Station Street, Menangle: Lot 201 DP590247

Historical Heritage Assessment

FINAL REPORT

Prepared for Calibre

15 November 2018

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Glossary

c.	Circa
CHL	Commonwealth Heritage List
DP	Deposited Plan
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Heritage Act	*Heritage Act 1977*
LEP	Local Environment Plan
m	Metre
NHL	National Heritage List
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
SoHI	Statement of Heritage Impact
SHR	State Heritage Register
Study area	The area of impact for the proposed works

Summary

Biosis Pty Ltd was commissioned by Calibre to undertake a historical heritage assessment and statement of heritage impact (SoHI) for the proposed subdivision of Lot 201 Deposited Plan (DP) 590247, Station Street, Menangle, New South Wales (NSW), referred to as the 'study area' herein. A 97 residential lot development is proposed for the study area. The proposed development will be assessed in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979 NSW*.

The proposed Stage 1 development consists of approximately 97 residential lots, local roads, drainage, detention and water quality basin, open space/park and service utilities. It is proposed to separately undertake bulk earthworks within the Stage 1 area, and upgrade the intersection of Menangle Road and Station Street with a roundabout, in preparation for the Stage 1 development. In addition, it is proposed to subdivide the Stage 1, Park and Neighbourhood Centre from the existing "parent" lots.

The study area is located within 15 Menangle Road, Menangle which is an integral part of the township of Menangle and the associated dairying industry. Development from the early 19th century has resulted in a historical landscape that encompasses the study area, which features rolling hills, vast pastures and trees. The study area is closely associated with the cattle yards of Camden Park Estate, the Camden Park Estate Central Creamery and Rotolactor, which are located immediately north east of the study area. The whole of the study area is encompassed by the Menangle General Conservation Area. The conservation area is bounded by Menangle Road, Woodridge Road and Station Street. The Menangle Village has remained contained within the settlement boundaries that were formed by village development by the second decade of the 20th century. It is an intact example of a rural service centre of this period and in particular, one that is associated with the dairying industry when new technologies were being introduced in the form of the Rotolactor.

These recommendations have been formulated to respond to the significance of the site. They are guided by the ICOMOS *Burra Charter* with the aim of doing as much as necessary to care for the place and make it useable and as little as possible to retain its cultural significance.[1]

Recommendation 1: Prepare a heritage interpretation strategy for the site

Ensure that at the completion of the project, the heritage interpretation strategy is prepared that identifies appropriate interpretive methods for engaging with the public with the history of the site. The interpretation strategy may be in the form of naming street names after significant families of Menangle and the placement of interpretative media outlining the importance of the heritage items within the development footprint and enabling the public to access the views and vistas of the historical landscape.

A preliminary interpretative strategy has been included within Appendix B of this report. This should be used as a guideline only for the development of a final Interpretative strategy.

Recommendation 2: Development process

The development design of the proposed 97 lot subdivision at Station Street, Menangle should have a sympathetic design to the heritage aspects of the Menangle village to minimise impacts to the historic nature of the village. The design of the dwellings within the development should respect the heritage characteristics of the existing dwellings that occur along Menangle Road and Station Street. This will be achieved by implementing the controls laid out in the Wollondilly DCP 2016, Part 6 section 6.3.

[1] Australia ICOMOS 2013

Recommendation 3: Implement DA 010.2016.00000210.001 for the workers cottage located within the study area

This assessment has identified that the cottage is a c.1920s workers cottage associated with the Camden Park Estate Central Creamery and is of local significance to the village of Menangle. Therefore it is recommended that the cottage be retained. The redevelopment of the workers cottage as a sales office pursuant to the conditions set out in the approved DA 010.2016.00000210.001 is supported.

1 Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Calibre to undertake a historical heritage assessment and statement of heritage impact (SoHI) for the proposed subdivision of Lot 201 Deposited Plan (DP) 590247, Station Street, Menangle, New South Wales (NSW), (Figure 1 and Figure 2), referred to as the 'study area' herein. A 97 residential lot development is proposed for the study area. The proposed development will be assessed in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979 NSW*.

1.2 Location of the study area

The study area is within Lot 201 DP 590247, 15 Menangle Road in Menangle, NSW, which is located with the Wollondilly Local Government Area (LGA), Parish of Camden, County of Camden (Figure 1). It is bounded by the Nepean River to the north, Station Street to the south, the currently vacant rural industrial buildings of the Camden Park Central Creamery and Sheds and the Rotolactor, surrounding open pasture and Menangle Railway complex and line to the east and Menangle Road to the west (Figure 2).

1.3 Scope of assessment

This report was prepared in accordance with current heritage guidelines including *Assessing Heritage Significance*, *Assessing Significance for Historical Archaeological Sites and "Relics"* and the *Burra Charter*.[2] This report provides a heritage assessment to identify if any heritage items or relics exist within or in the vicinity of the study area and establishes if any impact will occur to identified heritage items. The heritage significance of these heritage items has been investigated and assessed in order to determine the most appropriate management strategy.

The following is a summary of the major objectives of the assessment:

- Identify and assess the heritage values associated with the study area. The assessment aims to achieve this objective through providing a brief summary of the principle historical influences that have contributed to creating the present – day built environment of the study area using resources already available and some limited new research.
- Assess the impact of the proposed works on the cultural heritage significance of the study area.
- Identifying sites and features within the study area which are already recognised for their heritage value through statutory and non – statutory heritage listings.
- Recommend measures to avoid or mitigate any negative impacts on the heritage significance of the study area.

[2] NSW Heritage Office 2001; NSW Heritage Branch, Department of Planning 2009; Australia ICOMOS 2013

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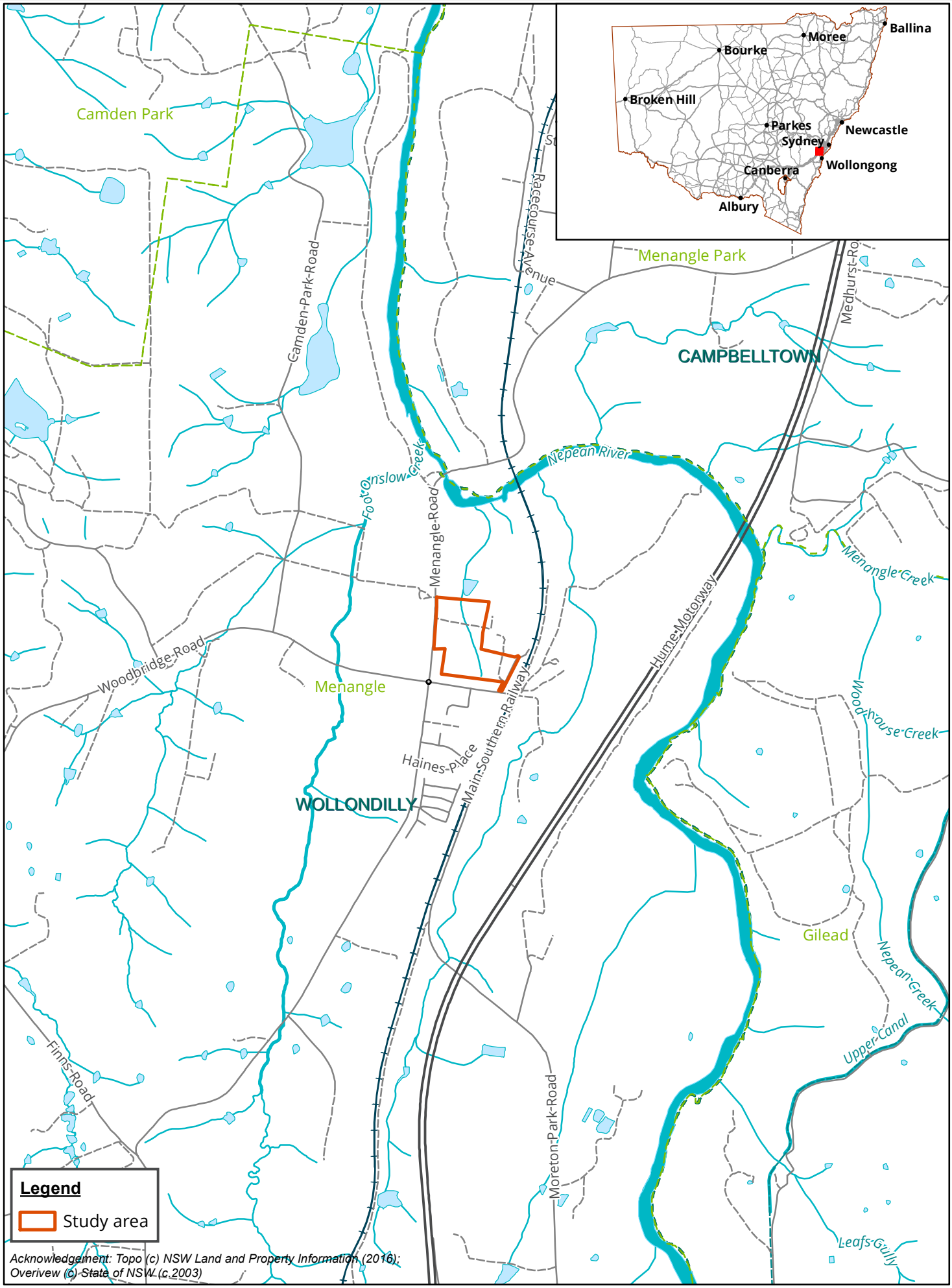
1.4 Limitations

This report is based on historical research and field inspections. It is possible that further historical research or the emergence of new historical sources may support different interpretations of the evidence in this report.

The historical research undertaken for this report is based on primary documents including Crown Plans, Certificates of Title and historical parish maps. This information was supplemented by existing studies and sources in order to present a history of the study area. There was limited information specifically relating to the activities which occurred within the study area. The study area is within a broader estate owned by the Macarthur's, however relevant information that detailed particular events within Menangle were scarce, as were reliable sources. Although this report was undertaken to best archaeological practice and its conclusions are based on professional opinion, it does not warrant that there is no possibility that additional archaeological material will be located in subsequent works on the site. This is because limitations in historical documentation and archaeological methods make it difficult to accurately predict what is under the ground.

The significance assessment made in this report is a combination of both facts and interpretation of those facts in accordance with a standard set of assessment criteria. It is possible that another professional may interpret the historical facts and physical evidence in a different way.



Acknowledgement: Topo (c) NSW Land and Property Information (2016); Overivew (c) State of NSW (c.2003)

Figure 1: Location of the study area

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Albury, Ballarat, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 27416
Date: 21 August 2018,
Checked by: msmith, Drawn by: ARL, Last edited by: lharley
Location:\\bio-data-01\matters$\27400s\27416\Mapping\

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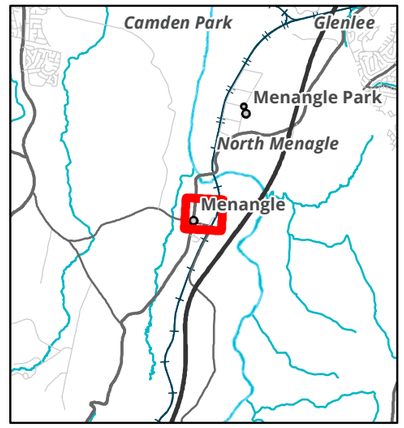
Scale 1:25,000 @ A4, GDA 1994 MGA Zone 56



Legend

Study area

Figure 2: Study area detail

0 50

Metres

Scale: 1:2,500 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

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Matter: 27416
Date: 21 August 2018,
Checked by: msmith, Drawn by: ARL, Last edited by: lharley
Location:\\bio-data-01\matters$\27400s\27416\Mapping\27416_StationSt_Heritage_F2_StudyArea

Acknowledgements: Basemap © Land and Property Information 2016

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2 Statutory framework

This assessment will support the stage 1 Bulk Earthworks, Stage 1 Civil development applications to Wollondilly Shire Council under Part 4 of the *Environmental Planning and Assessment Act 1979 NSW*. In NSW cultural heritage is managed in a three-tiered system: national, state and local. Certain sites and items may require management under all three systems or only under one or two. The following discussion aims to outline the various levels of protection and approvals required to make changes to cultural heritage in the state.

2.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environmental Protection and Biodiversity Act 1999* (EPBC Act) is the national Act protecting the natural and cultural environment. The EPBC Act is administered by the Department of Environment and Energy (DEE). The EPBC Act establishes two heritage lists for the management of the natural and cultural environment:

- The National Heritage List (NHL) contains items listed on the NHL that have been assessed to be of outstanding significance and define "critical moments in our development as a nation".[3]
- The Commonwealth Heritage List (CHL) contains items listed on the CHL that are natural and cultural heritage places that are on Commonwealth land, in Commonwealth waters or are owned or managed by the Commonwealth. A place or item on the CHL has been assessed as possessing "significant" heritage value.[4]

A search of the NHL and CHL did not yield any results associated with the study area.

2.2 NSW Heritage Act 1977

Heritage in NSW is principally protected by the *Heritage Act 1977* (Heritage Act) (as amended) which was passed for the purpose of conserving items of environmental heritage of NSW. Environmental heritage is broadly defined under Section 4 of the Heritage Act as consisting of the following items: *"those places, buildings, works, relics, moveable objects, and precincts, of State or Local heritage significance*". The Act is administered by the NSW Heritage Council, under delegation by the Heritage Division, Office of Environment and Heritage. The Heritage Act is designed to protect both known heritage items (such as standing structures) and items that may not be immediately obvious (such as potential archaeological remains or 'relics'). Different parts of the Heritage Act deal with different situations and types of heritage and the Act provides a number of mechanisms by which items and places of heritage significance may be protected.

2.2.1 State Heritage Register

Protection of items of State significance is by nomination and listing on the State Heritage Register (SHR) created under Part 3A of the NSW *Heritage Act*. The Register came into effect on 2 April 1999. The Register was established under the *Heritage Amendment Act* 1998. It replaces the earlier system of Permanent Conservation Orders as a means for protecting items with State significance.

[3] "About National Heritage" http://www.environment.gov.au/heritage/about/national/index.html
[4] "Commonwealth Heritage List Criteria" http://www.environment.gov.au/heritage/about/commonwealth/criteria.html

A permit under Section 60 of the Heritage Act (NSW) is required for works on a site listed on the SHR, except for that work which complies with the conditions for exemptions to the requirement for obtaining a permit. Details of which minor works are exempted from the requirements to submit a Section 60 Application can be found in the Guideline "Standard Exemptions for Works requiring Heritage Council Approval". These exemptions came into force on 5 September 2008 and replace all previous exemptions.

There no items or conservation areas listed on the SHR within the study area.

2.2.2 Archaeological relics

Section 139 of the Heritage Act protects archaeological 'relics' from being 'exposed, moved, damaged or destroyed' by the disturbance or excavation of land. This protection extends to the situation where a person has 'reasonable cause to suspect' that archaeological remains may be affected by the disturbance or excavation of the land. This section applies to all land in NSW that is not included on the State Heritage Register.

Amendments to the Heritage Act made in 2009 changed the definition of an archaeological 'relic' under the Act. A 'relic' is defined by the Heritage Act as:

"Any deposit, object or material evidence:

(a) which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) which is of State or Local significance"

It should be noted that not all remains that would be considered archaeological are relics under the NSW Heritage Act. Advice given in the Archaeological Significance Assessment Guidelines is that a "relic" would be viewed as a chattel and it is stated that "*In practice, an important historical archaeological site will be likely to contain a range of different elements as vestiges and remnants of the past. Such sites will include 'relics' of significance in the form of deposits, artefacts, objects and usually also other material evidence from demolished buildings, works or former structures which provide evidence of prior occupations but may not be 'relics'.*[5]"

If a relic, including shipwrecks in NSW waters (that is rivers, harbours, lakes and enclosed bays) is located, the discoverer is required to notify the NSW Heritage Council.

Section 139 of the Heritage Act requires any person who knows or has reasonable cause to suspect that their proposed works will expose or disturb a 'relic' to first obtain an Excavation Permit from the Heritage Council of NSW (pursuant to Section 140 of the Act), unless there is an applicable exception (pursuant to Section 139(4)). Excavation permits are issued by the Heritage Council of NSW in accordance with sections 60 or 140 of the Heritage Act. It is an offence to disturb or excavate land to discover, expose or move a relic without obtaining a permit. Excavation permits are usually issued subject to a range of conditions. These conditions will relate to matters such as reporting requirements and artefact cataloguing, storage and curation.

Exceptions under Section 139(4) to the standard Section 140 process exist for applications that meet the appropriate criterion. An application is still required to be made. The Section 139(4) permit is an exception from the requirement to obtain a Section 140 permit and reflects the nature of the impact and the significance of the relics or potential relics being impacted upon.

If an exception has been granted and, during the course of the development, substantial intact archaeological relics of state or local significance, not identified in the archaeological assessment or statement required by this exception, are unexpectedly discovered during excavation, work must cease in the affected area and the Heritage Office must be notified in writing in accordance with section 146 of the Heritage Act. Depending on

[5] NSW Heritage Branch, Department of Planning 2009, 7

the nature of the discovery, additional assessment and, possibly, an excavation permit may be required prior to the recommencement of excavation in the affected area.

2.2.3 Section 170 Heritage and Conservation Registers

Section 170 of the *Heritage Act* requires that culturally significant items or places managed or owned by Government agencies are listed on departmental Heritage and Conservation Register. Information on these registers has been prepared in accordance with Heritage Division guidelines.

Statutory obligations for archaeological sites that are listed on a Section 170 Register include notification to the Heritage Council in addition to relic's provision obligations.

There are no items within or adjacent to the study area that are entered on a State government instrumentality Section 170 Register.

2.3 Environmental Planning and Assessment Act 1979

2.3.1 Local Environmental Plan

The Wollondilly LEP 2011 contains schedules of heritage items that are managed by the controls in the instrument. As the project is being undertaken under Part 4 of the *EP&A Act*, council is responsible for approving controlled work via the development application system.

The study area is not listed as a heritage item of either local or state significance on the Wollondilly LEP 2011 Schedule 5. There are however listed heritage items within the vicinity of the study area that will be considered within this assessment. These include:

- Camden Park Rotolactor, (Item No. I83), 15 Menangle Road, Menangle, part Lot 201 DP590274
- Camden Park Estate – Central Creamers Managers Cottage, (Item No. I82), 15 Menangle Road, Menangle, Part Lot 201 DP590274
- Camden Park Estate Central Creamery and sheds (Item No. I100), 45 Stevens Road, part Lot 21 DP 581462

The study area is also situated within a conservation area listed on the Wollondilly LEP 2011 Schedule 5 Part 2:

- Menangle Conservation Area, Menangle Road, Station Street and Woodbridge road

Heritage items in the vicinity of the study area are identified in Table 1 and Figure 3.

Table 1 Other Heritage items within the vicinity of the study area

Item name	Address	Suburb	LGA	LEP #	Significance
Dairy Cottage	1370 Moreton park Road	Menangle	Wollondilly	I97	Local
Menangle Weir	Station Street	Menangle	Wollondilly	I101	Local
Menangle Railway Station Group	Station Street	Menangle	Wollondilly	I81/ SHR01191	Local and State
Menangle Store	2 Station Street	Menangle	Wollondilly	I98	Local

Item name	Address	Suburb	LGA	LEP #	Significance
Menangle School of Art Community Hall	4 Station Street	Menangle	Wollondilly	I282	Local
Menangle Public School (former)	28 Station Street	Menangle	Wollondilly	I291	Local
Cottage	138 Menangle Road	Menangle	Wollondilly	I95	Local
St James Anglican Church	131 Menangle Road	Menangle	Wollondilly	I194	Local
Cottage	128 Menangle Road	Menangle	Wollondilly	I93	Local
Cottage	124 Menangle Road	Menangle	Wollondilly	I92	Local
St Patricks Catholic Church	119 Menangle Road	Menangle	Wollondilly	I91	Local
Bungalow	106 Menangle Road	Menangle	Wollondilly	I90	Local
Cottage	102 Menangle Road	Menangle	Wollondilly	I89	Local
House	100 Menangle Road	Menangle	Wollondilly	I88	Local
Bungalow	96 Menangle Road	Menangle	Wollondilly	I87	Local
Bungalow	92 Menangle Road	Menangle	Wollondilly	I86	Local

2.3.2 Wollondilly Development Control Plan 2016

The Wollondilly Development Control Plan 2016 (WDCP) outlines built form controls to guide development. The WDCP supplements the provisions of the Wollondilly LEP.

The current DCP outlines Menangle General Conservation Area's significance in relation to the village. It states:

> *Menangle Village, created in the 1850's and 1860's, is unique in that it has remained essentially contained within the settlement boundaries formed by village development by the second decade of the 20th century. It was established by the Macarthur family for their estate workers and was centred on St James' Church, then later the school and the general store. The town has had a strong association with the dairy industry, which developed following the opening of the railway after construction of the railway bridge over the Nepean River in 1863. The railway line became the commercial focus of the village and the growing dairy industry and the historic character of the village, as we see it today, is largely a reflection of the railway-related development that took place in the late 19th and early 20th centuries. Further evidence of the association with the dairy industry includes buildings such as the Camden Estate Central Creamery (1910)*

and Rotolactor (1952) and worker cottages for the nearby Camden Park Estate (1870's to 1920's). The Macarthurs of nearby Camden Park Estate patronised the Village and were directly responsible for many of the fine buildings in Menangle, which assisted the village to grow and gives its character. They paid for St James's church (including Horbury Hunt's nave in 1876 and Sulman's chancel and steeple in 1898) and in circa 1904 they built the present General Store (used by the Estate as its buying agent for all provisions, stores, seeds fuel etc)

2.4 Summary of heritage listings

A summary of heritage listings within and in the vicinity of the study area is presented in Table 2.

Table 2 Summary of heritage listings within the vicinity of the study area.

Site number	Site name	Address / Property description	Listings		Significance
			Individual item	As a Conservation Area	
Heritage items/conservation areas associated with the study area addressed within this assessment					
I82	Camden Park Estate- Central Creamers Managers Cottage	Lot 201 DP 590247 Federation period cottage erected at minimum costs but still reflects architectural trends. In poor conditions	Built	No	Local
I83	Camden Park Rotolactor	Lot 201 DP 590247 Rotating milking platform associated with intensive feed lots housing approximately 200 cows. Built of rustles materials	Built	No	Local
I100	Camden Park Estate Central Creamery	Lot 21 DP 581462 The creamery consist of two buildings connected to the main railway line by its own siding. One building is a two storey brick structure now painted white and with a terracotta tiled roof. The other single storey structure has corrugated iron walls and roof with detailing	Built	No	Local
N/A	Menangle Conservation Area	Menangle Road, Station Street, Woodbridge Road. The relationship of the street layout and the topography is an important one with most development spread along a low north-south running ridge giving view over lower surrounding farming. The visual centre of the village is marked by a prominent knoll on which is St James' Church is situated	Complex/Group	Yes	Local
Heritage items within Menangle Village and surrounds (not addressed within this assessment)					
I97	Dairy Cottage	Lot 202 DP 590247	Built	No	Local

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Site number	Site name	Address / Property description	Listings		Significance
			Individual item	As a Conservation Area	
		Federation period timber weatherboard cotta with tin roof. Faces Station Street from the same side as the Menangle Store.			
I101	Menangle Weir	Lot 2 DP 775452 The weir, thought to have been built around 1886 is part of the Upper Nepean Water Scheme. It was built of wood. The weir does not hold historical significance by it still serves its original purpose. The construction of the Upper Nepean Scheme made the big advance from depending on local water sources to harvesting water in upland catchment areas, storing it in major dams and transporting it to the city by means of major canals and pipelines	N/A	No	Local
I81/ SHR01191	Menangle Railway Station Group	Station Street The station group is one of the earlier station complexes to survive in the site. It is a combination station building and residence which has had substantial additions. Although the second platform and building have been demolished for a new platform the remaining up buildings and platform are of very high significance in the development of railway buildings.	Complex/group	No	State
I98	Menangle Store	Lot 8 DP 531899 Two storey commercial buildings with "Federation Arts and Crafts" detailing located on the major intersection in Menangle Village.	Built	No	Local
I282	Menangle School of Art Community Hall	Lot 1 DP 306368 The Menangle School of Arts Community Hall has Local significance through its association with the Macarthur Family. The Menangle Hall is thought to have been built In 1905,	Built	No	Local

Site number	Site name	Address / Property description	Listings		Significance
			Individual item	As a Conservation Area	
		around the same time as the general store. The hall was built by the community on Macarthur land. The hall was closed in 2008.			
I291	Menangle Public School (former)	Lot 1 DP 795181 Menangle Public School has Local significance through its role in the education of the village's children over the course of a century. It has additional significance due to its association with the Macarthur family. The land for the school was donated by Sir William Macarthur and the school was built in 1871.	Built	No	Local
I95	Cottage	138 Menangle Road A typical turn of the century bungalow with Arts & Crafts embellishments. Associated with the Elizabeth Macarthur institute and the former Camden Park Estate. Built in 1910 and in good condition.	Built	No	Local
I194	St James Anglican Church	131 Menangle Road A small picturesque church of facebrick with a mixture of slate and asbestos titled roofs. The southern nave designed by John Horbury Hunt and the northern end of the building designed by Sir John Sulman. Built in 1876 and is in good condition.	Built	No	Local
I93	Cottage	128 Menangle Road A typical late Victorian period timber cottage. Built in 1880 and is an important component of the historic cultural landscape of Menangle.	Built	No	Local
I92	Cottage	124 Menangle Road A typical late Victorian period timber cottage. Built in 1880 and	Built	No	Local

Site number	Site name	Address / Property description	Listings		Significance
			Individual item	As a Conservation Area	
		is an important component of the historic cultural landscape of Menangle.			
I91	St Patricks Catholic Church	119 Menangle Road A simple detailed red face brickwork church buildings with steeply gabled roof clad with terracotta tiles. The church building is set in a large open site below the hill on which St James' is situated.	Built	No	Local
I90	Bungalow	106 Menangle Road An example of the Californian Bungalow type. A building type that is rare in both Menangle and Wollondilly shire Built in 1920 and is in excellent condition.	Built	No	Local
I89	Cottage	102 Menangle Road A typical mid-19th century timber cottage built in 1870 and in good condition.	Built	No	Local
I88	House	100 Menangle Road A substantial dwelling and typical of the late 19th century, reflecting the particular character of Menangle. It is typical of the Arts & Crafts influenced buildings that make most of Menangle historic building stock .Built in 1890 and in excellent condition	Built	No	Local
I87	Bungalow	96 Menangle Road A typical transitional bungalow addressing the main road from an elevated position. Built in 1915 and in excellent condition.	Built	No	Local
I86	Bungalow	92 Menangle Road A typical transitional bungalow addressing the main road from an elevated position. The Bungalow is a locally rare example of	Built	No	Local

Site number	Site name	Address / Property description	Listings		Significance
			Individual item	As a Conservation Area	
		an early 20th century bungalow. Built in 1915 it is in poor condition.			

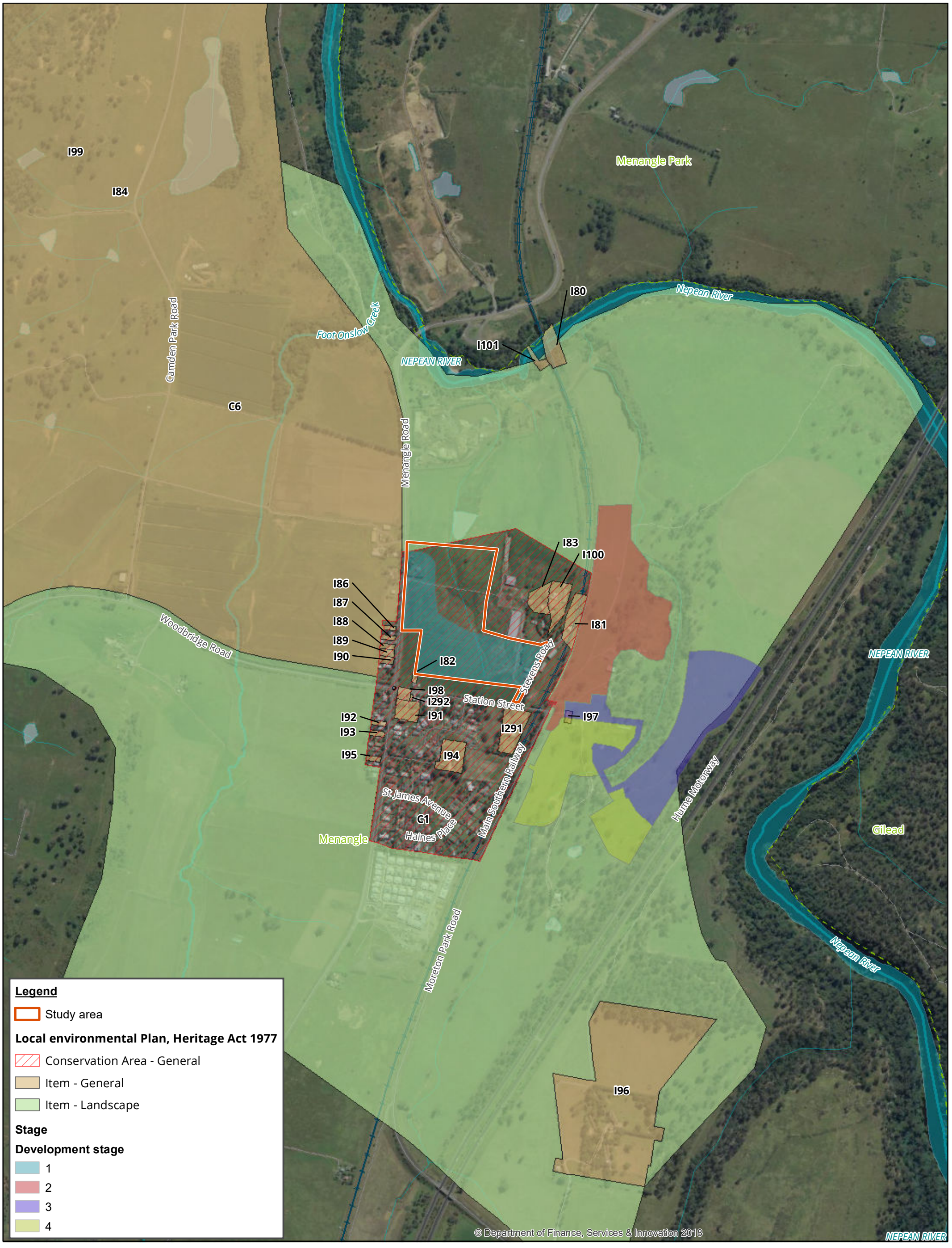

Figure 3: Location of heritage items in relation to study area

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Acknowledgements: Imagery (c) Nearmap 2014
Topo (c) NSW Land and Planning Information (2012)

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3 Historical context

Historical research has been undertaken to identify the land use history of the study area, to isolate key phases in its history and to identify the location of any built heritage or archaeological resources which may be associated with the study area. The historical research places the history of the study area into the broader context of the Macarthur region.

3.1 Topography and resources

The topography of the study area consist of floodplain with levees and meander scrolls and terraces with local relief up to 60 m. Slopes are generally <5% except on edges of terraces where some slopes may exceed 10%. The study area also features gently undulating rises with local relief of 10 – 30 m. Slopes are generally <5% but occasionally up to 10%. Crests and ridges are broad and rounded convex upper slopes grading into concave lower slopes and broad drainage depressions and valley flats.[6]

The dominant land uses of the Macarthur region are urban residential, light industry but the region has been mostly used for small hobby farms with some citrus orchards. The landscape is subject to flooding, seasonal waterlogging and very high soil erosion.

3.2 Aboriginal past

It is generally accepted that people have inhabited the Australian landmass for at least 65,000 years[7]. Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The timing for the human occupation of the Sydney Basin is still uncertain. Whilst there is some possible evidence for occupation of the region around 40,000 years ago, the earliest undisputed radiocarbon date from the region comes from a rock shelter site north of Penrith on the Nepean River, known as Shaws Creek K2, which has been dated to 14,700 + 250 Before Present (BP).[8] The assessment of the deposits concurred that the people living in the shelter exploited the food and resources from the nearby creeks and rivers, as well as the surrounding countryside. East of Campbelltown, a sandstone rock shelter site (known as Bull Cave) was excavated and yielded a basal date of 1820 + 90 BP [9]In general, the majority of both open and rock shelter sites in the Sydney region date to within the last 3,000 to 5,000 years.

Local Aboriginal people of the Campbelltown region were known as the Cowpastures tribe, by the European people of the area. However, the local Aboriginal People were of Dharawal and Gandagara and spoke Dharawal language. The Dharawal and Gandagara territory stretched from Botany Bay south to the Shoalhaven River and inland Camden.[10] The word Menangle was used by the Tharawal tribe to describe a small lagoon on the opposite side of the Nepean River.[11]

The Dharawal remained south of the Nepean River in Cowpastures after the conflicts in 1816. The Dharawal found themselves within the land grants of the Macarthur family, who were the largest settlers in the region.

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[6] Hazelton et al. 1990
[7] Clarkson et al. 2017
[8] Attenbrow 2010
[9] Koettig et al. 1986
[10] Liston 1988
[11] https://www.campbelltown.nsw.gov.au/AboutCampbelltown/History/Historyofoursuburbs/HistoryofMenanglePark. Accessed 11 April 2018.

The Macarthurs had lost a number of employees during the conflicts, but they did not wish to remove the Dharawal from the land they had acquired. In 1818, land was marked out within Camden Estate for the Dharawal to live there under the protection of the Macarthur family.[12]

3.3 Macarthur Region – historical development

3.3.1 Camden Park Estate and the Macarthur's (1805 to 1973)

Camden Park Estate [1] was an agricultural endeavor that was started by John Macarthur after receiving a 10,000 acre land grant in 1805 known as "Upper Camden", which included the study area (Plate 1).[13] John Macarthur had previous success in Parramatta at his farm named after his wife Elizabeth. John had been granted land and stock as gifts in 1793 and as such, on his return back to England, Macarthur endorsed the colonial wool industry to the British government and returned to New South Wales in 1805.[14] Upon his return, John was commissioned by Lord Camden to develop the wool industry and in return he would be rewarded with 10,000 acres of land in a region of his choosing. Macarthur chose the region of 'Cowpastures' in which to take up residence. He was initially granted 5,000 acres in agreement that a further 5,000 acres would follow once he had proven the success of his wool venture.

Camden Park Estate which is located north-north-west of the study area was the initial land in which the Macarthur's started their agricultural legacy. The Certificate of Title[15] shows that the study area was part of portion 3, which was part of the land initially granted to John (Plate 2). This section would soon become part of the village of Menangle and the Camden Park central creamery.

The sale of 'Camden fine wool' in England began in the early 19th century and in 1822 John Macarthur was presented with two gold medals from the London Society of Arts. One for importing 15,000 pounds of fine wool from New South Wales and the other for importing fine wool equal to the best Saxon. In 1824, Macarthur was again awarded another medal for importing the largest quantity of fine wool, and soon after acquired the further 5000 acres that he had been promised. By the end of the decade Camden Park was 'the first agricultural establishment in the Colony'. By this time the Macarthur's' had acquired over 60,000 acres of land.[16]

[12] Liston 1988
[13] Brooks & Associates 2009
[14] Gooden Mackay Logan 2012
[15] NSW Land Registry Services, Certificate of Title 413209
[16] https://www.britannica.com/biography/John-Macarthur Accessed 12 April 2018

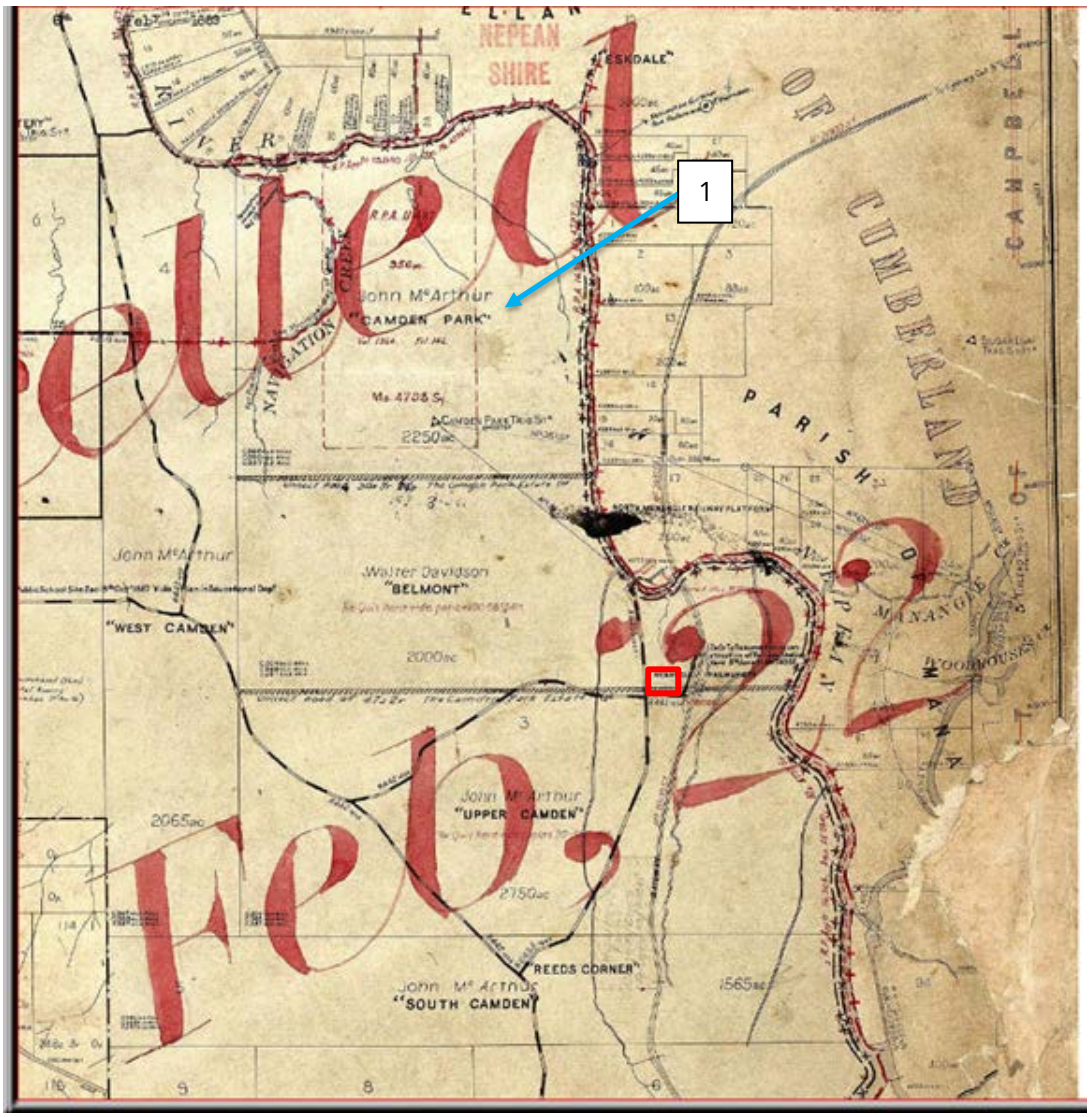

Plate 1 1887 Parish Map of Menangle showing 'Camden Park', indicated by the blue arrow. The approximate location of the study area is represented by the red square(Source: Department of Land Registry Services)

In 1824 John Macarthurs son, James had successfully chartered a company to organize the production of Australian wool, the Australian Agricultural Company.[17] An agreement with the British Government and a capital of one million pounds and a million acres of land in NSW would be alienated to the Company under certain conditions. The company's main purpose was the production of fine wool with the addition of crops not readily available in England. They would in turn provide workers for the colony at no cost to the government and also employ a large number of convicts.[18]

Camden Park Estate continued to be renowned for its produce, however it was still a considerable financial worry for its owners. In 1851, James and William Macarthur sold the southern parts of their Rosslyn and Melrose grants to their neighbour, Lachlan Macalister. In 1853, James and William mortgaged the whole of their Camden Park property, with the exception of the allotments of the Menangle village [2] that had already

[17] Wrigley 2001
[18] Gregson, J 1907

been sold and allotments set aside for schools and churches, to John Thacker, Campbell Drummond Riddell and Sir Charles Nicholson.[19]

The rent roll at Camden Park was growing and therefore other factors required substantial changes in farming practices that saw an end to the wool growing that had formed the basis of the Macarthur family reputation. They promptly moved into crop production.[20]

In 1899 the business of the Estate was formed into a limited liability company with the six children, Rosa Sibella, James William, George Macleay, Francis Arthur, Arthur John and Arthur William of Elizabeth Macarthur-Onslow as the shareholders. The Camden Park Mansion, located to the north of the study area and 956 acres were retained as private property and the remaining 20, 4436 acres of the Estate were transferred to the company.[21]

Over the years, Camden Park Estate Pty Ltd suffered many financial problems and had been passed down through various family members. By 1973 a majority interest in the family company, Camden Park Estate Ltd was sold to Talga Ltd, a company whose activities included property investment, land development, pastoral investment and the operation of a lawn cemetery. The Camden Park Estate, including the creamery at Menangle had been in continuous ownership in one family for 168 years, a substantial part of the Camden Park Estate passed out of the Macarthur-Onslow family hands.[22]

[19] Betteridge 2012
[20] Tanner 1983
[21] Betteridge 2012
[22] 'Houses may be built at Camden Park' Sydney Morning Herald 11 July 1973 p 2e-h

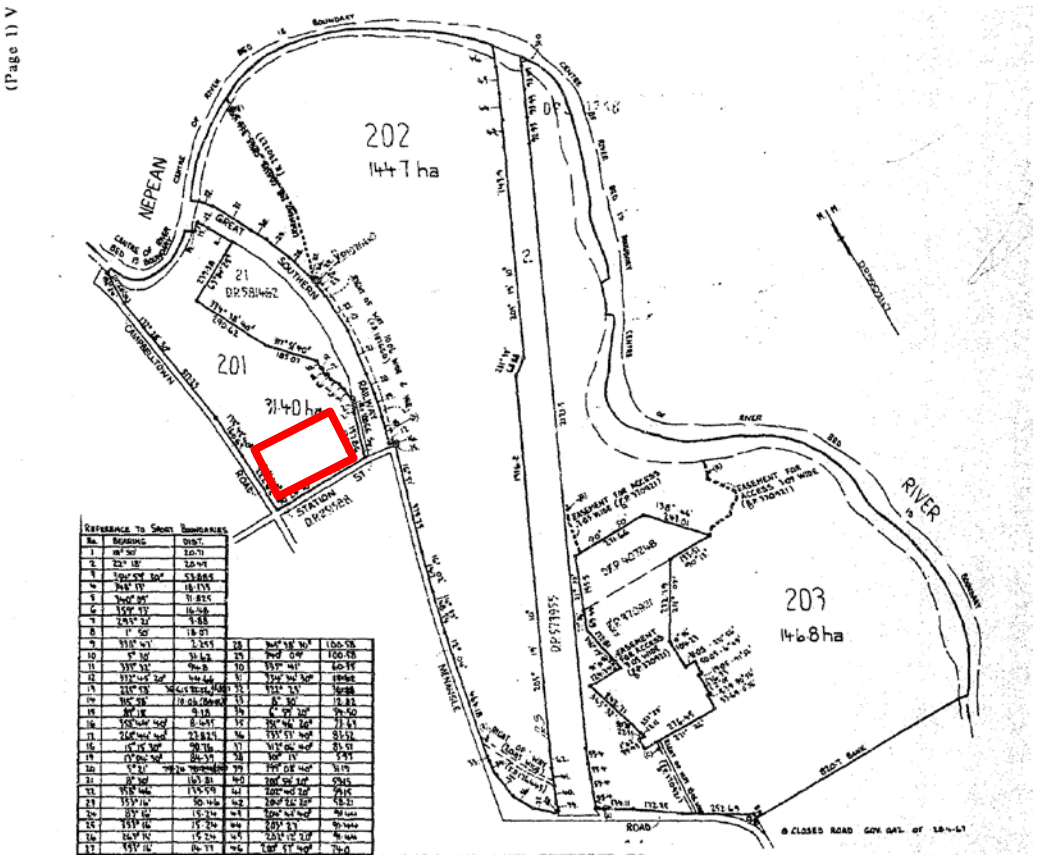

Plate 2 Certificate of Title (1977) plan showing location of land granted to John Macarthur 1805, the study area is outlined in red (Source: Department of Land Registry Services)

3.3.2 The township of Menangle (1804 to present)

In 1788, the first fleet arrived into Sydney cove with a small number of livestock on board, however, shortly after they arrived onto dry land the cattle went missing only to be found in 1795. A large herd of wild cattle were found grazing on the southern side of the Nepean River thriving without human help and it was thought these were in fact the missing cattle. As a result of this discovery, the district became known as 'Cowpastures'.[23] By 1804 a considerable amount of the Cumberland Plain had been settled and Governor King was looking for other regions in the colony for favourable land. It was discussed that the only suitable land within the Cumberland Plain was the area known as Cowpastures.[24]

Macquarie ordered the construction of a road from Sydney to Liverpool and its extension to Campbelltown in 1817, The construction of roads through the 'Cowpastures' region was in motion and on the 25 June 1829, W. Lockyer, the surveyor of roads wrote to the Colonial Secretary requesting that a road be surveyed from Campbelltown and Menangle . This road, Menangle Road forming the western boundary of the study area would run through a portion of John Macarthur's property (Plate 3).[25] Menangle was originally located on the northern banks of the Nepean River but eventually moving to the location in which Menangle sits today.[26]

[23] Liston 1988
[24] Gooden Mackay Logan 2012
[25] Bayley 1965
[26] Bayley 1965

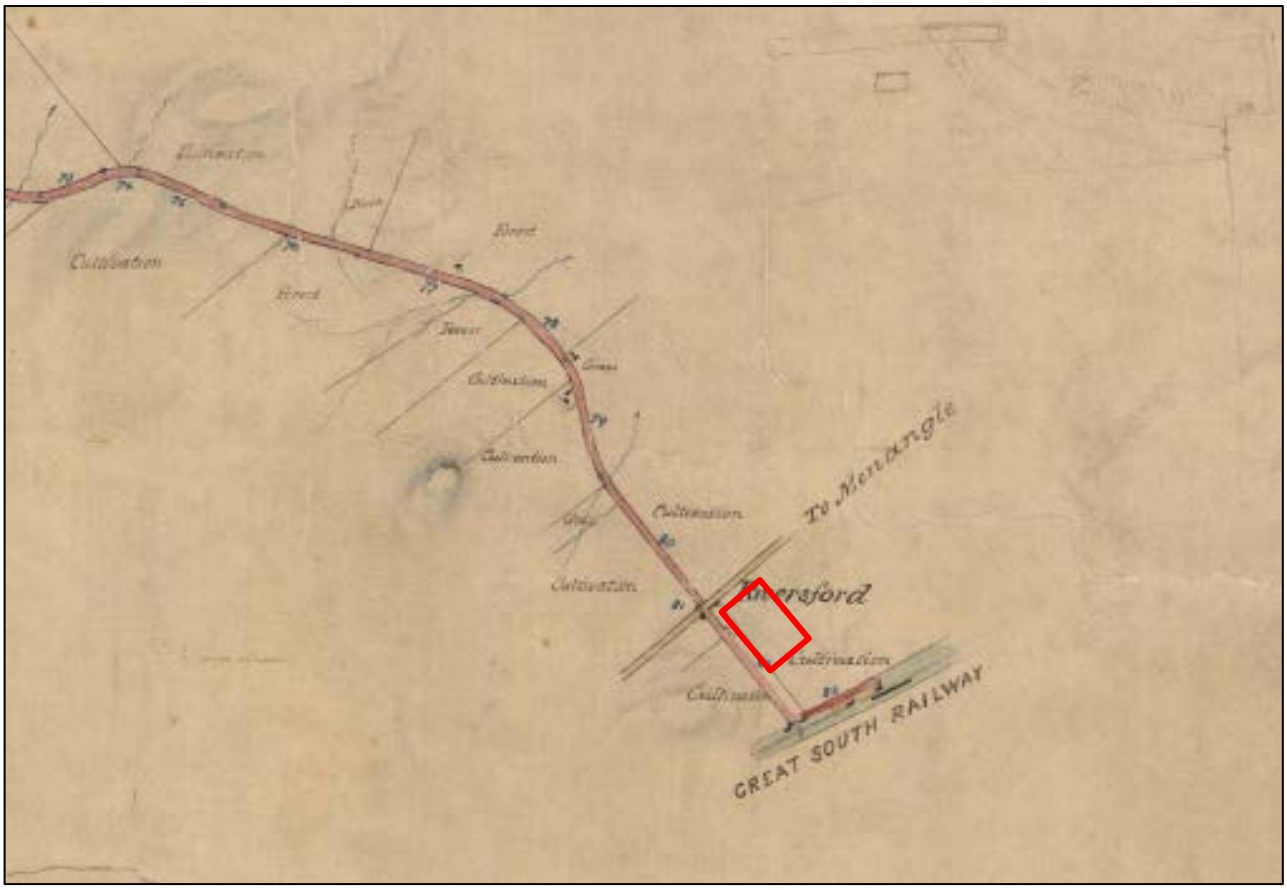

Plate 3 1864 Crown plan of Woodbridge Road/Station Street, showing the study area outlined in red (Source: Land registrys services)

Early Menangle was a private village, built by the Macarthur's. The 1864 Crown Plan of Woodbridge Road and Station Street shows that at the time the district was purely agricultural and large portions were set aside purely for cultivation, which included the study area (Plate 3). The first mention of the Village of Menangle appeared in1866 when it was mentioned in Balliere's Gazeteer. [27] Prior to this the village was known as Riversford, due to the construction of a temporary railway platform of the same name that was built on the northern bank of the Nepean River in August 1862. The platform was used not only by farmers but also construction gangs and their families. [28]. The village of Menangle was a lightly populated town with some 50 farms centred on the Nepean River. The village growth in the 1850s and 1860s can be linked to the developing railway and the building of a station at Menangle in the mid 1800's. The railway enabled faster and more reliable methods of transporting goods also leading to an increase in agriculture and other local industries.

A new road bridge over the Nepean was built between 1855 and 1856 and a railway bridge 1863 also helped increase the region's population by bringing in construction gangs. The railway station, located immediately to the east of the study area as well as two inns served both the construction gangs and the surrounding farms. By 1866, Menangle was populated by approximately 100 people who were living on both sides of the river. The railway line refocused the commercial centre of Menangle and led to a growth in the local dairy industry. [29]

[27] Somerville 1991
[28] Davies 1987
[29] Oehm, A 2006 Thematic History Wollondilly Shire Council Heritage Study Review.

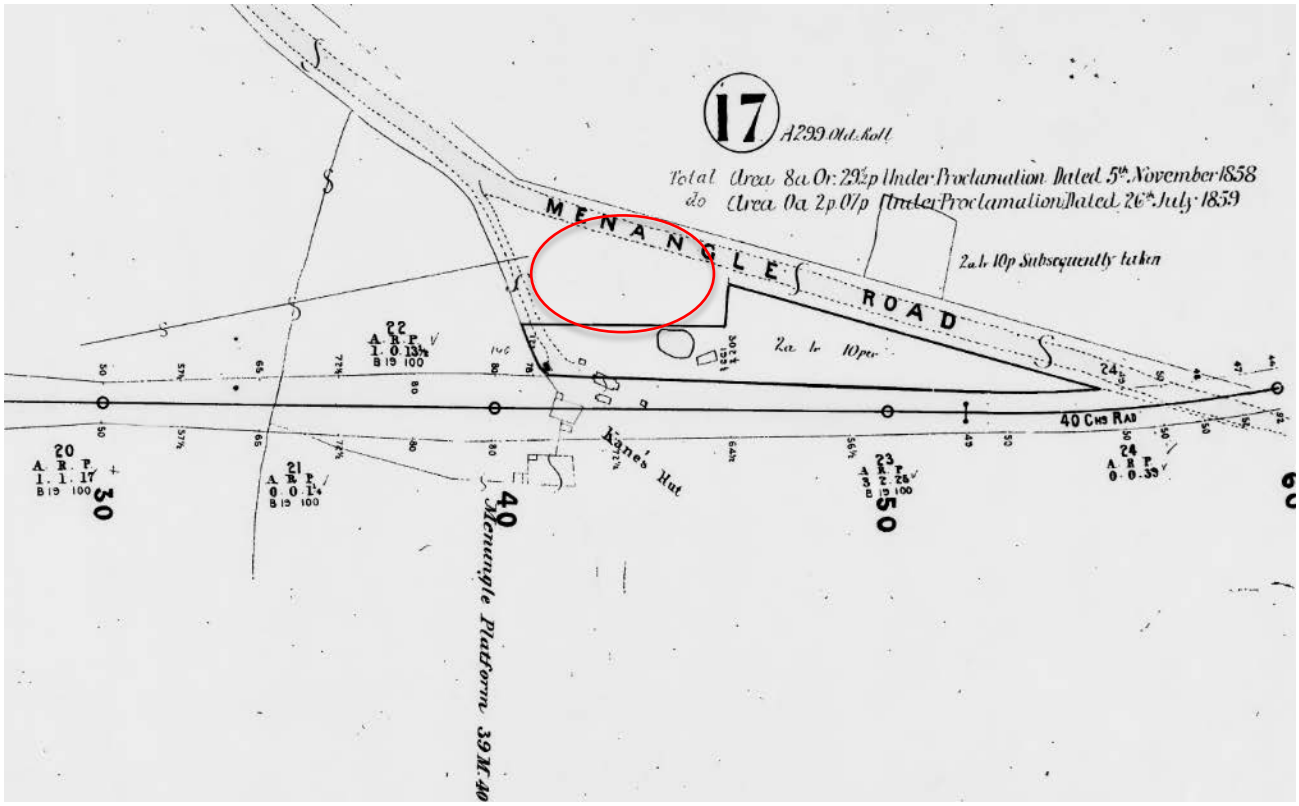

Plate 4 1859 crown plan of Menangle Station. The study area is indicated by the red circle.

The Macarthur family provided land for a village school, which opened in 1867, and the Anglican Church and Catholic Churches, facilitated the construction of the St James Anglican Church. In 1871 the Menangle Public School (Plate 5), located immediately to the west of the study area, was built due to an application for a school made in 1849 by the Camden Park estate. Pressure for a public school ended in 1869-71 when a public school [3] was opened with an initial enrolment of 43 pupils. A school residence was added in 1876.[30] Menangle continued to grow south on the Nepean River, near the railway station. Cottages were built after 1882 which faced north along the street from the railway station.[31]

[30] Menangle Action Group 2010
[31] Bayley 1965

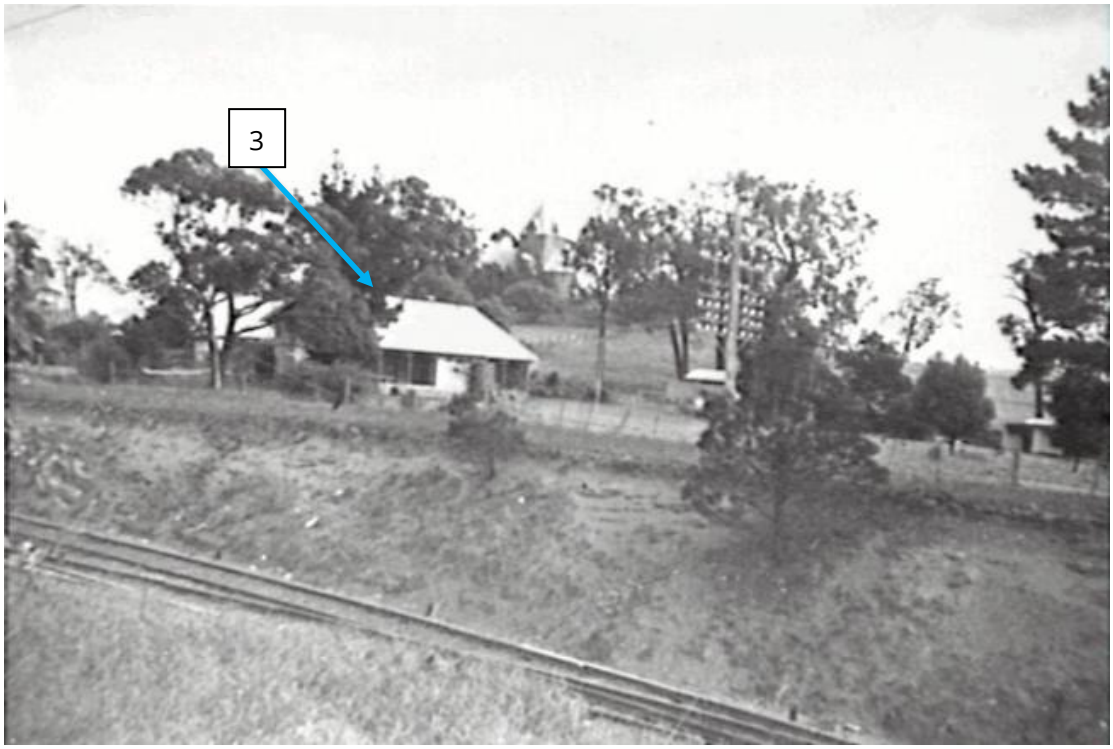

Plate 5 Former Menangle Public School (source: Campbelltown city council)

In the 1890s the School of Arts [4] was built on Macarthur land at Menangle. These buildings became a focus for events such as regular dances. In 1895 St Patricks Church was built at Menangle to serve the local Catholic community. [32]

During the early 1900s Menangle continued to develop, which included the Menangle Store [5]. The Menangle Store was a two story building and was built in 1904, at the intersection of Menangle Road and Station Street. The store had a butcher's room, chill room, cool room, a domed brick well and its own ovens. It supplied groceries, fresh bread, meat, drapery, tinware and many other supplies. [33] The store has been used by the Camden Park Estate right up to the 1970s as its buying agent for all provisions, stores, seed, fertiliser and fuels used on the farm.[34] The store also served as a post office and meeting place for the local community. In 1906 a new public school building and residence were built on a half-acre given by the Macarthur family and alterations to the Menangle Railway Bridge were carried out the following year to increase its load bearing capacity. [35]

[32] Wayne McPhee & Associates 2010
[33] Menangle Action Group 2010
[34] Bayley 1965
[35] Menangle Action Group 2010

Plate 6 Curry and Son Menangle General Store [5] (Source: Campbelltown city council)

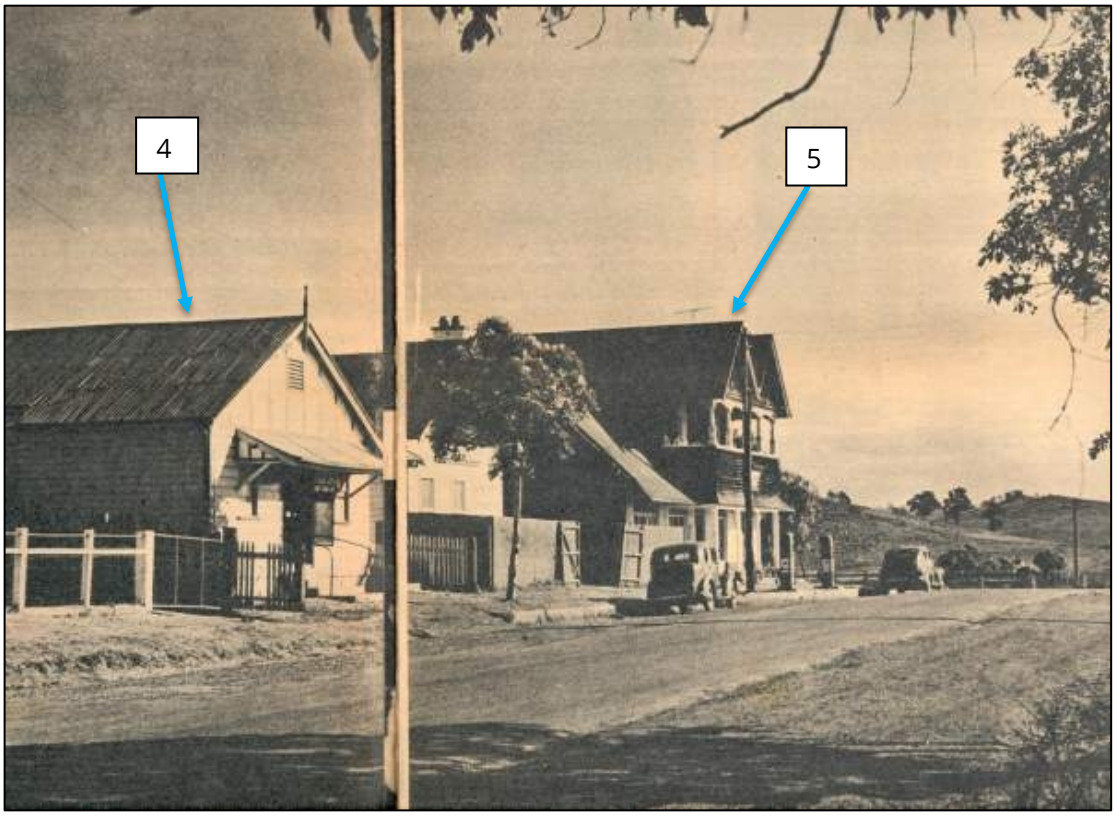

Plate 7 View of Station Street facing west (Source: Campbelltown City Council)

The importance of Menangle during the late 1920s and early 1930s was evident with the continued development of the school, with a tennis court and 45 foot flagpole added in the playground, together with

vegetable plots. In 1928 Menangle Public School, which had 54 pupils was voted the school with the best garden within 50 miles of Sydney[36].

3.3.3 Camden Park Estate Central Creamery moves to Menangle (1898 to 1970)

The late 19th and early 20th century saw a lot of changes and improvements to the estate and dairying became the major concern for the estate. This can be seen in the physical evolution of the study area and its immediate surrounds. In the 1890's there were twelve co-operative farms and forty leased farms supplying the dairies and creameries of Camden Park, which included the Camden Park Estate Central Creamery at Menangle[37] [6] located on the north-eastern boundary of the study area. The original timber Menangle Creamery was replaced by a two story brick creamery in 1898 by Camden Park Estate Co (Plate 8). Reports suggest that five new cottages were built and paid for by the estate during the late 1890s during this period of rapid growth of the dairying industry.[38]

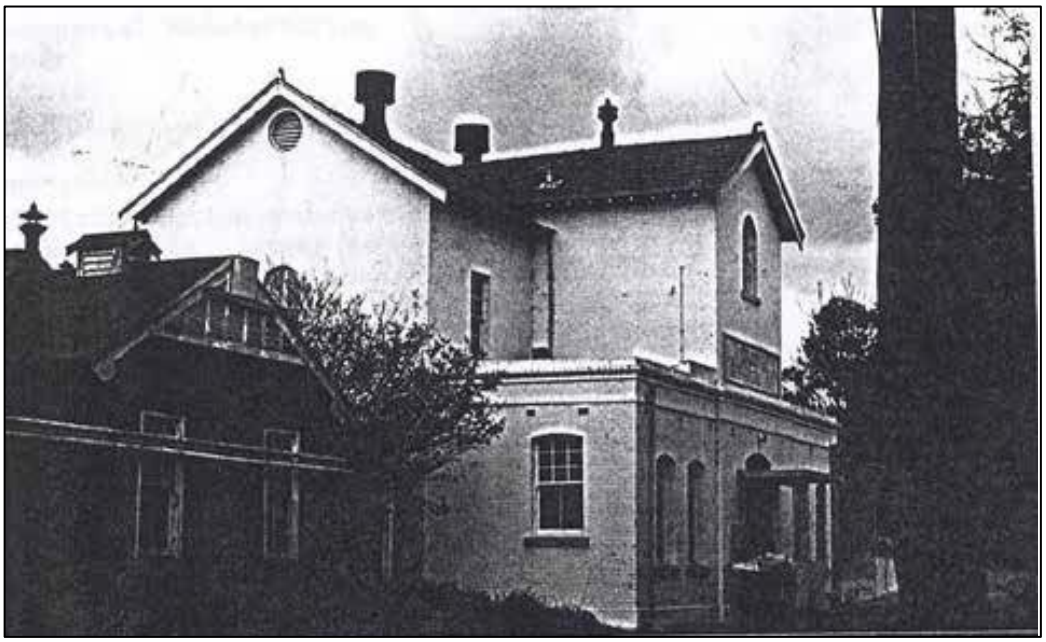

Plate 8 The 'New' Menangle creamery [6] built in 1898, as it appeared in 1992 (Wollondilly Heritate study).

In 1920 the family set up the Camden Vale Milk Company, which processed its milk at both Menangle and Camden factories and then sent by rail to the Sydney Market. The Milk Board was created in 1929 and soon the Central Creamery at Menangle became the depot for receiving milk for city distribution. [39]

Improvements were made to the creamery, including a new milk depot and railway siding at Menangle in 1921and a Menangle model dairy in 1926. The changing focus of the estate to dairying required accommodation for the dairy workers and we see at least 50 cottages built specifically for the dairy workers between 1911 and 1936:

- 1911 – A new cottage built (location unknown)

[36] Menangle Action Group 2010
[37] Brooks & Associates 2009
[38] Brooks & Associates 2014
[39] Muggridge 1921

- 1916 – A new cottage built for Mahoney and a new piggery at either farm 10 or 7
- 1918 – A new cottage built for Thomas Harris
- 1920 – Additions made to the central creamery. A new cottage built at Menangle
- 1922 – A new cottage and cow yard built at Brisbane
- 1923 – A new cottage built for Hickey
- 1925 – A new cottage built for Clouts
- 1926 – Menangle model dairy built and a new cottage built for Cricks[40]

Transport routes were an important determinant in the location of the dairies and Menangle, with its railway connection was considered an importance to the viability of the dairying enterprise. [41] The milk company was merged with the Dairy Farmer's Co-operative Milk Company in 1928. Menangle became the main milk receiving depot for a number of milking dairies in the area, and whole milk was dispatched by rail to Dairy Farmers Co-Operative Milk Co. in Sydney where it was pasteurised and bottle for distribution.[42]

The aerial photographs (Plate 9, Plate 10 and Plate 11) show the development of the study area from the 1940s. Evidence suggests that many of the cottages and houses built in Menangle provided accommodation for the expanding work force. The Managers Cottage [9], which is located on the southern boundary of the study area, is one of the only buildings that has been previously identified as being associated with the dairy.[43] This assessment has identified that the cottage [10] on Menangle Road, located within the northern portion of the study area, was a workers cottage, built in the 1920s for a dairy worker. The proximity of this cottage to the dairy lends to the explanation of this as a dairy workers cottage, with a direct route to the creamery. Also this cottage, along with the manager's cottage is the only residential structure located within the portion of land for the dairy.

[40] Thorp 1987
[41] Tanner 1989
[42] Brooks & Associates 2009
[43] http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2690887 Accessed 22 March 2018

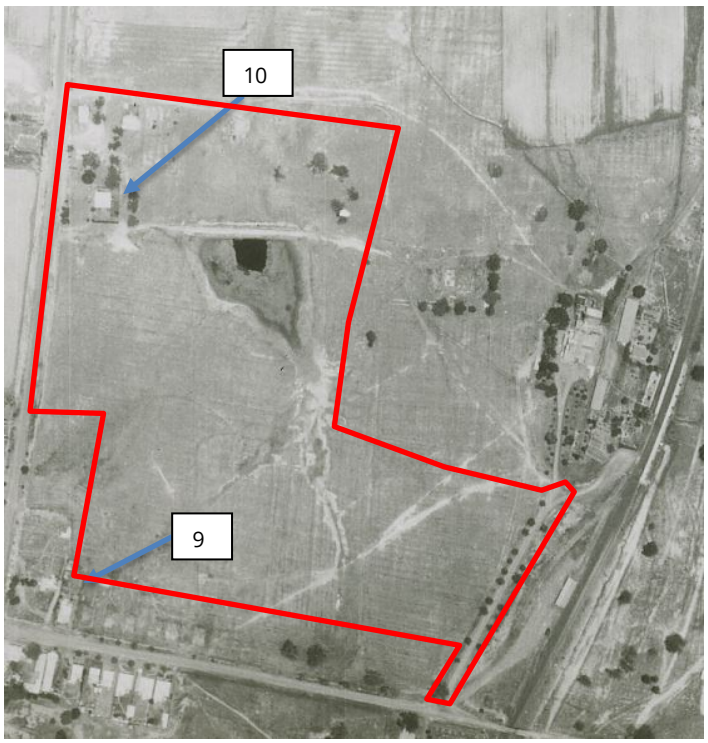

Plate 9 1947 aerial of the study area, approximate location of the study marked by red outline. Note the cottage [10] and dam present within the study area. Also note the existence of another cottage (located to the north of the study area) surrounded by plantings seperating the view from the creamery. Both cottages are likley part of the group of cottages built between 1911 and 1936 for the dairy workers. (source: NSW LPI)

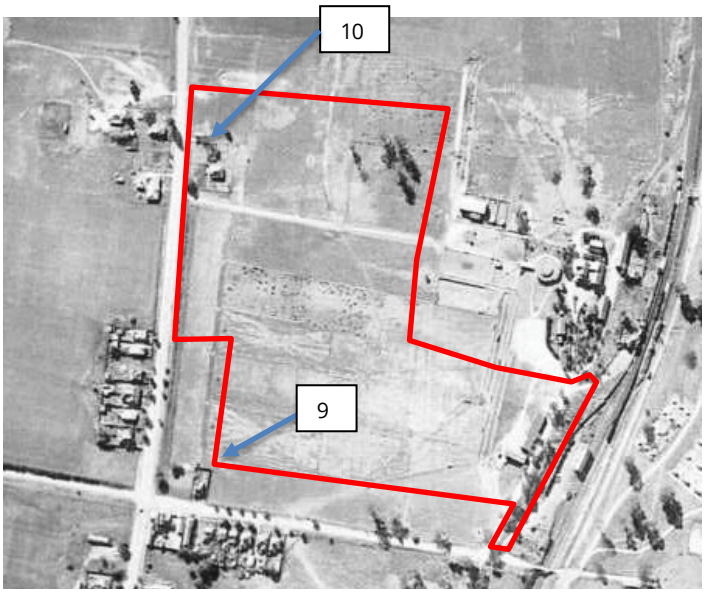

Plate 10 1961 aerial of the study area approximate location of the study area marked by red outline. The cottage [10] is still present but the cottage to the north has been removed. The rest of the study area has started to be used for cultivation of crops. The rotolactor has been built by this time and we see the formation of the cattle yards and cattle sheds located in the eastern portion of the study area. (source: NSW LPI)

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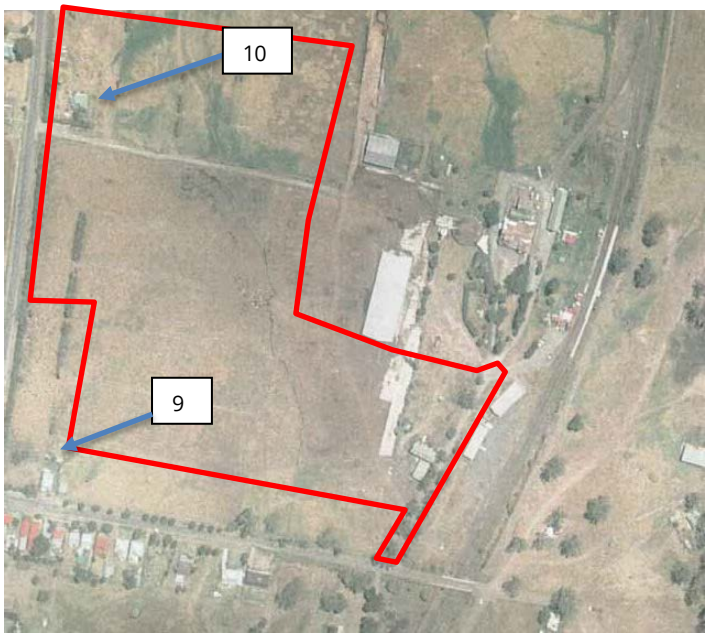

Plate 11 1988 aerial of the study area approximate location of the study marked by red outline. The cottage [10] is still present and has not undergone any significant development or additions. The rotolactor has by this time gone out of use and the creamy is only in operation for another few years after this image. We can see the disuse of the majority of the study area by this time. (source: NSW LPI)

The Menangle Rotolactor [7] was commissioned by Edward Macarthur-Onslow, who went onto develop it into a tourist attraction. The Rotolactor was first developed and built in the USA in the 1920s. Lieutenant Edward Macarthur- Onslow, whilst on a business trip to the USA in the 1940s inspected the Rotolactor. Wanting to keep up to date with modern trends, Edward returned to Australia and authorised the building of a Rotolactor at Camden Park. Camden Park Estate continued to manually milk their dairy herd through the 1940s despite the popularity of machine milking in the state.[44]

The foundations for the Rotolactor were laid in 1950 and completed in 1952. The building that housed the machine was a circular, steel, aluminium and glass building (Plate 12). The Rotolactor was powered by two electric motors, which consisted of an 18 metre diameter metal platform. The platform had fifty bails fitted with standard vacuum milking machines feeding into containers that were regularly emptied into refrigerated tanks. [45]

[44] Bayley 1965
[45] Brooks & Associates 2009

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Plate 12 The Menangle Rotolactor [7] (Campbelltown Library)

Cows entered from the holding yard up an included ramp, passing through disinfecting foot spray, into an empty bail. They were held in place with an automatically operated head lock. As the platform revolved the workers went around with it, cleaning the teats and udders and attaching the milking cups. At the completion of the rotation, the bail was unlocked, the food trough raised and the cow exited down a curved interior ramp and out via a tunnel underneath the platform.[46]

The Rotolactor boosted the production and promotion of the Camden Vale Special milk, which was sold at premium price in the late 1970s. Marketing was enhanced by the milk bar attached to the Rotolactor which opened in 1953 and became a popular trip destination for Sydneysiders. However by the late 1970s, the Rotolactor was in an inefficient operational condition when the Camden Park Estate went into bankruptcy. The machine suffered from technical problems, these problems included the platform slipping off the rails and the cows being struck by the automatically raised feeding boxes.[47]

The demise of the rotolactor and creamery in the late 1970's did not particularly affect the use of the study area. It has been in continual use as general grazing for cattle with little other activities or development taking place. The rotolactor, creamery and associated structures adjacent to the study area have been abandoned with the state of these structures being somewhat dilapidated.

3.4 Chronology of the study area

Based upon the historical research presented it is possible to summarise the chronology of the study area, this is presented in Table 3.

[46] http://campbelltown-library.blogspot.com.au/2016/07/the-menangle-rotolactor.html Accessed 7 may 2018
[47] Brooks & Associates 2009

Table 3 Chronological development of the study area

Date	Building	Details
c.1850	Menangle Village [2], cottage	Menangle was originally the private village of the Camden Park Estate until 1975. In 1850, about 900 people lived on the property which included Menangle. During the late nineteenth and early twentieth century's, many cottages were built at Menangle, for those working in the various Camden Park Estate enterprises. 9 of these survive exactly as they were.
1866	Camden Estate Headquarters move to Menangle	Due to the railway, road and dairying most business was conducted in Menangle. Headquarters were in the Creamery.
1880	Foundation of Commercial Dairying	Mrs Macarthur-Onslow brought back with her from England plans and ideas to establish her dairying. Milking became the life blood of Camden Park Estate. 1899 Mrs Macarthur-Onslow formed a company with her children to control the dairying and Camden Park Estate Ltd was formed.
1883-1948	Butter Factory [6]	The first butter factory in NSW at Menangle. It became the Central Creamery in 1948.
1898	Camden Park Estate Central Creamery [6]	Built by the Macarthurs adjacent to the railway station in 1898 The Creamery initially separated milk for the sweet cream trade in Sydney, and from 1929 became the local depot for receiving whole milk for city distribution.
1952	Rotolactor arrives [7]	It was the second of this design and size in the world. The Rotolactor operated until 1983.

3.5 Research themes

Contextual analysis is undertaken to place the history of a particular site within relevant historical contexts in order to gauge how typical or unique the history of a particular site actually is. This is usually ascertained by gaining an understanding of the history of a site in relation to the broad historical themes characterising Australia at the time. Such themes have been established by the Australian Heritage Commission and the NSW Heritage Office and are outlined in synoptic form in New South Wales Historical Themes.[48]

There are 38 State Historical Themes, which have been developed for NSW, as well as nine National Historical Themes. These broader themes are usually referred to when developing sub-themes for a local area to ensure they complement the overall thematic framework for the broader region.

A review of the contextual history in conjunction with the local historical thematic history has identified five historical themes which relate to the occupational history of the study area. Historical themes for the study area summarised in Table 4.

[48] NSW Heritage Council 2001

Table 4 Identified historical themes for the study area

Australian Theme	NSW Theme	Local Theme
3 Economy- Developing local, regional and national economies	Industry- Activities associated with the manufacture, production and distribution of goods	Dairying
3 Economy-Developing local, regional and national economies	Transport- Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	Transport
3 Economy – Developing local, region and national economies	Pastoralism- Activities associated with the breeding, raising, processing and distribution of livestock for human use	Dairying
4 Settlement- Building settlements, towns and cities	Towns, Suburbs and villages – Activities associated with creating planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages.	Development of Menangle
4 Settlements – Building settlements, towns and cities	Land tenure- Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Land Grants to the Macarthurs

4 Physical inspection

A physical inspection of the study area was undertaken on 18 April, attended by Lian Flannery and Mathew Smith. The principal aims of the survey were to identify heritage values associated with the study area; this included any heritage items (Heritage items can be buildings, structures, places, relics or other works of historical, aesthetic, social, technical/research or natural heritage significance. 'Places' include conservation areas, sites, precincts, gardens, landscapes and areas of archaeological potential).

4.1 Landscape character assessment

The purpose of this section is to provide an analysis and description of the study area as part of a cultural landscape. The cultural landscape concept emphasises the landscape-scale of history and the connectivity between people, places and heritage items. It recognises the present landscape is the product of long-term and complex relationships between people and the environment. For the purposes of this report cultural landscapes are defined as: '... those areas which clearly represent or reflect the patterns of settlement or use of the landscape over a long time, as well as the evolution of cultural values, norms and attitudes toward the land.'[49]

4.1.1 An overview of cultural landscapes

In order to fully understand the heritage significance of the study area it is necessary to consider the character of the landscape within which it is situated. The heritage value of a landscape may be related to its aesthetic, archaeological, historical, scientific, social, or architectural values, each or all of these values can - exist at any one time. The identification of these values is important in discussing the study area and its constituent elements heritage significance.

Three general landscape categories have been developed and applied by heritage organisations to assist in understanding different types of landscapes:[50]

- **Designed landscapes**: Those that are created intentionally such as gardens, parks, garden suburbs, city landscapes, ornamental lakes, water storages and campuses.
- **Evolved landscapes**: Those that display an evolved land use in their form and features. They may be 'relict' such as former mining or rural landscapes. They may be 'continuing' such as modern active farms, vineyards, plantations or mines.
- **Associative cultural landscapes**: Those are landscape features that represent religious, artistic, sacred or other cultural associations to individuals or communities.

4.1.2 Station Street, Menangle as a cultural landscape

The study area can be considered a cultural landscape which has been cleared and adapted largely for the purpose of dairying activities. The study area has developed as a cultural landscape since its initial acquisition by John Macarthur in 1825, with the use of the study area as a dairy farm commencing in the 1890s.

The cultural landscape associated with study area and surrounds can be characterized as an agricultural landscape. The study area was likely cleared around the 1890s (if not earlier) when the second dairy farm was established by Elizabeth Macarthur-Onslow. The agricultural landscape has been heavily modified for dairying

[49] NSW Heritage Office 2001b
[50] NSW Heritage Office 2001b

and grazing, with internal and external boundaries formed by a variety of timber and wire fence lines (Plate 13 and Plate 14). The study area has predominantly remained untouched since it was used as grazing pastures for cattle. There is one dwelling and a group of sheds located within the study area, moreover the area has been cleared of native vegetation (Plate 15).

Plate 13 **Dairying sheds located on the eastern boundary of the study area**

Plate 14 **View of the study area facing south-east**

Plate 15 **Heritage items within the study area - 10: dairy workers cottage, and in the vicinity of the study area - 6: Central creamery, 7: Rotolactor, 9: Creamery managers cottage,**

Currently there is one early 20th century cottage (Plate 16) within the north western portion of the study area that has been identified as being a workers cottage. Within the south eastern portion of the study area there are two sheds (Plate 17) that were associated with the central creamery, these have been identified as not containing any heritage significance in previous heritage assessments.[51] The Cultural Management Plan for the Creamery Precinct (CMP) identifies the items of significance and built fabric for the Central Creamery complex and the two dilapidated sheds (Plate 17) are not included within the complex. This assessment has not identified any new evidence to contradict this previous assessment and therefore supports the conclusion of the CMP. The study area comprises of a flat landform with the eastern boundary adjoining the curtilage of the locally listed items; Camden Park Estate- Central Creamers Managers Cottage and the Camden Park Rotolactor. The southern boundary is defined by Station Street with the town of Menangle and new residential developments forming the backdrop. The western boundary is characterised by 19th and 20th century cottages and bungalows that run along Menangle Road. The eastern boundary is characterised as rural farmland.

Plate 16 Early 20th Century cottage within the western portion of the study area

Plate 17 Dairy sheds located within the eastern portion of the study area

4.1.3 Views to and from the study area

It is important to analyse and describe views to and from components within a cultural landscape to help understand how it is experienced and to understand the nature of an evolving landscape. This enables a greater understanding of what aspects of the landscape need to be conserved and protected. Significant views to, from and within the study area are described in this section.

Assessment of the heritage views have been previously addressed in response to the proposed development.[52] The primary and most significant heritage views within the study area are associated with the Camden Park Estate Central Creamery and Rotolactor. The previous assessments identified that the significant view corridors of these items and others within Menangle Village would not be adversely impacted by the proposed development and that the most significant views will be protected. This assessment has not identified any further changes to the views and vistas already assessed and supports the findings of the previous assessment. The proposed development will enhance the accessibility of the heritage items to the local and wider community.

[51] Brooks & Associates 2014
[52] Lamb 2012; Lamb 2014

The views associated with the study area are a typical rural landscape that has historically been used for dairying and farming practices. The Menangle village centre is located immediately south of the study area and unapologetically shows off the townships historical dwellings and buildings (Plate 18), with the northern view showing off the vast farmland of the study area (Plate 19). Views from the western boundary of the study area encompasses Menangle Road with a row of 19th and 20th century cottages and bungalows (Plate 20). The views from the eastern boundary give light to the historical nature of the Menangle village which looks out across the old dairying sheds and toward the state listed; Menangle Railway Station and railway (Plate 21).

Plate 18 Southern view across the study area from the northern boundary

Plate 19 Northern view across the study area from the southern boundary

Plate 20 Western view across the study area from the eastern boundary

Plate 21 Eastern view across the study area from the western boundary

4.2 Built fabric assessment

4.2.1 Cottage

The study area contains a c1920s built workers cottage that is located within the north west. The study area remains largely unchanged from its use as an agricultural centre with most features still extant.

The workers cottage is a typical Federation period cottage erected at minimum cost but still reflecting the architectural trends of the period. The key features of the cottage are the steeply pitched half-hipped roof; louvered gables vent; single masonry chimney (Plate 22); timber frame construction with fibro cladding;

imitation half-timbered decoration; half nullnose verandah to front (Plate 23); timber framed and sashed double hung windows (Plate 24 and Plate 25); single story; asymmetrical form and massing; position close to road alignment; simplicity of form and modesty of scale.

Plate 22 Northern view of the cottage

Plate 23 Front view of the cottage

Plate 24 Detail of front window of the cottage

Plate 25 Detail of the front door of the cottage

4.2.2 Rotolactor

The Rotolactor was constructed of a circular concrete base, with a steel, aluminum and glass outer building (Plate 26). It housed the rotary mechanized milking machines which were powered by electric motors, which consisted of an 18 metre diameter metal platform, mounted on 20 twelve inch roller bearing steel wheels that rotated anti-clockwise on two circular rails resting on concrete walls, approximately 2 metres above the floors. The platform had fifty bails fitted with standard vacuum milking machines (Plate 27, Plate 28 and Plate 29).

The Rotolactor underwent a series of additions and changes during the last 10 years of its operation. An additional building was constructed to the south east of the milk bar and there was a reduction of the interior space in the bails by inserting extra railings. The feed boxes were replaced with feed troughs and the entry

and exit ramps were reversed and the exit tunnel and ramp were blocked off by being infilled with concrete. The milking equipment was replaced and the revolving platform underwent re-engineering.

Plate 26 External view of the rotolactor

Plate 27 Internal detail of the rotolactor

Plate 28 Internal detail of the rotolactor

Plate 29 Internal detail of the rotolactor

4.3 Archaeological assessment

The potential archaeological resource relates to the predicted level of preservation of archaeological resources within the study area. Archaeological potential is influenced by the geographical and topographical location, the level of development, subsequent impacts, levels of onsite fill and the factors influencing preservation such as soil type. An assessment of archaeological potential has been derived from the historical analysis undertaken during the preparation of this report.

4.3.1 Archaeological resource

The potential archaeological resources relates to the predicted level of preservation of archaeological resources within the study area. Archaeological potential is influenced by the geographical and topographical location, the level of development, subsequent impacts, levels of onsite fill and the factors influencing preservation such as soil type. An assessment of archaeological potential has been derived from the historical analysis undertaken during the preparation of this report. This section discusses the archaeological resource within the study area. The purpose of the analysis is to outline what archaeological deposits or structures are likely to be present within the study area and how these relate to the history of land use associated with the study area.

The historical context presented in this report indicates that the study area has the potential to contain archaeological remains associated with the 19th century dairy farming. These archaeological remains are likely to be associated with cattle holding pens, drainage, timber storage buildings, cobble surfaces, post holes, and foundations of stone walls. Evidence of pre-dairying cultivation of the study area may be present in the form of ridge and furrow. These are likely to present as ephemeral features rather than substantial archaeological remains.

The c.1920 cottage is not likely to contain any archaeological deposits. By this time there were standardized sanitation protocols in place, with most domestic buildings using a septic tank to dispose of waste.

4.3.2 Integrity of sub-surface deposits

Sub-surface deposits can be disturbed or damaged by later development. The identified archaeological deposits associated with the 19th century dairy farming practices are likely to be present within the central portions of the study area, however they are ephemeral in nature and as such it is difficult to ascertain the exact location of any such features.

4.3.3 Research potential

Archaeological research potential refers to the ability of archaeological evidence to provide information about a site that could not be derived from any other source and which contributes to the archaeological significance of that site. Archaeological research potential differs from archaeological potential in that the presence of an archaeological resource (i.e. archaeological potential) does not mean that it can provide any additional information that increases our understanding of a site or the past (i.e. archaeological research potential).

The research potential of a site is also affected by the integrity of the archaeological resource within a study area. If a site is disturbed, then vital contextual information that links material evidence to a stratigraphic sequence may be missing and it may be impossible to relate material evidence to activities on a site. This is generally held to reduce the ability of an archaeological site to answer research questions.

Assessment of the research potential of a site also relates to the level of existing documentation of a site and of the nature of the research done so far (the research framework), to produce a 'knowledge' pool to which research into archaeological remains can add.

Should archaeological remains be present, relating to un-stratified relics, ephemeral evidence of dairying such as former fence lines and holding pens have a limited potential to answer research questions relating to the development and nature of occupation of the study area which would not be better answered by documentary sources.

4.3.4 Summary of archaeological potential

Through an analysis of the above factors a number of assumptions have been made relating to the archaeological potential of the study area, these are presented in Table 5.

The assessment of archaeological potential has been divided into three categories:

- **High archaeological potential** – based upon the historical context and documentary evidence presented within this report there is a high degree of certainty that archaeologically significant remains relating to this period, theme or event will occur within the study area.
- **Moderate archaeological potential** – based upon the historical context and documentary evidence presented within this assessment it is probable that archaeological significant remains relating to this period, theme or event could be present within the study area,
- **Low archaeological potential** – based upon the historical context and documentary evidence presented within this assessment it is unlikely that archaeological significant remains relating to this period, theme or event will occur within the study area.

Table 5 Assessment of archaeological potential

Probable archaeological features	Feature(s)	Possible construction date	Archaeological potential
Evidence of dairying including holding pens, work surfaces and post holes.	Compacted deposits, post holes, drainage features, furrow marks	c. late 19th century	Low

5 Significance assessment

An assessment of heritage significance encompasses a range of heritage criteria and values. The heritage values of a site or place are broadly defined as the 'aesthetic, historic, scientific or social values for past, present or future generations'.[53] This means a place can have different levels of heritage value and significance to different groups of people.

The archaeological significance of a site is commonly assessed in terms of historical and scientific values, particularly by what a site can tell us about past lifestyles and people. There is an accepted procedure for determining the level of significance of an archaeological site.

A detailed set of criteria for assessing the State's cultural heritage was published by the (then) NSW Heritage Office. These criteria are divided into two categories: nature of significance, and comparative significance.

Heritage assessment criteria in NSW fall broadly within the four significance values outlined in the Burra Charter. The Burra Charter has been adopted by State and Commonwealth heritage agencies as the recognised document for guiding best practice for heritage practitioners in Australia. The four significance values are:

- Historical significance (evolution and association).
- Aesthetic significance (scenic/architectural qualities and creative accomplishment).
- Scientific significance (archaeological, industrial, educational, research potential and scientific significance values).
- Social significance (contemporary community esteem).

The NSW Heritage Office issued a more detailed set of assessment criteria to provide consistency with heritage agencies in other States and to avoid ambiguity and misinterpretation. These criteria are based on the Burra Charter. The following SHR criteria were gazetted following amendments to the Heritage Act that came into effect in April 1999:

- Criterion (a) - an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (b) - an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (c) - an item is important in demonstrating the aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
- Criterion (d) - an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
- Criterion (e) - an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
- Criterion (f) - an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).

[53] NSW Heritage Office, 2001

- Criterion (g) - an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments; or a class of the local area's cultural or natural places; or cultural or natural environments.

5.1 Levels of heritage significance

Items, places, buildings, works, relics, movable objects or precincts can be of either local or State heritage significance, or have both local and State heritage significance. Places can have different values to different people or groups.

Local heritage items

Local heritage items are those of significance to the local government area. In other words, they contribute to the individuality and streetscape, townscape, landscape or natural character of an area and are irreplaceable parts of its environmental heritage. They may have greater value to members of the local community, who regularly engage with these places and/or consider them to be an important part of their day-to-day life and their identity. Collectively, such items reflect the socio-economic and natural history of a local area. Items of local heritage significance form an integral part of the State's environmental heritage.

State heritage items

State heritage items, places, buildings, works, relics, movable objects or precincts of State heritage significance include those items of special interest in the State context. They form an irreplaceable part of the environmental heritage of NSW and must have some connection or association with the State in its widest sense.

The following evaluation attempts to identify the cultural significance of the study area .This evaluation of significance is based on the assumption that the site contains intact or partially intact archaeological deposits.

5.2 Evaluation of significance

Criteria A: An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).

15 Menangle Road is an important component of the historic cultural landscape of Menangle, being part of the former Camden Park Estate. The workers cottage is associated with the operation of the Camden Park Estate Central Creamery and as such is contributory to the significance of the Creamery and Camden Park Estate.

The study area satisfies this criterion at a local level.

Criterion B: An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).

15 Menangle Road does not have a strong or special association with the life or works of a person, or group of persons of importance in NSW's cultural or natural history.

The study area does not satisfy this criterion.

Criteria C: An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).

The cottage within the study area is a good example of an early 20th century dwelling. It is typical of the small timber cottages that characterised Menangle in the mid-19th – early 20th century and is an important component of the historic cultural landscape of Menangle.

The study area satisfies this criterion at a local level.

Criterion D: An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.

15 Menangle Road does not hold a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons.

The study area does not satisfy this criterion.

Criterion E: An item has the potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).

15 Menangle Road has potential to yield information that may contribute to the local knowledge of the people who lived and worked at the dairy throughout this time. The cottage is located within land that was formerly owned by the Macarthur family and would have been employee housing connected to the Camden Park Estate.

The study area satisfies this criterion at a local level.

Criterion F: An item possesses uncommon, rare or endangered aspects of the area's cultural or natural history (or the cultural or natural history of the local area).

The cottage 15 Menangle Road is assessed as a rare item locally due to the cottage being an example of early 20th century dairy farm workers cottage in a rural setting.

The study area satisfies this criterion at a local level.

Criterion G: An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments. (Or a class of the local area's cultural or natural places, or cultural or natural environments).

The cottage within the study area is a good representative example of early 20th century cottages in a rural setting. The cottage, although in need of some restoration still represents the original layout and build with only minor modifications evident to the rear section of the veranda and back area of the house. The modifications seem to be constructed of wooden framing with fibro boarding.

The study area satisfies this criterion at a local level.

Table 6 Evaluation of significance assessment for items within and adjacent to the study area

Element	NSW Heritage Criteria	Assessment	Statement of significance
Workers Cottage – 15 Menangle Road *NEW	a, c, e, f, g	15 Menangle Road has local significance as a good example of a late 19th century dwelling. It is typical of the small timber cottages that characterised Menangle in the mid to late 19th century and is a contributory element of the historic cultural landscape of Menangle. 15 Menangle Road has local significance as a good example of an early 20th century dwelling. It is typical of the small timber cottages that characterised Menangle in the mid - 19th to the early 20th century and is an important component of the historic cultural landscape of Menangle. 15 Menangle Road has potential to yield information that could contribute to an understanding of the cultural and natural history of the study area. The cottage is located within land that was formerly owned by the Macarthur family and could have potentially been employee housing connected to the Camden Park Estate. 15 Menangle Road is assessed as a rare item locally due to the cottage being an example of early dairy farm workers 20th century cottages in a rural setting 15 Menangle is a good representative example of early 20th century cottages in a rural setting	*The workers cottage is a typical Federation period cottage erected at minimum cost but still reflecting the architectural trends of the period. The key features of the cottage are the steeply pitched half-hipped roof; louvered gables vent; single masonry chimney; timber frame construction with fibro cladding; imitation half-timbered decoration; half nullnose verandah to front; timber framed and sashed double hung windows; single story; asymmetrical form and massing; position close to road alignment; simplicity of form and modesty of scale.*
Camden Park Rotolactor	a, e and f	The Camden Park Rotolactor provides evidence of the post WWII phase of dairying activity in the Sydney Region. Represents the mechanisation of commercial dairy farming in Australia. Together with a range of physical evidence which survives in close proximity to Camden Park Estate, it is significant because of the opportunity it provides	The Camden Park Rotolactor provides evidence of the post WWII phase of dairying activity in the Sydney Region. It represents the final advance in the mechanisation of commercial dairy farming in Australia and was the second facility of this type and scale in the world. Together with a range of physical evidence which

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Element	NSW Heritage Criteria	Assessment	Statement of significance
		to interpret the history of dairy farming and production in the region for a period encompassing over 150 years of development. Rare state-wide. The Camden Park Rotolactor is unique in NSW. Second facility of this type and scale in the world	survives in close proximity to Camden Park Estate, it is significance because of the opportunity it provides to interpret the history of dairy farming and production in the region for a period encompassing over 150 years of development.
		Updated criteria a by Biosis Pty Ltd: *The Camden Park Rotolactor provides evidence of the post WWII phase of dairying activity in the Sydney Region.* Lieutenant Edward Macarthur-Onslow, a descendant of John and Elizabeth Macarthur, inspected it on a business trip to the United States. Keen to keep abreast of modern trends, Edward returned to Australia and commissioned the building of a rotolactor at Camden Park. Plans were drawn up locally and the foundation stone laid in 1950. The building was completed in 1952, the first of its kind in Australia and the second facility of this type and scale in the world. Halfpenny Hobbs operated the Rotolactor for about ten years after it was purchased from the administrators of the Camden Park Estate. **Updated criteria f by Biosis Pty Ltd:** *Rare state-wide. The Camden Park Rotolactor is unique in NSW. Second facility of this type and scale in the world.* It was invented by Henry W. Jeffers and developed by the Borden Company in 1930. The entirety of the machine was enclosed with glass windows and consisted of a circular platform mounted on 20, 30.48 cm rollers bearing steel which rotated anti-clockwise.	**Amended statement of significance:** The Camden Park Rotolactor provides evidence of the post WWII phase of dairying activity in the Sydney Region. It represents the final advance in the mechanisation of commercial dairy farming in Australia and was the second facility of this type and scale in the world. Together with a range of physical evidence which survives in close proximity to Camden Park Estate, it is significant because of the opportunity it provides to interpret the history of dairy farming and production in the region for a period encompassing over 150 years of development. The rotolactor represents as a rare and unique dairying facility that was visited weekly by locals and school groups. It is a significant factor in the local history of Menangle as it is an unusually intact example of a rural service centre of this period.
Camden Park Estate – Central Creamers Managers	a, c and f	Creamery Cottage has local significance through its association with the former Camden Park Estate Central Creamery. The cottage was erected as manager's residence as part of the creamery complex and is the only visible reminder in Menangle of workers housing provided on the estate at this time. It is locally rare and a good example of a Federation period cottage. Although	*Local significance through its association with the former Camden Park Estate Central Creamery. The cottage was erected as managers residence as part of the creamery complex and with the dairy workers cottage 2 Station street is the only visible reminder in Menangle of workers*

Element	NSW Heritage Criteria	Assessment	Statement of significance
Cottage		in poor condition, this is an important component of the historic cultural landscape of Menangle. Its significance is further enhanced by the backdrop of open pastures and dairy infrastructure remnants. Aesthetic significance is further enhanced by the backdrop of open pastures and dairy infrastructure remnants. It is locally rare and a good example of a Federation period cottage	*housing provided on the estate at this time. It is locally rare and a good example of a Federation period cottage. Although in poor condition, this is an important component of the historic cultural landscape of Menangle. Its significance is further enhanced by the backdrop of open pastures and dairy infrastructure remnants.*
Camden Park Estate Central Creamery	a and g	This item is assessed as historically significant regionally. This item is assessed as aesthetically representative regionally.	*The Camden Park Estate Central Creamery is significant as evidence of the scale of dairying activities carried out to supply Sydney's needs in the latter part of the 19th Century and in the 20th century. It has associations with the Camden Park Estate and is part of a network of sites which provides a range of Physical evidence of the commercial dairying industry in the Sydney region. With the removal of much of its equipment in recent times, it has lost the ability to demonstrate the operations of a creamery of this period but it is the most substantial and intact creamery building in Wollondilly.*
Central Creamery and Sheds	a, c and f	Important historic associations with agricultural processing. Fine example of Federation period agricultural processing complex. Its aesthetic significance is further enhanced by the backdrop of open pastures and dairy infrastructure remnants. Rare locally	*The Central Creamery main building and attached sheds from the core of the Creamery complex. This is a very fine example of a Federation period agricultural processing complex and is an important component of the historic cultural landscape of Menangle. Its significance is further enhanced by the backdrop of open pastures and other dairy infrastructure remnants.*
Menangle Conservation	a, b, c, d, e, f, g	Menangle Village has remained essentially contained within the settlement boundaries formed by village development by the second decade of the 20th	*Menangle Village has remained essentially contained within the settlement boundaries formed by village development by*

Element	NSW Heritage Criteria	Assessment	Statement of significance
Area		century. As such it is an unusually intact example of a rural service centre of this period and in particular, one that is associated with the dairying industry when new technologies were being introduced to transport and process dairy products and when new dairying techniques were introduced in the form of the Rotolactor. The location of the village reflects the strong influence of major road and rail construction activities on town development in the Region. It also has local & regional aesthetic significance as a discrete landscape entity and notable landmark, with its cross streets lined with houses elevated above the surrounding farmlands and the whole village itself being visually dominated by St James' Church on the small rise in the centre of the settlement. The village also has associational significance through its links with the Macarthur family and the Camden Park Estate, this being most clearly expressed in the major commercial, ecclesiastical and industrial buildings of the General Store, St James' Church, the Creamery and the Rotolactor as well as Estate workers' housing. The village is also an important social entity with a strong sense of community and sense of place to a degree not reached in the other towns and villages of Wollondilly. Menangle Village has State significance through its close association with the Macarthur and Onslow families, who were instrumental in establishing the village and keeping it economically viable through financial support and the provision of jobs on their Camden Park Estate and the nearby Creamery. Menangle Village has remained essentially contained within the settlement boundaries formed by village development by the second decade of the 20th century. As such it is an unusually intact example of a rural service centre of this period and in particular, one that is associated with the dairying industry when new technologies were being introduced to transport and process dairy products and when new dairying techniques were introduced in the form of the Rotolactor. The location of the village reflects the strong influence of	*the second decade of the 20th century. As such it is an unusually intact example of a rural service centre of this period and in particular, one that is associated with the dairying industry when new technologies were being introduced to transport and process dairy products and when new dairying techniques were introduced in the form of the Rotolactor. The location of the village reflects the strong influence of major road and rail construction activities on town development in the Region.* *It also has local & regional aesthetic significance as a discrete landscape entity and notable landmark, with its cross streets lined with houses elevated above the surrounding farmlands and the whole village itself being visually dominated by St James' Church on the small rise in the centre of the settlement.* *The village also has associational significance through its links with the Macarthur family and the Camden Park Estate, this being most clearly expressed in the major commercial, ecclesiastical and industrial buildings of the General Store, St James' Church, the Creamery and the Rotolactor as well as Estate workers' housing.* *The village is also an important social entity with a strong sense of community and sense of place to a degree not reached in the other towns and villages of Wollondilly*

Element	NSW Heritage Criteria	Assessment	Statement of significance
		major road and rail construction activities on town development in the Region. It also has local & regional aesthetic significance as a discrete landscape entity and notable landmark, with its cross streets lined with houses elevated above the surrounding farmlands and the whole village itself being visually dominated by St James' Church on the small rise in the centre of the settlement. The village also has associational significance through its links with the Macarthur family and the Camden Park Estate, this being most clearly expressed in the major commercial, ecclesiastical and industrial buildings of the General Store, St James' Church, the Creamery and the Rotolactor as well as Estate workers' housing. The village is also an important social entity with a strong sense of community and sense of place to a degree not reached in the other towns and villages of Wollondilly. Menangle Village has State significance through its ability to demonstrate the social development of a small village from the early 19th century through to the present day with the 19th century core of the village remaining intact. Menangle Village has State significance through its ability to provide insights into the layout and development of a small rural village over more than a century and through its ability to provide insights into daily life in an estate village of the 19th century This item is assessed as rare state-wide. Menangle Village is an outstanding representative example of an intact 19th century estate village.	

6 Statement of heritage impact

This Statement of heritage impact has been prepared to address impacts resulting from the proposed development of the study area.

This assessment has identified that the study area contains one newly identified item of heritage significance. The study area is also encompassed by the Menangle Conservation Area. Items of local significance are located within the vicinity of the study area, specifically Camden Park Central Creamery Managers Cottage, Camden Park Rotolactor and the Central Creamery and Sheds. Therefore the following will address impacts to these heritage items that may result from the proposed development.

The SoHI identifies the level of impact arising from the proposed development and discusses mitigation measures which must be taken to avoid or reduce those impacts. This section of the report has been prepared in accordance with the Heritage Manual guideline *Statements of Heritage Impact*.[54]

6.1 Proposal details

The proposed stage 1 development of Station Street Menangle will consist of approximately 97 residential lots, local roads, drainage, detention and water quality basin, open space/park and services utilities. It is proposed to separately undertake bulk earthworks within the Stage 1 area and it is proposed to subdivide the Stage 1, Park and neighborhood Centre from the existing "parent" lots. The construction scope excludes the neighborhood centre.

Details of the proposed development are outlined in appendix A.

6.2 Assessing impact to heritage item(s)

6.2.1 Discussion of heritage impact(s)

The discussion of impacts to heritage can be centered upon a series of questions which must be answered as part of a SoHI which frame the nature of impact to a heritage item. The Heritage Manual guideline *Statements of Heritage Impact* includes a series of questions in relation to indicate the criterion which must be answered.[55] These are:

- *Could future development that results from this subdivision compromise the significance of the heritage item? How has this been minimised?*
- *Could future development that results from this subdivision affect views to, and from, the heritage item? What has been done to minimise negative affects?*

6.2.2 Quantifying heritage impact(s)

Based upon the discussion of Impacts to heritage items, impact to these items can be quantified under three main categories: direct impacts, indirect impacts and no impact. These kinds of impacts are dependent on the proposed impacts, nature of the heritage item and its associated curtilage.

[54] Heritage Office and Department of Urban Affairs & Planning 1996
[55] *ibid*

Direct impacts

Direct impacts are where the completion of the proposed development will result in a physical loss or alteration to a heritage item which will impact the heritage value or significance of the place. Direct impacts can be divided into whole or partial impacts. Whole impacts essentially will result in the removal of a heritage item as a result of the development where as partial impacts normally constitute impacts to a curtilage or partial removal of heritage values. For the purposes of this assessment direct impacts to heritage items have been placed into the following categories:

- Physical impact - whole: where the development will have a whole impact on a heritage item resulting in the complete physical loss of significance attributed to the item.
- Physical impact - partial: where the project will have a partial impact on an item which could result in the loss or reduction in heritage significance. The degree of impact through partial impacts is dependent on the nature and setting of a heritage item. Typically these impacts are minor impacts to a small proportion of a curtilage of an item or works occurring within the curtilage of a heritage item which may impact on its setting (i.e. gardens and plantings).

Indirect impacts

Indirect impacts to a heritage item relate to alterations to the environment or setting of a heritage item which will result in a loss of heritage value. This may include permanent or temporary visual, noise or vibration impacts caused during construction and after the completion of the development. Indirect impacts diminish the significance of an item through altering its relationship to its surroundings; this in turn impacts its ability to be appreciated for its historical, functional or aesthetic values. For the purposes of this assessment impacts to heritage items have been placed into the following categories:

- Visual impact
- Noise impact
- Vibration impact

Cumulative impacts

Cumulative impacts relate to minimal or gradual impacts from a single or multiple developments upon heritage values. A cumulative impact would constitute a minimal impact being caused by the proposed development which over time may result in the partial or total loss of heritage value to the study area or associated heritage item. Cumulative impacts may need to be managed carefully over the prolonged period of time.

No impact

This is where the project does not constitute a measurable direct or indirect impact to the heritage item.

6.3 Assessment of impacts

A discussion, assessment and mitigation of Impacts to heritage items located within or adjacent to the study area is presented inTable 7.

Table 7 Assessment of impacts to heritage items within the study area

Heritage Item	Significance	Discussion	Assessment	Mitigation measures
Workers Cottage – 15 Menangle Road *NEW	Local	The cottage is located within the proposed development footprint within Part Lot 201 DP590247. Should the development go ahead with the removal of this item then there will be a complete loss of significance.	Direct Impact	The workers cottage should be retained and the minimum building envelope, lot size and setbacks as set out in the WDCP should be implemented for heritage item and the new development. Clear delineation of heritage boundaries during the proposed development works. Implementation of the current development application (DA 010.2016.00000210.001) for the adaptive reuse of the cottage as a sales office is supported.

Table 8 Assessment of impacts to heritage items adjacent the study area

Heritage Item	Significance	Discussion	Assessment	Mitigation measures
Central Creamery Managers Cottage	Local	The proposed development is located adjacent to the Central Creamery Managers Cottage within Part Lot 201 DP 590247. Any perceived impacts from the development are minimal and relate to the visual appreciation of the heritage item. There are heritage listed items that occupy the streetscape/landscape adjacent to the study area that hold moderate significance within the community of Menangle. The streetscape of Menangle Road and Station Street have remained essentially untouched	Indirect, Cumulative Impacts – This will result in minimal impacts not resulting in a total loss of heritage values.	Clear delineation of heritage boundaries during the proposed development works. Curtilages around heritage items should not be compromised or reduced in any way. The minimum setbacks as set out in the WDCP should be implemented between the heritage item curtilage and the new development enabling the public to access the views and vistas of the Central Creamery Managers Cottage.
Camden Park Rotolactor	Local	The proposed development is located adjacent to the Camden Park Rotolactor within Part Lot 201 DP590247. Any perceived impacts from the development are minimal and relate to the visual appreciation of the heritage item. There	Indirect, Cumulative Impacts - This will result in minimal	Clear delineation of heritage boundaries during the proposed development works. Curtilages around heritage items should not be compromised or reduced in any way. The minimum setbacks as set

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		are heritage listed items that occupy the streetscape/landscape adjacent to the study area that hold moderate significance within the community of Menangle. The streetscape of Menangle Road and Station street have remained essentially untouched.	impacts not resulting in a total loss of heritage values.	out in the WDCP should be implemented between the heritage item curtilage and the new development enabling the public to access the views and vistas of the Camden Park Rotolactor.
Camden Park Estate Central Creamery	Local	The proposed development is located adjacent to the Camden Park Estate Central Creamery and sheds within Lot 21 DP 581462. Any perceived impacts from the development are minimal and could related to the visual appreciation of the heritage item. There are heritage listed items that occupy the streetscape/landscape adjacent to the study area that hold moderate significance within the community of Menangle. The streetscape of Menangle Road and Station Street have remained essentially untouched.	Indirect, Cumulative Impacts - This will result in minimal impacts not resulting in a total loss of heritage values.	Clear delineation of heritage boundaries during the proposed development works. Curtilages around heritage items not be compromised or reduced in any way. The minimum setbacks as set out in the WDCP should be implemented between the heritage item curtilage and the new development enabling the public to access the views and vistas of the Camden Park Estate Central Creamery.

Table 9 Assessment of impacts to cultural landscapes within the study area

Heritage Item	Significance	Discussion	Assessment	Mitigation measures
Menangle General Conservation Area	Local	The study area is located within the Menangle General Conservation Area and will have indirect and cumulative impacts to the conservation of the Menangle village.	Indirect, Cumulative Impacts - This will result in minimal impacts not resulting in a total loss of heritage values.	An interpretation strategy should be prepared outlining the history of Menangle Village and surrounding heritage buildings and landscapes. The interpretative media should be placed in appropriate places around the new development enabling the public to understand the heritage characteristics of the area and encourage tourism to the local area. The new development should implement the relevant controls as set out in the WDCP 2016, Part 6 section 6.3.

6.4 Statement of heritage impact

The proposed Stage 1 development of Station Street, Menangle encompasses the Menangle General Conservation area and the newly identified workers cottage within the study area. Items of local significance are located within the vicinity of the study area, specifically the Camden Park Central Creamery Managers Cottage, Camden Park Rotolactor and the Camden Park Central Creamery and Sheds. This assessment identified that the Stage 1 development will have direct impacts to the workers cottage and indirect and cumulative impacts upon the adjacent heritage items and conservation area, these impacts will however only result in a minimal loss of heritage values for these items.

Impacts to the newly identified heritage item within the study area, the workers cottage, will result in a total loss of significance if the building is removed. Should the project commence with the approved DA for the adaptive reuse of the heritage item as a sales office, then this will mitigate the loss of the heritage items significance. Adaptive reuse of heritage items is encouraged as it provides longevity to such heritage items that generally stand as vacant buildings for extended periods of time often resulting in the loss of the item or fabric of the item due to dilapidation. As the previous curtilage of the cottage is not delineated and as it was encompassed within the lot for the Creamery, then the minimum building envelopes and lot size as outlined in the Wollondilly DCP should be implemented.

The minimal cumulative impacts upon the Central Creamery Managers cottage, Camden Park Rotolactor and the Camden Park Central Creamery and Sheds will include the minor loss of the current site setting of the heritage items. This impact is consistent to that which has already occurred from the development of Durham Green Retirement Village, Menangle Road. The Durham Green Retirement Village, whilst located at the southern entrance into the historic village, has interrupted the heritage aesthetics of the area. The retirement village is made up of 21st century dwellings that do not compliment the historical nature of the area, and or pay homage to the surrounding landscape. The heritage items, whilst in poor condition are an important component for the historic cultural landscape of Menangle.

The minimal cumulative impacts that will occur to the Menangle Conservation Area include a moderate loss of its current setting. The Conservation area contributes to NSW's significant landscape values. The conservation area is made up of Menangle Road, Woodbridge Road and Station Street that consist of mostly the early cottages that front Menangle Road. The relationship of the street layout and the topography is a contributing factor to the items significance, with most of the development spread along a low north-south running ridge which gives way to the views over the lower surrounding farmland. There is an approved 18 Lot residential subdivision of the land fronting Station Street, between the proposed development and Station Street. This development will act as a visually intrusive element between the proposed development and heritage items located on Station Street. Therefore the proposed development will result in only a minor reduction in the heritage landscape values associated with the conservation area.

7 Conclusions and recommendations

7.1 Conclusions

This assessment has identified that the study area is located within the Menangle General Conservation area and that a newly identified heritage item of local significance, a c.1920's workers cottage is located within the study area. Items of local significance are located within the vicinity of the study area, specifically the Camden Park Central Creamery Managers Cottage, Camden Park Rotolactor and the Camden Park Central Creamery and Sheds, these have been previously assessed as containing significance at a local level. The impacts associated with the development of Station Street, Menangle will result in direct, minimal indirect and cumulative impacts upon these and the adjacent heritage items. The proposed development, whilst assessed as impacting items of significance, will have a positive impact on Menangle Village and the heritage management of items listed previously. Currently these heritage items all stand as either unoccupied residential housing or unoccupied rural commercial buildings. From a heritage perspective the current state of these buildings will only deteriorate further. New development in the area that will adaptively reuse these items of significance will ensure longevity and preservation of the heritage significance of said items. Therefore the proposed development should proceed subject to the implementation of the recommendations outlined below.

7.2 Recommendations

These recommendations have been formulated to respond to the significance of the site. They are guided by the ICOMOS *Burra Charter* with the aim of doing as much as necessary to care for the place and make it useable and as little as possible to retain its cultural significance.[56]

Recommendation 1: Prepare a heritage interpretation strategy for the site

Ensure that at the completion of the project, the heritage interpretation strategy is prepared that identifies appropriate interpretive methods for engaging with the public with the history of the site. The interpretation strategy may be in the form of naming street names after significant families of Menangle and the placement of interpretative media outlining the importance of the heritage items within the development footprint and enabling the public to access the views and vistas of the historical landscape.

A preliminary interpretative strategy has been included within Appendix B of this report. This should be used as a guideline only for the development of a final Interpretative strategy.

Recommendation 2: Development process

The development design of the proposed 97 lot subdivision at Station Street, Menangle should have a sympathetic design to the heritage aspects of the Menangle village to minimise impacts to the historic nature of the village. The design of the dwellings within the development should respect the heritage characteristics of the existing dwellings that occur along Menangle road and Station Street. This will be achieved by implementing the controls laid out in the Wollondilly DCP 2016, Part 6 section 6.3.

[56] Australia ICOMOS 2013

Recommendation 3: Implement DA 010.2016.00000210.001 for the workers cottage located within the study area

This assessment has identified that the cottage is a c.1920s workers cottage associated with the Camden Park Estate Central Creamery and is of local significance to the village of Menangle. Therefore it is recommended that the cottage be retained. The redevelopment of the workers cottage as a sales office pursuant to the conditions set out in the approved DA 010.2016.00000210.001 is supported.

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Appendices

Appendix A Proposed Development Design

Appendix B Heritage Interpretation Guide

The purpose of an interpretation plan is to enable an understanding of the study area to be presented to the public in an interesting and engaging way whilst ensuring the information is accurate. Interpretation enhances understanding and enjoyment of heritage items by appealing to different audiences, different levels of experience and knowledge, and different learning styles. Interpretation strengthens and sustains the relationships between the community and its heritage and may provide economic and social benefits for the community.

The interpretation plan should provide strategies and detailed advice for interpreting the site. It should be devised based on research and analysis of the significance of the history and development of the site. It should identify key themes and storylines to be included and the target audience and provide the recommended implementation procedures.

Methodology

The draft interpretation plan needs to consider the following guidelines and be developed in accordance with the following policies and procedures:

- Australia ICOMOS. 2013. The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance.
- NSW Heritage Office. 2005. Heritage Information Series: Interpreting Heritage Places and Items Guidelines.
- Australia ICOMOS. 2013. Practice Note: Interpretation.

These guidelines outline a methodological approach which identifies several key steps in establishing an interpretation plan for the study area.

Aims and objectives

The key aims and objectives of the interpretation plan should include:

- Facilitate the understanding and appreciation of the history associated with the study area
- Communicate the meaning of the cultural significance of the site to visitors to the area and passing members of the public.
- Ensure that the proposed interpretive infrastructure is sustainable to ensure its survival in the long-term.

The following steps have been outlined in this section to illustrate how the interpretation plan has been formulated.

Step 1: Inventory

The purpose of this step is to establish the resources available to underpin the interpretation. The previous SoHI report represents a comprehensive document which establishes the heritage significance of the site.

Step 2: Define the audience

Interpretation is the fundamental interface with the public. It is necessary to understand that people encounter heritage in various situations from the everyday use of the place through passing by, to a workplace and as a part of tourism.

Step 3: Interpretation policy

The implementation of interpretational media within the Station Street development should be guided by the following vision:

> *The incorporation of interpretational media into the development at Menangle should be centred upon creating an ambiance to the development which incorporates key historical events and themes associated with the site.*

This theme should be used to frame the interpretive themes, methods and techniques and the recommended implementation of this plan.

Step 4: Define key interpretative themes and stories

Based upon steps 1 to 3 it will be possible to identify the specific interpretive themes and stories which should be incorporated into the interpretive media.

Step 5: Establish interpretation methods and techniques

Based upon the preceding steps it will be possible to develop a summary of the proposed interpretative methods and techniques.

Step 6: Implementation

This section outlines how the interpretive methods and techniques outlined in Step 5 will be implemented within the development.