



**Site Contamination Audit Report
Audit Area 3 Proposed Mixed Use Areas
(MUA1 and MUA2) - Former Hills Industries**

EPA Ref: 60708, 05/19820

Vicinity Centres
March 2016

Ref: 0130130/08

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I certify that I have personally prepared and/or supervised the preparation of this Site Contamination Audit Report and that the assessments undertaken were deemed sufficient for the purpose of determining:

- i. The nature and extent of any site contamination present or remaining on or below the surface of the site;
- ii. The suitability of the site for a sensitive use or another use or range of uses;
- iii. What remediation is or remains necessary for a specified use or range of uses.



Signed: Paul Fridell

Site Contamination Auditor accredited under Division 4 of Part 10A of the Environment Protection Act, 1993

Dated: 4th March 2016

Revision Table					
Revision	Date	Description	Document Status	Reviewed	Copies Received
4	4 March 2016	Site Contamination Audit Report	Final	Paul Fridell	SA EPA; Vicinity Centres, Marion Council
3	23 November 2015	Draft Audit Report	Draft	Warren Pump	
2	9 November 2015	Site Contamination Audit Report	Draft	Paul Fridell	SA EPA; Vicinity Centres; Marion Council
1	16 October 2013	Draft Audit Report	Draft	Paul Fridell	Novion Property Group

SITE CONTAMINATION AUDIT SYSTEM SITE CONTAMINATION AUDIT STATEMENT



INSTRUCTIONS

Requirements relating to site contamination audit statements are prescribed in the *Environment Protection Regulations 2009* (the Regulations) and include the following:

Regulation 67—Site contamination audit report summary and statement

- (1) A site contamination audit report required under section 103Z(4)(a) and (b)(i) of the Act¹ must include a summary of the findings of the site contamination audit to which it relates that—
 - (a) is in the form set out in Schedule 3 clause 8 for site contamination audit statements; and
 - (b) is certified by the responsible auditor in accordance with the directions contained in the form set out in Schedule 3 clause 8.
- (2) A site contamination audit statement required under section 103Z(4)(b)(ii) of the Act in relation to a site contamination audit must comprise—
 - (a) a copy of the summary in the site contamination audit report relating to the audit and itself be certified by the responsible auditor in accordance with the directions contained in the form set out in Schedule 3 clause 8; or
 - (b) a photocopy, faxed copy or electronic copy of the summary as certified by the responsible auditor in accordance with the directions contained in the form set out in Schedule 3 clause 8.

Audit reports and audit statements are required to be provided to the EPA under section 103Z(4) of the Act, which requires that:

103Z—Requirements relating to site contamination audits

- (4) A site contamination auditor must, on the completion of each site contamination audit for which the auditor is the responsible auditor—
 - (a) provide a site contamination audit report to the person who commissioned the audit; and
 - (b) at the same time, provide—
 - (i) a site contamination audit report to the Authority; and
 - (ii) a site contamination audit statement to the council for the area in which the land to which the audit relates is situated and any prescribed body².

Penalty: Division 5 fine.

Refer to the most recent version of the EPA publication *Site contamination: Guidelines for the site contamination audit system*, for further information regarding audit reports and audit statements.

Please ensure that all sections of the form are completed, requested information and attachments (where necessary) are provided and labelled as indicated. Please do not modify the form and do not write within the areas for EPA USE ONLY.

Site contamination audit statements must be included in the relevant site contamination audit reports, and be sent to:

Manager, Site Contamination Branch
Environment Protection Authority
GPO Box 2607
Adelaide SA 5001

For any enquiries or questions relating to the site contamination audit system, contact the EPA Site Contamination Branch on:

Telephone: (08) 8204 2004 Email: <epainfo@epa.sa.gov.au>

¹ *Environment Protection Act 1993.*

² Refer to Regulation 68 of the Environment Protection Regulations 2009 regarding prescribed bodies.

EPA GENI Reference

(EPA use only)

SITE CONTAMINATION AUDIT STATEMENT(under section 103Z of the *Environment Protection Act 1993*)

This statement contains the summary of the findings of the site contamination audit set out in the site contamination audit report titled: [*insert title of site contamination audit report*]

**Site Contamination Audit Report, Audit Area 3³ - Proposed Mixed Use Areas (MUA1 and MUA2)
Former Hills Industries Site**

(referred to in this form as '*the report*')dated [*insert report date*]: 4 March 2016

SECTION A: AUDITOR DETAILS	
Name of auditor*:	Paul Fridell
Auditor's accreditation number:	2010030
Name of auditor's company or business:	Environmental Resources Management Australia Pty Ltd
SECTION B: AUDIT SITE DETAILS	
Auditor's project reference:	0130130/08
EPA reference:	60708, 05/19820
Name of audit site [<i>if applicable</i>]:	Audit Area 3 (AA3) - Proposed Mixed Use Areas (Mixed Use Area 1(MUA1) and Mixed Use Area 2 (MUA2))
Address of audit site:	5-8 Ackland Street, including 20-26 Raglan Avenue, Edwardstown, South Australia
Name of council for area in which audit site is situated [<i>if within council area</i>]:	City of Marion
Provide the following particulars** relating to the relevant land and the audit: ** <i>If insufficient space, details may be annexed to this form.</i>	
- certificates of title of all the relevant land and an indication of whether the audit site comprises all or part only of the land shown on or described in the certificates of title	CT Volume 5804 Folio 902 (all) CT Volume 5804 Folio 903 (all) CT Volume 5822 Folio 26 (all) CT Volume 5669 Folio 60 (portion) CT Volume 5461 Folio 792 (all) CT Volume 5824 Folio 530 (portion)

³ Audit Area 3 forms part of the development of the former Hills Industries site. For the purposes of development, the Hills Industries site has been split into three audit areas - Audit Area 1, Audit Area 2 and Audit Area 3.

<ul style="list-style-type: none"> - details sufficient to identify the location of the land, including section or allotment numbers, area and hundred and AMG co-ordinates (GDA 94, UTM 53 and 54) 	<p>Mixed Use Area 1 - 5-7 Ackland Street, on the corner with Wilfrid Street which forms the western boundary. Consists of 5 lots:</p> <ul style="list-style-type: none"> • All of Lot 293 in F 10796 • All of Lots 294, 295, 296 and 297 in F 10796 <p>Area is approximately 5,680 m².</p>	<p>Mixed Use Area 2 - 8 Ackland Street & 20-26 Raglan Avenue, bounded by Ackland Street to the north and Raglan Avenue to the south. Consists of 4 lots:</p> <ul style="list-style-type: none"> • All of Lot 87 in D 1236 • All of Lot 251 in F 10800 • All of Lot 88 in D 1236 • All of Lot 252 in F 10800 <p>Area is approximately 6,160 m².</p>
<ul style="list-style-type: none"> - if the audit site comprises part only of the land described in the certificates of title, or if there is no certificate of title for the land comprising the audit site— survey plans prepared by a licensed surveyor 	Not applicable	
<ul style="list-style-type: none"> - audit plans indicating the location and extent of the audit site (which must comply with the guidelines issued by the EPA from time to time) See attached <i>Figure 1: Site Locality Map</i> and <i>Figure 2 - Site Audit Boundaries</i> 		
SECTION C: AUDIT DETAILS		
Name of owner of audit site:	Perpetual Nominees Limited	
Name of occupier of audit site:	Vacant, formerly Hills Industries	
Name, postal address and position of person who commissioned audit:	Don Smith, Development Manager Vicinity Centres Level 28, 35 Collins Street Melbourne VIC 3000	
Indicate authority of person who commissioned audit:	EPA Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Owner Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Occupier Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Developer Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other [<i>please specify</i>]	
Indicate reasons for audit [<i>indicate all reasons</i>]:	Required under the <i>Development Act 1993</i> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Required under the <i>Environment Protection Act 1993</i> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other [<i>please specify</i>]	
If audit was required under the Environment Protection Act 1993, provide EPA reference	Not applicable	

number:	
Indicate audit purposes [<i>indicate all purposes</i>]:	<p>Determining the nature and extent of any site contamination present or remaining on or below the surface of the site Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Determining the suitability of the site for a sensitive use or another use or range of uses Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Determining what remediation is or remains necessary for a specified use or range of uses Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>[NB: <i>an audit may be required for all of the above purposes.</i>]</p>

Site contamination audit statement

If audit was required for development plan consent under the *Development Act 1993*, provide:

Name of relevant planning authority:	City of Marion
Development application number [if known]:	Castle Plaza Activity Centre Development Plan Amendment Ref No. GC280415R06
Site zoning:	Industry / Commerce
Proposed site use:	Mixed Use (medium-high density residential and light commercial/industrial)

Date of commencement of audit:	30 September 2011
Date of notification of commencement of audit to EPA:	11 October 2011
Date of completion of audit:	4 March 2016

SUMMARY OF FINDINGS

A summary of the findings of the site contamination audit are presented below:

Auditor Determinations

The Auditor determinations are set out as follows:

- The environmental site assessment undertaken by AEC Environmental and others was considered to be adequate to determine the contamination status of Audit Area 3 (AA3);
- The overall sampling frequency (i.e. test locations and selection of samples) is considered to be acceptable. The analytical parameters are considered by the Auditor to be sufficient to adequately characterise AA3;
- The quality assurance / quality control methodology and procedures employed by AEC are considered to be acceptable for the purposes of this audit and provide adequate confidence that soil and groundwater data were representative of the conditions at AA3;
- AA3 has been remediated such that the sources of contamination, and contaminated soil that poses a risk to the proposed land uses, have been removed, to the extent necessary;
- Areas of ash/cinders and solid inert waste were scattered across AA3 all of which have the potential to be aesthetically displeasing;
- Concentrations of chemical substances in soil do not pose unacceptable human health risks for the proposed future mixed use land use including future mixed use land use including commercial (extension of the Castle Plaza Shopping Centre), light commercial/industrial with an option for the incorporation of medium-high density residential use;
- Reported concentrations of heavy metals in fill on AA3 are marginally above EILs and as such may pose an unacceptable risk to plants that have their root systems in, or uptake nutrients from, site soil in a low density residential scenario (e.g. fruit trees or vegetable gardens). Nevertheless, the present condition of AA3 is considered to be sufficiently protective of ecological receptors;
- No unacceptable aesthetic issues associated with AA3 soils for the proposed future mixed use land use including commercial (extension of the Castle Plaza Shopping Centre), light commercial/industrial on the ground floor with an option for the incorporation of medium-high density residential use on upper levels;
- Although soils were not specifically assessed for acid sulphate soil conditions, no field indicators suggesting acid sulphate soils were reported or observed and as such the Auditor has no reason to suspect that these conditions exist at AA3. The Auditor therefore considers that the potential for impact by sulphate or chloride substances on steel and concrete building materials in contact with soil;

- The Auditor considers that AA3 is not a source of boron or nickel contamination in groundwater or the major source of nitrate contamination. Elevated concentrations of boron, nickel and nitrate identified in groundwater beneath AA3 are considered to be related to hydraulically up gradient groundwater quality and unknown offsite sources. A potential onsite source of nitrate from historical anodising works in MUA2 may be an onsite source of nitrate to groundwater in addition to the nitrate from upgradient sources. The source of nickel in one groundwater monitoring bore is unknown;
- Trace concentrations of PCE in groundwater are considered to reflect hydraulically up gradient groundwater quality as no significant sources of chlorinated solvents have been identified on-site;
- Based on an assessment of:
 - elevated concentrations of boron, nitrate and nickel above potable use, with nitrate and boron also above freshwater aquatic ecosystems and nickel above irrigation water use;
 - TDS concentrations between 1,200 - 1,600 mg/L; and
 - low expected aquifer yield (2 L/sec)

the Auditor considers the use of groundwater within the Quaternary aquifer for any purpose is low. However, due to the existence of a number of operational bores within close proximity of AA3 using groundwater for domestic and irrigation purposes, there is the potential for groundwater from the shallow Quaternary or Tertiary aquifers under AA3 to be used;

- Based on the an on-site vapour risk assessment conducted by Environmental Risk Services in 2015 for Audit Area 1, the Auditor considers that the vapour risks from current trace reported concentrations of volatile compounds (PCE) in groundwater in AA3 are not significant for future development scenarios provided there are no habitable basements and no ground floor residential uses; and
- The Auditor considers that the potential for other off-site effects of contaminant migration from AA3, e.g. as a result of leaching of soil contamination to groundwater or via stormwater runoff or airborne dust, is minimal.

Audit Outcomes

The nature and extent of any site contamination present or remaining on or below the surface of the site

The Auditor concludes that site contamination exists at AA3.

The nature and the horizontal and vertical extent of soil contamination on AA3 have been determined. Soil with reported analyte concentrations above NEPM EILs remain onsite, all of which have been encountered in fill.

The nature and extent of groundwater contamination underlying AA3 have been determined. Elevated concentrations of boron, nickel, nitrate and trace concentrations of PCE identified in groundwater beneath AA3 are considered to be related to hydraulically up gradient groundwater quality and unknown offsite sources. A potential onsite source of nitrate from historical anodising works in MUA2 may be an onsite source of nitrate to groundwater in addition to the nitrate from upgradient sources.

Site contamination exists in soils and groundwater that is not trivial in that it could pose potential harm to the health or safety of humans or environmental values.

The suitability of the site for a sensitive use, or another use or range of uses

The Auditor concludes that AA3 is suitable for a restricted range of uses:

- Mixed use, where retail/commercial uses are on the ground floor with no habitable basements⁴ and residential premises are located on the upper floors; or
- High density residential with no habitable basements and no ground floor residences; or
- Commercial use; or
- Industrial use.

No extraction of groundwater for any purpose from all aquifers.

⁴ Habitable basements would include subsurface spaces used for human occupation including places of work, recreational rooms, bedrooms, living areas, etc. but excluding car parks, wine cellars, storage rooms, etc.

The range of uses is generally consistent with the proposed Castle Plaza Activity Centre Development Plan Amendment, being *mixed use land use including commercial (extension of the Castle Plaza Shopping Centre), light commercial/industrial with an option for the incorporation of medium-high density residential use.*"

Other sensitive uses, such as pre-school or primary school are not considered suitable uses at AA3.

What remediation is or remains necessary for a specified use or range of uses

The Auditor concludes that site contamination does exist at AA3, however, no further remediation remains necessary for the suitable range of uses detailed above.

Restrictions on Site Use

AA3 is suitable for restricted uses:

- Mixed use, where retail/commercial uses are on the ground floor with no habitable basements and residential premises are located on the upper floors; or
- High density residential with no habitable basements and no ground floor residences; or
- Commercial; or
- Industrial use.

No extraction of groundwater for any purpose from all aquifers and recommend EPA should arrange for a restrictive/prohibition zone on taking groundwater over AA3.

Requirements for Ongoing Management

No conditions are required relating to site management.

Audit Conditions and Recommendations

The following conditions are required by the Auditor relating to the audit site for:

- Planning and Development
 1. AA3 is restricted to the following uses:
 - Mixed use, where retail/commercial uses are on the ground floor with no habitable basements and residential premises (minimal access to soils) are located on the upper floors; or
 - High density residential with no habitable basements and no ground floor residences; or
 - Commercial use; or
 - Industrial use.
- Environmental Monitoring

No conditions required by the Auditor.

- Site Management

No conditions required by the Auditor.

- Water Restrictions
 2. No extraction of groundwater for any purpose from all aquifers.

Audit Recommendations

Restriction or prohibition on taking water affected by off-site contamination

The Auditor recommends EPA consider a restrictive/prohibition zone on the taking of groundwater for any purpose from all aquifers over AA3.

Other Recommendations

The Auditor recommends that:

- The auditor notes that illegal dumping appears to be a regular occurrence in the area and the issue has been brought to the EPA's attention. Any materials encountered onsite likely to result in aesthetic issues, such as solid inert waste materials e.g. bricks, rubble, bitumen resulting from illegal dumping will require ongoing off-site disposal in accordance with relevant statutory requirements and EPA guidelines.

- Materials encountered in the subsurface onsite likely to result in aesthetic issues, such as solid inert materials e.g. bricks, rubble, bitumen, are to be excavated from the site for offsite disposal, and classified and managed by the person (s) carrying out the activity in accordance with relevant statutory requirements and EPA guidelines;
- A copy of the SCAR should be provided to all future landowners.

CERTIFICATION OF COPY OF SUMMARY FINDINGS

I certify that the summary of findings contained within or annexed to this statement represents a true and accurate summary of the findings of the site contamination audit set out in the report.



Signed*: Paul Fridell

Site Contamination Auditor accredited under Division 4 of Part 10A of the Environment Protection Act, 1993

Dated: 4 March 2016

** This form must be completed and signed by the 'responsible auditor', being, under the Environment Protection Act 1993 and the Environment Protection Regulations 2009, the auditor who personally carried out or directly supervised the work involved in the audit.*

This site contamination audit statement must be lodged, on completion of the audit, with the council for the area in which the audit site is situated and any prescribed body (see regulation 68 of the Environment Protection Regulations 2009).

The report (including the summary of findings) will be recorded in the public register kept by the EPA under section 109 of the Environment Protection Act 1993.

Annexes

Annex A - Figures