3 Historical context

Historical research has been undertaken to identify the land use history of the project site, 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 project site. The historical research places the history of the project site into the broader context of the Fairfield and Liverpool districts.

3.1 Topography and resources

The project site lies within the Cumberland Lowland physiographic region, which is characterised by low-lying, gently undulating plains and low hills with a drainage network of mostly north flowing channels. The underlying geology is the Wianamatta Group shales (Ashfield and Bringelly shales); Minchinbury and/or Hawkesbury sandstone may also be present.[4]

The two main soil landscapes that overlay this geology are the Blacktown soil landscape, which occurs extensively on the Cumberland Plain, and the South Creek soil landscape, which occurs along drainage depressions that transect the plain. The Blacktown soil landscape consists of gently undulating rises, broad rounded crests and ridges with gentle slopes (<5%). Local relief is up to 30 metres. The soils are shallow to moderately deep (<100 centimetres). They can be hard setting and have moderate erodability. The A horizon (topsoil) consists of friable brownish black loam, with moderate to neutral acidity. Rounded iron indurated fine gravel shale fragments and charcoal fragments are sometimes present, and roots are common. The underlying A2 horizon is a hard-setting brown clay loam to silty clay loam of moderate to slight acidity. Iron indurated gravel shale fragments are common, with charcoal fragments and roots rarely present. The A horizons overlay subsoils of mottled clays which contain gravel shale fragments.[5]

The South Creek soil landscape dominates the areas surrounding Cabramatta Creek. It is characterised as a fluvial soil landscape situated on flat to gently sloping alluvial plains of less than 5% and local relief of 10 metres, with intermittent terraces or levees. Soils are generally very deep (135-190 centimetres) layered sediments over bedrock or relief soils, with red and yellow podzoilic soils being predominant upon terraces, with some structured grey clays, leached clay and yellow solodic soils also occurring. In areas adjacent to drainage lines where soil evolution has occurred structured plastic clays and structured loams can also be present. This soil landscape varies in many areas from erosion to deposition and has the potential to disturb soil sequencing and potentially archaeological deposits.[6]

3.2 Aboriginal past

The timing for the human occupation of the Sydney Basin is still uncertain. While there is some possible evidence for occupation of the region around 40,000 years ago, the earliest known radiocarbon date for the Aboriginal occupation of the Sydney Basin is associated with a cultural / archaeological deposit at Parramatta, which was dated to 30,735 ± 407 before present (BP).[7] Archaeological evidence of Aboriginal occupation of the Cumberland Plains indicates that the area was intensively occupied from approximately 4000 years BP.[8]

[4] Bannerman & Hazelton 2011, p.30
[5] Bannerman & Hazelton 2011, p.30
[6] Bannerman & Hazelton 1990, pp.68–69
[7] Jo McDonald Cultural Heritage Management. 2005a, Jo McDonald Cultural Heritage Management. 2005b
[8] Dallas 1982

Such 'young' dates are probably more a reflection of the conditions associated with the preservation of this evidence and the areas that have been subject to surface and sub-surface archaeological investigations, rather than actual evidence of the Aboriginal people prior to this time.

Aboriginal land ownership in the area is not clearly recorded within early historical references. Different authors used a variety of terminologies, which has created some confusion relating to the names of Aboriginal groups occupying the broader Sydney region. It should be noted that language groups were not the main political or social units in Aboriginal life. Instead, land custodianship and ownership centred on the smaller named groups that comprised the broader language grouping. The project site is in the vicinity of three language groups, Dharawal, Gundungurra and the hinterland Darug. Attenbrow suggests:[9]

- The Gundungurra covered "the southern rim of the Cumberland Plain west of the Georges River, as well as the southern Blue Mountains".
- The Dharawal covered "the south side of Botany Bay, extending as far as the Shoalhaven River; from the coast to the Georges River and Appin, possibly as far west as Camden".
- The hinterland Darug covered the area "from Appin in the south to the Hawkesbury River in the north; west of the Georges River, Parramatta, the Lane Cove River and Berowra Creek".

These areas are considered to be indicative only and would have changed through time. After the arrival of Europeans in Sydney Cove in 1788, the movement of Aboriginal people became increasingly restricted. Colonial expansion along the Cumberland Plain was swift and soon there had been considerable loss of Aboriginal peoples' land to agriculture. This led to violence and conflict between Europeans and Aboriginal people as both groups sought to compete for the same resources.[10] At the same time, diseases introduced by European settlement, such as small pox, were having a devastating effect on Aboriginal people. Death, starvation and disease were some of the disrupting factors that had a devastating effect upon many Aboriginal communities after European contact. The formation of new social groups and alliances were made as Aboriginal people sought to retain some semblance of their previous lifestyle.

3.3 Historical development

3.3.1 Earliest Development (1795 – 1799)

The earliest settlements in the Colony were generally located in areas such as rivers and coastal areas which could be easily accessed by boat. Transport by water was vital for the development of the colony as passengers and goods could be moved with little requirement for capital works. The first British exploration of the Georges River was undertaken by Bass and Flinders in 1795 in the 'Tom Thumb'. They found the area contained fertile soils, and before long the region began to grow as a farming settlement area. The earliest land grants in the Liverpool region were made in 1798, and in the Fairfield area from 1803, focusing around the Georges River. Smaller grants of between 100 to 400 acres were provisioned to former convicts, who generally grew crops such as maize, wheat and vegetables, while larger grants were made to naval or military officers, civil servants or free settlers, many of whom pursued pastoralism and grazing of cattle, sheep, horses, goats and hogs.[11] The areas closest to the river were affected by flooding and inundations on

[9] Attenbrow 2002, p.32
[10] Brookes & Associates et al. 2003, p.16
[11] Navin Officer Heritage Consultants 2014, p.24, Liverpool City Council 2013

numerous occasions, resulting in damage to property and crops.[12] The current Fairfield and Liverpool areas were also exploited by early timber getters, and supplied timber for many years to the surrounding regions.[13]

3.4 Establishment of Liverpool and Fairfield (1788–1810)

3.4.1 Establishment of Fairfield (1789–1806)

The earliest settlements surrounding the Fairfield-Cabramatta region can be traced back as early as 1789, with surveyors identifying potential areas for land grants and settlement from the early 1800s. In 1789, Governor Phillip went to Rosehill to survey the extent of the creek lines in the surrounding regions, with his route most likely passing through the Fairfield area.[14] In 1797, Governor Hunter travelled to Botany Bay and surveyed the Georges River, examining Prospect Creek and surrounding areas in the process.[15] It was not until 1803 that land was allocated in Fairfield, with the Orphan Institution being the first organisation to own land in the Fairfield area.[16] Further grants were allocated in 1806, commencing the subsequent development and occupation of the area.

The project site is located within the township of Cabramatta, part of a 300 acre grant originally purchased by Andrew White in 1818. The project site runs directly through the centre of the subdivision, established in the 1880s, and follows the boundary of Broomfield Street and the Great Southern Railway line.

3.4.2 Establishment of Liverpool (1799–1810)

Alienation of land in the vicinity of Liverpool began in 1799, with the granting of properties along the Georges River.[17] Thomas Moore, who became a substantial local landholder in the first years of the 19th century, found a site that he felt was suitable for a town. On 7 November 1810 a small party set out on horseback from Parramatta to the newly settled district of George's River. This group comprised Governor Lachlan Macquarie, his wife Elizabeth, Captain Antill and surveyor James Meehan. After crossing the Georges River they were joined by Thomas Moore and Dr William Redfern, where they '*set out in a boat ... to view and survey the ground intended for the new township*'. Macquarie stated that:

> *"having surveyed the Ground and found it in every respect eligible and fit for the purpose, I determined to erect a Township on it, and named it Liverpool in honor of the Earl of that Title -- now the Secretary of State for the Colonies. -- The Acting Surveyor Mr. Meehan was at the same [time] directed to mark out the Ground for the Town, with a Square in the Center thereof, for the purpose of having a Church hereafter erected within it."*[18]

As part of his tour of the colony, Macquarie also founded new towns at Windsor, Richmond, Castlereagh, Pitt-town and Wilberforce. In correspondence between Lord Liverpool (Robert Banks Jenkinson) and Governor Macquarie, Liverpool writes about the suitability of the site for a town which was to bear his name:

> *His Excellency having extended his Views also to the situation of the Settlers on George's River, has deemed it expedient to mark out the situation for a Township on the west side (or left bank) of that River, in the District of Minto, to which he has given the Name of Liverpool.*

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[12] Liverpool City Council 2013b, Sydney Gazette and New South Wales Advertiser (NSW□: 1803 - 1842) 1809
[13] Kass, T 2005, p.37
[14] "'THE EARLY HISTORY OF FAIRFIELD DISTRICT'" 1956
[15] "'THE EARLY HISTORY OF FAIRFIELD DISTRICT'" 1956
[16] Kass 1993
[17] Kass 1992
[18] Macquarie, Lachlan & Public Library of New South Wales 1956, p.1

The Situation of this Town is admirably calculated for Trade and Navigation, being immediately on the Bank of the River where the Depth of Water is sufficient to float Vessels of very considerable burthen. At this Town it is intended very soon to erect a Church, a School-House, a Gaol, a Guard-House, &c. Leases of Commodious and adequate Allotments- for Houses and Gardens will be given to suit free Mechanics and Tradesmen as may feel disposed to form a permanent Residence there, on their giving regular and due security for their building comfortable and substantial Houses, conformably to a Plan that will be shewn them on application to Thomas Moore, Esq're, the Chief Magistrate in that District.

Good Tradesmen and Mechanics settling at Liverpool will have the liberty of a large and contiguous Common for grazing Cattle, which is assigned for the Benefit of the Township, and those Persons who have not Milch Cows will be supplied with one Cow to each such person from the Government Herds for payment on advantageous conditions.[19]

The project site itself is located further to the west of the original township where the early land grants were made in the 1810s, with allotments in the vicinity of the project site having been granted in the 1830s as settlement expanded.

3.5 Land grants and agriculture (1803-1845)

3.5.1 Local land grants and agriculture in Fairfield

Land within the Fairfield district was granted from as early as 1803, with sizable acreage given to prominent military or political figures such as William Lawson, George Johnston and Thomas Wylde.[20] These grants were much larger than the ones along the Georges River, illustrating the hierarchy present throughout the Fairfield region during the early 1800s.[21] In the same year, an area of 12,300 acres (4,978 hectares) was set aside to be used as the site of the Orphan Institution.[22] This area covered most of the southern portion of the town, extending almost as far as Liverpool, however it was not sold or cultivated for many years.[23] In 1806, two additional land allotments were granted to James Gowan, encompassing a total of 200 acres (81 hectares). A dormitory was erected on the land in the early 1800s, with portions of the land set aside for various farming ventures. By the early 1830s trustees were selling the outer parcels of land to create more funds to support the school.

Viticulture was a large part of agricultural practices in the Fairfield area. The earliest evidence of grape cultivation is in 1825, with James Busby planting grapes within the confines of the Orphan School.[24] Five years later, in 1830, Richard Sadleir harvested those grapes, starting what would become a prosperous viticulture production in the area. Many of the land grants owned by German migrants were also used for viticulture ventures, as they were located close to waterways and creek lines towards the eastern side of the district, creating favourable soil conditions for grape production.[25] This practice appears to be continued through to the early 1900s, with pastoralism also becoming more prevalent in the area.[26]

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[19] O'Hara 1818, pp.359–360
[20] Kass 1993
[21] Kass 1993
[22] "'THE EARLY HISTORY OF FAIRFIELD DISTRICT'" 1956
[23] "'THE EARLY HISTORY OF FAIRFIELD DISTRICT'" 1956
[24] Kass 1993
[25] Kass 1993
[26] Kass 1993

3.5.2 Local land grants and agriculture in Liverpool

Liverpool was one of the first of many areas to be settled by Governor Macquarie in the early 1800s, with the surrounding land granted to a mix of government officials, ex-soldiers, wealthy settlers and emancipist farmers. The size of each grant was dependant on the individuals standing in the community and the financial situation of the grantee. The colonial elite received large pastoral grants of 400 acres or more, while ex-soldiers, emancipists and native born people often received smaller grants of 100 acres or less.[27]

As well as dividng out land grants, areas for farming and agriculture were set aside for markets gardens, viticulture and sheep grazing for wool. These farms and pastures all depended on an abundant source of free convict labour to survive as such convicts were assigned to farmers under strict conditions know as 'Assignment' or the 'Government System'.

Govenor Macquarie wanted to moved the colony's main food growing region away from the floodprone Hawkesbury area.[28] With fortunes in the Liverpool region being made by selling wool to England and sheep and cattle to local markets for meat, the area was an ideal choice to move production to, with the wool and wheat grown on the larger properties throughout the Liverpool area. However, by 1840 Liverpools graziers had moved to bigger properties beyond the Cumberland plain in search of bigger profits.

Although the Liverpool area continued to prosper as an agricultural region, the production of fruit, vegetables and grain crops declined towards the end of the 19th century, from 5,100 acres under crops in 1895 to 1,714 in 1904.[29] This lead to Liverpools agriculture to change from a mix of cattle, sheep and crops to dairy farming and the cultivation of fruit and vegetables during the second half of the nineteenth century. Drought was a contributing factor to the falling numbers of farmers, the drought in 1902 having been the most servere.[30]

3.6 Development in Liverpool and Fairfield (1818–1915)

In July of 1818, land contained within the northern portion of the project site was granted to Andrew White by Governor Macquarie.[31] The 300 acre (121 hectares) grant made to White was acquired by John Bloomfield in 1884, with the title for the land made to him in 1886. Bloomfield subsequently subdivided the land, establishing the township of Cabramatta. The project site is situated along Bloomfield Street and parts of Sussex Street, Junction Street, Boundary Lane and Bridge Street, which were part of the original subdivision.[32] Plans shows two crossings [1] [2] along the railway line, which is bounded by fence lines of unspecified type (Plate 1).

[27] Kass, T 2005
[28] Migration Heritage Centre, NSW 2010
[29] Keating 1996
[30] Henzell 2007
[31] NSW Land Registry Services 1818
[32] NSW Land Registry Services 1818a, NSW Land Registry Services 2019, NSW Land Registry Services 1818b

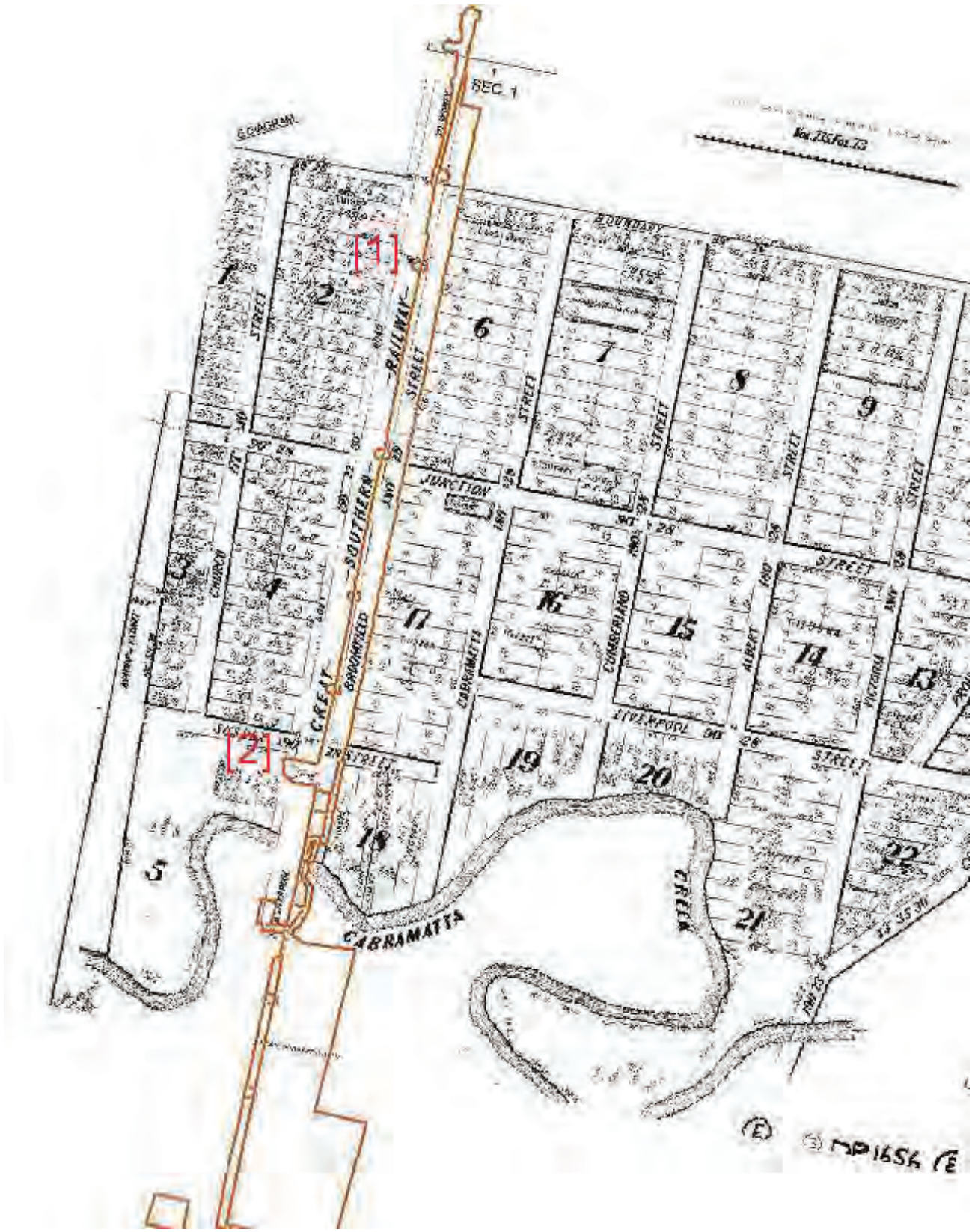


Plate 1 Parish map of Bloomfield's subdivision plans with two crossings present along railway line [1] [2], focusing on the project site, highlighted in red (Source: Direct Info - DP1656)

Development in the Liverpool area centred on the construction of the railway line, which began construction in the early 1850s. In 1857, the single-track railway line [3] from Granville to Liverpool, which formed part of

the Main South railway line to Goulburn, was completed, with the Liverpool station opening in 1856. A timber beam bridge [4] was established at the Cabramatta Creek crossing to allow access over the river.[33] A plan of the railway line [3] does not record any structures immediately adjacent to the alignment (Plate 2).[34]

From as early as 1893, it can be seen that the southern portion of the project site intersects Cabramatta Creek, crossing over the creek, via the bridge [4] and through land grants purchased by Mitch Dwyer and Arthur Devlin, each encompassing 100 acres (40.5 hectares).[35] Two smaller areas further south of the southern alignment are located below the Hume highway, directly adjacent to the main southern railway. A plan of the railway line [3] shows that both areas are located within the Liverpool town subdivision, however does not record any structures immediately adjacent to or within the alignments (Plate 2).

[33] Office of Environment and Heritage, NSW n.d.
[34] NSW Land Registry Services, n.d.
[35] NSW Land Registry Services, n.d.

Plate 2 **Plan of the Main South Railway Line [3], focusing on the project site (Source: NSW Land Regsitry Services, Crown plan 1954.3000)**

A Crown plan for the road from Fairfield Station to the Main Road leading to Liverpool Station (currently Railway Parade north of Cabramatta Creek and the unnamed track to the south), shows the location of the railway line running adjacent to the road, as well as several gates [5], drains [6] and the timber beam bridge [4] associated with the railway [3] (Plate 3).

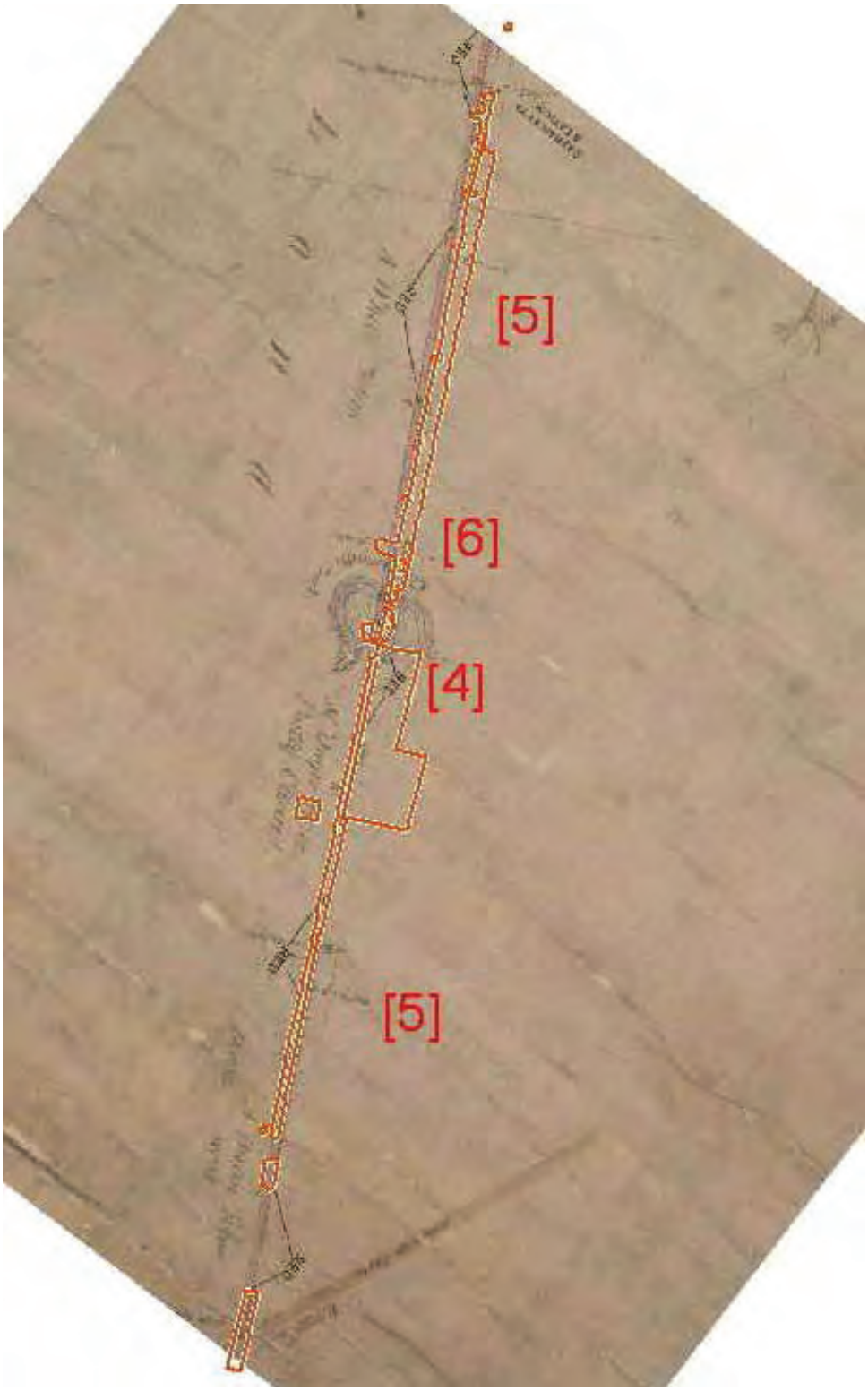


Plate 3 **Extract from an 1867 Crown plan of the road adjacent to the railway line, showing gates [5], drain [6] and the timber beam bridge [4] (Source: NSW Land Registry Services, Crown plan R674.1603)**

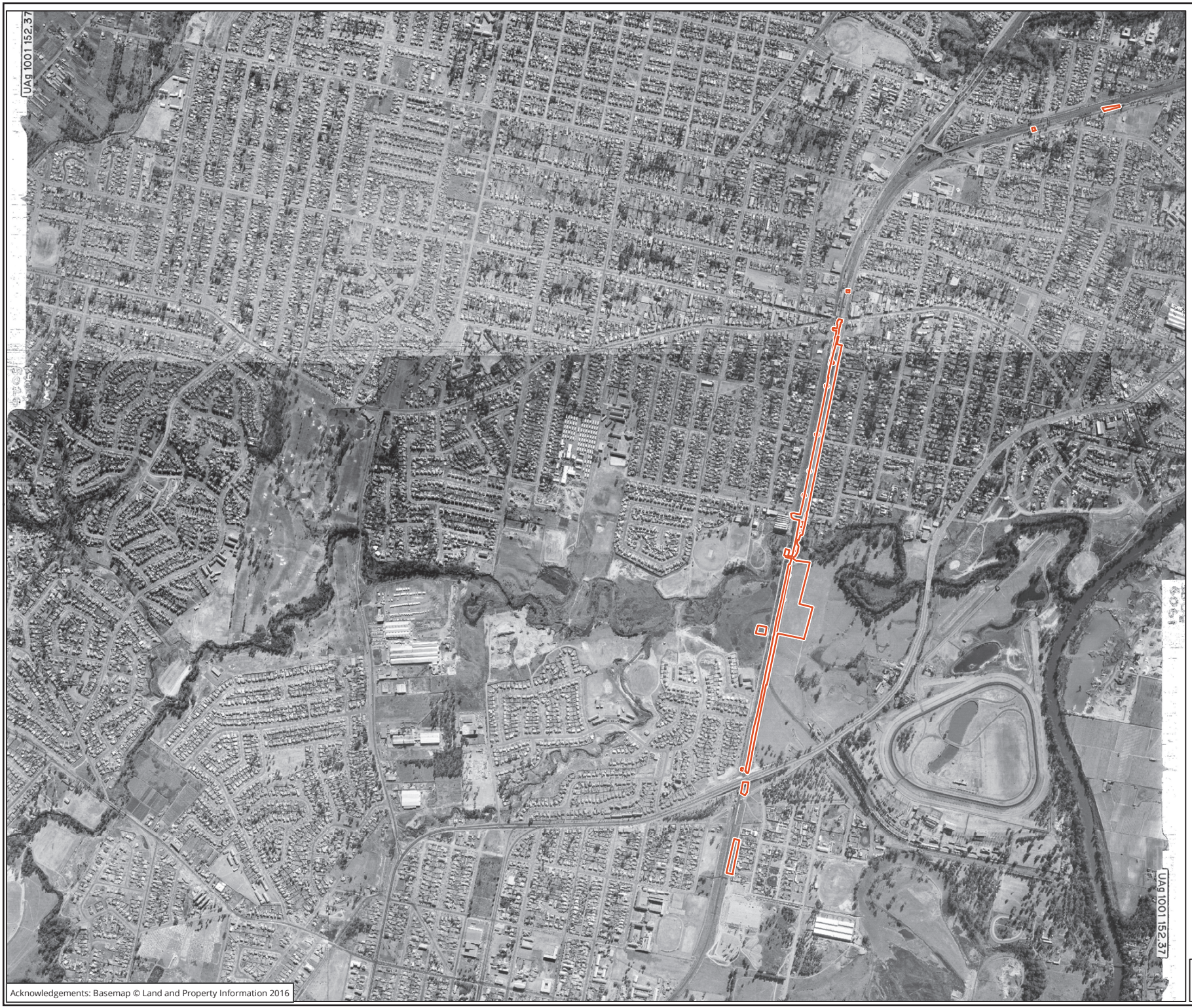
Plate 4 Image of Federation cottage (Source: State Heritage Inventory listing – Federation Worker's Cottage)

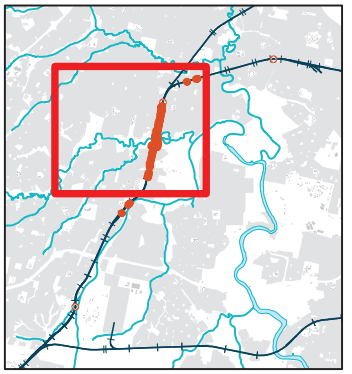
Over time, traffic along the rail network increased resulting in upgrades to the system, which included duplication of rail lines. These works were led by Commissioner Eddy, appointed to the role in 1888. The initial plans to replace existing bridges using imported iron bridges on the Main South line were cancelled due to the period of economic depression in the 1890s. As a result, the existing bridges were replaced with brick arch bridges in 1891, using locally made bricks; these bridges were the first instances of the major use of brick arch bridges by the Railways network [7], [8]. With 17 spans, the Cabramatta Creek underbridge was the longest of these brick arch bridges [7].[36] Around 2012, an additional bridge was constructed adjacent to the brick arch bridge to support a new track and associated infrastructure built for the Southern Sydney Freight Line (SSFL)[9].[37]

The northern end of the project site, located adjacent to what is now known as the Cabramatta-Regents Park Railway line, is directly adjacent to a Federation cottage on Broomsfield Street. Federation style housing was a popular style of architecture erected between 1890 and 1915.[38] This weatherboard cottage was a good example of Federation style architecture in the early 1900s within the Liverpool-Cabramatta area, it has since been burned down.

The 1970 and 1991 aerials in Figure 4 and Figure 5 demonstrate how little the area has changed in the 20th century, the area surrounding the project site is largely used for residential purposes. The project site itself has also not changed during this period of time.

[36] Office of Environment and Heritage, NSW n.d.
[37] Office of Environment and Heritage, NSW n.d.
[38] Federation Workers Cottage, n.d.





Legend

Project area

Figure 4: 1970 Historical Aerial

0 150 300 450 600 750

Metres

Scale: 1:14,148 @ A3

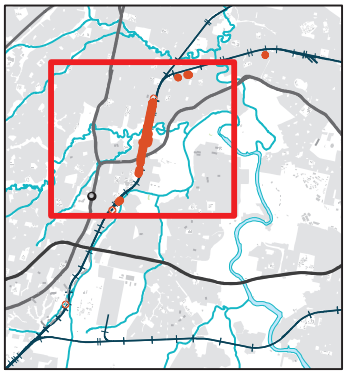
Coordinate System: GDA 1994 NSW Lambert

N

Biosis Pty Ltd

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

Matter: 27833
Date: 28 March 2019,
Checked by: AKE, Drawn by: AEDM, Last edited by: amurray
Location:P:\27800s\27833\Mapping
27833_HistoricalAerial_1970



Legend

Project area

Figure 5: 1991 Historical Aerial

0 180 360 540 720 900

Metres

Scale: 1:17,000 @ A3

Coordinate System: GDA 1994 NSW Lambert

Biosis Pty Ltd

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

Matter: 27833
Date: 28 March 2019,
Checked by: AKE, Drawn by: AEDM, Last edited by: amurray
Location:P:\27800s\27833\Mapping
27833_HistoricalAerial_1991

3.7 Chronology of the project site

Based upon the historical research presented it is possible to summarise the chronology of the project site, this is presented in Table 6.

Table 6 Chronological development of the project site

No.	Building	Date
1	Crossing	1884
2	Crossing	1884
3	Railway line	1857
4	Timber bridge	1867
5	Gates	1867
6	Drains	1867
7	Cabramatta Creek Underbridge	1891
8	Sussex Street Underbridge	1891
9	Southern Sydney Freight Line	2012

3.8 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 Heritage Office and are outlined in synoptic form in Historical Themes.[39]

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 three historical themes which relates to the occupational history of the project site (Section 2). This is summarised in Table 7.

Table 7 Identified historical themes for the project site

Australian theme	NSW theme	Local theme
Developing local, regional and national economies	Agriculture	Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes.
	Pastoralism	Activates associated with the breeding, raising, processing and distribution of livestock for human use.

[39] NSW Heritage Council 2001

Australian theme	NSW theme	Local theme
	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provisions of such movements.

4 Existing environment

A physical inspection of the project site was undertaken on 6 December 2018, attended by Taryn Gooley (Consultant Archaeologist, Biosis). The principal aims of the survey were to identify heritage values associated with the project site. 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) and places (places can include conservation areas, sites, precincts, gardens, landscapes and areas of archaeological potential).

4.1 Site setting

The project site is located within a number of different types of land use areas. This includes residential, parkland and urban centres. Some of the project site is located to the east and west of the railway track. It is a combination of mostly flat grassed fields (Plate 5) and clusters of trees (Plate 6), the Cabramatta (Cabramatta Creek), Railway Parade Bridge is also included in this area with its piers extending into Cabramatta Creek (Plate 7, Plate 8). The original brick construction of these bridges is on the west side and the concrete bridges built in 2012 as part of the SSFL is to the east side. The more modern concrete bridge is to the east of the original brick construction, its piers are either side of the creek. The Sussex Street Underbridge has the same construction but is located further north. To the west of the Cabramatta (Cabramatta Creek) bridge there is a raised remnant stockpiling pad of asphalt (Plate 9).

Plate 5 **Part of one of the centre project site, partly comprised of flat grassed fields. View to the south**

Plate 6 **Part of one of the centre project site, partly comprised of clusters of trees. View to the north**

Plate 7 **Cabramatta (Cabramatta Creek), Railway Parade original brick construction. View to the east**

Plate 8 **Cabramatta (Cabramatta Creek), Railway Parade, concrete bridge to the east of the original brick bridge. View to the west**

Plate 9 Stockpiling pad of asphalt to the west of the Cabramatta (Cabramatta Creek), Railway Parade. View to the west.

4.2 Built fabric assessment

The majority of the project site is comprised of land adjacent to the SSFL train tracks, this land is currently a vacant strip next to the tracks and contains related infrastructure such as power lines.

The project site is within the curtilage of the Cabramatta (Cabramatta Creek), Railway Parade Bridge and Sussex Street Underbridge. The Cabramatta (Cabramatta Creek), Railway Parade Bridge consists of 17 brick arched spans each 6.37 metres clear between brick piers. The semicircular arches are four brick courses deep and spring from a rock face sandstone impost four brick courses high with an inverted V shape above from which the brick arch springs. Both intermediate piers and abutments are solid brick and the coursing is in English bond. A continuous projecting band of brickwork above the crown of the arch consists of four brick courses topped by a splayed plinth brick. The parapet above is topped by a course of bullnose bricks. The abutments are U-shaped in plan.[40] The view to the bridge on one side is obscured by the new SSFL concrete bridge.

The Sussex Street Underbridge consists of six 6.37 metre clear arched spans between piers. The semi-circular brick arch is four brick courses deep, and springs from a brick impost four courses high, topped by a course of splayed plinth bricks. The arches are low, with the impost being only a metre or so above the adjacent roadway level. Both intermediate piers and abutments are constructed in solid red brick. Coursing is in English bond. A continuous projecting band of brickwork above the crown of the arch is in the same size and

[40] Office of Environment and Heritage, NSW n.d.

profile as the impost. The parapet above is topped by a course of bullnose bricks. The abutments are U-shaped in plan.[41] The view to the bridge on one side is obscured by the new SSFL concrete bridge.

[41] Office of Environment and Heritage, NSW n.d.

5 Archaeological assessment

The potential archaeological resource relates to the predicted level of preservation of archaeological resources within the project site. 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.

5.1 Archaeological resource

This section discusses the archaeological resource within the project site. The purpose of the analysis is to outline what archaeological deposits or structures are likely to be present within the project site and how these relate to the history of land use associated with the project site.

The historical context presented in this report indicates that the project site has been utilised for a range of different uses. These vary from agriculture and animal husbandry to more modern uses such as rail tracks and large areas of vacant public spaces. The archaeological resources could include evidence of land clearance, plough lines, agricultural marks, post holes from fence lines, rubbish pits and evidence of crossings such as gate and fence post holes [1] [2], impressions or post holes of the foundations of a timber bridge [4], post holes of gates [5] and sandstone or sandstock bridge drain structural remains [6]. The 1857 railway line has been since upgraded throughout the nineteenth and twentieth century and would have been completely altered or removed any archaeological resource adjacent to it.

5.2 Integrity of sub-surface deposits

The central part of the project site may have undisturbed archaeological deposits. This area is currently a flat field dotted with copses of trees with a mound of asphalt in one part. There is no other evidence that the area has been disturbed. The less an area has been disturbed, the more likely archaeological remains are to be present. However in this section of the project site the remains, such as evidence of land clearance, plough lines, agricultural marks and post holes from fence lines are of an ephemeral nature and typically leave little trace. Rubbish pits may be present.

The majority of the project site is currently adjacent to a train track. It is unlikely any archaeological resource from before this construction remains undisturbed. The system has been continually updated and the installation of the infrastructure for electrifying the track in 1929 and construction of the SSFL would have also disturbed any subsurface remains which were present. Archaeological evidence in this area may consist of evidence of crossings such as gate and fence post holes [1] [2], impressions or post holes of the foundations of a timber bridge [4], post holes of gates [5] and sandstone or sandstock bridge drain structural remains [6].

5.3 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 the project site. 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. The research theme which relates to the occupational history of the project site is defined as:

Developing local, regional and national economies – Agriculture – Pastoralism - Transport

The project site has been utilised for agriculture, pastoralism and transport since the land was first divided into land grants. However, while there may be disturbed and undisturbed archaeological material associated with these activities within the project site, it is unlikely that any remains would provide further information regarding to agriculture, pastoralism and transport that could not be derived from any other source and which contributes to the archaeological significance of the site.

5.4 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 project site, these are presented in Table 8 and Figure 6.1 to Figure 6.7.

The assessment of archaeological potential is based on three categories:

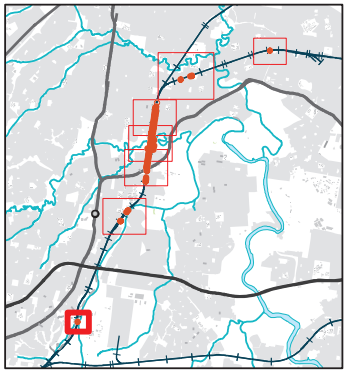
- **High archaeological potential** – based upon the historical context and documentary evidence presented within this report there is a high degree of certainty that archaeologically significant remains relating to this period, theme or event will occur within the project site.
- **Moderate archaeological 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 project site.
- **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 project site.

This assessment has identified that there may be archaeological material present within the project site related to the early ownership and use of the land for agricultural and animal husbandry purposes. This could include evidence of land clearance, plough lines, agricultural marks, post holes from fence lines and rubbish pits. Evidence of later use as a railway corridor could include evidence of crossings such as gate and fence post holes, impressions or post holes of the foundations of a timber bridge, post holes of gates and sandstone or sandstock bridge drain structural remains. However, due to the ephemeral nature of the early remains and the subsequent upgrade of the rail line and services, the archaeological potential has been assessed as low. This can be seen in Figure 6.

Table 8 Assessment of archaeological potential

Designation	Description	Probable feature(s)	Possible construction date	Archaeological potential
1	Crossing	Gate or fence post holes	1884	Low
2	Crossing	Gate or fence post holes	1884	Low

Designation	Description	Probable feature(s)	Possible construction date	Archaeological potential
3	Railway line	Trenches for tracks or track bedding	1857	Low
4	Timber bridge	Impressions or post holes of the foundations	1867	Low
5	Gates	Post holes	1867	Low
6	Drains	Sandstone or brick structural remains	1867	Low
7	Cabramatta Creek Underbridge	n/a	1891	Still present
8	Sussex Street Underbridge	n/a	1891	Still present
9	Southern Sydney Freight Line	n/a	2012	Still present



Legend

Project area

Archaeological potential

Low

Figure 6.1: Archaeological potential

0 10 20 30 40 50

Metres

Scale: 1:1,000 @ A3

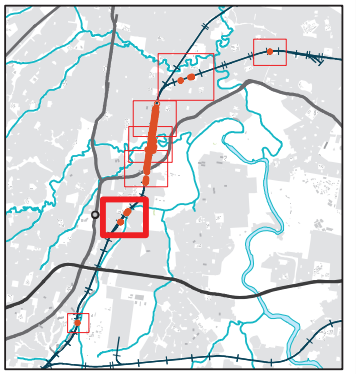
Coordinate System: GDA 1994 MGA Zone 56

N

Biosis Pty Ltd

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

Matter: 27833
Date: 29 March 2019,
Checked by: AKE, Drawn by: LW, Last edited by: amurray
Location:P:\27800s\27833\Mapping
27833_F6_HistArchPotential



Legend

Project area

Archaeological potential

Low

Figure 6.2: Archaeological potential

0 10 20 30 40 50

Metres

Scale: 1:1,500 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

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Matter: 27833
Date: 29 March 2019,
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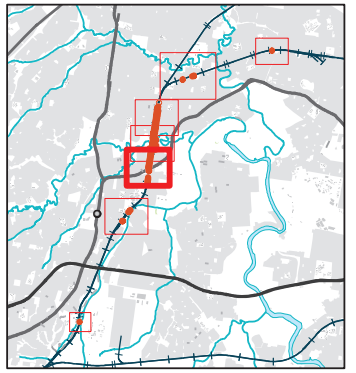
Location:P:\27800s\27833\Mapping
27833_F6_HistArchPotential

Acknowledgements: Basemap © Land and Property Information 2016



Legend

Project area

Archaeological potential

Low

Figure 6.3: Archaeological potential

0 40 80 120 160 200

Metres

Scale: 1:4,000 @ A3

Coordinate System: GDA 1994 MGA Zone 56

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Date: 29 March 2019,
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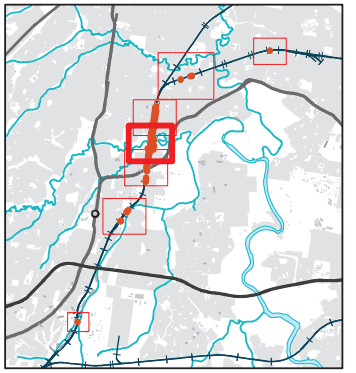
Location:P:\27800s\27833\Mapping
27833_F6_HistArchPotential



Legend

Project area

Archaeological potential

Low

Figure 6.4: Archaeological potential

0 30 60 90 120 150

Metres

Scale: 1:3,000 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

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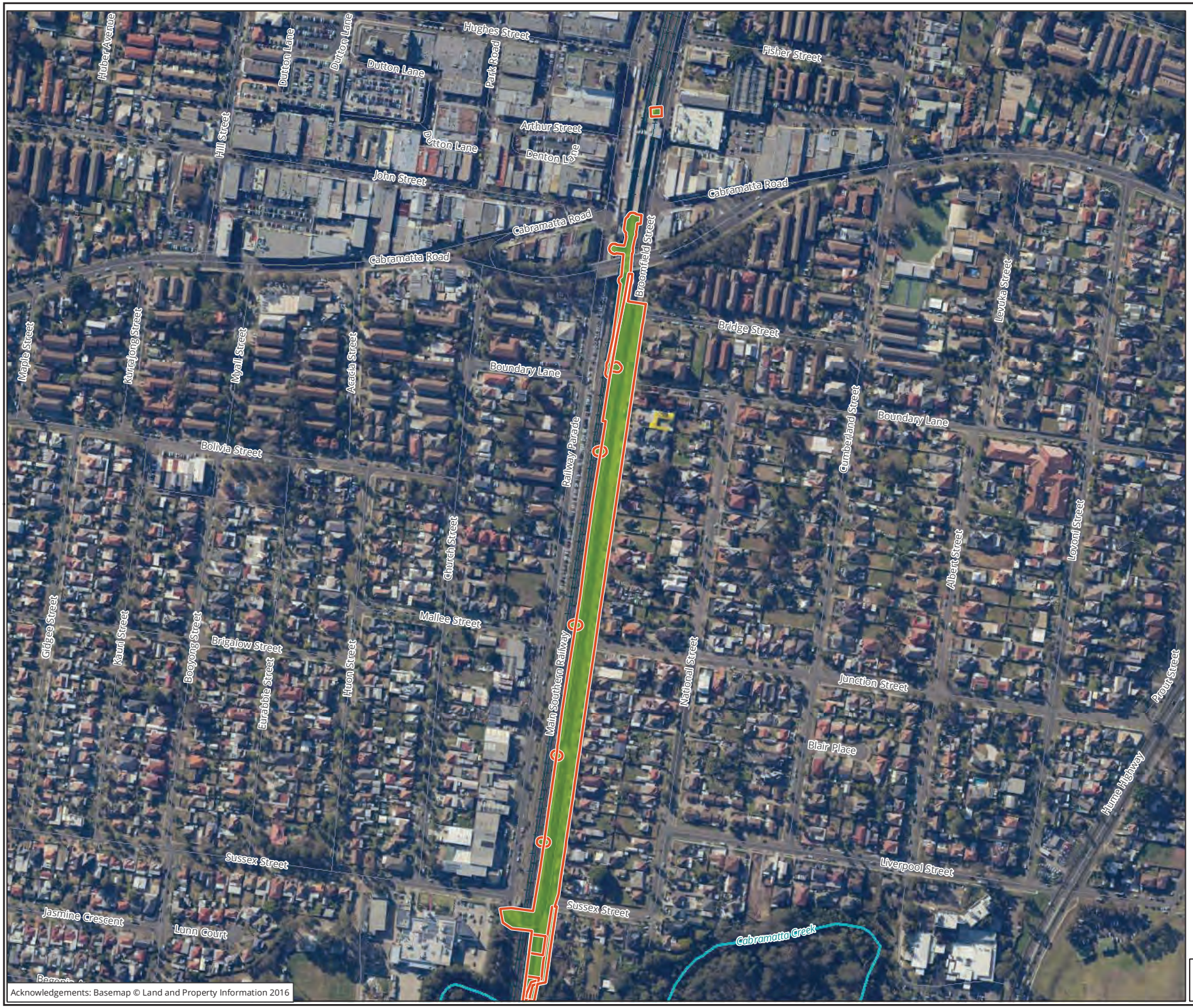
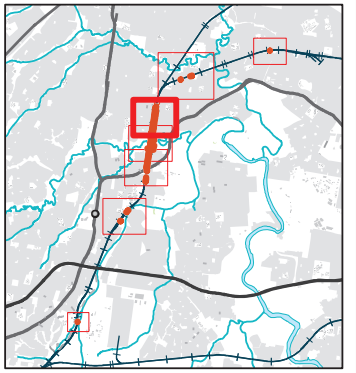
Matter: 27833
Date: 29 March 2019,
Checked by: AKE, Drawn by: LW, Last edited by: amurray
Location:P:\27800s\27833\Mapping
27833_F6_HistArchPotential





Legend

Project area

Archaeological potential

Low

Figure 6.5: Archaeological potential

0 40 80 120 160 200

Metres

Scale: 1:4,000 @ A3

Coordinate System: GDA 1994 MGA Zone 56

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Date: 29 March 2019,
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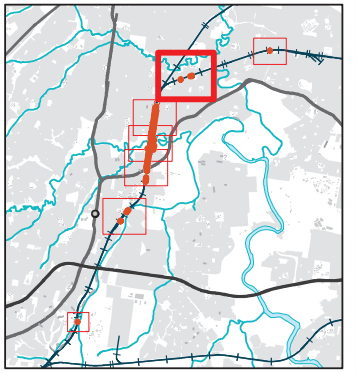
Location:P:\27800s\27833\Mapping
27833_F6_HistArchPotential



Legend

Project area

Archaeological potential

Low

Figure 6.6: Archaeological potential

0 10 20 30 40 50

Metres

Scale: 1:1,500 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

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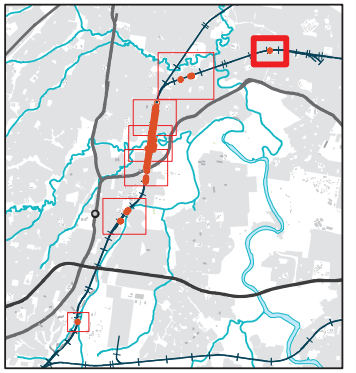
Date: 29 March 2019,
Checked by: AKE, Drawn by: LW, Last edited by: amurray
Location:P:\27800s\27833\Mapping
27833_F6_HistArchPotential



Legend

Project area

Archaeological potential

Low

Figure 6.7: Archaeological potential

0 10 20 30 40 50

Metres

Scale: 1:1,000 @ A3

Coordinate System: GDA 1994 MGA Zone 56

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27833_F6_HistArchPotential

6 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'.[42] This means a place can have different levels of heritage value and significance to different groups of people. This applies to both the archaeological remains and built items. Both will be assessed for significance in this section.

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 1977* (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).

[42] Heritage Office 2001

- 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).
- 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.

6.1 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 project site. This significance is based on the assumption that the site contains intact or partially intact archaeological deposits.

6.2 Evaluation of Significance

The other potential remains associated with agriculture, animal husbandry, transport and public spaces are assess below. An existing assessment of significance exists for the Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge. This is outlined below within the criterion.

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).

The possible remains associated with agriculture, animal husbandry, transport (excluding the brick viaducts at Sussex Street and Cabramatta Creek) and public spaces are not considered important in the course, or pattern of NSW's cultural or natural history. These remains do not satisfy this criterion at local or state level.

The brick viaducts at Sussex Street and Cabramatta Creek have local historical significance as they were built as part of the duplication and upgrading of the single track Granville to Liverpool line in the early 1890s. They are also significant as they represent the first examples of brick arch construction employed by the Railways that continued through until the 1920s. Their brick fabric reflects the period of the 1890s depression when

cost-cutting included the substitution of local materials in place of imported steel bridges.[43] The Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge satisfies this criterion at 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).

The possible remains associated with agriculture, animal husbandry, and public spaces do not have strong or special associations with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history. These remains do not satisfy this criterion at local or state level. The Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge also do not satisfy this criterion at local and state level, as they do not have strong or special associations with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history.

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 possible remains associated with agriculture, animal husbandry, transport (excluding the brick viaducts at Sussex Street and Cabramatta Creek) and public spaces are not considered important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW. These remains do not satisfy this criterion at local or state level.

The viaducts have aesthetic and technical significance at a local level as they exemplify the particular brick arch viaduct design employed by the NSW Railways during the period from the 1890s to the 1920s. The viaducts are aesthetically distinctive and have landmark qualities because of their size and setting. The viaduct over Cabramatta Creek is especially significant due to the large number of spans and the use of sandstone in the arch imposts. The new adjacent bridges partially obstruct views to the bridges on one side impacting their aesthetic and landscape values.[44] The Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge satisfies this criterion at 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.

The possible remains associated with agriculture, animal husbandry, and public spaces do not have strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons. These remains do not satisfy this criterion at local or state level.

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).

The possible remains associated with agriculture, animal husbandry, and public spaces do not have the potential to yield information that will contribute to an understanding of NSW's cultural or natural history. These remains do not satisfy this criterion at local or state level.

[43] Office of Environment and Heritage, NSW n.d.
[44] Office of Environment and Heritage, NSW n.d.

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 possible remains associated with agriculture, animal husbandry, and public spaces do not possess uncommon, rare or endangered aspects of the area's cultural or natural history. These remains do not satisfy this criterion at local or state 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 possible remains associated with agriculture, animal husbandry, transport (excluding the brick viaducts at Sussex Street and Cabramatta Creek) and public spaces are not important in demonstrating the principal characteristics of a class of NSW's cultural or natural places, or cultural or natural environments. These remains do not satisfy this criterion at local or state level.

The two viaducts at Cabramatta have a high level of integrity and are good representatives of this type of arched brick viaduct which were constructed by NSW Railways from the 1890s to the 1920s and which were the first examples of their type. The viaduct over Cabramatta Creek has significance as it utilises sandstone in the arch impost in place of the brick which has been used in much of the other viaducts. This viaduct particularly is an outstanding example because of its picturesque natural setting over Cabramatta Creek and the number of arches and long length of the structure, making it the longest of 1890s brick viaducts on this section of the line.[45] The Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge satisfies this criterion at a local level.

Table 9 Summary assessment of significance

Designation	Description	Probable feature(s)	Possible construction date	Level of significance
1	Crossing	Gate or fence post holes	1884	Nil
2	Crossing	Gate or fence post holes	1884	Nil
3	Railway line	Trenches for tracks or track bedding	1857	Nil
4	Timber bridge	Impressions or post holes of the foundations	1867	Nil
5	Gates	Post holes	1867	Nil
6	Drains	Structural remains	1867	Nil
7	Cabramatta Creek Underbridge	n/a	1891	Local
8	Sussex Street Underbridge	n/a	1891	Local
9	Southern Sydney Freight Line	n/a	2012	Nil

[45] Office of Environment and Heritage, NSW n.d.

6.3 Statement of Significance

The history of the project site indicates that it has been utilised for different uses which range from agriculture and animal husbandry to more modern uses such as rail tracks and large areas of vacant public spaces. The archaeological resources from this land use could include a range of features including evidence of land clearance, plough lines, agricultural marks, post holes, rubbish pits, structural remnants of a sandstone or sandstock drain and infrastructure related to the 1857 railway line. However much of the possible potential archaeological resource relating to the agriculture and animal husbandry period is ephemeral in nature.

In areas where the railway is now located these early remains would be massively disturbed. There is low potential of archaeological remains from this phase. Remains relating to the construction of the railway would have likewise been disturbed by the constant upgrading of the tracks and the SSFL which constructed next to it in 2012. The archaeological potential for this phase is also low. The possible remains within the project site would have no significance and do not satisfy any of the significance assessment criteria.

The only items within the project site that do have significance at both a local level is the Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge. This assessment has not identified any information which would lead to an alteration in the assessment of significance for this item, and its statement of significance is presented below as it appears on the listing:

> *The brick viaducts at Sussex Street and Cabramatta Creek, Cabramatta have local historical significance as they were built to serve the upgrading and duplication of the Granville to Liverpool railway line in the 1890s. The two viaducts represent the earliest examples of brick arched viaducts built by NSW Railways from the 1890s using local With their original structure and fabric intact they are significant as fine examples of their type constructed by the NSW Railways The viaducts are aesthetically distinctive and have landmark qualities because of their size, especially the structure over Cabramatta Creek which has 17 spans, the natural setting over the watercourse enhancing the setting. The viaduct over Cabramatta Creek is the longest brick 1890s viaduct on this section of the line and it is distinctive as it utilises sandstone for the arch imposts instead of the commonly used brick.*[46]

[46] Office of Environment and Heritage, NSW n.d.

7 Statement of heritage impact

This SoHI has been prepared to address impacts resulting from the proposed development of the project site. 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.*[47]

7.1 Project details

As the identified archaeological resource was assessed as not holding heritage significance, only the proposed impacts which may affect the listed items are listed below. These would comprise:

- Providing a new section of track adjacent to the existing train to function as a passing loop, which would allow one train to pass another.
- Bridge works – Constructing two new bridge structures adjacent to the existing rail bridges over Sussex Street and Cabramatta Creek.
- Ancillary work – Noise wall and retaining wall.
- Signalling works - Minor works in the form of new signalling would be installed at a number of locations within the rail corridor. Impacts include:
  - Installing a new slab and location case.
  - Installing a local signal cable run and power supply, involving:
    - Excavating signal cable run or placing the cable runs above ground (galvanised steel troughing attached to wall).
    - Placing new signal/power cable in a polyvinyl chloride (PVC) conduit (if excavated).
    - Backfilling of existing excavated material into trench (if excavated)Assessing impact to heritage item(s).

It is noted that the project scope described in this assessment is based on the level of design developed to date. Detailed design would include further engineering and construction planning, and would be subject to further input from key stakeholders and the community. It is understood that in the context of the Liverpool Railway Station Group, the following above ground works will be undertaken in close proximity to the SHR curtilage for the item, and within and around the LEP curtilage of the item as shown in Figure 7:

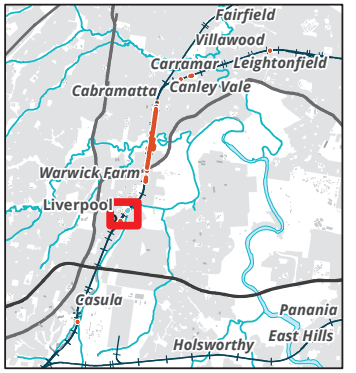
- Erection of a signalling location hut in Area 1. The hut at this location will measure 5 metres long by 3 metres wide by 2 metres tall. An indicative photograph of the style of signalling hut to be installed is shown in Plate 10; although the signalling location hut proposed for Area 1 will not be fenced as it is located within the fenced rail corridor.
- The installation of signalling infrastructure of a size no larger than axle counters in Areas 2 and 3. An image demonstrating the placement and scale of this type of infrastructure in relation to the rail line is shown in Plate 11.

[47] Heritage Office & DUAP 1996

It is also noted that in the vicinity of Villawood Railway Station Group, the only above ground works which will be undertaken is the placement of an axle counter (Plate 11).

Plate 10 Indicative design of signalling location hut to be installed within the study area (note the signalling hut will not be fenced as it will be located within the fenced rail corridor)

Plate 11 Indicative design of axle counter to be installed within the study area



Legend

Project area

Figure 7 Location of works in the vicinity of the Liverpool Railway Station Group

0 25 50 75 100 125

Metres

Scale: 1:2,500 @ A3

Coordinate System: GDA 1994 MGA Zone 56

N

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Matter: 27833
Date: 25 July 2019,
Checked by: TLG, Drawn by: AEDM, Last edited by: amurray
Location:P:\27800s\27833\Mapping
27833_HHA_F7_ProposedWorks

7.1.1 Discussion of heritage impact(s)

The discussion of impacts to heritage can be centred 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.[48]

- How is the impact of the new development on the heritage significance of the item or area to be minimised?
- Why is the new development required to be adjacent to a heritage item?
- How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?
- How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?
- Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?
- Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportions, design)?
- Will the additions visually dominate the heritage item? How has this been minimised?
- Will the public, and users of the item, still be able to view and appreciate its significance?

The s170 listing for the Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge lists the following recommended management measures for the item:

- Conservation principles: Conserve cultural heritage significance and minimise impacts on heritage values and fabric in accordance with the 'Australia ICOMOS Charter for Places of Cultural Significance'.
- Specialist advice: Seek advice from a qualified heritage specialist during all phases of a proposed project from feasibility, concept and option planning stage; detailed design; heritage approval and assessment; through to construction and finalisation.
- Documentation: Prepare a Statement of Heritage Impact (SOHI) to assess, minimise and prevent heritage impacts as part of the assessment and approval phase of a project. Prepare a Conservation Management Plan (CMP) prior to proposing major works (such as new additions, change of use or proposed demolition) at all places of State significance and all complex sites of Local significance.
- Maintenance and repair: Undertake annual inspections and proactive routine maintenance works to conserve heritage fabric in accordance with the 'Minimum Standards of Maintenance & Repair'.
- Movable heritage: Retain in situ and care for historic contents, fixtures, fittings, equipment and objects which contribute to cultural heritage significance. Return or reinstate missing features or relocated items where opportunities arise.
- Aboriginal, archaeology and natural heritage: Consider all aspects of potential heritage significance as part of assessing and minimising potential impacts, including Aboriginal, archaeology and natural heritage.

[48] Heritage Office & DUAP 1996

- Unidentified heritage items: Heritage inventory sheets do not describe or capture all contributory heritage items within an identified curtilage (such as minor buildings, structures, archaeology, landscape elements, movable heritage and significant interiors and finishes). Ensure heritage advice is sought on all proposed changes within a curtilage to conserve heritage significance.
- Recording and register update: Record changes at heritage places through adequate project records and archival photography. Notify all changes to the Section 170 Heritage & Conservation Register administrator upon project completion.

The new development is required to be adjacent to these heritage items as expanding the rail corridor of already existing lines would require less land acquisition and disturbance to the local community, as opposed to creating an entirely new independent rail corridor. This also allows the development to more readily link the proposed tracks with the existing ones.

7.1.2 Types of potential impacts

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.

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. 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.

7.2 Impacts and recommended mitigation measures

This assessment has identified that there may be archaeological material present within the project site related to the early ownership and use of the land for agricultural and animal husbandry purposes. This could include evidence of land clearance, plough lines, agricultural marks, post holes from fence lines and rubbish pits. Evidence of later use as a railway corridor could include evidence of crossings such as gate and fence post holes, impressions or post holes of the foundations of a timber bridge, post holes of gates and sandstone or sandstock bridge drain structural remains. However, due to the ephemeral nature of the early remains and the subsequent upgrade of the rail line, the archaeological potential has been assessed as low. The archaeological materials have also been assessed as not holding heritage significance. Therefore the proposed works as outlined in Section 7.1 are deemed to not impact any significant archaeology.

However there is a listed built heritage site (Cabramatta (Cabramatta Creek) Railway Parade & Sussex Street Underbridge) within the project site, along with a listed item adjacent to the project site (Federation cottage). There are also two items (Liverpool Railway Station Group and Villawood Railway Station Group) with the potential for signalling works to be either within or adjacent to their curtilage. Table 10 below includes an assessment of the impacts to these items along with recommendations to mitigate these impacts. The recommendations provided take into consideration that the detailed design is yet to be undertaken and the signalling works have the potential to be moved. This table includes:

- The heritage item title.
- The significance of the heritage item.
- The proposed impacts or works to take place either in the items curtilage or adjacent to it.
- The impacts to the heritage significance as a result of the proposed works.
- Mitigation strategy recommendations for each impact to heritage significance, to guide future designs and design changes.
- The SEARs that align with the mitigation measures.
- The assessment which takes into account the current design and established mitigation measures, to produce a conclusion of whether or not it will impact the heritage item.

Please note that the current design already takes into account many of these mitigation strategy recommendations, which is why some are included in both the discussion and the mitigation strategy

Table 10 Assessment of impacts to heritage items within or adjacent to the project site

Heritage item	Significance	Proposed impacts/works	Impacts to heritage significance	Mitigation strategy recommendations	SEARS component	Assessment
Cabramatta (Cabramatta Creek), Railway Parade and Sussex Street Underbridge (I19)	These heritage items are listed as having local Significance. The two underbridges represent the earliest examples of brick arched underbridges built by NSW Railways from the 1890s using local building materials. With their original structure and fabric intact they are significant as fine examples of their type constructed by the NSW Railways.	The development proposes new bridges being built adjacent to the existing rail bridges (with the concrete freight bridge built in 2012 situated between the proposed bridge and the heritage listed item). The new bridges would consist of a bridge foundation with reinforced concrete headstock walls based on bored concrete piles. Bridge planks would be placed on the headstocks. Ballast walls would be connected on each side of the structure. These would function to hold the ballast and track in place. The new bridges would be structurally independent from, and would not be connected to the existing bridges. They would be built alongside the existing SSFL bridge and abutment wall. These designs can be seen in Plate 12 and Plate 13. The new bridges would match the existing bridges in design along with the form, abutment and pier locations.	The development would impact the aesthetic significance and views to/from the item and general area as the additional bridge would alter the setting around the listed item. The setting would be further disturbed and the 'picturesque natural setting over Cabramatta Creek' would again be altered.	- The form, abutment and pier locations of both bridges should match the existing SSFL bridges. - The new bridges should match the existing bridges in design. - The height of the proposed bridges should not exceed the height of the bridges in order to minimise visually dominating the bridges.	Key Issue 10.1 (c) Key Issue 10.2 (b)-(c)	The development would have indirect impacts towards the heritage item, it would have a similar impact as the SSFL built in 2012.
			The development may indirectly effect the technical significance of the item, if damage prevented or changed the original use of the item. This could be caused through vibrations from the works compromising the structural integrity which could result in cosmetic damage detracting from the visual appeal of the structure.	- Strategies to minimise the vibrations from equipment, groundworks, construction and trains should be implemented. A dilapidation survey on structures located within the vibration buffer zone to confirm whether the structure is considered structurally unsound as per the Noise and Vibration Impact Assessment should be undertaken.[49] If this heritage item is still located inside the vibration safe working buffer distances after the survey, equipment with lower vibration emissions should be considered.	Key Issue 2.1	The development would have indirect impacts towards the heritage item, it would have a similar impact as the SSFL built in 2012.
Liverpool Railway Station Group (72)	The Liverpool Railway Station Group listing consists of a state listed group of buildings which includes the station building, goods shed and jib crane within a locally listed area. Liverpool station building is a good example of a third class station building in the centre of a large scale redevelopment of the site. It indicates the change in technology and approach to railway construction. Liverpool goods shed is a rare brick structure on the State system which is substantially intact with platforms and jib crane. It	The signalling works have the potential to impact on the locally and State listed items. The signalling works involve ground disturbance and construction of signalling equipment and associated infrastructure, specifically the installation of a 5 metre by 3 metre by 2 metre signalling location hut, and a number of smaller items of infrastructure in the form of axle counters and other items of a similar scale at ground level (Figure 7, Plate 10 and Plate 11). The new signalling equipment will be sympathetic to the heritage items in that they are both part of transport infrastructure, so this will decrease the impacts.	The aesthetic significance of the listing is unlikely to be impacted by the proposed infrastructure. The signalling location hut is located on the eastern side of the rail line, and will not block or impede views to the Liverpool Railway Station Group. To its east, it is visually screened by plantings along the banks of the Nepean River. From the surrounding Moore and Bigge Streets, works within the rail corridor are visually screened by existing structures and fencing. The hut would be located at a lower elevation than the station buildings to ensure that it does not visually dominate the landscape. Smaller infrastructure consisting of axle counters and other items of a similar scale will have a negligible visual impact. The proposed infrastructure is generally consistent with the existing rail infrastructure in the rail corridor.	- The visible infrastructure should be as small as possible in order not to obscure views to/from the item and not to visually dominate the landscape.	Key Issue 10.2 (b)-(c)	The development is unlikely to have indirect impacts to the State listed items heritage values.

[49] GHD 2019, p.85

Heritage item	Significance	Proposed impacts/works	Impacts to heritage significance	Mitigation strategy recommendations	SEARS component	Assessment
	is located in an historic town and is the last remnant of the early station and yard complex at the site. It is rare as one of the last two surviving brick goods sheds in the State.		The earthworks would directly impact on the archaeological resource within the locally listed area.	- The works should be moved to areas not in listed items curtilage.	Key Issue 10.2 (b)-(c)	The development would have direct impacts on the archaeological resource of the locally listed area. The archaeological potential of this area is assessed as low, and as such no archaeological mitigation is required.
			The development may indirectly effect the technical significance of the item. This could be caused through vibrations from the works compromising the structural integrity which could result in cosmetic damage detracting from the visual appeal of the structure.	- Strategies to minimise the vibrations from equipment, groundworks and construction should be implemented. - It is understood that any works in the vicinity of the Liverpool Railway Station Group will be undertaken using a backhoe or excavator. Based on the Noise and Vibration Impact Assessment[50], it is understood that the assessed safe working buffer distance to heritage structures is 3 metres when using a backhoe, and 6 metres for an excavator. All works should be compliant with these minimum buffer zones. - A dilapidation survey on structures located within the vibration buffer zone to confirm whether the structure is considered structurally unsound as per the recommendations of the Noise and Vibration Impact Assessment[51] should be undertaken. If the structure is considered to be structurally unsound, the safe working buffer zone to the item must be reassessed accordingly to ensure that vibration impacts are avoided.	Key Issue 2.1	The development would not have indirect impacts towards the heritage item provided that the mitigation strategy recommendations are implemented.
Villawood Railway Station Group (I103)	This heritage item is listed as having local significance. Villawood is a typical roadside 1920's standard lineside island platform building without many subsequent changes. It is typical of many suburban buildings until 1924, after which the style was modified as on the East Hills line.	The signalling works have the potential to impact on the locally and State listed items. The signalling works involve ground disturbance and construction of signalling equipment and associated infrastructure, specifically the placement of an axle counter (Plate 11). The new signalling equipment will be sympathetic to the heritage items in that they are both part of transport	The aesthetic significance of the Villawood Railway Station Group is unlikely to be impacted by the proposed infrastructure, which consists of axle counters and other items of a similar scale. This proposed infrastructure is generally consistent with the existing rail infrastructure in the rail corridor, and its scale is such that it would not visually dominate the item or cause any loss of visual amenity. As such it is assessed that the visual impact of these works would be negligible. .	- The visible infrastructure should be as small as possible in order not to obscure views to/from the item and not to visually dominate the landscape.	Key Issue 10.2 (b)-(c)	The development would have indirect impacts to the items heritage values.

[50] GHD 2019, p.58
[51] GHD 2019, p.85

Heritage item	Significance	Proposed impacts/works	Impacts to heritage significance	Mitigation strategy recommendations	SEARS component	Assessment
		infrastructure, so this will decrease the impacts.	The development may indirectly effect the technical significance of the item, through vibrations from the works compromising the structural integrity.	- Strategies to minimise the vibrations from equipment, groundworks and construction should be implemented. - It is understood that any works in the vicinity of the Villawood Railway Station Group will be undertaken using a backhoe or excavator. Based on the Noise and Vibration Impact Assessment[52], it is understood that the assessed safe working buffer distance to heritage structures is 3 metres when using a backhoe, and 6 metres for an excavator. Based on current designs, the proposed works will be occurring within this buffer zone. This should be revised during the detailed design stage to avoid impacts to the Villawood Railway Station Group. - A dilapidation survey on structures located within the vibration buffer zone to confirm whether the structure is considered structurally unsound as per the Noise and Vibration Impact Assessment[53] should be undertaken. If the structure is considered to be structurally unsound, the safe working buffer zone to the item must be reassessed accordingly to ensure that vibration impacts are avoided.	Key Issue 2.1	The development would not have indirect impacts towards the heritage item provided that the mitigation strategy recommendations are implemented.
Federation cottage (I10)	This heritage item is directly adjacent to the development and is listed as having local significance as a very good example of a Federation period, weatherboard farm or workers cottage. It would be one of the oldest houses at Cabramatta.[54] It is situated where the rail corridor is to be widened along Broomfield Street. The house has since burned down since the heritage listing was updated in 2009. As there has been no development on the lot there is a high potential for archaeological remains associated with the Federation cottage such as structural foundations and occupation deposits.	The proposed impacts along Broomfield Street include a new noise wall located further east to replace the existing wall to accommodate the widened rail corridor, replacement of the shared path located on the west of Broomfield Street, realignment of the existing eastern pedestrian and cyclist shared path, replacement of existing angled parking with parallel parking, construction of a retaining wall as the new track would require the land for the track to be built up to the level of the existing track and removal of a number of trees in the nature strip replaced by grass verges on either side of the footpath. It will also include number of utilities and services to be adjusted, relocated or protected within the project site.	The aesthetic significance of the house is no longer present as it has burnt down. However if council still considers the item to be significant the following mitigation strategies should be implemented.	- The noise wall should be the same height as the existing one, as not to further affect the views to and from the heritage item. However if council agrees with the updated significance of the house this will not be necessary.	Key Issue 10.2 (b)-(c)	The development would have no impacts towards the heritage item.
			Archaeological remains may be indirectly impacted due to the vibrations from the works. As the project site is not within this lot there will be no direct impacts on the archaeological resource.	- Strategies to minimise the vibrations of the works on the sub-surface remains should be implemented. This may include considering equipment with lower vibration emissions to be used. - The utilities that need to be adjusted should not encroach on the curtilage for the heritage item, as not to disturb any possible archaeological remains within the curtilage.	Key Issue 2.1	The development would have indirect impacts towards the heritage item, it would have a similar impact as the SSFL built in 2012.

[52] GHD 2019, p.58
[53] GHD 2019, p.85
[54] Federation Workers Cottage, n.d.

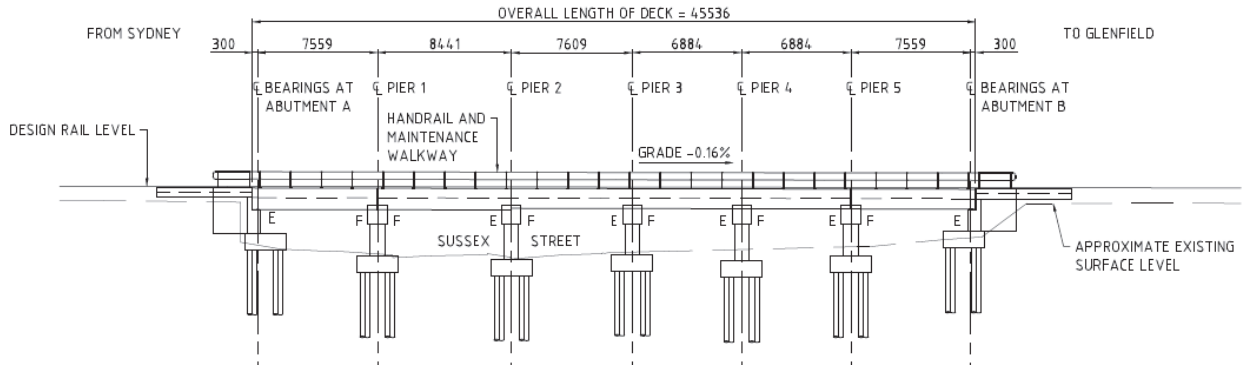

Plate 12 Sussex Street Bridge proposed design

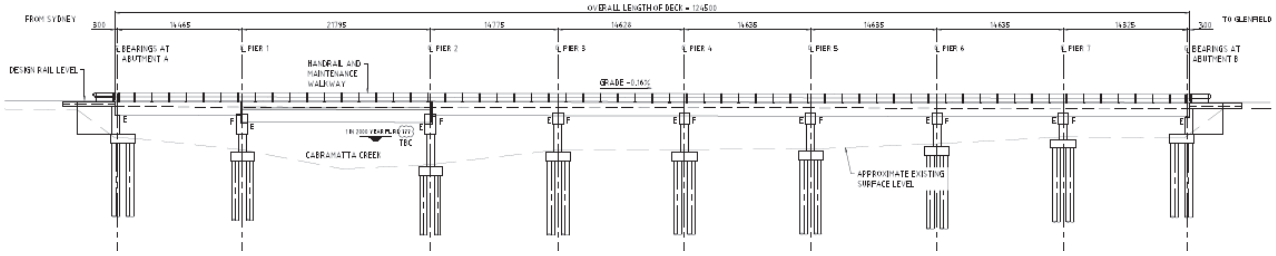

Plate 13 Cabramatta Bridge proposed design

7.3 Statement of heritage impact

This SoHI has been prepared to address impacts resulting from the proposed development of the project site. The SoHI identifies the level of impact arising from the proposed development and discusses mitigation measures which should be taken to avoid or reduce those impacts. It also takes into account listed items which may be impacted by signalling works. The proposed impacts under the SSI includes construction of 1.65 kilometres of new track and slewing of 550 metres of existing SSFL track, installation of two new rail bridges over Sussex Street and Cabramatta Creek, construction of a retaining wall and noise wall on Broomfield Street, construction of a retaining wall in Jacquie Osmond Reserve and between the two Cabramatta Creek bridges, re-configuration of Broomfield Street road alignment, car parking, pedestrian and cycle routes, relocation and protection of identified third party services and construction compounds. The mitigation measured outlined below.

This assessment has identified that there may be archaeological material present within the project site related to the early ownership and use of the land for agricultural and animal husbandry purposes. This could include evidence of land clearance, plough lines, agricultural marks, post holes from fence lines and rubbish pits. Evidence of later use as a railway corridor could include evidence of crossings such as gate and fence post holes, impressions or post holes of the foundations of a timber bridge, post holes of gates and sandstone or sandstock bridge drain structural remains. However, due to the ephemeral nature of the early remains and the subsequent upgrade of the rail line, the archaeological potential has been assessed as low. The archaeological materials have also been assessed as not holding heritage significance.

One item (with two structures) is listed on the Railcorp s170 heritage register within the project site, this is the Cabramatta (Cabramatta Creek), Railway Parade and Sussex Street Underbridge. The development proposes building new bridges within the curtilage of these items. Recommended strategies (some of which are incorporated in the current design) to mitigate these impacts include matching the design, form and pier

locations to the SSFL bridge, the height of the proposed bridge not exceeding the listed bridge height and investigating and implementing strategies to minimise noise and vibrations from trains travelling over the proposed bridge. The current design's mitigation impacts result in indirect impacts to this heritage item.

An item of heritage significance that is adjacent to the project site is the Federation cottage. The Federation cottage, now burnt down, is situated where the rail corridor is to be widened along Broomfield Street. As the structure is no longer standing the development would mostly affect the potential archaeological remains associated with the heritage item, including foundation structures. The development proposes a new noise wall, replacement of footpaths, parking and trees, a retaining wall and adjusting utilities. Recommended mitigations to reduce impacts from this development include; the utilities that need to be adjusted should respect the curtilage of the heritage item, and strategies to minimise the vibrations of the works on the adjacent item should be implemented. The current design would indirectly impact the archaeological remains.

The signalling works have the potential to be within the curtilage of the Liverpool Railway Station Group, the area is locally listed and buildings are State listed. The works would indirectly impact the State listed buildings and directly impact the archaeological resource within the locally listed area. The signal installation will involve ground disturbance and construction of signalling equipment and associated infrastructure. Both the archaeological resource and the built heritage items will be affected by the development. It is assessed that the proposed works areas contain a low potential to retain significant archaeological deposits, and as such, further assessment is not required from an archaeological perspective. Mitigation measures include; ensuring that the works should not encroach directly on the State listed items structures, and limiting the additional infrastructure to the construction of a signalling location hut and associated infrastructure the size of axle counters or smaller within the assessed areas to ensure that the proposed works have a minimal potential to impact on the aesthetic significance of the item. The smaller these additions will be the less impacts they would have on the item. It is understood that of the plant and equipment that are most likely to cause vibration impacts, only an excavator and backhoe will be used for the signalling works near the Liverpool Railway Station Group. Based on the Noise and Vibration Impact Assessment, it is understood that the assessed safe working buffer distance to heritage structures is 3 metres when using a backhoe, and 6 metres for an excavator.[55] All works should be compliant with these minimum buffer zones.

The Villawood Railway Station Group may also be impacted by the proposed signalling works. The signal instillation will involve ground disturbance and construction of signalling equipment and associated infrastructure. It is understood that the proposed works in the vicinity of the Villawood Railway Station Group consists of axle counters only, which have a minimal potential to impact the aesthetic significance of the item. The smaller these additions will be the less impact they would have on the item. It is understood that of the plant and equipment that are most likely to cause vibration impacts, only an excavator and backhoe will be used for the signalling works near the Villawood Railway Station Group. Based on the Noise and Vibration Impact Assessment, it is understood that the assessed safe working buffer distance to heritage structures is 3 metres when using a backhoe, and 6 metres for an excavator. Based on current designs, the proposed works will be occurring within this buffer zone. This should be revised during the detailed design stage to avoid impacts to the Villawood Railway Station Group.

This assessment of heritage impacts applies to the current design and briefing of the project site. It also takes into account the listed items outside of the project site which have the potential to be impacted by signalling works. This report should be used to guide the detailed design and give mitigation measures to reduce the level of impact the development have on the heritage.

[55] GHD 2019, p.58

8 Recommendations

8.1 Recommendations

These recommendations have been formulated to respond to the heritage requirements of the SEARS and 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, Recommendation 2 and Recommendation 3 are mitigation measures mentioned above in Table 10. Recommendation 4 and Recommendation 5 are required in accordance with the s170 listing for the Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge recommendations. Recommendation 6 is a standard measure to be implemented when the archaeological resource is assessed as having no heritage significance. It outlines controls in the event of an unexpected find (substantial intact archaeological relics of state or local significance not identified in the archaeological assessment) being discovered. These recommendations aim to reduce the impacts of the proposed development on the heritage.

Recommendation 1 Finalisation of detailed design and incorporation of mitigation measures outlined in Section 7.2

The detailed design for the project should be finalised to incorporate as many mitigation strategies as possible in order to avoid or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage (in accordance with SEARs Key Issue no.10).

Recommendation 2 Implement recommendations from the Noise and Vibration Impact Assessment

The recommendations from the Noise and Vibration Impact Assessment should be carried out (in accordance with the SEARs Key Issue no.2). The mitigation measures in this document will reduce the impacts of the noise and vibrations from the construction works on the heritage listed items.

Recommendation 3 Undertake Dilapidation Survey for all structures within the vibration buffer distance

A Dilapidation Survey should be undertaken for all items that are assessed by the Noise and Vibration Impact Assessment as falling within the vibration buffer distance. If the report results indicate the structure of heritage items will be compromised, a structural engineer should be engaged to assess further and determine potential mitigation of the heritage.

Recommendation 4 Completion of a Conservation Management Plan

In accordance with the s170 listing for the Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge recommendations and best practice, a CMP should be prepared prior to commencing major works in the listings curtilage.

Recommendation 5 Recording and register update

In accordance with the s170 listing for the Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge recommendations and best practice, the changes at the items should be recorded through

[56] Australia ICOMOS 2013

adequate project records and archival photography. Notify all changes to the Section 170 Heritage & Conservation Register administrator upon project completion.

Contact council to inform them or request the listing for the Federation Workers Cottage to be updated (it is adjacent to the project site) as its significance is in its aesthetic qualities. If it is determined to still have significance the relevant mitigation measures in Table 10 would be recommended or may need to be updated.

Recommendation 6 Development of an Unexpected Finds procedure

SSI projects are not required to obtain an excavation permit under Section 139 of the Heritage Act, as per Section 5.23 (1) (c) of the EP&A Act. Despite this, section 146 of the *Heritage Act 1977* is still applicable to SSI projects. An unexpected finds procedure should be developed by a qualified archaeologist so that in the event of an unexpected find (substantial intact archaeological relics of state or local significance not identified in the archaeological assessment) being discovered, a process will be in place to identify what to do and who to call in that situation.

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Appendices

Appendix 1 Heritage inventory sheets

Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge

Item details

Name of item:	Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge
Other name/s:	Cabramatta Creek Railway Bridge, Warwick Farm Viaduct
Type of item:	Built
Group/Collection:	Transport - Rail
Category:	Railway Bridge/ Viaduct
Primary address:	Sussex Street, Railway Parade, Cabramatta, NSW 2166
Local govt. area:	Fairfield

Boundary:

North: A line across the rail corridor 5 metres past the abutments at the northern end of the viaduct over Sussex Street; South: A line across the rail corridor 5 metres past the abutments at the southern end of the viaduct over Cabramatta Creek and Railway Parade; East: The property boundary; West: the property boundary

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
Sussex Street, Railway Parade	Cabramatta	Fairfield			Primary Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	
RailCorp	State Government	
RailCorp	State Government	

Statement of significance:

The brick viaducts at Sussex Street and Cabramatta Creek, Cabramatta have local historical significance as they were built to serve the upgrading and duplication of the Granville to Liverpool railway line in the 1890s. The two viaducts represent the earliest examples of brick arched viaducts built by NSW Railways from the 1890s using local

building materials during the cost-cutting period of the 1890s depression.

With their original structure and fabric intact they are significant as fine examples of their type constructed by the NSW Railways The viaducts are aesthetically distinctive and have landmark qualities because of their size, especially the structure over Cabramatta Creek which has 17 spans, the natural setting over the watercourse enhancing the setting. The viaduct over Cabramatta Creek is the longest brick 1890s viaduct on this section of the line and it is distinctive as it utilises sandstone for the arch imposts instead of the commonly used brick.

Date significance updated: 30 Jun 09

Note: The State Heritage Inventory provides information about heritage items listed by local and State government agencies. The State Heritage Inventory is continually being updated by local and State agencies as new information becomes available. Read the OEH ***copyright and disclaimer****.*

Description

Designer/Maker: Perway Branch, NSW Government Railways (NSWGR)

Builder/Maker: Day labour

Construction years: 1891-1891

Physical description:

SUSSEX STREET VIADUCT (1891)

The dark red brick viaduct over Sussex Street consists of 6 x 6.37m clear arched spans between piers. The semi-circular brick arch is 4 brick courses deep, and springs from a brick impost 4 courses high, topped by a course of splayed plinth bricks. The arches are low, with the impost being only a metre or so above the adjacent roadway level. Both intermediate piers and abutments are constructed in solid red brick. Coursing is in English bond. A continuous projecting band of brickwork above the crown of the arch is in the same size and profile as the impost. The parapet above is topped by a course of bullnose bricks. The abutments are U-shaped in plan.

CABRAMATTA CREEK VIADUCT (1891)

The viaduct over Cabramatta Creek is located just to the south of the Sussex Street viaduct and consists of 17 brick arched spans each 6.37m clear between brick piers. The semi circular arches are 4 brick courses deep and spring from a rock face sandstone impost 4 brick courses high with an inverted V shape above from which the brick arch springs. Both intermediate piers and abutments are solid brick and the coursing is in English bond. A continuous projecting band of brickwork above the crown of the arch consists of 4 brick courses topped by a splayed plinth brick. The parapet above is topped by a course of bullnose bricks. The abutments are U-shaped in plan.

CONCRETE BRIDGE (c2012)

Construction of a new bridge as part of the SSFL have obscured views of the bridges on one side.

Physical condition and/or Archaeological potential:

SUSSEX STREET VIADUCT

The viaduct is generally in a good condition.

CABRAMATTA CREEK VIADUCT

The viaduct is generally in good condition.

Date condition updated:25 Sep 08

Modifications and dates:	1929: Railway electrified. c2012: South Sydney Freight Line constructed - new concrete bridges built adjacent to existing bridges.
Further information:	New SSFL concrete bridges do not have heritage values.
Current use:	Railway Viaducts
Former use:	Nil

History

Historical notes:

The original single-track railway from Granville to Liverpool (part of the Main South line to Goulburn) was completed in 1857 and had timber beam bridges. By the 1880s, the volume of traffic was sufficient to justify duplication of the line and an upgrade. Commissioner Eddy, who was appointed in 1888, embarked on major upgrading of the railways, including extensive duplication works. However, the depression of the 1890s resulted in cost-cutting which included the use of local materials rather than expensive imported iron bridges. All of the major bridges on this line were thus rebuilt as brick arches. The Sydney region has extensive deposits of Wianamatta clay, ideal for making bricks.

The Cabramatta Creek and Sussex Street brick arch viaducts were built as two of a group of such railway bridges, being associated with the first duplication and upgrading of the original 1857 Granville to Liverpool railway and then with the 1858 extension to Campbelltown. In addition, they were the first examples of a major use of brick arch constructions by the Railways that continued through to the early 1920s (the practice being prolonged by the short supply of imported steel due to WWI). Nearly all of the brick arch bridges are still in use, Cabramatta Creek viaduct being the longest of the group at 17 spans and the Collingwood viaduct at Liverpool being second-longest at 11 spans.

The South Sydney Freight line was constructed c2012 to relieve the main lines of freight traffic. This required the construction of an additional track and associated infrastructure, including new bridges adjacent to the existing underbridges.

Assessment of significance

SHR Criteria a) [Historical significance]	The brick viaducts at Sussex Street and Cabramatta Creek have local historical significance as they were built as part of the duplication and upgrading of the single track Granville to Liverpool line in the early 1890s. They are also significant as they represent the first examples of brick arch construction employed by the Railways that continued through until the 1920s. Their brick fabric reflects the period of the 1890s depression when cost-cutting included the substitution of local materials in place of imported steel bridges.
SHR Criteria c) [Aesthetic significance]	The viaducts have aesthetic and technical significance at a local level as they exemplify the particular brick arch viaduct design employed by the NSW Railways during the period from the 1890s to the 1920s. The viaducts are aesthetically distinctive and have landmark qualities because of their size and setting. The viaduct over Cabramatta Creek is especially significant due to the large number of spans and the use of sandstone in the arch imposts. The new adjacent bridges partially obstruct views to the bridges on one side impacting their asesthetic and landscape values.
SHR Criteria g) [Representativeness]	The two viaducts at Cabramatta have a high level of integrity and are good representatives of this type of arched brick viaduct which were constructed by NSW Railways from the 1890s to the 1920s and which were the first examples of their type. The viaduct over Cabramatta Creek has significance as it utilises sandstone in the arch impost in place of the brick which has been used in much of the other viaducts. This viaduct particularly is an outstanding example because of its picturesque natural setting over Cabramatta Creek and the number of arches and long length of the structure, making it the longest of 1890s brick viaducts on this section of the line.
Integrity/Intactn	SUSSEX STREET VIADUCT: The viaduct has high integrity and retains its original fabric.

ess:	The arches and sides of the piers have been painted white where the roadways passes under the northern viaduct. CABRAMATTA CREEK VIADUCT The viaduct has high integrity and retains its original fabric. A steel cantilevered walkway has been added to the eastern side of the viaduct, and the southernmost arch has been infilled with brick. The later modern concrete bridge impacts the integrity of the site. .
Assessment criteria:	Items are assessed against the **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

1. Conservation principles: Conserve cultural heritage significance and minimise impacts on heritage values and fabric in accordance with the 'Australia ICOMOS Charter for Places of Cultural Significance'.

2. Specialist advice: Seek advice from a qualified heritage specialist during all phases of a proposed project from feasibility, concept and option planning stage; detailed design; heritage approval and assessment; through to construction and finalisation.

3. Documentation: Prepare a Statement of Heritage Impact (SOHI) to assess, minimise and prevent heritage impacts as part of the assessment and approval phase of a project. Prepare a Conservation Management Plan (CMP) prior to proposing major works (such as new additions, change of use or proposed demolition) at all places of State significance and all complex sites of Local significance.

4. Maintenance and repair: Undertake annual inspections and proactive routine maintenance works to conserve heritage fabric in accordance with the 'Minimum Standards of Maintenance & Repair'.

5. Movable heritage: Retain in situ and care for historic contents, fixtures, fittings, equipment and objects which contribute to cultural heritage significance. Return or reinstate missing features or relocated items where opportunities arise.

6. Aboriginal, archaeology and natural heritage: Consider all aspects of potential heritage significance as part of assessing and minimising potential impacts, including Aboriginal, archaeology and natural heritage.

7. Unidentified heritage items: Heritage inventory sheets do not describe or capture all contributory heritage items within an identified curtilage (such as minor buildings, structures, archaeology, landscape elements, movable heritage and significant interiors and finishes). Ensure heritage advice is sought on all proposed changes within a curtilage to conserve heritage significance.

8. Recording and register update: Record changes at heritage places through adequate project records and archival photography. Notify all changes to the Section 170 Heritage & Conservation Register administrator upon project completion.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW State agency heritage register	Railcorp S170 Register				
Heritage study	Railway Viaduct Cabramatta Creek				

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
S170 Heritage & Conservation Register Update	2009		OCP Architects		

					Yes

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Don Fraser	1995	Bridges Down Under: the history of railway underbridges in New South Wales	
Written	John Forsyth	1960	Historical Notes for the Granville to Liverpool railway	
Written	Tony Prescott	2009	Historical Research for RailCorp's S170 Update Project	

Note: internet links may be to web pages, documents or images.








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Data source

The information for this entry comes from the following source:

Name: State Government

Database number: 4803205

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Federation Worker's Cottage

Item details

Name of item:	Federation Worker's Cottage
Other name/s:	Federation Cottage
Type of item:	Built
Group/Collection:	Residential buildings (private)
Category:	House
Primary address:	132 Broomfield Street, Cabramatta, NSW 2166
Local govt. area:	Fairfield

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
132 Broomfield Street	Cabramatta	Fairfield			Primary Address

Statement of significance:

Very good example of a Federation period, weatherboard farm or workers cottage. Would be one of the oldest houses at Cabramatta. In need of maintenance and repair but essentially unaltered. Retains considerable character and charm. Local significance.

Date significance updated: 15 May 09

Note: The State Heritage Inventory provides information about heritage items listed by local and State government agencies. The State Heritage Inventory is continually being updated by local and State agencies as new information becomes available. Read the OEH ***copyright and disclaimer****.*

Description

Physical description:	Small Federation period weatherboard cottage. Little altered. Set well back from road. Simple gabled vernacular type, with bull-nosed verandah. Carved and fretted brackets. Slightly asymmetrical. Four pane double-hung windows on either side of original door. Turned timber finials. Generally poor condition. Grounds neglected. Some good trees. Located close to Cabramatta railway station.
Modifications and dates:	Lean to extension at rear. No fence. Needs repairs and maintenance. Otherwise little altered.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan		I10	17 May 13	122	7145

References, internet links & images

None

Note: internet links may be to web pages, documents or images.

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Data source

The information for this entry comes from the following source:

Name: Local Government

Database number: 1570034

Return to previous page

Liverpool Railway Station group

Item details

Name of item:	Liverpool Railway Station group
Type of item:	Complex / Group
Group/Collection:	Transport - Rail
Category:	Railway Platform/ Station
Location:	Lat: -33.9253300035 Long: 150.9267900030
Primary address:	Great Southern Railway, Liverpool, NSW 2170
Local govt. area:	Liverpool
Local Aboriginal Land Council:	Gandangara

Boundary:

Station
North: 5 metres from the northern edge of the station concourse
South: 5 metres from the southern edge of the footbridge
East: Property boundary to parkland along Georges River
West: Property boundary to Bigge Street

Goods Shed
North: 5 metres from the edge of the goods shed
South: 25 metres from the edge of the goods shed (to the boundary fence) and to include jib crane and associated items
East: 10 metres from the edge of the goods shed
West: 5 metres from the edge of the goods shed (to the boundary fence)

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
Great Southern Railway	Liverpool	Liverpool			Primary Address
Bigge Street	Liverpool	Liverpool			Alternate Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
RailCorp	State Government	03 Nov 98

Statement of significance:

Liverpool station building is a good example of a third class station building in the centre of a large scale redevelopment of the site. It indicates the change in technology and

approach to railway construction. Liverpool goods shed is a rare brick structure on the State system which is substantially intact with platforms and jib crane. It is located in an historic town and is the last remnant of the early station and yard complex at the site. It is rare as one of the last two surviving brick goods sheds in the State.

Date significance updated: 27 Nov 00

Note: The State Heritage Inventory provides information about heritage items listed by local and State government agencies. The State Heritage Inventory is continually being updated by local and State agencies as new information becomes available. Read the OEH ***copyright and disclaimer****.*

Description

Construction years: 1879-1880

Physical description:

BUILDINGS

station building - type 4 platform 1, c. 1880, RNE ,LEP

goods shed - through shed brick 80' x 32', c. 1879, RNE, LEP

STRUCTURES

platform faces - brick 1880

Date condition updated:02 Sep 14

Modifications and dates: Major station redevelopment c2000.

Current use: Railway Station

Former use: Railway Station

History

Historical notes: Aboriginal occupation, Early European Settlement of the Liverpool Region

Some 40,000 years before European settlement of this region of the Georges River, this land was occupied by the Darug people and the neighbouring Tharawal and Gandangara peoples. The land was known as Gunyungalung. The Georges River has been seen by some as the natural (east-west) boundary between the Darug, or 'woods' tribe, (north of the river and east to the coast); the 'coast' tribes of the Tharawal (south of the river and east to the coast) and the Gandangara (west of the river, inland). Others argue that the region around Liverpool (where the river runs generally west to Botany Bay) signifies an important north-south cultural divide between the Darug peoples living north of the river and the Tharawal to the south of the river. The river demarcated rather than divided groups, providing an 'important corridor of mobility' that enabled transport, communication, economic and cultural interaction up, down and across the river on light, rapid bark canoes (Goodall & Cadzow 2009: 21).

The Georges River area first felt the impact of European settlement in the 1790s when early settlers around the Parramatta area sought out fertile soils for cultivation, moving south along Prospect Creek to the alluvial flats around Liverpool. Facing the steep banks and sandstone cliffs of sections of the Georges River, settlement penetrated slowly in the 1790s.

From the early 1800s the area saw Aboriginal hostilities against settler intrusions with raids on settler crops and stock led first by Pemulwuy of the Bediagal (until his death in 1804, likely at the hands of settlers). Some prominent settlers, who argued that the smaller settlers were the aggressors, themselves sought communication and interaction with Aboriginals, employing them as shepherds and allowing them to remain on the fringes of their landholding. Governor King's 1801 edict, however, prevented settlers harbouring Aboriginal peoples thus effectively excluding Aboriginals from the settled areas. Following the Appin massacre of 1816 the Gandagara and Tharwal kept their distance from the settlers, but they remained around the Georges River.

Governor Macquarie's policy was two-pronged. He authorised settlers around the Georges River to take action against Aboriginal raiders and later instructed the military to make pre-emptive strikes. He also sought conciliation, meeting with the Tharawal when he toured the Cow Pastures in 1810. Kogi of the Tharawal was one who met with Macquarie and who, like other Tharawal, developed close relationships with settlers around the Liverpool area. In 1816 Macquarie issued a call to Aboriginals of the Georges River to lay down arms in return for food, education and secure title to land in the Liverpool area. Kogi was one who took up this option, receiving a King Plate from Macquarie which identified him as "King of the Georges River". Land grants were the only means of effecting land transfer prior to the 1850 legislation that reserved Crown land exclusively 'for the use of Aborigines'. The are few records of land grants to Aboriginals arising out of the 1816 agreement but there is anecdotal evidence of Aboriginal freehold land along the Georges River until the late 20th century (Goodall & Cadzow 2009: 47-56).

In 1810 the Liverpool area was the frontier of settlement, with its alluvial and clay soils increasingly being cleared for farming. Small farming enclaves characterised the area around Liverpool which Governor Macquarie proclaimed on 2 November 1810 as the first of his new towns. The first land grants followed. Partly because of Aboriginal hostilities the area did not take off for settlement, however, until the 1830s.

The construction of Liverpool Weir in 1836 would have impacted on the different Aboriginal groups' use of the river as a communication channel. The weir would also have gradually changed the ecology of the river upstream.

(Keating, 1996; Goodall & Cadzow, 2009; www.liverpool.nsw.gov.au/aboriginalpeople.htm; Tuck & Douglas, 2002).

EUROPEAN SETTLEMENT AND THE ESTABLISHMENT OF LIVERPOOL

In 1810, following the lead of the prominent pioneer Thomas Moore, Governor Lachlan Macquarie set out on a surveying expedition along the newly discovered Georges River. On the undulating Cumberland Plain and the banks of the Georges River, Governor Macquarie located the new township of Liverpool. From this township, of the developing colony (Cserhalmi, CMP Vol 1, 1994; Liverpool Heritage Study Vol 1, 1992).

Commissioned by Governor Lachlan Macquarie and designed by Francis Greenway, St Luke's Church was built in 1818-1819 as part of Macquarie's establishment plan for the town of Liverpool. It was the smallest of the three major church designs commissioned by Macquarie from Greenway, the others being St James in Sydney and St Matthew's at Windsor. A rectory was built about the same time but was replaced in 1840.

The site for Liverpool was marked out by Macquarie in 1810. St Luke's Anglican church was one of the original public buildings for the town. Its foundation stone was laid in 1818 and the first service was held on 18 October 1819. Macquarie attended a service in December 1820. The building was not fully completed until the early 1820s. A rectory and school building, since demolished, were built close by.

Liverpool weir was built in 1836 to supply water to local farmers and the town and to serve as a causeway across the George's River. It was one of the two last convict-built public works at Liverpool, the other being Lennox's Lansdowne Bridge over the Prospect Creek on the Hume Highway, Lansvale (Keating, 1996, 63; ADB, Liston, 2009, 18;).

Liverpool Railway Station:

The railway at Liverpool station was opened in September 1856. This, with the electic telegraph arriving in 1858, provided speedy, safe transport and communication and began the transformation of Liverpool into a major regional city (www.liverpool.nsw.gov.au/ourcity/historyofliverpool.htm).

The coming of the railway to Liverpool, with the electic telegraph arriving in 1858, provided speedy, safe transport and communication and began the transformation of Liverpool into a major regional city (www.liverpool.nsw.gov.au/ourcity/historyofliverpool.htm).

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
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	(none)-
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	Railway Station-
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	Rail transport-
7. Governing-Governing	Government and Administration-Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs - includes both principled and corrupt activities.	Developing roles for government - building and operating public infrastructure-
7. Governing-Governing	Government and Administration-Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs - includes both principled and corrupt activities.	Developing roles for government - providing rail transport-

Assessment of significance

SHR Criteria f) [Rarity]: This item is assessed as historically rare. This item is assessed as scientifically rare. This item is assessed as arch. rare. This item is assessed as socially rare.

Assessment criteria: Items are assessed against the **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Procedures /Exemptions

Section of act	Description	Title	Comments	Action date

57(2)	Exemption to allow work	Standard Exemptions	SCHEDULE OF STANDARD EXEMPTIONS HERITAGE ACT 1977 Notice of Order Under Section 57 (2) of the Heritage Act 1977 I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order: 1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and 2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached. FRANK SARTOR Minister for Planning Sydney, 11 July 2008 To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval link below.	Sep 5 2008

Standard exemptions for works requiring Heritage Council approval

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - State Heritage Register		01181	02 Apr 99	27	1546
Heritage Act - s.170 NSW State agency heritage register					
Local Environmental Plan		0251	25 Mar 94	050	1331

References, internet links & images

Type	Author	Year	Title	Internet Links
Tourism	Attraction Homepage	2007	Liverpool Railway Station group	View detail

Note: internet links may be to web pages, documents or images.








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Data source

The information for this entry comes from the following source:

Name:	Heritage Office
Database number:	5045545
File number:	H00/00174 & S96/00468

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Villawood Railway Station

Item details

Name of item: Villawood Railway Station

Type of item: Complex / Group

Group/Collection: Transport - Rail

Category: Station Building

Primary address: Villawood Road, Villawood, NSW 2163

Local govt. area: Fairfield

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
Villawood Road	Villawood	Fairfield			Primary Address

Statement of significance:

Villawood is a typical roadside 1920's standard lineside island platform building without many subsequent changes. It is typical of many suburban buildings until 1924, after which the style was modified as on the East Hills line.

Date significance updated: 06 Jan 11

Note: The State Heritage Inventory provides information about heritage items listed by local and State government agencies. The State Heritage Inventory is continually being updated by local and State agencies as new information becomes available. Read the OEH ***copyright and disclaimer****.*

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Villawood Railway Station	I103	17 May 13	122	7149

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
Fairfield City Heritage	1993		Perumal Murphy Wu Pty		

Study			Ltd		Yes

References, internet links & images

None

Note: internet links may be to web pages, documents or images.

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Data source

The information for this entry comes from the following source:

Name: Local Government

Database number: 1570079

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CABRAMATTA LOOP PROJECT

ENVIRONMENTAL IMPACT STATEMENT

VOLUME 4 — TECHNICAL REPORT