

Picton Road upgrade between Nepean River and Almond Street, Wilton

Review of Environmental Factors

Appendix I

Phase 1 Preliminary Site
Investigation







Picton Road upgrade between Nepean River and Almond Street, Wilton

Stage 1 Preliminary Site Investigation

Transport for NSW

January 2024



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Executive Summary

Transport for NSW (Transport) proposes to upgrade three key sections of Picton Road. The subject of this report, the proposal, forms the western section of the broader Picton Road upgrade. The proposal includes upgrading the section of Picton Road from about 1.3 kilometres (km) east of the bridge over the Nepean River to about 200 metres (m) east of Almond Street, including the M31 Hume Motorway interchange at Wilton.

The proposal is subject to assessment by a review of environmental factors (REF) under Division 5.1 of *Environmental Planning and Assessment Act 1979* (EP&A Act). For the purposes of these works, Transport for NSW is the proponent and the determining authority under Division 5.1 of the EP&A Act.

GHD was commissioned to carry out a Stage 1 Preliminary Site Investigation (PSI) for contamination for inclusion in the REF to support the application for project approval under the Part 5, Division 5.1 of the EP&A Act.

The objective of this Stage 1 PSI is to qualitatively assess, to the extent practicable and using available information combined with a site walkover, potential contamination sources to land within the proposal site associated with current and historical land uses, and to identify areas of potential environmental concern which may require further investigation.

The scope of work developed to meet these objectives included a desktop study of site history and review of a concurrent investigation reports including mine subsidence, soil, groundwater and surface water test results, site walkover, interpretation of this information and making conclusions and recommendations in relation to the above objectives.

Site history information indicated that the proposal passes through an area historically used as rural land for agricultural purposes, such as livestock grazing, which was sparsely vegetated however remnant pockets of bushland were also present. Prior to 1990, development was generally sparse comprising rural residential dwellings, sheds, stabling areas, paddocks, minor roads, orchard and farm dams. Horse breeding was a key activity in the Wilton area from the late 1880s.

The western end of Picton Road was constructed by 1984. The remaining sections of Picton Road and M31 Hume Motorway were progressively constructed between 1984 and 1994, with the eastern portion of Picton Road completed by 1994. Between 1990 and 2022, the Wilton area was progressively developed where relatively large rural areas were replaced by low density residential subdivisions. The construction of supporting infrastructure including the Wilton Recycled Water Treatment Plant and Wilton Zone substation commenced in 2011 and were completed by 2017 and 2012, respectively. Other infrastructure such as new roads were formed concurrently with the subdivision development. The residential subdivisions and supporting infrastructure occurred outside but adjacent to the proposal.

Based on investigation results, potential for contamination was identified in ten areas of environmental concern (AECs) potentially impacting soil, surface water and groundwater (see Table 6.1). Six AECs were identified within the proposal site whilst the remaining four were located outside of the proposal site but considered to have a potential for on-site migration of contamination. The likelihood for contamination to exist within the identified AECs was assessed as very low to high, which is further discussed in the table below along with associated contaminants of potential concern (COPCs). Potential Source Pathway Receptor (SPR) linkages were assessed and could be complete for:

- Human receptor:
 - Construction workers/visitors may encounter contamination in the form of fill, waste, fly tipping, hazardous building materials (e.g. asbestos containing materials (ACM) fragments or sheeting, impacts from paint systems containing heavy metals, volatile halogenated compound (VHCs)), dam sediments during earthworks and/or grubbing activities. Occurrences are expected to be localised but present throughout the proposal site.

- Ecological receptors:
 - During construction due to mobilisation of contaminants from exposed soils.
 - Some heavy metals exceed water quality assessment criteria (ANZG, 2018) in surface water bodies that occur within, pass through or adjoin the proposal.

Based on the results of this Stage 1 PSI for contamination, a Stage 2 detailed site investigation (DSI) is recommended for four AECs (AEC 1, AEC 2, AEC 3 and AEC 8) where the likelihood of contamination to exist is assessed as moderate to high and high, to assess if SPR linkages are complete. It should be noted that the Stage 2 DSI is to specifically target these AECs and not assess the entire proposal site.

AECs where the likelihood of contamination was assessed as moderate to low, low and very low can be managed at the time of construction should contamination be encountered. For AEC 7 and AEC 9, contamination, if present, is unlikely to migrate and impact the proposal site. These AECs do not require further investigation or management based on the current configuration of the proposal site.

It is recommended that a Construction Environmental Management Plan (CEMP) be prepared to manage the potential contaminant exposure risks during construction activities, and manage potential unexpected finds (e.g. buried waste, demolition waste, asbestos containing material (ACM), etc) that could be encountered. The CEMP should also include an Unexpected Finds Protocol (UFP) and site-specific Work Health Safety and Environment (WHSE) plan. A site-specific WHSE plan should be prepared, to ensure appropriate safety and workplace hygiene practices are implemented to minimise potential risks from exposure to contamination. The WHSE plan must address all relevant regulatory requirements and as a minimum, should consider incorporating the relevant practices set out in CRC Care (2018) *National Remediation Framework: Guideline on health and safety*, Version 0.1: August 2018 (ref: https://www.crccare.com/files/dmfile/Healthandsafety_Rev0.pdf).

This report is subject to, and must be read in conjunction with, the limitations set out in section 1.7 and the assumptions and qualifications contained throughout the report.

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1. Introduction

1.1 The proposal

Transport for NSW (Transport) proposes to upgrade Picton Road between the Nepean River and Almond Street in Wilton, NSW (the proposal). The proposal includes upgrading the section of Picton Road from about 1.3 kilometres (km) east of the bridge over the Nepean River to about 200 metres (m) east of Almond Street, including the M31 Hume Motorway interchange.

The proposal forms the western section of the broader Picton Road upgrade, which involves upgrading about 30 km of Picton Road between the Nepean River and the M1 Princes Motorway.

The proposal is subject to assessment by a review of environmental factors (REF) under Division 5.1 of *Environmental Planning and Assessment Act 1979* (EP&A Act). For the purposes of these works, Transport for NSW is the proponent and the determining authority under Division 5.1 of the EP&A Act.

1.1.1 Proposal location

The proposal is located within the suburb of Wilton, in the Wollondilly local government area (LGA). The proposal site, shown in Figure 1.1 and Figure 1.2, comprises the area that would be required to construct and operate the proposal, including ancillary facilities and operational infrastructure.

1.1.2 Key features of the proposal

Key features of the proposal include:

- widening and upgrading Picton Road for a distance of about 5 km between the Nepean River and Almond Street to provide:
 - a minimum of two 3.5 m wide traffic lanes in each direction with a central median, increasing to three traffic lanes in each direction approximately between Wilton Park Road and Aerodrome Drive and the Pembroke Parade and Greenway Parade intersection
 - three-metre-wide shoulders on the left lane side in each direction
- upgrading the existing Picton Road and M31 Hume Motorway interchange into a diverging diamond layout, including:
 - removing the existing Picton Road bridge and constructing two new bridges over the M31 Hume Motorway
 - upgrading and realigning on and off ramp connections with the M31 Hume Motorway to suit the new interchange layout and to allow free flow of traffic between Picton Road and the M31 Hume Motorway
 - providing a new 4 m wide shared user path along the southern bridge
 - removing the existing traffic signals on Picton Road and installing new traffic signals with more efficient phasing and more traffic capacity
- new and upgraded shared paths on Picton Road, including underpasses under the southbound on ramp connections to the M31 Hume Motorway and an overpass of the northbound off ramp connection from the M31 Hume Motorway, located:
 - adjacent to the westbound slow lane of the proposal from the western extent to around 420 m west of Almond Street to connect with planned active transport infrastructure to be delivered as part of the South East Wilton development
 - adjacent to the eastbound slow lane between Aerodrome Drive and the western extent of the proposal and between Pembroke Parade and Almond Street
- reconfiguring the existing Picton Road intersections with Wilton Park Road, Aerodrome Drive, Janderra Lane and Almond Street into left in, left out only (the timing of delivery of the reconfigured Almond Street intersection is subject to confirmation of timeframes for delivery of other road works planned at the intersection as outlined in section 1.1.3 and chapter 3 of the REF)

- integration with new traffic signals and widening roadworks constructed in 2023 at the intersection of Picton Road and Pembroke Parade and Greenway Parade
- adjusting the posted speed from the western extent of the proposal, through the interchange and to the east of Pembroke Parade to 60 kilometres per hour (km/h)

Ancillary work and construction activities associated with the proposal would include:

- property works including acquisition, and adjustment to existing accesses and fencing
- civil earthworks and drainage works
- construction and adjustment of retaining walls, road pavement, and water quality devices
- tie-in work to adjoining sections of Picton Road, M31 Hume Motorway and other local roads
- installing and adjusting roadside furniture and delineation, such as safety barriers, kerb and gutter, fencing, lighting, signage, noise treatment and pavement markings
- installing new intelligent transport systems including, but not limited to, closed circuit television and variable message signs
- protecting, adjusting and relocating existing utilities and associated structures
- landscaping and rehabilitation of disturbed areas
- adjustment and provision of noise treatments, including at-property works and noise mounds, as required
- establishment of temporary ancillary facilities to support construction including compound sites, site offices, stockpiles, access tracks, turning bays, median crossovers on the M31 Hume Motorway, and laydown areas
- site preparation works, including vegetation clearing and grubbing, site fencing, temporary drainage measures, traffic management, and implementation of environmental management measures.

Further information about the proposal is provided in chapter 3 of the REF.

1.2 Purpose of this report

This Stage 1 Preliminary Site Investigation (PSI) for contamination has been prepared by GHD Pty Ltd (GHD) on behalf of Transport for inclusion in the REF under Division 5.1 of the EP&A Act.

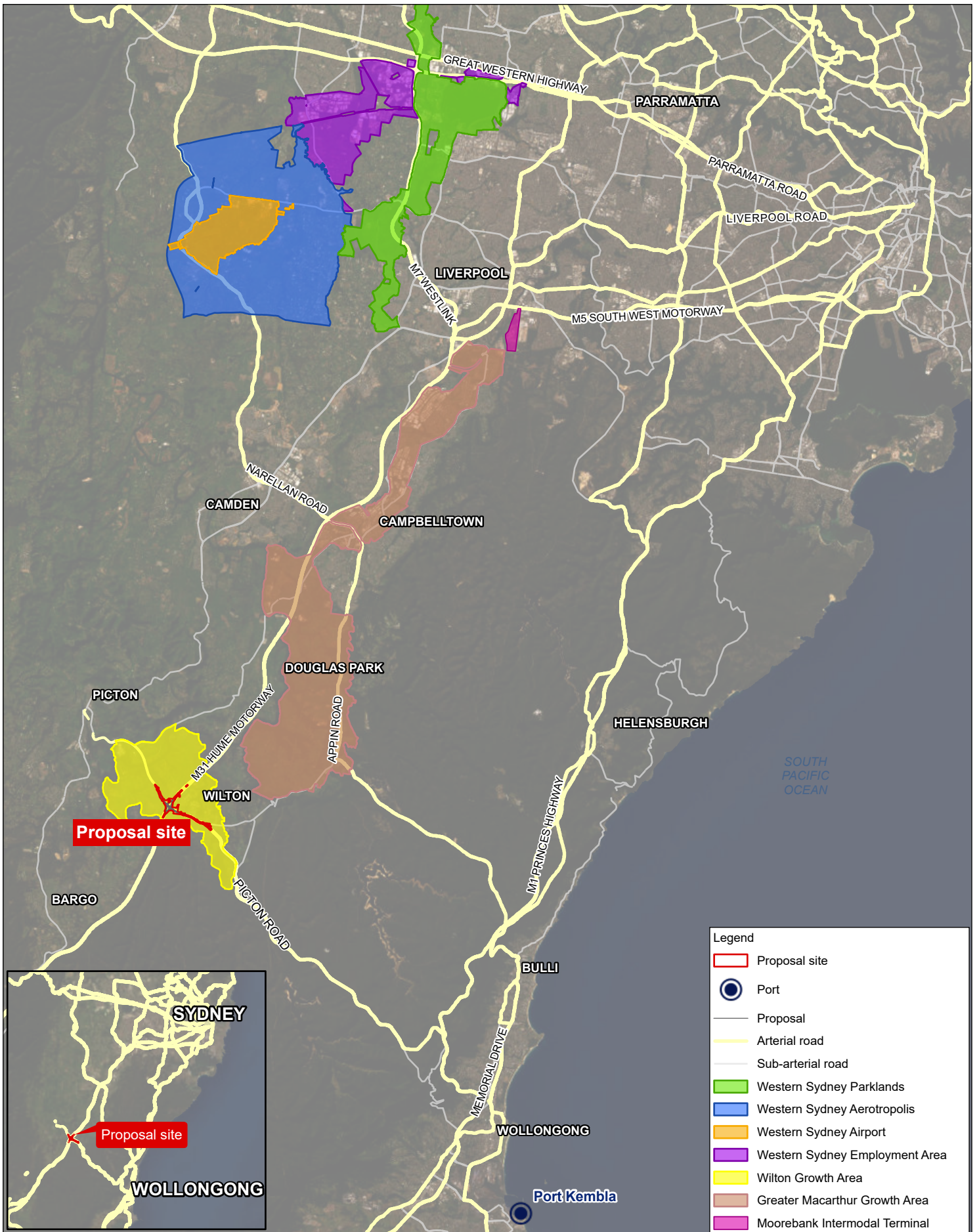
This report provides information in relation to contamination within and immediately adjacent to the proposal site.

1.3 Defining the site

The proposal site has been subdivided into the following six sections for the purposes of the Stage 1 PSI, as shown in Figure 1.0, Appendix A:

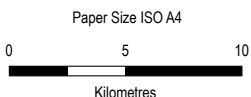
- Section 1: Western extent to chainage 0.2 km east along Picton Road
- Section 2: Chainage 0.2 km east along Picton Road to the intersection with the M31 Hume Motorway
- Section 3: Picton Road / M31 Hume Motorway interchange and Condell Park Road
- Section 4: East of the M31 Hume Motorway interchange along Picton Road to chainage 1.2 km
- Section 5: East along Picton Road chainage 1.2 km to 2.6 km
- Section 6: Ancillary facilities:
 - Median Area 1: approximately 1.8 km north of the M31 Hume Motorway interchange
 - Median Area 2: approximately 1.4 km south of the M31 Hume Motorway interchange.

The overall proposal is shown in Figure 1.2. The proposal and sections are shown in Figure 1.0 to 1.7, Appendix A.



Legend

- Proposal site
- Port
- Proposal
- Arterial road
- Sub-arterial road
- Western Sydney Parklands
- Western Sydney Aerotropolis
- Western Sydney Airport
- Western Sydney Employment Area
- Wilton Growth Area
- Greater Macarthur Growth Area
- Moorebank Intermodal Terminal



Map Projection: Transverse Mercator
 Horizontal Datum: GDA2020
 Grid: GDA2020 MGA Zone 56

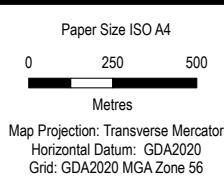
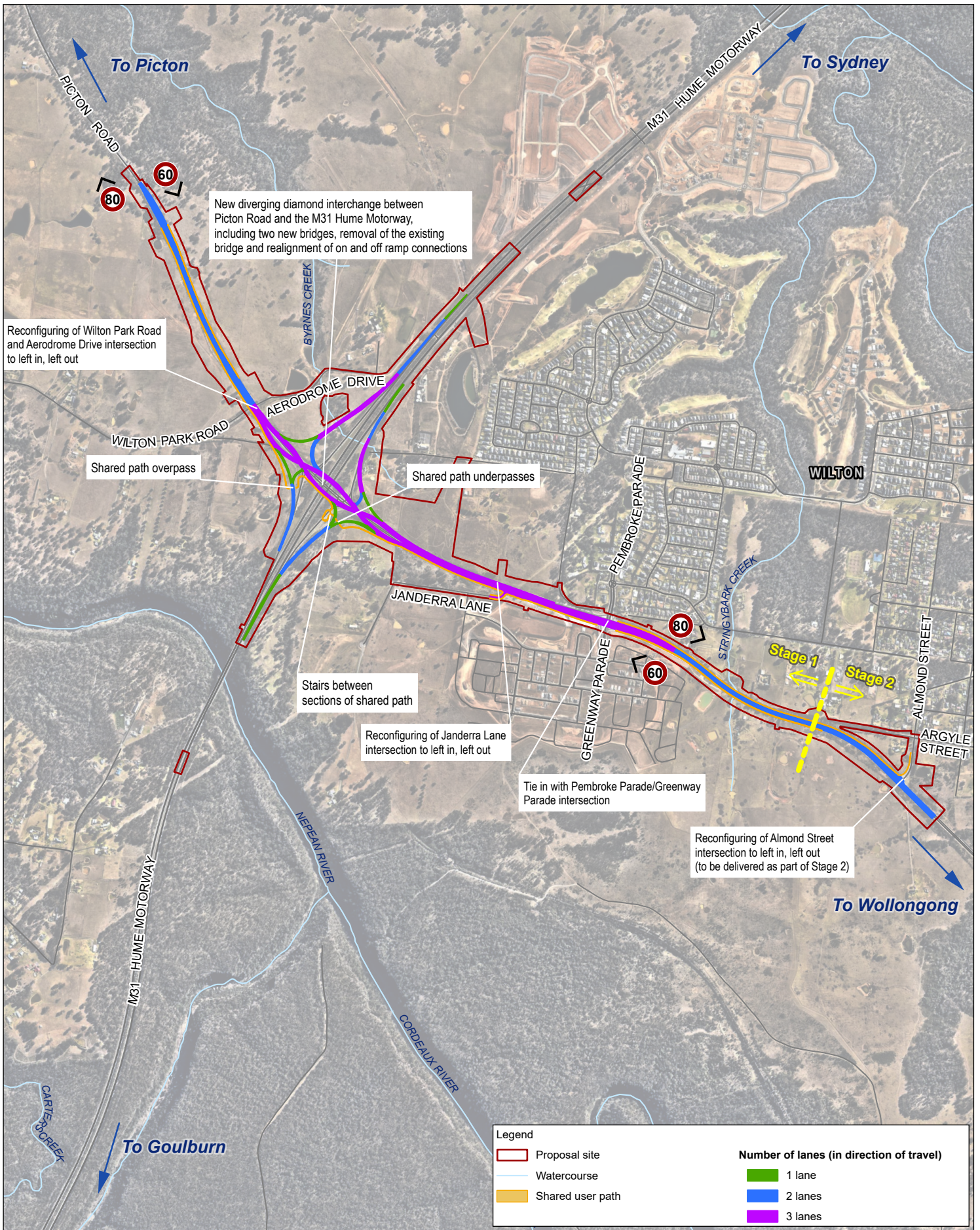


Transport for NSW
Picton Road upgrade between
Nepean River and Almond Street, Wilton –
Preliminary site investigation

Project No. 12560200
 Revision No. 0
 Date 24/10/2023

Location of the proposal

FIGURE 1.1



Transport for NSW
**Picton Road upgrade between
 Nepean River and Almond Street, Wilton –
 Preliminary site investigation**

Project No. 12560200
 Revision No. 0
 Date 24/10/2023

The proposal

FIGURE 1.2

1.4 Objective

The objective of this Stage 1 PSI is to qualitatively assess, to the extent practicable and using available information combined with a site walkover, potential contamination sources within the proposal site associated with current and historical land uses, and to identify areas of potential environmental concern which may require further investigation.

1.5 Scope of work

To meet the above objectives, the following scope of work was carried out:

- review of published information (e.g., topographic, geological, soil landscape, acid sulfate soil maps)
- specific information reviewed for assessing the likelihood of potential contamination to exist at the site including a review of aerial photographs, previous reports prepared for surrounding developments, and reports prepared by GHD as part of the development of this proposal; search of WaterNSW groundwater bore database and NSW Environmental Protection Authority (EPA) databases
- site walkovers to visually assess potential sources of contamination, observe surrounding land uses, topography, drainage, nearby sensitive environments, and assess details of the site history and desk study to further assess potential areas of environmental concern (AEC) and contaminants of potential concern (COPC)
- prepare a preliminary conceptual site model (CSM)
- preparation of this report summarising results of the desktop study and site walkover and providing conclusions and recommendations with respect to the objectives outlined in section 1.4.

1.6 Regulatory guidelines

This Stage 1 PSI has been carried out with consideration of guidelines made or endorsed by the NSW Environment Protection Authority (EPA) under Section 105 of the *Contaminated Land Management Act 1997* (CLM Act):

- National Environment Protection Council (NEPC) (1999, Amended 2013). National Environment Protection (Assessment of Site Contamination) Amendment Measure (No. 1) (NEPC, 2013)
- NSW EPA (2020) *Guidelines for Consultants Reporting on Contaminated Land*.

1.7 Assumptions and limitations

This report has been prepared by GHD for Transport for NSW and may only be used and relied on by Transport for NSW for the purpose agreed between GHD and Transport for NSW as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than Transport for NSW arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

We note that the project site boundary annotated on the Lotsearch Report (Appendix C) is indicative only and the proposal boundary on the figures presented in Appendix A are accurate.

2. Site setting

2.1 Site identification

The proposal is shown in Figure 1.1 and Figure 1.2 above. A summary of available information pertaining to the proposal is presented in Table 2.1.

Table 2.1 Site identification summary

Information	Details
Address	Picton Road, between Nepean River and Almond Street, Wilton, NSW
Construction boundary/ distance	Distance: About 6.7 (km) Total area: About 112 hectares (ha)
Local government area	Wollondilly Shire Council
Land use zoning	<p>The land zoning within the proposal site under the Wollondilly Local Environmental Plan 2011 (Wollondilly LEP), as identified in the NSW Planning Portal , includes:</p> <ul style="list-style-type: none"> – R2 – Low Density Residential – RU2 – Rural Landscape – RU4 – Primary Production Small Lots – SP2 – Infrastructure (Water Supply System, Place of Public Worship, Road). <p>Land zoning under State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (SEPP (Western Parkland City)), as identified in the NSW Planning Portal, includes:</p> <ul style="list-style-type: none"> – SP2 – Infrastructure (Water Supply System, Regional Road, Road) – UD – Urban Development. <p>Due to recent zoning changes within the proposal and adjoining areas, the Lotsearch Report (Appendix C) has been superseded with information presented on NSW Planning Portal (https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/lot)</p>
Surrounding land use	<p>Land adjacent to the proposal consists of the following:</p> <ul style="list-style-type: none"> – north-west: The Nepean River, Wilton Airport, Australian Rail Track Corporation (ARTC) rail corridor and cleared agricultural and/or grazing land. Further west, Allied Mills (agricultural processing), Maldon Cement Works, and other commercial and light industrial properties are present. – north-east: Predominantly low to medium density residential properties and some scattered commercial businesses and parks. Bingara Gorge and the associated Wilton Recycled Water Treatment Plant (RWTP) and Wilton Zone Substation are located east of the M31 Hume Motorway. Further east is predominantly cleared land likely used for agricultural and/or grazing purposes, Stringybark Creek and Allens Creek. – south-west: Predominantly cleared land with limited rural residential properties. – south-east: South-east of the proposal includes the Wilton area residential properties, schools, parks, scattered retail businesses and the Shell Wilton service station. Further south-east includes bushland and cleared land parcels, likely for agricultural and/or grazing purposes.

2.2 Topography and drainage

The topography throughout the proposal is undulating and has an elevation between approximately 160 to 230 metres (m) Australian Height Datum (AHD), as shown on Figure 1.0, Appendix A. The proposal is centred on Picton Road traversing in a northwest-southeast direction and the M31 Hume Motorway traversing in a northeast-southwest direction. The topography of the M31 Hume Motorway interchange is approximately 190 to 200 m AHD, with the most eastern extent of the proposal, Almond Street through to Pembroke Parade, lying within 220 to 230 m AHD, as shown in Figure 1.0, Appendix A. Further north within the M31 Hume Motorway interchange through to Wilton Park Road, the topography decreases to approximately 190 to 200 m AHD. The topography continues to decrease from Wilton Park Road through to the western end of the proposal, down to approximately 160 m AHD.

Surface water flow is expected to follow topography. Surface water runoff within paved areas is generally directed into stormwater systems. For non-paved areas, surface water is expected to largely absorb into the ground surface.

2.3 Hydrology

The closest receiving water bodies from the site are the Nepean River (western and southern boundary extent), Allens Creek (tributaries of the creek intersect the proposal in the north-east in multiple locations), Byrnes Creek (tributaries of the creek intersect in the north in multiple locations), and Stringybark Creek (tributaries of the creek intersect in the south in multiple locations), as shown on Figure 1.0, Appendix A. It is expected that these creeks flow to the north and drain into the Nepean River, which runs along the western and southern extent of the site.

Other surface water bodies within and surrounding the proposal site including:

- unnamed tributaries of the Nepean River within and surrounding the proposal site
- farm dams within and surrounding the proposal site
- multiple areas of standing water within the natural environment near rivers and creeks in low lying areas.

The Annual Water Quality Monitoring Report 2018-19 (WaterNSW, 2019), as identified by Hills Environmental (2021), reported water quality results across the Upper Nepean catchment. Results indicated a variation across sites according to land use and natural characteristics. Reports referenced indicated exceedances of the Australian and New Zealand Environmental Conservation Council (ANZECC) and agriculture and Resource Management Council of Australian and New Zealand (ARMCANZ) Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) benchmarks for nitrogen and phosphorus, which had increased since previous reporting periods. Dissolved oxygen showed improvements across the catchment. It was also noted that factors including drought, natural geology and groundwater contributions caused aluminium to frequently exceed ANZECC guidelines in the Cordeaux catchment. Hills Environmental (Hill, 2021) also reported that the proposal may alter existing surface flow patterns and peak flows, runoff volumes, and affect drainage capacity due to increased impervious areas.

2.4 Soil landscape

The Wollongong-Port Hacking 1:100 000 Soil Landscape Series Sheet 9029-9129 (DECCW, 2010) indicates that the majority of the proposal passes through the Blacktown soil landscape. Relatively small areas of the proposal pass through Luddenham and Lucas Heights soil landscapes. The soil landscapes relative to the proposal is shown in Figure 2, Appendix A. The descriptions of these soil landscapes are summarised in Table 2.2 below.

Table 2.2 Summary of soil landscapes

Landscape group	Landscape description	Soil	Limitation
Blacktown (residual)	Gently undulating rises on Wianamatta Group shale. Local relief to 30 m; slopes are usually <5%. Broad rounded crests and ridges with gently inclined slopes. Almost completely cleared eucalypt woodland, open-forest and tall open-forest (wet sclerophyll forest).	Shallow to moderately deep (<150 cm) Red Podzolic Soils and Brown Podzolic Soils on crests, upper slopes and well-drained areas; deep (150–300 cm) Yellow Podzolic Soils and Soloths on lower slopes and in drainage depressions and localised areas of poor drainage.	Moderately reactive, highly plastic subsoils, low soil fertility.
Lucas Heights (residual)	Gently undulating crests, ridges and plateau surfaces of the Mittagong Formation (alternating bands of shale and fine-grained sandstones). Local relief to 10–50 m; slopes <10%. Rock outcrop is absent. Extensively to completely cleared dry sclerophyll low open-forest and low woodland.	moderately deep (50–150 cm), hard setting Yellow Podzolic Soils and yellow Soloths on ridges and plateau surfaces. Lateritic Podzolic Soils on ridges and plateau surfaces. Lateritic Podzolic Soils on crests; Yellow Earths on shoulders of plateaux and ridges. Earthy Sands in valley flats.	Stoniness, hard-setting surfaces, low soil fertility.
Luddenham (erosional)	Undulating to rolling low hills on Wianamatta Group shales, often associated with Minchinbury Sandstone. Local relief 50–80 m; slopes 5–20%. Narrow ridges, hillcrests and valleys. Extensively cleared open-forest (dry sclerophyll forest).	Shallow (<100 cm) Brown Podzolic Soils and massive earthy clays on crests; moderately deep (70–150 cm) Red Podzolic Soils on upper slopes; moderately deep (<150 cm) Yellow Podzolic Soils and Prairie Soils on lower slopes and near drainage lines.	High soil erosion hazard, localised impermeable highly plastic, moderately reactive subsoils, potential mass movement hazard.

2.5 Acid sulfate material occurrence

The SEED database (NSW Government, 2022) indicates no known occurrence of coastal acid sulfate soils (ASS).

The CSIRO Atlas of Australian Acid Sulfate Soils indicates the site as having an ‘extremely low’ probability of occurrence of non-coastal (i.e. upland) ASS. It should be noted that some geological formations such as shales can have sulfidic ores present. Parts of the proposal site pass through the Ashfield Shale (refer to section 2.6.1 below). The Ashfield Shale formed in a brackish marine environment and may contain iron sulfides. Iron sulfides, such as pyrite, upon exposure to oxygen could generate acid.

The presence of sulfidic ores may require further consideration as part of waste classification assessments, in particular for Virgin Excavated Natural Material (VENM) classification.

2.6 Geology

2.6.1 Regional

The 1:100,000 NSW Seamless Geology dataset (Department of Regional NSW, 2019) indicates the proposal is generally underlain by Ashfield Shale (Twia) overlying the Hawkesbury Sandstone (Tuth). The geology is shown on Figure 3, Appendix A. The geological units/groups are described as:

- Ashfield Shale (Twia) – black to light grey shale and laminate
- Hawkesbury Sandstone (Tuth) – medium to coarse grained quartz sandstone with minor shale and laminate lenses.

2.6.2 Site specific

A geotechnical investigation was carried out in late 2022 and early 2023 by GHD to inform design elements of the proposal (GHD, 2023a). The investigations included the drilling of 43 boreholes to depths between 6 m and 21.94 m below ground level (bgl), and the installation of eight groundwater monitoring wells. The test locations are shown on Figures 1.1 to 1.7 in Appendix A.

Fill was encountered in 17 of the 43 boreholes, where at seven locations associated with road pavement materials. Typical fill thickness was between 0.5 m and 3.6 m occurring below roads and road verges within the proposal. Deep fill was encountered at boreholes BH031 and BH044 to a depth of 11.65 m bgl and 12.43 m bgl, respectively, and was associated with a fill (possibly reworked natural material) used to form embankments as part of the Picton Road construction. Fill material was typically described as clay, sandy clay, clayey sand grey, orange, brown, and pavement materials base/sub-base were typically sandy gravel / gravelly sand, grey. No visual evidence of contamination such as asbestos containing material (ACM), staining or odours were reported.

Below the fill, residual soils and weathered rock were encountered. The residual soils / extremely weathered rock (described as a soil) were typically described as clay or sandy clay orange-brown overlying highly weathered siltstone or sandstone. The depth to siltstone and/or sandstone ranged from 1 m to 12.91 m bgl.

2.7 Hydrogeology

2.7.1 Regional

The Lotsearch report (Lotsearch, 2022, p. 31) indicates that there are nine groundwater bores within 1 km of the proposal. Results of the groundwater bore search are summarised in Table 2.3 below. The location of these groundwater bores is shown on Figures 1.1 to 1.7, Appendix A and are also provided in the Lotsearch report in Appendix C.

The groundwater regionally is likely to occur in joints and fractures within the weathered rock, however, shallow groundwater present may be present at the soil / rock interface or as springs near watercourses. The Lotsearch report describes the hydrogeology of the area as porous, extensive aquifers of low to moderate productivity (Lotsearch, 2022, p. 30).

Table 2.3 Summary of registered groundwater bores

Groundwater bore ID	Purpose	Bore depth (m)	Standing water level (m bgl)	Salinity	Driller's log	Approximate distance from the proposal (metres) and direction
GW024644	Irrigation	77.4	Not recorded	3001-7000 ppm	Soil clay to 0.9 m overlying sandstone	130 m north
GW109278	Monitoring	180	48	1.74 mg/L	Clay to 6 m overlying sandstone and shale	165 m south-east
GW057797	Irrigation	106.7	Not recorded	Good	Topsoil to 0.3 m overlying sandstone and shale	310 m west
GW106250	Water supply	151	62	Not recorded	Topsoil to 2 m, overlying sandstone and shale	320 m north
GW100480	Water supply	148	85	Brackish	Brown soil to 1 m overlying sandstone and shale	485 m north
GW103320	Water supply	183	Not recorded	Not recorded	Shale and clay to 4.8 m overlying sandstone	810 m west
GW109279	Monitoring	193	44	5.11 mg/L	Sandstone and shale to 163 m, overlying siltstone and Baldhill claystone	820 m, south-east

Groundwater bore ID	Purpose	Bore depth (m)	Standing water level (m bgl)	Salinity	Driller's log	Approximate distance from the proposal (metres) and direction
GW115763	Stock and Domestic	150	Not recorded	Not recorded	Not available	875 m, south-west
GW116973	Water supply	162	Not recorded	Not recorded	Not available	875 m, south-west

2.7.2 Site specific

As part of the geotechnical investigation for the proposal, GHD installed nine groundwater monitoring wells (GHD, 2023a). Well installation details, subsurface conditions and standing water levels are summarised in Table 2.4 below. We note one additional groundwater monitoring well (BH047) was installed in March 2023 however was not sampled.

Table 2.4 Summary of new groundwater monitoring wells installed by GHD in 2022 and 2023 as part of the geotechnical investigation (GHD, 2023a)

Groundwater well ID	Well installation depth (m bgl)	Screened interval (from – to) (m bgl)	Lithology screened	Standing water level (SWL) (m bgl)	Date SWL data downloaded
BH003A	14.00	8.00 to 14.00	Siltstone and interlaminated sandstone and siltstone	4.45	14/12/2022
BH004A	11.12	5.00 to 11.12	Siltstone	6.13	7/02/2023
BH006	8.09	5.00 to 8.09	Interlaminated sandstone and siltstone	Dry	-
BH014	6.25	3.25 to 6.25	Sandstone	5.09	7/02/2023
BH017	12.00	6.00 to 12.00	Siltstone	6.65	7/02/2023
BH021	12.00	6.00 to 12.00	Interlaminated sandstone and siltstone	6.37	7/02/2023
BH022	8.41	5.41 to 8.41	Interlaminated sandstone and siltstone	4.44	7/02/2203
BH027A	21.10	12.00 to 21.10	Siltstone	10.44	14/12/2023
BH031	19.98	10.00 to 19.98	Sandy clay and clay overlying sandstone	14.85	2/02/2023

3. Site history

3.1 General

Site history information was reviewed for the proposal and obtained from the following sources:

- review of selected aerial photographs (1949 to 2022)
- a search of NSW EPA register for listings of the proposal and nearby properties
- historical business directories
- a review of previous investigation reports and summarising the relevant sections
- other historical references.

A summary of site history information is provided below. Relevant historical details are shown in Figures 1.1 to 1.7 (Appendix A).

3.2 Historical aerial photographs

The review of aerial photography is summarised in the sections below. Historical aerial photographs for the proposal and surrounding areas are provided in the Lotsearch Report (Lotsearch, 2022) presented in Appendix C. The site boundary shown on the historical aerial photographs from Lotsearch is larger than the proposal site to provide historical land use information for the areas surrounding and including the proposal site. Additional aerial photographs from 2002 to 2022 were accessed via Google Earth and also reviewed. Observations from aerial photographs of the ancillary sites were made from the NSW Historical Imagery Viewer and MetroMap. (Spatial Services NSW, 2023; Aerometrex, 2023).

3.2.1 Section 1: Western extent to chainage 0.2 km east along Picton Road

Between 1949 and 1975, Section 1 of the proposal passed through an area mostly cleared of shrubs and trees and appeared to be used as grazing land. Approximately a quarter of this area was occupied by remnant bushland which extended to the north. In 1961, several access tracks passed through this section of the proposal site but became less pronounced in following years and also changed configuration. Dams of varying sizes were evident north-eastern and south-western sides of Picton Road but occur outside the proposal site. No developments were evident during this period. These structures were no longer evident by 1994.

By 1984, Picton Road had been constructed. Some land clearing was evident on the north-east side of Picton Road immediately north-east of the proposal.

Between 1994 and 2023, the area where the proposal is located remained relatively unchanged except for changes in vegetation within previously cleared areas north-east of Picton Road, formation of access tracks, and in 2016 the wide tracks forming a square immediately west of the proposal was evident. The wide tracks were no longer visible in aerial photographs taken a month later. No dams appear to have been decommissioned.

3.2.2 Section 2: Chainage 0.2 km east along Picton Road to the intersection with the M31 Hume Motorway

Between 1949 and 1975, Section 2 of the proposal passed through an area mostly cleared of shrubs and trees and appeared to be used as grazing land. A relatively small farm dam was evident within the north-eastern portion of this segment. The southern portion of this segment was bisected by a road (Wilton Park Road) which was orientated in a general east-west direction. Faint access tracks and property boundaries were also evident in aerial photographs from this period. A residential house was evident in 1975 in an area adjoining the southern extent of this segment.

By 1990, Picton Road had been constructed, and Wilton Park Road position modified to connect with Picton Road. Minor access tracks were also evident and ran broadly parallel to Picton Road on the eastern and western sides.

The tracks appeared to provide access to farm dams located on the eastern and western sides of Picton Road. A small farm dam was evident within a triangular parcel of land within the proposal bounded by Picton Road to the north-east, Wilton Park Road to the north-west and Berwick Park Road to the south. The vegetation within the road verge has a different appearance to vegetation present beyond the road verge. The change in vegetation may suggest previous ground disturbance or filling and likely to be associated with the construction of Picton Road.

Between 1990 and 2023, the area where the proposal is located remained relatively unchanged except for changes in vegetation during this period where mostly regrowth of trees/shrubs were observed however some removal was also noted in parts.

3.2.3 Section 3: Picton Road / M31 Hume Motorway intersection and Condell Park Road

Between 1949 and 1969, Section 3 of the proposal passed through an area mostly cleared of shrubs and trees and appeared to be used as grazing land. The central part of the proposal was bisected by a road (Condell Park Road), which was oriented in a general east-west direction. Condell Park Road extended west, and according to the historical maps of 1927 to 1954 and prior to the construction of the M31 Hume Motorway, connected to Wilton Park Road. Several farm dams were evident within the proposal and adjoining areas. In 1969, a relatively small structure resembling a house was evident immediately south of the central southern boundary of the proposal. Several access tracks were present between Condell Park Road and the residential dwelling. The southern quarter of the proposal was occupied by remnant bushland.

By 1975, several residential dwellings had been constructed south of Condell Park Road, one of which was a large rectangular structure and occupied an area in the southern half of the proposal. Relatively small square shaped objects were observed immediately north and east of the large rectangular structure. A similar object was also observed in the south-eastern portion of the proposal adjacent to an access track. Some of the other residential dwellings were located adjacent to the proposal boundary. A light coloured feature, possibly an airstrip associated with Wilton Airport, was evident north of Condell Park Road. The southern quarter of the airstrip occurred within the proposal site. An access road was also evident linking Condell Park Road to a group of structures located west of the airstrip. A small aircraft was parked between the access road and airstrip south-east of the group of structures.

By 1990, Picton Road and the M31 Hume Motorway had been constructed. The airstrip had been relocated west of the group of structures due to accommodate the alignment of the M31 Hume Motorway. The old airstrip was still evident but had faded. An access track was formed west of the M31 Hume Motorway connecting with Picton Road to the south-west passing between the airport and M31 Hume Motorway before continuing in a north-west direction. Condell Park Road terminates at the eastern side of the M31 Hume Motorway and no longer connects to Wilton Park Road. The section of road between Picton Road and the M31 Hume Motorway is no longer evident and has possibly been filled or ground reshaped as part of the road construction. The large rectangular structure appears to have been removed and farm dams immediately west and south-west of this structure are no longer evident suggesting it may have been decommissioned by way of filling. Both features occurred within the footprint of the M31 Hume Motorway.

Between 1994 and 2002, existing residential developments had expanded with addition of sheds or extensions to the existing dwelling. A second airstrip orientated north-west / south-east had been formed at Wilton Airport. Excavation activity in the form of long trenches was evident from 1994 within the Maldon-Dombarton rail corridor north-west of the M31 Hume Motorway. A relatively small area of excavation occurred within the proposal boundary adjacent to the M31 Hume Motorway. Several access tracks were evident within the proposal and in adjoining areas. By 1990, small farm dam (10 m by 50 m) located approximately 50 m north-west of the proposal site was evident. Sometime between 2002 and 2009, the size of the dam significantly increased 35 m by 120 m and was now rectangular shaped. At the north-eastern end of the dam, a strip of exposed ground was evident from 2009 and remains present. This could be a launching pad for small watercraft.

By 2009, Bingara Gorge residential development had commenced and by 2011, the Wilton recycled water treatment plant (RWTP) construction had also commenced which included Wilton Zone substation. These developments occurred outside but immediately adjacent to the proposal site. The Wilton RWTP construction involved significant earthworks forming large treatment ponds and areas for surface infrastructure associated with

the treatment facility. In 2011 and 2012 aerial photographs, stockpiles were evident, immediately north of the proposal and Condell Park Road. These stockpiles were white and orange in appearance and of similar colour to the exposed ground associated with the Wilton RWTP occurring further to the north. These stockpiles were removed by 2015 and was revegetated with grass. An access track bisected this area of the proposal. Also in 2011, significant ground disturbance was evident in the northern portion of the proposal occurring between Stirling Drive and the M31 Hume Motorway. The area appeared to be occupied by stockpiles, and small objects, possibly parts or equipment for the Wilton RWTP. By 2013, the previously disturbed ground had been revegetated except for an access road that connected the Wilton RWTP to Stirling Drive. The golf course, immediately north-east of the proposal was under construction at this time and was completed by 2014.

In 2016, stockpiling commenced in an area north of Condell Park Road between the zone substation and proposal site. By March 2016, a farm dam located immediately north of Condell Park Road and east of the zone substation has been infilled and the area occupied by stockpiles. As the months progressed, the volume of material stockpiled increased and the stockpiling area expanded, occupying an area north of the zone substation. The material stockpiled was mostly grey however some stockpiles were brown-orange. The material had a similar colour to the exposed ground within excavations occurring north of the stockpiling area suggesting the likely source of this material and the material comprised natural soil and rock (i.e. virgin excavated natural material (VENM)). The stockpiles were progressively removed between 2020 and 2022.

A circular stabling area was evident between 2014 and 2018 west of the zone substation and outside of the proposal.

In 2019 and 2021 aerial photographs, stockpiles and possible burial of waste (vegetation removed and pale colour material present) was observed adjacent to the M31 Hume Motorway south bound offramp onto Picton Road. The possible burial of waste appeared immediately west of a residential development adjacent to the offramp.

3.2.4 Section 4: East of the M31 Hume Motorway intersection along Picton Road to Chainage 1.2 km

Between 1949 and 2002, Section 4 of the proposal passed through an area mostly cleared of shrubs and trees and appeared to be used as grazing land. In 1949, a roadway was evident (Hornby Street) and bisected the proposal. Other minor roads orientated north-south, were also evident and bisected the site. Several farm dams were evident within the proposal and surrounding areas.

In 1975, a road had been constructed that was generally orientated in a south-west / north-east direction bisected the proposal. Alongside the road were lengths of pipe. The formation of the road and pipes may have been the installation of the high pressure gas mains that currently exists within this corridor. By 1990, the road was no longer evident except for a clearing that remained through a stand of trees east of Hornby Street. The clearing was maintained, and by 2021, the road alignment was reformed as part of the residential subdivisions occurring on the southern side of Picton Road. Other minor roads were evident in 1975, one appearing to extend Argyle Street further west but was no longer evident by 1990. Picton Road had been constructed by 1990.

A small structure, possibly a shed or vehicle, was observed in 1961 aerial photograph near the centre of the proposal south-west of the Hornby Street. This object was no longer visible from 1969. A rural residential dwelling was evident from 1949, adjacent to the south-eastern boundary of the proposal. This residential development progressively expanded over the years to include extensions to the existing dwelling and several other structures, possibly sheds. Access to the residence was via a gravel access road that connected with Picton Road. The position of the access road changed following construction of Picton Road which occurred by 1990.

In 1990, a relatively large residential dwelling and associated structures had been constructed within the eastern portion of the Section 4 segment and north of Picton Road. The development also included a near oval track, possibly used for horse training and several smaller structures adjacent to the track and Picton Road. The structures were relatively small and possibly sheds or livestock shelters. A relatively large elongated pond, approximately 50 m long was also located within the oval track. By 2002, the oval track had faded and was no longer visible and by 2009 the elongated pond had been decommissioned by filling and grassed. East of the former pond location was a relatively rectangular area of possible stockpile material. The material was pale yellow and similar in appears to one of the driveways immediately east of the stockpile area. By 2010, the rectangular

area was partially grassed covered and appears that the stockpiled material may have been removed. Parts of the site and surrounding areas appeared to have been covered with dust.

Residential subdivision commenced north of Picton Road in 2009 with the formation of Pembroke Parade and realignment of Horsby Street, where dwellings appeared to occupy the available residential lots by c2015. Another residential subdivision commenced in 2021. Streets and residential lots were completed by early 2023 however construction of dwellings had not commenced by that stage. Some dams and existing structures were removed prior to the development of the residential subdivision. Parts of the residential subdivisions north and south of Picton Road occur within the proposal site.

3.2.5 Section 5: East along Picton Road Chainage 1.2 to 2.6 km

Between 1949 and 1975, Section 5 of the proposal passed through an area mostly cleared of shrubs and trees and appeared to be used as grazing land. In 1949, several roadways were evident (Wilton Road, Argyle Street, Almond Street, Hornby Street) where the southern part of Almond Street bisected the proposal. The alignment of the Nepean Tunnel, connecting Cataract River and the Nepean River, was evident (by ground disturbance and linear tree clearing through remnant bushland) and bisected the proposal. The Nepean Tunnel was constructed in 1884 (ref: <https://trove.nla.gov.au/newspaper/article/13566664>). Other minor roads orientated north-south, were also evident and bisected the proposal. Several farm dams were apparent within the proposal and surrounding areas. Several areas of ground disturbance or exposed ground were observed in aerial photographs and generally faded over time through revegetation or replaced by a development; however, some of these areas remained evident and are still apparent in the most recent aerial photograph (2022).

From 1949 several small developments, possibly residential dwellings, sheds, garages, were observed east and west of Almond Street, and north and south of Argyle Street. Many of these developments were accessed via driveways that connected with nearby streets and roads. As time progressed, further residential developments appeared within other parts of the proposal and in adjoining areas.

In the 1961 aerial photograph, a trench approximately 35 m long orientated in a north-east / south-west and located approximately 175 m south-west of Argyle Street was evident. The trench was backfilled by 1994 following completion of Picton Road.

The western portion of Picton Road had been formed by 1990 however the eastern portion appeared to connect with Argyle Street (Wilton Road) suggesting the construction phase may have been incomplete. By 1994 Picton Road no longer connected with Argyle Street and deviated south-east occupying the current alignment for Picton Road. Ground disturbance was evident either side of the newly constructed section of Picton Road including an area immediately north-west. The area immediately north-west was a relatively large rectangular area and of grey appearance. The grey appearance may be associated with storage of road base materials and may have been used as a laydown area during the construction of Picton Road. A possible farm dam was also evident immediately south-east of the rectangular grey area. Almond Street was extended south connecting with the newly constructed Picton Road and an existing access driveway south of Picton Road was also realigned. Vegetation progressively established within areas previously disturbed immediately adjacent to Picton Road (road verge). A relatively large fill mound located on the south-western side of the Picton Road and Almond Street intersection. The fill mound appeared to have been formed following completion of Picton Road in 1994 and has remained grass covered since this time.

An oval, resembling a horse racing track, was formed sometime between 2002 and 2005. North of the race track, and immediately south of the grey rectangular area (as discussed above), were four relatively small rectangular structures, which later became five. Smaller structures were located between the five rectangular structures and the race track. A circular structure was also noted in this area and possibly a horse training yard. A relatively large farm dam was located within the race track.

From 2002, a possible orchard area and storage area was observed immediately north of Picton Road. The items stored cannot be discerned from the aerial photographs other than to be described as white objects of various sizes, which change in quantity and position over time. Orchard area appeared no longer active by 2020.

By 1990, several designated paddocks, possibly for livestock, and smaller stabling yards had been formed on the southern side of Picton Road. Objects, possibly cattle, were observed in the 2022 aerial photograph occupying some of these designated paddocks. The Shell Service station and mechanics workshop was constructed some time between 1975 and 1990.

In 2015, an area of white objects, possibly a waste disposal area, was evident approximately 210 m north-west of Almond Street and Picton Road intersection, and located within the proposal immediately south of Picton Road.

In the 2022 aerial photograph, a relatively large farm dam had been constructed on the south-western side of Picton Road, between the new residential subdivision (west) and the property that has the paddocks and stabling yards (east).

3.2.6 Section 6: Ancillary facilities

Median Area 1 ancillary facility

Between 1949 and 1969, the Median Area ancillary facility passed through an area of mostly cleared shrubs and trees and appeared to be used as grazing land. Several buildings, farm dams, and areas of ground disturbance or exposed ground were observed within and surrounding the ancillary facility to the east and north. Several structures and a dam within the ancillary facility were observed in 1961 imagery, however, the structures appeared to have been demolished and the dam infilled by 1978, when the first construction stages of the M31 Hume Motorway were visible bisecting the ancillary facility. Construction was observed to be completed by 1990, and additional dam was visible outside the site adjacent to the western boundary. In 2010, two structures to the east of the alignment were no longer visible, with an area of scarred land left in their place. No significant changes were observed between 2010 and 2022 within the proposal and immediate surrounds. Approximately 850 m south-east of the ancillary facility, the construction of the Wilton RWTP was visible from 2011 aerial photograph and appeared to be complete by c2017.

Median Area 2 ancillary facility

From 1961, the Median Area 2 ancillary facility was an area of dense bushland. An area of cleared vegetation was evident south of the proposal and appeared to be used for agricultural purposes. Several buildings, farm dams, and areas of ground disturbance or exposed ground observed within this cleared area.

In 1975, an alignment of cleared land generally orientated in a south-west / north-east direction was visible which bisecting the proposal site. The area of cleared land may have been associated with the installation of the high pressure gas main that currently exists within this corridor. The corridor where the gas main is located has remained clear of shrubs and trees since its installation.

By 1978, construction of the M31 Hume Motorway had commenced bisecting the proposal, and was completed by 1990. In 1990, a small waterbody and cleared area was visible immediately south-east of the facility and south-west of the waterbody. The water levels within the waterbody varied over time. The cleared areas and waterbody were evident in the 2022 aerial photograph.

In 2002, further clearing of vegetation in areas immediately north-west and south-east of the M31 Hume Motorway were evident. These cleared areas resembled access roads that ran parallel to the M31 Hume Motorway. These cleared areas were generally maintained and apparent as at the 2022 aerial photograph. Between 2002 and 2022, areas west of the ancillary facility were developed where relatively large areas of bushland were progressively removed and replaced with rural residential developments.

3.3 NSW EPA records

GHD reviewed information provided in the NSW EPA registers on 7 September 2023. A summary of these records is provided in Table 3.1 below.

Table 3.1 Summary NSW EPA Records

Search	Result
Contaminated Land Record of Notices	No sites listed in the contaminated land record of notices are located within 1000 m of the proposal.
Notified Sites under the <i>Contaminated Land Management Act 1997</i> (CLM Act)	One notified site under the CLM Act is located within 1000 m of the proposal. The notified site is described below: <ul style="list-style-type: none"> Condell Park Homestead (Part Lot 17, DP270536) is located approximately 280 m south-east and downgradient of the proposal (Section 6, Median Area 1 ancillary facility). The activity is unclassified and regulation under the CLM Act was not required. Information about contamination at this property was not provided in the record.
Environmental protection licenses (EPLs) under the <i>Protection of the Environment Operations Act 1997</i> (POEO Act)	There are two current licensed activities under the POEO Act within 1 km of the proposal: <ul style="list-style-type: none"> Bingara Gorge Wastewater and Water Recycling Scheme (EPL 20335), adjacent to Section 3 of the proposal, for sewage treatment processing by small plants proposal. Ancillary activities listed include supply of recycled water to residents and irrigation systems over recreational land. Endeavour Coal Appin Colliery (EPL 2504), adjacent to eastern extent of the proposal site, for waste disposal by application to land, coal works, and mining for coal. There are five former licensed activities within 1 km of the proposal, which include: <ul style="list-style-type: none"> Sydney Water Corporation (EPL 20327), adjacent to Section 5 of the proposal, for sewage treatment processing by small plants, surrendered in 2013. The area identified for this EPL is occupied by mostly residential properties and some commercial/industrial properties. It is inferred by the area, that the EPL was for private septic tanks and associated soak away trenches used to treat household sewage. This area is downgradient of the proposal. Four licences for waterways throughout NSW (EPLs 4390, 4653, 4838, and 6630), within the proposal, for other activities and application of herbicides, all surrendered in 2000. The duration of this activity prior to 2000 was not provided. There are no delicensed activities still regulated by the EPA surrounding within 1000 m of the proposal.
Penalty Notices and s. 91 Clean Up Notices issued under the <i>Protection of the Environment Operations Act 1997</i> (POEO Act, 1997)	Eight penalty notices, and three clean up notices were issued to three companies and/or individual for the importation of waste in the Wilton area between 2015 and 2017. Two of the penalty notices were associated with the importation of fill and building materials. Some of this material appeared to be used to fill lower lying areas. These activities occurred at properties located 1.6 km north-east and 2.7 km south-west of the proposal. The third area was described as Picton Road (western end) which is inferred to be the section of Picton Road that occurs between the Nepean River and the M31 Hume Motorway. The offences described for the western end of Picton Road included “transport etc excess waste to unlawful facility” and “aggravated deposit litter from vehicle” and “transporter fail to avoid waste spilling leaking etc”. No further information was available.
EPA Per and polyfluoroalkyl substances (PFAS) Investigation Program	No sites that are part of the EPA PFAS investigation program are located within 1000 m of the proposal.

3.4 Historical business directories

There was no historical business directory (inc. dry cleaners, motor garages or service stations) records between 1950 and 1991 within the proposal (Lotsearch, 2022, pp. 17-18). A service station and workshop are located approximately 245 m downgradient of the proposal at its closest point and was constructed sometime between 1975 and 1990 based on historical aerial photographs (refer to section 3.2.5 above). This service station and workshop was not listed in the historical business directory of the Lotsearch report.

3.5 Previous investigations

3.5.1 Picton Road Upgrade Program Preliminary Site Investigation (Hill, 2021)

One previous investigation, completed by Hills Environmental (Hill, 2021) for early scoping of the proposal, has been reviewed by GHD. No sampling or environmental testing was undertaken as part of this investigation. The report provided a high level summary of various environmental aspects including salinity, erosion, surface water flow, flooding and contamination, based on information available at the time.

For contamination aspects, the report concluded that there was some risk of contamination associated with historical and existing rural land uses, and illegally dumped rubbish, including the potential for asbestos.

3.5.2 Contamination Site Investigation Report (GHD, 2023c)

GHD carried out opportunistic contamination sampling and testing from the geotechnical boreholes and test pits drilled / excavated within the proposal. Some of the test locations were within or close to AECs identified in the PSI (refer to section 5.1). Figures 1.1 to 1.7, Appendix A identify test locations relative to the identified AECs.

GHD collected 237 soil samples from 56 test locations where 111 samples were selected for laboratory analysis of identified COPCs. 22 samples represented near surface soils (upper 0.1 m of the soil profile) and / or fill material. COPCs included total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene, (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), and per and polyfluoroalkyl substances (PFAS) heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc) and asbestos.

GHD also collected eight groundwater samples and ten surface water samples and analysed for COPCs including, TRH, BTEX, PAH, OCP, OPP, heavy metals and PFAS (one groundwater sample only). Surface water samples were also analysed for oil and grease, major cations and anions and an extended heavy metal suite which included aluminium, boron, manganese, selenium, and silver.

Laboratory results for soil samples were compared to the adopted human health and ecological assessment criteria (NEPC, 2013; Friebel & Nadebaum, 2011; HEPA, 2020). No exceedances of the human health assessment criteria for industrial / commercial land use were reported for soil and no asbestos was identified in soil samples analysed, which was consistent with field observations where no evidence of contamination was noted (e.g. odours, staining, ACM) and photoionisation detector (PID) results, which were less than 7.2 ppm. However, some COPCs exceeded ecological assessment criteria. A summary of ecological exceedances is provided below:

- Concentrations of copper, nickel, zinc, and/or TRH F3 fraction exceeded the ecological assessment criteria for soil across the proposal in 41 out of the 129 primary samples analysed. Exceedances were reported in both fill and residual soils and were identified at depths ranging from surface to 4 m bgl.

Laboratory results for groundwater and surface water samples were compared to human health (NEPC, 2013; Friebel & Nadebaum, 2011; HEPA, 2020; NHMRC, 2011) and ecological (ANZG, 2018; CEPA, 2019) assessment criteria. No exceedances of the human health assessment criteria for industrial / commercial land use were reported. The following exceedances of ecological assessment criteria were reported:

- Groundwater:
 - Concentrations of chromium (one sample), copper (seven samples), nickel (three samples), and zinc (three samples), exceeded the water quality assessment criteria (ANZG, 2018) adopted for groundwater. Concentrations of perfluorooctane sulfonic acid (PFOS) exceeding the adopted water quality assessment criterion (HEPA, 2020) were reported in groundwater from monitoring well location BH21. Only one groundwater sample was analysed for PFAS as it was the closest well installed for the proposal to Wilton Airport, a potential source of PFAS. It was inferred that the source of PFOS may have been from the drilling muds used in the drilling process as the other potential sources of PFAS compounds, Wilton RWTP and Wilton Airport, are inferred to be hydraulically downgradient.

- Surface water:
 - Concentrations of aluminium (nine samples), chromium (four samples), copper (five samples), lead (two samples), and zinc (two samples) exceeded the water quality ecological assessment criteria (ANZG, 2018) adopted for surface water. It is noted that vegetation and aquatic species within and adjacent to the waterbodies samples did not appear distressed.

3.5.3 Hazardous substances paint analysis of Picton Road Bridge over M31 Hume Motorway (Hibbs & Associates, 2023)

Hibbs & Associates Pty Ltd was commissioned by Transport to identify and quantitate the levels of certain heavy metals (lead, cadmium, arsenic, and chromium) in the paint coating systems used on the following structures:

- Occurring within the proposal boundary:
 - Bridge over SH2 Hume Motorway at Picton Road (bridge number / structure 816)
- Occurring outside of the proposal boundary:
 - Sydney Water pipeline over Hume Motorway at Avon Dam (bridge number / structure 7275)
 - NB and SB Bridge over Old Hume Highway at Whitehorse (bridge numbers / structures 768 and 769).

The results of the assessment were used to ascertain if the removal or disturbance of the paint coating systems on the bridge girders and guard rails would classify the work as a hazardous paint removal project.

The results indicated that most of the painting systems assessed contained zinc rich primer and either vinyl or chlorinated rubber as the binder in the topcoats. Very low levels of zinc chromate and lead were identified except at Structures 816 and 7275, respectively.

Concentrations of 0.24% w/w for zinc chromate (as Chromium) in Structure 816 bridge girder paint exceeded the Hazardous Paint Criterion (AS/NZS 4361.1) value of 0.05% w/w based on an estimated mass of paint of 700 kg. This result classifies the paint as hazardous, and work disturbing this paint would be considered a “Hazardous Paint Task” in accordance with AS 4361.1. The paint coating system on the bridge girders is comprised of four layers: a green topcoat, an underlying layer of white paint, and a layer of yellow paint (zinc chromate) upon a coarse zinc metallic rich grey primer. Either vinyl or chlorinated rubbers are used in this paint coating system. The chromate appeared to originate from the yellow zinc chromate paint.

At Structure 7275, components of the access walkway to the pipeline above the bridge were painted with lead based paint. Concentrations of lead were 0.18% w/w; however, based on the estimated paint to be removed (i.e. less than 250 kg) it was not deemed a hazardous paint job. The report further indicated that Structure 7275 was owned by Sydney Water and outside the scope of works for Transport.

3.6 Mining activity

The Lotsearch report (Appendix C) identified 14 historical mining and exploration titles between 1967 and 2004 within the proposal site, of which eight were titles for petroleum mining, two for coal and three for non-specified minerals. The proposal is located within the Wilton Mine Subsidence District.

For coal mining, Endeavour Coal Pty Ltd, a subsidiary of South 32 Illawarra Metallurgical Coal (IMC), currently holds Consolidated Coal Lease CCL767 over a portion of the proposal. This mining lease allows the leaseholder to extract coal, in this case from the Bulli Seam, amongst other related activities, subject to development consent. The Bulli Seam is at an average depth of about 500 m beneath the proposal and is the uppermost economic coal seam of the Illawarra Coal Measures. The mining interval of the seam is from 1.8 m to 2.9 m in thickness. Neither underground nor surface coal mining is known to have been conducted beneath the proposal (GHD, 2023b).

No information was available, which further described ‘petroleum mining’ and ‘non-specified minerals’ mining and exploration titles. Based on GHD’s understanding of the mining leases within the Wilton area, ‘petroleum mining’ and ‘non-specified minerals’ are other terms used for coal mining.

A report prepared by the Department of Planning and Environment (DPE) for the Wilton Priority Growth Area indicated ten coal seam gas wells installed for exploration in the Wilton area (DPE, 2017). The exploration wells are identified as the red / pale red dots on Figure 3.1 below. Three of the exploration wells occur within or

immediately adjacent to the proposal. The DPE report indicates that the wells have been sealed and present a low risk to the future development of the Wilton area. The report further indicates that it is unlikely that access to these wells would be required. The report recommended that the areas where the wells occur should remain public land and should not have buildings constructed over the wells, and that further work may be required to ensure that the wells have been appropriately sealed.

The author of the GHD mine subsidence assessment report (GHD, 2023b) indicated that the wells may target the coal seam at 400 to 500 m bgl. The wells would have been installed to assess coal quality, seam lithology and seam geometry (i.e. looking for seam displacements that may have been indicated from high resolution seismic surveys). GHD is aware of one exploration hole which used short radius directional drilling to explore the quality of coal and seam as well as in-seam gas (nature CH₄ / CO₂) from core samples. The exploration bore and / or well would have been sealed by grouting to the surface, as required by exploration protocol, at completion of the exploration phase.

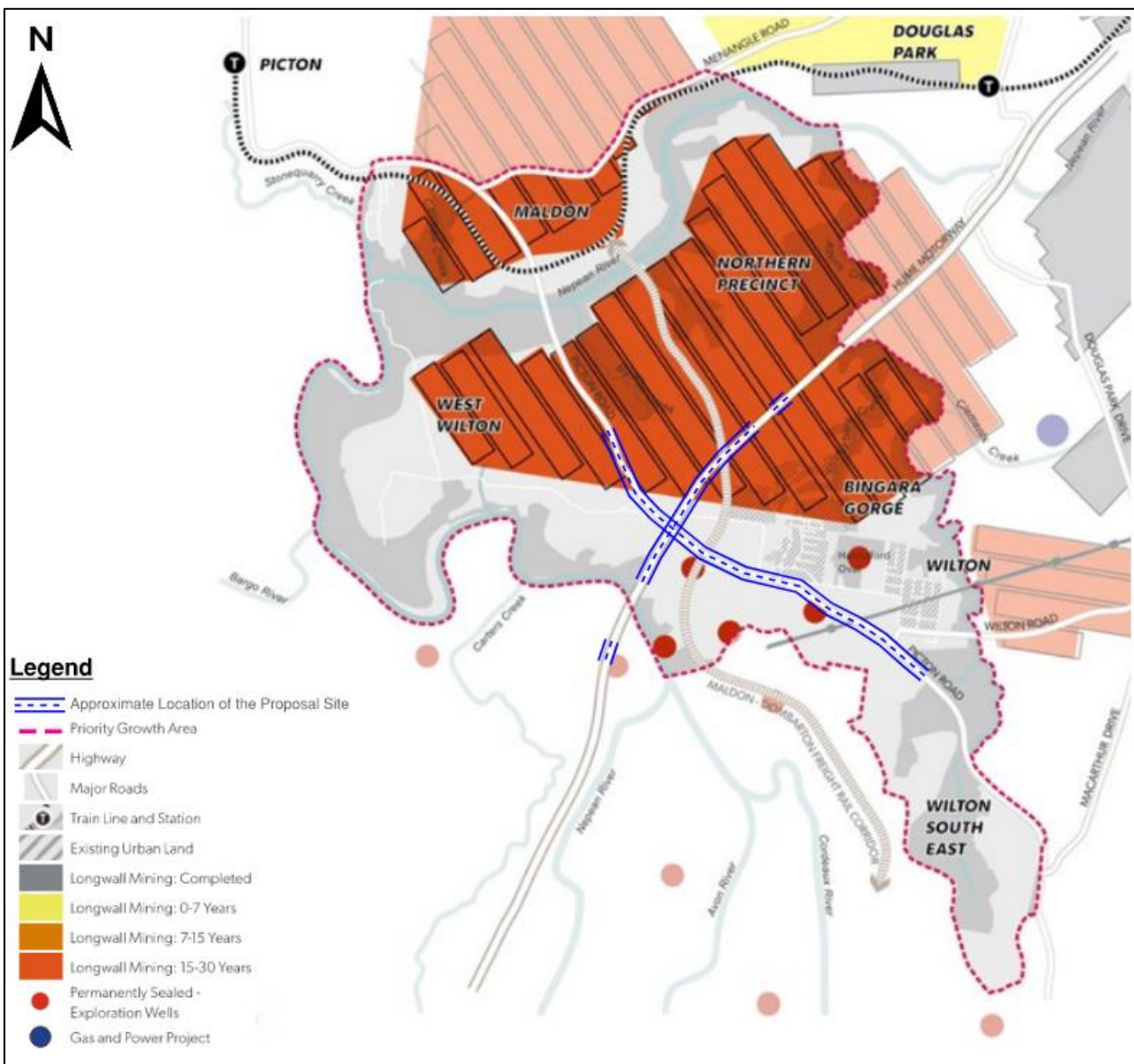


Figure 3.1 Permanently sealed exploration gas wells relative to the proposal (DPE, 2017, p. 29)

3.7 Other historical references

In addition to historical information provided in the Lotsearch report (Lotsearch, 2022), GHD also carried out web base searches to obtain further historical information relating to the proposal and adjoining areas and, where possible, close identified data gaps in the site history. The following historical information was obtained from web searches:

- **Wilton Airport and use of PFAS based firefighting foams:** A review of local media reports via a Google search did not identify incidents where fire suppression has occurred (e.g. explosion, plane crash).
- **Wilton substation:** A review of media reports via a Google search has not identified incidents (e.g. explosion, fire) associated with the substation which could have resulted in the release of oils on to the nearby ground surface.
- **Coal seam gas:** A review of media reports via a Google search has not identified uncontrolled release or gas intrusion of coal seam gas associated with exploration / gas wells or other instances.
- **General history of the Wilton area:** The Wilton area was bought by a Sydney merchant family in the late 1800s. The area became known for horse breeding and home to one of Australia's leading horse breeding stables (Person, 2009, p. 10).
- **Nepean Tunnel:** The tunnel formed part of the Upper Nepean Scheme which commenced in 1880 and was completed in 1888. The Scheme was to manage Sydney's water supply (Person, 2009, p. 10). The Nepean Tunnel, the longest tunnel in the southern hemisphere at the time, and was completed by 1884 (The Sydney Morning Herald, 1884, p. 8). Along the alignment several above ground structures comprising survey plinths near former airshafts exist (Person, 2009, p. A105).
- **Wilton RWTP:** Based on information provided at the Wilton RWTP website (ref: <http://www.myrecycledwater.com.au/wilton-rwtp>), wastewater including sewage is collected from homes, golf course, school, retail and commercial properties. The collected wastewater is treated to a 'high level' then distributed for reuse as irrigation water for the golf course and other landscaped areas and toilet flushing. Excess treated water is stored in the ponds. These activities are consistent with those listed in EPL 20335 issued to Veolia Water Solutions and Technologies (Australia) Pty Ltd (refer to section 3.3). There is a list of prohibited substances including solvents, mineral oils, cooking oils and fats and various chemicals, which must not enter the waste stream. Although rules are in place for the generator of the waste, it cannot be precluded that prohibited substances do not enter the waste stream occasionally.
- **ACM in bridge manhole covers:** Works as executed drawings (drawing no. 6005496BC0155, titled 'Bridge Over Freeway F5 at Trunk Road No. 95, Deck-Miscellaneous Details', sheet 12 of 18, dated 8/9/1978) indicate that ACM was used in 20 mm thick manhole covers that occur on each bridge abutment for the Picton Road Bridge over the M31 Hume Motorway (refer to Figure 3.2 and Figure 3.3 below). There are two manhole covers on each abutment (i.e. total of four). Based on Google Street View (May 2023), one of the manhole covers appears to be missing on the eastern bridge abutment (refer to Figure 3.4 below).

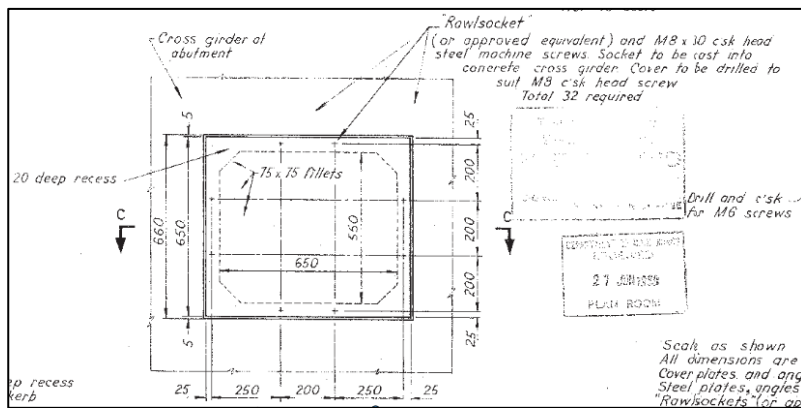


Figure 3.2 Manhole detail in the cross girder at bridge abutment

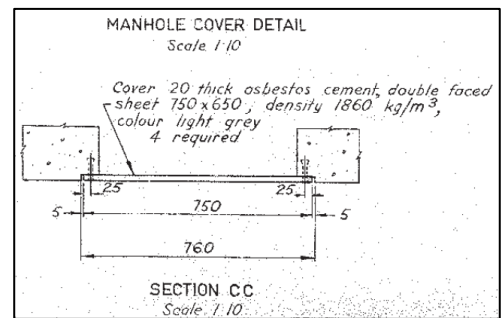


Figure 3.3 Manhole cover detail



Note: the northern manhole cover appears to be missing
Source: Google Street View, photo date May 2023

Figure 3.4 View of eastern bridge abutment and cross girder

3.8 Gaps in the site history

The following gaps in the site history were identified:

- No information was available on materials used to backfill excavations and farm dams, or if dead livestock were buried on or near the proposal site.
- No information was available demolition practices associated with the removal of old buildings.
- No information was available, which further described 'petroleum mining' and 'non-specified minerals' mining and exploration titles.
- Limited information available on coal seam gas wells.
- Limited information on the quality and origin of some fill material that may have been used and/or historically stored at or adjacent to the proposal. In addition, the extent of filling activities was not confirmed.
- No information was available on the storage and application of chemicals such as pesticides, and use of other chemicals such as petroleum hydrocarbons (e.g. small quantities of fuels, oils, etc on farm equipment).
- No information was available on the potential use of PFAS based firefighting foams or storage of fuels (e.g. aviation fuel), oils and solvents at Wilton Airport.

- Limited information on illegal dumping / fly tipping was available on NSW EPA records.
- No information was available on bridge maintenance activities and the management of hazardous paint systems.

3.9 Site history summary

Site history information indicated that the proposal passes through an area historically used for rural land use and agricultural purposes such as livestock grazing which was sparsely vegetated however remnant pockets of bushland were also present. Prior to 1990, development was generally sparse comprising rural residential dwellings, sheds, stabling areas, paddocks, minor roads, orchard and farm dams. Horse breeding was a key activity in the Wilton area from the late 1880s, which is consistent with various horse related structures such as racing tracks and circular pens observed in aerial photographs.

The western end of Picton Road was constructed by 1984. The remaining sections of Picton Road and M31 Hume Motorway were progressively constructed between 1984 and 1994, with the eastern portion of the proposal completed by 1994. Between 1990 and 2022, the Wilton area was progressively developed where relatively large rural areas were replaced by low density residential subdivisions. The construction of supporting infrastructure including a Wilton RWTP and Wilton Zone substation commenced in 2011 and completed by 2017 and 2012, respectively. Other infrastructure such as new roads were formed concurrently with the subdivision development. The residential subdivisions and supporting infrastructure occurred outside but adjacent to the proposal.

As part of this development, significant earthworks were observed in aerial photographs where relatively large volumes of excavated materials were stored in stockpiles in areas generally adjacent to the proposal. Based on colour and proximity to excavations, some of the material is inferred to be VENM, whilst other material is likely to have been imported engineered fill (e.g. road base) or recycled product. Aerial photographs identified some farms dams were removed and trenches backfilled to facilitate the construction of Picton Road or were no longer required and filled by the property owner/lease holder. No information was available on how the dams and trenches were decommissioned and/or backfilled.

Several areas of ground disturbance or exposed ground were observed in aerial photographs and generally faded over time through revegetation or replaced by a development; however, some of these areas remained evident and are still apparent in the most recent aerial photograph (2022). It is unknown if these areas of ground disturbance were associated with filling activities, removal of topsoil or erosion.

Results of a hazardous substance paint analysis report (Hibbs & Associates, 2023) indicated that most of the painting systems assessed contained zinc rich primer and either vinyl or chlorinated rubber as the binder in the topcoats. Very low concentrations of lead and zinc chromate were identified except for the paint system used at the bridge over M31 (SH2) Hume Motorway at Picton Road (Structure 816) where zinc chromate concentrations exceeded Hazardous Paint Criterion (AS/NZS 4361.1). In addition, ACM was used in 20 mm thick manhole covers that occur on each bridge abutment for the Picton Road Bridge over the M31 Hume Motorway.

Instance of illegal dumping, filling of low lying areas and fly tipping has been identified in site history and in site observations (refer to section 4). The NSW EPA issued eight penalty notices, and three cleanup notices were issued to three companies and/or individual for the importation of waste in the Wilton area between 2015 and 2017. One of these instances occurred within the western part of the proposal between the Nepean River and M31 Hume Motorway. The offence was described as the transport etc excess waste to unlawful facility” and “aggravated deposit litter from vehicle” and “transporter fail to avoid waste spilling leaking etc”. No further information was available. Other offences occurred over 1 km from the proposal.

No service station, garages or dry cleaners were identified within the proposal. The closest service station and workshop are located approximately 245 m north-east of the proposal and are inferred to be hydraulically downgradient. The service station and workshop were constructed some time between 1975 and 1990 and have not been notified as a contaminated site on NSW EPA records.

Site history information identified several mining and exploration titles for coal, petroleum and non-minerals that exist below the proposal. No coal mining has occurred in the area where the proposal is located; however, several exploration wells have been drilled, three of which, occur on or immediately adjacent to the proposal. The exploration wells were designated coal seam gas wells, however other site history information suggest that the wells were used to assess coal quality, seam lithology and seam geometry and in-seam gas quality. The wells are

likely to target the coal seam at depths of 400 to 500 m bgl. The exploration bore and / or well would have been permanently sealed by grouting to the surface, as required by exploration protocol, at completion of the exploration phase.

Wilton Airport is located approximately 50 m north-west of the proposal at its closest point and was constructed some time between 1969 and 1975. The airport and associated structures are inferred to be hydraulically downgradient of the proposal. However, in 1975 the airstrip was located east of the airport buildings and the southern quarter of the airstrip occurred with the proposal. The airstrip was relocated by 1990 to accommodate the construction of the M31 Hume Motorway. No information was available on the potential use of PFAS based firefighting foams or storage of fuels (e.g. aviation fuel), oils and solvents at Wilton Airport.

GHD carried out opportunistic contamination soil sampling from the geotechnical boreholes and test pits drilled / excavated within the proposal (GHD, 2023c). Groundwater samples were also collected from geotechnical monitoring wells, and surface water sampling of various creeks, rivers and dams occurring within the same catchment of the proposal were also carried out. Soil, groundwater and surface water samples were analysed for TRH, BTEX, PAH, OCP, OPP, PFAS (selected soil samples and one groundwater sample), metals, asbestos (soil only), major cations and anions (surface water only) and oil and grease (surface water only). Some of the test locations were within or close to AECs identified in the PSI (refer to section 5.1). No exceedances of human health assessment criteria (NEPC, 2013; HEPA, 2020; Friebel & Nadebaum, 2011) were reported for soil samples tested. However, concentrations of copper, nickel, zinc, and TRH F3 Fraction exceeded the ecological assessment criteria (NEPC, 2013) in samples representing fill and residual soils.

For groundwater and surface water samples no exceedances of the human health assessment criteria for industrial / commercial land use were reported (NEPC, 2013; Friebel & Nadebaum, 2011; HEPA, 2020; NHMRC, 2011). However, concentrations of aluminium, chromium, copper, lead and/or zinc exceeded adopted water quality assessment criteria (ANZG, 2018; CEPA, 2019). Concentrations of perfluorooctane sulfonic acid (PFOS) exceeding the adopted water quality assessment criterion (HEPA, 2020) were reported in groundwater from monitoring well location BH021. It was inferred that the source of PFOS may have been from the drilling muds used in the drilling process as the other potential sources of PFAS compounds, Wilton RWTP and Wilton Airport are inferred to be hydraulically downgradient.

There are no Contaminated Land Record of Notices, Notified Sites under the CLM Act associated with the site. The proposal and nearby areas do not form part of the NSW EPA PFAS Investigation Program.

4. Site observations

4.1 General

Four site walkovers were undertaken by experienced GHD personnel between May 2022 and April 2023 to observe surface conditions within accessible areas of the proposal and immediate surrounds. For areas deemed inaccessible at the time of the site walkovers, Google Street View was used to make observations. Google Street View also contains images dating back to 2007 and has also been used to view historical surface conditions within the proposal.

The following observations were made within the proposal and areas immediately surrounding the proposal. Key observations are shown on Figures 1.1 to 1.7, Appendix A. Photographs taken during the site walkover are provided in Appendix B.

4.2 The proposal

- Four large areas of stockpiling were observed within the proposal, including:
 - Group 1 – a grass covered stockpile observed immediately east of the M31 Hume Motorway, travelling south, about 750 m long by 3 m high by 3 m wide (Photo 6, Appendix B), within Section 3 of the proposal
 - Group 2 – a stockpile adjacent to the southern side of Picton Road, within Section 4 of the proposal (Photo 3, Appendix B)
 - Group 3 – a large, elevated grass covered stockpile near construction area, about 600 m long by 4 m high by 4 m wide, extending between Pembroke Parade and Janderra Lane along a noise wall, (Photo 1, Appendix B), on the southern side of Picton Road, within Section 4 of the proposal
 - Group 4 – a large, elevated grass covered stockpile near a construction area observed on the western side of Picton Road, opposite the Pembroke Parade intersection, about 7 m long by 3 m wide by 4 m high, within Section 4 of the proposal (Photo 2, Appendix B).
- Multiple locations observed along the M31 Hume Motorway corridor within the proposal were observed to be located within a disturbed environment which has been subject to road construction. Notable observations include:
 - M31 Hume Motorway south bound offramp (Section 3 of the proposal) – the batter on the southern side of the M31 Hume Motorway and the south bound offramp to Picton Road was covered by heavy vegetation from a distance view (Photo 8, Appendix B). This was verified by a drive pass on the M31 Hume Motorway and existing south bound ramp to Picton Road, where mounds along the motorway were identified. The presence of mounds along this section of M31 Hume Motorway was also observed on the Google Street View of this area from November 2021 shown (Photo 9, Appendix B). The presence of dense vegetation limited a visual assessment of the soil (Photos 16 and 17, Appendix B). Foot access to the batter of the M31 Hume Motorway exit lane via a track between Wilton Zone substation and residential properties from Condell Park Road was attempted, however, overgrown vegetation and aggressive dogs were encountered.
 - M31 Hume Motorway north bound onramp (Section 3 of the proposal) – no visual or olfactory evidence of contamination was observed on the access track at the toe of the M31 Hume Motorway north bound onramp batter. The batter was covered by dense vegetation limiting visual assessment of the soils (Photo 14, Appendix B). The northern portion of the batter was within a biosecurity zone (Photo 15, Appendix B), therefore only a visual assessment was undertaken from outside the restricted area. This area is understood to be restricted for access due to being subject to a Biosecurity Management Plan under Wollondilly Shire Council.
 - South-west of the M31 Hume Motorway (Section 3 of the proposal) – dense bushland was observed to the south-west of the M31 Hume Motorway.

- Road upgrade works were observed along Picton Road within the proposal as part of the Country Garden Wilton Greens residential development, within Section 4 of the proposal (Photos 10 to 13, Appendix B). Stockpiled material was observed as part of the construction works, discussions with an on-site contractor indicated the imported materials were approved by an undisclosed auditor. Visual observations indicated the material was VENM.
- No illegal dumping was observed in the proposal during the site walkovers, however, fly tipped (illegal dumping) materials, litter, and other small quantities rubbish was observed along multiple points of the proposal using Google Street View (Photos 20 to 28, Appendix B). Larger objects, including tyres and white plaster like sheeting, possibly ACM, were observed within Section 4 of the proposal, with smaller quantities observed in remaining sections of the proposal.
- No vegetation stress was noted at the time of the site walkovers.

4.3 Off-site areas

- Shell Wilton service station and workshop was observed approximately 245 m north-east of Section 5 of the proposal at its closest point.
- Bingara Gorge is a large residential subdivision primarily comprising new residential developments and recreational facilities including a country club and golf course was observed immediately north of Section 4 of the proposal.
- Country Garden Wilton Greens residential development site was observed south Section 4 of the proposal, comprising new residential developments, shopping centres, and community facilities.
- Wilton Zone substation, operational, was observed along Condell Park Road north and east of Section 3 of the proposal (Photo 5, Appendix B), with stockpiles observed east of the substation. A review of aerial imagery from Google in 2021 identified several stockpiles present east of the Wilton Zone substation. During the site visit stockpiles observed were covered in grass (Photo 18, Appendix B). Given the presence of vegetation on the stockpiles the visual assessment of evidence of potential contamination was limited, however, some evidence of fly tipped material and an intermediate bulk container (IBC) was observed (Photo 19, Appendix B).
- Wilton RWTP operated by Veolia (environment protection licence (EPL) 20335 for Bingara Gorge Onsite Wastewater Scheme) was observed east of Section 3 of the proposal, consisting of a large water treatment plant with a 110 kL wastewater storage tank near Stringybark Creek accessed via Condell Park Road (Photo 4, Appendix B).
- The skydiving property and airstrip (Wilton Airport) were observed northwest of the Picton Road/M31 Hume Motorway interchange, and visible to the north of Picton Road east of the M31 Hume Motorway interchange (Section 3 of the proposal).
- Cleared greenfield and/or grazing land, with minimal infrastructure, and large lot rural residential properties were observed in multiple areas surrounding the proposal. Older rural residential properties may contain hazardous building materials such as lead based paints and ACM.
- Allied Pinnacle Mills Agricultural processing facility (Photo 7, Appendix B) was observed on the southern side of Picton Road approximately 4 km west of the Picton Road/M31 Hume Motorway interchange (Section 3 of the proposal).
- Maldon-Dombarton rail corridor (Australian Rail Track Corporation (ARTC)) was observed extending west to east across Picton Road and Maldon Zone substation (1991 to present), crossing Picton Road approximately 3.3 km northwest of the Picton Road/M31 Hume Motorway interchange (Section 3 of the proposal).

5. Preliminary conceptual site model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM is developed using information obtained from site history, site observations, land use and expected ground conditions. Once the contamination status is understood through the sampling and analysis process, the CSM then allows the assessor to evaluate the risk posed by the contamination to the identified receptor, and whether actions are required to manage that risk.

5.1 Areas of environmental concern

Site history information and site observations indicate a number of potentially contaminating activities that have occurred on or in the vicinity of the proposal. These activities have been identified as AECs, which are discussed in Section 5.2 below. The likelihood of contamination to exist at the proposal has been qualitatively assessed where the likelihood is the probability of contamination being present and subject to exposure during the proposed installation, categorised on a scale from high (near 100% probability of being present) to very low (near 0% probability of being present). Approximate locations where potentially contaminating activities have occurred on or in the vicinity of the proposal are shown on Figures 1.1 to 1.7 in Appendix A and further discussed in Table 5.1.

5.2 Potential sources of contamination

5.2.1 On-site

5.2.1.1 AEC 1: Fill of unknown quality and origin

Site history information and site observations has identified the following areas of fill on or adjacent to the proposal:

- Stockpiles, fill mounds and embankments generated from earthworks associated with residential subdivision, Wilton RWTP and road works:
 - Stockpiles generated as part of the Wilton RWTP had a similar colour to the exposed ground within excavations occurring north of the stockpiling area suggesting the likely source of this material and the material comprised natural soil and rock (likely to be VENM).
 - Several stockpiles were stored immediately south of Picton Road. These stockpiles were associated with the residential subdivision development occurring south of Picton Road. Based on site observations, the material appeared to comprise topsoil (stripped from the residential lots) and residual soil / extremely weathered rock (likely to be VENM).
 - Stockpiles / fill mounds were also observed adjacent to the M31 Hume Motorway, near the south bound offramp intersecting with Picton Road. These mounds were observed in the 1990 aerial photograph following construction of the M31 Hume Motorway and during site walkover via Google Street View. Direct observations of the fill mounds were not possible due to limited access and the mounds being covered with vegetation. However, it is likely that these mounds were formed as part of the M31 Hume Motorway construction, and likely comprise a mixture of natural soil and rock that was excavated to form the offramp.
 - Deep fill, to depths of 11.65 m bgl and 12.43 m bgl, was encountered at borehole locations BH031 and BH044, respectively. The material was described as clay, sandy clay and/or clayey sand, which was grey, orange and/or brown. The material was consistent with reworked natural material, which may have been used to form embankments as part of the Picton Road construction. No evidence of contamination such as ACM, staining or odours were reported, which was consistent with laboratory and PID results.

- Imported material (quarry product) either stored in stockpiles or used below pavements such as roads (e.g. Picton Road) (engineered fill) and formation of driveways:
 - At the time of the October 2022 site walkover, the east bound lane of Picton Road at the Pembroke Parade intersection, was being modified. Discussions with the construction contractor working on the modification to this intersection, indicated that a site auditor had been appointed and had approved the imported material being used as part of the road modification works. Observations made by GHD of stockpiled materials at this site appeared to be VENM.
 - Typically engineered fill is used in road construction (i.e. base course, subbase course) and generally sourced from local quarries. Based on subsurface conditions encountered at geotechnical boreholes drilled within Picton Road verge, identified engineered fill comprising sandy gravel / gravelly sand to depths between 0.3 m and 0.4 m. No evidence of contamination was identified during fieldwork which is also consistent with laboratory results where no exceedances of human health assessment criteria for commercial / industrial land use was reported.
 - Private roads / access driveways intersected Picton Road and occur within the proposal. Based on site history and site observations, these driveways appear to be constructed using grey gravel and / or asphalt. However, it is not uncommon for recycled materials (e.g. crushed concrete and bricks) to be used in private roads / access driveways, particularly for repairs. Recycled material can contain ACM.
- Illegally imported material in the form of stockpiles and fly tipping:
 - NSW EPA records indicate eight penalty notices, and three cleanup notices were issued to three companies and/or individual for the importation of waste in the Wilton area between 2015 and 2017. Two of the penalty notices were associated with the importation of fill and building materials. Some of this material appeared to be used to fill lower lying areas. These activities occurred at properties located 1.6 km north-east and 2.7 km south-west of the proposal. The third area was described as Picton Road (western end) which is inferred to be the section of Picton Road that occurs between the Nepean River and the M31 Hume Motorway. The offences described for the western end of Picton Road included “transport etc excess waste to unlawful facility” and “aggravated deposit litter from vehicle” and “transporter fail to avoid waste spilling leaking etc”. No further information was available.
 - Site observations (Google Street View) identified some evidence of fly tipping (e.g. possible plaster/ACM sheeting and bricks at Janderra Lane, May 2021; discarded trampoline on Condell Park Road) on roadside areas within the proposal. General litter was also observed along the road verge. The frequency and extent of fly tipping was not confirmed but did not appear to be widespread based on available information. The road verges were generally vegetated with shrubs, trees, long grasses which could have obscured other instances of fly tipping.
- Several areas of ground disturbance or exposed ground were observed in aerial photographs and generally faded over time through revegetation or replaced by a development; however, some of these areas remained evident and are still apparent in the most recent aerial photograph (2022). It is unknown if these areas of ground disturbance were associated with filling activities, removal of topsoil or erosion.

The likelihood of contamination associated with stockpiles, fill mounds and embankments comprising natural soil and rock, and engineered fill is assessed as very low. However, where fly tipping has occurred, illegal filling using waste or use of recycled products, the likelihood of contamination, in particular the occurrence of ACM, is assessed as high. Areas where ground disturbance has occurred may suggest filling and could present a moderate to high likelihood of contamination being present in these areas. If present, the depth of contamination would be governed by fill thickness where fill has been applied to the land. In the case of stockpiles, if contamination is present within the stockpile, then impacts could occur below the stockpile impacting near surface soils. Given the depth to groundwater within and adjacent to proposal, impacts to groundwater are unlikely. If contaminated fill is used to fill low lying areas, ephemeral watercourse or drainage lines, surface water impacts are possible.

5.2.1.2 AEC 2: Filling and possible disposal of waste material in farm dams, trenches and burial of dead livestock

Aerial photographs identified some farm dams were removed to facilitate the construction of Picton Road or were no longer required and filled by the property owner/lease holder. In addition to dams, trenches were also identified, one associated with the Maldon-Dombarton Railway corridor (Section 3 of the proposal) and the other was located approximately 175 m south-west of Argyle Street (Section 5 of the proposal). No information was available on how the dams and trenches were decommissioned and/or backfilled. Based on aerial photographs, the trench associated with the Maldon-Dombarton Railway corridor does not appear to have been backfilled.

It is not uncommon for farm dams and trenches to be filled with waste items such as household waste, dead livestock or disused farm items. Burying dead animals can be a routine activity undertaken in rural areas. This activity has not been confirmed in site history nor by site observations, however there were areas of disturbed ground observed in historical aerial photographs. It cannot be precluded that burial practices did not occur at or near the proposal.

Contamination would typically be present within the fill materials used to fill the dam and possibly dam sediments from runoff from upslope areas (refer to section 5.2.1.5 below for sediment quality). Contamination associated with livestock burial areas would be localised to the burial cell. Soil and groundwater could be potentially impacted if contamination was present. The depth of soil impact will be governed by the depth of dam or burial pit.

Therefore, the likelihood of contamination is assessed as moderate to high.

5.2.1.3 AEC 3: Hazardous building materials

Aerial photographs identified structures present within the proposal and adjoining areas since the late 1940s. Given the age of some of these structures the use of hazardous building materials such as ACM and lead based paints cannot be precluded. Some of these structures were removed as part of construction of Picton Road or residential subdivision. Poor demolition practices may have resulted in hazardous building materials entering soils in the vicinity of the structure. Contamination, if present, is likely to occur in the upper 0.3 m to 0.5 m of the soil profile due to localised ground disturbance during demolition. For existing structures, the weathering of hazardous building materials is more likely to impact the upper 0.2 m of the soil profile in the immediate vicinity of the structure or downpipe discharges. Areas where fly tipping has occurred, near surface soils in the vicinity of waste is likely to be impacted.

Results of a hazardous substance paint analysis report (Hibbs & Associates, 2023) indicated that most of the painting systems assessed contained zinc rich primer and either vinyl or chlorinated rubber as the binder in the topcoats. Very low concentrations of lead and zinc chromate were identified except for the paint system used at the bridge over M31 (SH2) Hume Motorway at Picton Road (Structure 816) where zinc chromate concentrations exceeded Hazardous Paint Criterion (AS/NZS 4361.1). No information was available on maintenance and management of hazardous paint systems. Weathering of paint systems or poor management of these materials during maintenance activities could result in leaching of heavy metals or chlorinated compounds or paint flakes entering near surface soils in the vicinity of the structure.

ACM was used in 20 mm thick manhole covers that occur on each bridge abutment for the bridge over the M31 Hume Motorway. One manhole cover was missing, and the condition of the manhole covers were not assessed as part of this investigation. Damage to manhole covers could result in ACM fragments or asbestos fibres impacting nearby surface soils.

Based on experience with similar projects, the likelihood of contamination is assessed as high.

5.2.1.4 AEC 4: Application and storage of pesticides and other small quantities of chemicals

Site history information indicates the majority of the proposal passed through areas that were and are still being used for agricultural purposes. Some of these areas have been progressively developed over time forming residential subdivisions primarily that are supported by town centres. The nature of the agricultural land use appears to be for livestock however growing of crops and other feed sources cannot be precluded.

Broad acre application of pesticides may have occurred in some areas where the proposal is located. Pesticides may have been also applied around former and existing structures and livestock. Pesticides and other chemicals

such as fertilisers, fuels, oils, if used, are likely to have been stored in sheds at rural residential properties. Some of these properties occurred with the proposal and were removed as part of the original Picton Road construction. The quantity of chemicals stored are anticipated to be relatively small in the order of 20 to 100 L.

It is not uncommon for herbicide application to occur along road verges to control weeds.

NSW EPA records indicated that herbicide application occurred within waterways that bisected the proposal and farm dams adjacent to the proposal up until 2000, at which point the EPLs for this activity were surrendered.

Modern pesticides and herbicides are less persistent in the environment and typically breakdown after several months. However, older pesticides and herbicides that may have been used prior to 1980 were more persistent, remaining in soils several years following application. It is anticipated that the organic component of older pesticides has degraded however heavy metals such as arsenic could still remain in near surface soils.

Contamination, if present, is expected to be localised to areas in the vicinity of former or existing structures and road verges, or where pesticides/herbicides were applied to crop growing areas. Impacts are likely to affect the upper 0.2 m of the soil profile due to underlying clay soils reducing downward migration of contaminants. Pesticides can be water soluble and potentially migrate to surface water bodies such as creeks and dams if chemical application occurred in relatively close proximity to these areas. Contaminant accumulation may occur in dam sediments. Refer to section 5.2.1.5 below.

The likelihood of contamination is assessed as low, as pesticides are likely to have degraded and heavy metals potentially associated with older pesticides are not expected to occur at concentrations that would exceed commercial/industrial land use human health criteria. Heavy metals, OCP and OPP concentrations in soil samples did not exceed human health assessment criteria for commercial / industrial land use (refer to section 3.5.2).

5.2.1.5 AEC 5: Sediment quality within farm dams

Dam sediments can accumulate chemicals, such as pesticides, that may have been used within the catchment for the dam.

Contamination, if present, is more likely to exist in sediment, however, impacts to surface water quality cannot be precluded. The likelihood of contamination is assessed as low to moderate.

5.2.1.6 AEC 6: Mining activities

Site history information identified several mining and exploration titles for coal, petroleum and non-minerals that exist below the proposal. No coal mining has occurred in the area where the proposal is located; however, several exploration wells have been drilled, three of which, occur on or immediately adjacent to the proposal. The exploration wells were designated coal seam gas wells, however other site history information suggest that the wells were used to assess coal quality, seam lithology and seam geometry and in-seam gas quality. The wells are likely to target the coal seam at depths of 400 m to 500 m bgl. The exploration bore and / or well would have been permanently sealed by grouting to the surface, as required by exploration protocol, at completion of the exploration phase.

Contamination, if present, would be in the form of methane and carbon dioxide gases occurring in the vicinity of the gas / exploration wells if not sealed correctly. It is possible that coal seam gas could occur via preferential pathways between the coal seam and the surface such as through rock defects, however, there has been no reports of gas intrusion in the Wilton area.

Based on available information, the likelihood of contamination occurring is assessed as very low.

5.2.2 Off-site

5.2.2.1 AEC 7: Shell service station and workshop

Based on aerial photographs, the shell service station and mechanics workshop were constructed some time between 1975 and 1990. The service station and workshop are located approximately 250 m from the proposal at its closest point. According to surface elevations provided by Google Earth, the service station and workshop are inferred to be hydraulically down gradient of the proposal.

The service station and workshop could be a potential source of petroleum hydrocarbon contamination from the release of petroleum hydrocarbons into the subsurface either from underground storage tanks and/or associated appurtenances (service station) and underground hoists and use of oils and solvents (workshop).

Contamination, if present, may be in the form of TRH, BTEX, PAH, VOC and/or heavy metals, and exist at near surface and at depth, potentially impacting soil and groundwater and may cause a vapour intrusion risk. Petroleum hydrocarbon contamination commonly occurs at the smear zone, that is, a depth where groundwater will be encountered. Based on standing water levels measured at groundwater monitoring well BH004A (approximately 440 m south-west of the service station) groundwater is expected to occur at an approximate depth of 5 m. Soil vapour impacts may occur at shallow depths, particularly if VOCs follow a preferential pathway (e.g. sand, existing service trenches, etc.).

Given that the proposal is hydraulically upgradient and approximately 250 m from the source site, on-site migration of petroleum hydrocarbons is considered unlikely. Therefore, the likelihood of contamination from the service station and workshop is assessed as very low.

5.2.2.2 AEC 8: Wilton RWTP and Sydney Water STP

The proposal adjoins the Wilton RWTP on the western and northern sides. A section of the proposal is located approximately 100 m south of the Wilton RWTP. The facility comprises two treated water storage ponds and other treatment infrastructure. The EPL suggests the Wilton RWTP has been operational since c2013. No complaints or non-conformances were listed on NSW EPA public registers for this facility. The treatment ponds appear to be hydraulically downgradient, however the treatment facility appears to be hydraulically upgradient of the proposal that occurs immediately west of the Wilton RWTP.

Based on information provided at 'The Wilton RWTP' website (ref: <http://www.myrecycledwater.com.au/wilton-rwtp>), wastewater including sewage is collected from homes, golf course, school, retail and commercial properties. The collected wastewater is treated to a 'high level' then distributed for reuse as irrigation water for the golf course and other landscaped areas and toilet flushing. Excess treated water is stored in the ponds. These activities are consistent with those listed in EPL 20335 issued to Veolia Water Solutions and Technologies (Australia) Pty Ltd). There is a list of prohibited substances including solvents, mineral oils, cooking oils and fats and various chemicals, which must not enter the waste stream. Although rules are in place for the generator of the waste, it cannot be precluded that prohibited substances do not enter the waste stream occasionally.

NSW EPA records indicated that Sydney Water Corporation had an EPL for the processing of sewage in small plants. The duration of the activity is unknown but ceased in 2013. The area identified for this EPL is occupied by mostly residential properties and some commercial/industrial properties. It is inferred by the area, that the EPL was for private septic tanks and associated soak away trenches used to treat household sewage. This area is downgradient of the proposal.

PFAS compounds are ubiquitous in the environment, in particular areas where waste treatment facilities occur. There is widespread presence of PFAS in Australian waste streams, including at landfills and wastewater treatment facilities (HEPA, 2020). Therefore, PFAS concentrations in soil, surface water and/or groundwater can be relatively higher in the vicinity of wastewater treatment facilities. In addition to PFAS, other COPCs that may be present in soil, surface water and/or groundwater include TRH, BTEX, PAH, OCP, OPP, heavy metals, nutrients and pathogens.

PFAS, if present and at significant concentrations at the source, can migrate several hundreds of metres via groundwater, whereas other COPCs are less mobile. Given the proximity of the Wilton RWTP relative to Section 3 of the proposal, on-site migration of these COPCs cannot be precluded. Therefore, the likelihood of contamination to exist from on-site migration of contaminants from the Wilton RWTP is assessed as moderate for PFAS and low for remaining COPCs due to lower mobility.

Concentrations of PFOS exceeding the adopted water quality assessment criterion (HEPA, 2020) were reported in groundwater from monitoring well location BH21. Only one groundwater sample was analysed for PFAS as it was the closest well installed for the project to Wilton Airport, a potential source of PFAS. It was inferred that the source of PFOS may have been from the drilling muds used in the drilling process as the other potential sources of PFAS compounds, Wilton RWTP and Wilton Airport, are inferred to be hydraulically downgradient.

Soil impacts may occur in the vicinity of the treatment ponds, septic tanks, soak away trenches and other treatment infrastructure, impacting nearby soil surrounding and below the ponds, in soak away trenches and below ground infrastructure. Therefore, the likelihood of on-site soil impacts is assessed as very low, as identified treatment facilities are inferred to be hydraulically downgradient of the proposal.

Surface water impacts are possible, as treated water is stored in large ponds at the Wilton RWTP and recycled water is applied to the land, therefore runoff into nearby watercourse cannot be precluded. For the Sydney Water Corporation treatment area, two tributaries of Allens Creek flow through the treatment area. Therefore, mobilisation of treated and/or untreated sewage to these watercourses cannot be precluded. Impacts to the proposal are unlikely as storage ponds and treatment areas are in areas inferred to be hydraulically downgradient and surface water runoff is likely to flow away from the proposal.

5.2.2.3 AEC 9: Wilton Zone substation

Wilton Zone substation is located on the north side of Condell Park Road and approximately 130 m west of the proposal at its closest point. Aerial photographs indicate that the substation was constructed in 2011, which coincided with the expansion of the residential subdivision further east and the construction of Wilton RWTP to the north. Signs observed on the substation compound during the site walkover indicate that combustible liquids were used in the substation.

Given the age of the substation (i.e. constructed after 1980), PCB based transformer oils are unlikely to have been used, nor asbestos, within the structure itself. However, the transformer may contain oil and could be a source of petroleum hydrocarbon contamination should an electrical fire occur. A review of media reports via a Google search has not identified incidents (e.g. explosion, fire) associated with the substation which could have resulted in the release of oils on to the nearby ground surface.

If contamination were present at the substation it is expected to be localised and near surface, and given the distance to the proposal, it is considered unlikely to impact the proposal.

5.2.2.4 AEC 10: Wilton Airport

Wilton Airport is located approximately 50 m north-west of the proposal at its closest point and was constructed some time between 1969 and 1975. The buildings associated with the airport, which may also include storage of chemicals and maintenance bay are located approximately 170 m north-west of the proposal at its closest point. In 1975, the airstrip was located east of the buildings where the southern quarter of the airstrip occurred within the proposal. By 1990, the airstrip was relocated north-west of the buildings and the old airstrip bisected by the M31 Hume Motorway.

PFAS contamination of soil, surface water and groundwater have been associated with airports due to use of Aqueous Film Forming Foam (AFFF) which historically have contained PFAS compounds (HEPA, 2020). A review of media reports via a Google search has not identified incidents where fire suppression has occurred (e.g. explosion, plane crash). If PFAS based AFFF has been used impacts can occur in the vicinity and downgradient of areas where AFFF has been applied. Concentrations of perfluorooctane sulfonic acid (PFOS) exceeding the adopted water quality assessment criterion (HEPA, 2020) were reported in groundwater from monitoring well location BH21. Only one groundwater sample was analysed for PFAS as it was the closest well installed for the proposal to Wilton Airport, a potential source of PFAS. It was inferred that the source of PFOS may have been from the drilling muds used in the drilling process, as the other potential sources of PFAS compounds, Wilton RWTP and Wilton Airport, are inferred to be hydraulically downgradient.

The airport may also store aviation fuel in above or below ground storage tanks, and small quantities of solvents and oils used for aircraft maintenance. Petroleum hydrocarbons also have the potential to impact soil, surface water and groundwater. Impacts can be near surface or at depth potentially impacting soil and groundwater and may cause a vapour intrusion risk (petroleum hydrocarbons only). Near surface soils can be impacted from workshop activities or in the vicinity of above ground storage tanks (ASTs) due to spillage of petroleum hydrocarbons, whereas deeper contamination can be caused by releases from underground storage tanks (USTs). Petroleum hydrocarbon contamination commonly occurs at the smear zone, that is, a depth where groundwater will be encountered.

The likelihood of these impacts occurring within the proposal is assessed as very low, due to the likely source of contamination (if present) being inferred to be hydraulically downgradient of the proposal.

5.2.3 Contaminants of potential concern

A broad suite of COPC is potentially associated with the identified sources and are summarised in Table 5.1 below.

5.2.4 Potential contamination affecting the proposal site

Table 5.1 summarises the AECs and COPCs that relate to a given section of the proposal. The table provides the likelihood of the contamination to occur, and likely depth and extent based on experience with similar sites and results of opportunistic sampling and testing of soil, groundwater and surface water undertaken by GHD.

Table 5.1 Summary of potential contamination source per section of the proposal

AEC	COPCs	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Likelihood*	Likely depth and extent of potential contamination including rationale for likelihood of contamination to exist
AEC 1: Fill of unknown quality and origin	TRH, BTEX, PAH, OCP, OPP, PCB, heavy metals, asbestos	X	X	X	X	X	X	High: fly tipping has occurred, illegal filling using waste or use of recycled products Moderate to high: areas of historical ground disturbance which have been filled. Very low: for excavated natural materials, reworked natural materials and imported quarry product.	The depth of contamination will be governed by fill thickness where fill has been applied to the land. In the case of stockpiles, if contamination is present within the stockpile, then impacts could occur below the stockpile impacting near surface soils. Given the depth to groundwater within and adjacent to proposal, impacts to groundwater are unlikely. If contaminated fill is used to fill low lying areas, ephemeral watercourse or drainage lines, surface water impacts are possible.
AEC 2: Filling and possible disposal of waste material in farm dams, trenches and burial of dead livestock	TRH, BTEX, PAH, OCP, OPP, heavy metals, asbestos, nutrients, pathogens.	-	-	X	X	X	-	Moderate to high	Contamination would typically be present within the fill materials used to fill the dam and possibly dam sediments from runoff from upslope areas (refer to AEC 5 for sediment quality). Contamination associated with livestock burial areas would be localised to burial cell. Soil and groundwater could be potentially impacted if contamination was present. The depth of soil impact will be governed by the depth of dam or burial pit.
AEC 3: Hazardous building materials	Heavy metals (in particular lead, zinc, zinc chromate), VHC and asbestos	X	X	X	X	X	X	High	Contamination, if present, is likely to occur in the upper 0.3 m to 0.5 m of the soil profile due to localised ground disturbance during demolition. For existing structures, the weathering of hazardous building materials is more likely to impact the upper 0.2 m of the soil profile in the immediate vicinity of the structure or downpipe discharges. Areas where fly tipping has occurred, near surface soils in the vicinity of waste is likely to be impacted. Contamination may occur from weathering or disturbance (i.e. during maintenance activities) of paint systems used on elements of the Picton Road Bridge over M31 Hume Motorway or damage to ACM manhole covers located at the bridge abutments of the same Picton Road Bridge.

AEC	COPCs	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Likelihood*	Likely depth and extent of potential contamination including rationale for likelihood of contamination to exist
AEC 4: Application and storage of pesticides and other small quantities of chemicals	OCP, OPP, heavy metals (in particular arsenic)	X	X	X	X	X	X	Low	Contamination, if present, is expected to be localised to areas in the vicinity of former or existing structures and road verges, or where pesticides/herbicides were applied to crop growing areas, or areas where pesticides are applied to livestock. Impacts are likely to affect the upper 0.2 m of the soil profile due to underlying clay soils reducing downward migration of contaminants. Pesticides can be water soluble and potentially migrate to surface water bodies such as creeks and dams if chemical application occurred in relatively close proximity to these areas. Contaminant accumulation may occur in dam sediments. Refer to AEC 5.
AEC 5: Sediment quality within farm dams	OCP, OPP, heavy metals (in particular arsenic)	-	X	X	X	X	-	Low to moderate	Contamination, if present, is more likely to exist in sediment, however, impacts to surface water quality cannot be precluded.
AEC 6: Mining activities	Methane, carbon dioxide	-	-	X	X	X	X	Very low	Contamination, if present, would be in the form of methane and carbon dioxide gases occurring in the vicinity of the gas / exploration wells if not sealed correctly. It is possible that coal seam gas could occur via preferential pathways between the coal seam and the surface such as through rock defects, however, there has been no reports of gas intrusion in the Wilton area.
AEC 7: Shell service station and workshop	TRH, BTEX, PAH, VOC and/or heavy metals	-	-	-	-	X	-	Very low	Contamination, if present, can exist at near surface and at depth, potentially impacting soil and groundwater and may cause a vapour intrusion risk. Petroleum hydrocarbon contamination commonly occurs at the smear zone, that is, a depth where groundwater will be encountered. The proposal is hydraulically upgradient and approximately 250 m from the source site, on-site migration of petroleum hydrocarbons is considered unlikely.

AEC	COPCs	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Likelihood*	Likely depth and extent of potential contamination including rationale for likelihood of contamination to exist
AEC 8: Wilton Recycling Water Treatment Plant (RWTP) and Sydney Water Sewage Treatment Plant	TRH, BTEX, PAH, OCP, OPP, PFAS, heavy metals, nutrients, pathogens	-	-	X	-	X	-	<p>Moderate to high: on-site migration via groundwater for potential PFAS impacts from Wilton RWTP due to close proximity to the proposal.</p> <p>Low: On-site migration via groundwater of other less mobile contaminants</p> <p>Very low: on-site migration of soil and surface water impacts.</p>	<p>PFAS, if present and at significant concentrations at the source, can migrate several hundreds of metres via groundwater, whereas other COPCs are less mobile. Given the proximity of the Wilton RWTP relative to Section 3 of the proposal, on-site migration of these COPCs cannot be precluded.</p> <p>Soil impacts may occur in the vicinity of the treatment ponds, septic tanks, soak away trenches and other treatment infrastructure, impacting nearby soil surrounding and below the ponds, in soak away trenches and below ground infrastructure. Treatment facilities are inferred to be hydraulically downgradient of the proposal.</p> <p>Impacts to on-site surface water bodies are unlikely as storage ponds and treatment areas are downgradient and surface water runoff is likely to flow away from the proposal.</p>
AEC 9: Wilton Substation	TRH, PAH	-	-	X	-	-	-	Very low	If contamination were present at the substation it is expected to be localised and near surface, and given the distance to the proposal, it is considered unlikely to impact the site.
AEC 10: Wilton Airport	PFAS, TRH, BTEX, PAH, VOC	-	-	X	-	-	-	Very low	<p>If PFAS based AFFF has been used impacts can occur in the vicinity and downgradient of areas where AFFF has been applied impacting soil, groundwater and surface water.</p> <p>For petroleum hydrocarbons, impacts can occur in soil at near surface and at depth, depending on the source of impacts (e.g. surface spillage versus release from a UST). Contamination occurring at depth can impact groundwater and a cause vapour intrusion risk.</p>

Notes:

"X" = AEC applicable to a particular section of the proposal.

"-" = AEC does not apply to a particular section of the proposal.

* Likelihood is the probability of contamination being present and subject to exposure during the proposed installation, categorised on a scale from high (near 100% probability of being present) to very low (near 0% probability of being present).

5.3 Potential exposure and migration pathways

The primary pathways by which potential receptors could be exposed to the COPC outlined above are considered to be:

- Exposure pathways:
 - direct contact with contaminated soil, surface water, or, groundwater (including dermal contact and ingestion)
 - inhalation of dust from contaminated soils
 - inhalation of vapours/gases generated by soil / groundwater contaminated by volatile and semi-volatile contaminants.
- Migration pathways:
 - transport of contaminants via groundwater to surface water
 - leaching of contaminants through the soil profile to groundwater or surface water
 - transport of contaminants by mechanical disturbance (e.g. earthworks, erosion and sediment transport).

5.4 Potential receptors

This assessment focuses on the proposed land use associated with the proposal. Based on the description in section 1.1.2, the proposal will involve significant earthworks, including vegetation removal, to accommodate the various upgrade elements to the existing Picton Road and M31 Hume Motorway interchange. The proposal will also include the construction of temporary ancillary facilities and operational infrastructure. It is anticipated that, where possible, excavated material will be reused, and that unsuitable/surplus material that cannot be reused on-site, may require off-site disposal. Accordingly, the key receptors of interest include:

- Human receptors:
 - Individuals involved in the construction activities at the site and site visitors
 - Intrusive maintenance workers carrying out repairs or installation on subsurface utilities following construction phase. It is expected that minor excavation activity could occur in the future (e.g. road repairs or installation of underground services)
 - Groundwater users: groundwater bores within 500 m were registered for monitoring, irrigation and water supply.
- Ecological receptors:
 - Transitory wildlife, such as snakes, various animals (native and introduced) and birds may exist on or near the proposal. The proximity of trees, shrubs, grassed areas and water bodies (e.g. creeks, farm dams) at or adjacent to the site would provide suitable habitat and encourage wildlife to occupy these areas periodically
 - Aquatic species are likely to exist within the water and sediment of water bodies in the vicinity or downstream of the proposal.

5.5 Potential source-pathway-receptor (SPR) linkages

Potential SPR linkages for on-site and off-site receptors are summarised in Table 5.2 below. Based on this review, potential SPR linkages could be complete for:

- Construction workers/visitors may encounter contamination in the form of fill, waste, fly tipping, hazardous building materials (e.g. ACM fragments or sheeting, impacts from paint systems containing heavy metals, VHCs), dam sediments during earthworks and/or grubbing activities. Occurrences are expected to be localised but present throughout the proposal.

- Ecological receptors:
 - during construction due to mobilisation of contaminants from exposed soils
 - some heavy metals exceed water quality assessment criteria (ANZG, 2018) in surface water bodies that occur within, pass through or adjoin the proposal.

Table 5.2 Potential source pathway receptor (SPR) linkages

Potential source	Pathway	Receptor	Potential for completeness	
Contaminated soils on site within excavations and ancillary areas	Volatilisation to outdoor air and subsequent inhalation	Construction workers/visitors	Unlikely – a low to very low likelihood of volatile organic compound (VOC) on or near to the proposal. No exceedances of the adopted human health criteria for volatile compounds in soil and groundwater samples. PID results less than 7.2 ppm. Coal seam gas / exploration wells were located near to or within Sections 3, 4 and 6 of the proposal but have been ‘permanently’ sealed. If contamination is present, volatile compounds are expected to sufficiently disperse. However, volatile compounds could accumulate within excavated trenches or service pits.	
		Intrusive maintenance workers in the vicinity of the potentially impacted soil		
		Ecological receptors e.g. invertebrates, transitory wildlife and vegetation		
	Direct contact, including ingestion		Construction workers/visitors	Possible – where hazardous building materials including paint systems containing heavy metals and VHCs, contaminated soil and/or sediments are encountered during earthworks or grubbing activities. These occurrences are expected to be localised but present throughout the proposal. Occurrences may be encountered where fly tipping has occurred, where contaminated fill used to backfill former dams or trenches, where contaminated fill/waste has been used in low lying areas, burial of dead animals (e.g. farm animals) has occurred, where recycled materials are used or mucking out contaminated sediment from dams as part of decommissioning activities.
			Intrusive maintenance workers in the vicinity of the potentially impacted soil	Unlikely – it is anticipated that these works are likely to occur in relatively shallow soil / fill and following construction of the proposal. Fill material used in construction is likely to be quarry product or reworked natural material and therefore unlikely to contain COPCs exceeding human health assessment criteria for commercial / industrial exposure setting.
			Ecological receptors e.g. invertebrates, transitory wildlife and vegetation	Possible – potential impacts to identified ecological receptors could be caused by exposing contaminated soil during earthworks, or the migration of contaminated soils (sedimentation) into sensitive environments is more likely to occur during the construction phase when soil disturbance will occur. However, it is expected that construction activities would largely discourage transitory wildlife from frequenting the proposal during construction hours. Impacts to ecological receptors are expected to be controlled through the implementation of environmental management plans that will be for the proposal.
			Inhalation of airborne asbestos fibres from soil	Construction workers/visitors

Potential source	Pathway	Receptor	Potential for completeness
		Intrusive maintenance workers in the vicinity of the potentially impacted soil	Unlikely – it is anticipated that these works are likely to occur in relatively shallow soil / fill and following construction of the proposal. Fill material used in construction is likely to be quarry product or reworked natural material and therefore unlikely to contain COPCs exceeding human health assessment criteria for commercial / industrial exposure setting.
		Ecological receptors e.g. invertebrates, transitory wildlife and vegetation	Unlikely – ecological receptors are unlikely to be affected by this contaminant.
	Migration pathways	Surface water ecology	Possible – Earthworks, particularly in the vicinity of watercourses, could mobilise existing contaminants (if present) more quickly into surface water bodies. However, implementation of sediment and erosion controls should sufficiently reduce the likelihood of sedimentation and mobilisation of contaminants.
		Groundwater	Unlikely – groundwater users are accessing groundwater at depths between 77 m and 148 m. It is unlikely that contamination, if present, in shallow soils (i.e. upper 3 m of the soil profile) will migrate and impact the regional groundwater resource occurring below 77 m depth. It is unlikely that construction works associated with the proposal will form a migration pathway to the groundwater resource, as the depth of excavation is not anticipated to extend to depths where regional groundwater is expected to occur.
Contaminated groundwater on-site within excavations	Volatilisation to outdoor air and subsequent inhalation	Construction workers/visitors	Unlikely – shallow groundwater may be encountered within some of the deeper excavations required for the proposal. There is a low to very low likelihood of VOC on or near to the proposal. If contamination is present, volatile compounds are expected to sufficiently disperse. However, volatile compounds could accumulate within excavated trenches or service pits.
		Intrusive maintenance workers in the vicinity of the potentially impacted groundwater	
		Ecological receptors e.g. invertebrates, transitory wildlife and vegetation	Unlikely – terrestrial receptors are unlikely to be impacted by VOC. No vegetation stress noted during investigations.
	Direct contact, including ingestion	Construction workers/visitors	Unlikely – no exceedances of the human health assessment criteria for industrial / commercial land use were reported. However, concentrations of PFAS may be higher in areas of the proposal which are closer to identified potential PFAS source (e.g. Wilton RWTP).
		Intrusive maintenance workers in the vicinity of the potentially impacted groundwater	Unlikely – no exceedances of the human health assessment criteria for industrial / commercial land use were reported. Based on anticipated maintenance works, it is unlikely that direct contact with groundwater would occur in this exposure scenario.
		Ecological receptors e.g. invertebrates, transitory wildlife and vegetation	Unlikely – shallow groundwater may be encountered within some excavations and cuts required for the proposal forming temporary seepages. Earthworks and other construction activities are likely to discourage transitory wildlife accessing the excavation and cuts reducing exposure opportunities.

Potential source	Pathway	Receptor	Potential for completeness
	Migration pathways	Surface water ecology	Unlikely – groundwater impacts, if present, are likely to occur within clayey soils and weathered rock. The clay soils reduce hydraulic conductivity and can provide electron receptors to retard the contaminant plume migration (except PFAS). PFAS impacts, if present, can migrate several hundreds of metres from the source. Concentrations of PFOS exceeded water quality assessment criterion. However, the source of the impact was inferred to be from drilling muds used in the drilling process rather than identified sources adjoining the proposal (i.e. Wilton Airport, Wilton RWTP).
		Groundwater	Unlikely – groundwater users are accessing groundwater at depths between 77 m and 148 m. It is unlikely that contamination, if present, in shallow groundwater will migrate and impact the regional groundwater resource occurring below 77 m depth. It is unlikely that construction works associated with the proposal will form a migration pathway to the groundwater resource, as the depth of excavation is not anticipated to extend to depths where regional groundwater is expected to occur.
Contaminated surface water flowing through the proposal	Direct contact, including ingestion	Construction workers/visitors	Unlikely – no exceedances of the human health assessment criteria for industrial / commercial land use were reported in samples collected from waterbodies within and adjoining the proposal.
		Intrusive maintenance workers in the vicinity of the potentially impacted surface water	Unlikely – direct contact with surface water bodies post construction is considered unlikely.
		Ecological receptors e.g. invertebrates, transitory wildlife and vegetation	Possible – laboratory results indicated exceeding concentrations of some heavy metals in surface water samples. It is noted that vegetation and aquatic species within and adjacent to the waterbodies that were sampled did not appear distressed.

6. Conclusions

GHD was commissioned to carry out a Stage 1 PSI for contamination for inclusion in the REF to support the application for project approval under the Part 5, Division 5.1 of the EP&A Act (NSW).

Site history information indicated that the proposal passes through an area historically used for rural land use and agricultural purposes such as livestock grazing which was sparsely vegetated however remnant pockets of bushland were also present. Prior to 1990, development was generally sparse comprising rural residential dwellings, sheds, stabling areas, paddocks, minor roads, orchard and farm dams. Horse breeding was a key activity in the Wilton area from the late 1880s.

The western end of Picton Road was constructed by 1984. The remaining sections of Picton Road and M31 Hume Motorway were progressively constructed between 1984 and 1994, with the eastern portion of Picton Road completed by 1994. Between 1990 and 2022, the Wilton area was progressively developed where relatively large rural areas were replaced by low density residential subdivisions. The construction of supporting infrastructure including a Wilton RWTP and Wilton Zone substation commenced in 2011 and completed by 2017 and 2012, respectively. Other infrastructure such as new roads were formed concurrently with the subdivision development. The residential subdivisions and supporting infrastructure occurred outside but adjacent to the proposal.

Based on investigation results, potential for contamination was identified in ten AECs potentially impacting soil, surface water and groundwater. Six AECs were identified within the proposal whilst the remaining four were located outside of the proposal but considered to pose a potential for on-site migration of contamination. The likelihood for contamination to exist within the identified AECs was assessed very low to high, which is further discussed in Table 6.1 below along with associated COPCs. Potential SPR linkages were assessed and could be complete for:

- Human receptor:
 - Construction workers/visitors may encounter contamination in the form of fill, waste, fly tipping, hazardous building materials (e.g. ACM fragments or sheeting, impacts from paint systems containing heavy metals, VHCs), dam sediments during earthworks and/or grubbing activities. Occurrences are expected to be localised but present throughout the proposal site.
- Ecological receptors:
 - During construction due to mobilisation of contaminants from exposed soils.
 - Some heavy metals exceed water quality assessment criteria (ANZG, 2018) in surface water bodies that occur within, pass through or adjoin the proposal.

Based on the results of this Stage 1 PSI for contamination, a Stage 2 detailed site investigation (DSI) is recommended for AECs where the likelihood of contamination to exist is assessed as moderate to high and high, to assess if SPR linkages are complete. It should be noted that the Stage 2 DSI is to specifically target these AECs and not assess the entire proposal site.

AECs where the likelihood of contamination was assessed as moderate to low, low and very low can be managed at the time of construction should contamination be encountered. For AEC 7 and AEC 9, contamination, if present, is unlikely to migrate and impact the proposal site. These AECs do not require further investigation or management based on the current configuration of the proposal site.

It is recommended that a Construction Environmental Management Plan (CEMP) be prepared to manage the potential contaminant exposure risks during construction activities, and manage potential unexpected finds (e.g. buried waste, demolition waste, ACM, etc.) that could be encountered. The CEMP should also include an Unexpected Finds Protocol (UFP) and site-specific Work Health Safety and Environment (WHSE) plan. A site-specific WHSE plan should be prepared, to ensure appropriate safety and workplace hygiene practices are implemented to minimise potential risks from exposure to contamination. The WHSE plan must address all relevant regulatory requirements and as a minimum, should consider incorporating the relevant practices set out in CRC Care (2018) *National Remediation Framework: Guideline on health and safety*, Version 0.1: August 2018 (ref: https://www.crccare.com/files/dmfile/Healthandsafety_Rev0.pdf).

Table 6.1 Summary of conclusions and recommendations for identified AECs

AEC	COPCs	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Potential source on-site or off-site?	Likelihood*	Summary of recommendations
AEC 1: Fill of unknown quality and origin	TRH, BTEX, PAH, OCP, OPP, PCB, heavy metals, asbestos	X	X	X	X	X	X	On-site Affecting entire proposal site proposal but localised	High: fly tipping has occurred, illegal filling using waste or use of recycled products Moderate to high: areas of historical ground disturbance which have been filled. Very low: for excavated natural materials, reworked natural materials and imported quarry product.	DSI for areas where moderate to high and high likelihood of contamination has been identified. Remaining areas manage during construction with CEMP, UFP, WHSE plan.
AEC 2: Filling and possible disposal of waste material in farm dams, trenches and burial of dead livestock	TRH, BTEX, PAH, OCP, OPP, heavy metals, asbestos, nutrients, pathogens.	-	-	X	X	X	-	On-site	Moderate to high	DSI
AEC 3: Hazardous building materials	Heavy metals and asbestos	X	X	X	X	X	X	On-site	High	DSI High likelihood of encountering hazardous building materials once construction has commenced (e.g. ACM obscured by vegetation and encountered during grubbing). Implementation of UFP to manage unexpected occurrences during construction.
AEC 4: Application and storage of pesticides and other small quantities of chemicals	OCP, OPP, heavy metals (in particular arsenic)	X	X	X	X	X	X	On-site	Low	Manage during construction with CEMP, UFP, WHSE plan.
AEC 5: Sediment quality within farm dams	OCP, OPP, heavy metals (in particular arsenic)	-	X	X	X	X	-	On-site	Low to moderate	Manage during construction with CEMP, UFP, WHSE plan. Management only required if farm dams are to be decommissioned as part of the proposal.
AEC 6: Mining activities	Methane, carbon dioxide	-	-	X	X	X	X	On-site	Very low.	Manage during construction with CEMP, UFP, WHSE plan.

AEC	COPCs	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Potential source on-site or off-site?	Likelihood*	Summary of recommendations
AEC 7: Shell service station and workshop	TRH, BTEX, PAH, VOHC and/or heavy metals	-	-	-	-	X	-	Off-site	Very low	Contamination, if present, is unlikely to migrate onto site due to distance from proposal site and downgradient. Management or further investigation not required.
AEC 8: Wilton Recycling Water Treatment Plant (RWTP) and Sydney Water Sewage Treatment Plant	TRH, BTEX, PAH, OCP, OPP, PFAS, heavy metals, nutrients, pathogens	-	-	X	-	X	-	Off-site	Moderate to high: on-site migration via groundwater for potential PFAS impacts from Wilton RWTP due to close proximity to the proposal site proposal. Low: On-site migration via groundwater of other less mobile contaminants Very low: on-site migration of soil and surface water impacts.	DSI for areas where moderate to high and high likelihood of contamination has been identified. Remaining areas manage during construction with CEMP, UFP, WHSE plan.
AEC 9: Wilton Substation	TRH, PAH	-	-	X	-	-	-	Off-site	Very low	Contamination, if present, is unlikely to migrate onto site. Management or further investigation not required.
AEC 10: Wilton Airport	PFAS, TRH, BTEX, PAH, VOHC	-	-	X	-	-	-	Off-site	Very low	Manage during construction with CEMP, UFP, WHSE plan.

Notes:

"X" = AEC applicable to a particular section of the proposal site.

"-" = AEC does not apply to a particular section of the proposal site.

* Likelihood is the probability of contamination being present and subject to exposure during the proposed installation, categorised on a scale from high (near 100% probability of being present) to very low (near 0% probability of being present).

CEMP = Construction Environmental Management Plan; UFP = Unexpected Finds Protocol; Work Health Safety and Environment (WHSE) plan.

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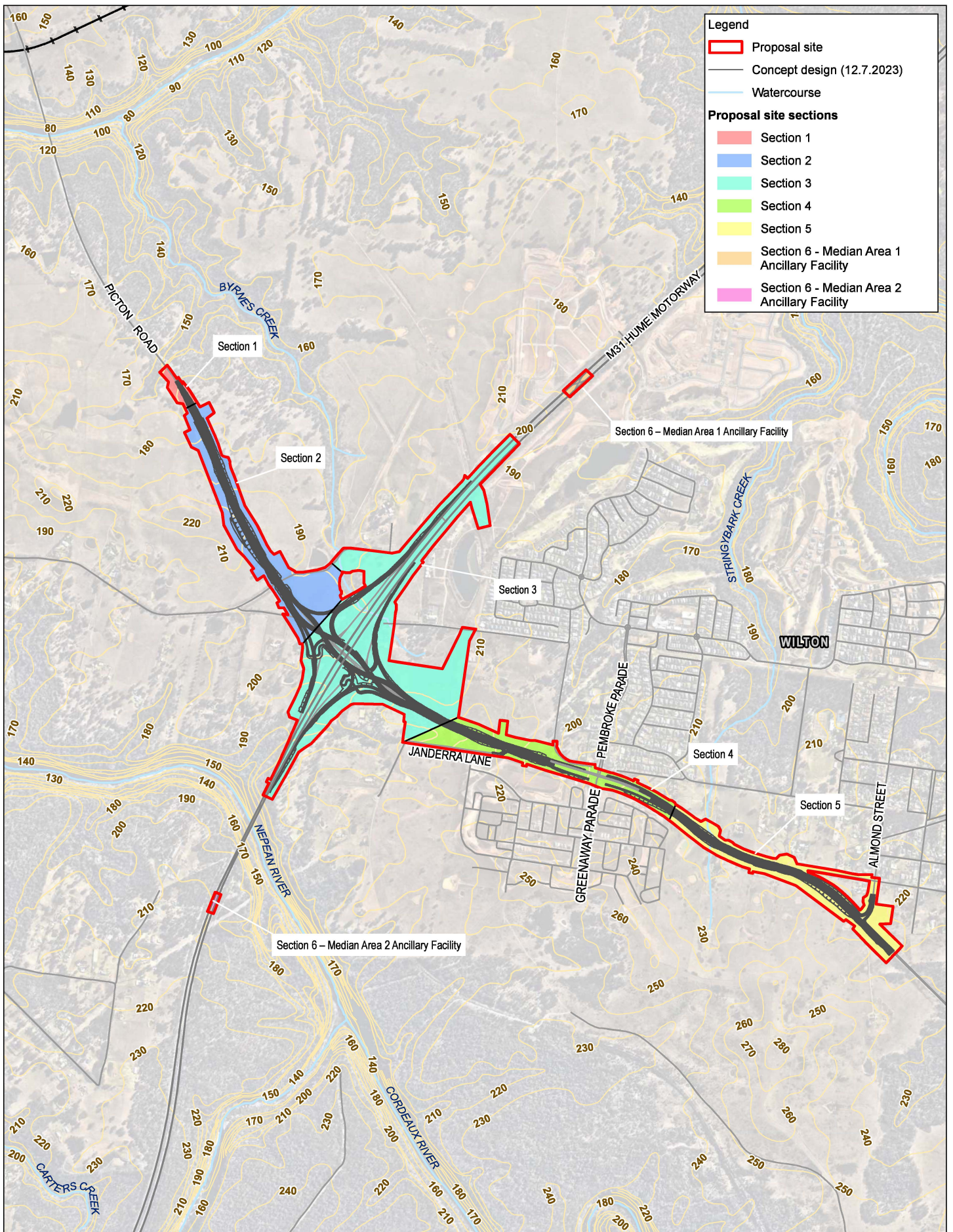
8. Glossary of terms and abbreviations

Abbreviation	Definition
ACM	Asbestos containing material
AEC	Area of environmental concern
AFFF	Aqueous Film Forming Foam
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture Resource Management Council of Australian and New Zealand
ARTC	Australian Rail Track Corporation
ASS	Acid sulfate soils
AST	Above ground storage tank
BTEX	Benzene, toluene, ethyl benzene, xylenes
CEMP	Construction Environmental Management Plan
CLM Act	Contaminated Land Management Act 1997
COPC	Contaminant of potential concern
CSM	Conceptual Site Model
DECCW	Department of Environment, Climate Change and Water
DP	Deposited Plan
DPE	Department of Planning and Environment
EIL	Ecological Investigation Level
EMP	Environmental Management Plan
EP&A Act	Environmental Planning and Assessment Act 1979
EPL	Environmental Protection Licence
GHD	GHD Pty Ltd
ha	Hectare
HIL	Health Investigation Level (relating to defined land use scenario)
HSL	Health Screening Levels
IBC	Intermediate bulk container
km	Kilometres
LEP	Local Environmental Plan
m	metres
m AHD	Elevation in metres from Australian Height Datum
mbgl	Metres below ground level
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NSW EPA	New South Wales Environmental Protection Authority
OCP	Organochlorine pesticide
OPP	Organophosphorus pesticide
PAH	Polycyclic aromatic hydrocarbons

Abbreviation	Definition
PCB	Polychlorinated biphenyl
PFAS	Per and polyfluoroalkyl substances
PFOS	Perfluorooctane sulfonic acid
POEO	Protection of the Environment Operations Act 1997
PID	Photoionisation detector
ppm	Parts per million
PSI	Preliminary Site Investigation
REF	Review of environmental factors
SEED	Sharing and Enabling Environmental Data
SEPP	State Environmental Planning Policy
SPR	Source Pathway Receptor
SWL	Standing water level
TRH	Total recoverable hydrocarbons
TSI	Targeted site investigation
UFP	Unexpected Finds Protocol
UST	Underground storage tank
VENM	Virgin Excavated Natural Material
VHC	Volatile halogenated compound
VOC	Volatile organic compound
WHSE	Work Health Safety and Environment
WRWTP	Wilton Recycled Water Treatment Plant

Appendix A

Figures

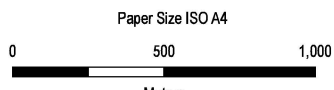


Legend

- Proposal site
- Concept design (12.7.2023)
- Watercourse

Proposal site sections

- Section 1
- Section 2
- Section 3
- Section 4
- Section 5
- Section 6 - Median Area 1 Ancillary Facility
- Section 6 - Median Area 2 Ancillary Facility



Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 56

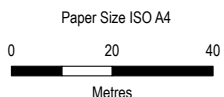
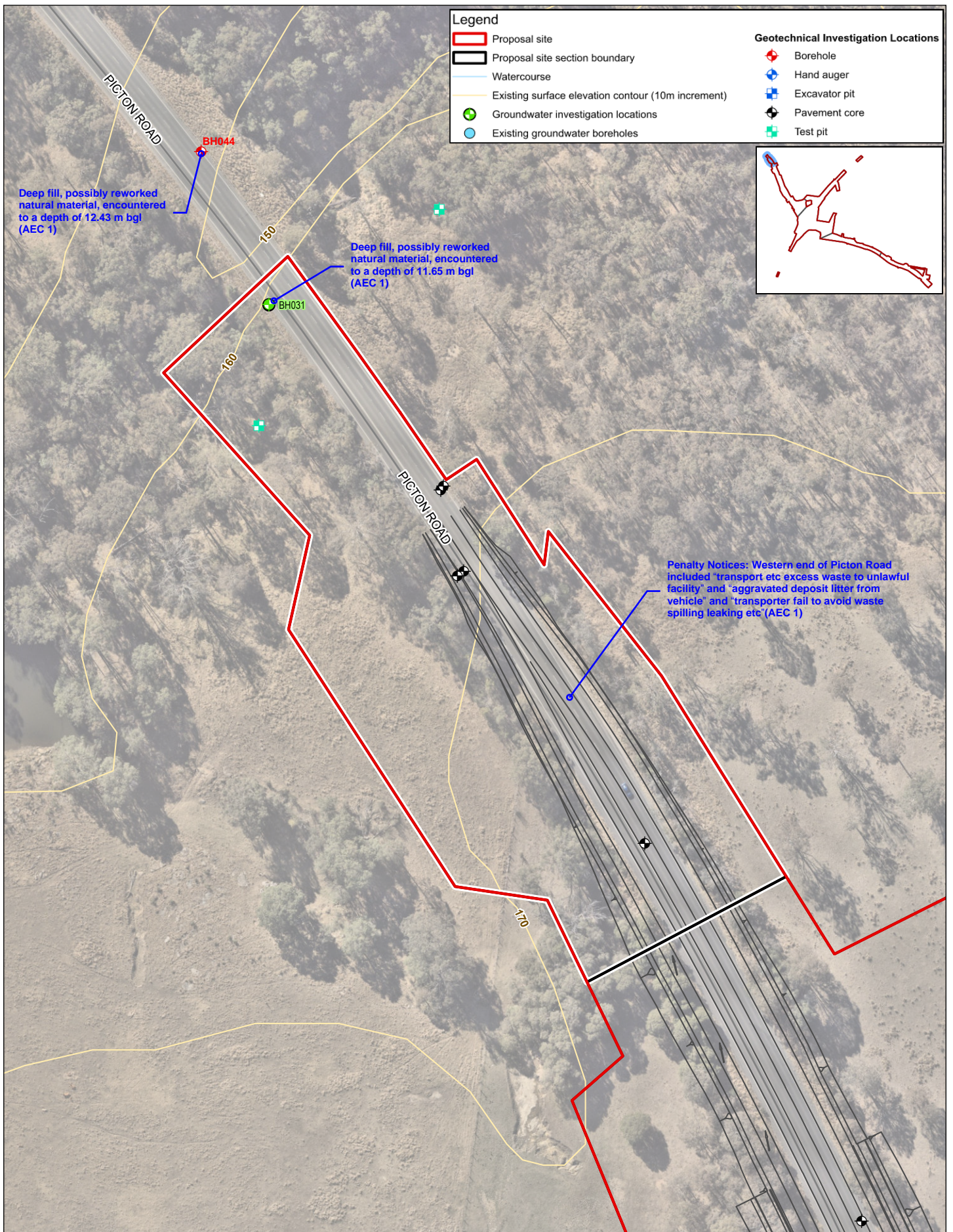


Transport for NSW
Picton Road upgrade between
Nepean River and Almond Street, Wilton –
Preliminary site investigation

Project No. 12560200
Revision No. 2
Date 24/10/2023

**Proposal site sections
Overview**

FIGURE 1.0



Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 56

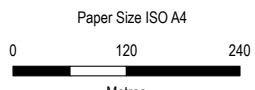
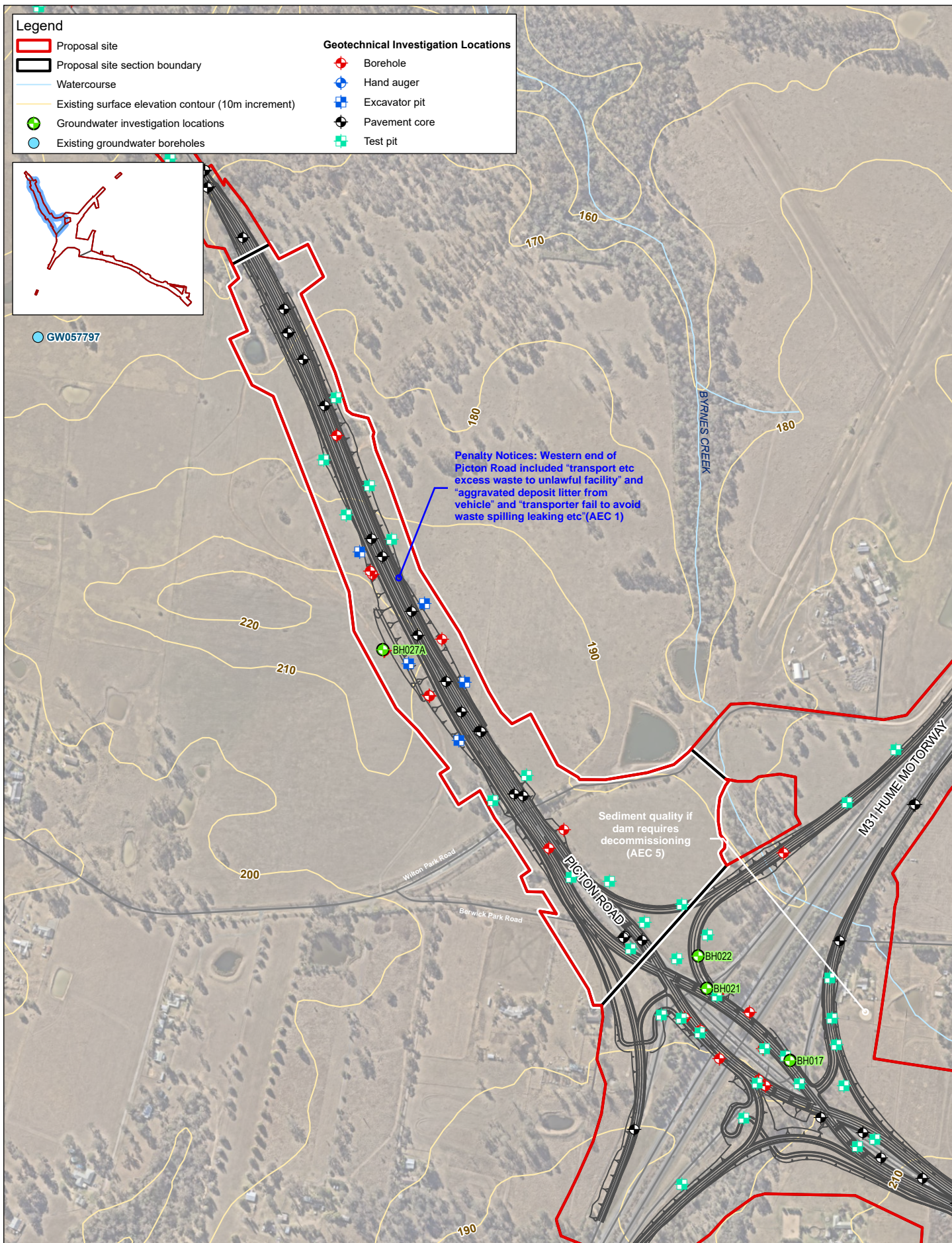


Transport for New South Wales
Picton Road Upgrade Between
Nepean River and Almond Street, Wilton –
Preliminary Site Investigation

Proposal site sections
Section 1

Project No. 12560200
Revision No. A
Date 9/15/2023

FIGURE 1.1

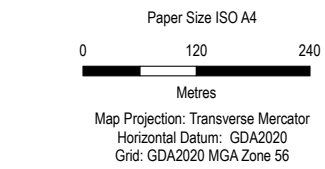
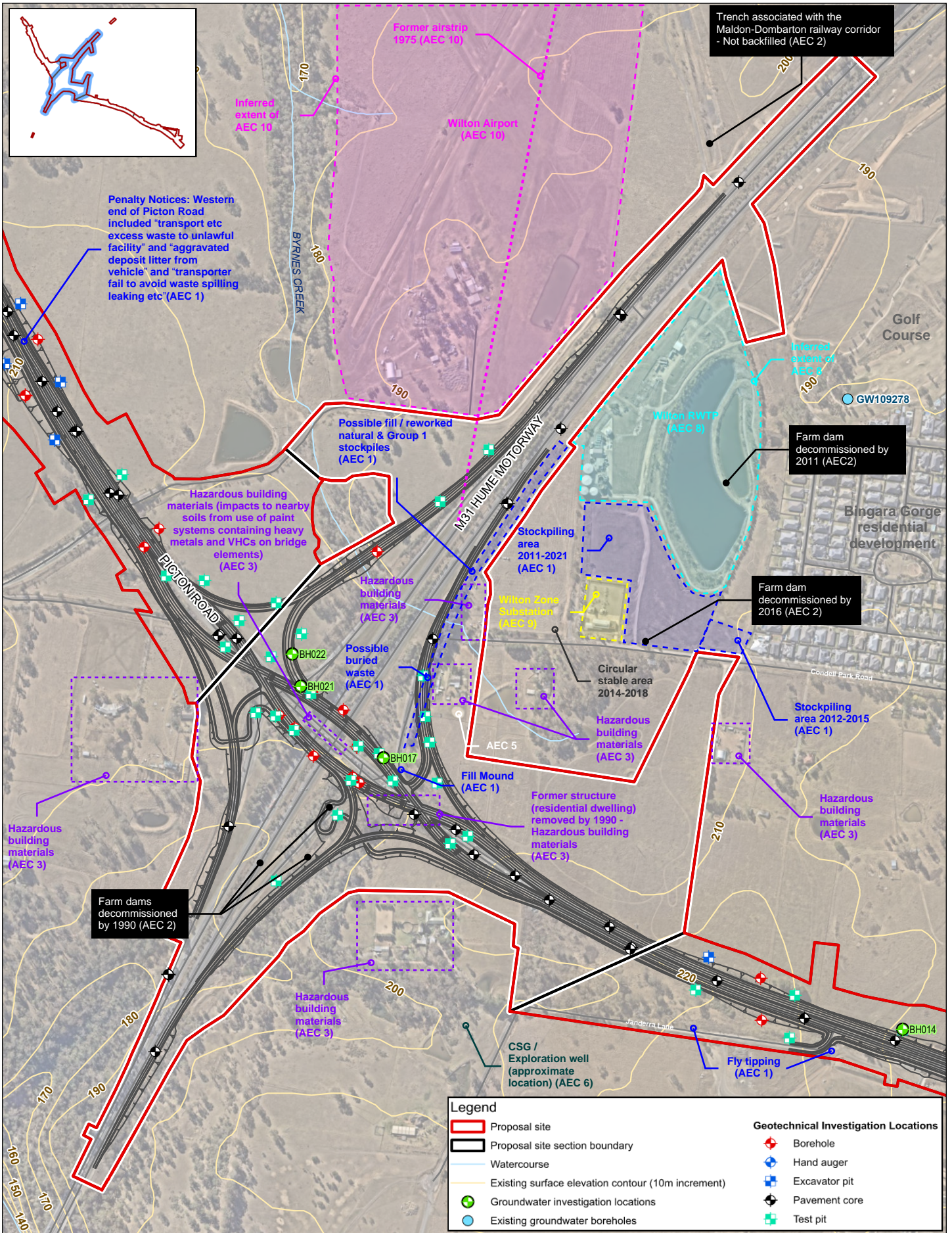


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 Picton Road Upgrade Between
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 Preliminary Site Investigation

Project No. 12560200
 Revision No. A
 Date 9/15/2023

Proposal site sections
 Section 2

FIGURE 1.2

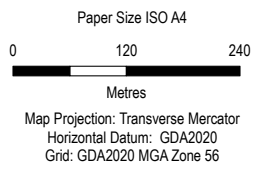
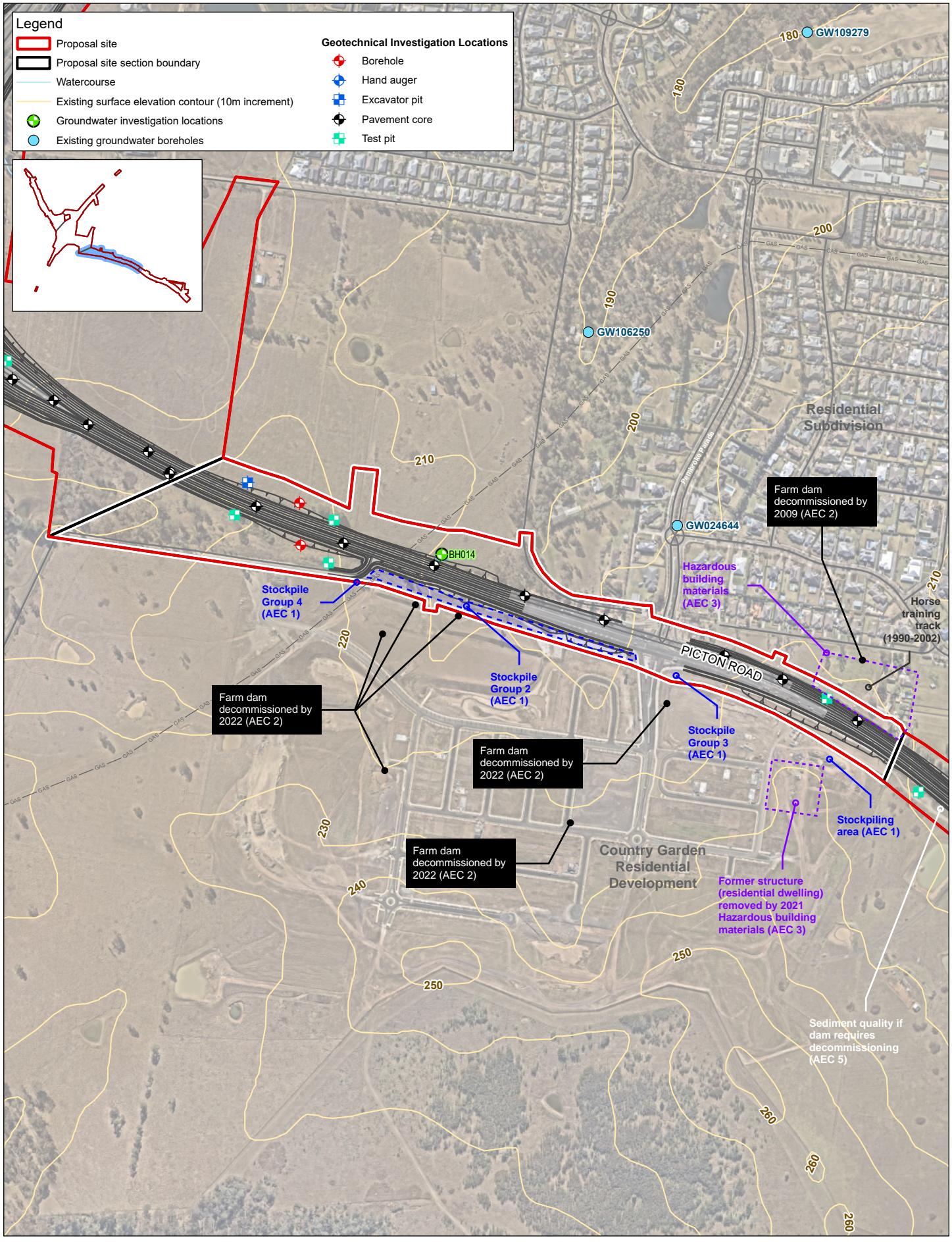


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Nepean River and Almond Street, Wilton –
Preliminary Site Investigation

Project No. 12560200
Revision No. A
Date 9/15/2023

**Proposal site sections
Section 3**

FIGURE 1.3

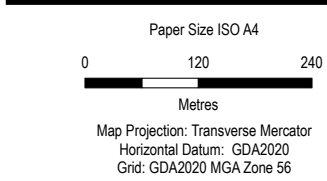
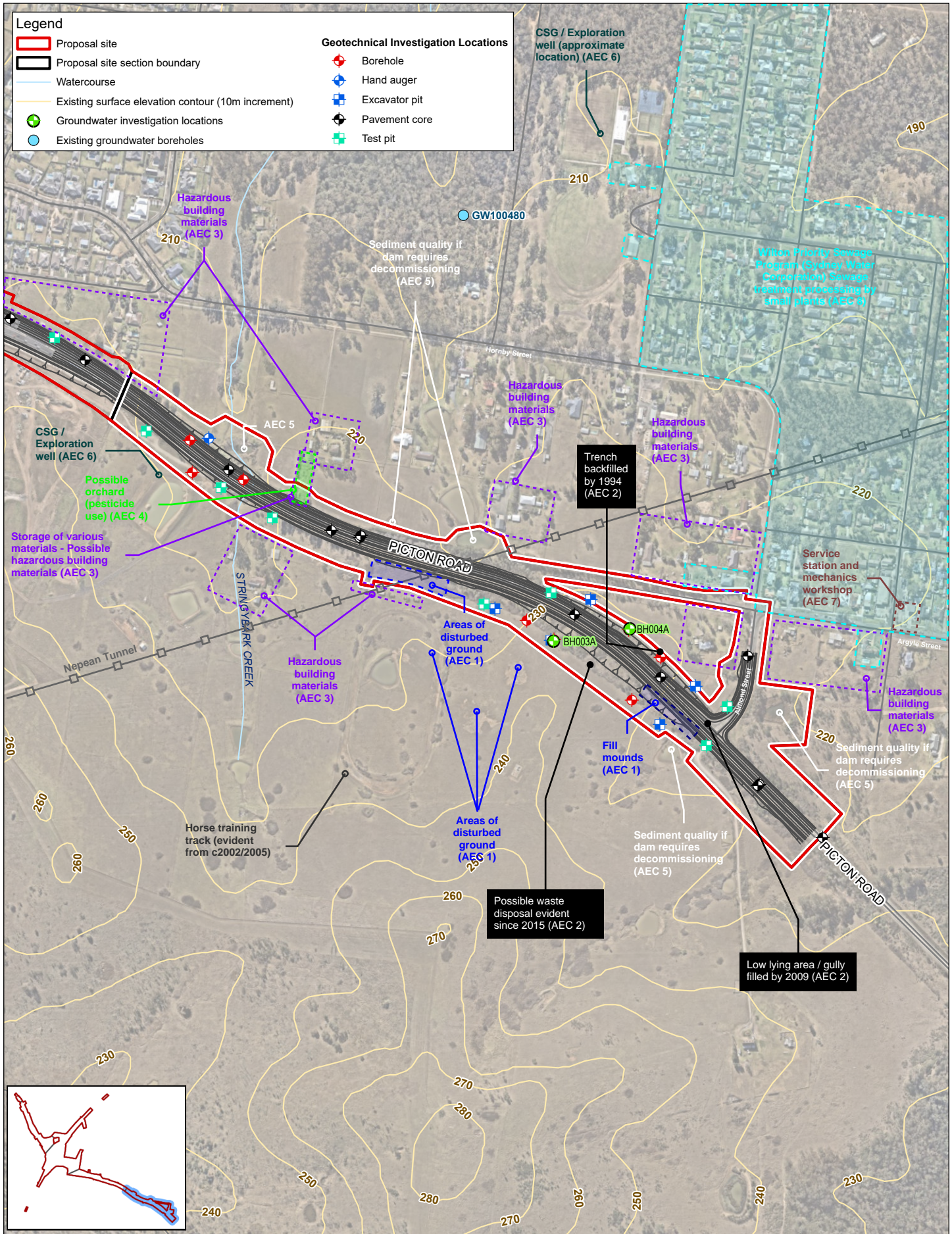


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Nepean River and Almond Street, Wilton –
Preliminary Site Investigation

Project No. 12560200
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**Proposal site sections
Section 4**

FIGURE 1.4

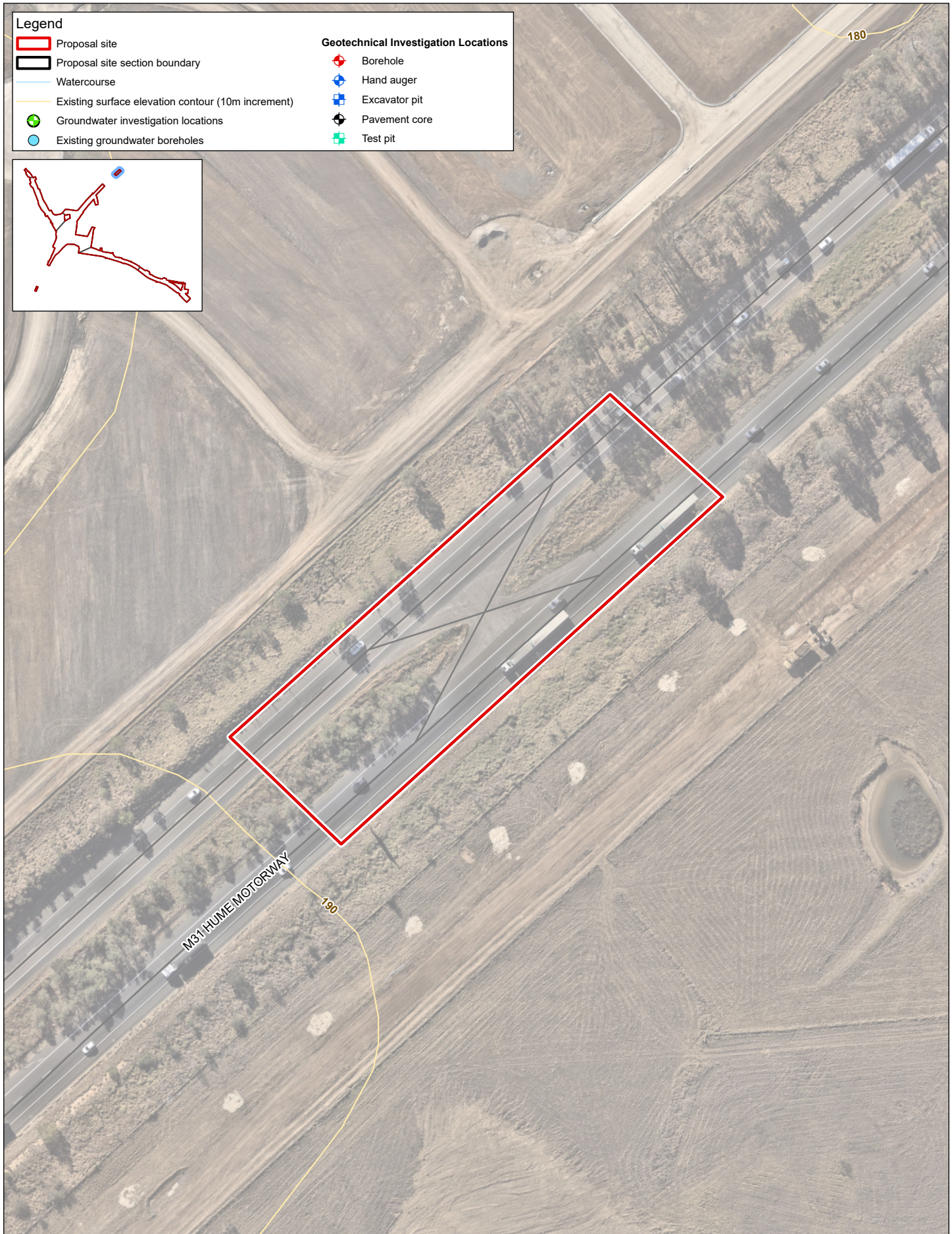


Transport for New South Wales
Picton Road Upgrade Between
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Preliminary Site Investigation

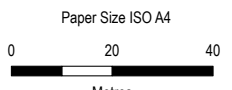
Project No. 12560200
Revision No. A
Date 9/15/2023

**Proposal site sections
Section 5**

FIGURE 1.5



Legend		Geotechnical Investigation Locations	
	Proposal site		Borehole
	Proposal site section boundary		Hand auger
	Watercourse		Excavator pit
	Existing surface elevation contour (10m increment)		Pavement core
	Groundwater investigation locations		Test pit
	Existing groundwater boreholes		



Paper Size ISO A4
 Map Projection: Transverse Mercator
 Horizontal Datum: GDA2020
 Grid: GDA2020 MGA Zone 56



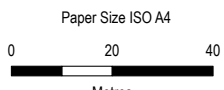
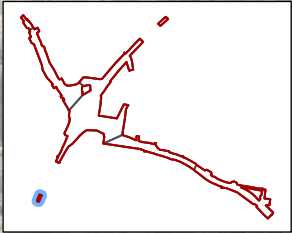
Transport for New South Wales
 Picton Road Upgrade Between
 Nepean River and Almond Street, Wilton –
 Preliminary Site Investigation

Project No. 12560200
 Revision No. A
 Date 9/15/2023

Proposal site sections
Section 6 - Median Area 1 Ancillary Facility

FIGURE 1.6

Legend		Geotechnical Investigation Locations	
	Proposal site		Borehole
	Proposal site section boundary		Hand auger
	Watercourse		Excavator pit
	Existing surface elevation contour (10m increment)		Pavement core
	Groundwater investigation locations		Test pit
	Existing groundwater boreholes		



Paper Size ISO A4
 Map Projection: Transverse Mercator
 Horizontal Datum: GDA2020
 Grid: GDA2020 MGA Zone 56

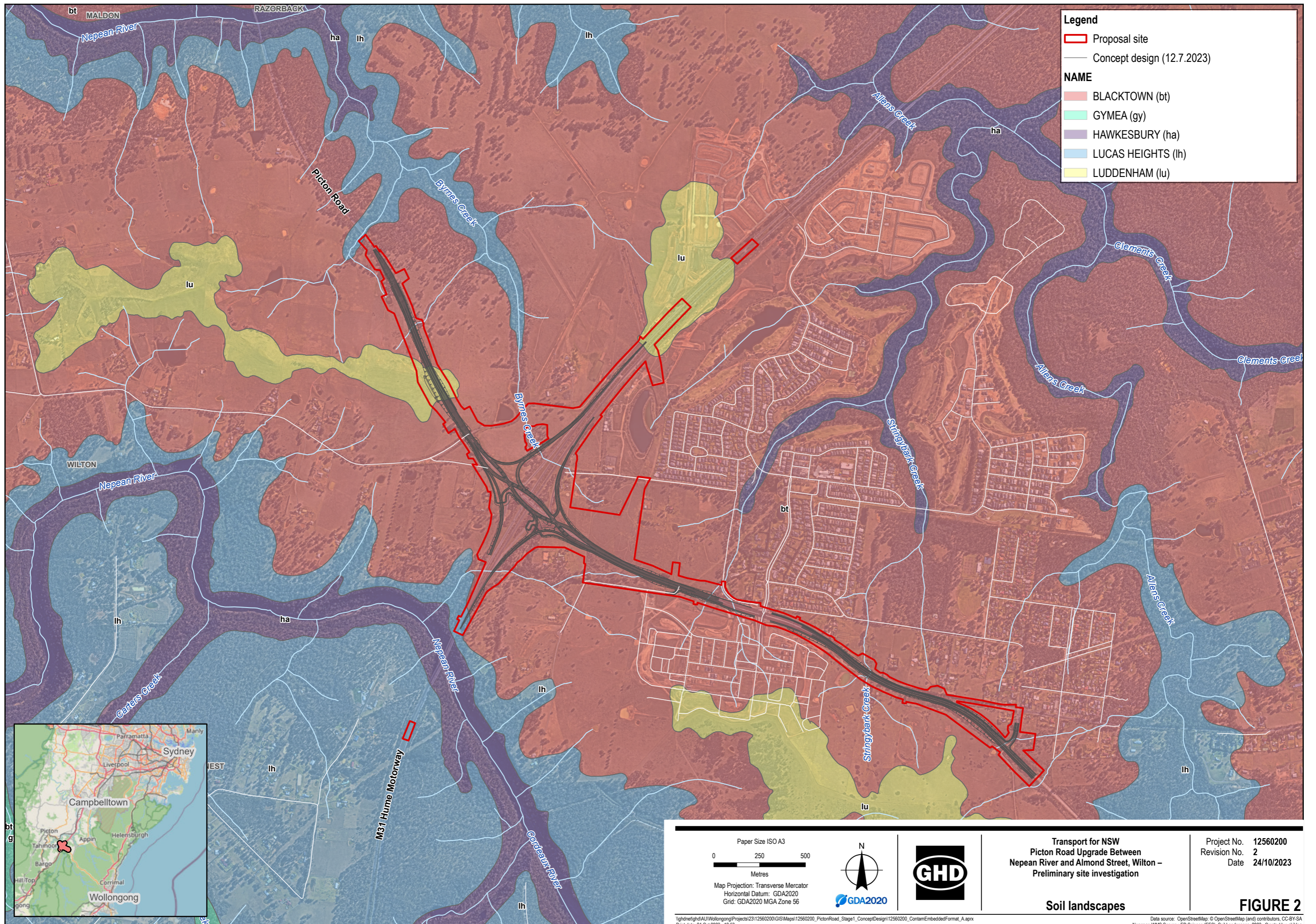


Transport for New South Wales
 Picton Road Upgrade Between
 Nepean River and Almond Street, Wilton –
 Preliminary Site Investigation

Project No. 12560200
 Revision No. A
 Date 9/15/2023

Proposal site sections
Section 6 - Median Area 2 Ancillary Facility

FIGURE 1.7

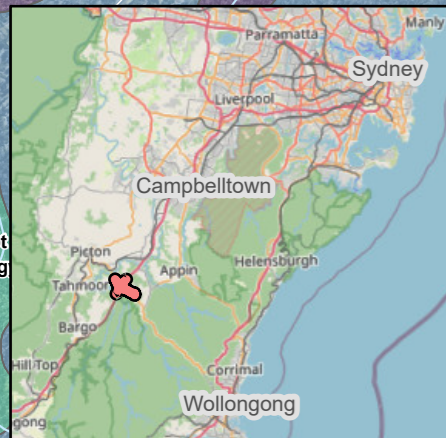


Legend

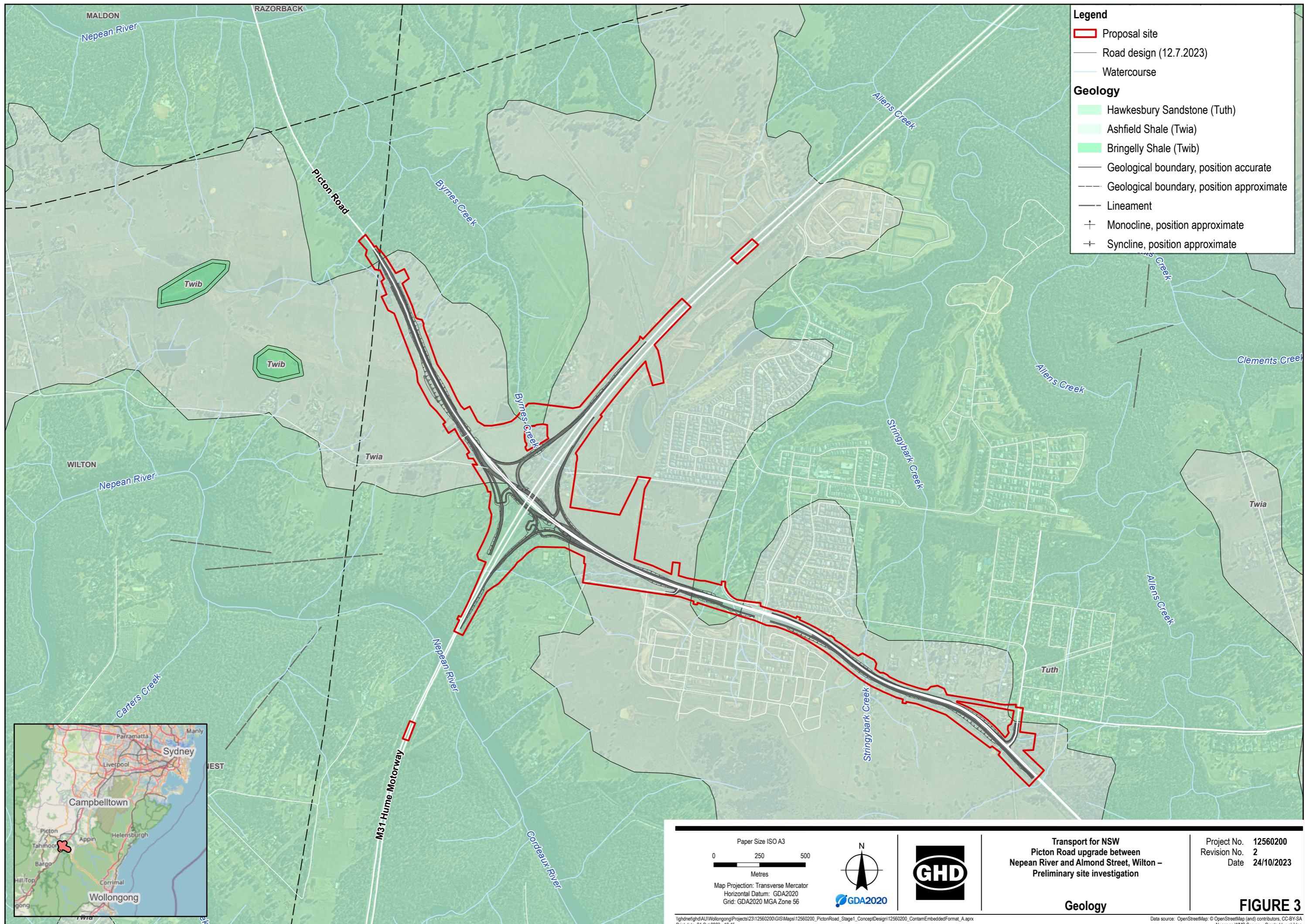
- Proposal site
- Concept design (12.7.2023)

NAME

- BLACKTOWN (bt)
- GYMEA (gy)
- HAWKESBURY (ha)
- LUCAS HEIGHTS (lh)
- LUDDENHAM (lu)



<p>Paper Size ISO A3</p> <p>0 250 500 Metres</p> <p>Map Projection: Transverse Mercator Horizontal Datum: GDA2020 Grid: GDA2020 MGA Zone 56</p>			<p>Transport for NSW Picton Road Upgrade Between Nepean River and Almond Street, Wilton – Preliminary site investigation</p> <p>Soil landscapes</p>	<p>Project No. 12560200 Revision No. 2 Date 24/10/2023</p>
FIGURE 2				



Legend

- Proposal site
- Road design (12.7.2023)
- Watercourse

Geology

- Hawkesbury Sandstone (Tuth)
- Ashfield Shale (Twia)
- Bringelly Shale (Twib)
- Geological boundary, position accurate
- Geological boundary, position approximate
- Lineament
- + Monocline, position approximate
- + Syncline, position approximate



<p>Paper Size ISO A3</p> <p>0 250 500 Metres</p> <p>Map Projection: Transverse Mercator Horizontal Datum: GDA2020 Grid: GDA2020 MGA Zone 56</p>			<p>Transport for NSW Picton Road upgrade between Nepean River and Almond Street, Wilton – Preliminary site investigation</p>	<p>Project No. 12560200 Revision No. 2 Date 24/10/2023</p>
			Geology	FIGURE 3

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Print date: 24 Oct 2023 - 12:45
Data source: OpenStreetMap: © OpenStreetMap (and) contributors, CC-BY-SA
Nearmap WMS Server. Created by: akidea



Appendix B




Site Visit Photographs

Appendix B – Photography Log

Description	Photograph
<p>Photograph 1 – 24 May 2022 Stockpile – group 3 (AEC 1) (view towards north west)</p>	
<p>Photograph 2 – 24 May 2022 Stockpile – group 4 (AEC 1) (view towards south west)</p>	

Description	Photograph
<p>Photograph 3 – 24 May 2022</p> <p>In foreground “Stockpiles – Group 2” (AEC 1) which occurs on the southern side of Picton Road and defined by the yellow circle. We note that the stockpiles in the background are outside of the proposal site (view towards south west)</p>	
<p>Photograph 4 – 24 May 2022</p> <p>Wilton RWTP (AEC 1) (view towards north east)</p>	

Description	Photograph
<p>Photograph 5 - 24 May 2022 Wilton Zone substation (AEC 9) (view towards north east)</p>	 <p>A photograph showing the entrance to the Wilton Zone Substation. In the foreground, there is a grassy area with a sign that reads "Wilton Zone Substation Ph:131 003". Behind the sign is a black metal gate with a sign that says "HAZARDOUS COMBUSTIBLE LIQUIDS KEEP OUT". To the left of the gate is a building with a corrugated metal roof. The sky is blue with scattered white clouds.</p>
<p>Photograph 6 – 24 May 2022 Partial shot of Stockpile – group 1 across east of Hume Motorway (AEC 1) (view towards south east)</p>	 <p>A photograph showing a partial view of a stockpile area. The foreground is a paved asphalt road. In the middle ground, there is a grassy embankment. The background shows a large, open area under a blue sky with many white, fluffy clouds.</p>

Description	Photograph
<p>Photograph 7 – 24 May 2022</p> <p>Allied Pinnacle Mills (view towards south west)</p>	
<p>Photograph 8 – 14 October 2022</p> <p>View of Hume Motorway exit lane batter from end of Condell Park Road (AEC 1) (view towards northwest)</p> 	

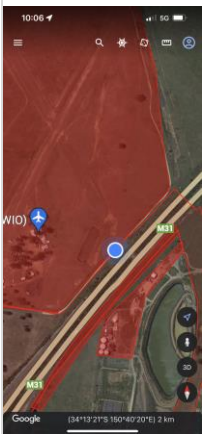
Description	Photograph
<p>Photograph 9 – November 2021</p> <p>View of mounds on Hume Motorway exit lane batter – Google street view (AEC 1)</p>	 <p>This is a Google Street View image showing a two-lane road. A white truck is driving away in the distance. On the right side of the road, there is a red 'REDUCE SPEED' sign. The road is bordered by green vegetation and trees. In the bottom left corner, there is a small inset map showing the location in Sydney, Australia, with the text 'Sydney Crime and Trauma Clearing'. The Google logo is visible at the bottom center of the image.</p>
<p>Photograph 10 – 14 October 2022</p> <p>Picton Road section 2 westbound – road upgrade works under way (view from Janderra Lane towards east) (AEC 1)</p>	 <p>This photograph shows a road construction site. In the foreground, there is a gravel area. The road ahead is under construction, with visible earthworks and a utility pole. The background shows a landscape with trees and a cloudy sky. The text 'Picton Road section 2 westbound – road upgrade works under way (view from Janderra Lane towards east) (AEC 1)' is overlaid on the image.</p>

Description	Photograph
<p>Photograph 11 – 14 October 2022</p> <p>Picton Road section 2 westbound – road upgrade works under way (view from Picton Road should (within Country Garden residential development site) towards west)</p> 	
<p>Photograph 12 – 14 October 2022</p> <p>Stockpiled material observed at Country Garden residential development area, observation indicated virgin natural material (view from Picton Road upgrade area towards south) (AEC 1)</p>	

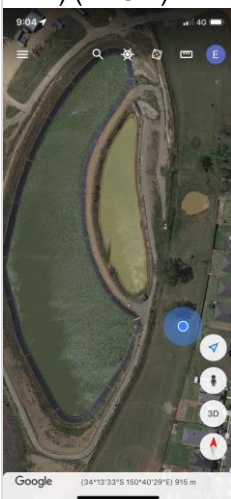
Description	Photograph
<p>Photograph 13 – 14 October 2022</p> <p>Stockpiled material observed at Country Garden residential development area, observation indicated virgin natural material (view from Picton Road upgrade area towards south) (AEC 1)</p>	
<p>Photograph 14 - 14 October 2022</p> <p>Batter of Hume Motorway entering lane (view from southern end of access track on Sydney Skydivers site and view towards north east) (AEC 1)</p>	

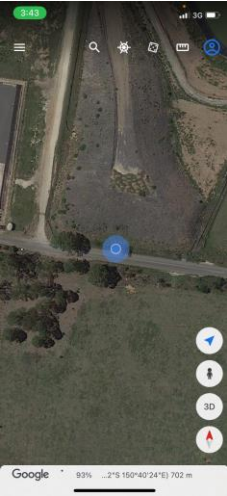
Description **Photograph**

**Photograph 15 -
14 October 2022**
Batter of Hume
Motorway entering lane
(view from middle of
access track on Sydney
Skydivers site and view
towards north east)
(AEC 1)






**Photograph 16 -
18 October 2022**
Distance view of Hume
Motorway batter from
middle of access track
(view towards north
west) (AEC 1)





Description	Photograph
<p>Photograph 17 – 18 October 2022</p> <p>Stockpiles east of Wilton Zone substation (view from Condell Park Road towards northwest) (AEC 1)</p> 	
<p>Photograph 18 – 18 October 2022</p> <p>Area east of Wilton Zone Substation (view from Condell Park Road towards north) (AEC 9)</p>	

Description	Photograph
<p>Photograph 19 – 18 October 2022</p> <p>Fly tipped material east of Wilton Zone Substation (view from Condell Park Road towards west) (AEC 1)</p>	 <p>A photograph showing a paved road on the left with a concrete curb on the right. The area to the right of the curb is overgrown with grass and contains patches of yellowish-brown material, likely fly tipped material. In the background, there are trees and a cloudy sky.</p>
<p>Photograph 20 – May 2021</p> <p>Google Street View image of the intersection of Janderra Lane and Picton Road, looking south (AEC 1)</p>	 <p>A Google Street View image showing a road intersection. A red car is parked on the left side of the road. The background features a large, flat, brownish area, possibly a construction site or a cleared field, under a clear blue sky. The image includes a search bar at the top with 'Wilton NSW' and a date stamp 'May 2021'.</p>

Description	Photograph
<p>Photograph 21 – November 2018</p> <p>Google Street View image of Janderra Lane, looking south towards Picton Road (AEC 1)</p>	
<p>Photograph 22 – May 2023</p> <p>Google Street View image of Hume Highway northbound lane, looking north-west (AEC 1)</p>	
<p>Photograph 23 – May 2023</p> <p>Google Street View image of Hume Highway northbound lane, looking north-west (AEC 1)</p>	

Description	Photograph
<p>Photograph 24 – December 2009</p> <p>Google Street View image of Picton Road looking east (AEC 1)</p>	
<p>Photograph 25 – November 2018</p> <p>Google Street View image of Picton Road looking west (AEC 1)</p>	
<p>Photograph 26 – June 2021</p> <p>Google Street View image of Picton Road, east of Jandarra Lane, looking east (AEC 1)</p>	

Description	Photograph
<p>Photograph 27 – June 2021</p> <p>Google Street View image of Picton Road, east of Greenway Parade, looking north-east (AEC 1)</p>	
<p>Photograph 28 – June 2021</p> <p>Google Street View image of Picton Road, west of Almond Avenue, looking north-west (AEC 1)</p>	

Appendix C

Lotsearch Report



LOTSEARCH

LOTSEARCH ENVIRO LITE

Date: 13 May 2022 12:50:57

Reference: LS031754 EL

**Address: Picton Road Alignment Between Nepean River and Almond Street,
Wilton, NSW 2571**

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.

You should obtain independent advice before you make any decision based on the information within the report.

The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	06/04/2022	06/04/2022	Quarterly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	25/06/2019	25/06/2019	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	19/04/2022	11/04/2022	Monthly	1000m	0	0	1
Contaminated Land Records of Notice	Environment Protection Authority	10/05/2022	10/05/2022	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	02/03/2022	14/07/2021	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	1
EPA PFAS Investigation Program	Environment Protection Authority	03/05/2022	14/07/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	11/05/2022	11/05/2022	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	11/05/2022	11/05/2022	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	11/05/2022	11/05/2022	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	03/03/2022	03/03/2022	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	16/02/2022	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	10/05/2022	10/05/2022	Monthly	1000m	4	5	6
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	10/05/2022	10/05/2022	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	10/05/2022	10/05/2022	Monthly	1000m	5	5	5
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	0
Points of Interest	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	4	7	25
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	7	9	11
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	10/02/2022	31/12/2021	Annually	1000m	0	0	1
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	Annually	1000m	1	1	1
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	28/03/2022	23/02/2018	Annually	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	24/01/2022	24/01/2022	Annually	2000m	0	3	14

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
NSW Seamless Geology Single Layer: Rock Units	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	2	2	4
NSW Seamless Geology – Single Layer: Trendlines	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	2
NSW Seamless Geology – Single Layer: Geological Boundaries and Faults	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	2	2	2
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	4	4	4
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	06/04/2022	18/02/2022	Monthly	500m	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Department of Planning, Industry and Environment	12/05/2017	01/01/2002	None planned	1000m	9	10	12
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	19/08/2021	05/08/2021	Quarterly	1000m	1	2	2
Current Mining Titles	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	2	2	3
Mining Title Applications	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	14	14	18
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	15/11/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	15/11/2021	05/11/2021	Monthly	1000m	14	24	49
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	1	1	1
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	19/08/2021	25/06/2021	Quarterly	1000m	1	1	3
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	06/04/2022	25/03/2022	Monthly	1000m	2	3	11
Bush Fire Prone Land	NSW Rural Fire Service	09/05/2022	08/12/2021	Weekly	1000m	3	3	3
Remnant Vegetation of the Cumberland Plain	NSW Office of Environment & Heritage	07/10/2014	04/08/2011	Unknown	1000m	5	7	13
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	28/03/2022	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	1	3	5
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	1	4	8
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	09/05/2022	09/05/2022	Weekly	10000m	-	-	-

Site Diagram

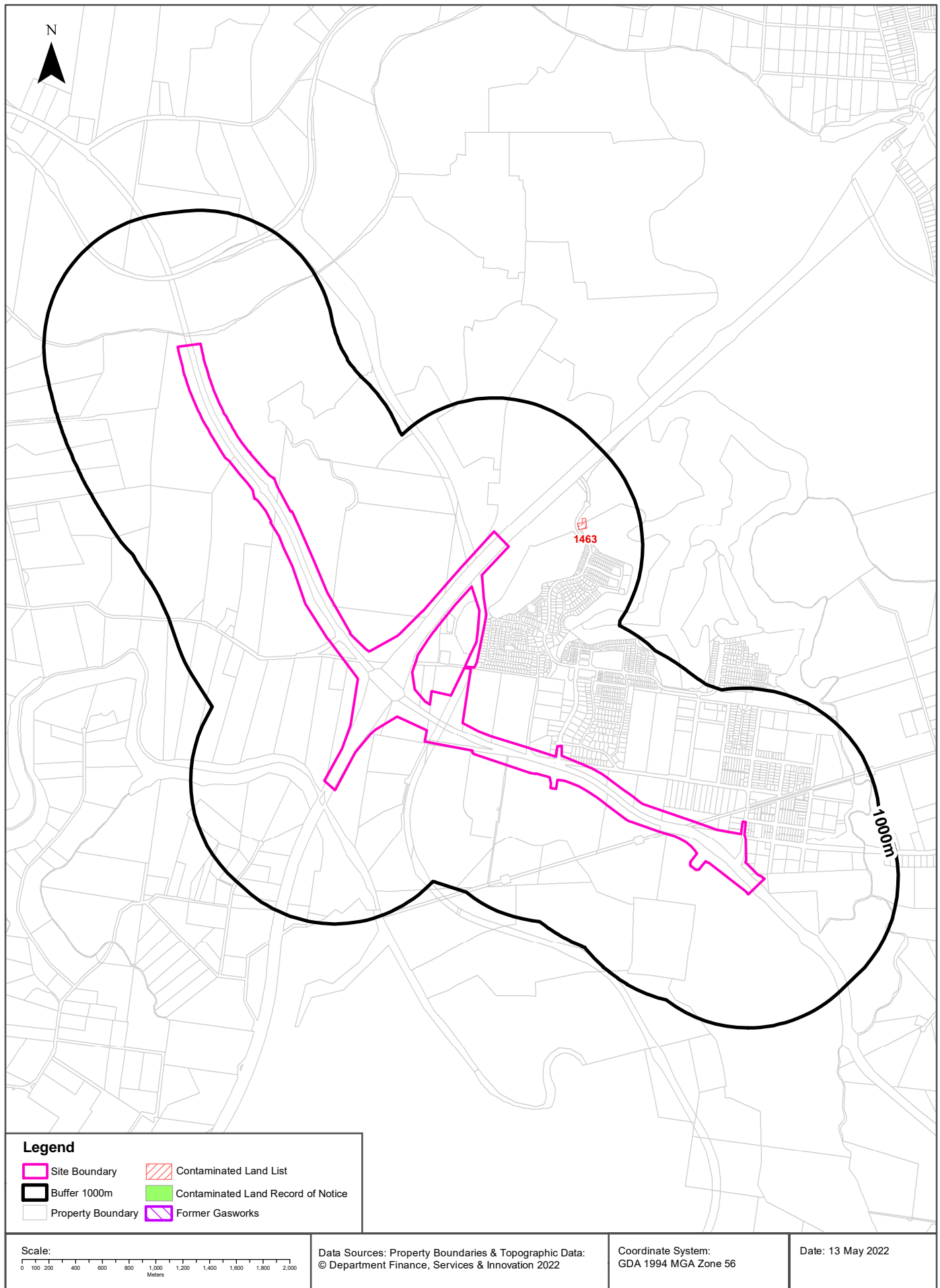
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



<p>Legend</p> <ul style="list-style-type: none"> Site Boundary Internal Parcel Boundaries 	<p>Total Area: 1.59km²</p> <p>Total Perimeter: 19.11km</p> <p>Disclaimers:</p> <p>Measurements are approximate only and may have been simplified or smaller lengths removed for readability.</p> <p>Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.</p>	<p>Scale:</p> <p>Data Source Aerial Imagery: © Aerometrex Pty Ltd</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Coordinate System: GDA 1994 MGA Zone 56</td> <td style="width: 50%;">Date: 13 May 2022</td> </tr> </table>	Coordinate System: GDA 1994 MGA Zone 56	Date: 13 May 2022
Coordinate System: GDA 1994 MGA Zone 56	Date: 13 May 2022			

Contaminated Land

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Contaminated Land

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
1463	Condell Park Homestead	(Part Lot 17 DP 270536) Condell Park Road	Wilton	Unclassified	Regulation under CLM Act not required	Current EPA List	Premise Match	533m	North East

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
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 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 of Notices.
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 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 of Notices.
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.
Regulation under the 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.
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.

Contaminated Land

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority
Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit
<http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm>

Former Gasworks

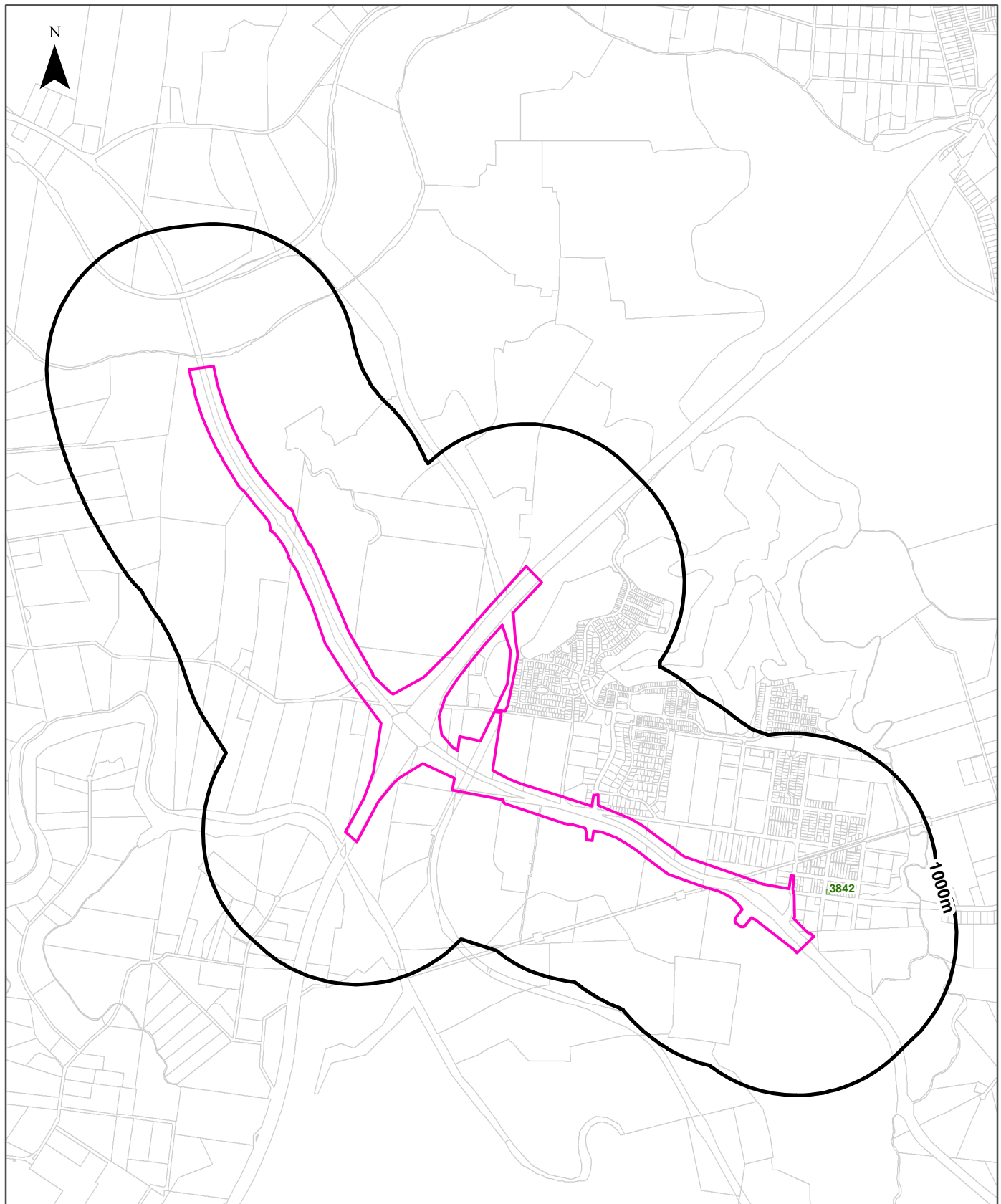
Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

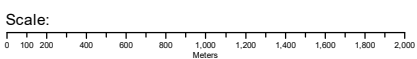
Waste Management & Liquid Fuel Facilities

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

- Site Boundary
- Buffer 1000m
- Property Boundary
- National Liquid Fuel Facilities
- Waste Management Facilities



Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Waste Management & Liquid Fuel Facilities

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
3842	Shell	Wilton Petroleum	1109A Argyle Street	Wilton	Petrol Station	Operational		25/07/2011	Premise Match	218m	South East

National Liquid Fuel Facilities Data Source: Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

PFAS Investigation & Management Programs

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Map ID	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Defence PFAS Investigation Program

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Management Program

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Defence 3 Year Regional Contamination Investigation Program

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

EPA Other Sites with Contamination Issues

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasmenco Lead Abatement Strategy Area

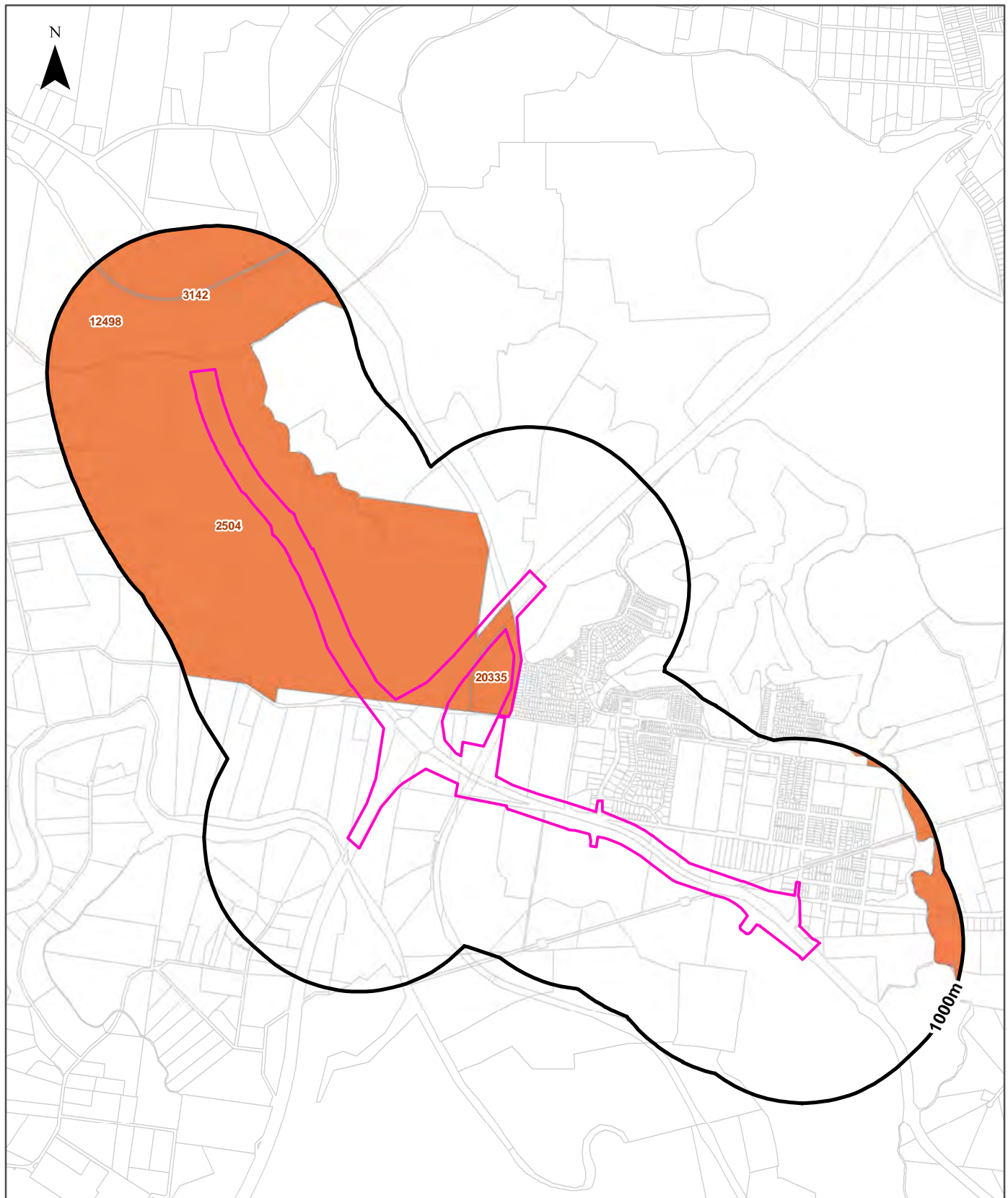
Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Current EPA Licensed Activities

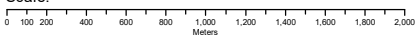
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

- Site Boundary
- Buffer 1000m
- Property Boundary
- Current Licensed Activities under POEO Act
- Current Licences related to Other Activities incl. Application of Herbicides to Waterways
- Current Licences related to Irrigated Agriculture

Scale:



Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

EPA Activities

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

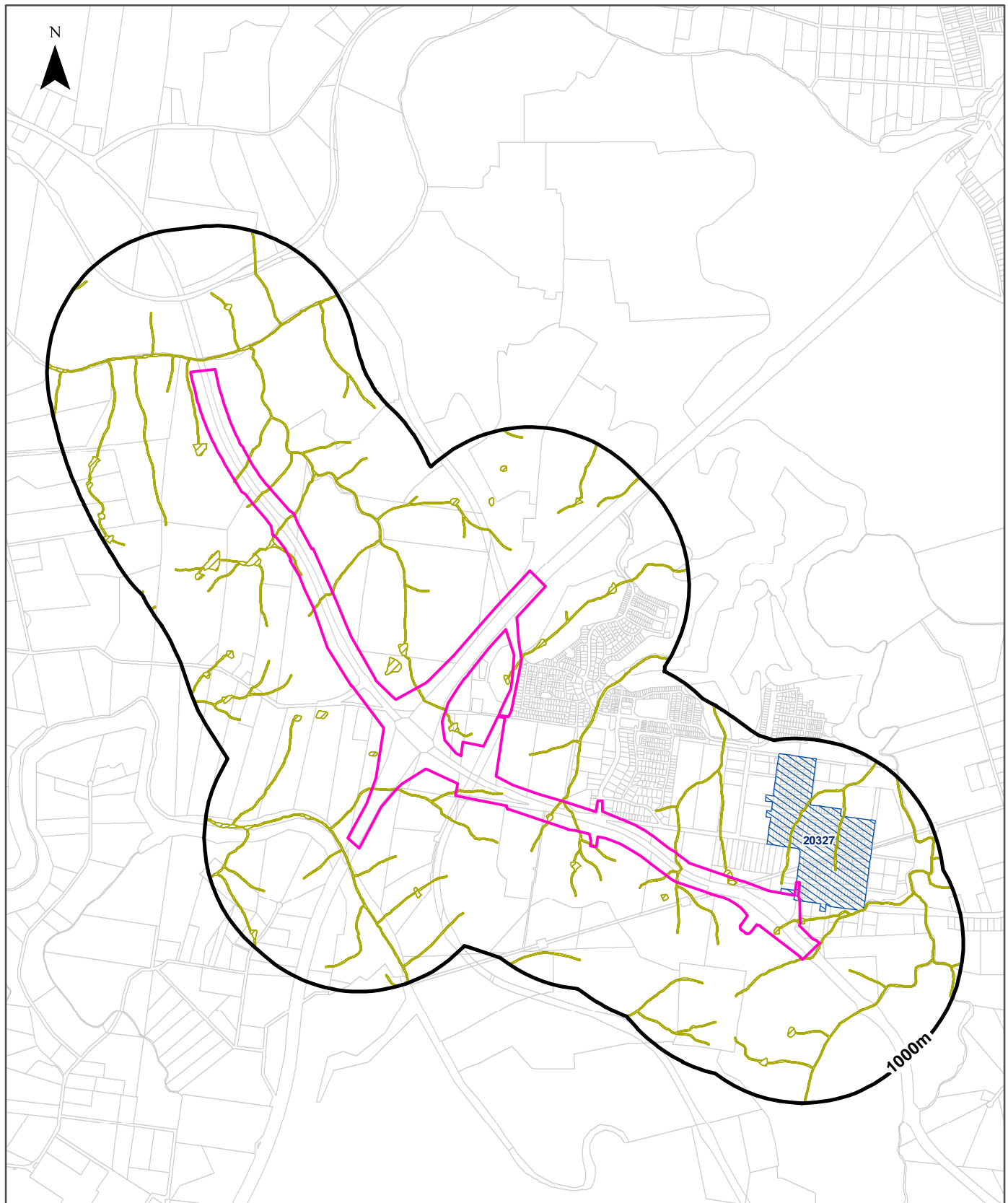
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
20335	VEOLIA WATER SOLUTIONS & TECHNOLOGIES (AUSTRALIA) PTY LTD	Bingara Gorge Onsite Wastewater Scheme	Condell Park Road	WILTON	Sewage treatment processing by small plants	Premise Match	0m	On-site
2504	ENDEAVOUR COAL PTY LIMITED	1. APPIN COLLIERY, 2. APPIN WEST COLLIERY & 3. WEST CLIFF AND NORTH CLIFF COLLIERIES		APPIN	Waste disposal by application to land	Area Match	0m	On-site
2504	ENDEAVOUR COAL PTY LIMITED	1. APPIN COLLIERY, 2. APPIN WEST COLLIERY & 3. WEST CLIFF AND NORTH CLIFF COLLIERIES		APPIN	Coal works	Area Match	0m	On-site
2504	ENDEAVOUR COAL PTY LIMITED	1. APPIN COLLIERY, 2. APPIN WEST COLLIERY & 3. WEST CLIFF AND NORTH CLIFF COLLIERIES		APPIN	Mining for coal	Area Match	0m	On-site
12498	ALLIED PINNACLE PTY LIMITED	Allied Mills	330 Picton Road	MALDON	General agricultural processing	Premise Match	90m	North West
3142	AUSTRALIAN RAIL TRACK CORPORATION LIMITED		AUSTRALIAN RAIL TRACK CORPORATION (ARTC) NETWORK, SYDNEY, NSW 2001		Railway systems activities	Network of Features	516m	North West

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

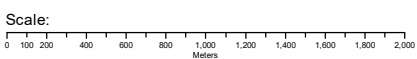
Delicensed & Former Licensed EPA Activities

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

- Site Boundary
- Buffer 1000m
- Property Boundary
- Delicensed Activities still Regulated by EPA
- Former Licensed/Regulated Activities (revoked or surrendered)
- Surrendered Licences related to Other Activities on Waterways incl. Application of Herbicides



Property Boundary Data Source:
© Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

EPA Activities

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4390	WOLLONDILLY SHIRE COUNCIL	WATERWAYS OF WOLLONDILLY SHIRE COUNCIL	Surrendered	07/09/2000	Other Activities	Network of Features	0m	On-site
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
20327	SYDNEY WATER CORPORATION	Wilton Priority Sewage Program, 275 Appin Road, APPIN	Surrendered	11/09/2013	Sewage treatment processing by small plants	Network of Features	0m	On-site

Former Licensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Historical Business Directories

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

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Business Directory Records 1950-1991 Road or Area Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

Historical Business Directories

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

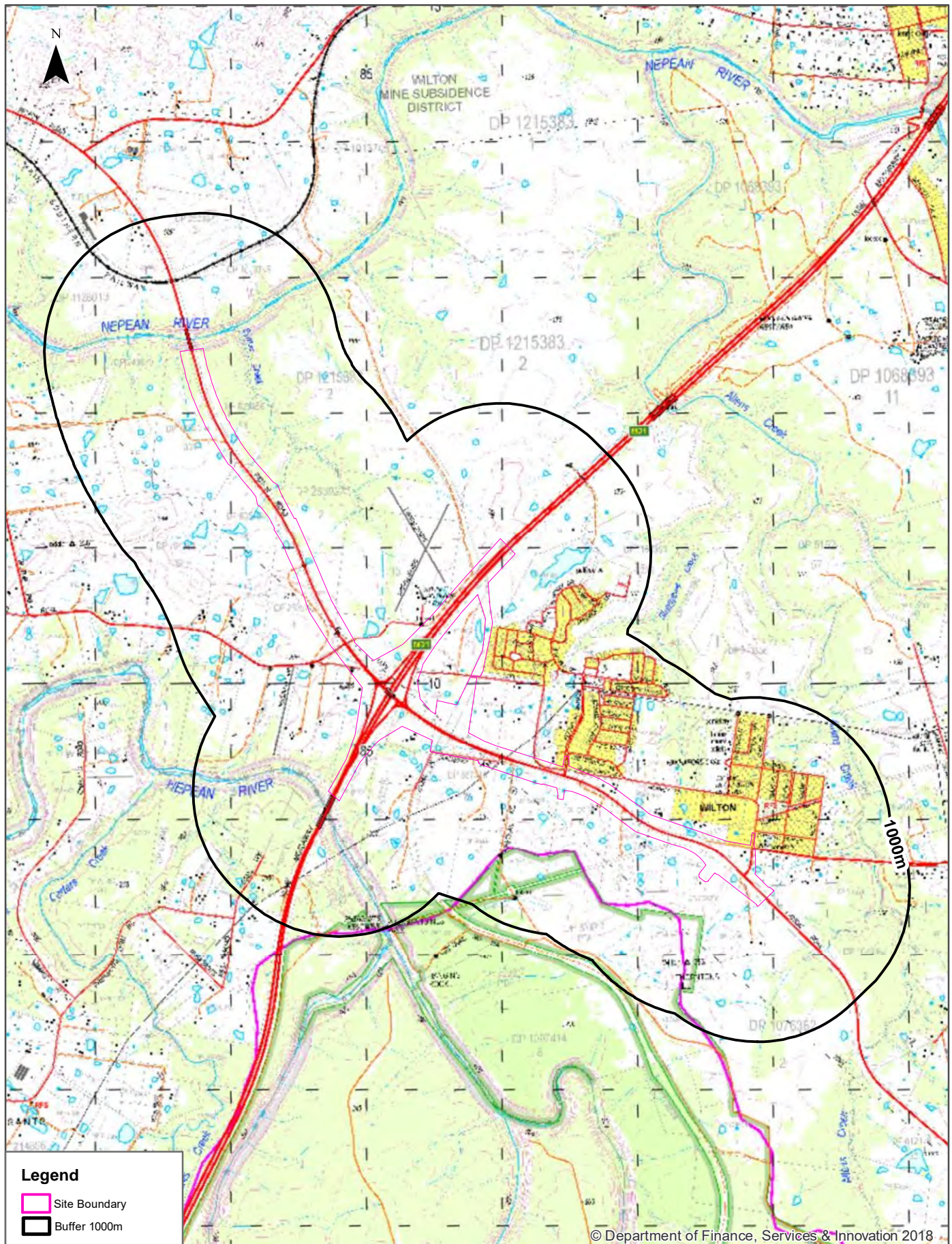
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

Topographic Map 2015

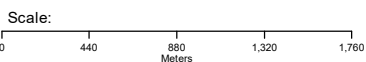
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



© Department of Finance, Services & Innovation 2018

Legend

- Site Boundary
- Buffer 1000m



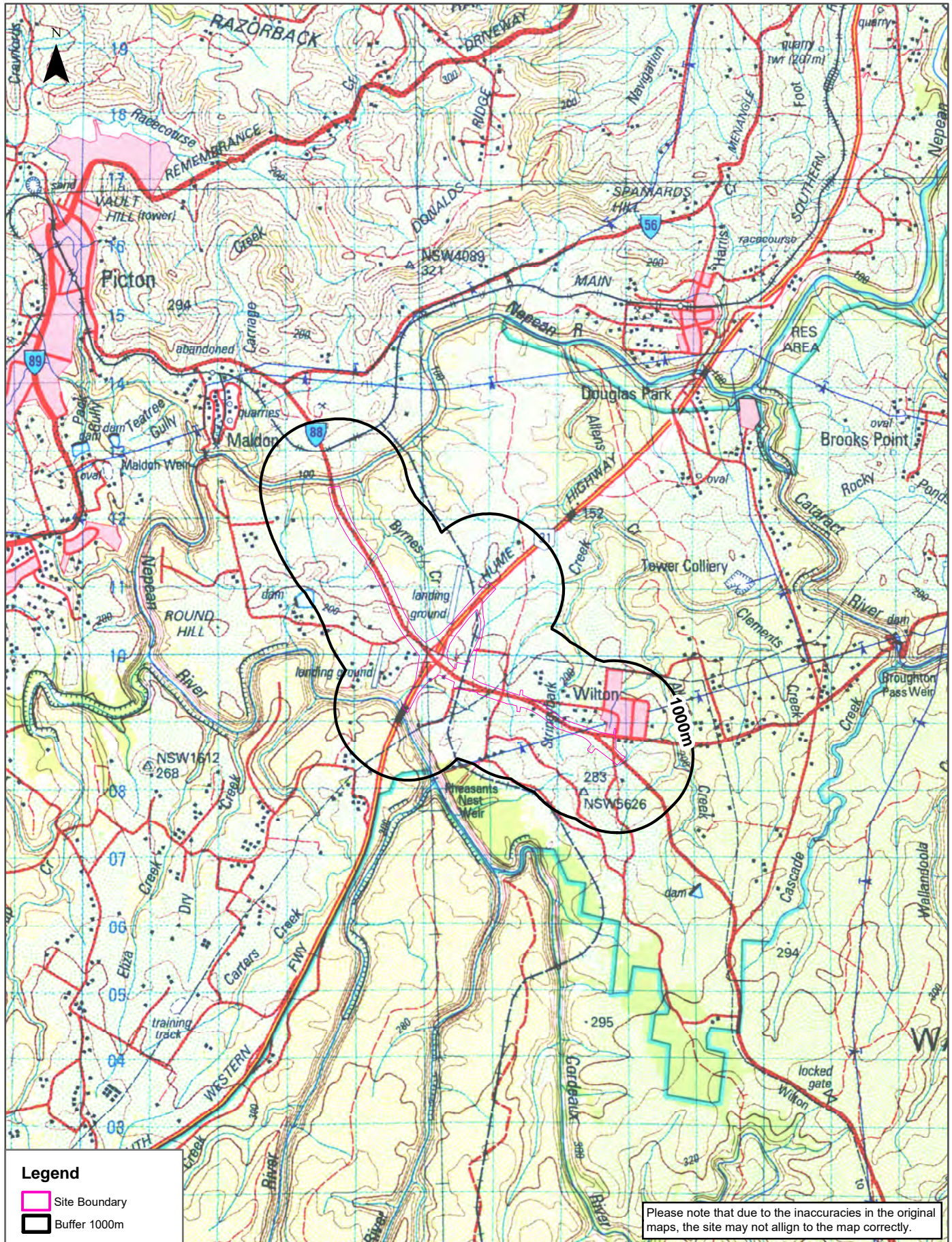
Data Sources: Topographic Map Data
© NSW Land and Property Information

Coordinate System:
GDA 1994 MGA Zone 56



Date: 13 May 2022

Historical Map 1998

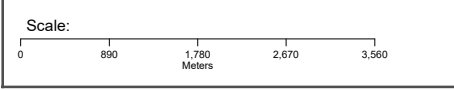
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

-  Site Boundary
-  Buffer 1000m

Please note that due to the inaccuracies in the original maps, the site may not align to the map correctly.



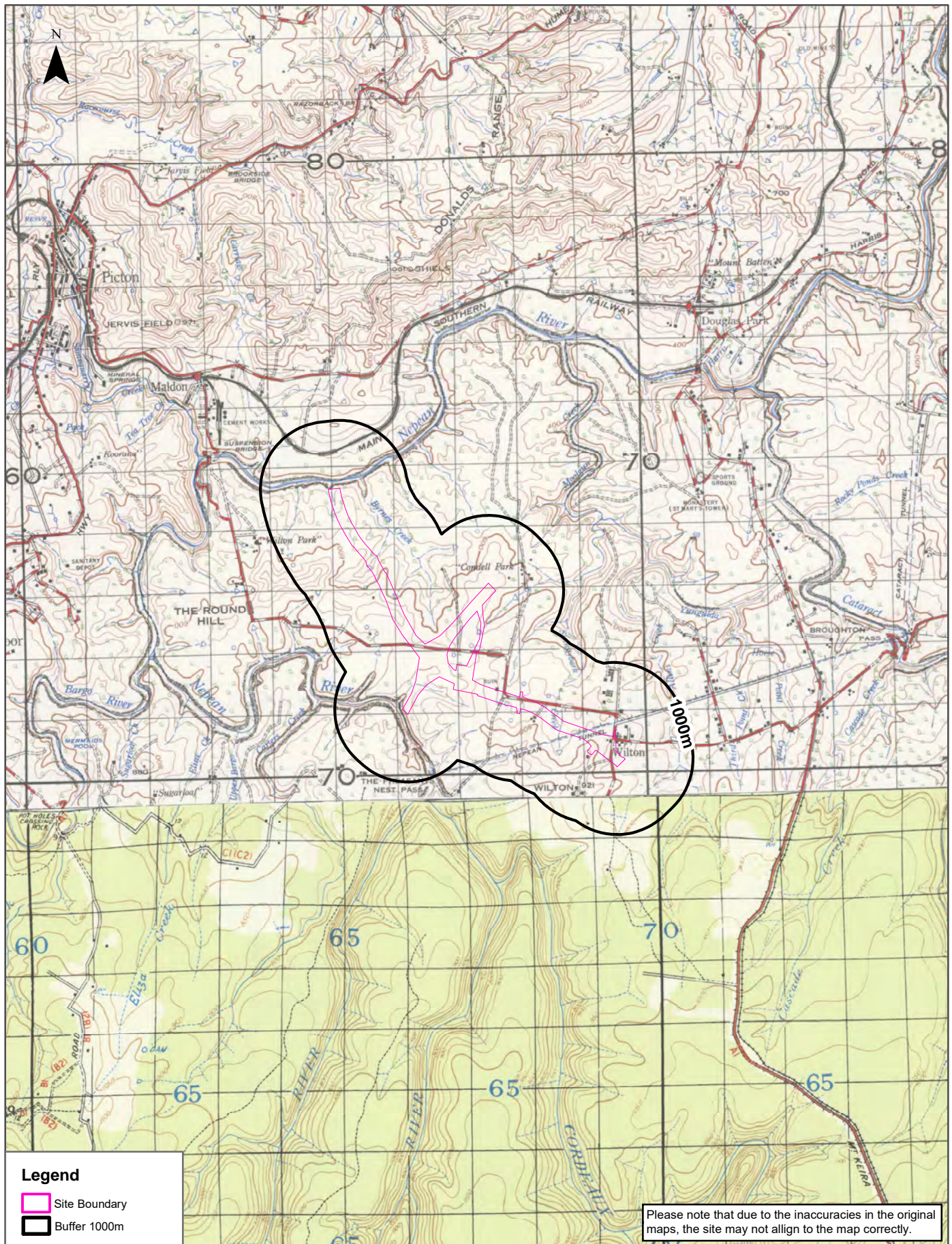
Data Sources: NATMAP 1:100,000
Topographic Maps Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Historical Map 1942 - 1954

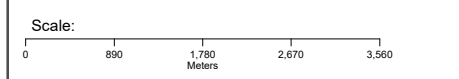
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Please note that due to the inaccuracies in the original maps, the site may not align to the map correctly.

Legend

- Site Boundary
- Buffer 1000m



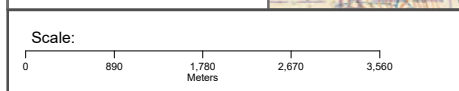
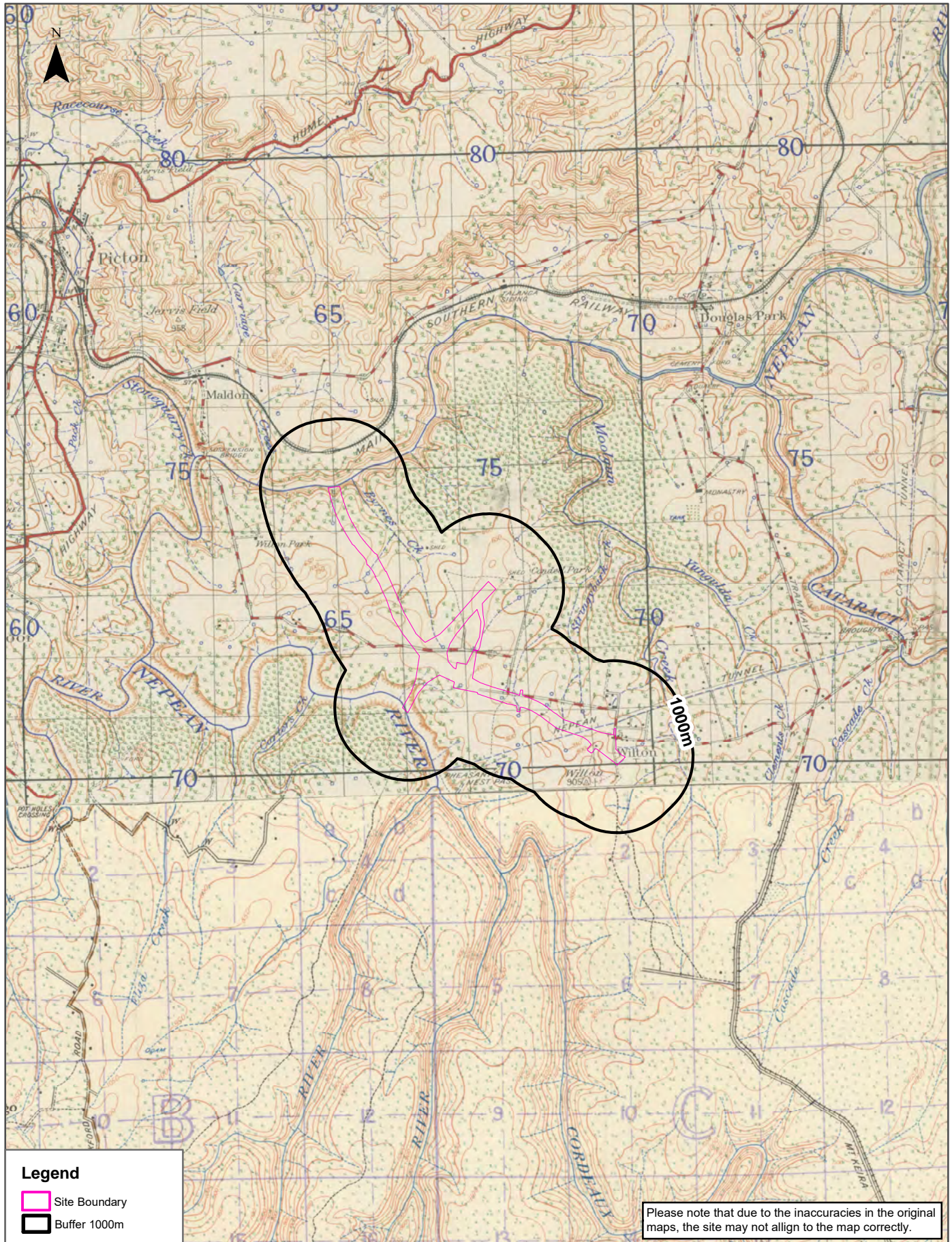
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Historical Map 1927 - 1934

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



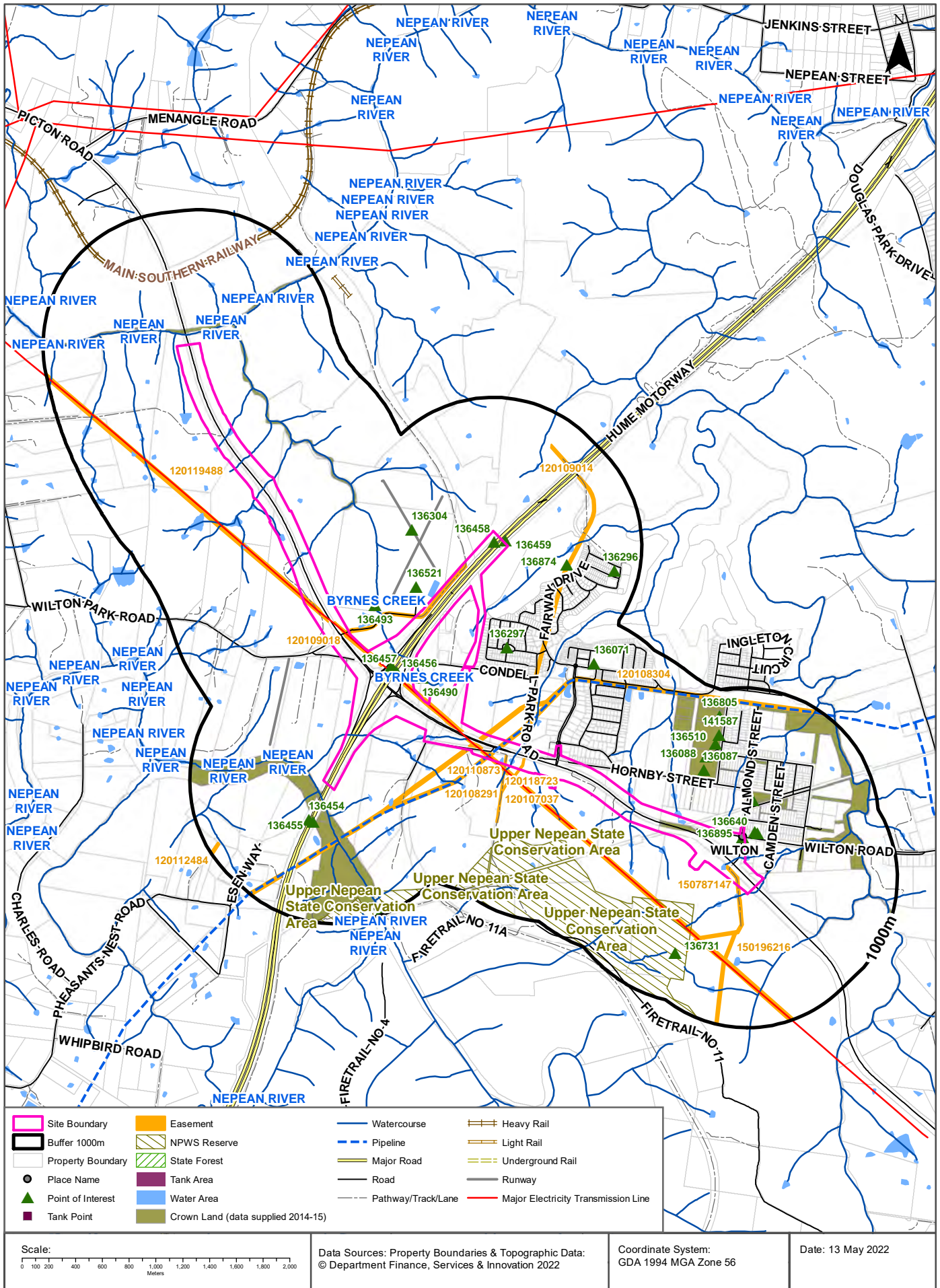
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Topographic Features

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Topographic Features

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
136457	Roadside Emergency Telephone	157	0m	On-site
136458	Roadside Emergency Telephone	156	0m	On-site
136895	Village	WILTON	0m	On-site
136456	Roadside Emergency Telephone	158	0m	On-site
136459	Roadside Emergency Telephone	155	14m	North East
136490	Manmade Waterbody	BYRNES CREEK	73m	South
136640	Place Of Worship	COMMUNITY CHURCH	82m	South East
136089	Cemetery	ST LUKES COMMUNITY CEMETERY	101m	South East
136521	Sports Centre	SYDNEY SKYDIVING CENTRE	152m	North
136090	Firestation - Bush	WILTON RFB	172m	South East
136297	Park	Park	204m	East
136493	Manmade Waterbody	BYRNES CREEK	269m	North West
136455	Roadside Emergency Telephone	159	284m	South West
136454	Roadside Emergency Telephone	160	293m	South West
136087	Park	WILTON RECREATION RESERVE	390m	East
136304	Landing Ground	Landing Ground	458m	North
136874	Golf Course	Golf Course	460m	North East
136088	Sports Field	HANNAFORD OVAL	493m	East
136510	Community Facility	WILTON COMMUNITY CENTRE TIM BLAIR BUILDING	603m	East
136731	Mountain Like	THORNTONS HILL	642m	South East
136071	Primary School	WILTON PUBLIC SCHOOL	663m	East
141587	Sports Court	MULTI-PURPOSE COURTS	669m	East
136805	Cemetery	WILTON CEMETERY	806m	East
136296	Parking Area	Parking Area	816m	North East
136095	Dam Wall	PHEASANTS NEST WEIR	988m	South

Topographic Data Source: © Land and Property Information (2015)

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Topographic Features

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks Data Source: © Land and Property Information (2015)

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Major Easements

What Major Easements exist within the dataset buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120108291	Primary	Undefined		0m	On-site
120108304	Primary	Undefined		0m	On-site
120110873	Primary	Undefined		0m	On-site
120109018	Primary	Undefined		0m	On-site
150196216	Primary	Right of way	20.115	0m	On-site
150787147	Primary	Right of way		0m	On-site
120119488	Primary	Undefined		0m	On-site
120118723	Primary	Undefined		16m	South East
120107037	Primary	Undefined		51m	South East
120109014	Primary	Undefined		448m	North East
120112484	Primary	Undefined		910m	South West

Easements Data Source: © Land and Property Information (2015)

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Topographic Features

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)
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National Parks and Wildlife Service Reserves

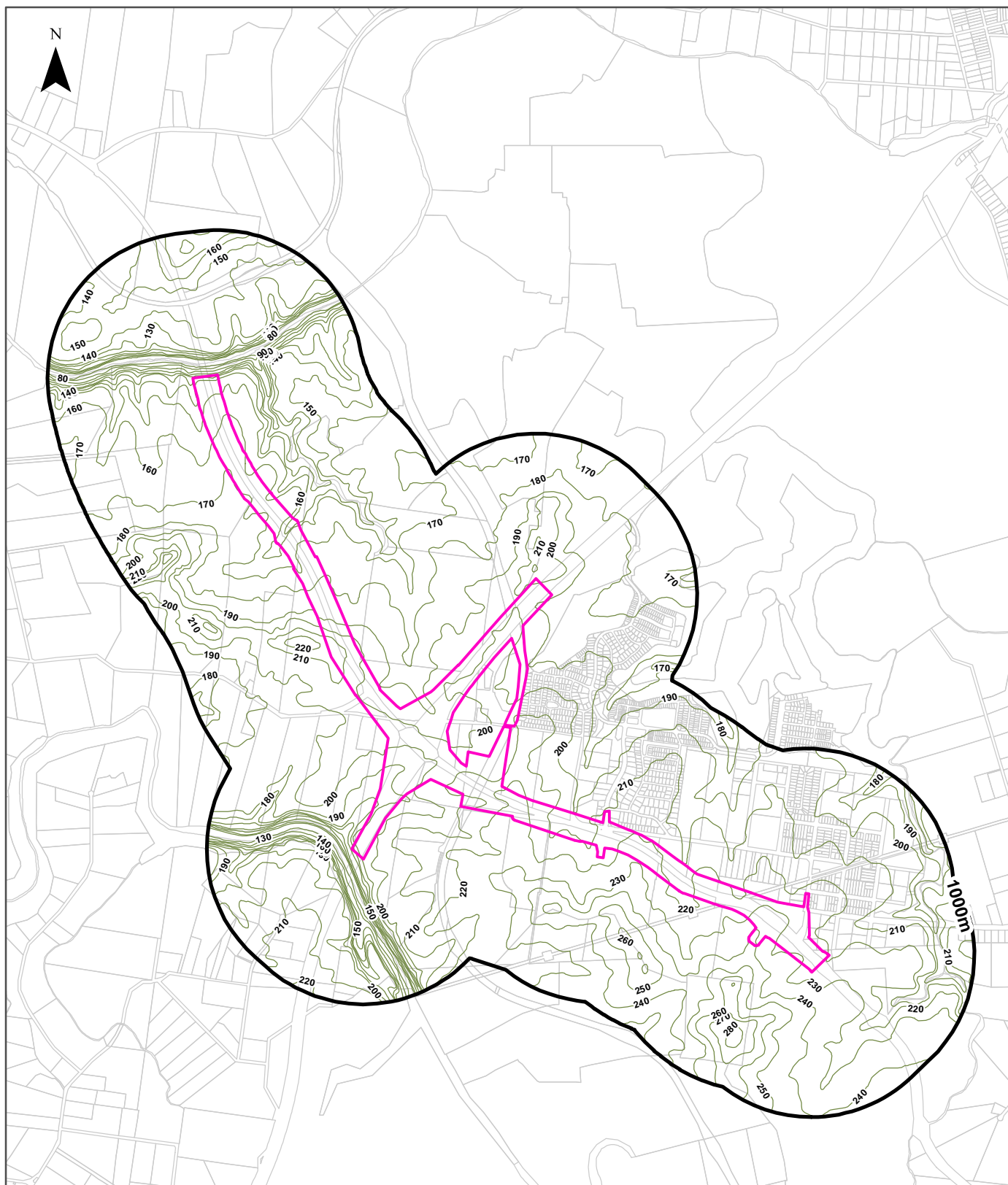
What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N1117	STATE CONSERVATION AREA	Upper Nepean State Conservation Area	28/02/2007	258m	South East

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)
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Elevation Contours (m AHD)

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

- Elevation Contour (m AHD)
- Site Boundary
- Buffer 1000m
- Property Boundary

Accuracy & Currency: This contour data can be up to 0.4 of the contour interval out in height and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source photography such as buildings, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening thirty years since the original contour capture.

Scale:
0 100 200 400
Meters

Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Hydrogeology & Groundwater

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive aquifers of low to moderate productivity	0m	On-site

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

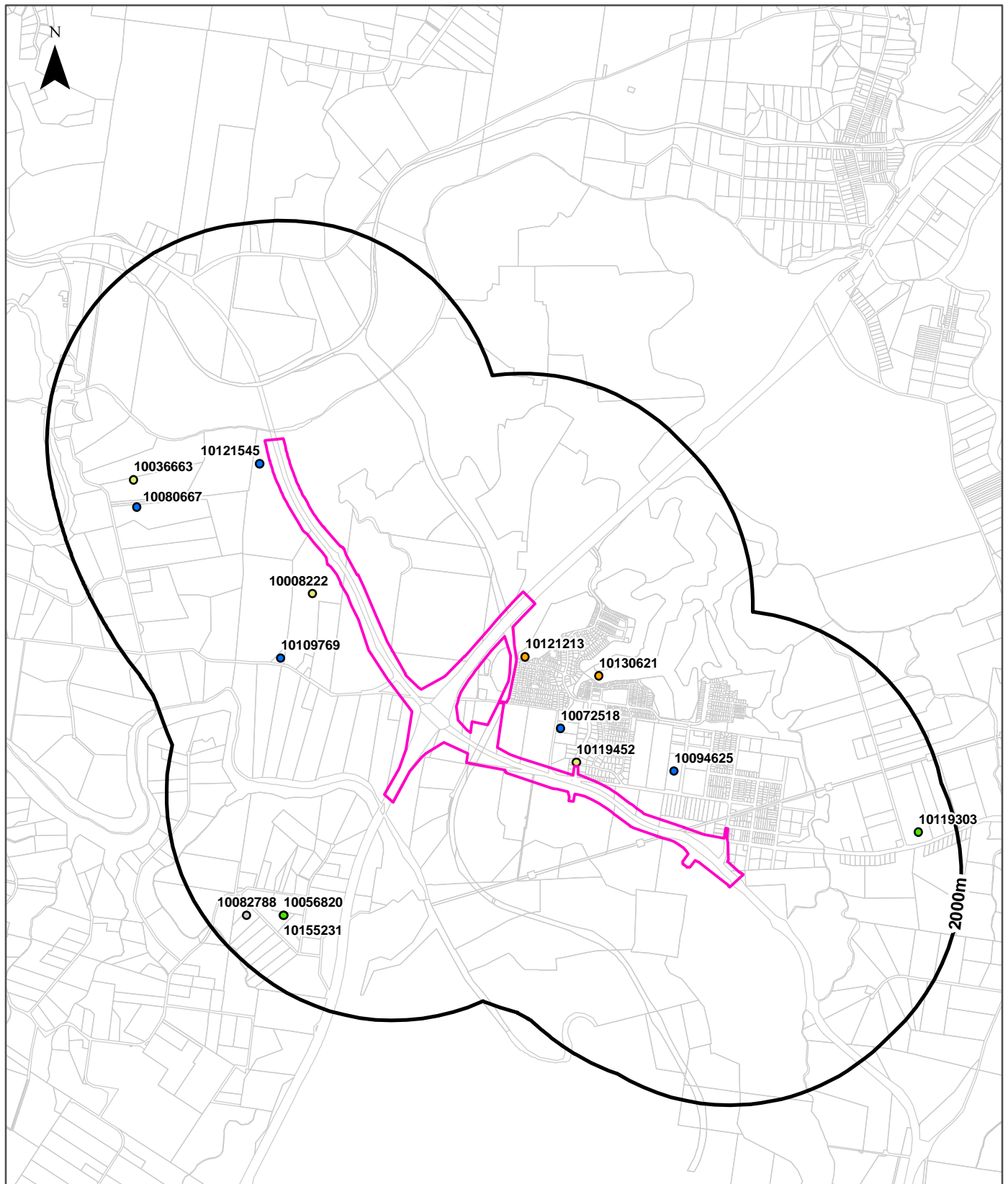
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

Prohibition Area No.	Prohibition	Distance	Direction
N/A	No records in buffer		

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 Data Source : NSW Department of Primary Industries

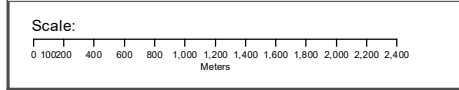
Groundwater Boreholes

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

Site Boundary	Borehole	Monitoring
Buffer 2000m	Commercial and Industrial	Other; Unknown
Property Boundary	Dewatering	Stock and Domestic
	Exploration	Water Supply
	Irrigation	



Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Hydrogeology & Groundwater

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10119452	GW024644	Irrigation	Unknown	01/07/1964	77.40		AHD	3001-7000 ppm			34m	South East
10121213	GW109278	Monitoring	Unknown	27/08/2008	180.00		AHD	1.74	0.170	48.00	85m	North East
10121545	GW104546	Water Supply	Functioning	11/12/2002	186.00		AHD	1300	0.150	80.00	96m	North West
10008222	GW057797	Irrigation	Unknown	01/08/1982	106.70		AHD	Good			268m	North West
10072518	GW106250	Water Supply	Functioning	24/05/2004	151.00		AHD		0.625	62.00	368m	East
10094625	GW100480	Water Supply	Functioning	27/03/1995	148.00		AHD	Brackish	0.500	85.00	457m	East
10130621	GW109279	Monitoring	Proposed	28/08/2008	193.00		AHD	5.11	0.280	44.00	774m	East
10109769	GW103320	Water Supply	Unknown	28/08/2000	183.00		AHD				785m	West
10036663	GW067606	Irrigation	Unknown	03/10/1989	150.00		AHD	Fresh			1250m	North West
10080667	GW104558	Water Supply	Functioning	11/12/2002	186.00		AHD		0.260	103.00	1289m	North West
10056820	GW115763	Stock and Domestic	Functioning	05/11/2017	150.00		AHD			0.00	1443m	South West
10155231	GW116973	Water Supply	Functioning	24/08/2020	162.00		AHD				1443m	South West
10119303	GW011042	Stock and Domestic	Unknown	01/01/1954	47.30		AHD	1001-3000 ppm			1655m	East
10082788	GW107692	Unknown	Unknown	22/12/2006			AHD				1681m	South West

Borehole Data Source: Bureau of Meteorology; Water NSW. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Hydrogeology & Groundwater

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Driller's Logs

Drill log data relevant to the boreholes within the dataset buffer:

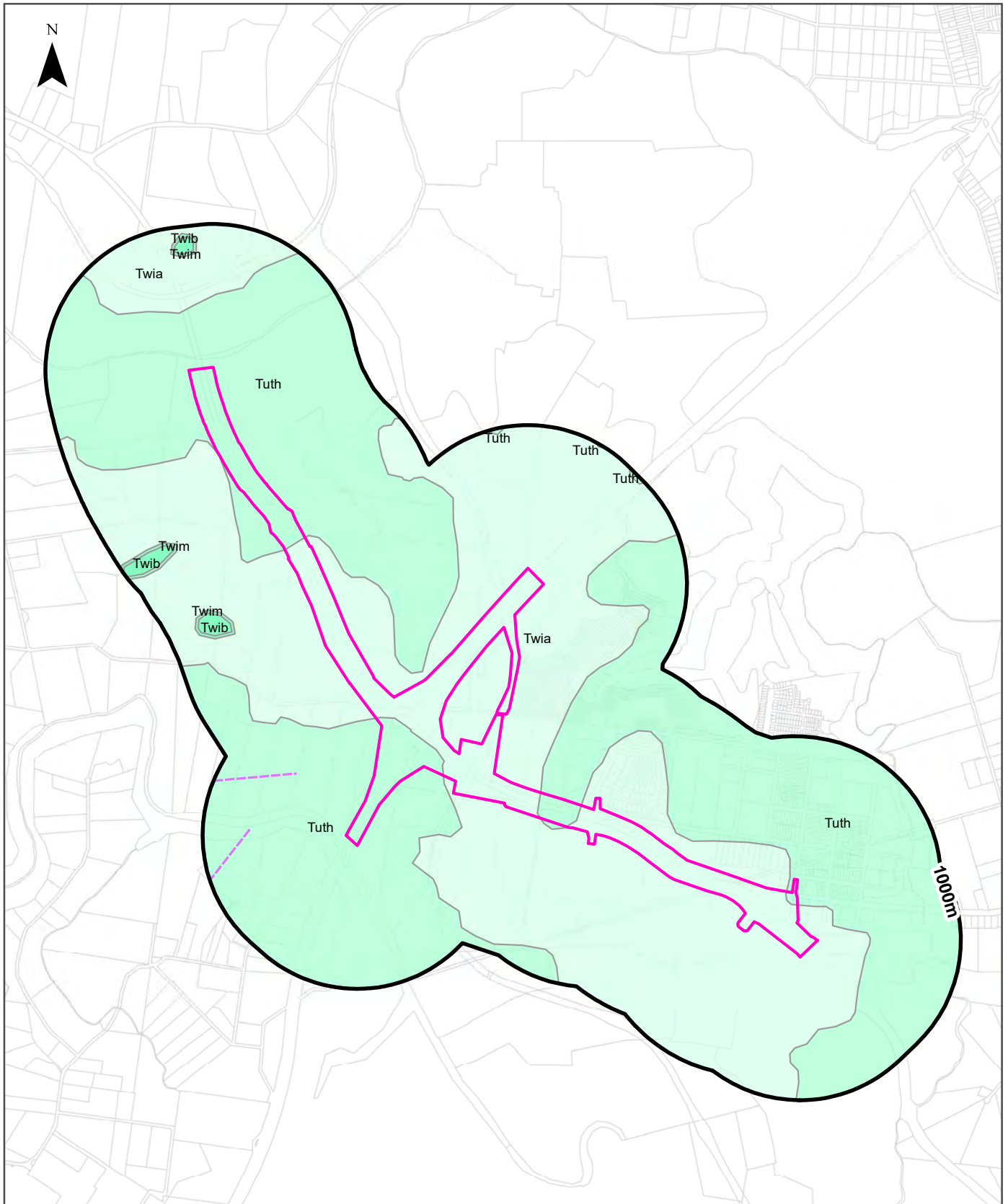
NGIS Bore ID	Drillers Log	Distance	Direction
10119452	0.00m-0.91m Soil Clay 0.91m-23.77m Sandstone 23.77m-57.91m Sandstone White 57.91m-60.96m Sandstone White Thin Layers Shale 60.96m-73.15m Sandstone White Coarse 73.15m-77.42m Sandstone White Grey Water Supply	34m	South East
10121213	0.00m-6.00m CLAY 6.00m-12.00m GREY SANDSTONE 12.00m-18.00m ORANGE SANDSTONE 18.00m-24.00m SANDSTONE WHITE ORANGE 24.00m-48.00m SANDSTONE WHITE 48.00m-96.00m SANDSTONE HARD 96.00m-120.00m GRAVEL, SANDSTONE 120.00m-138.00m SANDSTONE GRAVEL 138.00m-150.00m SHALE 150.00m-168.00m SHALE 168.00m-180.00m BASEMENT	85m	North East
10121545	0.00m-4.00m SOIL AND CLAY 4.00m-6.00m WHITE SANDSTONE 6.00m-8.00m YELLOW SANDSTONE 8.00m-26.00m WHITE SANDSTONE 26.00m-28.00m SANDSTONE AND SHALE 28.00m-50.00m WHITE SANDSTONE 50.00m-51.00m SANDSTONE AND SHALE 51.00m-72.00m WHITE SANDSTONE 72.00m-75.00m SANDSTONE AND SHALE 75.00m-126.00m WHITE SANDSTONE 126.00m-127.00m SHALE AND SANDSTONE 127.00m-132.00m SANDSTONE AND SHALE 132.00m-160.00m WHITE SANDSTONE 160.00m-186.00m SHALE AND SANDSTONE	96m	North West
10008222	0.00m-0.30m Topsoil 0.30m-1.80m Shale Weathered 1.80m-71.30m Sandstone Water Supply 71.30m-75.30m Shale 75.30m-99.40m Sandstone 99.40m-100.30m Shale 100.30m-106.70m Sandstone Water Supply	268m	North West
10072518	0.00m-2.00m topsoil 2.00m-40.00m sandstone, fine grained 40.00m-42.00m shale 42.00m-118.00m sandstone, medium grained 118.00m-120.00m shale 120.00m-142.00m sandstone, coarse 142.00m-151.00m shale	368m	East
10094625	0.00m-1.00m BROWN SOIL 1.00m-6.00m SHALE 6.00m-11.00m SANDSTONE 11.00m-12.00m SHALE 12.00m-23.00m SANDSTONE 23.00m-25.00m SHALE 25.00m-34.00m SANDSTONE 34.00m-35.00m SHALE 35.00m-55.00m SANDSTONE 55.00m-59.00m BONDED SHALE 59.00m-110.00m SANDSTONE 110.00m-113.00m SHALE 113.00m-128.00m SANDSTONE 128.00m-130.00m SHALE 130.00m-152.40m SANDSTONE	457m	East

NGIS Bore ID	Drillers Log	Distance	Direction
10130621	0.00m-72.00m SANDSTONE FINE YELLOW GREY 72.00m-78.00m SHALE 78.00m-126.00m SANDSTONE GREY COARSE 126.00m-132.00m SHALE 132.00m-150.00m SANDSTONE GREY COARSE 150.00m-156.00m SHALE 156.00m-163.00m SANDSTONE FINE GREY 163.00m-184.00m SILTSTONE 184.00m-193.00m BALDHILL CLAYSTONE	774m	East
10109769	0.00m-1.80m CLAY 1.80m-6.00m SHALE 6.00m-12.00m SANDSTONE WHITE 12.00m-19.00m SANDSTONE YELLOW 19.00m-26.00m SANDSTONE GREY 26.00m-31.00m SANDSTONE ORANGE 31.00m-111.00m SANDSTONE GREY 111.00m-123.00m SANDSTONE COURSE 123.00m-124.00m SHALE 124.00m-148.00m SANDSTONE WHITE 148.00m-150.00m SHALE 150.00m-173.00m SANDSTONE WHITE 173.00m-175.00m SHALE WHITE 175.00m-183.00m SHALE	785m	West
10036663	0.00m-0.30m 0.30m-4.80m Shale & Clay 4.80m-13.10m Grey Sandstone 13.10m-27.40m Yellow Sandstone 27.40m-35.80m Brown Sandstone 35.80m-36.10m 36.10m-98.50m Grey Sandstone 98.50m-98.80m Grey Sandstone (w.b.) 98.80m-140.70m Grey Sandstone 140.70m-141.90m Grey Sandstone (w.b.) 141.90m-150.00m Grey Sandstone	1250m	North West
10080667	0.00m-3.00m CLAY AND SOIL 3.00m-16.00m WHITE SANDSTONE 16.00m-18.00m SANDSTONE 10% SHALE 18.00m-32.00m YELLOW SANDSTONE 32.00m-33.00m YELLOW SANDSTONE AND 10% SHALE 33.00m-36.00m YELLOW SANDSTONE 36.00m-38.00m YELLOW SANDSTONE AND SHALE 38.00m-48.00m YELLOW SANDSTONE 48.00m-49.00m SHALE AND SANDSTONE 49.00m-62.00m WHITE SANDSTONE 62.00m-64.00m SHALE AND SANDSTONE 64.00m-163.00m WHITE SANDSTONE 163.00m-186.00m WHITE SANDSTONE AND 10% SHALE	1289m	North West
10119303	0.00m-1.52m Soil Stones 1.52m-21.95m Sandstone 21.95m-26.82m Sandstone Shale 26.82m-34.14m Sandstone 34.14m-41.15m Shale Water Supply 41.15m-47.40m Sandstone Shale	1655m	East

Drill Log Data Source: Bureau of Meteorology; Water NSW. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

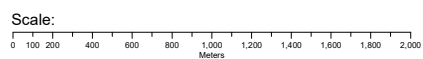
Geology

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

- | | | |
|-------------------|--------------------|------------------------------------|
| Site Boundary | Structures | Trendlines |
| Buffer 1000m | Boundary lines | Marker bed |
| Property Boundary | Faults | Shear zone or schist zone boundary |
| | Intrusive boundary | |



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 16 May 2022

Geology

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Geological Units

What are the Geological Units within the dataset buffer?

Unit Code	Unit Name	Description	Unit Stratigraphy	Age	Dominant Lithology	Distance
Twia	Ashfield Shale	Black to light grey shale and laminite.	/Wianamatta Group//Ashfield Shale//	Middle Triassic (base) to Middle Triassic (top)	Shale	0m
Tuth	Hawkesbury Sandstone	Medium- to coarse-grained quartz sandstone with minor shale and laminite lenses.	/Ungrouped Triassic units//Hawkesbury Sandstone//	Anisian (base) to Anisian (top)	Sandstone	0m
Twim	Minchinbury Sandstone	Fine- to medium-grained lithic sandstone.	/Wianamatta Group//Minchinbury Sandstone//	Middle Triassic (base) to Middle Triassic (top)	Sandstone	545m
Twib	Bringelly Shale	Shale, carbonaceous claystone, laminite, lithic sandstone, rare coal.	/Wianamatta Group//Bringelly Shale//	Middle Triassic (base) to Middle Triassic (top)	Shale	565m

Linear Geological Structures

What are the Dyke, Sill, Fracture, Lineament and Vein trendlines within the dataset buffer?

Map ID	Feature Description	Map Sheet Name	Distance
227813	Lineament	Wollongong-Port Hacking 1:100,000 Geological Sheet	510m
227051	Lineament	Wollongong-Port Hacking 1:100,000 Geological Sheet	673m

What are the Faults, Shear zones or Schist zones, Intrusive boundaries & Marker beds within the dataset buffer?

Map ID	Boundary Type	Description	Map Sheet Name	Distance
No Features				

Geological Data Source: Statewide Seamless Geology v2.1, Department of Regional NSW
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Naturally Occurring Asbestos Potential

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Naturally Occurring Asbestos Potential

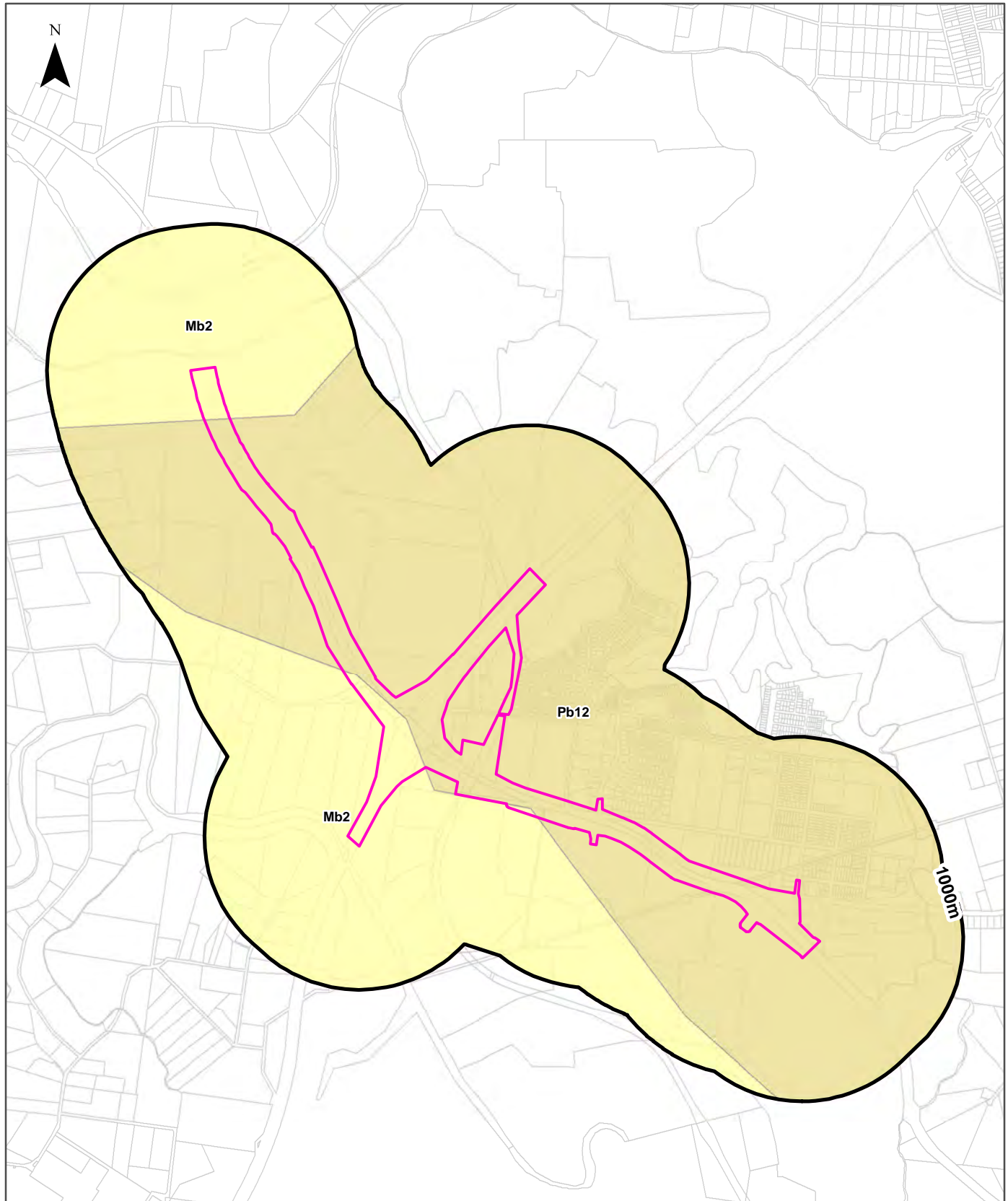
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Naturally Occurring Asbestos Potential Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Atlas of Australian Soils

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend		Australian Soil Classification Orders					
Site Boundary	Anthroisol	Dermosol	Kandosol	Podosol	Tenosol	No Data	
Buffer 1000m	Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol		
Property Boundary	Chromosol	Hydrosol	Organosol	Sodosol	Lake		

<p>Scale:</p> <p>Meters</p>	<p>Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022</p>	<p>Coordinate System: GDA 1994 MGA Zone 56</p>	<p>Date: 13 May 2022</p>
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Soils

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

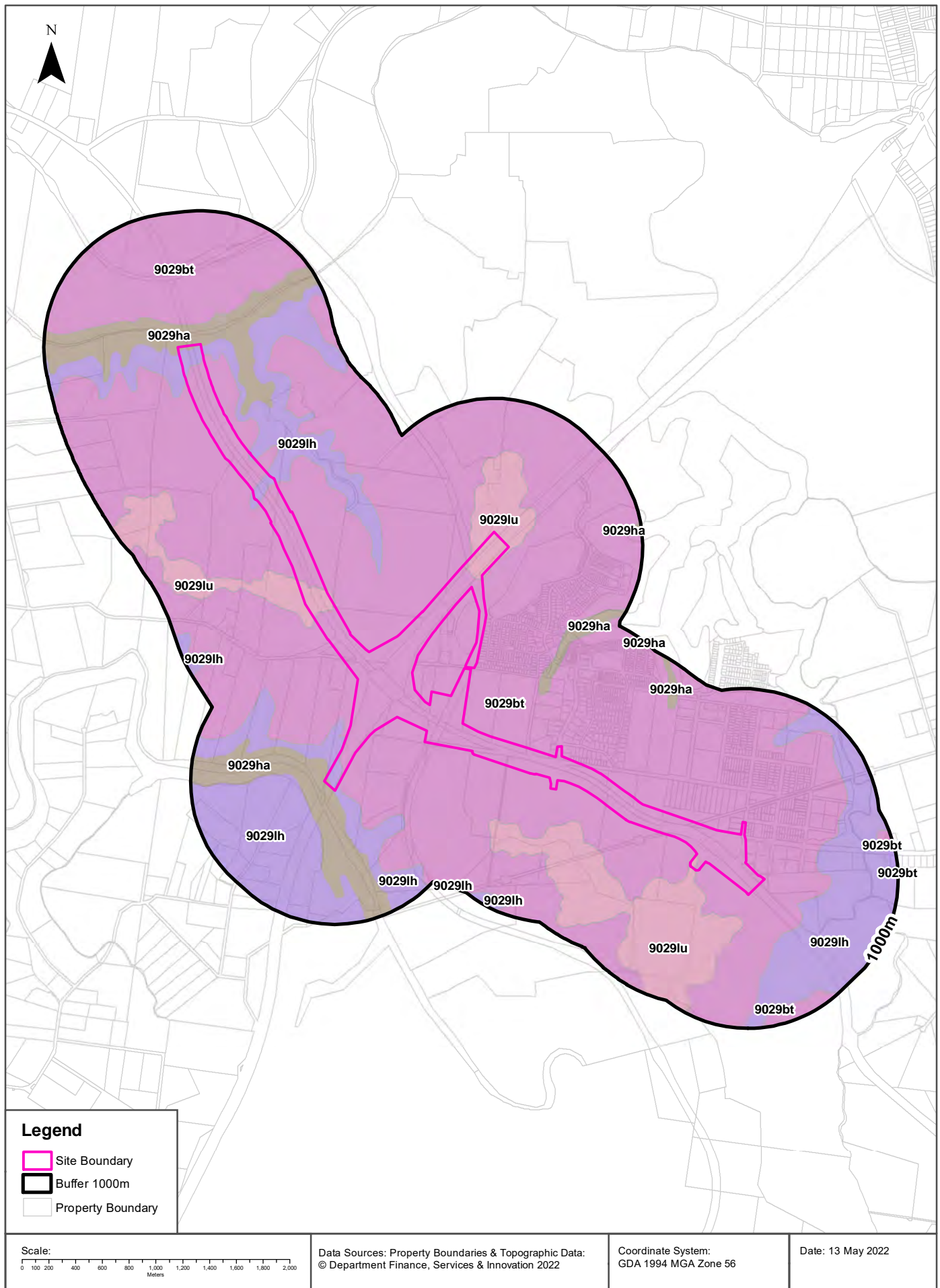
Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Pb12	Kurosol	Gently rolling to rounded hilly country with some steep slopes and broad valleys: chief soils are hard acidic red soils (Dr2.21) with hard neutral and acidic yellow mottled soils (Dy3.42 and Dy3.41) on lower slopes and in valleys. Associated are small areas of various soils including (Gn3.54) on some ridges, (Dr3.31) on some slopes; (Dr2.23) in saddles and some mid-slope positions, and some low-lying swampy areas of (Uf6) soils and (Uc1.2) soils with peaty surfaces. Small areas of other soils such as (Db1.2) are likely throughout.	0m	On-site
Mb2	Kandosol	Dissected sandstone plateau of moderate to strong relief with sandstone pillars, ledges, and slabs-- level to undulating ridges, irregularly benched slopes, steep ridges, cliffs, canyons, narrow sandy valleys: chief soils are (i) on areas of gentle to moderate relief, acid yellow leached earths (Gn2.74) and (Gn2.34) and acid leached yellow earths (Gn2.24)- sometimes these soils contain ironstone gravel; and (ii) on, or adjacent to, areas of strong relief, siliceous sands (Uc1.2), leached sands (Uc2.12) and (Uc2.2), and shallow forms of the above (Gn2) soils. Associated are: (i) on flat to gently undulating remnants of the original plateau surface, leached sands (Uc2.3), siliceous sands (Uc1.2), sandy earths (Uc5.22), and (Gn2) soils as for (i) above (these areas are in part comparable with unit Cb29); (ii) on flat ironstone gravelly remnants of the original plateau surface, (Gn2) soils as for unit Mb5(i); (iii) on gently undulating ridges where interbedded shales are exposed, shallow, often stony (Dy3.41), (Dr2.21), and related soils similar to unit Tb35; (iv) narrow valleys of (Uc2.3) soils flanked by moderate slopes of (Dy3.41) soils; (v) escarpments of steep hills with shallow (Dy) and (Dr) soils between sandstone pillars; and (vi) shallow (Um) soils, such as (Um6.21) on steep hills of basic rocks. As mapped, minor areas of units Mg20, Mm1, and Mw8 are included. Data are limited.	0m	On-site

Atlas of Australian Soils Data Source: CSIRO

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Soil Landscapes of Central and Eastern NSW

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Soils

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
9029bt	Blacktown	0m	On-site
9029lh	Lucas Heights	0m	On-site
9029lu	Luddenham	0m	On-site
9029ha	Hawkesbury	0m	On-site

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment
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Acid Sulfate Soils

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

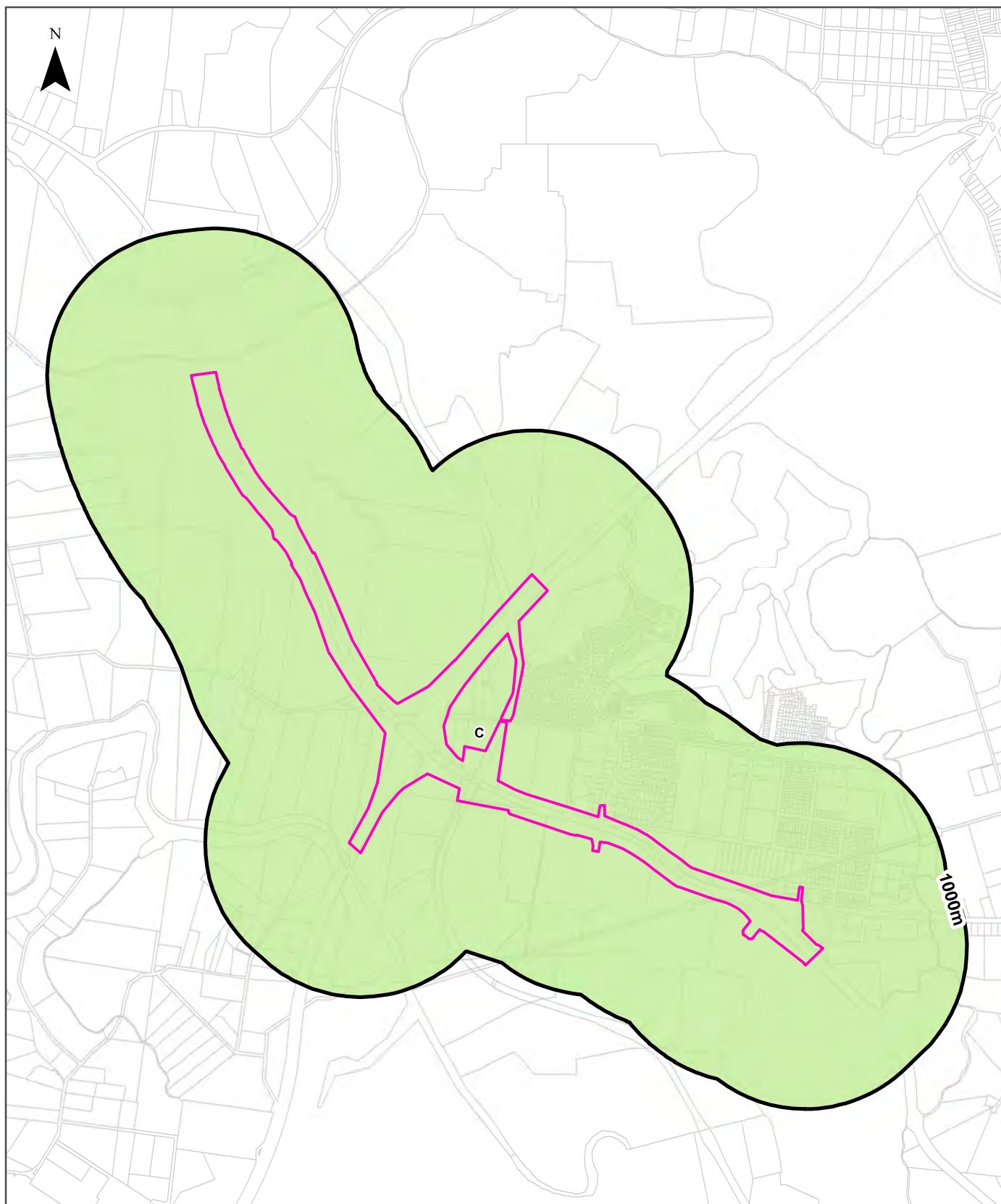
Soil Class	Description	EPI Name
N/A		

If the on-site Soil Class is 5, what other soil classes exist within 500m?

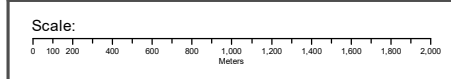
Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend			
Site Boundary	Probability of occurrence of Acid Sulfate Soils		
Buffer 1000m	A. High (>70%)	C. Extremely Low (1-5%)	No Data
Property Boundary	B. Low (6-70%)	D. No Chance (0%)	



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 13May 2022

Acid Sulfate Soils

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

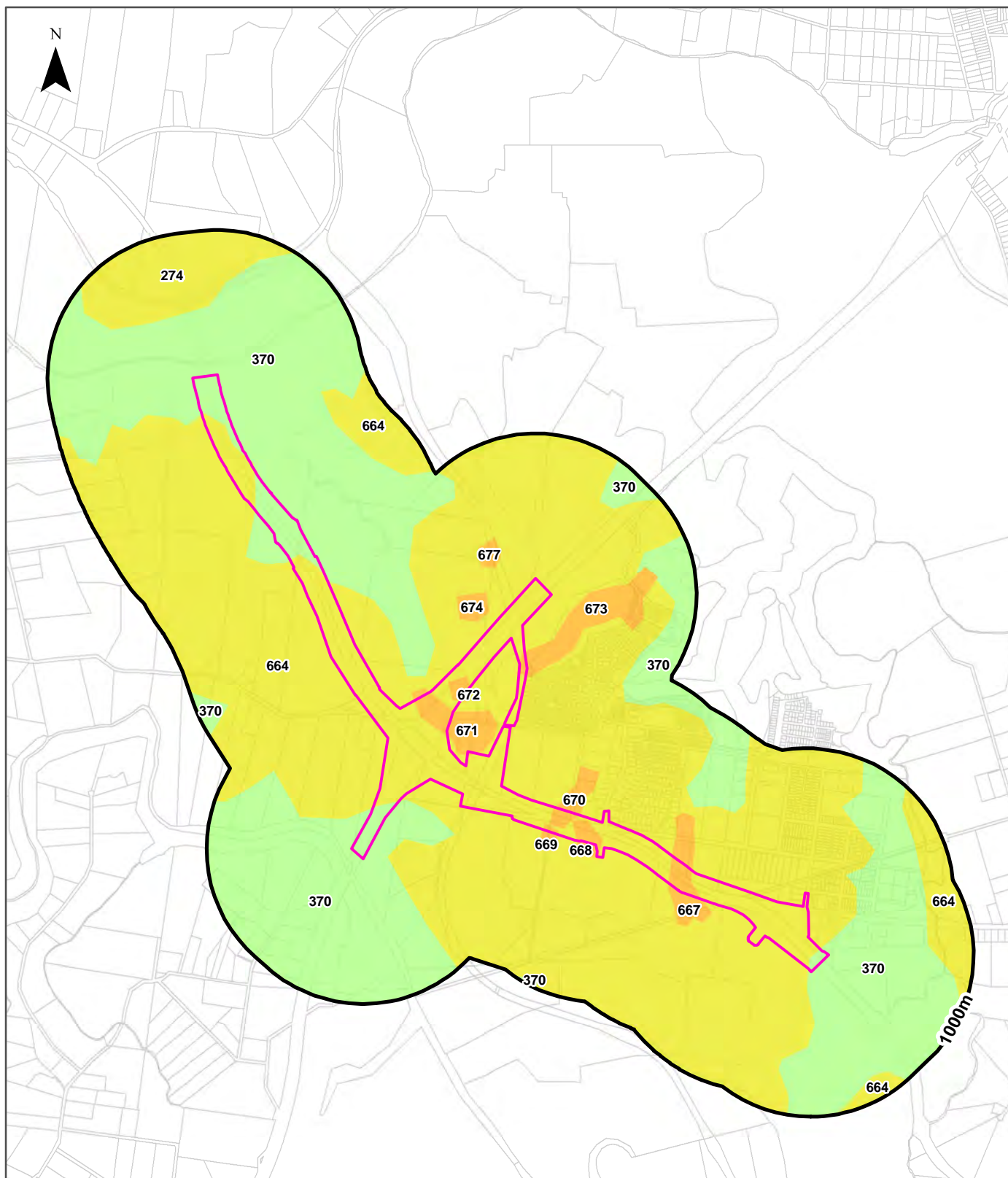
Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

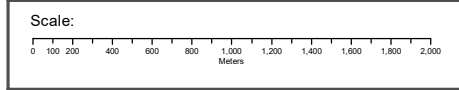
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Dryland Salinity

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



<ul style="list-style-type: none"> Site Boundary Buffer 1000m Property Boundary 	<p>Dryland Salinity - National Assessment</p> <ul style="list-style-type: none"> Delineated risk area but no high hazard or risk rating for either 2000, 2020, 2050 High hazard or risk in 2050 only High hazard or risk defined for 2050, but no assessment made for 2000 or 2020 High hazard or risk in 2020 and 2050 High hazard or risk in 2000 and 2050. 2020 not defined as high hazard High hazard or risk defined for all years: 2000, 2020, 2050 	<p>Salinity Potential of Western Sydney</p> <ul style="list-style-type: none"> Area of Known Salinity Area of High Salinity Potential Area of Moderate Salinity Potential Area of Very Low Salinity Potential Area of Water
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Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Dryland Salinity

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A		

Dryland Salinity Data Source : National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Dryland Salinity Potential of Western Sydney

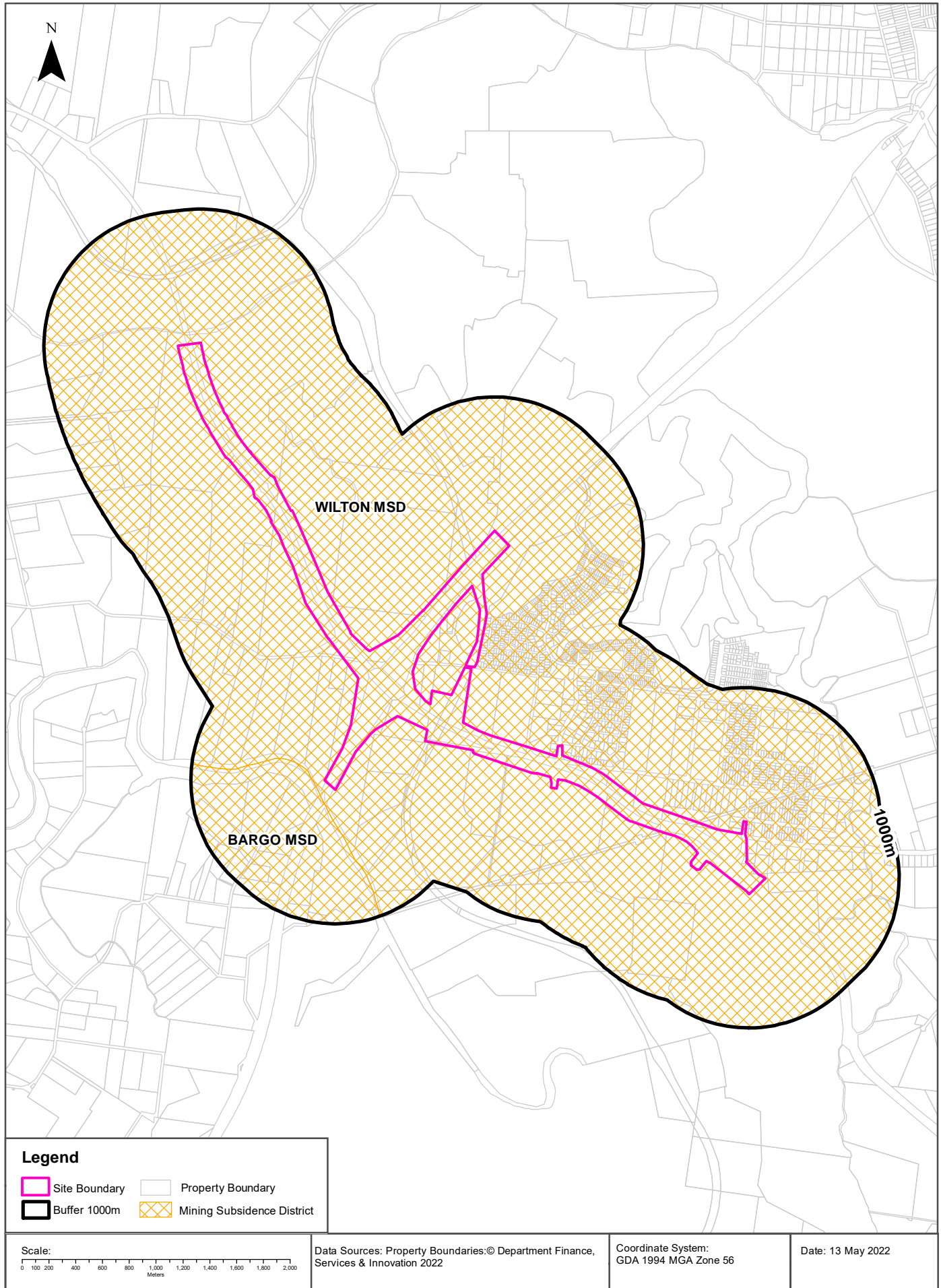
Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
664	MODERATE	Area of Moderate Salinity Potential	0m	On-site
370	LOW	Area of Very Low Salinity Potential	0m	On-site
671	HIGH	Area of High Salinity Potential	0m	On-site
667	HIGH	Area of High Salinity Potential	0m	On-site
668	HIGH	Area of High Salinity Potential	0m	On-site
670	HIGH	Area of High Salinity Potential	0m	On-site
672	HIGH	Area of High Salinity Potential	0m	On-site
673	HIGH	Area of High Salinity Potential	0m	On-site
669	HIGH	Area of High Salinity Potential	0m	On-site
674	HIGH	Area of High Salinity Potential	83m	North
677	HIGH	Area of High Salinity Potential	256m	North
274	MODERATE	Area of Moderate Salinity Potential	446m	North West

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage
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Mining Subsidence Districts

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Mining

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Mining Subsidence Districts

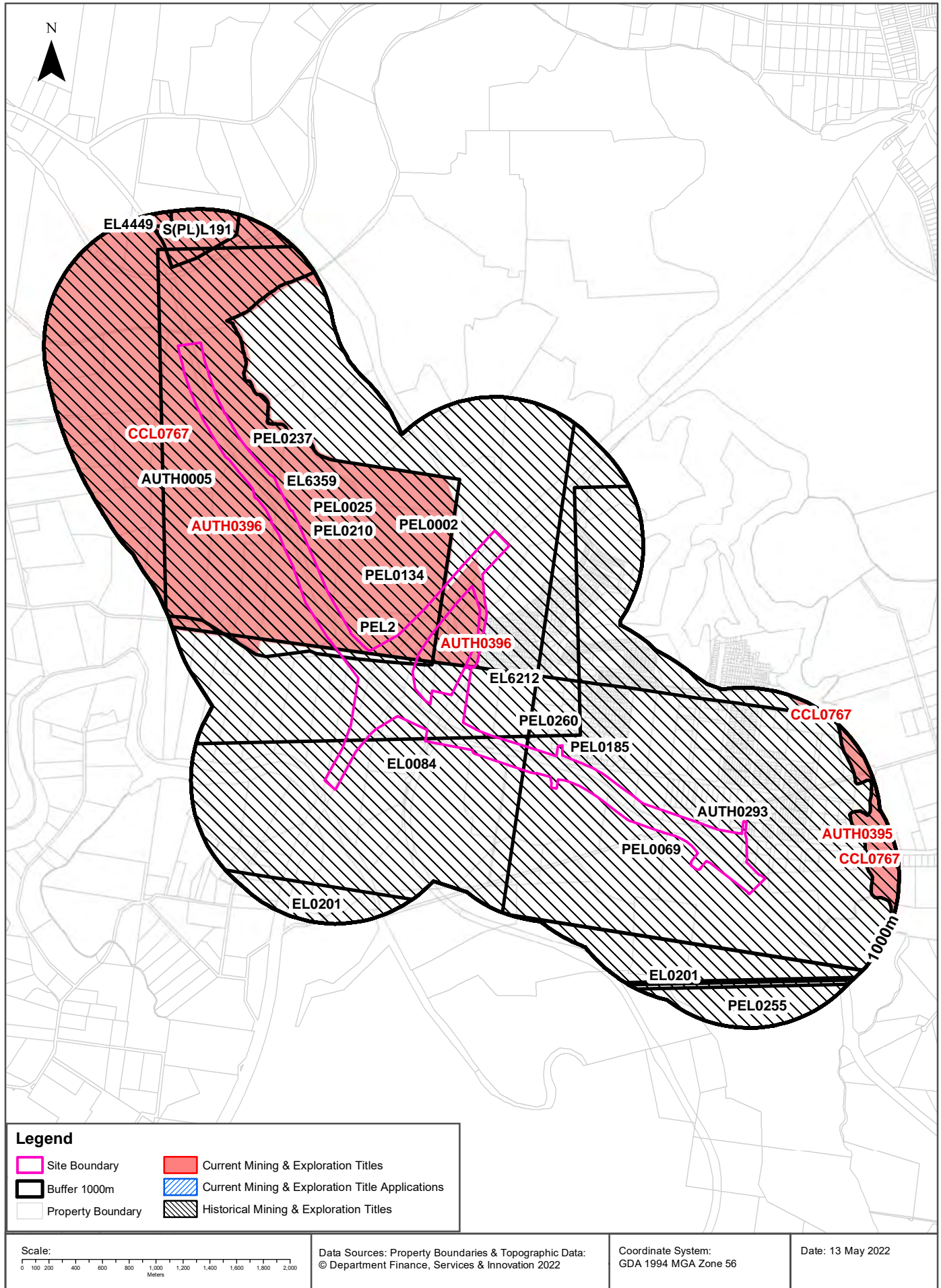
Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
WILTON	0m	On-site
BARGO	79m	South West

Mining Subsidence District Data Source: © Land and Property Information (2016)
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Mining & Exploration Titles

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Mining

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Grant Date	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist	Dir
CCL0767	ENDEAVOUR COAL PTY LIMITED	29/10/1991	08/07/2029	30 Nov 2018	MINING	COAL	Coal, Petroleum	0m	On-site
AUTH0396	ENDEAVOUR COAL PTY LIMITED	28/06/1988	27/06/2019	Renewal Sought	EXPLORING	COAL	Group 9	0m	On-site
AUTH0395	ENDEAVOUR COAL PTY LIMITED	23/11/1987	23/11/2025	18 Feb 2022	EXPLORING	COAL	Group 9	751m	East

Current Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

Application Ref	Applicant	Application Date	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer						

Current Mining & Exploration Title Applications Data Source: © State of New South Wales through NSW Department of Industry

Mining

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
AUTH0005	AUSTRALIAN IRON AND STEEL PTY LTD	17 Jul 1972	17 Jul 1977	COAL	Coal	0m	On-site
PEL2	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
EL0084	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	01 Feb 1967	01 Feb 1968	MINERALS		0m	On-site
EL6359	THE AUSTRAL BRICK CO PTY LTD	23 Dec 2004	22 Dec 2006	MINERALS		0m	On-site
AUTH0293	AUSTRALIAN IRON AND STEEL PTY LIMITED	31 Aug 1983	28 Nov 1991	COAL	Coal	0m	On-site
PEL0002	AGL UPSTREAM INVESTMENTS PTY LIMITED	29/03/1993	6/07/2015	PETROLEUM	Petroleum	0m	On-site
PEL0069	ALLIANCE OIL DEVELOPMENT AUSTRALIA NL, OIL DEVELOPMENT NL			PETROLEUM	Petroleum	0m	On-site
PEL0134	CANADIAN AUSTRALIAN PETROLEUM NL			PETROLEUM	Petroleum	0m	On-site
PEL0025	AUSTRALIAN IRON AND STEEL LTD			PETROLEUM	Petroleum	0m	On-site
PEL0260	NORTH BULLI COLLIERIES PTY LTD, AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT CO.	9/09/1981	8/03/1993	PETROLEUM	Petroleum	0m	On-site
PEL0185	JOHN STREVENS (TERRIGAL) NL			PETROLEUM	Petroleum	0m	On-site
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0237	HEMATITE PETROLEUM PTY LTD			PETROLEUM	Petroleum	0m	On-site
EL6212	HOT ROCK ENERGY PTY LTD, LONGREACH OIL LIMITED	4 Mar 2004	3 Mar 2013	MINERALS	Geothermal	0m	On-site
EL0201	ARMCO (AUST) PTY LTD	19 Sep 1968	19 Sep 1969	COAL	Coal	431m	South East
S(PL)L191	BORAL LIMITED			MINERALS		586m	North West
PEL0255	AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT COMPANY	3/12/1980	8/03/1993	PETROLEUM	Petroleum	691m	South East
EL4449	PGH LIMITED	12 Nov 1992	11 Nov 1994	MINERALS	Clay shale, Brick clay	893m	North West

Historical Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

State Environmental Planning Policy

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

State Significant Precincts

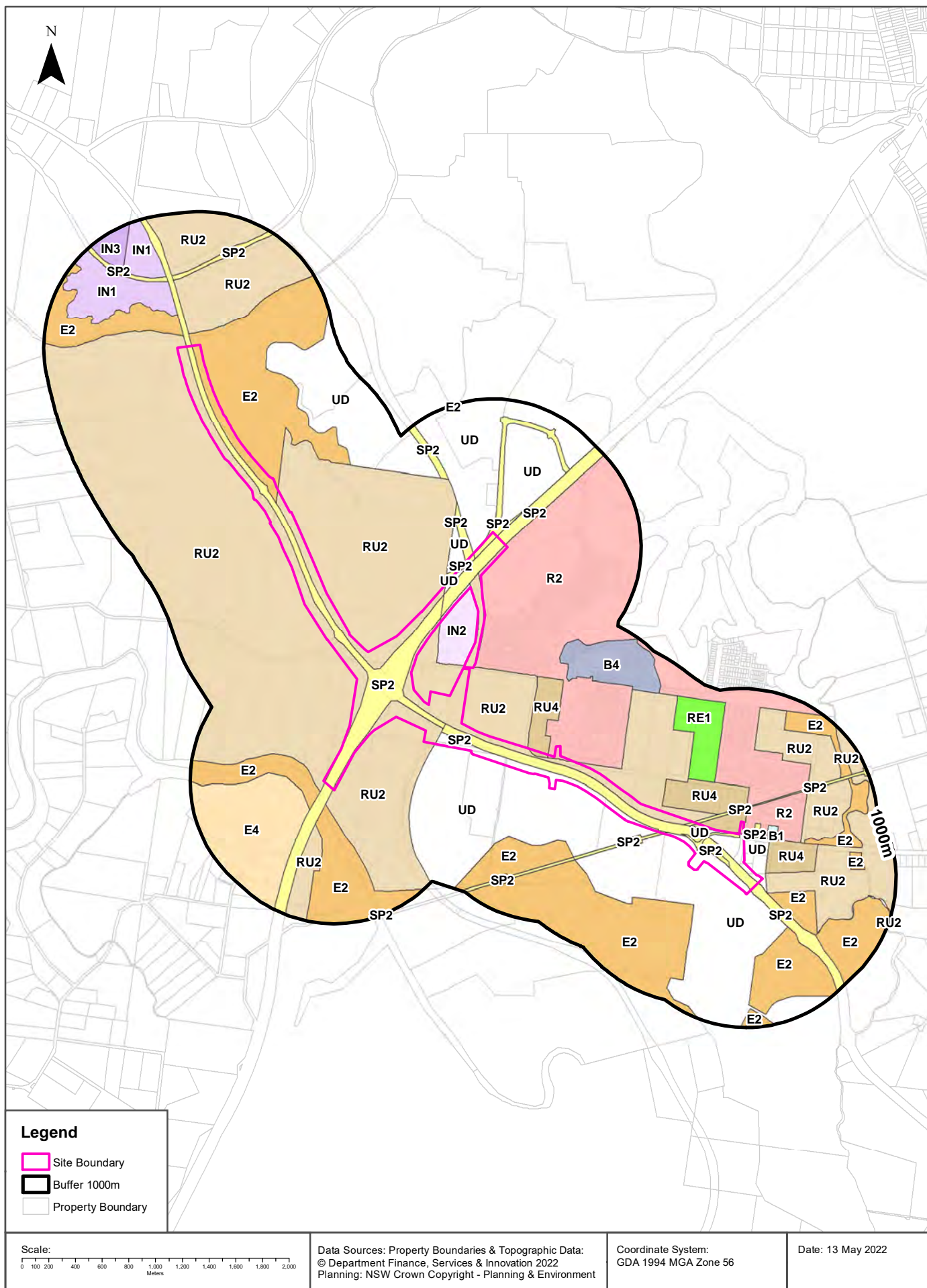
What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No records in buffer							

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment
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EPI Planning Zones

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Environmental Planning Instrument

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
SP2	Infrastructure	Rail Corridor	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	On-site
SP2	Infrastructure	Water Supply System	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	0m	On-site
SP2	Infrastructure	Regional Road	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	On-site
RU2	Rural Landscape		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	On-site
UD	Urban Development		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	On-site
SP2	Infrastructure	Water Supply System	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	On-site
UD	Urban Development		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	0m	On-site
SP2	Infrastructure	Road	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	0m	On-site
R2	Low Density Residential		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	On-site

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
SP2	Infrastructure	Road	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	On-site
SP2	Infrastructure	Road	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	On-site
E2	Environmental Conservation		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	On-site
RU4	Primary Production Small Lots		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	On-site
IN2	Light Industrial		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	On-site
UD	Urban Development		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	North
R2	Low Density Residential		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	0m	South East
UD	Urban Development		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	0m	North East
UD	Urban Development		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	3m	North
RU2	Rural Landscape		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	17m	East
RU4	Primary Production Small Lots		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	40m	South East
E2	Environmental Conservation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	68m	South West
SP2	Infrastructure	Place of Public Worship	Wollondilly Local Environmental Plan 2011	15/10/2021	15/10/2021	15/10/2021	Amendment No 42	71m	South East
E2	Environmental Conservation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	76m	North West

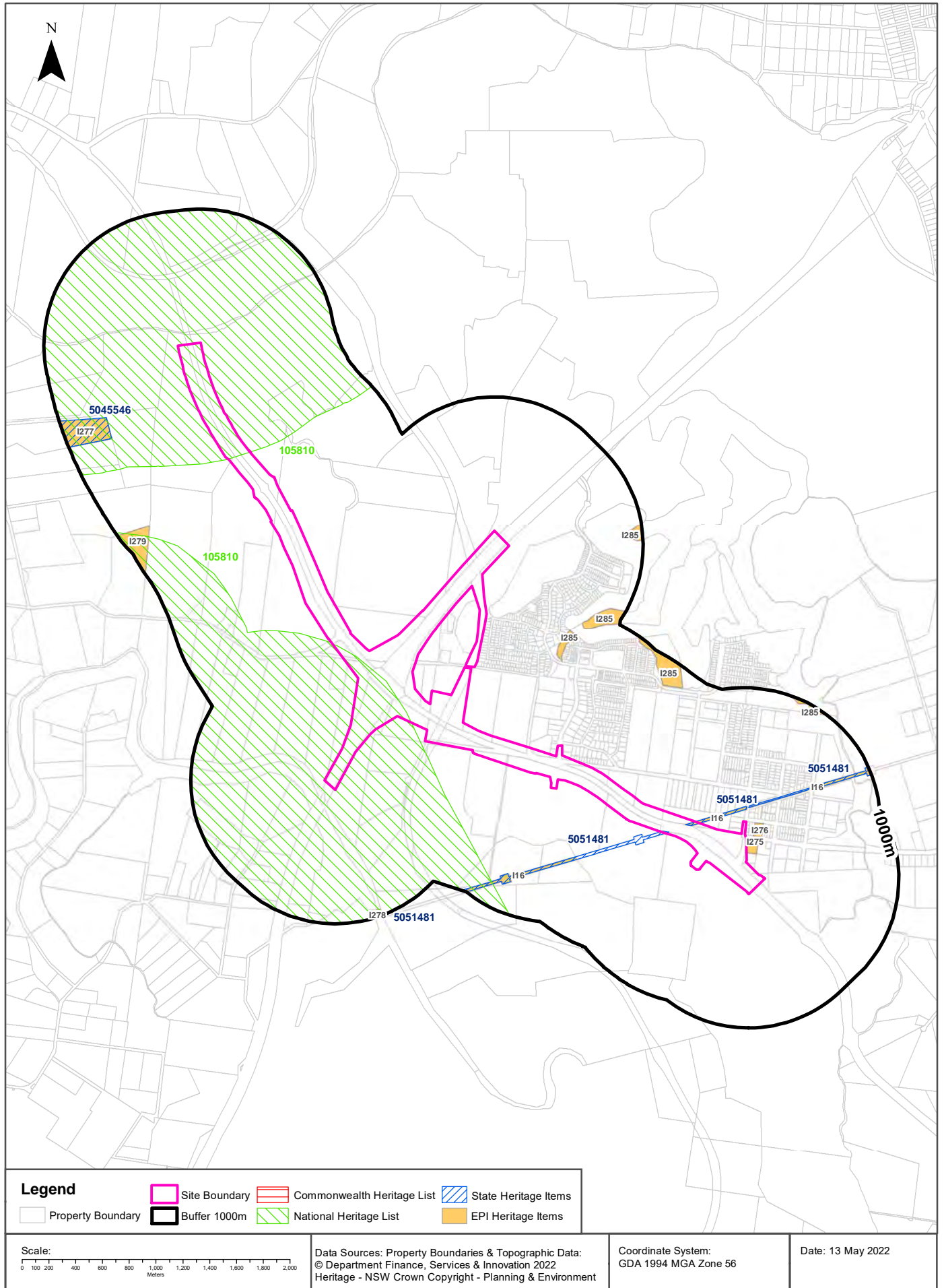
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
E2	Environmental Conservation		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	96m	South East
SP2	Infrastructure	Water Supply System	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	109m	East
E2	Environmental Conservation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	124m	South East
B1	Neighbourhood Centre		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	169m	South East
E4	Environmental Living		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	181m	South West
IN1	General Industrial		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	241m	North West
RU2	Rural Landscape		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	288m	South West
RE1	Public Recreation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	294m	East
E2	Environmental Conservation		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	386m	South East
RU2	Rural Landscape		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	386m	East
E2	Environmental Conservation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	406m	East
UD	Urban Development		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	427m	North
SP2	Infrastructure	Water Supply System	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	460m	South East
B4	Mixed Use		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	493m	East
SP2	Infrastructure	Railway	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	503m	North West
SP2	Infrastructure	Railway	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	507m	North West
SP2	Infrastructure	Rail Corridor	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	520m	North

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RU2	Rural Landscape		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	534m	East
RU2	Rural Landscape		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	541m	North West
IN1	General Industrial		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	541m	North West
E2	Environmental Conservation		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	563m	South East
E2	Environmental Conservation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	658m	South East
IN3	Heavy Industrial		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	705m	North West
E2	Environmental Conservation		Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	15/10/2021	Map Amendment No 1	751m	East
E2	Environmental Conservation		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (South East Wilton Precinct) 2018	860m	South East
E2	Environmental Conservation		State Environmental Planning Policy (Sydney Region Growth Centres) 2006	20/11/2018	20/11/2018	18/06/2021	State Environmental Planning Policy (Sydney Region Growth Centres) Amendment (North Wilton Precinct) 2018	970m	North

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Heritage Items

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Heritage

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

What are the National Heritage List Items located within the dataset buffer?

Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
105810	Wara-n'hayara Plateau Area - part	Mount Kiera Rd, Wollongong NSW	1/11/092/0064	Indigenous	Place not included in NHL		0m	On-site

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5051481	Upper Canal System (Pheasants Nest Weir to Prospect Reservoir)	Prospect	LIVERPOOL	18/11/1999	01373	2333	0m	On-site
5051481	Upper Canal System (Pheasants Nest Weir to Prospect Reservoir)	Prospect	LIVERPOOL	18/11/1999	01373	2333	110m	East
5045546	Wilton Park	Wilton Park Road, Wilton	WOLLONDILLY	02/04/1999	00257	562	658m	North West

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage
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Environmental Planning Instrument - Heritage

What are the EPI Heritage Items located within the dataset buffer?

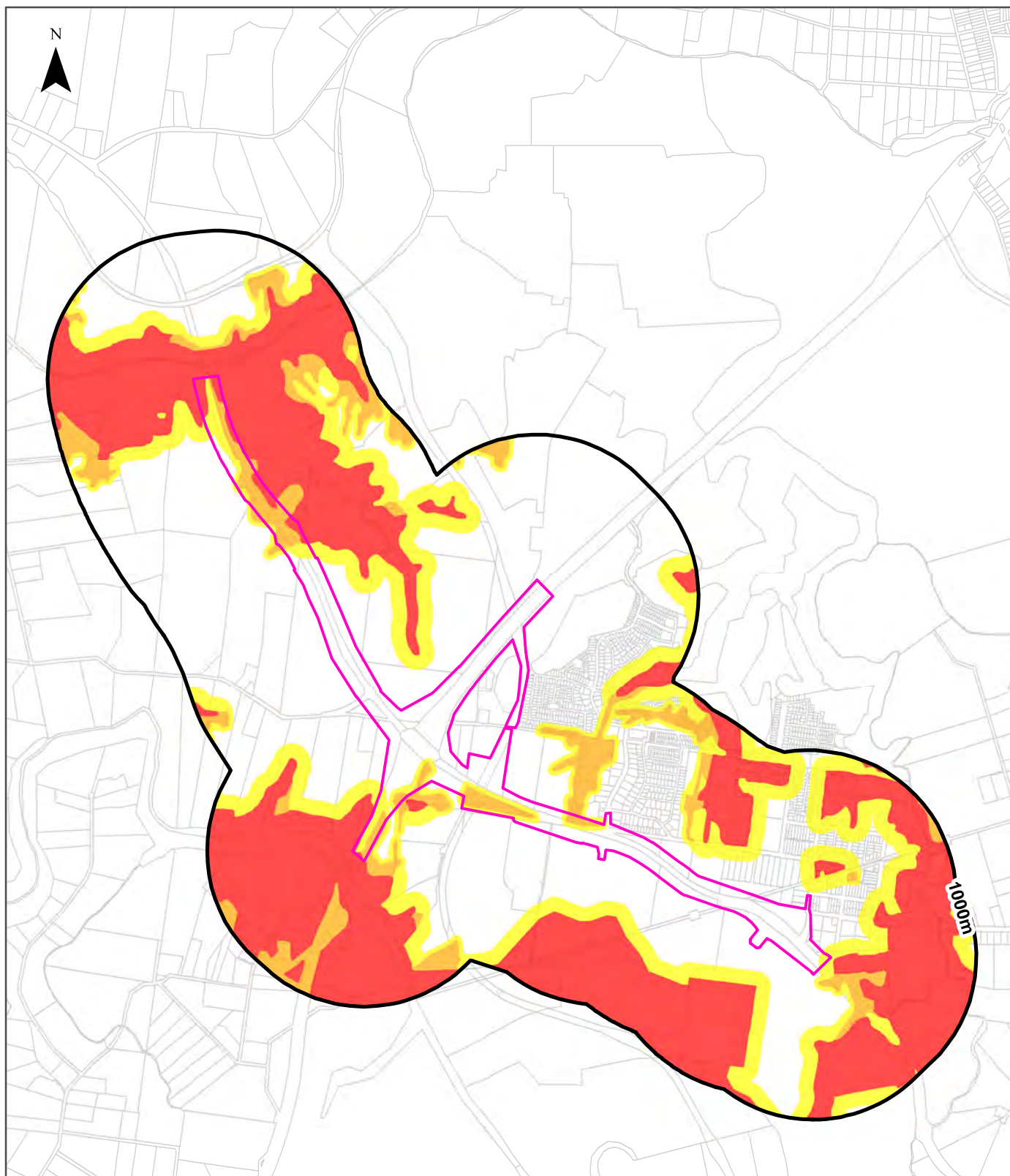
Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I275	Cottage	Item - General	Local	State Environmental Planning Policy (Sydney Region Growth Centres) 2006	13/04/2018	13/04/2018	13/04/2018	0m	On-site
I16	Upper Nepean Scheme - Upper Canal	Item - General	State	Wollondilly Local Environmental Plan 2011	15/10/2021	15/10/2021	18/03/2022	0m	On-site
I276	St Luke's Anglican Church	Item - General	Local	Wollondilly Local Environmental Plan 2011	15/10/2021	15/10/2021	18/03/2022	53m	South East
I16	Upper Nepean Scheme - Upper Canal	Item - General	State	Wollondilly Local Environmental Plan 2011	15/10/2021	15/10/2021	18/03/2022	109m	East
I16	Upper Nepean Scheme - Upper Canal	Item - General	State	Wollondilly Local Environmental Plan 2011	15/10/2021	15/10/2021	18/03/2022	458m	South East
I285	Aboriginal Shelter Sites (Wilton Park)	Item - Aboriginal	Local	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	18/03/2022	565m	East
I277	Wilton Park: Stables, Coachhouse, Water Tanks, Stallion Boxes, Covered Yards	Item - General	State	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	18/03/2022	659m	North West
I285	Aboriginal Shelter Sites (Wilton Park)	Item - Aboriginal	Local	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	18/03/2022	714m	East
I279	Cottage	Item - General	Local	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	18/03/2022	767m	West
I285	Aboriginal Shelter Sites (Wilton Park)	Item - Aboriginal	Local	Wollondilly Local Environmental Plan 2011	01/10/2021	01/10/2021	18/03/2022	799m	East
I278	Upper Nepean Scheme - Pheasants Nest Weir	Item - General	State	Wollondilly Local Environmental Plan 2011	15/10/2021	15/10/2021	18/03/2022	945m	South

Heritage Data Source: NSW Crown Copyright - Planning & Environment

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Natural Hazards - Bush Fire Prone Land

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

Site Boundary

Buffer 1000m

Property Boundary

Bush Fire Prone Land Category

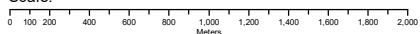
Vegetation Category 1

Vegetation Category 2

Vegetation Category 3

Vegetation Buffer

Scale:



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2022. Property Boundaries: © Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Natural Hazards

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Bush Fire Prone Land

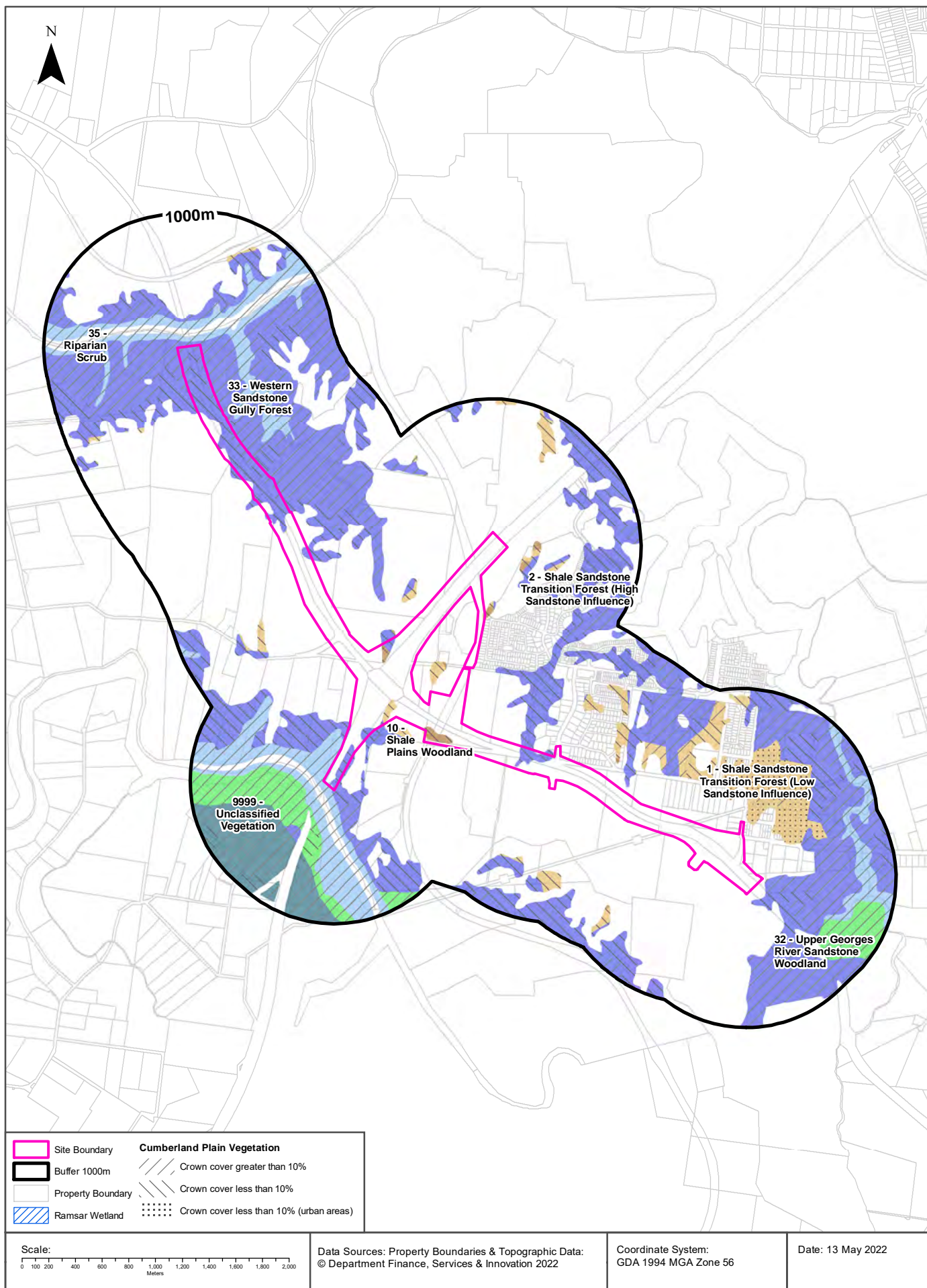
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 1	0m	On-site
Vegetation Category 2	0m	On-site
Vegetation Buffer	0m	On-site

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

Ecological Constraints - Vegetation & Ramsar Wetlands

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Ecological Constraints

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Remnant Vegetation of the Cumberland Plain

What remnant vegetation of the Cumberland Plain exists within the dataset buffer?

Description	Crown Cover	Distance	Direction
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10%	0m	On-site
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover less than 10%	0m	On-site
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover greater than 10%	0m	On-site
10 - Shale Plains Woodland	Crown cover less than 10%	0m	On-site
33 - Western Sandstone Gully Forest	Crown cover greater than 10%	0m	On-site
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10% (urban areas)	26m	East
35 - Riparian Scrub	Crown cover greater than 10%	52m	South West
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover greater than 10%	122m	South East
32 - Upper Georges River Sandstone Woodland	Crown cover greater than 10%	152m	South West
32 - Upper Georges River Sandstone Woodland	Crown cover less than 10%	324m	South West
9999 - Unclassified Vegetation	Crown cover greater than 10%	427m	South West
9999 - Unclassified Vegetation	Crown cover less than 10%	521m	South West
10 - Shale Plains Woodland	Crown cover greater than 10%	783m	North

Remnant Vegetation of the Cumberland Plain : NSW Office of Environment and Heritage
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Ramsar Wetlands

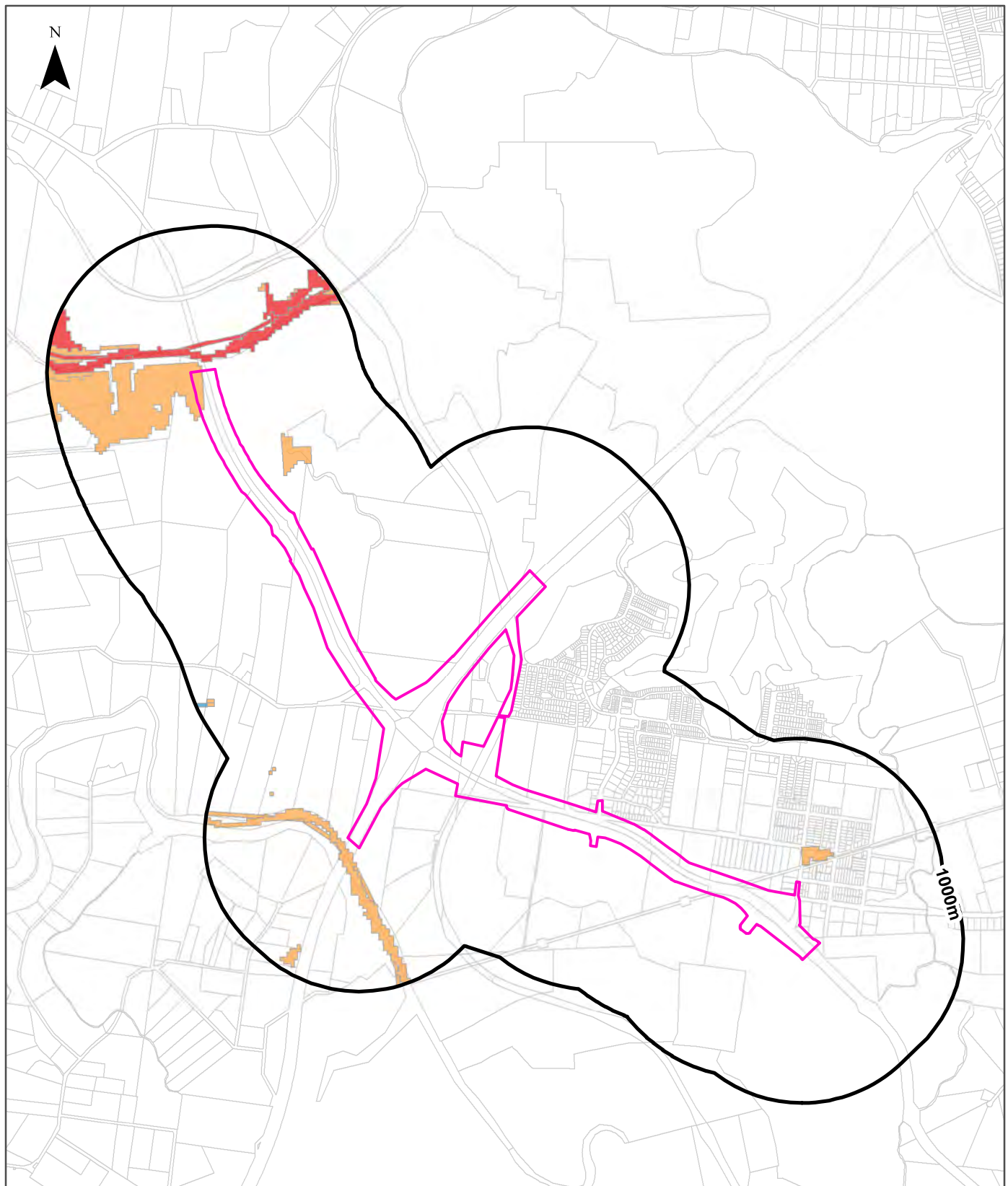
What Ramsar Wetland areas exist within the dataset buffer?

Map Id	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Agriculture, Water and the Environment

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

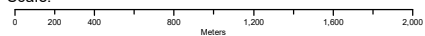
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

Site Boundary	High potential GDE - from national assessment	Low potential GDE - from national assessment
Buffer 1000m	High potential GDE - from regional studies	Low potential GDE - from regional studies
Property Boundaries	Moderate potential GDE - from national assessment	Known GDE - from regional studies
	Moderate potential GDE - from regional studies	Unclassified potential GDE - from national assessment
		Unclassified potential GDE - from regional studies

Scale:



Data Sources: Property Boundaries & Topographic Data:
© Department Finance, Services & Innovation 2022

Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Ecological Constraints

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Groundwater Dependent Ecosystems Atlas

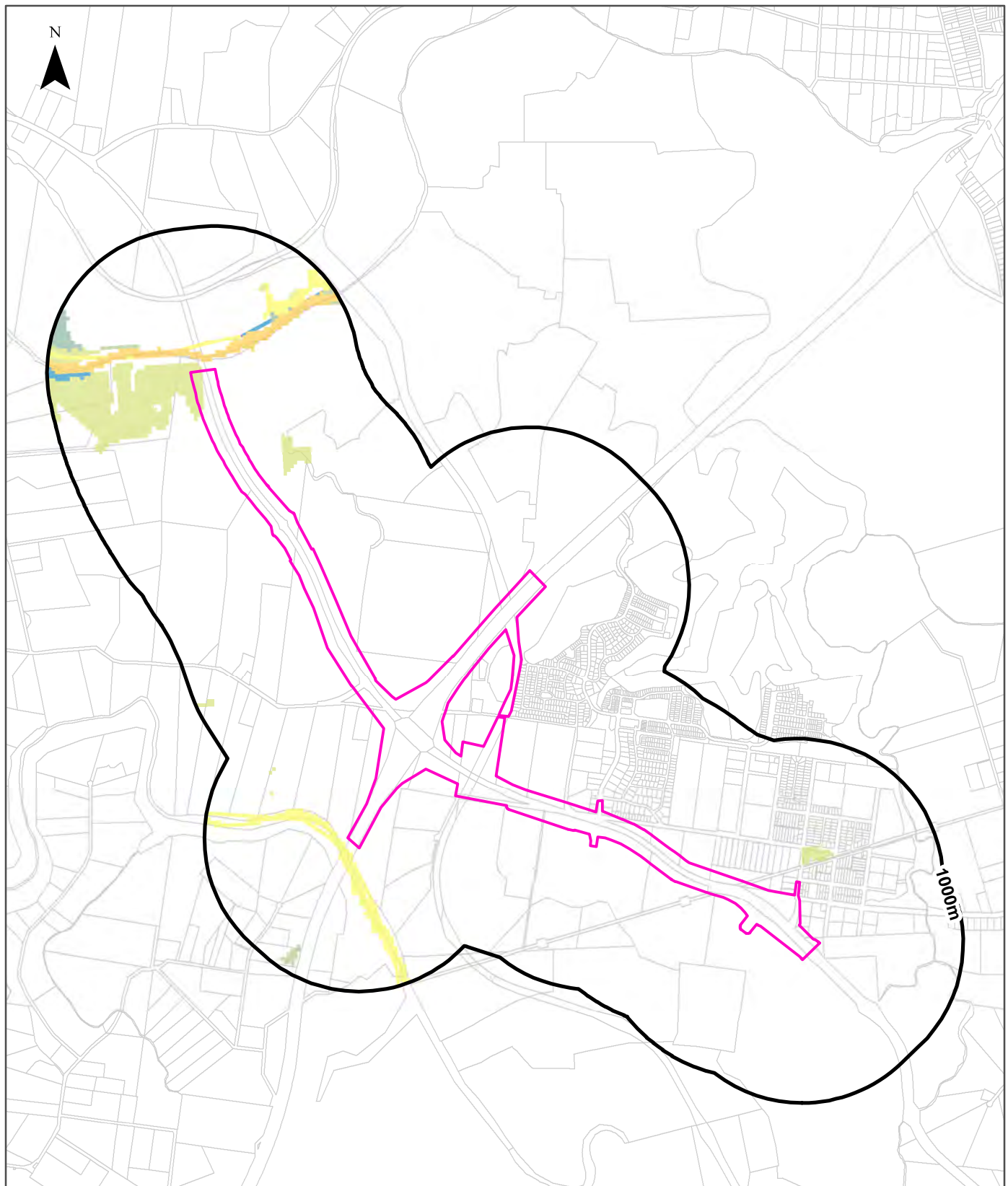
Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	0m	On-site
Terrestrial	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	54m	North West
Aquatic	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	River		78m	South West
Aquatic	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	River		149m	North West
Terrestrial	Low potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	652m	North

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology

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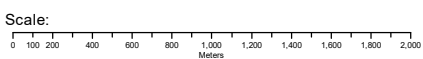
Ecological Constraints - Inflow Dependent Ecosystems Likelihood

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571



Legend

Site Boundary	NULL	4	8
Buffer 1000m	1 (Low)	5	9
Property Boundaries	2	6	10 (High)
	3	7	



Data Sources: Property Boundaries & Topographic Data:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 13 May 2022

Ecological Constraints

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	6	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	0m	On-site
Terrestrial	5	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	36m	South West
Terrestrial	4	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	54m	North West
Aquatic	5	Deeply dissected sandstone plateaus.	River		78m	South West
Aquatic	10	Deeply dissected sandstone plateaus.	River		291m	North West
Terrestrial	7	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	394m	North West
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	507m	North West
Terrestrial	10	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	696m	North West

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

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Ecological Constraints

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Litoria littlejohni	Littlejohn's Tree Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Endangered	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Coracina lineata	Barred Cuckoo-shrike	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Menura alberti	Albert's Lyrebird	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	<i>Petroica boodang</i>	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Petroica phoenicea</i>	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Pezoporus wallicus wallicus</i>	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Sternula albifrons</i>	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Thalasseus bergii</i>	Crested Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	<i>Thinornis cucullatus cucullatus</i>	Eastern Hooded Dotterel	Critically Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	<i>Meridolum corneovirens</i>	Cumberland Plain Land Snail	Endangered	Not Sensitive	Not Listed	
Animalia	Insecta	<i>Petalura gigantea</i>	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Lasiorhinus krefftii</i>	Northern Hairy-nosed Wombat	Extinct	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus australis</i>	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Myotis macropus</i>	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Petauroides volans</i>	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Petaurus australis</i>	Yellow-bellied Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Petaurus norfolcensis</i>	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Endangered	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Phascolarctos cinereus</i>	Koala	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	<i>Chelonia mydas</i>	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	Endangered	Category 2	Vulnerable	
Animalia	Reptilia	<i>Tiliqua occipitalis</i>	Western Blue-tongued Lizard	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	<i>Varanus rosenbergi</i>	Rosenberg's Goanna	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Acacia bynoeana</i>	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Commersonia prostrata</i>	Dwarf Kerrawang	Endangered	Not Sensitive	Endangered	
Plantae	Flora	<i>Cynanchum elegans</i>	White-flowered Wax Plant	Endangered	Not Sensitive	Endangered	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	<i>Darwinia peduncularis</i>		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Dillwynia tenuifolia</i>		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Epacris purpurascens</i> var. <i>purpurascens</i>		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Eucalyptus leucoxyloides</i> subsp. <i>pruinosa</i>	Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Eucalyptus macarthurii</i>	Paddys River Box, Camden Woollybutt	Endangered	Not Sensitive	Endangered	
Plantae	Flora	<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Eucalyptus scoparia</i>	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Galium australe</i>	Tangled Bedstraw	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Gyrostemon thesioides</i>		Endangered	Category 3	Not Listed	
Plantae	Flora	<i>Lepidium hyssopifolium</i>	Aromatic Peppergrass	Endangered	Not Sensitive	Endangered	
Plantae	Flora	<i>Leucopogon exolasius</i>	Woronora Beard-heath	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Macadamia integrifolia</i>	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Melaleuca deanei</i>	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Micromyrtus minutiflora</i>		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Persicaria elatior</i>	Tall Knotweed	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Persoonia bargoensis</i>	Bargo Geebung	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Persoonia glaucescens</i>	Mittagong Geebung	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Persoonia hirsuta</i>	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	<i>Persoonia mollis</i> subsp. <i>revoluta</i>		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	<i>Persoonia nutans</i>	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	<i>Pimelea curviflora</i> var. <i>curviflora</i>		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Pimelea spicata</i>	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	<i>Pomaderris brunnea</i>	Brown Pomaderris	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Pomaderris cotoneaster</i>	Cotoneaster Pomaderris	Endangered	Not Sensitive	Endangered	
Plantae	Flora	<i>Pterostylis saxicola</i>	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	<i>Pultenaea aristata</i>	Prickly Bush-pea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	

Data does not include NSW category 1 sensitive species.

NSW BioNet: © State of NSW and Office of Environment and Heritage

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Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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LOTSEARCH
LOTSEARCH AERIALS

Date: 17 May 2022

Reference: LS031812 EA



**Address: Picton Road Alignment Between Nepean River and Almond Street,
Wilton, NSW 2571 (Part 1)**

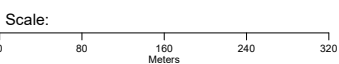
Aerial Imagery 2021

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 17 May 2022

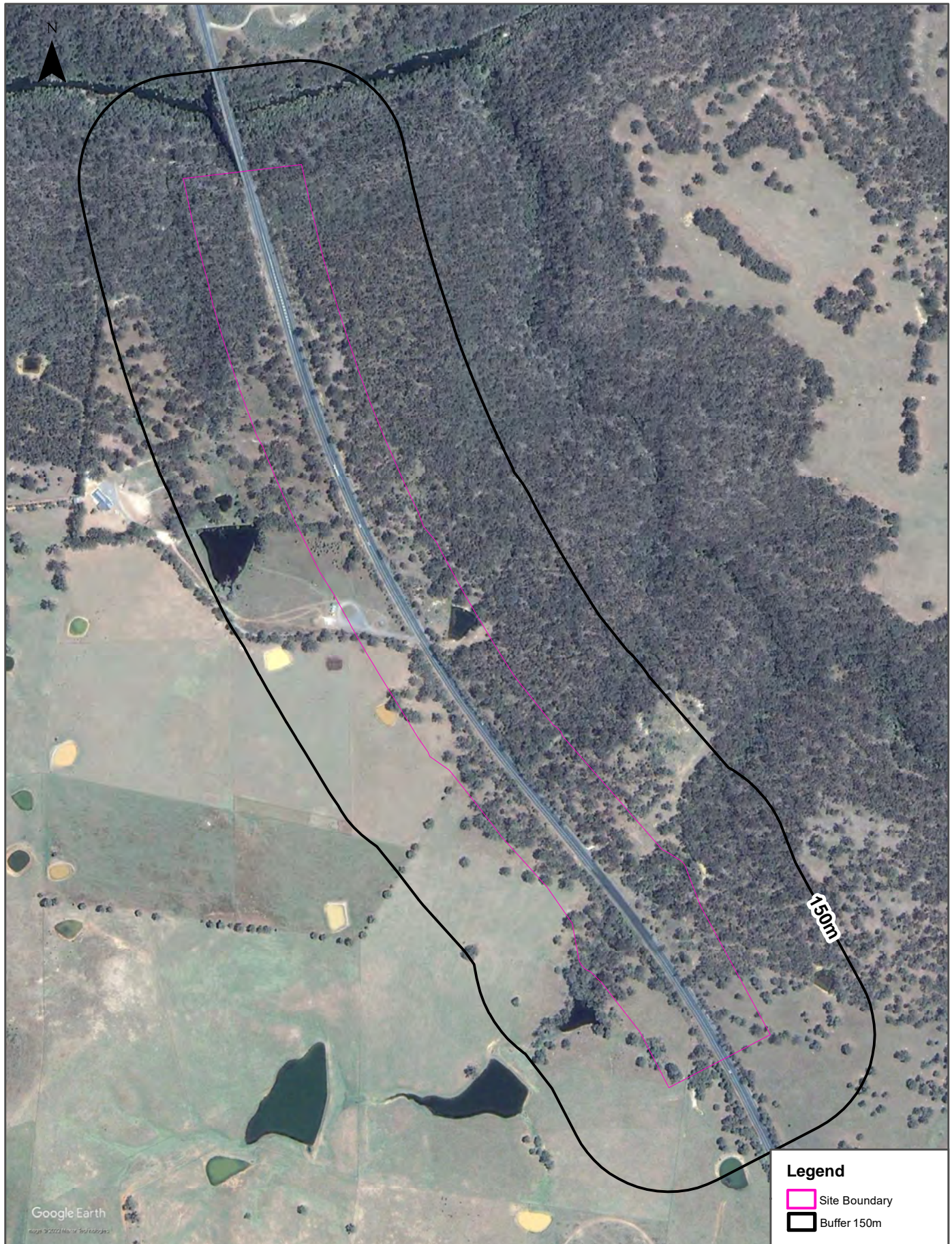
Aerial Imagery 2016

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Aerial Imagery 2012

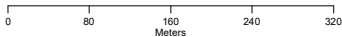
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Legend

- Site Boundary
- Buffer 150m

Scale:



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Date: 16 May 2022

Aerial Imagery 2002

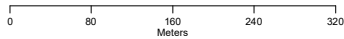
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Legend

-  Site Boundary
-  Buffer 150m

Scale:



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Coordinate System:
GDA 1994 MGA Zone 56



Date: 16 May 2022

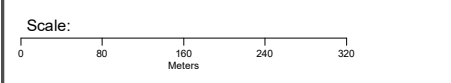
Aerial Imagery 1994

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:
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GDA 1994 MGA Zone 56

Date: 16 May 2022

Aerial Imagery 1984



Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)

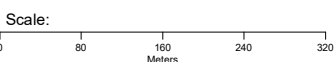


UAg 1025 151,45

150m
8 9 10 3

Legend

-  Site Boundary
-  Buffer 150m



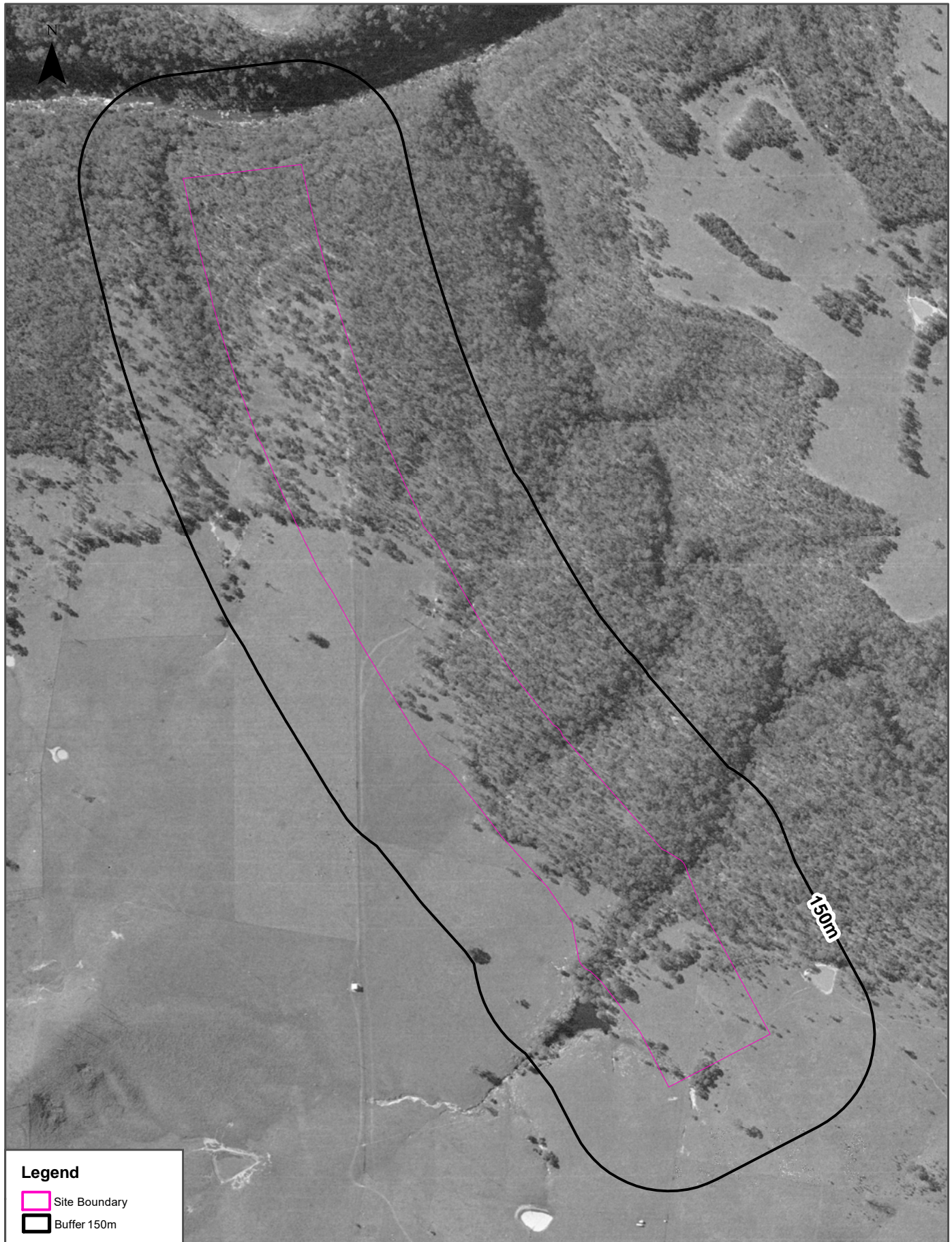
Data Source Aerial Imagery:
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Date: 16 May 2022

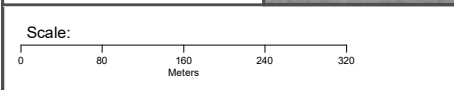
Aerial Imagery 1975

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56



Date: 16 May 2022

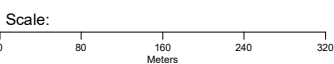
Aerial Imagery 1969

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Legend

-  Site Boundary
-  Buffer 150m



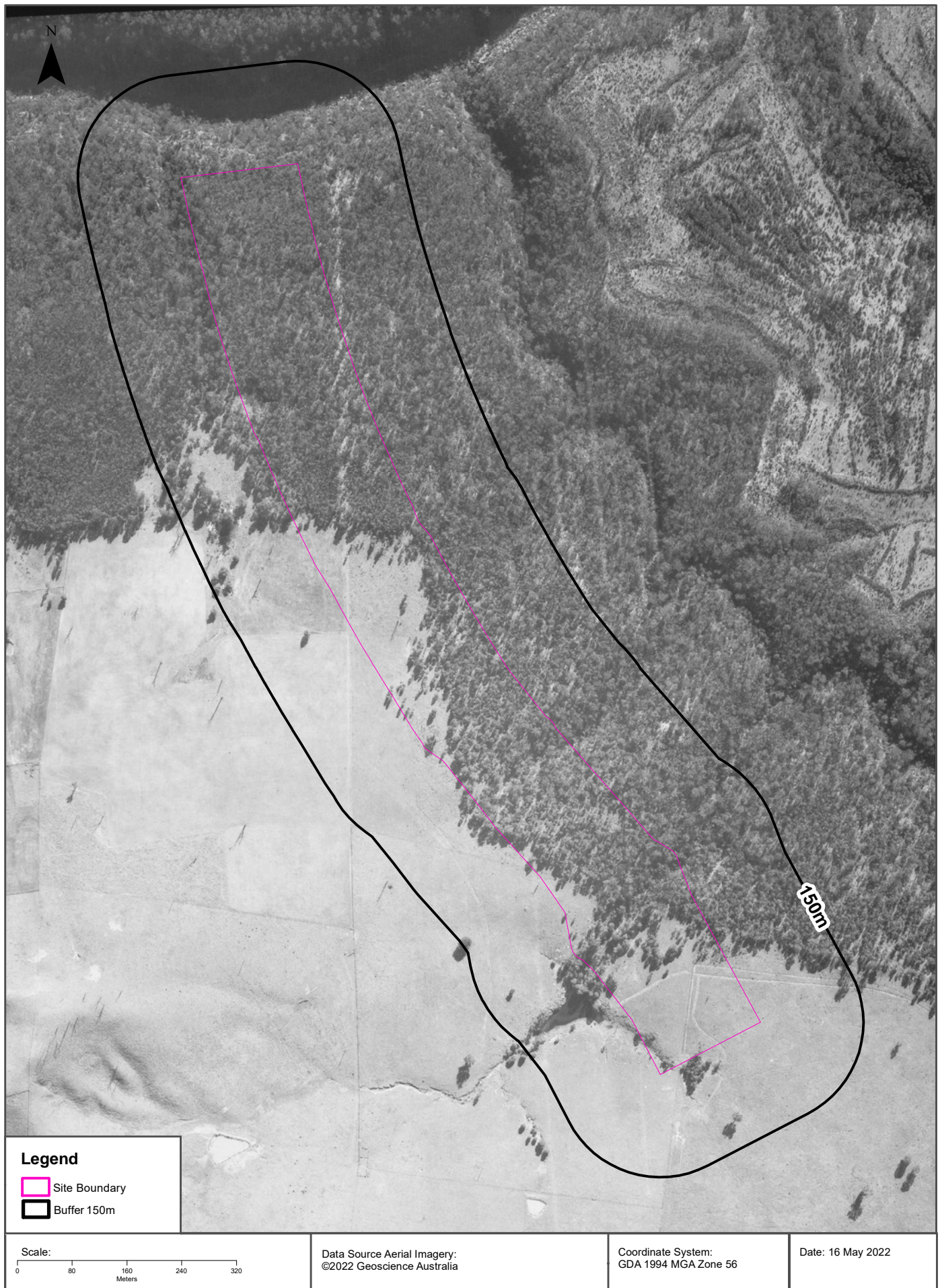
Data Source Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 16 May 2022

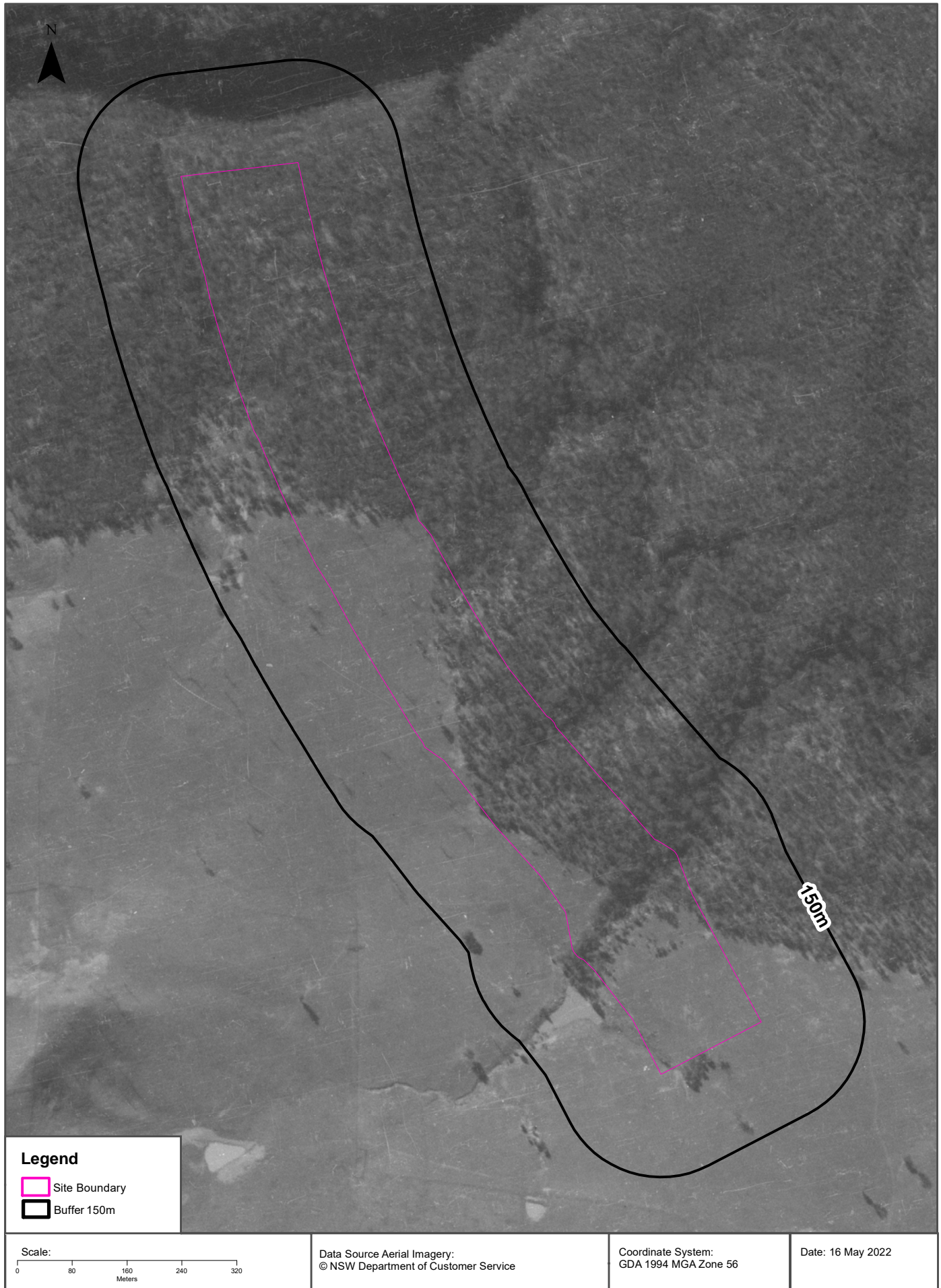
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



Aerial Imagery 1949

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 1)



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 - (e) Reports must be used or reproduced in their entirety and End User must not reproduce or make available to other persons only parts of the Report;
 - (f) Lotsearch has not undertaken any physical inspection of the property;
 - (g) neither Lotsearch nor Third Party Content Suppliers warrants that all land uses or features whether past or current are identified in the Report;
 - (h) the Report does not include any information relating to the actual state or condition of the Property;
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5. The End User acknowledges that any Third Party Supplier shall be entitled to plead the benefits conferred on it under clause 4, despite not being a party to these terms.
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 8. To the extent permitted by law and subject to paragraph 9, all implied terms, representations and warranties whether statutory or otherwise relating to the subject matter of these Terms other than as expressly set out in these Terms are excluded.
 9. Subject to paragraph 6, Lotsearch excludes liability to End User for loss or damage of any kind, however caused, due to Lotsearch's negligence, breach of contract, breach of any law, in equity, under indemnities or otherwise, arising out of all acts, omissions and events whenever occurring.
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 - (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,irrespective of how that liability arises including in contract or tort, liability under indemnity or for any other common law, equitable or statutory cause of action or otherwise.
 12. These Terms are subject to New South Wales law.



LOTSEARCH
LOTSEARCH AERIALS

Date: 17 May 2022

Reference: LS031813 EA



**Address: Picton Road Alignment Between Nepean River and Almond Street,
Wilton, NSW 2571 (Part 2)**

Aerial Imagery 2021

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Legend

-  Site Boundary
-  Buffer 150m

Scale:
0 80 160 240 320
Meters

Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56



Date: 17 May 2022

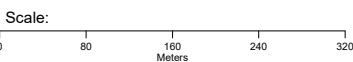
Aerial Imagery 2016

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:
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Coordinate System:
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Date: 17 May 2022

Aerial Imagery 2012

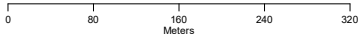
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Legend

-  Site Boundary
-  Buffer 150m

Scale:



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Coordinate System:
GDA 1994 MGA Zone 56



Date: 16 May 2022

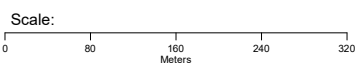
Aerial Imagery 2002

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Legend

-  Site Boundary
-  Buffer 150m



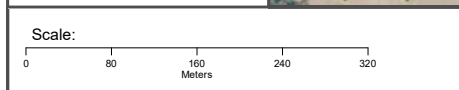
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 16 May 2022

Aerial Imagery 1994

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Data Source Aerial Imagery:
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Coordinate System:
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Date: 16 May 2022

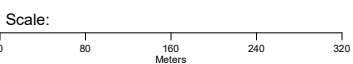
Aerial Imagery 1990

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Legend

-  Site Boundary
-  Buffer 150m



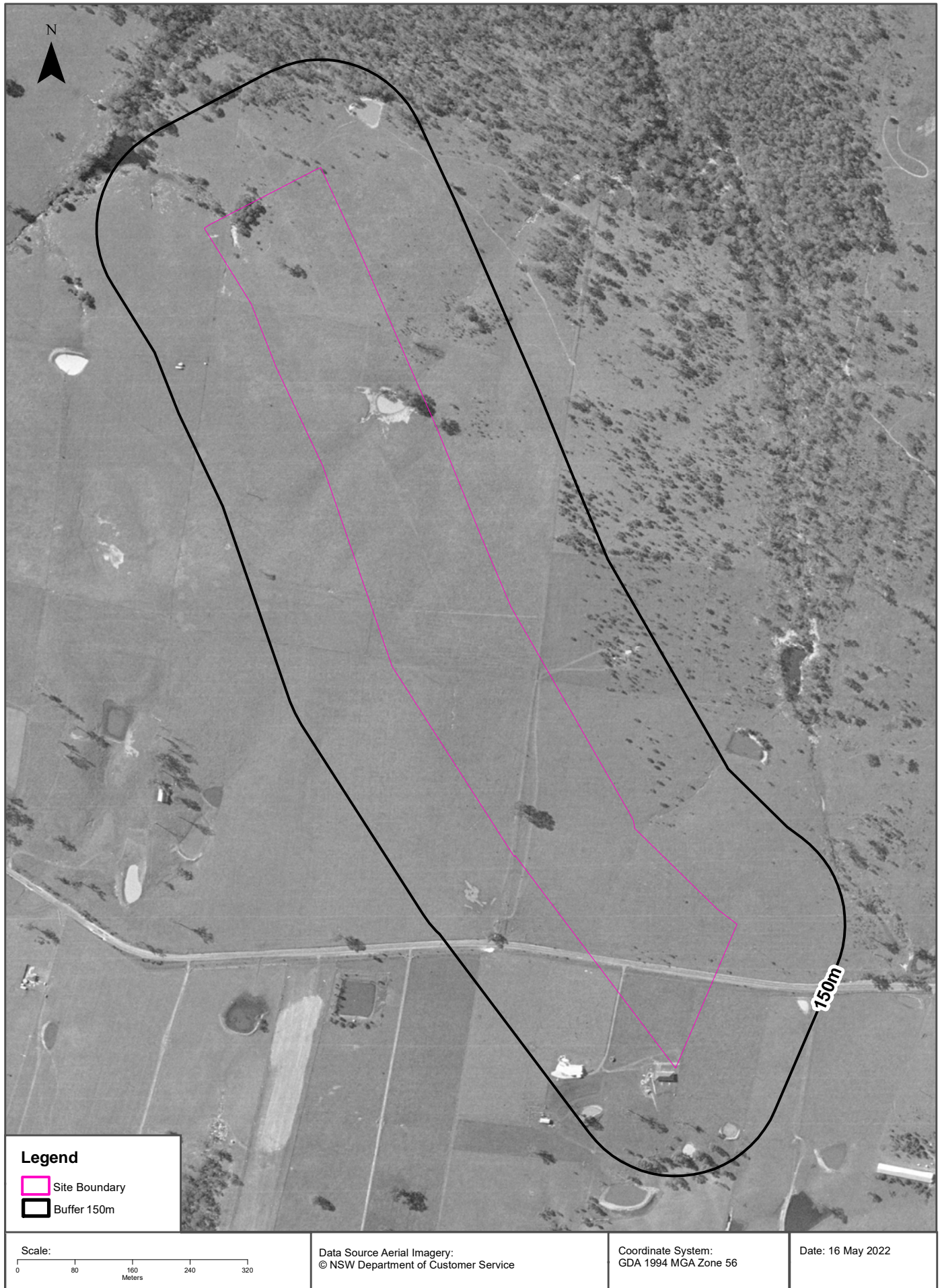
Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 16 May 2022

Aerial Imagery 1975

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



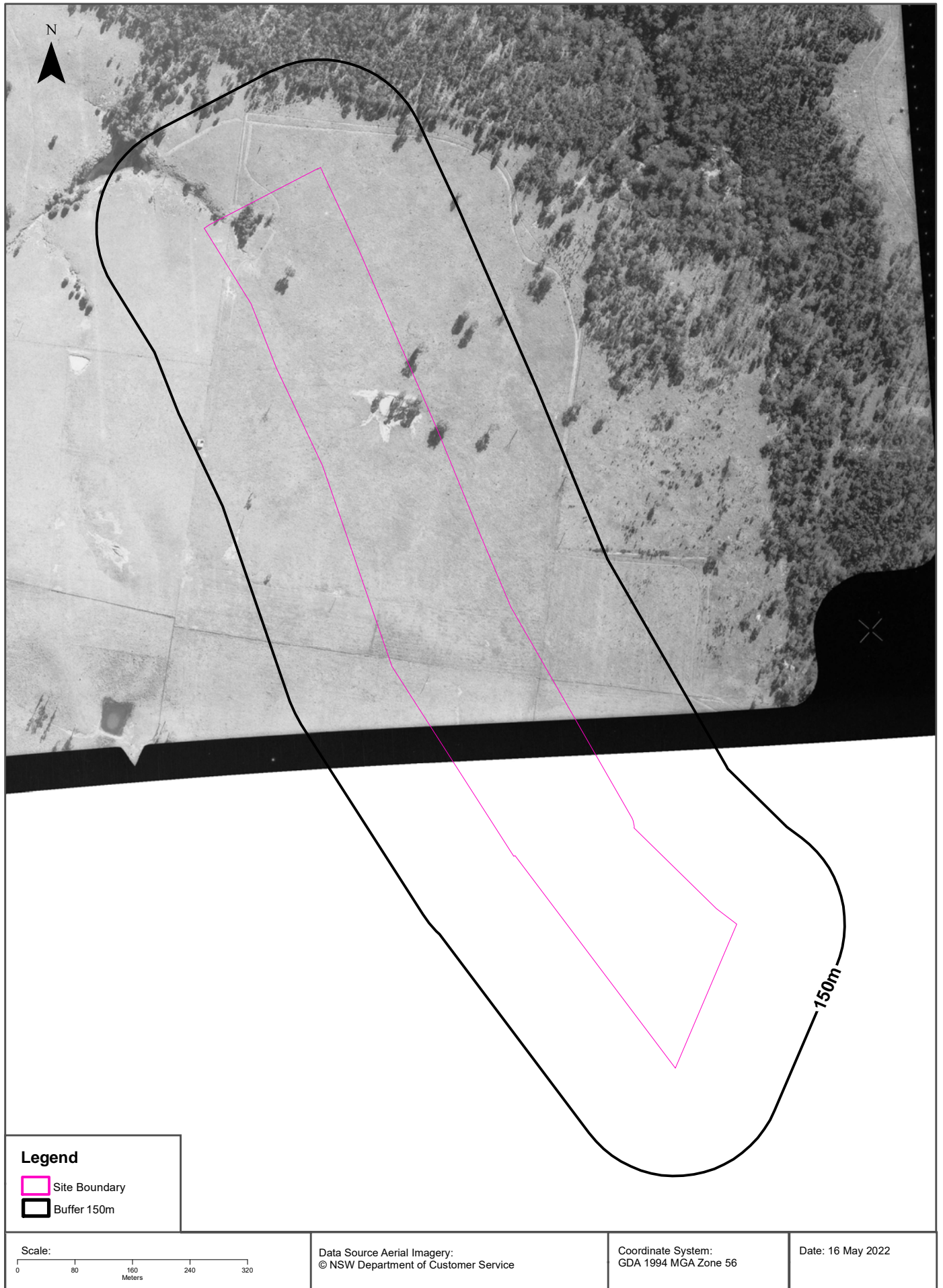
Aerial Imagery 1969

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



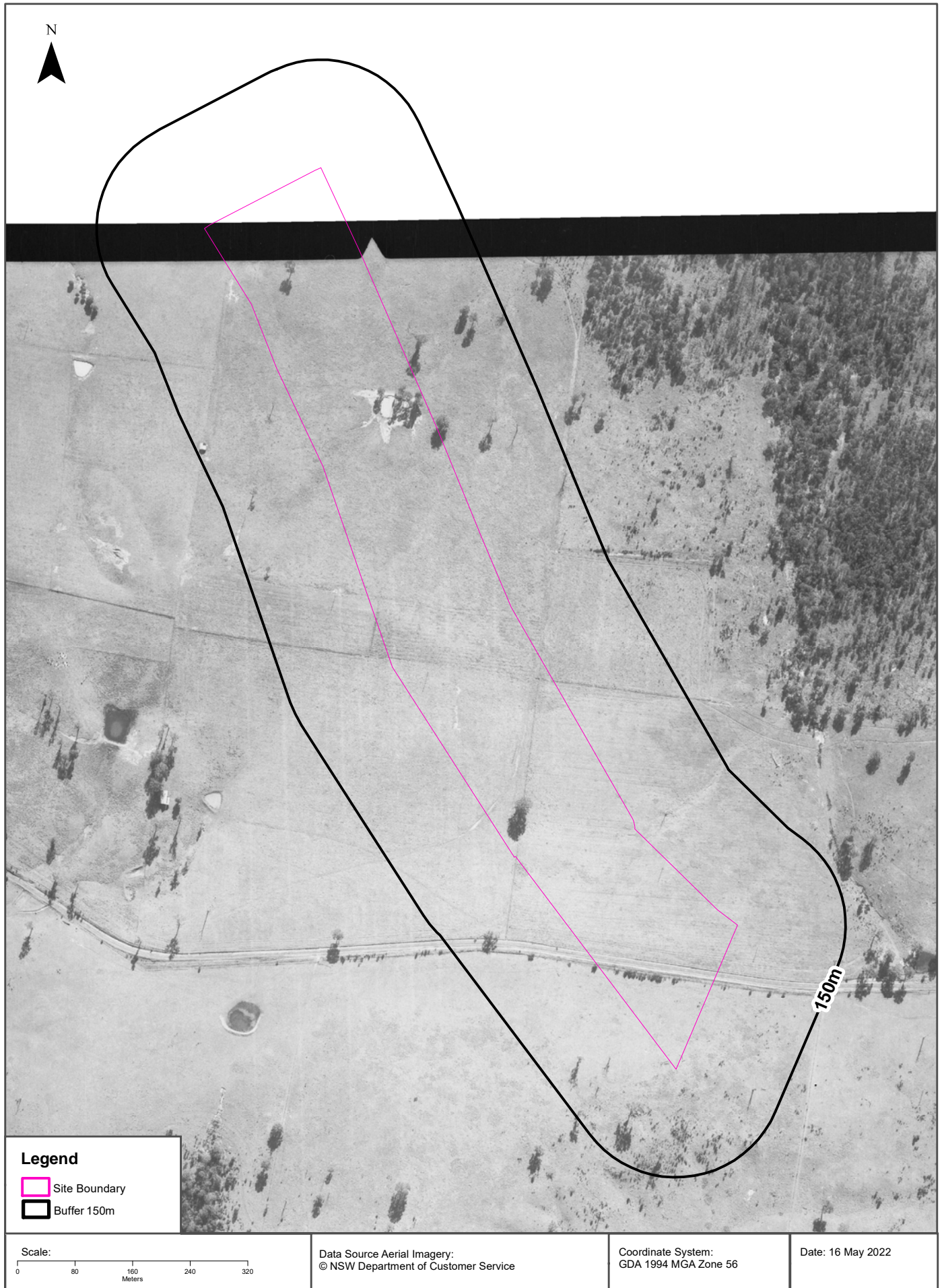
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



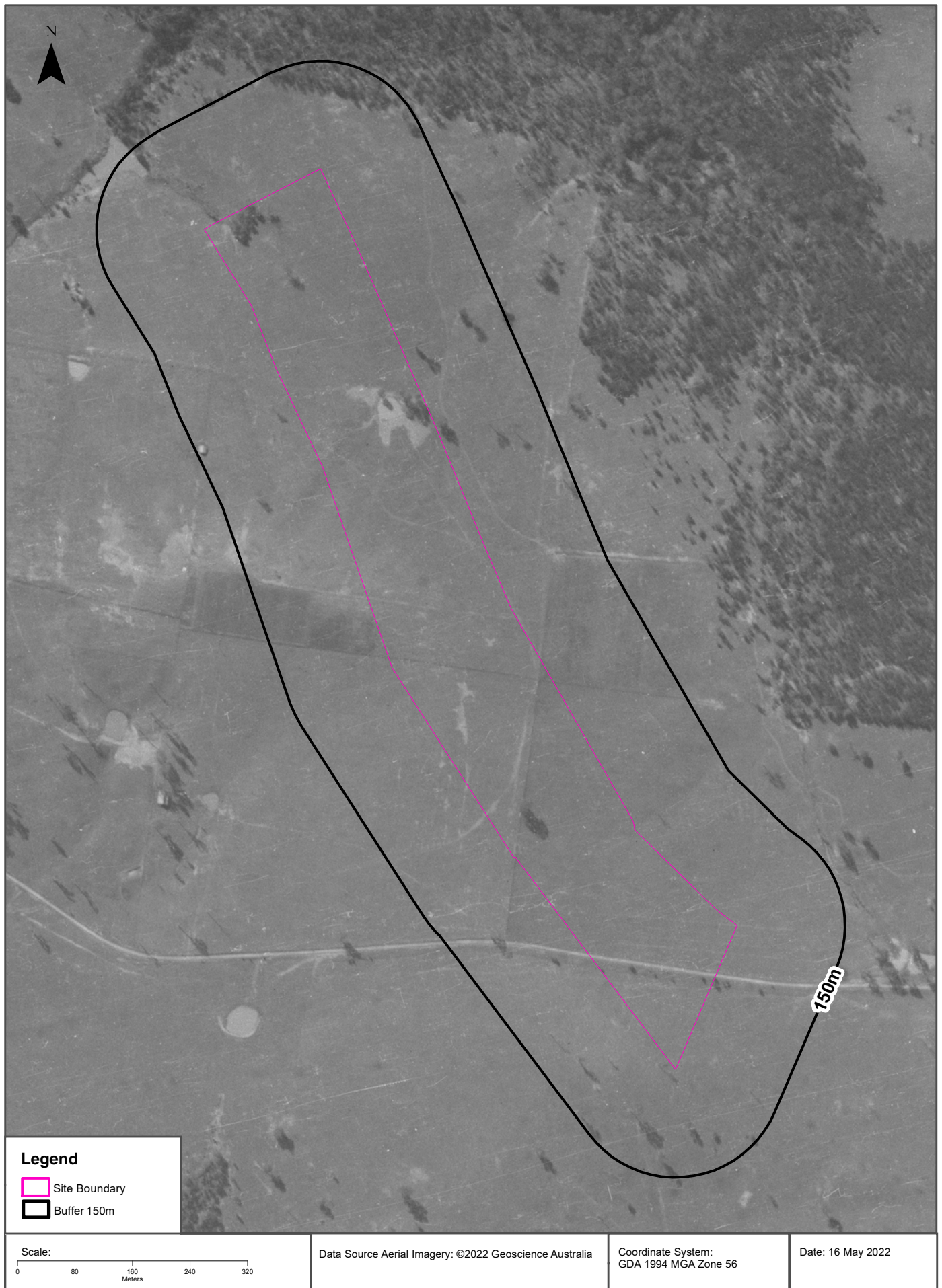
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



Aerial Imagery 1949

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 2)



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LOTSEARCH
LOTSEARCH AERIALS

Date: 17 May 2022

Reference: LS031814 EA

**Address: Picton Road Alignment Between Nepean River and Almond Street,
Wilton, NSW 2571 (Part 3)**

Aerial Imagery 2021

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Scale:
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Meters

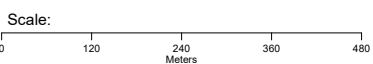
Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 17 May 2022

Aerial Imagery 2016

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Data Source Aerial Imagery:
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Coordinate System:
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Date: 17 May 2022

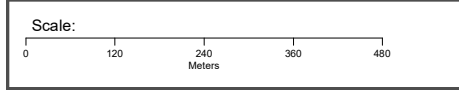
Aerial Imagery 2012

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Legend

- Site Boundary
- Buffer 150m



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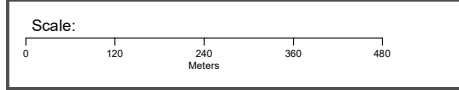
Aerial Imagery 2002

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Legend

- Site Boundary
- Buffer 150m



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Aerial Imagery 1994

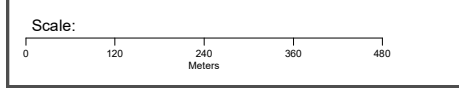
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Legend

- Site Boundary
- Buffer 150m

EC 0 SP- v/h.01766 60



Data Source Aerial Imagery:
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Date: 16 May 2022

Aerial Imagery 1990

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Legend

-  Site Boundary
-  Buffer 150m

Scale:
0 120 240 360 480
Meters

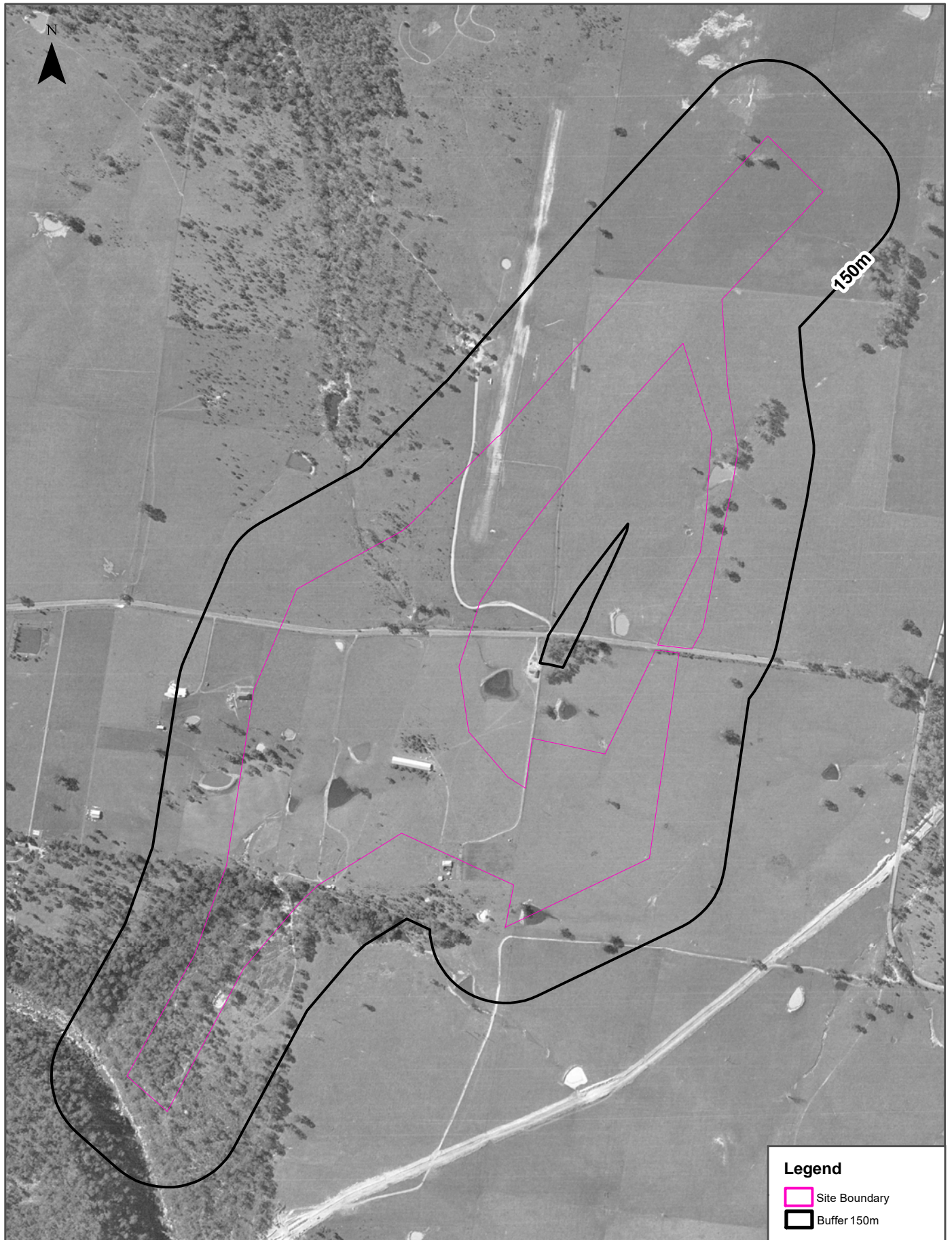
Data Source Aerial Imagery:
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Coordinate System:
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Date: 16 May 2022

Aerial Imagery 1975

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Legend

- Site Boundary
- Buffer 150m

Scale:
0 120 240 360 480
Meters

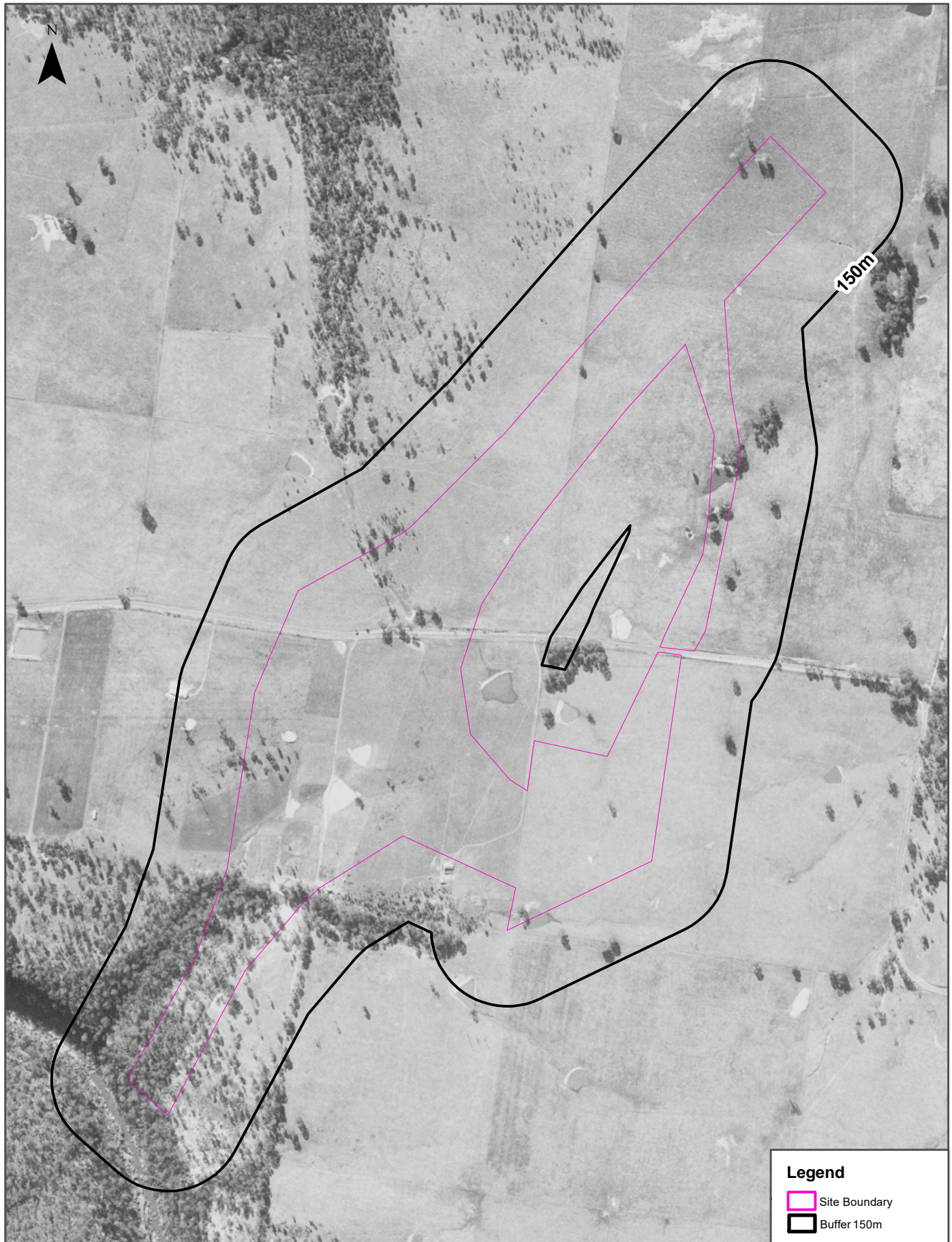
Data Source Aerial Imagery:
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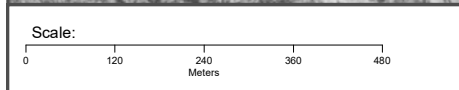
Aerial Imagery 1969

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Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery:
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Date: 16 May 2022

Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



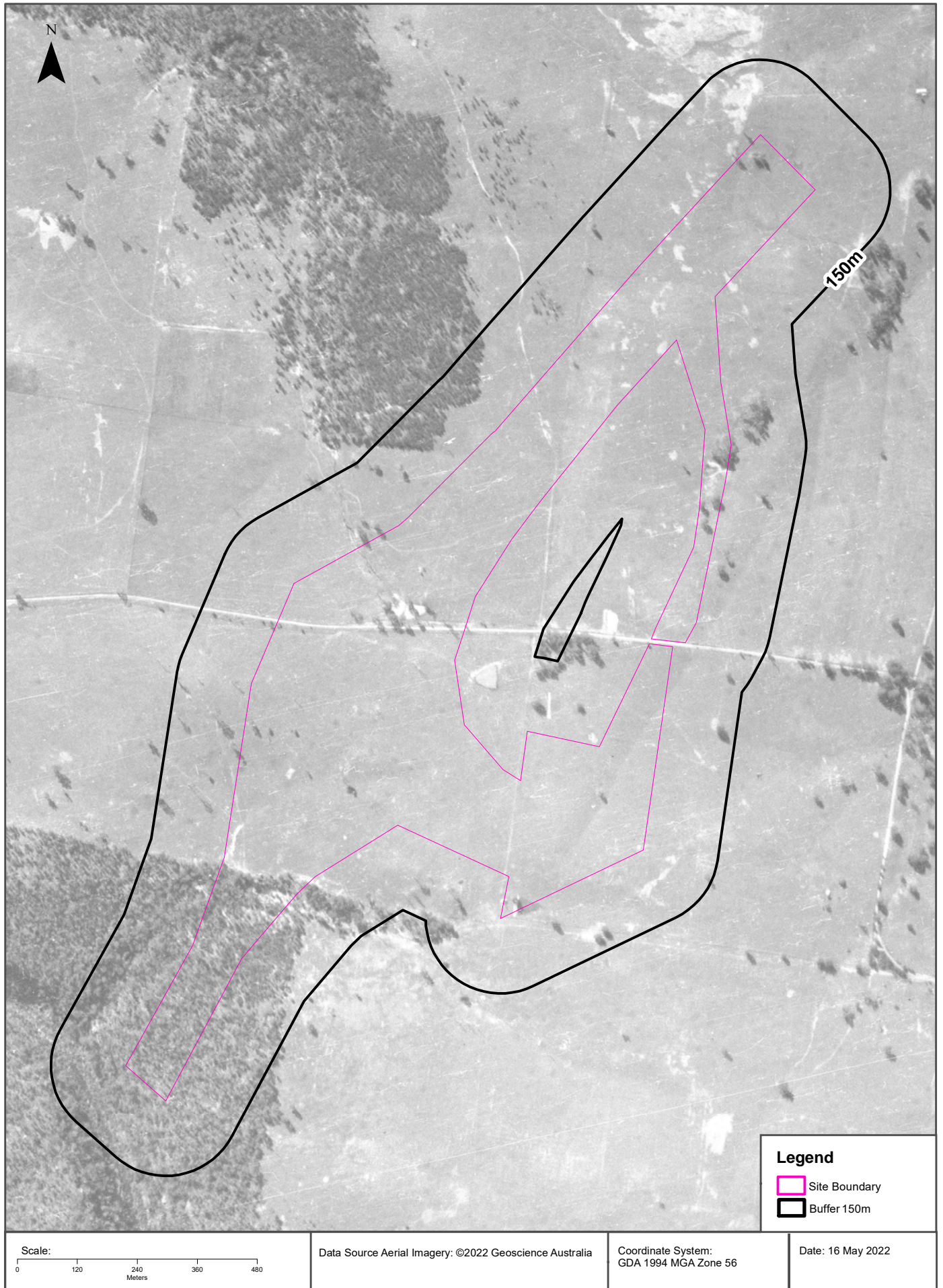
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



Aerial Imagery 1949

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 3)



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LOTSEARCH
LOTSEARCH AERIALS

Date: 19 May 2022

Reference: LS031815 EA

**Address: Picton Road Alignment Between Nepean River and Almond Street,
Wilton, NSW 2571 (Part 4)**

Aerial Imagery 2021

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Aerial Imagery 2016



Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)

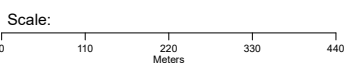


N



Legend

-  Site Boundary
-  Buffer 150m



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Coordinate System:
GDA 1994 MGA Zone 56



Date: 17 May 2022

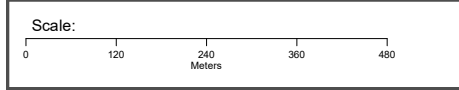
Aerial Imagery 2012

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Legend

-  Site Boundary
-  Buffer150m



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Coordinate System:
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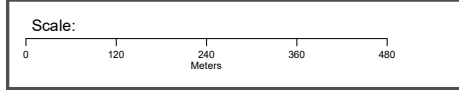
Aerial Imagery 2002

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Legend

- Site Boundary
- Buffer 150m



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Aerial Imagery 1994

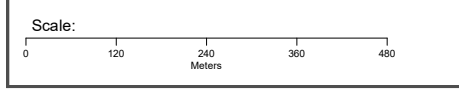
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



v/h.01766 60% dt032.9 ds003 20

Legend

-  Site Boundary
-  Buffer 150m



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Coordinate System:
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Date: 17 May 2022

Aerial Imagery 1994

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)





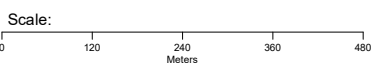
Aerial Imagery 1990

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Legend

-  Site Boundary
-  Buffer 150m



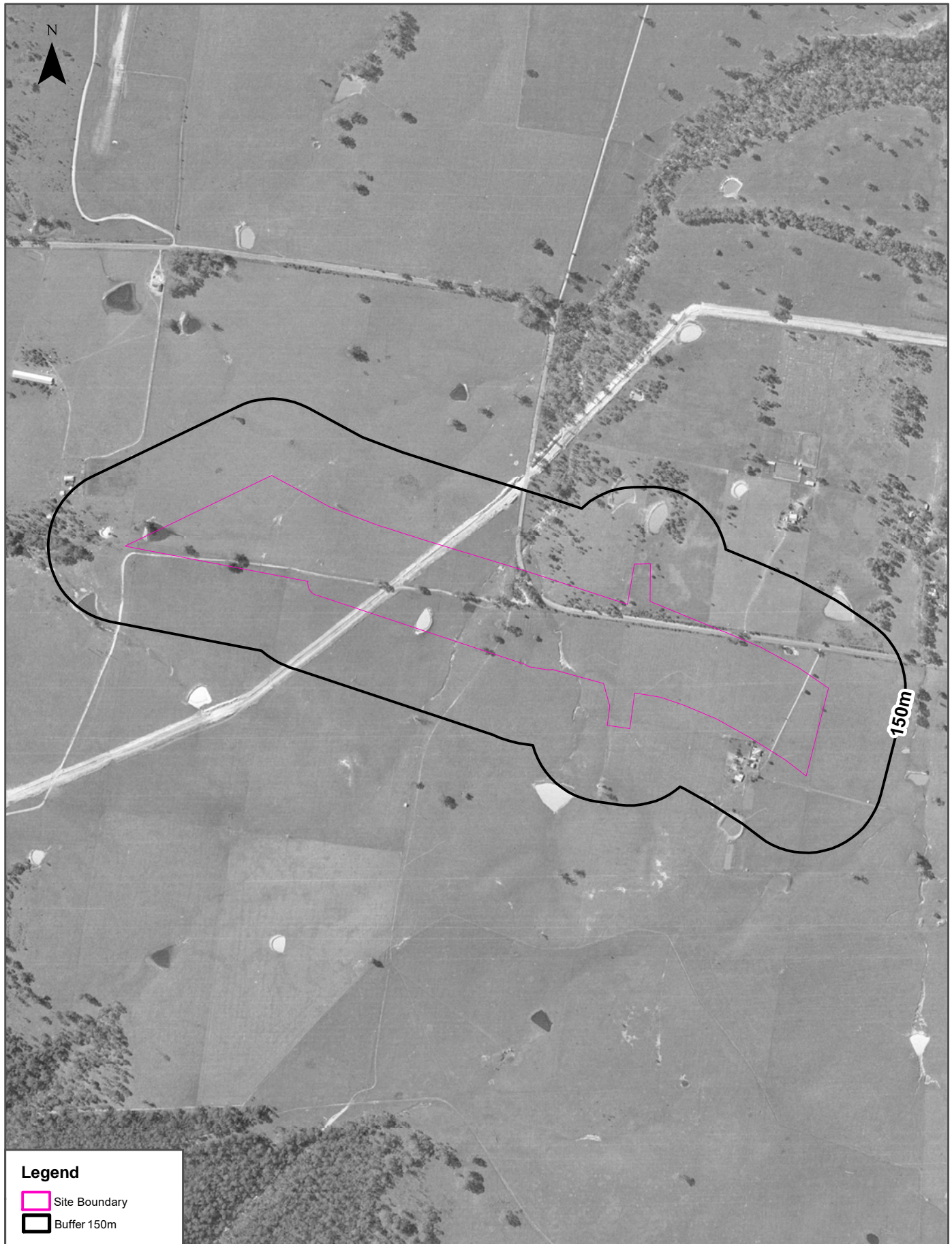
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Coordinate System:
GDA 1994 MGA Zone 56



Date: 19 May 2022

Aerial Imagery 1975

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Legend

-  Site Boundary
-  Buffer 150m

Scale:
0 120 240 360 480
Meters

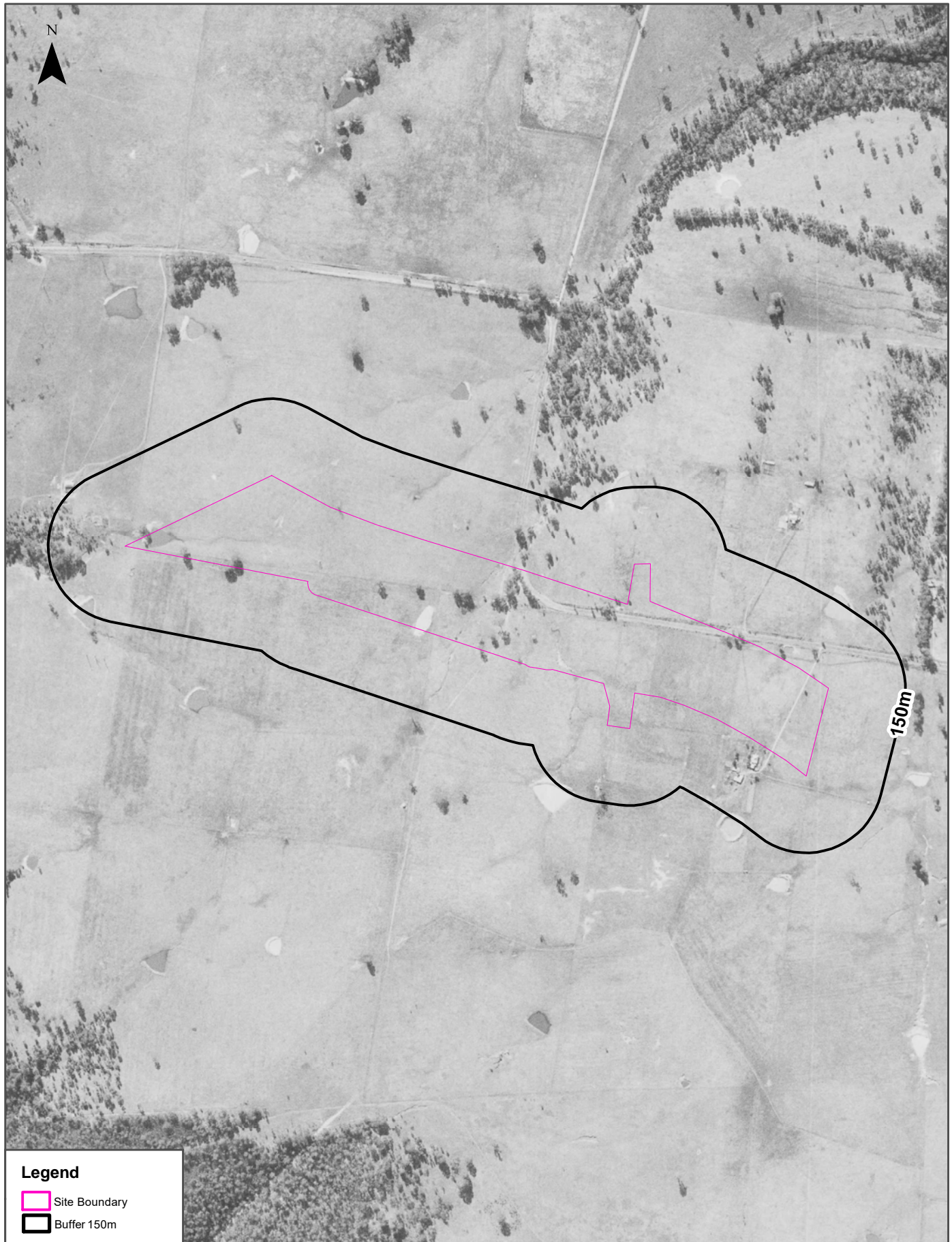
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Coordinate System:
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Date: 17 May 2022

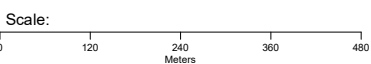
Aerial Imagery 1969

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Legend

-  Site Boundary
-  Buffer 150m



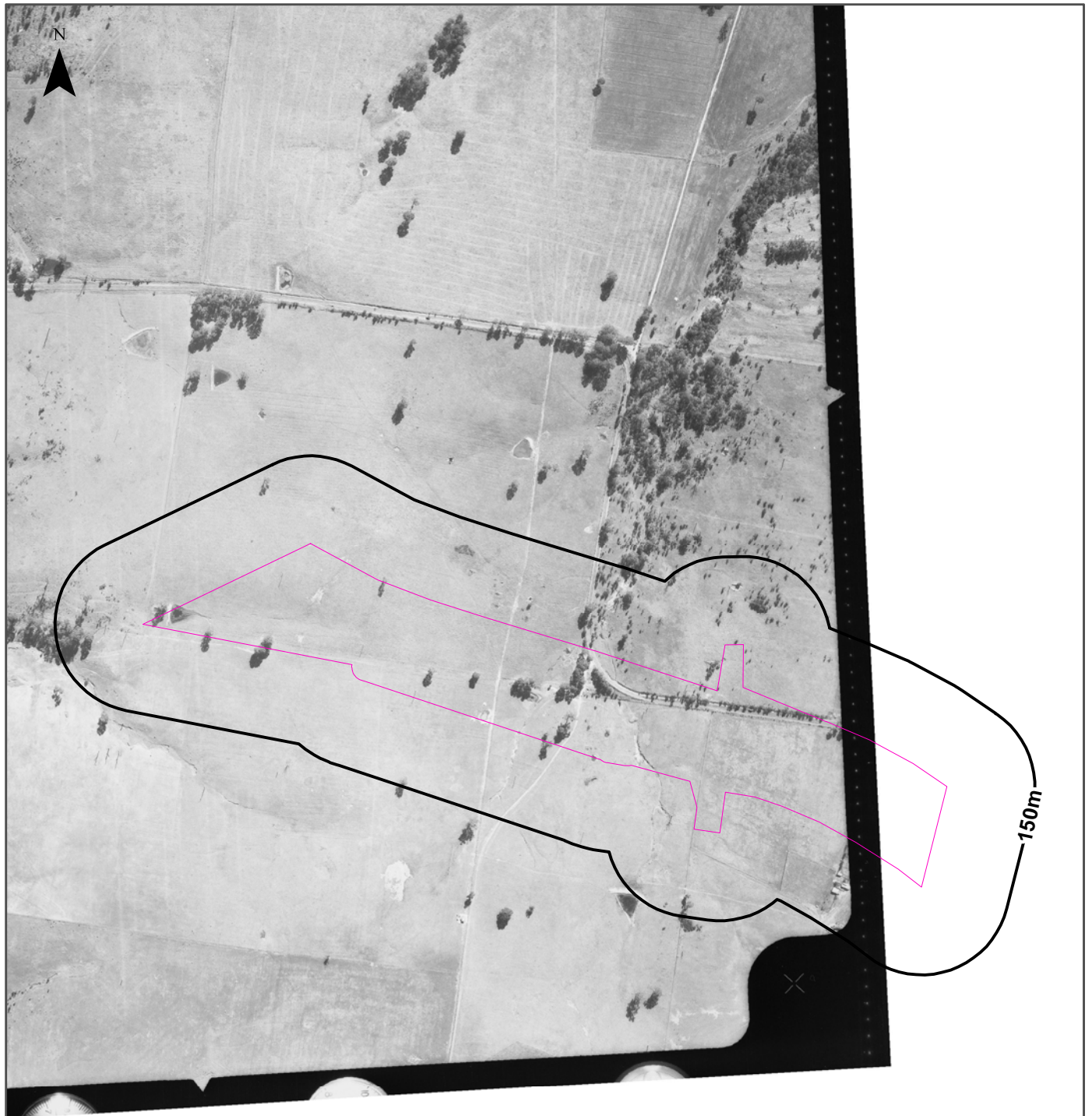
Data Source Aerial Imagery:
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Coordinate System:
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Date: 17 May 2022

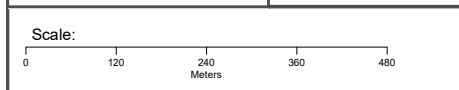
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Legend

-  Site Boundary
-  Buffer 150m



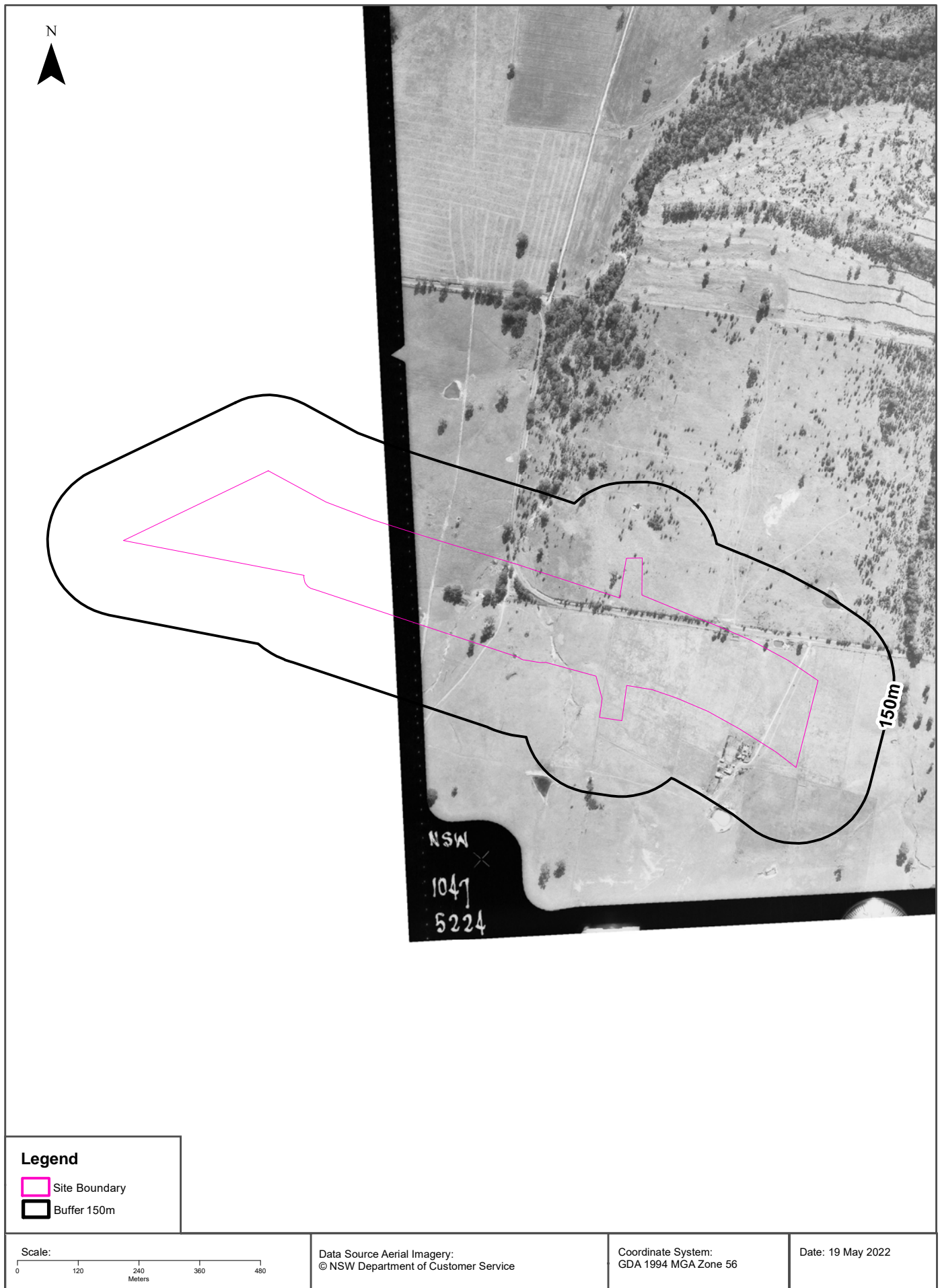
Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 19 May 2022

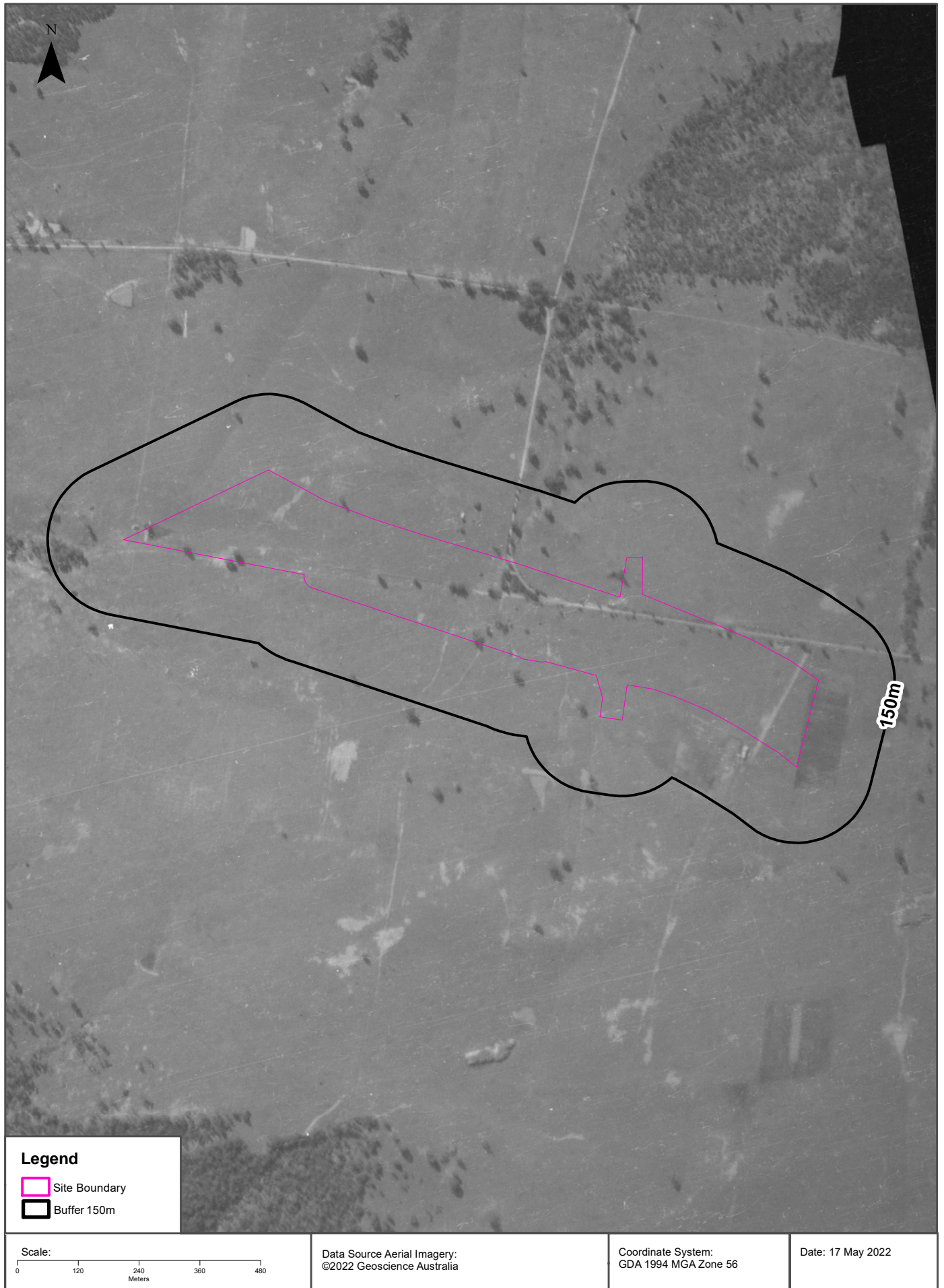
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



Aerial Imagery 1949

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 4)



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LOTSEARCH
LOTSEARCH AERIALS

Date: 19 May 2022

Reference: LS031816 EA

**Address: Picton Road Alignment Between Nepean River and Almond Street,
Wilton, NSW 2571 (Part 5)**

Aerial Imagery 2021

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



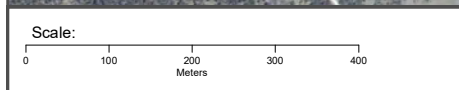
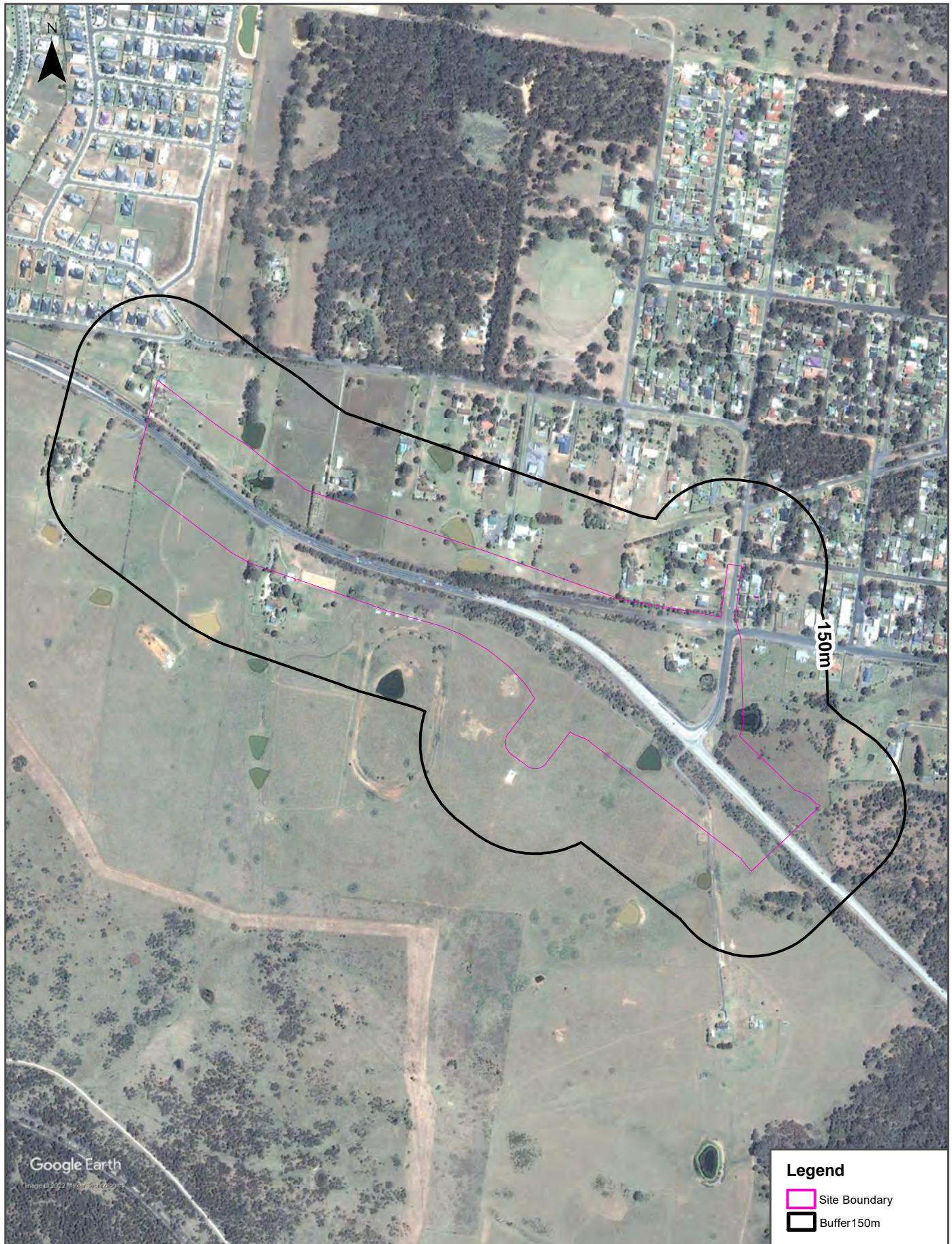
Aerial Imagery 2016

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



Aerial Imagery 2012

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



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Coordinate System:
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Date: 17 May 2022



Aerial Imagery 2002

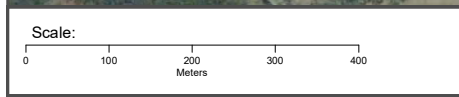
Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



Google Earth
Image © 2022 Maxar Technologies

Legend

-  Site Boundary
-  Buffer 150m



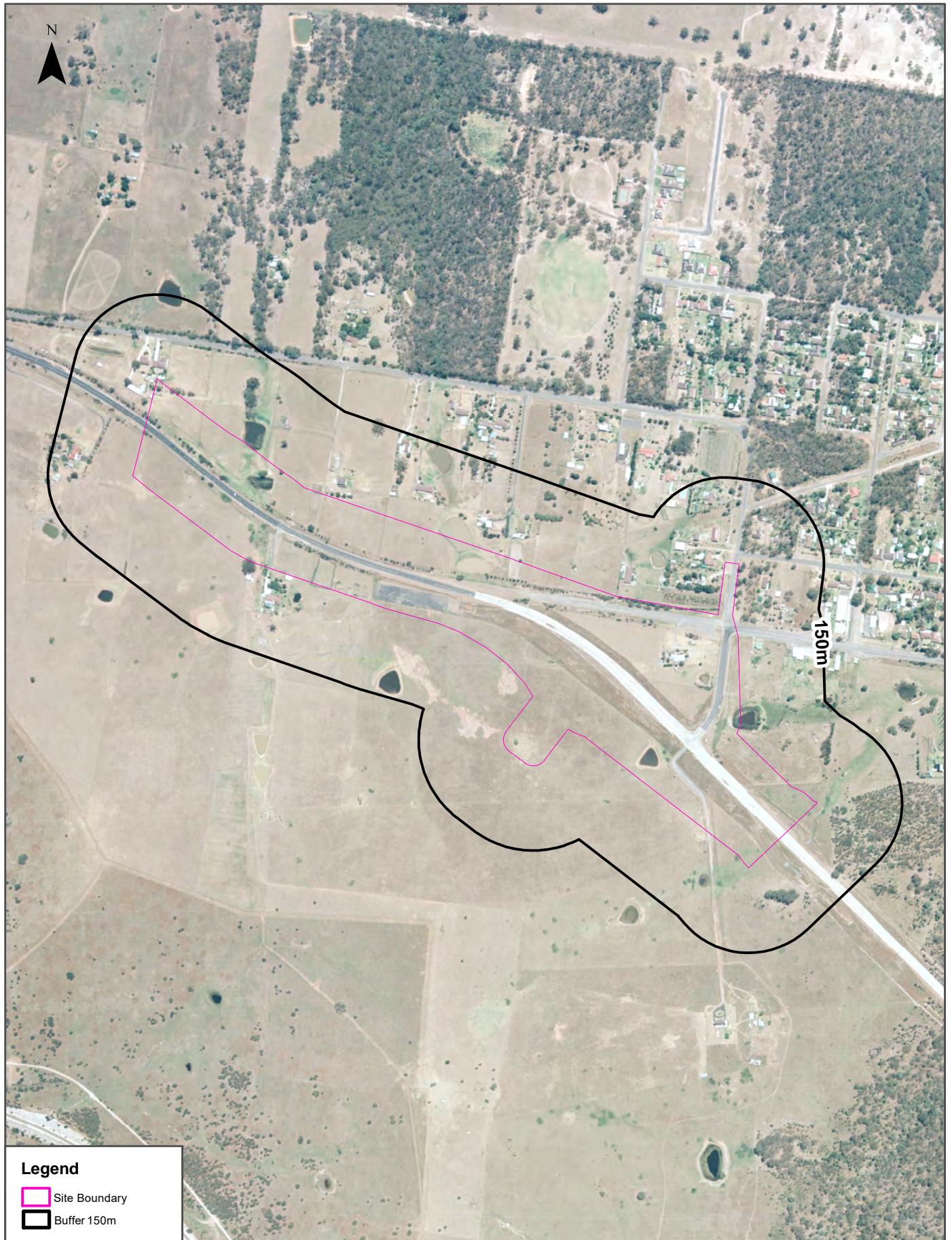
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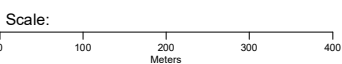
Aerial Imagery 1994

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



Legend

-  Site Boundary
-  Buffer 150m



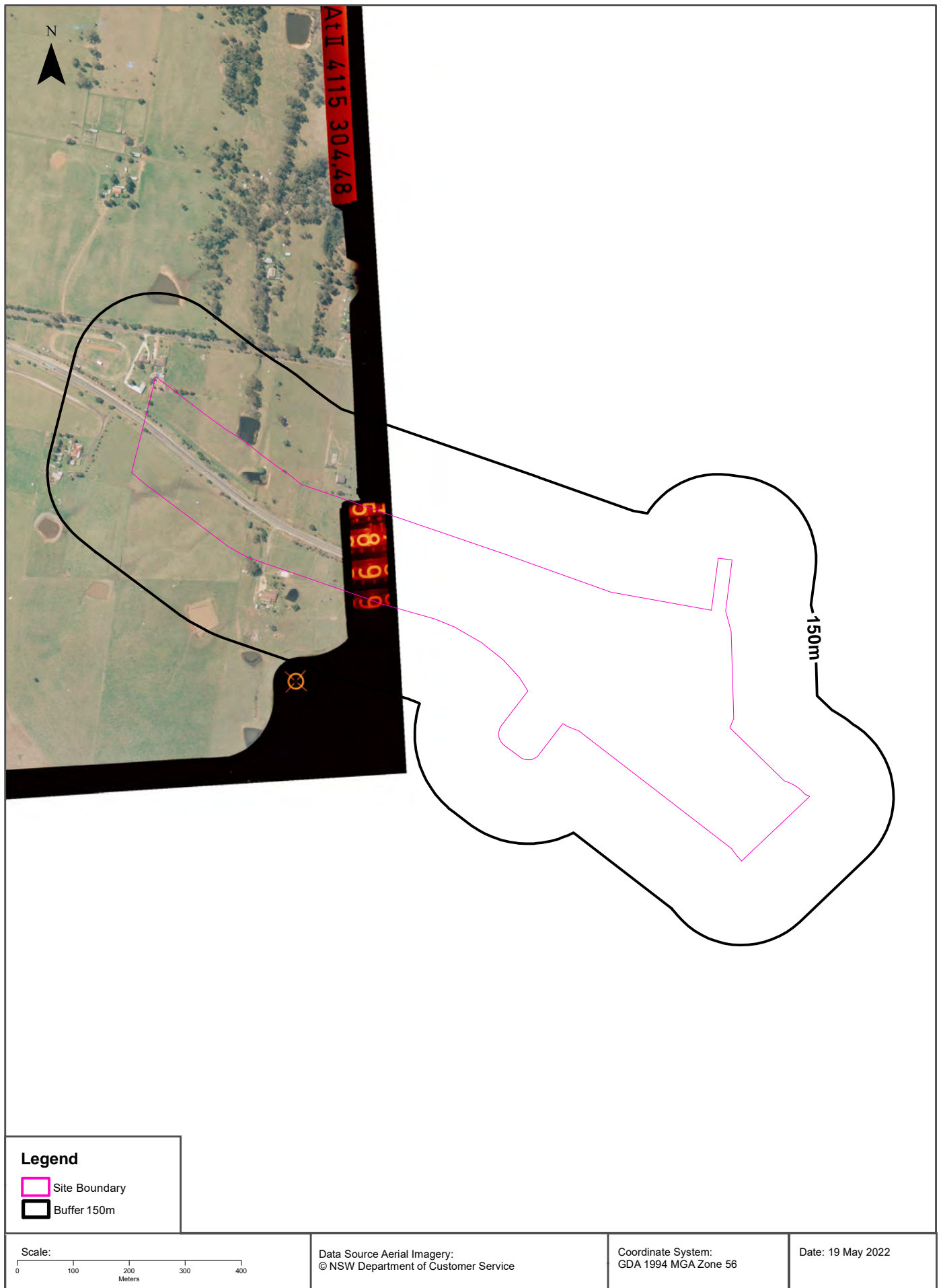
Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 17 May 2022

Aerial Imagery 1990

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



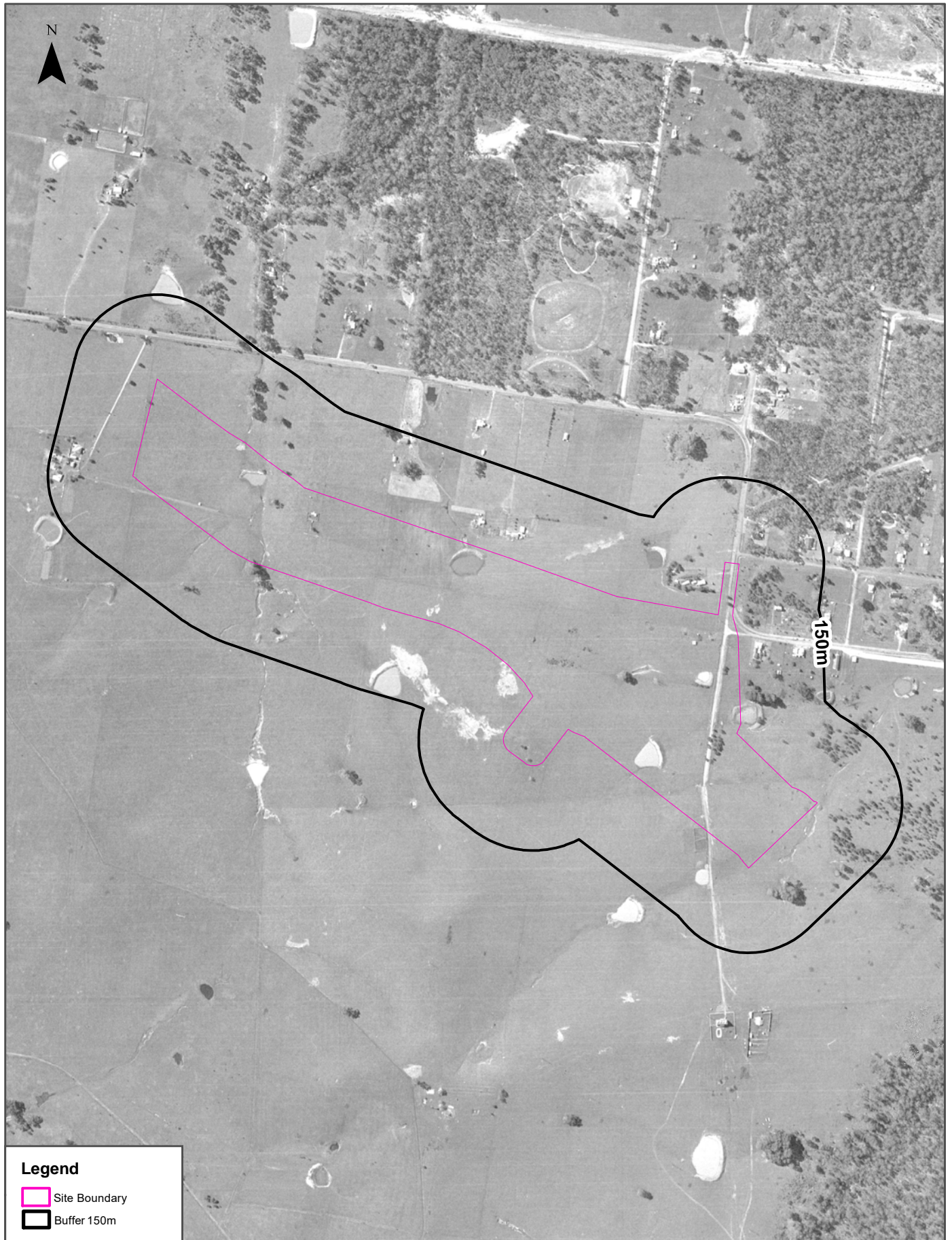
Aerial Imagery 1990

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)





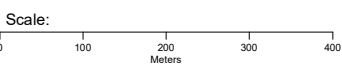
Aerial Imagery 1975

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



Legend

-  Site Boundary
-  Buffer 150m



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Date: 17 May 2022

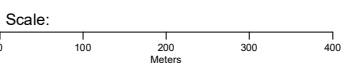
Aerial Imagery 1969

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



Legend

-  Site Boundary
-  Buffer 150m



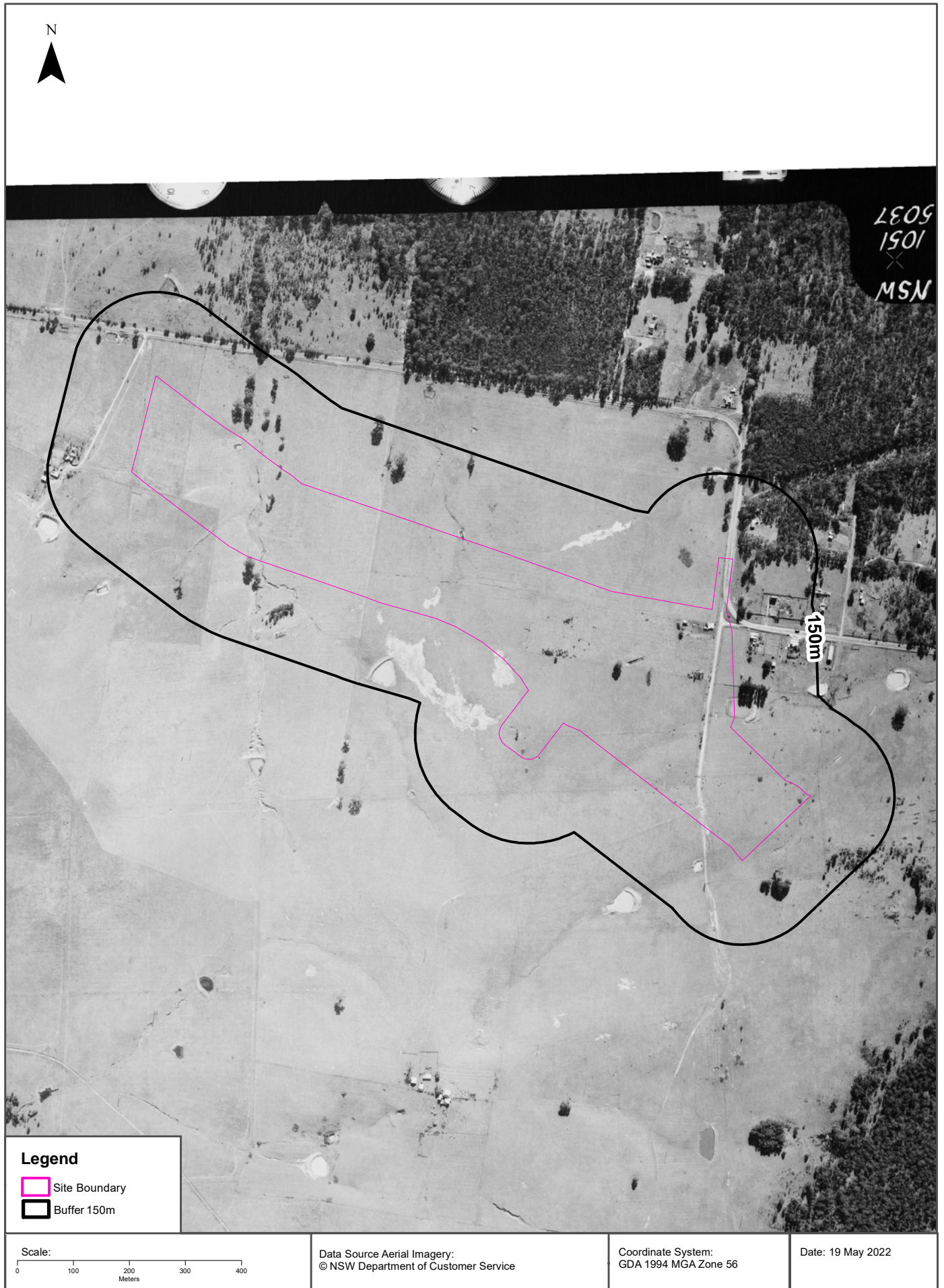
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Coordinate System:
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Date: 17 May 2022

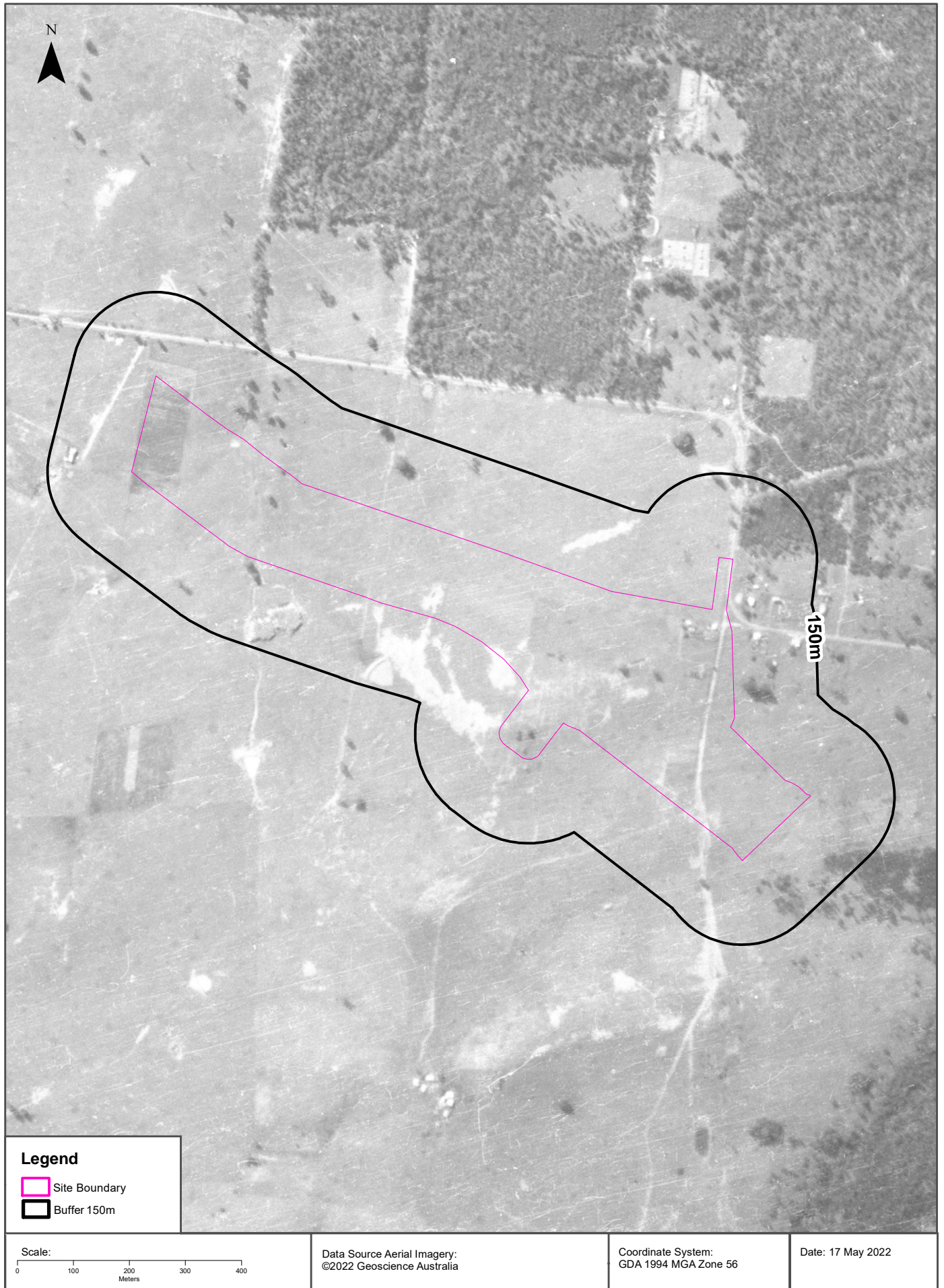
Aerial Imagery 1961

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



Aerial Imagery 1949

Picton Road Alignment Between Nepean River and Almond Street, Wilton, NSW 2571 (Part 5)



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