Eastern Busway – EB2 and EB3 Residential

Contaminated Land Management Plan

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Eastern Busway – EB2 and EB3 Residential

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List of Abbreviations and Definitions

Abbreviation and Definitions	Description
ACM	Asbestos containing material
AT	Auckland Transport
AUP(OP)	Auckland Unitary Plan (Operative in part) 2016
CEMP	Construction Environmental Management Plan
CLMP	Contaminated Land Management Plan
EB2	Eastern Busway 2 (Pakuranga Town Centre)
EB3R	Eastern Busway 3 (SEART to Ti Rakau Bridge)
EBA	Eastern Busway Alliance
ESCP	Erosion and Sediment Control Plan
ECR	Earthworks Closure Reports
HSWA	Health and Safety Work Act 2015
m	Metre(s)
m^3	Cubic Metre(s)
NES-CS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NoR	Notice of Requirement
PCBU	Person Conducting a Business or Undertaking
RMA	Resource Management Act 1991
RTN	Rapid Transit Network
SSESCP	Site Specific Erosion and Sediment Control Plan
SQEP	Suitably qualified and experienced practitioner
SVR	Site Validation Report

1 Introduction

Eastern Busway Alliance (EBA) has developed this Contaminated Land Management Plan (CLMP) on behalf of Auckland Transport (AT) to support the following stages of the Eastern Busway Project:

- The notice of requirement (NoR) and resource consent applications in relation to Eastern Busway 2 (EB2) – Pakuranga Town Centre, including the Reeves Road Flyover (RRF) and Pakuranga Bus Station.
- The application for resource consent in relation to Eastern Busway 3 – Residential (EB3R) – South Eastern Arterial (SEART) to Pakuranga Creek, including Edgewater and Gossamer Intermediate Bus Stations.

The combined EB2 and EB3-R work packages are hereon referred to as 'EB2/EB3R'.

1.1. Purpose, Objectives and Legislative Requirements

1.1.1 Purpose

The purpose of this CLMP is to detail the procedures to be implemented during construction works to control the disturbance and movement of identified contaminated and potentially contaminated soils during the construction of EB2/EB3R.

To achieve this, the CLMP presents relevant controls on excavation, reuse and disposal of any contaminated soil encountered during the construction of EB2/EB3R. In addition, it details soil handling requirements including personal protection equipment (PPE) recommendations and personal hygiene. The CLMP also outlines procedures and protocols in the event of unexpected discovery of contaminated soils during EB2/EB3R construction.

1.1.2 Objectives

The objective of this CLMP is to reduce the risk of adverse effects on human health and the environment by:

- Describing the nature and extent of contaminants remaining on site.
- Identifying the hazards associated with these contaminants.
- Setting out the measures to avoid or minimise these hazards.

The CLMP is also intended to provide protocols to help manage the unexpected discovery of previously unidentified contamination on sites.

1.1.3 Legislative Requirements

This CLMP has been developed in accordance with the Ministry for the Environment documents *Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand* (MfE CLMG No.1) (revised 2021).

The CLMP is an operational document, and its relevance and the procedures described herein need to be reviewed in light of any new circumstances that occur or information that may be presented. Any material updates or revisions of the CLMP will require certification by Auckland Council.

The Health and Safety at Work Act 2015 (HSWA), is the primary legislation in New Zealand for the protection of workers. This CLMP does not replace the health and safety systems and procedures, although it can serve to highlight unique or site-specific hazards and risks when contaminated soils are encountered during construction of EB2/EB3R.

For further guidance on all non-contaminated land construction activities please refer to the Construction Environmental Management Plan, the site specific Health and Safety Plan and relevant project work method statements. These documents will be produced prior to construction works starting in EB2 and EB3R

1.2. Project Description

This CLMP relates to stages EB2 and EB3R of the overarching Eastern Busway Project.

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

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

Key elements of EB2 include:

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

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

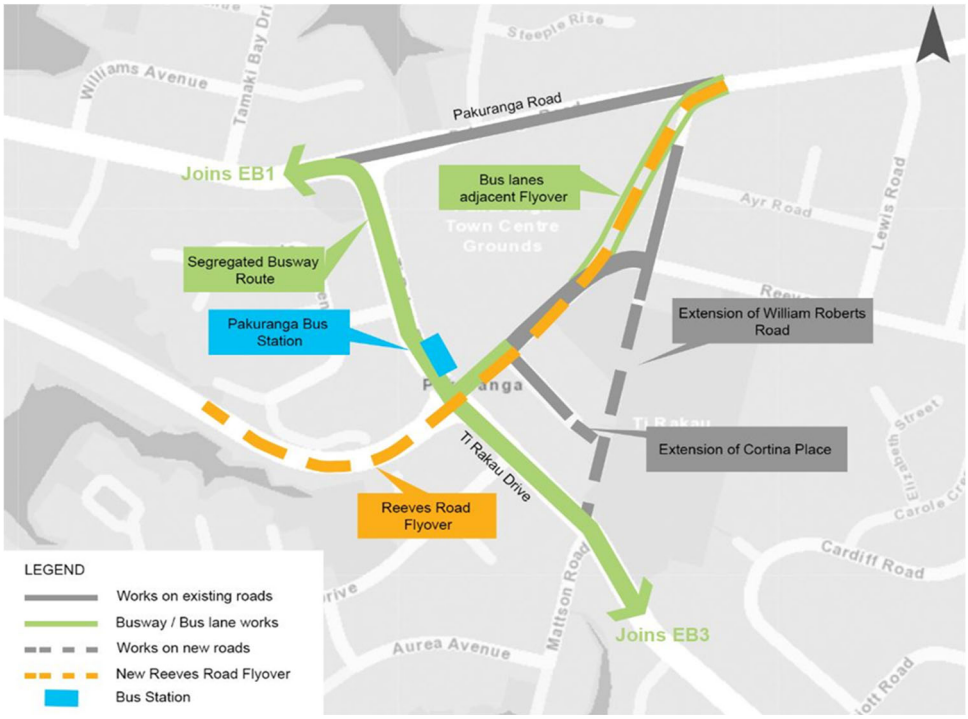

Figure 1 EB2 Overview

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

Key elements of EB3R include:

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

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

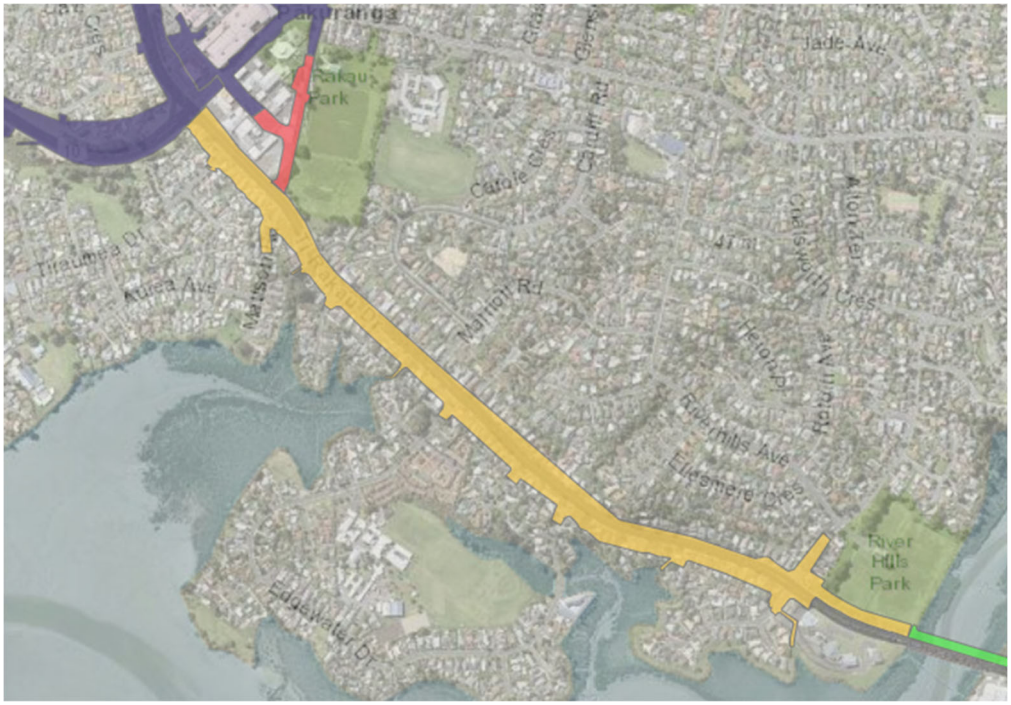

Figure 2 Location of EB3R (shown in yellow)

1.3. Roles, Responsibilities and Record Keeping

The team responsible for achieving CLMP objectives is set out in Table 1 below. Team members will have the appropriate experience, project involvement and responsibility to ensure that all relevant aspects of EB2/EB3R are considered when making decisions on CLMP implementation. This will ensure adequate resources, commitment and expertise is applied to site management throughout the construction period.

Table 1 Roles and Responsibilities

Person	Role	Responsibility
TBC	Project Director	• Overall responsibility for Project compliance and performance in relation to environment, quality assurance and incident management.
TBC	Environmental Lead	• Overall responsibility for Site environmental management. • Review and approve all relevant management plans for the Site. • Ensuring Site personnel are familiar with the contents of the CLMP. • Providing records of works completed.
TBC	Construction Manager	• Generation of a health and safety plan. • Record keeping (refer to **Section 9.2**). • Unexpected contamination discovery protocol. • Implementing the controls outlined in the CLMP, including installation and maintenance of sediment control measures in general accordance with the Site Specific Erosion Sediment Control Plan.
TBC	Site Superintendent	• Management of people and plant on site. • Reporting to the construction manager when contaminated, or potentially contaminated material is encountered on site. • Implementation of contingency and emergency measures in the event of an emergency.
Shannon Holroyd	Suitably qualified and experienced practitioner (SQEP) (Contaminated Land Specialist)	• Assisting in the management of soil disturbance and removal activities at the Site in general accordance with this CLMP. • Review of existing data and carrying out confirmatory sampling and testing for the identified potentially contaminated land where required. • Assess results in the light of proposed works and confirm required contamination controls.

		• Inspecting the earthworks on an as-required basis dependent on the level of contamination expected or identified in the area of works. • Responding to unexpected discoveries. • Working with the construction team to assist in defining suitable options for landfill locations to dispose of the contaminated soils from EB2/EB3R. • Preparing the necessary Site Completion Report (SCR)
TBC	Health and Safety Lead	• Implementing Health and Safety Protection measures

1.4.Suitably Qualified and Experienced Practitioner

The CLMP has been prepared and will be implemented and reported on by the SQEP in accordance with the NES-CS. The nominated SQEP, Shannon Holroyd, will be responsible for the preparation, implementation and reporting of this CLMP.

The role of SQEP is also defined by the NES-CS. The person is independent, applies good professional practice, and reports against contaminated land and industry guidelines.

The SQEP must also be engaged to oversee the earthworks in areas of potential contamination. All sampling and testing of contamination on the site must be overseen by the SQEP and undertaken in accordance with the *Contaminated Land Management Guidelines, No–5 - Site Investigation and Analysis of Soils*, Ministry for the Environment, revised 2021 (CLMG No.5). The nominated SQEP, Shannon Holroyd, will be responsible for overseeing earthworks. This responsibility includes activities associated with inspection and/or sampling of soil, such as:

- Identifying areas of potential soil contamination
- Review of soil data and provision of advice with respect to appropriate management and/or off-site disposal of material; and
- Review and evaluation of analytical data obtained from soil monitoring programmes, the results of which will be presented in a SCR

1.5.CLMP Review and Updates

The CLMP is an operational document and its relevance, and the procedures given herein, need to be reviewed at regular intervals or when any new circumstances or information may arise, and further updates may be necessary. Any updates or revisions of the CLMP will require certification by the Auckland Council. At any time, the certified CLMP, can be updated or revised. The updated or revised CLMP must be submitted to Auckland Council's Team Leader, Southern Monitoring for certification at least five working days prior to the new stage of EB2/EB3R commencing or as soon as practicable following identification of the need for a material change during construction, whichever is relevant. If a response has not been received (short of certification) from Auckland Council within five working days of submitting the revised CLMP, it will be deemed to have certification and works can commence on the stage or activity.

2 Designation and Resource Consent Condition Requirements

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

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

3 Summary of PSI Results, Site Characterisation and Contamination

3.1 EB2 and EB3 Residential

Environmental site investigations undertaken to inform the Contaminated Land Technical Report found the potential contaminated land effects of construction within EB2 and EB3R as presented in Table 2 below and their locations as identified in Figure 3.

Table 2 - Assessment of Effects within EB2 and EB3R.

Site Name	Landuse Activity	Effects
The carriageway adjacent to 3 Reeves Road	Service Station	- Exposure to contaminated soil and/or groundwater to construction workers (direct contact, ingestion or inhalation) - Discharge of soil contaminant to land or air during construction.
The carriageway adjacent to 11 Cortina Place / 64B Ti Rakau Drive	Service Station	- Exposure to contaminated soil and/or groundwater to construction workers (direct contact, ingestion or inhalation) - Discharge of soil contaminant to land or air during construction.

The EB2 and EB3R Contaminated Land Technical Report identified 3 Reeves Road as a service station and subsequently a site with HAIL activities occurring. Records indicated that at the time of the EB2 and EB3R Contaminated Land Technical Report, Auckland Council had not received any information pertaining to the soil and groundwater quality at 3 Reeves Road. As soil excavation is required for piling works adjacent to the site, any potential hydrocarbon impact in this area will be managed through the controls outlined in this CLMP.

11 Cortina Place / 64B Ti Rakau Drive has been identified as a former service station site in which remedial activities have occurred following the closure of the site. Previous reports indicated the remedial objectives have been meet within the site boundaries, however there may be residual hydrocarbon impact located within the carriageway adjacent to the site (Ti Rakau Drive). The residual hydrocarbon impact will be managed by this CLMP.

As highlighted in the EB2 and EB3R Contaminated Land Technical Report, asbestos was discovered in a residential area on Seven Oaks Drive (indicated in Figure 3 below) during geotechnical works. As part of the proposed works within the EB2 and EB3R footprint, numerous residential properties are planned for removal. Considering the ages of housing stock in the vicinity of EB2 and EB3R, it is possible that buildings may contain hazardous building material such as asbestos or lead based paint, which have the potential to provide localised impact to soil if in disrepair. Further information on the unexpected discovery protocol is detailed in Section 5.3 and asbestos management in Section 8.

Figure 3 – Areas of potential contamination in EB2 and EB3R

3.2 Contaminants of Concern

As HAIL activities have been identified within EB2 and EB3R, there is potential for hazardous materials to be encountered during works in the area identified in Section 3.1. This CLMP has been prepared to mitigate potential environmental and human health effects associated with any land disturbance works.

Potential contaminants of concern include:

- Heavy Metals
- Hydrocarbons, including Polycyclic Aromatic Hydrocarbons (PAH) and Total Petroleum Hydrocarbons (TPH)
- BTEX (Benzene, Toluene, Ethylbenzene and Xylene)
- Asbestos containing material (ACM)

3.3 Potential Impacts

Soils potentially impacted by contaminants of concern in the vicinity of the areas outlined in Section 3.1 could have an impact on:

- Construction/excavation worker safety and health during below ground works, with the principal exposure pathways comprising ingestion of or dermal contact with impacted soils.

- Receiving environment in relation to activities involving the handling of impacted soil such as off-site soil disposal or relocation of contaminated material to a previously unimpacted area and dewatering of excavations.

Prior to works in the areas identified in Section 3.1 the SQEP shall be notified, with land management procedures outlined below in Section 4 implemented. If sampling is required at the sites, it shall be completed in line with Section 9.1.

4 Health and Safety Requirements

A specific health and safety plan will be prepared for the works and developed in compliance with the relevant New Zealand regulatory agency requirements.

It is the responsibility of the landowner or controller of the place of work to communicate to all workers and contractors undertaking work on the site, the extent of residual contamination, associated hazards and recommended procedures. This CLMP provides information and recommendations to augment this process and is not intended to relieve the landowner or the controller of the place of work of their responsibility for the health and safety of their workers and contractors.

All personnel required to work on the site must have attended a project safety induction and site-specific inductions prior to commencing works at the site. Information pertaining to contaminated soils will be included in toolbox talks and will be included as a hazard on site hazard boards. The control mitigation measures relate only to the hazards associated with the HAIL activities identified across EB2/EB3R. However, all works carried out are required to comply with all relevant legislation and current best practice.

4.1 Construction/Excavation Worker Activities

The actual risk to maintenance/excavation workers has not been fully quantified and will depend on the nature of the works undertaken. However, as a precautionary measure, the following controls are recommended for works within the vicinity of the site:

- Before work commences, construction/excavation works staff shall be thoroughly briefed regarding potential exposures to contaminants of potential concern associated with the Site and the contents of this CLMP
- All workers directly handling potentially contaminated materials shall wear appropriate personal protective equipment (PPE) including (but not restricted to):
    - Nitrile gloves / cut resistant gloves
    - Safety boots (steel capped with non-slip durable soles)
    - Safety glasses
    - Long sleeved shirts and long pants or overalls.

Further details on PPE requirements for asbestos management are given in Section 9.

4.2 Personal Hygiene

To avoid the spread or ingestion of contaminated material employees are expected to maintain a high level of personal hygiene through the following requirements:

- Employees must allow for adequate personal decontamination including washing face and hands after handling soil and prior to eating, drinking, or smoking
- Employees must follow adequate hygiene protocols including no eating, drinking or smoking in the active construction areas. Eating, drinking or smoking shall only be permitted in specified areas of the site, and after decontamination has occurred
- Dirty clothes may become a potential source of contamination. Workers should wash long sleeve shirts, pants and overalls regularly (at least weekly) and/or use disposable overalls on a daily basis. Workers should be provided with changing and washing facilities to remove dirty clothes prior to leaving the Site.

5 Land Management Procedures

The following sections outline specific controls to manage potential contaminated soil disturbance effects.

5.1 Excavation

The following measures will be implemented during the excavation of soil materials:

- Where practical, land disturbance activities will be carried out during periods of settled weather in order to minimise the spread of dust and generation of stormwater runoff. Following extreme weather – site control measures will be inspected immediately before, during and after extreme weather (as appropriate) for any non-compliance with resource consent conditions
- Where practicable, any excavated soils will be placed directly into trucks (if disposal offsite is required). If temporary stockpiling is required refer to Section 5.3
- The duration of open excavations will be minimised. If excavations are to be left open at the completion of the workday, they shall be covered with impermeable polyethylene sheeting (or equivalent) to prevent ingress of rainfall. Silt fences and runoff diversion bunds and swales shall be utilised as appropriate to capture sediment in surface water runoff in areas around the perimeter of the works areas
- Minimising stormwater run-on by diversion around excavation areas
- The generation of dust during earthworks will be prevented by frequently monitoring dust generated during earthworks and monitoring wind conditions. If required, the excavation area will be dampened as necessary to minimise potential dust generation
- Reinstatement, stabilisation and compaction of excavated areas in accordance with the Erosion and Sediment Control Plan (ESCP).

5.2 Imported Fill

Materials will be required to be imported to the works area outlined in Section 3.1. All imported fill must comply with the definition of 'cleanfill' in accordance with '*A Guide to the Management of Cleanfills*', Ministry for the Environment (2002). Material sourced from a consented facility quarry or supplier does not require testing. Copies of the imported fill dockets are required to be retained by the EBA throughout the duration of works.

5.3 Stockpiling

Excavated soil from the areas identified in Section 3.1 may be required to be temporarily stockpiled, however where possible contaminated soil will be loaded directly into trucks and transported offsite to an approved landfill facility. To minimise the potential for dust generation, erosion or runoff of sediment-laden water and/or cross contamination, measures that will be implemented during stockpiling will include the following:

- If stockpiled the material removed should be segregated from any other material due for disposal
- Locate stockpiles in areas isolated from sensitive receptors, such as watercourses, drains, soakage areas, and the general public
- Minimising stormwater impacts by diversion around excavation areas
- Stockpiles to be placed on an impermeable base (for example, plastic sheeting)

- Stockpiles should be covered with tarpaulins anchored at the edges outside of working hours and during periods of heavy rain
- Minimising the duration of stockpiling
- Minimising the height of stockpiles providing a stable stockpile slope
- Covering of stockpiles to reduce the potential for dust generation.

Material removed and temporarily stockpiled in the areas identified in Section 3.1 will be sampled and handled in accordance with the procedures outlined in Section 5.6.2.

5.4 Groundwater Management

Earthwork operations may encounter groundwater during excavations in the work areas outlined in Section 3.1. Any perched groundwater, or surface water encountered in the excavation areas identified as contaminated and requiring removal must be considered potentially contaminated and must be either:

- Disposed of by a licensed liquid waste contractor
- Pumped to sewer, providing the relevant permits are obtained.

The groundwater can be discharged to a stormwater system if testing demonstrates compliance with the Australian and New Zealand Environment Conservation Council ('ANZECC') Guidelines for Fresh and Marine Water Quality (2000) for the protection of 80 per cent of marine species, with the exception of benzene where 95 percent protection applies.

Additional information on groundwater discharges can be found in Section 7.6.

For information on the general dewatering procedures refer to Appendix B of the ESCP. The purpose of the procedures is to set out a clear methodology for treating and discharging water from the site via pumping to ensure that the required level of sediment treatment on site is achieved during these operations.

5.5 Sediment Controls

Sediment generated by the works within the area highlighted in Section 3.1 shall not be allowed to be discharged into the stormwater system or coastal marine area (CMA).

Erosion and sediment control shall be managed in accordance with:

- Council's guidelines and other applicable legislation. In particular Auckland Council Guideline Document 2016/005 Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05, 2016); and
- The ESCP that will be prepared, as a condition of consent, for the project.

As a minimum sediment shall be controlled by the following measures:

- Silt fences and runoff diversion bunds and swales shall be utilised as appropriate to capture sediment in surface water runoff in areas around the perimeter of the works areas. Catchpit protection may also be required on the surrounding road.
- To ensure good practice:
    - Erosion and sediment control measures shall be upgraded/ modified where necessary

- Sediment fences shall be replaced if the fabric is ripped or otherwise damaged. They shall be retrenched if needed
- The weather conditions along with the performance of the erosion and sediment control measures shall be monitored on at least a daily basis, and after every significant rainfall event.

Erosion and sediment control measures shall remain in place until the site surfaces are returned to a stabilised condition.

5.6 Soil Management Options

The following controls shall be implemented during excavation, transportation, and disposal of contaminated soil.

5.6.1 Transportation of Contaminated Materials

- Material should be loaded directly into trucks (where possible) and transported to a registered disposal facility
- Truck and trailers will have a sealed tray and loads will need to be covered to mitigate the risk of inadvertent spillages and dust dispersal during transportation. If required, trucks and excavators entering the work area shall have their wheels, tracks or buckets scraped, washed or brushed down prior to leaving the work area
- Chain of Custody procedures will be followed to enable tracking of the soil and confirm disposal at the landfill facility. Waste manifests / weigh bridge receipts will be retained as proof of disposal
- As the waste soil containing contamination is to be consigned as waste, the landfill, at its discretion may require additional testing to confirm the absence of other contaminants in the soil.

5.6.2 Soil Disposal

Disposal of all materials is subject to approval by the landfill operator(s) and the necessary approvals/permits shall be obtained from the disposal destination prior to transportation of any materials from the site. All weighbridge dockets and a summary sheet shall be retained for inclusion in the Site Completion Report (refer to Section 9.3).

5.6.3 Imported Fill

In the event that any fill or soils are required to be imported to the site, the materials shall comprise either:

- Granular materials which are sourced directly from a licensed quarry. Such material will not require testing, provided documentation confirming the source of the material (for example weighbridge dockets or invoices and a summary sheet) is retained for inclusion in the Site Completion Report (refer to Section 9.3); or
- If soil or other fill materials need to be imported, then materials shall originate from:
  - A source that has previously been approved by Auckland Council regulatory services as being acceptable for this purpose; or
  - A site which has been determined by a SQEP to have had no known history of potentially contaminating activities, as detailed on the MfE's HAIL; or
  - A site which has been adequately investigated by a SQEP, in accordance with Contaminated Land Management Guidelines No.5 - Site Investigation and Analysis of Soils, (Ministry for

the Environment, revised 2011) to meet the 'cleanfill material' definition as prescribed by the AUP. This shall include:
    - Sampling at a rate of 1 sample for every 500 m^3; and
    - Testing for metals and PAH and depending on the land use at the material's source, testing for OCPs, asbestos and other contaminants of concern may also be required
  - It is preferable that the fill is tested at its source prior to its use at the site. However, if not, then the Contractor shall stockpile the fill on site until test results are available.

5.7 Dust Management

The contaminated dust generation risk at the locations identified in Section 3.1 is driven by the presence of contamination and the poor management of dust generating activities. The stockpiling of soils during excavation at these locations should be minimised and where possible directly loaded into trucks and taken off-site. If required, the truck's trailers should be covered with a tarpaulin to minimise dust generation during transport. It is recommended that truck and trailers have a sealed tray and loads are covered to mitigate the risks of inadvertent spillages and dust dispersal during transport.

The potential receptors of any contaminated dust release are primarily construction workers in the near vicinity but could extend to anyone within hundreds of metres in dry, windy conditions if not appropriately controlled.

The most effective way to control construction site dust is through good on-site housekeeping and mitigation measures including, but not limited to:

- Ensuring soil is covered when being transported by truck if required
- Limiting access to the working area to essential vehicles and personnel only
- Trucks and excavators entering the work area can have their wheels, tracks or buckets scraped, washed or brushed down prior to leaving the work area if required
- Where windy conditions persist and potential for dust generation is present; consideration should be given to use of light sprays to dampen the immediate excavation surfaces. Excessive wetting causing run-off or ponding of water should be avoided
- As required, consideration should be given to dampening and/or covering soil stockpiles (refer to Section 5.3)
- Minimise the time soil is exposed by back-filling or else cover any exposed soil with filter fabric
- Erection of temporary fencing with filter fabric to mitigate the risk of any dust being blown out of the area of works
- Setting vehicle speed limits on site
- The consent holder shall at all times control any dust from the site in accordance with the Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions, Ministry for the Environment (2001).

Should dust conditions result in potential exposure, the procedures described in Section 7.4 shall be implemented.

5.1 Odour Controls

Significant quantities of odour generating materials have not been encountered by investigations previously undertaken in the vicinity of the site and are therefore not expected to be encountered during these works. However, should odorous materials be encountered the procedures described in Section 7.5 shall be implemented.

6 Unexpected Discovery of Contaminated Land

Previously unidentified contaminated soils or other materials may be discovered during the works. The following sections provide a framework for how discoveries of unexpected contamination will be managed.

6.1 Evidence of Contamination

Various visual and olfactory signs can indicate potential contamination in soil. However, not all contaminants present visual or olfactory cues. Possible evidence of contamination may include the following:

- Staining / discolouration of soil i.e., typically black or green staining or a hydrocarbon sheen; Odour i.e., hydrocarbon, solvent, sewage, rotten egg odour.
- ACM including fragments or fibres.
- Industrial by-products / combusted materials (ash or slag).
- Refuse and debris i.e., metal fragments or plastic.
- Drums, sumps, or storage tanks.
- Sheen or oily liquids in soil or on water.
- Soil which is likely to be imported fill material i.e. different texture, colour, and/or consistency to the native ground.

6.2 Communication and Notification

In the event that contaminated, or potentially contaminated material is encountered, the following immediate actions will take place:

- Work will cease immediately
- Assess potential immediate hazards; if unsafe, move away and secure the area. If the discovery is assessed as presenting an imminent hazard or danger, project emergency contacts shall be notified; and local emergency services shall be notified by dialling 111
- Report the find to the Site Superintendent who will then contact the Construction Manager or the Environmental Lead. The Construction Manager is responsible for making the site safe
- If possible, contain any contaminant dispersion away from the excavation
- Shut off any water flow away from the excavation area
- The Construction Manager and Environmental Lead shall assess the site. If the assessment concludes that confirmation of contamination is required, temporary isolation and containment measures will be installed, and advice will be sought from the SQEP
- The Construction Manager will be responsible for the implementation measures and reporting to the Council Compliance Officer, as required. Verbal reporting will be undertaken within 24 hours or the next business day following the incident occurring
- The Construction Manager is responsible for the development of a site-specific health and safety plan to manage risk to workers and the public during the proposed road upgrades. This plan may require additional measures over and above what is prescribed in this document

- The Environmental Lead should maintain a register of any contaminated material discovered, including location, type, quantity and disposal records (landfill receipts and waste manifest)
- Once safe to do so, any pooled rainwater within the excavation should be disposed of to a licensed facility.

6.3 Further Actions

As appropriate, some or all the following actions will be undertaken in the event of unexpected discovery of contaminated land:

- EBA and the SQEP will develop a strategy for characterising and delineating the contaminated material (in accordance with NES-CS and CLMG No. 5)
- If necessary, works will relocate to an area outside of the suspected contaminated area until the contaminated material has been characterised
- Work will not resume or commence until the SQEP has advised it appropriate to do so and the procedures in Section 7 have been satisfied
- Maintain a register of any contaminated material discovered, including location, type, quantity and disposal records (landfill receipts and waste manifest).

7 Contingency Measures

The following actions are proposed if unexpected conditions are encountered or personnel are exposed, discharges occur and/or complaints are received in relation to the works. Mitigation measures should be applied in accordance with the hierarchy of control – eliminate, isolate and minimise. The unexpected discovery protocol in Section 6.1 applies more specifically to contaminants discovered on site.

The roles and responsibilities of personnel are described in Section 1.3. In the event of an emergency the Site Superintendent shall be responsible for implementation of contingency and emergency measures.

7.1 Emergency Procedures

Emergency procedures appropriate to the proposed works shall be established prior to the start of works. The only additional emergency requirement relating to working on a contaminated site is that provision should be made to notify any responding emergency personnel of the presence of contamination. A copy of this CLMP should be available at the work site so it can be referred to by emergency personnel, if necessary.

Should an incident occur on site which may result in any unauthorised discharges (vapour, odour, water, soil, separate phase hydrocarbons (SPH) etc.), the Construction Manager will take control of the situation and coordinate the efforts of all personnel on site to minimise the impact. Ultimately, in the event, albeit unlikely, that sustained and uncontrollable discharges (exceeding the specified action levels) occur from the site, emergency response and evacuation procedures, including provisions for notifying and managing neighbouring site users, shall be implemented. The emergency response and evacuation procedures shall be specified in the project specific health and safety plan.

7.2 Decontamination Procedures

Decontamination of personnel and portable equipment must be carried out to reduce health, safety, and environmental risks and limit the migration of contaminants (from waste material, soil, water, equipment and PPE) around, and outside, the site. All personnel and equipment involved in ground-breaking activities must be thoroughly decontaminated before leaving the site. Decontamination facilities shall comprise, as a minimum:

- Facilities for storing and changing PPE
- Boot wash facilities
- A hand and face wash facility
- Bins for disposal of contaminated gloves and other consumables.

The following steps must be taken for decontamination of all personnel and equipment.

- Liquid wastes shall be handled as specified in Section 7.6
- All equipment, including heavy earthmoving equipment, shall be decontaminated before it leaves the work area. This shall consist of removal of all soil and dust from parts that have come into contact with contaminated soil or groundwater. Wash down water and sediment shall be contained to allow collection for treatment and / or disposal as specified in Section 7.6.

- Once all equipment has been decontaminated, all personnel shall undergo personal decontamination comprising:
    - Rinsing and / or scrubbing of boots, gloves and other PPE to remove dirt and dust residues
    - Removal of all PPE with disposable items such as gloves and dust masks (if worn) placed into a plastic bag or drum for waste collection
    - Thorough washing of hands and face with soap and water.

All personnel need to complete the personal decontamination procedures whenever they stop work, i.e. for meal breaks, toilet breaks etc. Decontamination shall be undertaken immediately in the event of any body parts coming in direct contact with any soil, groundwater, surface water.

The work area shall be decontaminated at the completion of works within that area. This shall consist of removal of all soil and dust from the ground surface by sweeping, scraping and / or washing down as appropriate.

7.3 Notification Requirements

The Construction Manager shall be notified **immediately** in the event that any contingency measures are required to be implemented or an unexpected discovery of contamination is made.

Auckland Council shall be notified in writing as soon as practicable in the event of receiving any complaints.

7.4 Dust Exposure

The following hierarchy of actions is proposed in the event that dust discharges occur from the works:

1. The wearing of dust masks shall be implemented in the event that visible dust is generated. If dust is discharging beyond the boundary of the work area the following actions shall be implemented immediately
2. Increase wetting of the exposed materials until discharges are mitigated. Consider employing automated suppression systems if problems are recurring
3. Cover or temporarily backfill excavations to address discharges while alternative mitigation measures are implemented. Alternative mitigation measures may start with revising operational procedures, for example significantly reducing open areas in conjunction with the controls described above. If the discharges persist, professional advice should be sought in order to define appropriate control measures. It is recommended that consultation with appropriate Council representatives also be undertaken prior to recommencing works.

7.5 Odour Exposure

If odorous materials are encountered:

- Works in the immediate area shall cease
- If possible, the odour generating materials shall be covered, such as with a layer of non-odorous soil or polyethylene sheeting
- The Contaminated Land Specialist shall be consulted immediately in order to assess if the odours may indicate a potential issue that requires further management in accordance with Section 6.

7.6 Water Discharges

Where the quality of water being discharged from the site cannot meet the standards required for discharge to stormwater, or unexpected contamination conditions are encountered (refer to Section 6), additional controls will be required.

If unexpected contamination conditions are encountered the following controls shall be implemented:

- The area in which unexpected contamination conditions have been encountered shall be isolated so that stormwater from this area can be separated from that generated across the wider site
- If dewatering is required to continue from the area in which unexpected contamination conditions have been encountered then the effluent should either be contained for testing prior to disposal, or one of the options below could be implemented
- The procedures described in Section 7.2 shall be implemented.

A number of options could be employed if the quality of water being discharged from the site cannot meet the standards required for discharge to stormwater on an ongoing basis, including, but not limited to:

- Collection and discharge to an appropriately designed soakage system within the site.
- Improving effluent quality through additional treatment
- Collection (for example by tanker trucks) for off-site disposal to an appropriately licensed facility
- Discharge to sewer, subject to removal of sediment and issue of any necessary temporary trade waste permits. However, diversion to trade waste cannot be assumed to be available.

The Contaminated Land Specialist is to be consulted to assist with defining appropriate control measures if the standards required for discharge to stormwater cannot be met.

8 Asbestos Management

As part of the works within EB2 and EB3R, residential properties are planned for removal. Owing to the ages of the housing stock in the vicinity of EB2 and EB3R, it is possible that buildings may contain hazardous building material such as asbestos or lead based paint, which have the potential to provide localised impact to soil if in disrepair. The procedures set out in this section are required to be implemented, in addition to those set out in the remainder of the CLMP, during ground disturbance works in any area(s) where ACM is identified (e.g. below ground infrastructure) or suspected (e.g. based on observation of demolition debris) to be present in ground.

Additional controls may also be required for works involving structures/buildings that include ACM; such works are beyond the scope of this CLMP. The contractor shall seek advice from a Licensed Asbestos Removalist. For information on the removal of buildings and procedures to mitigate the risk of localised impact to soil from hazardous materials, refer to Section 3.5 of the CEMP. Additionally, information is provided in Appendix A of the CEMP on the handling and storage of hazardous materials.

In accordance with Regulations 13 and 32 of the Health and Safety at Work (Asbestos) Regulations 2016 (Asbestos Regulations), an Asbestos Management Plan and/or Asbestos Removal Control Plan may be required to be prepared in addition to this CLMP.

8.1 Determination of Level of Control Required

To help achieve compliance with the Asbestos Regulations, WorkSafe New Zealand has prepared an Approved Code of Practice (ACoP): Management and Removal of Asbestos (September 2016). The key requirements of the regulations and ACoP are that works involving asbestos contaminated soils must be undertaken with appropriate asbestos controls in place and that contaminated soil removed from site must be taken to an approved disposal site. The ACoP refers readers to the Asbestos in Soils Guidelines, which were published in November 2017 by BRANZ Ltd, for further guidance.

The Asbestos in Soils Guidelines apply by increasing the level of oversight and controls as the concentration of asbestos in soil increases. As the concentration of asbestos in soil (if any) will not be known in the event of unexpected encounters the following is proposed:

- Works should halt in this area until the presence or absence of asbestos and the concentration is confirmed. Suspected ACM/soils should be backfilled/dampened down/covered to prevent asbestos fibre release
    - The SQEP or Contaminated Land Specialist shall inspect the work area and review the proposed works against the observed asbestos conditions, including any available soil testing data and asbestos condition surveys of any nearby structures, to assess the potential effects of asbestos in soils
    - If the above assessment indicates that it is possible that asbestos in soil will be encountered at concentrations exceeding the relevant standards for commercial/industrial use defined in the Asbestos in Soils Guidelines, soil sampling shall be undertaken in accordance with the procedures set out in Section 9.1
    - If the soil sampling results indicate (based on comparison to the requirements of the Asbestos in Soils Guidelines) that the works need to be undertaken as Class A or Class B works (generally only where high concentrations of fibres or fragments are present), EBA shall engage the services of a Licensed Asbestos Removalist
    - The Licensed Asbestos Removalist shall determine what notification and additional asbestos management controls may be required to supplement the procedures set out in this CLMP, including the requirement for an asbestos removal control plan.

The following procedures provide guidance on anticipated asbestos controls, however, for Class A or Class B works the appropriateness of these procedures are to be confirmed by the Licensed Asbestos Removalist in consultation with the Contaminated Land Specialist.

8.2 Air Monitoring

If the soil sampling results indicate (based on comparison to the requirements of the Asbestos in Soils Guidelines) that the works need to be undertaken as Class A works then air monitoring shall be implemented by a Competent Person. Monitoring requirements shall be determined by the SQEP or an independent licensed asbestos assessor, in accordance with the requirements of the regulations and ACoP. Air monitoring is not required for lower classes of asbestos removal works. However, is recommended where the works are proposed to be undertaken in or near sensitive locations, such as playgrounds etc.

8.3 Establishment of Asbestos Work Area

In addition to the general health and safety site requirements set out in this CLMP (refer to Section 4) the following shall be established prior to commencement of any asbestos works:

- Establishment of the 'asbestos work area' by fencing and displaying appropriate signage, including dust barriers/scrim where necessary. The controls should be sufficient to prevent accidental access to or trafficking across this area
- Establishment of an access way to the 'asbestos work area'
- Establishment of a truck loading area and decontamination area adjacent to the asbestos work area', to prevent machinery and trucks from trafficking asbestos contaminated soils outside the 'asbestos work area' and contaminating otherwise asbestos free materials. These controls are additional to those set out in Sections 5.6.2 and 7.2
- Permits for disposal of asbestos-contaminated soil shall be obtained from the selected disposal site(s), if required.
- Provision of PPE including dust masks (as a minimum), disposable or dedicated cloth overalls, and disposable gloves (refer to Sections 4 and 8.6.2)
- Health and safety inductions are to be completed prior to allowing workers to operate within the 'asbestos work area', including works required as part of the site establishment
- Notification to Auckland Council and WorkSafe of the intent to commence works.

8.4 Personal Protective Equipment

Personal protective equipment shall comply with the requirements set out in the Asbestos in Soils Guidelines.

8.5 Segregation

Any soil removed from the 'asbestos work area' must be kept separate from all other excavated soils to prevent cross contamination. It is preferable that the soil be excavated directly onto trucks for removal however if stockpiling is required the following must apply:

- Soils containing asbestos must be placed in a fenced area and warning signs erected
- Contaminated soil stockpiles shall be placed on sheeting or similar to prevent contamination of underlying clean material

- The stockpiled shall be covered with geotextile or a polythene cover to prevent rainfall induced erosion and dust.

8.6 Decontamination

Decontamination of personnel and portable equipment must be carried out to reduce safety, health and environmental risks and limit the migration of contaminants (from waste material, soil, water, equipment and PPE) around, and outside, the site. All personnel and equipment involved in ground-breaking activities within the asbestos work area must be thoroughly decontaminated before leaving the area.

Decontamination procedures shall comply with the requirements set out in the Asbestos in Soils Guidelines (refer to Table 6 and 7 of the document). As a minimum the decontamination procedures described in Section 7.2 shall be implemented. Specifics regarding decontamination procedures are detailed below.

8.6.1 Decontamination Area

A decontamination area will be established on site for the use of the personnel conducting the asbestos clean-up works. The decontamination area will comprise of a segregated area where any contaminated work clothing and respirators are removed and discarded.

Prior to any work commencing on any of the Designated Work Areas, suitable barricades are to be erected around the boundary of the work site. Asbestos Warning Signage will be provided at suitable intervals and at all entrances detailing the restriction of access to the site.

The following procedures have been written utilising the decontamination procedures outlined in the WorkSafe New Zealand guidelines for the management and removal of asbestos (3rd Edition).

8.6.2 Tools and Equipment

Prior to being removed from site all tools, where required, will be decontaminated in the following

manner:

- Decontaminated using wet or dry decontamination methods as outlined in the NOHSC Code of Practice for the Safe Removal of Asbestos (2nd Edition, 2005a) (i.e. fully dismantled and cleaned under controlled conditions); or
- Placed in sealed containers (and used only for asbestos removal work); or
- Disposed of as asbestos waste.

If tools cannot be decontaminated within the asbestos work area, or are to be re-used on another project, they will be tagged to indicate possible contamination and double bagged in asbestos waste bags before being removed from the asbestos work area.

8.6.3 Personal Decontamination

All personnel while working within the Designated Work Areas or in any other way being affected by asbestos contaminated material will be required to decontaminate at the end of each work shift (i.e. before morning tea, lunch, and afternoon tea) and at the end of the work day.

The Change Area is the area in which potentially contaminated PPE must be removed prior to leaving the Designated Work Area. It is to be located at the entry to the Designated Work Area. It must not be used for purposes other than decontamination. It must not be used as a materials storage area. All personnel leaving the asbestos work area must use the Change Area prior to leaving the site.

Personal respiratory protective equipment will continue to be worn until all contaminated disposable coveralls and clothing has been vacuumed and/or removed and bagged for disposal, and personal washing completed. Personnel are required to ensure that no asbestos soiled clothes or PPE leave the decontamination area to the 'clean end' of the area. Personal protective equipment (PPE) is to be provided to all personnel working in the Designated Work Areas and must be available within the decontamination area.

8.7 Soil Management

If asbestos contaminated soil is to remain on site it shall be encapsulated beneath hard pavement (concrete or asphalt). In all cases the location of the encapsulation area shall be recorded by survey and incorporated into this CLMP and/or any Asbestos Management Plan implemented for the area.

If the soil is to be removed, it must be disposed to a facility licensed to receive the appropriate level of asbestos contaminated waste as discussed in Section 5.6.2.

8.8 Clearance of Asbestos

Clearance or validation requirements (if any) shall be determined by the Contaminated Land Specialist in accordance with the resource consent requirements and in consideration of the relevant MfE Contaminated Land Guidelines and Asbestos in Soils Guidelines (as appropriate). Further detail with respect to validation and reporting requirements is provided in Section 9.

9 Reporting and Validation

9.1 Soil Sampling

If the SQEP considers additional soil sampling is necessary, the sampling will be undertaken in accordance with the Ministry for the Environment's *Contaminated Land Management Guidelines No. 5 Site Investigation and Analysis of Soils* (Revised 2011) (CLMG No.5).

Any sampling and testing for contamination shall be overseen by the SQEP identified in section 1.4. Dependent on what is found at the sites the SQEP will provide guidance with respect to the testing requirements.

The SQEP shall identify potential contaminants on the basis of visual and olfactory observations and review of existing data (where relevant).

The Contaminated Land Specialist shall evaluate any analytical results against soil contaminant standards adopted in accordance with the NES Soil and permitted activity requirements set out in AUP.

9.2 Information to be provided by Contractor

The following information is required from the Contractor for inclusion in project reporting:

- Copies of any additional laboratory analyses
- Copies of weigh bridge summaries for the disposal destination for all contaminated materials
- Documentation confirming the source, and where necessary testing (refer to Section 6.4.4), of any fill or soils imported during works
- Records of visits by council representatives
- Details of any complaints
- Details of any health and safety incident related to the contamination and how they were resolved
- Details of unexpected encounters/events and the action taken.

The Contractor shall provide the required information within 1 month of completion of the works to which the information relates.

9.3 Site Completion Report

The SQEP will prepare a Site Completion Report, to be provided to Auckland Council within three months of the completion of the works programme. The report will include the following:

- A summary of the works undertaken, including a statement confirming whether the excavation of the site has been completed in accordance with the CLMP
- A summary of inspections and oversight completed by the SQEP
- The location and dimensions of the excavations carried out, including a site plan
- A summary of testing undertaken (if applicable) including tabulated analytical results
- Records of any unexpected contamination encountered during the works and contingency measures undertaken (if applicable)
- Details of any validation soil sampling completed in areas of unexpected soil contamination and vicinity of fill material previously identified as exceeding the adopted soil acceptance criteria (if applicable)
- Copies of the disposal dockets for the contaminated fill and 'cleanfill' material removed from the site
- Copies of the SQEP site inspection documentation

- Details regarding any complaints and/or breaches of the procedures set out in the certified CLMP, and how any incidents or complaints were addressed
- Results of testing, if required, of any soil disposed offsite
- Results of testing of any imported fill material
- Identification of any areas which need on-going monitoring and management.

The Site Completion Report will be submitted to Auckland Council for their records. Once within the Auckland Council records system, the public will be able to access this report as part of a property file request.

If the asbestos management procedures set out in Section 8 are required to be implemented during the works additional clearance reporting to WorkSafe maybe necessary to comply with the Asbestos Regulations. Clearance reporting requirements shall be determined by the Contaminated Land Specialist.

Table 3 Record Keeping

Record	Role
Permits and Safety Documentation	Construction Manager
Imported soil and exported soil records, including reuse documentation	Construction Manager
Unexpected contamination Discovery documentation	Construction Manager
Any soil and groundwater sampling works	SQEP