Maryland Development Company

Phase 1 Preliminary Site Assessment
Eastern Connector Road

Jordan Springs East, NSW

13 February 2018

54581/113744 (Rev 2)

JBS&G

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Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AEC	Areas of Environmental Concern
Bgs	Below Ground Surface
COPC	Contaminants of Potential Concern
DP	Deposited Plan
EPA	NSW Environmental Protection Authority
HHERA	Human Health and Ecological Risk Assessment
NEPC	National Environmental Pretention Measure
PCBs	Polychlorinated biphenyls
PFAS	Poly-fluoroalkyl substances
SAQP	Sampling Analysis and Quality Plan

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by Maryland Development Company Pty Ltd (MDC, the client) to conduct a Phase 1 Preliminary Site Investigation (PSI) of an approximately 2 km length of road (the site) within the former ADI St Marys property ('the property'). The road is located from the Central Precinct Development boundary (Central Precinct) to the Western Collector road at Ropes crossing and runs in an approximate west to east orientation. The location of the site is provided in **Figure 1**. The layout of the site including surrounding areas is provided in **Figure 2**.

It is noted that the site falls within two LGA zones, Penrith City Council (PCC) and Blacktown City Council (BCC). The PCC portion encompasses approximately 450 m of the sites western portion and the BCC portion encompasses the remaining 1.6 km. The Blacktown portion of the site has been approved under Development Application (DA) 17-00963 in October 2017.

The site is proposed to be developed into a roadway and as such will be assessed under commercial/industrial landuse criteria which is consistent with the proposed use.

The site is located within the former Southern Sector West and Southern Sector East Sectors of the property which underwent extensive environmental assessment and remediation works in the mid 1990's, ultimately leading to a number of site audit statements (SAS) being prepared. More specifically the site is covered by three previously issued SAS prepared by HLA-Enviros ciences (CHK001/1 Kidd 1999a), (CHK001/6 Kidd 1999b) and (CHK001/7 Kidd 1999c). The reports confirm that the property was suitable for proposed uses with the exception of excluded areas including footprints of original buildings, car parks, roads and stockpiles that were inaccessible when previous works were conducted. The site falls within the areas excluded from these previous site audit statements and therefore requires appropriate assessment, and remediation if required, prior to the site being redeveloped.

JBS&G has conducted a number of previous environmental investigations on roads throughout the property and constraints regarding unexploded ordnance (UXO) clearance and pavement removal have been managed appropriately ultimately resulting in sign off by an EPA accredited auditor. At the current point in time the road is unsafe for the intrusive investigation to proceed because UXO clearance works have not been conducted. However, given that roadways within the property have previously been successfully investigated by JBS&G and appropriate methodologies and documentation have been developed, it is considered that conclusions can be drawn using historical information to determine the suitability of the site for its proposed use.

Previous works conducted by JBS&G on roads within the property included:

- Paved (Priority) Road 1, Environmental Site Assessment (JBS&G 2016a[1]), signed off by Zoic Environmental (Zoic, the auditor) in Interim Advice (IA) 33 (Zoic 2016a[2]);
- Jordan Springs Connector Road, Environmental Site Assessment (JBS&G 2016b[3]), signed off by Zoic in IA 36 (Zoic 2016b[4]); and

[1] *Environmental Site Assessment – Priority 1 Road Central Precinct, Llandilo, NSW. JBS&G Australia Pty Ltd (Rev 0)* JBS&G 2016a

[2] *Auditor Interim Advice No.33 – Final Environmental Site Assessment, Paved Road 1, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2016a)

[3] *Environmental Site Assessment – Jordan Springs Connector Road Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev 0) JBS&G 2016a

[4] *Auditor Interim Advice No.36 – Review of Revised Jordan Springs Connector Road ESA, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2016b)

- Paved (Priority) Road 5, Environmental Site Assessment (JBS&G 2017a[5]), signed off by Zoic in IA 46 (Zoic 2017[6]).

Remedial documents prepared to facilitate the remediation of impacted areas identified in the investigation reports included *Conceptual Remedial Strategy Stage 1 and 2* (JBS&G 2015a[7]), *Conceptual Remedial Strategy Stage 3 to 5* (JBS&G 2015b[8]) and *Specific Remedial Action Plan* (JBS&G 2017b[9]) which were all endorsed by the auditor (Zoic 2015a[10], 2015b[11] and 2017b[12]) and approved by PCC.

The site comprised a bitumen paved road with no curbing that extended from west to east from the boundary of Central Precinct to the boundary of the Western Collector Road, located approximately 2 km to the east. The road was generally level with some cut and fill undertaken to keep the road flat where natural low points in the landform occurred.

Based on the history of the site and based on previous investigations conducted, general areas of environmental concern were identified. Potential areas of impact at the site are associated with fill materials of unknown origin during construction of the road, areas of fly tipped waste on or adjacent to the paved road and potential residual impact from the pavement portion of the road to underlying soils.

Based on the findings of this investigation and subject to the limitations in **Section 7,** it is concluded that the site can be made suitable for the proposed use in accordance with SEPP 55 subject to the following actions:

- Completion of Sampling Analysis and Quality Program (SAQP) reviewed and endorsed by site accredited auditor;
- Pavement removal then UXO clearance;
- Detailed site assessment including soil sampling and laboratory analysis;
- Preparation of a detailed site investigation report documenting the findings of the assessment;
- If required a remedial action plan using the previously adopted remedial strategies at other roadways within the property; and
- Site audit statement identifying the site as suitable for the proposed use.

It is recommended that the six step process identified above is implemented as part of the planned redevelopment as conducted in previous areas of the site.

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5 *Environmental Site Assessment – Priority 5 Road Central Precinct, Llandilo, NSW. JBS&G Australia Pty Ltd (Rev 0)* JBS&G 2017a

6 *Auditor Interim Advice No.46 – Review of Revised Environmental Site Assessment, Priority Road 5, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2017)

7 *Conceptual Remedial Strategy – Stage 1 and 2, Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev 1) JBS&G 2015a

8 *Conceptual Remedial Strategy – Stage 3 to 5, Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev A) JBS&G 2015b

9 *Specific Remedial Action Plan – Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev 5) JBS&G 2017b

10 *Interim Advice No.6: Review of Conceptual Remedial Strategy (CRS) Rev 1, Maryland Development Company Pty Ltd, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2015a)

11 *Interim Advice No.7: Review of Final SAQP and Conceptual Remedial Strategy (Stages 3, 4 and 5), Maryland Development Company Pty Ltd, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2015b)

12 *Auditor Interim Advice No.53 – Review of revised Specific Remedial Action Plan (Rev 4) Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2017b)

1. Introduction and Background

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Maryland Development Company Pty Ltd (MDC, the client) to conduct a Phase 1 Preliminary Site Investigation (PSI) of an approximately 2 km length of road (the site) within the former ADI St Marys property ('the property'). The road is located from the Central Precinct Development boundary (Central Precinct) to the Western Collector road at Ropes crossing and runs in an approximate west to east orientation. The location of the site is provided in **Figure 1**. The layout of the site including surrounding areas is provided in **Figure 2**.

It is noted that the site falls within two LGA zones, Penrith City Council (PCC) and Blacktown City Council (BCC). The PCC portion encompasses approximately 450 m of the sites western portion and the BCC portion encompasses the remaining 1.6 km. The Blacktown portion of the site has been approved under Development Application (DA) 17-00963 in October 2017.

The site is proposed to be developed into a roadway and as such will be assessed under commercial/industrial landuse criteria which is consistent with the proposed use.

The site is located within the former Southern Sector West and Southern Sector East Sectors of the property which underwent extensive environmental assessment and remediation works in the mid 1990's ultimately leading to a number of site audit statements (SAS) being prepared. More specifically the site is covered by three previously issued SAS prepared by HLA-Enviros ciences (CHK001/1 Kidd 1999a), (CHK001/6 Kidd 1999b) and (CHK001/7 Kidd 1999c). The reports confirm that the property was suitable for proposed uses with the exception of excluded areas including footprints of original buildings, car parks, roads and stockpiles that were inaccessible when previous works were conducted. The site falls within the areas excluded from these previous site audit statements and therefore requires appropriate assessment, and remediation if required, prior to the site being redeveloped.

JBS&G have conducted a number of previous environmental investigations on roads throughout the property and constraints regarding UXO clearance and pavement removal have been managed appropriately ultimately resulting in sign off by an EPA accredited auditor. At the current point in time the road is unsafe for the intrusive investigation to proceed because UXO clearance works have not been conducted. However, given that roadways within the property have previously been successfully investigated by JBS&G and appropriate methodologies and documentation have been issued to the satisfaction of an EPA accredited auditor, it is considered that conclusions can be drawn using historical information to determine the suitability of the site for its proposed use.

Previous works conducted by JBS&G on roads within the property included:

- Paved (Priority) Road 1, Environmental Site Assessment (JBS&G 2016a[13]), signed off by Zoic Environmental (Zoic, the auditor) in Interim Advice (IA) 33 (Zoic 2016a[14]);
- Jordan Springs Connector Road, Environmental Site Assessment (JBS&G 2016b[15]), signed off by Zoic in IA 36 (Zoic 2016b[16]); and

[13] *Environmental Site Assessment – Priority 1 Road Central Precinct, Llandilo, NSW. JBS&G Australia Pty Ltd (Rev 0)* JBS&G 2016a

[14] *Auditor Interim Advice No.33 – Final Environmental Site Assessment, Paved Road 1, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2016a)

[15] *Environmental Site Assessment – Jordan Springs Connector Road Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev 0) JBS&G 2016a

[16] *Auditor Interim Advice No.36 – Review of Revised Jordan Springs Connector Road ESA, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2016b)

- Paved (Priority) Road 5, Environmental Site Assessment (JBS&G 2017a[17]), signed off by Zoic in IA 46 (Zoic 2017[18]).

Remedial documents prepared to facilitate the remediation of impacted areas identified in the investigation reports included *Conceptual Remedial Strategy Stage 1 and 2* (JBS&G 2015a[19]), *Conceptual Remedial Strategy Stage 3 to 5* (JBS&G 2015b[20]) and *Specific Remedial Action Plan* (JBS&G 2017b[21]) which were all endorsed by the auditor (Zoic 2015a[22], 2015b[23] and 2017b[24]) and approved by PCC.

The proposed investigation has been developed in accordance with guidelines made or approved by the NSW Environment Protection Authority (EPA) and relevant Australian Standards.

1.2 Objective

The objective of the investigation is to characterise potential contamination at the site, and to draw conclusions on whether the site can be made suitable.

1.3 Scope of Works

To achieve the project objectives, the following scope of works is proposed:

- Desktop review of available local and regional background environmental information, and available historical background information including aerial photographs, historical land title information, state and national heritage information, search of EPA records and groundwater bore information;
- Development of a conceptual site model (CSM) to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPCs);
- A detailed site inspection / walkover; and
- Preparation of this Phase 1 PSI in general accordance with guidelines made or approved by the NSW Environment and Protection Authority (EPA); and

[17] *Environmental Site Assessment – Priority 5 Road Central Precinct, Llandilo, NSW. JBS&G Australia Pty Ltd (Rev 0)* JBS&G 2017a
[18] *Auditor Interim Advice No.46 – Review of Revised Environmental Site Assessment, Priority Road 5, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2017)
[19] *Conceptual Remedial Strategy – Stage 1 and 2, Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev 1) JBS&G 2015a
[20] *Conceptual Remedial Strategy – Stage 3 to 5, Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev A) JBS&G 2015b
[21] *Specific Remedial Action Plan – Central Precinct, Llandilo, NSW*. JBS&G Australia Pty Ltd (Rev 5) JBS&G 2017b
[22] *Interim Advice No.6: Review of Conceptual Remedial Strategy (CRS) Rev 1, Maryland Development Company Pty Ltd, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2015a)
[23] *Interim Advice No.7: Review of Final SAQP and Conceptual Remedial Strategy (Stages 3, 4 and 5), Maryland Development Company Pty Ltd, Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2015b)
[24] *Auditor Interim Advice No.53 – Review of revised Specific Remedial Action Plan (Rev 4) Central Precinct, Llandilo, NSW*. Zoic Environmental Pty Ltd (Zoic 2017b)

2. Site Condition and Surrounding Environment

2.1 Site Identification

The location of the site is shown in **Figure 1,** the site layout and surrounding areas are shown in **Figure 2**. Details of the site are summarised in **Table 2.1** below.

Table 2.1 Summary Site Details

Lot Number	Part Lot 2 DP 1203565 (BCC) and Part lot 3000 DP1220974 (PCC).
Street Address	Jordan Springs East Development Site, access off Links Road St Marys.
Site Area	Approximately 15,000 m^2 (3,150 m^2 PCC and 11,850 m^2 BCC)
Local Government Authority	Penrith City Council and Blacktown City Council
Geographic Coordinates (MGA 56)	33.7325 E 150.750 N
Current Land-use	Roadway
Proposed Land-use	Roadway

2.2 Site Description

The site comprised a bitumen paved road with no curbing that extended from west to east from the boundary of Central Precinct to the boundary of the Western Collector Road, located approximately 2 km to the east. The road was generally level with some cut and fill undertaken to keep the road flat where natural low points in the landform occurred.

Two bridges were also located within the site, a bridge that crossed South Creek (approximately 85 m) in the western portion. The second bridge was located in the approximate mid section of the site, crossed Ropes Creek and was approximately 25 meters in length.

The paved road was observed to be in good condition and is currently used for access purposes.

2.3 Surrounding Land use

The surrounding landuse described below is summary from Kidd 1999 for the Central Precinct development site:

- North – Regional Parklands.
- East – The Ropes Crossing housing development.
- South – Regional Parklands, Dunheved with St Marys residential development area further south.
- West – Central Precinct residential development.

2.4 Topography and Hydrology

The site is relatively flat (approximately 25 to 30 m AHD) as it comprises of a sealed road way which is kept level over waterways and low lying areas.

The roadway tapers away towards its edges and therefore any surface water that falls onto the road is anticipated to flow towards the nearest road edge.

South Creek and Ropes Creek are the two main waterways that flow northwards and runs below the site. South Creek drains a very large catchment in western Sydney, originating at Narellan, over 30 km to the south. The catchment is a long narrow strip up to 8 km wide with an approximate area of 18,000 ha. The catchment includes residential, agricultural and industrial areas. The creek flows northwards from the development site through mainly agricultural areas before meeting the Hawkesbury River at Windsor, 12 km to the north.

Ropes Creek drains a smaller catchment, originating at Cecil Park, 12 km to the south-west. This catchment is also a long narrow strip up to 4 km wide and with an approximate area of 2400 ha. The catchment also includes residential, agricultural and industrial areas. Part of the creek has been diverted along a concrete drainage channel for about 2 km through the former St Marys Property before flowing into South Creek at its new confluence just to the north of the former St Marys Property boundary.

The St Marys Sewage Treatment Plant (STP) is located south east of the site. ADI (1996b) reported effluent from the STP receives tertiary treatment before being discharged into the old Ropes Creek flow channel. This then flows into South Creek at its old confluence in the middle of the former St Marys Property.

2.5 Geology

Review of the regional geological map (DMR 1997) indicated the site lies within Tertiary Londonderry Clay. The Londonderry Clay is characterised by clay, patches of ferruginized, consolidated sand.

Review of the regional soil map (DLWC 1972) indicated that the site lies within the Berkshire Park soil landscape group.

The typical Berkshire landscape is characterised by weakly pedal orange heavy clays and clayey sands, often mottled with inclusions of ironstone nodules. Large silcrete boulders (up to 20cm) occur in sand/clay matrix. Yellow podzolic soils where drainage conditions are poor, red podzolic soils and chocolate soils on flats and in small drainage lines. Kransnozems are present in unstructured plastic clays and in drainage lines or a crest.

Limitations of the Berkshire landscape group are very high wind erosion hazard if cleared. Gully, sheet and rill erosion on dissected areas. Waterlogging, impermeable subsoils, low fertility hazard.

This area is largely Quaternary age alluvium beds that consist of gravelly sand, sand, clayey sand silty clay, from 1 to 8m in depth. In the northeast, the soil type is the Berkshire Park soil, while the eastern area is the Blacktown soil type – both of these overlie the Bringelly Shale Unit. Noted in the western region were a number of paleochannels of unknown origin.

As reported in ADI (1996a) the former ADI St Marys Property is underlain by shales of Bringelly Shale Unit part of the Liverpool Sub-group and Wianamatta Group of the Triassic epoch. These are overlain by alluvium of Quaternary age. The Bringelly Shale unit consisting mainly of grey hard shales within intervening siltstone forms the bedrock. The top of the shale, up to 5m thick, is highly weathered and very friable in nature. The Quaternary Alluvium comprises predominately buff coloured silt, silty/sandy clays which is often lateritic in nature and mottled with yellow/red ochres and iron nodules. Quaternary Alluvium was deposited mainly in the central lowlands along the flood plains of South Creek and Ropes Creek. Thickness of the alluvium within the development site is likely to range in thickness from approximately 6m to 10m as these are the central lowlands.

2.6 Hydrogeology

A review of information obtained from the NSW Office of Water database (NSW DPI 2018[25]) indicated there are three registered groundwater monitoring wells located to the south east of the site with no feature information available for any of the three wells. No registered groundwater wells fall within the site.

As reported in ADI (1996a) groundwater was observed at the former ADI St Marys property in an upper unconfined aquifer and a lower regional semi-confined aquifer. The quaternary alluvium and highly weather shale occurring at depths ranging from 2 to 10m below ground surface forms the

[25]NSW Department of Primary Industries Website http://allwaterdata.water.nsw.gov.au/water.stm, accessed 23 January 2018 (NSW DPI 2018)

shallow upper aquifer. The depth to the water table ranges from 2 to 7m below ground surface depending upon the surface topography. The watertable occurs in the sandy to silty clay above the weathered shale and/or shale bed rock. The groundwater flow pattern on a regional scale follows the general topography of the area, however, variation in the flow direction can occur locally based on the ground slope. On a broad scale the groundwater flows across the eastern and western sectors in towards the central lowlands of the former ADI St Marys Property and then northwards.

2.7 Acid Sulphate Soils

Review of the Department of Land and Water Conservation map of Springwood/Riverstone (DLWC 1997[26]) indicated that there no known occurrence of acid sulfate soils in the vicinity of the site.

[26] NSW Department of Land and Water Conservation Edition 2 (DLWC 1997)

3. Site History

3.1 Aerial Photographs

Historical aerial photographs were obtained from the Department of Lands as shown in **Appendix A**. Summary of aerial photographs obtained of the site is included below:

- **1947** – the site comprised of mostly vacant grass land, no structures or development was apparent. South Creek and Ropes creek could be observed in the image.
- **1965** – it is noted that this image does not show the entire length of the site, however it could be interpreted that the current paved road alignment appeared to exist in this image. Development of surrounding areas had occurred with structures and roads forming the former ADI site observed.
- **1975** – the site appeared similar to the description provided for the previous image. It is noted that the entire site could be observed in this image and the road was observed to extent the entire length of the site. Surrounding areas to the site included ADI associated buildings and activities. Disturbance to ground was noted north of the mid portion of the site and also to the south, within the proposed Dunheved precinct. Increase in vegetation to surrounding areas was observed.
- **1991** – the site and surrounding areas appeared similar to the previous image.
- **2002** – the site appeared similar to the previous image. Changes to the surrounding areas including stockpiling of soils north -west of the site and excavation to the north and south of the site were observed.
- **2017** – the site appeared similar to the previous image. Surrounding areas to the site were noted to increase in vegetation. It could also be observed that development to the land west of the site was occurring.

3.2 EPA Records

A search of the NSW EPA's public register under the Protection of the Environment Operations Act 1997 (POEO Act) was under taken (**Appendix B**). The search for the site identified there were:

- No prevention, clean-up or prohibition notices;
- No transfer, variation, suspension, surrender or revocation of an environmental protection licence.

A search was also conducted through the EPA's public contaminated land register and is provided in **Appendix B.** The search did not identify any current or previous records of notices by the EPA, or notification to the EPA under Section 60 of the Contaminated Land Management Act 1997 (CLM Act), in relation to the site or immediately surrounding land.

3.3 Australian and NSW Heritage Register

A search of the Australian Heritage database was undertaken and records are included in **Appendix C.** It is noted that the Western Sydney Shale Woodlands St Marys is located within the general search area, however given the site location is within the historical road, this feature is not considered to be within the site.

A search of the NSW Heritage database was undertaken and records are included in **Appendix C**. The search did not identify the presence of any items of state significance in the vicinity of the site.

3.4 Integrity Assessment

The information obtained from the historical sources reviewed has been found to be in general agreement. It is therefore considered that the information provided in this historical assessment has an acceptable level of accuracy.

4. Previous Reports

4.1 Summary Site History

The site is located within the former St Mary's ADI Munitions facility and consists of a current and historical access road. The former St Mary's ADI munitions facility covered a much larger area (approximately 1535 ha) and was established in 1942 as part of a larger parcel of farmland resumed in 1941 by the Commonwealth for establishment of ammunitions factory to support the war effort (World War II). From 1955-57, a new munitions factory was constructed and a substantial part of the original factory was leased to private industry and became the present Dunheved Industrial Estate.

The St Marys Munitions factory was primarily a filling, or load and pack type, operation where explosives and propellant, manufactured elsewhere, were loaded into shells, bomb and rocket casings and stored in magazines awaiting deployment. Small amounts of some initiator explosives for detonators and fuses were manufactured on the property because they were too sensitive to travel. Some test firing of detonators, fuses and smaller occurred at designated areas as part of the manufacturing quality assurance program. All larger munitions were test fired at Army ranges elsewhere.

ADI conducted a comprehensive historical report on the St Mary's ADI site in the mid 1990's[27] which included a chronological history of site activities and development of buildings and structures. The report did not include detailed information of the site itself, apart from confirming its historical use as an internal paved road. It is noted that historical potential areas of environmental concern nearby or adjacent to the site, include the former administration section which included a fire station east of the site. This area was assessed in the Western Collector Road Detailed Site Investigation (DSI) and the Western Collector Road Extension DSI (JBS&G 2017a[28] and JBS&G 2017b[29]) reports which is discussed in more detail in **Section 3.5**.

In addition, Site 11, a remedial area associated with buried general waste located south of the mid portion of the site was remediated in the mid 1990s and is discussed further in the summary of the Southern Sector West Validation Report (ADI 1996) in **Section 4.2**.

Historical reports have been summarised in sections below to obtain information relating to the site.

4.2 Southern Sector West (ADI 1996)

A portion of the former Southern Sector West falls within the western portion of the site.

Kidd (1999) reported historically, the sector had a variety of uses none of which occurred on the site. Remedial area Site 11 is noted to be located to the south of the site and formerly comprised a soil and gravel quarry area and a tip site for rubble and general factory waste. This underwent extensive investigation works, prior to being excavated and disposed of offsite to a suitably licensed facility. A total of approximately 75,000 m^3 of impacted soils and buried waste was disposed of offsite. Validation samples were collected following the excavation and offsite disposal and samples were found to be within the Environmental Acceptance criteria utilised.

4.3 Central Precinct PFAS Assessment

Maryland Development Company PFAS Human Health and Ecological Risk Assessment Former St Marys ADI Property Central Precinct, Llandilo, NSW, 11 December 2017, JBSA&G Australia Pty Ltd

[27] ADI Limited – ADI St Mary's Property Historical Report

[28] *Detailed Site Investigation – Western Collector Road, Ropes Crossing, NSW*. 21 September 2017 JBS&G Australia Pty Ltd (Rev 1) JBS&G 2017a

[29] *Detailed Site Investigation – Western Collector Road Extension, Ropes Crossing, NSW*. 13 December 2017 JBS&G Australia Pty Ltd (Rev C) JBS&G 2017b

(JBS&G 2017[30]) has been previously prepared to detail levels of PFAS constituents across the Central Precinct site, and in particular SP30.

PFAS were identified as a low risk contaminant across several areas of the overall site, and a higher risk within a stockpile of soils sourced from historical sewage treatment processed (SP30) and retained on site. Sampling and analysis was undertaken of these areas to determine if PFAS impact is present. Measured levels of PFAS were assessed by Human Health and Ecological Risk Assessment (HHERA).

The scope of works undertaken for the PFAS sampling and analysis investigation included:

- Review of historical reports, records and other available sources of the former ADI property to obtain information on potential areas of concern (AECs) for PFAS;
- Soil investigation of historical sewage treatment sludge materials in SP30;
- Groundwater investigation targeting potential source areas throughout remaining low risk areas across the site at 16 monitoring well locations;
- Targeted groundwater investigation at stockpile SP30 by installation and assessment of four monitoring well locations;
- Data assessment and comparison to default/conservative investigation levels; and
- Human health and ecological risk assessment of detections including consideration of current and proposed locations of affected materials.

It was reported:

- PFAS impacts were generally absent from the extent of the site area assessed apart from stockpile SP30 and groundwater located immediately hydrogeologically downgradient of stockpile SP30;
- PFAS were identified in stockpile SP30 (former biosolid materials). The source of the PFAS is likely associated with historical sewage treatment activities associated with the formation of the stockpiled materials. This process was unique to these soils when considered across the extent of the site area;
- The levels of PFAS measured in soils in SP30 have not been found to pose a potential health or ecological risk (including via groundwater migration) where the materials are re-used on site in a commercial / industrial setting;
- Trace levels of PFAS constituents present in proximity of the Western Collector Road have not been found to pose a potential health or ecological risk;
- PFAS were identified in groundwater hydrogeologically downgradient and in close proximity to stockpile SP30. The groundwater impact is present consequent of leaching from stockpile SP30. When the localised extent of this impact across the wider St Marys site is considered, these levels of impact were found to be insufficient to pose a potential health or ecological risk; and
- A trace detection of PFAS was reported at the western extent of the Dunheved precinct. When considered with the extent of groundwater data across the site and the range of ecological assessment criteria available, this detection was found not to be sufficient to pose a potential ecological risk.

[30] *PFAS Human Health and Ecological Risk Assessment – Former St Marys ADI Property Central Precinct, Llandilo, NSW*. (Rev C) JBS&G Australia Pty Ltd (JBS&G 2017)

Based on this investigation, PFAS impact is considered to be only associate with former sewage effluent materials from the St Marys STP. Therefore, no further assessment of PFAS is required in the subject site area.

4.4 Western Collector Road DSI (JBS&G 2017a, JBS&G 2017b)

JBS&G conducted UXO clearance works and environmental investigation works on the Western Collector Road and Western Collector Road extension site in 2017. The Western collector road is located east of the site and is understood to form part of the previously existing road, the location of the Western collector road is shown on **Figures 1** and **2**.

The investigation included review of historical reports and information, UXO clearance works following the removal of the road pavement, test pitting and soil sampling of soils and comparison of soil analytical results against NEPC (2013) site suitability criteria to determine the suitability of the site for the proposed use as a road way.

Based on the findings of the investigation:

- No unexploded ordnance items were identified at the site and the site was cleared as free of UXO by the UXO clearance contractor;
- The soil samples collected reported concentrations of heavy metals, TRH, BTEX, OCPs, PCBs and PAHs below the adopted health based criteria (HIL-D).
- No ACM/asbestos was observed within the sample locations or within the samples analysed.
- Based on the groundwater results and targeted soil samples collected adjacent to the fire station, the upgradient Fire Station did not pose a risk to the site with concern to PFAS.
- It was considered that the site is suitable for the proposed road way with no further assessment, remediation or management of contamination issues.
- It was recommended that an unexpected find protocol be utilised for future works at the site.

5. Conceptual Site Model

5.1 Potential Areas and Substances of Environmental Concern

Based on the history of the site and based on previous investigations conducted, general areas of environmental concern have been categorised and are present in **Table 4.1**. Potential areas of impact at the site are associated with fill materials of unknown origin during construction of the road, areas of fly tipped waste on or adjacent to the paved road and potential residual impact from the pavement portion of the road to underlying soils. PFAS is not considered to be an issue at the site based on information in the site wide PFAS Human Health and Ecological Risk Assessment (JBS&G 2017) conducted and the targeted sampling conducted adjacent to the fire station in the Western collector road Assessments.

Table 4.1. Areas if Environmental Concern and Associated Contaminants of Potential Concern

Area of Environmental Concern (AEC)	Contaminants of Potential Concern (COPC)
Fill materials underlying the road	Heavy metals*, PAHs, TPH/BTEX, OCPs, OPPs, PCBs, asbestos and explosives** Metallic Debris – may contain explosive ordnance waste
Paved Road asphalt	Heavy metals*, PAHs, TPH/BTEX, asbestos and explosives** Coal Tar
Flytipping	Heavy metals*, PAHs, TPH/BTEX, OCPs, OPPs, PCBs and asbestos

* Heavy metals include As (Arsenic), Cu (Copper), Cr (Chromium), Cd (Cadmium), Ni (Nickel), Pb (Lead), Zn (Zinc) and Hg (Mercury).

** Explosives will include, but not limited to, RDX (research department explosive), TNT (trinitrotoluene), 2,4-DNT (2,4-Dinitrotoluene) and 2,6-DNT (2,6-dinitrotoluene).

5.2 Potentially Contaminated Media

Potentially contaminated media present at the site include:

- Fill material; and
- Natural soils underlying impacted fill materials; and
- Groundwater.

The source of the fill material across road footprints is unknown. Fill material across the site must therefore be considered a potentially contaminated medium.

Based on the known former site use for munitions testing and the unknown source of fill materials, vertical migration of contamination from the fill and surface soils into the underlying natural soils may have occurred. Consequently, natural soils underlying impacted fill materials have a moderate potential to be a contaminated media.

Groundwater has been previously investigated and signed off as part of the historical remediation and validation works conducted across the former ADI St Marys Property therefore significant groundwater impacts are not anticipated. In addition, JBS&G conducted a groundwater monitoring assessment (JBS&G 2016) in Central precinct and no impact was identified.

Given the site remains to be audited have not historically been located in munitions manufacturing or filling areas and the historical validation data for the development site surrounding the auditable areas does not indicate exceedances of volatile components it is considered unlikely that soil vapour is a contaminated media. However, should any volatile contaminants be detected in soil or groundwater this will be reassessed.

5.3 Potential Exposure Pathways

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review and review of previous investigations are generally in a solid form (e.g. heavy metals, asbestos, explosives, ordnance etc). As the site is currently paved there is a low potential for contaminates to have migrated via either windblown dust or surface water.

The potential for contaminants to migrate via groundwater is moderate to low, given the absence of mobile contaminants and the anticipated depth to groundwater.

Based on the contaminants of concern identified in various media as discussed above and based on the proposed site development activities, potential exposure pathways at the site during and following development works include:

- Potential dermal and oral contact to impacted soils as present at shallow depths and/or accessible by earthworks contractors; and/or

5.4 Potential Receptors

Potential receptors of may include:

- Excavation / construction / maintenance workers conducting activities at or in the vicinity of the site, who may potentially be exposed to COPCs through direct contact with impacted soils present within excavations and/or inhalation of dusts / fibres associated with impacted soils;
- Nearby surface water bodies including South Creek and Ropes Creek;
- Ecological receptors located adjacent to the road in NPWS areas; and
- Residential areas following completion of planned development works in Jordan Springs East and Ropes Crossing.

5.5 Preferential Pathways

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPCs as either liquids or gasses.

Man-made preferential pathways may be present at the site, generally associated with fill materials at near surface depths. Fill materials are anticipated to have a higher permeability than the underlying natural soil and/or bedrock.

6. Conclusions and Recommendations

6.1 Conclusions

Based on the findings of this investigation and subject to the limitations in **Section 7,** it is concluded that the site can be made suitable for the proposed use in accordance with SEPP 55 subject to the following actions:

- Completion of SAQP reviewed and endorsed by site accredited auditor;
- Pavement removal then UXO clearance;
- Detailed site assessment including soil sampling and laboratory analysis;
- Preparation of a detailed site investigation report documenting the findings of the assessment;
- If required a remedial action plan using the previously adopted remedial strategies at other roadways within the property; and
- Site audit statement identifying the site as suitable for the proposed use.

6.2 Recommendations

It is recommended that the six step process identified above is implemented as part of the planned redevelopment as conducted in previous areas of the site.

7. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures

Reference: Near Map Imagery 09-09-2017.

0 125 250 500 m

Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

Rev	Description	Drn.	Date:
A4			
	Original Issue - R01	BC	13-02-2018

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -
Council Areas

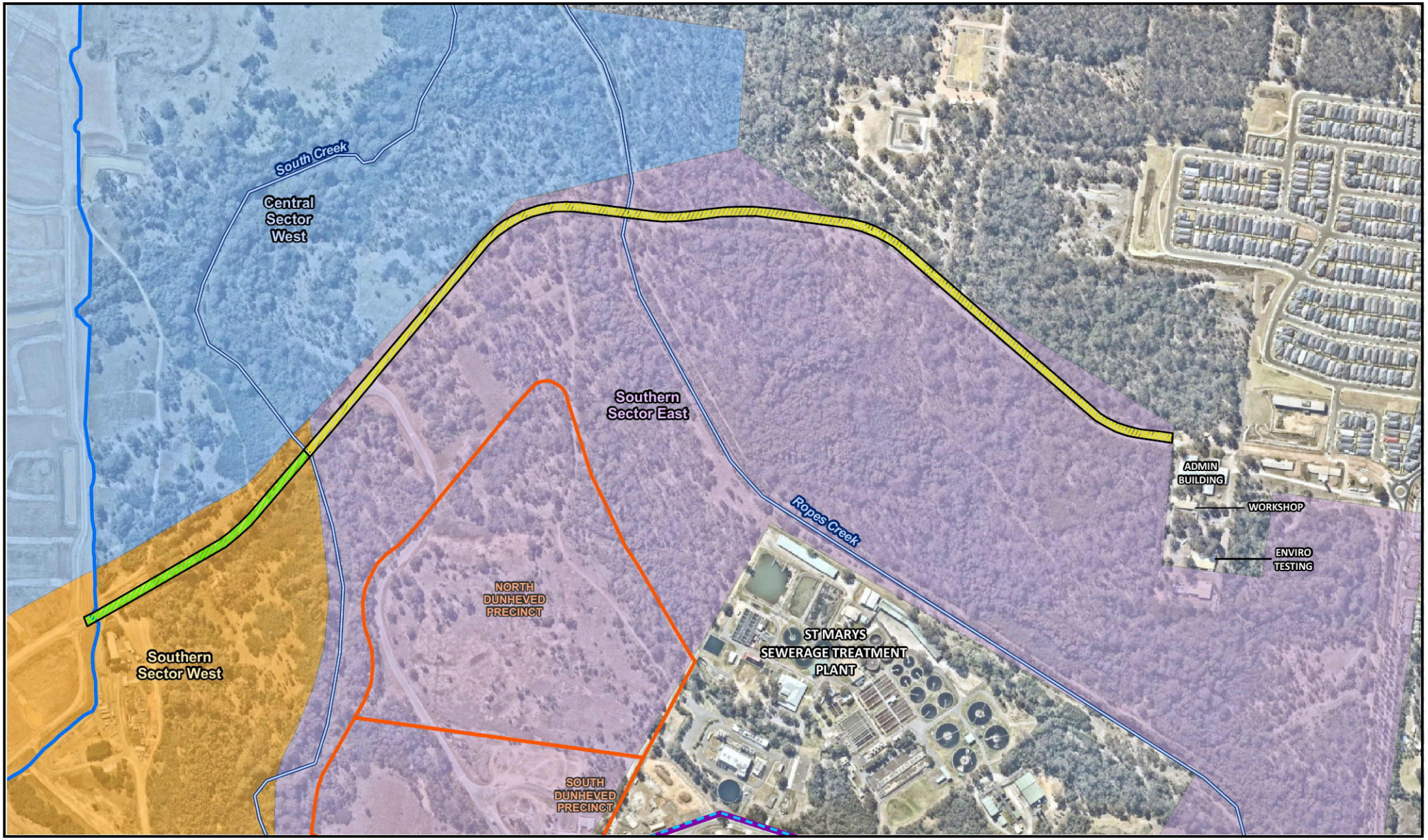
- Blacktown City Council
- Penrith City Council

JBS&G **Figure 1: Site Location**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_01



Reference: Near Map Imagery 09-09-2017.

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Datum: GDA 1994 MGA Zone 56 - AHD

Rev	Description	Drn.	Date:
A4			
	Original Issue - R01	BC	13-02-2018

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct
- Creek

East West Connector Road - Council Areas

- Blacktown City Council
- Penrith City Council

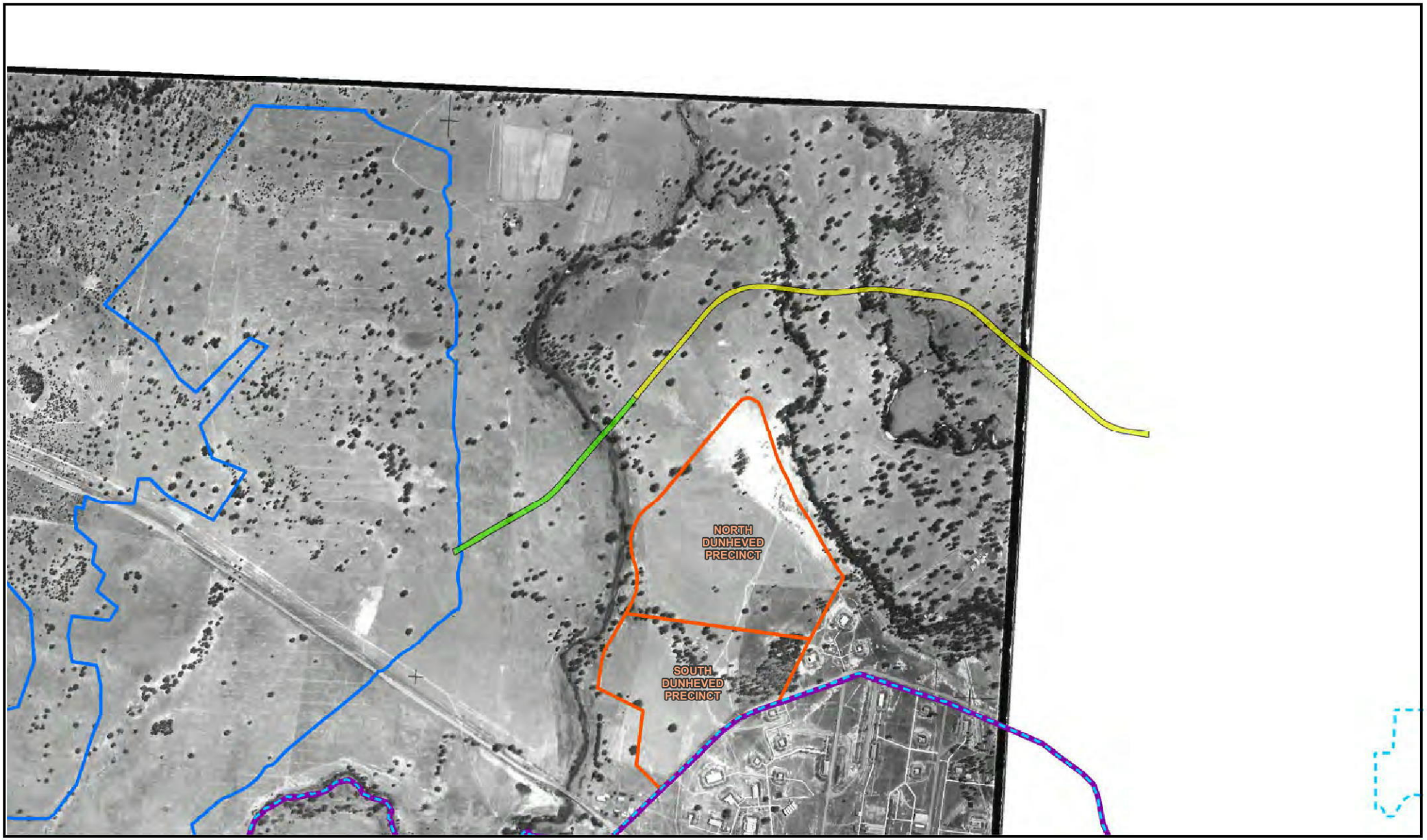
JBS&G **Figure 2: Site Layout**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_02

Appendix A Aerial Photographs



Reference: Spatial Services NSW, 1947

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Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

Rev	Description	Drn.	Date:
A4			
	Original Issue - R01	BC	12-02-2018

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -

Council Areas

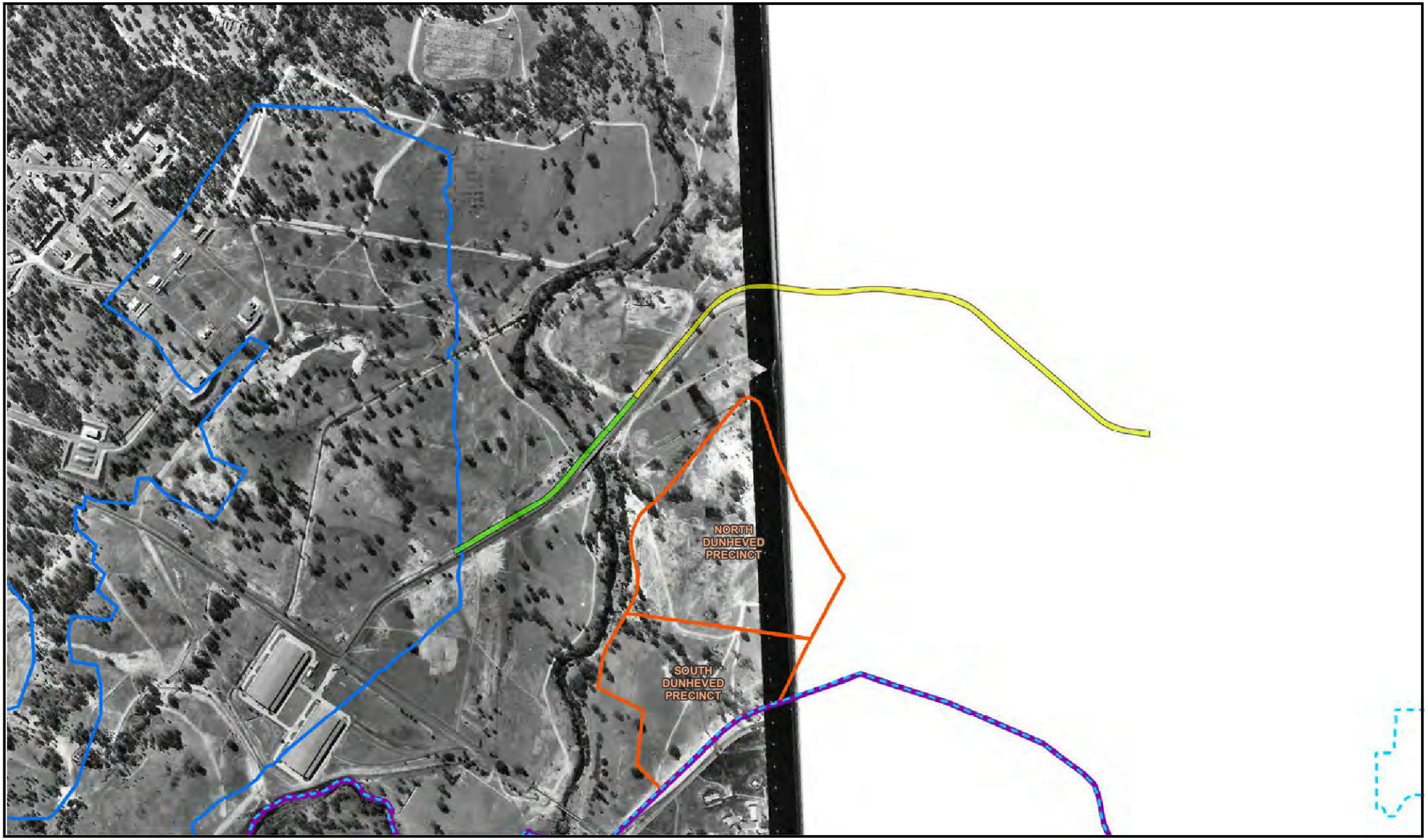
- Blacktown City Council
- Penrith City Council

JBS&G **Historical Aerial 1947**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_Aerials



Reference: Spatial Services NSW, 1965

0 125 250 500 m

Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

A4			
	Original Issue - R01	BC	12-02-2018
Rev	Description	Drn.	Date:

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -

Council Areas

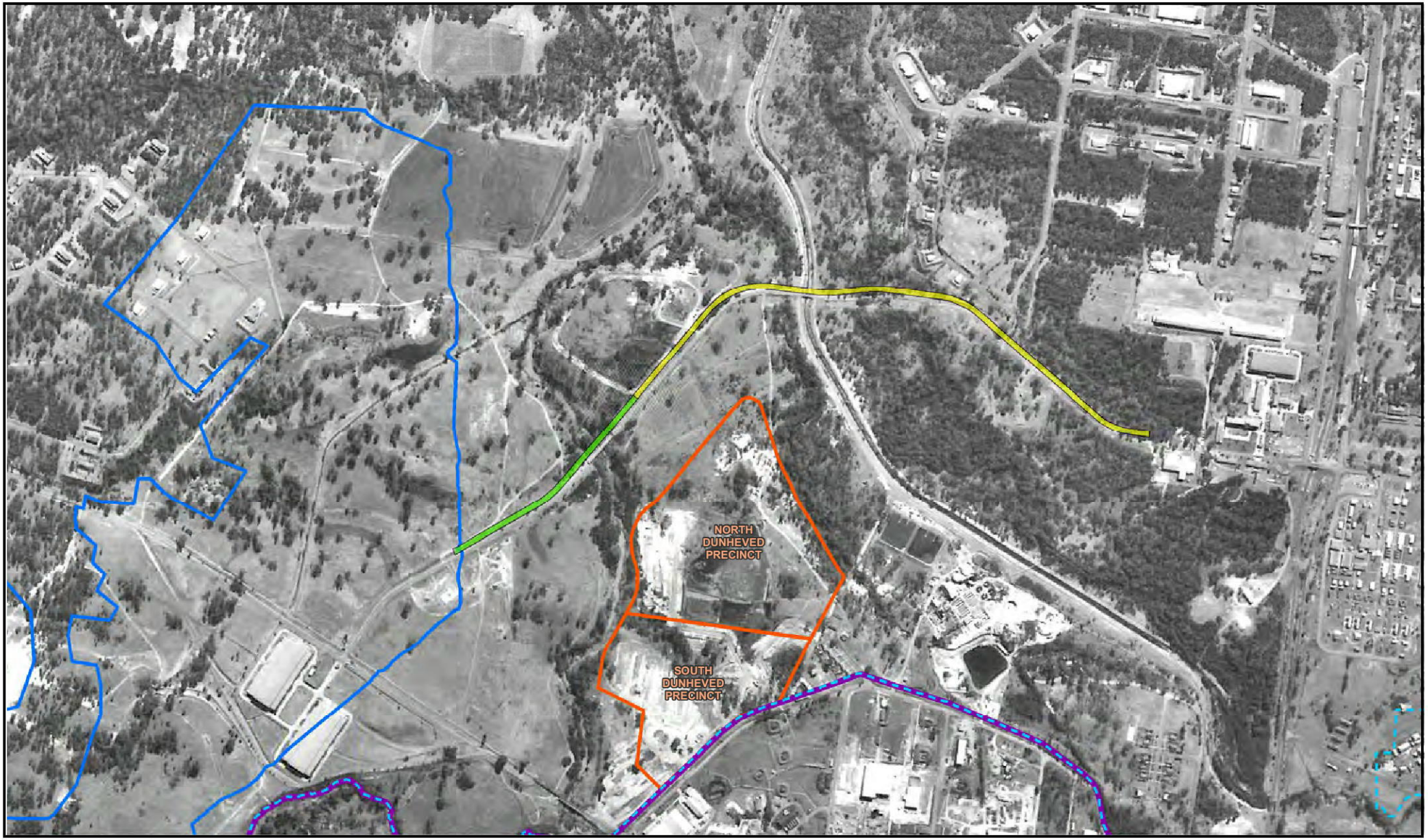
- Blacktown City Council
- Penrith City Council

JBS&G **Historical Aerial 1965**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_Aerials



Reference: Spatial Services NSW, 1975

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Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

A4			
	Original Issue - R01	BC	12-02-2018
Rev	Description	Drn.	Date:

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -

Council Areas

- Blacktown City Council
- Penrith City Council

JBS&G **Historical Aerial 1975**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_Aerials

Reference: Spatial Services NSW, 1991

0 125 250 500 m

Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

Rev	Description	Drn.	Date:
A4			
	Original Issue - R01	BC	12-02-2018

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -

Council Areas

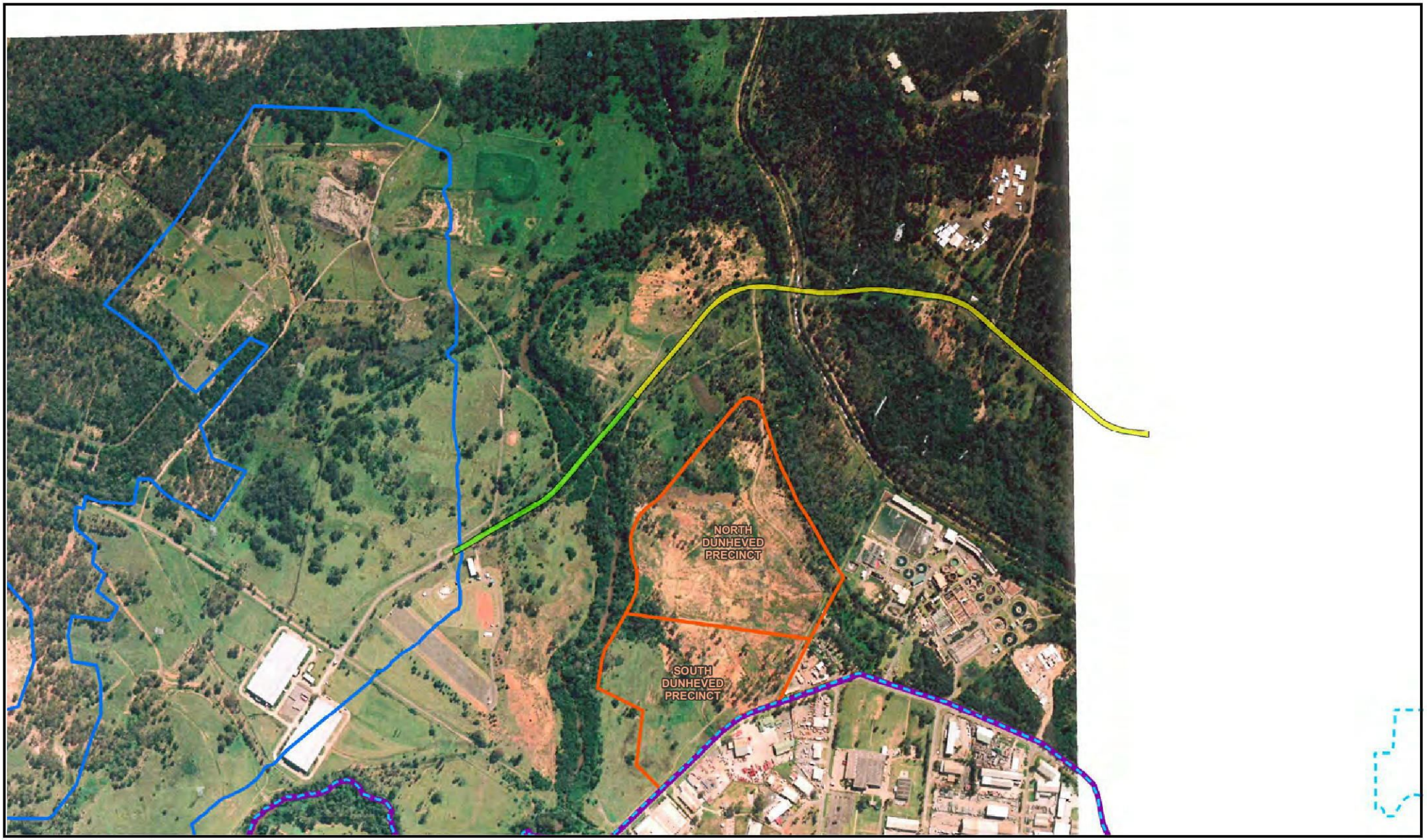
- Blacktown City Council
- Penrith City Council

JBS&G **Historical Aerial 1991**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_Aerials



Reference: Spatial Services NSW, 2002

0 125 250 500 m

Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

A4			
	Original Issue - R01	BC	12-02-2018
Rev	Description	Drn.	Date:

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -

Council Areas

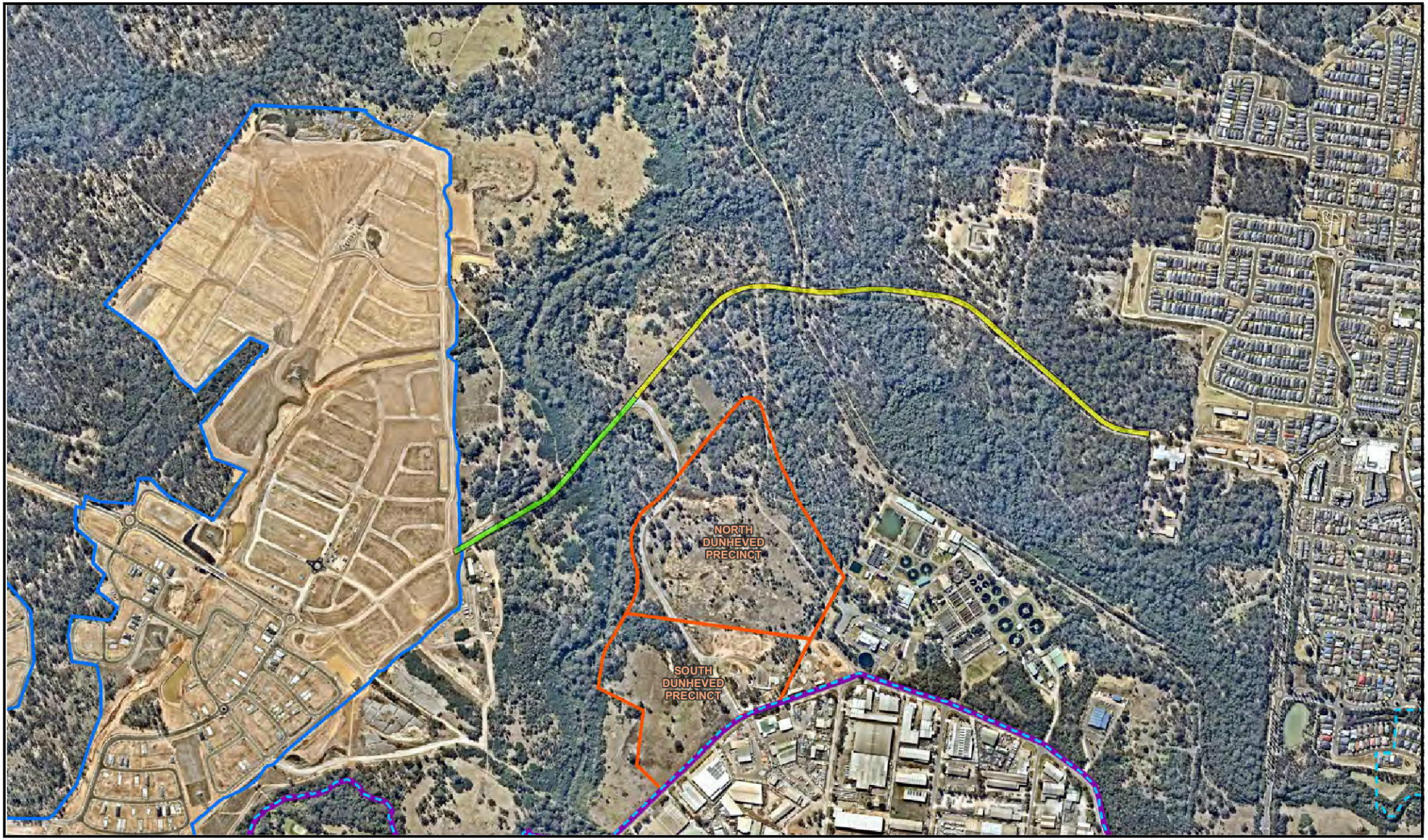
- Blacktown City Council
- Penrith City Council

JBS&G **Historical Aerial 2002**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_Aerials



Reference: Near Map Imagery 09-09-2017.

0 125 250 500 m

Scale: 1:12,500

Datum: GDA 1994 MGA Zone 56 - AHD

A4			
	Original Issue - R01	BC	12-02-2018
Rev	Description	Drn.	Date:

Legend:

- CHK001/1 Audit Statement Boundary
- Former ADI St Marys Property
- Central Precinct
- Dunheved Precinct

East West Connector Road -

Council Areas

- Blacktown City Council
- Penrith City Council

JBS&G **Historical Aerial 2017**

Client: Maryland Development Company

Project: Central Precinct

Job No: 54158 File Name: 54158_Aerials

Appendix B EPA Records

Search results

Your search for: Name (site, occupier, owner, recipient): ADI
Suburb: ST MARYS

Search Again
Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

8 February 2018

For business and industry ()

For local government ()

Contact us

131 555 (tel:131555)

Online (http://www.epa.nsw.gov.au/about-us/contact-us/feedback/feedback-form)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (http://www.epa.nsw.gov.au/about-us/contact-us/locations)

Find us on (https://

Home Environment protection licences POEO Public Register Search for licences, applications and notices

Search results

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

Name - ADI St Marys

returned 0 result

Search Again

For business and industry ()

For local government ()

Contact us

131 555 (tel:131555)

Online (http://www.epa.nsw.gov.au/about-us/contact-us/feedback/feedback-form)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (http://www.epa.nsw.gov.au/about-us/contact-us/locations)

List of NSW Contaminated Sites Notified to EPA as of 22 December 2017

Background

A strategy to systematically assess, prioritise and respond to notifications under Section 60 of the *Contaminated Land Management Act 1997* (CLM Act) has been developed by the EPA. This strategy acknowledges the EPA's obligations to make information available to the public under *Government Information (Public Access) Act 2009*.

When a site is notified to the EPA, it may be accompanied by detailed site reports where the owner has been proactive in addressing the contamination and its source. However, often there is minimal information on the nature or extent of the contamination.

For some notifications, the information indicates the contamination is securely immobilised within the site, such as under a building or carpark, and is not currently causing any offsite consequences to the community or environment. Such sites would still need to be cleaned up, but this could be done in conjunction with any subsequent building or redevelopment of the land. These sites may not require intervention under the CLM Act, but could be dealt with through the planning and development consent process.

Where indications are that the nominated site is causing actual harm to the environment or an unacceptable offsite impact (i.e. it is a "significantly contaminated site"), the EPA would apply the regulatory provisions of the CLM Act to have the responsible polluter and/or landowner investigate and remediate the site.

As such, the sites notified to the EPA and presented in the following table are at various stages of the assessment and/or remediation process. Understanding the nature of the underlying contamination, its implications and implementing a remediation program where required, can take a considerable period of time. The tables provide an indication, in relation to each nominated site, as to the management status of that particular site. Further detailed information may be available from the EPA or the responsible landowner.

The following questions and answers may assist those interested in this issue:

Frequently asked questions

What is the difference between the "List of NSW Contaminated Sites Notified to the EPA" and the "Contaminated Land: Record of Notices"?

A site will be on the Contaminated Land: Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the *Contaminated Land Management Act 1997*.

The sites appearing on this "List of NSW contaminated sites notified to the EPA" indicate that the notifiers consider that the sites are contaminated and warrant reporting to the EPA. However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review and, if necessary, obtain more information before it can make a determination as to whether the site warrants regulation.

Why my site appears on the list?

Your site appears on the list because of one or more of the following reasons:

- The site owner and/or the person partly or fully responsible for causing the contamination notified to the EPA about the contamination under Section 60 of the *Contaminated Land Management Act 1997*. In other words, the site owner or the "polluter" believes the site is contaminated.
- The EPA has been notified via other means and is satisfied that the site is or was contaminated.

Does the list contain all contaminated sites in NSW?

No. The list only contains contaminated sites that the EPA is aware of, with regard to its regulatory role under the CLM Act. An absence of a site from the list does not necessarily imply the site is not contaminated.

The EPA relies upon responsible parties to notify contaminated sites.

How are these notified contaminated sites managed by the EPA?

There are different ways that the EPA manages these notified contaminated sites. First, an initial assessment is carried out by the EPA. At the completion of the initial assessment, the EPA may take one or more than one of the following management approaches:

- The contamination warrants the EPA's direct regulatory intervention either under the *Contaminated Land Management Act 1997* or the *Protection of the Environment Operations Act 1997* (POEO Act), or both. Information about current or past regulatory action on this site can be found on EPA website.
- The contamination with respect to the current use or approved use of the site, as defined under the *Contaminated Land Management Act 1997,* is not significant enough that it warrants EPA regulation.
- The contamination does not require EPA regulation and can be managed by a planning approval process.
- The contamination is related to an operational Underground Petroleum Storage System, such as a service station or fuel depot. The contamination may be managed under the POEO Act and the Protection of the Environment Operation (Underground Petroleum Storage Systems) Regulation 2008.
- The contamination is being managed under a specifically tailored program operated by another agency (for example the Department of Industry and Investment's *Derelict Mines Program*).

I am the owner of a site that appears on the list. What should I do?

First of all, you should ensure the current use of the site is compatible with the site contamination. Secondly, if the site is the subject of EPA regulation, make sure you comply with the regulatory requirements, and you have considered your obligations to notify other parties who may be affected.

If you have any concerns, contact us and we may be able to offer you general advice, or direct you to accredited professionals who can assist with specific issues.

I am a prospective buyer of a site that appears on the list. What should I do?

You should seek advice from the vendor to put the contamination issue into perspective. You may need to seek independent expert advice.

The information provided in the list is meant to be indicative only, and a starting point for your own assessment. Site contamination as a legacy of past site uses is not uncommon,

particularly in an urbanised environment. If the contamination on a site is properly remediated or managed, it may not materially impact upon the intended future use of the site. However, each site needs to be considered in context.

List of NSW Contaminated Sites Notified to the EPA

Disclaimer

The EPA has taken all reasonable care to ensure that the information in the list of contaminated sites notified to the EPA (the list) is complete and correct. The EPA does not, however, warrant or represent that the list is free from errors or omissions or that it is exhaustive.

The EPA may, without notice, change any or all of the information in the list at any time.

You should obtain independent advice before you make any decision based on the information in the list.

The list is made available on the understanding that the EPA, its servants and agents, to the extent permitted by law, accept no responsibility for any damage, cost, loss or expense incurred by you as a result of:

1. any information in the list; or
2. any error, omission or misrepresentation in the list; or
3. any malfunction or failure to function of the list;
4. without limiting (2) or (3) above, any delay, failure or error in recording, displaying or updating information.

Site Status	Explanation
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or *Protection of the Environment Operations Act 1997*. Alternatively, the EPA may require information via a notice issued under s77 of the *Contaminated Land Management Act 1997* or issue a Preliminary Investigation Order.
Regulation under CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the *Contaminated Land Management Act 1997* is not required.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997*. A regulatory approach is being finalised.

Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the *Protection of the Environment Operations Act 1997* (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the *Environmental Planning and Assessment Act 1979* (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the *Protection of the Environment Operations Act 1997* (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the *Environmental Planning and Assessment Act 1979* (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the *Contaminated Land Management Act 1997* (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

Suburb	Site Name	Site Address	Contamination Activity Type	EPA Management Class	Latitude	Longitude
SPRINGVALE	Springvale Colliery	Castlereagh HIGHWAY	Other Industry	Regulation under CLM Act not required	-33.40334736	150.1070462
ST CLAIR	7-Eleven (former Mobil) Service Station	4 Endeavour AVENUE	Service Station	Regulation under CLM Act not required	-33.79430926	150.7885793
ST IVES	7-Eleven (former Mobil) St Ives Service Station	157-159 Mona Vale (Cnr Putarri Ave) ROAD	Service Station	Regulation under CLM Act not required	-33.73265301	151.1563899
ST IVES	Caltex Service Station	164 Mona Vale ROAD	Service Station	Regulation under CLM Act not required	-33.7307595	151.1570462
ST IVES	Caltex Service Station	363 Mona Vale ROAD	Service Station	Regulation under CLM Act not required	-33.7168971	151.1735263
ST IVES	Caltex Service Station	452 Mona Vale ROAD	Service Station	Regulation under CLM Act not required	-33.70752272	151.187545
ST IVES	Shell Service Station	179-181 Mona Vale ROAD	Service Station	Contamination currently regulated under CLM Act	-33.73124859	151.1575827
ST MARYS	7-Eleven (former Mobil) Service Station	2 Christie STREET	Service Station	Regulation under CLM Act not required	-33.74790843	150.7767667
ST MARYS	7-Eleven (former Mobil) Service Station	2 Wilson STREET	Service Station	Regulation under CLM Act not required	-33.77790415	150.771689
ST MARYS	Caltex St Marys Service Station	Wordoo St Cnr Forrester ROAD	Service Station	Regulation under CLM Act not required	-33.75334263	150.7755489
ST MARYS	Chemcolour Industries Ltd	19-25 Anne STREET	Chemical Industry	Under assessment	-33.75027071	150.7725397
ST MARYS	Former Woolworths Service Station	120-128 Forrester ROAD	Service Station	Regulation under CLM Act not required	-33.75525115	150.7752897
ST MARYS	Integral Energy Mt Druitt Transmission Substation	69 Kurrajong North ROAD	Other Industry	Regulation under CLM Act not required	-33.76376093	150.7921691
ST PETERS	BP Express Service Station	2 Princes HIGHWAY	Service Station	Regulation under CLM Act not required	-33.90982281	151.1809936
ST PETERS	Camdenville Park	May STREET	Other Industry	Regulation under CLM Act not required	-33.90911815	151.176951
ST PETERS	Cooks River Rail Terminal	20 Canal ROAD	Unclassified	Regulation under CLM Act not required	-33.91943986	151.1726689
ST PETERS	Former Industrial Manufacturing Facility	75 Mary STREET	Other Industry	Regulation under CLM Act not required	-33.91307297	151.1731383
ST PETERS	Former Tidyburn Facility	53 Barwon Park ROAD	Chemical Industry	Contamination formerly regulated under the CLM Act	-33.9130091	151.1809912
STANMORE	125 Corunna Road	125 Corunna ROAD	Unclassified	Regulation under CLM Act not required	-33.88937382	151.1644589
STRATHFIELD	7-Eleven (former Mobil) Service Station	577 Liverpool ROAD	Service Station	Regulation under CLM Act not required	-33.88736091	151.0743474
STRATHFIELD SOUTH	Former Landfill Site	7-9 Dunlop STREET	Landfill	Regulation under CLM Act not required	-33.89509698	151.0796751
STROUD	Stroud Fuel Supplies (Former Caltex) Service Station	1 Cowper STREET	Service Station	Regulation under CLM Act not required	-32.39092749	151.9563089
SUFFOLK PARK	BP Service Station	207-209 Broken Head ROAD	Service Station	Regulation under CLM Act not required	-28.68800088	153.6083821
SUFFOLK PARK	Suffolk Park dip site	Cnr Broken Head Road & Beech DRIVE	Cattle Dip	Regulation under CLM Act not required	-28.6874242	153.6072824
SURRY HILLS	Ausgrid Road Reserve	Mary STREET	Other Industry	Regulation under CLM Act not required	-33.88292195	151.2095176

Appendix C Heritage Records

Australian Heritage Places Inventory

AUSTRALIAN HERITAGE PLACES INVENTORY

Search for an Australian Heritage Place

Record Identifier:

Place Name: ADI st Marys

Keyword or full name, eg 'customs house' or 'Cairns Customs House'

Search

Location:

Street or Town name, e.g. 'Macquarie' for Macquarie Place (avoid using street types)

Local Government:

Clea

Local Government Area keyword, eg 'aramac'

State:

Country:

Part or all of the name of a country, eg - 'fran'

Statement of Significance:

Description:

Keyword or key phrase eg 'statue' or 'eucalyptus intermedia'

Source:

One record found.

Records per page: 10

Place Name	Location	Local Government	Source
Western Sydney Shale Woodland St Marys	Forrester Rd, St Marys	Blacktown City	Register of the National Estate

Office of Environment & Heritage

Home > Topics > Heritage places and items > Search for heritage

Search for NSW heritage

Your search did not return any matching results. Please refine your search and try again.

The State Heritage Inventory is a list of heritage items in New South Wales including Aboriginal Places, State Heritage Register, Interim Heritage Orders, State Agency Heritage Registers and Local Environmental Plans.

The Heritage Division is directly responsible for maintaining **Aboriginal Places** and the **State Heritage Register**. A new **combined map search** is now available. For further information about Aboriginal Places and Sites refer to **AHIMS Web Services**

Whilst the Heritage Division seeks to keep the Inventory up to date, it is reliant on State agencies and local councils to provide their data. Always check with the relevant State agency or local council for the most up-to-date information.

Visit **State Heritage Inventory help** if you are unfamiliar with this search facility.

Basic search criteria

Item name/database ID:

Street name:

Suburb/town:

Local Government Area: Blacktown

Local Aboriginal Land Council (LALC): Please Choose...

(For Aboriginal Place and State Heritage Register only)

Heritage listings: Please Choose...

SHR number:

Additional search criteria

NOTE: For items listed by local councils, there may not be information in the additional search criteria fields.

Owner organisation*:

Designer/builder:

Year of construction: from

to:

Item type: Please Choose...

Item group: Please Choose...

Item category: Please Choose...

Australian historic theme: Please Choose...

NSW historic theme: Please Choose...

Significance, description, historical notes:

Information complete:

Search

Reset

***View owner organisation names for section 170 heritage and conservation registers**

Search Aboriginal Places & State Heritage Register

The combined map search below is for Aboriginal Places and State Heritage Register items only. It does not include Interim Heritage Orders, State Agency Heritage Registers and Local Environmental Plans.

The location of Aboriginal Places and State Heritage Register items are marked on the map as a single approximation point for general identification and research purposes only.

Location information for some Aboriginal Places (e.g. burial grounds and sacred sites) have been generalised because of their cultural sensitivity. Location information for restricted Aboriginal Places is not shown at all. If an activity or development is proposed that may potentially impact on or harm (i.e., damage, deface or destroy) an Aboriginal Place, then proponents must undertake a search for the exact boundaries of Aboriginal Places through **AHIMS Web Services**.

Downloading of State Heritage Register spatial datasets and associated metadata into a Geographical Information System (GIS) software package is available through **Data NSW**

Listing Type:

All Aboriginal Places State Heritage Register

Local government area: Please Choose...

Item name/Database ID:

SHR number:

Location:

Local Aboriginal Land Council (LALC): Please Choose...

State theme: Please Choose...

Item type: Please Choose...

Item Group: Please Choose...

Item category: Please Choose...

Search
Reset

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