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## Environmental Summary Report

140-204 Western Avenue, Westmeadows



# Document Information

## Environmental Summary Report,

140-204 Western Avenue, Westmeadows

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Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to Elders past and present.



# Contents

|   |    |
|---|----|
| List of Acronyms.....   | v  |
| 1.0 Introduction.....   | 1  |
| 1.1 Objectives.....   | 1  |
| 2.0 Site Details.....   | 2  |
| 2.1 Summary of Reports Referred to in this Report.....  | 3  |
| 3.0 Victorian Planning and Environment Setting.....   | 4  |
| 3.1 Potentially Contaminated Land.....  | 4  |
| 3.1.1 Ministerial Direction Number 1.....   | 4  |
| 3.1.2 Environmental Audit of Contaminated Land (S53X).....  | 4  |
| 3.1.3 Ministerial Direction Number 19.....  | 5  |
| 3.2 Development in the Buffer of a Landfill.....  | 5  |
| 3.2.1 EPA Publication 788.3 Best Practice Environmental Management Siting, Design, Operation and Rehabilitation of Landfills..... | 6  |
| 3.2.2 EPA Publication 1642 Assessing planning applications within the buffer of a landfill.....                                   | 6  |
| 4.0 Summary of Environmental Work.....  | 7  |
| 4.1 Western Lands – 140-204 Western Avenue.....   | 7  |
| 4.1.1 Environmental Assessments Completed.....  | 7  |
| 4.1.2 Need for Further Works.....   | 9  |
| 4.2 Wright Street - 47-67 & 69-99 Wright Street.....  | 10 |
| 4.2.1 Environmental Assessments Completed.....  | 10 |
| 4.2.2 Anticipated Further Works and Timing.....   | 13 |
| 5.0 Risks Posed by Tullamarine Closed Landfill.....   | 14 |
| 5.1 Landfill Development and Infrastructure.....  | 14 |
| 5.2 Regulation of the Landfill.....   | 14 |
| 5.3 Landfill Monitoring Network at the Western Lands.....   | 15 |
| 5.4 Post Closure “Aftercare” Audits.....  | 15 |
| 5.4.1 2018 Post Closure “Aftercare” Audit, CARMS 62139-3.....   | 15 |
| 5.4.2 2020 Post Closure “Aftercare” Audit, CARMS 62139-4.....   | 16 |
| 5.4.3 2021 Post Closure “Aftercare” Audit, CARMS 62139-5.....   | 16 |
| 5.5 2016 Tullamarine Landfill Auditor Review.....   | 17 |
| 6.0 Summary.....  | 18 |
| 7.0 Principles and Limitations of Investigation.....  | 20 |



8.0 References.....21

Tables in Text

Table 2.1: Western Lands .....2

Table 4.1: Summary of DSI Scopes of Work.....11

Table 6.1: Site Information Summary .....18

## Appendices

### Figures

Appendix A: Environmental Audits Overview (EPA Publication 1609)



# List of Acronyms

| Acronym      | Definition                                  | Acronym      | Definition                                 |
|--------------|---|--------------|--|
| <b>BaP</b>   | Benzo(a)pyrene                              | <b>LNAPL</b> | Light non-aqueous phase liquid             |
| <b>BPEM</b>  | Best Practice Environmental Management      | <b>MD1</b>   | Ministerial Direction Number 1             |
| <b>CHCs</b>  | Chlorinated Hydrocarbon Compounds           | <b>MD19</b>  | Ministerial Direction Number 19            |
| <b>CoEA</b>  | Certificate of Environmental Audit          | <b>MMBW</b>  | Melbourne Metropolitan Board of Works      |
| <b>COPC</b>  | Contaminants of Potential Concern           | <b>MPC</b>   | Moonee Ponds Creek                         |
| <b>CTL</b>   | Tullamarine Closed Landfill                 | <b>PACM</b>  | Potential Asbestos Containing Material     |
| <b>DSI</b>   | Detailed Site Investigation                 | <b>PCEMP</b> | Post Closure Environmental Management Plan |
| <b>EAO</b>   | Environmental Audit Overlay                 | <b>PCPAN</b> | Post-Closure Pollution Abatement Notice    |
| <b>EAR</b>   | Environmental Auditor Review                | <b>PESA</b>  | Preliminary Environmental Site Assessment  |
| <b>EPA</b>   | Environment Protection Authority (Victoria) | <b>PFAS</b>  | Per-and polyfluoroalkyl substances         |
| <b>ERS</b>   | Environmental Reference Standard            | <b>QA</b>    | Quality assurance                          |
| <b>GQRUZ</b> | Groundwater Quality Restricted Use Zone     | <b>QC</b>    | Quality control                            |
| <b>GME</b>   | Groundwater monitoring event                | <b>SAQP</b>  | Sampling Analysis and Quality Plan         |
| <b>HCC</b>   | Hume City Council                           | <b>SoEA</b>  | Statement of Environmental Audit           |
| <b>LFGRA</b> | Landfill Gas Risk Assessment                | <b>TDS</b>   | Total Dissolved Solids                     |
| <b>LFG</b>   | Landfill gas                                | <b>TEQ</b>   | Toxic Equivalence Quotient                 |
|              |   | <b>TRH</b>   | Total recoverable hydrocarbons             |



# 1.0 Introduction

Senversa Pty Ltd (Senversa) was engaged by MAB Corporation Pty Ltd (MAB) to prepare an environmental summary report to describe the environmental (contaminated land) status of lands pursuant to MAB applying to rezone land at 140 – 204 Western Avenue, Westmeadows, VIC (the subject site). The site location and setting is shown in **Figure 1**.

The site is vacant former farmland and Senversa understands that MAB proposes to develop the subject site for the uses permitted in Industrial 3 Zone (which does not include sensitive uses).

The site is next to the Tullamarine Closed Landfill which is located to the west of the site boundary. The Tullamarine Closed Landfill site does not form part of the rezoning application, nor is the land immediately to the east, 47-67 & 66-99 Wright Street (Wright Street parcel).

The site is subject to the requirements of the Environmental Audit Overlay (EAO) requiring a land use suitability audit prior to commencement of the proposed use. A land use suitability audit was completed for the subject land by Mr Anthony Lane in 2014.

This environmental assessment summary considers environmental condition of the subject site and the condition of the environment of nearby lands at the Tullamarine Closed Landfill site and the Wright Street parcel.

## 1.1 Objectives

The purpose of this report is to document a summary of the previous environmental works completed at the site relating to soil, groundwater and landfill gas and how the studies relate to fulfilling the requirements of the Victorian planning regime for rezoning of the site.

There are three main objectives of this report:

1. Describe the relevant environmental and planning mechanisms for rezoning land that may be subject to land contamination or are near a landfill.
2. Summarise the environmental works completed at each of the site parcels in the context of the Victorian planning regime, including the likely further works and indicative timing of when works would need to occur as part of rezoning the site.
3. Provide an overview of the environmental regulatory status of the Tullamarine Closed Landfill, including the obligations of Cleanaway, the landfill duty holder, on managing the aftercare of the landfill and how this applies to the site.



## 2.0 Site Details

The subject site is vacant former farmland located in Westmeadows, approximately 17 kilometres north-west of the Melbourne CBD and is approximately 29 hectares in area. The location of the site and its proximity to adjoining lands is shown in **Figure 1**.

The boundaries of the site are defined by Moonee Ponds creek to the north and the Tullamarine Freeway to the South. Victoria Street Road reserve defines the site to the west and separates the site from the eastern boundary of the Tullamarine Closed Landfill. Beyond the Tullamarine Closed Landfill further to the west of the site is the Melbourne Airport precinct. The Wright Street parcel defines the site boundary to the east. Residential land uses commence on the eastern side of Wright Street. Western Avenue divides the site to the south.

Surrounding site features and environmental status is presented in the following sections of this report and presented in **Figure 2**. Summary information for the Western Lands is provided in **Table 2.1** below.

**Table 2.1: Western Lands**

| Item   | Relevant Site Information   |
|--|---|
| <b>Site Address</b>                            | 140-204 Western Avenue, Westmeadows   |
| <b>Council Lot and Plan Number</b>             | Lot 1 of Title Plan TP512682C<br>Lot 2 of Title Plan TP512682C  |
| <b>Site Area</b>                               | 29 hectares (Cardno, 2014)  |
| <b>Municipality</b>                            | Hume City Council   |
| <b>Current Land Use and Zoning</b>             | Vacant former farmland<br>Farming Zone – Schedule 3 (FZ3)<br>Public Use Zone – Service and Utility (PUZ1) |
| <b>Does Environmental Audit Overlay Apply?</b> | Yes, executed by Environmental Audit completed at the site by Mr Anthony Lane in 2014                     |
| <b>Proposed Land Use</b>                       | Uses permitted under Industrial 3 Zoning  |



## 2.1 Summary of Reports Referred to in this Report

**Table 2.2** provides a summary of reports referred to in this report and clarification of the land that they apply to:

**Table 2.2: Reports referred to in this Report**

| Report Title  | Report Author and Date  | Report Applies To:                |                       |                             |
|---|-------------------------|-----------------------------------|-----------------------|-----------------------------|
|   |                         | Western Lands subject of Rezoning | Wright Street Parcels | Tullamarine Closed Landfill |
| <b>Environmental Audit Report (S53X) and Statement of Environmental Audit 140 to 204 Western Avenue</b> | Cardno Lane Piper, 2014 | ✓                                 | x                     | x                           |
| <b>Preliminary Environmental Site Assessment (PESA)</b>   | Senversa, 2019          | x                                 | ✓                     | x                           |
| <b>Detailed Site Investigation – Stage 1</b>  | Senversa, 2022          | x                                 | ✓                     | x                           |
| <b>Detailed Site Investigation – Stage 2</b>  | Senversa, 2022          | x                                 | ✓                     | x                           |
| <b>Closed Tullamarine Landfill 2018 Post Closure Audit Report (S53V)</b>                                | GHD, 2019               | x                                 | x                     | ✓                           |
| <b>Closed Tullamarine Landfill 2020 Post Closure Audit Report (S53V)</b>                                | Senversa, 2020          | x                                 | x                     | ✓                           |
| <b>Closed Tullamarine Landfill 2021 Post Closure Audit Report (S53V)</b>                                | Senversa, 2021          | x                                 | x                     | ✓                           |
| <b>Environmental Auditor Review of the Technical Report for Auditor Review (TRAR)</b>                   | Cardno, 2016            | x                                 | x                     | ✓                           |
| <b>2014 Technical Report for Auditor Review (TRAR) – Tullamarine Closed Landfill</b>                    | Kleinfelder, 2016       | x                                 | x                     | ✓                           |



## 3.0 Victorian Planning and Environment Setting

This section summarises the planning and environmental instruments relevant to:

- The proposed rezoning of potentially contaminated land;
- Responsible Authority considerations in considering change of use or densification of use of land that encroaches upon former landfills in Victoria.

### 3.1 Potentially Contaminated Land

#### 3.1.1 Ministerial Direction Number 1

Minister's Direction Number 1 (MD1) is documented in Section 12(2)(a) of the Victorian *Planning and Environment Act, 1987* and requires responsible planning authority, in this case, Hume City Council to consider potentially contaminated land matters during planning scheme changes. MD1 was introduced in October 1989 and was last amended August 2021.

The purpose of MD1 as stated in the Direction is:

*"To ensure that potentially contaminated land is suitable for a use which is proposed to be allowed under an amendment to a planning scheme and which could be significantly adversely affected by any contamination".*

MD1 provides the regulatory linkage between planning and environment on redevelopment of land and in preparing an amendment which would have the effect of allowing (whether or not subject to the grant of a permit) potentially contaminated land to be used for a sensitive use, planning authority must satisfy itself that the environmental conditions of that land are or will be suitable for that use.

##### 3.1.1.1 Western Lands

In the case of the Western Lands, a S53X environmental audit was performed in 2014 and resulted in a statement of environmental audit. This audit was performed voluntarily and not part of any planning decision as the land was not defined as potentially contaminated land (the land was subject to the requirements of the Environmental Audit Overlay). A description of the S53X audit process is provided in the following section.

##### 3.1.1.2 Wright Street Parcels

In the case of the Wright Street parcels, a S53X environmental audit is underway. The audit was commenced as the land is subject to the requirements of the Environmental Audit Overlay (EAO).

#### 3.1.2 Environmental Audit of Contaminated Land (S53X)

The environmental audit system is the mechanism by which the planning authority must be satisfied that the condition of the land is suitable for the proposed use. The environmental audit system is administered by EPA and environmental audits can only be completed by an auditor that has been appointed by EPA. The environmental audit relating to contaminated land is completed under the S53X of Environment Protection Act, 1970. Since then, the *Environment Protection Act 2017* commenced on 1 July 2021 and a series of new subordinate legislations, policies and guidelines are established under this act. This includes a new auditing model for land use suitability auditing, which replace the S53X auditing model under the old act.



The auditor is to complete an independent assessment of the environmental condition of the site and form an opinion on the suitability of the site for an intended use or uses. The environmental audit process is rigorous and involves a number of parties preparing environmental technical reports may involve works to clean up the site prior to the audit being completed.

The auditor will only finalise the audit report once the site has been cleaned up (remediated) to the required level and that any residual contamination can be managed.

The outcome of the audit, where completed under the Environment Protection Act, 1970 and the auditing is yet to be transitioned to the Environment Protection Act, 2017 is either:

- A Certificate of Environmental Audit (CoEA) - where no adverse contamination remains; **or**
- A Statement of Environmental Audit (SoEA) - where some restriction as to the use of the land was identified.

EPA Victoria has produced a helpful overview of the environmental audit process relating to contaminated land, this is provided as **Appendix A**.

As outlined in section 497 of the *Environment Protection Act 2017* ('New Act'), auditor appointments under the *Environment Protection Act 1970* (Vic) (Old Act) transition automatically upon the commencement of the New Act on 1 July 2021. No action by EPA or auditors is required for this transition to occur. Specifically, section 497 states:

*"On the commencement day, a person who is an environmental auditor appointed under section 53S of the old Act is taken to have been appointed as an environmental auditor under Division 1 of Part 8.3 of the new Act on the same terms as applied to that person immediately before that day."*

Given the only remaining site the subject of the EAO is the Wright Street parcel, and the audit is underway, the identification and management of potential land contamination is being considered and will be appropriately managed to allow completion of the audit.

### 3.1.3 Ministerial Direction Number 19

In October 2018 the Minister for Planning issued Ministerial Direction Number 19 (MD19) under Sections 12(2)(a) and 12(1)(f) of the *Planning and Environment Act, 1987* that requires that the responsible planning authority seek the written views of EPA Victoria on the potential impacts to the environment, amenity and human health in reviewing a planning scheme amendment. MD19 applies both to development of land that may be potentially contaminated or development in the buffer of a landfill. In commenting on the proposed redevelopment EPA sought comment on the landfill gas risk on the proposed development as a result of the site's proximity to the Tullamarine Closed Landfill. The management of this issue is described in the following sections.

## 3.2 Development in the Buffer of a Landfill

Landfill buffers were established for operating landfills to deal with upset conditions that may result in nuisance of amenity issues. Post closure (the Tullamarine Closed Landfill is closed), and upon consideration of potential development within the buffer lands, the effect of buffer encroachment by a development is considered, specifically in terms of the potential for subsurface landfill gas migration to affect the proposed development.

Whilst no buffer distance is prescribed for the Tullamarine Closed Landfill, the proposed development is within 120 m from the furthest known extent of the landfill cells (Cardno, 2014) and is therefore considered to be within a distance that may be affected by the former landfill. This is discussed further below. It is noted also that the auditor of the Western Lands considered landfill gas risk in his audit.



### 3.2.1 EPA Publication 788.3 Best Practice Environmental Management Siting, Design, Operation and Rehabilitation of Landfills

EPA Publication 788.3 *Best Practice Environmental Management – Siting, Design, Operation and Rehabilitation of Landfills* (the BPEM), is the primary guideline in Victoria for the management of landfills. It addresses all aspects of the landfill lifecycle from siting and design, operation, rehabilitation and aftercare of landfills. It is often referred to as ‘the BPEM’.

The BPEM requires that the responsible authority manage the development around landfills. In considering any planning scheme amendment or planning permit applications, Section 8.2 of the Landfill BPEM recommends that:

*“...any planning or responsible authority must have regard for the effects of the environment, including landfill gas, on the development”.*

*The responsible planning authority need to be provided with sufficient information by the proponent to satisfy them that the proposed new development or rezoning will not be adversely impacted by its proximity to the landfill site.*

*EPA recommends that the responsible planning authority require an environmental audit be conducted under Section 53V of the Environment Protection Act. The audit must assess the risk of harm to the proposed development posed by the potential offsite migration of landfill gas and amenity impacts resulting from the landfill. Where a planning or responsible authority has relevant and sufficient information from previous assessments or audits, then this may be relied on in making a decision (EPA, 2015b).”*

It is clear from the BPEM that where there has been previous assessment or audits, then the responsible authority in considering potential buffer encroachment does not require a S53V audit.

### 3.2.2 EPA Publication 1642 Assessing planning applications within the buffer of a landfill

Publication 1642 was published in October 2017 and provides additional guidance and clarifications of the BPEM for planning authorities in assessing planning applications that are in the buffer of a landfill.

This guidance is provided to planning authorities to detail the level of assessment that should be required informing a decision where development encroaches into the landfill buffer. The guideline uses a scoring system to rank the likely hazard level posed by the landfill (the assumed source of any potential landfill gas migration) and the sensitivity of the building types to inform 3 outcomes, being:

- No further assessment required.
- Complete a landfill gas risk assessment.
- Complete an environmental audit under S53V.

The advice in EPA 1642 is consistent with that of the BPEM in clarifying that a S53V audit is not always required.

Importantly, Publication 1642 also provides clarification for the planning authority in assessing planning applications that relate to both potentially contaminated sites and landfill buffer encroachment by confirming that in instances where potentially contaminated land is being considered under S53X audit that a separate audit to address landfill gas risks under S53V is not required.

Specifically, note 4 (Section 6) from the publication states:

*“Where the development also relates to potentially contaminated land and a section 53X audit/environmental site assessment requirement already applies, it may be possible to incorporate landfill gas assessment into this process. In these circumstances, a separate landfill gas risk assessment of section 53V audit would not be required”.*

We note as discussed in Section 4, that the S53X audit for the Western Lands included significant assessment on landfill gas and vapour assessment and risk assessment and the auditor formed the opinion that there was no unacceptable risk to the Western Lands and that the land was suitable for use.



## 4.0 Summary of Environmental Work

### 4.1 Western Lands – 140-204 Western Avenue

#### 4.1.1 Environmental Assessments Completed

##### 4.1.1.1 *Environmental audit and Statement of Environmental Audit*

An S53X contaminated land environmental audit was completed by Mr Anthony Lane in February 2014. As part of the audit, the auditor issued a Statement of Environmental Audit (SoEA). The audit was completed voluntarily. The SoEA confirms that the site is suitable for the following uses:

- Agricultural uses.
- Sensitive uses (high density and other)\*.
- Recreation and open space uses.
- Commercial uses.
- Industrial uses.

**\*Note:** The Environmental Reference Standard (ERS) dated 26 May 2021 defines sensitive use as:

*“including land used for residential use, a child care centre, pre-school, or primary school being either:*

- i) High density where development makes maximum use of available land space and there is minimal access to soil; or*
- ii) Other (low density), where there is generally substantial access to soil.”*

The uses for the site deemed suitable by the auditor in issuing the SoEA are subject to two conditions that relate to contaminated groundwater at the site (not related to site activities, but rather, related for the activities of the Tullamarine Closed Landfill), being:

- No extraction of groundwater at the site for potable mineral water supply, agricultural uses, parks and garden uses, stock watering, industrial uses and primary contact recreation uses (e.g. swimming); and
- A number of the existing groundwater monitoring wells must be maintained and remain accessible for the purpose of ongoing monitoring by the party responsible for the aftercare of the Tullamarine Closed Landfill.

The conditions of the SoEA are still applicable. These conditions are considered acceptable and reasonable and commonly apply to many mixed use sites. The purposes of the groundwater monitoring is to confirm the performance of the aftercare monitoring for the Tullamarine Closed Landfill and do not relate to landfill gas or vapour considerations, and is discussed further in **Section 4.1.1.3** below. Ongoing access to and maintenance of the groundwater bores is described further in **Section 5.3**.



#### *4.1.1.2 Works completed to inform the audit*

In completing the S53X audit, the Auditor, and their specialist team, reviewed a number of site-specific and adjoining lands reporting, in order to form his opinion on the suitability of the site for use. The following environmental assessments were reviewed:

##### **Western Lands:**

- Quantitative human health risk assessment (Golder Associates, 2012).
- Preliminary contamination risk and geotechnical assessment (Golder Associates, 2012).
- Groundwater condition report (Kleinfelder, 2014).
- Asbestos and lead abatement program (Kleinfelder, 2013).
- Soil vapour assessment (Kleinfelder, 2013).
- Vehicle rollover validation and waste removal report (Kleinfelder, 2013).
- Soil contamination assessment (Kleinfelder, 2013).
- Historical cultural heritage assessment (Tardis, 2011).
- Due diligence assessment (Vincent Clark and Associates, 2008).

##### **Tullamarine Closed Landfill:**

- Environmental auditor review – groundwater quality management plan implementation and liquid waste management plan (Cardno Lane Piper, 2012).
- Secondary risk assessment, Tullamarine landfill (Golder Associates, 2007).
- Environmental audit report- secondary risk assessment (Lane Piper, 2007).
- Landfill gas risk assessment – outer eastern bores Tullamarine Landfill (Kleinfelder, 2013).

During the course of the environmental audit, the following remediation works were completed (CLP, 2014):

- Asbestos clearance (from former site buildings).
- Removal of 12m<sup>3</sup> of soils with concentrations of lead exceeding criteria (the area of lead contamination was delineated and validated).
- Removal of an abandoned vehicle and soils from the area surrounding it.
- Removal of solid inert wastes (bricks, rubble, timber) from 2 areas.
- Backfilling of former test pits with stockpiled soils at the site.

#### *4.1.1.3 Environmental audit report findings*

The auditor then upon completion of these works, finalised his considerations on the potential risks to future users of the site from:

- Contaminated soils.
- Contaminated groundwater.
- Landfill gas.
- Soil vapour intrusion.



The auditor concluded the risks to be low and acceptable and in particular in relation to landfill gas and vapour risks, most relevant when considering EPA Publication 1642, the auditor concluded following:

*The potential for risk from soil vapour, and direct contact with groundwater and soil to commercial workers has been estimated and it is concluded that the site does not present a risk to occupants of the site inside or outside of buildings potentially proposed for land uses permitted at this site, i.e. commercial industrial. An assessment has also been included for potential risks to a hypothetical occupant of a residential building if constructed at the site, despite this more sensitive land use not being permitted at the site. This assessment also indicates that current occupants of residential properties to the east of the site [Senversa: east of the Closed Tullamarine Landfill] do not have any unacceptable risks due to vapour intrusion from contamination identified in groundwater. Contamination in groundwater beneath the Audit Site which originates from the CTL [Tullamarine Closed Landfill] is subject to on-going monitoring and management by the parties responsible for aftercare of the CTL (Cardno 2014).*

Specifically in relation to landfill gas risks arising from the landfill, the Auditor reviewed a landfill gas risk assessment (LFGRA) prepared by the environmental assessor, Kleinfelder in 2013, that assessed the likely development risks at the site using data from boundary landfill gas monitoring bores at the landfill and also from 5 soil vapour monitoring bores from the audit site. The auditor considered that the monitoring data was representative of the site condition and concluded that:

*“...there is no significant risk arising to the occupants or property at the audit site arising from LFG on the CTL [Tullamarine Closed Landfill] and no specific management measures are required on the audit site” (Cardno 2014).*

Based on the groundwater concentrations, further assessment of the vapour intrusion pathway was required by the Auditor. The assessment was undertaken by installation of nested soil vapour bores and vapour intrusion modelling. The soil vapour assessment was considered conservative as the COPC were below the detection limit whereas the assessment was based on detectable concentrations at depth. The findings reported the risk of soil vapour intrusion to be low and acceptable in a residential and commercial setting and the vapour intrusion pathway to be inactive.

#### 4.1.2 Need for Further Works

In accordance with EPA's guidance in Publication 1642 (discussed in **Section 3.2.2**), the S53X has addressed landfill gas and a separate environmental audit for landfill buffer encroachment (completed under S53V) is not required or proposed.

The auditor confirmed that the monitoring network was to be maintained for future access to wells including following development of the site for ongoing monitoring of groundwater trends. This has been taken into consideration in the proposed layout and design of the proposed development to ensure access is maintained.

The auditor also confirmed that the groundwater had been cleaned up to the extent practicable. Further, the subject site was identified to be within a Groundwater Quality Restricted Use Zone (GQRUZ). The risks associated with the contaminated groundwater were found to be low and acceptable, therefore the risk of groundwater clean up being required is unlikely.

Review of the groundwater concentrations following the audit indicated no material changes to the conditions and that groundwater concentrations in wells that were subject of the soil vapour assessment reported similar or decreasing concentrations of the CoPC. The current soil vapour concentrations are therefore expected to be similar to concentrations reporting in 2014 and the findings of the audit remain relevant for the current conditions. Specifically, the reported pertinent groundwater concentrations at key monitoring bores that are within the buffer land (MB72, MB61U, MB85) have remained the same or reduced over time as shown in the following charts (charts were available for 2 of the 3 wells):

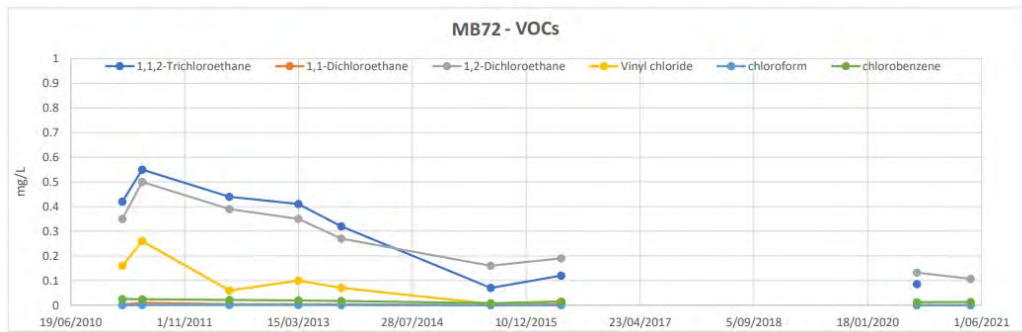


Chart 1. Groundwater concentrations at MB72 (Senversa, 2020).

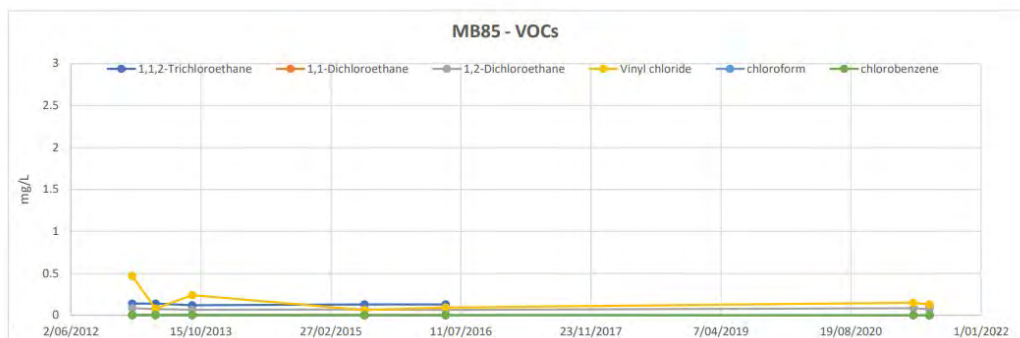


Chart 2. Groundwater concentrations at MB85 (Senversa, 2020).

The proposed use of the Western Lands conforms with the SoEA and is therefore suitable for the proposed use.

Senversa is not aware of any activities being completed at the site since the SoEA was issued that would necessitate the SoEA being revisited and as such, no further environmental assessment or audit of the site is therefore proposed. Whilst it is noted that an area within the southern portion of the land was used for laydown of materials and equipment of the Tullamarine Freeway widening works from November 2017 to April 2019, these activities are not considered to be a substantive change in land use or to have the potential to be associated with land contamination.

## 4.2 Wright Street - 47-67 & 69-99 Wright Street

### 4.2.1 Environmental Assessments Completed

A Preliminary Environmental Site Assessment (PESA) was completed by Senversa in May 2019 which the objective of identifying key development constraints in relation to contaminated land and landfill gas. The PESA was used to inform a SAQP for two stages of detailed site investigation consisting of soil, soil vapour and groundwater investigation works across the Wright St Parcel as part of the requirements of the 53X environmental audit for the site.

#### 4.2.1.1 Preliminary Environmental Site Assessment

These preliminary works were completed as it was understood that further works would need to be completed once an S53X environmental audit was commenced:

- Site history review.
- Site inspection.
- Limited intrusive soil assessment.
- Landfill gas investigation and risk assessment.



The site history review involved review of historical certificates of title, aerial photography and maps, various publicly available databases such as the Melbourne Metropolitan Board of Works (MMBW) and the WorkSafe Victoria dangerous goods search. The site history review did not identify a high potential for contaminating activities at the site.

The limited soil assessment comprised 18 grid-based surface soil locations and 2 locations targeted towards an area with an old car present and an area of hard rubbish (including metal drums). Localised total recoverable hydrocarbons in shallow soil in the northern area of the site were identified, potentially affecting terrestrial ecosystem function but no contaminants were identified in concentrations that would affect a mixed density residential or commercial redevelopment of the site.

The landfill gas investigation involved installation and monitoring of 5 landfill gas bores followed by static and continuous monitoring events. Methane, carbon monoxide or hydrogen sulphide was not detected in any of the bores during the monitoring events completed across the site. Carbon dioxide was detected at up to 1.1% v/v, which is considered very low.

The carbon dioxide concentration was assessed using the industry standard "CIRIA C665"<sup>1</sup> approach and this indicated 'Characteristic Situation 1'. Characteristic Situation 1 is defined in CIRIA C665 as a:

*'Very low risk - there is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe'.*

CIRIA C665 recommends "no special precautions" for a site in this situation i.e. no specific in-building protection measures would be required to mitigate any risks to buildings.

#### 4.2.1.2 Detailed Site Investigations (Stage 1 and 2)

The works undertaken as part of Stage 1 and Stage 2 of the environmental investigation have been reviewed by the environmental auditor and the auditor's comment were included in the implementation of the investigation summarised in **Table 4.1** below:

**Table 4.1: Summary of DSI Scopes of Work**

| Stage   | Matrix      | Scope of Works   | Rationale   |
|---------|-------------|--|---|
| Stage 1 | Soil        | <ul style="list-style-type: none"> <li>36 soil investigation locations.</li> <li>Additional soil sampling within five areas identified as potential soil impacts.</li> </ul>   | Targeting historical potentially contaminating activities and site features. To delineate the extent of potential soil impacts.   |
|         | Groundwater | <ul style="list-style-type: none"> <li>Installation of two onsite groundwater monitoring wells.</li> <li>Groundwater gauging and sampling of 11 groundwater monitoring wells onsite and within the surrounding buffer land.</li> </ul> | Assessment of onsite and offsite groundwater conditions, in particular status of the groundwater conditions to the east of the Tullamarine Closed Landfill and other potential offsite sources. |
| Stage 2 | Soil Vapour | <ul style="list-style-type: none"> <li>Installation and sampling of six soil vapour bores (three at 1.5 mbgl and three at 3 mbgl) along the western boundary of the site.</li> </ul>   | To assess potential soil vapour intrusion from offsite sources.   |
|         | Groundwater | <ul style="list-style-type: none"> <li>Groundwater gauging and sampling of 12 groundwater monitoring wells onsite and within the surrounding buffer land.</li> </ul>   | Assessment of onsite and offsite groundwater conditions, in particular status of the groundwater conditions to the east of the Tullamarine Closed Landfill and other potential offsite sources. |

<sup>1</sup> CIRIA, 2007. C665 Assessing risks posed by hazardous ground gases to buildings, December 2007



The key findings made with relation to the soil, soil vapour and groundwater sampling are discussed in the following subsections.

## Soil

The majority of the site is suitable for use. However, the following localised issues have been identified for remediation (excavation and removal to a lawful place of disposal off-site), prior to the commencement of use of the site:

1. Localised gully fill with wastes such as brick, concrete fragments, steel and wire on the southern portion of the site.
2. Surface scatter of suspected asbestos containing material (SACM) on the southern portion of the site within areas of waste gully filling and old homestead/shed areas.
3. Lead and polycyclic aromatic hydrocarbon (PAH) soil impacts within shallow fill soils in the southeast corner of the site.

As an outcome of the DSI, further delineation and remediation works were recommended, setting the remediation works program currently being progressed by MAB. This is discussed further in **Section 4.2.2.**

## Soil Vapour

Soil vapour samples were obtained from three shallow bores (1.5 mbgl) and three deep bores (3 mbgl) along the western border of the site to assess potential soil vapour intrusion extending onsite from the impacted groundwater identified in the Western Lands as part of the audit.

The soil vapour results were compared against adopted soil vapour investigation levels for residential uses (the most sensitive use that could be made of the site). These screening levels were conservative and therefore able to be used to also assess all other land uses, including less sensitive users (such as commercial receptors, or intrusive workers). None of the measured concentrations in soil vapour exceed the adopted screening levels.

The adopted residential screening levels were applicable for soil vapour collected immediately beneath a building foundation, and conservatively used for all soil vapour samples, regardless of depth. Soil vapour samples were collected from a range of depths (1.5 m bgl – 3.0 mbgl) as a conservative approach to assess the potential vapour intrusion risks for above ground buildings or a single level basement.

The risks to future residential users in above ground buildings or in buildings with a single-level basement construction was assessed to be low and acceptable. By extension, the risks to other less sensitive users (including commercial workers or intrusive workers) are also assessed to be low and acceptable.

## Groundwater

Groundwater chemistry results from the two groundwater monitoring rounds completed on the Wright Street parcels indicated elevated concentrations were considered likely to be representative of regional groundwater quality or offsite sources as indicated by groundwater concentrations in upgradient wells. This was considered for heavy metals, per- and polyfluoroalkyl substances (PFAS) and chlorinated hydrocarbon compounds (CHCs) which were reported above the adopted criteria for maintenance of ecosystems, potable water supply and stock watering however these were limited to offsite wells indicating an offsite source.

The risk posed by the reported concentrations was considered to be low and acceptable given the lack of registered groundwater use in the area. Groundwater use is not proposed as part of the proposed redevelopment and the availability of a reticulated town water supply indicates the probability of realisation of extractive uses of groundwater to be low.



#### 4.2.2 Anticipated Further Works and Timing

The environmental characteristics of the surrounding Western Lands are well understood and the environmental assessments did not identify any major development constraints or obstacles and therefore no reason why a S53X environmental audit would be required prior to any rezoning application being decided. The auditing currently underway at the Wright Street parcels may be completed prior to the commencement of the new use. This approach provides certainty to MAB and the community and confirms a commitment to the next phases of works to support the environmental audit that is currently underway.



## 5.0 Risks Posed by Tullamarine Closed Landfill

This section provides a summary of the background to and regulatory aftercare requirements of the Tullamarine Closed Landfill and the interaction with the proposed development Site as a result of the environmental monitoring activities that need to be completed at the Site.

### 5.1 Landfill Development and Infrastructure

The Tullamarine Closed Landfill is located at 206-300 Western Avenue to the west of Western Lands and operated from 1973 to 2008 (EPA 2018). Prior to being developed as a landfill, the landfill was a basalt rock quarry (GHD, 2019). It is understood that liquid waste disposal at the premises ceased in 1987 (EPA, 2018a).

The landfill was filled as 3 'Mounds' as shown on **Figure 2**. GHD (2019) reports that upper portions of the side walls of Mound 1 and Mound 2 were lined with clay, but Mound 3 and the lower portions of Mound 1 and Mound 2 are unlined.

Outside of the filled areas in the south-east corner of the landfill is the Cleanaway vehicle depot that continues to operate. It is understood that the depot includes vehicle workshops and administrative office buildings and detention ponds that currently collect stormwater from the depot area. Cap drainage off the landfill interconnects with the surrounding lands.

Other infrastructure at the landfill includes:

- **Landfill Gas Collection and Destruction:** A landfill gas collection system installed across all three Mounds in 2011 following capping of the landfill connected to a flare. A new flare for the site was commissioned in 2014 (GHD, 2019) and is located in the north of the depot area.
- **Landfill Gas Monitoring:** 48 landfill gas monitoring bores are understood to be present (GHD, 2019).
- **Groundwater Monitoring:** 121 groundwater monitoring wells are understood to be present across the Tullamarine Closed Landfill and off-site locations, including the proposed development site.
- **Leachate:** 14 leachate monitoring and extraction bores are understood to be present in Mounds 1 and 2. No leachate bores are installed in Mound 3 (GHD, 2019).
- **Stormwater:** To the north of the depot is the 4 landfill detention ponds, constructed for the purposes of leachate management, but are now used to collect stormwater from the depot drainage. An inspection by the auditor in December 2018 indicated the ponds were 80% full of stormwater following recent heavy rain (GHD, 2019). Stormwater is used to irrigate the cap to maintain vegetation during summer.

### 5.2 Regulation of the Landfill

EPA (2019a) reports that that Cleanaway operated the landfill under EPA Licence HS346 until December 2009.

It is usual practice in Victoria for licensed landfills to transition into the EPA-regulated post-closure management regime once waste has ceased being accepted and the site has been rehabilitated. Clause 16(4) of the Waste Management Policy (Siting, Design and Management of Landfills, No. S264, Gazette 14 December 2004) states:



*“...once a licensed landfill site has closed, the Environment Protection Authority (EPA) will require, through a notice, the occupier of the site to undertake ongoing aftercare until such time as the site does not pose a risk to human health or the environment, as determined by the Authority”.*

A Post-Closure Pollution Abatement Notice (PCPAN) is the primary regulatory instrument currently used by EPA to regulate the Tullamarine Closed Landfill. It specifies the requirements for ongoing monitoring, aftercare management and maintenance, risk assessment and independent auditing of the landfill that must be completed by the duty holder, Cleanaway. The PCPAN requires the duty-holder to maintain a risk assessment for the site and implement a monitoring and maintenance program that responds to the risks identified. The monitoring program must be periodically verified by an environmental auditor.

The PCPAN (reference 90004621) for the Tullamarine Closed Landfill was last amended 18 May 2018. On this basis the Tullamarine Closed Landfill is considered adequately regulated to confirm ongoing aftercare monitoring requirements.

### 5.3 Landfill Monitoring Network at the Western Lands

As part of the aftercare monitoring of the Tullamarine Closed Landfill a groundwater monitoring network has been established to the east of the landfill boundary, within the proposed development site. At least 22 groundwater monitoring wells are present at the Western Lands that form part of the groundwater monitoring network for the landfill. It is these groundwater bores that are required to be maintained and made accessible for monitoring by Cleanaway under the SoEA conditions as described in **Section 4.1**. Access arrangements to monitor and maintain these bores has been established with Cleanaway, and MAB's development and design plan accounts for maintaining access to the required locations.

### 5.4 Post Closure “Aftercare” Audits

A key component of the landfill aftercare management is the periodic “aftercare” or “post-closure” audit completed by an independent environmental auditor under S53V of the *Environment Protection Act, 1970*. The objective of the audit is to identify and, where possible, quantify the risk of any possible harm or detriment to a segment of the environment caused by the aftercare management of the landfill. The audit must include a review of the completeness of the site risk assessment and re-verification of the monitoring program (EPA, 2018b). Periodic post-closure audits are a requirement of the PCPAN.

#### 5.4.1 2018 Post Closure “Aftercare” Audit, CARMS 62139-3

The earliest post closure audit report was completed by Mr Wajahat Bajwa of GHD in September 2019. In this report the auditor noted the following points pertinent to the Western Lands:

- A number of non-compliances with the PCPAN requirements, primarily relating to monitoring, landfill gas management and stormwater.
- Leachate remains significantly elevated above the height of groundwater in parts of the landfill.
- There is very limited data to assess contaminant concentrations in groundwater and this requires review of the hydrogeological assessment previously conducted at the site.

Two areas of medium risk were identified by the auditor, being:

- Groundwater for water-based recreation has historically exceeded the guideline limits for this use but recent monitoring data is lacking and has been assigned a medium risk until more data is available.
- Landfill gas emissions through the cap exceeding the limits and limited availability of information relating to remediation and follow-up monitoring was provided.



The auditor made 59 prioritised recommendations for actions relating to the ongoing aftercare of the landfill. Of the 59 audit recommendations:

- 3 are ranked as high priority and relate to the replacement and installation of new landfill gas monitoring bores around the landfill cells in the landfill title boundary.
- 11 are ranked as medium priority and the remainder as low priority relating to groundwater, leachate, landfill gas, stormwater, improvements to the monitoring program and reporting relating to the landfill.
- None of the recommendations require works affecting the Western Lands or Wright Street parcels.

#### 5.4.2 2020 Post Closure “Aftercare” Audit, CARMS 62139-4

The 2020 post closure audit report was completed by Ms Suanna Harvey of Senversa Pty Ltd in December 2020. The following key findings were made:

- Capping completed in 2006 and 2011 was reported to be having a beneficial impact in reducing leachate levels and groundwater elevation levels.
- Peak landfill gas flows and methane concentrations reduced post capping particularly in the fill horizon and Newer Volcanics. Methane impacts were confined to the deeper Brighton Group and Older Volcanics.
- Impacts were considered likely to be limited, however there were significant data gaps in the data set to conclusively state that the beneficial uses of the environment were not impacted.

The aftercare auditor verified the bore spacing review completed by Resolve Environmental (consultant to Cleanaway former Tullamarine closed landfill) on 12 June 2020. The verification process confirmed the increased density of landfill gas bore coverage along the former closed landfill's eastern boundary with the subject site. The review and verification findings were presented to EPA.

The auditor made 37 prioritised recommendations for actions relating to the ongoing aftercare of the landfill. Of the 37 audit recommendations:

- 24 recommendations were ranked as high priority, which related to the post closure management plan (PCMP), leachate and light non-aqueous phase liquid (LNAPL) monitoring, the groundwater monitoring program and assessment of surface water quality.
- 9 recommendations were ranked a medium priority and the remaining were ranked as low priority. These related to data management, quality assurance/ quality control (QA/QC), PFAS groundwater and surface water monitoring.
- None of the recommendations require works affecting the Western Lands or Wright Street parcels.

#### 5.4.3 2021 Post Closure “Aftercare” Audit, CARMS 62139-5

The most recent post closure audit report was completed by Ms Suanna Harvey of Senversa Pty Ltd in December 2021. In the report, the auditor noted the following key points relating to the Western Lands:

- Similar to the 2020 post closure audit report, capping completed in 2006 and 2011 was reported to be having a beneficial impact in reducing leachate levels and groundwater elevation levels.
- Consistent with the 2020 post closure audit report, peak landfill gas flows and methane concentrations reduced post capping particularly in the fill horizon and Newer Volcanics. Methane impacts were confined to the deeper Brighton Group and Older Volcanics.
- Off-site groundwater migration was occurring with impacts identified in the Older Volcanics, Werribee Formation and Silurian. However, the risk to extractive beneficial uses was assessed to be low in the absence of registered bores within the area of impact and GQRUZ over the adjacent buffer land.



The auditor made 38 prioritised recommendations for actions relating to the ongoing aftercare of the landfill. Of the 38 audit recommendations:

- 11 are ranked as a high priority and relate to the post closure environmental management plan (PCEMP), leachate monitoring, Moonee Ponds Creek (MPC), groundwater, bore information and general reporting improvements.
- 15 are ranked as a medium priority and the remainder low priority relating to groundwater, leachate, landfill gas, improvements to the monitoring program and reporting.
- None of the recommendations require works affecting the Western Lands or Wright Street parcels.

## 5.5 2016 Tullamarine Landfill Auditor Review

In addition to the recent PCPAN aftercare audit, in 2016, an *Environmental Auditor Review* (2016 EAR) report (Cardno, 2016) was conducted, comprising an independent review report prepared by the environmental auditor, Mr Anthony Lane. The review was completed as a requirement of the previous version of the Landfill PCPAN in place following the landfill closure until it was superseded by the current PCPAN issued in 2018.

This report provides important context to the Site as it was completed 2 years following the release of the SoEA for the Western Lands and provides a review of risks at the Tullamarine Closed Landfill.

The purpose of the 2016 EAR was to provide an independent review and assessment of whether the data collection, investigations and analyses were in compliance with the landfill management plans and present a review the current status of the landfill and surrounding environment in terms of the likelihood of any significant change in risk to land, groundwater and surface water caused by the premises use as a landfill (Cardno, 2016).

A summary of the auditor's conclusions regarding land and groundwater risks in the 2016 EAR are:

- The risk to land from direct discharge of contaminated groundwater back to the land surface is considered to be negligible.
- The auditor refers to the S53X audit completed for the Western Lands that concluded that contaminated groundwater beneath the site does not present a health risk to occupants of the audited site inside or outside of buildings potentially proposed for all land uses (including sensitive use such as residential).
- There was no clear evidence yet of decline in leachate level in the landfill and the risks of leachate impact to groundwater remain and are unchanged since 2011 (i.e. the previous data period).
- LNAPL<sup>2</sup> is still present in the landfill and will continue to present a source of contamination to groundwater.
- The auditor disagreed that the salinity was generally decreasing and noted that salinity had decreased in a number of wells but not in others.
- Additional investigations, including those completed to support the S53X audit at the Western Lands has improved the knowledge of the groundwater plume in the deepest aquifer and is now known to extend beneath residential areas to the east. The auditor noted that further investigations were planned to assess the groundwater condition and associated risks in these areas.
- Overall environmental risks associated with contaminated groundwater were very similar to those assessed in 2011.
- The auditor did not highlight any areas of increased risk.

The auditor made three recommendations to augment the monitoring regime for groundwater and no recommendations for land.

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<sup>2</sup> Light non-aqueous phase liquid



## 6.0 Summary

In summary, the findings of the various investigations at the Tullamarine Closed Landfill, Western Lands and Wright Street parcels confirm low risk and has not identified any constraints that would preclude the development proposed. The statutory contaminated land environmental audit for the Western Lands confirm suitability of the site for use. The Tullamarine Closed Landfill is subject to ongoing aftercare management. For the Wright Street parcels, there is an environmental audit currently underway and the preliminary and detailed site investigations have confirmed low overall risk, with a plan for clean up of minor wastes scheduled to be completed.

The status of environmental works for the Western Lands is listed in **Table 6.1** below. This table presents a summary of the key information about the environmental works completed pursuant to rezoning of the site.

**Table 6.1: Site Information Summary**

| Aspect                                      | Western Lands   |
|---|---|
| <b>Proposed use and Zone</b>                | Uses permitted under Industrial 3 Zoning.   |
| <b>Environmental Audit Overlay in place</b> | Yes.  |
| <b>Environmental Assessments completed</b>  | <p>A S53X environmental audit and Statement of Environmental Audit has been completed confirming the site's suitability for the proposed land use. S53X Environmental Audit (CLP 2014) was informed by:</p> <ul style="list-style-type: none"> <li>• Quantitative human health risk assessment (Golder Associates, 2012).</li> <li>• Preliminary contamination risk and geotechnical assessment (Golder Associates, 2012).</li> <li>• Groundwater condition report (Kleinfelder, 2014).</li> <li>• Asbestos and lead abatement program (Kleinfelder, 2013).</li> <li>• Soil vapour assessment (Kleinfelder, 2013).</li> <li>• Vehicle rollover validation and waste removal report (Kleinfelder, 2013).</li> <li>• Soil contamination assessment (Kleinfelder, 2013).</li> <li>• Historical cultural heritage assessment (Tardis, 2011).</li> <li>• Due diligence assessment (Vincent Clark and Associates, 2008).</li> </ul> |
| <b>Remediation Works</b>                    | <p>The following remediation works have been completed:</p> <ul style="list-style-type: none"> <li>• Asbestos clearance (from former site buildings in southern area only. Northern area has been provided with a clearance certificate).</li> <li>• Removal of 12m<sup>3</sup> of soils with concentrations of lead exceeding criteria (the area of lead contamination was delineated and validated).</li> <li>• Removal of an abandoned vehicle and soils from the area surrounding it.</li> <li>• Removal of solid inert wastes (bricks, rubble, timber) from two areas.</li> <li>• Backfilling of former test pits with stockpiled soils at the site.</li> </ul>  |
| <b>S53X Audit (contaminated land)</b>       | Completed with an SoEA issued (Mr A. Lane, 2014).   |



| Aspect                                    | Western Lands   |
|---|---|
| <b>CoEA / SoEA (and conditions)</b>       | <p>SoEA issued for the following uses:</p> <ul style="list-style-type: none"> <li>• Agricultural uses.</li> <li>• Sensitive uses (high density and other).</li> <li>• Recreation and open space uses.</li> <li>• Commercial uses.</li> <li>• Industrial uses.</li> </ul> <p>Statement Conditions:</p> <p>No extraction of groundwater at the site for potable mineral water supply, agricultural uses, parks and garden uses, stock watering, industrial uses and primary contact recreation uses (e.g. swimming); and</p> <p>A number of the existing groundwater monitoring wells must be maintained and remain accessible for the purpose of ongoing monitoring by the party responsible for the aftercare of the Tullamarine Closed Landfill.</p> |
| <b>S53V Audit (landfill gas)</b>          | Not required due to S53X process being followed.  |
| <b>Further Assessment proposed</b>        | No.   |
| <b>Further remediation works proposed</b> | No.   |
| <b>LFG Building Mitigation required</b>   | Not required based on existing audit.   |



## 7.0 Principles and Limitations of Investigation

The following principles are an integral part of site contamination assessment practices and are intended to be referred to in resolving any ambiguity or exercising such discretion as is accorded the user or site assessor.

| Area                                      | Principle and Limitation   |
|---|--|
| <b>Elimination of Uncertainty</b>         | Some uncertainty is inherent in all site investigations. Furthermore, any sample, either surface or subsurface, taken for chemical testing may or may not be representative of a larger population or area. Professional judgment and interpretation are inherent in the process, and even when exercised in accordance with objective scientific principles, uncertainty is inevitable. Additional assessment beyond that which was reasonably undertaken may reduce the uncertainty.   |
| <b>Failure to Detect</b>                  | Even when site investigation work is executed competently and in accordance with the appropriate Australian guidance, such as the National Environment Protection (Assessment of Site Contamination) Amendment Measure ('the NEPM'), it must be recognised that certain conditions present especially difficult target analyte detection problems. Such conditions may include, but are not limited to, complex geological settings, unusual or generally poorly understood behaviour and fate characteristics of certain substances, complex, discontinuous, random, or heterogeneous distributions of existing target analytes, physical impediments to investigation imposed by the location of services, structures and other man-made objects, and the inherent limitations of assessment technologies. |
| <b>Limitations of Information</b>         | The effectiveness of any site investigation may be compromised by limitations or defects in the information used to define the objectives and scope of the investigation, including inability to obtain information concerning historic site uses or prior site assessment activities despite the efforts of the user and assessor to obtain such information.   |
| <b>Chemical Analysis Error</b>            | Chemical testing methods have inherent uncertainties and limitations. Senversa routinely seeks to require the laboratory to report any potential or actual problems experienced, or non-routine events which may have occurred during the testing, so that such problems can be considered in evaluating the data.   |
| <b>Level of Assessment</b>                | The investigation herein should not be considered to be an exhaustive assessment of environmental conditions on a property. There is a point at which the effort required to obtain information is outweighed by the time required to obtain that information, and, in the context of private transactions and contractual responsibilities, may become a material detriment to the orderly conduct of business. If the presence of target analytes is confirmed on a property, the extent of further assessment is a function of the degree of confidence required and the degree of uncertainty acceptable in relation to the objectives of the assessment.  |
| <b>Comparison with Subsequent Inquiry</b> | The justification and adequacy of the findings of this investigation in light of the findings of a subsequent inquiry should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made.   |
| <b>Data Useability</b>                    | Investigation data generally only represent the site conditions at the time the data were generated. Therefore, the usability of data collected as part of this investigation may have a finite lifetime depending on the application and use being made of the data. In all respects, a future reader of this report should evaluate whether previously generated data are appropriate for any subsequent use beyond the original purpose for which they were collected or are otherwise subject to lifetime limits imposed by other laws, regulations or regulatory policies.  |
| <b>Nature of Advice</b>                   | The investigation works herein are intended to develop and present sound, scientifically valid data concerning actual site conditions. Senversa does not seek or purport to provide legal or business advice.  |



## 8.0 References

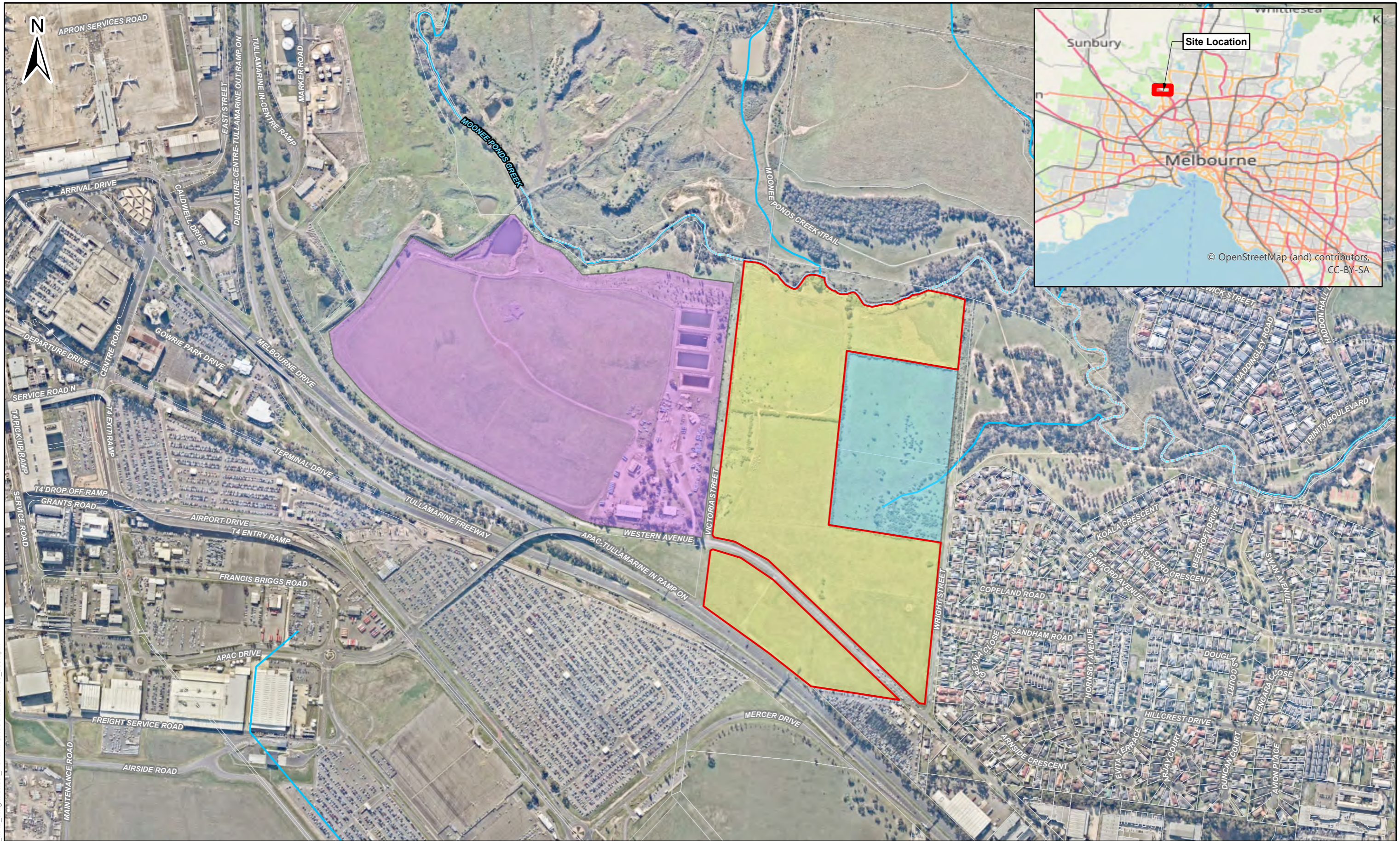
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## Figures

Figure 1: Site Location Plan

Figure 2: Site Plan



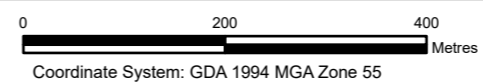
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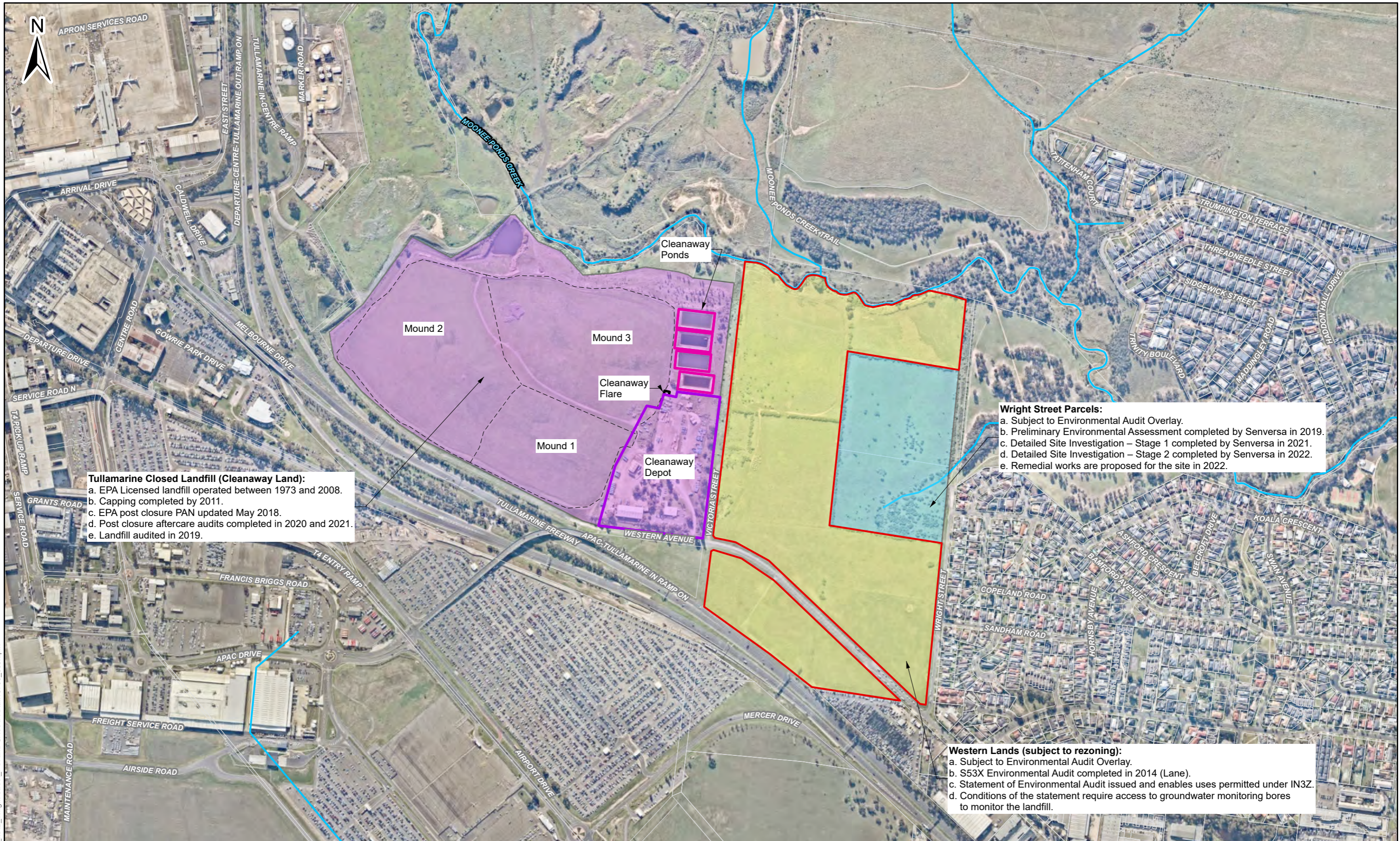
- Legend**
- Land Subject to Proposed Rezoning
  - Tullamarine Closed Landfill
  - Western Lands
  - Wright St Parcels
  - Property Boundary

Notes:  
Aerial Imagery (23/05/2022) © Nearmap

|           |                 |           |              |
|-----------|-----------------|-----------|--------------|
| Created:  | S. Wong         | Date:     | 13/07/2022   |
| Reviewed: | J. Yap          | Revision: | 0            |
| Approved: | J. Yap          | Scale:    | 1:7,500 (A3) |
| File:     | M18730_008_F001 |           |              |



|                   |  |
|-------------------|--|
| <b>Figure No:</b> | <b>1</b>                                 |
| <b>Title:</b>     | <b>Site Location</b>                     |
| Project:          | Environmental Summary Report             |
| Location:         | 47-67 & 69-99 Wright Street, Westmeadows |
| Client:           | MAB Corporation Pty Ltd                  |



**Tullamarine Closed Landfill (Cleanaway Land):**  
 a. EPA Licensed landfill operated between 1973 and 2008.  
 b. Capping completed by 2011.  
 c. EPA post closure PAN updated May 2018.  
 d. Post closure aftercare audits completed in 2020 and 2021.  
 e. Landfill audited in 2019.

**Wright Street Parcels:**  
 a. Subject to Environmental Audit Overlay.  
 b. Preliminary Environmental Assessment completed by Senversa in 2019.  
 c. Detailed Site Investigation – Stage 1 completed by Senversa in 2021.  
 d. Detailed Site Investigation – Stage 2 completed by Senversa in 2022.  
 e. Remedial works are proposed for the site in 2022.

**Western Lands (subject to rezoning):**  
 a. Subject to Environmental Audit Overlay.  
 b. S53X Environmental Audit completed in 2014 (Lane).  
 c. Statement of Environmental Audit issued and enables uses permitted under IN3Z.  
 d. Conditions of the statement require access to groundwater monitoring bores to monitor the landfill.

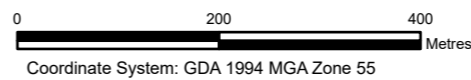
**Legend**

- Land Subject to Proposed Rezoning
- Tullamarine Closed Landfill
- Western Lands
- Wright St Parcels
- Cleanaway Pond
- Cleanaway Depot
- Mound



Notes:  
 Aerial Imagery (23/05/2022) © Nearmap

|           |                 |           |              |
|-----------|-----------------|-----------|--------------|
| Created:  | S. Wong         | Date:     | 13/07/2022   |
| Reviewed: | J. Yap          | Revision: | 0            |
| Approved: | J. Yap          | Scale:    | 1:7,500 (A3) |
| File:     | M18730_008_F002 |           |              |



|                   |  |
|-------------------|--|
| <b>Figure No:</b> | <b>2</b>                                 |
| <b>Title:</b>     | <b>Environmental Assessment Summary</b>  |
| Project:          | Environmental Summary Report             |
| Location:         | 47-67 & 69-99 Wright Street, Westmeadows |
| Client:           | MAB Corporation Pty Ltd                  |



# Appendix A: Environmental Audits Overview (EPA Publication 1609)

# Environmental Audits Overview For s53X audits only

Environmental audits<sup>1</sup> are a statutory tool used to protect the community and to confirm that potentially contaminated land is suitable for its intended use.

While each site and the associated audit is unique, the overall process is standardised with well documented regulations and guidance.

The diagram outlines the five steps of an audit. The process can take time and expense to finalise.

Audits can only be completed by an Environmental Auditor appointed by Environment Protection Authority (EPA) Victoria under the *Environment Protection Act 1970*. Usually an independent environmental consultant, engaged by the proponent<sup>2</sup>, conducts an assessment and cleanup. A list of appointed auditors can be found at [www.epa.vic.gov.au](http://www.epa.vic.gov.au).

EPA recognises the contributions made by ALGA (Australasian Land & Groundwater Association), ACLCA (Australian Contaminated Land Consultants Association) and UDIA (Urban Development Institute of Australia) in the preparation of this flyer.

<sup>1</sup>This information relates to environmental audits for potentially contaminated land, conducted under s53X of the *Environment Protection Act 1970*. It is important to confirm that this is the environmental audit type required at your site - a different environmental audit (s53V) may be required, for example, at an industrial site or a site near to a current or former landfill.

<sup>2</sup>The proponent is the person or organisation whose activity is being audited or the occupier(s) of the segment of the environment that is being audited.

For further information about the environmental audit system, visit [www.epa.vic.gov.au/enviroaudit](http://www.epa.vic.gov.au/enviroaudit) contact EPA Victoria on 1300 372 842.

## 1 AUDIT TRIGGERS

Environmental audits require an assessment of a site's environmental conditions. Triggers include:

- a planning need (eg. permit condition, Environmental Audit Overlay, Ministerial Direction No.1)
- due diligence (eg. buying/selling a property)
- when previous use may have introduced contamination.

## 2 COMMERCIAL ASPECTS

An audit's cost and timeframe is an essential part of any commercial project plan.

**Costs:**

- generally start at \$30,000 and increase with a site's complexity but do not usually include cleanup and site management costs, they may be substantially higher
- can be reduced and delays minimised by engaging an auditor and consultant at the start of a project to help identify potential issues early
- should include contingencies to deal with unforeseen issues.

*Note that a financier may want certainty that auditor requirements have been met prior to lending.*

**Timeframe:**

An audit on a simple site takes about 3 months with complex sites often taking more than a year.

## 3 ASSESSMENT PHASE

The data collection phase is probably the most critical stage. This stage:

- includes assessment works completed in accordance with the relevant Australian standards
- establishes the presence and degree of any contamination and whether further work is needed to make a site safe for its intended use.

Since the auditor relies on this information, they should be actively consulted.

The preliminary site investigation examines the potential for contamination and reviews past use:

- if contamination is suspected, a detailed site investigation of soil and groundwater is done. This may take several stages to fully assess the presence and levels of contamination.
- acceptable levels of contamination may vary depending on the proposed use and the development layout.

On simple sites, this step may prove that the site is either suitable as is, or requires only minor works to make it suitable for its intended use. If the investigation identifies complex contamination issues, additional steps are required to complete the audit.

## 4 COMPLEX SITES

Sites with more complex contamination issues may require wider stakeholder consultation, more time consuming assessment and extensive cleanup. This includes:

- specific human health or ecological risk assessment
- soil and/or groundwater cleanup (remediation)
- stakeholder consultation
- approval that sufficient cleanup of groundwater has occurred (CUTEP - Cleanup to the Extent Practicable).

Where contamination remains beneath or extends beyond the site, ongoing management may be needed, such as:

- monitoring (soil, gas or groundwater)
- control of site use
- restriction on groundwater extraction via the declaration of a GORUZ (Groundwater Quality Restricted Use Zone).

Consultation must occur with affected parties about offsite contamination and cleanup.

Early consultation will minimise delays in the approval process.

## 5 AUDIT OUTCOMES

The audit is finalised when the auditor is satisfied that site risks have been remediated, or suitably managed.

For sites where no adverse contamination remains, the auditor issues a *Certificate of Environmental Audit* and *Audit Report* certifying the site is suitable for any use with no conditions. If residual contamination requires management, the auditor issues a *Statement of Environmental Audit and Audit Report*. This may include:

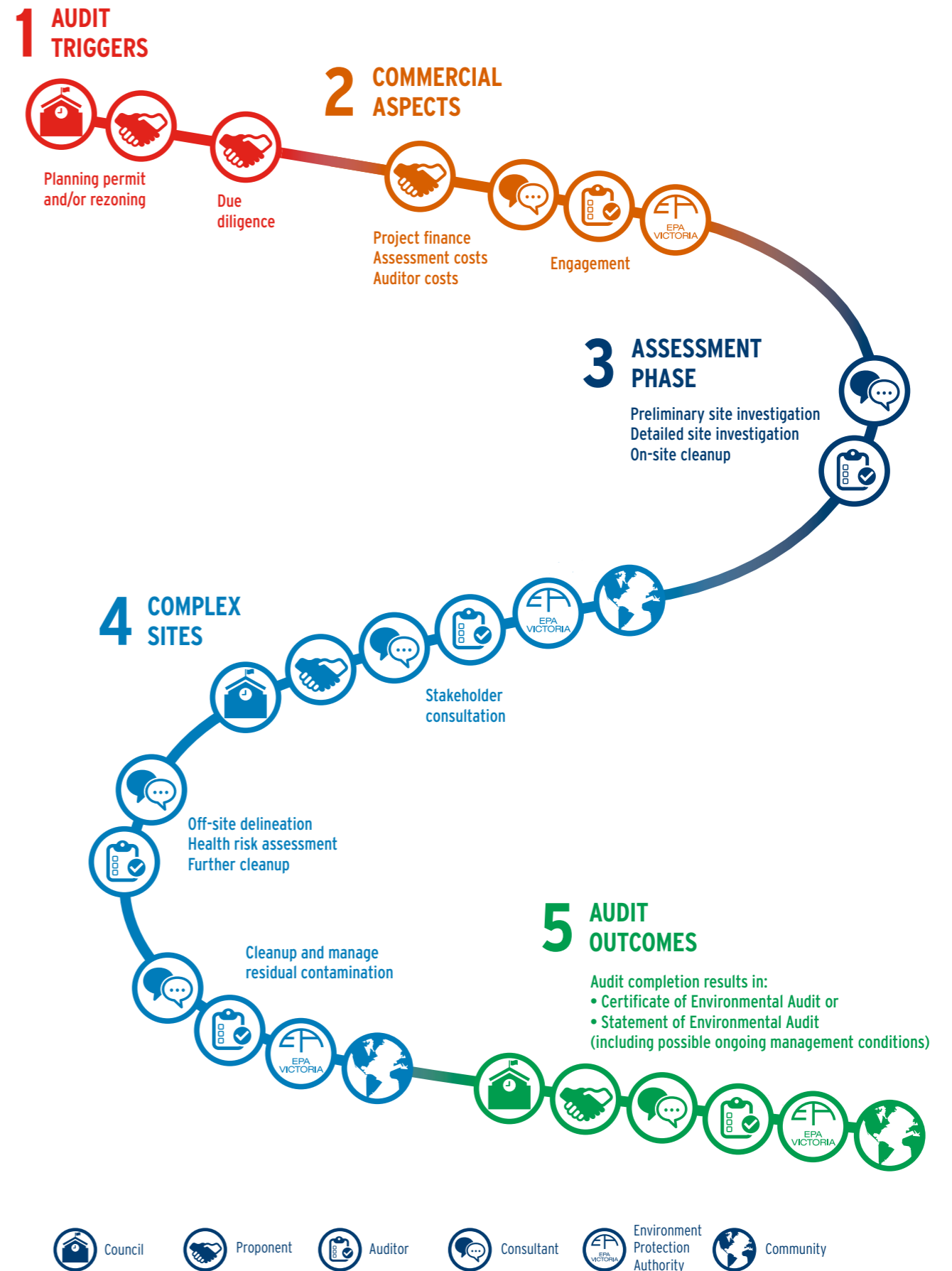
- restrictions and conditions that must be met for the site to be suitable for its intended use
- conditions on parties to implement ongoing actions.

Consultation with relevant stakeholders helps develop conditions that are practicable.

The audit report is submitted to council and EPA and is then accessible on the EPA website as a public document.

The proponent must provide a copy of the statement to future site occupiers.

At any stage, the proponent may terminate the audit, which will result in the auditor notifying EPA.



# Senversa Pty Ltd

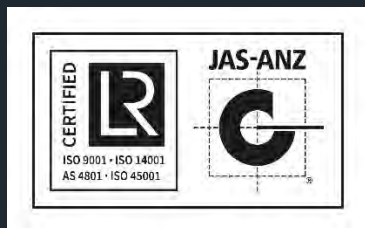
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