

roads
bridges
precast
marine
water
land

Environmental Management Plan

Project Name:

Te Ararata Flood Resilience – Walmsley Road Bridge Replacement project
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Construction Environmental Management Plan (CEMP)

Project Name	Te Ararata Flood Resilience Works – Walmsley Road Bridge Replacement		
Project Number			
Principal	Healthy Waters		
Issue Status*	Draft	Date	04/11/2024
Issue Status: <i>Draft: Draft issue for internal review and comment</i> <i>IFA: Issue to the principal / engineer for review, comment or approval</i> <i>IFC: Issue for construction</i>			

Issue Record

Issue Status	Prepared By	Approved By	Approved Date
1	Dr Chris Wilcox	Tim Pervan	

Review Record (six monthly)

Review No	Reviewed By	Review Date and Comments

Confidentiality

Information and documentation relating to HEB Construction Ltd management systems, work practices and procedure may be considered sensitive and confidential between HEB Construction Ltd and the Principal. Such information is therefore only to be used in relation to this contract and is not to be divulged to third parties without the express approval of the CEO of HEB Construction Ltd.



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1. Introduction

1.1 Purpose

The Construction Environmental Management Plan (CEMP) has been developed to manage the environmental aspects associated with the demolition of the culvert at the corner of Walmsley Road and Coronation Road and construction of a bridge in place of the culvert in Māngere, Auckland. The purpose of the CEMP is to outline the processes and procedures to comply with the conditions of the resource consents and to outline all measures to avoid, remedy and/or mitigate the potential adverse effects associated with the project.

This CEMP has been prepared in accordance with the conditions outlined in schedule 2 Severe Weather Emergency Recovery (Auckland Floor Resilience Works) Order 2024. The CEMP is the main umbrella document for the environmental management of the construction phase of the Te Ararata Flood Resilience – Walmsley Road Bridge Replacement project. Several sub plans have been prepared as required by the resource consents and other documentation. This CEMP and the various sub plans should be considered “live” documents and be updated as the project progresses, new information is received, or methodologies change. All works are to be undertaken in accordance with the most current certified version of the CEMP. The CEMP will always be accessible onsite during works.

To ensure that adverse effects on the environment are adequately avoided, remedied or mitigated HEB Construction will:

- Make environmental management a core consideration in the management process.
- Ensure a partnership approach between Healthy Waters, Auckland Council and HEB Construction.
- Ensure adequate resourcing of environmental management activities.
- Ensure adequate training and education is provided to staff and subcontractors.
- Appoint staff responsible for environmental management aspects.
- Undertake monitoring and auditing of the project works to:
 - Determine the effectiveness of the environmental management activities being undertaken.
 - Document and report on the outcomes.

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As the CEMP is a “live” document it will be updated by HEB Construction on a regular basis to reflect changes in construction methodology and to ensure the CEMP remains fit for purpose. This CEMP will require review and amendment to reflect changes to activities, risks, mitigation measures, responsibilities and management processes. It will be updated when the construction programme moves from one stage to another, if any significant changes in methodology occur or, if necessary, after an environmental incident. The ability to make changes to the CEMP is an important aspect of continually improving its effectiveness.

Any changes to the CEMP will be provided to Auckland Council for certification at least 10 days prior to implementation.

The CEMP and its sub-plans will be provided to Healthy Waters via the engineers’ representative before the expected construction start date and after every amendment for certification.

1.2 Project Description

The project is for the removal of a culvert and construction of a three-lane bridge over Walmsley Road (to replace said culvert). The project requires construction of a temporary bailey bridge (to provide for pedestrian and active mode diversions between Coronation Road and Walmsley Road as the replacement bridge is constructed), demolition of the existing double barrel culvert, construction of the new replacement bridge, works to the existing Watercare watermain pipe bridge, recontouring of the existing stream banks followed by removal of the temporary bailey bridge. The replacement of the culvert with a bridge is to aid in flood resilience for the area as it currently acts as a choke point during intense weather events. By converting the culvert to a bridge it will allow for greater stream flows during intense weather events.

The works being undertaken at the site will consist of:

- Site set up.
- Traffic management.
- Installation of erosion and sediment controls.
- Vegetation clearance.
- Construction of temporary bailey bridge including associated piling activities (as required).
- Installation of temporary stream diversion to divert and protect stream flows during construction works.

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- Demolition of existing road and culvert structure.
- Relocation of the existing foundations of the Watercare watermain pipe bridge and installation of girder supports.
- Recontouring of the existing stream banks.
- Construction of new bridge.
- Removal of all temporary structures and site disestablishment.

The project is planned to begin in March 2025. It is likely to occur over a 10 -12 month period, with closure of the existing Walmsley Road bridge (and resultant diversion of traffic) required for approximately 7 months during this period. It will begin with construction of the temporary pedestrian bailey bridge (approximately 2 Months) followed by a full road closure to demolish the existing culvert and construct of the new bridge (approximately 7 months). Finally, removal of the pedestrian bailey bridge ridge and reinstatement of the park (2 months).

1.3 Site Description

The site location is shown below on the corner of Walmsley Road and Coronation Road in Māngere, Auckland:



Figure 1: Te Ararata Culvert location in Māngere, Auckland.

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Figure 2: Extent of works for Te Ararata Flood Resilience Works – Walmsley Road Bridge Replacement.

The culvert crosses three reserves Black Bridge Reserve to the northwest, Walmsley Reserve to the northeast and Tarata Creek Reserve to the southwest and southeast. The temporary Bailey bridge will intersect both reserves to allow continued pedestrian movements between Walmsley and McKenzie roads while Walmsley Road is closed to traffic. Te Ararata Creek is a permanent stream that flows through the culvert in a generally northern direction ultimately discharging into the Manukau Harbour via the Māngere Inlet approximately 1.5 km north. Some photos of the existing culvert can be seen below:

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Figure 3: Existing culvert and Te Ararata Creek from upstream (left) and downstream (right).

The flood plains within the area along with flood prone areas are shown below in figure 4. The creek itself is expected to rise to the top of the stream banks in a 1% AEP. The nearby park which is to be used as site laydown etc is a flood prone area indicating that localised ponding may occur during rain events.

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Figure 4: Flood plains and flood prone areas within proximity of the site.

1.4 Roles and Responsibilities

It is the responsibility of everyone associated with the Te Ararata Flood Resilience – Walmsley Road Bridge Replacement project to ensure that the environment is considered and protected and that all works are undertaken in accordance with legal requirements, contractual requirements and follows industry best practice. Figure 3 and table 1 below outline the names and roles of key personnel.

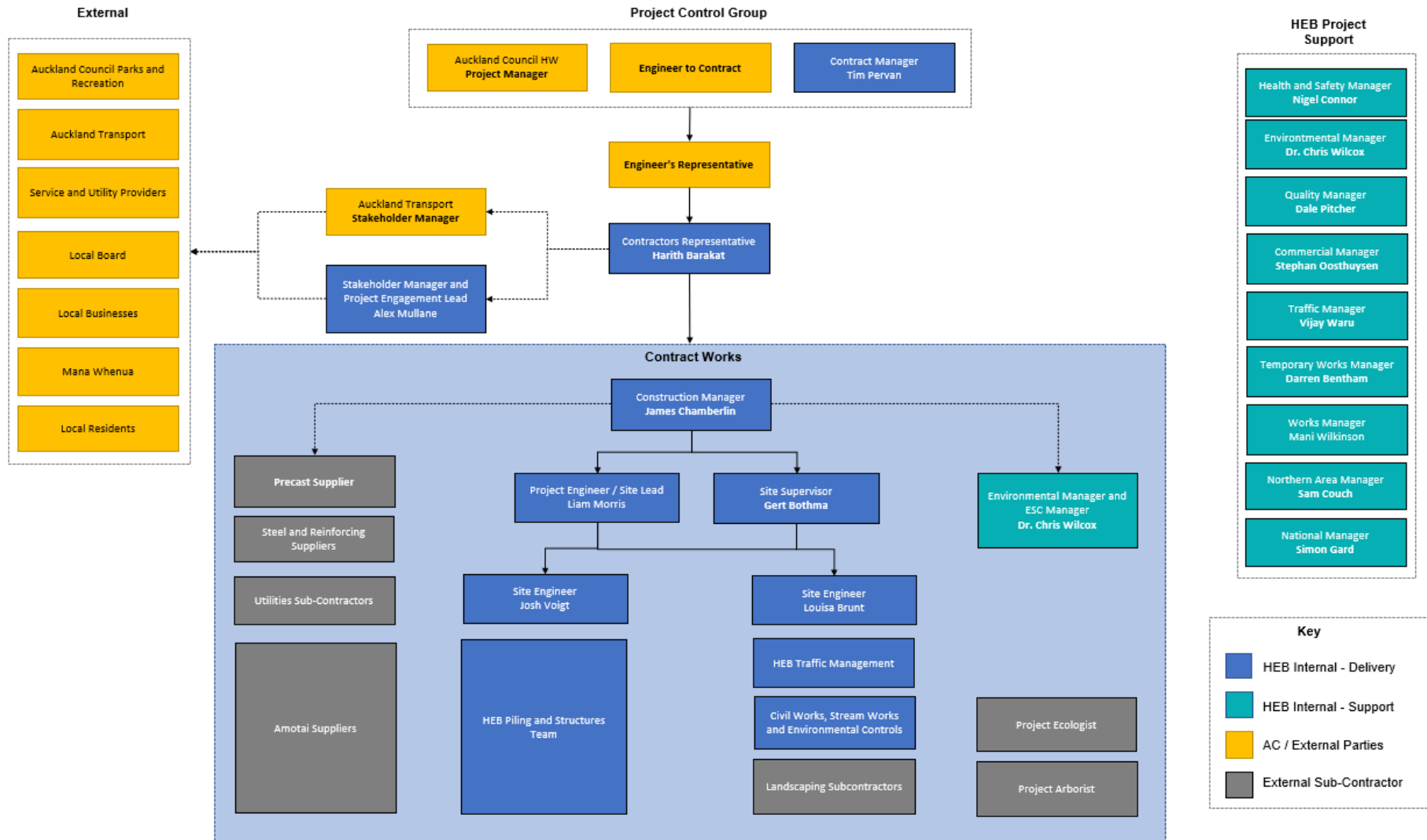


Figure 3: Project organogram.

Table 1: Roles and Responsibilities.

Whom	Role	Contact Details	Responsibility
Auckland Council Healthy Waters	Consent holder		Compliance with the RMA and any conditions of the designation and resource consents/Order in Council.
Auckland Council	Regulatory		Certification of the Contractors site-specific management plans. Auditing to assess compliance with resource consents and designation conditions.
HEB Construction	Contractors Representative	Harith Barakat Harith.Barakat@heb.co.nz	Overall responsibility for site management. Overall responsibility for ensuring environmental compliance is maintained onsite and all actions identified by onsite inspections is completed. Ensure that the site is available to Compliance Officers or other Council representatives for inspections subject to receiving appropriate site inductions and HSE briefings. Implementation of the CEMP and sub Management Plans onsite.
	Environmental Manager and Erosion and Sediment Control Manager	Dr Chris Wilcox Chris.wilcox@heb.co.nz	Submit the CEMP and subplans to Compliance officers prior to works. Inspections, auditing and checking of environmental management practices and procedures. Prepare, review and update site-specific management plans in conjunction with Construction Manager. Onsite compliance with resource consent and designation conditions.

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			<p>Completion of regular environmental audits including onsite compliance and environmental inspections.</p> <p>Development and assignment of actions for remediation of environmental issues identified onsite.</p> <p>Provision of relevant environmental training.</p> <p>Assist the Construction Manager with the implementation of CEMP and sub management plans.</p>
	Construction Manager	James Chamberlin James.chamberlin@heb.co.nz	<p>Inspection of works to assess compliance with the CEMP and Management Plans.</p> <p>Responsible for all day-to-day construction operations on the project.</p> <p>Completion of regular environmental audits including onsite compliance and environmental inspections.</p> <p>Ensure training of all staff including subcontractors is completed.</p>
	Project Engineer and Site Supervisor	Liam Morris Liam.morris@heb.co.nz Gert Bothma Gert.bothma@heb.co.nz	<p>Adherence to the Environmental Management Plans.</p> <p>Completion of routine visual inspections of controls.</p> <p>Responsible of all day-to-day operations on the project.</p> <p>Ensuring all environmental controls are maintained and remediation/corrective actions resolved.</p>

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	Stakeholder Manager & Project Engagement Lead	Alex Mullane Alex.mullane@heb.co.nz	Project contact to stakeholders and affected residents throughout the construction phase. Manage complaints register. Ensure ongoing and proactive engagement with affected stakeholders including opportunities for education.
	Project Ecologist		Inform, in accordance with the ecology principles, the design, management, and monitoring of all construction works in relation to ecological effects and measures to avoid, remedy, or mitigate adverse ecological effects as defined in the conditions.
	Project Arborist		Inform the design, management, and monitoring of all flood resilience works in relation to arboricultural effects, and measures to avoid, remedy, or mitigate adverse arboricultural effects as defined in the conditions.
Subcontractors	Site Supervisors		Comply with environmental management policies. Submit their own policies, methodologies and management plans to HEB Construction prior to works commencing. Follow the HEB CEMP and relevant sub- and site-specific management plans.
	Engineers Representative		Onsite compliance with resource consents and designation conditions.



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Mana whenua / Māori entities			<p>Act as Kaitiaki throughout the duration of the project.</p> <p>Work with the team to ensure the mauri of the surrounding environs are protected and enhanced.</p>
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1.5 Management Plan Framework

This CEMP is a component of a group of plans which together form the framework for meeting Healthy Waters obligations in accordance with the conditions outlined in schedule 2 Severe Weather Emergency Recovery (Auckland Floor Resilience Works) Order 2024 and should be read in conjunction with all the relevant project management plans. Figure 4 below identifies the sub-management plan hierarchy in relation to the CEMP. This hierarchy may be updated as required.

The CEMP and the various sub-management plans form part of the construction management plan framework. The environmental controls, including managing pollution (air and water), hazardous substance and spill management, heritage, noise and vibration management and contaminated land/soils management are fundamental to managing the risks identified in the CEMP.

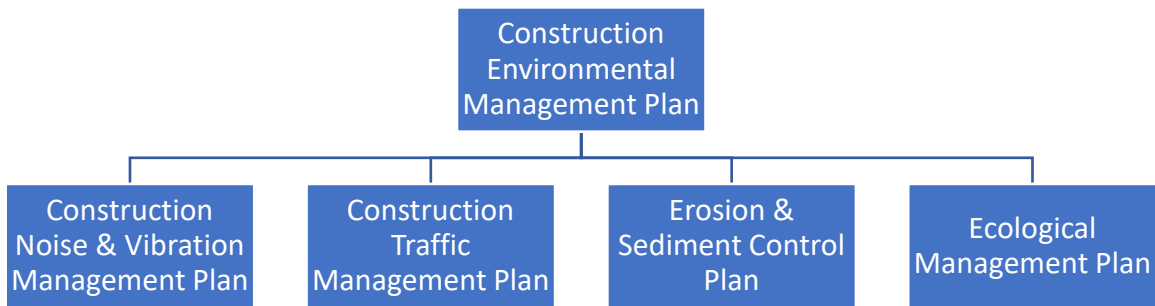


Figure 4: CEMP and environmental management sub-plan framework.

2. Environmental and Social Management

2.1 Legislative Requirements

The legislative and relative requirements for Te Ararata Flood Resilience – Walmsley Road Bridge Replacement project are summarised below in table 2. The consent conditions will be appended to this document when finalised and granted.

Table 2: Legislative Requirements and Accountabilities.

Legislation	Description	Requirement	Regulator	Responsibility	Reference
<i>Severe Weather Emergency Recovery (Auckland Flood Resilience Works) Order 2024</i>	Modified Resource Management Act legislation providing for flood resilience work required after the severe weather events in 2023	Where resource consent would normally be required under the RMA/ Auckland unitary Plan provides for the flood resilience works to be undertaken as a controlled activity.	Auckland Council	Healthy Waters (to obtain any necessary the consents under the act) Contractor (to undertake the works in relation to any consents sought)	Severe Weather Emergency Recovery (Auckland Flood Resilience Works) Order 2024 (SL 2024/219) 12 Replacement application - New Zealand Legislation
<i>Heritage New Zealand Pouhere Taonga Act 2014</i>	The purpose is to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand. A National Historic Landmarks list will be established to set national priorities for heritage	Section 42 of the Act posits that no person may modify, damage or destroy any part of the site if there is “reasonable cause” to believe it is an archaeological site.	Heritage New Zealand Pouhere Taonga	Construction Manager	https://www.legislation.govt.nz/act/public/2014/0026/latest/whole.html

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	conservation and recognise our most important historic landmarks and precincts.				
Conservation Act 1987	Developed to promote the conservation of New Zealand's natural and historic resources.	A concession from the Department of Conservation is required under the Act if any works are carried out within conservation areas.	Department of Conservation	Construction Manager	https://www.legislation.govt.nz/act/public/1987/0065/latest/DLM103610.html
Wildlife Act 1953	Deals with the protection and control of wild animals and birds and the management of game. Most species of wildlife (including mammals, birds, reptiles and amphibians), native or introduced, are absolutely protected under the Act.	A Wildlife Permit is required from the Department of Conservation to disturb wildlife (including mammals, birds, reptiles, and amphibians) or for the unintentional killing or injury of wildlife as a result of any works.	Department of Conservation	Construction Manager – Ecological plans are to be prepared	https://www.legislation.govt.nz/act/public/1953/0031/latest/whole.html
Biosecurity Act 1993	The purpose of the Biodiversity Act is to enable New Zealand to exclude, eradicate or effectively manage pests and unwanted organisms already in the country. The Act necessitates Regional Councils and Unitary	Pest management activities must comply with Local Authority pest management policies and rules.	Ministry for Primary Industries (and Local Authorities)	Construction Manager	https://www.legislation.govt.nz/act/public/1993/0095/latest/DLM314623.html

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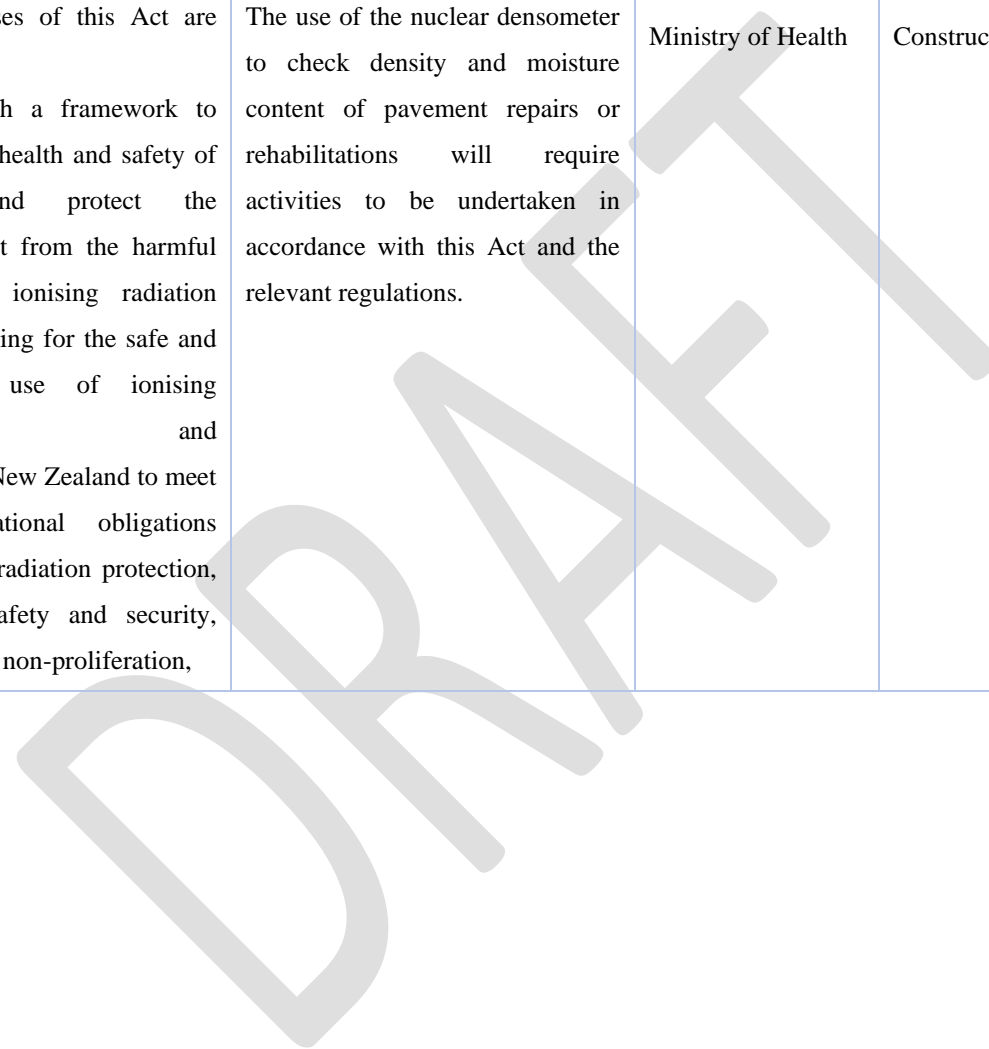
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	<p>Authorities to create regional pest management strategies. These documents identify plant and animal species; outline objectives, policies, and rules to manage pests in order to identify their status and corresponding control strategies.</p>				
<p>Freshwater Fisheries Regulations 1983</p>	<p>This requires a culvert or ford in any natural river, stream, or water to be constructed and maintained to allow for the free passage of fish unless a written exemption has been given by the Director-General of Conservation.</p>	<p>These aspects are controlled through the RMA Plans and/or through resource consent conditions as there is no separate consenting process under the Freshwater Fisheries Regulations, with the exception of written exemptions to not comply with the standards of the Regulations.</p>	<p>Department of Conservation (and Local Authorities)</p>	<p>Construction Manager</p>	<p>https://www.legislation.govt.nz/regulation/public/1983/0277/latest/DLM92492.html</p>
<p>Hazardous Substances and New Organisms Act 1996</p>	<p>The purpose is to protect the environment, and the health and safety of communities, by preventing or managing the adverse effects of hazardous substances and new organisms.</p>	<p>Activities which require hazardous substances must be managed in compliance with the controls identified by the Act.</p>	<p>Environmental Protection Authority</p>	<p>Construction Manager</p>	<p>https://www.legislation.govt.nz/act/public/1996/0030/latest/DLM381222.html</p>



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Radiation Safety Act 2016	<p>The purposes of this Act are to—</p> <p>(a) establish a framework to protect the health and safety of people and protect the environment from the harmful effects of ionising radiation while allowing for the safe and beneficial use of ionising radiation; and</p> <p>(b) enable New Zealand to meet its international obligations relating to radiation protection, radiation safety and security, and nuclear non-proliferation,</p>	<p>The use of the nuclear densometer to check density and moisture content of pavement repairs or rehabilitations will require activities to be undertaken in accordance with this Act and the relevant regulations.</p>	Ministry of Health	Construction Manager	<p>https://www.legislation.govt.nz/act/public/2016/0006/latest/DLM6339517.html</p>
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2.2 Resource Consents

This project and associated flood works are being undertaken as flood resilience works under the Severe Weather Emergency Recovery (Auckland Flood Resilience Works) Order 2024. Resource consent is being sought under this legislation. Whilst the consent is yet to be obtained, this CEMP has been prepared in accordance with the conditions set out in Schedule 2 of the legislation. It will be updated with any specific requirements once the consent is obtained and provided to Auckland Council for certification at least 10 days prior to construction activities commencing.

3. Implementation and Operation

3.1 Hours of work

The hours of work for the project will be as per below:

- Weekdays: 7:00 am – 7:00 pm
- Saturdays: 8:30 am – 7:00 pm
- Sundays and public holidays: No work anticipated
- Works outside of standard hours will be minimised as much as practicable.

Allowance will be made for quiet work outside these hours including staff arriving to site assuming the work meets requirements set out in the CNVMP.

Early morning starts (e.g. 4:00 am) may be required for activities such as concrete pours. It is anticipated that there could be 3-5 early morning throughout the project.

3.2 Construction Notification Requirements

The CEMP is to be provided to council for certification at least 10 working days prior to implementation. Subsequent updates and changes to the CEMP will also require 10 working days for council to certify prior to implementing the changes on site. If there is no response from council after 10 working days, it will be assumed that the plan and changes are certified.

3.3 Public Safety Management

Due to the removal of a significant transport route through the area, alternative routes will be provided to the public to allow continued movements. Vehicles and heavy traffic will be detoured to alternative routes.

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The current works will impact nearby residents by removing access to Walmsley Road, where their current residential access sits. Temporary driveways will be constructed to allow continued access for residents without requiring the residents to access or traverse site.

A bailey bridge will be constructed over Te Ararata Creek to allow continued active modes of transport to safely use the area. Safety fences will be installed to ensure the public is adequately separated from any construction works. Figure 4 below outlines the location of the bailey bridge, the temporary residential access driveways and how fencing will be arranged to allow the site to remain as safe as possible.

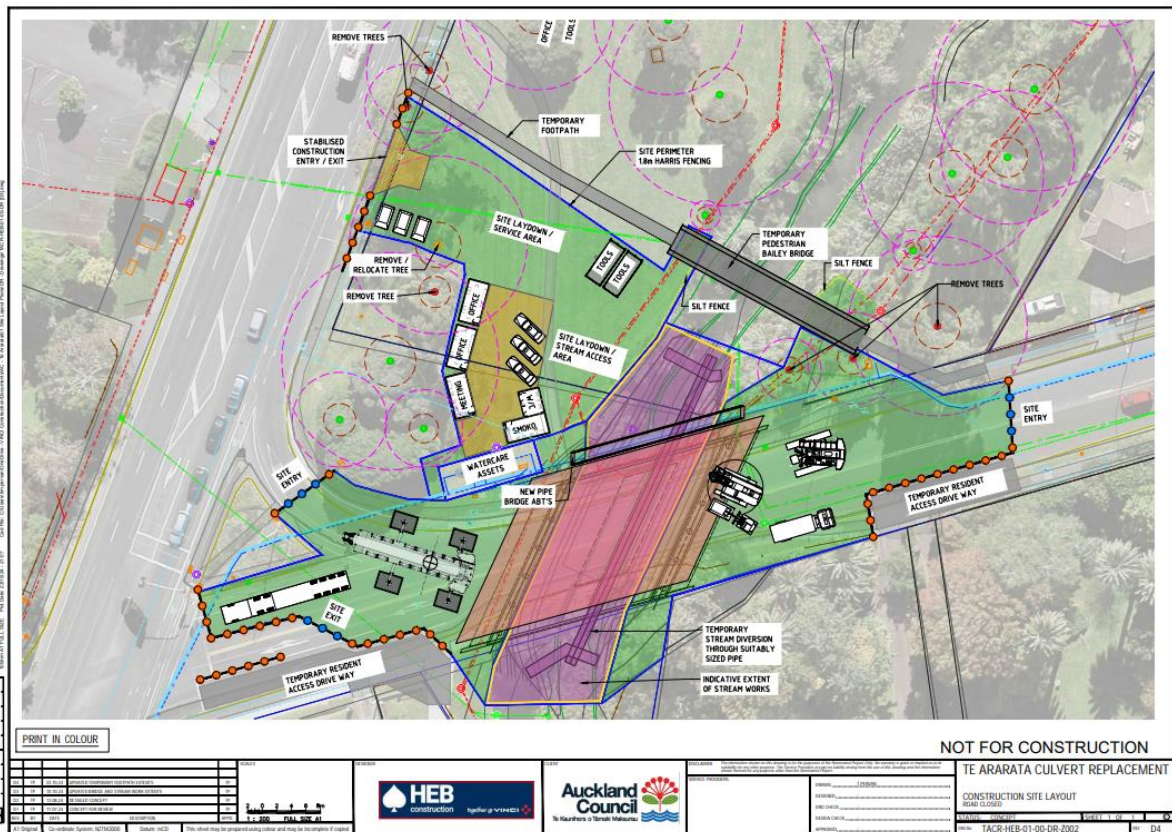


Figure 4: Location of bailey bridge in relation to project works along with site safety fencing (blue lines)

3.4 Erosion and Sediment Control

All erosion and sediment control devices will be designed to ensure compliance with the Resource Management Act 1991, relevant sections of the Auckland Unitary Plan and GD05 – Guidance for Erosion and Sediment Control.

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All practicable measures will be undertaken to prevent sediment from entering waterways including but not limited to:

- Establishing sediment controls prior to the onset of works and maintaining them.
- Stabilising disturbed areas as soon as practicable following the works.
- No washing down of equipment where sediment may enter waterbodies.

The key approaches for managing erosion and sediment are:

- Minimise disturbance.
- Stage construction.
- Protect steep slopes.
- Protect receiving environments.
- Rapidly stabilised exposed areas.
- Install perimeter controls and diversions.
- Employ sediment retention devices.
- Get trained and develop experience.
- Adjust the ESC plan as needed.
- Assess and adjust ESC measures.

Due to the project location and the intersection with the Te Ararata Creek there is a high risk of sediment contamination of the waterway. The project has limited earthworks reducing this risk, but erosion and sediment controls will be required to further reduce any potential sediment contamination.

A site-specific Erosion and Sediment Control Plan will be prepared by a suitably qualified and experienced person for certification by Auckland Council prior to works commencing on site. The specific controls indicated in the ESCP will be installed prior to earthworks commencing.

Iwi kaitiaki will be invited to comment on any proposed erosion and sediment controls and plans and oversee the construction, maintenance and monitoring of the erosion and sediment controls.

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3.4.1 Dust

During the construction phase of the project there is potential for air to be polluted by contaminants (e.g. dust). Exposed earthworks, haul roads and stockpiles can be a significant source of dust which can cause health and environmental effects and become a nuisance if not properly managed.

The potential sources of dust and other air contaminants identified with the project are:

- Dust from metalised crane pads and access tracks.
- Plant movement during dry and windy conditions.
- Excavation and disturbance of dry material.
- Loading and unloading of dusty materials from trucks.
- Smoke and odours from diesel engine machinery and exhausts.
- Stockpiles and stockpiling of materials.
- Dry cement dust.

Dust management will be outlined in the Erosion and Sediment Control Plan.

3.4.2 Stream Diversions and Working Around Streams

The Te Ararata Creek bisects the site with Walmsley Road and flows through the culvert and under the temporary bridge that will be constructed. The project includes the construction of the temporary bridge and removal of the culvert and has the potential to negatively impact the creek through sediment and other contaminant discharges.

The culvert is double barrelled which will allow diversion through one side of the culvert while the other is removed and the stream bank landscaped. The stream can then be diverted through the completed section and works completed on the opposing bank. Prior to any works within the stream the Project Ecologist will be contacted, and the Freshwater Fauna Management Plan will be implemented. The stream will be diverted through one of the sides of the culvert while work is completed on the opposing side. The stream will be diverted through a pipe to protect creek flows during works with a dam constructed out of sandbags or similar to divert the flow into the pipe.

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Figure 4: Diversion of creek via sandbag dam and pipe.

Further information of the stream diversions and methodology working in the stream can be found in the Erosion and Sediment Control Plan.

3.4.3 Dewatering

Dewatering may be required if seepage or ground water is encountered during excavations. Due to the proximity of the working areas to the Te Ararata Creek ground water may be encountered in the excavation of the existing culvert, formation of the new stream banks and temporary excavations

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associated with bridge abutment construction. The following criteria will be considered before dewatering occurs:

- Whether the water quality meets GD05 standards (>100 mm of clarity).
- Whether the pH meets GD05 standards (5.5 – 8.5).
- Whether the area to which the water is to be discharged will itself erode or scour.
- The volume of water to be discharged.
- Measures to be employed (treatments) to improve water quality prior to discharge if required.
- Measures to prevent the intake from picking up sediment.
- Potential impacts (e.g. flooding) on neighbouring properties.

Dewatering is considered a high environmental risk activity and as such careful monitoring is required throughout the dewatering process. Of particular focus will be looking for the formation of:

- Conspicuous oil or grease films.
- Scums or foams.
- Floatable or suspended material.
- Conspicuous change in the colour or clarity.
- Emission of objectionable odour.

The following will be implemented during any dewatering activity:

- The inlet of the pump will be elevated/protected to prevent the pump sucking the ground of the area being dewatered.
- The outlet of any pump will be protected against scour.
- All pumped water will be sent through a series of sediment control(s) prior to being pumped offsite.
- Flocculants and coagulants will be used to achieve suitable suspended solids concentrations.

Pumped water may be treated by a lamella plate clarifier, dewatering bin or turkeys nest depending on the level of treatment required, the volume of water and the rate of water flow.

Further information on dewatering can be found in the Erosion and Sediment Control Plan and Chemical Treatment Plan (if applicable).







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3.4.4 Spill Management

Due to the location of the project to the Te Ararata Creek the risk of spills of hazardous chemicals is considered high risk. All efforts will be taken to minimise the risk of any spill including maintaining machinery and protecting stormwater systems and areas that discharge to waterways.

All refuelling of machines will be undertaken at least 20 m away from the creek and any points that discharge to the stormwater system. Refuelling is to be undertaken with fuel trucks on site in the laydown area so that any potential spill of fuel or diesel can be captured.

The site team will follow HEB Constructions spill response steps outlined below:

<p>1. Raise the alarm</p> <ul style="list-style-type: none"> ➤ Warn people at the workplace and nearby about the emergency ➤ Request for help if required 	<p>2. Be Safe</p> <ul style="list-style-type: none"> ➤ Assess whether spill is safe to clean up ➤ Check SDS for substance information ➤ Wear appropriate PPE 
<p>3. Stop the Source</p> <ul style="list-style-type: none"> ➤ Locate the source of spill and block it ➤ Close taps, right overturned drum or plug leaks as required 	<p>4. Contain</p> <ul style="list-style-type: none"> ➤ Request for help if required ➤ If in/near waterways confine spill using floating boom ➤ If on land, place bund around spilled material e.g. Clay bund ➤ Place boom or pillow from spill kit in kerb and channel ➤ Block stormwater sumps and/or overland flow paths 
<p>5. Notify</p> <ul style="list-style-type: none"> ➤ Notify PM and Environ. Advisor (EA) ➤ If spill is greater than 2L to water or 20L to land, then PM to notify Environ. And Area Manager <div style="border: 1px solid red; padding: 5px;"> <p>PM no: EA no: Environ. Manager no: Area Manager no: Regional Council no:</p> </div> 	<p>6. Clean Up</p> <ul style="list-style-type: none"> ➤ For small spills, use absorbent pads, enviro-peat, sand, bark chip, zeolite or equivalent to remove spilt liquid, place in suitable container/bag ➤ For large spills use sucker truck to clean up spill in kerb and channel or from stormwater sumps which should have been blocked ➤ Keep contaminated equipment and clothing within contained area
<p>7. Dispose</p> <ul style="list-style-type: none"> ➤ Dispose of contaminated materials and clean up gear + clothing as hazardous waste ➤ Do not hose spill or tip waste down the drain 	<p>8. Refill and Replace</p> <ul style="list-style-type: none"> ➤ Let the enviro team know of spill kit material that was used and needs to be replaced so you have a full kit always on site

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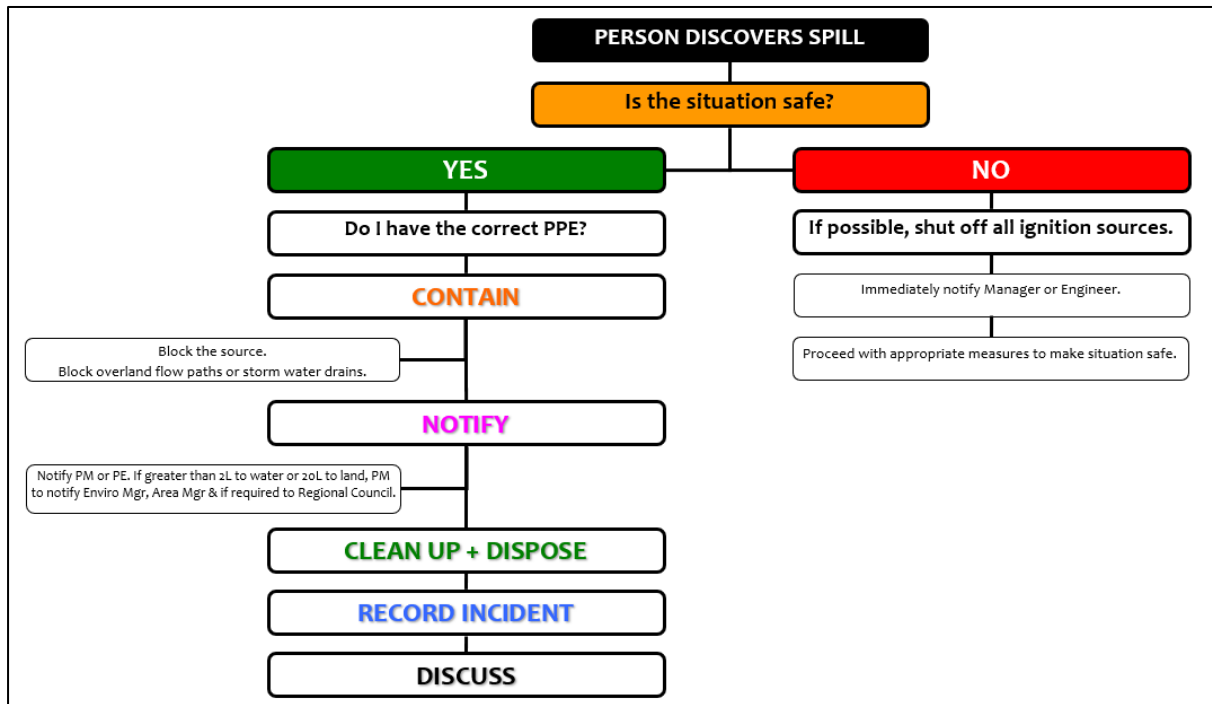


Figure 6: Spill response steps to be undertaken by site team in the event of a spill

3.4.5 Concrete Management

The management of concrete is considered a high-risk activity due to the sites location and proximity to moving water. Concrete and concrete slurries are highly alkaline and result in high pH of any water it may contaminate. High pH water has the potential to be toxic to aquatic flora and fauna and therefore needs to be adequately managed to ensure it does not contaminate any water bodies.

Piles are proposed to be tremie poured. Due to the proximity of the stream and the depth of the piles, there is a high chance that ground water and seepage will be encountered in the pile holes that requires removal. The actual volume of water that will be encountered is unknown.

During pile pouring the following will be adhered to:

- All water treated via a sediment control as outlined in the ESCP.
- The pH will be monitored during the pour. It is expected that initially the ground water will be near neutral pH and won't require treatment while the last few cubic meters may be contaminated from mixing with cement during the pour.
- Any high pH water will be captured and either treated to reduce the pH or removed to a facility able to accept the water.

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- Concrete trucks dumping small volumes of concrete may be allowed but this will be dumped into a lined container where there is no risk of discharge.

3.5 Ecology

An Ecological Management Plan has been prepared for the project. The Ecological Management Plan outlines how the construction activities are to be undertaken to minimise effects on freshwater fauna, avifauna, Mokomoko (lizards) and Vegetation.

3.5.1 Avifauna Management

Construction works have the potential to disturb bird life via both direct noise disturbance as well as removal of nesting sites and trees. To minimise the projects impact on nesting birds' vegetation clearance must:

- Be undertaken outside of the main native bird nesting season (September – January inclusive); or
- Any vegetation to be cleared is inspected by a suitably qualified and experienced ecologist or ornithologist within 24 hours prior to felling to identify any active nests. This includes checking cavities and hollows for nesting birds (e.g. Ruru, Kōtare).

During works should any active nesting of protected species be observed, works around the tree must halt until a suitably qualified and experienced ecologist has confirmed that the chicks have hatched and naturally left the site, or the nest has failed.

An Avifauna Management Plan has been prepared for the project that outlines the specific management controls to be implemented during works to minimise the impact on avifauna. This plan will be implemented at all stages of the project but particularly prior to any vegetation clearance which has the biggest potential impact to avifauna.

3.5.2 Mokomoko (lizard) Management

There is potential habitat for mokomoko (lizards) on site and that require management to ensure the adequate protection and relocation of any endangered lizard within the footprint of the works areas. A desktop assessment was undertaken and copper (*Oligosoma aeneum*) and ornate (*Oligosoma orantum*) were identified as potentially being present on site. A site visit in June 2024 noted suitable

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lizard habitat along with an incidental sighting of a copper skink during ACO deployment in August 2024. Both species are classified as nationally and regionally 'At Risk – Declining'.

A mokomoko (lizard) Management Plan has been prepared for the project to provide mokomoko ecological values, potential effects and effects management methodologies to avoid, remedy and/or mitigate the potential impacts to native mokomoko.

Prior to vegetation clearance the Project Ecologist will liaise with the site team to ensure that the mokomoko (lizard) Management Plan is implemented and that any salvage and trapping occurs prior to construction works.

3.6 Vegetation Management

There are a several large trees within proximity of the work site that are protected under the Auckland Unitary Plan. A suitably experienced council approved arborist will be engaged to monitor and supervise all works relating to any protected trees on site including but not limited to:

- Works within the root zone of protected trees.
- Approved pruning or removal of any trees.
- Identifying and clearly marking out the location of tree protection fences.

Prior to works starting a pre-start meeting will be held with the arborist who will outline the requirements of tree protection and specific tree protection methodologies to be utilised during the project. The tree protection measures outlined will be installed prior to any works commencing. Any required tree protection fencing is required to be 1.8 m high wire mesh fencing panels securely bound together and anchored to the ground.

No chemicals are to be stored, used or discharged within the protected root zones of trees. This includes any concrete or cement-based product.

No spoil produced by works on site shall be stored within the protected root zone of any tree.

Any excavations required within the root zone of any protected tree shall be carried out via the following:

- All excavations within the root zone to be monitored by the appointed arborist.
- Excavation shall be undertaken using a combination of hand digging, machine excavation and/or hydro/air excavation. If an excavator is to be used it will be fitted with a straight

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blade bucket and operate from an established hard surface or outside the protected root zone.

Further information and methodologies are provided in the Vegetation Management Plan prepared by Tonkin + Taylor.

3.7 Construction Noise and Vibration

Construction noise and vibration has the potential to cause considerable disruption to neighbouring stakeholders and residents due to their proximity to the works area and the activities required to complete the project including but not limited to piling, road construction, culvert demolition and earthworks.

To adequately manage the noise and vibration outputs from the project a Construction Noise and Vibration Management Plan has been prepared. This outlines the methodologies and recommendations to ensure the project effectively avoid, minimises and mitigates the noise and vibration from site to acceptable levels during construction. For further information see the Construction Noise and Vibration Management Plan prepared for the project.

3.8 Accidental Discoveries

During the course of earthworks there is the potential for the accidental discovery of sensitive material that were not anticipated during earlier phases. Sensitive material may include (as defined by the Auckland Unitary Plan):

- Human remains or kōiwi.
- Archaeological sites.
- Māori cultural artefacts/taonga tuturu.
- Protected New Zealand objects as defined in the Protected Objects Act 1975.
- Evidence of contaminated land (such as discolouration of soil, vapours, asbestos, separate phase hydrocarbons, landfill material or significant odour).
- Lava caves >1 m in diameter on any axis.

Upon discovery of any unexpected or sensitive material the project will adopt the following accidental discovery steps. These steps are outlined below:

1. Cease works and secure the area (20 m set back).

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2. Inform relevant authorities and parties.
3. Wait for and enable inspection of site.
4. Recommence work only once formal approval is received.

3.9 Culture and Heritage

Two Cultural Value Assessments (CVA's) have been prepared by iwi with ties to the area, Te Ākitai Waiohū and Te Ahiwaru. One of the primary tenets of the CVA's is ongoing consultation, and engagement between the project team and iwi. To this effect the following will occur (but not limited to):

- Engagement to continue in accordance with the engagement and communication conditions.
- Iwi will be invited to undertake a karakia prior to any works beginning on site.
- Iwi will be invited to undertake a cultural induction of site staff that will be working on the project, to ensure that staff are aware of and understand the cultural significance and history of the area.
- Kaitiaki will be allowed to inspect any topsoil stripping that is to occur on site.
- Kaitiaki will be allowed to monitor any stream works, erosion and sediment controls on site.
- Should any accidental discovery of heritage items be identified as per section 3.7, kaitiaki of will be notified.

3.10 Training

In accordance with AS/NZS 1509001 certification as well as health and safety procedures every employee involved in the Te Ararata Culvert Removal Project must be skilled and experienced in the work they are undertaking. Additionally, no workers will be asked to carry out any task without the necessary skills, experience, and qualifications.

Prior to commencing work all staff, including subcontractors, will receive a site-specific induction that will include the environmental requirements of the resource consent conditions, environmental risks, management plans and the processes associated with Project.

Anyone who is unfamiliar with any of the control or mitigation measures, equipment, and/or incident response procedures will receive appropriate training. Training may include (but is not limited to) such matters as spill response and equipment, erosion and sediment control, and cultural awareness. No-one will be permitted to work on the site until they have completed the site induction process.

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Visitors to the site will also receive an induction that summarises the Project’s environmental responsibilities.

The Environmental Manager will provide Project staff with environmental training and technical advice on all matters relating to erosion and sediment controls, spill response and other critical areas. SQEP or Experts in certain fields will also be asked to complete training with the site team and subcontractors (for example Heritage matters by the Project Archaeologist). HEB employees will have also undergone HEB’s internal training presentations in erosion and sediment control and hazardous substance management.

Training records for HEB Staff are captured and retained at HEB Construction within “SilkRoads” managed by the HEB People and Capability team. Subcontractor training will be recorded on a HEB “Training Record Form” and saved under the project file and submitted to Waka Kotahi upon request. Sign on sheets for toolbox talks will also be saved under the project file.

A summary of the key project training requirements provided is displayed in Table 3.

Table 3: Training records.

Type of Training	Purpose	Conveyor
Staff Induction	Induct the construction staff to the project, ensuring the general overview of the environmental values, risks, resource consents, management plans stakeholders, sensitive receptors, cultural background/requirements, and contacts for the project. Also outline how project and public traffic will be managed.	Construction Manager or delegate
Hazardous Substances and Emergency Spill Response	Train staff in how to manage spills in accordance with the Hazardous Substances Management training and Emergency Spill Response training. All HEB Project Management staff will be required to have completed <i>HEB Managing Hazardous Substances Training</i> and hold current certification (no older than 2 years old).	Environmental Manager or delegate Toolbox talks

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Erosion and Sediment Control	Train staff as to the importance of erosion and sediment control, why controls are in place, what should happen if a control is damaged. Specialised training will be provided to staff who are involved in the construction, maintenance and decommissioning of erosions and sediment control devices.	Environmental Manager or delegate Toolbox talks
Protected Trees	Train staff to recognise protected trees. Ensure there is understanding of the consent conditions and heritage conditions and rules for working near the driplines of protected trees and limitations on pruning.	Arborist with follow up by the Environmental Manager Toolbox talks
Contaminated Land/Soils	Train staff in identifying contaminated material/soils and the process around accidental discovery.	SQEP/Environmental Manager Toolbox talks
Ecology	Train staff in how ecology is to be managed for the project. Specific areas will be identified via Management Plans and Resource Consents (e.g. freshwater ecology).	SQEPs with follow up by Environmental Manager Toolbox talks
Noise and Vibration	Train staff in how noise and vibration will be managed to minimise impacts on staff and neighbouring receivers. Include ways site staff can be more conscious of stakeholders and methods to minimise their outgoing noise.	SQEP/Environmental Manager Toolbox Talks
Traffic Management	Train staff on correct entry / exit procedures at site access points. Include briefing on the approved CTMPs	Project Engineer Toolbox Talks

4. Environmental Monitoring, Maintenance and Review

4.1 Environmental Audits and Inspections

HEB Construction take a proactive approach to environmental management and compliance monitoring. Environmental compliance audits will be undertaken by the Environmental



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Manager/Advisor. How often they are undertaken will be determined by what stage the project is at and the environmental risk this stage and individual activities pose. The audits will focus across all aspects of the project with the objectives of the audits being:

- I. To determine if the environmental management requirements are being implemented and maintained.
- II. Assess the effectiveness of the environmental controls being used.
- III. Identify areas of non-compliance or improvement opportunities so that corrective actions can be taken.

Audits will be undertaken with a report generated for the site team. The audit report will outline any opportunities for improvement and any corrective actions required. The results of the audit will be used to ensure best practice methodologies will continue to be adopted on the ground and reflected in updates in the CEMP and sub management plans as required.

4.2 Incident/Complaint Investigation and Reporting

Environmental incidents, accidents, complaints and non-conformances with the CEMP or regulatory requirements will be investigated by the HEB Construction Manager with support from the Environmental Manager/Advisor. The cause of the incident or adverse effect will be reported and recorded to identify how the incident occurred, review and rectify the process that caused the incident and assign any corrective actions to prevent further occurrences.

Environmental incidents and complaints will be acknowledged and responded to within 12 hours of receipt. Incidents will be recorded on the HEB Incident Report Form and stored in the project folder. The report will detail the nature of the event, what measures were taken to prevent occurrence in the first place, probable cause of incident and any corrective actions taken to prevent reoccurrence.

The HEB Construction Manager will report the incident along with the report form to the Healthy Waters Project Manager, Auckland Council monitoring officer and the Engineer to Contract within 10 working days of the incident occurring.

In the event of an emergency the following HEB Construction employees shall be contactable 24/7. These employees will have authority to authorise immediate response actions:

Name	Contact number	Role

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Alex Mullane	027 399 0074	Stakeholder Manager and Project Engagement Lead
Harith Barakat	027 207 6252	Contractors Representative
James Chamberlin	027 232 8817	Construction Manager
Chris Wilcox	021 181 9105	Environmental Manager and Erosion and Sediment Control Manager

If an incident occurs in a waterway or stormwater system, the HEB Construction Manager or delegate will immediately notify the 24/7 pollution hotline on 09 377 3107.

4.3 CEMP Review

This CEMP is a live document and will be updated as construction progresses to ensure it remains relevant to the work and aligned with regulatory requirements. In addition to this the CEMP will be updated as the result of corrective actions and any:

- Change in scope/design outside what is already covered.
- Significant changes to legislation or policy.
- Significant changes to construction methodology.
- As directed by the client or regulatory.

Any updates to the CEMP will require certification from Auckland Council, at least 10 working days before the updated measures can be implemented.

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