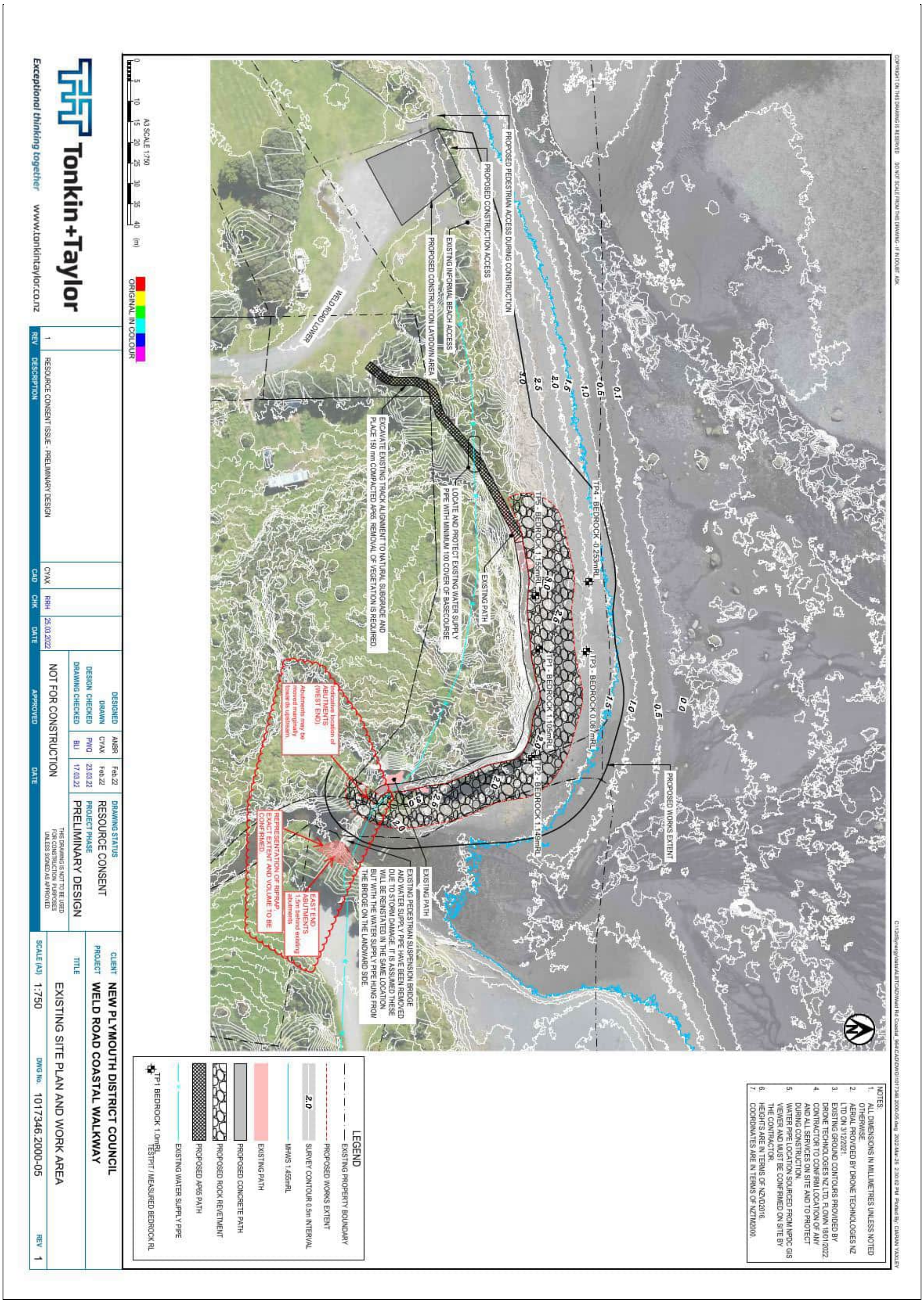

Figure 3: Plan of the proposed western rip-rap wall and walkway extension.

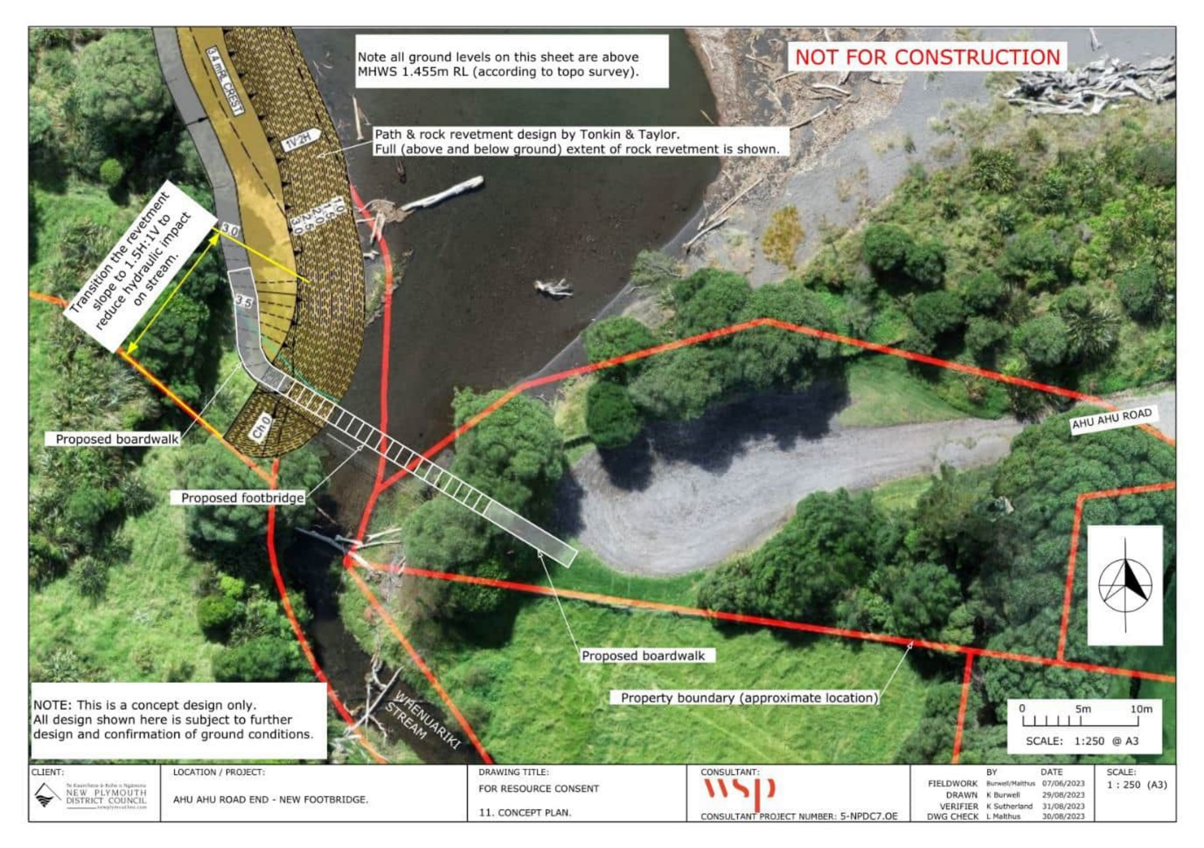

Figure 4: Estimated extent of project earthworks.

3. Resources and limitations

3.1 This assessment includes a review of the NZAA site recording scheme (Archsite 2023); the New Plymouth District plan; archival material; early aerial photography; land plans; and relevant historic literature.

3.2 The project area was subject to a pedestrian field survey. No remote sensing or excavation of archaeological test pits were undertaken during this assessment. Stratigraphic profiles were observed in erosion faces.

4. Project outline - Scope of earthworks

4.1 The project will require earthworks on either side of the stream to replace the pedestrian bridge, including the excavation of excavation of at least 30 piles, with an additional anchor block buried on either bank. The anchor blocks will require the excavation of a trench two metres deep by 40cm wide for the length of 1.75 m, each pile will require the excavation by auger, of a pile hole 40cm in diameter and to a depth up to 3m.

4.2 On the right (eastern) bank, proposed earthworks will be required for the digging of piles and anchor blocks; the removal of tree roots from existing vegetation; and preparation of the approach to the bridge from the Ahu Ahu Road car park area.

4.2 To support the bridge foundations on the left (west) bank, rip-rap protection comprising stone seawalls will be installed. This will require earthworks to embed the wall and to batter the slope of the current erosion face. Earthworks may be required to remove the root systems of the existing vegetation located on the left bank. Limited earthworks may also be required to place footings for the proposed boardwalk that will merge into an existing informal pathway through the dunes to the carpark at the end of Lower Weld Road. No earthworks will be undertaken to further form that pathway.

4.3 No rip-rap protection is proposed for the right (east) bank of the stream that contains the archaeological site P19/422.

5. Physical environment and setting

5.1 The project area is situated at the mouth of the Whenuariki Stream. To the west of the stream is the headland containing Hauranga Pa. One of the largest coastal pa sites of the Oakura District (Prickett 1982). Volcanic breccia is exposed along the northern toe of this headland, and highly mobile dune sands form around the coastal margin.

5.2 The right (east) bank of the stream is predominantly highly mobile coastal dune, affected by erosion tidal action and the changing course of the stream at the mouth. The area behind the dunes, is an informal car park, under grass and gravel, formed on a terrace created some time previously, by cut and fill earthworks.

6. Historic record

6.1 The historic and archaeological record of Hauranga has been covered in a previous archaeological assessment of that site undertaken by this author in 2008[1], and more recently following damage caused to the site by the construction of informal pedestrian and bike track through the site in 2020[2]. Copies of these reports will be included in the authority application.

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[1] Bruce, I. 2008.

[2] Bruce, I. 2020.

7. Archaeological Record

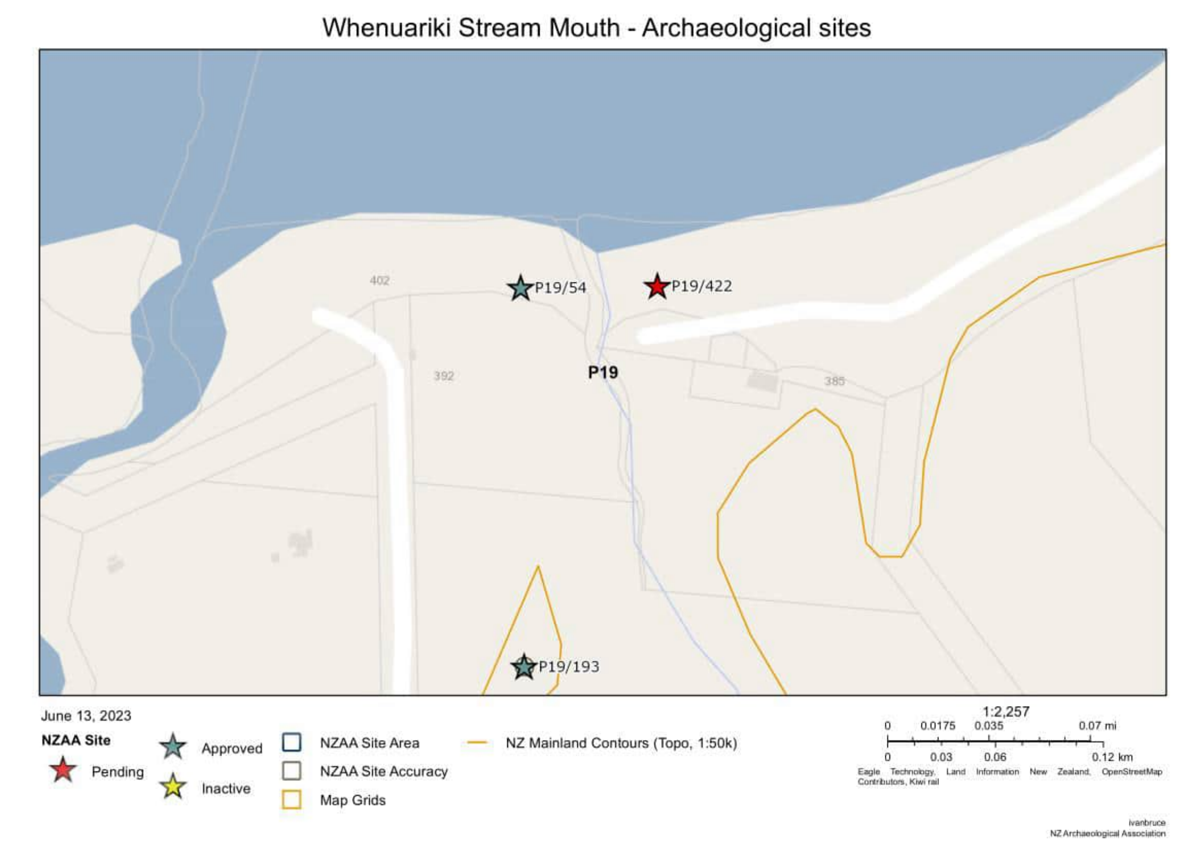


Figure 5: Archaeological sites recorded near the project area (ArchSite: Accessed June 2023)

7.1 The New Zealand Archaeological Association Site Recording Scheme (Archsite 2023) indicates that three archaeological sites are recorded within or nearby the project area. The sites P19/54 and P19/193, comprise Hauranga pa, artificially separated into two separate site records. The record for site P19/54 was updated by this author in January 2022, following the installation of protection fencing at Hauranga. One new site P19/422 has been recorded because of this assessment.

NZAA site number	NPDC plan number	Name	Site Description
P19/54	NPDC S	Hauranga	Pa
P19/193	181	Hauranga	Pa
P19/422	N/A	N/A	Oven/ midden

Table 1: Archaeological sites within or near the project area

8. Decision Version – Proposed NPDC District Plan

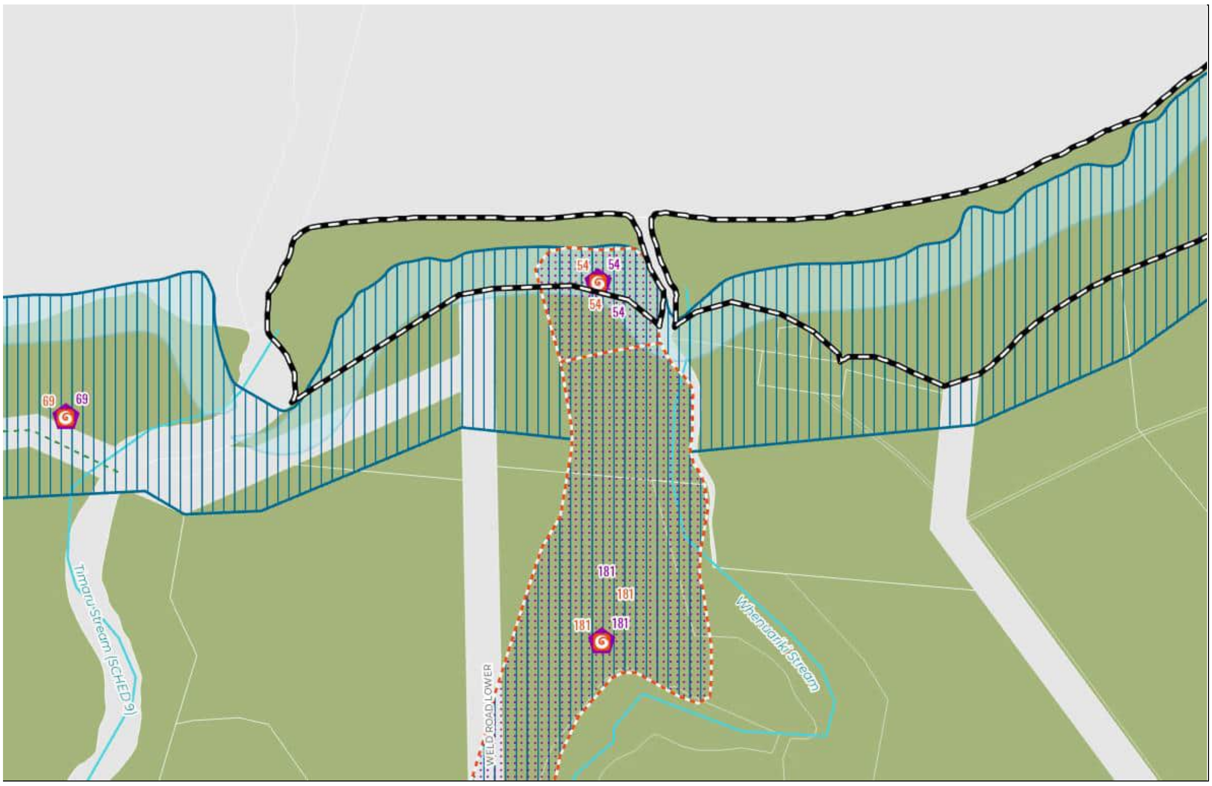


Figure 6. Archaeological sites and SASM's scheduled within 200m of the project (NPDC plan, decision version accessed May 2023).

8.1 Two archaeological sites and/or sites and areas of significance to Māori (SASMs) are scheduled within 50m of the project on the decision version of the proposed New Plymouth District Plan. Both sites are scheduled with a mapped extent and earthworks relating to this project will take place within 50m of this mapped extent. Under rule HH-R24, these works would be considered a discretionary activity.

9. Archaeological authorities.

9.1 One previous archaeological authority, 2021/714, was granted under minor effects provisions, to fence Hauranga pa from public access.[3]

[3] Work completed and reported to Kathryn Hurren (HNZPT), by email on 21/1/2022.

10. Survey Results.

Figure 7: Site P19/422, Oven stones exposed below washed-out bridge foundation in February 2022 (Image: Ivan Bruce, February 2022).

10.1 The archaeological survey of this project has entailed several site visits to the project area by this author since February 2022, following the initial loss of the pedestrian bridge, and subsequent exposures of archaeological evidence along the eroding coastal dune. My site visits followed the notification by a member of the public of new exposures of archaeological material after episodes of coastal erosion in the general vicinity of the project area.

10.2 In-situ archaeological evidence of Māori occupation was noted in the project area, on the eastern bank of the stream. Archaeological evidence, in the form of cooking stones, lenses of charcoal, and charcoal stained soils can be seen eroding from the bank of the stream, below the abutments of the former bridge and in at least two other exposures located five metres and 20m east of the former bridge. This has now been recorded as archaeological site P19/422.

Figure 8: Oven stones exposed below washed-out bridge foundation in February 2022 photographed in detail. (Image: Ivan Bruce, February 2022).

10.3 Feature 1. An exposure of charcoal-stained stones contained within a matrix of charcoal-stained dune sand below the former bridge abutments on the east bank of the stream. The stones sit on a lens of silty ash deposits, probably former riverbank, and are covered by a 0.5m of dune sand. Above the dune sand approximately 0.5m of redeposited fill has been overlaid, by cut and fill earthworks. The position of the stones within this stratigraphic profile suggests that the deposits are not recent, and I consider it probable that they are most likely the remnants of an in-situ oven, associated with Māori occupation at Hauranga. This oven was first noted in February 2022, and the feature was still evident when last visited in June 2023.

Figure 9: Site P19/422, Feature 2. Exposed May 2023 (Image: Ivan Bruce, May 2023).

10.4 Feature 2. Another exposure of oven stone and charcoal was noted following storm surges in May 2023 approximately five metres east of Feature 1. Here a section of charcoal and fire-cracked and charcoal-stained stone, measuring approximately two metres long and 20cm thick are situated below the root system of a Pohutukawa tree. This deposit is in the same position of the exposed stratigraphic profile as Feature 1 and given the proximity of the exposures it is reasonable to assume these are both part of a wider lens of cultural deposits situated below the dunes on the eastern bank of the stream.

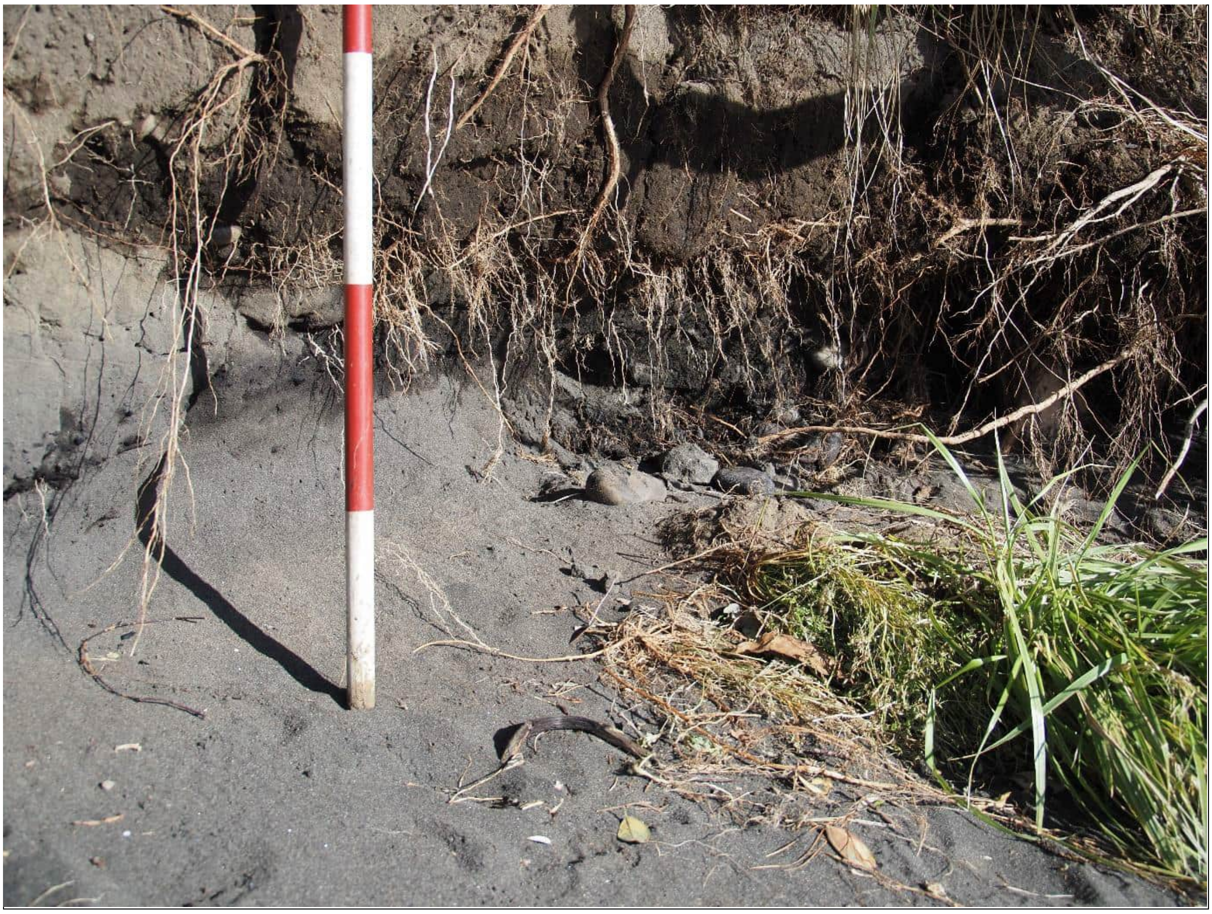


Figure 10: Site P19/422, Feature 2 photographed in detail, May 2023 (Image: Ivan Bruce, May 2023).

10.5 Feature 3. Another exposure of charcoal-stained stone was noted in dunes 20m east of Features 1 and 2. These were noted in February 2002 and comprise a section of what appeared to be largely in-situ cooking oven of Māori origin. The exposure was recorded in mobile dunes, approximately one metre above the high tide mark, covered by another 1.5m of unstable windblown dune. It was not clear whether this feature was situated in a similar stratigraphic position to Features 1 and 2 and I can make no inferences as to whether the feature is temporally contemporaneous on current evidence. The deposit was not recovered during recent visits in 2023.

Figure 11: Site P19/422, Feature 3. Oven stones exposed in dunes February 2022 (Image: Ivan Bruce, February 2022).

10.6 No archaeological evidence was noted within the project area on the western bank of the stream. All visible archaeological evidence, such as the component pits and terraces of Hauranga have been avoided by the project work. However the possibility that unrecorded subsurface archaeological evidence may exist either under sediments in the western bank, or within the foreshore dunes at the northern end of the pa, cannot be discounted.

11. Archaeological values

11.1 The archaeological values of P19/422 are assessed on the following criteria. Condition, rarity, contextual value, information potential, and cultural associations.

11.2 Site P19/422

Site	**Value**	**Assessment**
Ovens, P19/422	Condition	Fair – visible in coastal erosion face, in at least 2 exposures. Whether the site extends inland and for what distance is unclear.
	Rarity	Common – Coastal Māori ovens and middens are widely reported in the Taranaki archaeological landscape.
	Context	High - The ovens are potentially related to the occupation of the regionally significant archaeological pa site of Hauranga, situated on the opposite bank of the Whenuariki Stream.
	Information potential	Moderate – The ovens could potentially provide radio-carbon dates which may add to our understanding of the occupation of the area. However any dates recovered would need to be part of a wider study of the dated sites in the area to provide meaningful data.
	Amenity value	Moderate - Archaeological features are subsurface, and only visible in small sections. Furthermore they are unstable and prone to flood damage. However, there are opportunities for further public engagement by updating existing public signage as required.
	Cultural associations	Unstated - However it can be expected that the cultural associations of Ngati Tairi will be high.

11.3 Site P19/54 and P19/193.

Site	Value	Assessment
Hauranga (P19/54 and P19/193)	Condition	Good – Despite damage caused by ploughing; earthworks; road construction; stock damage; and revegetation; a significant number of surface features are visible, and the site contains considerable potential for the recovery of subsurface archaeological features and artefacts.
	Rarity	Common - Coastal pa sites are numerous and iconic features of the archaeological landscape in Taranaki.
	Context	High – A regionally significant archaeological pa site, one of the largest in the Oakura District.
	Information potential	Moderate - ***Within the project area,*** it is expected that any affected archaeological features will be limited to currently subsurface ovens and middens located in the coastal dunes.
	Amenity value	High – Hauranga is a highly visible archaeological site with high potential for public engagement. Public signage is in place and can be updated as required.
	Cultural associations	Unstated - However it can be expected that the cultural associations of Ngati Tairi will be high.

12. Assessment of Effects

12.1 The proposed works may affect archaeological evidence relating to archaeological site P19/422 on right (east) bank of the Whenuariki Stream; and could potentially affect currently subsurface archaeological evidence related to Hauranga (P19/54) either under sediments in the left (west) bank, or within the foreshore dunes immediately north of this pa.

12.2 The extent to which P19/422 extends inland from the coastal exposures is not known and would require extensive archaeological excavation to establish. It is therefore not clear whether the drilling of pile holes and/or the excavation of the anchor blocks will affect this site, but I consider there are reasonable grounds to assume they will. However, the effect on the site can be expected to be relatively minor and limited to the holes bored for piles and the small trench required to install the anchor block. Archaeological evidence, if encountered, would be visible and could be recorded in the trench profiles and bore holes. I note these works would be similar in scale and effect to the excavation of test pits required to test for archaeological evidence at these locations.

12.3 The removal of vegetation on the right (east) bank has the potential to affect the site P19/422. Trees identified for removal have root systems that surround and may extend into the archaeological deposits. Site damage will be inevitable should the vegetation be removed by mechanical digger. Even removal of the vegetation using hand techniques may affect the site in the long term by destabilising the dune around the exposed features.

12.4 Currently there is no visible surface archaeological evidence noted on the left (western) bank which will be affected by earthworks involved in the construction of those bridge abutments or the rip-rap wall. Furthermore I consider the recovery of unrecorded archaeological evidence here to be a low risk due to the extensive scouring on the left bank of the stream and the eastern edge of Hauranga. The rip-rap wall is to be embedded within the high tide zone, where tidal action can be expected to have disturbed archaeological evidence and extends only as far as the northern toe of Hauranga with the proposed walkway situated on top of this wall. Where the rip-rap wall stops, the walkway merges with the dunes and follows an existing informal track. No earthworks are currently proposed to upgrade this section of track limiting the risk of archaeological finds in this section of dunes during these project works.

13. Recommendations

13.1 As this project may affect the recorded archaeological sites of P19/54 and P19/422 the NPDC should apply to HNZPT for a general authority to modify these archaeological sites prior to undertaking earthworks involved with this project. It can be expected that this authority will contain conditions including the onsite monitoring of earthworks by a qualified archaeologist. Archaeological investigation and reporting of finds to an accepted archaeological standard will be required.

13.2 I recommend that the scope of the authority application covers all earthworks undertaken as part of this project, including the removal of vegetation; the construction of bridge abutments; the installation of the protective rip-rap wall; path construction and track maintenance required to complete this project.

13.3 Pre application discussions should be undertaken with the regional archaeologist from HNZPT prior to submitting this application to ensure that the correct process is undertaken, and the application contains all required information to process the authority.

14. Conclusion

14.1 The NPDC have commissioned this assessment of archaeological effects of the proposed Weld Road walkway and Ahu Ahu bridge construction. One new archaeological site, P19/422, has been recorded and the previously recorded archaeological site of Hauranga pa (P19/54) is located within the project area. Specific effects on the relevant sites are described in this report. Recommendations are made to undertake works under an archaeological authority granted by HNZPT.

15. References

15.1 Written Sources

Bruce, I. 2008. Archaeological Assessment of Hauranga Pa, Weld Road Recreation Reserve, Oakura. Unpublished report commissioned by the NPDC.

Bruce, I. 2020. Damage Report. Hauranga (P19/54 and P19/193). Unpublished report commissioned by the NPDC.

Prickett, N. 1982. Maori Fortifications of the Tataraimaka District, Taranaki. Records of the Auckland Institute and Museum. No 19 Pp 1 -52.

16 Appendix

16.1 NZAA site record form P19/422

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

ARCHSITE archaeological site recording scheme

Site Record Form

NZAA SITE NUMBER: P19/422

SITE TYPE: Midden/Oven

SITE NAME(s):

DATE RECORDED:

SITE COORDINATES (NZTM) Easting: 1679946 **Northing:** 5669577 **Source:** On Screen

IMPERIAL SITE NUMBER: **METRIC SITE NUMBER:** P19/422

Finding aids to the location of the site

True right bank of the Whenuariki Stream at the mouth. In dunes seaward side of carpark at the end of Ahu Ahu Road car park

Brief description

Recorded features

Ovenstones, Charcoal

Other sites associated with this site

P19/54, P19/193

Printed by: ivanbruce 13/06/2023

1 of 3

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD HISTORY	NZAA SITE NUMBER: P19/422

Site description

Updated 13/06/2023 (Field visit), submitted by ivanbruce , visited 01/06/2023 by Bruce, Ivan
Grid reference (E1679946 / N5669577)

Three exposure noted.
Feature 1. An exposure of charcoal-stained stones contained within a matrix of charcoal-stained dune sand below the former bridge abutments on the western bank of the stream. The stones sit on a lens of silty ash deposits, probably former riverbank, and are covered by a 0.5m of dune sand. Above the dune sand approximately 0.5m of redeposited fill has been overlaid, by cut and fill earthworks. The position of the stones within this stratigraphic profile suggests that the deposits are not recent, and I consider it probable that they are most likely the remnants of an in-situ oven, associated with Maori occupation at Hauranga P19/54. This oven was first noted in February 2022, and the feature was still evident when last visited in June 2023.
Feature 2. Another exposure of oven stone and charcoal was noted following storm surges in May 2023 approximately five metres west of Feature 1. Here a section of charcoal and fire-cracked and charcoal-stained stone, measuring approximately two metres long and 20cm thick are situated below the root system of a Pohutukawa tree. This deposit is in the same position of the exposed stratigraphic profile as Feature 1 and given the proximity of the exposures it is reasonable to assume these are both part of a wider lens of cultural deposits situated below the dunes on the western bank of the stream.
Feature 3. Another exposure of charcoal-stained stone was noted in dunes 20m west of Features 1 and 2. These were noted in February 2002 and comprise a section of what appeared to be largely in-situ cooking oven of Maori origin. The exposure was recorded in mobile dunes, approximately one metre above the high tide mark, covered by another 1.5m of unstable windblown dune. It was not clear whether this feature was situated in a similar stratigraphic position to Features 1 and 2 and I can make no inferences as to whether the feature is temporally contemporaneous on current evidence. The deposit was not recovered during recent visits in 2023.

Condition of the site

Updated 13/06/2023 (Field visit), submitted by ivanbruce , visited 01/06/2023 by Bruce, Ivan

Poor, eroding, likely to be affected by future flood protection and bridge building.

Statement of condition

Current land use:

Threats:

Appendix J Consultation Summary

Weld Road Reserve and Ahu Ahu Bridge

Consultation Summary

Prepared by New Plymouth District Council

1.0 Weld Road Reserve Public Access

Weld Road Reserve forms a small section of approximately 160m within a broader walking network that includes both formed and informal (unformed) sections along this coastline.

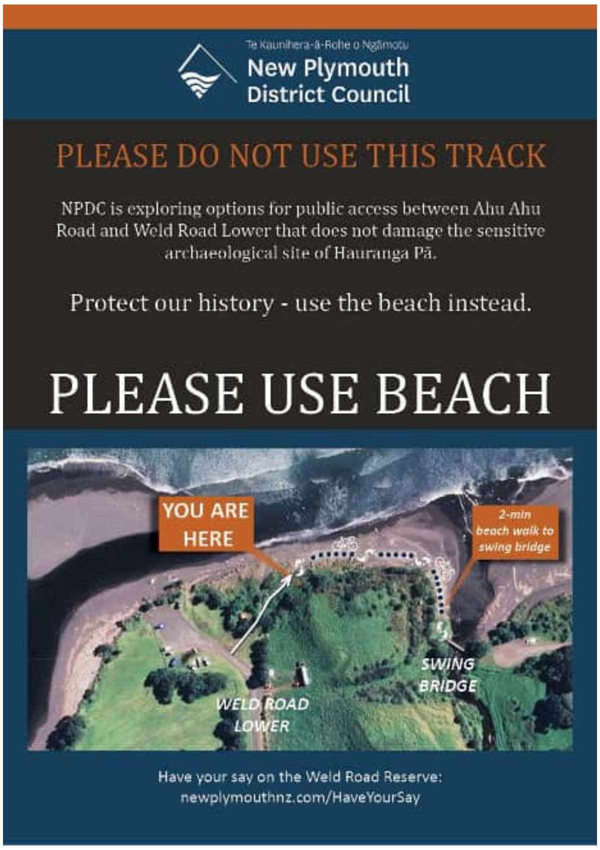
Both pedestrians and cyclists use this walkway. Pedestrians also access and utilise the 3km walk along Sandy Beach (south of Weld Road Reserve) to Lower Greenwood Reserve. Tides affect the use of the Sandy Beach access.

There is public access around the headland of Weld Road Reserve via the beach. This is approximately a 1-2 minute walk. At very high tides wave action can extend to the base of the headland/cliff. This is dependent on the state of the beach and stream mouth variability.

For very short periods of time some high tides (or changes in the Whenuariki Stream alignment) can temporarily prevent public access along the beach.

Informal tracks across Hauranga Pā were identified by hapū and archaeological assessments to be causing damage to the archaeological site. As a result, council approved for that informal access track to be closed under the provisions of the Reserves Act 1977 and the Heritage NZ Pouhere Taonga Act.

A new temporary sign was installed over summer 2020/21 to assist in reducing damage to the site until a Council decision on the issues had been made. This provided information to users of the reserve about the process and directed people to the survey on Council's 'have your say' page.



During that summer a survey of the community was undertaken to assess the interest in a formal walkway being provided at Weld Road.

Subsequent to a previous Council decision (Annual Plan 2013/14) a design report concluded that it was feasible to construct a boardwalk around the headland at that point in time. However, Council did not carry forward funding provisions from the 2015-2025 Long Term Plan into the 2018-2028 Long Term Plan.

Officers continued to explore options for formalised shared pathway access between Ahu Ahu and Lower Weld roads. These include potential purchase of land, other routes within the reserve and coastal structures at the base of the headland.

There are no esplanade reserves along the Whenuariki Stream directly to the north of Weld Road Reserve headland. Any access from the western side of the Ahu Ahu swing bridge, outside of the Reserve, would be required to go over private land.

Options were explored to provide a formalised walkway to follow the route of the steep informal access track. Due to the steep topography and archaeology along this track, formalised walkway structures in this location are not feasible. This is reinforced by the earlier archaeological report in September 2008.

In 2013 an initial engineering investigation was undertaken for a boardwalk at the base of the headland. A site investigation and topographical survey was undertaken which established ground profiles and depth of competent bearing material. The investigation confirmed there was bedrock at the base of the headland at a depth of between 0.7 and 1.2m. This would allow for construction of a shared pathway structure that would likely withstand the coastal processes in the area. It was proposed that the structure would be 2.9m above mean high sea level to avoid the possibility of severe wave impact. The structure would also require some form of protection (rock revetment or otherwise) in order to ensure longevity.

Council officers obtained community and stakeholder views through a community survey and direct consultation with tangata whenua, DoC and Heritage New Zealand.

Feedback received has informed the option approved by Council to proceed with a formalised walkway.

2.0 Ahu Ahu Road Swing Bridge

The Ahu Ahu Road swing bridge provides access from the end of Ahu Ahu road to the esplanade reserve that includes Hauranga pā and the proposed walkway site.

A storm in February 2022 destroyed the bridge. As such, the walkway project was put on hold until a plan for reinstatement of the bridge was in place as the two projects were considered to be linked (ie. Without the bridge no connection to the proposed walkway).

As such, a period of engineering work and consultation with hapū on the bridge reinstatement occurred during 2022 and 2023. This also included consultation with two adjacent landowners of the stream where the bridge works are proposed.

Due to interdependencies on each project and associated aligned technical reports a combined resource consent process was confirmed to be undertaken. As such, re-engagement with hapu on consent considerations included both the walkway and bridge projects.

Council officers met with hapu representatives as and when preliminary concept drawings for the bridge project were available.

3.0 Summary of Consultation Undertaken and Dates

Date	Consultation Type	Who Consulted	Notice
22nd November 2020	Meeting	Ngāti Tairi and Ngā Māhanga and Oakura Pa Trustees	Invitation to present at meeting.
January to June 2021	Various site visits	Ngāti Tairi and Ngā Māhanga and Oakura Pa Trustees	Invitation to do site walkovers and discuss project
January 26th 2021	Newspaper article and Radio NZ report	General public notice/information	Taranaki Daily News and Stuff website – article

	https://www.stuff.co.nz/taranaki-daily-news/news/124044275/district-council-to-discuss-protection-for-new-plymouth-sacred-site https://www.rnz.co.nz/news/te-manu-korihi/435217/council-hopeful-of-resolving-pa-tensions-at-coastal-reserve		about discussion on protection of the pa site and associated walkway proposal.
13th November 2020 – 24th December 2021	Survey – both online through Councils website and written submissions accepted at Oakura library and Council offices	Open to any visitors to Council's website 355 submission responses received	Notice on NPDC Website
January to June 2021	Various site visits	Ngāti Tairi and Ngā Māhanga and Oakura Pa Trustees	Invitation to do site walkovers and discuss project
14th November 2020	Article in local newspaper with survey link	All Oākura residents	Delivered to all Oākura mail boxes
14th November 2020	Letter with link to survey and information about access/walkway	All residents of Oākura with mail boxes.	Letter included in TOP magazine delivered to all urban mail boxes.
27th November 2020	Letter with link to survey and information about access/walkway	Residents along Weld Road Lower and Ahu Ahu Road Lower that were not covered by the TOP magazine mail drop	Letterdrop to all residents along Weld Road Lower and Ahu Ahu Road Lower
11th June 2021	Meeting	Representatives from local volunteer group of interested locals with engineering background Clive Neeson John Quilter Neil Farrant	One on one communication
13th July 2021	Publicly accessible report to Strategy and Operations Committee meeting.	Councillors	Council website

26th July 2021	Publicly accessible report to Kaitake Community Board	Kaitake Community Board and attendees	Council website
3rd August 2021	Te Huinga Taumatua Committee Meeting	Iwi representatives and Councillors on Committee	Council website
17th August 2021	Publicly accessible report to Council meeting	Councillors and public in attendance (zoom also)	Council website
21st August 2021	Article https://www.stuff.co.nz/taranaki-daily-news/news/300386836/new-plymouth-district-councillors-approve-570000-shared-path-around-historic-p-site	General public notice/information	Stuff website and Taranaki Daily news
Oct 21 – early 2022	Worked with local group of engineers alongside Council consultants to develop the technical drawings for the walkway project.	Local group of engineers with interest in the project	Email and meetings.
Oct 21 – Oct 2022	Site visits and hui with hapū to progress design for the walkway and consideration of consent requirements, including review and input into technicial reports	Ngāti Tairi and Ngā Māhanga and Oākura Pa Trustees	Email and in person
14th February 2022 – Storm damage destroys swing bridge at Ahu Ahu Road			
13th November 2022	Site visit to present and discuss consent conditions and alignment of both the bridge and walkway projects.	Ngāti Tairi and Ngā Māhanga and Oākura Pa Trustees	Email
3rd April 2023	Email sent to hapū as follow up to November hui where both bridge and walkway project were discussed.	Ngāti Tairi and Ngā Māhanga and Oākura Pa Trustees	Email
April – August 2023	Email communication with hapū as engineering plans are developed for the bridge design	Ngāti Tairi and Ngā Māhanga and Oākura Pa Trustees	Email
14th August 2023	Site visit with hapū to discuss both bridge and walkway project and alignment and proposed works.	Ngāti Tairi and Ngā Māhanga and Oākura Pa Trustees	Email calendar invitation
21st August 2023	Adjacent neighbour who confirmed she was supportive of both projects. Her only concern	Jan Marshall	Direct conversation

	was that the ramp up to the bridge on the eastern side should not obstruct the gate into her property there. I said that we hadn't done the final layout, but it would probably be ok, but if not we would arrange to relocate the gate slightly to the east on the fence line. She was ok with that.		
September 2023	Communication with DoC on proposed plans.	Department of Conservation	Email and meeting.

4.0 Survey results

A targeted letter-drop and survey of local residents ran from 13 November 2020 and was open for input on Council's 'Have Your Say' website page. Council distributed letters shown in Appendix 1 through The Ōākura Post (TOP) magazine distribution network. The Council also delivered to letterboxes along Ahu Ahu, Lower Timaru and Lower Weld roads. In addition the Kaitake Community Board report to the November edition of the TOP magazine raised the issue and the Ōākura Library provided paper copies of the survey. The library was a point of delivery for any hard copy surveys.

At the end of December 2020, the public had lodged 338 submissions. A full summary of these submissions grouped under key topics/issues with associated graphical diagrams is provided at Appendix 2.

The survey shows that this part of the coastline between the end of Ahu Ahu Road and Lower Weld Road Reserve is well used, with 65 per cent of respondents regularly using this part of the coastline. The vast majority of use is for walking (56 per cent) with other uses focusing on beach-related recreational activities such as surfing, swimming, horse riding, running, checking surf and picnicking. Twenty two per cent of respondents identified cycling as a use.

Sixty eight per cent of respondents indicated that they used both the beach and reserve for access between Ahu Ahu and Lower Weld Road. Twenty four per cent only beach access and eight per cent only used Reserve access.

The survey asked respondents if they felt that formal access around the headland was required in addition to the beach. The majority of respondents (79 per cent) indicated that they would like formal access. Twenty one per cent of respondents supported just using the beach.

In relation to the provision of cycling and mountain-biking along this part of the coastline, 86 per cent of respondents felt that Council should plan for infrastructure to support this use. Fourteen per cent of respondents indicated they didn’t think infrastructure should be provided for this.

The majority of respondents (266) indicated they were aware that the Reserve was an archaeological site of cultural significance, with 61 not being aware of this.

A local group that has established over the years promotes use and development of a coastal trail in this location. The group began work in the late 1980s by planting trees and removing weeds along what is known as the ‘back track’ (Ōākura campground to lower Ahu Ahu Road). They have also been working with local landowners and Council to promote progression of the trail to Fort St George from Lower Timaru Road and possible improvements to provide for cycling in addition to the current informal walking.

The current coastal route for cycling/mountain biking is approximately 10km in length and extends from Ōākura township along the Ahu Ahu Road track across the two swing bridges and then connects to Lower Timaru Road where the route goes south and connects on-road back to Ōākura. If access between Ahu Ahu Road and Lower Weld Road were not provided, then the route would be reduced to approximately 2km. The route has also become a good way for surfers who bike to their surfing locations to avoid main roads.

Members of the group have expertise in engineering and have offered to work with Council to assist in designing a walkway that responds appropriately to the natural character of the location.

5.0 Tangata whenua

Weld Road Reserve is within the tribal rohe of Taranaki Iwi. The area is of historic and cultural significance to Ngā Māhanga and Ngāti Tairi Hapū.

Site visits with hapū representatives and subsequent attendance at meetings with hapū at Ōākura marae have confirmed their collective concern. The site is of great cultural significance to them and the damage occurring due to the steep topography of that particular track is of particular concern and they have requested Council considers restriction of access to Hauranga Pā.

Hapū have indicated verbally that the lower track from the beach across the southern end of the reserve is not causing concerns in terms of the degree of damage and they are comfortable with this being utilised for ongoing public access. This reduces the length of beach access and/or formalised walkway required at the base of the headland and maintains a higher point than at the carpark, where surfers can observe the conditions albeit that it is not the current 'lookout' point which is approximately halfway up the headland.

Hapū have indicated they are supportive in principle with the concept of providing some form of formal walkway at the base of the headland and have requested involvement in any design and consenting associated with that option.

6.0 DoC Feedback

Weld Road Reserve is owned by the Crown through DoC but is administered by NPDC. Officers have been consulting with DoC throughout the process of community consultation and options analysis. DoC is supportive of the process that Council undertook to investigate and determine options for addressing the issues.

DoC indicated they would require further details of any proposed coastal structures for alternative access options around the headland before being able to provide support. This is due to concerns in relation to impacts on natural character of the coastal marine area with coastal structures.

DoC has reviewed the design proposals and detailed reports for the resource consent.

7.0 HNZPT Feedback

Throughout the process Council officers have been liaising with HNZPT and the updated archaeological report has been forwarded to them. HNZPT supported a response to the issue being delayed to allow for community input through the survey.

HNZPT review the hapū consultation to inform the Archaeological Authority. Hapū have provided a letter of support for the Archaeological Authority.

Appendix 1 Letter to Residents

Te Kaunihera-ā-Rohe o Ngāmotu
New Plymouth District Council

11th November 2020

Dear Ōākura Resident,

WELD ROAD RESERVE UPDATE AND SURVEY

Heritage New Zealand Pouhere Taonga (HNZPT) has asked NPDC to review access to Weld Road Reserve due to ongoing damage of the archaeological site of Hauranga Pā.

An expert archaeological assessment has confirmed the damage, which is being caused by the use and expansion of informal tracks.

This issue has been a matter of considerable public interest since 2009. In 2019, NPDC worked with the local hapū and the community to educate walkers by installing signs telling the story of Hauranga Pā.. The intention was that the community could make informed decisions about whether they would use the track to cross over the site or to respect the wishes of local hapū and go around it on the beach.

The signs have not achieved the desired result of reducing public use of the tracks and the damage has got worse. Heritage New Zealand Pouhere Taonga is now requiring better protection of the site under the HNZPT Act.

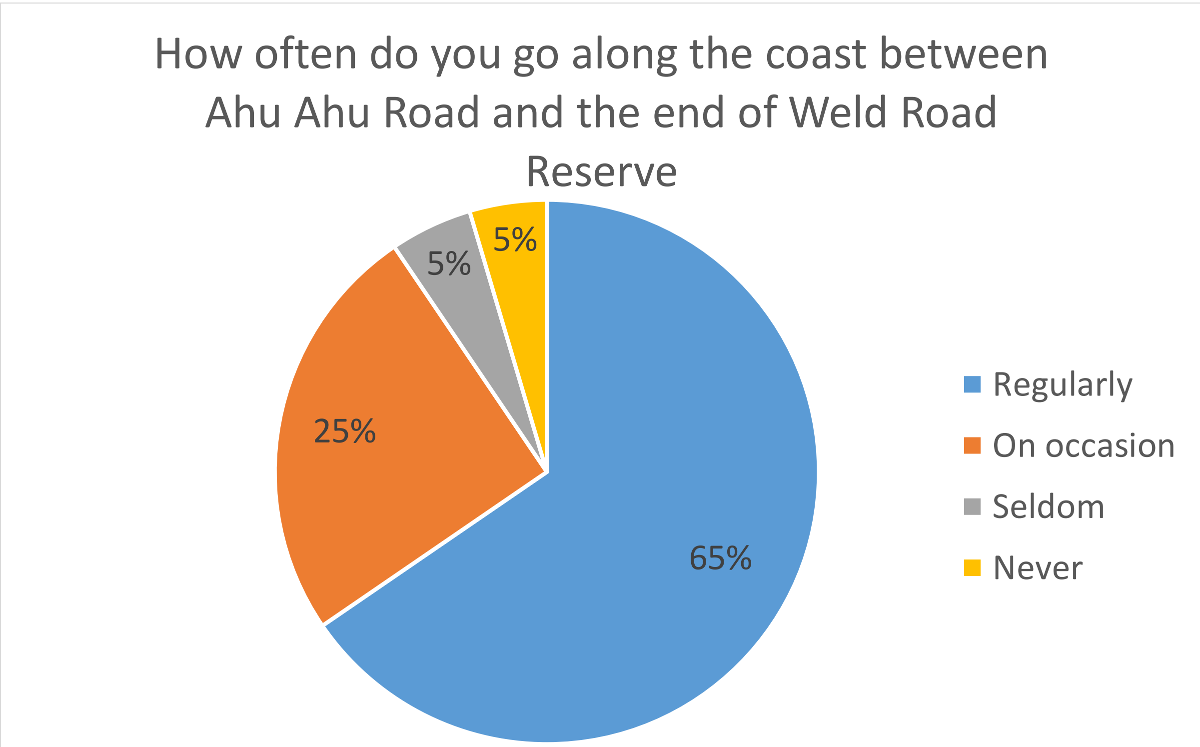
Aerial photograph of Weld Road Reserve and surrounding area.

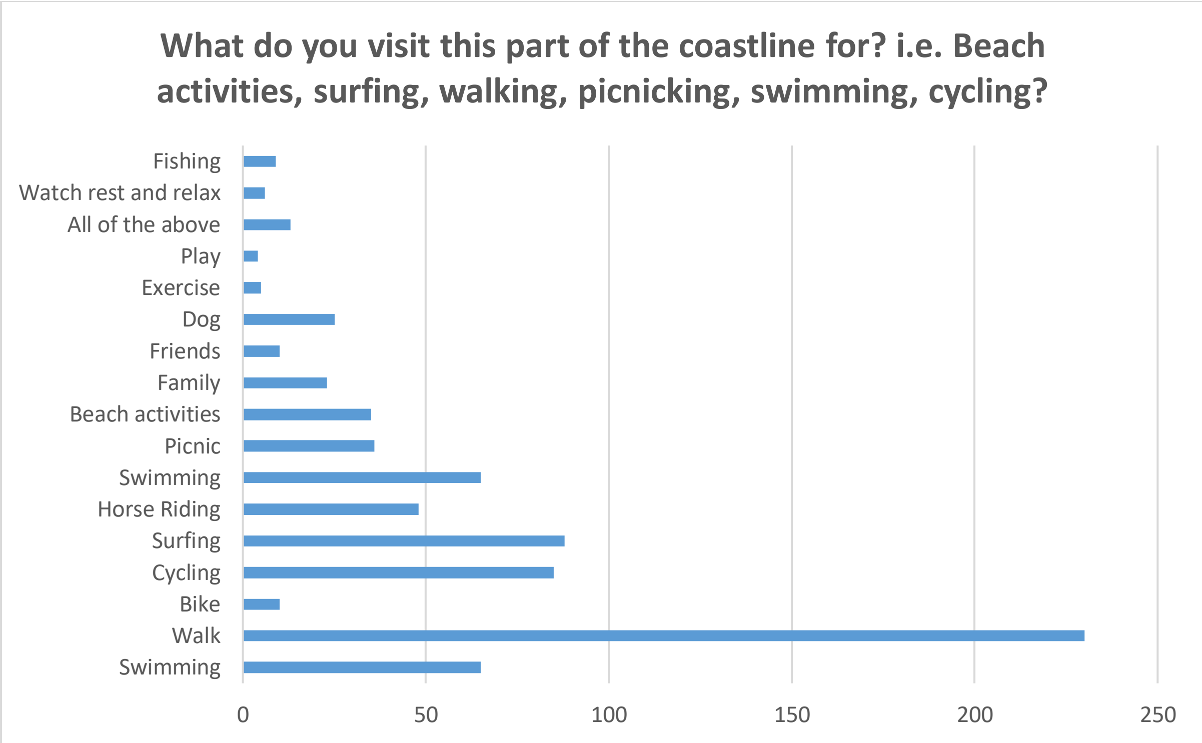
Liardet Street, Private Bag 2025, New Plymouth 4340, New Zealand
P 06-759 6060 | F 06-759 6072 | E enquiries@npdc.govt.nz

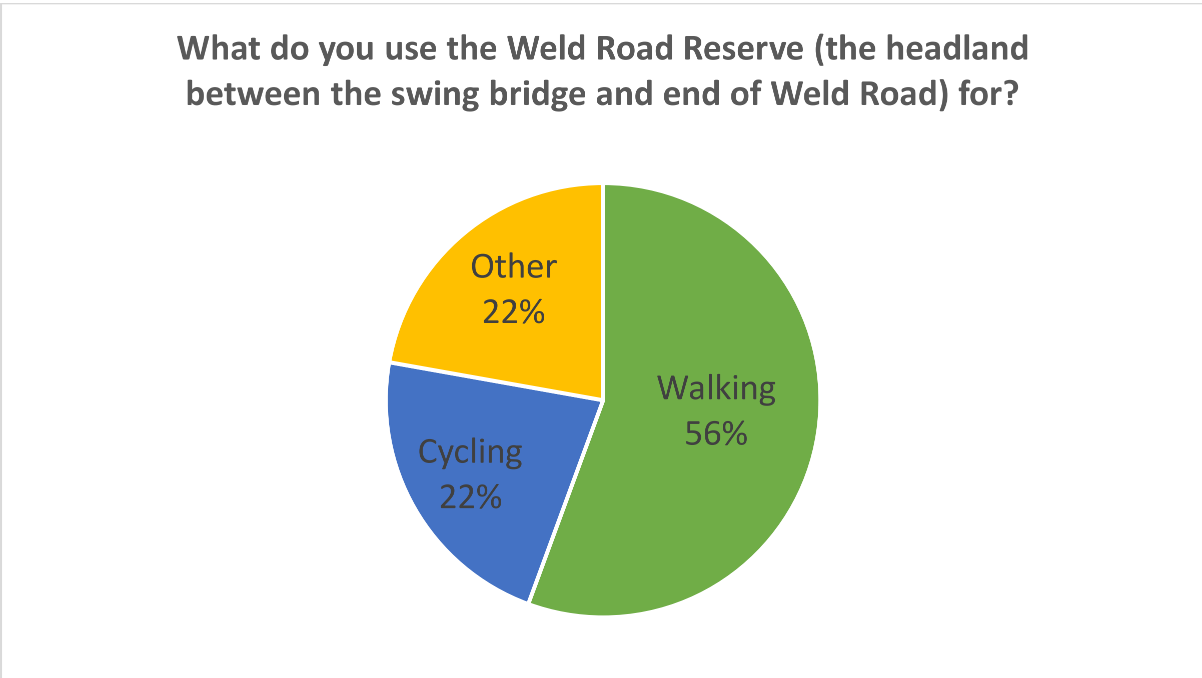
Appendix 2 Survey/Submission Summary

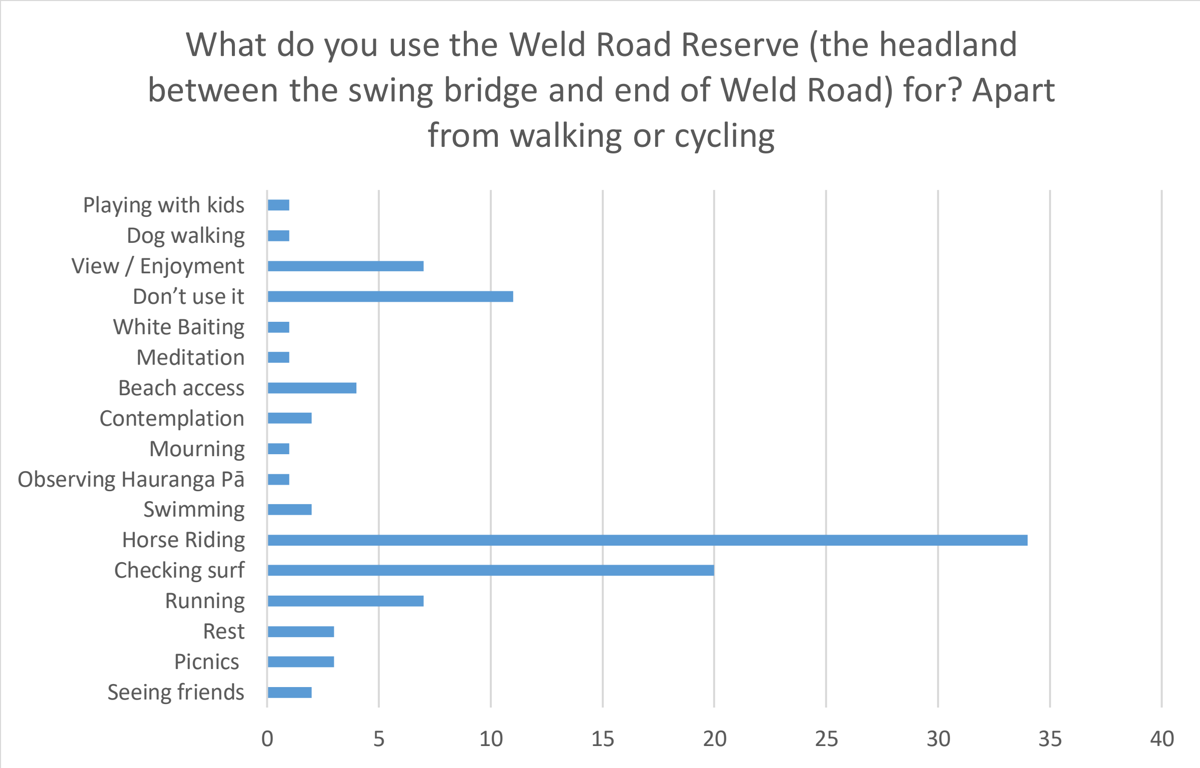
Weld Road Reserve Survey and Submission Summary

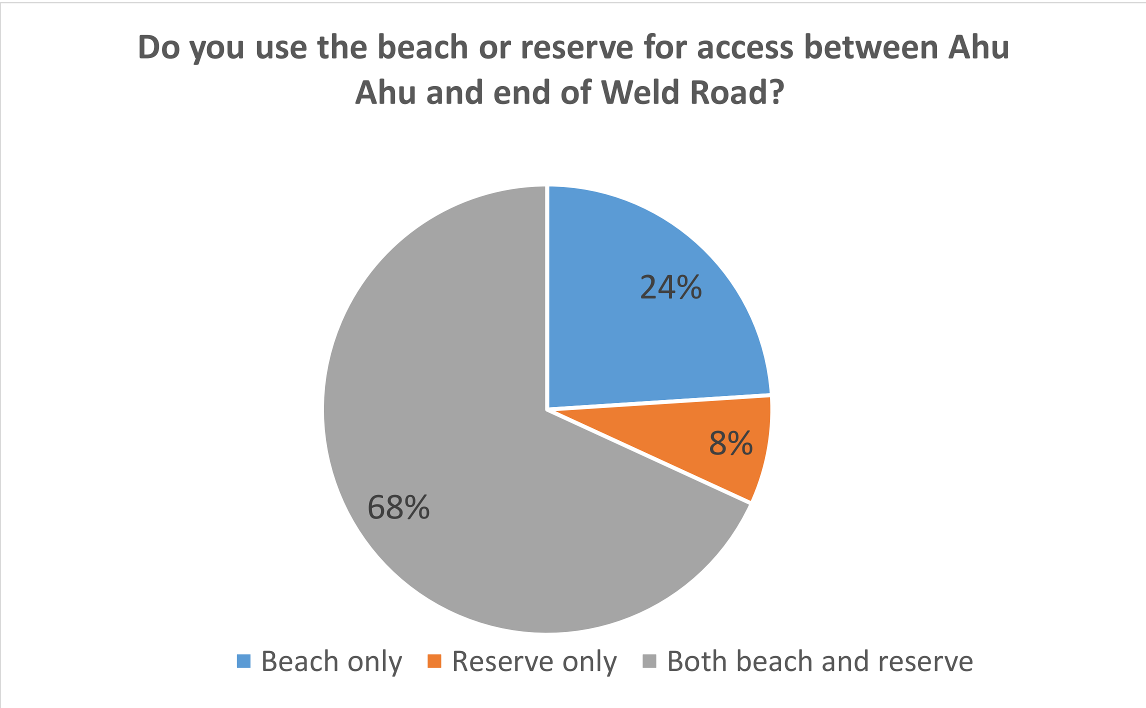
- Survey was open from 13 November 2020.
- As at 24 December there have been 355 email submissions and/or survey responses.
- The survey remained open over the busy summer holiday period to further inform future options analysis.

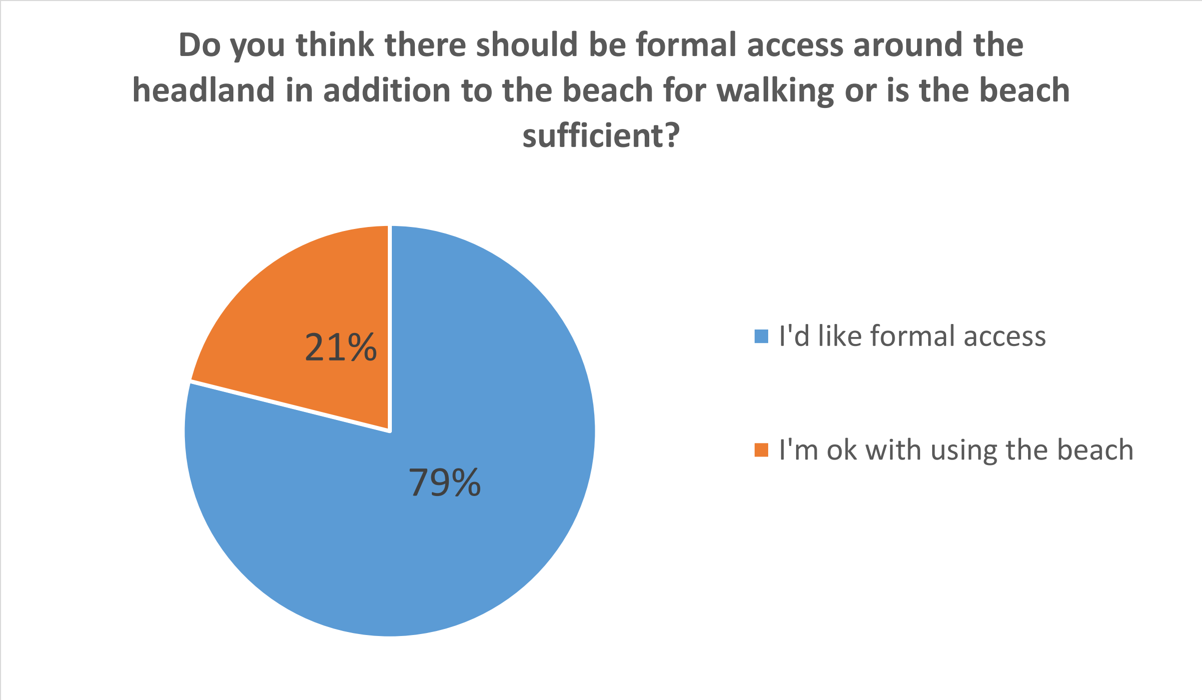


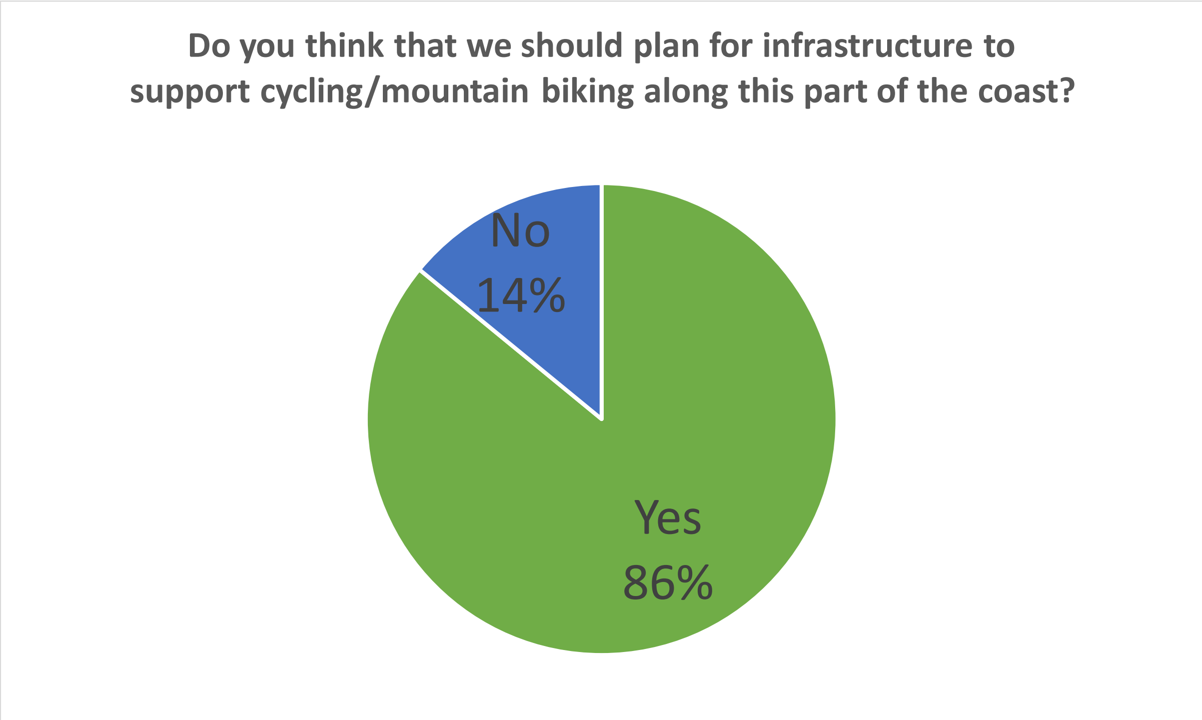

What do you visit this part of the coastline for? i.e. Beach activities, surfing, walking, picnicking, swimming, cycling?
Fishing
Watch rest and relax
All of the above
Play
Exercise
Dog
Friends
Family
Beach activities
Picnic
Swimming
Horse Riding
Surfing
Cycling
Bike
Walk
Swimming
0
50
100
150
200
250


What do you use the Weld Road Reserve (the headland between the swing bridge and end of Weld Road) for?
Other 22%
Walking 56%
Cycling 22%


What do you use the Weld Road Reserve (the headland between the swing bridge and end of Weld Road) for? Apart from walking or cycling
Playing with kids
Dog walking
View / Enjoyment
Don't use it
White Baiting
Meditation
Beach access
Contemplation
Mourning
Observing Hauranga Pā
Swimming
Horse Riding
Checking surf
Running
Rest
Picnics
Seeing friends
0
5
10
15
20
25
30
35
40


Do you use the beach or reserve for access between Ahu Ahu and end of Weld Road?
24%
8%
68%
Beach only
Reserve only
Both beach and reserve


Do you think there should be formal access around the headland in addition to the beach for walking or is the beach sufficient?
21%
79%
I'd like formal access
I'm ok with using the beach


Do you think that we should plan for infrastructure to support cycling/mountain biking along this part of the coast?
No
14%
Yes
86%

What impact would closure of the informal reserve track have on you? Please describe below.

No impact

57 people mentioned that they will continue on like normal, they already walk along the beach.

Impact

Surface

- 130 people mentioned that the surface and beach only use would mean they are unable to go along the beach due to accessibility and the surface. People also won't go that way due to it having to carry their bike or take their shoes off.
- 96 people mentioned that the tide can be unpredictable and are worried about safety along with getting trapped one side.
- 29 people mentioned there will be a positive impact on protecting the cultural and historical site through closure of the reserve.
- 7 people said that they would still walk on the reserve if it was closed.
- 18 people said the view is important for scenic, surf and lifeguarding purposes.

Access

- 48 people mentioned that the access to the roads such as Ahu Ahu and Weld road are important – Closing them would be inconvenient.
- 72 people thought that if the reserve was closed it would be frustrating, inconvenient and would annoyed by it.
- 7 people said that they would still walk on the reserve if it was closed.
- 18 people said the view is important for scenic, surf and lifeguarding purposes.
- 20 people mentioned that they wouldn't go that way at all if was closed.
- 16 people said whatever happens it is important to keep the car parking the size or expand it at Weld Road.
- 12 people mentioned that the access to the beach needs to be kept.
- 6 people said it is great having two different accesses.
- 4 people mentioned that the reserve should be closed for long term protecting but there does need to be walkway through to the other side – apart from the beach.

Other

- 4 people mentioned it would decrease their enjoyment of Oakura.
- 6 people mentioned that the pā is very useful as an education piece.
- 29 people said by closing the reserve it would decrease their amount of exercise.
- 21 people said it would impact their family history by not being able to walk on the reserve.
- 9 people mentioned that they will use their car more to travel elsewhere for fitness, bike riding and horse riding.
- 28 people mentioned they are frustrated and scared for their safety through concern over being challenged by using the track.
- Limit traffic around the area.
- It would be an unfair application of law resulting in exclusion of public access, while a private individual would remain unchallenged in his illegal dwelling on part of the reserve.
- Accessibility issues and unable to go on beach eg: wheelchair/electric bike bound.

Do you have any other comments / suggestions?

Track

- 5 people mentioned it would be unacceptable to close the track.
- 10 people mentioned that the reserve should be closed to protect the pā.
- 64 people said to protect the pā site but there needs to be a proper track.
- 28 people mentioned that they would like a new track for bikers and walkers across the reserve that is also wheelchair accessible.
- 21 people mentioned that the current track is fine on the reserve and not damaging the pā it just needs to be maintained.
- 16 people mentioned that they would like the Coastal Walkway to extend to Ōākura and then continue around the cost further to Opunake.
- 5 people mentioned that their needs to be track to see the views for sightseeing and lifesaving (Surf/swim).
- 3 people mentioned to build a walkway up further by the river.
- 6 people mentioned that there needs to be a different bike and walking track around the pā site.
- 9 people mentioned that the old paper road should be reinstated.
- 2 people said that using the beach is fine.
- 4 people mentioned that there should be a timber walkway in front of the site, on the edge and maybe some cultural information boards along the way explaining the site, and history.
- 16 people mentioned that their needs to be more horse tracks, adequate carparking and people to be mindful of horses.
- 2 people suggested to restore the original features, put signage in place to explain their significance and build a better walkway which prevents erosion, possibly using plastic matting which is used successfully on many coastal walkways.
- A simple wooden edged and gravelled track with some steps up and over the reserve site would be ample to protect any so-called destruction.
- Steps could be premade and pinned to the ground without disturbing the site
- Get a professionally built track with switchbacks to enable cyclists to pedal up it.
- Don't put a track along the beach.
- Ōākura needs a mountain biking track.

Suggestions

- 7 people mentioned that there needs to more archaeological surveys/information completed.
- 12 people mentioned that better communication is needed as there is confusion in the community.
- 3 people said there needs to be better signage.
- 22 people said the reserve and pā is a great way for education and should be extended to tell the rich history and culture etc.
- 4 people mentioned that NPDC need to work alongside hapū and do what they want to do.
- 27 people mentioned that that council need to take action and make a decision while involving all parties.
- 2 people suggested to restore the original features, put signage in place to explain their significance and build a better walkway which prevents erosion, possibly using plastic matting which is used successfully on many coastal walkways.
- 4 people suggested more planting.
- 5 people suggested the following:
    - Build an erosion wall by the sea;
    - Reopen the grass area for extra parking as it gets very crowded on fine weekends;
    - Campground - have something like that again, it would be great for tourism;
    - Control the use of motor vehicles on the beach; and
    - Stop horses on the beach

30 people mentioned that they had concerns over the conflict that has occurred at the site and, also concerns in relation to the environment

Detailed excerpts from submissions reflective of suggestions for track options and design responses

Negotiate formation of a track on the southern boundary with the two land owners . The council to assist by fencing a corridor and planting. A land swap could be considered if necessary .

The option of simply closing the track and making people using beach won't work . It won't save the Pa : Walkers travelling west on the beach need to get back to the road end at Weld road , tracks become formed through the dunes near the weld road carpark from this usage and this erodes the sand banks that offer some protection to western end of the Pa and Weld road reserve. If the tracks are simply closed with no alternative there will be ongoing tensions and community divisiveness. Informal tracks would likely continue or fenced off areas damaged

I regularly use the headland track and do not agree that there has been significant damage caused by access. I am not sure who has cleared some scrub but on close inspection I believe only gorse has been removed. The steep Weld road section would be improved with stairs and this would prevent people using alternate routes when it is wet. I would be very disappointed if access was again blocked to what is a beautiful location that should be available to all locals and visitors, as long as is done in a respectful manner. A formal track with a information board at the look out detailing the history and significant to local hapū is my preferred outcome

Allow horses on beach during school term before 3pm, reduce evening as always many people on beach in holidays, less people less children less issues, we need to be able to ride we have top riders in all disciplines of equestrian sport including Olympic riders that have grown up in the Oakura area.

If we go back in time, 35 years this was a site of a local bach, which was a focal point for the local surfing and windsurfing community, and the access was around the back of the headland for all to use if required. This Bach is also of histrorical significance and should be rebuilt, after the fire that destroyed it 15 years ago. This piece of coastal reserve should be maintained for the good of the larger community, for recreational purposes not locked up for no other reason due to the wishes of a single individual.

Horse riding must be included in activities in this area. I would like motor vehicles banned from the actual beach as there is wild life trying to exist there. Nesting birds, seals etc. Loud motorbikes and 4 wheel drive vehicles disrupt the animals and make it unpleasant/dangerous for walkers and horse riders

The bulk of the damage is caused by mountain bikers. A sign banning bikers and simple fence with a stile would alleviate this. If indeed there is an archaeological site of any significance there, which is doubtful, then NPDC should finish the HPT process and remove any artefacts found such that the public can have unfettered access. This headland has over the years been farmed, had a dwelling erected and recently removed, all without any issues from local iwi. To now deny public access is against the interests of the multitude of locals who wish to respectfully enjoy this headland.

Many pā (archeological sites) sites have cows grazing on them. Koru pa has public access . Why can't we walk across this site? If this site is so sacred why is someone living there?

The FULL HAURANGA PA SITE has not yet been investigated to an acceptable standard and this needs to be a priority. The two separate sites that are the HAURANGA PA SITE should be investigated as a single site, including the bit that the bus is parked on and the appropriateness of access, including appropriateness of residential use.

I think we should add a "P" to the listing of this area as a reserve. Preserve, protect and respect this area as an important site for our children, grandchildren and future generation rather than walking all over it. It could be turned into a learning center (if local Iwi were interested) for better cultural understanding. An addition to the new proposed improved Parihaka site. The two sites could run together attracting people to the area and educating at the same time.

I'm very aware of Ivan Bruce's 2 reports on Hauranga Pa. His 2008 report specified that Hauranga Pa has been split up into 2 zones P19/54 -the reserve and p19/193 the neighbouring property (under maori ownership right next door) Ivan Bruce stipulates in his 2008 report that p19/54 and p19/193 are one and the same. THEY ARE THE SAME PIECE OF LAND. He has though only ever been tasked with assessing p19/54 the reserve and not p19/193 the remainder. I'm campaigning to have the entire Hauranga Pa assessed as an archaeological site. I am absolutely mystified why p19/193 has not been also referred to by HNZTP to be assessed. I find this highly irregular as the reasoning behind assessing p19/54 was and I quote from the mail out " An expert archaeological assessment has confirmed the damage is being caused by the use and expansion of informal tracks". That may be the case but you should also consider the fact that [an individual][1] is damaging p19/193 by living on the site in an illegal bus driven onto the site 15 years ago and now deteriorating to an extent that is irreparable whilst dispersing grey water and who also from time to time has grazed stock on p19/193. There is a massive discrepancy apparent here in how information has been reported to HNZPT regarding Hauranga Pā and they need to be made aware of that discrepancy. It is my intention to make that happen with a signed petition sent directly to HNZPT.

This has been an ongoing problem which the council has ignored. It is part of a link many people use for cycling exercise between Oakura and Lower Pitone Rd via the bridge across the river at Weld Rd. It is unreasonable to be expected to push $13000 ebikes along the beach, so a walkway must be developed immediately to avoid future confrontations.

Protecting the Pa site is important however I'm struggling to see why this can't be done in a way that still allows access for walking and running.

As I see it, some form of a permanent path should be built along the base of the bank on the beach. This could be a boardwalk or maybe a concrete path that could also stop erosion by the sea. A solution should be found soon as we should be encouraging people to get outside, not limit their options. There is also bare land on both sides of the river further upstream. If nothing else could be built around the river, this could be an alternative.

For many reasons the headland should be protected and off limits to the general public. It seems completely absurd to insist on using the informal track over the headland, rather than the beach, when it causes so much, cultural offence and environmental degradation. In this day and age 2020, i feel we would stepping in the wrong direction to allow people to choose to be disrespectful and destructive to places such as these. The track ,very obviously, should be closed.

We are completely in favour of protecting and preserving cultural land , but the public needs to have access around the foreshore. This area should be able to accessed but the public and not one individual. It needs some form of foot track around the base area. Please don't sit on your hands for another 10 years and get on with it.

It would be great to get a solution to fix the tension between members of the community with different views.

As a regular tramper I have seen in many other sensitive areas the tracks have been lifted onto raised board walks. If a raised boardwalk was fenced in it would stop people straying off the track. It would seem a waste of the 2 swing bridges if access was stopped across the headland as far fewer people would use the soft sandy beach for the reason I have stated above. Another option would be to negotiate access through the Maori Reserve where the track used to go. This could also be on a raised walkway with a fence either side if the

[1] Individual's name removed for this report.

ground under the track was sensitive to heritage damage. The only other option that I can see would be to negotiate access along the stream boundary and then up over the land up the hill from the Maori Reserve.

Great to see you are determined to find a long term solution that maintains all tide access for both walking and cycling while respecting the archaeological and cultural values of the area. Don't forget to celebrate the rich and fascinating history in the process. Tell the story. Find a way to share the maori history with track users and the community. Make it happen.

It's a shame this has been going on so long, I would regularly use a track but feel intimated going there now.

This is quite a precious piece of land very prone to erosion. I think fencing off the headland would help native plants flourish and would have minimal impact on anyone.

Having lived on Weld Road for almost 40 years, I have observed that the" public traffic" in the area has increased dramatically, especially since the bridge at the end of Ahu Ahu Road was built. Providing a solid pathway for walkers, cyclists and others, rather than directing people to the difficult beach "pathway' is clearly necessary.

I think some sort of infrastructure, skirting the edge of the pa site would give walkers and bikers a legitimate path and stop the angst. Just the sheer numbers of people who use the informal tracks suggest there is need for a cycle path as crossing the sand with a bike is a real pain. This creates constant pressure from cyclists and walkers to access the the site without regard to its heritage of its legitimacy. Interested parties need to work together for a long term solution rather than close it off .

I am always upset and disappointed to see so many people walking and cycling over the hill by in the reserve. I have tried to explain to people why they shouldn't go up there, usually they get annoyed and say that it is their right as it is a public reseve. Because of this reason it would be better if there was a formal access around the headland, so that this disrespectful behaviour can be stopped and further damage to the Wāhi Tapu prevented. I live part time on Ahu Ahu Road.

Our family has been part of the Oakura community for 70 years and in that time different family members have been regular visitors and recreational users of the Weld Road beach area. When our children were growing up there was no mountain biking, no eBikes, no kite surfing there. The kids used to ride their ponies along the beach, there were only fishermen and surfers. Back then it was always an adventure to take the kids along to Weld to climb over the Gairloch wreck and get some paua or a cray from the Timaru Reef. In fact until the early 70's there was no formed beach track from Oakura to Weld Road. We do understand that times have changed over the years, there are far more people living in our community now. They have a wider range of recreational pursuits and they are out there participaing in them at every opportunity. There are just more people doing more things. Over the past 15 years or so the inflammatory situation that has developed at Weld Road, and has been allowed to continue, has made the locality a place that my family and I now mostly avoid. The council states in its survey that it has a legal responsibility to protect the headland, and as such is currently exploring options to address this. The council is saying that in the medium to long term it wants to explore possibilities for other walking/cycling access than over the headland. We agree the headland needs protection, but we need robust assurance that something definite will take place, not carefully worded statements that come to nothing. We know there have been many requests for something to be done in the past that have just fallen on deaf ears. For far too long the council has not bothered to address the issue appropriately. If the underlying cause of all the friction at the end of Weld Road isn't addressed then we fear that the sensitive archeological site on the headland and on other areas in that locality will be further degraded and, perhaps lost forever. In question 6 we have ticked 'I'd like formal access' but in reality it's not what we would 'like', it's what the solution is. That is providing all-weather access around the base of the headland. The council must accept its responsibility for the ongoing unfortunate situation here and finally do something about it. We've served our time in the community, been part of the school, church and local clubs, volunteered our time and expertise on many committees, and worked hard on environmental projects over the years, never asking for any special consideration in return. We certainly aren't asking for special consideration here, we are just asking the council to front up and do the right thing for the community. All the assessments and decisions (or lack of) taken by council to date have been unsatisfactory. Continuing the visible days of it isn't in my backyard therefore unimportant to me are well gone, aren't they?