Construction Environmental Management Plan

Eastern Busway Alliance

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Eastern Busway

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Document History and Status			
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Document Approval		
Action	**Name**	**Position**
Responsible	Jonathan Green	Environmental Lead
Reviewer	Saul Chambers	HSE Manager
Approver	Matt Zame	Project Director

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Acronyms

Table 1 Acronyms

Acronym	Term	Definition
AC	Auckland Council	
ALT	Alliance Leadership Team	The team that will perform the day-to-day operational leadership and management functions of the Alliance
APD	Project Director	The Alliance Project Director
AT	Auckland Transport	Auckland Transport
CEMP	Construction Environmental Management Plan	
EB1	Eastern Busway Panmure to Pakuranga	
EB2	Eastern Busway Pakuranga Town Centre	
EB3C	Eastern Busway Pakuranga to Botany - Commercial	
EB3R	Eastern Busway Pakuranga to Botany - Residential	
EB4	Eastern Busway Botany Town Centre Station	
EBA	Eastern Busway Alliance	The alliance between the Alliance Participants formed for the delivery of Eastern Busway Stages 2, 3 and 4
KPI	Key Performance Indicator	The measurable value that demonstrates how effectively the Alliance is achieving key business objectives
KRA	Key Result Area	Performance targets against which the Alliance achievements are measured
NoR	Notice of Requirements	
PAA	Project Alliance Agreement	Formed between AT and the selected Participants for the purposes of detailed design, construction, commissioning, and defects correction of the Project
PAB	Project Alliance Board	
SLT	Senior Leadership Team	

For a full list of Eastern Busway acronyms please see document **EB-LS-0-PP-000001 Acronyms**

1 Introduction

1.1 Project Scope

The Eastern Busway is a rapid transit busway project that will create faster, more reliable and connected transport options for communities in east and south Auckland. It is being delivered by Auckland Transport, a Council Controlled Organisation (CCO) of Auckland Council.

Auckland Transport (AT) has formed an Alliance Team, the Eastern Busway Alliance (EBA), comprised of the following Alliance Participants: AT, Fletcher Construction Infrastructure Ltd., ACCIONA Construction NZ Ltd., AECOM NZ Ltd., and Jacobs NZ Ltd. The scope and terms of EBA's services are defined in the Project Alliance Agreement (PAA).

1.2 Project Description

The Eastern Busway project is a multimodal transport upgrade project between Panmure and Botany (Figure 1) in east Auckland. The project consists of four sections and Panmure Station. Panmure station is complete; Section 1, Panmure to Pakuranga is also complete. Section 2, 3 Residential are in the delivery phase, and Section 3 Commercial and 4 are in the planning and consenting phase.

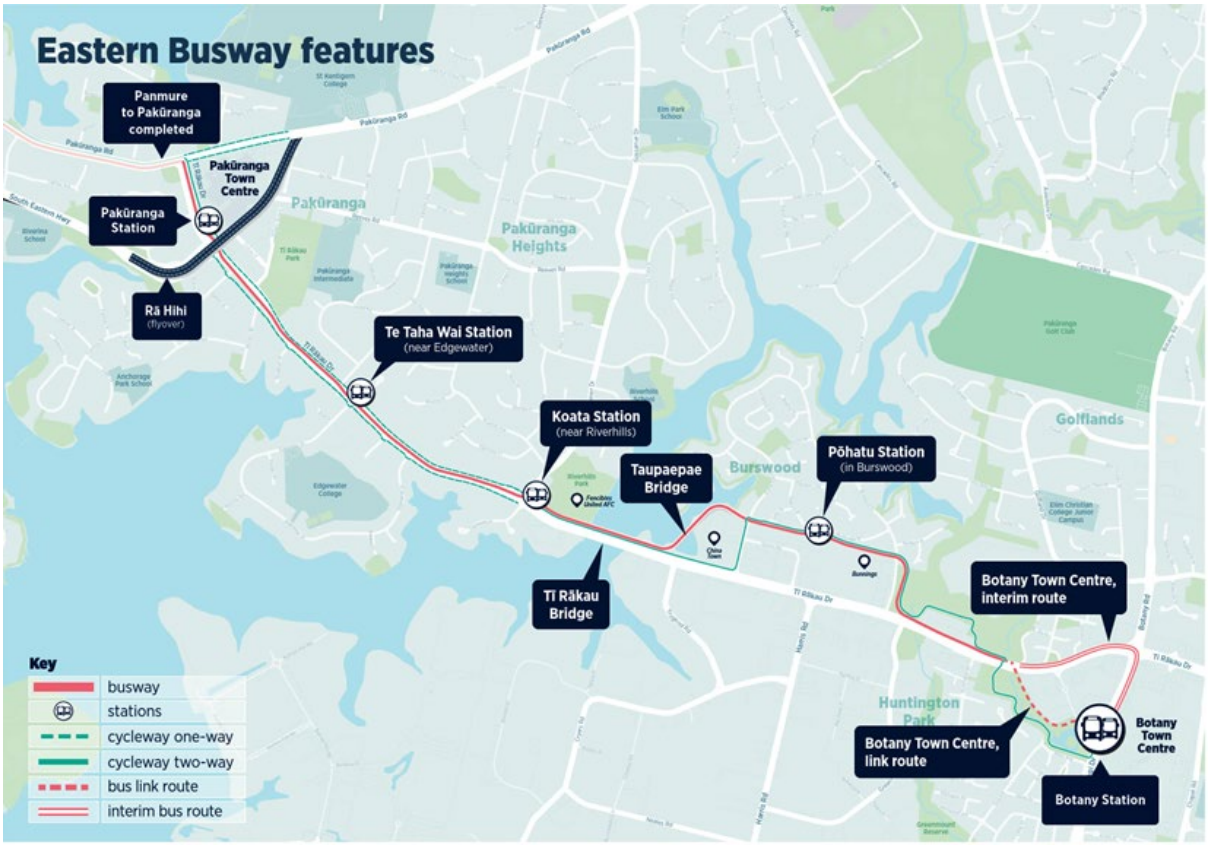

Figure 1 Eastern Busway alignment between Panmure and Botany town centres in east Auckland

1.3 Project Objectives

The client objectives for this project are as follows:

- Provide a multimodal transport corridor that connects Pakuranga and Botany to the wider network and increases choice of transport options.
- Provide transport infrastructure with existing land use and supports a quality, compact urban form.
- Contribute to accessibility and place shaping by providing better transport connections between, within, and to the town centres.
- Provide transport infrastructure that improves linkages, journey time and reliability of the public transport network.
- Provide transport infrastructure that is safe for everyone.
- “Provide or Safeguard future” transport infrastructure at (or in the vicinity of) Botany Town Centre to support the development of strategic public transport connection to Auckland Airport

2 Management Plan Scope & Objectives

2.1 Scope

This plan is for stages EB2, EB3R, EB3C and EB4i of the Eastern Busway Project.

2.1.1 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)
- William Roberts Road extension and Howick Loop watermain construction
- Stormwater drainage improvements along Pakuranga Road and Ti Rakau Drive

An overview of the proposed EB2 works is shown in Figure 4.

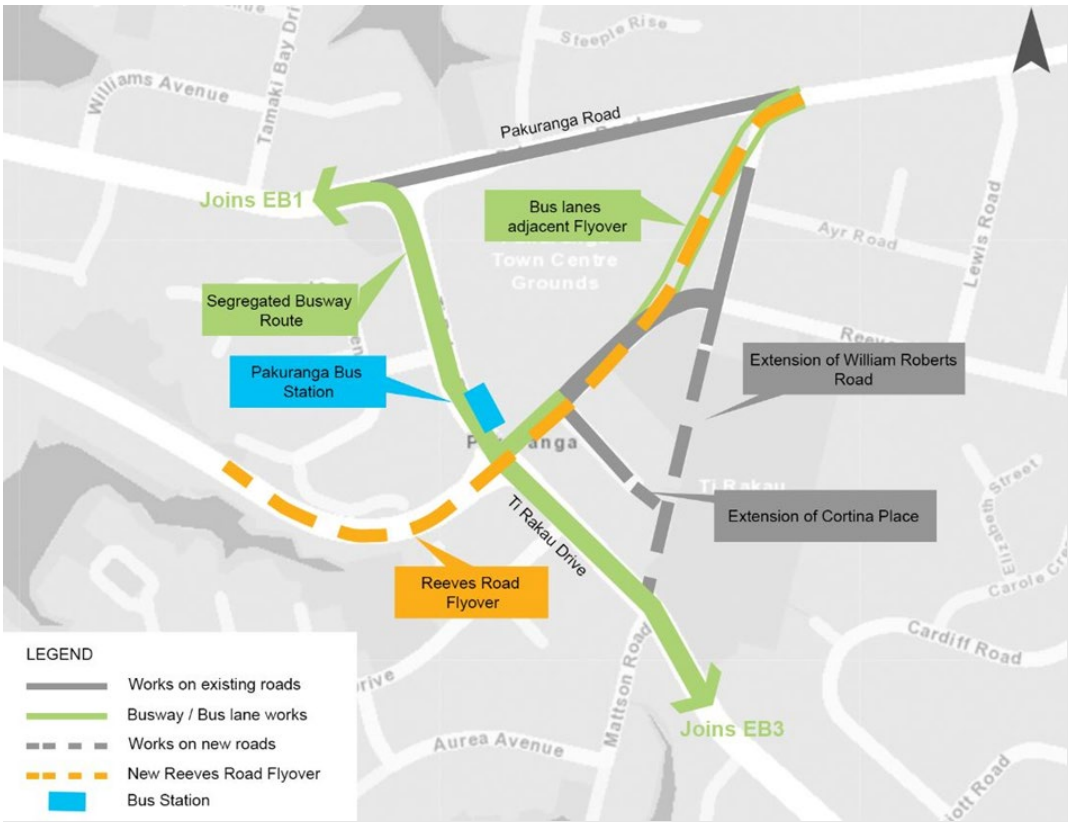

Figure 2 EB2 Overview

2.1.2 Eastern Busway 3 - Residential (EB3R)

EB3R will provide the extension of the Rapid Transport Network from SEART in the west to Ti Rakau Bridge 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 5 below.

Figure 3 EB3R Location (shown in yellow)

2.1.3 Eastern Busway 3 - Commercial (EB3C)

EBC3 commences from the western shore of Pakuranga Creek at Riverhills Park and traverses east to Ti Rakau Drive, adjacent to Guys Reserve.

EB3C will improve public transport reliability and usability through the provision of dedicated bus lanes and the new intermediate Burswood Bus Station. This infrastructure investment will reduce delays caused by bus service being caught in general traffic congestion.

New cycle lanes and footpaths will make it possible to walk or cycle off-road, improving local accessibility and safety along the Ti Rakau Drive corridor. These active transport improvements will connect to improvements planned within the EB3R and EB4L packages.

Key elements of EB3C include:

- Burswood Bus Station - a new intermediate station serving the Burswood community and local businesses.
- Two new bridges (Ti Rakau Bridge and Taupaepae Bridge) that will carry the busway over Pakuranga Creek.

Stormwater works are proposed. This includes new outfalls, upgrades to existing infrastructure and new treatment devices.

Figure 4 EB3C Location (shown in blue)

2.1.4 Eastern Busway 4 Interim (EB4i)

EB4i involves minor upgrades to the existing bus stop in Botany Town Centre to serve as the terminus of Eastern Busway until the EB4L is constructed.

Key elements of EB4i include:

- Removal of 120m of existing pavers and fines along the existing bus station and adjacent roundabout and replacement with sealed road
- Remediation of concrete subbase
- Removal of existing bus shelters and platforms
- Construction of new platforms and installation of new shelters

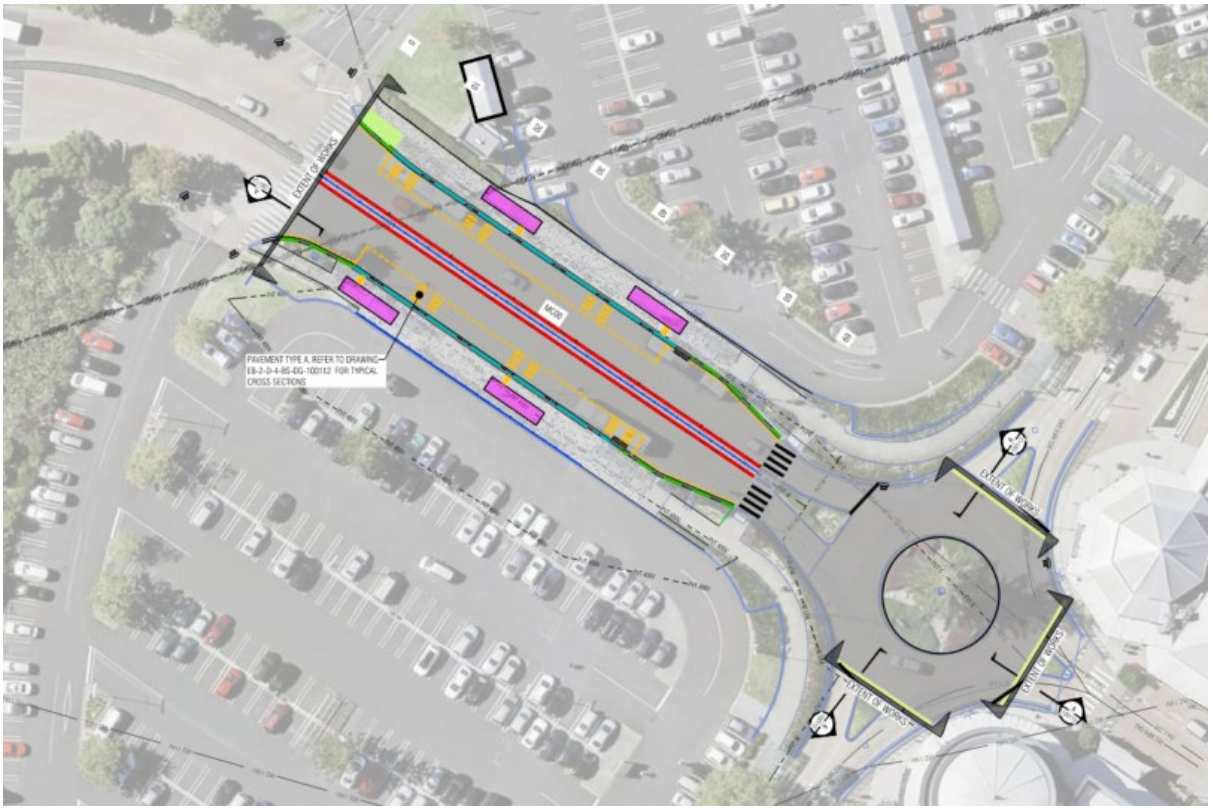

Figure 5 EB34i location at Botany Town Centre

2.2 Purpose

On behalf of AT, EBA is required to carry out all works associated with the Eastern Busway 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 Eastern Busway 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 the Eastern Busway. 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 Eastern Busway. The CEMP shall be complied with and monitored throughout the duration of the Eastern Busway 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: Environmental Risk Register
- Appendix D: 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 the Eastern Busway 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 Eastern Busway construction to reflect changes to construction techniques or the physical environment.

2.3 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 Eastern Busway 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 Eastern Busway
- 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

2.4 Management Plan Framework

As discussed in Section 2.2 Eastern Busway requires a set of management plans to ensure effective management of adverse effects associated with the construction of Eastern Busway.

This CEMP sets the overarching framework for the management of environmental and social aspects of Eastern Busway and is supported by a series of 'sub management plans' focussing on specialist disciplines.

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 2.5.

The wire diagram in Figure 8 provides an overview of the management plan structure including the CEMP and the relevant sub-management plans.

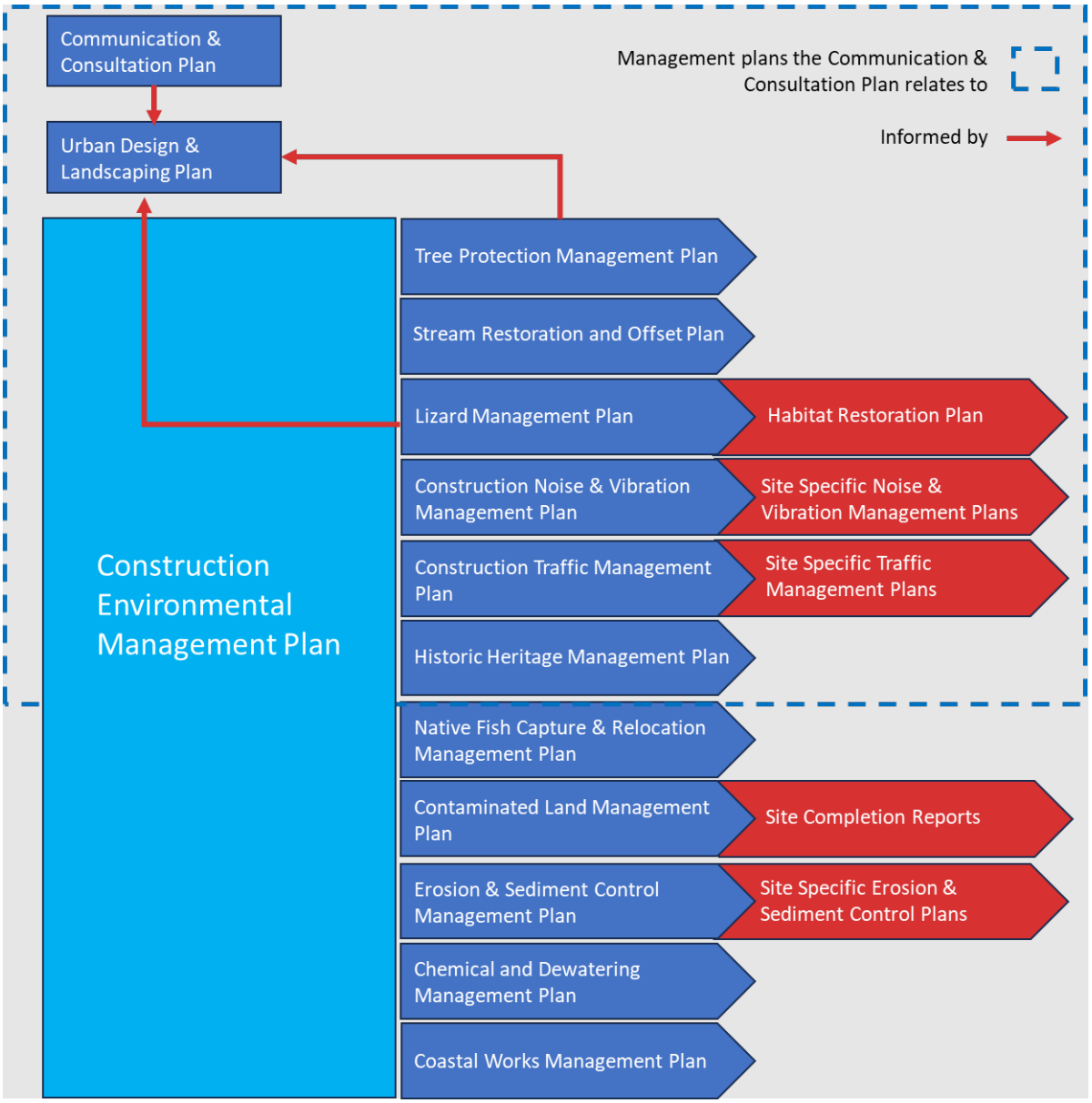

Figure 6 EBA Management Plans

2.5 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.

The CEMP will be reviewed at least annually and, if applicable, after an incident.

2.6 Roles and Responsibilities

Any person involved with the construction of Eastern Busway 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 2 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 2 Applicable Roles and Responsibilities

Name	Role	Contact Details	Expertise, Responsibility & Authority
Matt Zame	Project Director	matt.zame@easternbusway.nz	Designation authority contact. EBA person responsible for implementing the designation and resource consents for Eastern Busway. Overall responsibility for project environmental management.
Saul Chambers	HSE Manager	saul.chambers@easternbusway.nz	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.
Jonathan Green	Environmental Lead	Jonathan.green@easternbusway.nz	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

Andy Gibbard	Construction Manager	andy.gibbard@easternbusway.nz	Day to day implementation of the CEMP and sub management plans onsite, ensuring compliance with the various environmental requirements associated with Eastern Busway. 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. Liaison with AT on all matters affecting traffic movements through site.
Tommy Temple	Site Superintendent	tommy.temple@easternbusway.nz	Management of people and plant on site and access management. Coordination and assistance at pre-start meetings and Auckland Council compliance inspections.
Sian Pritchard	Customer and Community Team Manager	sian.pritchard@easternbusway.nz	Communication with stakeholders and the public throughout the construction phase of Eastern Busway. Cultural/Archaeological ambassador for Eastern Busway works. Implementation of the complaints operating procedure, maintenance of the complaints register including the use of the AT's stakeholder management system

The contact details for key personnel are set out in the table below.

Table 3 Contact Details for Key Personnel

Role	Organisation	Name	Phone	Email
24-hour Stakeholder Contact	EBA	EBA Communications and Stakeholder team	0800287929	info@easternbusway.nz
Council Monitoring Officer	Auckland Council	Josh Hawkins	0212768461	Josh.hawkins@aucklandcouncil.govt.nz
Council Monitoring Officer	Auckland Council	Audric Kam	0212502934	audric.kam@aucklandcouncil.govt.nz

Contaminated Land Specialist	EBA	Terry Widdowson	021 317 016	terry.widdowson@easternbusway.nz
Traffic Management Specialist	EBA	Fang Lim	0221269668	Fang.Lim@easternbusway.nz
Ecologist/ Herpetologist	EBA	Fiona Davies	021 111880	fiona.davies@easternbusway.nz
Noise and Vibration Specialist	EBA	Shivam Jakhu	021549584	Shivam.jakhu@easternbusway.nz

2.7 Environmental Policy

EBA is committed to reducing the environmental impacts associated with construction activities, as defined in the Environmental Policy below.

Eastern Busway

August 2023

Environmental Policy

Our commitments

We will strive to be better every day and will work with our people; and with public, industry and regulatory bodies to reduce environmental impacts associated with our construction activities and operations.

Together we will:

- Ensure that we comply with our Eastern Busway Alliance environmental standards and with all legal and regulatory requirements to operate.
- Commit to implementing measures to prevent pollution.
- Maintain a management system which includes identification and evaluation of the environmental risks associated with our business activities.
- Set objectives and targets on a risk-based approach that prioritises controls and programmes for critical environmental risks.
- Regularly review and report on our environmental performance.
- Support training programmes to build environmental knowledge and improve environmental work practices.

Matt Zame
Alliance Project Director
16th August 2023

2.8 Mana Whenua Engagement

EBA recognises the importance of AT's relationship with mana whenua. All contractors involved with Eastern Busway 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 (natural 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.

EBA, in partnership with mana whenua, will explore opportunities to retain site-won materials for reuse or repurpose for iwi, such as basalt and timber.

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

3 Environmental and Social Management

3.1 Environmental and Social Impacts

The potential environmental and social impacts relating to Eastern Busway are identified and assessed in the applications for resource consent and designation. Table 4 below identifies relevant environmental aspects, associated activity, potential impact, and management techniques to remedy or mitigate the impact and ensure legal compliance.

Table 4 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 stormwater discharges into waterways. Discharge of hazardous materials to waterways.	Erosion and Sediment Control Plan (ESCP) Dewatering and Chemical Treatment Management Plan Appendix A: Hazardous Substances Management Handling and Storage. Appendix B: Emergency Spill Procedures.
	Ecological resources	Vegetation/ tree clearance Water diversions Use of natural resources	Reduction/loss of species diversity Reduction/loss of habitat Injury/death to native fish species Unnecessary use of resources	Stream Restoration and Offset Plan Native Fish Capture and Relocation Plan (NFCRP) Lizard Management Plan (LMP) Herpetologist engaged to capture and relocate lizards in areas of known protected species habitat. Ecologist to survey trees for removal if required between 1st September and 28th February for nest activity. No trees containing native birds' nests to be removed until chicks have fledged. Urban Design and Landscape Management Plan (UDLP), Tree

				Protection and Management Plan (TPMP). Coastal Works Management Plan (CWMP). Reuse of suitable uncontaminated soil on the project or other sites.
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.
	Light Spill	Night works requiring temporary lighting	Light spill nuisance to the public	Using adaptive light controls to manage light timing, intensity, and colour. Lighting only the object or area intended – keep lights close to the ground, directed, and shielded to avoid light spill. Use the lowest intensity lighting appropriate for the task.

				Developing lighting plans for sensitive areas to minimise impacts of light pollution. Light monitoring to be conducted around sensitive areas. Lights must be directed away from sensitive areas. A night audit to be undertaken during the construction phase. Temp lighting placed within work area boundary on roadside away from sensitive receptors.
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. Stand over of land disturbance within 50m of the coastal marine area by archaeological specialist of mana whenua cultural monitor. Archaeological stand over for land disturbance at known sites. 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). Follow Archaeological Authority. Cultural Management Plan
Urban Design and Landscape	Visual Quality	Active transport modes Earthworks Structures	Discourages public transport use	Urban Design and Landscape Plan (UDLP)

		Enhancement to adjoining land Lighting	Negative visual amenity for road users and adjacent residents Light spill for adjacent residents and waterways Use of greenfield land	Public transport services and performance maintained throughout construction. Aesthetic hoarding used where possible. Works methodology to include management of night works activities. Strategies to manage lighting effects. Prioritise use of brownfield land.

3.2 Relevant Legislation, Policy and Plans

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

The environmental legislative and plan requirements of Eastern Busway are set out in the table below.

Table 5 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 Management, 2020	The National Policy Statement for Freshwater Management supports improved freshwater management in New Zealand.	Under this policy, regional councils/unitary authorities must establish objectives and set limits for fresh water in their regional plans. Until Council have developed	Auckland Council

		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 Taonga Act 2014	The purpose of this Act is to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand.	Section 42 of the Act directs that an authority is required from Heritage New Zealand Pouhere Taonga if there is 'reasonable cause' to suspect an archaeological site may be modified, damaged, or destroyed in the course of any activity.	Heritage New Zealand Pouhere Taonga
Biosecurity Act 1993	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. The Biosecurity Act requires regional councils and unitary authorities to formulate a	Pest management activities must comply with Local Authority pest management policies and rules.	Ministry for Primary Industries (and Local Authorities)

	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.		
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
Hikina te Wero: Environment Action Plan 2020-2030 (Auckland Transport)	Auckland Transport's strategy and framework for protecting and restoring the natural environment.	Conserve and enhance the environment: • Reduce pollution/emissions (air, noise, land, air, water) • Reduce greenhouse gas emissions • Reduce energy consumption	Auckland Transport

		• Mitigate effects on and enhance biodiversity • Reduce consumption of water and other resources • Reduce waster generation and apply circular economy principles • Enhance adaptive capacity of the environment to climate change effects.	

3.3 Relevant Designation and Resource Consent Conditions

The CEMP has been prepared in accordance with the relevant designation and resource consent conditions. 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.

The Eastern Busway project will undertake works in accordance with resource consents. The consents granted to the project are outlined in Table 6 below. This table will be updated when further consents are granted.

Table 6 Eastern Busway resource consents

Consent Number	Consent Location	Consent Types	Consent Holder
LUC60401706	William Roberts Road Extension	Land Use Discharge	Auckland Transport
LUC60403744	169-173 Pakuranga Road construction yard	Land Use	Auckland Transport
LUC60417963	Riverhills Park – 168R Gossamer Drive	Land Use	Auckland Transport
(BUN60407133) LUC60407134 DIS60407492 CST60408360	Eastern Busway Stage 2 Consent	Land Use Discharge Coastal	Auckland Transport
BUN60407133	Eastern Busway Stage 2 NoR	Designation	Auckland Transport
(BUN60407121) LUC60407123 DIS60407493 CST60408360 CST6048461 LUS60412895	Eastern Busway Stage 3 Residential Consent	Land Use Discharge Coastal Streamworks	Auckland Transport
LUC60423931 DIS60423909 CST60423957 CST60423908 CST60423956 LUS60423990 WAT60423930	Eastern Busway Stage 3 Commercial Consent	Land Use Discharge Coastal Streamworks Dewatering & groundwater diversion	Auckland Transport
1849	Eastern Busway Stage 3 Commercial NoR	Designation	Auckland Transport
1850	Eastern Busway Stage 4 Consent	Land Use Discharge	Auckland Transport

		Streamworks	
~~TBC~~	~~Eastern Busway Stage 4 NoR~~	~~Designation~~	~~Auckland Transport~~

3.3.1 Consent Compliance Process

Consent and designation conditions will be recorded in CX, Eastern Busway's document management system. Evidence of compliance with conditions will be tracked throughout the duration of the project. Each condition will be assigned a relevant owner within EBA to ensure compliance is managed.

3.4 Infrastructure Sustainability Council

EBA is seeking an Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) Rating of 'Excellent' (v1.2). Further details can be found in Sustainability Management Plan. Project sustainability requirements that relate directly to this CEMP are outlined below. Sustainability is a key result area for the EBA, hence these requirements are imbedded within the plans to ensure that sustainability is integrated into the way 'we do things'.

ISC credits related to environmental management are identified in Table 7 below.

Table 7 ISC environmental management credits

Credit		**Where addressed**
Dis-1	**Receiving water quality**	Erosion and Sediment Control Plan Dewatering and Chemical Treatment Management Plan
Dis-2	**Noise**	Construction Noise and Vibration Management Plan
Dis-3	**Vibration**	Construction Noise and Vibration Management Plan
Dis-4	**Air Quality**	Erosion and Sediment Control Plan
Lan-1	**Previous land use**	Section 3.1
Lan-2	**Conservation of on-site resources**	Section 3.1 Contaminated Land Management Plan Resources and Waste Management Plan
Lan-3	**Contamination and remediation**	Contaminated Land Management Plan
Her-1	**Heritage assessment and management**	Section 3.1 Cultural Management Plan
Her-2	**Monitoring and management of heritage**	Section 3.1 Cultural Management Plan

4 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 the Eastern Busway. The CEMP will be managed through CX, to control CEMP revisions, manage approval processes and enable distribution of the correct and approved versions of the CEMP to personnel involved with Eastern Busway.

4.1 Environmental Sub-Management Plans

As shown in Figure 8 a set of sub-management plans sit underneath or alongside the overarching CEMP. Each sub management plan is briefly described below.

4.1.1 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 Eastern Busway. 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.

4.1.2 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 to achieve compliance.

4.1.3 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 Eastern Busway 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 Eastern Busway.

4.1.4 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 Eastern Busway. The ESCP also incorporates important procedures for dust management.

4.1.5 Dewatering and Chemical Treatment Management Plan (DCTMP)

The DCTMP is to support the ESCP in providing procedures to manage dewatering and off-site discharges during construction.

4.1.6 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 the Eastern Busway. 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.

4.1.7 Lizard Management Plan (LMP)

The purpose of this plan is to provide guidelines and programmes for the management of effects of the Eastern Busway 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.

4.1.8 Habitat Restoration Plan (HRP)

The purpose of the HRP is to detail the site-specific lizard habitat restoration measures which addresses the impacts of construction on native lizard habitat. The HRP is developed in conjunction with the LMP.

4.1.9 Stream Restoration and Offset Plan (SRP)

The purpose of the SRP is to detail the measures to address the effects associated with stream disturbance, stream structures and riparian vegetation clearance associated with the works on the outfalls.

4.1.10 Tree Management Plan (TrMP)

The purpose of this plan is to identify all trees affected by the works including those to be removed and retained. The plan contains best practice techniques when working around trees to prevent accidental damage.

4.1.11 Native Fish Capture and Relocation Plan (NFCRP)

The purpose of the NFCRP is to detail the procedures to safely capture and relocate native fish prior to the commencement of works on outfalls. It must be produced and implemented by a suitably qualified and experienced ecologist.

4.1.12 Coastal Works Management Plan (CWMP)

The CWMP is to support the ESCP in providing best-practice procedures and controls to managing construction works within the coastal marine area. The CWMP aims to identify impacts and their mitigation measures.

4.1.13 Historic Heritage Management Plan (HHMP)

The HHMP identifies known heritage and archaeological locations and details the procedures for construction activities affecting these assets.

4.2 General Construction Aspects

The following section provides an overall description of the general construction aspects across Eastern Busway.

The technical investigations that supported the application for NoR and resource consents have been 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

4.3 Construction Programme

The proposed construction programme is set out in the table below. The construction programme is indicative and will evolve during the construction period as the construction methodology is further refined.

Table 8 Indicative Construction Programme

Site Location	Construction Sequencing	Expected Duration
SEART Off- and On-ramps	• Demolish buildings and erect new fencing • Provide new access to properties (if required) • Implement erosion and sediment control measures • Divert services and install stormwater treatment devices • Construct earthworks • Carry out pavement works • Switch traffic to allow construction of southern abutment and approach embankment of RRF	28 months
EB2	• Demolish buildings on westbound side of Ti Rakau Drive • Traffic management (until completion). Staged construction of busway, eastbound and westbound carriageways • Provide new access to properties (if required) • Implement erosion and sediment control measures • Divert services and install stormwater treatment devices • Construct earthworks • Carry out pavement works	53 months
EB2 - Reeves Rd Flyover	• Demolish buildings at northern end of the future RRF • Traffic management • Implement erosion and sediment control measures • Divert services and install stormwater treatment devices • Construct ground improvements (if required) • Construct MSE walls • Piling works • Construction of temporary works • Concrete works for substructure • Beam installation • Deck construction • Finishing works • Open to traffic; this will allow construction of Reeves Road under flyover and northwest end of Ti Rakau Drive	43 months
EB3R	• Remove buildings, erect new fencing along westbound Ti Rakau Drive • Traffic management • Provide new access to properties (if required) • Implement erosion and sediment control measures • Divert services and install stormwater treatment devices • Construct earthworks • Carry out pavement works	41 months
EB3C	• Demolish buildings on westbound side of Ti Rakau Drive and Burswood Drive • Traffic management (until completion). • Provide new access to properties (if required) • Implement erosion and sediment control measures • Divert services and install stormwater treatment devices • Construct earthworks • Carry out pavement works • Construct bridges. • Construct shared paths	30 months

EB4i	• Traffic management • Upgrades to bus stop	3 months

4.4 Construction Compounds

The primary construction compound is located at 169 Pakuranga Road. Figure 9 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 RRFO.

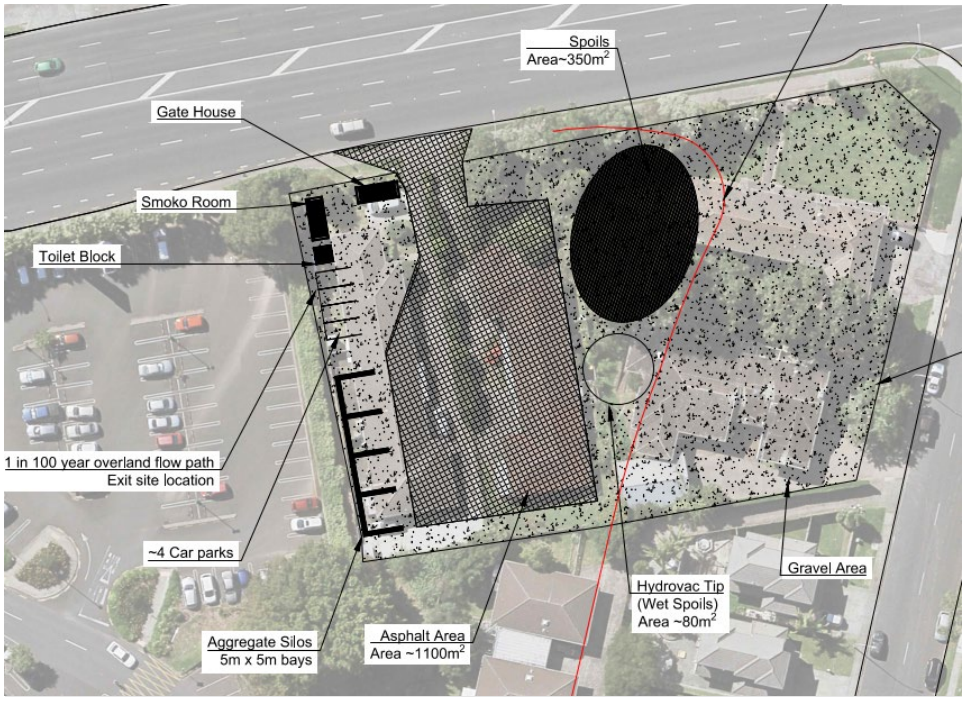

Figure 7 Primary Construction Compound

In addition to the primary construction compound, the two main offices are located at 5 Reeves Road and 7 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, EB3R and EB3C. Details relating to the construction compounds are set out in Table 9 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.

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 9 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 Portacoms.
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-construction 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-construction 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-construction 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 nighttime 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-construction of the structure is required.
Compound 7 – Satellite office	Mobil, Ti Rakau Drive	Satellite office / carparking area for the construction of EB3C bridges. Access will be maintained off Ti Rakau Drive, utilising the existing driveway crossing as the entry point. The existing building will be utilised as the office until de-construction of the structure is required.
Compound 8 – Satellite office	211 Burswood Drive	Satellite office / carparking area for the construction of EB3C bridges and civils works. Access will be maintained off Burswood Drive, utilising the existing driveway crossing as the entry point.
Compound 9 – Satellite office	Burswood Esplanade Reserve	Satellite office / carparking area for the construction of EB3C civils works. Access will be maintained off Burswood Drive, utilising the existing driveway crossing as the entry point.

Construction compounds will be securely fenced to prevent unauthorised entry. EBA will undertake regular security patrols of all working areas.

Construction compounds will be designed and constructed in a manner which does not increase flood hazards or impeded overland flowpaths. Compounds will have adequate drainage and will be constructed in accordance with certified Site-Specific Erosion and Sediment Control Plans (SSESCPs)

4.5 Removal of Buildings

Buildings will be removed before construction activities start in each area of EB2/EB3R/EB3C. 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 the Eastern Busway, 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 minimal localised earthworks (trenching or removal of overhead assets) as well as temporary utility diversions.

All exposed ground will be stabilised against erosion through vegetation growth or covered with aggregate.

4.6 Reeves Road Flyover Polymer Plant

This section contains provisions to identify and manage environmental risks associated with the polymer plant to be located at 26 Ti Rakau Drive to facilitate pile construction of the Reeves Road Flyover. This section has been prepared in accordance with Table E33.9.2 of the Auckland Unitary Plan (Operative in Part).

Spill response is identified in Appendix B.

Table 10 Polymer plant environmental management methods

AUP E33.9.2 Requirement	Management approach
Compliance with permitted activity controls	The polymer plant will be located on sealed asphalt ground and the entire footprint of the plant will contained via a hotmix bund. In lower points, the hotmix bund will be topped up with sandbags to ensure effective containment. Boundary bunds will divert surrounding stormwater flows away from the plant area towards existing catchpits. Stormwater falling within the footprint of the plant area will be contained and directed to an existing catchpit. In the event of a spill of polymer the catchpit will be intentionally blocked with a mat to prevent escape of fluid. A general arrangement is shown below in Figure 10. The hotmix boundary bund will be 300mm high, allowing for a total containment area of 194m^3 of fluid. Each polymer tank has a capacity of 70m^3. The bunded area will have capacity to contain 2.7 tanks of fluid should they fail. To increase redundancy, polymer is stored in 9 individually sealed tanks. Boundary bunds and other sediment controls will be inspected on a weekly basis, at a minimum, as part of the Environmental Inspection process. Boundary controls will also be inspected prior to a forecast extreme rain event and within 24 hours of an actual extreme rainfall event, in accordance with the ESCP. The polymer system will not generate wastewater. Minor volumes of washwater will be required to wash down plant and machinery. Washwater will be contained within the bunded footprint of the plant area and removed by sucker truck. Spill response plan is provided in Appendix B. Polymer prior to mixing will be stored in sealed containers. Mixed polymer will be contained within the sealed plant system. Waste sediment cleaned from the polymer will be stored in large skip bins prior to disposal offsite at an authorised facility. No waste compactors or bins will be located within the polymer plant working area. No plant or machinery will be refuelled within the polymer plant working area.
Identification of environmentally hazardous substances associated with the industrial or trade activity	SDS of environmentally hazardous substances will be retained on site. An inventory of maximum quantities of hazardous substances and their details will be kept on site.
Methods to be used to avoid discharges of environmentally hazardous substances onto or into land or water	Polymer will be mixed in a contained system of tanks and hoses. The system will be checked daily for leaks and maintenance undertaken when required. Polymer will be pumped directly from the system into the pile hole.

	Bunds around each piling hole to contain accidental spills. Polymer to be removed via sucker truck to offsite disposal facility.
For discharge of contaminants arising from land on which the industrial or trade activity is undertaken, set out the primary treatment or source control methods that may be necessary to avoid, remedy or mitigate more than minor adverse effects on the receiving environment	Bunds around each piling hole to contain fluid. Polymer to be removed via sucker truck to offsite disposal facility. Bunds around plant system. Catchpits will be covered with a mat in the event of a discharge to prevent fluid leaving the site and entering waterways. Spill kits will be located at work fronts and staff will be trained in how to use them.
Specify the methods for the operation and maintenance of any treatment devices on site	Daily plant and vehicle checks. Onboarding check of all plant and vehicles. Lock out-Tag Out (LOTO) for any equipment requiring maintenance. Daily check of boundary controls and weekly check as part of environmental inspection process.
Identifies assessment requirements to report on the performance of the environmental management plan	These are included as part of the CEMP review process. Project environmental performance is reported monthly.

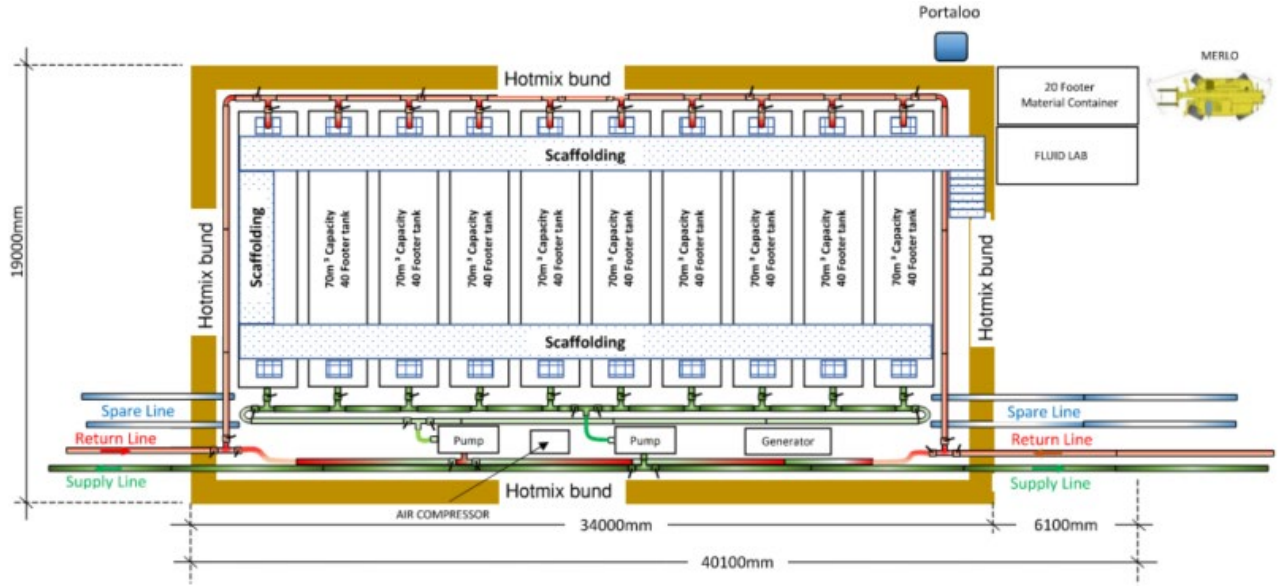

Figure 8 Polymer plant layout

4.7 National Grid Site Specific Management

TBC.

4.8 Operational Requirements

This CEMP provides a robust framework for delivering the objectives set out in Section 2.3 and ensuring compliance with the legal requirements as contained in the condition set lodged with the application. EBA construction partners (Fletcher Construction and Acciona) working

on the Eastern Busway are ISO14001 certified, and the CEMP conforms with ISO 14001:2015 Environmental Management System standards.

4.8.1 Management Approach for Achieving Operational Requirements

The designation and resource consent conditions set out a series of requirements that must be addressed throughout construction of Eastern Busway. The table below sets out the management approaches that will be implemented to achieve these requirements.

Table 11 Environmental Aspects and Operational Requirements

Consenting Requirement	Management approach
Methods to provide for the safety of the general public	During construction all works areas will be closed to the general public and only accessible through EBA's approved sign-in processes. 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. Information on site fencing is set out in Section 4.8.6 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.
Construction vehicle ingress and egress	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.
Dust Management	The ESCP sets out dust management procedures which have been developed in accordance with the *Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions* (2016) Ministry for the Environment.
Methods for managing silt and sediment in the construction area	The ESCP sets out how silt and sediment will be managed in the construction area of Eastern Busway.
Resource Efficiency and Waste Minimisation Plan	EBA has developed a Resources Efficiency and Waste Management Plan (REWMP) for Eastern Busway which outlines how the EBA will manage generation, storage, diversion, disposal, and monitoring and reporting of waste for the construction phase of Eastern Busway. The REWMP ensures the efficient use of resources and energy, reduce waste to landfill through maximising resource reuse and recycling, and prevents environmental effects associated with waste management. To achieve this objective the EBA will: • 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 Eastern Busway • 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 Eastern Busway 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	Section 3.2 of the ESCP sets out the extent of earthworks that will occur in Eastern Busway including the relevant locations, earthworks areas, estimated earthwork durations and the quantity of cut and fill material that will be utilised. 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.
Construction Housekeeping	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 Eastern Busway. All sites are to be left in a tidy condition at the end of each workday. Disposal of waste is to be in 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. All storage of materials and equipment associated with the construction works will take place in a designated area within Eastern Busway boundaries.
Site Security	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. 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. Security alarms and other means of protection will be added when deemed necessary.
Temporary acoustic fences and visual barriers	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.
Construction Lighting	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.
Hazardous Substances	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 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. Further detail in the management of hazardous substances is set out in Appendix A: Hazardous Substances Handling and Storage.
Accidental Discovery Protocol	The procedures set out in the Auckland Unitary Plan (Operative in Part) will be followed in the event of the accidental discovery of cultural of historic artefacts as a result of any physical disturbance to the existing ground surface.
Site Reinstatement Measures	As zonal works are completed, dis-establishment of construction support facilities will commence. These activities include, but are not limited to: • 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
Mangrove removal in the CMA	Areas of mangroves will be removed to enable the construction of stormwater outfalls within the coastal marine area (CMA). Clearance areas will be limited to only what is reasonably required to be removed and will be marked out to prevent additional clearance. Crews will be briefed by the environmental team prior to mangrove removal. All mangroves requiring removal will be disposed offsite and not in the CMA.

4.8.2 Hours of Work

The standard hours of operation during the construction period are:

- Weekdays - 07:30hr to 18:00hr
- Saturdays - 07:30hr to 15:00hr

No construction to occur on Sundays or public holidays except under the circumstances set out in Section 4.8.3 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 4.4.

Exceptions to the working hours may be required for specific tasks.

4.8.3 Out of Hours Works

The exception to the above-mentioned work hours for Eastern Busway 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.

4.8.4 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 the table below which ensures all contractors (including sub-contractors) are aware of the environmental obligations associated with Eastern Busway.

Table 12 Required Project Training

Type of Training	Purpose	Convenor	Attendees
Project Staff Induction	Induct new staff to EBA, providing a general overview to the environmental values, risks, stakeholders, sensitive receptors and contacts for Eastern Busway as well as cultural history and significance of the area. 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. • Induction training will also make construction team aware of resource consent conditions, designation conditions, environmental control procedures.	Construction Manager (or delegate)	All staff and visitors
	Construction team members with environmental responsibilities may also require the following training: • Environmental Emergency response training • Spill response training • Environmental inspections; and monitoring	Environmental Lead (or delegate)	Construction workers Construction Supervisors
Archaeology and Cultural Awareness Induction	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 Eastern Busway works and the Accidental Discovery Protocol set out in the AUP(OP).	Mana whenua cultural partner	Construction workers Construction Supervisors Construction engineers Design Staff
Contaminated land training	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. 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 Eastern Busway. However, all works carried out are required to be in compliance with the relevant legislation and current best practice.	Suitably Qualified Contaminated Land Specialist	Construction workers Construction Supervisors Construction engineers

Erosion and Sediment Control training	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.	Environmental Lead (or delegate)	Construction workers Construction Supervisors Construction engineers
Specialist Erosion and Sediment Control training	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.	Environmental Lead (or delegate)	Construction Supervisors Construction engineers
Toolbox Talks/ Daily Pre-Starts	Highlight site and activity specific construction procedures and requirements. Discuss environmental management and monitoring requirements for the day. Share environmental lessons learned across the Construction Industry.	Environmental Lead (or delegate)	Construction workers Construction Supervisors
Arboriculture Training	Briefing on tree retention measures set out in the TPMP> Briefing will include flash cards on the content appended to the TPMP such as Tree Protection Zones (TPZ) and Structural Root Zones (SRZ).	Works Arborist	All staff who will be working on sites where retained trees are present

All training will be recorded in the People & Culture training log.

4.8.5 Construction Noticeboards

Project information boards will be located at both ends of the active Eastern Busway 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 Eastern Busway 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.

4.8.6 Fencing and Site Security

All temporary boundary / security fences associated with construction of Eastern Busway 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 Eastern Busway working space to prevent public access to the construction works associated with Eastern Busway. 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 visual 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.

4.9 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.

4.9.1 Emergency Contacts

The nominated contact person(s), responsibilities and their 24-hour contact details are set out in Table 13 below.

Table 13 Internal Environmental Emergency Contact Details

Role	Name	Phone	Email
Environmental Lead	Jonathan.green@easternbusway.nz	027 489524 5	Jonathan.green@easternbusway.nz
Construction Manager	Andy Gibbard	021 315 447	Andy.gibbard@easternbusway.nz
Health and Safety Lead	Sheena Hodge	027 288 9540	sheena.hodge@easternbusway.nz

Table 14 includes key external environmental emergency contact details.

Table 14 External Emergency Contact Details

Role	Organisation	Phone
Emergency Services	Fire, Police, Ambulance	111
Spill Response	Auckland Council Pollution Hotline	09 377 3107

4.10 Communication Procedure

The EBA communication and consultation procedures are set out in full in the Community and 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 Eastern Busway.

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
- Eastern Busway 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. Associated meeting minutes, emails, face to face conversations and phone calls during Eastern Busway will also be saved to the system.

4.11 Feedback and Complaints Procedures

All environment, 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.

5 Project Specific Environmental Objectives

During the execution of the Eastern Busway works, environmental controls will be implemented to avoid, remedy or mitigate the effects of activities on the environment and ensure the project is executed in accordance with the relevant provisions of the Project Alliance Agreement and resource consents.

The environmental requirements as determined by review of:

- Project Alliance Agreement
- Analysis of site-specific environmental risk, including review of consents and designations
- Discussions with the customer and project environmental professionals as appropriate.
- Achievement of the ISC sustainability rating
- Details of consent condition compliance

5.1 Project targets

Measurable indicators of success as a project are:

- No significant environmental incidents
- No prosecutions, abatement notices or infringement notices
- Auckland Council compliance inspection scores of 1
- Environmental audit score of B or above with corrective actions closed out
- No overdue actions in monthly consent compliance report
- Environmental topics discussed at least monthly at toolbox talks/Share meeting
- All employees and contractors inducted to environmental requirements
- Environmental weekly inspections completed and closed out
- High rate of lead indicator reporting - Level 1 environmental incidents and observations
- Unsolicited compliments /complaints entered into Radar
- No noise, vibration or dust complaints or measured exceedances of trigger values.
- No uncontrolled discharges

6 Monitoring and Review

All construction activity must be carried out in accordance with the certified CEMP. Construction will be monitored in accordance with the CEMP throughout the duration of construction of Eastern Busway.

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 Eastern Busway.

In the collaborative working group the Environmental Lead (or delegate) identified in Section 2.6 will act as the "key contact" representing 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 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 Eastern Busway and the adequacy of the measures adopted to respond to these.

6.1 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 Eastern Busway 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 2.5 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 2.3.

6.2 Internal Compliance Monitoring

CX, 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
- Asset Owner Approvals

- 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 CX 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.

6.3 Environmental Monitoring

Environmental inspections will be undertaken on a weekly basis by the Environmental Lead (or delegate) and Site Superintendent (or delegate). 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 D) 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 15 below.

Table 15 Allocation of Monitoring/ Auditing Requirements

Monitoring/ Auditing Requirements	Description	Frequency	Undertaken By	Reporting
Compliance monitoring	Track and manage resource consent and designation conditions.	Quarterly and annually	Environmental Lead (or delegate)	CX
CEMP	CEMP implementation effectiveness	Annually or as needed as developments rise and following an environmental incident.	Environmental Lead (or delegate)	Report to Construction Manager to determine if updates are necessary.
Erosion and Sediment Control Inspections	Effectiveness and integrity of ESC measures	Daily visual inspection of ESC devices (Supervisor)	Supervisor Environmental Lead (or delegate)	CX

		Weekly (Environmental Lead)		
Environmental inspection	Environmental, aspects	Weekly	Environmental Lead (or delegate)	CX
Complaint-triggered actions	Environmental complaints (CEMP Section 4.11)	As they occur	Community Consultation Lead and Environmental Lead (or delegate)	Monthly report or as required.
Environmental incidents/ Emergency	Environmental incidents, including spills	As they occur	Environmental Lead (or delegate) and Construction Manager and site superintendent.	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

6.4 Compliance Audits

In addition to environmental inspections, environmental compliance audits of Eastern Busway site will be undertaken quarterly 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 CX. 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.

6.5 Environmental Incident Investigation and Reporting

Appendix D includes an Environmental Risk Register which will be updated following compliance audits as set out in Section 6.4. Where residual environmental risk is identified Quality Management Plans will be produced. Documentation will be produced and maintained throughout the construction of Eastern Busway which could include:

- Quality audits
- Progress photos
- Meeting minutes
- Samples and traceability documents
- Reports
- Registers
- Reference to risk management procedure
- Critical Control Verifications (CCV)

- Risk Containment Sweeps

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. The purpose of this guideline is to enable EBA employees, subcontractors, and visitors on EBA sites to understand the requirements of the EBA regarding 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 are 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:

- Consideration of whether the substance or material can be substituted with a safer or less hazardous option.
- 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).
- Storage and handling must be in accordance with requirements of Safety Data Sheets (SDS).
- Ensure all workers are suitably trained and competent to handle and store hazardous materials and substances.
- 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.
- 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.
- This inventory must be made available to the emergency services at all times on every site.
- Where trigger levels are exceeded, the emergency response plan must comply with section 1.9 of this guideline.

- 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.

Only licensed subcontractors 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

Only licensed subcontractors are to be involved in the removal of any asbestos materials.

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.

Appendix B Emergency Spill Procedures

1.1 Introduction

The Emergency Spill Procedures detailed in this document support the Construction Environmental Management Plan (CEMP) relating to the construction of Eastern Busway. 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

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.

1.2 Best Practice Measures

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

- 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 Eastern Busway.
- 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 containers should be located away from the path of vehicles and plant to prevent accidental damage.
- 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.

1.3 Action in the Event of a Spill

The following procedure will be followed during a spill event. The below poster will be displayed at all work sites.

IN CASE OF A SPILL OR A LEAK

1 BE SAFE

- What is it? Determine if safe to act
- Use correct PPE
- Use your spill response training

2 STOP THE SOURCE

- Turn off the machine, upright the container, plug any leaks

3 CONTAIN IT

- Stop the spill from spreading
- Use isolation valves if you have them
- Protect drains and watercourses

4 REPORT IT

- To your site manager
- Site manager to escalate as per site procedures

5 CLEAN UP

- Use available materials eg spill kits, absorbent material
- Dispose of contaminated material appropriately

6 RADAR, RESTOCK, REVIEW

- Log incident in **RADAR**
- Replace materials and equipment used
- Review and implement actions to prevent recurrence

In the event of a spill contact:
Jonathan Green (Enviro) & Supervisor
On: 0274805245

Eastern Busway

1.4 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 16 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 events
- Incorrect installation
- Inadequate maintenance

Table 16 Procedure for Sediment Discharge Emergency

Activity	Responsibility	Key Actions
Site Monitoring	Project Environmental Rep/Superintendent	• Carry out regular monitoring and maintenance of sediment control systems.
Storm Events	Project Engineer/ Superintendent	• 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	• Assess emergency and advise Superintendent on engineering or remedial measures to limit damage or impact
	Supervisor	• 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	• Notify Construction Manager, Environmental Lead and Consenting Authority (if required or appropriate).
	Superintendent	• Restore site and control structures to originally approved condition when circumstances allow.
	Project Engineer	• Complete environmental incident report and investigation.

1.5 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 the table below 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 17 Fuel, Oil and Chemical Spills Procedure

Activity	Responsibility	Key Actions	Records
Preventative Measures	Construction Manager / Environmental Lead (or delegate)	• 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 JSEA.
Action in the Event of Spill	EBA Employees and Subcontractors	• 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.	Radar
Reporting Spills	Project Engineer/ Superintendent Environmental Lead (or delegate)	• 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.	Radar
Investigation	Project Engineer/ Superintendent	• Record details of spills using an Incident Report Form/Site Report Card	Incident Report Form/Site Report Card

1.5.1 Spill Response

Spill kits will be kept at the following locations:

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

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. This inspection record will be logged in the weekly environmental inspection checklist.

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

1.5.2 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 the 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.

1.6 Reporting Spills

The table below outlines further requirements for the reporting of spills.

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 (or delegate) for further advice if unsure.

Table 18 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	Supervisor and Environmental Lead.
	Volume Spilt > 20 litres	As above, **plus:** 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	Supervisor and Environmental Lead
	Volume Spilt > 20 litres	As above, **plus:** EBA Construction Manager HSE Manager Regional Council Pollution Hotline (risk to the environment) Fire Service (where there is any risk to life or property)

Appendix C Environmental Risk Register

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Appendix D Environmental Aspects and Impacts Register

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