

REPORT**Amendment C309 - West Melbourne Structure Plan***Preliminary Land Contamination Assessment*

Submitted to:



Submitted by:

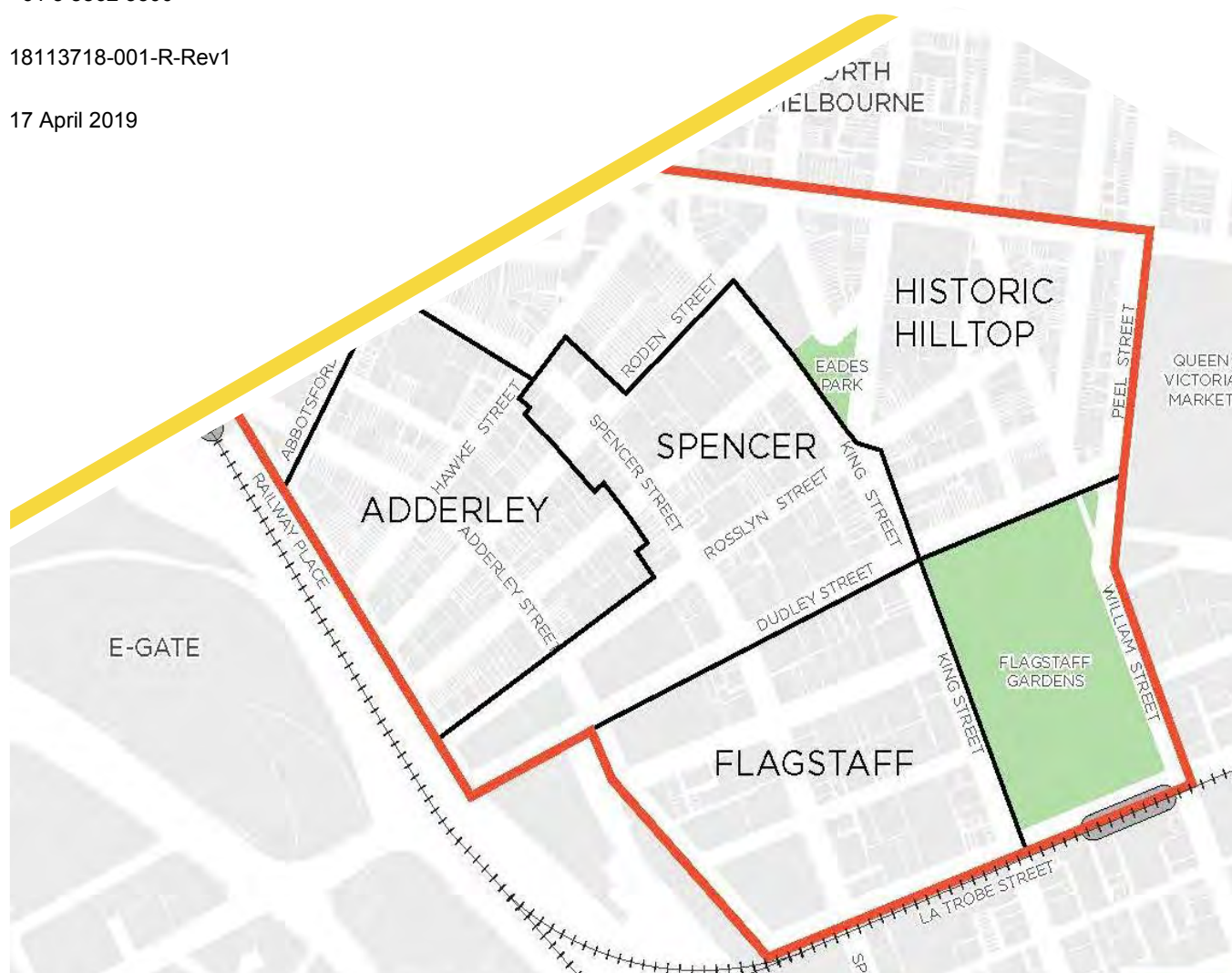
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1.0 INTRODUCTION

City of Melbourne (Council) engaged Golder Associates Pty Ltd (Golder) to undertake a preliminary land contamination assessment of the area forming Amendment C309 – West Melbourne Structure Plan. The works have involved the assessment for potential contamination of approximately 955 properties within the West Melbourne Structure Plan (the study area) (Figure 1).

2.0 BACKGROUND

The West Melbourne Structure Plan 2018 was endorsed by the Future Melbourne Committee on 6 February 2018. Planning Scheme Amendment C309 (West Melbourne Structure Plan) is proposed to make changes to the Melbourne Planning Scheme in accordance with the Structure Plan including the rezoning of many sites within the study area.

Due to study area's industrial past and in some cases its current industrial use, as part of Planning Scheme Amendment C309, Council seeks to apply an Environmental Audit Overlay (EAO) to the entire Structure Plan area to satisfy itself that the existing contamination status of all land within the Structure Plan area is suitable for the sensitive land uses which are allowed under the rezoning.

Council (8 October 2018) subsequently sought advice from Environment Protection Authority (EPA) regarding the proposed approach to application of the EAO over the entire Structure Plan area. The EPA provided advice to Council on 19th October 2018 which is included as Appendix A. Among other things the EPA letter states:

- *"By proposing the application of the EAO, it should be assumed that the planning authority has made an assessment that the land is potentially contaminated, and is unlikely to be suitable for a sensitive use without more detailed assessment and remediation works or management."*
- *"EPA does not support the blanket placement of an EAO on a broad area, particularly with established sensitive-use land without sufficient justification."*
- *"The EAO should not be applied to land which has already been subject to an environmental audit, where a Certificate of Environmental Audit is issued or if a Statement of Environmental Audit is issued and the conditions contain minimal restrictions or the conditions have been complied with."*
- *"Prior to approval of the amendment, EPA considers it appropriate that some form of assessment to determine the risk of contamination on a site by site basis to determine if the EAO is appropriate for that site. "*
- *"EPA acknowledges whilst there may be precinct wide contamination issues, there must be an assessment process to justify the application of the EAO."*

Given the EPA advice, Council decided to proceed with public exhibition of Amendment C309 (commenced on Thursday 22 November 2018) with the proposed application of an EAO over the entire Structure Plan area but to procure the additional advice recommended by EPA regarding an assessment of the potential contamination status of the land within the Structure Plan (this report). This additional advice would then be used to inform Council's response to any submissions received during the public exhibition of Planning Scheme Amendment C309 and to assess whether any properties should be removed from the Environmental Audit Overlay as exhibited. The public exhibition closed on 5th February 2019.

3.0 PROJECT OBJECTIVE

The primary purpose of this project is to undertake an assessment of each property within the West Melbourne Structure Plan area to identify the risk of the site being potentially contaminated and based on that risk to make a recommendation whether the site should have an EAO applied.

4.0 APPROACH

4.1 Overall Approach

We understand that Council's approach to Amendment C309 and the proposed application of the EAO can be summarised as follows:

- a) Council seeks to apply the EAO to the entire structure plan area, not just the land that is proposed to be rezoned SUZ6;
- b) In respect of the decision to apply the EAO, we understand that Council is motivated by the industrial legacy of the precinct and the absence of appropriate planning tools that recognise this, and the population growth and intensification of sensitive uses contemplated by the Structure Plan.

The application of the EAO is one of the key considerations associated with the rezoning of industrial precincts. Council needs to carefully consider its obligations under Ministerial Direction No. 1 whilst balancing the interests of development of the City to aid the social and economic prosperity of its community.

Under the requirements of Ministerial Direction No.1 - Potentially Contaminated Land (amended 2001) , *"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, agriculture or public open space, a planning authority must satisfy itself that the environmental conditions of that land are or will be suitable for that use."*

Ministerial Direction No.1 - Potentially Contaminated Land defines *"potentially contaminated land"* as *"land used or known to have been used for:*

- c) *industry,*
- d) *mining, or*
- e) *the storage of chemicals, gas, wastes or liquid fuel (if not ancillary to another use of the land)."*

The definition in Ministerial Direction No.1 - Potentially Contaminated Land is confined to an assessment of the use of the site itself.

A broader definition is provided in the Potentially Contaminated Land Practice Note (DSE 2005) which uses the Ministerial Direction No. 1 – Potentially Contaminated Land definition but also *"deals with land that may have been contaminated by other means such as by ancillary activities, contamination from surrounding land, fill using contaminated soil or agricultural uses."* This requires an assessment of subsoil or groundwater contamination transport from adjoining properties on to a site which could impact on the site contamination status and potentially impact upon the suitability of the site for a sensitive use.

In line with the definition of potentially contaminated land in Ministerial Direction No.1 - Potentially Contaminated Land, the screening assessment sought to use available historical information and a site inspection to establish where past industrial use had taken place and in particular the industrial uses set out in the Potentially Contaminated Land Practice Note (DSE 2005) indicating a "High potential for contamination" (refer Table 1,DSE 2005). Sites where there has been no history of industrial use, especially those that can

be shown to have a documented long history of residential use, are considered to represent a low risk of contamination.

In considering the potential for contamination at a site, the methodology adopted was a screening assessment whereby a review of information was undertaken only to the point where the potential for contamination to exist was established or not. The methodology did not seek to prove whether or not contamination existed but only to establish whether or not there was the potential for contamination. In accordance with the Potentially Contaminated Land Practice Note (DSE 2005), a full contamination site assessment is not required to be undertaken by Council to assess the application of an EAO. The approach adopted was that where there was some evidence to indicate that the site could have been used for industrial purposes and be potentially contaminated, a conservative position regarding the application of the EAO was taken.

In undertaking this approach, the burden of proof for confirming whether or not the site is contaminated lies with the landowner and not with Council. It is Council's obligation as the Responsible Planning Authority to satisfy itself regarding the suitability of the contamination status of the site should the site be redeveloped for a sensitive use but it is the landowner's responsibility to provide the information for Council to make that assessment.

The sites were also assessed in context of their surrounds to evaluate the risk that adjacent potentially contaminated sites could impact upon the contamination risks of an otherwise low contamination risk site which is consistent with the Potentially Contaminated Land Practice Note (DSE 2005). Such risks posed by adjacent potentially contaminated sites include migration of contamination via groundwater or vapour.

Those sites within the precinct which have already been subject to an Environmental Audit were also assessed to confirm whether residual contamination remains at the site warranting the need for further management or action should the site be used for a sensitive use.

The decision process used is shown in Figure A below.

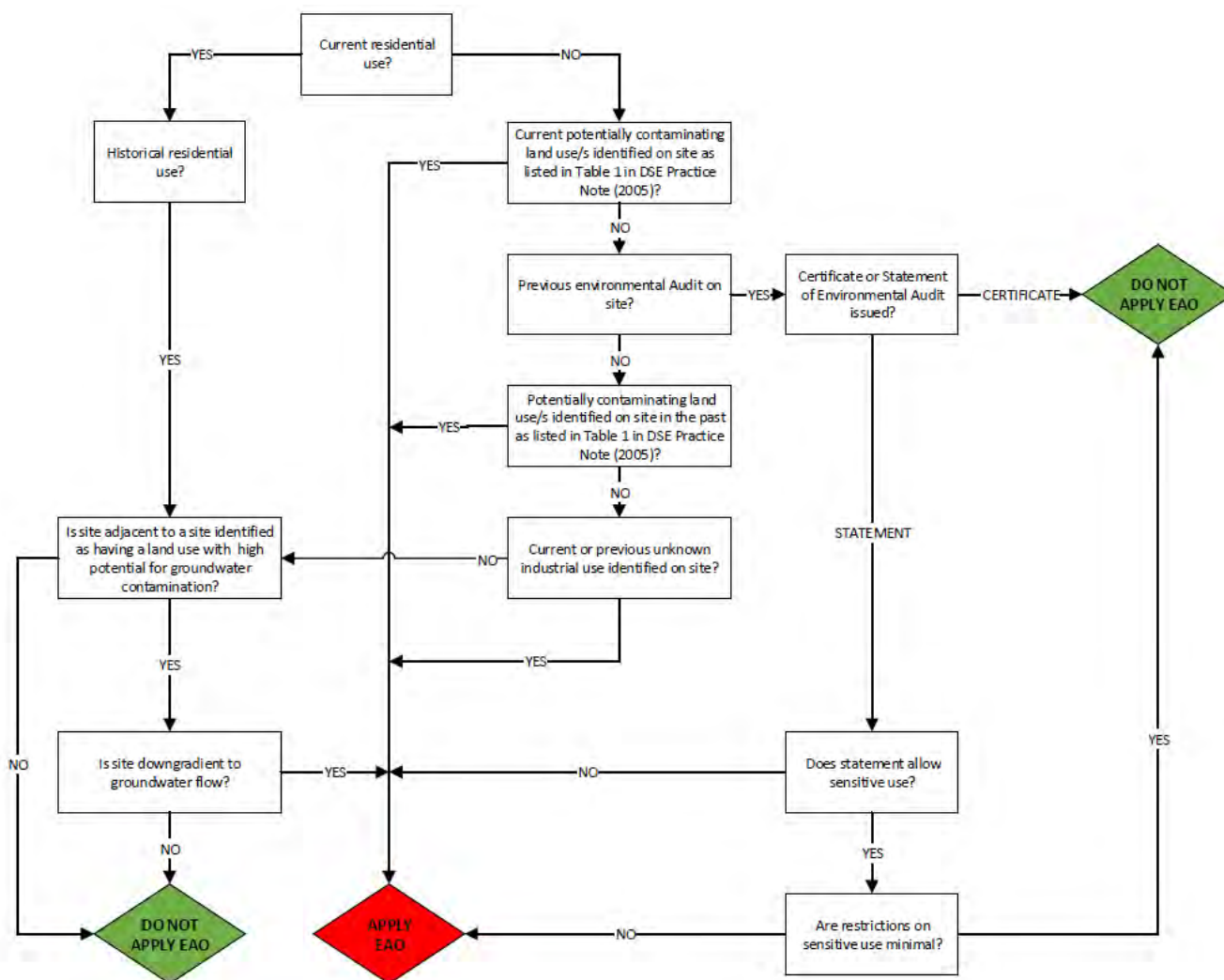


Figure A: Contamination Risk Screening and EAO Decision Process

Each of the sites was assessed using this methodology. There were only two recommendations considered:

- application of an EAO for the sites where there is potential for contamination on site or evidence for potential contamination from an adjacent site; or
- no application of an EAO for the remaining sites.

A recommendation was made for each site.

The methodology and scope used to implement the decision process shown in Figure A can be summarised generally as follows:

- Step 1 – Visual Inspection of each property
- Step 2 – Research Historic Land Use including review of Environmental Audits
- Step 3 – Assessment of Contamination Risk
- Step 4 – Consider the potential for groundwater contaminants to migrate from adjoining properties and create a high risk of contamination impact upon the property.

These steps are further described below in Section 5.0.

4.2 Review of Approach with regard to Environment Protection Amendment Act 2018

It is understood that the *Environment Protection Amendment Act 2018* (the EP Amendment Act), intended to take effect from 1 July 2020 will introduce some changes to the way Environmental Auditors can consider potentially contaminated land prior to redevelopment to sensitive uses. It is understood by Golder that the EP Amendment Act will continue to include provisions for statutory Environmental Audits. The issues that need to be considered regarding the impacts of contamination on future land uses is not likely to be significantly changed as a result of the EP Amendment Act. Therefore the methodology adopted for this report is considered likely to remain relevant beyond July 2020 in undertaking an initial assessment of the potential for contamination.

Additional mechanisms will be introduced for the assessment of potentially contaminated land under the EP Amendment Act with the introduction of the Preliminary Risk Screen Assessment (PRSA) process. The PRSA is intended to be a decision making tool to enable an Environmental Auditor to assess the likelihood that land is contaminated and determine if it is necessary to proceed to a statutory Environmental Audit. At this stage supporting information on the PRSA process is not generally available.

It is unclear how the PRSA will be integrated into the Victorian Planning Provisions and specifically the EAO. Currently there is no alternative to conducting an Environmental Audit on land subject to an EAO. We do not know if it is intended to modify the EAO provisions to reference the PRSA tool. Similarly it is unclear if any modifications to Ministerial Direction No. 1 or the associated Practice Note are proposed in response to the provisions of the EP Amendment Act.

5.0 ASSESSMENT

5.1 Site Inspection

Golder undertook a street walk-by inspection of each of the 955 properties. None of the properties were entered as part of the inspection. At each site, Golder recorded details including:

- Current property use;
- Visual signs of a breather pipe which could indicate the potential presence of an Underground Storage Tank;
- Any other evidence of potentially polluting activities.

In addition, Golder took a photo of each site to help confirm the site being assessed. This information where relevant has been included on the property sheets provided in Appendix D.

5.2 Information Review

5.2.1 Data Sources

To assess the potential for contamination on each property, Golder undertook a screening contamination assessment using the data sources outlined in Table 1.

Table 1: Data Sources used for EAO screening assessment

Source	Type of Information Assessed
Current Aerial Photographs	Current aerial photographs (May 2018) were sourced from Nearmap Pty Ltd. The current aerial photographs were used in conjunction with visual observations of the property from a site walkover to assess the current land use of each property.
Historical Aerial Photographs	Historic aerial photographs were sourced from DELWP for 1968/69 and 1987 to assist in identifying industrial type buildings on sites and to confirm areas which remained residential.
Mahlstedt fire insurance maps (CBD 1923-25)	Mahlstedt fire insurance maps (CBD 1923-25) provide additional information on some of the earlier uses of the property
MMBW historic maps	MMBW Maps (1895) were sourced from the State Library of Victoria. The maps were used to assess the presence of early residential use as well as early industrial use on each property.
West Melbourne Heritage Review Appendix 2 (May 2016)	This heritage review has important information regarding the history of some of the sites.
Sands & McDougall business directories	Historic property information was sourced from the 1929, 1935, 1942, 1960 Sands and MacDougall street directories. It is noted that there is inherent uncertainty with this information as over time property numbers have changed and the direction of property number has also varied.
City of Melbourne Interactive Map (2019)	Information on properties including: Property identification number, and construction and refurbishment information.
Publicly available Melbourne Street Directories	Yellow Pages (1990) and Urban Business Directories 1975/6 and 1984) provide additional information on earlier uses of the property.
Internet searches	Internet searches, such as Google Maps and real estate listings, were conducted to assess the current or recent use of each property.
EPA Audits (Section 53X statements/certificates and Section 53V audits ¹)	EPA Audits provide useful background data regarding the contamination status of surrounding sites. A review of EPA Audit reports within the precinct was undertaken to provide additional supporting information for this assessment as well as information on the Audited site itself.
EPA Groundwater Quality Restricted Use Zones	A GQRUZ is an area of restricted groundwater use usually declared by EPA following completion of a Section 53X Audit of a site. The GQRUZ indicates an area of groundwater contamination from the audited site which is polluted and hence potentially restricts the ability of owners within the GQRUZ to use groundwater.

1 – Golder notes that only recent s53V audits are publicly available.

5.2.2 Assessment of Property Contamination Risk

Using the site inspection information and the information summarised above, each property was assessed using the decision framework shown in Section 4.1. The information used for each property and details of that information and the assessment made for each property in according with the decision framework are provided in the Property Sheets that have been provided for each property in Appendix D.

When assessing the current and past industrial uses of a site, the uses were initially assessed against those indicated in the DSE Practice Note (2005) with a High potential for contamination as reproduced in Table 2.

Table 2: Land Uses with high potential for Contamination (DSE 2005)

Land Uses with High Potential for Contamination		
Abattoir	Dry Cleaning	Pest control depots
Abrasive blasting	Electrical/electrical components manufacture	Printing shops
Airport	Electricity generation/power	Pulp or paper works
Asbestos production/disposal	Station Electroplating	Railway yards
Asphalt Manufacturing	Explosives Industry	Shooting or gun clubs
Automotive repair/engine works	Fibreglass reinforced plastic manufacture	Scrap metal recovery
Battery manufacturing/recycling	Foundry	Service station/fuel storage
Bitumen Manufacturing	Fuel storage depot	Sewerage Treatment Plant
Boat building/maintenance	Gasworks	Ship building/breaking yards
Breweries/distilleries	Glass Manufacture	Shipping facilities - Bulk
Brickworks	Iron and steel works	Stock dipping sites
Chemical	Landfill sites/waste depots	Spray painting
Manufacturing/storage/blending	Lime works	Tannery (and associated trades)
Cement Manufacture	Metal Coating	Textile operations
Ceramic Works	Metal finishing and treatments	Timber preserving/treatment
Coke Works	Metal	Tyre manufacturing
Compost Manufacturing	smelting/refining/finishing	Underground storage tanks
Concrete Batching	Mining and extractive industries	Utility depots
Council Work Depot	Oil or gas production/refining	Waste
Defence Works		treatment/incineration/disposal
Drum Re-conditioning Facility		Wool scouring

Where the types of uses outlined in Table 2 were identified currently or in the past, then these properties were screened for application of an EAO in line with the Practice Note (DSE 2005). For properties where historical aerial photographs, current building types or other information such as the names of industries which have been present on site indicated the past industrial use is likely to have occurred but the activities as part of that use were uncertain, these too were screened for application of an EAO in line with Ministerial Direction No. 1 due to past Industrial Use.

Sites that were confirmed through site inspection and reference to the 1895 MMBW historic maps and other historic information as always having been used for residential were also identified as well as other sites where no industrial use could be identified either currently or in the past. These two categories of property initially screened as not requiring an EAO subject to a review of the potential for contamination from an adjacent site. The remaining category of properties comprising sites that have been subject to an Environmental Audit were also subject to further review as set out in the decision framework (Figure A).

Table 3 below summarises the number of properties in each of the initial screening categories.

Table 3: Summary of the Number of Properties in Each Decision Category

Screening Criterion Category	No. of Properties in Category	Screening Outcome
Properties identified with a current industrial use as listed in Table 1 of the Potentially Contaminated Land Practice Note (DSE, 2005)	39	Apply EAO
Properties identified with a previous industrial use as listed in Table 1 of the Potentially Contaminated Land Practice Note (DSE, 2005) (excluding those which have been subject to Audit)	89	Apply EAO
Properties identified with a previous industrial use of unknown type	124	Apply EAO
Properties identified with a Section 53X Environmental Audit already completed.	23*	Further Assess Audit Outcome
Properties identified as being used for residential use over their entire period of development	496	Do Not Apply EAO subject to review of adjacent site risk
Remaining Properties where no current or previous industrial use has been identified	173	Do Not Apply EAO subject to review of adjacent site risk
Total Number of Properties	944	

*Note that there have been 21 Section 53X Environmental Audits completed within the study area on 23 properties but two of the audits are for multiple properties and one property has been reaudited.

As indicated in Table 3, further review of the Environmental Audit outcomes and the risk of adjacent site contamination on those properties where a current or past industrial use has not been identified was required to finalise the recommendation of whether to apply an EAO in accordance with the decision framework (Figure A). These further reviews are summarised below.

5.3 Review of Sites with Environmental Audits

5.3.1 Overall Review

As indicated in Table 2, 21 Environmental Audits were identified within the Structure Plan area for which a Certificate of Environmental Audit or Statement of Environmental Audit has been issued in accordance with Section 53X of the Environment Protection Act 1970. The 20 Environmental audits covered 23 sites with the study area as two of the Audits were for multiple sites as shown in Table 4.

Table 4: Environmental Audits covering Multiple Properties

Environmental Audit EPA CARMS Number*	Date Audit Issued	City of Melbourne Property Number**	Address
52659-2	27-Jun-07	623961	48 Jeffcott Street
		623962	4 Boughton Place
		623963	6 Boughton Place
32617-1	27-Oct-97	108133	90-98 Railway Place
		111367	243 Adderley Street

Notes:

*The EPA CARMS number is the number used by EPA to identify Environmental Audits. It has been used here to maintain consistency in identification of the Environmental Audits being referred to.

** The City of Melbourne Property Number is the number provided by the City of Melbourne to describe each property assessed as part of this study.

In addition, Property Number 7808 at 220 Dudley St was issued with a Statement of Environmental Audit for commercial use in August 1998 (EPA CARMS 135724-1). The property was subsequently reaudited under the address of 185 Rosslyn St and issued with a Statement of Environmental Audit for high density residential use in March 2018 (EPA CARMS 173804-1). The latter Audit has been used in this assessment as the earlier Audit has been superseded.

A review of the 20 Environmental Audits showed that all 20 resulted in the issue of a Statement of Environmental Audit for restricted sensitive uses limited to either medium or high density residential use. In issuing a Statement of Environmental Audit rather than Certificate of Environmental Audit, the Environmental Auditor has assessed that there is residual contamination at the site which may restrict the site's use for any beneficial use and hence for any sensitive use such as unrestricted residential use (ie residential use with no management requirements).

EPA in its letter to Council (Appendix A) indicates that:

"The EAO should not be applied to land which has already been subject to an environmental audit, where a Certificate of Environmental Audit is issued or if a Statement of Environmental Audit is issued and the conditions contain minimal restrictions or the conditions have been complied with."

These considerations have been further assessed in the sections below.

5.3.2 Review of Statement Conditions on Use

Each of the 20 Statements of Environmental audit were reviewed including the supporting reports as required. Table 5 summarises each Audit, the most sensitive allowable uses and the conditions on that use.

Table 5: Summary of Sites with Environmental Audits

GIS ID Number	CARMS Number	Date Issued	Address	Land Use with the Potential for Contamination	Statement or Certificate	Most sensitive allowable land use	Statement Conditions
8312	27071-1	19-Sep-95	33 Jeffcott Street	Foundry	Statement	Medium density residential	Site is suitable for the proposed development, but residual contamination remains.
5299	30816-1	22-Jan-97	449-455 King St	Service station/fuel storage	Statement	Medium density residential	Separation layer of concrete or clean soil with excavation below 1 m to be controlled by a management plan
7732	31390-1	02-Jun-97	9 Roden Street	Underground storage tanks	Statement	Medium density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan
9175	41367-1	23-Mar-00	10-22 Laurens Street	Medium - other industrial - biscuit factory	Statement	Medium density residential	Separation layer of concrete with excavation below the separation layers to be controlled by a management plan
8307	62990-1	29-Oct-08	50-64 Jeffcott Street	Old car park	Statement	High density residential	Groundwater must not be extracted for the beneficial uses of stock watering and primary contact recreation
6572	63014-1	02-Apr-08	212 Roden Street	Iron and steel works	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan
8541	63015-1	31-Mar-08	86-90 Ireland Street	Tannery (and associated trades)	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan
6571	63691-1	16-Sep-08	220 Roden Street	Storage and distribution	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan
7039	44867-2	05-Dec-01	37-49 Rosslyn Street	Printing Shops	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan
7749	46022-1	20-Jul-01	61-63 Stanley Street	lighting supplier / wholesale furniture	Statement	High density residential	Separation layer of concrete with excavation below the separation layer to be controlled by a management plan
9176	46312-1	03-Aug-01	3-5 Anderson Street	Medium - other industrial - biscuit factory	Statement	High density residential	Separation layer of concrete with excavation below the separation layer to be controlled by a management plan
13290, 13292 and	52659-2	27-Jun-07	48 Jeffcott Street, 4 Boughton Place	Underground storage tanks	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan

GIS ID Number	CARMS Number	Date Issued	Address	Land Use with the Potential for Contamination	Statement or Certificate	Most sensitive allowable land use	Statement Conditions
13291			and 6 Boughton Place				
6693	66412-2	30-Aug-13	621-643 King Street	Service station/fuel storage	Statement	Unrestricted residential	Separation layer of 1 m of clean soil in garden areas to be managed.
6695	68546-1	21-Dec-12	141-149 Roden Street	Service station/fuel storage	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan
7771	69010-2	04-Sep-13	479-485 Spencer St	Service station/fuel storage	Statement	High density residential	Groundwater contamination requires monitoring and management according to a management plan
7493	58989-1	22-Dec-16	404-418 Spencer St	Dry Cleaning	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan. Installation of a vapour mitigation system and management via a management plan
6560 and 8280	32617-1	27-Oct-97	90-98 Railway Place and 243 Adderley Street	Service station/fuel storage	Statement	Medium density residential	Separation layer of concrete and 0.5 m of clean soil or 1 m of clean soil with excavation below the separation layers to be controlled by a management plan
8308	21866-1	11-Mar-94	16-30 Jeffcott Street	Service station/fuel storage	Statement	High density residential	Separation layer of 0.5 m clean soil over remaining contamination.
7446	43144-1	24-Nov-00	71-75 Capel Street	Filling (imported soil)	Statement	High density residential	Separation layer of concrete with excavation below the separation layer to be controlled by a management plan. All fill to be removed in landscape areas.
7808	73804-01 (replaced 35724-1)	28-Mar-18	185 Rosslyn St	Service station/fuel storage	Statement	High density residential	Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan. Management of vapour and groundwater ingress into potential basements is required.

The outlined conditions can be classed into 6 general categories as shown in Table 6 below.

Table 6: Assessment of Environmental Audits covering Multiple Properties

Most Onerous Environmental Audit Condition Type	No. of Audits in this Category	GIS ID Numbers in this Category	Assessment of Degree of Restriction on Use due to Conditions	Screening Outcome
Groundwater must not be extracted for the beneficial uses of stock watering and primary contact recreation	1	8307	Minimal condition as the use of the land is unrestricted.	Do Not Apply EAO
Site is suitable for the proposed development but residual contamination remains	1	8312	This is an early (1995) audit which restricts the suitability of the site to the specific development proposed at the time and does not allow other forms of sensitive use.	Apply EAO
Separation layer of concrete or clean soil of specified depth with excavation below the separation layers to be controlled by a management plan	15 (19 Properties)	5299, 7732, 9175, 6572, 8541, 6571, 7039, 7749, 9176, 13290, 13292, 13291, 6693, 6695, 6560, 8280, 8308, 7446, 7808	This is the most common condition within the study area put in place to manage residual contamination below the surface of the site. The condition requires ongoing management and hence creates a restriction	Apply EAO
Groundwater contamination requires monitoring and management according to a management plan	1	7771	The condition places a groundwater monitoring obligation on the owner.	Apply EAO
Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan. Installation of a vapour mitigation system and management via a management plan	1	7493	These conditions restrict the type of sensitive use that can be built due to residual contamination.	Apply EAO
Separation layer of concrete or 0.5 m of clean soil with excavation below the separation layers to be controlled by a management plan. Management of vapour and groundwater ingress into potential basements is required.	1	7808	These conditions restrict the type of sensitive use that can be built due to residual contamination	Apply EAO

As shown in Table 6, Golder has assessed that only one of the Environmental Audits has resulted in restrictions on the site's use for sensitive uses as "minimal" in line with EPA's advice (Appendix A). This is for Property 8307 at 50-64 Jeffcott Street where the only condition is on the use of groundwater which does not affect the use of the land itself.

The conditions on the remaining 19 Statements affecting 22 properties are considered to restrict the use of the land for sensitive uses by generally requiring ongoing maintenance of a separation layer of concrete or soil to

restrict contact between site users and the remaining underlying contamination or more onerous conditions such as groundwater monitoring or implementation of vapour management. This illustrates that contamination remains on site requiring management for the site to be suitable for sensitive uses. As such, an EAO is appropriate for these sites because a more sensitive use such as unrestricted residential use would require further assessment, remediation or management actions at the site.

5.4 Assessment of Potential Impact from offsite Sources

5.4.1 Approach

Sites where there has been no history of industrial use identified, especially those that can be shown to have a documented long history of residential use, generally represent a low risk of contamination and as such an EAO should not be applied. However, prior to finalising the recommendation of no EAO, these properties have been further assessed in context of their surrounds to consider whether an adjacent potentially contaminated site could impact upon the low risk property and impact on the assessed low risk of contamination. Such a consideration is consistent with the intent of the Potentially Contaminated Land Practice Note (DSE 2005) which considers Potentially Contaminated land as “...*land that may have been contaminated by other means such as contamination from surrounding land.*” It is noted that the Practice Note (DSE 2005) gives no guidance as to how assessment of impacts from surrounding land should be undertaken.

For the purposes of this assessment, Golder has considered that the risk of contamination posed by adjacent potentially contaminated sites would not be associated with soil contamination and would only be associated with migration of contamination via groundwater or potentially vapour but via a groundwater pathway. This is considered reasonable as soil impact would generally be contained to the impacted site unless there was significant erosion of soil from one site to another, slope failure and slumping on to the adjacent site or excavation and disposal of contaminated soil or waste on to an adjacent site. These mechanisms are possible but the extent to which they may have occurred in the past resulting in a change in the contamination risk profile of an adjacent low risk site is considered similar to the risk of a low risk site containing contaminated imported fill. Small amounts of contaminated fill are common on all inner urban sites in Melbourne due to its long industrial history. Hence, an increased risk of soil contamination from an adjacent site is not considered at this screening level of assessment to trigger the need for an Environmental Audit.

In undertaking this assessment, we note the recommendations of the recent *Panel Report for Moreland Planning Scheme Amendment C164, Brunswick Activity Centre former industrial land* dated 7 August 2018 where Golder proposed a similar methodology to assessing the risk posed by adjacent offsite potentially contaminated land on properties that otherwise represent a low risk. The Panel essentially concluded among other things that the otherwise low risk property:

- 1) does not meet the definition of potentially contaminated land under the provisions of Ministerial Direction No. 1 as it only applies to land that has been "used for industry, mining or for the storage of chemicals, gas, waste or liquid fuel";
- 2) is unlikely to be considered as potentially contaminated land under the Practice Note (DSE 2005) as the adjacent contaminated site was not known to be contaminated and the direction of groundwater flow has not been confirmed under the land;
- 3) has no history of the land ever being used for anything other than low risk uses;
- 4) could be required by Council to provide an environmental site assessment if development is proposed.

On the basis of the above conclusions, the process of assessment adopted in this review of an adjacent high contamination site impacting an otherwise low risk site and that site triggering the need for an EAO may not


be accepted by the Panel at a hearing should it be challenged. However, in our opinion, the Panel for Moreland Planning Scheme Amendment C164 relied on a narrow interpretation of the definition of 'potentially contaminated' provided in Ministerial Direction No.1 to exclude land from the EAO. The methodology adopted in this review is in our opinion reasonable for determining whether sites are 'potentially contaminated' in accordance with our understanding of the intent of the Practice Note (DSE 2005) in relation to adjacent contaminating sites.

5.4.2 Review of GQRUZs

In assessing the potential risk of contaminated groundwater associated with an adjacent use migrating offsite and impacting the contamination risk of a low risk site, in the first instance a review was undertaken of areas where EPA has declared a Groundwater Quality Restricted Use Zone (GQRUZ) resulting from an Environmental Audit. The GQRUZ indicates an area of groundwater contamination from the audited site which is polluted and hence potentially restricts the ability of owners within the GQRUZ to use groundwater. Three GQRUZs which have been declared within the study area are shown in Table 7.

Table 7: Summary of Sites with Environmental GQRUZ

Property Number CARMS Number Address	Map of Groundwater Quality Restricted Use Zone (Source: EPA Interactive Portal)
7771 69010-2 479-485 Spencer St Legend: Highlighted Area: Audit Site Shaded Area: GQRUZ	
7493 58989-1 404-418 Spencer St Legend: Highlighted Area: Audit Site Shaded Area: GQRUZ	

Property Number CARMS Number Address	Map of Groundwater Quality Restricted Use Zone (Source: EPA Interactive Portal)
7808 73804-01 185 Rosslyn St Legend: Highlighted Area: Audit Site Shaded Area: GQRUZ	

It is noted that all three GQRUZs have an offsite component meaning the polluted groundwater from the site has migrated offsite. However, the EPA indicates on the GQRUZ declaration that the zone has been cleaned up to the relevant environmental standards as set out in the Environmental Audit but is still subject to restricted groundwater uses. As the EPA has declared that only the uses of groundwater are restricted within the zone, the impact on the use of adjacent land for sensitive uses is considered to be limited to the potential extraction and use of groundwater which is unlikely to occur to any significant extent in this area of urban Melbourne due to the availability of reticulated water. Given this, it is not considered that the existence of the three GQRUZs changes the contamination risk assessment of any of the adjacent sites overlying the GQRUZs.

5.4.3 Review of Other Potential Groundwater Polluting Sites

In further assessing the potential risk of contaminated groundwater impacting the contamination risk of an adjacent low risk site the following factors were considered in screening the remainder of the study area:

- The type of adjacent use and the likelihood of the presence of sufficient volumes of chemicals that could migrate via groundwater pathways and creating a potential vapour risk at the adjacent site or creating limitations around construction intersecting groundwater. In line with the descriptions provided in Table 2, such uses are considered to be:
 - Automotive repair/engine works
 - Bitumen Manufacturing
 - Chemical Manufacturing/storage/blending
 - Council Work Depot
 - Dry Cleaning
 - Electrical/electrical components manufacturer
 - Electroplating
 - Fuel storage depot
 - Gasworks

- Service station/fuel storage
- Tannery (and associated trades)
- Underground storage tanks

There are other sites on the list that could have groundwater contamination but in our experience these would typically be the main sources with more significant potential groundwater issues.

- The proximity of the potentially polluting site to the site being considered. Generally, only sites directly adjacent to the potential source site were considered to be potentially affected based on the likelihood of attenuation of the contamination as it moves away from the source;
- The likely direction of migration represented by the groundwater flow direction. Groundwater flow direction was estimated from surrounding information contained within the Environmental Audit reports.
- The age of the source. Uses that occurred early in the development of the area are less likely to be still be causing a potential impact to an offsite property compared to more recent sites.

Figure B1 in Appendix B illustrates the above review with the potential groundwater polluting sites highlighted as well as the potentially impacted sites being the immediately adjacent sites which would otherwise screen as low risk and No EAO would be applied. Also shown are the audit sites in the study area (CARMS No. shown) where groundwater depth and flow direction have been assessed.

Table B1 in Appendix B lists all of the potentially affected properties as shown in Figure B1 and provides an assessment of the risk of offsite impact from an adjacent source and the associated assessment of whether to apply an EAO to address this risk.

In summary of the 110 potentially affected properties adjacent to possible groundwater sources as listed in Table B1, seven have been assessed as being at potential risk from an adjacent offsite groundwater source and hence have been considered to require application of an EAO. These 7 are listed below in Table 8.

As outlined in Section 5.4.1, the methodology adopted for this adjacent site risk assessment has been developed by Golder for this review. Whilst the Practice Note (DSE 2005) notes that such a consideration should be made when considering whether to apply an EAO, no methodology or guidance is provided. In our opinion, the methodology adopted in this review is reasonable for determining whether sites are 'potentially contaminated' in accordance with our understanding of the intent of the Practice Note (DSE 2005) in relation to adjacent contaminating sites.

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Table 8: Summary of Properties Assessed as Having an Being Potentially Contaminated due to an Adjacent Contaminated Site

Property Number	Address	Adjacent Site with Potential Contaminating Use	Former Use of Adjacent Site	Approximate direction of property from adjacent potentially contaminated site	Expected Groundwater flow direction	Source of Groundwater information (CARMS)	Assessment of Risk	Screening Outcome
8784	117 Abbotsford Street	451-455 Victoria Street	Automotive repair/engine works	S	SW	63015-1	Site is located downgradient of potentially contaminating site	Apply EAO
7744	19 Stanley Street	17 Stanley Street	Automotive repair/engine works	SW	SW	46022-1	Site is located downgradient of potentially contaminating site	Apply EAO
6622	200 Stanley Street	161-167 Adderley Street	Automotive repair/engine works	SW	SW	63014-1	Site is located downgradient of potentially contaminating site	Apply EAO
8502	457-459 Victoria Street	451-455 Victoria Street	Automotive repair/engine works	SW	SW	63015-1	Site is located downgradient of potentially contaminating site	Apply EAO
6660	171 Roden Street	167-169 Roden Street	Automotive repair/engine works	SW	SW	63014-1	Site is located downgradient of potentially contaminating site	Apply EAO
7748	49-59 Stanley Street	31-47 Stanley Street	Automotive repair/engine works	SW	SW	46022-1	Site is located downgradient of potentially contaminating site	Apply EAO
7756	496-500 Spencer Street	67-69 Stanley Street	Automotive repair/engine works	SW	SW	46022-1	Site is located downgradient of potentially contaminating site	Apply EAO

6.0 RESULTS OF ASSESSMENT

A summary property sheet for each nominated property is provided in Appendix D. A summary of the property recommendations for application of an EAO is provided in Table 9 and shown in Figure 2. The summary has been divided into those properties currently used for sensitive and non-sensitive uses.

Table 9: Summary of EAO Recommendations

Type	Recommendation to Apply EAO	No Recommendation to Apply EAO	Total Number of Properties Reviewed
Properties currently used for Sensitive Uses	96	501	595
Properties currently used for Non-Sensitive Uses	196	151	349
Total No. of Properties	292	652	944

The Properties currently used for Sensitive Uses for which a recommendation to apply an EAO has been discussed with Council as part of this report preparation as it was recognised that if this recommendation is adopted, all building and works undertaken on these properties will require an Environmental Audit. Council has confirmed that it supports the application of an EAO on these sites in accordance with the methodology set out in this report because in the event that these sites are aggregated or redeveloped in future to allow a sensitive use to commence, in the absence of an Environmental Audit Overlay applying to the property, there would be no statutory mechanism in place to identify the status of this land as potentially contaminated.

These properties are specifically listed in Figure C1 in Appendix C and tabulated in Table C1 in Appendix C with the reason why the recommendation to Apply EAO has been made.

7.0 RECOMMENDATION

It is recommended that in line with the EPA recommendations set out in their letter in Appendix A that this report be used as a basis for reviewing the proposed approach by Council of applying an EAO over the entire West Melbourne Structure Plan study area as part of Amendment C309.

8.0 IMPORTANT INFORMATION

Your attention is drawn to the document titled - "Important Information Relating to this Report", which is included in Appendix E of this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.

Signature Page

Golder Associates Pty Ltd

A handwritten signature in black ink, appearing to read 'Ian Kluckow', written over a light grey rectangular background.

Ian Kluckow
Principal

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Figures



LEGEND

Environmental Audit Overlay (EAO)

Recommendation

Apply EAO

Do Not Apply

Study Area

NOTE(S)

PROJECTION: GDA 1994 MGA ZONE 55

REFERENCE(S)

1. AERIAL IMAGERY SOURCED FROM CITY OF MELBOURNE 2018 10CM ORTHOPHOTO.
2. ROADS SOURCED FROM VICMAP.

CLIENT

CITY OF MELBOURNE

PROJECT

AMENDMENT C309 - WEST MELBOURNE STRUCTURE PLAN,
PRELIMINARY LAND CONTAMINATION ASSESSMENT

TITLE

PLAN OF EAO RECOMMENDATIONS

CONSULTANT	YYYY-MM-DD	2019-04-17
	DESIGNED	TPC
	PREPARED	TPC
	REVIEWED	JPH
	APPROVED	IMK

PROJECT NO.	CONTROL	REV.	FIGURE
17113718	001-R	1	2

PATH: B:\City of Melbourne\West Melbourne Precinct\08_ PROJECTS\17113718-01-EAO_ PRODUCTION\A01\17113718-01-R-F002-56-A.mxd PRINTED ON: 2019-04-17 AT: 10:19:55 AM

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