5 September 2025

Shayne Hodge
s7(2)(a) [redacted]

Tēnā koe Shayne,

Request for Information – Local Government Official Information and Meetings Act (LGOIMA) 1987

We refer to your correspondence received on 10 August 2025, in which you raised concerns regarding property damage allegedly associated with sea wall construction works on Marine Drive, Lowry Bay.

Within that correspondence, you also sought access to specific information. Accordingly, your request is being considered under the LGOIMA. Specifically, you requested:

> *Provide copies of any:*
> 1. *Pre-condition reports*
> 2. *Vibration monitoring data*
> 3. *Risk assessments related to our property*

Answer:

Council has undertaken a search of its records and can confirm that it does not hold any pre-condition reports or risk assessments specifically covering your property at s7(2)(a) [redacted].

Prior to construction, the Te Ara Tupua Alliance undertook photographic condition surveys of each bay during a walk-through with a Hutt City Council representative.

These surveys were limited to the seaward side of the road reserve and did not include private properties. As a result, there are no condition survey photographs or assessments specific to s7(2)(a) [redacted].

The Alliance assessed the potential effects of the works on neighbouring properties and identified possible impacts from noise and vibration to properties in Whiorau Bay. This is documented in the Construction Environmental Management Plan (CEMP), which outlines the environmental management procedures adopted for the project. While the CEMP is not specific to your property, it includes general information about how potential effects were considered and managed. A copy of the certified Whiorau Bay CEMP is attached for your reference.

To ensure that the most disruptive activity (sheet piling) complied with relevant standards, the Alliance undertook a noise and vibration assessment. This was done to confirm that vibration levels were below the threshold for damage, in accordance with DIN 4150-3:1999 Structural Vibration. The assessment was carried out outside 227 Marine Drive and is the only vibration monitoring data held by Council. A copy of this report is attached for completeness. Please note that it was previously provided to you by Jon Kingsbury on 1 September 2025.

You have the right to seek an investigation and review by the Ombudsman of this response. Information about how to make a complaint is available at: **How to make a complaint | Ombudsman New Zealand**, or freephone 0800 802 602.

Please note that this response to your information request may be published on Hutt City Council's website: **Proactive releases | Hutt City Council**.

Ngā mihi nui,

Rebekah van der Splinter
Senior Advisor, Official Information and Privacy

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Memorandum

NKP-TAT-THN-MEM-CV-SE-000001

To	Jamie Rowe (HCC Owner Interface manager);		
From	Te Ara Tupua Alliance	Date	29 August 2025
Subject	Tupua Horo Nuku Whiorau Bay – Vibration Assessment		

Executive Summary

This memo provides the results of a vibration assessment at Whiorau Bay by an Acoustics and Vibration specialist.

The assessment has been undertaken by the Alliance in response to concerns raised about damage to an adjacent property at 222 Marine Drive from the Alliance's construction activities.

It is considered to be 'improbable' that vibrations of the magnitude monitored would have resulted in property damage at 222 Marine Drive. There is no record of damage to paved surfaces (road, pavement) and other structures (buildings, walls, etc) in closer proximity to the works than the identified damage at 222 Marine Drive.

This information is provided to HCC to support their response to the individual with concerns around the property damage.

Background

Concerns have been raised by an adjacent property owner regarding damage at 222 Marine Drive, with a suggestion that this is potentially linked to nearby sheet piling works undertaken by the Alliance. These works involved both insertion and removal of steel sheet piles for coffer dam construction, with the nearest pile in proximity to 222 Marine Drive located approximately:

- 11 m from the western boundary wall
- 22 m from the swimming pool
- 32 m from the front of house

Vibration Assessment

As part of the Alliance's work to continually understand and manage its construction effects, vibration monitoring was conducted by Geotechnics Ltd on 18.3.25 for a section of sheet piling works undertaken approximately 70 m south of the 222 Marine Drive property (piling works near 227 Marine Drive).

Measurements were obtained on a hard surface on the seaward edge of the 227 Marine Drive property boundary, refer Appendix A. The nearest pile was approximately 15 m from the measurement location. Vibration levels would be of a similar magnitude at the western boundary of 222 Marine Drive for piling works taking place at a similar distance. Peak particle velocities (PPVs) recorded were:

- X-axis: 0.8 mm/s
- Y-axis: 0.7 mm/s
- Z-axis: 1.6 mm/s

Typical vibration frequencies of 25-30 to Hz were recorded. These frequencies are typical of vibro-sheet-piling.

As a conservative approach to the assessment, we have used these recorded frequency (15m from the source) to assess the likelihood of damage at the house which is double the distance from the vibration source in the monitoring that has been undertaken (~32 m).

DIN 4150-3:2016, Vibrations in Buildings – Part 3: Effects on Structures, provides guideline values for vibration velocity to avoid damage to buildings. For short-term vibration (e.g., piling), DIN 4150-3 specifies a lower PPV limit of 5 mm/s, increasing to 8-15 mm/s at frequencies of 25-30 Hz. These values are conservative and intended to prevent even minor cosmetic damage such as plaster cracking.

The recorded PPVs (max 1.6 mm/s) are well below the DIN 4150-3 thresholds for residential structures. This suggests that the vibration levels from the sheet piling works are highly unlikely to have caused structural or cosmetic damage to the property.

Perception of vibration by occupants can occur at levels significantly below damage thresholds. It is not unusual for building occupants to notice historic building damage (hairline cracking of internal surfaces) having experienced perceptible vibration.

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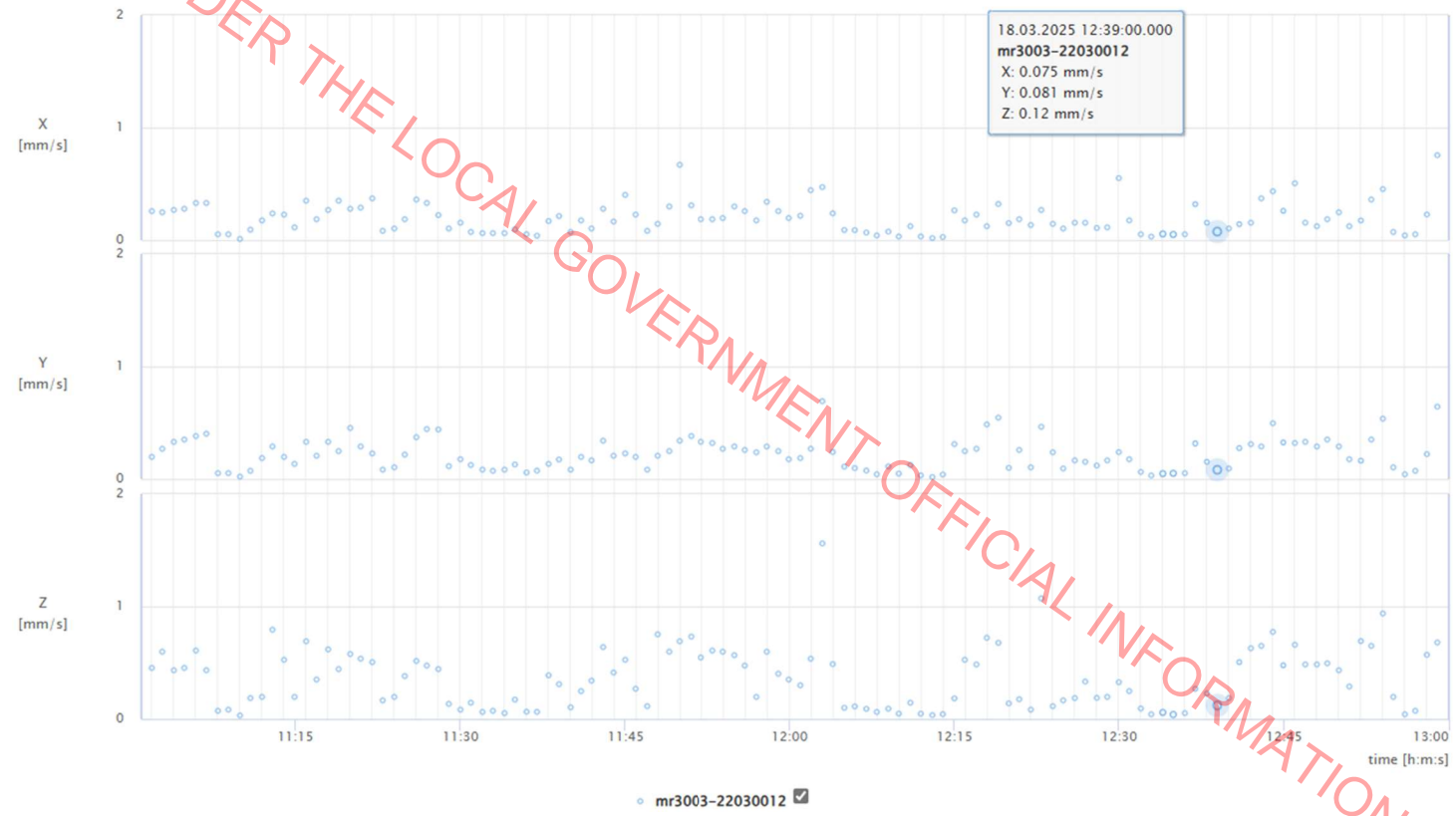
Appendix A: Vibration Testing Information

Seismic Monitoring Location at Seaward boundary of #227 Marine Drive 18/3/25

VISUALIZATION

All axes | X | Y | Z | Peak | VSUM | Peak-Freq | Report | Export | Import data

Period 1d 1w 1m 3m 6m from 18.03.2025 11:01 to 18.03.2025 13:00 Amplitude Auto 2 mm/s



Start date
18.03.2025 11:01:00

End date
18.03.2025 13:00:00

Evaluation for
mr3003-22030012

Peak max
X: 0.755 mm/s
Y: 0.692 mm/s
Z: 1.56 mm/s

Peak max date
X: 18.03.2025 12:59:00
Y: 18.03.2025 12:03:00
Z: 18.03.2025 12:03:00

Imported records (1)
☐ **25077002**

Delete ☐ **Select all**

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VISUALIZATION 25077033.TXT - 18.03.2025 12:01:31

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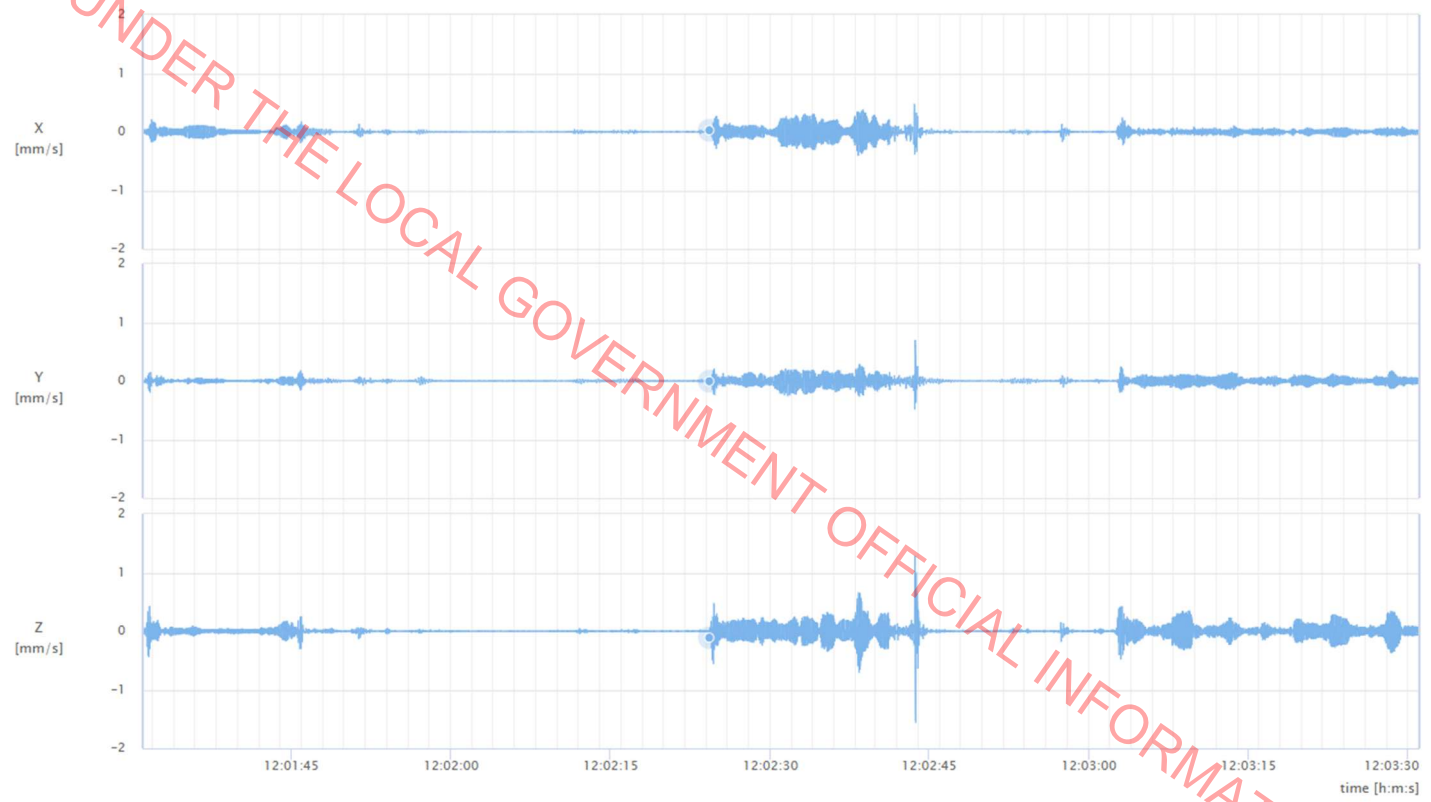

Device name
mr3003-22030012

Serial number
22030012

Date
18.03.2025 12:01:31.035

Duration
00:02:00.000

Sampling rate
1000 Hz

Max amplitudes
X: 0.471 mm/s
Y: 0.692 mm/s
Z: 1.56 mm/s
VSUM: 1.64 mm/s

Dominant frequencies
X: 23.3 Hz
Y: 23.4 Hz
Z: 25.9 Hz

RMS values
X: 0.056 mm/s
Y: 0.0474 mm/s
Z: 0.0925 mm/s

VISUALIZATION 25077026.TXT - 18.03.2025 11:47:31

All axes | X | Y | Z | Data | VSUM | Freq | Report | Norm comparison | Export | Previous | Next

Device name
mr3003-22030012

Serial number
22030012

Date
18.03.2025 11:47:31.027

Duration
00:02:00.000

Sampling rate
1000 Hz

Max amplitudes
X: 0.667 mm/s
Y: 0.344 mm/s
Z: 0.751 mm/s
VSUM: 0.751 mm/s

Dominant frequencies
X: 29.5 Hz
Y: 29.5 Hz
Z: 29.5 Hz

RMS values
X: 0.0344 mm/s
Y: 0.0339 mm/s
Z: 0.068 mm/s

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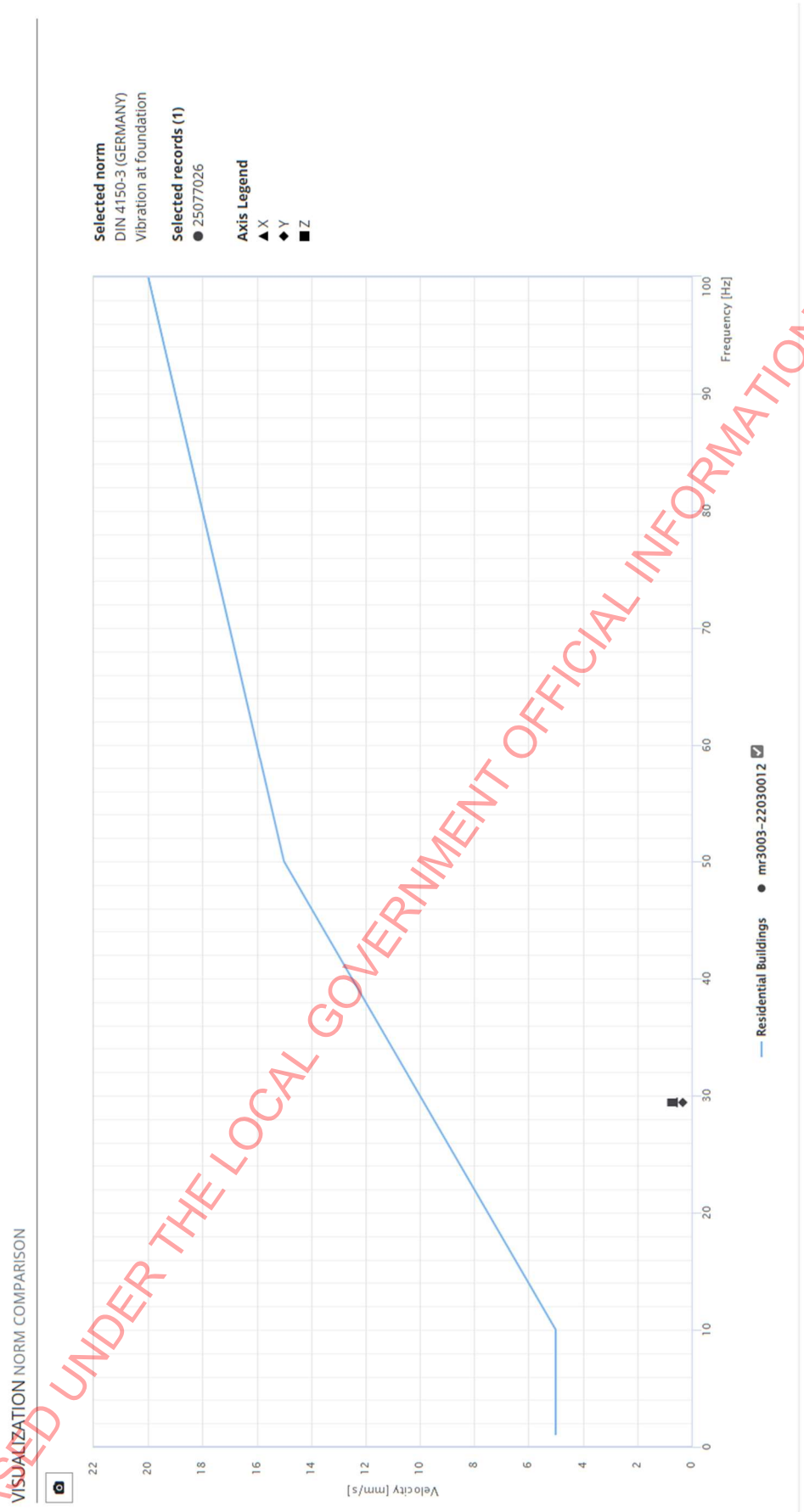

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Construction Environmental Management Plan: Whiorau (Lowry) Bay

NKP-TAT-THN-MPN-PP-NS-000002

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Quality Assurance Statement		
Prepared by:	Michelle Flawn Glen Stevens	Senior Environmental Advisor Project Engineer
Approved for release:	Ed Breese	Partnerships, Environment, Planning and Communications Manager
Approved for release:	Jamie Rowe	Owner Interface Manager, Hutt City Council

Revision Schedule		
Rev. Number	**Date**	**Description**
Internal reviews		
A	13/03/2024	Draft document for information & internal reviews
B	17/04/2024	Updated document to address GWRC and HCC feedback
C	02/05/2024	Updated document to address final GWRC and HCC feedback
Submission for certification		
1	20/03/2024	Whiorau (Lowry) Bay CEMP – for certification
2	29/04/2024	Reissued for certification with amendments
3	03/05/2024	Reissued for certification with amendments to sections 3.2.3, 5.2.4, 7.1 and Table 4.4

Disclaimer

This report has been prepared by the Te Ara Tupua Alliance for the benefit of the Waka Kotahi NZ Transport Agency. No liability is accepted by the Alliance Partners or any employee of or sub-consultant to the Alliance Partners companies with respect to its use by any other person. This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

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Glossary

Acronym/Term	Description
AEE	Assessment of Environmental Effects
Alliance	Te Ara Tupua Alliance
AMT	Alliance Management Team
ARI	Annual recurrence interval
BNP	Beach Nourishment Plan
BPP	Bird Protection Plan
BSUDP	Bay-specific Urban Design Plan
CEMP	Construction and Environmental Management Plan
DOC	Department of Conservation
CEMP	Construction Environmental Management Plan
CMA	Coastal marine area
Consent Holder	Hutt City Council
GWRC	Greater Wellington Regional Council
HCC	Hutt City Council
HNZPT	Heritage New Zealand Pouhere Taonga
ITP	Construction Verification
JSEA	Job Safety and Environmental Analysis
LUDP	Landscape and Urban Design Plan
Mā-koromiko	Windy Point
Manager	Manger, Environmental Regulation, Greater Wellington Regional Council
MHWS	Mean high water springs
MPa	Megapascals
MWSG	Mana Whenua Steering Group
NZS	New Zealand Standard
PEP-C	Partnership, Environment, Planning and Communications
Project	Tupua Horo Nuku
RMA	Resource Management Act 1991
SME	Subject Matter Expert
SQEP	Suitably Qualified Environmental Practitioner (SQEP)
SRHP	Seawall Revetment Habitat Plan
SWMS	Safe Work Method Statement
Team Leader	Team Leader, Resource Consents, Hutt City Council
TMP	Traffic Management Plan
TMC	Traffic Management Controllers
Tupua Horo Nuku	Eastern Bays Shared Path
Urgent action	Any action needed to avoid, mitigate or minimise a significant adverse effect
Waka Kotahi	Waka Kotahi NZ Transport Agency
Work Packs	For the purpose of this document a Work Pack refers to the summary and integration of all key information required to deliver the construction activity and includes but is not limited to environmental considerations, cultural considerations, design and health and safety.
WWL	Wellington Water Limited

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1 Introduction

1.1 Background – The Project

This Construction Environmental Management Plan (CEMP) has been prepared for the Tupua Horo Nuku (Eastern Bays Shared Path) project (the Project) by the Te Ara Tupua Alliance (the Alliance). The CEMP covers Whiorau (Lowry) Bay. The Alliance is delivering this Project through a partnership between Waka Kotahi NZ Transport Agency (Waka Kotahi) and Hutt City Council (HCC). Waka Kotahi established the Alliance to deliver the Ngā Ūranga ki Pito-One section of Te Ara Tupua and now Tupua Horo Nuku. The Alliance is comprised of Tonkin + Taylor, HEB Construction, Downer NZ and Waka Kotahi.

Tupua Horo Nuku shared path will comprise of a 4.4 km shared path along Marine Drive in two sections between Ngau Matau (Point Howard) and the northern end of Oruamotoro (Days Bay) and the southern end of Oruamotoro (Days Bay) to Matua-iwi Pa (Eastbourne) at Muritai Road / Marine Parade intersection as shown on Figure 1.1. The Project seeks to develop a safe and integrated walking and cycling pathway along Marine Drive to connect the communities along Hutt City's Eastern Bays and to provide links to other parts of the network for recreation and tourism purposes. Currently, pedestrians and cyclists are forced to use Marine Drive, which is a 50 to 70 km per hour narrow roadway, with little to no shoulder.

Figure 1.1 Location of works

1.2 Purpose and Objectives of the CEMP

The intention of this document is to provide the framework, construction methods and management procedures for how environmental and cultural effects and risks are to be managed, remedied, minimised or mitigated during construction. As per Condition GC.6, the purpose of this CEMP is to:

(i) Confirm final Project details;

(ii) Ensure that the Construction Works remain within the limits and standards approved under the consent; and

(iii) Set out the management procedures and construction methods to be undertaken to avoid or minimise adverse effects arising from the Construction Works.

The objectives of the CEMP in accordance with Condition GC.6 are to:

- Ensure the construction works:
  - Comply with the conditions of resource consents, other permits and relevant legislation;
  - Adhere to the environmental obligations of HCC, Waka Kotahi and the Alliance;
  - Remain within the limits and standards approved under the resource consents; and
- Confirm the final Project details.

The proposed construction works involve different activities at different times. To ensure that the purpose and objectives of the CEMP are achieved, the activities associated with the CEMP are considered in the Job Safety and Environmental Analysis (JSEA) process and the preparation of work packs. This process is described in Section 2.4 of this CEMP.

The CEMP will be reviewed in accordance with Section 2.1 of the CEMP. Changes may be required during the construction period to address matters including significant changes to the construction methodology or activities, or to address unforeseen adverse effects arising incidents.

1.3 Statutory Requirements

1.3.1 Resource Consent Conditions

The resource consents associated with the Tupua Horo Nuku Project were granted under the Resource Management Act 1991 (RMA) subject to conditions by an independent hearing panel on 5 March 2021. The decision was appealed to the Environment Court by a private citizen, with a number of other parties subsequently joining the appeal. Final conditions were confirmed by the Court in June 2021. The subject matters of the modified conditions related to traffic safety on Marine Drive, bus stops/shelters, beach access and shared path width at York Bay. An application to change the conditions of the resource consent in accordance with section 127 of the RMA was made with GWRC in April 2023 and subsequently granted by GWRC in June 2023.This application did not result in any changes to the requirements of this CEMP.

HCC is required to prepare and submit a CEMP for certification in accordance with resource consent conditions GC.5 and GC.6.

The CEMP must be provided to Council(s) for certification at least 30 working days prior to the Commencement of Construction[1] on the relevant stage of the Project. Condition GC(f) allows management plans to be submitted for certification in parts or in stages to address activities or reflect the staged implementation of the Project; this CEMP covers Whiorau (Lowry)Bay. Other CEMPs will be prepared later to cover the subsequent sections of works. Works (excluding enabling works) will not commence in these bays until this CEMP has been certified in accordance with GC.5(a).

Condition GC.7 of the resource consent outlines what needs to be included within the CEMP and there are other resource consent conditions that specify actions required by the Consent Holder to avoid, minimise and

[1] The time when Construction Works (excluding site investigations and Enabling Works) for the Project (or a part of the Project) commence.

mitigate environmental effects. The conditions relevant to the CEMP are attached in Appendix A with a reference to where they are addressed in the CEMP.

The CEMP is structured as follows:

- **Section 1** - Introduction
- **Section 2** - Construction Environmental Management Plan
- **Section 3** - Description of activity and environmental considerations
- **Section 4** - Environmental and Cultural Considerations
- **Section 5** - Procedures
- **Section 6** - Inspections, Monitoring and Reporting
- **Section 7** - Contingencies
- **Section 8** - Health and Safety

1.3.2 Integration with Other Management Plans

The CEMP is the overarching management plan for the Project, and the other management plans fall under the CEMP. Figure 1.2 sets out the relationship between the consent conditions, the CEMP and individual management plans.

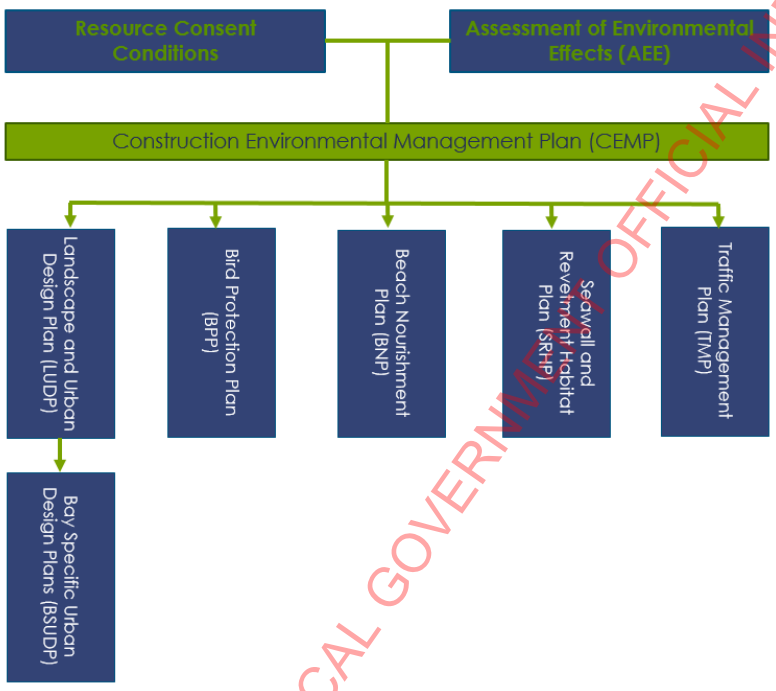

Figure 1.2. Relationship between the consent conditions, CEMP and individual management plans

Although the management plans have been prepared individually, they are all related to the management of works. The procedures of all management plans will be adhered to at all times during works. Seagrass monitoring is not relevant to the works within York Bay and therefore, not referred to within this management plan. Procedures relating to the monitoring of fish passage[2] will be provided at a later date.

1.3.3 Wildlife Act 1953

The Wildlife Act 1953 outlines the protection and control of wild animals and birds and the management of game. Under Section 53 (taking or killing of wildlife for certain purposes) of the Wildlife Act 1953, a wildlife permit can be sought for the catch, release and handling of species such as kororā and lizards.

[2] Fish passage monitoring will be undertaken following construction every six months for three years (Condition EM.12).

Applications for Wildlife Act Authorities have been lodged with the Department of Conservation (DOC) for the Project to capture, handle and relocate kororā as well as to capture, handle and relocate lizards. No works involving the catching, release or handling of protected species will occur without the relevant permits. In the interim, any handling of protected species in particular kororā will be undertake by others holding the relevant permits and approvals.

1.4 Mana Whenua Values

A Mana Whenua Steering Group (MWSG) has been established for the purposes of this project to:

- Facilitate ongoing engagement with mana whenua in respect of the activities authorised by the resource consents.
- Provide an opportunity for mana whenua to provide kaitiaki inputs into the Project.
- Ensure appropriate tikanga and kawa (customary practices and protocols) are being applied throughout the development and implementation of the Project.
- Acknowledging the history of the area, and therefore ensuring prominence, primacy and permanency throughout the project.

The Te Ara Tupua Kaitiaki Principles developed during 2020 in consultation with Taranaki Whānui advisors and the MWSG are also relevant and will be applied to this project:

Ranginui *- the connection to the various spiritual realms of the great and vast heavens, the source of light and understanding, growth and ultimate link to the celestial family.*

Mouri *- The mouri of Te Ara Tupua – the living relationship between the ngahere, the cliffs, the water ways, hinemoana and everything that lives within that environment have their own individual and interdependent vitality.*

Wai Tai, Wai Māori - Nga wai tuku kiri tai noa atu ki hinemoana *– the connection between the springs, streams, aquifers, rivers and all waterways that bring with them their life, mouri and mana which eventually mingles together with Hinemoana.*

Ahua *- The character of Te Ara Tupua is seen, the beauty, the mystique, the wonder, the wild and rawness – the identity of Te Ara Tupua endures beyond the present through capturing and captivating the hearts and minds of the few and the many.*

Tātai Whakapapa *- The history, the connections, the relationships and friendships – they shape the land and the people.*

Whānau *- The care of manuhiri and people is embedded in the identity of Te Ara Tupua seeking to ensure a strong sense of connection imbuing a strong sense of responsibility towards Te Ara Tupua.*

Mana Whenua *-Te Ara Tupua is seen as a living piece of the identity of Mana Whenua who take pride in this space, taking on the obligation of care, responsibility and giving life to its history and story.*

Papatūānuku *- The mountains, the cliffs, the landforms, the geology, ngahere, trees, birds – they all need each other to exist.*

2 Construction Environmental Management Plan

This section of the CEMP describes the review and update process, roles and responsibilities, training and the JSEA development process including the production of work packs.

2.1 Reviews and amendments to the CEMP

2.1.1 Certification

The CEMP will be submitted to GWRC and HCC for certification at least 30 working days prior to the Commencement of Construction for the Project, or, if construction is staged, then at least 30 working days prior to Commencement of Construction on the relevant stage.

If no comments are received on a management plan within 15 working days, then the management plan is deemed to be certified.

In the event that the Manager, Environmental Regulation, and/or the Team Leader, Resource Consents refuse to certify a management plan, or a part or stage of a management plan, HCC shall submit a revised management plan for certification as soon as practicable. Should certification of the revised plan be refused, then HCC (as Consent Holder) must engage a suitably qualified, mutually acceptable independent expert to resolve the matters within dispute within ten working days of the refusal. The expert shall resolve the matters in dispute within 10 working days of being engaged.

2.1.2 Review of CEMP

The CEMP may be updated or reviewed at any time in response to incidents, complaints, changes to the construction methodology, the identification of new methods and knowledge obtained from JSEA reviews, site inspections / audits and the monitoring regime.

2.1.3 Amendments to the CEMP

If the CEMP is required to be amended, the Alliance will discuss as required and submit the amendments to:

- The Manager, Environmental Regulation, Greater Wellington Regional Council (GWRC) (the Manager); and
- The Team Leader, Resource Consents, HCC (the Team Leader).

Any minor changes in design, construction methods or the management of effects that require an update to the CEMP do not need to be re-certified in accordance with Condition GC.5(g). Any material amendments to the CEMP will be submitted to Council(s) for certification as per Condition GC.5(h).

Any amendments made to the CEMP will be in accordance with the purpose and objectives of the CEMP as outlined in Section 1.2.

A schedule of updates to the CEMP will be maintained in Appendix B. The Project team will be informed of any changes to the CEMP through regular Project communication processes and the on-site version of the management plan will be updated promptly and prior to any works associated with the amendments being implemented. All management plans will be stored in InEight (document control system), Sharepoint and re-issued to relevant parties.

2.2 Roles and Responsibilities

Table 2.1 summarises the main roles and responsibilities in relation to the CEMP.

Table 2.1. Roles and responsibilities

Organisation	Role	Responsibilities
Hutt City Council	Consent Holder	• Overall responsibility for ensuring compliance with the resource consent conditions.
The Alliance	Alliance Manager	• Overall responsibility for the Project • Ensuring all process are followed • Audits
	Owner Interface Manager	• Interface between HCC, Waka Kotahi and the Alliance
	PEP-C Manager	• Preparation and review of CEMP and updating • Review of JSEA's and Work Pack approval • Training (covering environmental matters) • Inspections and audits* • Receiving feedback • Incident and complaint management • Record keeping • Reporting • Contact for regulatory authorities • Oversees installation and maintenance of environmental controls • Approval of penguin and ecological permits
	Environmental Advisor #	• Preparation of CEMP • Review of work packs • Inspections, audits and monitoring including of controls • Managing compliance with resource consents and associated permits • Record keeping • Reporting • Preparation of SSESCPs as required • Contact for regulatory authorities • Oversees installation and maintenance of environmental controls • On site responsibility to ensure environmental management is undertaken in an effective manner on site • Compliance with resource consents • Input into penguin and ecological permits
	Project Ecologists	• JSEA input and work pack approval • Training (covering ecological matters) • Inspections and monitoring* • Construction planning in conjunction with Zone Manager • Input into penguin and ecological permits
	Stakeholder and Communications Advisor	• Main point of contact for the public engagement
	Mana Whenua Iwi Integration Lead	• Interface with Mana Whenua • Cultural protocols

Organisation	Role	Responsibilities
		• Kaitiaki monitoring* • Work pack approval process
	Kaiwhakaoko Taiao	• Coaching of construction staff on environmental responsibilities
	Planner	• Responding to planning relating queries • Compliance with the resource consents • Contact for regulatory authorities
	Construction Manager	• Review and Approval of JSEA and Work Pack approval • Overall Project planning
	Zone Manager	• Prepare JSEA and work packs • Programme management • Performance monitoring • Input into penguin and ecological permits
	Construction Supervisor	• Involvement in the preparation and review of JSEAs • On site responsibility to ensure ESC management is undertaken in an effective manner on site. • Job start briefings • Organise equipment, materials and crew
	Health and Safety Lead	• Assist in the development of Safety aspect of JSEA and Works Methodologies • Review JSEA and Work Pack approval • Inductions
	Project Surveyor	• Setting out the delineation of the works area.
	Project / Site Engineers	• Involvement in the preparation, co-ordination and review of work packs / JSEAs • Daily on-site checks of controls • Responsible for ensuring controls are implemented • Record keeping • Quality control checks • Input into penguin and ecological permits
Regulatory Authorities		
Hutt City Council	Team Leader, Resource Consents	• Certification of CEMP • Auditing to ensure consent conditions are being met
Greater Wellington Regional Council	Manager, Environmental Regulation	• Certification of CEMP • Auditing to ensure consent conditions are being met

[#] Responsibilities may also be undertaken by PEP-C Manager

*Inspections and audits maybe delegated to suitably qualified staff members

A key contact list for the Project will be maintained for the duration of the Project and provided to the Councils. Any updates to the key contacts list will be sent to the Councils and other key stakeholders as required.

2.3 Induction and Training

2.3.1 Induction

All staff working on the Project will be required to undertake a formal induction. The induction is Project wide and thus has a focus on health and safety as well as risk. The induction will include an introduction to

environmental and ecological matters. A record of staff who have completed the induction will be maintained by the Alliance.

The induction provides a high-level overview of the importance of ecological, environmental and cultural considerations. This is because the induction is attended by a variety of different people (office based-staff, subcontractors, site staff) who have different requirements relating to environmental systems and management. On this basis, further information is provided at specific training opportunities as well as during the weekly toolbox meetings.

2.3.2 Job-start Briefing

Prior to the start of each shift, the crew will be given a job-start briefing that will cover all relevant construction packages. The approved JSEA will be used as the reference information for the briefing as follows:

- The briefing will include discussion of safety, quality, environmental protection and sustainability aspects relevant to the construction activities. This will include discussion of the ecological and penguin permit as relevant.
- Team members will have the opportunity to improve the hazard control elements of the plan.
- The work will then be performed in accordance with the Job Start Briefing, and the approved JSEA.
- The ecological and environmental permit process.

An environmental management representative or ecologist will attend when required to explain new environmental controls or reiterate existing controls as required.

2.3.3 Specific Training

Specific training will also be given to staff as required and may include procedures pertaining to working with concrete, refuelling and hazardous substances, including contingency actions.

All Site Engineers, Project Engineers and Supervisors are invited to attend a session on environmental management systems, this includes:

- An introduction into the environmental and ecological considerations relevant to the Project including but not limited to avifauna, marine ecology, seals, noise and vibration, dust and sediment controls, contaminated land and spills;
- An overview of the environmental permitting process;
- Information relating to where documentation is stored;
- An overview of the processes to be followed in the event of an incident; and
- Key contacts within the Alliance for different matters (for example, Project Ecologists; subject matter experts).

2.3.4 Site / Hazard Board

The site / hazard board will be displayed in an area where it is known to all staff to view upon entering the site. It will list the relevant environmental hazards and controls that have been identified and assessed in relation to the works being undertaken. The site / hazard board will be reviewed and updated to take account of new hazards and environmental risk, or changes in the degree of risk or hazards.

New hazards or changes in risk will be identified in the work method statements or in the job briefing. In addition, hazards and risks will be reported during toolbox meetings.

2.3.5 Toolbox Meetings

Environmental and cultural considerations as well as stakeholder communications will be discussed at the weekly toolbox meeting when required. Toolbox meetings are attended by sub-contractors, site staff, engineers, supervisors and other Alliance staff; however, the focus of these sessions is for people on the ground.

Toolbox meetings will be used to emphasise specific environmental matters and to discuss the importance of effective and efficient environmental management practices. Examples of what is discussed at toolbox

meetings include avifauna, lizards, seals, marine ecology, noise and vibration and waste. These topics are repeated and rotated through to ensure that staff are reminded of the importance of the environmental and ecological considerations at an appropriate frequency.

2.3.6 Record Keeping

Training records will be maintained at the Project yard and on the Project drives by the Alliance. The record will include:

- Who was trained.
- When the person was trained.
- The name of the trainer.
- General description of training content.
- Level of competence achieved by the trainee.
- Expiry dates of training courses/certifications as appropriate.

The PEP-C Manager will be responsible for ensuring Project staff receive an appropriate level of environmental training in relation to their position and that appropriately trained personnel are undertaking site activities. The PEP-C Manager will be responsible for ensuring the training records are properly maintained.

2.3.7 Relevant Documentation

All staff and contractors will be provided with a copy of the resource consent, work packs and certified management plans at least ten working days prior to the commencement of construction works.

Copies of these documents will be kept at the Project site yard and on Project drives (meaning documents will be accessible from anywhere).

2.4 Work Packs and JSEAs

All activities will be subject to a JSEA process and the creation of work packs to ensure that an appropriate level of environmental and ecological management is always applied and adhered to. The work pack approach is used as it integrates environmental management and health and safety into the construction process as opposed to it being an add on activity. The process for creating a work pack is shown in Figure 2.1. Work packs are live documents and will be regularly updated.

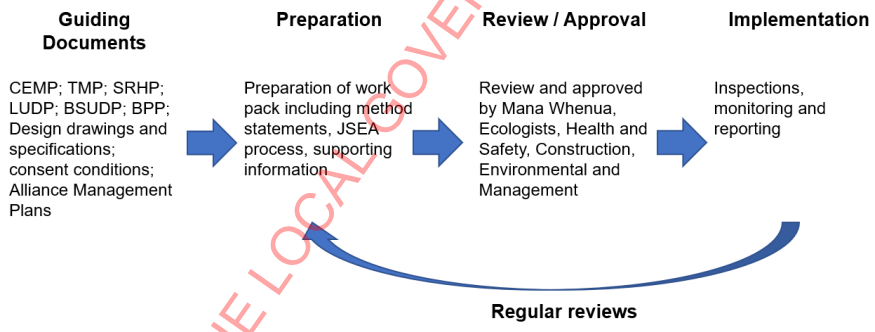

Figure 2.1. Work pack preparation flow diagram

The JSEA process is a key part in the development of work packs. All construction activities will be categorised on the basis of location and activity type. A JSEA will be undertaken for each activity at each location and a JSEA will only be operative for a maximum of four weeks. Following this, the JSEA will be reviewed.

The JSEA process is co-ordinated by the person responsible for the delivery of an activity. In most instances, the JSEA process will be led by the Area Manager / Project Engineer / Site Engineer / Supervisor and supported by the relevant subject matter experts (SME). The JSEA process will also involve other relevant members of the construction team. The SMEs from within the Project may include the Project Ecologist, PEP-C Manager, Environmental Advisor and Mana Whenua Iwi Integration Lead. As part of the JSEA process,

there is consideration of the potential adverse effects that may arise from the construction activities and the most appropriate methods for avoiding, minimising and mitigating these effects are identified.

2.5 Penguin and Ecological Permits

Prior to the commencement of works, a penguin permit and ecological permit must be requested by the Construction Team. The following sections describe the general process for the permit.

As part of this process, a methodology must be provided by the construction team outlining what works are proposed (establishment, construction and disestablishment), whether any locations of works are excluded from the permit process, machinery proposed to be used, duration of works and any other relevant information. Once the information has been compiled, the Construction Team will send the permit to the Environmental Team for consideration.

Following the review of the methodology, the following outcomes are possible:

- Request further information.
- Approve the permit for a specified period and include conditions that must be adhered to. This may include requirements relating to:
    - Penguins.
    - Oystercatchers.
    - Works around seals.
    - Whether any locations of works are excluded from the approval process.
    - Requirements around ecological sweeps (such as the relocation of rocks in Sunshine Bay).
- Decline the permit and request that the additional controls are included prior to approval.

During the approval process, the person writing conditions on the permit works closely with the person requesting the permit to ensure that they are aware of the obligations on the permit as well as to confirm that they will be able to comply with the requirements.

A permit register is maintained by the Project. This includes a record of the permits approved and in progress as well as the timeframes over which the permit has been approved.

The conditions of the permit are discussed as the job-start briefing and all workers sign onto the crew briefing and thus the permit at the commencement of works for the day.

3 Description of activity and environmental considerations

3.1 Proposed Activity

3.1.1 Overview

Works within Whiorau Bay will occur between chainage 1135 and chainage 1955. The works include the construction of curved seawalls (including seawall type CL1, C2L and C3), rock revetment at the northern end of York Bay and the shared pathway. Within Whiorau Bay, there will be 5X access points to the beach this includes mini steps and a ramp. The design drawings and Bay Specific Urban Design Plan has also been provided to GWRC and HCC as relevant for certification. General arrangement plans have been attached in Appendix C. During construction, the CEMP will be adhered to and implemented at all times.

Construction will generally occur in 20 to 30 m sections. Smaller sections are likely to be utilised where deep foundations are proposed. In general, the approach will be to excavate the foundations, pour concrete / foundation and place seawall blocks to minimise sediment mobilisation. This approach is discussed in Section 5.4 of this CEMP.

3.1.2 Construction methodology

3.1.2.1 Seawall Construction

The seawall and rock revetment is designed to protect against coastal erosion but the design also assists in restricting road access for kororā. Vertical curved seawalls have been chosen across most of the Project length because they deflect wave overtopping most effectively and create a reduced footprint on the foreshore compared to other non-vertical seawalls. The vertical curved seawalls are shown on Figure 3.1.

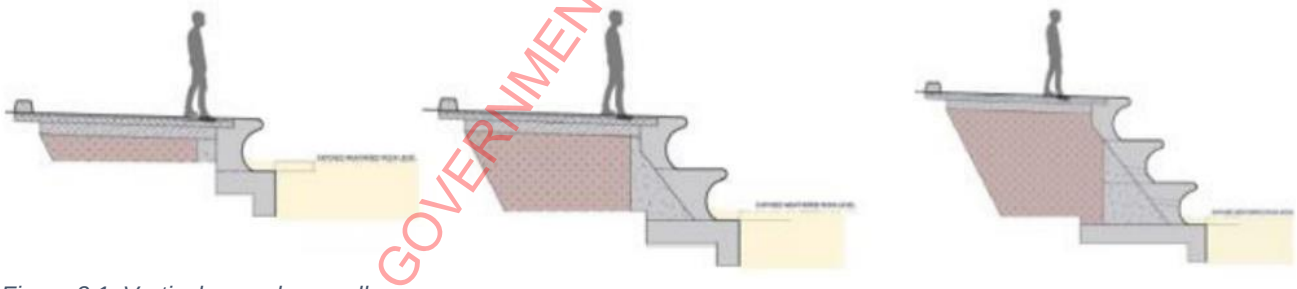

Figure 3.1: Vertical curved seawalls

In general, the following methodology will be used to remove the existing seawall, construct the new seawall and shared path at Whiorau Bay:

1. The site will be set-up this will include the installation of appropriate signage, designated works areas and traffic management as described in Section 5.1 and 5.2.
2. Beach sands and gravels will be excavated down to the greywacke wave cut platform (approximately 1 m as shown on Figure 3.1, apart from areas where deep excavation is required (described in the subsequent section). A small section of wave cut platform will be excavated or milled out at the front of the wall to create a "key" to protect the structure from future erosion of the foreshore. If it is difficult to remove the material with an excavator, a vacuum truck or hand excavation may be used. An excavator may be used to load material directly into trucks for transport off site. Some material may be retained on site in a suitable location for to backfill in front of the seawall to bring the beach gravels back to their original levels. This material will be of suitable quality to ensure minimal resuspension of fines when this interacts with tidal waters.

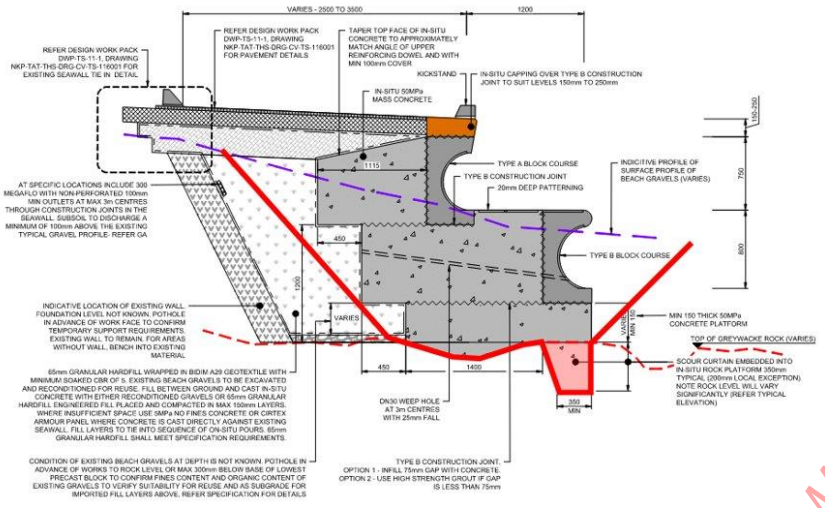

Figure 3.1. Figure showing approximate level of excavation (red-line)

3. The foundation will be installed. Formwork will be used to create the top of the boxing at the front of the foundation. Sandbags will be used at the base of the boxing allow for undulations in the wave cut platform and prevent the escape of concrete. The seaward side of the excavation maybe protected either with rock, concrete barriers or large bulker bags. These provide protection to the excavation and the boxing. If conditions are suitable the wave barrier system may be used.
   The foundation slab of concrete will then be poured (35 MPa) as shown on Figure 3.2. The top of the concrete foundation will be treated to achieve a Type B construction joint, the 5mm rough texture will be achieved by mechanical means such as a rake finish.

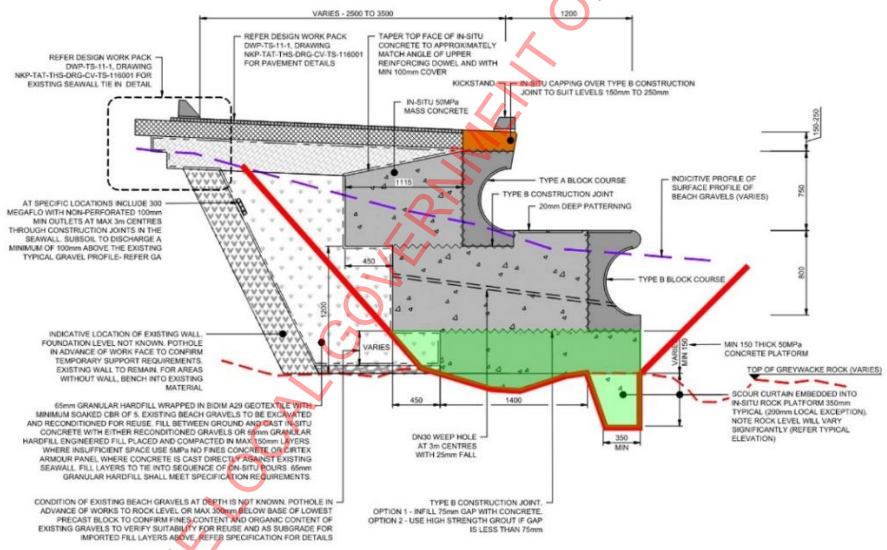

Figure 3.2. Seawall and depth of concrete (green area)

4. Pre-cast blocks will be delivered to the site and lifted into place with an excavator. Each pre-cast unit is 3 m long weighing 2.4 tonnes. The pre-cast blocks will be propped in place to ensure they remain in the correct position while the backing concrete is placed. Propping method is only required for the first layer and subsequent layers will be propped off the first pre-cast block as it will be cast in place. Reinforcing steel will be tired to the starter bars (steel bars) in the precast.
5. 50MPa concrete will be poured to backfill around the pre-cast as required. Where the space between the back of the mass concrete and existing ground is too narrow to efficiently place and compact granular fill the concrete is to be poured to country (in this instance, a Cirtex panel drain will be used). 30mm weepholes will be installed in each mass pour to drain the Armourpanel or the geo-wrapped GAP65.

Where excessive amounts of ground water are identified 300mm MEGAFLO strip drains are to be installed with 100mm non perforated outlets.

6. Granular backfill. Where there is sufficient space between the back of the structural concrete and existing ground the void is to be filled with a compacted GAP65 material wrapped in A29 geofabric.
7. Beach materials will be redistributed as required by the project ecology team, and the pathway will be asphalted/sealed, balustrades, signage and landscaping will be installed and constructed as per the LUDP and BSUDP.

The construction of the culverts may require a break in the seawall to allow an in-situ concrete pour at a 70-degree angle in accordance with the design specification and to enable fish passage to be provided at the outlet. The construction methodology for the culverts (those providing fish passage) will be subject to agreement with the Project Ecologist.

3.1.2.2 Deep foundations

Some of the works required to construct the seawall in Whiorau Bay will require deep excavations. Recent ground investigations undertaken at York Bay revealed a greywacke gully feature infilled with alluvium and marginal marine deposits, and capped with a layer of recent beach deposits, with depth to alluvium estimated to be 2-3m below ground level and rock head beyond 10m below ground level. A liquefaction assessment has been undertaken which indicates the existing reclamation fill and recent beach deposits to be potentially liquefiable under ULS shaking below the water table. For this reason, the foundation of the seawalls has been increased to be founded on a more competent material i.e. on top of the alluvium and marginal marine deposits.

Where deep foundations are required, the following method will be used in substitution of item 3 above:

- Installation of temporary edge protection along the edge of the existing seawall. Signage will also be installed to demarcate areas of deep excavations.
- A sediment tank will be bought to site to treat water prior to discharging to the CMA.
- Excavate the underside of the foundation slab to create a flat working area (see blue line on Figure 3.3). All reusable beach materials will be trimmed off the top and stored to be used at a later date for beach nourishment. If required, kelly blocks and rock bags will be utilised to minimise tidal intrusion into the excavations.
- Excavate a trench and pump water via the Condor XXL settlement tank for treatment and testing, prior to discharging to the CMA (see red on Figure 3.3).
- Trench shields can be installed from the road. The excavation, shield placement and concrete pour will be undertaken in stages across the bay. The length of a stage will be approximately 20 m to 30 m.
- Concrete will be poured with a pump to a higher level to allow for settlement as trench shields are removed. These will be pulled up 1 m within one hour of the concrete pour and removed completely after four hours.
- Following the removal of the shields, the shields will be water-blasted to prevent excessive concrete build up. This will be done in a location where the water can be contained to prevent run-off into the coastal marine area such as the project site yard in Seaview.
- Following installation of the “ribs” using the trench shields, a reinforced concrete slab will be placed over the top of the “ribs”.

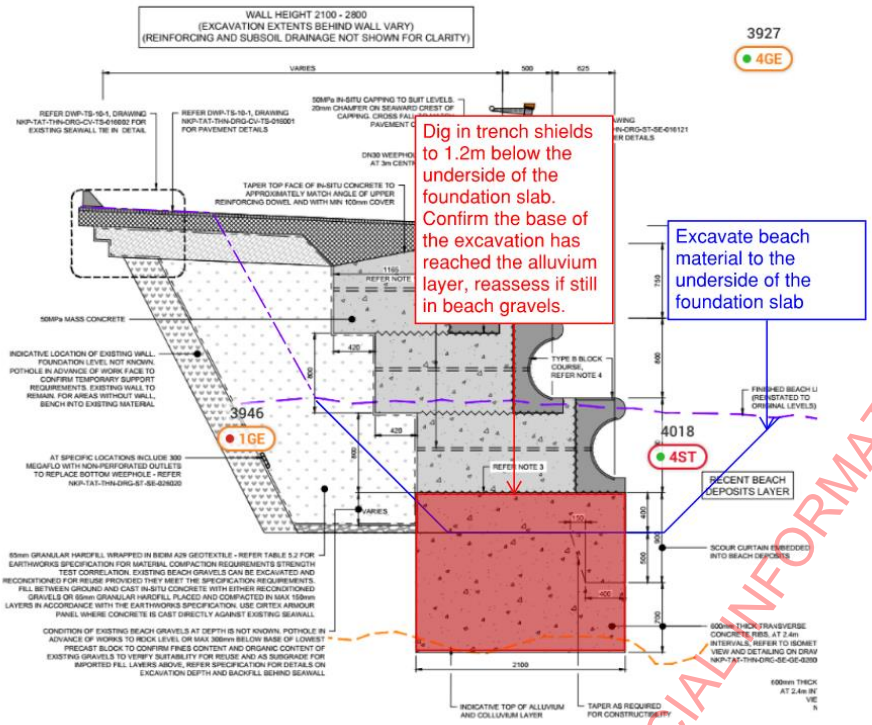

Figure 3.3. Overview of deep excavations. Purple line shows existing ground level, the blue line shows the top of the box trench, and the red box is the trench shield

Wellington Water Limited (WWL) were provided with a memorandum outlining the deep foundations methodology on 26 September 2023. On the 27 September 2023, WWL confirmed that the 'proposed excavations are not particularly deep, and the investigations indicate what we would have expected, that excavations will be unlikely to encounter the aquifer.'

WWL were happy with the submitted methodology and requested that they are notified if unexpected conditions are experienced. This has been included in Section 7.7 of the CEMP.

3.1.2.3 Rock revetment construction

Revetment has been used in several locations within the project scope (Mahina Bay and York Bay). The revetment structure is likely to consist of a top double layer of large rocks, average diameter 500mm overlaid onto smaller rocks; an example of the revetment is visible on Figure 8.2. Most of this is due for replacement, so it is important any new structures are integrated with the receiving environment.

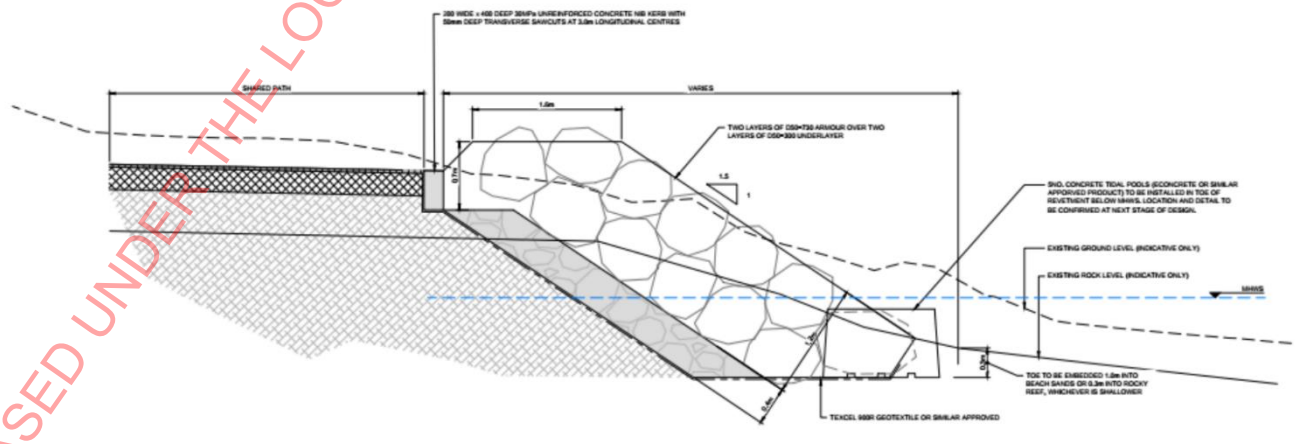

Figure 3.5 Revetment

New Revetment to be constructed between existing rock revetment and proposed seawall, as shown on Figure 3.534. The revetment will be constructed from two layers of W50 = 600kg primary armour overlaying two layers of W50 = 40kg secondary armour. Rock will be placed using a wheeled excavator and grapple from location of the proposed path above the revetment. An overview of the rock revetment is shown on Figure 3.6Figure 3.5.

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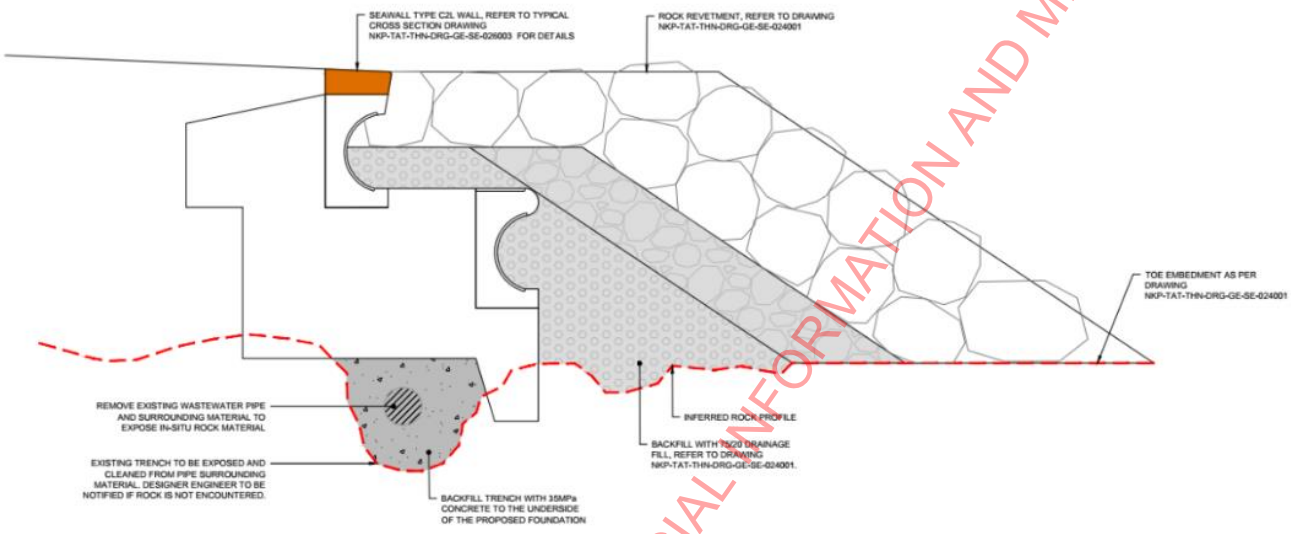

Figure 3.5. Overview of rock revetment

3.1.2.4 Beach nourishment

Once the seawall has been constructed and an excavator is able to sit on the top of the wall, the windrows of the original beach materials will be re-distributed if suitable for beach nourishment. All beach nourishment will be undertaken in accordance with the Beach Nourishment Management Plan (BNP) and will only be undertaken in winter. More details relating to beach nourishment will be contained in the BNP. An overview of the beach nourishment is shown on Figure 3.6. The BNP defines what is acceptable in terms of re-use criteria and where suitable, beach material will be re-used.

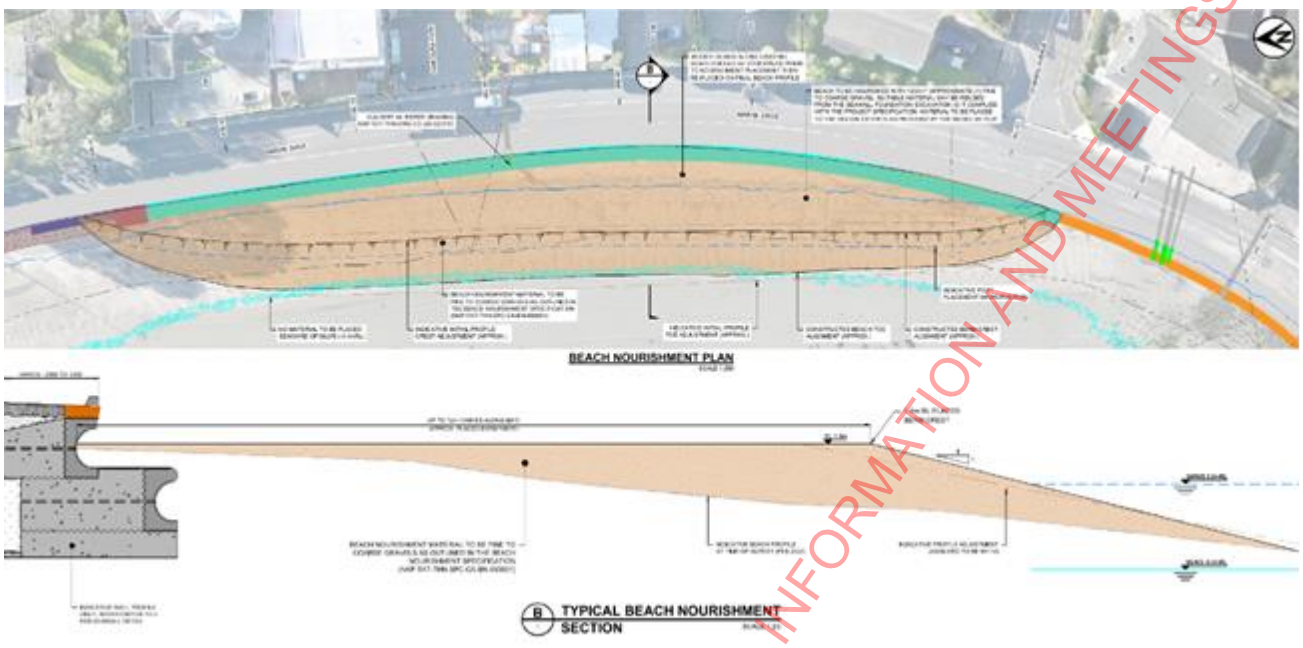

Figure 3.6. Beach nourishment overview

Granular beach sand fill material will be delivered to site in 6-Wheeler trucks. A temporary platform 6 m x 6 m will be constructed on the beach adjacent to the new seawall. This will be formed from Gap 65 material. This temporary platform will enable the trucks to reverse across the top of the seawall and place material onto the beach. The new shared path will be protected with steel road plates to prevent the 6-wheeler trucks damaging the new pavement.

The beach fill material will be moved and placed using a combination of a 20T excavator and a D4 bulldozer. This plant will have to work around the tides since the toe of the new beach profile will be approximately at the low tide mark (neap tide). Only as much sediment will be placed as can be transported along the placement area during the day of placement.

The beach fill material will be trimmed and levelled using the D4 dozer. **No additional compaction will be applied to the beach fill material.**

Woody debris found in the areas of beach nourishment will be stockpiled away from the area of beach nourishment under the direction of the Project Ecologist. Stockpiled woody debris will be replaced along the wrack line following completion of beach nourishment in each bay.

3.2 Programme

3.2.1 Overview

A time-location programme showing the proposed construction timeframes for all bays is attached in Appendix D. A detailed programme has also been attached in Appendix D. These programmes are subject to change relative to weather conditions, productivity and unexpected ground conditions.

3.2.2 Whiorau Bay Programme

The programme for Whiorau Bay will be as follows:

- May 2024 – August 2025 Foundation & Seawall construction.
- September 2025 – March 2026 Pavement & finishing works.

Important timeframes for ecological factors associated with Whiorau Bay include:

- Beach nourishment only occurring between June and August.
- Lizard capture / relocation limited to the time period between 1 October to end of April.
- Kororā breeding / moulting season being between 1 July and end of February.
- Oystercatcher breeding season between 1 September and 30 March.

Works will as far as practicably be programmed and managed to avoid the above sensitive timeframes. For example, this will generally mean undertaking works on the revetment outside of the kororā breeding / moulting season and removing vegetation between October and April.

3.2.3 Two-bay Strategy

Whiorau Bay will become the third established construction site along Marine Parade for the Project, in addition to York Bay and Sunshine Bay. The intention is for construction works to remain ongoing in York Bay, with works also occurring in either Sunshine Bay or Whiorau Bay simultaneously, as permitted by tides and weather. All three bays will be set up for construction and have necessary controls and traffic cones in place, however, only two of these sites will be operational under stop / go traffic management (i.e. York Bay and Whiorau Bay, or York Bay and Sunshine Bay). The overall purpose of this strategy is to reduce the construction programme and thus the overall duration of effects.

Construction works will only be undertaken in one bay during peak times to ensure that traffic can be appropriately managed to a level where there are not unreasonable delays. The bay where construction is occurring at peak-time will depend relative to tides and what construction works are proposed. It is noted that which bay is used at peak could differ every day and one bay may utilise the morning peak and the other the afternoon / evening peak.

4 Environmental and Cultural Considerations

The Assessment of Environmental Effects (AEE), and the subsequent work completed by the Alliance (including the s127 consent application), has provided information pertaining to the environmental and cultural values of the area; the values associated with the Project are summarised in the following sections. The Project is situated on the eastern edge of Te Whanganui-a-Tara, along Marine Drive between Ngau Matau (at the northern end) and Matua-iwi Pa (at the southern end).

4.1 Environmental and cultural values

4.1.1 Cultural significance

The Cultural Impact Assessment notes that the Eastern Bays were the sites of Māori occupation from the earliest times following the arrival in the Harbour of the Polynesian explorer Kupe and the subsequent later settlement by the Whatonga people. Māori Pā and Kainga were close around the coastline at regular intervals in a pattern not unlike present settlements. These Māori settlements used the abundant local resources such as kai moana. There is the potential for shell midden sites along the proposed development along with other possible cultural objects. Protocols relating to the accidental discovery of an artefact are described in Section 7.7 of this report.

Māori sites of significance within the wider Project footprint include:

- Whio-rau/ Lowry Bay, which means the place of many blue duck, and was apparently a favourable place for securing this species.
- Ngau Matau 'Northern headland of Lowry Bay', now called Point Howard. The name means 'bite the fish hook'.
- Orua-motoro Pa was located at Days Bay and was said to have been built by Te Hiha of Ngati Kahungunu (Ngati Ira).

In addition to the above, Te Whanganui-a-Tara (Wellington Harbour) is also identified as having cultural significance.

4.1.2 Contaminated Land

There are no sites within the works area identified on the GWRC Selected Land Use Register (SLUR).

4.1.3 Kororā, tōrea pango and shoreline foragers

At least 23 native coastal bird species have been recorded along the Eastern Bays coastline, including two species ranked as Nationally Threatened and nine species ranks as At-risk. The majority of the species resent in the Eastern Bay area use the coastline either for foraging or roosting or are present in adjacent coastal waters. Kororā and tōrea pango have been known to breed along the coastline. At least 42 nest sites for kororā have been found within or adjacent to the Project footprint and tōrea pango are known to breed in Sorrento Bay. Kororā have also been encountered in the revetment along the alignment as well as within culverts.

Error! Reference source not found. Section 6.1 and 6.2 of the BPP outlines measures that will be adhered to so that adverse effects on kororā / Little Penguins and Shoreline Foragers are avoided. The BPP should be read in conjunction with this CEMP.
Prior to works commencing on any culvert that could potentially provide penguin passage, additional penguin sweeps will be undertaken to confirm whether they are or could be providing penguin passage.

4.1.4 Establishment of kororā exclusion zones

In the event that nesting or moulting kororā are found during pre-construction surveys, a 10 m exclusion zone shall be created around each nesting and moulting site, and no Construction Works shall occur within these exclusion zones, as long as penguins remain present. Exclusion zones may be marked using temporary fencing or markers, provided that any fencing or markers used does not impede kororā between the nesting or

moulting site and the sea. Following the installation of kororā exclusion fencing, these structures shall be inspected twice weekly for the duration of Construction Works. If this fencing is found to be damaged, it shall be reinstated within 24 hours of the inspection unless it is unreasonable given weather conditions in which case they must be reinstated as soon as reasonably practicable.

4.1.5 Establishment of Shoreline Forager exclusions zones and other measures

In the event that the nest of a Shoreline Forager is found during a pre-construction survey, the survey report shall contain advice on how Construction Works occurring within 100 m of the nest should be managed, including providing advice on the use of specific machinery, and outlining measures that must be taken to avoid disturbing the nest. Such measures will include:

- Avoiding, where possible, marking the location of the nest with conspicuous markers, as this will increase the risk of nests being disturbed by people, or depredated by avian predators.
- The establishment of an 100m exclusion zone around any nests found. This may be supported by a rāhui.
- Avoiding the use of noisy machinery or very bright lighting sources within 100 m of the nest, and minimizing foot traffic within 100 m of the nests (shorebirds are typically much more wary of pedestrians than they are of vehicles or machines)

If the tōrea pango nest located off the point between Sorrento Bay and Lowry Bay is confirmed by the Project Ornithologist to be occupied by a breeding pair or the presence of eggs or chicks, then during November no Construction Works shall occur within 100 m of the nest while it is so occupied. If the nest is so occupied at other times of the year, Construction Works within 100 m shall occur under the advice of a suitably qualified and experienced ecologist as to the use of specific machinery and specific minimisation measures and/or working practices.

If the tōrea pango nest located off the point between Sorrento Bay and Lowry Bay has resulted in chicks being hatched, then no Construction Works shall occur within the tōrea pango Managed Works Zone (delineated in Figure 6.3 below) shall occur within the months of December and January unless the Project Ornithologist has determined that the chicks have not survived or can fly. If non-flying tōrea pango chicks are present within the tōrea pango Managed Works zone during February, then Construction Works within the tōrea pango Managed Works Zone shall occur only if a suitably qualified and experienced ecologist determines that work with specific machinery and specific minimisation measures and/or working practices can proceed without endangering the chicks.

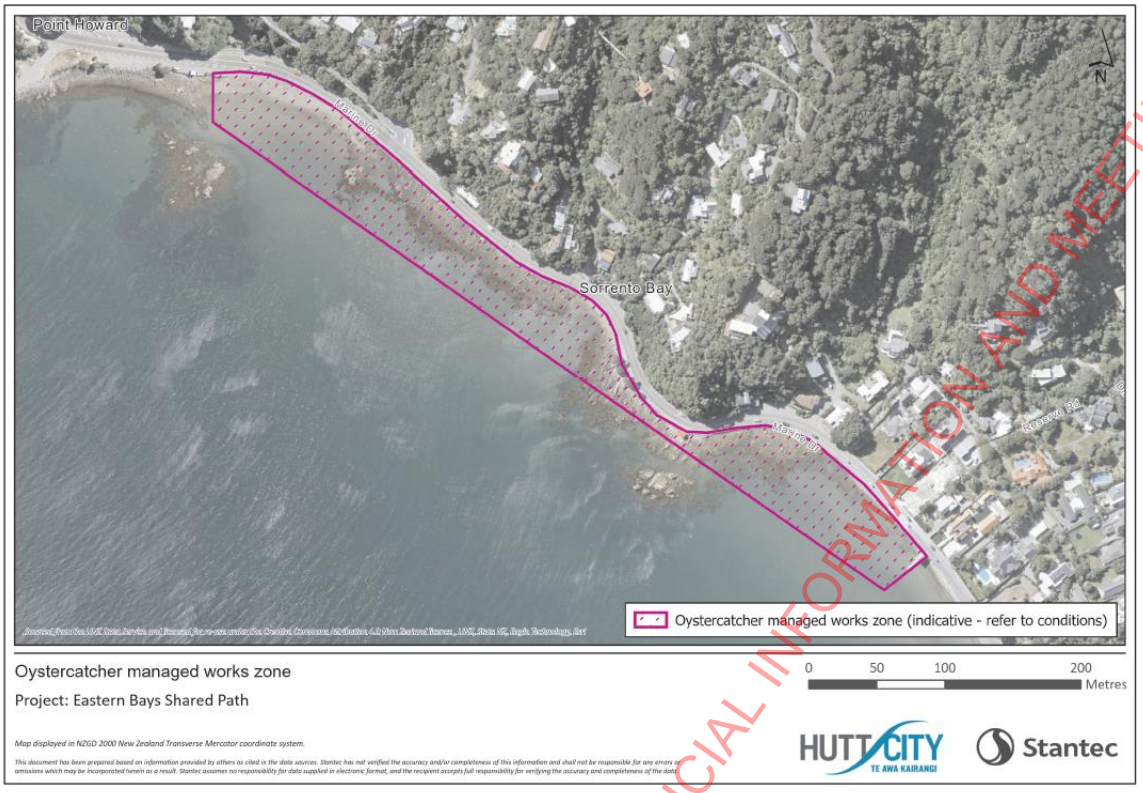

Figure 4.1 Extent of the Tōrea Pango / Variable Oystercatcher Managed Works Zone in Sorrento Bay

4.1.6 Rimurēhia / Seagrass

Rimurēhia / seagrass beds have been located in south Whiorau and are classified as a native species with a national threat status of "At Risk – Declining". The rimurēhia beds identified within Whiorau are the last known beds within Te Whanganui-a-Tara. As required by condition EM.11 of the consent, a Rimurēhia/seagrass Monitoring and Management Plan (RMMP) has been created to address Consent Conditions regarding potential effects on Rimurēhia/seagrass beds (*Zostera muelleri subsp. novazelandica*)[1] located in south Whiorau. The SMMP should be read in conjunction with this plan.

4.1.7 Fish passage

Lowry Bay South Stream and Whiorau Grove Stream have previously been assessed for fish passage. The most likely freshwater fish species present in the Project area streams was identified as Banded kōkopu (*Galaxias fasciatus*)[2 3]. Banded kōkopu can live in small streams, can navigate long piped stream sections, and are known to utilise the wetted edge of the stream channel and instream structures to climb over barriers. Banded kōkopu have historically been found in three of the streams that discharge into the harbour through the Project area (Lowry Bay North and South Stream, and York Bay North Stream).

Where suitable fish habitat is available, several other species are possibly present, these include both shortfin and longfin eel (*Anguilla australis and A. dieffenbachii*) [3]; and potentially redfin bully (*Gobiomorphus huttoni*)[3] and kōaro (*Galaxias brevipinnis*)[4].

Īnanga (*Galaxias maculatus*) are unlikely to be present in the Project area streams, primarily due to stream catchments being short and steep, limited tidal influence on stream habitats, and riparian vegetation attributed to īnanga spawning not being previously identified within the streams.

During historical field surveys, unidentified Galaxias fish species were observed at two streams within the Project area (York Bay South Stream and Mahina Bay Stream). It has been noted that it is likely these were also banded kōkopu, however, identification could not be confirmed.

Characteristics relating to these streams are shown in Table 4.1 and the location are shown on 41.

Table 4.1. Details of the pipe outlets/catchments assessed for fish passage[3]

Outlet Name & number	Outlet Chainage	Type of watercourse	Fish habitat present	Fish presence and likely species	Fish passage design required
Wilmore Way Stream # 44	1235	Stormwater pipe – connects to natural open channel in a short steep forested catchment with potential intermittent flow	Yes	Possible. Banded kōkopu	Yes – fish passage design needed
Lowry Bay North Stream #42 (42.1, 42.2, 42.3)	1290	Natural channel with large upstream catchment	Yes	Confirmed. Banded kōkopu. Potential for shortfin and longfin eel	No – as long as current gradient is maintained and no outlet perch from designs
Whiorau Grove Stream #38	1532	Stormwater pipe – connects to natural open channel with forested gully in upper catchment	Yes	Possible. Banded kōkopu	No – as long as current gradient is maintained and no outlet perch from designs. Remove louvered outlet structures
30 Cheviot Road Stream #36	1545	Stormwater pipe – connects to small open channel	Yes	Possible. Banded kōkopu	Yes – fish passage design needed
Lowry Bay South Stream #35	1580	Natural watercourse	Yes	Confirmed. Banded kōkopu	Yes – fish passage design needed
Gill Road Stream #31	1780	Stormwater pipe – connects to forested gully in upper catchment with open channel	Yes	Possible. Banded kōkopu	Yes – fish passage design needed

41Upstream of both streams is a forested catchment. The key migration dates for the most likely native fish species to be found in the streams within the Eastern Bays is shown on Table 4.2.

[3] Source: Eastern Bays Shared Path: Freshwater Fish Passage Requirements (EOS Ecology) March 2019 (Report No. HUT01-18016-01)

Table 4.2. Key migration dates for native fish species in Eastern Bays

Common name	Scientific name	Upstream migration and life stage	Downstream migration and life stage
Banded kōkopu	*Galaxias fasciatus*	Sep – Oct (whitebait)	June – July (larval stage)
Kōaro	*Galaxias brevipinnis*	Sep – Oct (whitebait)	May – June (larval stage)
Longfin eel	*Anguilla dieffenbachii*	Dec – Mar (elver)	March – May (adult)
Shortfin eel	*Anguilla australis*	Dec – Mar (elver)	February – May (adult)

Section 5.1.3 of this CEMP outlines the pre-works ecological inspections required relating to fish passage and Section 5.3.5 the procedures should migratory fish be encountered. Fish passage will be re-established for this culvert as part of the construction in accordance with the relevant design report.

4.1.8 Intertidal Zone

The management procedures for managing potential effects on the Intertidal Zone are described in Section 0. The intertidal zone is the area between high and low tide. Whiorau intertidal habitat largely consists of a firm sand and gravel field beach, which is a highly mobile habitat type and therefore typically hosts limited diversity of flora and fauna. There are however three distinct areas of seagrass/ rimurēhia at Whiorau which is a highly valuable habitat type and rare in Wellington Harbour (see Rimurēhia / Seagrass Monitoring and Management Plan in Whiorau (Lowry) Bay for further details). At either end of the beach, consists hard shore habitat types, including cobble field bedrock, cobble field and boulder fields. Cobble and boulder fields provide temporal stability for a diverse range of flora and fauna, with boulder fields providing large spaces between boulders to create intertidal pooled areas for rocky shore species.

4.1.9 Ngārara / Lizards

Lizard species recorded within 10 kilometres of the Project site are shown on Table 4.3.

Table 4.3. Ngārara species recorded within 10 km of the study site (DOC BioWeb Database). Conservation status and nomenclature follows Hitchmough et al, 2021.

Common Name	Scientific Name	Threat Status (qualifiers)	Habitat Preferences	Functional group
Northern grass skink	*Oligosoma polychroma*	Not Threatened CD	Dry open areas with low vegetation or debris such as logs or stones for cover.	Terrestrial skink
Copper skink	*Oligosoma aeneum*	At Risk – Declining	Open and shaded areas where sufficient cover is available (e.g., rock piles, logs, dense vegetation).	Terrestrial skink
Glossy brown skink	*Oligosoma zelandicum*	At Risk – Declining CD, PD	Forest or densely vegetated and damp areas in forest, scrub, grassland, gardens and coastlines.	Terrestrial skink
Ornate skink	*Oligosoma ornatum*	At Risk – Declining CD,	Open and shaded areas where sufficient cover is available (e.g., rock piles, logs, dense vegetation).	Terrestrial skink
Northern spotted skink	*Oligosoma kokowai*	At Risk – Relict CD, PD, Sp	Open/sunny areas such as boulder beaches, sand dunes, open coastal forest and scrub, grassland, and shrubland. Refuge under coastal debris, rocks logs.	Terrestrial skink
Raukawa gecko	*Woodworthia maculata*	Not Threatened CD, PD	Forest, scrub, grassland and coastal areas.	Terrestrial/arboreal gecko
Ngahere gecko	*Mokopirirakau sp.* Southern North Island'	At Risk – Declining DP, DPR, PD	Forest and scrub, especially manuka / kanuka, and creviced clay banks	Arboreal gecko
Barking Gecko	*Naultinus punctatus*	At Risk – DecliningCI, DPT, PF	Forest and scrub, especially manuka / kanuka.	Arboreal gecko

Threat status qualifiers: CD Conservation Dependent, PD Partial Decline, Sp Sparse, DPR Data Poor Recognition, CI Climate Impact.

There are no known lizard habitats in Whiorau Bay. An assessment will be undertaken of areas that are considered by the project ecologist to be potential habitat prior to any construction works commencing in that area.4242

4.1.10 Sensitive Receptors

Generally, houses are sparsely located along Marine Drive in Whiorau Bay. The closest residence will be approximately 15 m from the works area.

There are many utilities located in the road reserve. This includes but is not limited to wastewater infrastructure, potable water supply, stormwater infrastructure, lighting and power cables.

4.2 Summary of Environmental Management

Table 4.4 provides a summary of the potential adverse effects on the environment and the tools that will be used to avoid, minimise or mitigate the potential adverse effect. In addition, it identifies any monitoring or reporting required and contingency actions.

Table 4.4. Summary of potential adverse effects and management tools

Adverse Effect	Cause	Avoidance and/or minimisation	Potential mitigation	Proposed inspections, monitoring and reporting
Disturbance of penguins	• Construction activities	• Pre-construction survey to confirm location of penguins. • Set-back distance from penguins of 10m. • Avoiding works within proximity to nesting kororā. • Inspecting culverts prior to works on them and ensuring access is maintained to culverts used for access. • Blocking up gaps and crevices to prevent penguins' access. • Permit system requiring all works with potential to adversely impact on penguins to have avoidance measures identified.	• Relocation of penguins in accordance with any relevant permits, the BPP and monitoring their welfare • Predator control • Ensuring culvert access is available as required and at the end of the day if required. • Installation of fencing to prevent penguin access to the road.	• Noise monitoring • Inspections and reporting by Project Ecologists • Reporting any penguins encountered or relocated. • Penguin and ecological permit process.
Disturbance of shoreline foragers (including tōrea pango)	• Construction activities	• Pre work inspections. • Setback distance from breeding nests with either eggs or chicks.	• Predator control and dog control	• Inspections and reporting by Project Ecologist • Penguin and ecological permit process.
Disturbance of marine habitat or species (i.e. in the intertidal zone)	• Construction activities beyond construction zone	• Delineation of construction prior to works commencing. • Minimising the area required for construction. • Undertaking ecological inspection and sweeps prior to works (i.e. rock relocations)	• Relocation of marine flora and fauna from areas of disturbance by a suitably qualified person.	• Relocation supervised by Project Ecologist. • Reporting any damage. • Inspections and reporting by Project Ecologists • Penguin and ecological permit process
Disturbance of lizard habitat	• Construction activities and vegetation removal	• Identifying areas of lizard habitat and timing construction works to avoid the lizard season • Undertaking catch and salvage activities by an Ecologist • Adherence to the Ngārara Management Plan	• Catch and relocate lizards • Adherence with the Ngārara Management Plan	• In accordance with the Ngārara Management Plan • Penguin and ecological permit process
Disturbance of highly valuable plants	• Construction activities and vegetation removal	• Identifying and ground truthing the locations of the *Atriplex cinerea* plants • Prohibiting vehicles from driving on any *Atriplex cinerea* plants	• Fencing around *Atriplex cinerea* plants if found • Consulting with suitably qualified plant expert if required.	• Confirming that the fencing is maintained and that there has not been any damage to the *Atriplex cinerea* plants if found • Penguin and ecological permit process
Noise impacts on wildlife and residents	• Construction activities	• Ensuring equipment is in good condition. • Complying with noise standards as far as practicable. • Avoiding noisy works outside of 'normal' working hours whenever possible.	• Noise suppression, barriers or other mitigation (i.e. changing equipment)	• Baseline monitoring. • Monitoring in response to complaints. • Inspections and reporting. • Weekly environmental inspections (and as required). • Adhering to complaints procedures.
Vibration impacts on wildlife and residents	• Construction activities	• Equipment selection and ensuring equipment is in good working condition. • Complying with vibration limits as far as practicable.	• Changing equipment used	• Baseline monitoring. • Monitoring in response to complaints. • Inspections and reporting. • Weekly environmental inspections (and as required). • Adhering to complaints procedures
Nuisance discharges to air impacting on residents and users	• Dust or exhaust discharges	• Equipment maintained in good condition. • Using water for dust suppression	• Dampening fill materials in extreme circumstances • Using water suppression during any potential dusty conditions	• Daily inspections and checks for visible signs of dust. • Weekly Inspection environmental inspections (and as required).
Sediment discharge impacting on marine environment	• Excavation of material for seawall footing. • Placement of backfill. • Vehicle tracking on beach.	• As far as practical undertaking excavation in the dry or contained areas. • Prompt removal of excavated material. • Prompt stabilisation of fill material. • Minimising active, exposed work sites. • Investigations into vehicle tracking minimisation are underway.	• Treatment of water to remove sediment. • Removing contained dirty water via hydrovac or vacuum tanker truck. • The CEMP will be updated should other viable controls be identified for use.	• Daily inspections. • Continuous checks during works. • Weekly environmental inspections (and as required)
Hazardous materials discharged to marine and beach environment	• Spills	• Correct storage of hazardous material including no storage below mean high water springs. • No refuelling below mean high water springs.	• Utilising spill kit.	• Daily inspections. • Continuous checks during works.

Adverse Effect	Cause	Avoidance and/or minimisation	Potential mitigation	Proposed inspections, monitoring and reporting
				• Weekly environmental inspections (and as required)
Earthworks around existing trees	• Disturbance of root structure	• Protection of plants by creating exclusion area.	• Consulting with suitably qualified plant expert if required.	• Monitoring health of trees following works.
Death of fish	• Not providing fish passage	• Ensuring fish passage is provided during and following works	• Capture and release of fish with appropriate permits	• Reporting any fish captured and released • Inspections by Project Ecologists
Damage or destroyed artefact	• Not adhering to accidental discovery protocol	• Ensuring staff are aware of accidental discovery protocol and procedures to follow • Consulting with an archaeologist.	• Notifying Heritage New Zealand Pouhere Taonga (HNZPT) and Mana Whenua if required.	• Reporting any archaeology discoveries to appropriate authorities
Damage or destroyed cultural artefact or impact on cultural values	• Not adhering to accidental discovery protocol • Discharge of sediment into the CMA	• Ensuring staff are aware of accidental discovery protocols • Consulting cultural advisor • Adhering to protocols of the CEMP	• Notifying MWSG • Adhering to the procedure in the accidental discovery protocol	• Reporting discoveries to appropriate authorities and personnel
Discharge from contaminated land	• Encountering unexpected contamination	• Adhere to accidental discovery protocol • Consult with a suitably qualified expert.		• Daily inspections. • Weekly environmental inspections (and as required).
Traffic delays	• Construction works and increased traffic volumes • Delays to traffic	• Adhering to the protocols in the TMP	• Adhere to the TMP	• Adhere to the TMP

5 Procedures

This section identifies a series of procedures that may assist in avoiding, minimising or mitigating adverse environmental effects during the construction works at Sunshine Bay. The procedures cover:

- Pre-start procedures.
- Site establishment.
- Construction work – general procedures.
- Construction works – activity-specific procedures.
- Post-work procedures.

5.1 Pre-start Procedures

The following sections describe the procedures that will be implemented prior to any site establishment works.

5.1.1 Notification to Councils

Notification of commencing works will be provided to the Manager and the Team Leader at least 20 working days prior to the start of construction in a new area or bay. This will include notification to compliance officers Annie.Graham@gw.govt.nz Nicola.Fenn@gw.govt.nz Larry.Lee@huttcity.govt.nz and the general Council email addresses including notifications@gw.govt.nz and resourceconsents@huttcity.govt.nz.

5.1.2 Notification to Businesses, Residents and Road Users

Businesses and residents will be informed prior to the commencement works in accordance with the Stakeholder and Communications Management Plan[4] prepared by the Alliance.

The impact of construction activities on stakeholders, residents and the wider community will be identified and assessed. Communications regarding this impact will then be sent out using the channel identified as most appropriate. Methods of communication may include letter drops, emails and face-to-face meetings for residents and businesses and social media and website updates via Hutt City Council and Waka Kotahi for wider ranging impacts.

A minimum of 3 days' notice is required for those affected by upcoming construction activities with this timeframe increasing depending on the assessed level of impact.

Network Utility Operators including WWL and Wellington Electricity will be informed of potentially disruptive works at least one week prior to the commencement of works depending on the level of impact.

The Stakeholder and Communication team will attend construction meetings with the wider project delivery team to keep aware of these potential impacts from construction activities and will receive minutes should they not be able to attend. The team will also meet as required with key stakeholders and Project partners to ensure all parties are kept up to date and involved.

5.1.3 Ecological Inspection

Prior to the commencement of construction works, a site inspection in accordance with the BPP will be undertaken to:

- Confirm the presence of moulting or nesting kororā / little penguins and the need to establish any exclusion zones.
- Confirm the presence of shoreline foragers and their nests and to determine what special provisions are required if the nests are within 100 m of the construction activities.
- Confirm whether any of the culverts are or could be used by kororā and determining whether any access ramps for kororā are required[5].

[4] Communications and Stakeholder Plan: Tupua Horo Nuku Eastern Bays Shared Path Construction.
[5] This may be undertaken prior to the commencement of works within proximity to the culvert rather than for the bay in its entirety

The Project Ecologists or suitably qualified person will also confirm:

- Any plants or vegetation located in the construction zone that needs to be protected, avoided or transplanted. This vegetation will be marked out with temporary fencing or a similar means to identify that it is to be avoided during works. This may also include identifying opportunities to retain existing vegetation.
- Review of proposed works within or immediately adjacent to the area of lizard habitat identified at Whiorau Reserve and ensuring that the controls are appropriate for this area as relevant to an ecological perspective
- Review of proposed works within the subtidal zone and ensuring that the controls are appropriate for this area and the required construction area is minimised as much as practical as relevant to an ecological perspective.
- Whether fish passage needs to be provided for at the culverts, outlets and streams that will be impacted by works[6].

Construction works will not commence until the Project Ecologist has given their approval to the Area Manager. This will include ensuring that any exclusion zones and controls have been implemented as required.

5.1.4 Mana Whenua

The MWSG is provided with updates on the Project as well as when construction will commence in a new bay. The MWSG will be consulted about appropriate cultural protocols in respect of a site blessing and other activities on site.

To allow Mana Whenua to assume their kaitiaki responsibilities the MWSG and Mana Whenua Integration Lead or Cultural Advisor will be invited to:

- Present at the Project induction.
- Attend toolbox meetings and present as required.
- Participate in the relocation of rocks and plants outside of the construction work areas.
- Supervise vegetation removal and excavations
- Undertake cultural monitoring.

Mana Whenua will be represented by the Mana Whenua Integration Lead or Cultural Advisor or by other delegates of the MWSG.

5.2 Site Establishment

The following sections describe the procedures that will be adhered to during site establishment.

5.2.1 Signage, Fencing and Public Access

The general area of works will be fenced off and the traffic management controls will be implemented in accordance with the TMP. Project boards will be erected prior to the commencement of construction next to the area of works. The boards will provide contact and health and safety information.

During works, the works area will not be accessible to the public. In accordance with the TMP, Traffic Management Controllers (TMCs) will be in positions to assist with directing pedestrians the correct way and escorting them through the worksite as required.

Pedestrian traffic access and safety is a priority, TMOs will be in positions to assist with pedestrians directing them the correct way and escorting past the worksite if required to ensure there is always a safe passage route for pedestrians (and dismounted cyclists) to use through the worksites. The existing pedestrian environment at Whiorau Bay imposes risks to the safety of pedestrians. A designated footpath is not available. Pedestrians can walk on the eastern side of Marine Drive using a narrow shoulder which provides no protection as it is not

[6] Works on the culvert are currently scheduled to occur in August. This is subject to change relative to further programme refinement.

raised or separated from the general traffic. Pedestrians may also use the space between the northbound traffic lane and the seawalls with no separation from the traffic with some sections narrower than 1.5m.

In general the following will be adhered to:

- Where a footpath is not available on the other side of the road, and where required, pedestrians will be escorted through the site by a TMC.
- A footpath will be provided adjacent to the working site for times outside of working hours so that safe pedestrian access it available at all times.

In order to ensure the effectiveness of the above measures, the following shall also be considered and implemented as appropriate through the site-specific TMPs:

- Assembly points at both ends of the construction site;
- Separation of pedestrians from the traffic with barriers, e.g. netting fences and bollards;
- Protection measures of the shared path users from the seawall which is a falling hazard;
- Pause of any construction work that generates excessive noise and vibration when the shared path users pass; and
- A safe diversion route for shared path users including separation from the traffic during unattended hours.

5.2.2 Delineation of Works Area

Prior to works commencing, the boundaries of the construction work area[7] and toe of the seawall will be defined and set out by the Project Surveyor. The Project / Site Engineer will confirm that the site has been correctly delineated. This information is recorded. In delineating the construction works area, the Project Ecologists also confirm that they are satisfied with the area of disturbance.

In addition, a series of marker points will be established along the landward side of the Project area. The marker points may include survey pegs or painted marks on the pavement. These marker points will be used to check the location of the boundaries in the event the boundary markers are disturbed or there is uncertainty. Failing this the survey and mark out will be repeated if required.

5.2.2.1 Demarcation of rimurēhia beds

Condition EM.11(c)(v) states that the rimurēhia beds be appropriately marked during construction works and beach nourishment to avoid any potential adverse effects. No construction works are to occur within 2 m of any beds, therefore wooden pegs, waratahs or any suitable visual aid determined by the construction team and approved by the Project Ecologist will be placed 2 m away from the beds at the landward edge to delineate the beds plus the buffer zone with signage to ensure the Construction Team are aware of rimurēhia locations. Demarcation of beds to occur at any time construction activities are occurring within southern Whiorau. This requirement will be set out in the Construction Work Pack (CWP) and the Ecological Permit. Project Ecologist or suitably qualified person will confirm the demarcated line is accurate prior to construction works commencing.

The Construction Lead will be provided the RMMP and be informed of conditions within this RMMP. A workshop between the construction lead and the PEP-C team will be scheduled to identify requirements for implementation. The management requirements to avoid construction effects on rimurēhia will be communicated to the broader construction team by the Project Ecologist during pre-work tool box meetings.

Posters will also be provided to inform the wider team of the ecological importance of rimurēhia and this specific bed to the coastal marine environment in which we are working.

[7] Section 6.2.3 of the AEE defines that the construction area will occupy up to a 5 m wide construction zone where the seawall is proposed and a 3 m wide zone where the revetment structure will be constructed. The location of the seawall is visible on the engineering plans and specifications provided to Councils.

5.2.3 Ecological Works

The Project Ecologist or Ecologist representative will undertake a survey of intertidal pools and loose rocky material in the construction area. The purpose of this survey is to identify the presence of any fish and relocate them outside of the construction area.

Prior to works commencing, the Project Ecologist or Ecologist representative, in conjunction with the site team, will direct the removal and relocation of rocks colonised with biota (e.g. with blue mussel (*Mytilus* sp.)) to appropriate areas within the subtidal zone. Rocks greater than 0.4 m that are not part of the bedrock material will be considered for relocation. The Project Ecologist will be suitably qualified and provide training and guidance for those involved in the relocation.

The Project Ecologist will also provide advice and recommendations to the Project / Site Engineer to ensure that the area of disturbance is kept to a minimum and that any works within the subtidal zone are minimised.

The Project Ecologist will confirm that the area is ready for construction activities within the current tidal cycles. Surveys and relocations will need to be repeated and will occur as required.

During works, the Project Ecologist will ensure that the recommendations are being addressed and implemented.

5.2.4 Site Facilities

The Project yard for the project will be located at 64 Seaview Road. This site will provide bulk storage for construction materials and a site office. Materials and tools will be transported to and from Yard and site daily.

On site facilities include a toilet facility, portacom and a portable sign in box. These will be located at Whiorau Reserve for the duration of the project. An excavator will remained parked on the temporary access ramp for the duration of the project, as has occurred in previous bays.

Project vehicles will be parked in the traffic exclusion zone and at designated contractor parking areas. This area will also be used for the vehicles delivering of precast blocks, concrete and placement of pumps and treatment containers. This area and equipment will be appropriately secured to ensure that kororā do not nest underneath machinery and equipment.

Generally, materials and tools required for construction will be returned to the Project yard on the completion of works for the day except for items such as precast blocks awaiting to be placed and large equipment such as excavators, pumps and treatment containers. If materials are left on site, these will be secured at the end of each day and all of these will be located above mean high water springs (MHWS). In advance of predicted bad weather, an assessment will be made to determine if these items should be removed or special measures taken to ensure they stay in place, in accordance with Section 7.1 of this management plan.

5.3 Construction Works – General Procedures

5.3.1 Hours of Work

Working hours will be in general accordance with Table 5.1; however, there may be some variation relative to the tides. Site establishment or disestablishment activities and quiet activities may occur prior to the hours indicated in Table 5.1.

In exceptional circumstances, work outside of the hours shown in Table 5.1 may also be required in order to undertake preventative actions in response to adverse weather forecast (see Section 7.1) or to utilise favourable tidal and weather conditions to maintain the construction programme.

Table 5.1: Working Hours

Day	Time
Monday to Friday	7:30 am to 6 pm
Saturdays	7:30 am to 4 pm
Sunday and Public Holidays	Only in exceptional circumstances

If planned works are required outside of normal working hours (Monday to Saturday), the consent holder will notify HCC at least five working days prior to these works and seek permission from HCC that working in these hours is acceptable. Notification will be sent to enforcement@huttcity.govt.nz Larry Lee (larry.lee@huttcity.co.nz) and Dean Bentley (dean.bentley@huttcity.govt.nz). If scheduled works are required at this time, information will also be provided to HCC prior to any works outlining the specific noise and vibration mitigation that will be utilised.

If emergency works are required outside of these hours (for example, to avoid an adverse environmental impact or in preparation of a storm event) Hutt City will be notified as soon as practical.

5.3.2 Noise and Vibration

5.3.2.1 Noise

During works, the best practicable options will be adopted at all times to ensure that construction noise remains at a reasonable level. Construction works will be undertaken such that noise limits comply with the limits in New Zealand Standard (NZS) 6803 Acoustics – Construction Noise as far as practicable. The applicable limits from this standard are shown in Table 5.2 and Table 5.3.

Table 5.2. Construction noise limits for residential dwellings – NZS 6803 Table 1

Time of week	Time period	Noise limit Db	
		L_{Aeq}	L_{Amax}
Weekdays	6:30 am – 7:30 am	55	75
	7:30 am – 6:00 pm	70	85
	6:00 pm – 8:00 pm	65	80
	8:00 pm – 6:30 am	45	75
Saturdays	6:30 am – 7:30 am	45	75
	7:30 am – 6:00 pm	70	85
	6:00 pm – 8:00 pm	45	75
	8:00 pm – 6:30 am	45	75
Sundays and public holidays	6:30 am – 7:30 am	45	75
	7:30 am – 6:00 pm	55	85
	6:00 pm – 8:00 pm	45	75
	8:00 pm – 6:30 am	45	75

Table 5.3. Construction noise limits for commercial and industrial buildings – NZS 6803 Table 2

Time period	Typical duration of work Db L_{Aeq}
7:30 am – 6:00 pm	70
6:00 pm – 7:30 am	75

The main pieces of equipment that will be utilised are shown in Table 5.4 along with the relevant setback distances to meet different limits.

Table 5.4. Construction equipment noise levels without mitigation

Equipment	Sound power level Db LWA	Setback distance (m) to meet limit)		
		70 Db Laeq (daytime)	55 Db Laeq (Sundays)	45 Db Laeq (night-time)
Excavator (2t)	93	8	40	100
Excavator (12t)	96	11	50	130
Excavator (14t)	99	16	70	175
Excavator (25t)	103	25	100	250
Vibratory roller (6t)	98	14	65	160

Equipment	Sound power level Db LWA	Setback distance (m) to meet limit)		
		70 Db Laeq (daytime)	55 Db Laeq (Sundays)	45 Db Laeq (night-time)
Vibratory roller (12t)	105	30	120	300
Tandem tipper	96	11	50	130
Road truck	96	11	50	130
Vibrohammer (5t)	116	85	330	830
Concrete truck and pump	101	20	80	210
Asphalt paver	109	45	175	440
Compactor (600kg)	109	45	175	440

For different pieces of works, a different combination of machinery will be used this may include:

- Removal of existing seawall – excavator with a breaker attached or a nibbler, various construction saws;
- Construction of new seawall – excavator, concrete pump and vacuum excavator;
- Finishing works – excavator, combi roller and plate compactor; and
- Deep foundations – excavator.
- Revetment - excavator.

5.3.2.2 Vibration

Construction will be undertaken such that vibration will remain below the limits in DIN 4150-3: 1999 *Structural Vibration – Part 3: Effects of Vibration on Structures* in order to provide a low probability of cosmetic damage. These limits are shown on Figure 5.1. These limits are also dependent on the frequency of the vibration. Construction vibration will be managed to a reasonable level at all times.

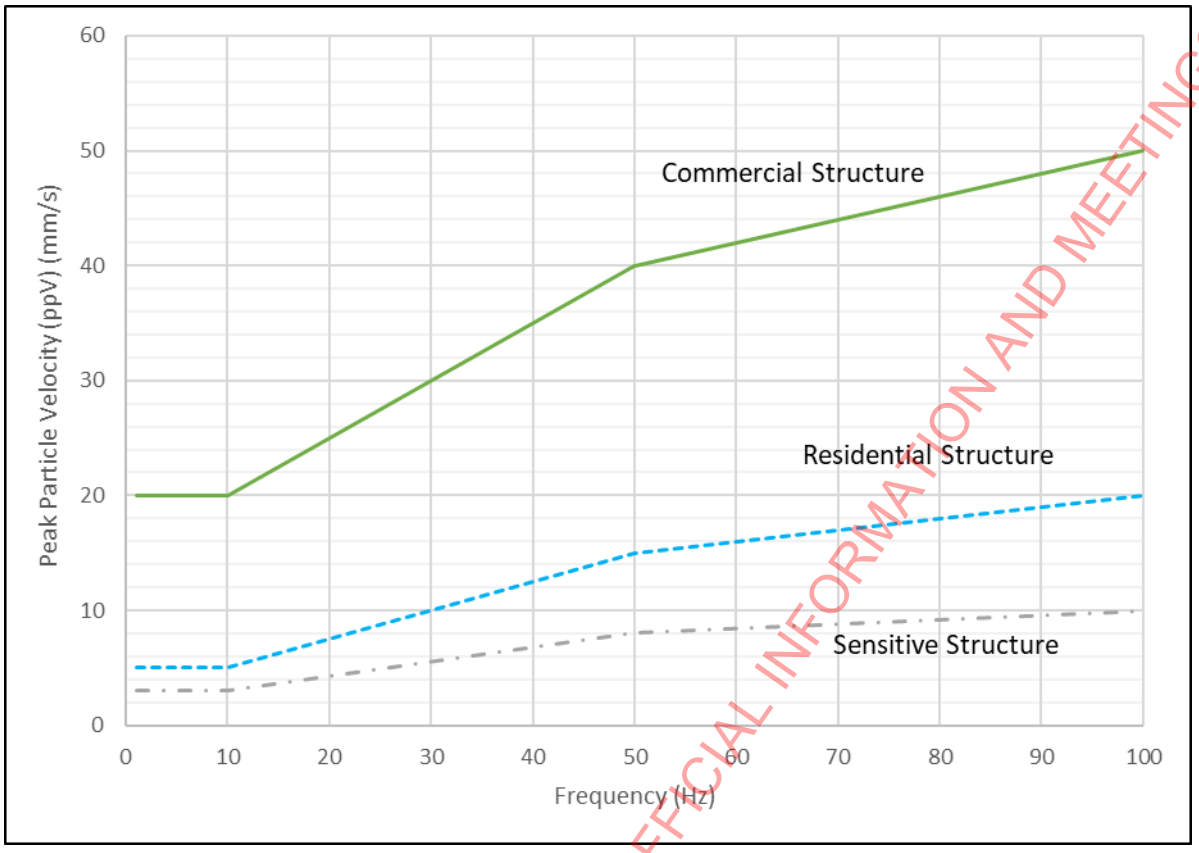

Figure 5.1. Vibration limits from DIN 4150-3 (short-term standard baseline curves)

Lower levels of vibration will be complied with as far as practicable to reduce adverse effects on building occupants. The following levels are based on levels from BS5228-1:2009[8] and DIN 4150-3:2016 and are appropriate for this Project:

Occupied PPFs[9] 8 pm to 6:30 am	0.3 mm/s PPV
Occupied PPFs 6:30 am to 8 pm	1 mm/s PPV
Other occupied buildings at all times	2 mm/s PPV
All other unoccupied buildings	5 mm/s PPV

The predicted setback distances for different pieces of equipment regarding vibration are shown on Table 5.5

Table 5.5. Predicted setback distances for vibration

Equipment	Setback distance (m) to meet vibration limit		
	1 mm/s PPV	2 mm/s PPV	5 mm/s PPV
Vibratory compaction (steady state)	27	16	9
Vibratory compaction (start up and run down)	35	20	10
Breaker attached to excavator	60	17	3

Setback distances for 0.3 mm/s are best established through measurement but may be in the order of 50 -

[8] BS5228-1:2009+A1:2014. *Code of practice for noise and vibration control on construction and open sites, Noise*
[9] Protected premises and facilities, as defined in NZS 6806: 2010

100 m. Adherence to the management tools and mitigation in Section 5.3.2.3 will assist in reducing the setbacks required to meet the relevant limits.

5.3.2.3 Noise and Vibration Management

Prior to works commencing, the works area and proximity to sensitive receptors will be assessed. In the event that construction noise or vibration may exceed the above limits, the following noise and vibration mitigation / management measures will be assessed and implemented where applicable:

- Implement mitigation such as noise barriers.
- Be careful with tools and equipment. Place them down instead of dropping them.
- Limit the use of vehicle horns.
- Using equipment silencers and mufflers, where required and practicable.
- Utilise other machinery, for example using appropriately sized equipment for the task or the use of a nibbler instead of a breaker to removal the existing seawall.
- Utilise quieter construction methods if possible.
- Good practice when operating machinery and avoiding unnecessary noise and vibration.
- Turning off plant when not in use.
- Ensuring all equipment is well maintained.
- Implement mitigation such as noise barriers.
- Engagement with affected parties to establish whether there are less sensitive times of day to undertake the works.
- Controlling timing of potentially noisy or vibratory works to minimise disruption as far as practicable.
- Noise and / or vibration monitoring will be undertaken when NZS6803 noise limits or DIN4150-3 vibration limits may be exceeded.

An Acoustics and Vibration Specialist will be consulted with regularly to ensure that the mitigation is appropriate. Additional mitigation measures may be required depending on the specific circumstances of each work scope.

5.3.3 Machinery and Equipment

During works, machinery and equipment will be used from the roadside where practicable. Vehicles will always remain on the roadside. Equipment used within the coastal marine area (CMA) will include the excavator, bulldozer for beach nourishment, handheld tools and other erosion and sediment controls as required.

Prior to the use of any machlinery or equipment in the CMA:

- The condition of the machinery, equipment and tools will be inspected.
- Any plants or vegetation will be identified and cordoned off to ensure that machinery or equipment is not placed in this location in accordance with Section 5.1.3 and as per the advice of the Project Ecologist.
- Intertidal pools, rocks and species will be inspected and re-located in accordance with Section 0 and as per the advice of the Project Ecologist.

In respect of machinery in the CMA, the following procedures are adhered to and are advised by the Project Ecologist:

- Machinery as far as practicable is used within the permanent works footprint;
- Tracking of machinery in the CMA is limited to the area which is required for the works rather than tracking all over the beach;
- Spill kits are available on site at all times and refuelling procedures are adhered to at all times;
- Working within the designated areas and only those that have been swept by the Project Ecologist n accordance with Section 0 and Section 5.1.3.

Equipment, machinery, and tools will also be inspected at the completion of works for the day and the equipment or machinery will be placed above MHWS at the completion of works for the day. All machinery and equipment will be appropriately secured at all times during works to ensure kororā do not nest underneath.

5.3.4 Planting and Vegetation

Retained vegetation will be identified and excluded from the active works site using methods such as bunting or fencing this exclusion zone will include the dripline of the retained vegetation. Care will be undertaken to minimise the disturbance of retained vegetation in the construction of the seawall and creation of the path.

5.3.5 Fish Passage

The following procedures will be implemented to ensure that fish passage is provided for at Wilmore Way Stream, Cheviot Road Stream, Lowry Bay South Stream and Gill Road Stream:

- In the first instance and if possible, the upstream and downstream fish migration timings will be avoided.
- If avoidance is not practicable, the length of time that the construction works encroach on that migration period will be minimised.
- If construction is undertaken during downstream migration times, the following will be implemented:
    - A conical net will be attached to the outlet/inlet to capture any downstream migrating eels. The net will be checked every 2 hours during operational hours and at the start of each day that it is in place. Any captured eel are to be released into the downstream/marine habitat. Any captured and released eel will be photographed, measured, and identified before release. At the end of each day records of captured and released eel will be sent to the Project Ecologist via email.
    - The outlet construction structures will be demobilised to allow downstream migration if a high flow event is to occur (~ 2 yr. Annual Recurrence Interval (ARI)) this will enable unimpeded migration of larval banded kōkopu and kōaro and any eel species to the marine environment.
- If construction is undertaken during upstream migration times, the following will be implemented:
    - Site staff will observe whether upstream migrating fish are congregating at the outlet. If this is observed, the project ecologist is to be informed, and if feasible relocation of these fish upstream will be undertaken.
    - The outlet construction structures will be demobilised if a high flow event/ following a large rain events occurs (~ 2 yr. ARI). This will enable a freshwater plume to occur so that juvenile/whitebait banded kōkopu and kōaro are attracted to the outlet and allow upstream migration.

5.3.6 Rubbish and Construction Materials

Any temporary construction materials and debris will be removed from the CMA and works area at the end of each day.

Prior to the commencement of works for the day and at the completion of works for the day, the site will be inspected to confirm there is no litter lying around the site. The dropping of litter on site or in the CMA will not be permitted.

Waste facilities will be available on site for the duration of construction to ensure that waste materials are stored and disposed of appropriately. Any rubbish and debris from the construction activities will be placed directly into containers on site, Utes or trailers and any rubbish from the construction activities will be removed from site on a daily basis to the Project Yard.

During the duration of the consent, a rubbish clean-up will be organised to occur once every six-months. This collection will involve two staff and a vehicle proceeding along the Project area collecting litter for one day. A record of these rubbish collections will be maintained for the duration of the consent and available to the Manager and the Team Leader on request.

5.3.7 Refuelling

No refuelling or maintenance of equipment will be undertaken within the foreshore or CMA. The refuelling and the maintenance of equipment, machinery and vehicles will be undertaken at least 5 m from:

- The mean high-water springs (MWHS) line; and
- An open watercourse.

Biodegradable hydraulic fluids will be used in all machinery working within the foreshore and CMA if possible.

A spill kit and boom will be available should a spill occur. The procedure in Section 7.5 of this report will be followed in the event of any spill.

In the event that a fuel, lubricant or hazardous material enters into the sea or nearby stormwater drain, GWRC are to be contacted as soon as possible via their pollution hotline (0800 496 734).

5.3.8 Hazardous Materials

Hazardous materials will be stored at the site yard in a hazardous goods storage container, which ensures sufficient bunded capacity. A trailer mounted fuel tank or small tanker will be used to refuel plant on site. This tank is double-skinned. Spill kits are available in each piece of plant and a larger kit is available on site at all times.

Industry best practice will be used for any storage, transport, handling and disposal of hazardous substances during construction. Hydraulic oils, greases and other construction materials including small quantities of fuel required for hand tools and pumps may be stored at the site during the working day, in secure containers and areas, away from watercourses and the CMA. These will be removed from the site on completion of works for the day. A copy of all relevant Safety Data Sheets will be kept on site, including at specific storage locations.

5.3.9 Dust Management

Dust will be managed during construction in accordance with the Ministry for the Environment's '*Good Practice Guide for Assessing and Managing Dust'*. The prompt removal of spoil from the site will minimise the creation of dust. The mitigation used may include:

- The condition of vehicles will be regularly inspected. This will include the inspection of tyres to ensure that there is not the tracking of dirt onto roads.
- Stockpiles will be covered and dampened as required.
- Surfaces will be swept.
- Water will be used as a dust suppressant during any unusually dusty activities.
- Barriers will be used between houses and the work front to minimise dust and particulate matter on residential properties.
- Wet cutting of concrete (see section 5.4.6 for the management of concrete wash) or use of a vacuum to capture concrete dust.
- Stabilising and covering exposed material.

5.3.10 Kororā management

Kororā management shall be undertaken in accordance with the BPP this includes the requirement to undertake pre-construction surveys. The BPP includes measures relevant to avoiding adverse effects on kororā. The following sections have been taken from the BPP.

5.3.10.1 Culverts

A suitably qualified and experienced ecologist must be present during any culvert inspection using CCTV equipment to observe any kororā sign (guano or birds) within the culvert and advise if any further protection measures are required based on the results of that inspection.

Should the pre-construction survey identify a positive dog detection at a culvert within an area were construction is to occur, a CCTV camera will be used prior to construction to determine the status of the burrow and subsequent management actions:

- If the CCTV camera confirms that no birds are present, access to the culvert will be blocked that day. Blocking culvert access may include the secure placement of mesh over the culvert outlet.
- If birds are confirmed to be present but not nesting or moulting, the use of the CCTV camera will repeated each day until it is confirmed that no birds are present; at which point the culvert will be blocked that day, unless otherwise instructed by the Project Ornithologist.
- If birds are confirmed nesting or moulting, access between the culvert and the water will be maintained at all times. This may require the provision of some form of structure / ramp up to the culvert to ensure

access. Examples of such structures are shown below (Figure 5.2 and ; however, the Project Ornithologist will provide the design parameters for individual situations. Any such structure will be checked at the end of each construction day to ensure that access is maintained every night.

Figure 5.2. Kororā access provided by rocks

Figure 5.3: Wooden ramp / stairs to allow kororā to access the culvert

5.3.10.2 Fencing

In any construction area where kororā are detected during the pre-construction surveys (Section 0), penguin fencing will be erected avoid birds accessing the road during construction. Any such fencing will be implemented prior to construction works commencing, and will meet the following parameters:

- At least 0.5 m in total height;
- Prevent kororā from going under the fence (this may mean finding a way to bolt down / weigh down any fencing to there isn't a gap that birds can get under);
- Comprised of a suitable material that doesn't cause hazard to road users;
- Extend at least 20 m either side of the location of any detection.

This fencing will remain in place for the duration of construction at that location and be checked at the end of each day of works to ensure that there are no gaps for birds to access under.

5.3.10.3 Signage

Signage will be installed to demarcate locations where kororā may be encountered within proximity to the works site. This may be placed on fencing above a culvert as shown on Figure 5.4.

Figure 5.4. Example of signage on fencing next to a culvert kororā have been discovered in at Mā-koromiko

5.4 Construction Works – Activity-specific Procedures

The following sections outline the procedures that will be adhered to during excavation, concrete placement, backfilling and re-profiling.

5.4.1 Planning

Prior to the commencement of excavations in the construction area, the relevant members of the Construction Team will consult with the Project Ecologist to ensure that the area of disturbance is minimised and that the proposed excavation method minimises any ecological effects. Matters to be considered will include:

- Working as far as practicable in the dry.
- Ensuring works are undertaken in short, manageable sections that can be stabilised prior to high tide.
- Minimising the required construction area footprint and the use of machinery and equipment in the CMA.
- Maximising the retention of beach materials (sand, gravels, rock and driftwood) for use following construction.

5.4.2 Preparation

Prior to the commencement of excavations, rocks will be removed from the construction zone in accordance with Section 0. Some materials will be excavated to and stored in the construction area on the seaward side; some of this material will be re-used for beach renourishment.

5.4.3 Seawall removal

The existing seawall will be broken out via the use of an excavator with an attachment. The broken out concrete is loaded into a truck for removal from site. The concrete is either disposed of to a clean fill or recycled. The removal of the seawall may also require concrete cutting to minimise adverse noise and vibration effects. If concrete cutting is used the following may be utilised:

- Water suppression methods or barriers will be used when practicable to minimise dust generation;
- Geofabric material will be used on the roadside edge to contain any material on the roadside and to prevent it from becoming entrained in the water;
- A wet vacuum will be available on site to remove any fines or slurry material; and
- The broken-out material will be removed from site before high tide to ensure that material does not become entrained.

The potential adverse effects of concrete cutting are minimised by regularly cleaning up the site as cutting progresses.

5.4.4 Excavation

A hydraulic excavator will be used to expose the rock to be excavated. The method to excavate the key trench will depend on the hardness of the rock. If softer rock, a conventional digger bucket may be suitable. If not, a rock pick may be used or a cutting head. In an 80 m stretch of works, it is estimated that this will produce 20 m^3 of spoil. As stated previously, works will generally occur in 20 to 30 m sections. Smaller sections are to be used where there are deep foundations.

To minimise the generation of sediment from the excavation activities, the seawall foundations will be constructed promptly. The following philosophy will be adhered to:

- Where possible, excavate in a dry works area by excavating either side of low tide.
- Limit the area of excavation open at any one time to ensure that the area open does not exceed what can be managed.
- If erodible material is encountered, appropriate measures will be taken to minimise this picking entrained in water. This may include:
    - Removing as much material as possible with the use of an excavator promptly;
    - The use of a hydro-vac;
    - Dewatering of accumulated water (from tidal intrusion) within excavations. This water may be treated prior to discharge using a settlement tank, lamella clarifier or dewatering bags.
    - Placing a geofabric liner and rocks on top of the unsuitable material; or
    - Pouring concrete / constructing seawall foundations the same day as the excavation.
- No placement of granular fill in wet conditions.
- Excavated material will be loaded out on a progressive basis for disposal off site. This may include the use of a digger or a hydro-vac for finer materials. Alternatively, coarse gravel and boulders may be windrowed on site during construction.

Where not possible to excavate in the dry, excavate in areas where water may be contained by the use of bulker bags or steel plates. In these situations, and if sediment is generated, water will either be pumped to a treatment device or hydro-vacced.

5.4.5 Portable treatment device

A Condor XXL settlement tank will be utilised as required. IXOM PAC flocculant will be used via a fully automated flocculant dosing system. Bench testing will be undertaken by Condor specialists as part of the installation process. Water quality samples and routine testing will then be undertaken via daily grab samples or through an automated testing system. Water will not be discharged until it has been assessed to ensure that all treated water has a neutral pH level, and that the concentration of total suspended solids (TSS) does not exceed 100 g/m^3. If this standard cannot be achieved, the water will either be discharged as trade waste to the wastewater (sewer) system as per the Hutt Valley Trade Wastes Bylaw 2016[10] [11] or collected from site and disposed of at a suitably licenced facility. Figure 5.5 shows an example of a potable treatment device.

[10] A permit will be required for this

[11] Permitted trade waste - a trade waste discharge consent is not required provided that the discharge complies with all the physical and chemical characteristics set out in Schedule 1 and does not exceed a maximum volume of trade waste of 100L/day.

Any measures will be implemented and maintained to operate and perform in accordance with the guidelines 'Erosion and Sediment Control Guide for Land Disturbing Activities in the Wellington Region' prepared by GWRC 2021. In addition, regard will be given to ensuring that any erosion and sediment controls used do not prohibit kororā access to outlets, culverts or revetments.

Figure 5.5. Portable treatment device

5.4.6 Dewatering

If dewatering is required, dewatered water will be collected from site and disposed of at a suitably licenced facility or pumped to a settlement tank for treatment and testing prior to discharge.

5.4.7 Concrete Placement

The construction of the seawall requires the placement of concrete for the foundations and to lock in each tier of pre-cast blocks. Concrete will only be poured at low tide and within a bunded area. Formwork will also be used to contain the concrete and ensure the design levels are achieved.

In some circumstances, concrete may need to be placed below water. In these instances, concrete additives will be used to prevent concrete segregation and leaching.

The following measures will be used to avoid any discharges of concrete:

- Ensuring the boxing is correctly constructed and where appropriate freeboard is allowed for.
- Ensuring placement of concrete is controlled by ensuring by using concrete pump or regulating flow using shuts. If the height difference between the concrete truck and placement site is greater than 2m the concrete pump will be used.
- A small water drum for washing tools on the project trailer.
- Surplus concrete will be placed in a designated area above high water or a 1 m3 mould. This is considered a contingency measure due to the accuracy in ordering the right volume and the ability to adjust formwork to utilise surplus concrete.

- The mixer trucks will not be allowed to wash down in the project area.
- The surplus water and concrete skimmings from screening will be swept on towards the landward side of the formwork.
- The equipment is in good working order.

Any contained wash water will be tested for pH. If the pH is greater than 8.5 the water will be taken to a licenced facility for treatment or an appropriate permit will be sought to discharge to the sewer.

5.4.8 Backfill

Granular backfill materials will be placed behind the pre-cast blocks once the pre-cast blocks are above MHWS. The material will be compacted when placed and all surfaces will be compacted prior to the end of the working day to minimise the potential for sediment generation from runoff. If imported fill is required, it will be limited to a mix of clean natural sand, gravels and rocks from a quarry.

A record of the material bought to the site for the purpose of backfilling will be maintained by the Zone Manager and this will be made available to the Manager, on request.

5.4.9 Revetment Construction

The toe of the rock revetment will be excavated by an excavator to a depth of approximately 1 m. Graded fill material will then be placed to created the base profile of the revetment. A layer of geotextile is laid over the profile to prevent the loss of fill material. Primary armour would then be place in the toe excavation and then on the profile. The layer of primary armour will be at least 2 rocks thick. The revetment may be built in two stages to reach its required height. The revetment will be built in sections up to 30 m.

5.4.10 Beach Nourishment and Reestablishment of the Beach Profile

Once the seawall has been constructed and an excavator is able to sit on the top of the wall, the windrows of the original beach materials will be re-distributed if suitable for beach nourishment. All beach nourishment will be undertaken in accordance with the BNP and will only be undertaken in winter. The BNP defines what material is suitable for placement.

The granular beach sand fill material will be delivered to site in 6-Wheeler trucks. A temporary platform 6 m x 6 m will be constructed on the beach adjacent to the new seawall. This will be formed from Gap 65 material. This temporary platform will enable the trucks to reverse across the top of the seawall and place material onto the beach. The new shared path will be protected with steel road plates to prevent the 6 wheeler trucks damaging the new pavement.

The beach fill material will be moved and placed using a combination of a 20T excavator and a D4 bulldozer. This plant will have to work around the tides since the toe of the new beach profile will be approximately at the low tide mark (neap tide).

The beach fill material will be trimmed and levelled using the D4 dozer. **No additional compaction will be applied to the beach fill material.**

Transfer and shaping of the beach profile will only occur during low tide levels in calm conditions, and in such a way that the formed toe will not extend much beyond MLWS.

Woody debris found in the areas of beach nourishment will be stockpiled away from the area of beach nourishment under the direction of the Project Ecologist. Stockpiled woody debris will be replaced along the wrack line following completion of beach nourishment in each bay.

Additionally, for the reestablishment of the beach profile, the SRHP provides information regarding the re-use of colonised rock in front of curved seawalls and specific construction specifications. The SRHP should be read in conjunction with this CEMP. This will be done to replicate the pattern and profile that existed prior to construction commencing.

The Zone Manager will consult with the Project Ecologist and Landscape Architect to ensure that the replacement of the material replicates the original beach pattern.

5.5 Post-construction Procedures

The following sections describe the procedures that will be adhered to on the completion of works in York Bay.

5.5.1 Site Reinstatement and Rehabilitation

Following the completion of construction in Whiorau Bay, the site will be reinstated and rehabilitated as follows:

- Any erosion and sediment controls (i.e. wave barrier) will be disestablished and removed.
- All plant, temporary facilities, debris, surplus and foreign materials will be removed from the site as practicable.
- Temporary stockpiles of beach materials which cannot be utilised will be removed, this is considered unlikely.
- Litter will be removed from the site and disposed of appropriately.
- Barriers and signage will be removed and public access will be reinstated.

The Project Ecologist will confirm whether any removed rocks need to be returned to the area which they were removed from. If this is required, the Project Ecologist will supervise the relocation of rocks.

Prior to the Zone Manager confirming the completions of work, the Project Ecologist will undertake a final inspection to ensure that any damage or disturbance due to the use of machinery, plant and vehicles on the foreshore is remedied.

5.5.2 Notification

On the completion of works[12] in Whiorau Bay, the Alliance will notify the Manager, Environmental Regulation and Team Leader, Resource Consents within 2 working days that the works have been completed.

[12] The completion of works is defined as once the site has been reinstated and rehabilitated in accordance with Section 4.4.1

6 Inspections, Monitoring and Reporting

The Alliance will undertake regular inspections and audits for the duration of construction works. A record of these inspections and audits will be maintained. In addition, records and responses to incidents and complaints will also be maintained.

6.1 Inspections

The Alliance will undertake the following inspections to ensure compliance with the CEMP, the work method statement in the work pack and the conditions of the resource consent and other permits:

- Pre-work inspections by the Project Ecologists.
- Daily site walkovers by the Site Engineer / Supervisor or delegate.
- Weekly inspections by the PEP-C Manager, Environmental Advisor or delegate.
- Site inspections by the Project Ecologists on as required basis.

The inspections will include:

- Site, weather and tidal conditions.
- Confirmation that works are within the construction works area and that the area of disturbance is appropriate.
- Inspections of erosion, sediment and dust control measures including any maintenance requirements.
- Inspections of obnoxious odour.
- Inspecting and reviewing other environmental controls.
- Inspection of waste and litter procedures on site.
- Inspecting machinery conditions and that refuelling procedures / hazardous substance storage procedures are being adhered to.
- Inspecting the spill kit to ensure it contains all the required materials
- Ensuring temporary construction materials and debris are removed from the CMA.
- Noise, vibration and dust prevention measures (if required).
- An assessment of any potential and/or actual effects on the environment.
- An assessment of whether any other mitigation is required.
- Compliance with permit conditions.

A check sheet will be used to assist in the completion in the completion of these inspections and audits. An example check sheet is provided in Appendix E. The inspections will record any urgent or minor actions required. Any urgent actions will be provided to the relevant Manager immediately. For the purpose of this document, urgent actions are defined as any action needed to avoid, mitigate or minimise a significant adverse effect. If minor actions are required, it will be raised as soon as practicable including at the next weekly toolbox meeting. The completed check sheets will be maintained in the Project databases.

6.2 Monitoring

6.2.1 Noise and Vibration Monitoring

Noise and vibration monitoring may be undertaken in the following circumstances:

- In response to a complaint or prior to any night works (if required).
- In response to a reasonable request by HCC.
- At the start of noisy works or works with high vibration including where noise or vibration limits are predicted to be exceeded at sensitive receivers.
- Noise measurements will be taken around new equipment and / or activities to establish the sound power levels and appropriate setback distances.
- To confirm assumptions around the adequacy of mitigation as required.

6.2.2 Construction Traffic Monitoring

As outlined in the TMP monitoring of the temporary traffic management will include undertaking audits of the temporary traffic management in accordance with Code of Practice for Temporary Traffic Management and the approved Site-Specific Traffic Management Plan. This will include confirming that all correct devices are in place, all conflicting signage is covered or removed, all temporary equipment installed is compliance and that the site is fit for purpose. HCC may also undertake audits of the TTM installations from time to time as described in the TMP.

To confirm that the two-bay strategy is operating as intended, the performance of this will be monitored. This will occur through the use of TomTom live traffic data. TomTom live traffic data is currently requested through HCC. The TomTom live traffic data will be analysed and a memo shall be provided to HCC in the event that delays are observed on site. If the on-site observation and/or TomTom live traffic data and verified complaints discover that the delay is excessive, the contingencies as outlined in the TMP will be explored and/or implemented as required.

6.2.3 Monitoring of Weather Conditions

The weather (wind and rainfall) and sea (swell and tide) conditions will be checked throughout the working day and forecasts checked for the week ahead.

6.2.4 Monitoring Sediment Plumes

For the purpose of this project, a 'significant' sediment plume is one that creates a conspicuous change in colour or visual clarity beyond the zone of reasonable mixing for one hour or more.

The following steps shall be taken if a significant sediment plume is identified:

1. Investigate the source of the sediment and discharge. This includes checking what activities are occurring on site – i.e. looking at construction activities, dewatering devices, nearby culverts, or any naturally occurring processes.
2. Cease the activity, if required, based on the cause of the discharge (as detailed in Section 7.2).
3. Take photos of the source of the sediment and the sediment plume.
4. Take a water sample of the sediment discharge, if required.
5. **Contact the environmental team** as soon as possible to inform them of the discharge. If deemed a notifiable event, an incident form will need to be completed detailing the investigation.
6. Activities can recommence once the source of the discharge has been remediated as per Section 7.2, or if the effects are deemed minor by a member of the environmental team.

Another way to remember this process could be SILT:

S	Stop the activity
I	Investigate the cause
L	Look for solutions
T	Take photos and samples

The following situations require immediate action and notification to GWRC and HCC:

- A point source discharge of sediment that has a TSS level of 100g/m^3 or greater.
- A sediment plume that creates a change in visual clarity of 30% or more after the zone of reasonable mixing (15m).
- Any discharge that has caused significant adverse effects on aquatic or marine life.

Within seven days of the incident occurring, the Alliance will provide an incident report to the Manager, GWRC as per condition GC.24.

6.2.5 Disturbance or smothering of Rimurēhia / Seagrass

In accordance with the Rimurēhia Monitoring Plan, where smothering or light disturbance is evidenced (from monitoring methods as stated above), or where concerns regarding a risk of non-compliance arise, the following steps should be sequentially undertaken:

1. Construction team to immediately stop works and notify the Project Ecologist.
2. Visual assessment and review of light availability to be carried out by a Project Ecologist suitably qualified and experienced, or ecologist under the supervision of the Project Ecologist with appropriate training, on the beds in the vicinity of the identified smothering, disturbance or potential non-compliance.
3. Where compliance with the natural fluctuations in light availability (as outlined in Section 2.4.5.4) is evidenced, the Project Ecologist will communicate with the Site Supervisor/ Engineer regarding the recommencement of works. The Project Ecologist will continue to observe the Site for two days following to ensure sediment controls are satisfactory:
4. Where non-compliance with the natural fluctuations in light or sediment smothering is evidenced and confirmed as part of the construction works:
5. Project Ecologist will communicate with the Site Supervisor/ Engineer to initiate sediment control measures as soon as practicable (using e.g. the sediment tank/ hydro-vac).
6. Site Supervisor/ Engineer to ensure that any additional risk of sediment release is managed, including removing excavated material from site prior to the tide rising.
7. Site Supervisor/ Engineer to reinstate demarcation of the beds with the Project Ecologist using more robust/ visible materials if required.
8. Project Ecologist to initiate an incident report with the Environmental Lead / PEP-C Manager.
9. Site Supervisor/ Engineer to review construction methodologies to identify cause of non-compliance and amend to prevent the same occurring again.
10. Project Ecologist to implement repeat visual assessments as per the Rimurēhia Monitoring Plan of the affected bed(s) to monitor longevity of an event and return to natural range. Evidence of ongoing sediment related effects from construction should be communicated to the PEP-C Manager, with consideration of habitat restoration activities or further effects management (such as offsetting and compensation; refer to Section 3.2).
11. Project Ecologist to carry out communications with Construction Team to educate on impacts continuous improvements.
12. Liaison between the Project Ecologist, PEP-C Manager and the Construction Manager regarding agreement to recommence construction works.
13. Investigate rimurēhia extent in the next available drone survey and compare overall area against previous survey. If overall area has reduced by greater than 20 % remedial will be implemented.
14. Within seven days of the incident occurring, the Alliance will provide an incident report to the Manager, GWRC as per condition GC.24.

6.2.6 Cultural Monitoring

The MWSG will endorse a representative to oversee and monitor the construction works when appropriate to ensure appropriate tikanga and kawa are being applied and in alignment with the Te Ara Tupua kaitiaki principles. The representative will work closely with the Kai Ruruku for the project.

The representative will:

- Be on-site when required to monitor the impact of the construction works on the Te Ara Tupua kiatiaki principles.
- Ensure the construction works are carried out in a culturally safe manner which may include managing any accidental discoveries of artefacts that require safe cultural practices (Section 7.7).
- Identify opportunities for training/shadowing for mana whenua in cultural monitoring or alongside environmental scientist or experts.
- Notify the Mana Whenua Integration Lead or Cultural Advisor of any material events that may impact on the kaitiaki values. This could include spills or harm to workers and wildlife.

6.2.7 Monitoring the Establishment of Invasive Weeds

Every six months for a period of two years, York Bay will be monitored and inspected by a suitably qualified person for any post-construction establishment of invasive weeds (including boneseed and old man's beard). This will include:

- A visual inspection of the perimeter and area of the alignment.
- Identification of any invasive weed species present within the alignment.
- Undertake actions to appropriately remove the invasive weed. This could include removing the weed, bagging the plant and appropriately disposing of it.

Prior to undertaking any actions to remove of and dispose of the invasive weeds, the HCC Reserves Department and GWRC Parks will be informed of its discovery. Both parties will be liaised with to confirm that the method of removal and disposal is appropriate.

A record of inspections of invasive weeds in York Bay including any invasive weeds discovered will be maintained for the duration of works.

6.3 Incidents

An incident register will be maintained to record any incidents onsite that may be considered to have potential for adverse environmental effects. Such incidents include:

- A discharge not authorised by the consent.
- A spill of fuel or hazardous substances spill beyond site controls.
- Failure of any erosion and sediment controls.
- Generation of a persistent sediment plume from sources of material not naturally existing in the Construction Works Area.
- Adverse effects on wildlife (such as a kororā death).

In the event of an incident occurring on site, the Alliance will:

- Establish what remediation or rehabilitation works are required and whether these are practical to implement.
- Carry out any remedial action as required.
- Create a record regarding the incident.
- Notify the Manager within 1 working day of an incident occurring.

An incident register will be maintained to record any incidents on site. The register will include:

- The type and nature of the incident.
- Date and time of the incident.
- Weather conditions at the time of the incident.
- Assessment of the effects of the incident.
- Measures taken to remedy the effects of the incident.
- Measures put in place to prevent the incident from reoccurring.

Within seven working days of the incident occurring, the Alliance will provide an incident report to the Manager. A copy of an incident report is attached Appendix F. This will include the information listed above. The incident register will be maintained at the work site and will be made available to the Manager upon request.

6.4 Complaints

Staff working on the Project will be instructed and trained as part of the induction process of the steps to follow if a complaint is received. Staff will also be instructed as part of this process to report any feedback (both complaints or compliments) from site visitors, neighbouring property owners or the surrounding community to the PEP-C Manager.

A specific email address has been set up for all queries, comments and complaints, which is TeAraTupua@nzta.govt.nz . In addition to this, the phone number 0800 135 255 has been set up and is monitored by the Project Liaison Person for the duration of the construction works. All complaints and enquiries will be acknowledged within 48 hours of their receipt with a response will be provided to the complainant within due course.

A complaints register will be maintained for the duration of works. The register will provide a record of the process followed in the event of receiving a complaint. This will include:

- The details of each complaint.
- Actions taken to investigate the compliant (if any).
- The outcome of such investigations if undertake and the likely cause of the matter that led to the complaint.
- The nature and timing of any measures implemented by the Consent Holder to respond to the complaint.
- Actions (if any) to be taken in the future to prevent the reoccurrence of similar events and complaints.

The complaints register will be made available to the Manager and the Team Leader on request.

6.5 Records

The following records will be maintained in the Project shared drives:

- Weekly inspections.
- Ecological inspections.
- Records of the source of the materials imported onto the seawall for backfilling and re-profiling, if required.
- Incident records.
- Complaints register.
- Site induction register.
- Training records.
- Compliance records.
- Results of monitoring in accordance with Section 6.2.

7 Contingencies

There is a potential for unforeseen events to occur resulting in emergency action being undertaken or requiring specific actions to be adhered to. The following section details how environmental incidents or the accidental discovery of contaminated material or artefacts will be managed. Unforeseen events may include:

- Adverse weather events.
- Sediment discharges.
- Smothering or disturbance of rimurēhia / seagrass.
- Injured kororā / little penguin.
- Spills and discharges of fuels, lubricants and hazardous materials.
- Discovery of contaminated material.
- Discovery of archaeological artifacts.

7.1 Adverse Weather Events

Weather forecasts (including wind, tides, swell and rain) will be monitored regularly throughout the day. A TARP (Triggered Action Response Plan) will be prepared, a TARP has been attached as Appendix G. The TARP will identify the responses required in respected of predicted weather conditions. If adverse weather conditions are forecast (including conditions that may result in overtopping any controls), the following steps will be undertaken:

- The potential impacts of the weather event will be assessed by the Alliances Coastal expert and relevant members of the construction team.
- Any equipment or materials within the CMA will be removed if practicable and safe.
- All equipment on the road berm and roadside will be removed to a safe location if necessary or battened down.
- The Harbourmasters office will be notified if any debris cannot be retrieved and is at risk of being a navigational risk.

7.2 Sediment Discharges

If the identification of a significant sediment plume (Section 6.2.4) is reported, the following actions in Table 7.1 below will be undertaken immediately:

Table 7.1 Sediment discharge response protocols

Potential source	Mitigation/Treatment
Dirty water inundation within the excavation site	1. Section off the affected area of works to contain the dirty water. 2. Pump the dirty water to an onsite treatment device or remove via a vacuum tanker truck for disposal. 3. Remove any accumulated or excess material left after dewatering. 4. Cover exposed surfaces not in use.
Portable treatment device discharging dirty water	1. Cease dewatering activities (if occurring) and stop the treatment device from discharging. 2. Take a water sample from the discharge point. 3. If the levels of TSS are found to be less than 100g/m^3 recommence discharging.

	4. If greater than 100g/m^3 either contain the dirty water to enable a longer period of settlement/treatment or remove dirty water off site via vacuum suction truck. 5. Ensure the device is cleaned out regularly, particularly prior to and after rainfall events.
Vehicle movements	1. Stabilise any exposed areas due to vehicle access as soon as possible with geotextile fabric or coconut matting. 2. Keep the number of vehicle movements within the coastal marine area as small as possible. 3. Create a vehicle wash down point if required to reduce the amount of sediment being left on the road. 4. Promptly remove any sediment on the road either via sweeping or gently washing it into areas of exposed earth (not onto the beach).
Temporary access ramps	1. Locate and remove any unsuitable material. 2. Stabilise any affected areas with clean, non-erodible materials.
Stockpiled material	1. Cover or remove the material immediately. 2. Take a water sample from the discharge if able to. 3. Do not leave any stockpiled material within the intertidal zone.
Disturbed marine sediments	1. If due to construction activities, refer to the relevant sediment source protocol. 2. If due to naturally occurring process (high tides, rainfall, storm events etc.), take photos only.
Excavation works	1. Assess if works need to be stabilised and recommence at the next low tide window. 2. Check that works are being carried out as per CEMP section 3.1.2. Construction methodology. 3. Take a water sample if a specific point source can be identified.
Erodible materials	Try to minimise the amount of sediment released by: 1. Removing as much material as possible with the use of an excavator promptly. 2. Using a hydro-vac or dewatering to a treatment device. 3. Placing a geofabric liner and rocks on top of the unsuitable material. 4. Pouring concrete / constructing seawall foundations the same day as the excavation.
Backfilling	1. Assess if works need to be stabilised and recommence at the next low tide window. 2. Check that works are being carried out as per CEMP section 3.1.2. Construction methodology. Ensure only clean, non-erodible materials are being used. 3. Take a water sample if a specific point source can be identified.
Cavities behind existing seawall	1. **Ensure the site is safe.** 2. If required, pump dirty water to an onsite treatment device or remove via vacuum tanker truck for disposal.

	3. Remove as much fine/silty material as possible. 4. Stabilise the exposed area as soon as possible with concrete, Kelly blocks or other suitable non erodible material.
Other sources	1. If a sediment discharge is found to be from another area of works (i.e. the pipeline upgrade), contact the relevant project supervisor as soon as possible and take photos of the discharge. 2. If found to be from a naturally occurring process or a source not associated with the project (i.e. culverts), take photos only.

Water samples will also be taken as soon as practicable from any point source discharges or significant sediment plumes:

1. At the point of discharge or immediately within the sediment plume, and
2. 30m, 60m and 90m horizontally from the source of sediment, if safe access permits.

Hourly photos of the sediment plume will be taken during work hours by a delegated person on site.

7.3 Smothering or disturbance of rimurēhia / seagrass

As required by Condition EM11(e), if direct smothering or disturbance of rimurēhia attributed to construction works or beach nourishment is observed, and the steps outlined in Section 3.1 do not provide sufficient mitigation, the Project Ecologist will work with the Consent Holder to provide recommendations for further effects management. Such measures could include, but are not limited to:

- Transplantation of impacted rimurēhia away from the area.
- Collection of beach cast individuals for planting/propagation (Tan et al., 2020; Hindmarsh and Hooks, 2022).
- Opportunities for student led research regarding restoration.

The Consent Holder shall provide outcomes from the implementation of any further effects management measures once they have been implemented.

7.4 Injured Kororā / Little Penguin

Injured Kororā / Little Penguin In the event that an injured kororā / little penguin is found, the procedures within the BPP will be adhered to, this includes:

- If the penguin is injured, workers shall immediately report the injured bird to the DOC via the DOC's wildlife emergency hotline (0800 DOC HOT; 0800 362 468) and shall immediately notify the Consent Holder and the Project Ecologist. No attempt should be made to capture or handle a live penguin by anyone other than a suitably experienced expert with a relevant Wildlife Act Permit.
- If the penguin is dead, workers on site shall collect the penguin and place it in a sealed plastic bag labelled with the date and time when the bird was collected, the location where it was found and the identity and contact details of the person who collected the bird. It should then be transferred to a refrigerator as soon as practically possible. THE SPECIMEN SHOULD NOT BE FROZEN. The Consent Holder and Project Ecologist should be immediately notified of the find. The Consent Holder or Project Ecologist will then notify the DOC and shall send the penguin to Massey University's Wildbase for post-mortem examination.

7.5 Discharges of fuel, lubricants and hazardous materials

In the event of a discharge of fuel, lubricant or hazardous materials to the marine environment, the spill / discharge will be managed in accordance with Table 7.1 to ensure that the spill is contained.

Spill kits and signage relating to spill response procedures will be maintained on site for the duration of the works. Staff will be trained in spill management and the Project spill response procedure as part of site inductions. All spill kits will be checked and re-stocked following an environmental incident.

In the event that a fuel, lubricant or hazardous material enters into the sea or nearby stormwater drain, GWRC are to be contacted as soon as possible via their pollution hotline (0800 496 734).

Table 7.1. Spill response procedure

Step	Actions
1 – Preparation	• Ensure a person is identified as principal responder. • Ensure people are trained to use spill kit and in spill response. • Ensure spills are discussed in the weekly toolbox meeting. • Make sure you have all the necessary PPE, signage, equipment and chemical treatment. • Check that the spill kit is complete.
2 – Establishment on site	• Check briefing notes. • Find the incident controller and identify yourself and find out the type of spill material (Note: you may be the first responder and need to be the controller until assistance arrives). • Note the areas that are safe and unsafe. • Move to task area and receive briefing by existing personnel as required. • Begin task.
3 – Initial action	• Walk over the site to check for hazards. • Plan your response, consider: - Rate of spread; - Impact on sensitive environmental areas; - Are you trained to handle a chemical spill; - Try and work out what the spill is to determine the nature of risk and volume of material; - Do not touch the spill material; - Keep upwind of the spill; and - Notify the principal responder and PEP-C Manager of the details at once. The PEP-C Manager will notify GWRC via their pollution hot line (0800 496 734)
4 - Treatment	• Stop flow: - Turn off the flow of the spill if it is safe to do so - Do not enter into a hazardous situation • Initial spill control and isolate the source of spillage: - Stop the spill spreading: 1. Use absorbent socks or other available materials (soil) to contain spill (absorbent socks will restrict flows on a chip seal but may allow a trickle of the spill to pass beneath the sock • Spill clean-up: - Start from the contained area and work back towards the spill point.
5 – Disposal of uplifted material	• When a suction sweeper is not used, uplift the material and place in a sealed container. • Uplift sump covers and/or absorbent socks. • Dispose of material at a suitably licensed facility.
6 – Test and check	• Check that the treatment has been successful. • Check the location of the activity has been accurately recorded.

The fuel suppliers are responsible for the transport of fuel around the site and refuelling for construction vehicles. The suppliers will have their own emergency response documents that cover all aspects of their operation.

7.6 Contaminated Material

In the event contaminated material is encountered, the works will cease, and a Suitably Qualified Environmental Practitioner (SQEP) will be contacted to attend the site. The SQEP will make recommendations regarding the handling and disposal of contaminated material to ensure contamination of land and water is avoided and to reduce the impact on human health and the environment.

Prior to the implementation of the measures recommended by the SQEP, the Alliance will provide the Manager with the recommendations. No works, excluding those required immediately to minimise any potential effects from the discovery of contaminated land, will recommence within the area of identified contamination until the Alliance has received confirmation from the Manager that the actions are appropriate.

Table 7.2 details the "first response" checklist for the site workers to follow should visual (discoloured soils or deleterious materials) or olfactory (e.g., petroleum hydrocarbons) evidence of contamination be encountered.

Table 7.2. First response checklist

Stop work in the immediate vicinity of the contamination discovery and isolate the area by taping, coning, or fencing off.	□
Advise the Site Construction Manager and the Project Engineer.	□
Implement contaminated soil Health and Safety procedures as appropriate.	□
Update the site Hazard Board/Register and prevent access to the area by unnecessary personnel.	□
If ACM is observed provide P2 dust masks to all staff entering the isolated area and keep the area damp or covered.	□
If odours are present cover the material with non-odorous soil or hay/straw and lime to prevent nuisance odour.	□
The Site Construction Manager, Project Engineer and/or the PEP-C Manager should consult with the SQEP to inspect and advise of specific controls if appropriate.	□
Implement contaminated material handling procedures and any other health and safety measures as directed by the SQEP (and as approved by the Manager)	□
All details of the unexpected discovery (volume, type, location) and procedures taken are to be recorded.	□

7.7 Archaeological Discovery

An accidental discovery protocol will be adhered to for the duration of works. If remains are exposed that are potentially archaeological features or deposits, the following procedure should be adopted:

- Earthworks should cease within 20 m of any part of the discovery and the Project Staff will take immediate steps to secure the site and to ensure that the archaeological remains are undisturbed[13] and meet health and safety requirements.
- An archaeologist will be consulted to establish whether the remains are part of an archaeological site as defined under the Heritage New Zealand Pouhere Taonga Act 2014.
- If the archaeologist confirms that it is an archaeological site, the area of the site will be defined by the archaeologist and excluded from earthworks.
- HNZPT will be informed of the discovery and if the archaeological site relates to Māori occupation, Taranaki Whānui, Ngāti Toa Rangatira and the Kai Ruruku (or their representative) will be informed and consulted with.
- If the site cannot be avoided, an application for an archaeological authority to modify or destroy the archaeological site will be made in accordance with Section 44 of the Heritage New Zealand Pouhere Taonga Act 2014.
- No works will be carried out that may affect the site until the archaeological authority has been obtained and that confirmation has been received from HNZPT that works can recommence.
- All subsequent works will be undertaken in accordance with the conditions of the authority.

[13] Note: It is an offence under S87 of the Heritage New Zealand Pouhere Taonga Act 2014 to modify or destroy an archaeological site without an authority from HNZPT irrespective of whether the works are permitted or a consent has been issued under the Resource Management Act 1991.

Māori artefacts such as carvings, stone adzes, and greenstone objects are considered to be taonga (treasures). These are taonga tūturu within the meaning of the Protected Objects Act 1975. Taonga may be discovered in isolated contexts, but are generally found within archaeological sites, modification of which is subject to the provisions of the Heritage New Zealand Pouhere Taonga Act 2014.

If there is the discovery of taonga, the following procedure will apply to the taonga:

- The area of the immediate site containing the taonga will be secured in a way that protects the taonga as far as possible from further damage.
- The archaeologist will inform HNZPT, the Kai Ruruku (or their representative) and the nominated Taranaki Whānui and Ngāti Toa Rangatira representatives so that the appropriate actions (from cultural and archaeological perspectives) can be determined.
- Work will recommence when advised by HNZPT or the archaeologist.
- The archaeologist will notify the Ministry for Culture and Heritage of the find within 28 days as required under the Protected Objects Act 1975. This can be done through the Auckland War Memorial Museum.
- The Ministry for Culture and Heritage, in consultation with Taranaki Whānui and Ngāti Toa Rangatira, will decide on custodianship of the taonga.

7.8 Unexpected Conditions

Based on investigations undertaken, it is considered unlikely that groundwater will be encountered or that works will occur in the aquifer.

If unexpected ground conditions are encountered, WWL will be notified to info@wellingtonwater.co.nz or 04 912 4400.

7.9 Review

Immediately following an unforeseen event, a review of the circumstance leading to the event will be examined, along with the response and its effectiveness. Based upon the outcome of the review, the CEMP may be updated.

8 Health and Safety Requirements

All construction activities will be undertaken in accordance with the health and safety requirements described in the:

- Health and Safety Management Plan.
- Emergency Management Plan (which is contained within the Health and Safety Management Plan).
- Work packs.

All visitors to the site must undergo a visitor's briefing so they are aware of the environmental, cultural and health and safety requirements while on-site. Visitors must be closely escorted by inducted persons at all times while on site.

Appendix A: Relevant Resource Consent Conditions of WGN190301 / RM190124

Condition	Requirement	Location in plan
General conditions (G)		
Pre-construction administration		
GC.3	The consent holder shall notify the Manager, Environmental Regulation in writing of the proposed date of the Commencement 0f Construction at least 20 days prior to the Commencement of Construction	Section 5.1.1
GC.4	The Consent Holder shall provide a copy of this consent and any documents and plans referred to in this consent to each operator or contractor undertaking works authorised by this consent at least 10 working days prior to the Commencement of Construction.	Section 2.3.7
Management Plan Approval Process		
GC.5(e)	All management plans shall provide overarching principles, methodologies, and procedures for managing effects of the construction of the Project to achieve the environmental objectives, outcomes and performance standards by the actions	Section 1.2 and this document
Construction and Environmental Management Plan		
GC.6	(a) The Consent Holder shall prepare a CEMP for the relevant Project stage (excluding site investigations and Enabling Works) and submit this to the Manager, Environmental Regulation in accordance with the requirements of Condition GC.5. Commencement of Construction shall not occur until certification is obtained.	Section 1.3.1 and this document
	(b) The purpose of the CEMP is to: i. Confirm final Project details;	Section 1 and Section 3
	ii. Ensure that the Construction Works remain within the limits and standards approved under the consent; and	Section 3 and 5
	iii. Set out the management procedures and construction methods to be undertaken to avoid or minimise adverse effects arising from the Construction Works.	Section 5 and 7
	Advice note: Any investigations or works outside of those consented which penetrate groundwater and/or any contaminated land investigations that do not comply with permitted standards will require separate consents.	N/A
GC.7	The CEMP shall include:	
	(a) Confirmation of the proposed staging and sequencing of construction, including staging of the Construction Works by bay. Continuous areas of seawall being constructed shall be limited to a stipulated length as set out in the CEMP and determined on a bay by bay basis. Works in the subtidal areas shall reflect Condition C.6(d) in that there is flexibility in terms of maximum length of seawall construction for works in these areas, but not for works outside of the subtidal areas.	Section 3
	(b) An outline construction programme that takes into account timing constraints in these conditions and the management plans listed in Condition GC.8;	Section 3.2
	(c) The final construction methodologies;	Section 3.1
	(d) Contact details of the site supervisor or project manager and the Consent Holder's Project liaison person (phone, postal address, and email address);	Section 2.2
	(e) Methods and systems to inform and train all persons working on the site of potential environmental issues and how to avoid or minimise potential adverse effects, including in relation to the relocation of fish under Condition EM.10;	Section 2.3
	(f) The proposed hours of work;	Section 5.3.1
	(g) Details of any public access restrictions and what measures will be in place to minimise disruption to public access;	Section 5.2.1
	(h) Location of construction site infrastructure including site offices, site amenities, contractors' yard access, equipment unloading and storage areas and contractor car parking;	Section 5.2.4
	(i) The clear identification and marking of the construction areas within the CMA;	Section 5.2.2
	(j) Where machinery is to be within the CMA, a list of that machinery and a protocol developed in consultation with an experienced ecologist for the management of	Section 5.3.3

Condition	Requirement	Location in plan
	that machinery to reasonably reduce ecological impacts and the footprint of the operations;	
	(k) The measures to be adopted to maintain the construction area and adjacent parts of the CMA in a tidy condition in terms of disposal/storage of rubbish (so as to avoid attracting mammalian predators and undesirable species to the construction area), storage and unloading of construction materials and similar construction activities;	Section 5.3.6
	(l) Procedures for managing and controlling erosion and sediment run-off into the CMA to achieve Condition C.6;	Section 5.4
	(m) Procedures to reduce contaminants from Constructions Works on land or in the CMA into the CMA or groundwater. Such procedures and measures shall include, but are not limited to: i. Refuelling and carrying out machinery maintenance, including being at least 5m inland from MHWS, away from watercourses and not on the foreshore area, the use of biodegradable hydraulic fluids in machinery working within the foreshore and CMA where practicable, a spill kit on hand and staff trained in its deployment;	Section 5.3.7 and 7.4
	ii. Ensuring that wash water from tools, equipment or machinery is not discharged into the CMA or the stormwater system;	Section 5.4.6 and 5.4.7
	iii. Keeping the area of disturbance in the foreshore and CMA to the minimum reasonably necessary to complete the works;	Section 5.2.2 and 5.4.1
	iv. Minimising the use of machinery within the CMA and ensuring that machinery is used in compliance with the CEMP;	Section 5.3.3
	v. Providing appropriate wash-down facilities for all concreting equipment to prevent wash water from entering the CMA and the stormwater system;	Section 5.4.7
	vi. Storing any hazardous substances so that they will not enter the CMA;	Section 5.3.8
	vii. Ensuring, except for (viii), that during piling or seawall construction and ancillary work no wet concrete or any water or liquid that has come into contact with wet concrete or with any other cementitious products without appropriate treatment as set out in (ix), is able to enter the CMA;	Section 5.4.7
	viii. Ensuring that piling or seawall construction and ancillary work within the CMA complies with Condition C.6; (Erosion and Sediment Control)	Section 5.4
	ix. Ensuring that the pH of water discharged from any work site that has used wet cementitious products has a pH level similar to the local receiving environment;	Section 5.4.7
	x. Removing any temporary construction materials and debris associated with the Construction Works from the CMA; and	Section 5.3.6, 5.5
	xi. In consultation with Wellington Water Limited, developing a site-specific methodology for dewatering and managing effects on the aquifer where the excavation and/or depth of any required seawall foundation exceeds 2.5 m Below Ground Level;	Section 3.1.2 and 7.7
	(n) Procedures for ensuring that residents, network utility operators, road users and businesses in the immediate vicinity of construction areas are given prior notice of the Commencement of Construction, the location of the work, and are informed about the expected duration and effects of the work;	Section 5.1.2
	(o) Means for maintaining public pedestrian access along Marine Drive during construction;	Section 5.2.1 and the TMP
	(p) Procedures for incident management, including contingency procedures to address emergency spill response(s) and clean up;	Section 6.3 and 7.4
	(q) Measures for protecting the site from tidal intrusion and storm events, and protocols to address any overtopping event that may occur during construction;	Section 5.4 and 7.1
	(r) Appropriate management triggers that initiate on-site investigation of erosion and sediment controls and supporting monitoring and reporting measures;	Section 6.2.4
	(s) Consideration of fish passage in the locations outlined in Condition EM.12;	Section 5.3.5
	(t) The type of imported fill material to be used within the CMA to minimise contamination of the CMA as outlined in Condition C.9;	Section 5.4.8
	(u) The existing gravel beach vegetation at Lowry Bay (native species, including the pīngao) to be translocated into the beach nourishment area immediately seaward of the shared path footprint in accordance with direct transfer rehabilitation principles as practicable;	N/A
	(v) Measures to avoid, where practicable, the use of machinery and any other disturbance of existing native vegetation on gravel beaches in the construction zone where that vegetation is to remain;	Section 5.1.4

Condition	Requirement	Location in plan
	(w) Procedures for transplanting the six At Risk species in the landscape plantings at Point Howard and Windy Point to adjoining currently grassed areas or to adjoining reserves (such as Whiorau);	N/A
	(x) The Atriplex cinerea plantings at York Bay and Claphams Rock to be protected from the effects of vehicles;	Section 5.1.3
	(y) Identification of opportunities to retain existing native vegetation patches between the shared path and revetment;	Section 5.1.3
	(z) Procedures to monitor every 6 months for any post-construction establishment of invasive weeds (including boneseed and old man's beard) within areas affected by the works and for their removal as appropriate for a period of two years after works in any one bay are completed;	Section 6.2.5
	(aa) Measures to reuse suitable beach material as outlined in Condition EM.14(g); and	Section 5.4.8 and 5.4.10
	(bb) Procedures for monitoring as follows: i. Seagrass monitoring (Condition EM.11)	N/A
	ii. intertidal and subtidal invertebrate monitoring (Condition EM.18); and	N/A
	iii. cultural monitoring (Condition MW3(e)).	Section 6.2.4
	(cc) Identifying circumstances in which noise and construction traffic monitoring will be required.	Section 6.2.1 and 6.2.2
	(dd) Methods to manage potential dust and noise effects during construction.	Section 5.3.2 and 5.3.9
GC.8	The CEMP shall incorporate or refer to the following management plans:	Section 1.3.2 and referred to as required.
	(a) Landscape and Urban Design Plan (including Bay Specific Urban Design Plans as appropriate) (refer to Conditions LV.1 to LV.7);	
	(b) Beach Nourishment Plan (refer to Conditions EM.13 to EM.14);	
	(c) Bird Protection Plan (refer to Conditions EM.3 to EM.3C);	
	(d) Traffic Management Plan (refer to Conditions GC.11 to GC.13); and	
	(e) Seawall and Revetment Habitat Plan (refer to Condition EM.19 below).	
	Advice note: If a CEMP is submitted in part or for a Project stage, it shall only incorporate or refer to the management plans relevant to that part or stage.	
GC.9	All personnel working on the site shall be made aware of the requirements contained in the certified CEMP. The certified CEMP shall be implemented and maintained (and amended in accordance with GC.5(g) and (h) as necessary) throughout the entire period of the Construction Works.	Section 2.3 and 2.1
GC.10	The Consent Holder shall ensure that a copy of this consent and all certified plans and documents referred to in this consent are kept on site at all times and available for inspection on request by the Wellington Regional Council.	Section 2.3.7
Construction Noise		
GC.14	Noise arising from Construction Works shall be measured and assessed in accordance with NZS 6803:1999 Acoustics – Construction Noise and shall comply with the noise criteria set out in the following table: **Table CNV1: Construction noise criteria**	Section 5.3.2

Day	Time	$L_{Aeq(15\ min)}$	L_{AFmax}
Residential buildings			
Weekdays	0630h – 0730h	55 dB	75 dB
	0730h – 1800h	70 dB	85dB
	1800h – 2000h	65dB	80dB
	2000h – 0630h	45dB	75dB
Saturdays	0630h – 0730h	45 dB	75 dB
	0730h – 1800h	70 dB	85 dB
	1800h – 2000h	45 dB	75 dB
	2000h – 0630h	45 dB	75 dB
Sundays and Public Holidays	0630h – 0730h	45 dB	75 dB
	0730h – 1800h	55 dB	85 dB
	1800h – 2000h	45 dB	75 dB
	2000h – 0630h	45 dB	75 dB
Commercial and industrial receivers			
All	0730h – 1800h	70 dB	
	1800h – 0730h	75 dB	

Discovery of Contamination	

Condition	Requirement	Location in plan
GC.15	If contaminated material is discovered during works, the consent holder shall cease works and contact a Suitably Qualified Environmental Practitioner (SQUEP) to attend the site. The SQUEP shall make recommendations regarding the handling and disposal of contaminated material to ensure contamination of land and water is avoided. Recommendations must be provided to the Manager, Environmental Regulation Wellington Regional Council. No works shall resume on site until the consent holder has received written notice that the recommendations are to the satisfaction of the Manager, Environmental Regulation Wellington Regional Council. The consent holder shall ensure that any residual contaminated material from the site is removed from site and disposed of at an appropriate waste disposal facility to the satisfaction of the Manager, Environmental Regulation, Wellington Regional Council.	Section 7.5
Completion of Construction		
GC.17	After the Completion of Construction in each bay, the Consent Holder shall notify the Manager, Environmental Regulation in writing within 2 working days (48 hours) that the works have been completed.	Section 5.4.2
GC.18	The Consent Holder shall ensure that on Completion of Construction the site is left in a tidy manner, including all litter associated with the works being removed.	Section 5.4.1
GC.19	The Consent Holder shall, as far as reasonably practicable, remedy all damage and disturbance caused by vehicle traffic, plant and equipment to the foreshore during Construction Works in consultation with a suitably qualified ecologist.	Section 5.4.1
Incidents – General		
GC.20	The Consent Holder shall maintain a permanent record of any incidents such as, but not limited to, the spill of hydraulic fluid or other discharge not authorised by this consent or any exceedances of the management trigger developed under Condition GC.7(r) that occur at individual work stages that result, or could result, in an adverse effect on the environment.	Section 6.3
GC.21	The record shall include:	
	(a) The type and nature of the incident;	
	(b) Date and time of the incident;	
	(c) Weather conditions at the time of the incident (as far as practicable);	
	(d) Assessment of the effects of the incident;	
	(e) Measures taken to remedy the effects of the incident; and	
	(f) Measures put in place to prevent the incident from reoccurring.	
GC.22	The record in Condition GC.21 shall be maintained at the work site and shall be made available to the Manager, Environmental Regulation upon request.	
GC.23	The Consent Holder shall forward an incident report to the Manager, Environmental Regulation within 7 working days of an incident occurring.	
GC.24	The Consent Holder shall notify the Manager, Environmental Regulation within 1 working day of any incident under Condition GC 20. This report shall include the matters listed in Condition GC.21. *Advice Note: Wellington Regional Council may investigate any incidents to determine if a breach of this consent or the RMA has occurred and may also undertake enforcement action depending on the circumstances.*	
Complaints Management		
GC.25	The Consent Holder shall maintain a complaint register that includes:	Section 6.4
	(a) The details of each complaint;	
	(b) Actions taken to investigate the complaint (if any);	
	(c) The outcome of such investigations if undertaken and the likely cause of the matter that led to the complaint;	
	(d) The nature and timing of any measures implemented by the Consent Holder to respond to the complaint; and	
	(e) Actions (if any) to be taken in the future to prevent to occurrences of similar events and complaints	
	Advice note: Should there be a series of complaints related to a single incident then only one investigation needs to be completed by the Consent Holder.	
GC.26	The Consent Holder shall make the complaint register in Condition GC.25 available to the Manager, Environmental Regulation on request.	
Coastal Activities (C)		
Occupation of the CMA		
C.4	The right to temporarily occupy part of the CMA during Construction Works is limited to the areas and structures identified in the plans and specifications referred to in Condition GC 1.	Noted

Condition	Requirement	Location in plan
C.5	The right to permanently occupy part of the CMA is limited to the areas and structures identified in the plans and specifications referred to in Condition GC.1.	Noted
Erosion and sediment control		
C.6	Erosion and sediment control measures shall be implemented throughout the Construction Works. They shall be constructed and maintained to operate and perform in accordance with the Erosion and Sediment Control Guidelines for the Wellington Region (Reprinted June 2006) in the CMA, the measures set out below, and the certified CEMP. Measures within the CMA may include, but not be limited to, the following considerations: (a) Not exposing non-native backfill material to the sea. (b) Use of weight-bearing mats on the foreshore substrate (c) Methods for isolating and containing the construction area including: i. Bunding/shuttering in a predominantly gravel/sand beach zone; and ii. Alternative sediment control devices such as geotextile containers or tubes filled with locally sourced sand in rocky shore habitats, or where the seawall works occur close to the mid tide mark. (d) Limiting the length of any continuous section of seawall under construction at one time as appropriate. For example, if the construction footprint extends into subtidal zone and a longer length allows for a single subtidal area to be contained in the one site then a longer length would be preferable.	Section 5.0 and 5.4
Contaminant Release		
C.7	The Consent Holder shall take all reasonably practicable measures to limit the amount of contaminants from the Construction Works released on land or in the CMA, and shall ensure that the sediment concentration of any discharge of sediment laden water to the stormwater system or the CMA do not exceed 100g/m^3. Such measures shall be included in the CEMP. *Advice note: Any discharge that can be attributed to the Project in accordance with section 107 of the RMA should not, after reasonable mixing, give rise to any of the following effects in the CMA:* *(a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials (excluding suspended sediment);* *(b) Any conspicuous change in colour or visual clarity; or* *(c) Any significant adverse effects on aquatic or marine life.*	Section 5.4 and 7.2
CMA footprint		
C.9	Imported fill material to be used in the seawalls and revetments shall be restricted to clean natural sand, gravels and rock	Section 5.4.8
C.10	The Consent Holder shall maintain a log recording the source of the materials imported onto each seawall and revetment on the site. This log shall be made available to the Manager, Environmental Regulation for inspection on request.	Section 5.4
Ecological Management (EM)		
Bird Protection Plan – Nesting and construction measure		
EM.4AA	An exclusion zone with a minimum 10m radius must be established around any active nesting or moulting sites identified in Condition EM.4A while ensuring access to the ocean is maintained.	Section 5.1.4 and the BPP
Rubbish and waste management		
EM.7	The Consent Holder shall undertake a six-monthly rubbish clean up along the shared path and its adjacent beaches which will involve two staff and a vehicle proceeding along the Project area collecting litter for 1 working day for the duration of this consent.	Section 5.3.6
Intertidal and subtidal ecology		
EM.10	For any construction areas where there are intertidal rock pools or loose rocky material in the intertidal zone, prior to the Commencement of Construction the Consent Holder shall check any rock pools and under loose rocks within the construction area for fish (such as rock fish) and relocate them outside of the construction area. Training and guidance by a suitably qualified and experienced person will be required in accordance with Condition GC.7(e). *Advice note: It is the responsibility of the Consent Holder to ensure that the suitably qualified and experienced person holds all relevant permits required to undertake fish rescue.*	Section 5.2.3

Condition	Requirement	Location in plan
EM.11	For any construction areas that may extend into the subtidal zone, the Consent Holder shall: (a) Undertake all measures possible to reduce the construction area in the subtidal zone to the minimum required to complete the works in a safe and efficient manner and avoid operating heavy machinery in the subtidal zone unless there is no reasonably practicable alternative. If works must occur in the subtidal zone then the Consent Holder shall undertake appropriate measures to isolate the construction site from the subtidal zone to protect the site and prevent contamination release into the CMA in accordance with the requirements of the certified CEMP.	Section 5.2.2 and 5.2.3
	(b) During Construction Works within the subtidal zone the Consent Holder shall, where reasonably practicable, remove large rocks (greater than 0.4m diameter that are not part of the bedrock material and can be safely moved) that have been colonised with biota. They shall be placed in a nearby subtidal zone until the completion of works in that area. On completion of works, the rocks shall either be returned to the area from which they were removed, left at their new location or relocated to another appropriate subtidal location.	Section 5.2.3
	(c) Avoid adverse effects on the seagrass beds at south Lowry Bay (as identified in Figure 3 of Appendix C2 of the AEE) from Construction Works and beach nourishment. Measures shall include, but not be limited to:	N/A
	i. Monitoring of seagrass beds in south Lowry Bay before and after Construction Works and beach nourishment to confirm that the beach nourishment works have not resulted in any net loss of seagrass extent and cover through unforeseen physical encroachment into the seagrass beds, increased turbidity or altered hydrodynamics;	N/A
	ii. The monitoring in (i) shall include mapping the perimeter of each seagrass bed and assessing the average plant cover within each bed immediately before works commence, immediately after works have been completed, and 1 year after the completion of the beach nourishment works;	N/A
	iii. A visual assessment near and around the seagrass beds in south Lowry Bay:	N/A
	• at least once during beach nourishment placement works, immediately after placement works have been completed, within 5 weeks after placement works have been completed and within 15 weeks after placement works have been completed; and	N/A
	• once a week during Construction Works that may extend into the subtidal zone in south Lowry Bay and within 5 weeks of such Construction Works being completed, to ensure that neither beach nourishment nor Construction Works smother any part of the seagrass beds; and	N/A
	iv. The results of the monitoring in (i) and visual inspections in (iii), shall be provided to the Manager, Environmental Regulation, Wellington Regional Council within 1 month of completion;	N/A
	v. Ensuring that the seagrass beds are appropriately marked during Construction Works and beach nourishment to avoid any potential adverse effects. No Construction Works shall occur within 2m of the seagrass beds.	N/A
	(d) The monitoring in (c)(ii) and (iii) shall be undertaken by a suitably qualified and experienced person.	N/A
	(e) If monitoring in (c)(ii) and (iii) shows smothering and/or direct disturbance of seagrass attributed to the Project is occurring, the person in (d) shall work with the Consent Holder to identify (including undertaking an assessment of the actual and potential impacts if necessary) and recommend to the Consent Holder reasonable remedial actions (if necessary), including stopping or delaying works, and a programme for their implementation. The Consent Holder shall comply with those recommendations within the timetable provided. The Consent Holder shall provide a copy of the recommendations within 48 hours of receipt to the Manager, Environmental Regulation and inform the Manager, Environmental Regulation when the recommendations have been completed.	N/A
Mana Whenua (MW)		
Mana Whenua Steering Group		
MW.3	The MWSG shall be invited to participate in the following:	

Condition	Requirement	Location in plan
	i. Development of the Project detailed design to incorporate cultural values into elements such as:	Section 1.4, 5.1.5, 6.2.5 and 7.6
	i. Cultural expression in artwork and in landscape works and plantings through the LUDP required under Conditions LV.1 to LV.4;	
	ii. Signage and storyboards describing local features and the history of the area through the BSUDPs required under Conditions LV.5 to LV.7; and	
	iii. The ecological management and bird protection measures required under Conditions EM.1 to EM.19;	
	ii. The processes required to be followed in respect of the discovery of archaeological features or deposits, or taonga, under Conditions AP.1 and AP.2;	
	iii. Development and implementation of agreed cultural protocols/tikanga appropriate to the works or activities (for example: blessings, accidental discoveries, vegetation clearance and the relocation of native fauna);	
	iv. Members of the MWSG shall be invited to talk to the chosen contractors to explain cultural values prior to the Commencement of Construction; and	
	v. Development and implementation during the Construction Works of cultural monitoring requirements and measures to acknowledge the historic and living cultural values of the area to mana whenua and to minimise potential adverse effects on these values.	
Archaeological Protocols (AP)		
Discovery of Archaeological Features or Deposits		
AP.1	If remains are exposed that are potentially archaeological features or deposits, the following procedure should be adopted:	Section 7.6
	(a) Earthworks should cease in the immediate vicinity while an archaeologist is consulted to establish whether the remains are part of an archaeological site as defined under the Heritage New Zealand Pouhere Taonga Act 2014.	
	(b) If the archaeologist confirms that it is an archaeological site, the area of the site will be defined by the archaeologist and excluded from earthworks.	
	(c) HNZPT will be informed of the discovery and, if the site cannot be avoided, an application for an archaeological authority to modify or destroy the archaeological site will be made (this is a legal requirement).	
	(d) If the archaeological site relates to Māori occupation, Taranaki Whānui and Ngāti Toa Rangatira must be consulted.	
	(e) No work can be carried out that will affect the site until the archaeological authority has commenced.	
	(f) Any conditions attached to the archaeological authority must be complied with.	
Discovery of Taonga		
AP.2	Maori artefacts such as carvings, stone adzes, and greenstone objects are considered to be taonga (treasures). These are taonga tūturu within the meaning of the Protected Objects Act 1975. Taonga may be discovered in isolated contexts, but are generally found within archaeological sites, modification of which is subject to the provisions of the Heritage New Zealand Pouhere Taonga Act 2014. If taonga are discovered the following procedure will apply to the taonga itself:	Section 7.6
	(a) The area of the immediate site containing the taonga will be secured in a way that protects the taonga as far as possible from further damage.	
	(b) The archaeologist will then inform HNZPT and the nominated Taranaki Whānui and Ngāti Toa Rangatira representatives so that the appropriate actions (from cultural and archaeological perspectives) can be determined.	
	(c) Work may resume when advised by HNZPT or the archaeologist.	
	(d) The archaeologist will notify the Ministry for Culture and Heritage of the find within 28 days as required under the Protected Objects Act 1975. This can be done through the Auckland War Memorial Museum.	
	(e) The Ministry for Culture and Heritage, in consultation with Taranaki Whānui and Ngāti Toa Rangatira, will decide on custodianship of the taonga.	
	Advice note: *The contact details for Taranaki Whānui are as follows:* *(a) Port Nicholson Block Settlement Trust – Kirsty Tamanui telephone: +64 27 459 9050* *PO Box 12164, Thorndon, Wellington 6144*	

Condition	Requirement	Location in plan
	(b) *Wellington Tenths Trust (Wellington) – Vicki Hollywell +64 4 473 2502* *PO Box 39 294, Wellington Mail Centre, Lower Hutt 5045* *24d Marine Parade, Petone.* *The contact person for Ngāti Toa Rangatira is:* *Naomi Solomon, Resource Management & Communications Manager, telephone: +64 4 238 4952 (email: naomi@ngatitoa.iwi.nz), PO Box 50355, Porirua 5024.*	

Appendix B: Schedule of Updates to CEMP

Date	Person responsible for amendments	Reason for amendments	Summary of amendments
	a		

Te Ara Tupua Alliance
Shifting gear to connect past, present and future

Appendix C: Design Drawings

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Appendix D: Programme

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Appendix E: Site Inspection Report

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Date		**Time**		
Location		**Inspector/ Auditor**		
Weather Conditions				
Sea Conditions				
Activities being undertaken				

Observations	**Yes / No**	**Comment**
Works Area (within construction area)?		
Is the area of disturbance being kept to a minimum?		
Any signs of ecological damage?		
Spill kit available and fully stocked?		
Materials stored on site?		
Is there any material placed below high water?		
Any indication of sediment discharges?		
Does the machinery appear to be in good condition no excessive noise or exhaust discharges?		
Are site records being maintained correctly?		
Are erosion and sediment controls being implemented properly?		
Any signs of litter on site?		
Any signs of dust being discharged from the works area or the tracking of dirt onto roads?		

Other Comments

Actions	**By whom**	**By when**

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Appendix F: Incident Report

Date of incident:		**Time of incident:**	
Location of incident:		**Inspector/ Auditor**	
Weather conditions			
Sea conditions			
Type and nature of incident:			
Activities being undertaken:			
Assessment of effects on the environment:			
Measures taken to remedy the effects on the environment:			
Measures put in place to prevent the incident occurring again:			
Other Comments			
Actions		**By whom**	**By when**

Te Ara Tupua Alliance
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Appendix G: Trigger Action Response Plan

To	Tupua horo Nuku Construction Team		
From	Jessica Pritchard	Date	17 April 2023
Subject	Tupua Horo Nuku - Trigger Action Response Plan		
Reference	TBC		

This memo detailed the actions required by the Tupua Horo Nuku (THN) Construction Team following receipt of the "Forecast for Te Ara Tupua" that Met Service issue to the alliance twice a week.

If the forecast has not been received by midday on Monday or Thursday the THN area manager is to contact Peter Fisher on 027 563 8626 or Rochelle Fleming at Rochelle.Fleming@metservice.com and enquire about the forecast.

THN Site Engineer update the planning wall at 64 Seaview Rd with the revised "Peak Wave" measurement, see highlighted line below in the forecast from Monday 17 April

Tupua Horo Nuku Eastern Bays

High Tide	Mon 17th 2.05PM	Tue 18th 2.37AM	Tue 18th 3.02PM	Wed 19th 3.33AM	Wed 19th 4.00PM	Thu 20th 4.31AM	Thu 20th 4.57PM
Inundation Threat							
Tide Height	1.7m	1.8m	1.7m	1.7m	1.7m	1.7m	1.7m
Peak Waves	0.1m	0.1m	0.3m	0.6m	0.5m	0.2m	0.2m
Peak Period	9 sec	9 sec	2 sec	2 sec	6 sec	4 sec	4 sec
Wind direction	S	N	NNW	N	S	S	N
Peak Gust (km/hr)	15	20	50	30	40	20	20

Forecaster modified data

THN Area Manager (John Pritchard) reviews the "Peak Wave" measurement provided and undertake the actions outlined below.

Peak Wave forecast	Actions
0.0-0.5m	Continue works, observe site conditions
0.6-1.0m	Prior to works commencing the site supervisor undertakes a site assessment to determine whether the site is safe to work. This should include an assessment of weather, wave action, tides and status of the worksite (are there loose items that need securing, the state of the embankment, are planned works critical (are there alternative work sites)) The Area Manager is to assess the site, review the assessment and decide whether to continue works.
1.1m+	In the event the peak wave forecast exceeds 1.0m undertake site assessment immediately to determine whether the site is safe to work. This should include an assessment of weather, wave action, tides and status of the worksite (are there loose items that need securing, the state of the embankment). The Area Manager is to assess the site, review the assessment and decide whether it is safe to work and secure the site. The Area Manager informs the AMT of the forecast and provide a copy of the assessment and decision whether or not to undertake any works