



Harwood Environmental
Consultants
Gunners Barracks
Suite F, 38 Suakin Drive
George Heights, Mosman 2088

rod@harwoodenviro.com.au

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Mr Adam Thomas / Maria Neuenschwander
Johnstaff Projects (NSW) Pty Ltd
by email

INTERIM ADVICE 04: REVIEW OF REMEDIAL ACTION PLAN V2 PLAN 28-32 BOURKE ROAD, ALEXANDRIA, NSW

Dear Adam / Maria

1. INTRODUCTION

1.1. Background

Johnstaff Projects (NSW) Pty Ltd engaged Rod Harwood, a NSW EPA accredited Contaminated Land Auditor (accreditation no. 03-04) who is employed by Harwood Environmental Consultants (HEC), to conduct a Site Audit resulting in a Site Audit Statement (SAS) and Site Audit Report (SAR) for the Site located at 28-32 Bourke Road, Alexandria, NSW.

The existing site contains a single level warehouse of approximately 11,305m². The redevelopment for mental health hospital and medical centre is a *State Significant Development Application (SSDA)* which includes:

- Demolition of the existing Site buildings and removal of waste material.
- Excavation of the soil to a maximum depth of 3.4 mBGL for the installation of a basement car park, and subsurface utility access (noting an average floor level of 1.6 mBGL).
- Construction of a seven (7) storey commercial building.
- Dedication of land (Transfer Land) to the City of Sydney Council (Council), for the purposes of footpath widening along the Bourke Road frontage and vehicular access along the western and southern boundaries of the Site.

*Secretary Environmental Assessment Requirements (SEARs) SSD-59006709 dated 8 June 2023 requires a **Remedial Action Plan (RAP)**:*

'In relation to Contamination and Remediation, if required, provide a Remediation Action Plan (RAP) including Interim Audit Advice from an EPA-accredited Site Auditor certifying the RAP as appropriate.

Remedial action items provided in Section 10.4. Certification of this RAP is to be issued by the appointed NSW EPA Accredited Site Auditor under the Site Audit Statement.'

Alexandria Property Development Pty Ltd c/- Johnstaff Projects (NSW) Pty Ltd (Johnstaff) engaged EP Risk to prepare an **updated RAP** following finalisation of the proposed concept development plans.

In accordance with Conditions B46 and B49 of the State Significant Development Consent (SSD) 38600121 dated 30 March 2023, the following conditions are considered relevant to the development of the RAP:

- 1) Future development application(s) must ensure that land proposed to be dedicated to Council is suitably remediated so as not to be encumbered by a Long-Term Environmental Management Plan or as otherwise agreed in the planning agreement with Council relating to the redevelopment site.
- 2) Future development application(s) must consider the potential to encounter acid sulfate soils and provide any necessary management and mitigation measures.

The following conditions of the **Draft VPA** are further considered within the preparation of the **updated RAP**:

- *Remediation of the applicable Transfer Land [is to] be fit for purpose for use as a public footpath. If remediation includes a capping layer, that capping layer must be a minimum of 1.5 metres below the top most surface of the Transfer; and*
- *The Developer must submit a Site Auditor Report (SAR) or Site Audit Statement (SAS) to the City for approval after the remediation has been completed, and prior to the construction of the Developer's Works*

The Audit is therefore considered to be statutory. The Site Audit Statement will be issued to the client, and the NSW EPA simultaneously.

This *Interim Audit Advice* is provided to assist in the assessment and management of contamination issues at the site, the *Interim Audit 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 review.

1.2. Site Audit Process

The EPA (2017) *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme* (3rd Edition), describes the site assessment and Audit process and was included in **Interim Advice IA03** dated 12 August 2023.

2. INTERIM ADVICE

Previous **Interim Advice 03** reviewed the following documents:

- **Detailed Site Investigation**: 28-32 Bourke Road, Alexandria, NSW, 2015 by EP Risk. Reference: EP2515.001_v5 dated 13 June 2023.
- **Remediation Action Plan**: 28-32 Bourke Road, Alexandria, NSW, 2015 by EP Risk. Reference: EP3072_v1 dated 30 June 2023.

This **Interim Advice 04** reviewed the following documents:

- **Remediation Action Plan**: 28-32 Bourke Road, Alexandria, NSW, 2015 by EP Risk. Reference: EP3072_v2 dated 9 November 2023.

Previously in **Interim Advice IA03**, the Auditor concluded:

- The DSI is very well written with appropriate land use criteria, Conceptual Site Model, Data Quality Objectives & Indicators and a comprehensive list of appropriate analytes and soil and groundwater sampling locations which exceed the requirements for *Consultants Reporting on Contaminated Sites* (NSW EPA 2020).
- The density and depth of sampling has allowed a superior appraisal of soil, groundwater and waste classification to be made.
- The elevated concentrations of Lead in soil on site is an issue. Immobilisation of the Lead prior to disposal to landfill must be approved by NSW EPA;
- The DSI refers to an Acid Sulfate Management Plan (ASSMP) previously written and included as RAP Appendix. Acid sulfate can be treated in accordance with the ASSMP prior to disposal to landfill;
- Whilst several metal analytes exceed ANZG 2018 groundwater guidelines, particularly Zinc, the Auditor agrees that the **groundwater will not require treatment** due to:
 - the lack of permitted use of groundwater in this part of the Botany Basin;
 - Zinc is a common occurrence in the urban environment; and
 - The metals (except Zinc) are within one order of magnitude of the guideline levels.

- There is no *Duty to Notify* the site to NSW EPA under *Section 60 of the Contaminated Land Management Act, 1997* since there are no obvious offsite issues and the RAP will address soil issues.
- The RAP contains appropriate chapters including a Contingency Plan, and alternative treatment options and aligns with the NSW EPA Reporting Guidelines (2020) referred above.
- The site may be made suitable if the above **Remedial Action Plan** is followed and that consistent with the Category 2 remediation under the SEPP (Resilience and Hazards), Council should be notified 30 days prior to remediation, and 30 days after. Category 2 remediation should not require consent from Council.

3. CONCLUSION

For this Interim **Advice IA04**, the Auditor concludes:

- Groundwater treatment/remediation is not required (refer to discussion above);
- Immobilisation of the high lead concentrations in soil prior to disposal to landfill has received NSW EPA Specific Immobilisation Approval, (SIA2023-S-04) for the treatment of 3,600 tonnes of Lead impacted waste under Part 10 of the Protection of the Environment Operations (Waste) Regulation 2014;
- Acid sulfate can be treated in accordance with the ASSMP prior to disposal to landfill;
- The Audit team has identified some additional requirements for Validation Sampling (refer to final page of attached table).

The Auditor concludes that the site may be made suitable for the proposed land use if the above referenced **Remedial Action Plan v2** is followed.

Yours Sincerely



Rod Harwood

NSW EPA Accredited Contaminated Sites Auditor (Accreditation No. 03-04.)

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Remedial Action Plan v2 – 9 November 2023

Interim Advice IA04 comment

3.4.1 Hazardous Materials Assessment (EP Risk 2021a) & (EP Risk 2023):

- Interior western warehouse: None friable – Present, Friable – Present;
- Interior eastern warehouse: None friable – Present, Friable – Present;
- Exterior of entire site: Non Friable – Present, Friable - Not present;
- Interior western warehouse: LCP & LCD – Present;
- Interior eastern warehouse: LCP & LCD – Present;
- Exterior of entire site: LCP Present & LCD Not present.

Audit team accepts
Audit team accepts
 ACM fragments in 4 of 9 test pits
 FA analysed by AS4964 method and not
 NEPM gravimetric analysis
Audit team accepts
Audit team accepts

3.4.3 DSI (EP Risk 2022) & Phase 2 DSI (EP Risk 2023a):

- Heavy metals: **Pb in all samples 95% UCL 131,797 mg/kg** > HIL D 1500 mg/kg;
- Heavy metals: Pb in **SE samples 95% UCL 585.5 mg/kg** < HIL D 1500 mg/kg;
- PAH: B(a)P in 7 sample > HIL D of 1.4 mg/kg;
- TRH: TRH F1 in 3 samples > ESL of 125 mg/kg; **no ecological receptors**
- TRH: TRH f1 in 2 samples > HSL D for SAND;
- Acid Sulfate Soil: ASS in surface soils at minimum depth of 0.3m BGL;
- Potential ASS: in both FILL & natural soils;
- ACM Fragments in 4 of 9 test pits;
- ACM fragments in 2 soils samples BH27 & BH23;
- Groundwater: Cu, Pb, Ni & Zn > ASC NEPM 2013 GILs for freshwater & marine water;
- Groundwater: Cd, Cu, Pb, Ni & Ni > ANZG 2018 95% DGVs for freshwater & marine water.

Audit team accepted in IA03

Table 6 – Areas of Concern:

- **AOC1:** depth 0.0 – 0.3, volume 8m³, area 65m² - Soils surrounding BH23 and BH27 based on the identification of bonded (non-friable) asbestos containing material.
- **AOC2:** depth 0 – 0.3, volume 4m³, area 25m²- Soils surrounding TP04 based on the presence of Heptachlor at concentrations >250% of the adopted HIL.
- **AOC3:** depth 0 – 0.3, volume 2m³, area 12m² - Soils surrounding BH09 based on TRH C6-C10 (F1 minus BTEX) at concentrations >250% of the HSL.
- **AOC4:** depth 0 – 2.0, volume 1,600m³, area 860m² - Concentrations of lead observed to significantly exceed the adopted HIL within the eastern extent of the Site.

Preliminary Waste Classification:

FILL material in AOC1: preliminarily classified to a depth of 0.3 mBGL as **Special Waste (Asbestos) – Hazardous Waste**.

FILL material in AOC2: is preliminarily classified to a depth of 0.3 mBGL as **Hazardous Waste** and should be managed as Scheduled Chemical Waste in accordance with the NSW EPA Chemical Control Order (2004).

FILL material in AOC4: preliminarily classified to a depth of 2.0 mBGL as **Hazardous Waste**. It is noted that soils within AOC4 are proposed for treatment to immobilise concentrations of Lead in soil, following which the waste classification may be revised subject to analytical results.

FILL material across the remainder of the Site, including material in AOC3 and material beneath the AOCs: preliminarily classified to a maximum depth of 2.0 mBGL as **General Solid Waste** (non putrescible), with the exception of the following two (2) areas, as shown in Figure 3:

- Soils surrounding BH19 to a maximum depth of 0.5 mBGL: preliminarily classified as **Hazardous Waste** based on total and leachable lead
- Soils surrounding BH40 to a maximum depth of 1.0 mBGL: preliminarily classified as **Hazardous Waste** based on of total and leachable lead.

Lead Immobilisation Treatment Trial (EPS 202312)

EP Risk engaged EnviroPacific Services (EPS) to conduct treatment trials on selected soil samples from Lead impacted

Audit team ACCEPTS results of Pb immobilisation trials

areas on-site. The findings of the analytical trials were then used to inform the application of a **Specific Immobilisation Approval (SIA)** to the NSW EPA, which details the type and dose of reagents proposed to convert leachable Lead to a stable form via chemical fixation. Long-term assessment of the efficacy of this method was undertaken via MEP and TCLP testing, which reported up to 99.9% Lead Leachate Reduction and concentrations below TCLP1 criteria when an optimised treatment was applied. The findings from this Immobilisation Treatment Trial form the basis for the immobilisation remediation of lead-impacted soils at the Site.

3.4.4 Groundwater Impact Assessment (EP Risk 2022b):

Groundwater at the Site was inferred to be at 6.65 m AHD across the Site, with regional groundwater expected to flow southwest towards Botany Bay. It should be noted that the Groundwater Impact Assessment (GWIA) was developed using preliminary design specifications, including a basement depth of 7.41 m AHD. The finalised basement design is proposed to be addressed as a revision to the GWIA, including an assessment of the potential impacts associated with development below the water table to support utilities, including the proposed lift pits.

Audit team ACCEPTS
finalised basement design to consider depth to groundwater.
Dewatering Management Plan may be required

3.4.5 Acid Sulfate Soils Management Plan (EP Risk 2022c):

Management procedures associated with PASS include the neutralisation of disturbed soils, with an adopted liming rate of 1.8 kg CaCO₃/t for FILL and 1.0 kg CaCO₃/t for natural soils

Audit team ACCEPTS

9.4 Preferred Remedial Strategy:

Audit team ACCEPTS

- **AOC1:** excavation, segregation, emu-picking of visible bonded (non-friable) asbestos, on-site immobilisation (for Pb) and **off-site disposal** of asbestos impacted soils, followed by a visual clearance assessment of the area by a suitably qualified occupational hygienist.
- **AOC2:** excavation, segregation and **off-site disposal** of OCP impacted soils, followed by additional sampling of soils from the walls and base of the excavation pit to validate the successful remediation of the AOC.
- **AOC3:** excavation, segregation and **off-site disposal** of TRH impacted soils, followed by additional sampling of soils from the walls and base of the excavation pit to validate the successful remediation of the AOC.
- **AOC4:** excavation and on-site immobilisation of Lead in soils under a NSW EPA Specific Immobilisation Approval. Following treatment, further sampling should be conducted to validate the successful chemical fixation of leachable lead. Material surplus to the development requirements may be **disposed of off-site** to a licensed landfill lawfully able to accept the waste, subject to additional waste classification sampling.

Groundwater: The preferred remedial strategy for groundwater is to do nothing, as impacts to groundwater are expected to be sufficiently mitigated by the source removal of lead-impacted soils in AOC4. Concentrations of heavy metals identified in groundwater are considered to be consistent with background levels observed in the wider Alexandria region due to the historic use of the area as an industrial precinct.

Validation Sampling – In-Situ Material

Following excavation, material proposed to remain in-situ underlying AOC4 should be subject to validation sampling for Lead in soil, including assessment by toxic characteristic leachate procedure (TCLP) as an indicative assessment for the leachability of lead. Analytical results should be compared against the adopted Health Investigation Level (HIL) for a commercial/industrial land use scenario (HIL-D), as specified in the ASC NEPM (2013).

Sampling density should be adopted from the NSW EPA Guidelines for Sampling Design Part 1 –Application, for a minimum of eight (8) samples across the AOC.

Where validation samples exceed the adopted HIL, further source removal and treatment should be conducted. Delineation of material from the location of exceedance to the nearest ‘clean’ sampling points should be adopted.

Auditor notes that ‘double density’ sampling will be required for area as beneath AOC1 which contains ACM fragments. Auditor requires validation sampling by AS4964 method in addition to NEPM gravimetric method to achieve the NEPM LOR of 0.001% w/w for asbestos fines/friable asbestos.

Validation Sampling – Ex-Situ Immobilised Material

Audit team ACCEPTS

Following immobilisation of soils from AOC4, the material should be stored temporarily as segregated samples to allow for validation sampling of Lead, including TCLP, prior to off-site disposal or reuse on-site. Stockpiles should be sampled in accordance with the NSW EPA Guidelines for Sampling Design Part 1 – Application, and analytical results compared against HIL-D, and against the criteria outlined in the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste, Part 2: Immobilisation of Waste and Part 4: Acid Sulfate Soils, as well as the requirements stipulated in the SIA (SIA2023-S-04).

Off-Site Disposal

Audit team ACCEPTS

Following immobilisation and validation sampling, a final waste classification for the material from AOC4 should be issued. Material should be disposed of at a licensed facility lawfully able to accept the waste, as classified under the conditions of the SIA. It is noted that the immobilised material cannot contain free liquids at the time of disposal, nor during transport and must retain an angle response of greater than 15 degrees.

In accordance with the NSW EPA Waste Classification Guidelines – Part 4: Acid Sulfate Soils, potential ASS must be managed during off-site disposal as follows: -

- Potential ASS must be kept wet at all times during excavation and subsequent handling, transport and storage, and received at the disposal point within 16 hours of excavation to be disposed of below the water table; or
- ASS must be treated by the generator of the waste before they can be considered for disposal. Treatment should be in accordance with the neutralising techniques outlined in the ASS manual, and material should be disposed of at a facility licensed to accept treated ASS.

Based on the nature of contamination observed on-site, hazardous material within AOC4 is not considered suitable to be disposed of beneath the water table and should therefore be treated prior to disposal.

Long-Term Management

**Audit team ACCEPTS
LTEMP not required**

Provided that the immobilised material is disposed off-site, and validation results are favourable, the enforcement of a long-term environmental management plan is not considered warranted.

10.4.5 Infill

Audit team ACCEPTS

The development plans at the time of this revision are presented as Attachment A. Within the northeastern portion of the Site, a 440 m² area is proposed to remain unexcavated. It is understood that the approximate height of the ground floor is proposed to be 10.4 mAHD, which would require an approximate **infill of 638 m³** to level the height of the area above the existing ground level (adopted as 8.8 mAHD), assuming a nominal slab thickness of 150mm.

Residual soils outside of the AOC4 extent were assessed for their suitability to remain on-site based on the following lines of evidence:

- The calculated 95% UCL for lead in residual soils was reported to be below the adopted HIL.
- No single data point within the area was observed to exceed 250% of the HIL value.
- The standard deviation of sampling points within residual soils was less than 50% of the HIL value.

With consideration to the assessment above, excavated soils outside the identified AOCs may be reused on-site for the purposes of levelling the proposed development, with the exception of the following:

- Based on the observed concentrations of leachable lead in soils surrounding sample locations BH19 and BH40, and preliminary classification as Hazardous Waste, it is considered that immobilisation and off-site disposal as per the adopted approach for AOC4 is the most suitable management approach to mitigate any potential risk of contaminant migration to groundwater. Approximate extents are summarised as follows:
 - Soils surrounding BH19 may be preliminarily delineated to an extent of 48 m² and 10 m³ to a depth of 0.35
-

mBGL, as shown in Figure 3.

- *Soils surrounding BH40 may be preliminarily delineated to an extent of 100 m² and 135 m³ to a depth of 1.5 mBGL, as shown in Figure 3.*

11.1 Validation Assessment Criteria:

- Soil Validation Criteria;
- Imported Materials;
- Asbestos Air Monitoring;
- Acid Sulfate Soils

**Audit team ACCEPTS
Audit team ACCEPTS
Under WH&S Act, not CLM Act
Audit team ACCEPTS**

11.2 Data Quality Objectives

11.9 Data Quality Indicators

**Audit team ACCEPTS
Audit team ACCEPTS**

11.10 Validation Sampling Works Table 16:

- Validation requirements - Excavation Surface AOC1;
- Waste classification (AOC4)
- Imported VENM / ENM

**Auditor requires validation by AS4964 &
NEPM gravimetric method for AOC1
ADD OPPs -i.e. chlorpyrifos
ADD OPP & Foreign Materials analysis**

