

JBS&G 64628 – 155,276

L003 (Interim Audit Advice Tarago Former Station Masters Cottage Rev 1)

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Joanne McLoughlin

Project Manager – Land Management, Regional Property & Asset Renewal | Network & Assets

Transport for NSW

L003 Interim Audit Advice 003 – Tarago Former Station Masters Cottage 106 Goulburn Street Tarago NSW

Dear Joanne,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Transport for NSW (TfNSW, the client) to conduct a site audit for Lot 1 in Deposited Plan (DP) 816626. Lot 1 DP 816626 is a block of land of approximately 1,550 square metres (m²) known as the former Tarago Station Masters Cottage (the site). The extent of the site area and the location of the site are shown in Figure F1, in Attachment 2.

Andrew Lau is a Site Auditor accredited by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997* (CLM Act 1997) (Accreditation Number 0503).

The site is located to the south of the former Woodlawn Mine ore concentrate load-out complex which operated between the 1970s and 1990s, and adjacent to the Goulburn - Bombala Country Regional Network (CRN) railway line. The Woodlawn Mine operated between 1978 and 1998 producing lead, zinc and copper concentrates was located approximately eight kilometres to the west of the railway line. Historical load out of ores from trucks to rail cars for processing has been identified as a potential source of contamination of the site.

On 25 March 2020, the adjacent Tarago Station rail corridor (part Lot 22 DP 1202608) was declared (Declaration No. 20201103) to be significantly contaminated land under s11 of by the *Contaminated Land Management Act 1997* (CLM Act) by the NSW EPA. The EPA determined that *'lead contamination has impacted adjacent land at 106 Goulburn Street, Tarago (Lot 1 DP816626), with soil found to contain lead at concentrations exceeding national guideline values for the protection of human health and the environment'* and that *'there are complete exposure pathways to lead for occupants of 106 Goulburn Street'*.

On 3 August 2022, the former Tarago Station Masters Cottage was declared (Declaration No. 20221105) to be significantly contaminated by the EPA on 3 August 2022. The EPA determined that regulation of lead contamination was required.

The EPA considered that harm has been or may be caused by the identified contaminant as follows:

- *'Lead concentrations in soil within the historic Station Masters Cottage (Lot 1 DP816626) exceed national guideline values for the protection of human health and the environment.*
- *There are potentially complete exposure pathways for onsite and offsite ecological receptors.*
- *Based on the current levels of contamination identified, the site is not appropriate for the existing land-use and remediation or management is required. Remediation will be required to facilitate residential land-use which it is zoned to do so under the Goulburn-Mulwaree Council LEP (2009).*
- *Lead levels in soil and dust were identified within the historic Station Masters Cottage at levels greater than the relevant assessment criteria.*

- *Lead, arsenic, chromium, copper, nickel and zinc were found on the rail corridor at concentrations exceeding national guidelines values for the protection of human health and environment which may have migrated to the Station Masters Cottage and as such should be assessed for’.*

The former Station Masters Cottage was used as a private residence until sometime in 2020 and is reported (Ramboll 2023c) to remain unoccupied ‘under care and maintenance’.

This interim audit advice (IAA) has been undertaken in accordance with the requirements provided by the client, to provide an independent review of environmental investigations completed at the site. The objectives of this review were to assess the suitability of the report in assessing the nature and extent of contamination at the site.

2. Report Reviewed

- *Tarago Former Station Masters Cottage Detailed Site Investigation. Rev 1, 13 September 2023, Ramboll Australia Pty Ltd (Ramboll 2023c).*

Review of the report has been undertaken against the requirements of *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines* (NSW EPA 2020) and the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013).

The following reports were also considered as part of this audit and preparation of this IAA, with relevant background information included in **Section 3**:

- *Tarago Rail Corridor Environmental Data Gap Assessment. Rev 0, 30/01/2020, Ramboll Australia Pty Ltd (Ramboll 2020a).*
- *Tarago Rail Corridor and Tarago Area Detailed Site Investigation. Final, 29/07/2020, Ramboll Australia Pty Ltd (Ramboll 2020b).*
- *Sampling Analysis and Quality Plan (SAQP) Tarago Former Station Master Cottage. Rev 2, 07/06/2023, Ramboll Australia Pty Ltd (Ramboll 2023a).*
- *106 Goulburn Street, Tarago Interim Environmental Management Plan. Final Rev 5, 12/10/2023, Ramboll Australia Pty Ltd (Ramboll 2023b).*

3. Site Description

The site details have been summarised in **Table 1**. Plans identifying the subject site have been presented in **Attachment 2**.

Table 1: Summary Site Details

Street Address	106 Goulburn Street Tarago NSW 2580
Property Description	Lot 1 in DP 816626
Parish	Mulwaree
County	Argyle
Local Government Area	Goulburn Mulwaree Shire Council
Property Size	Approximately 0.155 hectares
Zoning	RU6 Transition (Goulburn Mulwaree Local Environmental Plan 2009)
Previous Use	Residential

Current Use	Vacant
Proposed Use	Commercial/industrial

3. Site Condition

The site was reported (Ramboll 2023c) to comprise of the former Station Masters Cottage with a carport and small shed annexed to the north and west respectively, to the main residence. The main residence is a single storey brick building with a corrugated iron roof. The rear sunroom, laundry, front verandah and carport flooring comprises of concrete slab on ground. Sub-floor ventilation in the outer walls of the main part of the house and flooring located not much higher than ground level indicates that this portion of the house is suspended on short piers. The residence is fenced with the eastern fence separating the residence from a publicly accessible grassed area at the intersection of Goulburn and Boyd Street.

The site is relatively flat with a gentle gradient to the east towards Mulwaree River consistent with the surrounding topography. Outside of the building footprint, the site is grassed. During high volume or sustained rainfall events, surface water runoff is expected to flow north easterly towards Goulburn Street drains.

The quality of groundwater sampled from a well in the south eastern corner of the fenced garden was found to be suitable for irrigation and livestock watering use, and for domestic potable use once suspended sediments had been settled (Ramboll 2020a).

The former ore loadout facility associated with the Woodlawn Mine has been demolished and was located approximately 20 metres north of the site.

The former Station Masters Cottage residence is reported (Ramboll 2023c) as having been constructed in the 1880s. The site was reported to have been acquired by Transport Asset Holding Entity (TAHE) in 2021.

4. Summary of Contamination Status / Issues

The site was reported (Ramboll 2023c) as having been used as a private residence until 2020 when the residents were relocated following the identification of potential risks to human health and the environment.

Environmental investigations undertaken in the Tarago Station rail corridor between 2015 and 2019 (Ramboll 2020b and 2020c) had identified high concentrations of lead in soil along the rail corridor and within the fence line of the former Station Masters Cottage property that presented risks to human health and ecological receptors. Concentrations of lead that pose risks to site users were also detected in internal and external dust samples and concentration indicative of lead-based paints in flaking paint collected from the former Station Masters Cottage.

Detailed site investigation (Ramboll 2023c) was subsequently undertaken at the former Station Masters Cottage to delineate previously identified lead impact and assess other contaminants of potential concern (CoPCs) related to historical activities. Investigations involved soil assessment via hand augering.

Eight soil bores were installed across the site to 0.5 metres below ground level (m bgl) and sampled as follows:

- Surface soils – all samples were analysed for asbestos, metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs). Four samples were also analysed for pesticides and herbicides.
- Shallow soils – soil samples were collected from 0.25 and 0.5 m bgl and one shallow soil sample was analysed from each soil bore for metals, BTEX, TRH and PAHs.

No asbestos containing material (ACM) nor suspected fragments greater than 7 millimetres in size were encountered in sieved surface soil fines. Trace amounts of fibrous asbestos or asbestos fines were not identified in analysed soil samples.

Concentrations of BTEXN, PAHs, organochlorine pesticides and herbicides were not detected above the laboratory practical quantitation limit (PQL) in all soil samples analysed. Concentrations of all other CoPCs were detected below the adopted human health criteria with the exception of lead reported above the residential with garden/accessible soil land use criterion (HIL-A) in seven samples and commercial/industrial land use criterion in one sample. Of the samples with lead concentrations exceeding HIL-A, three are considered to be hotspots (concentrations greater than 250% of HIL-A). The 95% upper confidence limit (UCL) for average lead concentration in surficial soils was calculated as 611 mg/kg which is above HIL-A but below the commercial/industrial soil land use criterion (HIL-D). Concentrations of lead, copper and zinc were reported in 2, 5 and 14 samples respectively, above the adopted ecological assessment criteria for urban residential/public open space land use.

Based on the combined soil sampling results for the site (Ramboll 2020b and 2023c), the consultant (Ramboll 2023c) provided the following conclusions:

- Soil contamination was identified on-site. The main source of contamination was identified as historic ore concentrate loading and transport activities in the adjacent rail corridor. The mechanism of contamination is surface deposition with limited migration via leaching.
- The key contaminant of concern for human health is lead generally in surface to shallow soils (to a depth of 0.1 m bgl) with some occurrences to a depth of 0.25 m bgl. Concentrations of lead were found to be reduced in the area to the east of the fence line. The key contaminants of concern for ecology under urban residential/public open space land use are copper, lead and zinc.
- Flaking lead-based paints from degradation of the former station masters cottage building/structures has also been identified as a source of soil contamination.
- The fenced portion of the site is not suitable for commercial/industrial or residential land use without remediation and/or management.
- The site should be managed under the Interim Environmental Management Plan (Ramboll 2023b) until a remediation strategy has been selected and implemented.

5. Auditor Opinions / Requested Actions

Based on the information reviewed as part of this Interim Audit Advice and subject to the limitations in **Attachment 1**, the auditor opinions and requested actions to meet the requirements of the audit are presented in **Table 2**.

Table 2: Audit Opinions / Requested Actions

Audit Opinion	Requested Action
The information provided by the consultant regarding site conditions, surrounding environment and site history is considered adequately complete for the purposes of identifying a range of potential contamination issues at the site and generally have met the requirements of EPA 2020. The information provided was also consistent with the observations made during the audit site inspection conducted on 18 June 2020.	Nil
The sampling program (Ramboll 2023a) was developed based on the requirements of the <i>Sampling Design Guidelines</i> (EPA 2022). Samples collected were representative of the media assessed. The density, frequency and locations of samples provided sufficient coverage to address data gaps and assess the nature and extent of contamination, as well as address the potential migration of the identified CoPCs across the site.	Nil

Audit Opinion	Requested Action
<p>The sampling methodology, field and laboratory analytical methods, and QA/QC procedures adopted were appropriate for the CoPCs assessed and complied with the requirements of EPA 2017 and 2020, and NEPC 2013.</p> <p>The sampling, analytical and quality protocols undertaken were considered to be adequate for the purposes of assessing the contamination status of soil at the site. In addition, the consultant provided a detailed assessment and adequate consideration to contaminant odours and soil discolouration during the investigation process.</p>	<p>Nil</p>
<p>The soil criteria adopted for the site investigations have been checked against and were sourced from relevant EPA criteria / approved guidelines.</p> <p>The adopted assessment criteria were consistent with assessing potential risks to human health (based on residential with garden/accessible soil consistent with site zoning and potential commercial/industrial land use) and ecological receptors. The auditor notes that site specific EILs were developed for copper and zinc and considers the EILs developed to be appropriate and consistent with the requirements of the NEPM (2013).</p> <p>Overall, the adopted assessment criteria are considered appropriate for assessing the identified contaminants of concern at the site, and nature and extent of contamination that may be present at the site.</p>	<p>Nil</p>
<p>Soil investigations across the site identified concentrations of lead in soil above the adopted health based assessment criteria for residential with accessible soils/gardens and commercial/industrial land uses which requires remediation and/or management. Concentrations of lead were identified above the adopted health based assessment criteria for residential land use at seven locations and above the commercial/industrial land use only at one location in soil at the site. Concentrations of heavy metals including copper, lead and zinc were identified in soil above the adopted ecological assessment criteria in multiple locations across the site. Concentrations of copper and zinc were not detected above the adopted health based assessment criteria.</p> <p>Contamination on the site is considered to have migrated from historic ore concentration loading and transport activities in the adjacent Goulburn-Bombala rail corridor.</p>	<p>Remediation of the site is required prior to use for residential with garden/accessible soil or commercial/industrial purposes.</p>
<p>Flaking lead-based paint from the former Station Masters Cottage is also considered to have contributed to the contamination of soil at the site.</p>	<p>This will need to be considered in the sequencing of remediation works.</p>

Audit Opinion	Requested Action
Groundwater quality had been previously assessed (Ramboll 2020a) as being of suitable quality for irrigation and livestock watering, and potential potable domestic use (following settlement of sediment), and further assessment was not considered required.	Nil
The site investigation works (Ramboll 2023c) are considered to have suitably addressed the nature and extent of contamination of soil and dust at the site.	Nil
Laboratory reports, QA/QC and a discussion on sampling methodology were provided in the investigation reports and were considered adequate for the purposes of the audit.	Nil
The auditor considers that the assessment of the site has met the requirements of the <i>Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd Edition)</i> (EPA 2017) and the objectives of the audit.	Nil
Identified lead impacts in soil at the site pose risks to human health and ecological receptors.	The Interim Environmental Management Plan (Ramboll 2023b) is required to be implemented until a long term remedial strategy is implemented.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report, but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 0412 512 614 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau

NSW EPA Accredited Site Auditor

Accreditation Number 0503

JBS&G Australia Pty Ltd

Attachments:

- 1) Limitations
- 2) Site Plans

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

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 reviewed, 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 audit are based on the information obtained at the time of the investigations.

Attachment 2 – Site Plans



- Legend**
- Property boundary
 - Site fence
 - ➔ Surface water flow direction

RAMBOLL Figure 1 : Site Layout

RAMBOLL AUSTRALIA - GISMAP file: 318001679_GIS_P002_SMC_DSI | P001_Location_V02 | 2007/2023

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