

APPENDIX K – CONTAMINATED SOILS MANAGEMENT PLAN

Contaminated Soils Management Plan – SH16 Improvements

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25 November 2019

VERSION 3

State Highway 16 Brigham Creek to Waimauku Safety Improvements Project Stage 1
and Stage 2

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Action	Name	Signed	Date
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APPENDICES

Appendix A HAIL Properties

1. INTRODUCTION

This Safe Roads Alliance (SRA) objective is to improve safety measures to the State Highway Network with the aim to create a more forgiving transport system, helping to reduce the occurrence of crashes causing death and serious injury. The majority of land where proposed works will be undertaken are within the designation of State Highway 16 (SH16).

The SH16 Brigham Creek to Waimauku Safety Improvements Project (the Project) extends from the Brigham Creek Road roundabout south-west of Whenuapai to Factory Road, Waimauku, excluding the area of road between Kumeu and Huapai. The approximate length of the project is 10.2 km.

The purpose of this Contaminated Soils Management Plan (CSMP) is to identify procedures that shall be undertaken during site redevelopment to control the disturbance and movement of soils, including any identified contaminated soils.

A Preliminary Site Investigation¹ (PSI) was undertaken for the project which identified various horticultural land uses neighbouring the length of the alignment improvements where land disturbance activities will be occurring and one liquid fuel transmission line running beneath the State Highway. No soil samples were conducted at the time of this investigation. The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (2012) (NESCS) permitted activity soil disturbance thresholds for each respective HAIL property were not exceeded for the minor boundary works. However, works are anticipated to exceed the two-month permitted activity soil disturbance timeframe.

It was considered that the exceedance of this two-month threshold would not present any additional risk to nearby receptors due to the localised works within these properties and the only exposure pathway being to construction workers via dermal and inhalation risk.

Conservatively, a discretionary consent under the NESCS was sought as no Detailed Site Investigation or soil sampling could be undertaken at the time of drafting the PSI. Sampling of HAIL sites within the extent of works is to be undertaken on a case-by-case basis to inform disposal. Onsite management of soil within these HAIL sites will be in accordance with this plan.

The planning controls of the NESCS and Auckland Unitary Plan (AUP) are applicable. Consent will be required to undertake earthworks as part of the site redevelopment. This CSMP will support the consent application for earthworks under the NESCS and AUP and is intended to be revised following any future soil sampling and assessment of contamination present.

1.1 Site Location and Description

The construction site of the SH16 Improvements involves 10.2 km of road widening and construction between Brigham Creek and Waimauku Roundabout. The majority of works are to be undertaken within the existing road's shoulder, within the designation of the current roadway. Only minor works are required within neighbouring properties along the boundary of the designation which are identified as contaminated (namely; orchards and vineyards).

¹ *Preliminary Site Investigation (Contamination) – SH16 Improvements*, Safe Roads Alliance, (18.12.18)

The location of the SH16 Improvements is shown in **Figure 1** below. At the time of drafting this report, no land requirement boundaries had been confirmed.

Neighbouring properties which require management of soils along their boundaries are identified in design plans provided in the Assessment of Environmental Effects. These properties will require sampling to assess disposal options and subsequently require the implementation of this plan.



Figure 1: The SH16 Brigham Creek to Waimauku Project area (source: SRA Project Outline)

1.2 Summary of Geology and Hydrogeology

Published information² for the underlying geology of the project area is recorded as being the Puketoka Formation and consists of pumiceous mud, sand and gravel with muddy peat and lignite: rhyolite pumice, including non-welded ignimbrite, tephra and alluvia. This is largely consistent across the project area. Works associated with this project are generally shallow regrading of soils neighbouring the existing roadway.

1.3 Proposed Works

This portion of SH16 has been earmarked as a key location for servicing growth areas and responding to future urban transport demands. The proposed works involve shoulder widening and barrier improvements within the immediate border of the existing road.

² Heron D. W. (custodian) 2014. Geological Map of New Zealand 1:250 000. Institute of Geological and Nuclear Sciences.

The following works are proposed for each section of the corridor, with the most up to date plans included in the Assessment of Environmental Effects. Please note that the proposed works as presented in this CSMP may be subject to minor changes through detailed design.

- **Section A** (Brigham Creek roundabout through to Coatesville-Riverhead Highway intersection) – provide two lanes in each direction with median safety barrier and behind the road shoulders;
- **Section B** (Coatesville-Riverhead Highway intersection) – convert the existing priority-controlled intersection to a roundabout with consideration to safe accesses to adjoining residential and commercial properties;
- **Section C** (Coatesville-Riverhead Highway intersection through to Taupaki Road /Old North Rd intersection) – provide two lanes in each direction with median safety barriers and behind the road shoulders;
- **Section D** (Taupaki Road / Old North Road intersection through to the posted speed limit change (80km/h and 60km/h) east of Old Railway Road intersection, Kumeu) – provide flush median markings; and
- **Section E** (from Station Road intersection, Huapai to the posted limit change (100 km/h and 70km/h) east of Wintour Road, Waimauku) - provide median safety barrier and behind the road shoulders with safe turnaround facilities.

Involved in the roading improvements is the installation of stormwater infrastructure in certain areas of the alignment. These installations involve the construction of catch pits along the side of the road corridor and piping to various outlets. All stormwater pipe installations are within the road corridor designation.

The total volume of earthworks cut is ~5,711m³, of which, where geotechnically suitable, will be reused onsite with an ~7,934m³ of fill required for the design. All earthworks are in the immediate shoulder of the current alignment, with works required to provide suitable batter slopes on both sides of the alignment. Work outside of the designation is limited to shallow topsoil stripping in areas to provide suitable batters to neighbouring properties.

1.4 Summary of Site History

The initial form of SH16 was constructed pre-1940, likely consisting of a gravel road prior to various upgrades overtime. This road has maintained its current alignment, with upgrades overtime resulting in the extent of highway we see today.

Various neighbouring land uses have occurred overtime on properties adjacent to the highway. These land uses are detailed in the PSI and mainly consist of agricultural, horticultural, residential lifestyle and several localised commercial uses.

1.5 Contamination Status of Site Soils and Identified Hazards

The PSI identified various activities neighbouring the works area that has the potential to contaminate site soils along the boundary of works. These activities are predominantly associated with horticulture and the potential use of pesticide application. Additionally, the Wiri-Marsden liquid fuel transmission line passes under SH16 at approximately 733 SH16. Works in this area are very minor and it is unlikely contamination from this pipe has affected nearby soils. This activity has been included on a conservative basis.

Contaminant concentrations of these areas are unknown as no sampling has been undertaken in locations of potential soil disturbance. Despite no sampling being undertaken in the PSI it is

considered highly likely that the site is either suitable for the proposed land use or can easily be made suitable with standard management and mitigation measures.

Sampling was unable to be undertaken during the contamination PSI stage due to the inability to sample soils (land access restrictions) and incomplete design. Soil sampling of the identified HAIL areas is to occur once detailed design and land acquisition (if necessary) is finalised. Soil sampling will likely be undertaken during construction. Any contamination sampling will be undertaken in accordance with the MfE Contaminated Land Management Guidelines by a Suitably Qualified and Experienced Practitioner in contaminated land assessment.

Sample results from sampling at this time will assist the contractor with onsite management and disposal of these soils on a case by case basis. Sample results will be required to be collated and presented in an Earthworks Summary Report or Site Validation Report. This report will likely require disposal docket information.

Key contaminants of concern for land historically, or currently, in use as horticulture are:

- Organochlorine and Organophosphorus pesticides

Key contaminants of concern for land within ~10m proximity of the liquid fuel transmission line are:

- Total petroleum hydrocarbons
- Benzene, toluene, ethylbenzene and xylene (BTEX)

Potential contamination exposure routes have been identified for this site as follows:

- Soil ingestion, dermal contact, and inhalation of dust by personnel involved in the site development works.

Implementation of this CSMP plans to mitigate potential human health risks, reduce adverse contamination impacts upon the receiving environment (generation of dusts and off-site migration) and provide guidance for disposal options for the removal of surplus soil, groundwater or stormwater during the development works within the identified HAIL areas. This CSMP will be referenced once sampling and results have been determined through the construction phase and updated if necessary.

2. MANAGEMENT PROCEDURES

This section sets out general management procedures and requirements.

1. It is recommended that implementation of this CSMP is contractually enforced throughout the duration of the site construction works.
2. This CSMP applies to the site that is the subject to consent application, which includes the area of land owned by the New Zealand Transport Agency and small boundary areas of neighbouring properties which are subject to shallow re-grading earthworks.
3. All personnel involved in the site construction works are to be familiar with this CSMP and ensure that the requirements of this CSMP have been followed.
4. A copy of this CSMP is to remain available onsite at all times so that reference can be made to it when undertaking any site works.
5. The CSMP is intended to assist the site Contractor in meeting their legal obligations related to potentially contaminated soils with respect to health, safety and the environment. It is not intended to cover the general site safety procedures required for typical excavation and construction activities at the site. The CSMP is not intended to relieve the Contractor of their legal responsibilities and does not intend to overrule any Contractor Health and Safety Plan prepared for the project.
6. Excavation, demolition and construction activities at the site may be subject to other controls/rules/policies under the relevant district and regional plans, including but not limited to, the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Any conditions imposed by the regulatory authorities must be adhered to. However, it is expected that this CSMP will be incorporated into any consent/permit involving excavation/disturbance work at the site to ensure the risks associated with contaminated soils are managed appropriately.
7. Overall responsibility for the implementation of this CSMP shall be held by the SRA. However, the specific requirements and provisions of the management plan will be under the control of the site Contractor.

3. SITE MANAGEMENT

The procedures below apply to all properties identified in **Appendix A** where soil disturbance is occurring that have had, or currently do have, a potentially contaminating activity operating on them (namely; horticulture and the liquid fuel transmission line).

3.1 Pre-development Site Set-up

A site meeting shall be held and attended by the Client, the Contractor, the Engineer and personnel involved with the earthworks (e.g. sub-contractor, if any) to discuss the risks and site procedures for handling any identified contaminated soils at the site. The Contractor shall prepare a site-specific Contractor's Health & Safety Plan (CHSP) for the earthworks which shall cover potential exposure to contaminated soil.

Procedures relating to the management of noise, dust, stormwater, stockpiling and the site working hours shall be detailed in the Contractor's Construction Management Plan (CMP) and shall be implemented by the Contractor. All procedures shall comply with the relevant Council bylaws and conditions of applicable consents.

Prior to works commencing, the Contractor shall establish the following controls to aid in the management of aspects of site safety and environmental compliance:

- Restriction of access to the earthworks areas to authorised personnel (such as warning tape or barriers), following appropriate site induction procedures;
- Signage, including site works information, health and safety requirements, site reporting requirements;
- Health and safety facilities such as personal protection equipment;
- Stormwater (surface runoff) diversion and collection systems; and
- Dust control systems.

Procedures relating to the management of dust, sediment, stormwater and stockpiling are detailed below and shall be implemented by the Contractor. All procedures shall comply with the relevant Council bylaws and conditions of any applicable consents.

3.1.1 Site Contacts

The following contact details shall be included in this CSMP prior to works commencing:

Engineer to Contract for civil works:

Engineer's Representative:

Environmental Scientist/Engineer:

3.1.2 Dust Control Procedures

Standard good practice for dust controls shall be implemented by the Contractor including the following, as determined in conjunction with the Engineer:

- Timing of works including prevalent wind direction.
- Dampening any exposed soils during dry and windy conditions through use of a water truck or portable water sprays.
- Covering any stockpiles.

- Reduction of vehicle speeds on site.
- Minimising drop heights from loaders.

Identified contaminated sites will require attentive dust management in order to minimise inhalation risk and offsite migration of contaminants in air blown particulate.

3.1.3 Stormwater and Sediment Control Procedures

Erosion and sediment controls shall be installed by the Contractor prior to earthworks / excavations commencing and shall be designed for the treatment of surface water runoff in accordance with Auckland Council's Guideline Document 005 (GD05): Erosion and Sediment Control Principles and Practices and the Project's Erosion and Sediment Control Plan (ESCP)

The Project ESCP will include procedures such as isolating bunds, cut and cover methodology, use of silt traps and retention areas and include erosion controls and stabilization programming. The majority of works are confined to the road corridor and neighbouring embankments. This work area generally leads to defined channels on each side of the road where stormwater will be concentrated. This process allows for the implementation of retention devices that will capture any sediment runoff in these zones. Cesspit protection measures such as filter socks and sand bags should be used to trap any sediment from collected runoff.

ESC procedures for confirmed contaminated areas will include similar methodology as that described in the ESCP. Stormwater runoff from contaminated areas should be preferentially maintained onsite and allowed to infiltrate soil wherever possible to reduce the volume of water and material discharged. Sediment captured from the excavation of potentially contaminated material shall be managed in the same manner as soils requiring off-site disposal, as described in Section 3.2.2.

Refer to Section 3.4 for groundwater control procedures.

3.1.4 Stockpile Procedure

Stockpiling shall be minimised. Where stockpiles are required they shall be maintained at a low level (no more than 3m in height). Stockpiles shall not be placed in an area where runoff cannot be controlled.

Stockpiling of potentially contaminated soil may be necessary for these works in isolated areas. The stockpiles shall be managed by the Contractor as follows:

- Stockpiles shall be sited within an area away from the main working area to minimise potential contact by site workers;
- Stockpiled materials shall be placed on suitable material (i.e. polythene sheet) to prevent contaminants leaching into clean soils; and
- Where adverse weather is forecast, the stockpiled material shall be covered by a suitable material (such as polythene) to prevent the ingress of rainwater into the material and therefore minimise the potential for generation of leachate or sediment in stormwater.

3.2 Soil Excavation/Disturbance Procedures

3.2.1 Onsite Soil Management and Movement

All soils can be reused on the site in which they were disturbed. Soils from contaminated sites should not be spread elsewhere throughout the alignment construction unless testing has

identified the material to be clean fill. Excess cut from contaminated sites will need to be disposed of to a facility licenced to accept such waste unless the necessary regulatory consents are sought and procedures followed.

The procedures for off-site disposal are outlined in Section 3.2.2.

The Contractor shall ensure that records are kept of all excavations and soil movements from identified contaminated sites. These shall include the location and dimensions of the excavation, the ground conditions, the soil's movement on site and whether waste materials, unusual staining and/or odour were observed. Any identified contaminated soils will be documented by the Contractor for the provision to Council.

3.2.2 Off-Site Disposal

Landfill acceptance of excavated materials to be disposed offsite from potentially contaminated sites shall be obtained prior to works commencing. Results from the sampling to be undertaken will be supplied to the contractor in order to address offsite disposal acceptance. Offsite disposal of contaminated soil must be to a facility licensed to accept such material and approval shall be obtained by the Contractor prior to transportation. The Contractor must retain copies of all disposal receipts/documentation and provide these to the SRA within 5 days of receipt.

The excavation, handling and off-site removal of the material shall be managed by the Contractor as follows:

- Materials requiring excavation for disposal to a licensed landfill or reuse at another commercial location shall be excavated and loaded directly into trucks where possible (limiting stockpiling), subject to the necessary approvals being obtained as outlined above.
- All trucks shall be covered before leaving site and any soils brushed off wheels to avoid tracking onto public roads. Should the site become wet and material adheres to wheels a wheel wash facility shall be installed and truck wheels washed before exiting the site.
- The Contractor shall maintain a register of soil movements and records such as location of excavation, disposal location, quantity of material and off-site weighbridge documents.

Procedures outlined in Section 3.1.4 shall be followed if materials excavated from potentially contaminated sites are required to be temporarily stockpiled.

3.2.3 Unexpected Contamination Discovery

The procedures outlined below provide the Contractor with protocols to identify potential contamination if suspected contaminated soils or hazardous materials are discovered during the excavation works other than contaminated soils already identified in this CSMP. These protocols will enable the appropriate action to avoid exposure of contaminants to site workers or the dispersion of contaminants into the surrounding environment.

Contamination indicators or hazardous materials may include but are not limited to the following:

- Unusual odours
- Discoloured or stained water seeps and soils
- Petroleum hydrocarbon contaminated soil and/or free product
- Liquid waste, putrescible waste, household refuse and any material that normally would be sent to a licensed landfill
- Suspected Asbestos Containing Material (ACM)
- Intact or broken drums and containers.

During the earthworks on site, the Contractor shall actively monitor for the conditions/materials specified above. In the event that one of these is identified, the Contractor should take the following actions:

- Stop all earthworks within a 5 m radius of the area where the suspected material/emission/discharge has been recorded
- Immediately notify the site supervisor
- Cordon off the area as practicable with a suitable barrier.
- Work shall not resume or commence within a 5 m radius of the area unless authorised by the Engineer's Representative.

The site supervisor shall contact the Engineer's Representative who will consult with the suitably qualified and experienced practitioner and advise on the appropriate course of action. The suitably qualified and experienced practitioner shall:

- Notify the regulatory authorities (Auckland Council's Natural Resources and Specialist Input Team and Licencing and Compliance Team), if required, that contamination has been discovered and contingency action is being implemented.
- Characterise the contamination by collecting samples for chemical laboratory analysis.
- If appropriate, advise the Contractor to excavate the suspected contaminated material and stockpile (as detailed in Section 3.1.4) or place in a covered container to allow works to continue with minimum delay.
- If stockpiling/containerising is inappropriate, advise construction work to proceed to an area clear of contamination indicators until material testing, as necessary, defines the material characteristics.
- When the material characteristics have been established, advise the site supervisor as to whether the materials may remain on site or what remedial measures are required to manage this material on-site, or the options available to disposal of this material off-site (as per Section 3.2.2).
- Instruct relevant staff so that all appropriate information such as location and quantity of material and off-site weighbridge dockets are recorded.

Should asbestos be observed or suspected during the earthworks, all work shall cease and Health & Safety at Work (Asbestos) Regulations (2016) will be followed. Works can recommence once all asbestos has been removed safely. Any such asbestos works (assessment, delineation, removal and verification) shall be undertaken by a specialist asbestos contractor.

3.3 Imported Materials

Material imported to the site for the purposes of filling and landscaping shall be certified cleanfill. Records must be provided by the Contractor to demonstrate that any imported material is obtained from a quarry or other certified source. Material shall not be imported from any site that is, or would be considered, a Hazardous Activities and Industries List (HAIL) site (MfE, 2011), unless sampled by a suitably qualified environmental scientist/engineer to show that it is suitable for the intended land use and is acceptable to the client.

3.4 Groundwater Procedures

Groundwater is not expected to be encountered during the shallow excavations of the potentially contaminated sites along the edge of the highway.

If groundwater is encountered during the excavation works, the Contractor shall:

- Contain groundwater within the excavation and not allow it to discharge across the site surface.

- If dewatering is required, the pumped groundwater discharge could be discharged to Auckland Council's reticulated wastewater system with prior approval.
- The groundwater may be disposed to stormwater only if laboratory testing of water indicates it is appropriate. Sampling must be undertaken by a suitably qualified environmental scientist/engineer.

4. HEALTH AND SAFETY PROCEDURES

Given the land use activities that have occurred at the site, there is the potential to encounter contaminated soils as part of the proposed site works. Prior to work being undertaken, a Job Safety and Environment Analysis (JSEA) will be carried out by the Contractor that will identify the appropriate personal protective equipment (PPE) and behaviours to reduce the exposure risk. Note the contaminants identified at this site potentially pose a low health risk to construction workers.

Workers may be exposed to contaminants via the accidental ingestion of, or skin contact with soil and/or groundwater and/or surface water. To prevent this exposure, procedures should be followed by workers who are likely to come in contact with contaminated soil and/or water, including the following:

- Wear cloth overalls.
- All staff physically involved in works likely to result in hand contact with contaminated materials should wear gloves.
- Wear a P2 dust mask if conditions generate dust.
- Minimise hand to mouth contact.
- Wash hands and face prior to eating, drinking or smoking.
- No eating or drinking within the excavation area.
- Wash any skin abrasions immediately and treat to prevent infections.
- Follow any additional requirements in the Contractor (Site Specific) Health and Safety Plan.

Further hazards may be identified during the course of the works. The Contractor is responsible for reviewing any new work element and assessing whether there are any new associated hazards, and whether these can be eliminated, isolated or minimised. The Contractor shall then instruct all staff on the health and safety procedures associated with the new hazard and update the site CHSP. This CSMP is not intended to overrule any Contractor HSP prepared for the project. Procedures relating to the minimization of risk from contamination exposure is core to the function of this CSMP as per MfE Contaminated Land Management Guidelines 1.

5. LIMITATIONS

This report has been prepared by the Safe Roads Alliance (SRA). SRA is required to produce a Contaminated Soils Management Plan (CSMP) in relation to the State Highway 16 Improvements project. This report is prepared solely for the purpose of the management of contaminated soils encountered during this project. The contents of this report may not be used by the Client for any purpose other than in accordance with the stated scope.




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Appendix A
HAIL Properties



LEGEND:

	HAIL A10
	HAIL B2
	HAIL F7

