

Eastern Busway – EB2 and EB3R

Construction Environmental Management Plan

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Eastern Busway – Sections EB2 and EB3R

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List of Abbreviations and Definitions

Abbreviation and Definitions	Description
AEE	Assessment of Environmental Effects
AUP(OP)	Auckland Unitary Plan (Operative in part) 2016
AT	Auckland Transport
CCP	Communication and Consultation Plan
CEMP	Construction Environmental Management Plan
CLMP	Contaminated Land Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CTMP	Construction Traffic Management Plan
EB2	Eastern Busway 2 (Pakuranga Town Centre)
EB3 Residential/ EB3R	Eastern Busway 3 (Pakuranga Highway to Gossamer Drive)
EBA	Eastern Busway Alliance
EIMP	Electricity Infrastructure Management Plan
ESCP	Erosion and Sediment Control Plan
HZNPT	Heritage New Zealand Pouhere Taonga
LMP	Lizard Management Plan
m	Metre(s)
m3	Cubic Metre(s)
NES - CS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NES- AQ	National Environmental Standard for Air Quality 2004
NPS - FM	National Policy Statement for Freshwater Management 2020
NPS - UD	National Policy Statement for Urban Development 2020
NZCPS	New Zealand Coastal Policy Statement 2010
NoR	Notice of Requirement
RTN	Rapid Transit Network
RRF	Reeves Road Flyover
RMA	Resource Management Act 1991
SAP	Site Access Points
SDS	Safety data sheets
SVR	Site Validation Report
TPMP	Tree Protection and Management Plan
UDLMP	Urban Design and Landscape Management Plan

1 Introduction

Eastern Busway Alliance (EBA) has developed this Construction Environmental Management Plan (CEMP) on behalf of Auckland Transport (AT) to support the following stages of the Eastern Busway:

- The application for a notice for requirement (NoR) and resource consents in relation to Eastern Busway 2 (EB2) – Pakuranga Town Centre, including the Reeves Road Flyover (RRF) and Pakuranga Bus Station
- The applications for resource consents in relation to Eastern Busway 3 – Residential (EB3 Residential) – Pakuranga Highway to Ti Rakau Bridge, including Edgewater and Gossamer Bus Station.

The combined construction of EB2 and EB3 Residential work packages are hereon referred to as 'EB2/EB3R'.

1.1 Purpose and Scope

On behalf of AT, EBA is required to carry out all works associated with EB2/EB3R in accordance with the CEMP. The purpose of the CEMP is to set out an overarching framework and construction methods to be undertaken to avoid, remedy or mitigate any adverse effects associated with the construction of EB2/EB3R so far as reasonably practicable. The CEMP sets out measures including management methods, controls and reporting standards to be implemented to meet the legislative requirements relating to construction activities associated with EB2/EB3R. It also provides an overview of the different environmental aspects associated with the construction programme and sets out a comprehensive framework for the management of actual and potential adverse environmental effects associated with EB2/EB3R. The CEMP shall be complied with and monitored throughout the duration of EB2/EB3R construction.

The CEMP is to be read in conjunction with the following appended documents:

- Appendix A: Hazardous Substances Handling and Storage
- Appendix B: Emergency Spill Procedures
- Appendix C: Indicative Works Programme
- Appendix D: Environmental Risk Register
- Appendix E: Environmental Aspects and Impacts Register

The CEMP is an overarching 'umbrella' document which will incorporate a series of 'sub management plans' as well as the implementation methods for addressing specific effects associated with EB2/EB3R works. The relationship between the CEMP and the sub management plans is set out in more detail in Section 3.1.

This CEMP and sub management plans may be updated throughout the course of EB2/EB3R to reflect changes to construction techniques or the physical environment. All material changes to certified management plans will require recertification by Auckland Council (the Council). See Section 1.6 for further details on the certification process.

1.2 Project Description

This plan is for stages EB2 and EB3R of the Eastern Busway Project.

1.2.1 Eastern Busway 2 (EB2)

EB2 commences from the intersection of William Roberts Road and Pakuranga Road and traverses west to the Ti Rakau Drive / SEART intersection.

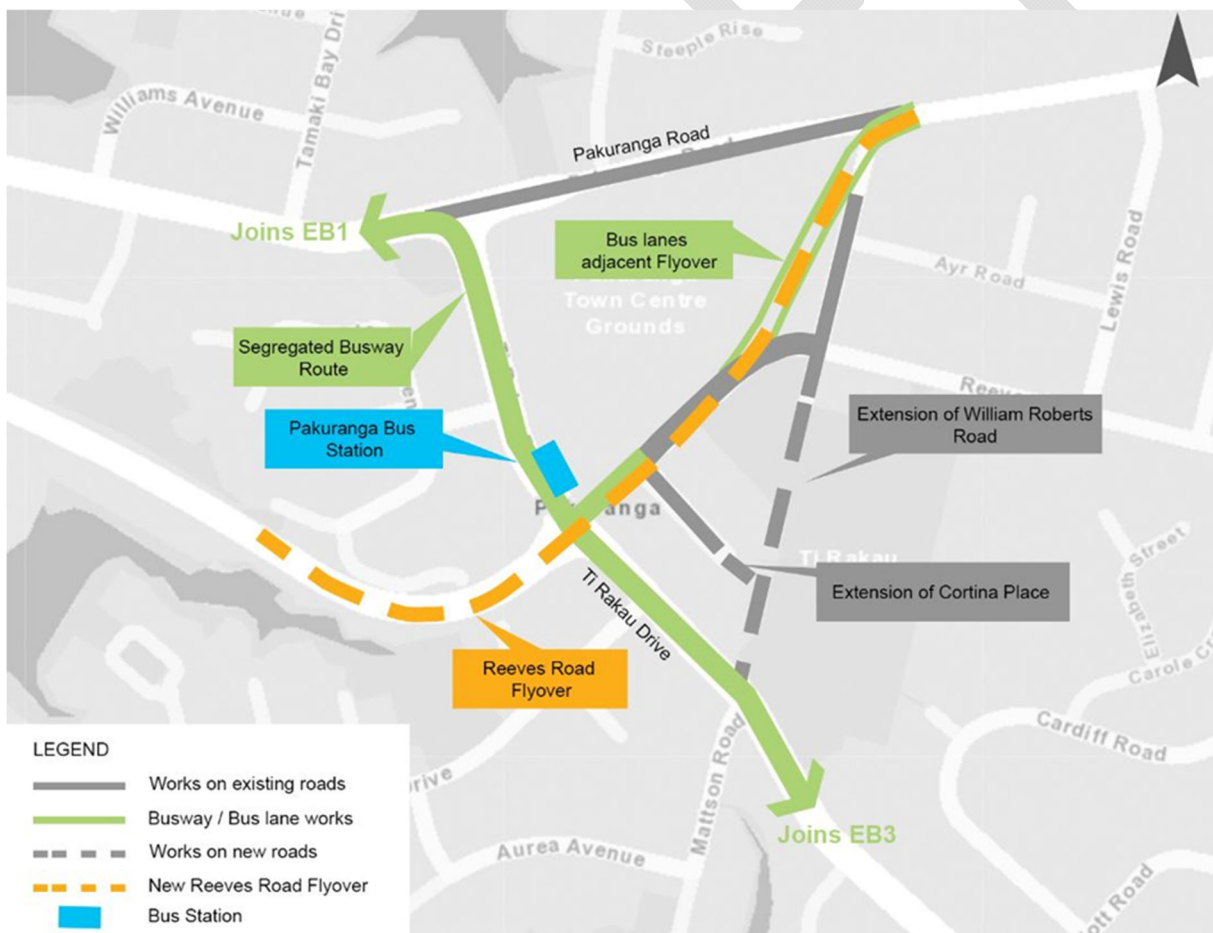
EB2 will improve safety by simplifying intersections and the provision of extra crossings to the town centre (including more regular crossing intervals). New cycle lanes and walking paths will make it possible to walk or cycle off-road, improving accessibility and safety around the town centre.

Key elements of EB2 include:

- Pakuranga Station - the key station for Pakuranga/Howick users of the busway leading to the Panmure Station and Botany.
- Reeves Road Flyover (RRF) - provides for local traffic to bypass the heavily congested Pakuranga Road and Ti Rakau Drive route to the SEART via an overpass between SEART and Pakuranga Road (north).

An overview of the proposed EB2 works is shown in Figure 1.

Figure 1 EB2 Overview



1.2.2 Eastern Busway 3 – Residential (EB3 Residential)

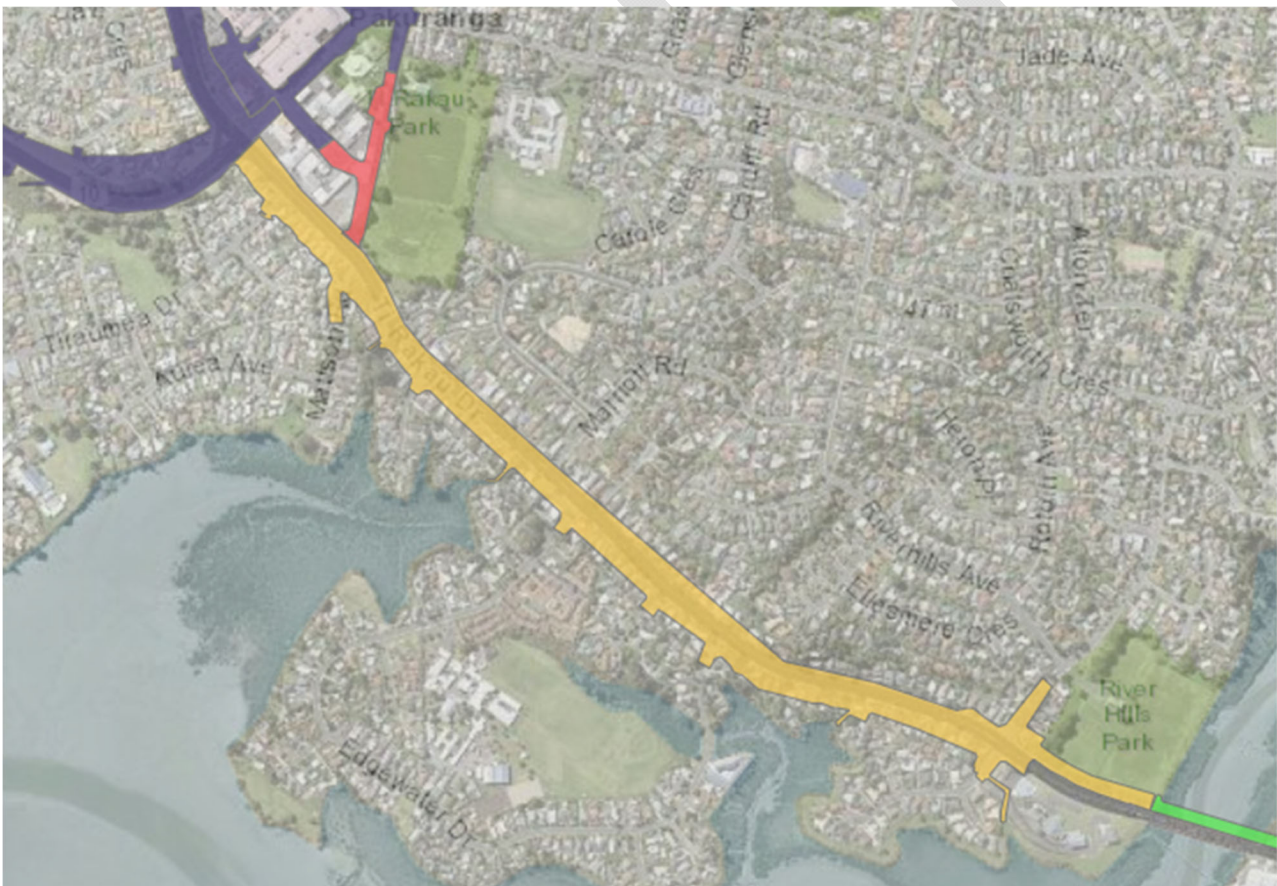
EB3R will provide the extension of the Rapid Transport Network from SEART in the west to Pakuranga Creek in the east, including additional walking and cycling infrastructure. The construction of the busway within EB3R will involve a staged approach to construction to minimise disruption on the existing road network.

Key elements of EB3R include:

- A separated busway through the centre of Ti Rakau Drive
- The construction of two new westbound lanes for general traffic
- Two intermediate bus stations, being Edgewater Station and Gossamer Station (interim design)
- The western abutment for a future bridge across Pakuranga Creek, adjacent to the existing Ti Rakau Drive Bridge
- Intersection upgrades along Ti Rakau Drive, including William Roberts Road and Gossamer Drive

The location of EB3R is shown in yellow in Figure 2 below.

Figure 2 EB3R Location (shown in yellow)



1.3 Mana Whenua Engagement

EBA recognises the importance of AT's relationship with mana whenua. All contractors involved with EB2/EB3R are expected to take pride in representing AT and contributing to this relationship, through maintaining a relationship based on trust and respect and through understanding cultural interests.

Kaitiakitanga includes:

- protecting, restoring, enhancing the mauri (life supporting capacity) of resources
- fulfilling spiritual, emotional and inherited responsibilities to the environment
- maintaining mana over Taonga (resources)
- ensuring the welfare of the people those resources support.

We recognise that kaitiakitanga is a wider concept and broader than this description.

Mana whenua are partners in the EBA to ensure Te Aranga Māori Design Principles are embedded in all aspects of design.

This partnership has been extended into the development of the environmental Management Plans where regular hui have been held to ensure a clear understanding of the cultural values Mana whenua hold and how these can be addressed throughout the course of the project.

AT and the Eastern Busway Alliance will continue to use the kaitiaki mana whenua forum to provide an ongoing design and construction role for mana whenua within the Eastern Busway Project.

The role of the kaitiaki forum is set out in full in Section 3.2.1 of the Community and Consultation Plan (CCP).

1.4 Construction Environmental Management Plan Objectives

The purpose of the CEMP is to set out an overarching framework and construction methods to be undertaken to avoid, remedy or mitigate any adverse effects associated with the construction of EB2/EB3R so far as is reasonably practicable. The objectives of the CEMP are as follows:

- Set out the environmental management framework for managing potential adverse effects which may result from construction of EB2/EB3R
- Provide details of the construction methodology and management measures
- Identify the compliance management system which will be in place throughout the construction period
- Outline the processes for monitoring and review of CEMP performance.

1.5 Management Plan Framework

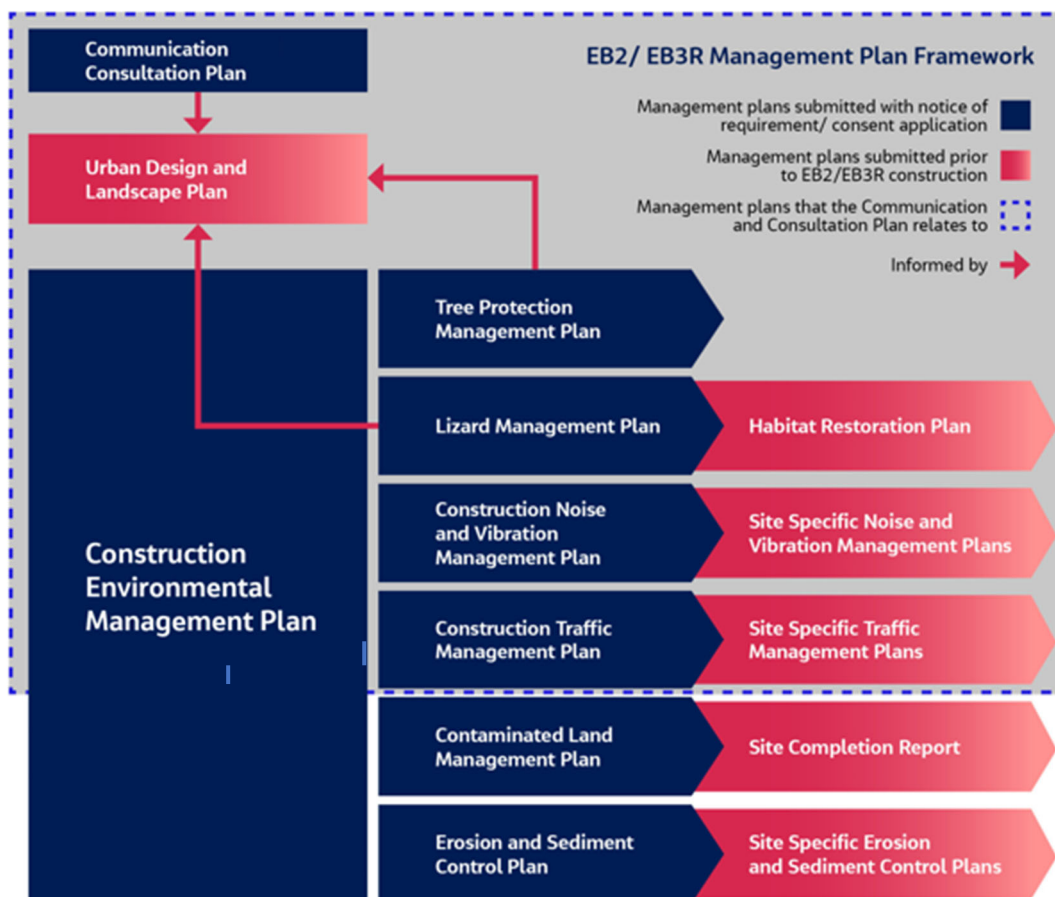
As discussed in Section 1.1, in accordance with the proposed designation and resource consent conditions lodged with the application, EB2/EB3R requires a set of management plans to ensure effective management of adverse effects associated with the construction of EB2/EB3R.

This CEMP sets the overarching framework for the management of environmental and social aspects of EB2/EB3R and is supported by a series of 'sub management plans' focussing on specialist disciplines identified in EB2/EB3R applications for designation and resource consent.

A number of specific plans have been identified in the proposed designation and resource consent conditions as requiring "certification" or submittal to the consenting authority (Auckland Council). These plans will require certification prior to commencement of the main works. Further detail on the certification process is provided in Section 1.6.

The wire diagram in Figure 3 Management Plan Structure provides an overview of the management plan structure including the CEMP and the relevant sub-management plans.

Figure 3 Management Plan Structure



1.6 Management Plan Certification and Review

Once certified, minor amendments as a result of changes in design, construction materials, methods or management of effects can be made to the management plans without the need to seek recertification provided that the amendments are agreed to by Auckland Council, prior to the implementation of any changes.

Management plans may be submitted in parts or stages to address activities or to reflect the staged implementation of the Project. If submitted in part, management plans will clearly show the linkage with plans for adjacent stages and interrelated activities.

Any amendments to a certified management plan that may result in a materially different outcome/effect will be submitted to Auckland Council to certify these amendments are consistent with the relevant designation and resource consent conditions prior to implementation.

If no written response is received from Auckland Council within 10 working days of the management plan being submitted for certification, the management plans will be deemed to have certification and works can commence.

1.7 Roles and Responsibilities

Any person involved with the construction of EB2/EB3R has a role in the implementation of the CEMP.

The construction team has a responsibility to identify and report all environmental aspects within the workplace and to monitor environmental awareness on site. Table 1 below sets out the names, roles, responsibilities and authorities, and technical expertise of principal personal involved in the implementation and operation of the CEMP.

Table 1 Applicable Roles and Responsibilities

Name	Role	Contact Details	Expertise, Responsibility & Authority
TBC	Project Director		Designation authority contact. EBA person responsible for implementing the designation and resource consents for EB2/EB3R.
TBC	SHEQS Manager		Development and implementation of the CEMP and sub management plans (including engagement of specialists to deliver on plan development and plan requirements). Reviewing sub management and mitigation plans for project certification by Auckland Council. Inspections, auditing and checking of environmental management practices and procedures during construction.
TBC	Environmental Lead		Onsite environmental compliance auditing, inspections, and checking of environmental management practices and procedures during construction. designation/ resource consent condition management. Liaison with Auckland Council monitoring officers. Review and update of management plans and associated documents to meet environmental compliance objectives
TBC	Construction Manager		Day to day implementation of the CEMP and sub management plans onsite, ensuring compliance with the various environmental requirements associated with EB2/EB3R.

			<p>Providing assistance for safe traffic and pedestrian management during any environmental incident that may need emergency response so as to promote reduced public disruption and faster recovery from the incident.</p> <p>Liaison with AT on all matters affecting traffic movements through site.</p>
TBC	Site Superintendent		<p>Management of people and plant on site and access management.</p> <p>Coordination and assistance at pre-start meetings and Auckland Council compliance inspections.</p>
TBC	Customer and Community Lead		<p>Communication with stakeholders and the public throughout the construction phase of EB2/EB3R.</p> <p>Cultural/Archaeological ambassador for EB2/EB3R works.</p> <p>Implementation of the complaints operating procedure, maintenance of the complaints register including the use of the AT's stakeholder management system</p>

The contact details for key personnel are set out in Table 2 below.

Table 2 Contact Details for Key Personnel

Role	Organisation	Name	Phone	Email
24-hour Stakeholder Contact	TBC			
Council Monitoring Team Leader	TBC			
Council Parks Arborist	TBC			

Council Urban Forest Specialist	TBC			
Contaminated Land Specialist	TBC			
Traffic Management Specialist	TBC			
Building Condition Survey Specialist	TBC			
Ecologist/ Herpetologist	TBC			

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2 Environmental and Social Management

This section identifies the legal requirements applicable to the environmental and social aspects of EB2/EB3R. The legal requirements include: the existing legislative context and relevant designation and resource consent conditions.

2.1 Environmental and Social Impacts

The potential environmental and social impacts relating to EB2/EB3R are identified and assessed in the applications for resource consent and designation. Table 3 below identifies relevant environmental aspects, associated activity, potential impact, and management techniques to remedy or mitigate the impact and ensure legal compliance.

Table 3 Potential Environmental Impact and Management

Environmental Aspect	Activity	Potential Impact	Impact Management Technique	
Social	Connectivity	Road construction and road widening.	Severance of property access, displacement of residents.	Construction Traffic Management Plan (CTMP), CCP
Natural Environment	Water Resources and Erosion and Sediment Control	Land disturbance. Discharges including construction spills.	Sedimentation resulting in a reduction in water quality as a result of spills and/or other stormwater discharges into waterways.	Erosion and Sediment Control Plan (ESCP) Appendix A: Hazardous Substances Management Handling and Storage. Appendix B: Emergency Spill Procedures.
	Ecological resources	Vegetation/ tree clearance	Reduction/loss of species diversity Reduction/loss of habitat	Lizard Management Plan (LMP) Herpetologist engaged to oversee trapping. Urban Design and Landscape Management Plan (UDLP), Tree Protection and Management Plan (TPMP).
Human Health	Noise and Vibration	Operation of heavy machinery	Physical damage to structures Nuisance to the public	Construction Noise and Vibration Management Plan (CNVMP). Building condition surveys prior to works as required.

				Follow best practice guidelines.
Air Quality	Dust generated from earth works and haul roads	Nuisance to the public		Construction Erosion and Sediment Control Plan (ESCP) including dust management and application of BPO during all works activities and vehicle movements on site.
Contaminated Land Management	Earthworks on contaminated land. Pavement surfacing Plant refuelling and spills or leaks during activities Site chemicals storage	Contaminated soil Contamination from spills or runoff into waterways or stormwater system		Minimal chemical storage to be held on site. Dedicated compliant hazardous goods storage. Contaminated Land Management Plan (CLMP) & Site Completion Report . ESCP. Appendix A: Hazardous Substances Handling and Storage. Appendix B: Emergency Spill Procedures.
Culture and Heritage	Archaeology and heritage values Works uncovering archaeological items e.g. artifacts, middens, koiwi etc. Heritage buildings	Loss of heritage values Damage to archaeological items and cultural significance		Site specific Archaeological and cultural induction process. Project specific Archaeological Ambassador to liaise closely with relevant parties Mana Whenua and Iwi. Implementation of Accidental Discovery Protocol set out in AUP (OP) or archaeological authorities obtained from Heritage New Zealand Pouhere Taonga (HNZPT).

Urban Design and Landscape	Visual Quality	Active transport modes	Discourages public transport use	Public transport services and performance maintained throughout construction.
		Earthworks		
		Structures	Negative visual amenity for road users and adjacent residents	Aesthetic hoarding used where possible. Works methodology to include management of night works activities.
		Enhancement to adjoining land		
		Lighting	Light spill for adjacent residents and waterways	Strategies to manage lighting effects.

2.2 Relevant Legislation, Policy and Plans

The environmental legislative requirements of EB2/EB3R are set out in Table 4 below.

Table 4 Applicable Legislation and Plans

Legislation	Description	Requirement	Regulator
Resource Management Act 1991 (RMA)	To promote the sustainable management of natural and physical resources. The RMA provides the local and regional authorities with the necessary powers to formulate plans, and set rules and standards for a multitude of activities.	Every person has a duty to avoid, remedy, or mitigate any adverse effect on the environment arising from an activity carried on by or on behalf of that person, whether or not the activity is in accordance with a rule in a plan, a resource consent, a designation, section 10 of the RMA, section 10A of the RMA, or section 20A of the RMA.	Auckland Council, Ministry for the Environment
National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect human Health 2021 (NES-CS)	The NES-CS provides a nationally consistent set of planning controls and soil contaminant values; ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed; and if necessary, the land is remediated or the contaminants contained to make the land safe for human use.	For roading activities, any activity that disturbs soil over 25m ³ in volume at a HAIL site requires consent under this NES.	Auckland Council
National Policy Statement for Freshwater	The National Policy Statement for Freshwater Management	Under this policy, regional councils/unitary authorities must establish objectives and set limits	Auckland Council

Management, 2020	supports improved freshwater management in New Zealand.	for fresh water in their regional plans. Until Council have developed these, works impacting waterways, water discharges, diversions and takes must be undertaken in accordance with this policy statement.	
National Policy Statement on Electricity Transmission 2008	The National Policy Statement on Electricity Transmission recognises the national significance of the electricity transmission network whilst managing the adverse effects of the network and managing the adverse effects of other activities on the network.	Transpower have been consulted as part of the proposal and the development of the Electrical Infrastructure Management Plan. Approval will be sought from Transpower in accordance with Section 177 of the RMA prior to any works occurring within their designations to ensure the transmission network is not adversely affected by the proposal.	
National Environmental Standard for Air Quality 2004 (NES-AQ)	The NES-AQ seeks to provide a guaranteed minimum level of health for all New Zealanders.	The proposal does not require any consents pursuant to the NES- AQ as the operational pollutant concentrations will be below the relevant standards. However, the NES- AQ has helped to inform the requirements relating to construction and operational air quality set out in the consent conditions and relevant management plans.	Auckland Council
Auckland Unitary Plan – Operative in Part	The Auckland Unitary Plan – Operative in Part (2016) has been developed under the Resource Management Act 1991, and is intended to provide direction regarding the use, development and protection of natural and physical resources in the region, as well as promoting the sustainable management of these resources.	Activities carried by the EBA must comply with the designation and consent conditions and rules defined within the Auckland Unitary Plan. Where they do not, consent will be obtained prior to works commencing.	Auckland Council
Heritage New Zealand Pouhere	The purpose of this Act is to promote the identification, protection, preservation, and	Section 42 of the Act directs that an authority is required from Heritage New Zealand Pouhere	Heritage New Zealand

Taonga Act 2014	conservation of the historical and cultural heritage of New Zealand.	Taonga if there is 'reasonable cause' to suspect an archaeological site may be modified, damaged or destroyed in the course of any activity.	Pouhere Taonga
Biosecurity Act 1993	<p>The purpose of the Biosecurity Act 1993 is to enable New Zealand to exclude, eradicate or effectively manage pests and unwanted organisms already in the country.</p> <p>The Biosecurity Act requires regional councils and unitary authorities to formulate a regional pest management strategy, list plant and animal species and state objectives, policies and rules with regard to pests, their status and required/anticipated control.</p>	Pest management activities must comply with Local Authority pest management policies and rules.	Ministry for Primary Industries (and Local Authorities)
Freshwater Fisheries Regulations 1983	The Freshwater Fisheries Regulations 1983 at Clause 42 requires that a culvert or ford in any natural river, stream, or water shall 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.	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.	Department of Conservation
Hazardous Substances and New Organisms Act 1996	The purpose of the Hazardous Substances and New Organisms (HSNO) Act 1996 is to protect the environment, for non-work public health and environmental risks by preventing or managing the adverse effects of hazardous substances and new organisms.	Activities which require hazardous substances must be managed in compliance with the controls identified by the Act.	Environmental Protection Authority
Health and Safety at Work (Hazardous Substances) Regs 2017	The purpose of the regulation is to protect human health and safety in the workplace which could be affected by hazardous substances. This regulation sits under the Health and Safety at Work Act.	Activities which require hazardous substances must be managed in compliance with the controls identified in the Regulations.	Worksafe

Health and Safety at Work (Asbestos Regulations 2016)	The purpose of the regulation is to protect human health and safety in the workplace which could be affected by asbestos. This regulation sits under the Health and Safety at Work Act 2015.	Activities which require asbestos waste removal must be managed in compliance with the controls identified in the Regulations.	Worksafe
Wildlife Act 1953	Deals with the protection and control of wild animals 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, reptile and amphibians) or for the unintentional killing or injury of wildlife as a result of any of the works.	Department of Conservation

2.3 Relevant Designation and Resource Consent Conditions

The CEMP has been prepared in accordance with the relevant designation and resource consent conditions as contained in the condition set lodged with the application. This document is intended to provide a framework and information that will assist in the implementation of these requirements.

If there is a conflict between the CEMP and the corresponding legislative requirements, including consent conditions, then the legislative requirements shall prevail.

3 CEMP Implementation and Operation

Section 3 of the CEMP sets out the environmental aspect management plans, general construction aspects and programme, operating procedures, training, emergency management processes and contacts required for effective environmental and social management throughout the construction period of EB2/EB3R. The CEMP will be managed through CS VUE™ or a similar system, to control CEMP revisions, manage approval processes and enable distribution of the correct and approved versions of the CEMP to personal involved with EB2/EB3R.

3.1 Environmental Sub-Management Plans

As shown in Figure 3 Management Plan Structure a set of sub-management plans sit underneath or alongside the overarching CEMP. Each sub management plan is briefly described below. The latest certified versions and any material changes to the CEMP and sub plans will be available for public viewing on the EB2/EB3R website.

3.1.1 Communication and Consultation Plan (CCP)

The CCP sits alongside the CEMP and sets out a framework to ensure appropriate communication and consultation is undertaken with the community, stakeholders, affected parties and interest groups during construction of EB2/EB3R. The CCP identifies the appropriate engagement approach, identifying who should be consulted, the timing of consultation and the means of consultation. The CCP also sets out how opportunities for providing feedback will be provided and how feedback will be considered and applied in construction decision making processes.

3.1.2 Construction Noise and Vibration Management Plan (CNVMP)

The CNVMP provides a framework for the development and implementation of the Best Practicable Option (BPO) to avoid, remedy or mitigate the adverse effects on receivers of noise and vibration resulting from the construction of the Project. It identifies the noise and vibration performance standards that must, where practicable, be complied with and details the management and control methodologies to be implemented in order to achieve compliance.

3.1.3 Construction Traffic Management Plan (CTMP)

The objective of the CTMP is to identify the means to be used to avoid, remedy or mitigate the adverse effects of construction of EB2/EB3R on transport, parking and property access so far as is reasonably practicable. The CTMP includes management methods, controls and reporting to manage the potential effects on transport, parking and property access associated with EB2/EB3R.

3.1.4 Erosion and Sediment Control Plan (ESCP)

The purpose of the ESCP is to provide overarching principles and procedures to manage the environmental impacts associated with erosion and sediment control (ESC) during construction of EB2/EB3R. The ESCP also incorporates important procedures for chemical treatment management, dewatering and dust management.

3.1.5 Contaminated Land Management Plan (CLMP)

The CLMP details procedures to be implemented during construction works to control the disturbance and movement of identified contaminated and potentially contaminated soils during the construction period of EB2/EB3R. The CLMP presents relevant controls on reuse and disposal of soil excavated from the site,

personal protection equipment recommendations and protocol in case of accidental discovery of contamination while undertaking excavation within the development works area.

3.1.6 Lizard Management Plan (LMP)

The purpose of this plan is to provide guidelines and programmes for the management of effects of the proposed EB2 and EB3R construction on native lizards where vegetation clearance will occur. This LMP includes details on potentially affected species and habitats and methodology for capture and release where necessary.

3.2 General Construction Aspects

The following section provides an overall description of the general construction aspects across EB2/EB3R.

The technical investigations that supported the application for NoR and resource consents will be utilised to understand the environmental and social constraints and ensure that the final design and construction methodology meets legal requirements, environmental commitments and conditions of designation and resource consents.

General construction aspects across the whole project include:

- Enabling works
- Night works
- Site establishment works including:
 - Traffic / public management
 - Existing utility services location identification
 - Establishment of Site Access Points (SAP's) and fencing
 - Compounds and offices
- Protection and / or relocation of existing network services
- Construction Activities
 - Erosion and sediment controls
 - Building removal and de-construction
 - Earthworks including:
 - Clearing
 - Bulk Earthworks
 - Civils works including:
 - Drainage and ducting
 - Traffic services
 - Urban design and landscaping
 - Pavement works including:
 - Shared paths
 - Bus lanes
 - Traffic lanes
 - Structures including:
 - Bridges
 - Retaining Walls
- Dis-Establishment
 - Zonal compounds and offices
 - Erosion and sediment controls

- Traffic management
- Project Opening

3.3 Construction Programme

The proposed construction programme is set out in Table 5 below. The construction programme is indicative and will evolve during the construction period as the construction methodology is further refined. Detailed scheduling of works is included in Appendix C, Works Programme.

Table 5 Indicative Construction Programme

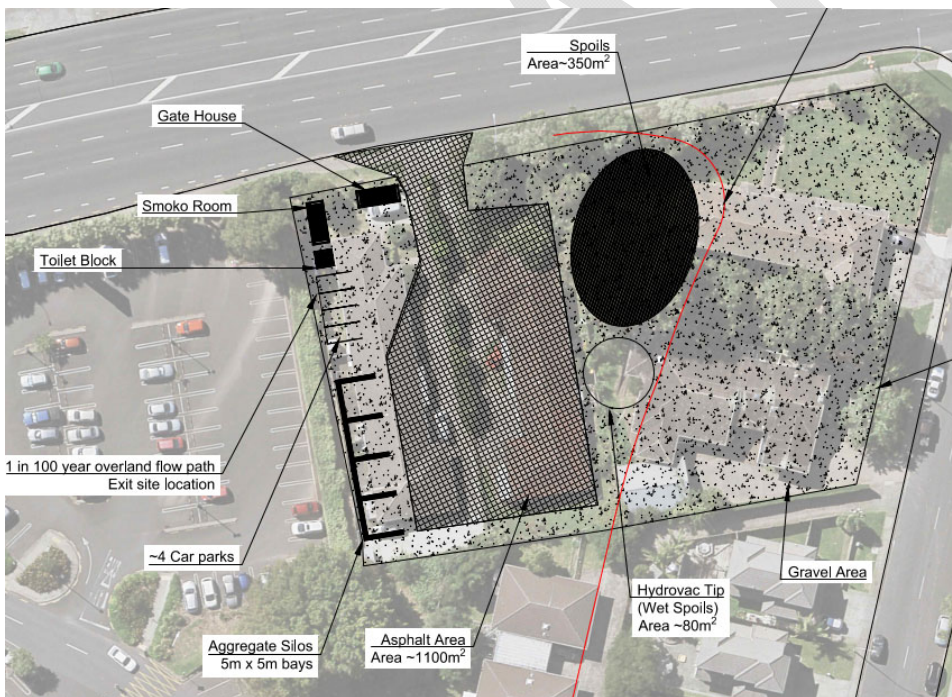
Site Location	Construction Sequencing	Expected Duration
SEART Off- and On-ramps	<ol style="list-style-type: none"> 1. Demolish buildings and erect new fencing 2. Provide new access to properties (if required) 3. Implement erosion and sediment control measures 4. Divert services and install stormwater treatment devices 5. Construct earthworks 6. Carry out pavement works 7. Switch traffic to allow construction of southern abutment and approach embankment of RRF 	28 months
EB2	<ol style="list-style-type: none"> 1. Demolish buildings on westbound side of Ti Rakau Drive 2. Traffic management (until completion). Staged construction of busway, eastbound and westbound carriageways 3. Provide new access to properties (if required) 4. Implement erosion and sediment control measures 5. Divert services and install stormwater treatment devices 6. Construct earthworks 7. Carry out pavement works 	53 months
EB2 – Reeves Rd Flyover	<ol style="list-style-type: none"> 1. Demolish buildings at northern end of the future RRF 2. Traffic management 3. Implement erosion and sediment control measures 4. Divert services and install stormwater treatment devices 5. Construct ground improvements (if required) 6. Construct MSE walls 7. Piling works 8. Construction of temporary works 9. Concrete works for substructure 10. Beam installation 11. Deck construction 12. Finishing works 13. Open to traffic; this will allow construction of Reeves Road under flyover and northwest end of Ti Rakau Drive. 	43 months

<p>EB3R</p>	<ol style="list-style-type: none"> 1. Remove buildings, erect new fencing along westbound Ti Rakau Drive 2. Traffic management 3. Provide new access to properties (if required) 4. Implement erosion and sediment control measures 5. Divert services and install stormwater treatment devices 6. Construct earthworks 7. Carry out pavement works 	<p>41 months</p>
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3.4 Construction Compounds

The primary construction compound is subject to a separate resource consent application (Auckland Council Reference: LUC60403744) and therefore details of the site has been provided in this CEMP for information only. Figure 4 displays the layout of the primary compound and will include staff ablutions, spoil storage, aggregate silos and four parking spaces. The remainder of the site will be either asphalted or gravelled to provide storage areas for construction materials and equipment. The primary compound will be occupied until it is required for the completion of RRF.

Figure 4 Primary Construction Compound



In addition to the primary construction compound, the two main offices will be located at 5 Reeves Road ('Perfume Chalet') and 9 Reeves Road. These sites will be utilised throughout the entire construction process. They allow for approximately 145 and 35 people respectively and include site facilities and construction vehicle parking. The remaining satellite offices will have a capacity for 10 staff at each site and will be spread along EB2 and EB3R. Details relating to the construction compounds are set out in Table 6 below.

Wherever possible, existing buildings will be utilised, and containers would be setup within the property areas. Where additional site offices are required, they will be located at the edge of the construction yards where practicable, as will less noisy construction activities.

Further information on the compounds, including information on staff parking and site access, is detailed in Section 5.3 of the CTMP.

In addition to these compounds and satellite offices, typical construction activities (such as stockpile, laydown and assembly areas, plant and equipment storage, amongst others) will occur throughout the construction footprint.

Table 6 Construction Compounds

Compound	Location	Compound specific activities
Compound 1 – Main Project Office	5 Reeves Road	Main site office. The existing building located on this site will be used as the main project office with additional Portacomts.
Compound 2 – Reeves Rd Flyover Satellite office	2 Cortina Place	Satellite office for RRF project team. Access will be off Cortina Place, utilising the existing driveway as an entry point. The existing two-level commercial building will be utilised as the office and staffroom until either the structure is de-constructed or handed back. The site will provide a briefing area for bridge construction, plant for piling will be installed. Carparking will be provided onsite.
Compound 3 – Satellite Office / Carparking	14 Seven Oaks Drive	Satellite office / carpark for the construction of EB2. Access will be maintained off Seven Oaks Drive, utilising the existing driveway cross as the entry point. The existing house will be utilised as the office until de-struction of the structure is required.
Compound 4 – Satellite Office / Carparking	143 Ti Rakau Drive	Satellite office / staffroom for the construction of EB3R. Access will be off Ti Rakau Drive, utilising the existing driveway cross as the entry point. The existing house will be utilised as the office until de-struction of the structure is required.
Compound 5 – Satellite Office / carparking	178 Gossamer Drive	Satellite office / carparking for the construction of EB3R. Access will be off Gossamer Drive, utilising the existing driveway as the entrance point. The existing house will be utilised as the office until de-struction of the structure is required.
Compound 5A – Laydown Area	Gossamer Drive	Laydown area for metal and will include a gantry crane. The use of the site will require deconstruction of four buildings and at times may require 24/hr working. Heavy plant circulation will be provided. Lighting will be used as needed if there are night time works.
Compound 6 – Satellite office	12 Bolina Crescent	Satellite office / carparking area for the construction of EB2. Access will be maintained off Bolina Crescent, utilising the existing driveway crossing as the entry point. The existing house will be utilised as the office until de-struction of the structure is required.

3.5 Removal of Buildings

Buildings will be removed before construction activities start in each area of EB2/EB3R. Removal of buildings will include relocation, de-construction or demolition.

Where possible existing houses and buildings will be uplifted and relocated for further use. When doing so, a specialist house removal contractor will be engaged to undertake the operation.

Where it is not possible to undertake relocation, EBA will seek to undertake deconstruction as opposed to demolition. This will involve the dismantling and removal of the structure's components off site, whilst salvaging and recycling as much as possible materials for reuse in the construction of EB2/EB3R, for example hardfill for temporary accessways and timbers for formwork.

Prior to any relocation and / or deconstruction activities, existing house / building surveys will be undertaken to determine what option should be used, and whether asbestos and / or any other hazardous substance is present. If a hazardous substance is identified, a specialist subcontractor will be engaged to develop a specific method statement and to manage and remove the substance in accordance with Auckland Council standards. Any specific plant and machinery requirement would be indicated within those method statements. Guidance on any unidentified contaminated soil or material found on these sites will also be managed in accordance with the procedures set out of Section 5.3 of the CLMP relating to the accidental discovery of contaminated land.

Any decommissioning of services might require localised earthworks (trenching or removal of overhead assets) as well as temporary utility diversions.

3.6 Operational Requirements

This CEMP provides a robust framework for delivering the objectives set out in Section 1.4 and ensuring compliance with the legal requirements as contained in the condition set lodged with the application. EBA contractors working on EB2/EB3R are ISO14001 certified and the CEMP conforms with ISO 14001 Environment Management System standards.

3.6.1 Management Approach for Achieving Operational Requirements

The designation and resource consent conditions as contained in the condition set lodged with the application set out a series of requirements that must be addressed throughout construction of EB2/EB3R. Table 7 sets out the management approaches that will be implemented to achieve these requirements.

Table 7 Environmental Aspects and Operational Requirements

Consenting Requirement	Management approach
Methods to provide for the safety of	During construction all works areas will be closed to the general public and only accessible through EBA's approved sign-in processes.

<p>the general public;</p>	<p>A Job Safety and Environmental Analysis (JSEA) will be developed, agreed, and signed by all relevant personnel prior to any construction activities taking place. This will assess any potential risks to both construction personnel and general public, and will state measures required to control risks.</p> <p>Information on site fencing is set out in Section 3.6.6 and the identification of safe routes for pedestrians and cyclists, including locations for the placement of clear directional signage for safe routes and crocking points, is set out in the CTMP.</p>
<p>Construction vehicle ingress and egress.</p>	<p>Construction vehicle ingress and egress from the construction site will be managed in accordance with the CTMP. The flow of traffic to construction support and storage areas will be controlled via measures including directional signage, line marking and road cones.</p>
<p>Dust Management</p>	<p>Sections of the ESCP sets out dust management procedures which have been developed in accordance with the <i>Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions</i> (2016) Ministry for the Environment.</p>
<p>Methods for managing silt and sediment in the construction area;</p>	<p>The ESCP sets out how silt and sediment will be managed in the construction area of EB2/EB3R.</p>
<p>Resource Efficiency and Waste Minimisation Plan</p>	<p>EBA will develop a Waste Management Plan (WMP) for EB2/EB3R which will outline how the EBA will manage generation, storage, diversion, disposal, and monitoring and reporting of waste for the construction phase of EB2/EB3R.</p> <p>The WMP will ensure the efficient use of resources and energy, reduce waste to landfill through maximising resource reuse and recycling, and prevent environmental effects associated with waste management. To achieve this objective the EBA will:</p> <ul style="list-style-type: none"> • Actively promote a culture of resource efficiency and waste minimisation through staff engagement, training and assigning responsibilities • Ensure measures are identified and implemented to minimise and manage waste and minimise resource consumption throughout the construction of EB2/EB3R • Implement measures in accordance with the resource efficiency and waste hierarchy • Use the Lean Construction tools including Last Planner®, 5S and the 8 Wastes to drive the continuous identification and reduction of all waste in EB2/EB3R construction activities • Increase the use of recovered materials, materials with above-average levels of reused and recycled content and materials with lower embodied energy • Implement controls to avoid and minimise energy consumption including consideration of how far items must be transported for use and recovery • Dispose of waste materials in accordance with all legislative and other requirements • Record resource efficiency and waste minimisation initiatives and activities • Monitor, review and report on progress to the wider team

Methods for earthworks management	<p>Section 3.2 of the ESCP sets out the extent of earthworks that will occur in EB2 and EB3R including the relevant locations, earthworks areas, estimated earthwork durations and the quantity of cut and fill material that will be utilised.</p> <p>Methods for earthwork measures including stabilisation measures and the monitoring or ground movement is set out in Section 4.12 of the ESCP and Section 5.2 of the CNVMP respectively.</p>
Construction Housekeeping	<p>Measures will be adopted to keep the construction areas in a tidy condition. All site crew will undertake a site induction which will address housekeeping expectations on EB2/EB3R. All sites are to be left in a tidy condition at the end of each workday. Disposal of waste is to be in accordance with waste minimisation processes (see above) and will remain in the designated work areas in storage facilities. Any unsolicited graffiti and any unsolicited advertising posters/billboards/fliers on site fencing within construction areas will be removed as soon as possible.</p> <p>All storage of materials and equipment associated with the construction works will take place in a designated area within EB2/EB3R boundaries.</p>
Site Security	<p>All construction areas and yards will be fenced and kept secure at all times. Daily site inspections (both at the start of the working day and at the end of the working day) will take place to ensure that temporary boundaries and security fencing is in place, maintained to a good standard to remove trip hazards and to ensure it is upright and effective.</p> <p>Construction areas and yards will be fenced by means of hoarding or temporary fencing with a height of 1.8m. Gates will be provided at required locations and will be locked when no access is required.</p> <p>Security alarms and other means of protection will be added when deemed necessary.</p>
Temporary acoustic fences and visual barriers;	<p>Details of any temporary acoustic fences will be stipulated by the EBA acoustic specialists and detailed in the Site Specific Construction Noise Management Plans, and visual barriers will be installed as detailed in the Construction Traffic Management Plan as a method to prevent visual distractions for motorists.</p>
Construction Lighting	<p>Where temporary lighting is needed, methods to control the intensity, location and direction of construction lighting will be adopted to avoid light spill and glare onto sites adjacent to construction areas. To minimise disturbance to local residents and wildlife, lighting will be only be utilised where necessary to ensure site safety. Night works (including associated lighting) will be carefully communicated to stakeholders and the community well in advance of the works to be undertaken. Lighting used during construction will be designed and situated to minimise overspill to other areas and will be installed such that there is minimal interference to the general vehicle road movements. A test drive through the site from each direction will be undertaken after the installation of the lighting system to confirm there are nil/minimal impacts to normal traffic users and adjacent properties.</p>
Hazardous Substances	<p>Methods to ensure prevention and mitigation of adverse effects associated with storage, use, disposal, or transportation of hazardous substances will be undertaken in accordance with best industry practice to ensure prevention and mitigation of any</p>

	<p>adverse effects associated with hazardous substances. These will include having specific personnel trained on the relevant standards, carrying out regular inspections, having specific sections in relevant work-packs prepared by suitable qualified individuals.</p> <p>Further detail in the management of hazardous substances is set out in Appendix A: Hazardous Substances Handling and Storage.</p>
Accidental Discovery Protocol	<p>The procedures set out in the Auckland Unitary Plan (Operative in Part) will be followed in the event of the accidental discovery of cultural or historic artefacts as a result of any physical disturbance to the existing ground surface.</p>
Site Reinstatement Measures	<p>As zonal works are completed, dis-establishment of construction support facilities will commence.</p> <p>These activities include, but are not limited to:</p> <ul style="list-style-type: none"> • Dismantling and uplifting of site compounds, satellite offices and SAP egress points • Making good temporary occupied land, through either landscape planting, grassing or agreed usage • Re-installation of facilities and traffic services temporarily removed or relocated • Uplifting and removal off site of construction plant and equipment, surplus materials and spoil, temporary works items and perimeter fencing, lighting and signage • Uplifting, removal and making good temporary traffic management and pedestrian / cyclist deviations

3.6.2 Hours of Work

The standard hours of operation during the construction period are:

- Weekdays – 07:00hr to 18:00hr
- Saturdays - 07:00hr to 15:00hr

No construction is to occur at night time, on Sundays or public holidays except under the circumstances set out in Section 3.6.3 below. Office hours for the site offices will be from 06:30 to 19:00. It should be noted that staff will begin arriving at site prior to construction start times and leave after construction end times. Further detail on site offices is provided in Section 3.4.

3.6.3 Out of Hours Works

The exception to the above-mentioned work hours for EB2/EB3R are night works, Sunday works or Public Holiday works (out of hours works) which will be undertaken to minimise disruption to the public, businesses, and traffic. Night works will be intermittent at each location they take place and will occur for a maximum of one month in any one area, with the exception of night works associated with the RRF which

will take place intermittently over the course of three years.. Out of hours works may include (amongst others) the following major construction activities:

- Public and traffic management setup, relocation and removal works
- Site investigation works within carriageway and roadside corridors
- Utility services investigations, protections, relocations and new installation works
- Removal of existing houses, buildings and street furniture
- Traffic services (streetlights, signage, signals, road markings, ITS systems), investigations, protections, relocations and new installation works
- Delivery of bulk materials, plant, equipment and resources unable to be delivered, relocated or removed without effect on daytime public and traffic movements and flow
- Some aspects of widening works along the proposed route (earthworks, civils, pavements), including but not limited to, earthworks operations; retaining wall operations, drainage / ducting trenching works; pavement construction / upgrades; surfacing works and installation of street furniture:
 - Carriageway widening works effecting public and traffic flow in and around the Pakuranga township.
 - Carriageway widening works affecting public and traffic flow along Ti Rakau Drive and connecting side roads
 - Carriageway widening works effecting public and traffic flow in and around the Botany township
- Some aspects of bridge construction along the proposed route, including but not limited to temporary works installation, relocations and removal; beam deliveries and installation; major concrete pours; precast barrier and component installations:
 - Reeves Road Flyover bridge construction
 - Ti Rakau Drive bridge construction

Major intersection works. With the objective of minimising disruption, works at these locations will be grouped and concentrated in specific periods such as long weekends or holidays.

Any out of hours work will be managed through the CTMP Section 4.2.2, CNVMP Section 1.5 and CCP Section 4.9. This includes engagement requirements with neighbouring residents and businesses.

3.6.4 Training

All persons performing construction activities that have the potential to cause adverse environmental impact are required to have the correct education, training and experience for the relevant tasks that they are undertaking. The minimum project training requirements are set out in Table 8 below which ensures all contractors (including sub-contractors) are aware of the environmental obligations associated with EB2/EB3R.

Table 8 Required Project Training

Type of Training	Purpose	Convenor	Attendees
Project Staff Induction	Induct new staff to EB2/EB3R, providing a general overview to the environmental values, risks, stakeholders, sensitive receptors and contacts for EB2/EB3R as well as cultural history and significance of the area.	Construction Manager	All staff and visitors

	<p>Induction will highlight environmental monitoring requirements for all. Emphasis will be placed on requirements around housekeeping and the need to keep construction areas in a tidy condition.</p> <ul style="list-style-type: none"> • Induction training will also make construction team aware of resource consent conditions, designation conditions, environmental control procedures. 		
	<p>Construction team members with environmental responsibilities may also require the following training:</p> <ul style="list-style-type: none"> • Environmental Emergency response training; • Spill response training; • Environmental inspections; and <p>monitoring.</p>		Specific individuals with environmental responsibilities
Archaeology and Cultural Awareness Induction	<p>All design and construction staff are required to undertake training to understand the cultural history and significance of the area, and understand how to consider these values throughout construction procedures, environmental management and monitoring. This induction will raise awareness of staff in mana whenua archaeology, heritage aspects associated with EB2 and EB3R works and the Accidental Discovery Protocol set out in the AUP(OP).</p>	Named archaeologist/cultural monitors	Construction Staff
Contaminated land training	<p>Train staff on the CLMP and the associated procedures relating to the management of contaminated land including how to identify and respond to any accidental discoveries.</p> <p>Information pertaining to contaminated soils will be included in toolbox talks and will be included as a hazard on site hazard boards. The control mitigation measures relate only to the hazards associated with the HAIL activities identified across EB2/EB3R. However, all works carried out are required to be in compliance with the relevant legislation and current best practice.</p>	Suitably Qualified Contaminated Land Specialist	

Erosion and Sediment Control training.	<p>Training content will be targeted at the most relevant information for various staff roles. All training will include awareness of the activities and associated effects that earthworks can have on the local receiving environments, including an overview of the values of those environments. Training will also ensure that all staff understand what ESC measures are, the function of those measures, and the importance of diligently complying with SSESCPs. Training will ensure that staff understand the ESC management structure, and how to report on any maintenance requirements they identify during their work. It will also address the legal responsibilities of all personnel and legal consequences of non-compliance.</p>	Southern Skies	
Specialist Erosion and Sediment Control training.	<p>More specific training will be provided to staff that will be involved in the day-to-day implementation of ESC measures. This will include on-the-ground practical training on the construction, maintenance and decommissioning of devices.</p>	Southern Skies	
Toolbox Talks/ Daily Pre Starts	<p>Highlight site and activity specific construction procedures and requirements.</p> <p>Discuss environmental management and monitoring requirements for the day.</p> <p>Share environmental lessons learned across the Construction Industry.</p>	Construction Manager/ Environmental Lead	

All training will be recorded in the training log set out in Table 9.

Table 9 Proposed Training Log

Type of Training	Purpose	Convenor	Attendees	Date completed

3.6.5 Construction Noticeboards

Project information boards will be located at both ends of the active EB2 and EB3R works areas and will help to inform the community of work in progress and will include contact information. The board design will

align with AT brand requirements and will clearly identify AT, the EBA and EB2/EB3R name, together with the name, telephone number and email address of the site or project manager and the communication and consultation manager (as contained in the condition set lodged with the application).

Signage will be erected more than 5 days prior to work commencing on site.

3.6.6 Fencing and Site Security

All temporary boundary / security fences associated with construction of EB2/EB3R will be maintained in good order with any unsolicited graffiti and any unsolicited advertising posters/billboards/fliers removed as soon as possible.

In general, safety fencing will be installed around EB2/EB3R working space to prevent public access to the construction works associated with EB2/EB3R. Fences must be at least 1m high, have gaps no larger than 100mm and have infill material that does not allow children to climb over the fence.

Construction compounds will be surrounded by fencing and security temporary mesh panels and 1.8m high hoarding. The fencing will provide a physical barrier between the works and public. There will be a lockable gate connected to the perimeter fencing around the circumference of the compounds or works area.

Fencing details for traffic management is set out in Section 4.5.2 of the CTMP.

Daily site inspections (both at the start of the working day and at the end of the working day) will take place to ensure that temporary boundaries and security fencing is in place, maintained to a good standard to remove trip hazards and to ensure it is upright and effective.

CCTV will be installed on site and additional security will be provided where needed to minimise the risks of anti-social behaviour in and around working sites and empty tenancies.

Details on temporary acoustic fencing is set out in the CNVMP.

3.7 Emergency Management

Each work site will have the following procedures clearly set out:

- Evacuation Procedures
- Spill Response Procedures
- Assembly Points
- Certified First Aiders on site
- Contact Names and numbers of Services (e.g police, fire, ambulance, National Poisons Centre, Electrical Authority, Gas Authority, Auckland Council etc).

At least one person in every crew will be trained in first aid. Non-injury emergencies will be advised to the Construction Manager (or their delegate) immediately, who will guide the process for handling the emergency.

3.7.1 Emergency Contacts

The nominated contact person(s), responsibilities and their 24 hour contact details are set out in Table 10 below.

Table 10 Internal Environmental Emergency Contact Details

Role	Name	Phone	Email
Environmental Lead	TBC		
Construction Manager	TBC		
Health and Safety Manger	TBC		

Table 11 includes key external environmental emergency contact details.

Table 11 External Emergency Contact Details

Role	Organisation	Phone	Email
Emergency Services	Fire, Police, Ambulance	111	N/A
Spill Response	Auckland Council Pollution Hotline	09 377 3107	N/A
Regulatory Compliance Manager	Auckland Council Team Leader Southern Monitoring	TBC	TBC
Iwi Liaison	Iwi	TBC	TBC
Heritage Protection	Heritage New Zealand Pouhere Taonga	TBC	TBC

3.8 Communication Procedure

The EBA communication and consultation procedures are set out in full in the Community Consultation Plan (CCP). The purpose of the CCP is to set out a framework to ensure genuine, appropriate communication and

consultation is undertaken with the community, stakeholders, directly affected and indirectly affected parties during the design phase, and before and during construction of EB2/EB3R.

Face to face engagement and virtual engagement will also be employed in accordance with Section 3.3 of the CCP and contact details will be made publicly available throughout the construction period. Including:

- A project freephone line, 0800 BUSWAY (0800 287 929);
- Public project-specific email address info@easternbusway.nz
- EB2/EB3R specific website (www.easternbusway.nz) will be hosted using AT’s website, and will be continuously updated with the latest project information and details for the community.

All stakeholder interactions will be recorded within the Customer and Communities stakeholder database system (Darzin). Darzin will be used by the Customer and Community Team to record all stakeholder contact details and interactions including the information set out in the Feedback or Complaint Register provided in Table 12. Associated meeting minutes, emails, face to face conversations and phone calls during EB2/EB3R will also be saved to the system.

Table 12 Feedback or Complaint Register

Reference number	Date and time	Location	Complainant name and contact details	Feedback/ Complaint	Any remedial actions

3.9 Feedback and Complaints Procedures

All community and stakeholder enquiries and feedback will be managed in accordance with Section 4.2 of the CCP. Feedback (including complaints) will be dealt with in a responsible manner to ensure a relationship of trust and reliability between the community and the EBA.

4 Monitoring and Review

All construction activity must be carried out in accordance with the most recent certified CEMP. Construction will be monitored in accordance with the CEMP throughout the duration of construction of EB2/EB3R.

EBA shall implement a collaborative working process with Council for dealing with day-to-day construction processes, including monitoring compliance with the designation and resource consent conditions, the CEMP and other management plans, and any material changes to the management plans associated with construction of EB2/EB3R.

In the collaborative working group the environmental lead identified in Section 1.7 will act as the “key contact” representing AT and the construction manager will act as “key contact” representing the EBA to work with the Council’s Consent Monitoring officer(s).

The “key contacts” will meet at least monthly to undertake a site inspection unless a different timeframe is agreed with Council. The purpose of these inspections is to monitor progress on site, report on compliance with the legal requirements set out in the condition set lodged with the application and with the CEMP, other management plans and material changes to those management plans, and on any matters of non-compliance including how they have been addressed.

The collaborative working group will also identify and review any concerns or complaints received from, or related to, the construction of EB2/EB3R and the adequacy of the measures adopted to respond to these.

4.1 Non-material Amendments

Once certified, minor amendments as a result of changes in design, construction materials, methods or management of effects can be made to the CEMP without the need to seek recertification provided that the amendments are agreed to by Council, prior to the implementation of any changes.

The collaborative working group will establish a process through which minor amendments to EB2/EB3R design, CEMP or other plans can be made. The agreed review and approval process will enable Council to consider any non-material amendments to the CEMP without further formality.

The collaborative working group must advise where changes to construction works may require an update to the CEMP or other management plan (either through the certification process set out in Section 1.6 or through the minor amendment process established by the collaborative working group). Any update to the CEMP or other management plan must remain consistent with the purpose of objectives of the CEMP as set out in Section 1.4.

4.2 Compliance Monitoring

CS VUE™ or a similar system, will be used for administering the CEMP and tracking and recording of compliance with the following legal requirements:

- Designation Conditions
- Resource Consent Conditions
- Department of Conservation Wildlife Permits
- Heritage New Zealand authorities
- Any other legal agreements or obligations.

The document management system will match each designation or resource consent condition (or conditions of other legal obligation) to a consent manager and condition manager and will automatically send an email notifying them of compliance requirements.

The Project Director is responsible for overseeing consent compliance management, and the Construction Managers and Site Superintendents the condition managers are who are responsible for ensuring day-to-day compliance.

The CEMP and sub-plans are the primary vehicle for ensuring compliance. However, online reporting generated from the document management system will be used to quickly update evidence to demonstrate compliance. All entries/changes will be date stamped and annotated with the relevant construction team member who undertook the reporting.

Email alerts will be generated by CS VUE™ or a similar system, to keep the Environmental Lead up to date on the compliance status of each condition. Conditions are labelled as non-compliant until they are actioned. Records of compliance will be produced on request including site notes, reports, photographs and meeting minutes.

4.3 Environmental Monitoring

Environmental inspections will be undertaken on a weekly basis by the Environmental Lead and Site Superintendent. Monitoring of erosion and sediment controls is addressed in Section 5.5 of the ESCP. The purpose of the monitoring is to ensure that construction is being undertaken in accordance with the CEMP and sub-management plans and to identify any environmental risks associated with construction activity.

The EBA will update and maintain an Environmental Aspects and Impacts Register (included in appendix E) which sets out all the potential environmental impacts associated with construction activity, including when they were identified, what the established controls are, what the associated risk level is, any relevant designation or resource consent requirements, any incidents that have occurred and if relevant, reference to an emergency response plan.

Details on environmental monitoring and auditing responsibilities and frequencies are set out in Table 13 Allocation of Monitoring/ Auditing Requirements

Table 13 Allocation of Monitoring/ Auditing Requirements

Monitoring/ Auditing Requirements	Description	Frequency	Undertaken By:	Reporting
Compliance monitoring	Track and manage resource consent and designation conditions.	Monthly, quarterly and annually.	Environmental Lead	CV VUE™
CEMP Review-management review	Track and manage resource consent and designation conditions.	Six monthly or as needed following an environmental incident.	Environmental Lead	Report to Construction Manager to determine if

				updates are necessary.
Erosion and Sediment Control Inspections	Track and manage resource consent and designation conditions.	Daily for inspection of ESC devices, weekly, fortnightly or monthly for council inspections.	Environmental Lead	CS VUE™
Complaint-triggered actions	Environmental complaints (CEMP Section 3.9)	As they occur	Community Consultation Lead and Environmental Lead	Monthly report or as required.
Environmental incidents/Emergency	Environmental incidents, including spills	As they occur	Environmental Lead and Construction Manager and site super intendant.	Spill reporting via details in Appendix A.
Internal feedback	Track issues identified by EBA construction team	As they occur	All staff	Team meetings/project correspondence

4.4 Compliance Audits

In addition to environmental inspections, environmental compliance audits of

EB2/EB3R site will be undertaken monthly by the Environmental Lead or delegate. The aim of the environmental compliance audits is to:

- determine if the environmental management requirements are being implemented and maintained;
- assess the effectiveness of the environmental controls being applied; and
- and identify areas of noncompliance so that corrective actions can be taken.

Any non-conformance and required corrective action will be identified and recorded in CS-VUE™. Corrective action will proportionate to the magnitude of the issue and the scale of environmental harm.

Internal audit reports will be prepared on a monthly basis that includes the most recent non-conformance register and identifies any opportunities for improvement and any corrective actions required. The results of the audit will be used to ensure that best practice continues to be adopted on the ground and reflected in updates to the CEMP.

4.5 Environmental Incident Investigation and Reporting

Appendix D includes an Environmental Risk Register which will be updated following compliance audits as set out in Section 4.4. Where residual environmental risk is identified Quality Management Plans will be produced. Documentation will be produced and maintained throughout the construction of EB2/EB3R which could include:

- Quality audits
- Progress photos
- Meeting minutes
- Samples and traceability documents
- Reports
- Registers
- Reference to risk management procedure

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Appendix A Hazardous Substances Handling and Storage

1.1 Introduction

This guideline on hazardous substances handling and storage is intended to support the Construction Environmental Management Plan (CEMP) relating to the construction of Eastern Busway EB2 and EB3R. The purpose of this guideline is to enable Eastern Busway employees, subcontractors, and visitors on EBA sites to understand the requirements of the EBA with regard to **handling and storing of substances hazardous to health and the environment**.

The goal is to ensure that construction team have the necessary knowledge and training to ensure they do not cause harm to themselves or others.

The requirements of this guideline is to set the minimum standards of EBA's safety plans where handling and storage of hazardous substances and materials occurs.

This guideline must be complied with unless approved otherwise by a competent, qualified, and suitably experienced engineer. Any alternative to this guideline must be based on sound engineering and safety principles and practices.

1.2 Potential Hazards

Potential hazards include:

- Exposure to hazardous substances and materials
- Exposure to airborne contaminants
- Exposure to contaminated ground
- Fire or explosion
- Spills resulting in contamination of air, ground, or water

1.3 Requirements

During the planning phase of all works the following steps must be taken:

1. Consideration of whether the substance or material can be substituted with a safer or less hazardous option.
2. Check that all materials and substances have an up to date (less than 5 years) safety data sheet available in the workplace (electronic or hard copy).
3. Storage and handling must be in accordance with requirements of Safety Data Sheets (SDS).
4. Ensure all workers are suitably trained and competent to handle and store hazardous materials and substances.
5. The maximum quantities of all hazardous materials or substances held in the place of work (including in vehicles) must be recorded in a hazardous substances inventory.
6. Where trigger quantities under the Health and Safety at Work (Hazardous Substances) Regulations 2017 are exceeded, location test compliance certificate and additional signage may be required.
7. This inventory must be made available to the emergency services at all times on every site.
8. Where trigger levels are exceeded, the emergency response plan must comply with section 1.9 of this guideline.
9. Hazardous waste substances e.g., oil must be included in the hazardous substances inventory and labelled appropriately.

Consumer products (e.g., detergents, household cleaners, soap, photocopy toner, etc.) are not required to be included in a hazardous substances inventory where the quantity is not deemed to be commercial or industrial.

1.4 Demolition and Alterations to an Existing Structure

Before any demolition or alteration of an existing building takes place, an examination of the building fabric must be made for hazardous material/substance content.

Samples of any suspect materials must be taken and analysed for asbestos, methamphetamine, formaldehyde (found in MDF), etc. Any work including exposure to the suspect material must cease until results from an IANZ certificated laboratory confirm that the suspect material/substance is not asbestos.

All examining and testing facilities must be approved by Worksafe.

If no asbestos or other hazardous material/substance is found, a hazardous material free certification showing details of the inspections and test results must be retained in EB2/EB3R files.

If asbestos or any other hazardous material is found, all work including exposure to the hazardous material/substance must cease. Worksafe must be notified and a plan for the safe removal and disposal of the material/substance by a Worksafe certificated removal company is submitted to Worksafe and to our Company for approval.

NO EBA personnel are to be involved in the removal of any asbestos materials.

The inspections and tests must determine the type of asbestos (white, brown, blue etc.) found, and what form it is found in (i.e., lagging, roof sheeting etc.).

The inspection must estimate the quantity of asbestos or other hazardous material in the structure so approved disposal sites can be found under the direction of Worksafe.

If a material is suspected to contain hazardous substances or asbestos, personnel are required to assume a worst-case scenario and not handle the material until tested.

1.5 Safety Plan for Removal of Asbestos

No EBA personnel are to be involved in the removal or handling of asbestos products.

A safety plan for asbestos removal must be prepared prior to removal. The safety plan must include the following:

- The notification to Worksafe of the suspicion of there being asbestos on the site.
- The contracting of a Worksafe certificated asbestos removal company.
- The certificated asbestos removal company must provide the EBA with a safety plan containing the following information:
 - Method and procedure for stripping the asbestos, which is approved by Worksafe.
 - The protective equipment that is to be used (including air extracts, showers, decontaminated rest areas etc.) must be approved by Worksafe.
 - The method and procedure for disposal of the asbestos, including bagging, warning identification, transportation, approved dump sites etc.

- How contamination of the environment is to be prevented, including airborne, water coursed, ground cover etc. and what tests are to be carried out to prove that contamination is avoided.
- How the public protection around and in the site/building is to be managed.
- How the above procedures and protective measures are to be monitored and checked.
- On completion, how the area or structure is to be signed off as safe including inspection by Worksafe.

1.6 Materials/ Substances Requiring Special Precautions

During the course of work on construction sites a number of materials and substances will be encountered which, because of the risk of combustibility, explosion, or toxic effects, must be treated with care and attention by all workers. The handling of hazardous substances and materials must be eliminated where practicable, where not practicable special handling techniques must be used, specific additional protective clothing/equipment provided and worn. All controls must be documented in the Job Safety Environmental Analysis (JSEA). Safety data sheets (SDSs) will be developed for specific materials or substances. These should be referred to when in doubt about handling.

The following safe practices shall be followed when handling substances and materials requiring special precautions.

- Read labels or warnings, precautions, and first aid information.
- Wear personal protective equipment and monitoring devices when required as specified on the SDSs.
 - Safety glasses, goggles, or face shield should be worn when applying materials overhead or in areas where particles may get into the eyes.
 - Correct type of gloves (as specified on the SDS) must be worn as the last line of defence and barrier cream applied to any exposed skin areas to provide protection against skin irritation prior to handling any material which may irritate the skin and re-applied according to instructions.
- No smoking.
- Good housekeeping work methods and practices that will not create excessive dust or rubbish will be adhered to.
- If particles accumulate on exposed skin areas, do not rub or scratch. Particles should be removed by washing thoroughly with soap and warm water or dry wash materials (waterless soap and towel).
- Good personal hygiene practices are essential. Thoroughly wash exposed skin areas during breaks, prior to eating or smoking and shower at the end of the workday.
- Ensure contaminated or exposed work clothing is separated from other articles of clothing during laundering.
- Adequately designed dust collecting systems should be provided and used to remove dust at the source where practicable.
- In case of hazardous spill or exposure, know and follow emergency procedures. Get medical help right away.

Special precautions must be taken when working with the following substances and materials (this includes gases, liquids, solids, plasma):

1.6.1 Explosives

Where explosives are required on site, the use, handling, and storage must be strictly in accordance with the relevant legislation and guidelines.

1.6.2 Radioactive Materials

Equipment incorporating radioactive materials must be under the care of, and only handled by a trained, competent, and licensed person as required by the National Radiation Laboratory.

1.6.3 Skin Irritants

The following activities are high risk for those susceptible to dermatitis:

- Applying synthetic resins
- Handling transformer oil, cutting oil, form oil, diesel oil, paints, kerosene, cleaning agents, cements, etc. for periods exceeding ten minutes.

All personnel shall wear appropriate specified gloves (as per SDS), giving the correct protection.

Any employees susceptible to dermatitis must be monitored when undertaking such works and if necessary, removed from the workplace.

1.6.4 Isocyanates

Are a chemical found in polyurethane material which in NZ consist mainly of flexible and rigid polyurethane foam. Other products include polyurethane paints, lacquers, urethane rubbers, adhesives, and binders. Special care must be taken when heating or burning these materials.

When in frequent use, the Worksafe guideline on the Safe use of Isocyanates must be followed.

1.6.5 Lead Based Paints

These should not be used if an acceptable alternative can be found.

Gas cutting, grinding, or drilling existing plant, equipment and structures must not be undertaken unless an assessment is done to confirm the paint does not contain lead.

1.7 Use of Materials Hazardous to Health

The use of substances or materials known to be hazardous to health must not be designed into, or ordered for, or built into a building or structure.

Where such substances or materials are proposed to be used, their use must be approved by Worksafe and submitted with safe and approved handling and fixing procedures to the EBA for review.

Materials of unknown make up must not be used or specified until they can be certified not to contain materials hazardous to health.

Use of class 6.1A and 6.1B (acutely toxic substances that can be fatal) or substances needing licence must meet the requirements of Part 4 of the HSWA (Hazardous Substances) Regulations 2017.

For certified handlers, supervision and training of workers direct supervision may be required. You may need to allow for more than one certified handler to cover shift work, employees away sick or on holiday.

1.8 Storage Requirements

All sites with hazardous substances must identify the maximum quantities likely to be held on site in their Hazardous Goods Inventory. The inventory must identify storage locations considering incompatible classes as well as requirements for signage, location compliance certificates, fire extinguishers, security, and hazardous substance locations under the HSWA (Hazardous Substances) Regulations 2017. Refer to the schedules in the HSWA or Work Safe Hazardous Good Calculator for guidance.

Regardless of the trigger levels above, all hazardous liquids on sites must be stored in secondary containment. All hazardous goods must also:

- be secured from damage or vandalism
- be in clearly labelled containers (in English and including pictogram)
- have SDS sheets readily available to all user

1.9 Emergency Response Plans

Where volumes are above the threshold quantities in schedule 5 of the HSWA (Hazardous Substances) Regulations 2017, sites are required to have an emergency response plan (ERP) that includes the following in addition to the standard requirements:

- Identification of all foreseeable potential emergency events,
- Describe actions to be taken to warn people who could be affected (both on site and in neighbouring areas),
- Advise people of actions to be taken to protect themselves, others, and the environment,
- How to help or treat any person affected in the emergency,
- Manage the emergency to limit the adverse effects including impacts on the environment,
- Identify each person with actions/responsibilities for the above,
- Roles, responsibilities, and training to be defined,
- Allocated responsibilities and contact details for the persons referred to above. The ERP must be tested and reviewed annually.

The ERP must be tested and reviewed annually.

Where there is a change in person (who as an allocated responsibility within the plan), or a change to the procedure, with regards to the storage, handling and use of the substance or material, the ERP must be retested within three months to ensure it remains operable.

All tests must be documented, and records kept.

When required, the ERP and Hazardous Goods Inventory must be stored where it is available to Emergency Services on arrival to site once the building has been evacuated.

1.10 Safety Data Sheets

Where materials are being used on site (such as epoxies, special paint systems, fuels solvents cleaners' silicones etc.) which contain chemicals or other elements that are potentially hazardous to health, the

construction team will be required to supply SDSs from the manufacturer to our EBA site management.
Safety Plans will reference and include SDSs.

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Appendix B Emergency Spill Procedures

1.11 Introduction

The Emergency Spill Procedures detailed in this document support the Construction Environmental Management Plan (CEMP) relating to the construction of Eastern Busway work packages EB2 and EB3R. The emergency spill procedures set out in this document outlines best management measures to be implemented on site and the required action in response to an emergency spill relating to:

- A sediment discharge emergency
- Fuel, oil, or chemical spills

In addition to these procedures, Site Specific Spill Response Plans (SSSRPs) will be developed and made available at each site. These plans will be included in induction processes set out in Section 3.6.4 of the CEMP. Details on the action in the event of a fire related to a spill is set out in Section 1.5.2 of this document. Section 1.6 of this document sets out relevant reporting processes in the event of a spill.

1.12 Best Practice Measures

The following best practice measures must be adopted (unless suitable alternatives are agreed with the Environmental Lead).

- All fuels, oils and chemicals on site must be stored in a secure bunded and covered area.
- All equipment containing stores of fuels or oils are to be inspected regularly (at least weekly) for fuel or oil leaks.
- All items of equipment used on or near water must have an isolating valve (automatic or manual) on the hydraulic and fuel tanks.
- All staff and subcontractors should be adequately briefed in the use of spill kits prior to commencement of works and regularly throughout EB2/EB3R.
- Refuelling must be undertaken in accordance with EBA direction ENV 21 Refuelling and Maintenance of Vehicles and Equipment.
- Fuel transfer shall be supervised at all times. Where practical refuelling should be undertaken at least 20 m back from the edge of a watercourse. Any person refuelling must remain present at the refuelling point – do not rely on automatic cut-off controls. A site-specific refuelling procedure should be developed.
- Bulk fuel storage should be contained in a bunded covered area, or in a double shell construction to contain spills in the event of leaks or ruptures.
- Fuel storage areas must be made secure to minimise the potential for vandalism or theft.
- Copies of the Spill Response Plan are to be posted in work areas.
- Smoking is not permitted in the vicinity of Hazchem depots or vulnerable vegetation.
- Open fires are not permitted on site for any reason.
- All Hazchem depots and chemical handling areas will be stocked with appropriate fire extinguishers, sand buckets and other fire fighting equipment. Site vehicles will carry fire extinguishers.

1.13 Action in the Event of a Spill

Site SSSRPs will be developed for specific sites in accordance with Section 1.15.1 of this appendix. In the absence of a site specific procedure, the following list provides generic advice as to the actions required:

- Assess and ensure the safety of all personnel as the first priority. For example, if a large volume of flammable product such as petrol is spilt the correct action may be to secure the area and notify the Fire Service.
- Stop operating machinery causing the spill and where safe close any discharge valves or isolate the source of leakage or spill.
- Where safe take whatever immediate actions are required to contain the spill and prevent it spreading or discharging into storm water drains, natural waterways or the sea.
- Clean up any contaminated material in designated contaminated waste containers, no chemical dispersants are to be used.
- Notify Construction Manager and Environmental Lead.
- Used spill material is to be collected in heavy duty plastic bags. Disposal will depend on the substance spilled, however material used to clean up small volumes of oils can generally be disposed of in general landfill waste. Check with the EBA Environmental Lead before disposal if unsure. Any liquid wastes are to be collected by a Liquid Waste Contractor.

1.14 Sediment Discharge Emergency

The purpose of the sediment discharge procedures is to define emergency action required in the event of a failure of an erosion and sediment control system on site.

The procedure is set out in Table 17 below and applies to all erosion and sediment control systems including stormwater collection, treatment and discharge on or from the site

An emergency may occur as a result of:

- A severe rainstorm event
- Incorrect installation
- Inadequate maintenance

Table 14 Procedure for Sediment Discharge Emergency

Activity	Responsibility	Key Actions
Site Monitoring	Project Environmental Rep/Superintendent	<ul style="list-style-type: none"> • Carry out regular monitoring and maintenance of sediment control systems.

Storm Events	Project Engineer/ Superintendent	<ul style="list-style-type: none"> • Monitor the site during storm events to provide early detection of potential failure of water collection and sediment control systems. Include after-hours coverage as necessary. • Notify other team members if an emergency situation is developing. • Ensure fuel and chemical storage areas are secure. • Ensure all sediment control devices are in good working order. • Mobilise sufficient resources to undertake all necessary remedial action if required.
	Project Engineer	<ul style="list-style-type: none"> • Assess emergency and advise Superintendent on engineering or remedial measures to limit damage or impact
	Supervisor	<ul style="list-style-type: none"> • If subsidence occurs remove spoil to designated emergency dump site. • Ensure any water diversion channels are clear. • Ensure containment of contaminated water is maximised.
	Project Engineer	<ul style="list-style-type: none"> • Notify Construction Manager, Environmental Lead and Consenting Authority (if required or appropriate).
	Superintendent	<ul style="list-style-type: none"> • Restore site and control structures to originally approved condition when circumstances allow.
	Project Engineer	<ul style="list-style-type: none"> • Complete environmental incident report and investigation.

1.15 Fuel, Oil and Chemical Spills

The purpose of the procedures set out below is to describe the system for prevention, control, corrective action and reporting of fuel, oil and chemical spills on a project site.

The procedure is set out in **Error! Reference source not found.** and is applicable to all situations where an emergency situation has the potential to occur or has occurred. The primary aim is to prevent such situations from arising, however it is recognised that unforeseeable incidents, such as rupture of hydraulic lines, can occur and emergency preparedness and response plays a key role in minimising potential consequences.

The following definitions apply:

- **Oil:** Includes lubricants, machine oil and hydraulic fluid.
- **Fuel:** Includes petrol and diesel.
- **Chemicals:** Includes thinners, anti-corrosion compounds, polymers, adhesives, form oil, retarders, curing agents, cement, pesticides and herbicides etc.

Table 15 Fuel, Oil and Chemical Spills Procedure

Activity	Responsibility	Key Actions	Records
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Preventative Measures	Construction Manager / Environmental Lead	<ul style="list-style-type: none"> • Implement and maintain the required preventive measures for handling, transferring and storing of oil, fuel and chemicals. • Identify potential spill sources, consider alternative work methodology to reduce risk and provide appropriate equipment. • Ensure all site personnel have received appropriate instruction and training in avoiding and dealing with emergency situations. 	Training and Toolbox Minutes, Risk Register, Spill Kit Register, Work Plans and Job Safety Environmental Analysis, SSSRP.
Action in the Event of Spill	EBA Employees and Subcontractors	<ul style="list-style-type: none"> • Assess personal safety and explosion risk. • Stop operating machinery. • Turn off discharge valve and/or isolate source of spill. • Take whatever action is necessary to contain the spill and prevent it from spreading or discharging into a storm water drain or cesspit, natural waterway or the sea (e.g. create a temporary earth bund). • Notify Foreman/Supervisor. • Locate nearest spill kit (if available). • Use absorbent booms, mats or 'kitty litter' to soak up the contamination. • If external assistance is necessary, call the local provider of spill equipment or the Regional Council spill response unit. 	
Reporting Spills	Project Engineer/ Superintendent Environmental Manager	<ul style="list-style-type: none"> • Immediately notify relevant parties according to the SSSRP and type of spill (refer to Section 3 Notes below) • Report spills to Construction Manager according to the Site Specific Response Plan. 	
Investigation	Project Engineer/ Superintendent	<ul style="list-style-type: none"> • Record details of spills using an Incident Report Form/Site Report Card 	Incident Report Form/Site Report Card

1.15.1 Site Specific Spill Response

SSSRPs will be developed during the construction period and will be appended to the CEMP. Information to be provided in the SSSSRPs includes:

- Key contacts including site personnel, regulatory authorities, spill material providers, local liquid waste contractors and local fire service.
- Copies or locations of site storm water drainage plans if relevant to EB2/EB3R site.
- Details of the location of spill equipment and MSD Sheets on EB2/EB3R site.
- Notification protocol.
- Supporting posters to be displayed across the site summarising the spill response and contacts for senior staff that will co-ordinate the response and notify the appropriate parties.

Spill kits must be kept at the following locations:

- All Hazchem depots.
- Areas designated for the handling and use of hazardous substances.
- Vehicles carrying hazardous substances (e.g. refuelling vehicles).
- In the vicinity of, and readily available for all work areas.

Spill kits will comprise, as a minimum the following:

- Absorbent (i.e. peat, sawdust, pads, or zeolite product).
- Personal Protective Equipment (i.e. disposable overalls, gloves and boot covers).
- Bunding devices (i.e. absorbent socks or cess pit protection).
- A designated container for the disposal of contaminated equipment and soils.

All spill kits will be regularly inspected to ensure that they are fully stocked at all times.

In work areas near or adjacent to watercourses, consideration should be given to biodegradable absorbent material and floating spill booms.

1.15.2 Action in the Event of a Fire

In the event of a minor fire, site personnel are permitted to utilise available equipment to put it out, provided that they do not endanger themselves or others.

Water must not be used to extinguish a chemical, oil or electrical fire and more serious fires should only be tackled by professional fire fighters.

The Fire Service (by calling 111) and a Construction Manager will be contacted immediately on identification of a fire or explosion.

All personnel should be evacuated from the area of a serious fire or explosion, or where an explosion risk (i.e. fire in the Hazchem depot) may exist.

Measures may be taken to minimise the spread of a fire to protect surrounding habitats via the removal of flammable material from adjoining areas and the creation of fire breaks.

Measures should be taken to minimise the spread of fire water and prevent release into water courses using available spill kits and containment ponds where appropriate.

Following a fire or explosion the Construction Manager will carry out a thorough investigation of the cause and will raise a report detailed the actions taken to prevent a reoccurrence.

1.16 Reporting Spills

Error! Reference source not found. outlines further requirements for the reporting of spills. However, where this information conflicts with condition of designation or resource consent, then the conditions must take precedence over this table. The reporting requirements, along with relevant contact phone numbers, must be detailed in the SSSRPs.

Practical reporting limits have been applied to this procedure. It is the responsibility of the Construction Manager to assess whether or not a spill should be notified to any external parties. This will be dependent on the type of product spilt, the risk of the product entering natural water, the nature of the receiving environment and the effectiveness of the internal clean up action. The Construction Manager should refer to the Environmental Lead for further advice if unsure.

Table 16 Spills Reporting Requirements

Spill Type	Spill Volume	Initial Site Notification
Spill to natural water or the storm water system from any other type of project	Volume Spilt < 20 litres	Construction Manager or Environmental Lead.
	Volume Spilt > 20 litres	As above, plus: Environmental Lead or EBA Construction Manager Fire Service (where there is any risk to life or property) Regional Council Pollution Hotline (risk to the environment)
Spill to ground only	Volume Spilt < 20 litres	Construction Manager or Environmental Lead
	Volume Spilt > 20 litres	As above, plus: Environmental Lead or Construction Manager Regional Council Pollution Hotline (risk to the environment) Fire Service (where there is any risk to life or property)

Appendix C Indicative Works Programme

PAA: TOC1 : Construction Programme: EB2 & EB3R

#	Activity ID	Activity Name	Original Duration	Duration % Complete	Start	Finish	Total Float	2022												2023												2024												2025												2026												2027											
1	PAA Programme REV 2.1 (Baseline TOC1 - 23-Mar-22)		1265	0%	02-May-22	14-Jul-27	0																																																																								
2	CONSTRUCTION		1205	0%	02-May-22	15-Apr-27	0																																																																								
3	TOC 1 : Early Works		220	0%	30-May-22	26-Apr-23	111																																																																								
4	Main Project Office		220	0%	30-May-22	26-Apr-23	111																																																																								
5	Preparation of Physical Works HSEQ Documentation		90	0%	30-May-22	04-Oct-22	89																																																																								
6	TOC 1 : EB2		1205	0%	02-May-22	15-Apr-27	0																																																																								
7	EB2 - WRR1 - William Roberts Rd and Cortina Place		377	0%	30-May-22	06-Dec-23	20																																																																								
8	EB2 - WRR2 (EW) - William Roberts Rd - Howick Loop - Early works		112	0%	12-Jan-23	26-Jun-23	133																																																																								
9	EB2 - SRT1 - Seart- Off Ramp		492	0%	30-May-22	06-Jun-24	107																																																																								
10	[TRAFFIC SWITCH] : Seart Off Ramp		0	0%	14-May-24	14-May-24	0																																																																								
11	EB2 - SRT2 (Part 1) - Seart- On Ramp		42	0%	26-Jul-23	21-Sep-23	152																																																																								
12	EB2 - SRT2 (Part 2) - Seart- On Ramp		70	0%	15-May-24	22-Aug-24	0																																																																								
13	[TRAFFIC SWITCH] : Seart On Ramp		0	0%	22-Aug-24	22-Aug-24	0																																																																								
14	EB2 - RFA1 - Reeves Rd - North Abutment (B)		774	0%	02-May-22	04-Jul-25	46																																																																								
15	EB2 - RFA2 (Part 1) - Reeves Rd - South Abutment (A)		164	0%	26-Jul-23	28-Mar-24	113																																																																								
16	EB2 - RFA2 (Part 2) - Reeves Rd - South Abutment (A)		434	0%	23-Aug-24	10-Jun-26	0																																																																								
17	EB2 - RRB1 - Reeves Rd Flyover		784	0%	12-Dec-22	13-Mar-26	59																																																																								
18	[TRAFFIC SWITCH] : Reeves Rd Flyover		434	0%	22-Aug-24	10-Jun-26	0																																																																								
19	EB2 - PSI1 - Pakuranga - Seart Intersection		252	0%	09-Jan-25	21-Jan-26	37																																																																								
20	EB2 - RRR2 - Reeves Rd - Road Under Structure		221	0%	15-Oct-25	14-Sep-26	138																																																																								
21	EB2 - WRR2 - William Roberts Rd		281	0%	17-Jun-25	10-Aug-26	163																																																																								
22	EB2 - PKR1 - Pakuranga Rd		170	0%	16-Mar-26	16-Nov-26	94																																																																								
23	EB2 - TR11 - Ti Rakau - Reeves Rd - Intersection		169	0%	01-Dec-25	17-Aug-26	158																																																																								
24	EB2 - TRE1 - Ti Rakau Dr Eastbound Section 1		292	0%	27-Oct-23	16-Jan-25	340																																																																								
25	EB2 - TRC1 - Ti Rakau Dr Central Section 1		107	0%	11-Jun-26	10-Nov-26	1																																																																								
26	EB2 - TRW1 - Ti Rakau Dr Westbound Section 1		91	0%	11-Nov-26	06-Apr-27	7																																																																								
27	EB2 - TRW2 - Ti Rakau Dr Westbound Section 2		698	0%	30-May-22	10-Apr-25	5																																																																								
28	EB2 - TRC2 - Ti Rakau Dr Central Section 2		128	0%	11-Apr-25	14-Oct-25	147																																																																								
29	EB2 - TRE2 - Ti Rakau Dr Eastbound Section 2		213	0%	24-Apr-26	10-Mar-27	24																																																																								
30	EB2 : Landscaping		739	0%	02-Apr-24	15-Apr-27	0																																																																								
31	TOC 1 : EB3R		1180	0%	30-May-22	08-Apr-27	5																																																																								
32	EB3R - TRW3 + TRW4 - Rakau Dr Westbound Section 3		680	0%	30-May-22	17-Mar-25	23																																																																								
33	EB3R - TGI2 - Gossamer Dr Intersection		506	0%	30-May-22	26-Jun-24	270																																																																								
34	[TRAFFIC SWITCH] : Ti Rakau Dr		360	0%	11-Oct-23	10-Apr-25	5																																																																								
35	EB3R - TRC3 + TRC4 - Ti Rakau Dr Central Section 3		250	0%	11-Apr-25	23-Apr-26	5																																																																								
36	EB3R - TGI1 - Ti Rakau - Gossamer Dr Intersection		167	0%	14-Feb-23	11-Oct-23	365																																																																								
37	EB3R - TRE3 + TRE4 - Ti Rakau Dr Eastbound Section 3		232	0%	24-Apr-26	08-Apr-27	5																																																																								
38	EB3R - TRE5 - Ti Rakau Dr Eastbound Section 5		396	0%	27-Jun-24	16-Feb-26	283																																																																								
39	EB3R - Landscaping		571	0%	02-Apr-24	03-Aug-26	168																																																																								
40	COMPLETION		794	0%	09-Apr-24	14-Jul-27	0																																																																								
41	EB2		789	0%	16-Apr-24	14-Jul-27	0																																																																								
42	EB3R		789	0%	09-Apr-24	07-Jul-27	5																																																																								

Appendix D Environmental Risk Register

Appendix E Environmental Aspects and Impacts Register

