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Project 76652.03
3 December 2019
R.001.Rev1
CKM

Attention: Mr David De Angelis

Email: davidd@catholiccemeteries.com.au

Contamination Cover Letter
Proposed Development - Nepean Gardens
Wallacia Golf Course, 13 Park Road, Wallacia, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Catholic Metropolitan Cemeteries Trust (CMCT) to prepare a cover letter for Wallacia Golf Course, 13 Park Road, Wallacia (the site, as shown on Drawing 1, Attachment 1).

DP previously completed a document titled *Report on Preliminary Site Investigation – Contamination, proposed Cemetery, Wallacia Golf Course, Wallacia, NSW* (ref.76652.02) (the PSI[1]) in 2017 for the site. The PSI was undertaken to investigate the potential contamination status of the site for a proposed redevelopment as a cemetery. The State Environment Planning Policy No. 55 -Remediation of Land and the Draft Remediation of Land SEPP, which are due to replace SEPP 55, have been considered when preparing this report. DP understands that since issue of the PSI, a new Development Application (DA) is to be submitted based on a revised proposed development, which includes a refurbished nine hole golf course, a renovated and expanded club house, and a reduced scale cemetery (as shown on *Wallacia Golf Course & Memorial Park Masterplan* provided in Attachment 1).

Due to the time that has lapsed since the completion of the PSI, a cover letter is required to confirm that the findings of the PSI were still valid, and to support the current DA.

This letter summarises the results of the PSI, and documents the findings of a site walkover and a review of aerial photographs undertaken to identify any changes and potential contamination to the site since issue of the PSI.

[1] DP Preliminary Site Investigation – Contamination, Proposed Cemetery, Wallacia Golf Course, Wallacia, NSW, Project 76652.02.R.001.Rev0 dated 6 June 2017 (the PSI)

2. Scope of Works

DP completed the following scope of works:

- Review of the PSI;
- Review of Nearmap aerial photography;
- Conducted a site walkover on 20 November 2019; and
- Preparation of this letter report.

3. Identification

The site covers an approximate area of 44 ha and comprises the following land parcels as detailed in Table 1 below.

Table 1: Study Area Identification

Lot / Deposited Plan	Current Land Use	Approx. Area (ha)
13 Park Road		
2 / 1108408	Golf course	42.7
512 / 1079728	Golf course	1.6
	Total Approximate Area	**44.3**

4. The PSI

The PSI (Attachment 2) was undertaken to provide preliminary contamination, salinity and acid sulfate soil information regarding the site for due diligence purposes, and to provide a background to support planning proposals for potential future redevelopment of the site as a cemetery.

A site walkover and a review of site history information was undertaken to identify Potential Areas of Environmental Concern (PAEC) and Potential Contaminants of Concern (PCOC) which may have arisen from current and previous land uses. Given the preliminary nature of the assessment, the investigation was limited to a site walkover, review of aerial photographs, NSW EPA database searches and listing of other potential site contamination issues based on DP's experience with sites of a similar nature and scale.

The investigation identified 15 PAEC at the site and immediately surrounding areas. The majority of PAEC were associated with the identification of the following:

- Current on-site sheds and demolition/removal of several former sheds. The environmental concern was due to potential for chemical storage and hazardous building materials used within the sheds;
- Possible burial of asbestos pipes given the age of the site and use as a golf course; and
- Areas of filling at the site.

The potential for contamination in PAEC associated with current/former sheds, pipe burial and filling was considered likely to be relatively localised in relation to the size of the site and presents a low to medium hazard rating. Further intrusive investigation was recommended to ascertain the extent of each PAEC and the presence or absence of related PCOC.

In addition to the above PAEC, given the site's use as a golf course, the use of fertilizers and pesticides is likely to have occurred. Whilst the likelihood of widespread fertilizer and pesticide contamination at the site was considered to be low, there is potential for localised hotspot contamination in the vicinity of former and current sheds due to storage/mixing malpractice and spillages; areas of spray equipment turning; tee boxes; and putting greens.

Noting the limited scope of works, the PSI considered that the potential risk of significant constraints to the proposed redevelopment of the site associated with land contamination, salinity and acid sulfate soils was low to medium.

Further assessment for contamination was recommended with reference to National Environment Protection Council (NEPC, 1999) National Environment Protection Council (Assessment of Site Contamination) Measure 1999 (amended 2013) (ASC NEPM). Further assessment was recommended to include intrusive investigations, sampling, analysis and assessment to determine land use suitability. Further investigations should focus principally on the identified PAEC.

A full list of PAEC identified in the PSI are provided in Table 2 (Attachment 4), and shown on Drawing 1 (Attachment 1).

5. Limited Historical Aerial Review

A limited review of recent Nearmap Aerial Photography (from July 2017 onwards) was undertaken for the site to identify areas where potential for site contamination may have occurred since the PSI field work was conducted in May 2017.

In summary, with the exception of usual greens maintenance (e.g. the topdressing of putting greens and grass cutting), no significant changes were observed during the aerial photograph review.

6. Site Walkover

A site walkover was conducted on 20 November 2019 to observe changes to the site since the issue of the PSI and identify PAEC potentially not observed during the PSI field work. Selected photographs taken during the walkover are provided in Attachment 3. The following was noted:

- Graded aggregate material, containing demolition waste (i.e. brick, tile and concrete) was observed along access tracks throughout the site. The presence of demolition waste was considered to be an indicator of potential asbestos, therefore the graded aggregate along access ways is assigned as PAEC 16 (Photograph 1);

- Two fragments of suspected bonded asbestos-containing material (ACM) was observed and collected from the surface of exposed fill within an access way (Photograph 2). Whole and partial bricks and concrete were also exposed on the surface (Photograph 3). Considering the presence of potential ACM, the access way is assigned as PAEC 17;
- Due to recent clearing of trees and shrubs, two aged metal sheds had been exposed in the northwest of the site since issue of the PSI (Photographs 4 and 5). The easternmost shed appeared to have been utilised as a storage area for miscellaneous materials including irrigation pipes and refuse, with two blue storage containers observed in the rear of the shed (Photograph 6). The westernmost shed was significantly dilapidated, and appeared to be no longer in use. Considering the apparent age of the sheds and thus the potential for the leaching of metals into the surrounding soils, and the potential storage and spillage of chemicals within the sheds (e.g. fuels, oils and pesticides), they have been assigned as PAEC 18;
- Several vegetated small stockpiles with trace refuse (i.e. brick and tin) were also observed in the vicinity of the sheds (Photographs 7 and 8). Due to the unknown composition of the stockpiles, contamination cannot be ruled out. Therefore the stockpiles have been assigned as PAEC 19;
- A concrete slab was observed in a drainage line on the boundary of the site. The presence of waste indicates that gullies across the site may have been used to dispose waste in the past. Considering this, gullies across the site have been identified as PAEC 20;
- No changes were observed for PAEC identified in the PSI; and
- The remainder of the site appeared as described in the PSI.

A summary of all PAEC (i.e. those identified in the PSI, and those identified as a part of the site walkover) is provided in Table 2 (Attachment 4).

7. Conclusion

The PSI had identified 15 PAEC that required further assessment to determine the suitability of the site for the proposed development. Based on the results of the site walkover, the following additional PAEC were identified for the site:

- PAEC 16 – Graded aggregate;
- PAEC 17 – Potential ACM-impacted fill;
- PAEC 18 – Metal sheds/storage areas;
- PAEC 19 – Stockpiles; and
- PAEC 20 – Surficial waste in fill gully.

No PAEC were identified during the Nearmap aerial photograph review. No changes were observed for PAEC identified in the PSI.

Therefore, considering the presence of PAEC, and as per the PSI, DP recommends that further assessment for contamination should be undertaken at the site with reference to the ASC NEPM. Further assessment should include intrusive investigations, sampling, analysis and assessment to determine land use suitability. Further investigations should focus principally on the identified PAEC.

In the event that contamination is identified at the site during further investigations, a remediation action plan is to be prepared to detail remediation requirements, as per the State Environment Planning Policy No. 55 -Remediation of Land and the Draft Remediation of Land SEPP.

8. Limitations

Douglas Partners Pty Ltd (DP) has prepared this cover letter for this project at Wallacia Golf Course, 13 Park Road, Wallacia in accordance with DP's proposal MAC190342 dated 19 November 2019 and acceptance received from Mr David De Angelis dated 19 November 2019. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Reviewed by

Cindy Murphy
Environmental Scientist

pp for: **Dean Woods**
Senior Associate

Attachment 1: Drawing 1
Wallacia Golf Course & Memorial Park Masterplan
Attachment 2: The PSI
Attachment 3: Photographic Plates
Attachment 4: Table 2

Attachment 1

Drawing 1
Wallacia Golf Course & Memorial Park Masterplan

Site Locality

Legend

- site boundary
- PAEC identified in the PSI
- PAEC identified during the walkover

Nearmap Aerial Photograph dated 29 October 2019

0 100 200 300 400 m

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CLIENT: Catholic Metropolitan Cemeteries Trust		
OFFICE: Macarthur	DRAWN BY: CKM	
SCALE: As shown	DATE: 20.11.19	

TITLE: **SIte Locality and PAEC Contamination Cover Letter**
Wallacia Golf Course, 13 Park Road, Wallacia

MGA

PROJ. #:	76652.03.R.001
DRAWING No:	1
REVISION:	0

Wallacia Golf Course & Memorial Park Masterplan

PARK ROAD, WALLACIA

LEGEND

- EXISTING TREES
- PROPOSED STREET TREES
- PROPOSED INDIGENOUS TREES
- SCREEN PLANTING (MEDIUM)
- BUFFER PLANTING (TALL)
- LAWN
- WATER BODIES
- EXISTING WATERCOURSES
- PROPOSED ROADS AND CARPARKS
- PROPOSED PATH
- BUILDINGS
- FAIRWAYS
- SCULPTURE
- SITE BOUNDARY

0 50 100m

SCORECARD

Hole	Par	Length
1	4	360mtrs
2	4	268
3	4	305
4	3	155
5	5	460
6	3	140
7	4	356
8	4	363
9	5	463
OUT	36	2870

Hole	Par	Length
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	–
IN	0	0
OUT	36	2870
TOTAL	36	2870

Lengths in metres

Attachment 2

The PSI

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Integrated Practical Solutions

Report on
Preliminary Site Investigation - Contamination

Proposed Cemetery
Wallacia Golf Course, Wallacia, NSW

Prepared for
Catholic Metropolitan Cemeteries Trust

Project 76652.02
June 2017

Douglas Partners
Geotechnics / Environment / Groundwater

Document History

Document details

Project No.	76652.02	Document No.	R.001.Rev0
Document title	Report on Preliminary Site Investigation - Contamination Proposed Cemetery		
Site address	Wallacia Golf Course, Wallacia, NSW		
Report prepared for	Catholic Metropolitan Cemeteries Trust		
File name	76652.02.R.001.Rev0		

Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Grant Russell	J.M. Nash	6 June 2017

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0			John Richardson

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		6 June 2017
Reviewer	FOR J.M.Nash.	6 June 2017

bsi. ISO 9001 Quality Management

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Executive Summary

Douglas Partners Pty Ltd (DP) was commissioned by Catholic Metropolitan Cemeteries Trust (CMCT) to prepare a Preliminary Site Investigation (PSI) for the site located at 13 Park Road, Wallacia, NSW (the site). Land use at the site currently includes a golf course and associated amenities. DP understands that the assessment is required as part of a pre-purchase due diligence exercise, and to provide a background to support planning proposals for potential future redevelopment of the site as a cemetery.

The aim of the PSI is to provide preliminary contamination, salinity and acid sulphate soil information regarding the site. DP notes that the scope of works completed as part of the assessment is limited due to the confidential due diligence nature of the assessment, as requested by CMCT.

A site walkover and a review of site history information was undertaken to identify Potential Areas of Environmental Concern (PAEC) and Potential Contaminants of Concern (PCOC) which may arise from previous land uses. Given the reduced scope (based on the confidential nature of the assessment) the investigation was limited to a site walkover, review of aerial photographs, NSW EPA data base searches and listing of other potential site contamination issues based on DP experience with sites of a similar nature and scale.

The investigation identified 15 PAEC at the site and immediately surrounding areas. The majority of PAEC are associated with the identification of the following:

- Current onsite sheds and demolition / removal of several former sheds. The environmental concern is due to potential for chemical storage and hazardous building materials used within sheds;
- Possible burial of asbestos pipes given the age of the site and use as a golf course; and
- Areas of filling at the site.

The potential for contamination in PAEC associated with current / former sheds, pipe burial and filling is considered likely to be relatively localised in relation to the size of the site and presents a low to medium hazard rating (hazard rating of 1 to 2). Further intrusive investigation however is recommended to ascertain the extent of each PAEC and the presence or absence of related PCOC.

In addition given the site's use as a golf course for the past 40 years the use of fertilizers, pesticides and herbicides at the site is likely to have occurred. Whilst the likelihood of widespread fertilizer, pesticide and herbicide contamination at the site is considered to be low there is potential for localised hotspot contamination in the vicinity of former and current sheds due to storage / mixing malpractice and spillages; areas of spray equipment turning; tee boxes; and putting greens.

Noting the limited scope of works, DP considers that the potential risk of significant constraints to the proposed redevelopment of the site associated with land contamination, salinity and acid sulphate soils is low to medium.

With respect to site contamination the recommended further assessment should build on the information provided in this report with reference to National Environment Protection Council (NEPC, 1999) National Environment Protection Council (Assessment of Site Contamination) Measure 1999 (amended 2013) (NEPC, 2013). Further assessment should include intrusive investigations, sampling,

analysis and assessment to determine land use suitability. Further investigations should focus principally on the identified PAEC.

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Report on Preliminary Site Investigation - Contamination
Proposed Cemetery
Wallacia Golf Course, Wallacia, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Catholic Metropolitan Cemeteries Trust (CMCT) to prepare a Preliminary Site Investigation (PSI) for the site located at 13 Park Road, Wallacia, NSW (the site) as shown on Drawing 1 (Appendix A). DP understands that the assessment is required as part of a pre-purchase due diligence exercise, and to provide a background to support planning proposals for potential future redevelopment of the site as a lcemetery.

The site covers an approximate area of 44 ha and is located within the Local Government Area of Penrith City Council. Land use at the site currently includes a golf course and associated amenities.

The aim of the PSI is to provide preliminary contamination, salinity and acid sulphate soil information regarding the site. DP notes that the scope of works completed as part of the assessment is limited due to the confidential due diligence nature of the assessment, as requested by CMCT.

2. Scope of Works

The PSI included completion of the following scope of works:

- Undertaking a site visit and walkover to identify Potential Areas of Environmental Concern (PAEC);
- Review of local topographic, soil, geological, salinity and acid sulphate soils mapping;
- Search of the NSW EPA Land Information records to confirm that there are no statutory notices current on any parts of the site under the *Contaminated Land Management Act (1997)*;
- Search for groundwater bores on or adjacent to the site registered with the NSW Office of Water;
- Review of historical aerial photography for the area through the Land Information Section of the NSW Department of Planning;
- Determination of PAEC based on the review of aerial photographs and site inspection. Each PAEC was assessed individually to infer associated risk and hazard ratings; and
- Recommend requirements for future contamination, salinity and geotechnical investigations at the site.

3. Site Description

3.1 Site Identification

The site covers an approximate area of 44 ha and comprises the following land parcels as detailed in Table 1 below.

Table 1: Study Area Identification

Lot / Deposited Plan	Current Land Use	Approx. Area (ha)
13 Park Road		
2 / 1108408	Golf course	42.7
512 / 1079728	Golf course	1.6
	Total Approximate Area	**44.3**

3.2 Site Description

The following site description is based on site inspection completed on 30 May 2017 and review of Nearmap Imagery.

The site is an irregular shaped property that comprises the Wallacia (Panthers) Golf and Country Club. The majority of the site is covered by grass covered fairways and putting greens. Several of the T-Boxes and putting greens were observed to be slightly elevated in relation to the surrounding topography indicating localised filling. A club house building is located in the far south western portion of the site and is constructed of timber board and brick walls, glass windows, ceramic tiled roofing and a concrete slab floor. An asphalt sealed carpark is located to the immediate south and west of club house and is accessed via an asphalt sealed driveway leading from Park Road located to the south of the site.

A shed is located in the central southern portion of the site and is constructed of corrugated steel walls and roofing upon a concrete slab floor. The steel shed appears to be used as greens keeper maintenance shed used for the storage of equipment such as ride on lawn mowers, spraying equipment and chain saws. Minor fuel/ oil and herbicide storage was observed within the southern portion of the shed. An electricity generator and large spraying equipment was observed adjacent to the north western corner of the shed.

Two 1000L above ground storage tanks (ASTs) were observed immediately adjacent to the exterior of northern wall of the shed. One AST was labelled as containing diesel while the other AST was labelled as containing petroleum. The AST area was underlain by a concrete slab and the concrete was stained in the vicinity of both ASTs. The concrete area underlying the ASTs was bunded on the down gradient western edge of the slab.

One man made dam is located in the far north western portion of the site and two manmade dams are located in the north eastern portion of the site. The dam walls and areas immediately surrounding all three of the dams appeared to have been filled as part of construction of the dams. A number of nearby gulleys also appear to have minor filling. A creek runs from one of the dams in the north

eastern portion of the site in an east-west direction along portions of the northern boundary of the site. Another small creek runs through the western portion of the site in a south-north direction. Both creeks appear to flow towards the Nepean River located to the west and northwest of the site.

A telecommunications tower is located nearby the dams in the north eastern portion of the site.

3.3 Surrounding Landuse

Site inspection and review of Nearmap imagery identified the following surrounding landuse:

North:	Rural residential properties.
East:	Rural residential properties.
South (eastern section):	Park Road, beyond which are mostly rural residential properties. A commercial water tank and pump business was observed immediately adjacent to the southeast boundary of the site where minor oil storage was observed in the storage yard.
South (western section):	Residential property, rural fire fighting service facility and a church, beyond which is Park Road and residential properties.
West:	Commercial and residential properties beyond which is Mulgoa Road. To the west of Mulgoa Road is a Caltex petrol station, post office, a school and residential properties.

3.4 Topography, Watercourses and Hydrology

Reference to the 1:100 000 Penrith topographic Series Sheet indicates that the site grades from approximately 70 m above Australian High Datum (AHD) in the east to approximately 40 m AHD in the west. The landform conforms to intermittent tributaries of Jerry's Creek which meander from east to west to meet the Nepean River approximately 300 m west of site boundary. A number of farm dams are present within the site along the lengths of Jerry's Creek.

Topographic contours and watercourses within and surrounding the site are shown on Drawing 2 (Appendix A).

A search of the NSW Office of Water groundwater bore data was undertaken by DP on 30 May 2017 and identified four bores within 1km of the site as shown on Drawing 2 (Appendix A) and detailed in Appendix B. Table 2 below provides a summary of information for each bore.

Table 2: Summary of Groundwater Bore Search

Bore ID	Approx. Distance (m) / Direction from Site	Date of Installation	Bore Use	Total Depth (m)	Depth of Water Bearing Zones (m)
GW109120	South / 100 m	25/07/2008	Domestic Stock	180 m	None Provided
GW075144	Southwest / 400 m	14/07/2008	Monitoring Bore	10.6 m	None Provided
GW075161	Southwest / 450 m	06/08/2007	Test Bore – Town Water Supply	300 m	At 17-18 m and multiple below 126 m
GW075162	Southwest / 500 m	03/08/2007	Monitoring Bore	24 m	At 10.5 – 11 m

With the exception of GW109120, all wells are down hydraulic gradient of the site.

3.5 Regional Geology and Soils

Reference to the 1:100 000 Penrith Geological Series Sheet indicates that the majority of the site (as shown on Drawing 3, Appendix A) is underlain by Bringelly Shale (mapping unit Rwb) of the Wianamatta Group of Middle Triassic period. This formation typically comprises shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff. An area of fluvial sediments (mapping unit Qa1) of the Quaternary period is present within the south-western portion of the site associated with the alignment of a tributary of Jerry's Creek. This formation typically comprises fine grained sand, silt and clay.

The Penrith 1:100,000 Soils Landscape Sheet indicates that the majority of the site (as shown on Drawing 4, Appendix A) is within the Luddenham Soil Landscape which is associated with erosional processes. Limitations associated with the Luddenham Soil Landscape include high erosion hazard, localised impermeable plastic subsoil and moderate reactivity.

An area of the Richmond Soil Landscape is present in part of the southern-western portion of the site which is associated with alluvial processes and a tributary to Jerry's Creek. Limitations associated with the Richmond Soil Landscape include high erosion hazard on terrace edges and localised flooding. The south-western most portion of the site comprises the Blacktown Soil Landscape which is associated with residual soil processes. Limitations associated with the Blacktown Soil Landscape include moderately reactive highly plastic subsoil, low soil fertility and poor soil drainage.

3.6 Salinity

According to the Department of Infrastructure Planning and Natural Resources (DIPNR, 2002) '*Salinity Potential in Western Sydney*' map, the study area is categorised as having 'Moderate Salinity Potential'. This zone is described as *'Areas on the Wianamatta Group Shales and Tertiary Alluvial Terraces. Scattered areas of scalding and indicator vegetation have been noted but no concentrations have been mapped. Saline areas may occur in this zone, which have not been identified or may occur if risk factors change adversely.'*

3.7 Acid Sulphate Soils

Review of NSW Government Office of Environment and Heritage Acid Sulphate Soils Risk mapping indicates that the site is classified as having *'no known occurrence of acid sulphate soil'.*

3.8 Sensitive Receptors and Environments

The nearest sensitive receptors and environments have been identified as follows:

- The nearest residential properties are located on Park Road and Mulgoa Road immediately adjacent to the site's southern and western boundaries respectively;
- A school is located approximately 60m west of the south-western site boundary beyond Mulgoa Road;
- The primary environmental receptor down-gradient of the site is Jerry's Creek which flows to the Nepean River approximately 300 m west of the site boundary;
- Groundwater beneath the site;
- Current and future site workers; and
- Future site visitors.

4. Review of Site History Information

A review of site history information has been undertaken to identify PAEC and contaminants of concern which may arise from previous land uses. Given the reduced scope (based on the confidential nature of the assessment) the investigation was limited to a review of aerial photographs, NSW EPA data base searches and listing of other potential site contamination issues based on DP experience with sites of a similar nature and scale.

The following sections detail the methodology of the investigation.

4.1 Historical Aerial Photography

Historical aerial photographs were reviewed to assist in identifying the history of the site and the surrounding area. Images from 1942, 1961, 1975, 1986, 1998, 2002 and 2005 were sourced from NSW Land and Property Information. Additionally, a 2014 image was sourced from Nearmaps. All aerial photographs are provided in Drawings 5 to 12 respectively (Appendix A).

A summary of the review of historical aerial photography is detailed in the following table.

Table 3: Summary of Review of Historical Aerial Photographs

Year	Site / Surrounds	Description
1942	Site	The majority of the site is vacant grass covered cleared land that appears to be used for grazing purposes. Two small shed like structures are located adjacent to the western boundary of the site. A creek runs through the western portion of the site in a south-north direction. Remnant native vegetation lines the banks of the creek. A cluster of remnant native vegetation with several larger trees exists in the north eastern portion of the site.
	Surrounds	North – The majority of land appears to be vacant cleared land used for grazing purposes East - The majority of land appears to be vacant cleared land used for grazing purposes South – Park Road has been constructed to the immediate south of the site. Land beyond to the south appears to be vacant cleared land used for grazing purposes West – Land to the immediate southwest of the site appears to have been developed for residential and commercial purposes and several dwellings have been constructed. Land to the immediate northwest appears to be vacant cleared land used for grazing purposes. Mulgoa Road has been developed beyond to the west with residential dwellings and vacant cleared land located beyond.
1961	Site	The site appears to have been developed into a golf course. A number of greens have been developed in the central and eastern portions of the site. A small shed like structure appears to have been constructed in the central portion of the site. The small shed structure in the central portion of the western boundary appears to have been demolished and removed from site. The small shed like structure in the far south western corner of the site appears to have had undergone extension works added adjacent to the eastern and northern walls of the structure. A large man made dam has been constructed in the north eastern portion of the site. The remainder of the site appears similar to the previous historical aerial photograph.
	Surrounds	North – A small shed like structure has been constructed adjacent to the northwest boundary of the site. The majority of the remainder of the land appears similar to the previous aerial photograph. East - The majority of the land appears similar to the previous

Year	Site / Surrounds	Description
		aerial photograph. South – The majority of the land appears similar to the previous aerial photograph. West – There appears to be further residential development adjacent to the western boundary of the site. The majority of the remainder of the land appears similar to the previous aerial photograph.
1975	Site	The small shed previously identified in the central portion of the site appears to have been demolished and removed from site. A number of trees appear to have been planted lining the fairways of the golf course. The remainder of the site appears similar to the previous historical aerial photograph.
	Surrounds	The majority of the land surrounding the site appears similar to the previous aerial photograph.
1986	Site	A manmade dam has been constructed in the north western portion of the site and another smaller manmade dam constructed in the north eastern portion of the site. The remainder of the site appears similar to the previous historical aerial photograph.
	Surrounds	A number of rural residential properties have been developed to the southeast of the site and further residential development has occurred to the southwest and west of the site. The majority of the remaining land surrounding the site appears similar to the previous aerial photograph.
1998	Site	A shed like structure appears to have been constructed in the central portion of the site. Areas of ground disturbance appear in the north eastern portions of the site. The remainder of the site appears similar to the previous historical aerial photograph.
	Surrounds	The majority of the land surrounding the site appears similar to the previous aerial photograph.
2002	Site	An area of ground disturbance appears in the north western portions of the site. The remainder of the site appears similar to the previous historical aerial photograph.
	Surrounds	A service station appears to have been constructed beyond Mulgoa Road to the west of the site. The majority of the remaining land surrounding the site appears similar to the previous aerial photograph.
2005	Site	Area of ground disturbance appears in the far northern and south

Year	Site / Surrounds	Description
		western portions of the site. The remainder of the site appears similar to the previous historical aerial photograph.
	Surrounds	The majority of the land surrounding the site appears similar to the previous aerial photograph.
2014	Site	The site appears similar to the previous historical aerial photograph.
	Surrounds	An area to the immediate north of the central portion of the site appears to be used for cropping / market gardening purposes The majority of the remaining land surrounding the site appears similar to the previous aerial photograph.

4.2 Regulatory Notices Search

A search of the NSW EPA website on 22 May 2017 indicated that:

- No Licences have been issued for the site (or immediately adjacent sites) under the Protection of the Environment Operations Act, 1997;
- No Notices or Orders to investigate or remediate the site (or immediately adjacent sites) have been issued for the site under the Contaminated Land Management Act, 1997; and
- The site (or immediately adjacent sites) is not recorded on the list of NSW contaminated sites reported to the EPA.

Search results are presented in Appendix C.

4.3 Review of Previous Environmental Reports

No previous environmental reports incorporating the site were provided to DP for the purposes of the PSI.

5. Potential for Areas of Environmental Concern

Table 3 below lists the 15 PAEC identified during the review of historical aerial photographs and site inspection. The Caltex Service Station located on the western side of Mulgoa Road is also listed as a PAEC (PAEC 15) based on its proximity to the site and possibility that fuel leakage may occur or may have occurred in the past.

For each PAEC, the likelihood of occurrence and a hazard ranking has been estimated. For the purpose of this due diligence investigation hazard rankings are based on the potential areas across which the PAEC are estimated to occur, as outlined below.

Hazards Rankings:

1 = Potential impact area <100 m^2 (approx.)
2 = Potential impact area between 100 m^2 and 1000 m^2 (approx.)
3 = Potential impact area between 1000 m^2 and 1 ha (approx.)
4 = Potential impact area >1 ha (approx.)

It should be noted that hazard rankings are based primarily on potential area affected therefore a ranking of 4 represents a greater potential impacted hazard area than a rating of 1 or 2. The concentrations of potential contaminants of concern (PCOC) found in an area may also increase or decrease a hazard rating but have been given significantly less weighting in this calculation of potential hazard. The expected concentrations of PCOC cannot be given a more significant weighting in hazard calculations without further intrusive investigations.

Table 3: Summary of Identified Potential Areas of Environmental Concern

PAEC #	Identified from	Brief Description	Potential Environmental Concern	Potential Contaminants of Concern (PCOC)	Likelihood	Hazard
1	1947 AP	Structure (possible dwelling) – potentially demolished prior to 1961 or extended to form current building (golf course club house).	Impacted surface soil – construction and demolition debris (possibly including asbestos), and use of pesticides and lead based paints.	Metals, OCP, OPP and Asb.	50%	1
2	1947 AP	Former structure (possible shed) – demolished prior to 1975.	Impacted surface soil – construction and demolition debris (possibly including asbestos), use of pesticides and lead based paints, and storage of chemicals.	Metals, TRH, PAH, phenols, OCP, OPP and Asb.	50%	1
3	1961 AP	Potential former structure (type unknown) – not present in 1975 AP.	Impacted surface soil.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asb.	10%	1
4	1961 – 1986 AP	Former structures (small dwellings or sheds) – demolished prior to 1998.	Impacted surface soil – construction and demolition debris (possibly including asbestos), use of pesticides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asb.	75%	2
5-1	1975 – current AP	Golf course – existing in current.	Asbestos pipes.	Asb	75%	2
5-2			Application of pesticides herbicides and fertilisers to tees and greens.	Metals, fertilisers and OCPs	90%	2
5-3			Broad-scale application of fertilisers herbicides and pesticides*.	Metals and fertilisers, OCP and OPP	25%	2*

PAEC #	Identified from	Brief Description	Potential Environmental Concern	Potential Contaminants of Concern (PCOC)	Likelihood	Hazard
5-4			Filling of creeks and gullies with impacted material from an unknown source	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asb.	50%	1-3
6	1975 – 2002 AP	Residential dwellings and sheds (two lots) developed between prior to 1975 and 2002. Western lot demolished prior to 2005 and converted to car-parking area.	Impacted surface soil – construction and demolition debris (possibly including asbestos), use of pesticides, herbicides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asb	75%	2
7	1986 – 1998 AP	Hardstand car parking area developed between prior to 1986 and 1998 – existing in current AP.	Elevated PAH concentrations in asphaltic concrete.	PAH	10%	2
8	1986 AP	Former structure (possible shed) – demolished prior to 1998.	Impacted surface soil – construction and demolition debris, use of pesticides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asb.	25%	1
9	1998 AP	Shed (golf course maintenance) - existing in current AP and observed during site inspection.	Impacted surface soil – use of pesticides, and storage of chemicals (two 1000L ASTs observed adjacent to shed).	Metals, BTEX, TRH, PAH, phenols, OCP and OPP.	50%	2
10	1998 AP	Ground disturbance.	Impacted filling from an unknown source	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asb.	25%	1

PAEC #	Identified from	Brief Description	Potential Environmental Concern	Potential Contaminants of Concern (PCOC)	Likelihood	Hazard
11	2002 AP	Ground disturbance.	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asb.	50%	1
12	2005 AP	Ground disturbance.	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asb.	50%	2
13	2005 AP	Ground disturbance.	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asb.	50%	2
14	Current AP	Adjacent potential market garden.	Application of fertilisers, pesticides and herbicides.	Metals, fertilisers, OCP and OPP.	35%	3
15	Proximity to the site.	Petrol Service Station (down hydraulic gradient of the site)	Migration of hydrocarbon impacted groundwater onto the site	Metals, BTEX and TRH.	<5%	1-2

Notes:

Metals = *arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn).*

TRH = *Total recoverable hydrocarbons.*

BTEX = *Benzene, toluene, ethylbenzene and xylenes.*

PCB = *Polychlorinated biphenyls.*

PAH = *Polycyclic aromatic hydrocarbons.*

OCP = *Organochlorine pesticides.*

OPP = *Organophosphorous pesticides.*

Asb. = *Asbestos.*

AP = *Aerial Photograph(s).*

* = *Hazard rating reduced due to low likelihood of broad scale application of pesticides given sites use as a golf course and not used for intensive agricultural purposes*

6. Summary of Findings

A summary of the findings of the PSI, based on the completed scope of works is provided below:

- 15 PAEC where identified at the site and immediately surrounding areas (PAEC 1 to PAEC 15);
- Six PAEC were inferred to have hazard rating of 1 (potential impact area <100 m^2);
- Ten PAEC were inferred to have hazard rating of 2 (potential impact area between 100 m^2 and 1000 m^2); and
- Two PAEC were inferred to have hazard rating of 3 (potential impact area between 1000 m^2 and 1 ha).

The site is categorised as having a moderate salinity potential and no known or likely occurrence of acid sulphate soils.

7. Conclusions and Recommendations

The investigation identified 15 PAEC at the site and immediately surrounding areas. The majority of PAEC are associated with the identification of the following:

- Current onsite sheds and demolition / removal of several former sheds. The environmental concern is due to potential for chemical storage and hazardous building materials used within sheds;
- Possible burial of asbestos pipes given the age of the site and use as a golf course; and
- Areas of filling at the site.

The potential for contamination in PAEC associated with current / former sheds, pipe burial and filling is considered likely to be relatively localised in relation to the size of the site and presents a low to medium hazard rating (hazard rating of 1 to 2). Further intrusive investigation however is recommended to ascertain the extent of each PAEC and the presence or absence of related PCOC.

In addition given the site's use as a golf course for the past 40 years the use of fertilizers, pesticides and herbicides at the site is likely to have occurred. Whilst the likelihood of widespread fertilizer, pesticide and herbicide contamination at the site is considered to be low there is potential for localised hotspot contamination in the vicinity of former and current sheds due to storage / mixing malpractice and spillages; areas of spray equipment turning; tee boxes; and putting greens.

Noting the limited scope of works, DP considers that the potential risk of significant constraints to the proposed redevelopment of the site associated with land contamination, salinity and acid sulphate soils is low to medium.

With respect to site contamination the recommended further assessment should build on the information provided in this report with reference to National Environment Protection Council (NEPC, 1999) National Environment Protection Council (Assessment of Site Contamination) Measure 1999 (amended 2013) (NEPC, 2013). Further assessment should include intrusive investigations, sampling, analysis and assessment to determine land use suitability. Further investigations should focus principally on the identified PAEC.

8. References

1. Department of Infrastructure Planning and Natural Resources (DIPNR, 2002) '*Salinity Potential in Western Sydney*' map.
2. Nearmap website, https://go.nearmap.com/
3. NSW Department of Planning and Environment - Resources and Energy, Geological Survey of NSW 1:100 000 Penrith Geological Series Sheet 9030.
4. NSW Department of Primary Industries Office of Water website http://allwaterdata.water.nsw.gov.au/water.stm
5. NSW Government Office of Environment and Heritage Acid Sulphate Soils Risk Maps
6. NSW Land and Property Information, Historical Aerial Photographs for Wallacia for years 1942, 1961, 1975, 1986, 1998, 2002 and 2005.

9. Limitations

Douglas Partners (DP) has prepared this report (or services) for this project at 13 Park Road, Wallacia NSW in accordance with DP's proposal dated 15 May 2017 and acceptance received from dated 15 May 2017. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of CMCT for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attachments/appendices and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

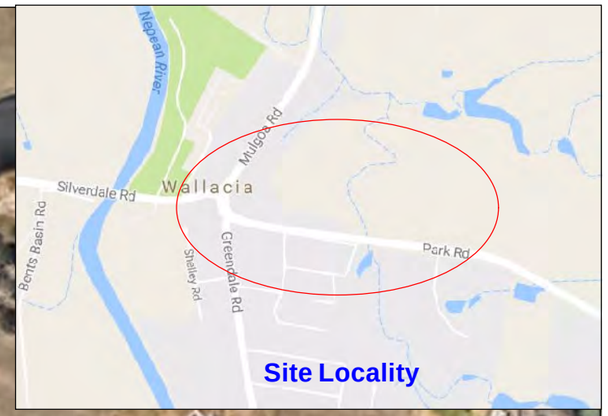
The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Drawings

PAEC;_2014_PAEC,...,lot_boundary



Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Site Locality and Boundary Preliminary Site Investigation 13 Park Road, Wallacia NSW
OFFICE: Macarthur	DRAWN BY: GAR	
SCALE: As shown	DATE: 25.5.2017	

MGA

PROJ No: 76652.02.R1
DRAWING No: 1
REVISION: A

PAEC_2014_PAEC_..._lot_boundary

GW075161

GW075162

GW075144

GW109120

Legend

- Site Boundary
- Water Course
- 10 m contour
- Groundwater Bore

0 500.0

metres

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Topography, Water Courses and Groundwater Bores Preliminary Site Investigation 13 Park Road, Wallacia NSW
OFFICE: Macarthur	DRAWN BY: GAR	
SCALE: As shown	DATE: 25.5.2017	

N
MGA

PROJ No:	76652.02.R1
DRAWING No:	2
REVISION:	A

PAEC;_2014_PAEC,...,lot_boundary

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust	TITLE: Regional Geological Landscape Preliminary Site Investigation 13 Park Road, Wallacia NSW	PROJ No: 76652.02.R1
OFFICE: Macarthur	DRAWN BY: GAR	DRAWING No: 3
SCALE: As shown	DATE: 25.5.2017	REVISION: A

MGA

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Regional Soil Landscape Preliminary Site Investigation 13 Park Road, Wallacia NSW
OFFICE: Macarthur	DRAWN BY: GAR	
SCALE: As shown	DATE: 25.5.2017	

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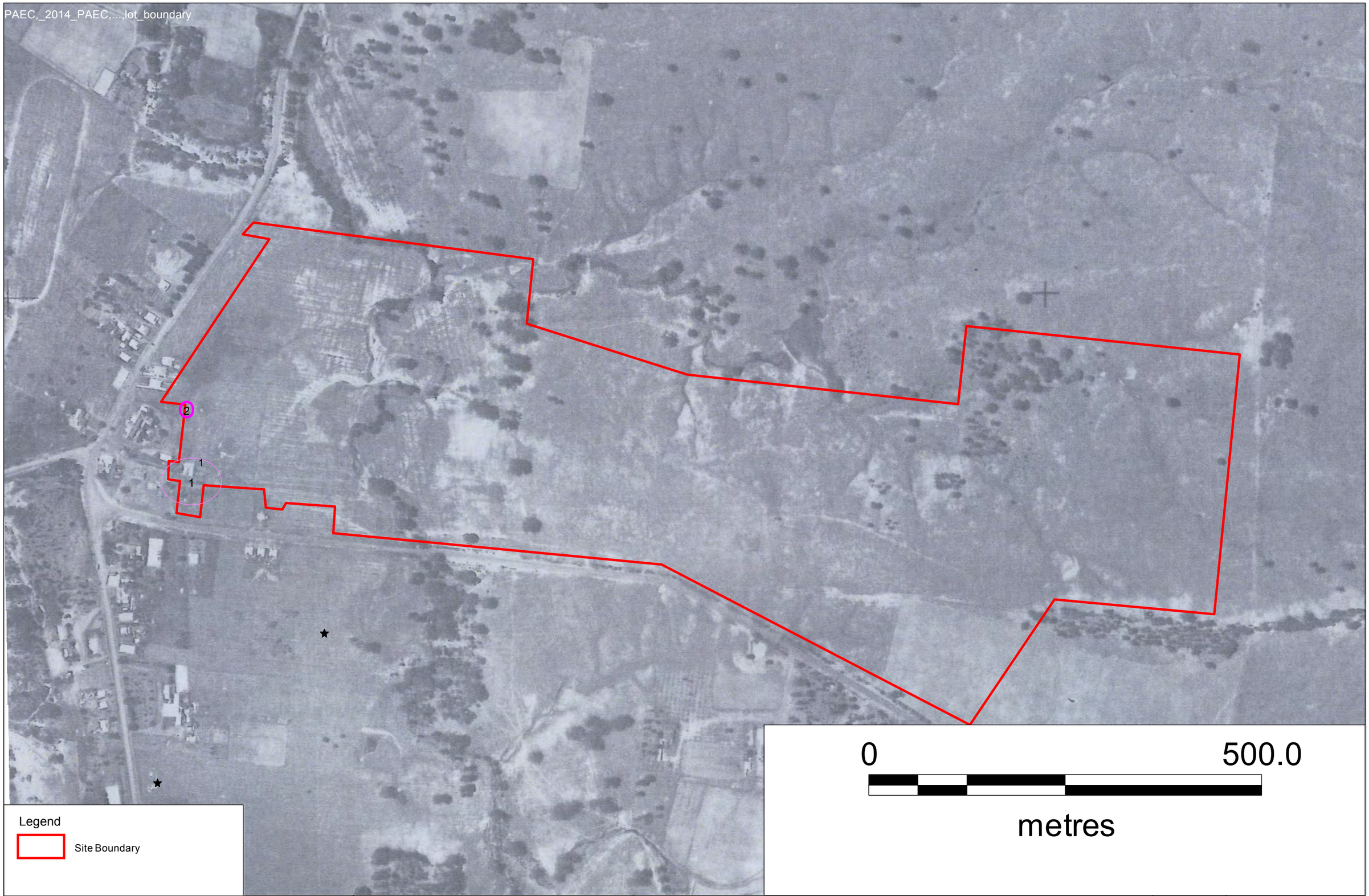
MGA

PROJ No:	76652.02.R1
DRAWING No:	4
REVISION:	A



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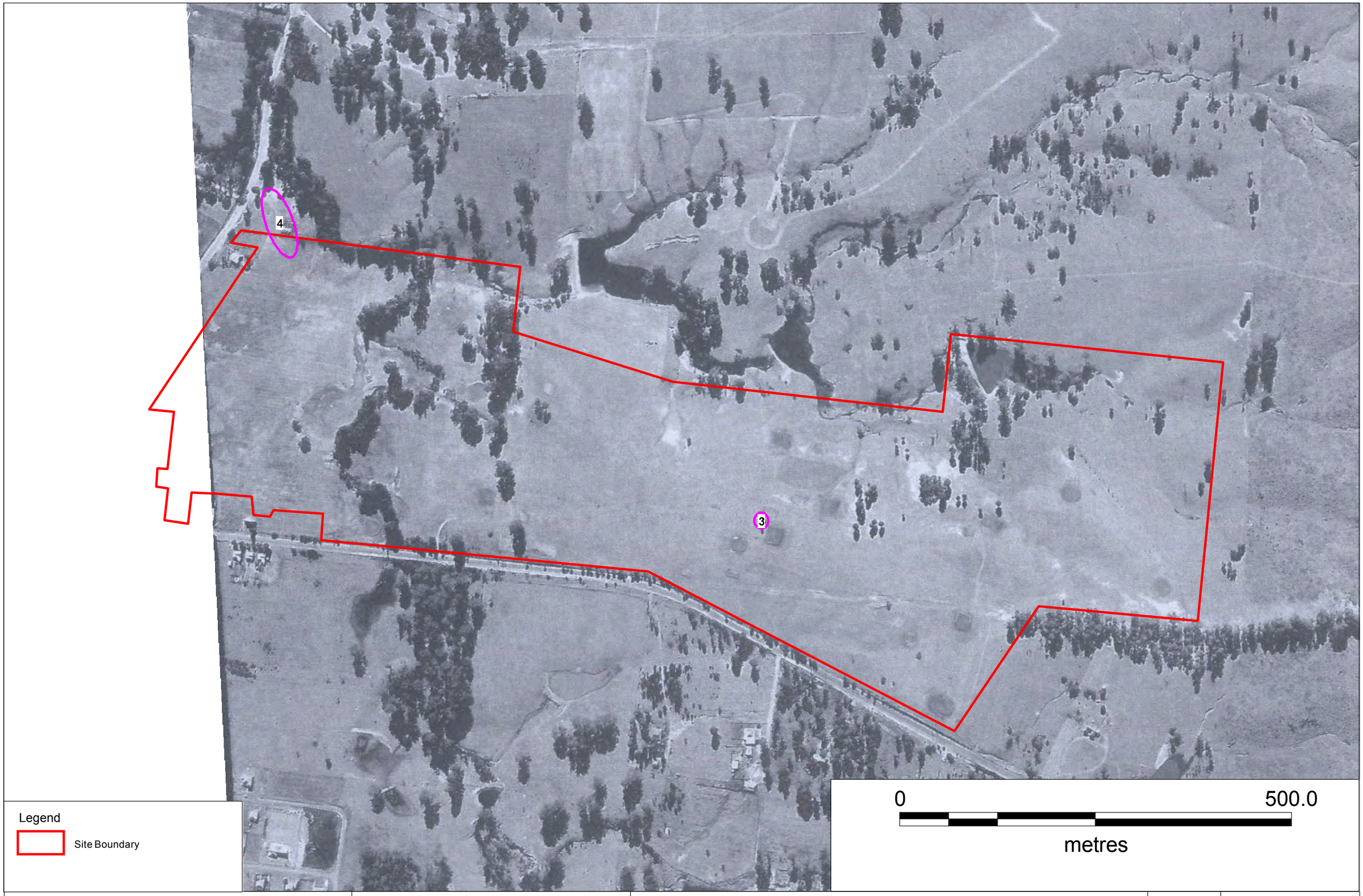
Douglas Pa
Geotechnics / Environmer

CLIENT: Catholic Metrolpolitan Cemeteries Trust		
OFFICE: Macarthur	DRAWN BY: GAR	
SCALE: As shown	DATE: 25.5.2017	

TITLE: Historical Aerial Photograph - 1947
Preliminary Site Investigation
13 Park Road, Wallacia NSW

N
MGA

PROJ No:	76652.02.R1
DRAWING No:	5
REVISION:	A



Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Historical Aerial Photograph - 1961 Preliminary Site Investigation 13 Park Road, Wallacia NSW	PROJ No: 76652.02.R1
OFFICE: Macarthur	DRAWN BY: GAR		DRAWING No: 6
SCALE: As shown	DATE: 25.5.2017	MGA	REVISION: A

PAEC,_2014_PAEC,...,lot_boundary

5

6

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Historical Aerial Photograph - 1975 Preliminary Site Investigation 13 Park Road, Wallacia NSW
OFFICE: Macarthur	DRAWN BY: GAR	
SCALE: As shown	DATE: 25.5.2017	

N

MGA

PROJ No: 76652.02.R1

DRAWING No: 7

REVISION: A

PAEC,_2014_PAEC,...,lot_boundary

8

7

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Historical Aerial Photograph - 1986 Preliminary Site Investigation 13 Park Road, Wallacia NSW	PROJ No: 76652.02.R1
OFFICE: Macarthur	DRAWN BY: GAR		DRAWING No: 8
SCALE: As shown	DATE: 25.5.2017	MGA	REVISION: A

PAEC,_2014_PAEC,...,lot_boundary

10

9

Legend

Site Boundary

0 500.0

metres

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Catholic Metrolpolitan Cemeteries Trust	TITLE: Historical Aerial Photograph - 1998 Preliminary Site Investigation 13 Park Road, Wallacia NSW	PROJ No: 76652.02.R1
	OFFICE: Macarthur DRAWN BY: GAR		DRAWING No: 9
	SCALE: As shown DATE: 25.5.2017	MGA	REVISION: A

PAEC,_2014_PAEC,...,lot_boundary

11

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust

OFFICE: Macarthur DRAWN BY: GAR

SCALE: As shown DATE: 25.5.2017

TITLE: Historical Aerial Photograph - 2002
Preliminary Site Investigation
13 Park Road, Wallacia NSW

N
MGA

PROJ No: 76652.02.R1

DRAWING No: 10

REVISION: A

PAEC,_2014_PAEC,...,lot_boundary

13

12

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Historical Aerial Photograph - 2005 Preliminary Site Investigation 13 Park Road, Wallacia NSW
OFFICE: Macarthur	DRAWN BY: GAR	
SCALE: As shown	DATE: 25.5.2017	

N
MGA

PROJ No:	76652.02.R1
DRAWING No:	11
REVISION:	A

PAEC,_2014_PAEC,...,lot_boundary

14

15

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust

OFFICE: Macarthur DRAWN BY: GAR

SCALE: As shown DATE: 25.5.2017

TITLE: Historical Aerial Photograph - 2014
Preliminary Site Investigation
13 Park Road, Wallacia NSW

MGA

PROJ No: 76652.02.R1

DRAWING No: 12

REVISION: A

PAEC_2014_PAEC...,lot_boundary

Legend

Site Boundary

0 500.0

metres

Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: Catholic Metrolpolitan Cemeteries Trust		TITLE: Historical Aerial Photograph - 2014 (All AEC)
OFFICE: Macarthur	DRAWN BY: GAR	Preliminary Site Investigation
SCALE: As shown	DATE: 25.5.2017	13 Park Road, Wallacia NSW

MGA

PROJ No:	76652.02.R1
DRAWING No:	13
REVISION:	A

Appendix B

NSW Office of Water Groundwater Bore Information

home · help · login · contact · customise

All Groundwater
find a site
- All Groundw...
  - North Coa...
  - Hunter Re...
  - Greater S...
    - **Hawk...**
    - George...
    - Wollon...
  - South Coa...
  - Northwest...
  - Central W...
  - Southwes...
  - Far West...
  - Great Arte...
  - Coal Basins

bandwidth ◉
high ○ low

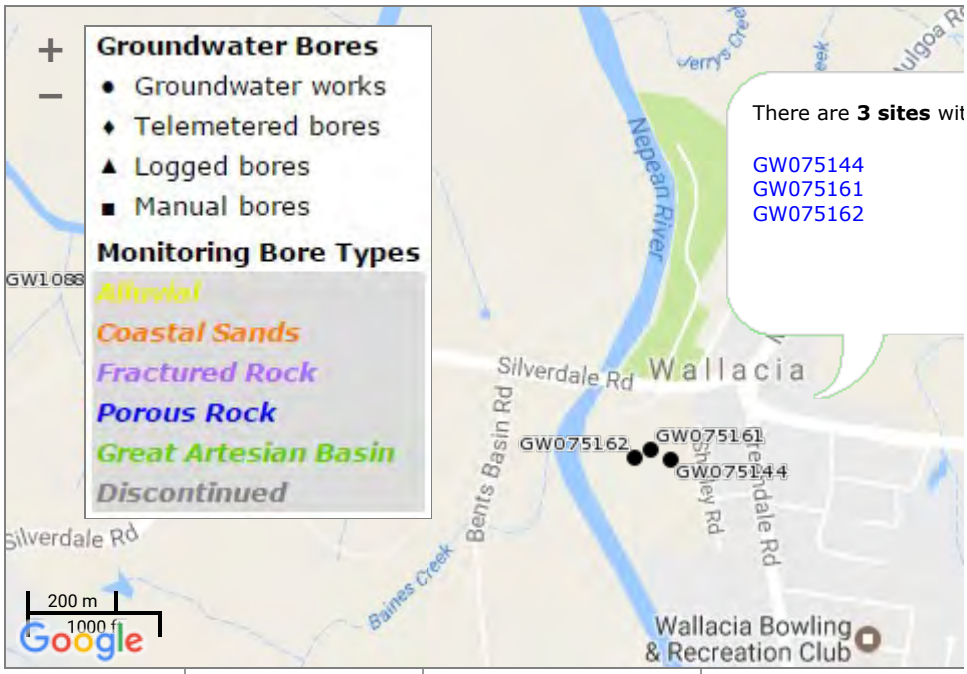
glossary and metadata

Hawkesbury River Basin

bookmark this page

All data times are Eastern Standard Time

Map



Scale = 1 : 14K

Appendix C

NSW EPA Website Searches

Search results

Your search for:LGA: Penrith City Council

Matched 23 notices relating to 7 sites.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
BERKSHIRE PARK	(Northern end of Compartment 5) The Northern ROAD	Castlereagh State Forest	6 former
COLYTON	88 Great Western HIGHWAY	Ampol Service Station	1 current
JAMISONTOWN	92 Mulgoa ROAD	7-Eleven Service Station	2 current
LUDDENHAM	Lot 4 The Northern ROAD	Elura Liquid Waste Disposal Site	1 current
MULGOA	Mulgoa ROAD	Penrith Waste Services	2 former
PENRITH	Castlereagh ROAD	Crane Enfield Metals	3 current and 3 former
ST MARYS	Vallance STREET	Drum Recycler	5 former

Page 1 of 1

22 May 2017

Search results

Your search for: **General Search** with the following criteria

Suburb - Wallacia

returned 23 results

Export to excel 1 of 2 Pages Search Again

Number	Name	Location	Type	Status	Issued date
1501707	Bernard Fussell	665 Bents Basin Road, WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	11 Nov 2011
3085769180	Bernard Fussell	665 Bents Basin Road, WALLACIA, NSW 2745	Penalty Notice	Issued	22 Feb 2013
3085772021	Bernard Fussell	665 Bents Basin Road, WALLACIA, NSW 2745	Penalty Notice	Issued	05 Aug 2013
1540640	DIB HANNA ABDALLAH HANNA	82 Park Road, WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	07 Sep 2016
1516188	Hendrick Cornelis Mak	1600 Greendale Road, Wallacia , WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	12 Nov 2013
3085774203	Hendrick Cornelis Mak	1600 Greendale Road, Wallacia , WALLACIA, NSW 2745	Penalty Notice	Issued	29 May 2014
3085774212	Hendrick Cornelis Mak	1600 Greendale Road, Wallacia , WALLACIA, NSW 2745	Penalty Notice	Issued	29 May 2014
1509036	Joseph and Karen Bugeja	470 Bents Basin Road, WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	25 Sep 2012
1547023	Michael SUKKAR	1504 Mulgoa Road, WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	03 Feb 2017
1547278	Michael SUKKAR	147 Park Road, WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	03 Feb 2017
1508170	Rob Dorn	344 Park Road, WALLACIA, NSW 2745	s.91 Clean Up Notice	Issued	15 Aug 2012
12235	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	POEO licence	Issued	23 Dec 2004
1074762	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued	27 Jun 2007
1081518	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued	16 Sep 2008
1116054	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued	02 Jul 2010
1129009	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued	27 Jun 2011
1504906	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued	28 Jun 2012
1512452	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN	Compliance Audit	Complete	27 Feb 2013

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Pub

		ROAD, WALLACIA, NSW 2745		
1528931	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued 23 Mar 2015
1538209	SYDNEY WATER CORPORATION	including the STP at NORTONS BASIN ROAD, WALLACIA, NSW 2745	s.58 Licence Variation	Issued 19 Feb 2016

Suburb	Site Name	Site Address	Contamination Activity Type	EPA Management Class	Latitude	Longitude
WAGGA WAGGA	Coles Express Wagga Wagga	357-359 Edward STREET	Service Station	Under assessment	-35.11606625	147.3509339
WAGGA WAGGA	Former Gasworks	54 Chaston STREET	Gasworks	Contamination currently regulated under CLM Act	-35.12262069	147.3482778
WAGGA WAGGA	Former Caltex Depot	60 Lake Albert DRIVE	Service Station	Regulation under CLM Act not required	-35.12316794	147.37724
WAGGA WAGGA	Caltex-branded (former Mobil) Service Station	7 Lake Albert ROAD	Service Station	Under assessment	-35.12239591	147.3769936
WAGGA WAGGA	Former Gasworks	Cnr Tarcutta Street and Cross STREET	Gasworks	Contamination currently regulated under CLM Act	-35.10871183	147.3737933
WAGGA WAGGA	Ashmont Autoport	Cnr Tobruk Street and Bardia STREET	Service Station	Regulation under CLM Act not required	-35.12517373	147.329919
WAGGA WAGGA	Caltex Service Station	Docker St Cnr Edward STREET	Service Station	Under assessment	-35.11737947	147.3558145
WAGGA WAGGA	Former Wiradjuri landfill	Narrung STREET	Landfill	Under assessment	-35.09628532	147.3619535
WAHROONGA	7-Eleven Service Station	1579 Pacific HIGHWAY	Service Station	Under assessment	-33.71974617	151.1168106
WAHROONGA	Coles Express Wahroonga	1601 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-33.71945571	151.1163002
WAITARA	Caltex Service Station	59-61 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-33.71064349	151.1024644
WALGETT	Former Shell Depot	Castlereagh HIGHWAY	Other Petroleum	Regulation under CLM Act not required	-30.00861179	148.1239938
WALLERAWANG	Wallerawang Power Station	1 Main STREET	Other Petroleum	Under assessment	-33.40339296	150.0855101
WALLERAWANG	Lidsdale Coal Loading Facility	Main STREET	Other Industry	Under assessment	-33.39996523	150.0737717
WALLSEND	Coles Express Wallsend East	15 Thomas STREET	Service Station	Regulation under CLM Act not required	-32.90719444	151.6693426
WALLSEND	Caltex Maryland Service Station Wallsend	41 Minmi ROAD	Service Station	Regulation under CLM Act not required	-32.88967866	151.6619253
WALLSEND	OneSteel Recycling	64-80 Sandgate ROAD	Metal Industry	Regulation under CLM Act not required	-32.89425477	151.6799648
WALLSEND	Ausgrid Wallsend Depot	Abbott STREET	Other Industry	Regulation under CLM Act not required	-32.90162796	151.6857267
WAMBERAL	Caltex Service Station	654 The Entrance ROAD	Service Station	Under assessment	-33.42338668	151.4375685
WANGI WANGI	Myuna Colliery	Wangi Point ROAD	Other Industry	Under assessment	-33.06139532	151.5697186
WARATAH	Waratah Area Health	Turton ROAD	Unclassified	Regulation under CLM Act not required	-32.90961233	151.7260867
WARILLA	Woolworths Petrol Warilla	43 -57 Shellharbour ROAD	Service Station	Regulation under CLM Act not required	-34.5470966	150.863748
WARKWORTH	United Collieries	134 Jerry Plain ROAD	Other Industry	Under assessment	-32.5654356	150.9916698
WARKWORTH	Emulsion Plant, Dyno Nobel Asia Pacific Pty Ltd	186 Long Point ROAD	Chemical Industry	Under assessment	-32.5781708	151.0834387
WARNERS BAY	7-Eleven (former Mobil) Service Station	393 Hillsborough ROAD	Service Station	Regulation under CLM Act not required	-32.9659363	151.6543264
WARNERS BAY	Historically Filled Land	41-43 Charles STREET	Unclassified	Regulation under CLM Act not required	-32.97340461	151.6464383
WARNERS BAY	Caltex Service Station	55 King STREET	Service Station	Under assessment	-32.97418806	151.6476184
WARNERVALE	Former Timber Treatment Plant	Aldenham and Railway ROADS	Other Industry	Contamination formerly regulated under the CLM Act	-33.24732018	151.4469037
WARRAGAMBA	Warragamba Dam Viewing Platform	Eighteenth STREET	Unclassified	Under assessment	-33.88546354	150.6024501
WARRAWONG	Caltex Service Station	75-77 King STREET	Service Station	Regulation under CLM Act not required	-34.49037817	150.888802

Appendix D

About this Report

About this Inspection Report

Introduction

These notes are provided to amplify DP's inspection report in regard to the limitations of carrying out inspection work. Not all notes are necessarily relevant to this report.

Standards

This inspection report has been prepared by qualified personnel to current engineering standards of interpretation and analysis.

Copyright and Limits of Use

This inspection report is the property of DP and is provided for the exclusive use of the client for the specific project and purpose as described in the report. It should not be used by a third party for any purpose other than to confirm that the construction works addressed in the report have been inspected as described. Use of the inspection report is limited in accordance with the Conditions of Engagement for the commission.

DP does not undertake to guarantee the works of the contractors or relieve them of their responsibility to produce a completed product conforming to the design.

Reports

This inspection report may include advice or opinion that is based on engineering and/or geological interpretation, information provided by the client or the client's agent, and information gained from:

- an investigation report for the project (if available to DP);
- inspection of the work, exposed ground conditions, excavation spoil and performance of excavating equipment while DP was on site;
- investigation and testing that was carried out during the site inspection;
- anecdotal information provided by authoritative site personnel; and
- DP's experience and knowledge of local geology.

Such information may be limited by the frequency of any inspection or testing that was able to be practically carried out, including possible site or cost constraints imposed by the client/ contractor(s). For these reasons, the reliability of this inspection report is limited by the scope of information on which it relies.

Every care is taken with the inspection report as it relates to interpretation of subsurface conditions and any recommendations or suggestions for construction or design. However, DP cannot anticipate or assume responsibility for:

- unexpected variations in subsurface conditions that are not evident from the inspection; and
- the actions of contractors responding to commercial pressures.

Should these issues occur, then additional advice should be sought from DP and, if required, amendments made.

This inspection report must be read in conjunction with any attached information. This inspection report should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions from review by others of this inspection report or test data, which are not otherwise supported by an expressed statement, interpretation, outcome or conclusion stated in this inspection report.

Attachment 3

Photographic Plates

Photo 1 - Graded aggregate on the surface of an access way (facing east)

Photo 2 - Potential ACM observed on the surface of fill in an access way

Photo 3 - Bricks and concrete observed adjacent to the potential ACM in the fill access way

Photo 4 - Easternmost shed (facing east)

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Catholic Metropolitan Cemeteries Trust		Site Photographs	PROJECT No: 76652.03
	OFFICE: Macarthur	PREPARED BY:	CKM	Proposed Development - Nepean Gardens	PLATE No: 1
	SCALE: NTS	DATE:	22 Nov 2019	Wallacia Golf Course, 13 Park Road, Wallacia, NSW	REVISION: 0

Photo 5 - Westernmost shed (facing north)

Photo 6 - Waste materials and drums stored in the easternmost shed

Photo 7 - Refuse observed on the surface of stockpiles adjacent to the sheds

Photo 8 - A brick observed on the surface of a stockpile adjacent to the sheds

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Catholic Metropolitan Cemeteries Trust		Site Photographs	PROJECT No: 76652.03
	OFFICE: Macarthur	PREPARED BY:	CKM	Proposed Development - Nepean Gardens	PLATE No: 2
	SCALE: NTS	DATE:	22 Nov 2019	Wallacia Golf Course, 13 Park Road, Wallacia, NSW	REVISION: 0

Attachment 4

Table 2

Table 2: Summary of Identified Potential Areas of Environmental Concern

PAEC #	Identified from	Brief Description	Potential Environmental Concern	Potential Contaminants of Concern (PCOC)
1	1947 AP	Structure (possible dwelling) – potentially demolished prior to 1961 or extended to form current building (golf course club house).	Impacted surface soil – construction and demolition debris (possibly including asbestos), and use of pesticides and lead based paints.	Metals, OCP, OPP and Asbestos
2	1947 AP	Former structure (possible shed) – demolished prior to 1975.	Impacted surface soil – construction and demolition debris (possibly including asbestos), use of pesticides and lead based paints, and storage of chemicals.	Metals, TRH, PAH, phenols, OCP, OPP and Asbestos
3	1961 AP	Potential former structure (type unknown) – not present in 1975 AP.	Impacted surface soil.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asbestos
4	1961 – 1986 AP	Former structures (small dwellings or sheds) – demolished prior to 1998.	Impacted surface soil – construction and demolition debris (possibly including asbestos), use of pesticides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asbestos
5-1	1975 – current AP	Golf course – existing in current.	Asbestos pipes.	Asbestos
5-2			Application of pesticides herbicides and fertilisers to tees and greens.	Metals, fertilisers and OCPs
5-3			Broad-scale application of fertilisers herbicides and pesticides*.	Metals and fertilisers, OCP and OPP
5-4			Filling of creeks and gullies with impacted material from an unknown source	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos

PAEC #	Identified from	Brief Description	Potential Environmental Concern	Potential Contaminants of Concern (PCOC)
6	1975 – 2002 AP	Residential dwellings and sheds (two lots) developed between prior to 1975 and 2002. Western lot demolished prior to 2005 and converted to car-parking area.	Impacted surface soil – construction and demolition debris (possibly including asbestos), use of pesticides, herbicides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asbestos
7	1986 – 1998 AP	Hardstand car parking area developed between prior to 1986 and 1998 – existing in current AP.	Elevated PAH concentrations in asphaltic concrete.	PAH
8	1986 AP	Former structure (possible shed) – demolished prior to 1998.	Impacted surface soil – construction and demolition debris, use of pesticides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asbestos
9	1998 AP	Shed (golf course maintenance) - existing in current AP and observed during site inspection.	Impacted surface soil – use of pesticides, and storage of chemicals (two 1000L ASTs observed adjacent to shed).	Metals, BTEX, TRH, PAH, phenols, OCP and OPP.
10	1998 AP	Ground disturbance.	Impacted filling from an unknown source	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos.
11	2002 AP	Ground disturbance.	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos
12	2005 AP	Ground disturbance.	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos
13	2005 AP	Ground disturbance.	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos
14	2017 AP	Adjacent potential market garden.	Application of fertilisers, pesticides and herbicides.	Metals, fertilisers, OCP and OPP.

PAEC #	Identified from	Brief Description	Potential Environmental Concern	Potential Contaminants of Concern (PCOC)
15	Proximity to the site.	Petrol Service Station (down hydraulic gradient of the site)	Migration of hydrocarbon impacted groundwater onto the site.	Metals, BTEX and TRH.
16	Current Site Walkover	Graded aggregate on access ways	Impacted surface soils from elevated PAH concentrations in asphaltic gravel – construction and demolition debris (possibly including asbestos).	PAH and asbestos
17	Current Site Walkover	Potential ACM in fill along access way	Fill to an unknown depth and extent impacted with construction and demolition debris (possibly including asbestos).	Asbestos
18	Current Site Walkover	Aged metal sheds	Impacted surface soil – construction and demolition debris, use of pesticides and lead based paints, and storage of chemicals.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP and Asbestos
19	Current Site Walkover	Stockpiles	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos
20	Current Site Walkover	Waste in fill gully	Impacted filling from an unknown source.	Metals, BTEX, TRH, PAH, phenols, OCP, OPP, PCB and Asbestos

Notes:

Metals = *arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn).*
TRH = *Total recoverable hydrocarbons.*
BTEX = *Benzene, toluene, ethylbenzene and xylenes.*
PCB = *Polychlorinated biphenyls.*
PAH = *Polycyclic aromatic hydrocarbons.*
OCP = *Organochlorine pesticides.*
OPP = *Organophosphorous pesticides.*
AP = *Aerial Photograph(s).*