



**GEOENVIRONMENTAL  
PRELIMINARY SITE INVESTIGATION  
FOR A PROPOSED ADDITIONAL USE  
(CHILD CARE FACILITY)  
AT**

**977 FOREST ROAD, LUGARNO**

**GEORGES RIVER COUNCIL LOCAL  
GOVERNMENT AREA**

Job number: 2354

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## Version 1

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Approved by		Date
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# Executive Summary

## Introduction

Anderson Environmental was engaged to conduct a Preliminary Site Investigation (PSI) for a proposed additional use as a Child Care Centre at 977 Forest Road, Lugarno within Georges River Local Government Area (LGA). Throughout this report this is referred to as the subject site.

The site is currently a church however there is an additional use proposed as a child-care centre for part of the building. The requirements of HIL-A under NEPM would apply for this application.

This assessment has been developed based on the *Contaminated Land Management Act 1997* (CLM Act), *The National Environment Protection (Assessment of Site Contamination) Measure 2013* (the “NEPM”) and Australian Standards (including AS4482). The report has been prepared in accordance with the NSW Office of Environment and Heritage (OEH) Guidelines for Consultants Reporting on Contaminated Sites, 2011. State Environmental Planning Policy 55 – Remediation of Land (SEPP 55) has also been used as a guideline in this assessment along with the NSW Environment Protection Authority (EPA) Guidelines for Consultants Reporting on Contaminated Sites, November 1997.

This report does not constitute a Site Audit Report as defined in the Guidelines for NSW Site Auditor Scheme (NSW Environment Protection Authority, 1998).

## Methodology

Assessment of the subject site consisted of two phases, a desktop study and a site inspection.

The desktop study considered a variety of sources to reconstruct the subject site history and the likelihood of current or past land contaminating material storage, activities or events which could impact on the subject site. Resources typically utilised in a PSI comprise:

- Historical aerial photography to identify any visual evidence of land contamination materials or practices on the subject site or surrounds. These are sourced from publicly available resources such as the SIX Maps service and the Google Earth historical imagery function. Historical imagery from 1947 onwards can also be obtained for a fee from the NSW LPI;
- Council records. A formal General Information Public Access (GIPA) request is the most frequently used method to access council records. This form requested previous Development Applications (DAs), register of business(es), formal complaints or any other document identifying or alluding to previous land use practices or events which could have land contamination potential;
- Section 149(2) planning certificate. This certificate provides the zoning of the property, its relevant state, regional and local planning controls and other property issues such as land contamination and road widening;
- Safework NSW Stored Chemical Information Database (SCID) and microfiche records search for the subject site;
- NSW Environmental Protection Authority (EPA) Contaminated Land Search Tool. This provides details and address(es) of all registered contaminated sites in NSW;

- NSW Department of Water (DW) borehole database; and
- NSW Land and Property Information (LPI) History of Title Transaction Search. This provides a record of land transactions for the subject site.

Not all of these sources are utilised or relevant to all PSI assessments. Due to availability of some resources for a particular site information is often obtained from a subset of these sources.

The site inspection was carried out on the 20/03/2020 by one Anderson Environmental staff member. This visit consisted of a walk-through inspection of the entire subject sites yard area documenting any items/indicators of potential land contamination concern (leaking chemical drums, fill piles of unknown origin, bare earth patches and stressed vegetation, oil slicks on hard surfaces or water etc.). The site inspection also involved the inspection of neighbouring areas from public available vantage points to determine any potential for contamination.

### **Results**

The inspection detected some areas of potential environmental concern. These were areas where there was some rubbish and other building materials along with a piece of potential ACM Material.

At the time of writing, the GIPA (General Information Public Access) had not been received back from Council.

### **Conclusion and recommendations**

Based on the results of this Preliminary Site Investigation (PSI) a Scoped Detailed Site Investigation (DSI) is considered necessary to address the potential for asbestos on some areas of the site.

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## **1. Introduction**

### **1.1 Background**

Anderson Environmental was engaged to conduct a Preliminary Site Investigation (PSI) for a proposed additional use as a Child Care Centre at 977 Forest Road, Lugarno within Georges River Local Government Area (LGA). Throughout this report this is referred to as the subject site.

The site is currently a church however there is an additional use proposed as a child-care centre for part of the building. The subject site had the main building constructed in the 1970's with the rear section added in 2002.

This assessment has been developed based on The *Contaminated Land Management Act 1997* (CLM Act), The National Environment Protection (Assessment of Site Contamination) Measure 2013 (the "NEPM") and Australian Standards (including AS4482). The report has been prepared in accordance with the NSW Office of Environment and Heritage (OEH) Guidelines for Consultants Reporting on Contaminated Sites, 2011. SEPP 55 has also been used as a guideline in this assessment along with the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites, November 1997.

This report does not constitute a Site Audit Report as defined in the Guidelines for NSW Site Auditor Scheme (NSW Environmental Protection Authority, 1998).

### **1.2 Aim and Scope of a PSI**

The aim of the investigation is to identify any potential modes of land contamination; on or off site and whether further assessment through a Detailed Site Investigation (DSI) is necessary.

This assessment comprises two parts, a desktop study and a physical site inspection. The desktop study considers a variety of available secondary resources including government databases and historical aerial imagery. A site inspection is conducted to identify potential (past and present) land contaminating issues, materials or processes present on the subject site. It consists of a walkthrough inspection of the entire subject site.

### **1.3 Subject site - identification, description, history, immediate and surrounding land uses**

The location of the subject site is shown in **Figure 1.1** below. The proposed development plan is provided as **Appendix 4**.

*Note: All figures in this report are to be considered indicative only. All distances, boundaries etc. should be checked against plans drafted by a certified surveyor.*



**Figure 1.1: Map of the subject site showing local context (sixmaps)**

The subject site is a large allotment located on the eastern side of Forest Road.

**Table 1.1** below details a reconstructed history for the site, from the NSW Land and Property Information (LPI) service, aerial photo analysis and historical records. Some of these records are the authors' interpretation of the available sources and should be considered as an indicative guide only.

**Table 1.1: Reconstructed site history**

Time period	Notes	Source
1947	Subject site appears to be cleared with some bushland	NSW Land and Property Information (LPI) service
2003-present	Little apparent change during this period.	Google Earth historical imagery tool

#### 1.4 Soils

The soils on the site are represented by the Lucas Heights Soil Landscape - 9130lh.

## **1.5 Geology**

Hawkesbury Sandstone laid down in a shallow sea during the Triassic period which ended 180 million years ago represents the Geology of the Lugarno area.

## **1.6 Hydrology**

The subject site contains no significant surface hydrological features such as ponds, dams, creeks or drainage lines.



## **2. Methodology**

### **2.1 Background Research**

Prior to conducting the site assessment, a variety of sources were consulted to establish site history, identify the potential for and likelihood of land contaminating events, materials or practices and potential contaminants of concern. Sources consulted during a PSI can include:

- Historical aerial photography to identify any visual evidence of land contamination materials or practices on the subject site or surrounds. These are sourced from publicly available resources such as the SIX Maps service and the Google Earth historical imagery function. Historical imagery from 1947 onwards can also be obtained for a fee from the NSW LPI service;
- Council records. A formal General Information Public Access (GIPA) request is the most frequently used method to access council records. This form can be used to request documents such as previous Development Applications (DAs), register of business(es), formal complaints or any other document identifying or alluding to previous land use practices or events which could have land contamination potential;
- Section 149(2) planning certificate. This certificate provides the zoning of the property, its relevant state, regional and local planning controls and other property issues such as land contamination and road widening;
- Safework NSW Stored Chemical Information Database (SCID) and microfiche records search for the subject site;
- NSW Environmental Protection Authority (EPA) Contaminated Land Search Tool. This provides details and address(es) of all registered contaminated sites in NSW;
- NSW Department of Water (DW) borehole database; and
- NSW LPI History of Title Transaction Search. This provides a record of land transactions for the subject site.

Not all these sources are utilised in all PSIs, due to availability of particular resources for a site or if sufficient information is obtained from a subset of these sources.

Site history can support the determination of contamination if evidence is found that the land was once occupied or in close proximity to practices that can result in contamination. Such land use activities include; agricultural practices, crops and livestock care; industrial practices, petrol stations and abattoirs; or individual, illegal dumping and onsite material storage.

### **2.2 Site Assessment**

The assessment of the subject site was carried out on the morning of the 20/03/2020 by Bo Davidson (M. of Environment, 2013).

Bo Davidson has completed the American Society for Testing and Materials (ASTM) E1527 Environmental Site Assessment for Commercial Real Estate course and the Contaminated Site Assessment, Remediation and Management (CSARM) module C/D; Assessment of Contaminants of Concern course run by the University of Technology Sydney (UTS).

The subject site was assessed on foot to determine any obvious signs of potential contamination based on landscape features, disturbance, and infrastructure. Evidence was then collected using photos or samples extracted, to determine whether further assessment in the form of a DSI would be required.

### 2.3 Risk Assessment

Risks were assessed according to the following criteria (**Table 2.1**).

**Table 2.1: Risk assessment criteria**

<b>Risk</b>	<b>Criteria</b>	<b>Evaluation</b>
<b>Negligible</b>	The presence of the identified source does not give rise to the potential to cause significant harm	
<b>Low</b>	Possible harm could arise to a designated receptor from an identified source though this is likely to be mild	
<b>Moderate</b>	Possible harm could arise to a specific receptor, but it is unlikely that such harm would be significant	
<b>High</b>	A designated receptor is likely to experience potentially significant harm from an identified source without remedial action	
<b>Very high</b>	There is a high probability that severe harm could arise to a designated receptor from an identified source without appropriate remedial action	Risk is potentially very high due to the potential for asbestos to be present.

### 3. Results

#### 3.1 Site assessment field observations

The subject site is composed largely of sealed areas with some exposed soil areas being present. Discussions with the client indicated that asbestos had been removed from the site previously. There was however a piece of potential ACM fragment detected on the property along with various areas where building materials had been dumped.



**Photo 1: Showing potential ACM fragment**





**Photo 2: Showing various building materials**

Table 3.1 below details the site assessment in the context of typical sources of land contamination concern.

**Table 3.1: Signs of potential contamination check list for the subject site**

<b>Land Contamination Signs</b>	<b>Presence of contamination and location</b>	<b>Description and condition</b>
<b>Signs of stressed vegetation</b>	Not Present	Present but potentially due to lack of water
<b>Property conditions or previous activities undertaken which could potentially cause contamination</b>	Previously asbestos has been removed from the site. Potential for asbestos to still be present and a risk. A piece of potential ACM was detected.	A piece of potential ACM was detected. There was various building material refuse in various areas of the property.
<b>The presence of surface or subsurface storage tanks, drums and other containers</b>	Not Present	Not Present
<b>Onsite waste water systems</b>	Not Present	Not Present
<b>Electrical equipment that may contain PCB</b>	Not Present	Not Present
<b>Building materials that may contain asbestos</b>	Previous removal of asbestos on site. A piece of potential ACM was detected.	A piece of potential ACM was detected. Potential that not all the ACM was removed from the site during the previous removal.

<b>Land Contamination Signs</b>	<b>Presence of contamination and location</b>	<b>Description and condition</b>
<b>Disturbed, coloured or stained soil</b>	Some exposed soil present with building material waste present in various parts of the site.	Present with sometimes just exposed soil and some areas with building material waste.
<b>Bare soil patches</b>	Present in some areas	Present in some areas
<b>Unusual odour</b>	Not detected with olfactory	Not detected with olfactory
<b>Current uses of the site and surrounding land</b>	Place of Worship and residential at rear	Place of Worship and residential at the rear. The original building is from the later 1960's to 1970's with the extension undertaken in 2002. Condition of the building from outside inspection appears sound.
<b>Quality of surface water</b>	No surface waters within the subject site or adjacent land	N/A
<b>Sheens on water surfaces</b>	No surface waters within the subject site or adjacent land	N/A
<b>Site topography and surface water drainage</b>	None located	Level
<b>The means of heating and cooling buildings on the site</b>	Reverse Cycle Air Conditioners	Reverse Cycle Air Conditioners
<b>Presence or absence of bonded asbestos-containing materials (bonded ACM) on the ground surface</b>	A piece of potential bonded ACM detected.	May be present based on the buildings age
<b>Presence of pits, ponds and lagoons</b>	Various stormwater pits for roof water detected	Ground pits to drain stormwater and roof water. Most of older age based on the types of metal grates present.
<b>Underground structures that may be associated with sub-surface contamination</b>	No underground structures or signs of their presence observed	N/A
<b>Condition of materials storage and handling facilities and any solid or liquid waste disposal areas</b>	Minor general storage of garage type oils etc in the rear garage as part of the dwelling	Negligible land contamination risk
<b>Any evidence of on-site spillage of dangerous goods and/or off-site migration</b>	No staining or evidence of uncontrolled release of chemical contaminants was evident.	Negligible land contamination risk

### 3.2 Aerial imagery assessment

Imagery data was procured from three sources:

- The NSW LPI service for the years of 1947.
- Google Earth historical imagery tool for the years of 2003 to present.

### 3.3 GIPA request, Council

A GIPA request was submitted to Council for recording relating to the site. At the time of writing, this request has not been completed. Any relevant documents or information will be included in future documentation and will be kept on file by Anderson Environmental. If any new information is provided once the GIPA request is completed, then this report will be amended accordingly.

### 3.4 History of title transaction search

Due to the long history of residential on the site as verified by previous records a chain of title was not undertaken.

### 3.5 Safework NSW records

A 'Site Search for Schedule 11 Hazardous Chemicals on Premises' was not requested from Safework NSW for this PSI.

Due to the information gained from other sources, this search was not considered necessary for the subject site.

### 3.6 NSW Environmental Protection Authority (EPA) contaminated land registry search

A search of the NSW EPA contaminated land registry was undertaken with the results provided below. None of the sites below are close enough to impact this site.

The screenshot displays the NSW EPA website interface. At the top, there is a navigation bar with links: "Your environment", "Reporting and incidents", "Licensing and regulation", and "Working together". Below this is the "Contaminated land" section header, followed by a search bar and navigation links: "Home", "Contaminated land", and "Record of notices".

The search results section shows the search criteria: "Your search for: LGA: GEORGES RIVER COUNCIL". It indicates that 3 notices were matched, relating to 2 sites. A table of results is provided:

Suburb	Address	Site Name	Notices related to this site
BLAKEHURST	390 Princes HIGHWAY	Woolworths Service Station Blakehurst	2 current
HURSTVILLE GROVE	Morshead DRIVE	Moore Reserve	1 current

Additional details on the page include "Page 1 of 1" and the date "31 March 2020". A sidebar on the left contains various links related to contaminated land management, such as "Management of contaminated land", "Consultants and site auditor scheme", and "Record of notices".

### **3.7 Anecdotal interview process**

An informal interview was conducted with the client. They provided some of the background information for the site.

## **4. Conclusions**

### **4.1 Conclusion**

Based on the results of this Preliminary Site Investigation (PSI) a Scoped Detailed Site Investigation (DSI) is considered necessary to address the potential for asbestos on some areas of the site.



## 5. References

AS4482.1 Guide to investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds (2005)

Australian and New Zealand Guideline for the Assessment and Management of Contaminated Sites, published by Australian and New Zealand Environment and Conservation Council (ANZECC) and the National Health and Medical Research Council (NHMRC), January 1992

Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Australian and New Zealand Environment and Conservation Council and Agriculture Resource Management Council of Australia and New Zealand

*Contaminated Land Management Act 1997*

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Paper 4, 2000 (ANZECC, 2000) Guideline for the Assessment and Management of Groundwater Contamination, NSW Department of Environment and Conservation, 2007 (now DECC)

Site Investigations for Urban Salinity by the Department of Land and Water Conservation (2002)

State Environmental Planning Policy 55 – Remediation of Land

## **6. Appendix 1: Disclaimer and Limitation of Liability**

The use of this report is for the client only and is based on an assessment of the site at the point in time of assessment. The material in this report reflects the judgement of Anderson Environmental Pty Ltd in light of background information and site conditions at the time of assessment and we take no responsibility for any database inaccuracies or other inaccuracies in background and or other information. The report is not to be reproduced or released to any other party, in whole or in part, without the express written consent of Anderson Environmental Pty Ltd. This report is Copyright protected and is not to be reproduced in part or whole or used by a third party without the express written permission of Anderson Environmental Pty Ltd. If you are not the client who commissioned this report or a local government authority for which approval is being sought as part of the formal DA process and are in possession of this report you are in breach of the law and we reserve the right to recover damages from any individuals, companies or other parties as a result of such breaches. Any use, which a third party makes of this report, or any reliance or discussions based on it, is the responsibility of such Third Parties and as outlined above is in breach of the law. Anderson Environmental and its staff accepts no responsibility for damages, if any, suffered by any third party because of decisions made or actions taken based on this report and reserves the right to recover damages from the third party from breaches as outlined above.

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## 7. Appendix 2: Definitions and Acronyms

**ABC** - Ambient background concentration

**ACM** - Asbestos-containing-material

**AEC** - Area of Environmental Concern

**AF** - Asbestos fines

**ASS** – Acid Sulphate soil

**AST**- Aboveground storage tank

**Background** – Is the natural ambient concentrations of substances in the general site area.

**Bonded ACM** – Bonded asbestos-containing materials

**BTEX** - benzene, toluene, ethyl benzene, total xylenes (monocyclic aromatic hydrocarbons)

**C<sub>10</sub>–C<sub>14</sub>** - Medium hydrocarbon chain groups

**C<sub>10</sub>–C<sub>36</sub>** - Medium and heavy hydrocarbon chain groups

**C<sub>15</sub>–C<sub>28</sub>** - Heavy hydrocarbon chain groups

**C<sub>29</sub>–C<sub>36</sub>** - Heavy hydrocarbon chain groups

**C<sub>6</sub>–C<sub>9</sub>** - Light hydrocarbon chain groups

**CMP** - Contaminant Management Plan

**COC** – Chain of custody

**DQI** – Data Quality Indicator

**DQO** – Data Quality Objective

**EIL** - Ecological investigation levels, which are the parameter thresholds for based on an environmental context.

**EPA** – Environmental Protection Authority

**ESA** - Environmental site assessment

**Fill material** - sand gravel clay ash and general building rubbish

**HAZMAT** – Hazardous Materials

**HIL** - Health investigation levels, which are the parameter thresholds based on a human health context.

**HIL A** Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children’s day care centers, preschools and primary schools

**HIL B** Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats

**HIL C** Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves) which should be subject to a site-specific assessment where appropriate

**HIL D** Commercial/industrial such as shops, offices, factories and industrial sites.

**m BGL** - Metres below ground level

**m BTOC** - Metres below top of casing

**OCP** - Organochlorine pesticides

**OPP** - Organophosphate pesticides

**PAH** - polycyclic aromatic hydrocarbon

**PCB** - polychlorinated biphenyls

**SAQP**- Sampling and analysis quality Plan

**SMF** - Synthetic Material Fibres

**SWL** - Standing water level

**TDS** – Total Dissolved Solids

**TPH** - Total petroleum hydrocarbons

**TRH** - Total recoverable hydrocarbons

**UPSS** - Underground Petroleum Storage System

**UST** - Underground storage tank

**VOC** – Volatile Organic Compounds

## 8. Appendix 3: Site photographs

**Photograph A3.1: Front of Building**





