

Hazardous Substances Management Plan (HSMP)

Hazardous Substances Management Plan (HSMP) Revision History

Revision N°	Prepared By	Description	Date
1.0	Kate Ward/Raymond Chang	Draft for internal review	18 March 2013
1.1	Kate Ward/Raymond Chang	Draft for external review	12 April 2013
2.0	Kate Ward/Raymond Chang	Final for certification	24 April 2013
2.1	Kate Ward/Raymond Chang	Updated Final for Certification	1 July 2013

Independent Review

Action	Name	Signed	Date
Reviewed by	Rob Burden		18 April 2013

Document Acceptance

Action	Name	Signed	Date
Prepared by	Kate Ward/Raymond Chang		1 July 2013
Reviewed by	Kerry Laing (Kerrich Environmental Ltd)		1 July 2013
	Kylie Eltham and Anna Lewis (M2PP Alliance)		1 July 2013
Approved by	Alan Orange Alliance Project Manager		1 July 2013
on behalf of	M2PP Alliance		

Certification

Action	Name	Signed	Date
Regulatory Manager Approval	Andrew Guerin		26 August 2013
on behalf of	Kāpiti Coast District Council		

Table of Contents

1	Introduction	1
1.1	Purpose	1
1.2	Scope	1
1.3	Environmental plans/maps	2
2	Environmental aspects	2
3	Environmental performance standards	3
4	Legislative requirements	3
4.1	HSNO Act	4
4.2	HSNO controls	4
4.3	Storage	8
4.4	Diesel storage	10
5	Relevant planning and policy documents	10
5.1	Introduction	10
5.2	Regional planning framework	10
5.3	District planning framework	10
6	Roles and responsibilities	11
7	Training	11
8	Standard operating procedures	11
8.1	Summary of requirements	11
8.2	Hazardous substances register	12
8.3	Purchasing	12
8.4	Safety Data Sheets	12
8.5	Location plans	12
8.6	Labelling	13
8.7	Disposal	13
8.8	Spill response plan	13
8.9	Spill kits	14
8.10	Emergency response	14
9	Monitoring requirements	15
10	Updates and review	16

Appendices

Appendix A – Hazardous Substances and Controls Table

Appendix B – Hazardous Substances Register

Appendix C – Location of Hazardous Substances Storage Areas

Appendix D – Fletcher Environmental Procedure ENV-02

Appendix E – Independent Review Comments

Appendix F – KCDC Review Comments

Quick Reference Guide to Conditions

Condition Number	Condition Requirement	Comments	Key Final HSMP Reference
DC.50	Outcome from the HSMP; Relevant standards	HSMP to be reviewed quarterly to confirm completeness and compliance with regulations.	Section 1.1 (outcomes) Section 4 (standards)
DC.51	Purpose and matters to be addressed in the HSMP; Certification requirement		Section 1.1 and 1.2
DC.52	Independent review requirement	The HSMP has been independently reviewed by Rob Burden.	Appendix E

How to use this document:

The Project team is required to control and manage the storage and use of hazardous substances associated with the Project.

When any new hazardous substance is brought onto the site the following procedure must be followed:

1. Refer to Appendix A:

- Determine the trigger quantities and relevant controls for any hazardous substance stored within the Project footprint.
- Where the substance is not listed, obtain a HSNO classification for the substance from either the Safety Data Sheet (SDS) or the supplier and determine the required controls.
- Where specific controls are required refer to the appropriate section of this plan for guidance.

2. Update Register (Appendix B)

3. Update plan showing hazardous substance storage areas (Appendix C)

- This map must show the location of:
 - hazardous substance storage areas;
 - fire fighting equipment; and
 - spill kits.

4. Review storage area

- Hazardous substances should be stored safely and securely in accordance with their specific controls and requirements, such as considering whether:
 - Secondary containment is required
 - Secondary containment is sufficient.

5. Review general requirements

- Ensure all hazardous substances are correctly labelled.
- Ensure all hazardous substances are correctly transported.
- Dispose of all hazardous substances and their containers appropriately.

1 Introduction

1.1 Purpose

The purpose of this Hazardous Substances Management Plan is to fulfil the requirements of the MacKays to Peka Peka designation condition DC.51(b):

DC.51 b) "...i) to provide information to the contractor in regard to acceptable management methodologies to incorporate during construction; and ii) to outline the methodologies and processes that will be adopted to ensure that the risks of storing and using hazardous substances within the Project area will be appropriately managed by the Requiring Authority...in order to achieve the outcomes and standards required under Condition DC.50(a)(i).

This management plan is submitted to the Manager in accordance with DC.51 a) for certification.

This Hazardous Substances Management Plan (HSMP) forms part of the comprehensive suite of management plans that have been prepared for the construction phase of the MacKay's to Peka Peka Expressway Project. This document outlines the hazardous substances that are to be used or stored as part of the construction activities, and how the risks associated with these substances are to be managed.

This document has been prepared for three distinct purposes:

- 1) to assist the Alliance to manage hazardous substances on site;
- 2) to provide information to regulatory authorities to demonstrate that the possible risks as a result of storage and use of hazardous substances have been considered and will be appropriately managed by the Alliance; and
- 3) to provide details to the consenting authorities as to how the conditions of consent will be complied with whilst the project is undertaken.

1.2 Scope

This management plan outlines appropriate hazardous substance methodologies for:

- Storage;
- Handling;
- Transport; and
- Disposal.

Through the management of these aspects potential health and safety effects will be minimised and environmental risks will be reduced.

The construction phase of this Project is estimated to take approximately 5 years and will involve the formation of a number of construction yards and laydown areas within the construction designation. The storage of hazardous substances will be limited to two main construction compounds. The storage of small quantities of diesel and other miscellaneous products may be undertaken at other locations but only in bunded, covered locations identified with the appropriate signage.

Should changes be made to requirements for hazardous substance storage and use, this plan will be reviewed and updated as required. The review process will be undertaken with regard to and in accordance with Condition DC.9 of the consent.

1.3 Environmental plans/maps

The management of the potential effects of the construction phase of the Project are outlined in a suite of management plans and maps. A number of these plans and maps are relevant to the management of hazardous substances; Table 1 below outlines the location of these plans and their relevance to the management of hazardous substances.

Table 1 – Relevant Management Plans and Maps

Plan/Map	Relevance	Location
Erosion and Sediment Control Plan (ESCP)	Sediment retention devices such as ponds or decanting earth bunds may be impacted by spills of hazardous substances.	Site specific CESCPS
Ecological Management Plan (EMP) and Landscape Management Plan (LMP)	Sensitive receiving environments which may be impacted by spills of hazardous substances	Appendices of the Construction Environmental Management Plan (CEMP)

2 Environmental aspects

The storage and use of hazardous substances within the Project footprint presents a number of potential environmental risks including discharge to the environment, impacts on human health, fire and explosion.

Adverse effects resulting from poor management practices associated with hazardous substances can include:

- the contamination of surface and groundwater, soils and air;
- damage to the environment and ecosystems that can be short term or long term in nature; and
- damage to human health and wellbeing (short term and long term).

A draft hazardous substances register and associated risk rating has been included at Appendix B. This register identifies the main types of hazardous substances which will be used and stored on site, potential hazardous properties and the subsequent hazard rating.

The primary control for the management of hazardous substances will be to keep the handling and storage of hazardous substances (type and volume) to a minimum.

3 Environmental performance standards

The storage, use and management of hazardous substances within the Project footprint are subject to the following environmental performance standards:

- Hazardous Substances and New Organisms Act, 1996 (HSNO), HSNO Regulations and gazette notices, in relation to:
 - Storage, Use and Disposal
 - Appropriate design to prevent / reduce the potential for any accidental spillage or leak of hazardous substances
 - Containers are appropriately labelled to identify potential hazards.
- Transportation of hazardous substances must be performed in accordance with the Land Transport Management Act, 2003.
- Ensure the Emergency Response Plan is in place to provide the framework to manage any incidents involving hazardous substances.
- Training systems implemented to provide appropriate training on the handling, storage and use of hazardous substances.

4 Legislative requirements

The following legislative standards and other requirements have been identified as relevant to the management of hazardous substances for the Project:

- The HSNO Act and Regulations
- Relevant conditions of the consents granted for the Project
- Regional and District Plan Rules
- Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004 and the Land Transport Rule 45001/1 and 45001/2: Dangerous Goods 2005
- NZTA – Standard Operating Procedure for Response to Spills Arising from Transport Incidents on the State highway Network, March 2010.

These requirements will be reviewed annually to confirm completeness and compliance with regulations. Where necessary, this plan will be amended to account for any changes in legislative requirements.

4.1 HSNO Act

The use, storage, transportation and disposal of hazardous substances are managed under the HSNO Act. The HSNO Act deals with the safe management of all hazardous substances. Hazardous substances are substances that are explosive, flammable, oxidising, toxic, corrosive, or harmful to the environment. The following hazard classes are defined under HSNO:

- explosiveness (Class 1)
- flammability (Class 2, 3, 4)
- oxidising ability (Class 5)
- toxicity (Class 6)
- corrosiveness (Class 8)
- ecotoxicity (Class 9).

HSNO requires substances to be controlled throughout their lifecycle and prescribes regulations covering packaging, identification, emergency management, tracking, storage, handling, and disposal.

The storage of hazardous substances at the construction sites will be kept to a minimum. A list of hazardous substances to be stored within the Project footprint is outlined in **Appendix A**. This list of hazardous substances will be reviewed and amended by the Project team prior to establishment of the site to reflect the complete list of hazardous substances that are proposed to be used within the Project. The classifications or group standards and controls that maybe triggered under HSNO Act are also provided. Further discussion will be provided in later sections describing each of the controls that may be triggered depending on the quantity of material.

4.2 HSNO controls

HSNO Act is a complex legislative framework. This section is intended to give a general understanding of the types of controls that are required under HSNO Act and how these controls will be implemented. This section is not exhaustive, and the advice of a suitably trained and experienced person will be sought where required.

4.2.1 Hazardous atmosphere zones

The definition of a Hazardous Atmosphere Zone is outlined in AS/NZS 2430.3.1:2004 as:

An area (three dimensional) in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of potential ignition sources.

Examples of potential ignition sources are electrical equipment, naked flames, sparks from grinding and welding operations, as well as hot surfaces.

The controls table in **Appendix A** outlines the trigger values above which hazardous atmosphere zones will need to be established. The purpose of these zones is to reduce the likelihood of accidental ignition.

Where a hazardous atmosphere zone is required, a suitably qualified and experienced professional must provide advice on the suitable storage and application for appropriate approvals.

4.2.2 Segregation and storage

Chemical substances may react in a violent or unexpected manner when mixed producing heat, pressure fire and/or explosion. A reaction may also result in the production of toxic or flammable dusts, mists, fumes or gases. Chemicals which may react in this manner when mixed are referred to as “incompatible”.

The HSNO Act outlines how incompatible substances should be segregated for storage in order to manage the potential effects. Segregation involves separation using distance or partitioning to isolate incompatible substances. Partitioning methods include using partitions, berms, bunds or spill pallets and approved cabinets.

A substance’s Safety Data Sheet (SDS) will provide information on incompatibility of substances and **Appendix A** outlines the classes of substances with which a substance is incompatible. Typically, specific care should be taken with the storage on flammable and oxidising substances.

4.2.3 Approved handlers

An “Approved Handler” is a person who is competent and certified to handle certain hazardous substances. For a person to become an Approved Handler, they must meet the requirements of the Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001.

Appendix A outlines at what quantities an Approved Handler is required. Handling may be performed by personnel other than the approved handler provided an approved handler is present, providing guidance and available at all times to provide assistance, as required, to the person while the substance is being handled.

Approved Handlers are also required for the transportation of hazardous substances. This person is deemed compliant if the person who loads, unloads and drives the vehicle has a current dangerous goods endorsement on their driving licence and the Land Transport Rule is complied with.

The Alliance work force will have a number of Approved Handlers on it at any one time. Certified Approved Handlers will be identified on the training database.

4.2.4 Location test certificates

A location test certificate is a certification of storage and provides administrative controls associated with highly flammable and oxidative substances. In order to obtain a test certificate a Test Certifier will undertake a review of the following aspects of hazardous substance management at the site:

- Administrative controls;
- Control of the ignition sources, including hazardous atmosphere zone and controlled zone provision;
- Segregation and storage of hazardous substances;
- Protective equipment and clothing in some instances;
- Signage; and
- Emergency management, including secondary containment.

Appendix A notes the substances that will be held on site, with their respective threshold quantities.

It is expected that all hazardous substances held on site will be below the levels which trigger the requirement for a Location Test Certificate.

4.2.5 Fire extinguishers

Appendix A notes the substances and quantities stored which trigger the requirement for fire extinguishers. Where fire extinguishers are required these must be located within 30m of the storage location. Fire extinguishers must be regularly serviced in accordance with the manufacturer's specifications.

Fire extinguishers will be located at each Hazardous Substances Storage Facility.

4.2.6 Signage

Signage requirements are triggered for various substances stored within the Project footprint. These substances and the quantities above which signage is required are outlined in **Appendix A**.

Where the substance is stored within a building, signage must be placed at every entrance (vehicular or pedestrian) to the building and the site. Where the substance is stored within a room, the signage must be placed at every entrance to the room. In outdoor areas, signage will be placed immediately next to the storage area.

The HSNO Code of Practice for Signage for premises storing hazardous substances and dangerous goods state that signs must:

- be located where clearly visible to persons entering a site where hazardous substances (at above the specified trigger quantities) are located
- advise that the location contains hazardous substances

- describe the hazardous property and nature of the hazard(s) of the substance
 - describe the precautions needed to safely manage the substance
 - give contacts for emergency response personnel
 - advise emergency service provider(s) and trained persons of the immediate emergency response actions for the hazardous substances present
 - be easily understood
- be easily read at a distance, under varying conditions.

Each Hazardous Substances shed will display the appropriate signage identifying the hazardous property and nature of the substances contained within, emergency contact details and precautions required. A register detailing what is stored in the shed, along with approximate quantities and relevant MSDS sheets will also be located adjacent to the facility.

4.2.7 Emergency management

The HSNO Emergency Management requirements are primarily found in the Hazardous Substances (Emergency Management) Regulations 2011. These regulations list three levels of Emergency Management requirements and these depend on the quantities of hazardous substances are held onsite. The levels include requirements for the provision of information (e.g. first aid instructions or spill response procedures), equipment (e.g. fire-extinguishers) and emergency response plans.

- **Level 1**
 - Information, for example first aid directions or emergency response contact details on labels, should be clear and readily available so people know the effects of the substance and the remedies.
- **Level 2**
 - Documentation, such as Safety Data Sheets, should be made available so that people will know in advance the properties of the substance and what to do in an emergency; and
 - Fire extinguisher requirements.
- **Level 3**
 - Signage requirements;
 - Emergency response plans; and
 - Secondary containment, or bunding, to contain spills.

4.2.8 Transportation

Transportation of hazardous substances and empty containers which have not been cleaned are subject to containment and packaging requirements outlined in the Hazardous Substances (Tank Wagons and Transportable Containers) Regulations, 2004 and the Land Transport Rule 45001/1 and 45001/2: Dangerous Goods 2005 and Land Transport Rule Dangerous Goods Amendment 2011 Rule 45001/3.

These rules are in place to manage the safe transport of hazardous substances and cover the following aspects relating to the transport of substances and/or their containers:

- Packaging;
- Identification;
- Documentation;
- Segregation of incompatible substances; and
- Training and responsibilities.

The supplier shall be responsible for adhering to these rules as they will be responsible for the supply of substances and the removal of empty containers. No hazardous substances will be transported by the Alliance outside the Project footprint. Where hazardous substances are transported by the Alliance within the Project footprint, the Alliance will also be adhering to the same rules for transportation and handling.

4.3 Storage

4.3.1 Locations

Three purpose-built hazardous substances sheds similar to the one illustrated in Figure 1 below will be utilised for storage at the three main construction yards within the north, central and south zones. Drawings showing approximate locations of the yards and hazardous substances sheds are attached at Appendix C.

These hazardous substances sheds are HSNO certified and suitable for storing oils, thinners, paints, diesel and Class 3 flammables.

Consideration has been given to the siting of these containers within the construction yards with the sheds located away from:

- watercourses, lakes and wetlands;
- off the main construction traffic alignment to minimise the risk of accidental collision;
- providing clear access for loading and unloading goods; and
- ease of access for emergency service access if required.

Zone	Location	Notes
South	Kapiti Compound	Small container. To be confirmed in final planning
Central	Otaihanga Yard	20 ft container. Main location for Hazardous Substances
North	Te Moana	Location to be confirmed in final planning.



Figure 1 – Indicative Hazardous Goods Shed

Due to site practicalities, areas associated with specific construction activities such as bridges will require the storage of small quantities of hazardous substances (such as diesel) housed in approved containers. These will be contained within bunded and covered areas when not in use. The storage of these hazardous substances overnight will only occur in locations with lockable sheds or secure fencing with electric/razor wire to prevent unauthorised access and/or vandalism.

4.3.2 Secondary containment

Secondary containment requirements under the HSNO Act vary depending on the total volume stored, and the volume of the individual containers within which the hazardous substance is stored. Table 2 as follows summarises these secondary containment requirements:

Table 2 – Capacity of Bunds for the Storage of Hazardous Substances

Single Container Volume (L)	Total Pooling Potential (L)	Required Bund Capacity (L)
60	<5000	≥ 50% total pooling potential
60	>5000	Greater of 2,500L or 25% of total pooling potential
60–450	<5000	Total pooling potential
60–450	>5000	Greater of 5,000L and 50% of the total pooling potential
>450	–	110% of largest container

Other points of note include:

- There will be no large-scale storage tanks for fuel located on the site (subject to Section 4.4 below);
- Incompatible substances will require separate containment systems.

4.4 Diesel storage

As part of this project, diesel will be delivered by mobile mini tankers and there will not be any large volumes (over 50 litres per container) stored on site. While diesel is not a particularly flammable substance, it is an environmental hazard, with considerable clean-up costs if it should leak into a drain, watercourse or the soil.

The following safety guidance when using or storing diesel will be adhered to:

- Containers will be positioned away from any source of direct heat.
- Drums will be located in an area where the risk of collision with vehicles, such as fork-lift trucks, is minimized as far as practicable.
- Leaks and spills will be confined to the vicinity of the drum with the source of the spill stopped immediately (i.e. drum up-righted or plugged), contained and cleaned up quickly.

5 Relevant planning and policy documents

5.1 Introduction

Part B, Volume 2 of the AEE provides a full assessment of the Project with respect to the national, regional and district planning framework. This section outlines the specific rules which apply to the storage and use of hazardous substances to provide the reader with a context to understand how the activity is managed within this framework.

5.2 Regional planning framework

The storage and use of hazardous substances associated with the Project will be managed to ensure that hazardous substances are not able to enter surface or ground water, nor contaminate the underlying land.

The Greater Wellington Regional Council does not have rules related to the storage of hazardous substances. Irrespective of this, the activity is still governed by the HSNO Regulations as detailed in Section 4.2.

5.3 District planning framework

The Kāpiti Coast District Council provides rules for the storage and use of hazardous substances. This plan provides thresholds for the storage and use of hazardous substances above which land use consent is required.

As the storage and use of any hazardous substances is within the designation footprint, land use consent will not be required. However, industry best practice will be undertaken to minimise any risks associated with the storage and use of hazardous substances.

6 Roles and responsibilities

The CEMP outlines the overall roles and responsibilities for the Project. The Environmental Manager and the Health and Safety Manager will be responsible for the management of hazardous substances in line with the “Person in Charge” requirements as outlined in the HSNO Act.

The HSNO Act defines a “Person in Charge” who is responsible for maintaining control of hazardous substance storage and management and ensuring all necessary certifications are received and maintained.

In addition, this person is responsible for maintaining: health and safety of workers; health and safety of the public; and environmental standards associated with the storage and use of hazardous substances on the Project.

Details of the person in charge will be recorded in the project contact list in the CEMP.

7 Training

Environmental training for all staff will be undertaken as outlined in the CEMP.

Aspects of the HSMP covered in this induction include:

- The type and location of chemicals on the site;
- Where information can be found on storage; use and disposal of chemicals;
- Procedures to be followed;
- Spill management and emergency procedures;
- Roles and responsibilities associated with the hazardous substance management; and
- Personal Protective Equipment (PPE) requirements when handling or using hazardous substances.

8 Standard operating procedures

8.1 Summary of requirements

The Project team is required to control and manage the storage of hazardous substances associated with the Project. The main issues that will need to be addressed include the following:

- Refer to **Appendix A**, to determine the trigger quantities for any hazardous substance stored within the Project footprint. Where the substance is not listed, obtain a HSNO classification for the substance from either the Safety Data Sheet (SDS) or the supplier and determine the required controls.
- Prepare and manage a register of hazardous substances used or stored.

- Prepare and maintain a location plan showing the location of hazardous substance storage areas; fire fighting requirement and spill kits.
- Ensure all hazardous substances are stored safely and securely.
- Ensure all hazardous substances are correctly labelled.
- Ensure all hazardous substances are correctly transported.
- Secondary containment is provided (and sufficient) for all liquids stored.
- Dispose of all hazardous substances and their containers appropriately.

8.2 Hazardous substances register

Any hazardous substances stored or used on the site will be recorded on a Hazardous Substances Register for the site. This document will be prepared once construction phase planning commences and will be maintained over the duration of the Project.

The register will include the hazardous substance names, quantities, HSNO classifications, storage locations, approved handler (per storage location) and the SDS for the substance. In addition the "Person in Charge" will be clearly noted on the register.

The register must be current at all times and updated by the Environmental Manager when new substances are introduced. The register must be readily available for emergency personnel. The register framework is provided in Appendix B.

8.3 Purchasing

Prior to the purchasing of new hazardous substances, consideration will be given as to the appropriateness of the substance and whether substances with a lesser risk rating are more appropriate. Where new hazardous substances are to be used/stored on the site, the Environmental Manager will update the register accordingly.

Controls associated with new substances will be identified to allow for communication of requirements and implementation immediately upon receipt of a new substance.

8.4 Safety Data Sheets

A Safety Data Sheet (SDS) is required for all hazardous substances stored/used on the Project. The SDS will be provided by the supplier and with delivery. The SDS must be available and understood by all personnel handling (or with access to) the substance.

8.5 Location plans

A location plan will be prepared for each of the three main compounds with an assigned hazardous substances shed. These plans are to be located at Appendix C and include the plans will include the locations of:

- Stored hazardous substances
- Fire fighting equipment

- Spill kits.

The location plan will be made readily accessible to all staff by placing on the wall of relevant site offices and in work's rest area sheds and will be updated as required.

8.6 Labelling

All containers will be appropriately labelled regardless of their contents (hazardous or otherwise). The SDS for each substance will provide information required for labelling – clearly indicating any significant hazards to those handling the substance. Labelling shall take into account all hazards which are likely to occur over the lifetime of the substance and / or packaging.

Security will be in place at all locations where hazardous substances are stored in order to prevent theft and vandalism.

8.7 Disposal

8.7.1 Disposal of hazardous substances

Information contained within the SDS will be referred to when considering the most appropriate disposal method for containers of unused/unwanted hazardous substances. Where hazardous substances are no longer required onsite, they will be:

- removed and stored at another suitable storage facility (moved either within the footprint or by a suitably trained and experienced person – Refer Section 4.2.8); or
- removed and disposed of by an appropriately licensed waste disposal operator.

8.7.2 Disposal of packaging

Packaging that has been directly in contact with a hazardous substance must be disposed of in a manner that takes into account the nature of any residues and the nature and type of packaging. Packaging will either be reused (returned to manufacturer) or placed in an appropriate recycling bin if it has been treated to remove any residual material or if the residue has been treated to render the contents non-hazardous. The SDS will be referred to in order to assess the most appropriate disposal method.

8.8 Spill response plan

Loss of containment of hazardous substances can potentially affect human health and the environment.

The Project team will adopt the Fletcher Construction SOP “*ENV-02 Fuel, Oil and Chemical Spills (On Land and Water)*” which is attached for completeness in **Appendix D**. This SOP outlines the following aspects:

1. Preventive Measures to be taken for the following activities:

- a. Refuelling procedures on land
 - b. Refuelling procedures over water.

2. Actions in the Event of Spill

3. Reporting Procedures

4. Investigation Procedures.

Staff that use or manage hazardous substances will have an understanding of the SDS including spill controls, appropriate fire extinguishers to use in the event of fire, incompatible substances and reactivity with water and air.

In addition, a spill response plan has been developed for the site. This will be discussed at the site environmental induction and also posted on the walls of site offices and in worker's rest area sheds.

Reporting of incidents will be performed as detailed in the CEMP.

8.9 Spill kits

Spill kits will be available for use at regular locations throughout the alignment and placed at each area designated for the storage of hazardous substances. A plan identifying the location of site spill kits will be developed for each zone before construction starts. In addition, all foremen will carry a spill response bag in their vehicles to ensure a quick response.

These spill kits will contain:

- PPE
- Spill handling equipment
- Containment equipment
- Absorbent material
- A disposal container.

It is the responsibility of the Environmental Manager to ensure these spill kits are clearly labelled and easily accessible; staff are appropriately trained in their use; and the kits are checked and restocked regularly and after a spill event.

8.10 Emergency response

An emergency response situation associated with hazardous substances may be created on site as a result of fire, spillage, sabotage/vandalism or explosion. Control of any site emergency situation rests with the Project Manager or the next most senior person on site at the time of the emergency.

The management of emergency situations will be controlled via a broad range of measures – the primary document being the Project Emergency Response Plan, but also broadly discussed in the Health and Safety Management Plan, and the Crisis Management Plan.

The following provides a basic overview of the range of mitigation methods which will be employed in managing the fire risk associated with a hazardous substances store:

- Ensure project has personnel with approved ‘HSNO Handler’ qualifications.
- Ensure adequate constructed, bunded and ventilated storage is established.
- Minimise the volume of hazardous chemicals stored
- Hold a register of all chemicals and their volumes.
- Ensure material Safety Data Sheets are held for all stored chemicals.
- Ensure incompatible chemicals are separated as required (oxygen/fuels).
- Provide adequate warning signage and emergency equipment.
- Ensure fire extinguishers are available and located in the vicinity of the storage facility.
- Ensure emergency equipment is checked, maintained and personnel trained in their use.
- Undertake task analysis of any works in the vicinity and identify risks and control measures required.
- Hot works require a ‘permit to work’ and will not be permitted in the vicinity of the storage facility.
- The emergency services will be liaised with in relation to locations, materials stored and access requirements.
- Emergency wardens will be trained in the Project Emergency Response Plan.

Emergency response requirements will be integrated into a broad range of project procedures and systems to ensure their effective communication across all personnel. The basic requirements will be raised via the following; site induction, toolbox talks, visitor briefings, awareness posters, specialised training e.g. fire extinguisher training, spill response and drills.

9 Monitoring requirements

As part of the management of the construction yards a monthly inspection will be performed. This inspection will check that:

- Hazardous substance inventory is updated;
- Chemicals/hazardous substances are stored correctly;
- The condition of bunds is well maintained;
- Spill kits are fully stocked; and
- The incident record is up to date and any required actions have been undertaken.

Where action is required, the actions will be recorded and assigned in accordance with the procedure outlined in the CEMP.

10 Updates and review

This management plan will be reviewed when changes are made to the type, quantity or method of storage of hazardous substances within the project area. In addition this Management Plan shall be reviewed and updated (as necessary) on at least an annual basis throughout the construction phase of the Project. Where changes are required to this plan the plan will be forwarded to Greater Wellington Regional Council for comment and Kāpiti Coast District Council for certification.

The annual review will take the following aspects into consideration:

- What has changed within the Project:
 - Use of hazardous substances – what new substances are being used onsite? Are there any substances now under the Project team's control that responsibility was previously subcontracted out?
 - Activities – do any new activities impact hazardous substance use, storage or disposal?
 - Facilities – do new facilities need to be reviewed to ensure compliance.
 - Location – Does the new location need specific controls? i.e. proximity to sites of ecological significance/stormwater system.
- Roles and Responsibilities
 - Have there been any key changes to roles and responsibilities.
 - Is the current regime adequately managing the use, storage and disposal of hazardous substances.
- Industry Best Practice
 - Have there been changes in industry best practice or recommended pollution controls.
- Legislative or Policy Changes
 - Have there been any changes that impact how hazardous substances are managed? Either legislative/NZTA requirements.
- Continuous Improvement
 - Do the results of Inspection/Maintenance programs, incident management, internal assessment or external assessment indicate any required changes?
- Public Complaints.

Where changes are made to the HSMP, an update register will be kept to document what has been altered. A copy of the original document will be kept for Project records marked as superseded.

Appendix A

Hazardous Substances and Controls Table

Table A Hazardous substances and management controls triggered

	Hazardous substance	HSNO Classification / Group Standard ¹	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
1	Acetylene (non-permanent gas for welding)	2.1.1A	1001 / HSR000987	100 kg	Approved handler
				100 kg	Hazardous atmosphere zone requirements
				100 kg	Location test certificate
				250 kg	Secondary containment
				50 kg	Fire extinguisher
				250 kg	Signage
				Any quantity	Storage incompatibilities with all class 1, class 2.1.2, all class 3, all class 4, all class 5 substances.
2	Cements, concrete admixtures, fillers, grouts, mortars, plasters, putties, roading products, concrete etching agents	Group Standards for Construction Products 2006 (4 standards)	HSR002542 (Corrosive 8.2C) HSR002543 (Corrosive 8.2C, Toxic 6.7A) – product contains respirable silica (carcinogen) HSR002544 (Subsidiary hazard)	100 L or 100 kg (for a HSNO 9.1A substance)	Secondary containment
			1,000 L or 1,000 kg (for a HSNO 6.1D, 6.5A, 6.5B, 9.1B or 9.1C substance)		
			10,000 L or 10,000 kg (for all other substances)		
				50 L of 50 kg (for a HSNO 6.1A 8.2A substance);	Signage

¹ Substances approved under Group Standards may have other specific hazard classifications. Quantities that trigger controls are dependent on these additional hazard classifications. There are various trigger quantities; however, the quantities presented in this table are the most conservative and appropriate for the context of this Project.

Hazardous substance		HSNO Classification / Group Standard ¹	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
			HSR002545 (Toxic 6.7A)	100 L of 100 kg (for a HSNO 9.1A substance);	
				1,000 L or 1,000 kg (for all other substances)	
				10,000 kg (for a HSNO 6.1D or 9.1D substance)	
3	De-Solv-It Solution	3.1D Group Cleaning Products (Combustible) Group Standard 2006 (9 standards)	HSR002525	10,000 L	Signage
				500 L	Fire extinguishers
				10,000 L	Secondary containment
4	Diesel	3.1D, 6.1E, 6.3B, 6.7B, 9.1B	1202/HSR001441	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				500L	2 Fire extinguishers
				1,000L	Secondary containment
				1,000L	Signage
5	Engine oil (Mobil Delvac) ²	Group Standards for Lubricants 2006 (Subsidiary Hazard)	HSR002602	100 L or 100 kg (for a HSNO 9.1A substance);	Secondary containment
				1,000 L or 1,000 kg (for a HSNO 6.1D, 6.5A, 6.5B, 9.1B or 9.1C substance);	
				10,000 L or 10,000 kg (for a HSNO 9.1D, 8.3A, 6.6A, 6.8A or 6.9A substance)	

² Note: other brands of engine oil may trigger different controls. Check HSNO classification.

Hazardous substance		HSNO Classification / Group Standard ¹	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
				100 L or 100 kg (for a HSNO 9.1A substance);	Signage
				1,000 L or 1,000 kg (for a HSNO 8.3A, 9.1B or 9.1C substance);	
				10,000 L or 10,000 kg (for a HSNO 6.1D or 9.1D substance)	
6	Hydraulic oil Gear oil	Group Standards for Lubricants 2006 (Low Hazard)	HSR002605	10,000L (for a HSNO 9.1D substance)	Secondary containment
				10,000L (for a HSNO 9.1D substance)	Signage
7	Kerosene/ Bitumen cutter	3.1C, 6.1E, 6.3B, 9.1B	1223/ HSR001049	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				100L (closed) 25L (decanting) 5L (open occasionally) 1L (open container)	Hazardous atmosphere zone
				500L (in closed containers >5L)	Location test certificate
				1,500L (in closed containers <5L)	
				250 L (open containers)	
				500L	2 Fire extinguishers
				1,000L	Secondary containment
				1,000L	Signage
8	LPG	2.1.1A: Flammable Gases : high hazard	1075 / HSR001009	Any amount	Odorized in accordance with approved code of practice
					Stored in a place which has a leak detection system

Hazardous substance		HSNO Classification / Group Standard ¹	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
					Approved handler
				> 20 kg	Must not be carried or conveyed on any passenger service vehicle
				Any amount carried or conveyed	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
					Signage
				If > 300 kg stored	Location test certificate
				> 50 kg	1 fire extinguisher
					Signage
				≥12,000 L tank wagon (parked > 1h)	Fire fighting facilities
g	Petrol (unleaded)	3.1A, 6.1E, 6.3B, 6.7B, 9.1B	1203/HSR001445	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				Any amount	Approved handler
				100L (closed) 25L (decanting) 5L (open occasionally) 1L (in open container for continuous use)	Hazardous atmosphere zone
				20L (open or closed container)	Location test certificate (if held for more than 18 hours)
				50L	1 Fire extinguisher
				200L	2 Fire extinguishers
				100L	Secondary containment
				50L	Signage

	Hazardous substance	HSNO Classification / Group Standard ¹	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
10	Sulphuric acid, >10% aqueous solution	6.1D, 6.7A, 6.9A, 8.1A, 8.2B, 8.3A, 9.1D	1830 / HSR001572	10L	Approved handler
				1,000L	Secondary containment
				1,000L	Signage
11	Calcium Hydroxide	8.2C , 8.3A , 9.1D (All), 9.1D (F)	HSR002925 HSC000322	Any amount	Approved handler
				10,000L held 10,000 kg held	Secondary containment
				1,000L 1,000 kg	Signage
12	Calcium Oxide – Quicklime	8.2C , 8.3A , 9.1D (All), 9.1D (F)	1910 / HSR002926	Any amount	Approved handler
				10,000L held 10,000 kg held	Secondary containment
				1,000L 1,000 kg	Signage

Note: Certain brands of hydraulic oils are considered non-hazardous e.g. AMSOIL, CAT, Mobil EAL and DTE, Shell Omala Shell Naturelle, Shell Vitrea, Shell Tellus, Shell Corona and Shell Vitrea. Check with the supplier and refer to the product safety data sheets.

Appendix B

Hazardous Substances Register

Table B Example Hazardous substances register

Person in charge:.....TBC.....

Name	Quantity	HSNO Classification	Storage Location	Approved Handler	SDS Held?
Diesel	20L jerry can x TBC		Otaihanga	TBC	Yes
Acetylene	TBC		Otaihanga	TBC	Yes

Appendix C

Location of Hazardous Substances Storage Areas

Location plan to be developed immediately prior to construction

Appendix D

Fletcher Environmental Procedure

ENV-02

ENV-02 FUEL, OIL AND CHEMICAL SPILLS (On Land and Water)

A INTRODUCTION

PURPOSE

This procedure describes the system for prevention, control, corrective action and reporting of fuel, oil and chemical spills on a project site.

REFERENCES

Applicable Material Safety Data Sheets (MSDS)
(available from FCC Intranet/Health and Safety (MSDS Online))

Resource consent requirements (if applicable)

DEFINITIONS

Oil includes lubricants and machine oil and hydraulic fluid.

Fuel includes diesel and petrol.

Chemicals include thinners, anti-corrosion compounds, polymers, adhesives, form oil, retarders, curing agents, cement, pesticides and herbicides.

The following documents are associated with this procedure:

Standard Forms

Environmental Incident Investigation Report

Incident Register

Environmental Incident Witness Statement

B PROCEDURE

Activity	Responsibility	Key Actions	Records	References
1. Preventive Measures	FCC Employees and Subcontractors	<ul style="list-style-type: none"> Implement and maintain the required preventive measures for handling, transferring and storing of oil, fuel and chemicals 	Training and toolbox records	MSD sheets
2. Action in the Event of Spill	FCC Employees and Subcontractors	<ul style="list-style-type: none"> Assess personal safety and explosion risk Stop operating machinery Turn off discharge valve and/or isolate source of spill Take whatever action is necessary to contain the spill and prevent it from spreading or discharging into a stormwater 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 		Refer to Env. Toolkit
3. Reporting Spills	Project Engineer Project Environmental Representative	<ul style="list-style-type: none"> Report spills using an Environmental Incident Investigation Report form Submit Incident Report to Project Manager and copy to Environmental Manager Log Incident Report on Register Immediately notify client's representative and Regional Council of any significant spill to land, stormwater system or natural watercourse 	Incident Investigation Report Register	
4. Investigation	Construction / Operations Manager Project Environmental Representative	<ul style="list-style-type: none"> Request investigation report for spills having significant environmental impact Conduct investigation and prepare report Obtain witness statements where appropriate 	Investigation Report Witness Statement	

C NOTES**1.0 PREVENTIVE MEASURES**

The following measures are generic and each project should identify their site-specific/ resource consent requirements.

1.1 ON WATER**1.1.1 General**

- All vessels used on water (dredges, runabouts, work boat, survey vessel and tugboat) are to be inspected regularly for fuel or oil leaks
- Vessels are to regularly cleaned to prevent the build up of oil and debris in the bilge
- All items of equipment used on or near water must have a cut-off control (automatic or manual) on the hydraulic and fuel tanks. Person refuelling must remain present at refuelling point - do not rely on cut-off controls.
- All staff working over water are to be trained in the use of spill kits
- Hold sufficient and suitable spill equipment for trapping and absorbing oil and fuel on each vessel

1.1.2 Refuelling from a Work Boat

- A suitable fire extinguisher must be carried, fully charged and service check current
- Fuel transfer is only to be carried out by a member of the work boat crew who shall remain present at all times during this operation
- Work Boat to carry an adequate number of oil containment booms and spill mats
- An electric pump must be available to removed spilled diesel from the tank containment area
- Smoking is not permitted on the work boat or the vessel being refuelled

1.2 ON LAND**1.2.1 Fuel Storage (Diesel Transfer Tanks)**

- Transfer tanks must be contained in a bunded area, or in a double shell construction, to contain diesel in the event of a leak/rupture of the tank
- Transfer tanks must be clearly labelled, vented and earthed
- Fuel storage areas must be made secure to minimise the potential for vandalism or theft.

1.2.2 Fuel Transfer from Transfer Tanks to Fuel Truck and FCC Vehicles

- Fuel must only be transferred by a suitably trained operator who shall remain present at all times during this operation

- A spill kit must be held in the fuel truck
- The spill kit is to be periodically checked by the driver, reporting to the Foreman/Superintendent any items that need to be replaced or restocked
- Caution to be exercised when refuelling light vehicles. Preference shall be given to refuelling at points remote from any natural water or stormwater systems.
- No smoking permitted during refuelling

2.0 ACTION IN THE EVENT OF A SPILL (Fuel, Oil or Chemical)

2.1 Immediate Actions

- Assess safety of all personnel
- Assess risk of explosion
- Turn off the discharge valve or isolate the source of leakage or spill
- Stop operating machinery
- Take whatever immediate actions are required to contain the spill and prevent it spreading or discharging into stormwater drains, natural waterways or the sea as directed by the Foreman or Supervisor
- Notify Foreman or Supervisor
- Locate nearest spill kit
- On water; place boom around the spill and any downstream discharge pipes to prevent contamination from spreading. Place absorbent mats over the spill area
- On land; place absorbent mats on the spill and build temporary earth bunds if necessary
- If it is necessary to call in external assistance to a spill, call the local provider of spill equipment or the Regional Council spill response unit

2.2 Clean-Up Actions

- Use spill kit to soak up spill
- Foreman or Superintendent to notify Project Manager in event of significant spill
- On water; dispersants are only to be used under the direction of the Regional Council
- Used spill material is to be collected in heavy duty plastic bags and disposed of in an environmentally responsible manner (usually to landfill or hazardous waste collection facility)
- Appropriate training in the use of spill kits is to be provided for key personnel
- Notify Regional Council as appropriate
- If necessary contact a waste disposal contractor to remove spill residue to an authorised disposal facility.

2.3 Follow-Up Actions

Contaminated ground is to be examined by the Project Environmental Representative and Clients Representative, and remedial action implemented if required.

3.0 REPORTING SPILLS

All spills to land or natural waterways are to be reported using the Environmental Incident Investigation Report form.

A copy of the Incident Report is to be forwarded to the Project Manager and copied to the Environmental Manager.

The Incident Report is to be logged on the Environmental Incident Register by the Project Environmental Representative.

The client's representative and Regional Council is to be informed of any significant spill to land or to natural waterways (the sea, stormwater drains or open watercourses) by the Project Manager. Lines of communication with external parties are often stated in the project specifications.

4.0 INVESTIGATION

Following a spill having significant environmental impact the Environmental Manager requires an investigation report to be prepared by the Project Environmental Representative under the direction of the Project Manager.

Attach witness statements where appropriate.

Appendix E

Independent Review Comments

Hazardous Substances Management Plan - MacKays to Peka Peka Project

Independently Reviewed by: Rob Burden - Domain Environmental Limited

Signature of Independent Reviewer:



	<i>Independent Reviewer's comment</i>	<i>Page/paragraph/section reference within Management Plan</i>	<i>Management Plan Author's response</i>
DC.51	It is understood that plans showing hazardous substance management storage areas are not available for review but will be developed immediately prior to construction.	Page iv	The plans would be developed in accordance with the the relevant legislation requirements, in particular the HSMP requirements in the body of the plan.
DC.51	It is understood that the Supplier will be responsible for adhering to the rules for transportation and handling of hazardous substances outside the Project footprint. Is it intended that the Alliance will be responsible for adhering to the rules for transportation and handling of hazardous substances within the Project footprint?	Section 4.2.8, Page 8	Yes. This has been clarified.
DC.51	Is it intended that movement of hazardous substances within the Project footprint will be carried out by a suitably trained and experienced person?	1st bullet point of Section 8.7.1, Page 14	Yes. Section 4.2.8 clarifies that this is the intent.

Appendix F

KCDC Review Comments

KCDC REVIEW OF Hazardous Substances Management Plan

Reviewed by: Norbert Schaffoener and Andrew Guerin

Date of Review: 16/04/13

Signature of Reviewer:

Condition Reference	Condition Summary	KCDC Reviewer's comment	Page/paragraph/section reference within Management Plan	Management Plan Author's response
N/A	N/A	<p>Generally the Plan covers (or touches on) all relevant matters. However, I considered it to aim for minimum legal compliance (particularly with the HSNO legislation) rather than necessarily 'best practice'. For example, the secondary containment requirements under District Plan requirements are often more strict and may require 120 % capacity (for open, uncovered bunds, to allow for some accumulation of stormwater), particularly in somewhat remote locations which may not be subject to human control 24/7. (I understand that as being within a designation footprint the proposal was not subject to a land use consent for HS.)</p>	General	<p>It is considered that compliance with the nationally recognised specifications and regulations (such as HSNO) will provide adequate mitigation of the potential risks relating to the storage of hazardous substances.</p> <p>The designation application provided background and assessment of the risks/effects of the storage of hazardous substances within the designation footprint, and the BOI has granted consent on that basis. As all works will be contained within the approved designation boundaries no land use consent is required from KCDC, nor any further consideration of the District Plan provisions. If works were proposed outside of the designation (note that we do not have any at present) then the District Plan provisions would apply and we would have to consider these requirements.</p>
N/A	N/A	<p>A number of matters I would expect to be included in the HSMP such as:</p> <ul style="list-style-type: none"> • Specifying personnel with their specific responsibilities for HS management (the document refers at different point to the Project Team, the contractor or the Environmental Manager) • Training requirements • Review procedures • Notification procedures for incidents <p>are apparently addressed in the CEMP which is OK in principle but without knowing their details one can't say whether they are addressed appropriately.</p>	General	<p>The HSMP should be read in conjunction with the CEMP which outlines the roles, responsibilities and training procedures. Please refer to the CEMP for this information initially. The Environmental Manager has overall responsibility for the HSMP. Therefore, aspects such as delegation of specific responsibilities, training requirements, review procedures and notification procedures fall under the control of the Environmental Manager.</p>
N/A	N/A	<p>Some statements in the plan are rather general. For example, in s. 8.2 it says: 'The register must be readily available for emergency personnel.' In s. 8.5 it is stated: 'The location plan will be made readily accessible to all staff.' It is unclear whose responsibility it is to make it available/accessible, how and when.</p>	Section 8.2 and 8.5	<p>The intent of the specific location plans (to be developed for each site) will be to provide site-specific information as to where such information is located, and accessible to all staff. The approval of such site-specific plans will fall under the control of the Environmental Manager.</p> <p>Where specificity has been able to be provided at this stage of the process, it has been. However, we seek acknowledgement that a number of variables (including the identification of actual sites for the storage of hazardous substances) have not been confirmed as yet. Therefore, it is difficult to provide additional specificity until such time as these areas have been identified.</p>

N/A	N/A	s. 4.3.4 last sentence: I suggest replacing 'Where practicable, storage locations should allow for the containment...' with something like: "Storage locations should enable the containment...'	S 4.3.4	This statement not intended to provide for the ability to circumvent good practice, relevant regulations or the principles of the HSMP. It is more a recognition that, in excess of compliance with the 'do minimum', storage locations should also be sited, where practicable, to allow containment/restriction of flows. This sentence has been amended to reflect this.
N/A	N/A	s. 8.2 The SDS's should always be available of a substance is hazardous – see s. 8.4 'SDS is required for all hazardous substances stored/used on the Project.' It is not a question of 'if' (also applicable to App B)	Section 8.2, Appendix B	The phrasing of Section 8.2 has been amended to provide the intent, which is that the SDS will be available in the register.
N/A	N/A	s. 8.6 'Security will be in place at all locations where hazardous substances are stored in order to prevent theft and vandalism.' Examples? Fencing, gates, guards, monitoring?	Section 8.6	These are all possible examples of security that may be employed at the sites. However, as the localities and site-specific requirements for security have not identified as yet, it is difficult to provide an exhaustive list possible security measures at this stage of the process. It is in the best interests of the Alliance that security measures are effective.
N/A	N/A	s. 8.6 The SOP "ENV-02 Fuel, Oil and Chemical Spills (On Land and Water)" is a very important document as part of the HS Emergency Response Planning. I would expect that document to be an integral part of the HSMP (and it should consequently be provided with the final version of the HSMP to be submitted to Council for certification). The SOP should also deal with ALL types of emergencies (including fires which is mentioned in terms of the use of fire extinguishers, but the title refers to spills only). If it does not, such aspects need to be addressed elsewhere.	Section 8.6	This SOP is now appended as Appendix D of the HSMP.
N/A	N/A	s. 8.6 Spill kits will be available for use at regular locations..' 'Regular' could mean every 20 metres or every 20 km. Should be, like some other matters in the Plan, a bit more specific.	Section 8.6	This comment has been reviewed with regard to Section 8.9. At this stage it is unknown as to the regularity of spill kits to be made available across the alignment (although it is likely to be in the order of 20km, as opposed to 20m). It is considered that this minor aspect of risk at this stage is mitigated by the requirement for all foremen to also have spill kits in their vehicles available for use.