DRAFT

Hale Capital Partners

Long Term Environmental Management Plan

42-52 Raymond Avenue
Matraville, NSW

15 December 2021

60654/142665 (Rev B)

JBS&G

www.jbsg.com.au

DRAFT

Hale Capital Partners

Long Term Environmental Management Plan

42-52 Raymond Avenue
Matraville, NSW

15 December 2021

60654/142665 (Rev B)

JBS&G

Table of Contents

List of Tables

List of Figures

Appendices

Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AF	Asbestos Fines
AMP	Asbestos Management Plan
DP	Deposited Plan
EPA	Environment Protection Authority
FA	Fibrous Asbestos
JBS&G	JBS&G Australia Pty Ltd
JSRA	Job Safety Risk Assessment
LAA	Licensed Asbestos Assessor
LTEMP	Long Term Environmental Management Plan
NOHSC	National Occupational Health and Safety Commission
NSW	New South Wales
PAHs	Polycyclic Aromatic Hydrocarbons
PPE	Personal Protective Equipment
RAP	Remedial Action Plan
SWMS	Safe Work Method Statement
WHS	Work Health and Safety

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Hale Capital Partners (Hale, the client) to prepare a Long Term Environmental Management Plan (LTEMP) for the future management of the environmentally impacted soils within 42-52 Raymond Avenue, Matraville, NSW (the site). The site is legally identified as Lot 1 DP 369668, Lot 32 Section B DP 8313, and Lot 1 DP 511092, and has an approximate site area of 1.98 hectares (ha). The site location and current site layout are shown on **Figures 1** and **2** respectively.

Contamination had been identified within the site prior its redevelopment. This included asbestos containing materials (ACM) present within fill materials from historical development of the site and total recoverable hydrocarbons (TRH) impacted soils and groundwater associated with former locations of five underground storage tanks (USTs) that had historically been used to store petroleum fuels at the site, a holding tank and interceptor pit and locations of fuel lines and former fuel bowser.

The contaminated soils were identified in previous investigation of the site. Asbestos impacted fill remains in-situ across the site and is mostly contained beneath concrete pavement, which cover all but an unpaved strip of land down the western side of the site adjoining a heritage listed Sydney Water stormwater channel. Known USTs, which were located in the southern portion of the unpaved western portion of the site had been removed to the extent practicable, except for one UST located at the southwestern extent of the former UST area as it was in close proximity to the heritage listed stormwater canal. Not all impacted soils in the vicinity of the USTs channel walls were removed during remediation works. Therefore, TRH impacted soil and groundwater remain in this portion of the site. A capping layer comprising concrete pavement or validated material overlying and marker layer is placed over the contained soils to control potential human and ecological exposures in the future.

The site is considered suitable for use given the presence of an appropriate capping layer across the site to retain the contaminated soils and subject to implementation of this LTEMP. This LTEMP is required to ensure that the environmentally impacted soils (including asbestos affected materials) are appropriately managed to ensure continued protection of human health for future site workers, occupiers, visitors and contractors engaged to undertake works within the site.

Through the presence of asbestos as a known contaminant in the soils this LTEMP has been prepared specifically in accordance with Clause 429 of the *Work Health and Safety Regulation* (2017) that states, *"If asbestos or ACM is identified at a workplace under clause 422, or likely to be present at a work place from time to time, a person with management or control of the workplace must ensure a written plan (an asbestos management plan) for the workplace is prepared".*

This LTEMP applies to asbestos impacted soils present across the site. It is not intended to apply to major excavations, earthworks or construction activities. A specific management plan should be prepared in the event that any major works are proposed for the site.

1.2 Objectives

The objectives of this LTEMP are to:

- Protect the health of site occupants, contractors and visitors from the residual environment hazards (specifically inclusive of asbestos) during the future operation of the site;
- Outline ongoing management requirements to ensure that the risk posed by environmentally impacted soils identified at the site is properly managed and maintained;
- Provide guidance on the responsibilities of maintaining the requirements of this LTEMP;
- Provide guidance on the appropriate control measures to be implemented in the event that the capping and/or marker layer requires to be breached; and
- Provide guidance on the appropriate procedures to manage works within environmentally impacted materials (specifically inclusive of asbestos as per requirements of the *Work Health and Safety Regulation* 2017).

It is expected that this LTEMP will be incorporated into the overall maintenance and environmental management procedures for the ongoing operation of the site.

2. Summary of Site Conditions

2.1 Site Details

The site location is shown on **Figure 1**. The site layout and associated cadastral boundaries are shown on **Figure 2**. The site details are summarised in **Table 2.1** and described in detail in the following sections.

Table 2.1: Summary Site Details

Lot/Deposited Plan (DP)	Lot 1 DP 369668, Lot 32 Section B DP 8313, and Lot 1 DP 511092
Address	42-52 Raymond Avenue, Matraville, NSW
Local Government Authority	Randwick City Council
Approximate MGA Coordinates (GDA 94 MGA 56)	E: 335728 N: 6240645
Site Zoning	IN1 General Industrial under the State Environmental Planning Policy (Port Botany) Amendment (Port Kembla) 2013
Current Use	Commercial/Industrial
Previous Use	Commercial/Industrial
Site Area	Approximately 1.98 ha

2.2 Site Description

Most of the site is occupied by building and surrounding paved access road. The western strip of the site adjoining a Sydney Water Stormwater channel is unpaved and is covered with some vegetation. The southern strip of the site adjoins a surface water detention dam, is unpaved and is covered with some vegetation. Asbestos impacted soils in the former UST remediation area, in the southern half of the unpaved strip of land in the western extent of the site, and in-situ TRH impacted soils in this area were covered with a black plastic builder's film and clean imported material at the time of the remediation works in 2021. Reference can be made to survey plans provided as **Appendix A**.

2.3 Extent of Environmentally Impacted Material Remaining Onsite

Asbestos impacted fill, assumed to comprise both bonded and friable unless proven otherwise, is present across the whole site, beneath concrete pavement across most of the site, and beneath clean imported soil and marker layer in the former UST remediation area and the western extent of the site. In addition, TRH impacted soils and TRH impacted groundwater remain in the former UST remediation area, in the southern half of the unpaved strip of land in the western extent of the site adjoining the Sydney water stormwater channel. The extent of the capped asbestos impacted fill in the wester portion of the site is shown on **Figure 2** and defined by surveys provided as **Appendix A**.

2.4 Summary of Identified Environmental Contamination Issues

Asbestos in soils in the ground beneath concrete pavement and/or capping and marker layer needs to be managed. In addition, remaining TRH impacted soil and groundwater in the former UST remediation area needs to be appropriately managed.

2.4.1 Asbestos

Friable asbestos is defined in the Safe Work Australia *Code of Practice How to Manage and Control Asbestos in the Workplace* (SWA 2018a) as being *"…material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos".*

Non-friable ACM is defined by SWA (2020) as being *"…material containing asbestos that is not friable asbestos. Including materials containing asbestos fibres reinforced with a bonding compound"*.

Mechanical disturbance of ACM fragments and disturbance of soils may result in the release of fibres and therefore, such activities should be managed to prevent any fibres becoming airborne. Similarly the same activities can potentially give rise to release of soil particulates affected by chemical

contaminants. The health effects of (specifically) asbestos are detailed in enHealth (2005) *Management of Asbestos in the Non-Occupational Environment*.

The primary issue associated with the asbestos remaining beneath the site pavement or capping and marker layer is managing the risk of inhalation of respirable fibres if the underlying asbestos impacted materials were to be disturbed. The primary issue of the potentially co-occurring chemical-based contaminants is direct contact to the impacted soils and/or potential inhalation of impacted particulates generated from the soils.

A secondary issue with the presence of the environmentally contaminated soils remaining at the site is disposal of excess spoil that may be impacted with chemical contaminants and/or asbestos in the event that excavation of impacted materials beneath the pavement and/or capping and marker layer is required.

A description of the marker layer used to identify the boundary between the capping and potentially impacted materials is provided in **Section 2.5**. Management measures to deal with these materials in the event that it becomes necessary for the pavement capping or capping and marker layer to be breached are provided in **Section 4**.

2.4.2 Total Recoverable Hydrocarbons

Other contaminants remaining on the site include TRH. Exposure to these contaminants can be via absorption through the skin, ingestion, and inhalation via dust and/or vapours. TRH remaining in soils in the former UST remediation area are mostly semi-volatile and heavier end hydrocarbons (TRH >C10-C40). The primary sources of petroleum hydrocarbon contamination (former USTs and associate infrastructure) were removed and excavation and disposal of hydrocarbon contaminated soil was undertaken to the extent practicable, significantly reducing the potential source of groundwater impact. TRH contamination remains in the former UST remediation area of the site as mentioned in **Section 2.2** and shown on **Figure 2**.

Exposure to these contaminants can be via absorption through the skin, ingestion, and inhalation via dust and/or vapours, however, concentrations of TRH in soil validation samples collected from UST remediation excavations were below soil health screening levels for direct contact.

2.5 Site Cover Layers

2.5.1 Requirements

Distinct requirements were provided for areas that are located in areas of existing hardstand, and areas that are in landscaped / non-paved areas of the site. In summary in areas of hardstand, the requirements were:

- No requirements where the historical concrete pavement present on-site was not disturbed during redevelopment;
- In areas of new pavement/installed services, placement of a visual marker layer overlying the environmentally impacted soils consisting of a bright orange coloured non-woven polyester continuous filament or PET (such as nonwoven geotextiles) or similar with a minimum density of approximately 150 grams per square metre (or equivalent); and
- Placement of clean fill around services and concrete overlying the marker layer and across the extent of impacted soils.

In areas of non-hardstand (i.e. landscaped / garden / grassed areas of the site), the requirements were:

- Placement of a visual marker layer overlying the environmentally impacted soils consisting of a bright orange coloured non-woven polyester continuous filament or PET (such as

nonwoven geotextiles) or similar with a minimum density of approximately 150 grams per square metre (or equivalent); and

- Placement of a capping layer of at least 0.3 m of non-impacted soils overlying the marker layer and across the extent of impacted soils.

The physical capping is required to prevent ready access to soils contaminated with asbestos and other chemical contaminants. The physical barrier layer installed at the site is shown on the survey diagrams provided in **Appendix A**.

2.5.2 Extent of Marker Layers and Capping

Concrete pavement or a marker layer and capping is present overlying the extent of the asbestos impacted soils. The precise extent is shown on **Appendix A**. Photographs of the installation of the capping and marker layer in unpaved areas are provided in **Appendix B**.

The extent of capped asbestos impacted fill within the western portion of the site is covered by a marker layer and capping (consisting of pavement or non-impacted soils), which must be maintained to prevent future site users, occupiers, visitors and contractors from being potentially exposed to the retained environmentally impacted soils.

Providing the marker layer and capping are maintained and control measures herein are successfully implemented in accordance with this LTEMP, there will be no health risks associated with asbestos or TRH impacted soils or TRH impacted groundwater remaining on the site, since there will be no direct pathways for site occupants to be exposed to the retained impacted material.

3. Application and Enforcement of LTEMP and Responsibilities

3.1 Application of LTEMP

This LTEMP will apply indefinitely for future site operations.

The requirements of this LTEMP are intended to apply to any routine activities within the site which could involve disturbance or exposure of retained contaminated soil beneath the capping and marker layer but not limited to:

- Underground utility installation, maintenance or removal; or
- Excavations (e.g., dug, cut, piled or bored).

It is not intended that the LTEMP apply to major excavations, earthworks or construction activities. A specific management plan should be prepared if major works are proposed within the area of the encapsulated contaminated soils.

Section 4.2 provides requirements for shallow and deep intrusive works, however, disturbance of the marker layer should be avoided, if possible. As noted in **Section 4.2.2**, approval for deep intrusive works must be sought from the person/s with management or control of the workplace who is responsible for the enforcement of the LTEMP (**Section 3.3**). The person responsible for enforcement of the LTEMP will assess whether the works are necessary or if there is an alternative that will not result in exposure of environmentally impacted soil.

3.2 Site Owner

It is the responsibility of the Site Owner to ensure that:

- A copy of this LTEMP must be provided to all persons acquiring ownership of all or part of the site (Site Owners).
- A site owner must provide a copy of this LTEMP to any successor in Title.
- A site owner must ensure that a copy of this LTEMP is provided to all persons with management or control of a workplace at the site.
- A person/s with management or control of the workplace (specifically referred to the area of encapsulated contaminated soils) is made responsible for the implementation and maintenance of the provisions of this LTEMP.
- A person in a senior management position in the organisation is appointed as Site Environmental Manager and given the responsibility for ensuring the maintenance of the provisions of this LTEMP. The Site Environmental Manager may appoint appropriate personnel to implement the LTEMP day to day but will remain the responsible manager to whom the appointed personnel must report.
- Site personnel or contractors that must conduct intrusive works at the site are inducted into the LTEMP and are aware of their responsibilities with regard to health and safety and protection of the environment.
- A copy of this LTEMP is supplied to anyone conducting intrusive works on the site.
- The integrity of the marker layer and capping and/or hardstand is maintained by application of the procedures outlined in this LTEMP.
- The health and safety and environmental requirements specific to the contamination issues on the site, as outlined in this LTEMP, are complied with.
- Environmental incidents are reported in a timely manner to the appropriate statutory authorities, as necessary in accordance with legislation.

3.3 Persons with Management or Control of the Workplace

The person/s with management or control of the workplace shall be responsible for the implementation and maintenance of the provisions of this LTEMP for the area of encapsulated contaminated soils.

Specifically, the persons/s with management or control of the workplace shall be responsible for:

- Ensuring the required routine inspections of the encapsulated area are completed and accurate records maintained;
- Organising appropriate works in the event that unexpected breaches of the capping and/or marker layers are encountered;
- Inducting relevant personnel, contractors and visitors into the requirements of this LTEMP. Detailed records of personnel inducted into the conditions of this LTEMP shall be kept (**Appendix C**);
- Ensuring any personnel or engaged contractors undertaking work that penetrates the depth of the capping and marker layer are aware of their responsibilities in relation to the asbestos impacted materials known to be present and known area of TRH impacted material;
- Ensuring any disturbance to the capping and marker layer are appropriately reinstated in accordance with the requirements of this LTEMP; and
- Documenting and updating records to reflect any works completed within the encapsulated area that may have extended below the depth of the capping and/or marker layer (**Appendix E**).

3.4 Summary of Provisions of this LTEMP

The provisions of this LTEMP are summarised as follows:

- Site personnel or contractors required to conduct intrusive works at the site must be inducted into the LTEMP and must be aware of their responsibilities with regard to health and safety and protection of the environment;
- A copy of this LTEMP is to be supplied to all persons conducting intrusive works on the site;
- The integrity of the capping and marker layers must be maintained by application of the procedures outlined in this LTEMP; and
- The health and safety and environmental requirements specific to the potential chemical constituent and asbestos hazards within the encapsulated area as outlined in this LTEMP must be complied with.

4. Contaminated Soil and Asbestos Management Strategy

It is expected that this LTEMP will be incorporated into the overall maintenance and environmental management procedures for all workplaces at the site.

4.1 General

The management procedures provided in the following sections have been primarily based on control of potential hazards that occur from asbestos contaminated soils / asbestos hazards. The nature of the potential co-occurring chemical hazards is that management procedures as designed for asbestos hazards will be sufficient to control potential risks as will occur with potential co-occurring chemical hazards, namely TRH impacts in the area shown on **Figure 2**.

4.2 Potential Future Earthworks

The management procedures (provided in the following sections) are to be implemented during all routine intrusive works at the site including any potential future small-scale earthworks on the site (e.g. excavation for service installation or maintenance, tree planting). Major works within the area will require specific management controls.

There are two types of intrusions that may be undertaken at the site that would require management:

- Disturbance of the capping pavement or soils (shallow intrusive works); or
- Breach of the capping pavement or the marker layer in unpaved areas, generally comprising excavations undertaken beyond a depth of 0.3 m below the ground surface in unpaved areas.

Because activities breaching the capping pavement or marker layer entail greater risk than activities that simply disturb the upper depth of capping soils, different procedures apply to shallow and deep intrusive works, as outlined in the following sections.

4.2.1 Shallow Intrusive Works

These provisions for shallow intrusive works apply to works above the capping pavement or marker layer in unpaved areas (i.e. works within the capping soils).

Where shallow intrusive works are required, the following management measures will apply:

- Approval for the works must be sought from the person/s with management or control of the workplace who is responsible for the enforcement of this LTEMP. A standing / long-term approval would be appropriate for persons engaged as gardeners / maintenance workers within the site;
- Site personnel or contractors required to conduct intrusive works at the site must be inducted into the LTEMP and must be aware of their responsibilities with regard to health and safety.
- A copy of this LTEMP is to be supplied to all persons conducting intrusive works on the site.
- Workers are not required to wear additional personal protective equipment (PPE) beyond normal site requirements for shallow intrusive works.
- Air monitoring is not required provided the environmentally impacted material beneath the marker layer is not disturbed.
- The marker layer shall not be disturbed, and any capping materials disturbed should be reinstated consistent with the description in **Section 2.5.2** of this LTEMP. Where disturbed, the capping materials should be separately stockpiled, managed and reinstated consistent

with this LTEMP (as applicable and appropriate). This shall include re-instatement of any areas of hardstand where hardstand is required to be removed.

- Any repairs to the capping and/or pavement (i.e. hardstand) overlying the marker layer shall be recorded as outlined in **Section 4.10** and changes should be detailed in an updated survey plan **(Appendix A)**, if required.

4.2.2 Deep Intrusive Works

These provisions for deep intrusive works apply to works that will extend below the pavement or marker layer (i.e. within unpaved areas or where services have been installed). This is below the capping soils and marker layer in the site areas underlying paved / hardstand areas, or otherwise underlying the capping layer.

Where deep intrusive works are required, the following management measures will apply:

- Prior to any deep intrusive work commencing, approval for the works must be sought from the person/s with management or control of the workplace who is responsible for the enforcement of the LTEMP (**Section 3**) who will assess whether the works are necessary or if there is an alternative that will not result in exposure of environmentally impacted soil and whether the works are required to be carried out by a specialist contractor. The person/s with management or control of the workplace must also review and approve the Job Safety Risk Assessment (JSRA) and Safe Work Method Statement (SWMS) for the works and ensure that site personnel and/or contractors who will undertake the works understand the requirements of the LTEMP.
- Site personnel or contractors required to conduct deep intrusive works at the site must be inducted into the LTEMP and must be aware of their responsibilities with regard to health and safety, including those noted in **Section 4.3** following.
- A copy of this LTEMP is to be supplied to all persons conducting deep intrusive works on the site.
- The works area must be isolated from casual entry using temporary barriers and only personnel inducted in the requirements of the site LTEMP will be permitted to enter the works area.
- Sufficient space must be provided within the works area to allow stockpiling of spoil from excavations, if required, in accordance with **Section 4.5**.
- In the event that materials from under the marker layer must be excavated, a water supply must be provided to the works area for the purpose of maintaining potential environmentally impacted soil in the excavations and stockpiles in a moist state.
- Personnel entering the works area must wear appropriate PPE in accordance with **Section 4.3.**
- Decontamination procedures must be undertaken in accordance with **Section 4.3**.
- Stockpiles of excavated spoil must be managed in accordance with **Section 4.5**.
- Air monitoring to be undertaken in accordance with **Section 4.3**.
- Once the works are complete, the capping and marker layer shall be reinstated with materials of similar nature as were originally present, as described in this LTEMP. Where materials are imported for use in the capping layer, if required, they must be validated as suitable for the site use..
- Areas of removal of hardstand / paving must be replaced with hardstand / paving in the reinstatement of the site.

- Any repairs to the capping and/or pavement shall be recorded as outlined in **Section 4.9** and changes should be detailed in an updated survey plan **(Appendix A)**, if required.

4.2.3 Reinstatement of Capping

Following potential works as completed as per **Section 4.2.1** or **4.2.2**, there may be a requirement to supply new 'capping material' to the site to replace existing capping material as consumed by the works. Capping material is to consist of virgin excavated natural material (VENM) or excavated natural material (ENM) or pavement meeting the requirements of **Section 2.5.1** where observed to be removed during the works.

Where pavement is used a minimum thickness of 50 mm is required.

Where VENM or ENM are used, then appropriate validation assessment, inclusive sampling and analysis must be available as consistent with relevant NSW EPA guidelines or otherwise resource recovery exemptions. The person responsible for the implementation of the LTEMP must be provided with all relevant copies of documentation certifying the suitability of capping material.

4.3 Specific Requirements for Those Working with Asbestos Impacted Material

Asbestos-containing materials are present in soil underlying the pavement or marker layer. Work involving any breaches of the pavement or capping and marker layer, (i.e. deep intrusive works exceeding a depth of 0.3 m) will require supervision by a Class A licensed asbestos contractor. The works will be undertaken using the procedures described in the SWA *Code of Practice How To Safely Remove Asbestos (SWA 2020)* and the following site-specific procedures:

- All site workers shall be inducted to the site and made aware of the procedures outlined in this LTEMP.
- Workers and visitors to the site area will be made aware of the asbestos contamination during site inductions and tool box meetings and only authorised people shall enter the work area, which must contain a perimeter barrier to restrict entry.
- An asbestos work area shall be defined and clearly marked.
- All personnel working within the asbestos work area shall wear P2 (or higher) class half face respirators, disposable gloves and coveralls made from materials which provide adequate protection against fibre penetration whilst completing works and whilst within the asbestos work area.
- A 10 m wide exclusion zone shall be established around the perimeter of the asbestos work area. The dimensions of the exclusion zone may be varied by the person/s with management or control of the workplace, or by the Class A licensed asbestos contractor, if necessary to ensure the day to day operation of the site.
- Asbestos warning signs shall be placed surrounding the asbestos work area and at entry/egress points.
- A decontamination area shall be marked out within the asbestos work area for the removal and disposal of PPE before site workers leave the asbestos work area. Personal decontamination must be undertaken each time a site worker leaves the asbestos works area and at the completion of the works. All disposable PPE shall be disposed of as asbestos waste.
- Static air monitoring at a minimum of four locations surrounding each asbestos work area and with consideration to neighbouring receptors shall be undertaken in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* [NOHSC: 3003(2005)] for the duration of the work. The monitoring locations shall be assigned by a Licensed Asbestos Assessor (LAA).

- At the completion of the works the capping and marker layer are to be re-instated in accordance with the requirements of this LTEMP. The changes should be detailed in an updated register of site works as included as **Appendix E.**

4.4 Specific Requirements if Groundwater is Encountered

Contaminants present in groundwater have been assessed to not present a significant risk to human health or the environment at the site or in off-site areas unless groundwater is encountered in excavations. Due to the depth of groundwater (typically exceeding 3 metres) exposure of site users to groundwater is considered unlikely.

Groundwater should not be extracted at the site for any purpose other than groundwater monitoring. This does not apply to construction dewatering or remediation provided an activity-specific management plan (e.g. a CEMP) is prepared.

Groundwater may be encountered by workers during deep intrusive works. For such works, an activity-specific management plan, such as a CEMP, is recommended to be developed and implemented. This should include standard worker health and safety, and environmental, procedures.

If groundwater is likely to be encountered then supplementary worker health and safety, and environmental, procedures are recommended to ensure a safe work environment to:

- Minimise direct contact of groundwater with workers; and
- Prevent release of contaminated groundwater or liquids to the environment.

Characterisation (e.g. by sampling and analysis at an appropriately accredited laboratory) of the groundwater may be undertaken to assist in determination of the required supplementary procedures.

4.5 Soil Management

Any environmentally impacted soil/fill (including asbestos impacted materials and inclusive of TRH impacted area removed by excavation works) excavated during deep intrusive works must be securely stockpiled separately from the capping / marker layer material. Capping and marker layer materials should also be separately stockpiled. Stockpiles must be placed on a sealed surface or on plastic sheeting to prevent cross contamination of unsealed surfaces.

Stockpiles must be placed in a secure location onsite and covered if they are to remain for more than 24 hours.

Spoil generated from on-site excavations may be re-used on-site, noting that any material excavated from below the marker layer must be re-used below the marker layer. Capping material cross contaminated with soil from below the marker layer must be re-used below the marker layer.

Alternatively, excavated environmentally impacted soils / materials shall be disposed off-site following appropriate waste classification in accordance with **Section 4.7**.

4.6 Dust Management

During any deep intrusive works that will penetrate the marker layer, excavations and stockpiles of spoil should be kept damp to prevent the generation of dust from these sources. Care should be taken to not over-wet excavations and/or stockpiles such that excess runoff is generated.

4.7 Off-Site Disposal and Waste Management

If any material is to be excavated for off-site disposal it should be classified in accordance with EPA waste classification guidelines (NSW EPA 2014[1]) or guidelines that may be in force at that time. Waste must be managed in accordance with the provisions of the *Protection of the Environment Operations (Waste) Regulation 2014* or successor instruments.

4.8 Unexpected Finds Protocol

The possibility exists for hazards other than those identified and expected based on previous investigations, to be present at the site. Environmental sampling is based on chemical analytes identified as a potential concern during a documented process of reviewing historical site activities. However, ground conditions between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations. The nature of any additional hazards which may be present at the site are generally indicated through visual or olfactory means, for example:

- Drums or underground tanks;
- Chemical bottles; and/or
- Malodorous or unusual coloured soils.

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned indications of potential contamination (or any other indications of the presence of potentially hazardous substances) be observed, the procedure summarised in the Flowchart provided in **Appendix F** is to be followed.

The sampling strategy for each 'unexpected find' shall be designed by a suitably qualified environmental consultant, in accordance with guidelines made or endorsed by EPA. The strategy will, however, be aimed at determining the nature of the substance – that is, if it is hazardous and, if so, is it present at concentrations which pose an unacceptable risk to human health or the environment.

[1] Waste Classification Guidelines, Part 1: Classifying Waste, NSW Environment Protection Authority, November 2014 (EPA 2014)

4.9 Emergency Preparedness and Response

The following procedure will be followed in the event that the capping and marker layer are breached unintentionally such that the underlying environmentally impacted soil is exposed:

- Stop the activity or process that has exposed the impacted soil;
- Assess the hazards associated with the exposure of the impacted material and implement appropriate procedures to address the hazards;
- Repair the capping and marker layers such that the impacted soil is once again isolated beneath the capping / barrier;
- Collect and secure any impacted soil that may remain exposed and stockpile securely so that it is protected from casual access;
- Review the activity or process that led to the exposure of the impacted soil and revise procedures or actions accordingly to prevent a reoccurrence;
- Complete an environmental incident/corrective action report in accordance with the current quality procedure; and
- Review and revise the LTEMP to reflect any changes that have to be made to prevent a reoccurrence.

In the event of an emergency, then the following persons / organisations shall be available to provide assistance.

Table 4.1: Emergency Contacts

Person	Organisation	Role	Contact Details

4.10 Capping Inspections

Routine inspection of the capping integrity shall be conducted at the following times throughout the future operation of the site (**Table 4.2**).

Table 4.2: Capping Inspections

Inspection Time	Inspection Frequency
Following an accidental breach/penetration of the capping or marker layer	Following incident
Following break / repair of capping and/or pavement underlying rail lines	Upon completion
Routine inspection of capping across site	Annually

Records of the inspection shall be retained for a minimum period of four years (**Appendix E**).

5. Health and Safety Management

It is the responsibility of persons with management or control of workplaces at the site to ensure that comprehensive health and safety programmes that comply with the requirements of the WHS Regulation and are appropriate for the activities undertaken at the site are implemented. Given the presence of asbestos at the site, additional protocols and procedures that address the specific hazards posed by the asbestos must be included in the overall health and safety plans implemented.

The only significant exposure pathway that can lead to health effects from asbestos fibres is inhalation of respirable fibres. Consequently, workers who may be exposed to dust that has the potential to contain asbestos fibres must wear appropriate respiratory protection. Furthermore, measures must be taken to ensure that dust or other material that may contain asbestos fibres is not carried out of the work area to areas where breathing protection would not ordinarily be considered a requirement.

Potential risks to other co-occurring contaminants can be similarly managed by precluding the potential exposure of the impacted materials or direct contact to the impacted soils otherwise. The measures as implemented to control potential asbestos hazards will be similarly effective to control risks from other chemical contaminants as may potentially be present.

With regard to the site, there is a risk that soil underlying the capping and marker layer may release asbestos fibres if disturbed. Consequently, in areas where intrusive works are expected to breach the capping and marker layer, work should be supervised by a person holding a Class A licence who should prepare Job Safety Risk Assessments (JSRA) and Safe Work Method Statements (SWMS) relating to the potential for asbestos to be present. The JSRA and SWMS should be submitted to the Responsible Person, who should ensure that the intrusive works are carried out in accordance with the JSRAs and SWMS and requirements identified in **Sections 3 and 4** of this LTEMP.

6. Revision of the LTEMP

It may, from time to time, be necessary to revise this LTEMP to reflect changes to legislation, changes on site and/or improvements in technologies or knowledge.

Revision of the LTEMP should be undertaken by an appropriately qualified and experienced environmental consultant or Occupational Hygienist. Copies of the revised LTEMP should be distributed to the current site owners, person/s with management or control of the workplace and regular site workers for on-going implementation.

7. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures

Appendix A Survey Plans

Appendix B Photographs

Photo 1 – ????	**Photo 2 – ????**
Photo 3 – ????	**Photo 4 – ????**

Photo 5 – ????	**Photo 6 – ????**
Photo 7 – ????	**Photo 8 – ????**

Photo 9 – ????	**Photo 10 – ????**
Photo 11 – ????	**Photo 12 – ????**

Photo 13 – ????	**Photo 14 – ????**
Photo 15 – ????	**Photo 16 – ????**

Appendix C LTEMP Record of Induction Form

Date	Name	Signature

Date	Name	Signature

Appendix D Capping Reinspection Register

DATE	AREA INSPECTED	COMMENTS	INSPECTING COMPANY AND PERSONNEL DETAILS	SITE LTEMP MANAGER SIGNATURE

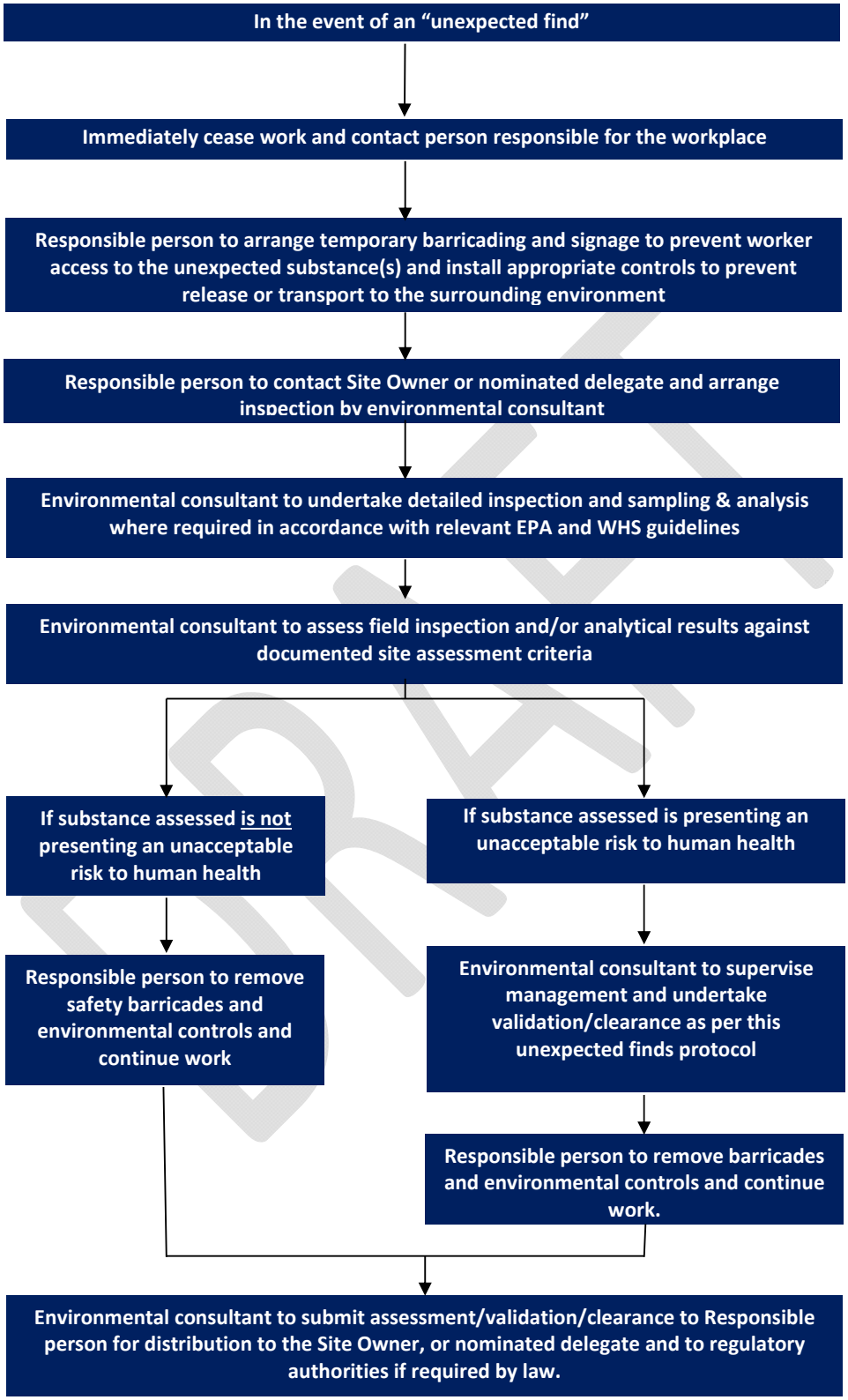
DATE	AREA INSPECTED	COMMENTS	INSPECTING COMPANY AND PERSONNEL DETAILS	SITE LTEMP MANAGER SIGNATURE

Appendix E Asbestos Related Works Record

DATE	LOCATION OF WORKS	WORKS COMPLETED	ASBESTOS RELATED WORKS COMPLETED BY	CLEARANCE INSPECTION AND CERTIFICATE ISSUED?	ISSUER OF CLEARANCE CERTIFICATE	SITE LTEMP MANAGER SIGNATURE

DATE	LOCATION OF WORKS	WORKS COMPLETED	ASBESTOS RELATED WORKS COMPLETED BY	CLEARANCE INSPECTION AND CERTIFICATE ISSUED?	ISSUER OF CLEARANCE CERTIFICATE	SITE LTEMP MANAGER SIGNATURE

Appendix F Unexpected Finds Protocol



Document Distribution

Rev No.	Copies	Recipient	Date
A	1 x Electronic	Hale Capital Partners	10 December 2021
B	1 x Electronic	Alana Garrick (Hale Capital Partners)	15 December 2021

Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
A	John De Martin	Greg Dasey	Draft for client review	Draft for client review	10 December 2021
B	John De Martin	Greg Dasey	-	-	15 December 2021