

Appendix M2 European and other heritage





Western Sydney Airport EIS

European and other heritage technical report

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RPS has prepared this report pursuant to the conditions in the Department of Infrastructure and Regional Development Deed of Standing Quotation (SON2030181), the Commonwealth RFQTS Number 2014/7540/001, the subsequent response accepted and referenced in the relevant Official Order; and the GHD Subconsultancy Agreement dated 11 May 2015 (collectively the “**Contract**”):

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Executive summary

The Commonwealth Department of Infrastructure and Regional Development is undertaking the detailed planning for a new greenfield airport at Badgerys Creek. The Western Sydney Airport project (the project) would service both domestic and international air traffic, with development staged in response to passenger demand. The initial development of the airport would include a single, 3.7 kilometre runway coupled with landside and airside facilities such as passenger terminals, cargo and maintenance areas, car parks and navigational instrumentation capable of facilitating the safe and efficient movement of up to 10 million domestic and international passengers per year. In the long term, approximately 40 years after the airport has been constructed and in accordance with relevant planning processes, the airport development could include parallel runways and additional passenger and rail transport facilities for around 82 million passenger movements per year.

This assessment addresses the Australian Government environmental assessment requirements for the project for European and other heritage. Advice on the environmental assessment requirements from the Heritage Division of the NSW Office of Environment and Heritage (OEH) is also addressed in this assessment.

The assessment involved the identification of heritage items within and adjacent to the airport site through a review of previous studies, heritage registers, historical research, and by undertaking field survey and archaeological test excavation.

A thematic contextual history of the airport site was developed and key historical themes identified. A predictive model of the types of European and other heritage places was developed from the thematic history, historical research, known site distribution, and past land use.

A total of 20 European and other heritage items were identified as being within the airport site and at an associated site¹, and 22 identified outside of the airport site but within the study area adopted for this study. The significance of each heritage item within the airport site was assessed against the Commonwealth heritage list criteria (Department of the Environment and Water Resources n.d) and NSW state heritage register criteria (NSW Heritage Office 2001). Significance assessment of these items identified one item of local significance, 18 items of Commonwealth heritage significance, and one with undetermined heritage significance within the airport site. It should be noted that Commonwealth Heritage values relate to the significant values of places on land owned or controlled by the Australian Government. The assessment adopted the approach suggested in the guidelines issued by the Australian Heritage Council which indicate that the threshold for consideration for inclusion on the Commonwealth Heritage List is local heritage significance. The assessment has been undertaken against Commonwealth Heritage criteria for the purpose of describing the degree of significance of identified heritage values. It is not related to any actual or proposed nomination of a place for inclusion in the Commonwealth Heritage List.

The Airport Plan indicates that most existing structures and certain infrastructure at the site will be removed and/or demolished to facilitate development of an airport. All 20 European and other heritage items on the airport site will be directly impacted by the Stage 1 development. Any structures associated with these items will be managed and removed in accordance with the proposed mitigation and management measures

¹ It is possible that part of the development may be included on an associated site. Where developments for matters such as HIAL are located outside of the airport site on land over which the Australian Government has rights such as an easement permitting the development, the Airport Plan will authorise the carrying out of these developments in accordance with s 96L of the Airports Act and that area of land is an 'associated site'. References in this report to the airport site include any associated sites unless otherwise stated.

contained in this assessment, unless otherwise specified in the finalised environmental impact statement (EIS) or Airport Plan for the proposed Western Sydney Airport.

No items beyond the airport site but within the study area will be subject to direct impact; however, a range of indirect impacts would result at these places as a result of the initial and long term development at the airport site.

Mitigation and management recommendations

Potential mitigation measures for those items within the airport site involve the realisation of the information and research potential associated with each site, and with the airport site as a whole, through a range of methods, as described in the table below.

General management measures have been recommended, including the development and implementation of a European heritage management plan including a procedure for unexpected finds, a procedure for the identification of human remains, and the provision of heritage induction training for contractors working on demolition or earthworks at the site.

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
	Airport site	Commonwealth	Direct, Stage 1 development	Oral history, interpretation, archive and curation
AS1	Pennell's property 2170 Elizabeth Drive, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations
AS2	Gardiner Road farm complex 5 Gardiner Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all structures and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, inventory of moveable heritage items, staged demolition, archaeological investigations, cultural plantings, relocation of structures
AS3	Badgerys Creek Public School Corner of Pitt Street and Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all structures associated with this site as a result of earthworks.	Archival recording, inventory of moveable heritage items, staged demolition, relocation of structures
AS4	Badgerys Creek butchery Lot 51A Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
AS5	Badgerys Creek post office Lot 52 Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations
AS6	Saw pit 61 Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations
AS7	Badgerys Creek Uniting Church and cemetery 15 Pitt Street, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, relocation of remains interred at cemetery site
AS8	St John's Anglican Church and cemetery 30 Pitt Street, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, relocation of remains interred at cemetery site
AS9	Braeburn homestead 55 Longleys Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations, cultural plantings
AS10	Orange Hill homestead 5 Jagelman Street, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations, cultural plantings

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
AS11	Vicary's Winery 1935 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all structures and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, inventory of moveable heritage items, staged demolition, archaeological investigations, cultural plantings, relocation of structures
AS12	Well 1972 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of well and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, staged demolition, archaeological investigations
AS13	The Northern Road alignment within the airport site	Commonwealth	Direct, Stage 1 development t: Removal of all evidence of The Northern Road alignment through the airport site as a result of earthworks.	Archaeological investigations
AS14	Anschau Vineyard, Steinberg and grave(s) 1845-1875 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Relocation of remains interred at cemetery site, archaeological investigations, cultural plantings
AS15	St Francis Xavier Church and cemetery 1966 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Relocation of remains interred at cemetery site, archaeological investigations, cultural plantings
AS16	Jackson Road cottage Lot 2 Jackson Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all structures associated with this site as a result of earthworks.	Archival recording, staged demolition, archaeological investigations

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
AS17	Badgerys Creek Road alignment within the airport site	Commonwealth	Direct, Stage 1 development: Removal of all evidence of the Badgerys Creek Road alignment through the airport site. The southern section of Badgerys Creek Road is proposed to be retained but is expected to be removed to enable construction of the second runway when required.	Archaeological investigations
AS18	Spredenberg 55 Longleys Road, Badgerys	Unknown	Direct, Stage 1 development: Removal of any archaeological evidence associated with the site.	Archaeological investigations
AS19	Howe residence Corner of Badgerys Creek Road and Longleys Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all archaeological evidence associated with the site.	Archaeological investigations
AS 20	Part McGarvie Smith University Farm 124 Elizabeth Drive, Badgerys Creek	Local	Direct, Stage 1 development as a result of use for High Intensity Approach Lighting (HIAL).	None required
SA1	Former Overseas Telecommunications Commission site group Badgerys Creek Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact.	None required
SA2	Kelvin 30 The Retreat, Bringelly	State	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
SA3	Two RAAF water tanks Badgerys Creek Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact.	None required
SA4	Mount Pleasant homestead 3 Shannon Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA5	Bringelly Public School group 1205 The Northern Road, Bringelly	Local	None	None required
SA6	Willmington Reserve 17 Jamison Street, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site	None required
SA7	Luddenham Public School The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA8	Lawson's Inn Lot 2 DP 623457, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA9	Part McGarvie Smith University Farm 124 Elizabeth Drive, Badgerys Creek	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA10	Brick cottage 21-55 Campbell Street, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA11	Luddenham Road alignment	Local	Indirect, direct, Stage 1 development: Visual impact, impact to southern alignment of Luddenham Road following Elizabeth Drive realignment	None required
SA12	Weatherboard cottage 3065-3067 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
SA13	Weatherboard cottage 3075 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA14	Luddenham Progress Hall 3091-3095 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA15	Luddenham Uniting Church and cemetery 3097-3099 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA16	St James Anglican Church and cemetery 3101-3125 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA17	Showground 428-452 Park Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site	None required
SA18	Shadforth Monument Greendale Road, Greendale	Local	None	None required
SA19	Private dwelling (former St Marks) Greendale Road, Greendale	Local	None	None required
SA20	Greendale Roman Catholic Cemetery Greendale Road, Greendale	Local	None	None required
SA21	Vertical slab dairy Lot 10, Adams Road, Badgerys Creek	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA22	Evergreen homestead Off Derwent Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required

Note: AS and SA in the above table refers to airport site and study area respectively. AS includes any associated sites.

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Terms and abbreviations

Term	Definition
1985 EIS	<i>1985 Second Sydney Airport Site Selection Programme Environmental Impact Statement</i> . An environmental impact statement developed in 1985 to assess the economic, environmental and social impacts of developing an airport at Badgerys Creek. This was the first environmental impact statement prepared for an airport at Badgerys Creek.
1997-99 EIS	PPK 1997, Draft Environmental Impact Statement Second Sydney Airport Proposal, Commonwealth Department of Transport and Regional Development and PPK Environment and Infrastructure Pty Ltd 1999, Supplement to Environmental Impact Statement Second Sydney Airport Proposal, Volume 3 Supplement. Prepared on behalf of the Department of Transport and Regional Services.
AHD	Australian height datum.
Aircraft movement	One landing or one take off by an aircraft.
Airports Act	<i>Airports Act 1996 (Commonwealth)</i>
Airport site	The site for the Sydney West Airport as defined in the Airports Act.
Ambient noise	The pre-existing noise levels in an environment prior to any given development.
Badgerys Creek	A suburb of Sydney about 50 kilometres west of the Sydney central business district. The general locality of the airport site.
Cut and fill	Earthworks and engineering term meaning an operation commonly used in road building and other rock and earthmoving operations in which the material excavated and removed from one location is used as fill material at another location. This is typically to reduce the gradient of a site on which it would otherwise be prohibitive or too costly to construct.
DIRD	Commonwealth Department of Infrastructure and Regional Development. The department responsible for planning the Western Sydney Airport.
Direct impact	A physical change occurring to an item or place which results in the diminution of the European and other heritage values of that item or place. Direct impacts may include minor and peripheral changes, or large scale removal and destruction.
EIS	Environmental Impact Statement.
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i> .
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
HHIMS	Historic Heritage Information Management System.
Impact	A change in the physical, natural or cultural environment brought about by an action. Impacts can be direct or indirect.
Indirect impact	As defined in the EPBC Act <i>Significant impact guidelines 1.2</i> , indirect impacts include downstream or downwind impacts, such as impacts on wetlands or ocean reefs from sediment, fertilisers or chemicals which are washed or discharged into river system; upstream impacts, such as those associated with the extraction of raw materials and other inputs which are used to undertake the action; and facilitated impacts which result from further actions (including actions by third parties) which are made possible or facilitated by the action, such as urban or commercial development of an area made possible by a project.
LEP	Local environmental plan.
LGA	Local Government Area.
Likely	As defined in the EPBC Act <i>Significant impact guidelines 1.2</i> , an impact is 'likely' if it is a real or not remote chance or possibility.

Term	Definition
Long term development	The long term development of the airport, including parallel runways and facilities for up to 82 million passengers annually (nominally occurring in 2063).
Master plan	Master plan prepared and approved in accordance with the Airports Act.
MNES	Matters of national environmental significance.
NSW	New South Wales.
OEH	The NSW Office of Environment and Heritage of the Department of Planning and Environment.
SEPP	NSW State Environmental Planning Policy.
Significant impact	As defined in the EPBC Act <i>Significant impact guidelines 1.2</i> , a 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.
Stage 1 development	The initial stage in the development of the proposed airport, including a single runway and facilities for 10 million annual passengers (the EIS assumes the airport could be operating at this level approximately 5 years after operations commence which for assessment purposes has been assumed to be 2030).
Study area	The area subject to investigation for the purposes of this assessment. This includes the airport site, and properties beyond the airport site where there is the potential for impact to European and other heritage resulting from the construction and/or operation of the airport, including the township of Luddenham.
The proposed airport	The proposed Western Sydney Airport.
Western Sydney Airport	The proposed airport. The airport is referred to as Sydney West Airport under the Airports Act.

1 Introduction

1.1 Background

Planning investigations to identify a site for a second Sydney airport first commenced in 1946, with a number of comprehensive studies—including two previous environmental impact statements for a site at Badgerys Creek—having been completed over the last 30 years.

More recently, the Joint Study on Aviation Capacity in the Sydney Region (Department of Infrastructure and Transport, 2012) and A Study of Wilton and RAAF Base Richmond for civil aviation operations (Department of Infrastructure and Transport, 2013) led to the Australian Government announcement on 15 April 2014 that Badgerys Creek will be the site of a new airport for Western Sydney. The airport is proposed to be developed on approximately 1,780 hectares of land acquired by the Commonwealth in the 1980s and 1990s. Airport operations are expected to commence in the mid-2020s.

The proposed airport would provide both domestic and international services, with development staged in response to demand. The initial development of the proposed airport (referred to as the Stage 1 development) would include a single, 3,700 metre runway coupled with landside and airside facilities such as passenger terminals, cargo and maintenance areas, car parks and navigational instrumentation capable of facilitating the safe and efficient movement of approximately 10 million passengers per year as well as freight operations. To maximise the potential of the site, the airport is proposed to operate on a 24 hour basis. Consistent with the practice at all federally leased airports, non-aeronautical commercial uses could be permitted on the airport site subject to relevant approvals.

While the proposed Stage 1 development does not currently include a rail service, planning for the proposed airport preserves flexibility for several possible rail alignments including a potential express service. A joint scoping study is being undertaken with the NSW Government to determine rail needs for Western Sydney and the airport. A potential final rail alignment will be determined through the joint scoping study with the New South Wales Government, with any significant enabling work required during Stage 1 expected to be subject to a separate approval and environmental assessment process.

As demand increases, additional aviation infrastructure and aviation support precincts are expected to be developed until the first runway reaches capacity at around 37 million passenger movements. At this time, expected to be around 2050, a second parallel runway is expected to be required. In the long term, approximately 40 years after operations commence, the airport development is expected to fully occupy the airport site, with additional passenger and transport facilities for around 82 million passenger movements per year.

On 23 December 2014, the Australian Government Minister for the Environment determined that the construction and operation of the airport would require assessment in accordance with the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act). Guidelines for the content of an environmental impact statement (EIS) were issued in January 2015.

Approval for the construction and operation of the proposed airport will be controlled by the Airports Act 1996 (Cth) (Airports Act). The Airports Act provides for the preparation of an Airport Plan, which will serve as the authorisation for the development of the proposed airport.

The Australian Government Department of Infrastructure and Regional Development is undertaking detailed planning and investigations for the proposed airport, including the development of an Airport Plan. A draft Airport Plan was exhibited for public comment with the draft EIS late in 2015.

Following receipt of public comments, a revised draft Airport Plan has been developed. The revised draft Airport Plan is the primary source of reference for, and companion document to, the EIS. The revised draft Airport Plan identifies a staged development of the proposed airport. It provides details of the initial

development being authorised, as well as a long-term vision of the airport's development over a number of stages. This enables preliminary consideration of the implications of long term airport operations. Any airport development beyond Stage 1, including the construction of additional terminal areas or supporting infrastructure to expand the capacity of the airport using the first runway or construction of a second runway, would be managed in accordance with the existing process in the Airports Act. This includes a requirement that, for major airport developments (defined in the Airports Act), a major development plan be approved by the Australian Government Minister for Infrastructure and Regional Development following a referral under the EPBC Act.

The Airport Plan will be required to include any conditions notified by the Environment Minister following this EIS. Any subsequent approvals for future stages of the development will form part of the airport lessee company's responsibilities in accordance with the relevant legislation.

1.2 Previous studies

Previous European and other heritage assessments of the airport site

The two previous EISs for the airport identified a number of European and other heritage items in the study area. Particularly, Chapter 21 of the *1997 Draft EIS* (PPK Environment & Infrastructure Pty Ltd 1997) addressed the non-Aboriginal (European and other) cultural heritage impacts of the then proposed Second Sydney Airport. Discussion was based on a separate specialist investigation documented in *Technical Paper 12: Non-Aboriginal Cultural Heritage* (Godden Mackay 1997).

The *Auditor's Report on the 1997 Draft EIS* (SMEC 1998) concluded that the investigation achieved all the objectives identified in the EIS Guidelines for the Draft EIS studies, and that the *Technical Paper 12* followed a methodology that complied with (then) current best practice in the heritage field.

In 1999 the *Supplement to the Draft EIS* (PPK Environment & Infrastructure Pty Ltd 1999) was prepared, summarising the findings of the *1997 Draft EIS* and issues raised in public submissions to the Draft EIS. Further information was provided on the methodology and scope of the assessment for the non-Aboriginal heritage investigation including:

- justification for not undertaking a preliminary field survey; and
- justification for exclusion of historic heritage items not located within or immediately adjacent to the airport options (there were three options for the Badgerys Creek airport examined in this EIS).

Additional assessment considered the cumulative impacts of the airport development on European and other heritage in the Liverpool local government area. It was concluded that cumulative impacts would not be severe given the affected items were not of high heritage significance. It was also noted that there were comparable heritage items to those identified, in nearby areas and throughout the region.

The *Supplement to the Draft EIS* also discussed the potential listing of the Greater Blue Mountains Area as a World Heritage site. It acknowledged that the basis of the nomination for listing was not related to historic heritage values, rather, biodiversity, landscape and Aboriginal heritage values.

Additional information was also provided in relation to management measures for heritage items.

The *Auditor's Report on the 1999 Supplement to the Draft EIS* (SMEC 1999) noted that the *Supplement* had addressed the comments made in public submissions and re-evaluated 23 heritage items associated with all three airport options in terms of National Heritage values. It also noted that nine heritage items were re-assessed and found to have sufficient cultural significance to warrant entry on the Register of the National Estate. The *Auditor's Report* recommended that future comparison of options include consideration of how each item would be affected.

In 1999 Environment Australia prepared an *Environmental Assessment Report* summarising and analysing the findings of the 1997 *Draft EIS*, the *Supplement to the Draft EIS*, and the two Auditor's Reports. It noted that an understanding of the collective value of the identified heritage items would have been beneficial, but conceded that the assessed significance of the items was unlikely to change as the result of such an assessment. The *Environmental Assessment Report* also noted that the cumulative impact assessment prepared for the *Supplement to the Draft EIS* did not consider the impact of airport operations on the setting of remaining heritage items. It observed that the *Supplement to the Draft EIS* also did not consider the impacts of consequential land uses or infrastructure on remaining heritage resources in the region. Environment Australia concluded that the loss of heritage items within the site and consequential regional impacts of an airport and associated infrastructure would have a significant impact on the heritage resources of the region. This significance would be elevated due to the loss of sites at Badgerys Creek.

Environment Australia recommended that a survey of the airport site be carried out prior to construction to identify further heritage items and potential archaeological deposits. It further recommended a survey be conducted early in the planning period for an airport at Badgerys Creek to identify all non-Aboriginal regional heritage items which may be affected by the operation of an airport. It was recommended that the identified heritage items each have conservation management plans prepared including management measures to mitigate the impacts of airport operations.

In 2014, Australian Museum Consulting was commissioned by SMEC on behalf of the Western Sydney Unit of DIRD to prepare an environmental survey of Commonwealth-owned land at Badgerys Creek. The investigation was designed to build on the substantial body of existing information about the property to provide an updated baseline of the status and condition of non-Aboriginal heritage sites. The report was included as part of the EPBC Act referral which was submitted to the Commonwealth Department of the Environment in November 2014.

1.3 Scope and content of this report

RPS has undertaken this assessment of impacts on European and other heritage for the proposed Western Sydney Airport to support the EIS for the project.

This report draws on the results of all previous assessments undertaken and augments this information with further research, site investigations, test excavation and analysis. This report has been prepared in accordance with the EIS guidelines.

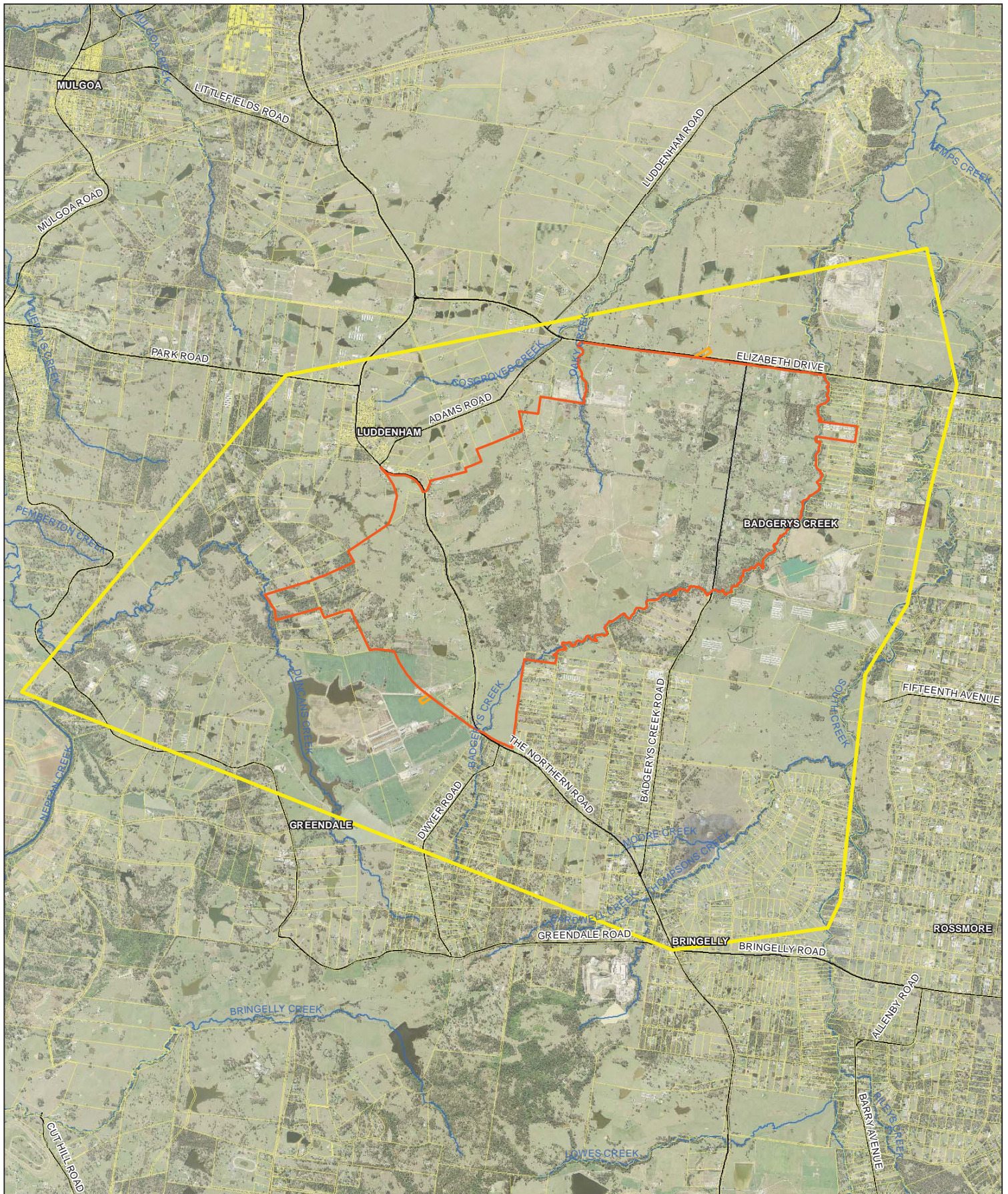
For the purposes of this report, the airport site and study area are defined as follows.

Airport site

The airport site is located 56 kilometres from Sydney's centre and is roughly bounded by Elizabeth Drive to the north, Willowdene Avenue to the south, Adams Road to the west, and Badgerys Creek to the east (Figure 1). The Commonwealth will also need to acquire interests on adjacent land for the purposes of safe air navigation, including for the installation of High Intensity Approach Lighting (HIAL). The Northern Road currently cuts across the south-western side of the site but will be acquired in the future to become part of the airport site. The Northern Road will be relocated to allow the development to proceed. The airport site is approximately 1,780 hectares.

Study area

The study area is the area subject to investigation for the purposes of this report. The study area includes the airport site, and properties beyond the airport site where there is potential for impact to European and other heritage resulting from the construction and/or operation of the airport. This includes the township of Luddenham, some parts of Bringelly, and some parts of Greendale (Figure 1).



- LEGEND**
- Study area
 - Airport site
 - Cadastre
 - HIAL



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56

Job Number 21-24265
 Revision A
 Date 19 Apr 2016

Airport site and study area

Figure 1

G:\21124265\GIS\Maps\Deliverables\KBM.mxd [KBM: 78]

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Data Source: Please refer to "Digital Data Sources" on the second page of the EIS

2 Methodology

This chapter details the methods used in completing the assessment of European and other heritage. An outline of the assessment approach is provided. Details of previous and current field surveys of the airport site are presented. The chapter also presents the approach taken in assessing the significance of heritage items, the approach taken to the project's European and other heritage environmental impact assessment, consultation undertaken and the relevant guidelines and legislation used in undertaking the assessment.

The overall approach to the assessment involves the identification of heritage items within the airport site and the study area through a review of previous heritage studies, searches of relevant heritage registers and schedules, and by undertaking field survey. The significance of each heritage item will be assessed consistent with the criteria for Commonwealth Heritage values and using the threshold of 'local' significance as recommended in guidelines issued by the Australian Heritage Commission. It is noted that these criteria have been used for the purpose of assessing the significance of identified heritage values; it is not strictly necessary to consider those criteria for the purposes of this assessment. In particular, all heritage values (as defined in section 528 of the EPBC Act) are relevant to this assessment, whether or not they meet the Commonwealth Heritage criteria. In addition, the identification of Commonwealth Heritage values as part of this assessment is not related to any actual or proposed nomination of a place for inclusion on the Commonwealth Heritage List.

The impact of the project on each heritage item will then be assessed, both for direct and indirect impacts including impacts from demolition, archaeological disturbance, altered historical arrangements and access, landscape views and vistas, and architectural noise treatment. Appropriate management measures will be identified to avoid, minimise and manage impacts to each heritage item.

For the purposes of this report we have defined the airport site and a study area.

Stage 1 development – construction and initial operations (2016)

During this period, major site preparations including earthworks to prepare the airport site will take place. Site preparation activities could commence from late-2016.

Airport operations are proposed to commence in the mid-2020s. The Stage 1 development of the airport would cater for up to 10 million passengers per annum, a level of demand that could occur in about 2030.

The Stage 1 development will require the construction of one 3,700 metre runway in the north of the airport site on an approximate 50/230 degree orientation with a single full length parallel taxiway. The Stage 1 airside system is planned to be capable of handling both domestic and international regular public transport services.

Aviation infrastructure, aviation support precincts, network infrastructure including utilities and ground transport facilities will be developed in advance of operations commencing. Areas of land have also been reserved for commercial development. An indicative layout for the Stage 1 development is illustrated in the main volume of the EIS.

Long term development (c.2063)

As demand increases beyond forecast Stage 1 levels, additional aviation infrastructure and aviation support precincts will add capacity to meet growing aviation demand. Incremental development of the airport will continue as additional taxiways, aprons, terminals and support facilities are developed. The airport would also include some commercial development in designated areas which would grow over time with demand.

The first runway is expected to reach capacity at around 37 million passengers per annum. This equates to approximately 187,000 air traffic movements per year, or 45 per hour, including freight operations.

To meet additional demand a second parallel runway, 3,700 metres in length is expected to be required. The second runway is expected to have a runway centre-line separation distance of 1,900 metres from the first runway. Current expectations suggest that the development of a second parallel runway could be required around 2050.

By around 2063 the total number of air traffic movements per year is forecast to be 370,000, serving approximately 82 million passengers annually. An indicative long term layout of the development is illustrated in the main volume of the EIS.

2.1 Assessment approach

Overall approach

A summary of the assessment approach is as follows:

- review relevant heritage legislation;
- review background information including previous thematic studies, field surveys and assessments undertaken during previous assessments of the airport site (refer Section 1.2);
- search all available historic heritage registers for the airport site and the study area, including the World Heritage List, National Heritage List, Commonwealth Heritage List, State Heritage Register, state agency s170 Heritage and Conservation registers, Local Environmental Plans, National Trust of Australia (NSW) list, Register of the National Estate, Historic Heritage Information Management System, Australian Institute of Architects Register of Significant Architecture in NSW;
- collate any known heritage curtilage (boundary) information as part of the heritage searches;
- undertake a literature review including previous archaeological reports, heritage studies, local heritage studies, conservation management plans, as well as regional and local history documents and maps where available;
- prepare thematic history;
- develop a predictive model for occurrence of historical site types in the landscape and apply this to the study area to inform further field survey requirements;
- undertake field survey of the airport site to identify known historic heritage items, unrecorded historic heritage items, and to assess the potential for any unrecorded historic heritage items;
- develop a database of historic heritage items and features located within the study area;
- undertake consultation with relevant councils and the Heritage Division of the NSW Office of Environment and Heritage (OEH), regarding heritage significance and curtilage of heritage listed items;
- undertake targeted survey to record identified historic heritage items and determine heritage curtilage;
- undertake assessment of cumulative impacts on historic heritage including cultural landscapes; and
- recommend management and mitigation measures.

2.2 Approach to heritage values of Badgerys Creek

The heritage values of the suburb of Badgerys Creek were examined as part of the assessment. The heritage assessment of Badgerys Creek as a heritage landscape has not been undertaken as part of any previous assessments of the airport site. Rather than using the site specific approach defined above, a broader landscape approach has been used. The assessment presents the historical background of

Badgerys Creek, the known physical remains and former fabric of the settlement, a significance assessment of the settlement as a whole, and the impacts of the airport on the settlement overall.

2.3 Archival research

Numerous primary and secondary sources held by the State Library of New South Wales, State Records of New South Wales, Land and Property Information (NSW), and the Penrith City Council Library Special Collections were examined during research on the historical development of the airport site. Attempts were made to access information from Liverpool City Council's Library, however RPS was informed that much of the relevant information had been destroyed by a fire in the 1960s. Material examined at State Records included photographs, maps and land records associated with Badgerys Creek and individual properties and their owners. The maps and plans associated with the subdivision and use of the airport site, Trove, Land and Property Information's Six Viewer, parish maps, and local heritage studies were also consulted.

The aerial photograph series held by the Land and Property Information Division of the NSW Department of Finance and Services provided the main source of primary information regarding the development of the airport site after WWII. Aerial runs of the airport site from 1947, 1965, 1975, 1986 and 1991 were also collected for analysis.

2.4 Historic heritage register searches

This assessment of European and other heritage includes searches of all heritage registers to identify items located within the project area and within the study area. Heritage registers and schedules searched are as follows:

- UNESCO World Heritage List;
- Australian Heritage Database including the World Heritage List, Register of the National Estate, Commonwealth Heritage List, National Heritage List;
- NSW State Heritage Register;
- Historic Heritage Information Management System;
- s170 Heritage and Conservation Registers;
- heritage schedules in Liverpool Local Environmental Plan (2008) and Penrith Local Environmental Plan (2010);
- National Trust (NSW) list; and
- Australian Institute of Architects Register of Significant Architecture in NSW.

All registers and schedules were initially searched in January 2015 to inform the predictive model and early field survey. Registers were searched again in June 2015 to ensure any changes to items were captured.

Heritage studies and anecdotal information about registered sites have been sourced from:

- Liverpool City Council;
- Penrith City Council; and
- local historical societies including Campbelltown and Airs Historical Society, and the Nepean Family Historical Society.

2.5 Predictive model

A predictive model was developed to identify the most likely types of European or other heritage site types to be found at the airport site, and areas of greater or lesser potential for the presence of European or other heritage sites. The predictive model will also be used to inform further requirements for field survey.

The model was developed as follows:

- previous predictive models and statements made for the region in various heritage assessments and investigations were reviewed;
- known and recorded European and other heritage sites were identified from heritage registers and databases and previous heritage investigations;
- literature review including primary documents and local histories;
- identification of key historical themes for the area based on the historical activities undertaken;
- a review of information gathered during the research and register search phases formed the basis for the predictive modeling of the effect of various development episodes and changes in land boundaries that led to the current configuration and uses of the site. All maps and plans providing detailed information were compared against a current survey in order to test their veracity;
- a review of photographs, drawings and paintings collected during research was compared with the current landscape and a current survey plan in order to place features illustrated in them within a contemporary context. The technique has varying degrees of accuracy and in the case of non-photographic information, assumes that the original illustrator was creating an accurate record of the scene; and
- consideration of information about the current landscape and land use assisted in the identification of likely presence or survival of particular types of European and other heritage sites.

2.6 Field survey

Information from field surveys undertaken as part of the 1997 *Draft EIS* was used to inform the current field survey strategy.

Previous field surveys

Previous field surveys were undertaken in and adjacent to the current airport site as part of the 1997 *Draft EIS*.

Godden Mackay (1997) assessed a study area which was generally limited to the area within the boundary of the then proposed Second Sydney Airport master plan (refer 1997 *Draft EIS*), however, sites immediately adjacent to that boundary were also assessed. Godden Mackay identified heritage items and sites through a combination of primary and secondary research, scrutiny of existing heritage studies and reviews of existing heritage listings. Further primary research was undertaken to establish the history and archaeological potential of individual sites identified during the field surveys and from historical maps. Site inspections were undertaken in 1996 to record physical evidence and to verify historical research.

A full survey methodology was not included in Godden Mackay's *Non-Aboriginal Cultural Heritage Technical Paper* for the 1997 *Draft EIS*. It is unclear whether the investigations focused on known historic heritage items with a limited field program, or whether access to properties may have hindered the survey coverage. A review of the previous survey results informed the more recent field survey program as part of the current

proposal. Overall the methodology and coverage of the previous field survey appears to have been sufficient.

In 2014, Australian Museum Consulting was commissioned by SMEC on behalf of the DIRD to update and build upon the previous work relating to the European and other heritage constraints and issues of the project area. A physical survey of the airport site and the local area in the vicinity was undertaken over two days by car with each street traversed and each identified item accessed, where possible. Where properties could be accessed, the survey was undertaken on foot. The methodology allowed for opportunistic sightings of some new potential heritage items. The survey was subject to considerable time constraints, and acknowledged the potential for other items or places within the airport site to have been overlooked. Some problems were encountered gaining access to properties within the dedicated field survey days due to landholder notification requirements and some objections to access. Archaeological sites could only be identified where there were physical remains associated with the original structure(s) and, as such, there was some uncertainty regarding the precise location of some sites. The investigation did not include a comprehensive survey of listed and potential heritage items in the study area.

Recent field programme

Preliminary field survey

The recent field survey programme focused on areas identified through primary and secondary research as having potential to contain European and other heritage sites. A preliminary field survey was undertaken over two days from 1-2 April 2015. The field team comprised two qualified archaeologists: Erin Williams and Deborah Farina.

Prior to undertaking the field survey, priority areas were identified by undertaking analysis of background information including topography, predictive model results, previous studies and field survey results, and heritage register listings. This provided a summary of target areas for the survey.

The survey sampled a range of different land use and landforms within the airport site. There was a focus on properties known to have been developed and thought to contain residual evidence of European and other heritage with the aim of maximising coverage in areas considered to be of higher sensitivity. Additionally, ground truthing was undertaken at known heritage sites which could be directly impacted by the project.

The field survey was undertaken as follows.

- Survey areas were defined on the basis of landholder information and property identification numbers held by DIRD. At the time of the survey the bulk of the airport site had been consolidated into one title, but each former title retained a unique identifier attributed by DIRD. The field survey was undertaken on foot and was opportunistic, with particular attention given to areas identified as having the potential to contain evidence of historic occupation, and areas of higher ground surface visibility or where the surface was exposed. Much of the airport site was very overgrown and numerous properties were vacant at the time of the survey.
- On sites where the location of a former structure or feature was known, the survey sought to identify surface evidence in order to establish the potential for subsurface evidence at that place.
- At properties where access was not possible a visual assessment was undertaken from the adjacent property. This method was useful where it was noted that ground surface visibility was extremely low due to thick vegetation and would render pedestrian survey ineffective. All properties within the airport site were subject to a “drive by” inspection.
- The locations of all European and other heritage sites (built heritage or archaeological sites) were recorded using a Garmin 60CSx handheld GPS.

- Field notes including commentary on ground surface visibility and exposures, vegetation, previous modifications and disturbance, landform, and land use were recorded for each survey area.
- The survey did not include areas that had been subject to previous significant ground disturbance, except where specific items of interest had been noted in these properties which required a more detailed recording.
- The environmental and archaeological context of each item was recorded. This included general location, site components, landscape features and photographs. The curtilage of each item was determined and recorded in the field.

The main constraints to survey were property access and ground surface visibility as the airport site was generally very overgrown.

Secondary survey

Following the preliminary field survey, the completion of historical research and the receipt of historical aerial photographs, a further seven locations within the airport site were identified for field survey. The purpose of the survey was to determine whether any European or other heritage evidence remained at these locations, and whether test excavation was required. The same methodology as the preliminary field survey applied.

The secondary survey was undertaken from 1-2 June 2015. The field team comprised four qualified archaeologists: Deborah Farina, Joshua Madden, Jakob Ruhl and Georgia Wright.

Test excavation

As a result of the field surveys, one site was identified as requiring test excavation. The purpose of test excavation was to identify the presence of structural evidence associated with the place, the character of any remains to better understand the date(s) of occupation at the place, and the potential for lengthy or continued occupation of the site.

The methodology adopted for the test excavation program was framed by the following research questions.

- Is there any evidence indicating continued occupation of a site?
- If so, is there enough evidence to warrant an open area excavation?
- If not, is further archaeological investigation warranted?

Test excavation was undertaken from 3-5 June 2015 at the site of the former Orange Hill homestead. Orange Hill was identified by a local leaseholder as the site of the original Orange Hill homestead (Australian Museum Consulting 2014). Surface evidence at the site included a small stand of cape honeysuckle trees, two wells and several sandstock bricks. The test excavation was undertaken by a field team comprising four qualified archaeologists: Deborah Farina, Joshua Madden, Georgia Wright and Jakob Ruhl. Further details can be found below in Section 3.

2.7 Archaeological assessment

The evaluation of the historical archaeological potential associated with the history of the airport site is based on a consideration of historical information about the development and occupation of the airport site, physical evidence observed during field surveys, and identified areas of previous disturbance. A broad approach to the identification of potential archaeological evidence has been adopted and is based on the predictive model discussed above, which assumes that historical archaeological remains are generally located in close proximity to occupation and activity areas.

The assessment of archaeological impacts has been prepared based on historical research, a field survey, and the results of test excavation.

Historical background and significance assessment of identified archaeological sites has been primarily based on historical research. Field survey results were used to assess the anticipated condition of the historical archaeological sites.

2.8 Assessment of significance

Statements of significance for the assessed heritage items have been drawn from Federal and State statutory and non-statutory heritage registers where available, and supplemented with additional historical research as required.

The methodology for assessment of heritage significance is based on the Commonwealth Heritage criteria (Department of the Environment and Water Resources n.d). The assessment has been undertaken against Commonwealth Heritage criteria for the purpose of describing the degree of significance of identified heritage values. It is not related to any actual or proposed nomination of a place for inclusion in the Commonwealth Heritage List.

These criteria are defined by the EPBC Act and relate to the place's natural and cultural environment having aesthetic, historic, scientific or social significance, or other significance. These criteria indicate that an item is of Commonwealth Heritage significance if it meets one of nine criteria. The Commonwealth Heritage criteria align closely with New South Wales state heritage criteria (NSW Heritage Office 2001) (refer Table 1 below).

Table 1 Commonwealth and New South Wales heritage criteria

	Commonwealth Heritage criteria	New South Wales heritage criteria
Events and processes	Criterion (a) the place has significant heritage value because of the place's importance in the course, or pattern, of Australia's natural or cultural history.	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)
Rarity	Criterion (b) the place has significant heritage value because of the place's possession of uncommon, rare or endangered aspects of Australia's cultural or natural history.	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)
Research	Criterion (c) the place has significant heritage value because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.	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)
Principal characteristics of a class	Criterion (d) the place has significant heritage value because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural or cultural places, or (ii) a class of Australia's natural or cultural environments.	Criterion (g) an item is important in demonstrating the principal characteristics of a class of NSW's: <ul style="list-style-type: none"> ▪ Cultural or natural places; or ▪ Cultural or natural environments. (or a class of the local area's <ul style="list-style-type: none"> ▪ Cultural or natural places; or ▪ Cultural or natural environments.)

	Commonwealth Heritage criteria	New South Wales heritage criteria
Aesthetic	Criterion (e) the place has significant heritage value because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.	Criterion (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)
Creative or technical achievement	Criterion (f) the place has significant heritage value because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.	Criterion (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)
Social	Criterion (g) the place has significant heritage value because of the place's strong of special association with a particular community or cultural group for social, cultural or spiritual reasons.	Criterion (d) An item has strong or special associations with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons
Associative	Criterion (h) the place has significant heritage value because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.	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)
Indigenous tradition	Criterion (i) the place has significant heritage value because of the place's importance as part of indigenous tradition.	NSW laws provide separately for indigenous heritage (see <i>National Parks and Wildlife Act 1974</i>). Indigenous heritage is addressed in a separate report for the EIS.

Each of the criteria above will be considered in regard to the history and physical evidence of the heritage items identified. It is noted that the criteria detailed in the Australia ICOMOS Burra Charter (2013) are very similar to the Commonwealth criteria, and as such they are not considered separately. Each identified heritage item within the airport site will also be considered with regard to the *Australian Historic Themes Framework* (Australian Heritage Commission 2000).

As well as assessing a place against criteria for its heritage value, the Australian Heritage Council applies a 'significant threshold' test. This test helps the Council to judge the level of significance of a place's heritage value by asking 'just how important are these values?'. To be entered on the CHL, a place must have 'significant' heritage value (Department of the Environment, Heritage website, accessed June 2015). Guidelines prepared by the Australian Heritage Council for Commonwealth agencies on the identification of Commonwealth Heritage values state that "the threshold for inclusion on the Commonwealth Heritage List is local heritage significance" (Australian Heritage Council 2010:7).

The Airport Plan indicates that most existing structures and certain infrastructure at the site will be removed and/or demolished to facilitate development of an airport. This includes structures and items that have been identified as having local heritage value, and hence potential Commonwealth Heritage value. This process precludes the *in situ* retention of these structures and items at the airport site. The removal or demolition of the structures and items identified in this assessment and the EIS will be undertaken in accordance with the mitigation and management measures contained in the EIS and any additional measures identified in the approved European heritage management plan.

2.9 Definition of impacts

The potential impacts of the project on the heritage significance of European and other heritage items is described using two categories of potential impact: direct and indirect.

Direct impact is defined as physical change occurring to an item or place which results in the diminution of the European and other heritage values of that item or place. For the purposes of this report, direct impact is considered to be a likely consequence of any site or place situated within the airport site. Direct impact may include minor and peripheral changes, or large scale removal and destruction.

Indirect impact is defined as an impact to an item or place (or to its surrounding where those surroundings contribute significantly to the European and other heritage values of that item or place), where this is likely to occur within the study area, and as a consequence of the construction and operation of the project. The potential for indirect impact varies according to the nature of the item or place, and its proximity to activities associated with the development and operation of the airport. Indirect impact may include impacts to landscapes and vistas, changing use, change to access, or changed associations.

2.10 Consultation informing this assessment

Consultation was undertaken with a number of stakeholders to inform this assessment.

A meeting was held with the Heritage Division of the OEH on 29 May 2015 to discuss the approach to the European and other heritage technical report. OEH expressed general satisfaction with the approach, and made it clear that although New South Wales heritage legislation and requirements did not apply to the airport site, the general consistency of the approach with State requirements was suitable. OEH acknowledged that all heritage items within the airport site would be directly impacted by the project, and was interested in the proposed mitigation measures for the airport site, particularly interpretation of the site and the recording of oral history.

A meeting was held with heritage staff from Liverpool City Council on 28 May 2015. The approach to the European and other heritage technical report was discussed. At this meeting, RPS handed over information regarding Lawson's Inn, the location of which is incorrectly recorded in the Liverpool Local Environmental Plan (2008). Council staff were particularly interested in the recording of cultural plantings within the airport site and the collection of samples of these if they were determined to be heirloom varieties.

2.11 Relevant legislation and guidelines

Commonwealth legislation

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a legal framework for the protection and management of matters of national environmental significance, including World Heritage properties, National Heritage places and Commonwealth Heritage places. The EPBC Act also provides for the protection of heritage as part of the environment generally, in the case of actions by the Commonwealth or actions on Commonwealth land. The heritage lists addressed by the EPBC Act include the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List (WHL), National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

All WHL properties in Australia are 'matters of national environmental significance,' protected and managed under the EPBC Act (UNESCO 2014). The NHL protects places that have outstanding heritage value to the nation. The CHL protects places of heritage significance which are owned or managed by Australian

Government agencies. The Commonwealth Department of the Environment is responsible for implementing national policy, programs and legislation to protect and conserve Australia's environment, water and heritage and promote climate action. The Minister's approval is required before an action is taken that has, will have or is likely to have a significant impact on places included on the WHL, NHL or CHL. Approval is also required for an action by the Commonwealth or on Commonwealth land which is likely to have a significant impact on heritage values, even if those values are not included in one of these lists. A 'heritage value' of a place includes the place's natural and cultural environment having aesthetic, historic, scientific or social value, or other significance, for current and future generations of Australians (EPBC Act s528).

The EPBC Act also provides for the management of places on the WHL, the NHL or the CHL.

Environment Protection and Biodiversity Conservation Regulation 2000

Under s341Z of the EPBC Act, Commonwealth agencies must take "all reasonable steps to assist the Minister and the Australian Heritage Council in the identification, assessment and monitoring of the place's Commonwealth Heritage values". Identification of heritage values is the first step in the process of developing management strategies to guide the management and conservation of heritage values of items and places for present and future generations. Assessment of heritage values is undertaken in accordance with the CHL criteria as set out in the EPBC Regulation 2000 (No. 1) r10.03A. The threshold for identification of a Commonwealth Heritage value is that the place has **significant** heritage value against one or more of the criteria.

In 2005, the Commonwealth Department of Transport and Regional Services (DOTARS, now known as DIRD) prepared a Heritage Strategy that complied with the EPBC Regulations and sections 341Z and 341ZA of the EPBC Act. The DOTARS Heritage Strategy included the 1780 hectare Commonwealth owned land at Badgerys Creek, within which are listed and potential heritage items described in Technical Paper No. 12. This report formed the background to the Non-Aboriginal Cultural Heritage chapter of the 1997 EIS.

In 2011, the Commonwealth Department of Infrastructure and Transport (now known as DIRD) engaged Godden Mackay Logan to prepare an updated Heritage Strategy in compliance with the EPBC Act and Regulations. This included basic processes for the assessment of Commonwealth and National Heritage values, and is based on the Australia ICOMOS Burra Charter.

Matters of national environmental significance

The Greater Blue Mountains Area (GBMA) is listed on the WHL and NHL and consists of 1.03 million hectares of sandstone plateaux, escarpments and gorges dominated by temperate eucalypt forest. The site comprises eight protected areas including Wollemi National Park, Blue Mountains National Park, Yengo National Park, Nattai National Park, Kanangra-Boyd National Park, Gardens of Stone National Park, Jenolan Caves Karst Reserve and Thirlmere Lakes National Park. The closest part of the GBMA is located approximately seven kilometres north west of the airport site.

The GBMA was inscribed on the WHL in 2000 because it satisfies two of the criteria for natural values of outstanding universal value. It contains outstanding examples of ongoing ecological and biological processes significant in the evolution of Australia's highly diverse ecosystems and communities of plants and animals, particularly eucalypt dominated ecosystems; and significant natural habitats for the in situ conservation of biological diversity, including the eucalypts and eucalypt dominated communities, taxa with Gondwanan affinities, and taxa of conservation significance.

Apart from those particular features which have been recognised as having World Heritage value, the GBMA has numerous other important values which complement and interact with its World Heritage values. The GBMA includes numerous places of historic significance, some dating back to the earliest years of European settlement and exploration in Australia. Recorded sites demonstrating post-1788 human use are associated with:

- rural settlement, pastoral use and timber getting, for example Euroka and Buralow Creek (Blue Mountains National Park), a number of small graziers' huts in Wollemi National Park and cedar logging roads and stock routes in the Kanangra-Boyd National Park;
- mining, for example the ruins of oil shale mines at Newnes and Baerami (Wollemi National Park), lead/silver/gold mines at Yerranderie (Blue Mountains National Park) and coal/shale mines at Jamison and Grose Valleys (Blue Mountains National Park);
- road and rail transport routes, for example parts of the Old Great North Road and the Putty Road/Old Bulga Road (Yengo National Park) which linked Sydney with the earliest settlements in the Hunter Valley and remnants of a mid nineteenth century pumping station (Thirlmere Lakes National Park) which supplied water for steam engines on the main southern railway line; and
- tourism and recreation; for example Jenolan Caves was one of the first tourist attractions in Australia, with visitation dating back to the early 1800s, and the Reserve contains numerous historic relics related to tourism and the village's infrastructure; many lookouts and walking tracks on the central Blue Mountains ridgeline (including Blue Mountains National Park) have been in continuous use since the late nineteenth century.

The project will not impact, directly or indirectly, on the heritage significance of any European or other heritage items within the GBMA. A full consideration of the potential impacts of the project to the GBMA is detailed in the EIS.

There are no places on the CHL within the airport site.

NSW legislation

This section sets out related NSW legislation for information and context.

Environmental Planning and Assessment Act 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) is the main Act regulating land use planning and development in NSW. The EP&A Act provides for the making of two types of environmental planning instrument: Local Environmental Plans (LEPs), which cover local government areas; and State Environmental Planning Policies (SEPPs), which address matters of state or regional environmental planning significance. LEPs commonly identify, and have provisions for, the protection of locally significant heritage items and heritage conservation areas. The airport site is located wholly within the boundaries of the Liverpool local government area, although the Penrith local government area is immediately adjacent and within the study area.

Liverpool Local Environmental Plan 2008

Clause 5.10 of the Liverpool Local Environmental Plan 2008 (Liverpool LEP 2008) provides for the protection of items, places and archaeological sites which have been identified as having local heritage significance.

Penrith Local Environmental Plan 2010

Clause 5.10 of the Penrith Local Environmental Plan 2010 (Penrith LEP 2010) provides for the protection of items, places and archaeological sites which have been identified as having local heritage significance.

Clause 5.10 (2) states that should any item of local heritage be impacted, either directly or indirectly, that development consent is required. However cl 5.10 (3) states that such consent is not required if the applicant has notified Council of its proposed development and that the Council is satisfied that the work is of a minor nature or would not affect the heritage significance of the item.

Heritage Act 1977

The NSW *Heritage Act 1977* provides protection for heritage places, buildings, works, relics, moveable objects, precincts and archaeological sites that are important to the people of NSW. These include items of Aboriginal and non-Aboriginal (European and other) heritage significance. Where these items have particular importance to the people of NSW, they are listed on the State Heritage Register (SHR).

Part 8 s170 of the Heritage Act requires NSW Government departments and agencies to maintain a Heritage and Conservation Register, commonly known as a s170 Register. These registers include items of Aboriginal and non-Aboriginal heritage significance.

The Historic Heritage Information Management System (HHIMS) replaced the previous National Parks and Wildlife Service Historic Places Register in August 2002, and enables OEH to meet its obligations under s170 of the *Heritage Act 1977*. HHIMS aids in the protection and management of these sites by maintaining and providing information about the nature, current status and location of sites. HHIMS information facilitates inquiries, supports site protection, enables better management and research and provides the secure protection of sensitive cultural and historical information.

Heritage Regulation 2012

The NSW *Heritage Regulation 2012* assists in the administration of the NSW *Heritage Act 1977*. It details information such as fees and forms required for permits (Part 2), the minimum standards of repair for heritage items (Part 3) and miscellaneous information (Part 4) such as the minimum allowable time between recommendation of a heritage listing and its registration by the Minister and the types of items to be included in Heritage and Conservation Registers required to be maintained by NSW Government bodies under s170 of the NSW *Heritage Act 1977*.

Other agencies

National Trust of Australia (NSW)

The National Trust of Australia (NSW) is the NSW division of the Australian Council of National Trusts (ACNT). The ACNT is the national peak body for community-based, non-government organisations committed to promoting and conserving Australia's indigenous, natural and historic heritage. The ACNT was incorporated in 1965 and federates autonomous National Trusts in every Australian state and internal self-governing territory. Collectively, the constituent National Trusts own or manage over 300 heritage places, the majority of which are held in perpetuity.

The National Trust of Australia (NSW) maintains a register of landscapes, townscapes, buildings, industrial sites, cemeteries and other items or places which the Trust determines to have cultural significance and are worthy of conservation. There are currently over 12,000 items listed on the Trust's register. They are said to be Classified. The register is maintained for its historical, research, conservation and educational value, but does not offer statutory protection to heritage places. There are no Classified properties within the airport site.

Australian Institute of Architects

The NSW Chapter of the Australian Institute of Architects has maintained a register of significant architecture in the state since October 1949. By the early 1970s an agreement was reached with the National Trust of Australia that the focus of listings undertaken by the NSW Chapter would be buildings post 1900. The list is maintained for historical, research, conservation and educational values, but does not offer statutory protection. There are no listed properties within the airport site.

Guidelines

This assessment has been undertaken according to the principles outlined in the following documents.

- Australia ICOMOS, 2013, The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance.
- Department of the Environment, 2013, EPBC Act Policy Statement 1.1 – Significant Impact Guidelines – Matters of National Environmental Significance.
- Department of the Environment, 2013, EPBC Act Policy Statement 1.2 - Significant Impact Guidelines – Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.
- DOTARS Heritage Strategy, 2005.
- New South Wales Heritage Office, 1996, New South Wales Heritage Manual.
- Heritage Council of NSW, 2002, Statements of Heritage Impact.
- Heritage Council of NSW, 2001, Assessing Heritage Significance.
- Heritage Council of NSW, 2009, Assessing Significance for Historical Archaeological Sites and 'Relics'.

3 Existing environment

3.1 Historical context

This chapter provides a historical framework to understand local site histories. It will be used to establish the importance and rarity of the heritage values associated with each European and other heritage site identified in the airport site and study area.

Early exploration

European exploration and subsequent settlement of the western reaches of the colony of NSW along the Hawkesbury-Nepean river system began as early as 1789, when Governor Phillip led an expedition in search of arable land (Paul Davies Pty Ltd 2007:17). Lured by the rich alluvial soils of the Hawkesbury-Nepean, settlers established farms at Castlereagh, Emu Plains and Agnes Banks, but the unpredictable cycles of flood and drought in the 1790s caused serious financial hardship and prompted the search for suitable land in neighbouring districts.

European settlement in the Badgerys Creek area occurred around the same time as the earliest agriculturally driven expansion beyond the Sydney Cove and Parramatta settlements. The airport site was probably first crossed by Europeans in 1802 when botanist George Caley led a party through the Mulgoa Valley (Godden Mackay 1997:5-1). It is likely that a number of private expeditions were also undertaken in these formative years with the view of securing arable land that could sustain farming (Paul Davies Pty Ltd 2007:17-18). The intensive farming that had taken place to support the colony around Sydney and Parramatta had exhausted the soil, and alternative farming land was required.

Access to Sydney and fresh water from a number of creeks added to the appeal of Badgerys Creek. This was based on the principle that those who had the money would be more likely to provide advantages to the colony through capital investment in their property which would, in time, ease food shortages (Neustein and Associates 1992). Formal surveys of the Castlereagh Road and surrounding farms were commissioned in 1803 and of the Mulgoa Valley in 1809.

Aboriginal contact with Europeans

The traditional way of life for Aboriginal people changed markedly after the arrival of Europeans in the area. It is unclear how many Aboriginal people lived in the area, but the population of the western Cumberland Plain (including the airport site) was considered by settlers to be less dense than the coast (Australian Museum Consulting 2014:16).

George Caley's 1802 expedition party had contact with the local Aboriginal people, probably of the Cabrogal clan of the Darug, and described their huts, walking tracks and the effects of burning of the local environment between Prospect, South Creek and Cowpastures (Caley 1801:47). The use of fire had left the area like an "English Park... with large trees separated by a grassy understorey" (Keating 1996).

The settlement in the early 1800s was on the fringe of European expansion. The influx of settlers and the establishment of farms inevitably pushed the traditional owners off their land. Clashes occurred as was becoming common elsewhere along the frontier in NSW. In 1816 an Aboriginal uprising was reported at Bringelly where 30 Aboriginal people attacked a settler's farm. The following day a party of seven men crossed the Nepean River to track the party. In the resulting clash four Europeans were killed, one was wounded and two escaped. Fighting continued in the district until a military detachment was established at nearby Airds (Royal Australian Historical Society 1920).

European settlement and land tenure

With the exception of fertile tracts of land around the surrounding creeks and streams, the vast majority of land in the south-western Cumberland Plain was densely forested and comprised highly clayey soil, which was better suited for stock grazing and wheat growing (Keating 1996:10,22).

Initial land grants were made shortly after the turmoil surrounding the arrest of Governor Bligh during the Rum Rebellion of January 1808. Bligh had been seen by some of the most influential landholders and by the military, as being both obstructive and in some cases damaging to their interests.

On 26 January 1808, the twentieth anniversary of the establishment of the colony, John Macarthur wrote a letter to the commanding officer of the NSW Corps, Major Johnson, asking for the immediate arrest of the Governor. The letter read:

Sir,

The present alarming state of this colony, in which every man's property, liberty and life is endangered, induces us most earnestly to implore you instantly to place Governor Bligh under an arrest and to assume the command of the colony. We pledge ourselves, at a moment of less agitation to come forward to support the measures with our fortunes and our lives. (Clark 1979)

The letter was signed by Macarthur and over 100 other residents, including James Badgery and the brothers John and Gregory Blaxland. Badgery and John Blaxland were to receive substantial land grants under the succeeding administrations.

The first land grants in the region were used as a testing ground for the emerging social policies of the fledgling colony. The land grants here were larger than parcels which had been previously offered to settlers. These large parcels of land, supplemented by ample convict labour, were granted to settlers with enough capital to establish and manage substantial rural estates (Proudfoot 1990). It was intended that these rural capitalists would contribute resources for the betterment of the colony, raising surplus crops and livestock to feed the growing population. Land was granted by Governor Paterson on a freehold basis, and was later reissued by Governor Macquarie.

Settlement in the area began in 1809 with a grant to James Badgery of 840 acres at South Creek. Robert Lowe's grant of 1,000 acres at Bringelly in 1812 was next and in 1813, John Blaxland received a grant of 6,710 acres which he named *Luddenham* (Keating 1996) (refer Plate 1). Smaller grants were made to Sarah Howe, Edward Powell, Ellis Bent, D'Arcy Wentworth and Thomas Laycock.

James Badgery

James Badgery arrived in the colony onboard the *Walker* in November 1799 as an emigrant in the employ of William Paterson of the NSW Corps (Donald and Gulson 1996:2; Paul Davies Pty Ltd 2007:13). He had few financial resources and was not eligible for a land grant, but leased 11 acres on the Hawkesbury for farming purposes. Badgery farmed his land intensively and with the proceeds established a mill in Sydney. The mill proved so successful that by 1801, his property comprised a bakery, mill-house, dwelling and pigsty. In recognition of his new found wealth and status, he was granted 100 acres at Agnes Banks near Yarramundi Lagoon in 1803 (Donald and Gulson 1996:3, Liverpool City Council 2012:1). By 1806, it was reported that Badgery owned 225 bushels of wheat, 300 bushels of corn and 50 pigs (Donald and Gulson 1996:3).

In 1809 Badgery, who along with other Hawkesbury farmers had supported the arrest of Governor Bligh the year prior, was granted 840 acres at South Creek near Bringelly under the new administration headed by Colonel William Paterson (*Sydney Gazette and New South Wales Advertiser* 1809:2). The grant encompassed land to the north of Orphan School Road (now Elizabeth Drive) between South Creek and its unnamed western arm (now Badgerys Creek). His estate was named Exeter Farm after his childhood home in Devon, England (Paul Davies Pty Ltd 2007:13, Liston 2009:46, Liverpool City Council 2012:1).

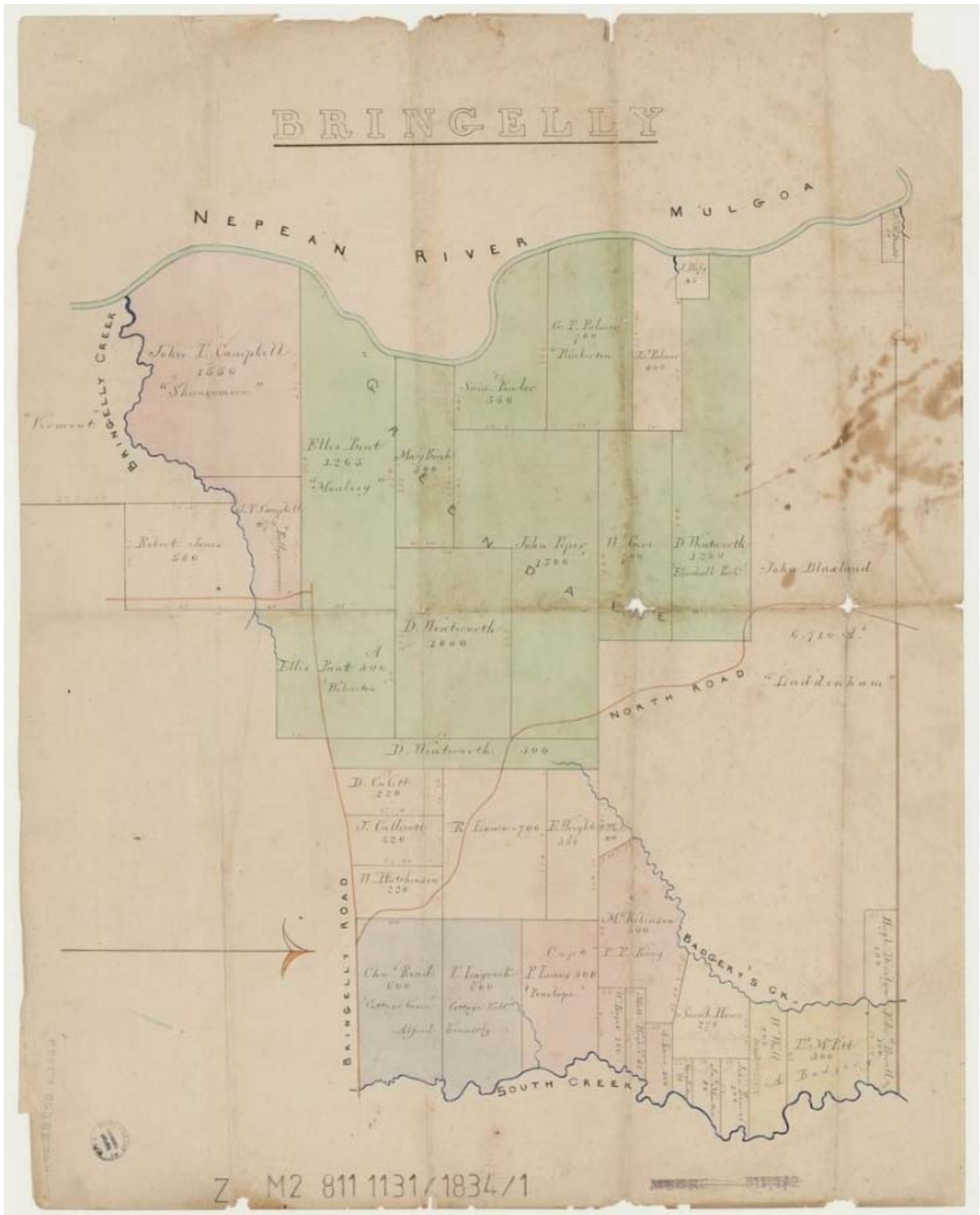


Plate 1 1835 map of Bringelly showing Blaxland’s Luddenham property at the proposed airport site. (Source: National Library of Australia)

Many of the grants made under Paterson were recalled on the arrival of the replacement Governor, Lachlan Macquarie in 1810. James Badgery’s was one of these and he had to re-apply for his land. Macquarie approved Badgery’s application but reduced it to 640 acres which Badgery increased through purchase over

the following 10 years, to include an extra 1,300 acres (Donald and Gulson 1996:4, Keating 1996:22, Godden Mackay 1997:5-2, Paul Davies Pty Ltd 2007:12).

When it was first granted, Badgery's Exeter Farm estate was heavily wooded with ironbark and spotted gum. Badgery immediately set about constructing a wattle and daub hut on the property, which was rapidly replaced with a more substantial structure (Plate 2). During his tour of the interior of the colony between 1810 and 1811, Governor Macquarie inspected the farms of the Bringelly district, and made the following remarks on Badgerys' estate:

Called first at Badgerys Farm close on the left bank of the South Creek, where I was much pleased to find a good Farm House built, a good Garden, and a considerable quantity of ground cleared.

(Macquarie 1956 [1810-1811]:19)

Badgery used Exeter Farm to establish a vast farming enterprise where he produced grain and bred cattle, sheep and champion horses (*Sydney Gazette and New South Wales Advertiser* 1823:2, Donald and Gulson 1996:4, Paul Davies Pty Ltd 2007:13). He frequently leased thoroughbred bulls to neighbouring landowners for breeding, and was a well known breeder of racehorses and workhorses (Liston 2009:46). In 1815, he constructed a road through Lord Folly's property from his Exeter Farm to another farm he owned in the Nepean, to save himself the trouble of using the main road. This road became known as Badgerys Creek Road and saved a total distance of 15 miles (*Sydney Gazette and New South Wales Advertiser* 1822:2).

Throughout the 1810s and 1820s, the Badgery family continued to expand their holdings, purchasing properties on the southern side of Orphan School Road and in neighbouring districts (Australian Museum Consulting 2014:20). In 1818, James Badgery offered farming land for lease at Richmond, where 100 acres were cleared and the greater part of that was already in cultivation (*Sydney Gazette and New South Wales Advertiser* 1818:2). By 1820, he purchased a further 1,300 acres and owned 450 head of cattle, 16 horses and over 650 sheep (Donald and Gulson 1996:5).



Plate 2 Photo of the substantial brick Exeter Farm house, originally constructed by James Badgery. Photography was taken in 1995 before the house was demolished. (Source: Liverpool City Library, Heritage Library Collection, 1776-12).

James Badgery died at Exeter Farm in 1827, "a very old and highly respectable emigrant, leaving a wife and large family" (*The Monitor* 1827:6). He was described as industrious, frugal and a most hospitable traditional

English farmer, and left his family a vast estate of over 1,900 acres (*The Monitor* 1827:3, Paul Davies Pty Ltd 2007:13).

Robert Lowe

Robert Lowe (1783-1832) arrived in NSW from London with his wife and two children in the *Mary* in May 1812. He brought an official letter testifying to his respectable connections, and recommending him for a liberal land grant since he possessed property worth £1,000. As a result he was granted 1,000 acres at Bringelly in August 1812, and a further 500 acres in September 1818. He named the property *Birling* for the town on the Sussex coast near his wife's former home, and extended the property until in 1828 it amounted to 5,600 acres (Godden Mackay 1997:5-3, Liston 2009:41, Parsons 1967). Lowe also held 1,280 acres at Liverpool, and was later granted a ticket of occupation in the Mudgee and Bathurst districts to graze sheep and cattle (Parsons 1967).

At Bringelly, Lowe immediately constructed a homestead called Birling Gap, though it was destroyed by fire shortly thereafter (Austral Archaeology Pty Ltd 2011:112). A second homestead was constructed in close proximity to the first and featured a substantial wrap-around veranda under a broken-back shingled roof (Plate 3) (Apperley 1994:26).

Lowe was appointed by Macquarie to be magistrate for the Badgerys Creek, Bringelly area from 1815 and for the County of Cumberland from 1820. He held the Bringelly Court at Birling, which was strategically located near the junction of The Northern Road and Bringelly Road. In Court, the local convict workforce was assigned to settlers, punished for misdeeds and had their tickets of leave issued (Liston 2009:4).

In July 1820, Lowe wrote to Commissioner John Thomas Bigge who was in the colony to inquire into conditions under Governor Macquarie. Lowe expressed the view that convicts could be better rehabilitated if employed in agricultural pursuits on the estates surrounding the settled townships. He believed that convicts left in the town of Sydney congregating with other convicts would remain set in their ways and were more likely to re-offend. Under the direction of sober and industrious masters, the convicts, according to Lowe, would have time to think of their deeds (Lowe 1820, Godden Mackay 1997:5-3, Parsons 1967). Lowe was vocal in his distaste for the allocation of convicts:

I must observe that the convicts are not fairly distributed. They are mustered at Sydney upon their arrival and after the mechanics all the better farmers men are separated for the use of Government, the wants of the people of Sydney are next consulted... I can confidently assert that amongst the last three allotments of convicts to the district of Bringelly or Cook not one useful farming man could be found amongst them. (Lowe 1820)

Lowe also complained about the lack of mechanical skills amongst the convicts, and the distance of 40 miles return to Parramatta that had to be covered in order to gain repairs on carts or ploughs. Sarah Matthews, wife of Government Surveyor Felton Matthews, who accompanied her husband on his trips, described The Northern Road in 1833 as having been laid down without any regard to the nature of the land with some areas being close to impassable due to the clayey soil, especially after rain (Godden Mackay 1997:5-3). Other sections traversed the steepest part of hills or the deepest hollows. With poor maintenance, including on bridges, the trip was arduous and slow, and made more perilous with bushranging gangs operating in the area, including those of Jack Donohue (Proudfoot 1990).

Following the death of his first wife Barbara in 1818, Lowe married 21 year old widow Sarah Hazard in 1821, who bore him a further three sons and three daughters. Following Robert's death in 1832, Sarah and her children abandoned their Birling Estate for their Goree property in the Mudgee district, where she died in 1878 (Parsons 1967).



Plate 3 Members of the Lowe family outside the second Birling Gap, photograph taken in the 1880s.
(Source: Liston 2009:41)

John Blaxland

At the time of the first Crown grants made by Governor Macquarie the Badgerys Creek area represented the new frontier of settlement and was characterized by moderately fertile soils and open forest. The largest landholder in the region, whose land covered much of the airport site, was John Blaxland.

John and Gregory Blaxland arrived in NSW in 1806 as wealthy free settlers in the convict colony. John had managed his family farms in Kent and was convinced by Sir Joseph Banks that NSW offered greater opportunities for financial advancement (Liston 2009:38). The brothers were enticed by the promise of 5,000 acres of land, the use of 18 convicts for 18 months and free passage for their family and goods (Godden Mackay 1997:5-4, Paul Davies Pty Ltd 2007:34).

Despite poor relations with Governor Blight and subsequently with Governor Macquarie, John Blaxland, as one of the first wealthy capitalist farmers to arrive in the colony, was granted 6,710 acres in 1813, stretching from Badgerys Creek to the Nepean River, which he named *Luddenham* (Donald and Gulson 1996:12, Keating 1996:24).

While John Blaxland based himself at Newington on the Parramatta River where he fattened, slaughtered and sold cattle, Luddenham Estate was used exclusively as grazing property. It appears the Blaxland brothers were utilizing the land at Luddenham as early as 1810. When Governor Macquarie inspected their Luddenham Estate during a tour of the Bringelly district, he remarked:

Thence we proceeded to Mr. Blaxland's own farms, about 5 or six miles distant from the South Creek in a westerly direction. This is entirely as yet a grazing farm, with only a miserable hut for the stock keepers, and stock-yards for the cattle. The land in some parts is tolerably good, and is pretty well watered, but is better adapted to grazing than tillage. (Macquarie 1956 [1810-1811]:19)

From 1813 until his death in 1845, Blaxland ran sheep and cattle on the property, gradually clearing it to develop pasture. Although he was running 462 cattle and over 2,600 sheep by 1821, this was not a significant number considering that he was in the richest area for agriculture in the colony (Keating 1996:29). In fact, Blaxland as an absentee landlord, had been criticized for neglecting his property and concentrating on cattle instead of growing grain when the colony was short of food. Blaxland's absenteeism could explain why no substantial dwelling was ever erected on the property (Godden Mackay 1997:5-4).

Blaxland did develop the western portion of Luddenham Estate, principally along the Nepean River. In 1834, he constructed a dam across the Nepean River, and a water-powered timber and stone wheat mill. He also erected simple housing for the overseers and convict workers, as well as massive storehouses for grain

(Donald and Gulson 1996:14, Keating 1996:45, Paul Davies Pty Ltd 2007:29-30). These were located on high ground above the mill, and were described by Sarah Matthews in 1833 as:

...nothing, a mere settler's habitation, of wood principally and set up with all other neglect of comfort, convenience and appearance, which is so strikingly displayed in all the earlier buildings of the colony, but it is most beautifully situated, on the summit of a gentle slope which rises from the river's banks.

(Harvard 1943 [Matthews 1833]:100, Royal Australian Historical Society 1920)

It was from Blaxland's property that the successful crossing of the Blue Mountains started in May 1813. The expedition, which included John's brother Gregory, established a viable crossing over the mountains, and returned to John's property 26 days later.

By 1839, Blaxland had developed the western portion of his Luddenham Estate further, installing rabbit warrens and constructing a brewery with a malt house complete with brewing coppers, vats, steam engine, coolers, malt mill, cask and brewing utensils valued at £7,000. The brewery reportedly used hops grown on Blaxland's Newington Estate, had a workforce of 300 men and was in operation until the late 1850s when it was destroyed by flooding of the Nepean River (Keating 1996:45, 50, Paul Davies Pty Ltd 2007:29-30, Liston 2009:38). By the end of the 1830s, Blaxland's land and associated properties, totaling 29,000 acres, was valued at £30,000.

The depression of the 1840s severely affected the Blaxland family and in 1841, they were forced to mortgage the estate. Following Blaxland's death in 1845 the family struggled to make mortgage repayments. In default of payment, the family was forced to sell the Luddenham Estate, which was purchased by Sir Charles Nicholson (Keating 1996:69, Godden Mackay 1997:5-6).

Other grantees and estates

Sarah Howe

Other grantees of note in the area included Sarah Howe. Independently wealthy after being widowed by her first husband in 1811, Howe was granted 270 acres along the eastern bank of Badgerys Creek. Her land was one of the grants that had been created on what was to have been common grazing land. The common had been proposed by Governor Macquarie in 1811 after his visit to the region the year before, but was incorporated into the local grants after it was discovered that the land would not be good enough to support small landholders (Keating 1996:22). Sarah went on to marry George Howe, printer of the *Sydney Gazette and New South Wales Advertiser*. Howe's estate was eventually purchased by the grandson of Governor Gidley Philip King (Liverpool City Council 2012:1).

Ellis Bent

Living nearby at Bringelly was Ellis Bent, who having come to Australia with Governor Macquarie, was appointed Deputy Chief Judge Advocate. While he is attributed with naming the area Bringelly after an estate he owned in Wales, other reports suggest it comes from the Aboriginal word Bringelli, meaning unobtainable.

D'Arcy Wentworth

Another prominent landholder in the area was D'Arcy Wentworth. Wentworth arrived in NSW in June 1790 having agreed to emigrate after being acquitted on three counts of highway robbery. After being transferred to Norfolk Island as assistant in the hospital, he returned to Sydney in February 1809 as assistant surgeon to the colony. In 1816, Wentworth was granted 1,200 acres between The Northern Road and the Nepean River, which he called *Greendale*. By this time, The Northern Road was an important public road connecting the town settlement at Richmond with the rural estates at Cowpastures (now Camden area), and was maintained by both the local populace and the Government (Paul Davies Pty Ltd 2007:41). By 1818 Wentworth held a considerable amount of land in various grants, including one adjoining Blaxland's

Luddenham Estate (Godden Mackay 1997). At the time of his death in 1827, Wentworth was one of the wealthiest people in the colony and left 22,000 acres of land in his will to numerous heirs (Keating 1996).

Thomas Laycock

Of the remaining grants, that of Thomas Laycock is significant in that his house, Kelvin Park (SA2), remains as a near-complete example of a rural homestead plus associated buildings dating from the 1820s to 1850s. Laycock arrived in NSW as a child and was commissioned as an ensign with the New South Wales Corps in 1795 when he was nine years old (Australian Museum Consulting 2014:22). He left for England in 1810 with his wife but returned to Sydney seven years later, and after the death of his first wife, remarried and established himself in Sydney. In late 1817, he received a grant of 600 acres in the District of Bringelly along the western side of South Creek, which he called *Cottage Vale* (Australian Museum Consulting 2014:22). He purchased the adjoining farm, *Cottage Grove*, which had been owned by Charles Reid and had a frontage to Bringelly Road. In the 1820s, Laycock constructed an elegant brick home of eight rooms surrounded by a veranda on three sides, as well as a dairy, a cellar, a coach house and other outbuildings. Laycock had little time to appreciate his surroundings, and died unexpectedly at his Bringelly estate in 1823 (Keating 1996:25, Liston 2009:40). Laycock's holdings were immediately purchased by neighbor John Thomas Campbell, who renamed it *The Retreat* and immediately advertised the 1,200 acre estate for rent:

Retreat contains 1200 acres, is all enclosed, has 200 acres and upwards (constituting a beautiful lawn) cleared and fenced in; the remainder of the estate is also divided into several paddocks. On this estate there is a handsome and roomy residence, fit for the immediate reception of a gentleman's family. (The Australian 1824:2)

From 1825 to 1833, The Retreat served as the first Australian headquarters of the Australian Agricultural Company. Formed in 1824 with the aim of breeding fine-wooled sheep in NSW, the Australian Agricultural Company used the site as its initial base. In December 1825, the appointed manager Robert Dawson and his employees, being 15 men, 14 women and 40 children, arrived in Sydney aboard the ships *York* and *Brothers*. These people, along with 600 sheep, 12 cattle and seven horses were accommodated at The Retreat. Most stayed only a short while before relocating to a one million acre grant at Port Stephens in 1826 (Godden Mackay 1997:5-5, Liston 2009:40). Dawson's reason for relocating his workers was that at The Retreat, he felt that they were surrounded by small settlers of bad character. Dawson was concerned that the inevitable contact that would occur between the locals and his own people "would produce bad consequences" (Australian Council of National Trusts 1982).

On the death of John Thomas Campbell in 1830, The Retreat was purchase by Alfred Kennerley who renamed the property Kelvin. Kelvin had several occupants after Kennerley moved to Tasmania in 1857 and eventually came into the ownership of the Macdonald family (Australian Museum Consulting 2014:23).

Lawson's Thistle Inn

Subdivision plans of the western and central portions of the Luddenham Estate show an inn, known as John Lawson's Thistle Inn (SA8), on the eastern side of The Northern Road immediately adjacent to D'Arcy Wentworth's Greendale estate (Plate 1). The exact date of construction is unclear but it is likely to have been built shortly after the establishment of The Northern Road in the 1820s to service travelers between Cowpastures and Richmond (Keating 1996:103). The Inn also functioned as a general store, and was used as a public meeting place for local residents throughout the 1860s. Following the death of John Lawson in 1885, it was maintained by members of the Lawson family, though it is unclear what fate befell the Inn thereafter (Australian Museum Consulting 2014:23). It was certainly abandoned, and may also have been demolished, by the 1930s (*Nepean Times* 1932:6).

The first phase of settlement and development in the Badgerys Creek area was characterized by the land grants and use of the land for grazing and wheat crops. In the broader area, smaller early land grants of 100 to 600 acres typically had river frontages, and were made to a number of settlers including Sarah Howe,

Thomas Laycock, D'Arcy Wentworth, William Hutchinson, Edward Powell, Thomas M. Pitt, William Wall and Gustavus A. Low (Australian Museum Consulting 2014:23). With the exception of those grants made to Laycock and Wentworth, it appears that these smaller grants remained largely undeveloped and were eventually purchased and incorporated into both Charles Nicholson's (formerly Blaxland's) and James Badgery's vast estates.

In the 1825 census, the Bringelly area had 717 free settlers and another 120 male convicts living there. The end of transportation and the consequent withdrawal of convict labour signaled the start of a decline in the fortune for the Bringelly and Badgerys Creek area. A severe drought from 1838 to 1840 resulted in wheat crop failure for two consecutive years. This was followed in 1841 by an economic depression due in part to a crash in wool prices and a reduction in British investment capital (Keating 1996). The increasing demand for land close to the growing population centres, the collapse of viable wheat farms after an outbreak of rust, and the de-population of the area as small tenant farmers moved in search of better land, culminated in the subdivision of many large estates into smaller allotments.

Rural subdivision

The most obvious effect of the downturn in the area was the sale and subsequent subdivision of Luddenham Estate. The breakup and sale of Luddenham Estate between 1859 and 1864 has been identified as the beginning of the next phase in the area, which saw the subdivision of the original grants.

Subdivisions of the mid-nineteenth century changed the pattern of land settlement in the region, by breaking up the larger estates into much smaller farming lots, and laying out streets and allotments in a regular grid and to a uniform street width. In many instances, this supplanted an existing irregular alignment of informal roads and paddock fence lines. The subdivisions were set out by private surveyors often working on different estates. Surveyor Samuel Jackson laid out the initial Luddenham and Regentville subdivisions representing an area of well over 10,000 acres (Paul Davies Pty Ltd 2007:49). The boundaries of earlier farms and their associated buildings, which included huts, barns, sheds, dams and a saw pit (AS6), were clearly marked on early survey plans (refer Plate 4). It is likely that these small properties were leased by tenant farmers prior to subdivision.

As a result of subdivision, small farmers were attracted to the area. Improvements were made, orchards and vineyards planted, and sometimes cottages built (Paul Davies 2007:13).

For instance, Franz Anschau and his family established a 200 acre vineyard south of Luddenham village in the late 1850s, complete with wine cellars, a substantial home and a working farm with sheep (AS14) (*Camden News* 1954:1). The Anschaus were German vineyard workers who were originally brought to Australia as wine dressers for the Macarthur and Cox families in Camden (Paul Davies Pty Ltd 2007:11). Vignerons brought out in this way were generally contracted for three years, though Germans were contracted for five, after which they often established vineyards of their own.

Land advertised as 'Luddenham Village' was offered for sale in 1859. Luddenham Village was located along the eastern boundary of The Northern Road and featured one acre and half acre blocks. In 1859, the central and western portions of Luddenham Estate had been surveyed (3,515 acres) and the survey of the eastern district (within the airport site, refer Plate 4) representing the balance of the estate at 4,158 acres, followed in 1862 on Nicolson's return to London. At the time of the 1859 survey, 2000 acres of the Estate was under cultivation, which over the following decades appears to have been managed by tenant farmers (*Sydney Morning Herald* 25 May 1859, Davies 2007:153).

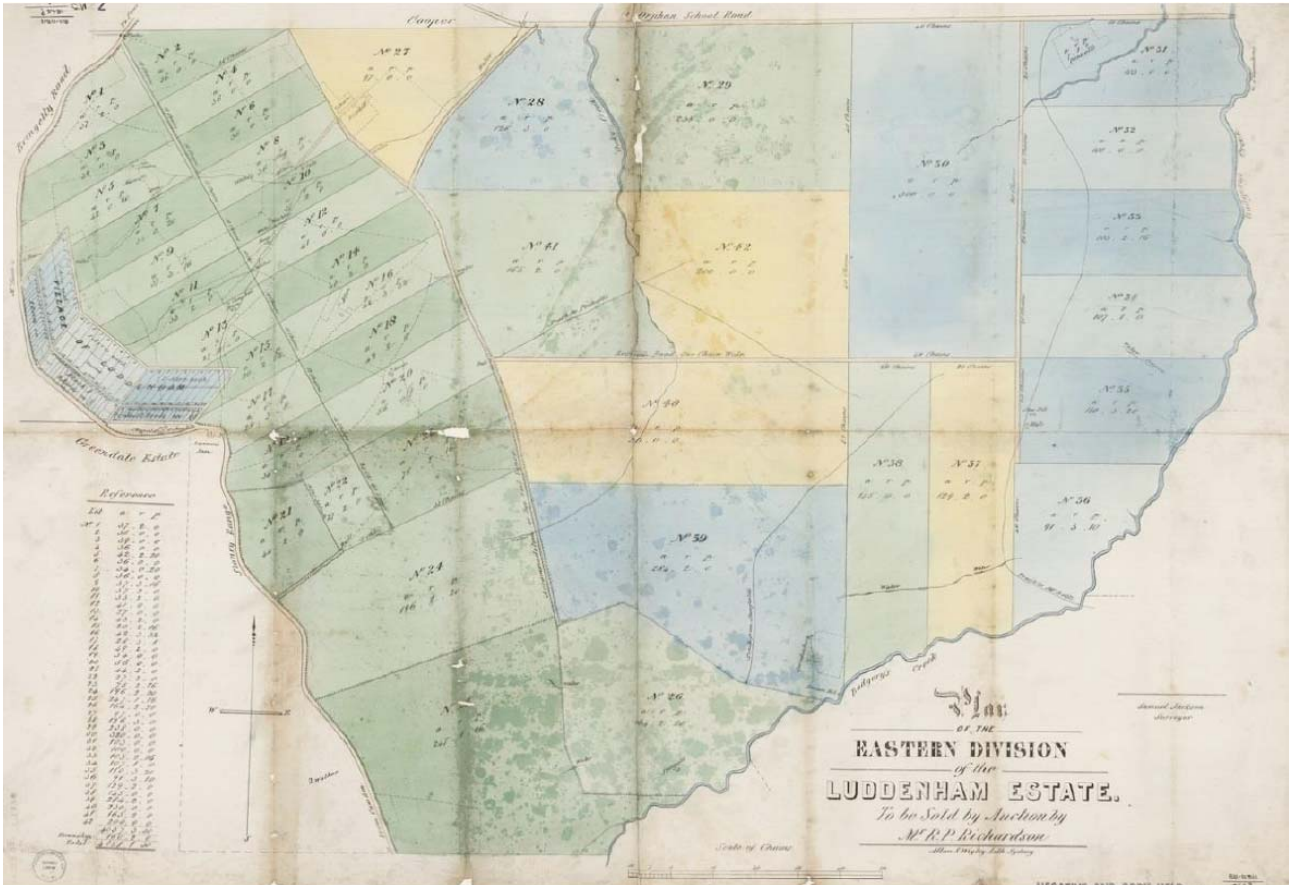


Plate 4 Plan of the Eastern Division of the Luddenham Estate, by Samuel Jackson, 1859, showing various sized allotments for sale and details of existing structures and property boundaries. (Source: State Library of NSW)

Resident population figures at Luddenham are difficult to determine but by 1860, the local community warranted the establishment of a local school, and a post office followed in 1872 (*Sydney Morning Herald* 2 October 1860). The village was in close proximity to Lawson’s Thistle Inn and made provisions for a church and a public reserve (Neustein and Associates 1992). Immediately surrounding the village, allotments of no more than 75 acres were offered, while lots of 100 to 300 acres were offered further east to the boundary of Badgerys Creek (Australian Museum Consulting 2014:24). When Nicholson returned to England in 1862, the remainder of the western and central divisions around Lawson’s Thistle Inn was also auctioned (Kinhill Stearns 1985:215, Keating 1996:103).

Greville’s Directory of 1872 noted 29 residents, and the village offered a range of services including two blacksmiths, a bootmaker, a butcher and an inn (Lawson’s). Rural life revolved around farming, but Anschau had established his winery at his property Steinberg, and five local people were employed in the timber trade as sawyers and wood splitters (Paul Davies Pty Ltd 2007:153).

In 1885, Luddenham Estate was purchased by a syndicate of Sydney land developers and re-subdivided to form a patchwork of semi-rural allotments in freehold title. From this time, the village of Luddenham developed as a centre for civic services.

The small rural Luddenham village provided the surrounding estates with a focal point and Luddenham soon established itself as a viable settlement. A small weatherboard Methodist school was established in 1857 and was replaced with a more substantial brick school in 1862 (SA7) (Keating 1996:103, Godden Mackay 1997:5-6). On 1 March 1872, Luddenham Post Office was opened with local resident CH Beardow as the Post Master. The post office played an important role in the village, serving as a money order office from January 1885, acquiring a telephone and telegraph service from August 1905, and a Commonwealth

Savings Bank Office in April 1914 (Hopson and Tobin 1995). Both the Luddenham Uniting Church (SA15) and Progress Hall (SA14) were established in the 1880s (Australian Museum Consulting 2014:25).

In comparison to Luddenham, neither Bringelly nor Badgerys Creek developed into the same well defined village centres, despite being offered for sale on similar terms (Plate 5).

Plate 5 Undated advertisement for the sale of orchard and vineyard land on Nicholson’s Luddenham Estate, between Cox’s Road (now Badgerys Creek Road) and Badgerys Creek. (Source: Donald and Gulson 1996:15)

Around the turn of the century, the main alternative land use to grazing and cropping in the area was orchards. City families, displaced by the depression of the 1890s, were attracted by the subdivision of the large estates into smaller manageable land parcels. The subdivisions, many of lots between three and 10 acres, were designed to encourage settlement in the area. Reasonable deposits and easy repayments belied the trouble that many of these new farmers were to face. Inexperience, seasonal changes and small lots combined to make life difficult on the land.

Roads to Sydney such as Mulgoa Road (now Elizabeth Drive) and Bringelly Road were in poor condition, while the closest railway station was located 12 miles away at St Marys (Donald and Gulson 1996:9, Godden Mackay 1997:5-7). There was no easy access to waterways for taking perishable goods to market, so the area tended to be used for fruit growing, grazing, and for the production of milk for the local Liverpool area. Small orchards dominated land use on the smaller properties, while dairy farms and some vine growing occupied other farms (Godden Mackay 1997:5-7, Neustein and Associates 1992, Stearns 1985:216).

William Longley was one such farmer in the Badgerys Creek district who established an extensive, well-known fruit orchard, after purchasing land during the first Luddenham subdivision of 1859 (AS9, AS10). The Longley family grew fruit in the district for over 50 years before their estate was sold, together with their home and household furniture, in 1912 (Camden News 1912:8). Other orchards of the period, including

those belonging to the Anschaus, Booths, Outridges, Leggos and Smiths, “appeared to be well attended to... being trenches, ploughed, nicely pruned and free from weeds” (*Nepean Times* 1901:2).

Often, farmers in the area supplemented their farm income with a trade such as carting, shoemaking, coach building or stints at the local brick pits (Keating 1996:82). To service the small Badgerys Creek community, a butcher’s shop (AS4) was in operation from 1886, a public school (AS3) was opened on Badgerys Creek Road in 1895 (the school was closed by the Department of Education in 2014), and a Post Office (AS5) was established in 1896 (Paul Davies Pty Ltd 2007:38, Liverpool City Council 2012:2). St John’s Anglican Church (AS8) and Badgerys Creek Uniting (Methodist) Church (AS7) serviced local residents and were constructed in the early 1900s (Australian Museum Consulting 2014:26). Despite the modest development in the area, Badgerys Creek remained essentially rural and sparsely populated throughout the nineteenth century.

By 1904, the areas of Badgerys Creek, Luddenham and Bringelly were at least moderately settled when a Parliamentary Standing Committee was established for the purpose of determining the viability of a railway between Mulgoa and Liverpool (Australian Museum Consulting 2014:27). To the committee, William Leggo of Wallacia stated:

There has been considerable settlement at a place called Badgerys Creek, about 6 miles from me, along the line of the railway. The settlers are mostly little men – men who go in for 10, 20, and 40 ac for poultry farming, bee farming and a little cultivation. (New South Wales Parliamentary Standing Committee on Public Works 1904:26)

William Longley described how isolation limited what and how much farmers could grow:

We all grow a little of other things just for our own use, as well as fruit... the area could not be beaten for fruit growing in any part of NSW... But if we had a railway we should grow more. Even in the fruit-growing line, I could put in a lot more if I were near a railway; but at present, I am 12 miles from the railway station [St Marys] and my fruit is spoiled before it gets there, unless it is picked half-ripe (New South Wales Parliamentary Standing Committee on Public Works 1904:30-31).

The proposed railway never eventuated and the districts of Badgerys Creek and Bringelly remained sparsely populated, retaining their rural character. It was noted that in the 1900s, there were still large areas available for purchase around Badgerys Creek and Nicholson Park Estate in Luddenham (Donald and Gulson 1996:11).

Local government representation was forced on Badgerys Creek by the government in 1906 through the establishment of Nepean Shire.

In 1916, Cecil Vicary purchased a portion of D’Arcy Wentworth’s Greendale estate for the purpose of establishing a dairy, grazing land and a vineyard (AS11). The property on the south western side of The Northern Road, opposite Anschau’s vineyard, had served as a working farm from the 1880s and featured a slab homestead, a woolshed and shearers quarters. Originally a sideline to running the sheep and dairy farm, the first grapes were planted in 1917 and commercial production began in 1923, though dairy cows were reared until the early 1940s (Australian Museum Consulting 2014:27). In the 1930s at the height of production, 65 hectares of land were in cultivation, though production began declining from the late 1930s (Australian Museum Consulting 2014:27; Lester Firth Associates 1991).

From the 1920s, further settlement occurred in Badgerys Creek, when portions of James Badgerys’ early grant were subdivided under the provisions of the *Soldier Settlement Act 1919*. Exeter House was at that time in the ownership of the Stivens family, who later sold a portion of the Exeter estate to Ern Kent (Australian Museum Consulting 2014:27). In the 1930s, Kent sold his property to Peter Nobbs, who moved into the homestead with his family to pursue dairying (Donald and Gulson 1996:8-9, refer also Plate 6). In 1936, a large area with frontage to South Creek was acquired by the Commonwealth of Australia for a CSIRO research station for animal health – McMaster’s Field Station – and also for a short time was a field

station for research into radio astronomy. The site was sold by CSIRO in 1996 (Paul Davies Pty Ltd 2007:14).

McGarvie Smith University Farm

The property first comprised a 500 acre grant by Lachlan Macquarie to William Lawson Johnston on 31 August 1819 (Portion 63). William Lawson Johnston was a free settler who was granted 500 acres at Emu Plains in 1807. As with all land grants made by the rebel government between the deposing of Governor Bligh following the Rum Rebellion and the next Governorship, being that of Lachlan Macquarie, his grant was cancelled by Macquarie. An alternative grant was made for the same amount at South Creek in 1819. As with common practice in the area, it is likely that Johnson did not live on the property, preferring instead to place tenant farmers on the property to work the land.

Separated by Badgerys Creek from James Badgery's Exeter Farm, Johnson's farm was leased and released to John Piper in 1830, the grantee of the adjoining property to the west (Portion 62). John Piper sold his property to William Cox in 1831. From then until 1859 the land stayed with at least one member of the Cox family before passing through various hands until taken up by the CSIRO (see above).

In 1936 the Veterinary Department of the University of Sydney, in association with the McGarvie Smith Institute, purchased and developed a 160 hectare property at Badgerys Creek for the training of veterinary students in animal husbandry (AS20 and SA9) (Paul Davies Pty Ltd 2007:14). This farm is listed on the Penrith Local Environmental Plan 2011 as an item of local significance. The area proposed for the northern HIAL (AS20) is located near the entrance to the farm from Elizabeth Drive in the south west corner of the site.



Plate 6 Ploughing on Nobbs' farm at Badgerys Creek in the 1940s. Note the hipped roof, bullnose veranda homestead, Exeter House, in the background. (Source: Liston 2009:46).

Rural intensification and land acquisition

The sparsely populated and rural nature of Badgerys Creek and its surrounding districts saw the establishment of a number of Government-funded research stations in the area from the 1950s. These facilities were located on former large land grants that had not been subdivided, particularly Thomas Laycock's Cottage Vale estate.

Cottage Vale was chosen as the site for the Overseas Telecommunications Commission (OTC) station (SA1) because of its isolation from intensive settlement, having only 200 residents living nearby at the time (Godden Mackay 1997:5-8). The OTC station was built from 1952-1955, as part of a final upgrade of the OTC facilities. The station provided radio telephone and telegraph services between Australia and a number

of countries in Asia, America, South Africa and the United Kingdom, as well as ships at sea. Architectural firm Hennessey, Hennessey and Co. was commissioned to design the station and its associated staff quarters. Originally the station required staff to operate the equipment but by 1970 its operations were automated. With rapid changes in communications technology in the 1980s the station became obsolete (Liston 2009:44).

In 1955, the Royal Australian Air Force Radio Receiving Station was constructed immediately adjacent to the OTC station on a 550 acre property. The radio receiving station was designed to receive radio telegrams and telephone calls from 18 countries and from ships at sea. The station was installed to replace an earlier station at La Perouse and featured 32 rhombic-shaped aerials on masts ranging in height from 70 to 120 feet (Naval Intelligence Division 1955:17). Changes in technology rendered the radio receiving station obsolete and it was also dismantled in the late 1980s. Two water towers (SA3) are the key remaining structures associated with this site.

Land development changed little from the 1960s, with the establishment of intensive dairy and poultry farming, bee keeping, timber getting, horse and dog training and market gardening (Kinhill Stearns 1985:216, Paul Davies Pty Ltd 2007:14, Liverpool City Council 2012:1).

The districts of Badgerys Creek, Luddenham and Bringelly retain a great deal of their former rural character. Though subdivision and development of large estates has occurred, early slab cottages and substantial homesteads, cisterns and sheds, vineyards and small rural allotments survive as tangible reminders of the district's humble beginnings. Market gardens, working farms, vineyards and close knit village communities pay homage to the district's rural development.

Proposal for a second airport

In the 1970s, Badgerys Creek became the focus for the proposed development of a second Sydney airport. The *Major Airport Needs of Sydney Study* (Major Airport Needs of Sydney Study Committee 1979) identified the Badgerys Creek area as its preferred site. The findings of the study were never seriously refuted and in response, the Commonwealth Government began buying property that might be affected by the construction of an airport in this location (Godden Mackay 1997).

Propositions for a second airport for Sydney were re-initiated in November 1985, when then Aviation Minister, the Hon Peter Morris OAM, lodged a submission noting that the airport at Mascot would be at capacity by about 2010. The Department of Aviation commissioned a report – *Second Sydney Airport Site Selection Programme: Draft Environmental Impact Statement* – prepared by Kinhill Stearns in April 1985, which included a preliminary assessment of sites at Badgerys Creek, Bringelly, Darkes Forest, Goulburn, Holsworthy, Londonderry, Scheyville, Somersby, Warnervale and Wilton. The Badgerys Creek and Wilton sites were determined to be the most promising and were assessed in more detail, with Badgerys Creek the recommended preferred option. With the construction of the third runway at Sydney (Kingsford Smith) Airport in the early 1990s, the proposal was deferred.

In 1996, the Howard Government came into power and the proposition of a second Sydney airport was again raised. The European and other heritage investigation into the Badgerys Creek site, prepared by Godden Mackay for inclusion in the *Draft Environmental Impact Statement: Second Sydney Airport Proposal* (PPK Environment & Infrastructure 1997) considered three options. Option A proposed at that time most closely aligns to the current project area, and was located on land already owned by the Commonwealth. Following acquisition, properties were leased back to residents, commonly those who were the previous owners (Liverpool City Council 2012:2).

3.2 Physical context

Historic heritage register search

Historic heritage items or places identified on the relevant heritage registers and schedules within the study area are presented below. In all tables, shaded items are located within the airport site.

World Heritage List (WHL)

There are no World Heritage properties within the study area.

National Heritage List (NHL)

There are no currently listed National Heritage places in the study area.

The McGarvie Smith University Farm, located at 124 Elizabeth Drive, Badgerys Creek was nominated for the NHL, but the nomination is now ineligible. Under the EPBC Act, the Australian Heritage Council can only assess places for the NHL if the places are on the Council's assessment work plan (known as the "priority assessment list"). The Minister sets this work plan each financial year. A nomination becomes ineligible if it has been considered for two consecutive work plans but not included. However a nominated place ruled ineligible in this way can be re-nominated, thereupon becoming eligible again for consideration. No detail is provided in the NHL as to why this item was not included in the priority assessment list.

The farm was the first veterinary farm established by Sydney University. Its benefactor, the McGarvie Smith Institute, utilised funding provided by Sir John McGarvie, the developer of the first 'long' living anthrax vaccine. The first vets trained at Sydney University utilised this facility for their hands-on training. The original laboratory and outbuilding still existed on the property at the time of nomination. The property has links with Sir Frederick Tout who commenced and helped to run the McGarvie Smith Animal Husbandry Farm. It was seen as the first step in the establishment of training and research farms which were later acknowledged as an integral part of the teaching programmes for veterinary science and agriculture.

This property is now listed on the Penrith LEP 2010 as an item of local significance.

Commonwealth Heritage List (CHL)

There are no currently listed Commonwealth Heritage places in the study area.

Register of the National Estate

There are two heritage items in the study area currently listed on the Register of the National Estate (Table 2).

Table 2 Heritage items or places within the study area on the Register of the National Estate

Place ID	Name	Property description	Significance	Distance from airport site
100263	Bringelly Radio Receiving Station Complex (Overseas Telecommunications Commission Site Group)	About 317 ha, Badgerys Creek Road, Bringelly	Not specified	1.6 kilometres south of Badgerys Creek boundary of the airport site
3298	Kelvin, Outbuildings and Curtilage	The Retreat, 3 km north east of Bringelly village	Not specified	2.3 kilometres south of Badgerys Creek boundary of the airport site

At the time of listing, Bringelly Radio Receiving Station Complex consisted of a total of 317.58 hectares, occupied by the main radio receiving station building, which was surrounded by a number of masts and a small 1950s staff housing development which consisted of fifteen domestic dwellings. The station is now decommissioned.

Kelvin is a stuccoed single storey Georgian farmhouse with sandstock brick kitchen, dairy, offices and a small carriage house at the rear.

State Heritage Register (SHR)

There is one item listed on the State Heritage Register within the study area (Table 3).

Table 3 Heritage items or places within the study area on the State Heritage Register

Item No.	Name	Property description	Significance	Distance from airport site
00046	Kelvin (also known as Kelvin Park Group, The Retreat, Thomas Laycock's Cottage Vale, Cottage-ville)	30 The Retreat, Bringelly Lot 2711, DP 1128906; Lot 2712, DP 1128906; Lot 2713, DP 1128906; Lot 271, DP 803167	State	2.3 kilometres south of Badgerys Creek boundary of the airport site

Historic Heritage Information Management System

There are no items listed on the Historic Heritage Information Management System in the study area.

S170 Heritage and Conservation Registers

There are no items listed on s170 Heritage and Conservation Registers in the study area.

Liverpool Local Environmental Plan 2008

There are 14 heritage items in the study area which are listed in the Liverpool LEP 2008. Three of these are within the airport site (Table 4).

- St John's Anglican Church group is located opposite Badgerys Creek Public School on Pitt Street.
- Badgerys Creek Public School is located at the north east corner of the intersection of Pitt Street with Badgerys Creek Road.
- Vicary's Winery Group is located on The Northern Road, south of Luddenham.

Table 4 Heritage items or places within the study area on Schedule 5 of the Liverpool LEP 2008.

Item No.	Name	Address	Property description	Significance as identified in Liverpool LEP 2008	Distance from airport site
2	St John's Anglican Church Group, including church and cemetery (former Badgerys Creek Anglican Church Group)	30 Pitt Street, Badgerys Creek	Part Lot 1, DP 838361 (formerly Lot 1, DP 795707)	Local	Within
3	Badgerys Creek Public School	Corner of Pitt Street and Badgerys Creek Road, Badgerys Creek	Part Lot 1, DP 838361 (formerly Lot 30, Sec D, DP1841)	Local	Within
4	Two water tanks (RAAF receiving station site and former water supply to OTC staff)	Badgerys Creek Road, Bringelly	Lot 1, DP 90328; Lot 1, DP 109666	Local	1.9 kilometres south of Badgerys Creek boundary of the airport site
5	Former OTC Site Group, including radio receiving station and site of former staff housing	Badgerys Creek Road, Bringelly	Lot 1, DP 109666	Local	1.6 kilometres south of Badgerys Creek boundary of the airport site
6	Dwelling and rural lot ("Mount Pleasant")	3 Shannon Road, Bringelly	Lot 44, DP 581187	Local	1 kilometre south of Badgerys Creek boundary of the airport site
7	Bringelly Public School Group, including schoolhouse and former headmaster's residence	1205 The Northern Road, Bringelly	Lot 50, DP 764911	Local	3.9 kilometres south of Badgerys Creek boundary of the airport site

Item No.	Name	Address	Property description	Significance as identified in Liverpool LEP 2008	Distance from airport site
8	Kelvin Park Group, including site landscaping, homestead, kitchen wing, servant's quarters, coach house, 2 slab barns and other works and relics (former "The Retreat", cottage vale, stables and lock-up)	30 The Retreat, Bringelly	Lots 2711-2714, DP 1128906	State	2.3 kilometres south of Badgerys Creek boundary of the airport site
24	Shadforth Monument (former pioneer's monument)	Greendale Road	Western side of Greendale Road, adjacent to the common boundary of Lot 1, DP520904 and Part Lot 1, DP 236562	Local	3.6 kilometres west of western boundary of the airport site
25	Private dwelling (former St Mark's Anglican Church Group, including church cemetery)	Greendale Road	Lot 1, DP 742417	Local	3.6 kilometres west of western boundary of the airport site
26	Greendale Roman Catholic Cemetery	Greendale Road	Lot 1, DP 195955	Local	3.6 kilometres west of western boundary of the airport site
50	Willmington Reserve	17 Jamison Street, Luddenham	Lot 7004, DP 93052	Local	300 metres north of the north western boundary of the airport site
51	Vicary's Winery Group, including woolshed, slab horse shed, land area and main house and garden	1935 The Northern Road, Luddenham	Lot 1, DP 838361	Local	Within
52	Luddenham Public School	The Northern Road, Luddenham	Lot 1, DP 194409	Local	300 metres north of the north western boundary of the airport site

Item No.	Name	Address	Property description	Significance as identified in Liverpool LEP 2008	Distance from airport site
53	Lawson's Inn site (former "The Thistle" site)	2155 The Northern Road, Luddenham	Lots 1 and 2, DP 851626 (formerly Lot 1, DP 793566)	Local	50 metres east of the airport site near Luddenham

It should be noted that Lawson's Inn site is incorrectly identified in Liverpool LEP 2008 as being located within the airport site. Based on the findings of the earlier SMEC site survey (2014), it has been assumed for the purposes of this study that the former Lawson's Inn site is not located within the airport site. The correct location is Lot 2 DP 623457, on the eastern side of the current alignment of The Northern Road, outside of the airport site.

Penrith Local Environmental Plan 2010

There are ten heritage items in the study area which are listed in the Penrith LEP 2010. One of these is partly within the airport site, being the McGarvie Smith Farm (Table 5).

Table 5 Heritage items or places within the study area on Schedule 5 of the Penrith LEP 2010.

Item No.	Name	Address	Property description	Significance as identified in Penrith LEP 2010	Distance from airport site
117	Brick cottage	21-55 Campbell Street, Luddenham	Lot 1, DP 972057	Local	780 metres north west of northern boundary of the airport site
843	Luddenham Road Alignment	Luddenham Road, Luddenham		Local	475 metres west of the Elizabeth Drive boundary of the airport site
678	Weatherboard cottage	3065-3067 The Northern Road, Luddenham	Lot 1, DP 930372	Local	700 metres north west of the northern boundary of the airport site
118	Weatherboard cottage	3075 The Northern Road, Luddenham	Lot 1, DP 304800	Local	650 metres north west of the northern boundary of the airport site
119	Luddenham Progress Hall	3091-3095 The Northern Road, Luddenham	Lot 7, DP 1655	Local	450 metres north west of the northern boundary of the airport site
120	Luddenham Uniting Church and Cemetery	3097-3099 The Northern Road, Luddenham	Lot 8, DP 1655	Local	390 metres north of the northern boundary of the airport site

Item No.	Name	Address	Property description	Significance as identified in Penrith LEP 2010	Distance from airport site
122	St. James Anglican Church and Cemetery	3101-3125 The Northern Road, Luddenham	Lot 2, DP 529143	Local	150 metres north of the northern boundary of the airport site
830	Brick cottage	406 Park Road, Luddenham	Part Lot 2, Sec A, DP 1452	Local	Demolished
679	Showground	428-452 Park Road, Luddenham	Lot 1, DP 931631; Lot 2, DP 972057	Local	1.1 kilometres north west of the northern boundary of the airport site
857	McGarvie-Smith Farm	1793-1951 Elizabeth Drive, Badgerys Creek	Lot 63, DP 1087838	Local	Adjacent to the boundary of the airport site and includes an area for HIAL

Previous historical and archaeological assessments in the study area

Council heritage studies

In 2004, Penrith City Council commissioned the Penrith Heritage Study (Paul Davies Pty Ltd 2007). An earlier comprehensive heritage study of Penrith was completed in 1987 by Fox and Associates Pty Ltd. At that stage, the local government area of Penrith encompassed Badgerys Creek including part of the airport site. Following gazettal of Penrith Local Environmental Plan 1994, some 200 individual items and three heritage conservation areas identified in the 1987 heritage study were listed. None of these were within the airport site. As a result of the 2007 Penrith Heritage Study, no additional heritage items were identified within the airport site (Paul Davies Pty Ltd 2007, Penrith LEP 2010).

In 2004, FORM Architects Aust Pty Ltd prepared the *Liverpool Heritage Study Review* to inform the updated heritage schedule of the Liverpool LEP.

Previous historical and archaeological assessments of the airport site

The European and other heritage issues of the airport site have been subject to a number of past investigations. The first of these, *Second Sydney Airport Site Selection Programme: Draft Environmental Impact Statement* (Kinhill Stearns 1985) was commissioned by the Department of Aviation and considered the Badgerys Creek and Wilton areas as potential airport sites. Further assessment was undertaken about a decade later for inclusion in the *Second Sydney Airport Draft Environmental Impact Statement* and a *Supplement to the Draft EIS* (PPK Environment & Infrastructure Pty Ltd 1997 and 1999 respectively).

Godden Mackay, 1997, Technical Paper 12: Non-Aboriginal Cultural Heritage

Chapter 21 of the 1997 *Draft EIS* addressed non-Aboriginal (European and other) cultural heritage impacts of the then proposed Second Sydney Airport at Badgerys Creek. The chapter was based on the results of Godden Mackay's *Technical Paper 12: Non-Aboriginal Cultural Heritage*.

A total of 24 European and other heritage items were identified within and adjacent to the boundaries of the proposed Badgerys Creek airport site options through a combination of primary and secondary research

including revision of existing heritage studies, review of heritage registers and site inspections (Table 8). Fourteen of these are located within the current airport site. Each identified heritage item was assessed using the criteria provided in the *NSW Heritage Manual* (Heritage Office, Department of Urban Affairs and Planning 1996). The report also detailed management measures to mitigate impacts to European and other heritage as a result of the proposed airport.

Australian Museum Consulting, 2014, Badgerys Creek Initial Environmental Survey: Historic Heritage

In 2014, Australian Museum Consulting was commissioned to prepare an historic heritage assessment of the airport site to inform the referral of the project to the Commonwealth Department of the Environment. The assessment built upon Godden Mackay's 1997 Non-Aboriginal Cultural Heritage study. Australian Museum Consulting identified eight European and other heritage items within the airport site and 19 European and other heritage items within the study area, reflecting the results of heritage register searches and the 1997 *Technical Paper 12* (Table 6).

Table 6 Heritage items or places identified in Godden Mackay 1997 *Technical Paper* and Australian Museum Consulting 2014 *Initial Environmental Survey*

Name	Address	Significance as identified in Godden Mackay 1997 and/or Australian Museum Consulting 2014	Identified in Godden Mackay 1997	Identified in Australian Museum Consulting 2014
Luddenham Public School	The Northern Road, Luddenham	Local	✓	✓
Vertical slab dairy c.1930	Lot 10, Adams Road, Badgerys Creek	Local	✓	✓
Luddenham Uniting Church, Cemetery and Progress Hall	The Northern Road, Luddenham	Regional ¹	✓	✓
Lawson's Inn site – demolished 1930s	The Northern Road, Luddenham	Regional ¹	✓	✓
Luddenham Anglican Church and Cemetery	The Northern Road, Luddenham	Regional ¹	✓	✓
Anchau [sic] vineyard site – vineyard operated up until c.1910	The Northern Road, Luddenham	Local	✓	✓
Vicary's Winery – c.1880s original house	The Northern Road, Luddenham	Regional ¹	✓	✓
Vicary's Winery – c.1910 Winery Building	The Northern Road, Luddenham	Regional ¹	✓	
Vicary's Winery – c.1880s woolshed	The Northern Road, Luddenham	Local	✓	

Name	Address	Significance as identified in Godden Mackay 1997 and/or Australian Museum Consulting 2014	Identified in Godden Mackay 1997	Identified in Australian Museum Consulting 2014
Vicary's Winery – c.1880s Shearers Quarters	The Northern Road, Luddenham	Regional ¹	✓	
'Evergreen' homestead – c.1900 small farm house	Off Derwent Road, Bringelly	Local	✓	✓
'Mount Pleasant' homestead – c.1900 small farm house	Shannon Road, Bringelly	Local	✓	✓
RAAF Water Tanks – two c.1950 steel elevated water tanks	Badgerys Creek Road, Bringelly	Local	✓	✓
Overseas Telecommunications Commission Bringelly Remote Receiving Station – c.1955 overseas radio receiving station	Badgerys Creek Road, Bringelly	Regional ¹	✓	✓
Kelvin Park – c.1820 Estate homestead and associated buildings	Off Kelvin Park Drive, Bringelly	State	✓	✓
Braeburn Homestead – turn of the century homestead	Private road off Longleys Road, Badgerys Creek	Local	✓	✓
Former Badgerys Creek butchery – c.1880s building	Badgerys Creek Road, Badgerys Creek	Local	✓	✓
St John's (Badgerys Creek) Anglican Church Cemetery – approximately 30 graves	Pitt Street, Badgerys Creek	Local	✓	✓
Badgerys Creek Methodist Church Cemetery – two graves	Pitt Street, Badgerys Creek	Local	✓	✓
Gardiner Road Farm Cottage – c.1900 weatherboard cottage	Gardiner Road, Badgerys Creek	Local	✓	✓
Gardiner Road Farm Outbuildings – c.1930s timber slab buildings	Gardiner Road, Badgerys Creek	Local	✓	✓

Name	Address	Significance as identified in Godden Mackay 1997 and/or Australian Museum Consulting 2014	Identified in Godden Mackay 1997	Identified in Australian Museum Consulting 2014
Pitt Street Bridge – steel truss bridge ²	Pitt Street, Badgerys Creek	Local	✓	✓
Badgerys Creek Public School – c.1895 Public School building	Badgerys Creek Road, Badgerys Creek	Regional ¹	✓	✓
The Northern Road	The Northern Road, Badgerys Creek	Regional ¹	✓	✓
Greater Blue Mountains Area	Blue Mountains, Kanangra-Boyd, Gardens of Stone, Wollemi, Nattai, Yengo and Thirlmere Lakes National parks and Jenolan Karst Conservation Reserve	World	x	✓
Bringelly Public School Group, including schoolhouse and former headmaster's residence	1205 The Northern Road, Bringelly	Local	x	✓
Willmington Reserve	17 Jamison Street, Luddenham	Local	x	✓
Brick cottage	21-55 Campbell Street, Luddenham	Local	x	✓
Brick cottage	406 Park Street, Luddenham	Local	x	✓
Showground	428-452 Park Street, Luddenham	Local	x	✓
Cottage	3065-3067 The Northern Road, Luddenham	Local	x	✓
Cottage	3075 The Northern Road, Luddenham	Local	x	✓

¹ The category of regional heritage significance is no longer used.

² Pitt Street Bridge has since been relocated to Cabramatta Street, Miller.

Summary of previously identified European and other heritage places in the study area

Thirty three previously identified European and other heritage items are located within the study area. Of these, 25 are listed in formal heritage registers. Eleven are located within the airport site, including that part

of the McGarvie-Smith Farm on an associated site that would be required for HIAL. The key historical themes associated with the heritage items at the airport site are as follows:

Table 7 Australian historical themes of the European and other heritage items at the airport site

Theme	Heritage item
Peopling Australia	Anschau Vineyard
Developing local economies	Anschau Vineyard, Braeburn, Vicary's Winery, The Northern Road alignment, Badgerys Creek butchery site, Gardiner Road farm complex
Building settlements, towns and cities	Badgerys Creek Public School
Working	Anschau Vineyard, Braeburn, Vicary's Winery, Gardiner Road farm complex
Educating	Badgerys Creek Public School
Developing Australia's cultural life	St John's Anglican Church and cemetery, Badgerys Creek Uniting Church and cemetery
Marking the phases of life	St John's Anglican Church and cemetery, Badgerys Creek Uniting Church and cemetery

3.3 Predictive model for European and other heritage sites

A predictive model has been developed to identify the most likely types of European and other heritage sites to occur within the airport site, and areas with greater or lesser potential for the presence of European and other heritage sites.

The types and distribution of European and other heritage sites within the airport site may consist of sites associated with:

- peopling Australia, particularly changing the face of rural Australia through migration;
- developing local economies, particularly the development of primary production, establishing communications, moving goods and people, farming for commercial profit, and feeding people;
- building settlements, towns and cities, particularly planning urban settlements;
- working on the land;
- educating, particularly establishing schools;
- developing Australia's cultural life, particularly worshipping, living in the country and rural settlements; and
- marking the phases of life, particularly dying.

A discussion of the predictive model as it applies to areas of the airport site is presented below.

Badgerys Creek

For the purposes of this report, the Badgerys Creek area is considered to be bounded to the east by Badgerys Creek and to the west by Oaky Creek. Badgerys Creek Road and Longleys Road are the major roads in the area.

Badgerys Creek was part of the Eastern Division of Luddenham Estate, which was originally subdivided as land suitable for orchards and vineyards. Recent land use within the Badgerys Creek area includes small rural allotments set about a central hub of village amenities, including two churches, a school, a former

butcher, and post office and general store. There are a number of chicken farms present within the Badgerys Creek area.

European and other heritage sites within Badgerys Creek are likely to include sites associated with early land grants; the subdivision of Luddenham Estate; the development of orcharding and viticulture; farming and pastoral activities such as homesteads, sheds and other ancillary farming structures, farm machinery, stockyards, fence lines or other land subdivision markers; early roads including Badgerys Creek Road alignment; and places associated with the development of Badgerys Creek as a village hub, including civic amenities, religious sites, shops and communal places. Evidence of contact and convict periods may be encountered, although this is unlikely as very early homesteads were not present within the Badgerys Creek area.

Areas with greater potential for European and other heritage sites include those areas associated with known homesteads, elevated areas in close proximity to fresh water, and areas along historic roads.

Areas with lesser potential for European and other heritage sites include those areas which have been subject to substantial ground disturbance (notably the quarry site near Oaky Creek, south of Elizabeth Drive), and low-lying areas prone to flooding.

Luddenham

For the purposes of this report the Luddenham area is considered to be the remaining portion of the airport site, west of Oaky Creek.

The Luddenham area includes early land grants to Blaxland and Wentworth, and was later subdivided into smaller farms. Recent land use within the Luddenham area includes horse training facilities, vineyards, rural and semi-rural properties.

European and other heritage sites within the Luddenham area are likely to include sites associated with early land grants; the subdivision of those grants into smaller semi-rural parcels, the development of orcharding and viticulture including evidence of wineries, farming and pastoral activities including homesteads, dairies and other farming structures, farm machinery, stock yards, and subdivision markers; and early roads including current and former alignments of The Northern Road. Other potential sites include early burials in association with the homesteads, particularly on older, larger family holdings inhabited prior to the construction of nearby churches.

Evidence of contact and convict periods may be encountered, although this is unlikely as very early homesteads were not present within the Luddenham area of the airport site.

Areas with greater potential for European and other heritage sites include those associated with known homesteads, elevated land in close proximity to fresh water, west facing slopes, and areas along historic roads.

Areas with lesser potential for European and other heritage sites include those which have been subject to substantial ground disturbance, and low-lying areas prone to flooding.

3.4 Field survey

Field survey was undertaken over four days from 1-2 April 2015 and 1-2 June 2015.

During the April 2015 field survey, eight additional European and other heritage sites were identified.

- Well at 1972 The Northern Road.
- Cottage at Lot 2 Jackson Road.
- Steinberg ruin.

- St Francis Xavier Church and cemetery.
- Orange Hill.
- Badgerys Creek post office site.
- Saw pit.
- Badgerys Creek Road alignment.

During the June 2015 field survey, two additional European and other heritage sites were identified.

- Sprendenbergs.
- Howe residence.

These sites are summarised in Table 8. Detailed descriptions, photographs, curtilage and significance assessments of these sites are presented in Appendix A.

3.5 Test excavation

Test excavation was undertaken over three days from 3-5 June 2015.

Following the field survey and research stages of this project, it was determined that the Orange Hill homestead site would require archaeological testing.

Orange Hill homestead is located approximately 450 metres south east of Braeburn and was identified by Australian Museum Consulting (2014) as the site of the original Orange Hill homestead (DIRD ID 404610) (Australian Museum Consulting 2014:44). This view was formed through consultation with a local landowner, who was aware of the existence of that home at that location. Surface evidence in 2015 included a small stand of cape honeysuckle trees, two wells and several sandstock bricks. It was noted by Australian Museum Consulting that no mortar was adhered to the bricks, leading them to conclude that the bricks may have predated the introduction of Portland cement in the 1870s (Australian Museum Consulting 2014:44). This timeframe is consistent with the known occupation by the Longley family on the property from around the 1860s. A line of trees on the adjacent property 404600 may have marked access to the site.

The purpose of test excavation was to identify the location of structural evidence associated with Orange Hill, identify the character of any remains to better understand the probable dates of the structure(s), and identify the potential for lengthy or continued occupation of the site.

A 2 x 1 metre trench was hand excavated over a feature comprising partially overgrown bricks embedded into the ground surface. The trench initially revealed a scatter of bricks, some whole, mostly broken. Following the removal of the bricks, an arranged course of sandstone blocks was uncovered, thought to be flagging or foundations of a building. Other evidence of occupation, including ceramics, glass, metal, a bead and a brass button with a military-style insignia was also recovered during the test excavation at Orange Hill.

Table 8 Results of field survey and test excavation, 2015

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
Corner of Pitt Street and Badgerys Creek Road, Badgerys Creek 404685	4 March 2015	Badgerys Creek Public School	Commonwealth	Inspection of site confirmed and updated the layout and description of the site as presented in Australian Museum Consulting 2014. School buildings had been subject to vandalism including arson and removal of copper wire. Monument to James Badgerly had been removed by the NSW Department of Education to Luddenham Public School. The school orchard and garden area had been pulled out. The school principal's residence, a c.1960s brick building, was located immediately adjacent to the school at property 404686.
5 Gardiner Road, Badgerys Creek 404680, 404681	4 March 2015	Gardiner Road farm complex	Commonwealth	Inspection of the site confirmed and updated the layout and description of the site as presented in Australian Museum Consulting 2014. The farm complex had been abandoned and vandalised, and was boarded up and overgrown at the time of inspection. The alignment of the eastern part of Gardiner Road (then George Street) which was never constructed was marked by a row of mature trees.
Gardiner Road, Badgerys Creek	1 April 2015	None	None	No further heritage items were identified on Gardiner Road.
15 Pitt Street, Badgerys Creek 404773	1 April 2015	Badgerys Creek Uniting Church	Commonwealth	Inspection of site confirmed and updated general layout and description as presented in Australian Museum Consulting 2014. Possible presence of unmarked graves at this site noted. Evidence of church including building rubble, glass, ceramics etc. noted centrally on the site. Cultural plantings noted at the rear of the property.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
30 Pitt Street, Badgerys Creek 404689	1 April 2015	St John's Anglican Church and cemetery	Commonwealth	Inspection of the site confirmed the general layout and description as presented in Australian Museum Consulting 2014. Numerous marked graves including one war grave, and a plinth. Likely to be unmarked graves at this site. Note the neighbour informed RPS that bones had been found during civil (drainage?) works behind the cemetery site.
Bridge over Badgerys Creek, Pitt Street	1 April 2015	Former location of heritage listed bridge, since relocated to Miller	None	Inspection of bridge confirmed that the heritage listed bridge had been relocated. The current bridge is of recent construction.
Pitt Street, Badgerys Creek	1 April 2015	None	None	No further heritage items were identified on Pitt Street.
Lot 51A Badgerys Creek Road, Badgerys Creek 404659	1 April 2015	Badgerys Creek butchery	Commonwealth	The site was inspected from the road as it was fenced off and locked. Inspection of the site confirmed the description as presented in Australian Museum Consulting 2014.
50 Longleys Road, Badgerys Creek 404637	1 April 2015	None	None	This site was inspected from the road as the site was fenced off and locked. A brick pile was noted at the north east of the property, further research was undertaken into previous structures on the site. The site was concluded to have no archaeological potential.
55 Longleys Road, Badgerys Creek 404600	2 April 2015	Braeburn homestead	Commonwealth	Inspection of the site confirmed the general layout and description as presented in Australian Museum Consulting 2014. The immediate vicinity of the homestead site had been subject to extensive recent ploughing, and the homestead site was under long grass. The concrete remains of the garage were visible. Extensive construction rubble was noted about the site, including broken bricks.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
55 Longleys Road, Badgerys Creek 404600	1 June 2015	None	None	This site was identified by aerial photographs alone. An aerial photograph from 1947 indicated a small dwelling near the Longleys Road frontage of the property. Although some surface material was noted, it was of relatively modern (c. 1930-1940) manufacture and therefore not of any archaeological interest. The current leaseholder advised that it was the remains of a small red brick dwelling of relatively recent construction.
55 Longleys Road, Badgerys Creek 404600	1 June 2015	None	None	This site was identified by aerial photographs alone. It is currently used as a corral for cattle and has been repurposed from a relatively modern concrete slab. The purpose of the former structure is uncertain but is likely to have been a structure associated with the dwelling identified above.
55 Longleys Road, Badgerys Creek 404600	1 June 2015	Spredenburgh	Unknown	This site was the area marked "Spredenburgh" on the Eastern Division of the Luddenham Estate. A house was also noted in the general area of Spredenburgh on the 1947 aerial. On inspection, the site was completely overgrown with blackberries, however a number of modern bricks and other builders' refuse were observed on the surface within and atop the blackberry bushes. No heritage building material was observed. The heritage significance of this site cannot be assessed until vegetation has been cleared from the site.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
55 Longleys Road, Badgerys Creek 404600	1 June 2015	None	None	This site was marked as "Fencer's Hut" on the Eastern Division of the Luddenham Estate. A large area in the vicinity of the presumed location of the fencer's hut was surveyed however no surface evidence of the hut was identified. The ground surface was heavily vegetated with few exposures. Whilst there are few remaining examples of these huts, it is likely to have been a lightweight structure, and is unlikely to have left any evidence in the archaeological record which would have survived recent farming practices on the site.
Longleys Road, Badgerys Creek	1 April 2015	None	None	No further heritage items were identified on Longleys Road.
Lot 52, Badgerys Creek Road 404660	1 April 2015	Badgerys Creek post office	Commonwealth	This is the site of the former Badgerys Creek post office which was opened in 1894. No surface evidence remains of the post office, however, it is likely that subsurface evidence is in situ on the site. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
61 Badgerys Creek Road, Badgerys Creek 404656	1 April 2015	Saw pit	Commonwealth	This property was inspected from the road as it was fenced and very overgrown at the time of inspection. The dam on this property is thought to be a former saw pit marked on an 1859 map of Luddenham Estate (refer Plate 4). The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
Corner Badgerys Creek Road and Longleys Road, Badgerys Creek 404363	5 June 2015	Howe Residence	Commonwealth	Analysis of the 1947 aerial photograph shows a residence at this site. A number of features consistent with the remains of a homestead were identified during the survey, including a square-rectangular area lined with exotic trees marking the residential area, a number of wooden posts, bricks and corrugated iron. A brick-lined circular depression was noted at the west of the residential area, most likely being the remains of a well. Some fence posts, both metal and timber, were still in place. It was concluded that an open area excavation would be appropriate to uncover the remains of the homestead and associated buildings. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
Leggo Street, Badgerys Creek	1 April 2015	None	None	No heritage items were identified on Leggo Street.
Fuller Street, Badgerys Creek	1 April 2015	None	None	No heritage items were identified on Fuller Street.
Badgerys Creek Road, Badgerys Creek	1 April 2015	Badgerys Creek Road alignment	Commonwealth	Badgerys Creek Road is an early road alignment along a route originally chosen by James Badgery. Badgerys Creek Road alignment within the airport site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
Badgerys Creek Road, Badgerys Creek	1 April 2015	None	None	No further heritage items were identified on Badgerys Creek Road.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
5 Jagelman Street, Badgerys Creek 404610	2 April 2015, 2-4 June 2015	Orange Hill homestead	Commonwealth	This property is the location of a former homestead site, thought to be Orange Hill, which was owned by the Longley family. The site is marked by cape honeysuckle and two wells are present on the site. Building rubble including broken bricks was noted on the site. A line of trees on the adjacent property 404600 may have marked access to the site. A 2 x 1 metre trench was excavated over a feature comprising bricks embedded into the ground surface and partially overgrown with grass. This trench initially revealed a scatter of bricks, some whole, but most broken. Following removal of the bricks, an arranged course of shaped sandstone blocks was uncovered. Artefacts uncovered include an iron hinge, an iron door key, ceramic pieces, glass shards and nails. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
Jagelman Road, Badgerys Creek	1 April 2015	None	None	No further heritage items were identified on Jagelman Road.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
Lot 6 Taylors Road, Badgerys Creek	5 June 2015	None	None	<p>This was the site of the cottage of former Badgerys Creek resident Thomas Shadlow. The descendants of the Shadlow family stayed in the Badgerys Creek area until the purchase of land by the Commonwealth Government in 1991. A modern construction consisting of a concrete slab and modern, machine made bricks was noted near the site of Shadlow's cottage. Substantial cut and fill had been undertaken at the site as part of that residence's construction. Adjacent to the concrete slab was a fenced area. This was surveyed as a potential site for Shadlow's cottage owing to a number of mature exotic plants having been identified within this fenced area. The area had recently been used for dumping of building material, forming mounds across the site. The current leaseholder of the property advised that this fenced area was the former works site for the construction of the nearby reservoir on Taylors Road and that it had been substantially modified. The leaseholder also advised that most of the land had been owned by David Howe, a descendant of Sarah Howe, one of the early settlers in the area, and that a well was located to the south of the property. This well was also inspected and found to be inconsistent with a well used for residential purposes. Given the extensive disturbance to the site, test excavations were considered unnecessary, particularly given the low potential for remains to be identified, and the low scientific value of any such remains. From all accounts, the cottage was unremarkable and not likely to contribute further to the knowledge of Badgerys Creek's cultural history.</p>

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
Taylor's Road, Badgerys Creek	1 April 2015	None	None	No further heritage items were identified on Taylor's Road.
Winston Close	1 April 2015	None	None	No heritage items were identified on Winston Close.
1935 The Northern Road, Luddenham 404757	1 April 2015	Vicary's Winery	Commonwealth	Inspection of the site confirmed the general layout and description as presented in Australian Museum Consulting 2014. The slab horse shed recorded in 1992 no longer remains on site. A description of the structure in 1997 indicated its condition was very poor and collapse was imminent. Early farming and winemaking machinery was also noted on the site. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
Lot 2 Jackson Road, Luddenham 404804	2 April 2015	Jackson Road cottage	Commonwealth	This property is the location of a c.1890 cottage with ancillary farming structures. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
Jackson Road, Luddenham	2 April 2015	None	None	No further heritage items were identified on Jackson Road.
Lot 2 Anton Road, Luddenham 404604	2 April 2015	None	None	This property was viewed from the road. Two post and rail corral areas were visible on the property. These were later found to have no heritage significance.
Anton Road, Luddenham	2 April 2015	None	None	No further heritage items were identified on Anton Road.
1 Ferndale Road, Badgerys Creek 404585	2 April 2015	None	None	Two substantial gate posts were identified on this property. Subsequent research into the property found no evidence to suggest this place has heritage significance.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
1972 The Northern Road, Luddenham 404774	2 April 2015	Well	Commonwealth	At the time of the site inspection, the field team was informed that the house on this property had been constructed about a sandstone well. The well is likely to have been constructed by the Earlam family as part of their development of the property as an orchard and vineyard. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
1966 The Northern Road, Luddenham 404607	2 April 2015	St Francis Xavier Church and cemetery	Commonwealth	Historic research and aerial photographs indicated that this property was the site of St Francis Xavier Church and cemetery. The Church was removed from the site and burials exhumed and reinterred at the Greendale Roman Catholic Church. The property was largely overgrown at the time of inspection, with large open areas of grass central to the property. The ruins of a structure including timber and a concrete slab were identified east of the former church site. The provenance of this structure is currently unknown. It is unknown whether all human remains were removed from this site, and it is likely that subsurface evidence of the church remains on the site. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
1845-1875 The Northern Road, Luddenham 404800	2 April 2015	Anschau Vineyard, Steinberg and grave(s)	Commonwealth	Inspection of the site identified the overgrown ruins of a homestead (Steinberg) and blacksmith tools located approximately 100 metres behind the current house complex. Several sandstock bricks, iron and other building materials were noted and mapped, however the extensive vegetation covering did not allow for a comprehensive assessment of the site. Four large timber posts formed a square around the site, possibly demarcating a residential precinct for the homestead. In June 2015, around the time the property was due to be vacated, the occupant reported a suspected grave on the site. At the time of reporting, the grave had not been subject to inspection, however, if proven, this is likely to be the grave of an Anschau family member. The site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
The Northern Road, Luddenham	2 April 2015	The Northern Road alignment	Commonwealth	Within the airport site The Northern Road alignment has been modified a number of times, including opposite St Francis Xavier Church, and near the site of Lawson's Inn. The Northern Road within the airport site is considered to have Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
The Northern Road, Luddenham	2 April 2015	None	None	No further heritage items were identified within the airport site on The Northern Road.

Location, DIRD ID	Fieldwork date	European and other heritage items	Heritage significance	Results of survey
2170 Elizabeth Drive, Badgerys Creek 404573	2 April 2015	Pennell's property	Commonwealth	This property was viewed from the road as access was not permitted at the time of inspection. The property is marked on an 1859 map of the area as buildings on "Pennell's" property. It is likely that this site has subsurface evidence of Pennell's. The current building on this property is the Luddenham Scout Hall. In the event that evidence of Pennell's is identified on this site it is likely to be of Commonwealth Heritage significance and would be of local heritage significance if assessed under NSW legislation.
Elizabeth Drive, Badgerys Creek	2 April 2015	None	None	No further heritage items were identified within the airport site on Elizabeth Drive.
Martin Road, Badgerys Creek	2 April 2015	None	None	No heritage items were identified within the airport site on Martin Road.
Lawson Road, Badgerys Creek	2 April 2015	None	None	No heritage items were identified within the airport site on Lawson Road.
400 Willowdene Avenue, Luddenham 404802	2 April 2015	None	None	This property was viewed from the road as it was unavailable to access at the time of the inspection. The house was not visible from the street but was reported by the property manager as appearing to be a Federation cottage. A subsequent review of historical aerial photographs of the site indicates that there was no house on the site until at least the late 1970s. This property is not considered to have heritage significance.
Willowdene Avenue, Luddenham	2 April 2015	None	None	No heritage items were identified within the airport site on Willowdene Avenue.
Greendale Road, Greendale	2 April 2015	None	None	No heritage items were identified within the airport site on Greendale Road.

3.6 Effectiveness of the predictive model

The predictive model for European and other heritage at the airport site has been effective in comparison to the results of the survey. The types and distribution of heritage places identified during the assessment were generally consistent with those predicted. The survey generally confirmed the predictions for European and other heritage items made in the model particularly in relation to the level of disturbance and the corresponding absence of European and other heritage sites in those areas.

A number of place types were predicted but not identified at the airport site. These include sites with evidence of Aboriginal and European contact, including Aboriginal sites in close proximity to homesteads, and convict sites. This reflects the lack of established occupation in the form of homesteads associated with early land grants at the airport site.

The effectiveness of the predictive model within each part of the airport site is detailed below.

Badgerys Creek

Within the Badgerys Creek area, the predicted evidence of early land grants and the subdivision of Luddenham Estate (saw pit, Gardiner Road farm complex), the development of orcharding and viticulture, farming and pastoral activities (Orange Hill, Braeburn), early roads (Badgerys Creek Road alignment), and the development of Badgerys Creek as a village hub (Badgerys Creek Public School, St John's Anglican Church and cemetery, Badgerys Creek Uniting Church and cemetery, Badgerys Creek butchery site, Badgerys Creek post office) were identified.

The predicted site types of contact and convict sites were not identified within the Badgerys Creek area.

Luddenham

Within the Luddenham area, the predicted evidence of early land grants and the subdivision of those estates (Pennell's), the development of orcharding and viticulture including evidence of wineries (Anschau Vineyard, Vicary's Winery, well at 1972 The Northern Road), farming and pastoral activities including homesteads, dairies, other farming structures and farm machinery (Vicary's Winery, Jackson Road cottage, Steinberg), and early roads (The Northern Road alignment) were identified. A potential burial site in association with a homestead was identified on the site (Anschau grave at Steinberg).

The predicted site types of contact and convict sites were not identified within The Northern Road area.

3.7 Summary of historical and physical contexts

Table 9 provides a summary of all 41 heritage items identified during previous surveys and studies, recent heritage register searches, and the 2015 field work.

Table 9 Summary of all European and other heritage sites identified within the airport site (including any associated site) and the study area.

Item no.	Name	Location	Reference
European and other heritage items within the airport site			
AS1	Pennell's property	2170 Elizabeth Drive, Badgerys Creek	1859 Map of the Eastern Division of Luddenham Estate
AS2	Gardiner Road farm complex	5 Gardiner Road, Badgerys Creek	Godden Mackay 1997
AS3	Badgerys Creek Public School	Corner of Pitt Street and Badgerys Creek Road, Badgerys Creek	Liverpool LEP 2008
AS4	Badgerys Creek butchery	Lot 51A Badgerys Creek Road, Badgerys Creek	Godden Mackay 1997
AS5	Badgerys Creek post office	Lot 52 Badgerys Creek Road, Badgerys Creek	Historic research
AS6	Saw pit	61 Badgerys Creek Road, Badgerys Creek	1859 Map of the Eastern Division of Luddenham Estate
AS7	Badgerys Creek Uniting Church and cemetery	15 Pitt Street, Badgerys Creek	Godden Mackay 1997
AS8	St John's Anglican Church and cemetery	30 Pitt Street, Badgerys Creek	Liverpool LEP 2008
AS9	Braeburn homestead	55 Longleys Road, Badgerys Creek	Godden Mackay 1997
AS10	Orange Hill homestead	5 Jagelman Street, Badgerys Creek	Australian Museum Consulting 2014, test excavation
AS11	Vicary's Winery	1935 The Northern Road, Luddenham	Liverpool LEP 2008
AS12	Well	1972 The Northern Road, Luddenham	Personal communication
AS13	The Northern Road alignment within the airport site	The Northern Road, Luddenham	Historic research
AS14	Anschau Vineyard, Steinberg and grave(s)	1845-1875 The Northern Road, Luddenham	Godden Mackay 1997
AS15	St Francis Xavier Church and cemetery	1966 The Northern Road, Luddenham	Historic research
AS16	Jackson Road cottage	Lot 2 Jackson Road, Luddenham	Field survey
AS17	Badgerys Creek Road alignment within the airport site	Badgerys Creek Road, Badgerys Creek	Historic research
AS18	Spredenber	55 Longleys Road, Badgerys Creek	Field survey, 1859 Map of the Eastern Division of Luddenham Estate

Item no.	Name	Location	Reference
AS19	Howe residence	Corner Badgerys Creek Road and Longleys Road, Badgerys Creek	Field survey, pers comm.
AS20	Part McGarvie-Smith Farm	1973-1951 Elizabeth Drive, Badgerys Creek (within HIAL area)	National Heritage List, Penrith LEP 2010, historic research
European and other heritage items within the study area			
SA1	Former Overseas Telecommunications Commission site group	Badgerys Creek Road, Bringelly	Liverpool LEP 2008
SA2	Kelvin	30 The Retreat, Bringelly	State heritage register, Liverpool LEP 2008
SA3	Two RAAF water tanks	Badgerys Creek Road, Bringelly	Liverpool LEP 2008
SA4	Mount Pleasant homestead	3 Shannon Road, Bringelly	Liverpool LEP 2008
SA5	Bringelly Public School group	1205 The Northern Road, Bringelly	Liverpool LEP 2008
SA6	Willmington Reserve	17 Jamison Street, Luddenham	Liverpool LEP 2008
SA7	Luddenham Public School	The Northern Road, Luddenham	Liverpool LEP 2008
SA8	Lawson's Inn	Lot 2 DP 623457	Liverpool LEP 2008
SA9	McGarvie Smith University Farm (excepting HIAL area)	124 Elizabeth Drive, Badgerys Creek	National Heritage List, Penrith LEP 2010
SA10	Brick cottage	21-55 Campbell Street, Luddenham	Penrith LEP 2010
SA11	Luddenham Road alignment	Luddenham Road, Luddenham	Penrith LEP 2010
SA12	Weatherboard cottage	3065-3067 The Northern Road, Luddenham	Penrith LEP 2010
SA13	Weatherboard cottage	3075 The Northern Road, Luddenham	Penrith LEP 2010
SA14	Luddenham Progress Hall	3091-3095 The Northern Road, Luddenham	Penrith LEP 2010
SA15	Luddenham Uniting Church and cemetery	3097-3099 The Northern Road, Luddenham	Penrith LEP 2010
SA16	St James Anglican Church and cemetery	3101-3125 The Northern Road, Luddenham	Penrith LEP 2010
SA17	Showground	428-452 Park Road, Luddenham	Penrith LEP 2010
SA18	Shadforth Monument	Greendale Road, Greendale	Liverpool LEP 2008

Item no.	Name	Location	Reference
SA19	Private dwelling (former St Mark's Anglican Church Group, including church cemetery)	Greendale Road, Greendale	Liverpool LEP 2008
SA20	Greendale Roman Catholic Cemetery	Greendale Road, Greendale	Liverpool LEP 2008
SA21	Vertical slab dairy	Lot 10, Adams Road, Badgerys Creek	Godden Mackay 1997
SA22	Evergreen homestead	Off Derwent Road, Bringelly	Godden Mackay 1997

4 Significance assessment

4.1 Specific heritage items

A statement of heritage significance has been prepared for each of the 20 European and other heritage items identified within the airport site. These are summarised in Table 10, expanded upon in Appendix A, and mapped in Figure 2. Consistent with industry practice the significance assessments were based on a review of all available information including previous assessments, historic research, field investigations and stakeholder consultation.

Of all 20 European and other heritage items in the airport site, 18 items were considered to meet the criteria for Commonwealth significance. One item, outside of the Commonwealth owned land but within the airport site, was considered to have local heritage significance. One item was unable to be assessed due to vegetation coverage and as such is considered to have unknown significance.

The potential impacts of the project on the heritage significance of the 20 European and other heritage items within the airport site are considered in Section 5.

Table 9 Summary of heritage significance of European and other heritage items within the airport site, including any associated sites

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS1	Pennell's property	Pennell's property is likely to contain subsurface archaeological evidence of an early homestead on the site. Pennell was a former convict come farmer's man, and evidence of his dwelling may reveal evidence of a mid nineteenth century farming property.	Working – working on the land Developing Australia's cultural life – living in and around Australian homes Developing Australia's cultural life – living in the country and rural settlements	Commonwealth

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS2	Gardiner Road farm complex	<p>The Gardiner Road farm complex is a typical turn-of-the-century modest farm cottage which retains its (overgrown) gardens and semi-rural context. Although once common, cottages such as this have become rare in Western Sydney in the past three decades.</p> <p>The group of farm outbuildings were once typical of the area but are now rare in the vicinity. They demonstrate building techniques and designs for agricultural activities. They illustrate the nature of settlement in the Badgerys Creek area in the early twentieth century.</p>	<p>Developing local economies – developing primary production – breeding animals, developing agricultural industries</p> <p>Working – working on the land</p> <p>Developing Australia's cultural life – living in and around Australian homes</p> <p>Developing Australia's cultural life – living in the country and rural settlements</p>	Commonwealth
AS3	Badgerys Creek Public School	<p>Badgerys Creek Public School was a fine and representative example of a small rural school which contained original elements that dated to the turn of the century. The school has historic significance as an element in the development of the area, and aesthetic qualities in its historic buildings and setting. It has social significance for the local community and for past students and residents of the area. The integrity and intactness of the school has been compromised by vandalism and arson which has occurred since the school's closure in 2014. Badgerys Creek Public School site demonstrates the history of education and settlement in the area. It is located in the vicinity of two early churches and a community hall and serves as an epicentre for a widely dispersed community.</p>	<p>Building settlements, towns and cities – developing institutions</p> <p>Educating – establishing schools</p>	Commonwealth
AS4	Badgerys Creek butchery	<p>The Badgerys Creek butchery site is considered to be significant for its associations with the Shadlow family, and for its social significance as one of two retail outlets in Badgerys Creek.</p>	<p>Developing local, regional and national economies – feeding people – retailing foods and beverages</p>	Commonwealth

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS5	Badgerys Creek post office	Badgerys Creek post office site is considered to be significant for its historic and social values. The establishment of a post office at Badgerys Creek signified its independence as a village, rather than as an outpost of Luddenham, St Mary's or Bringelly. The post office provided an important connection and central hub for the local community. It was an important centre of personal and official communication.	<p>Developing local, regional and national economies – establishing communications – establishing postal services</p> <p>Building settlements, towns and cities – developing institutions, making settlements to serve rural Australia</p> <p>Governing – Administering Australia – providing services and welfare</p> <p>Governing – Establishing regional and local identity</p>	Commonwealth
AS6	Saw pit	The saw pit is considered to have heritage significance for its historic values. There is very little surviving information relating to the site excepting an early map of the Badgerys Creek area. The site is currently full of water and as such, the research values of the site are unable to be determined.	<p>Developing local, regional and national economies – utilising natural resources – making forests into a saleable resource</p>	Commonwealth
AS7	Badgerys Creek Uniting Church and cemetery	Badgerys Creek Uniting Church and cemetery is considered to have significance primarily for its historic, research, and social values. The church was the first formal place of worship in Badgerys Creek, and despite being used by both Methodists and Anglicans, local worshippers attended every week regardless of personal affiliations. The cemetery has two marked graves, and is likely to have unmarked graves which may reveal evidence about early burial practices in the Badgerys Creek area.	<p>Developing Australia's cultural life – worshipping – worshipping together, making places for worship</p> <p>Marking the phases of life – dying – dealing with human remains, mourning the dead, remembering the dead</p>	Commonwealth

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS8	St John's Anglican Church and cemetery	St John's Anglican Church Group demonstrates the foundation and development of the Anglican Church in a small settlement, Badgerys Creek, in the environs of Liverpool. Many early families of the area are buried in the cemetery. The site also provides evidence of early native vegetation species of the area and introduced exotic plantings. The plantings are representative of late nineteenth and early twentieth century trends in cemetery landscaping. There is the potential to gain more information on the site from further architectural, archaeological and documentary research.	Developing Australia's cultural life – worshipping – worshipping together, making places for worship Marking the phases of life – dying – dealing with human remains, mourning the dead, remembering the dead	Commonwealth
AS9	Braeburn homestead site	Braeburn had a long time association with the Longley family of Badgerys Creek. The property is assessed as having heritage significance on the basis of its aesthetic, research and social values and association with the Longley family.	Developing Australia's cultural life – living in and around Australian homes Developing Australia's cultural life – living in the country and rural settlements	Commonwealth
AS10	Orange Hill homestead site	Orange Hill was the original home in the area of the Longley family, who were well known and influential in the Badgerys Creek area. Orange Hill is considered to be significant for its historic and research values, and associations with significant people.	Developing Australia's cultural life – living in and around Australian homes Developing Australia's cultural life – living in the country and rural settlements	Commonwealth

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS11	Vicary's Winery	<p>Vicary's Winery group is an intact set of structures which document the agricultural change in the Luddenham area since the original granting of land to Blaxland in the early nineteenth century. The group includes structures such as a slab house, slab hut and former dairy (woolshed) which relate to the small scale agricultural industry of the late nineteenth century. Since the twentieth century the group has been predominantly in use as a winery and its surviving vineyard and complex demonstrate the history of a once thriving, but now diminished, wine industry in the Luddenham, Badgerys Mulgoa area. It is Sydney's oldest continually operating winery.</p>	<p>Developing local, regional and national economies – developing primary production – grazing stock/developing agricultural industries</p> <p>Developing local, regional and national economies – feeding people – preserving food and beverages</p> <p>Developing Australia's cultural life- living in the country and rural settlements</p> <p>Developing Australia's cultural life – living in and around Australian homes</p>	Commonwealth
AS12	Well at 1972 The Northern Road	<p>The well at 1972 The Northern Road appears to have been associated with the Earlam family's use of the site from the late nineteenth century. The site is considered to be significant for its historical and rarity values, as well as its associations with the Earlams.</p>	<p>Developing local, regional and national economies – developing primary production – developing agricultural industries</p> <p>Developing Australia's cultural life- living in the country and rural settlements</p> <p>Developing Australia's cultural life – living in and around Australian homes</p>	Commonwealth

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS13	The Northern Road alignment within the airport site	The Northern Road alignment is considered to be historically significant as one of the earliest roads in the area, predating the subdivision of early land grants in the area.	Developing local, regional and national economies – moving goods and people – moving goods and people on land Building settlements, towns and cities – supplying urban services	Commonwealth
AS14	Anschau Vineyard, Steinberg and grave(s)	Anschau Vineyard and Steinberg is assessed as being significant for its historic associations with the prominent Anschau family, who had close connections with the development of a Catholic presence in Luddenham.	Peopling Australia – migrating – changing the face of rural and urban Australia through migration Developing local, regional and national economies – developing primary production – developing agricultural industries Developing local, regional and national economies – feeding people – preserving food and beverages Marking the phases of life – dying – dealing with human remains Developing Australia's cultural life- living in the country and rural settlements Developing Australia's cultural life – living in and around Australian homes	Commonwealth

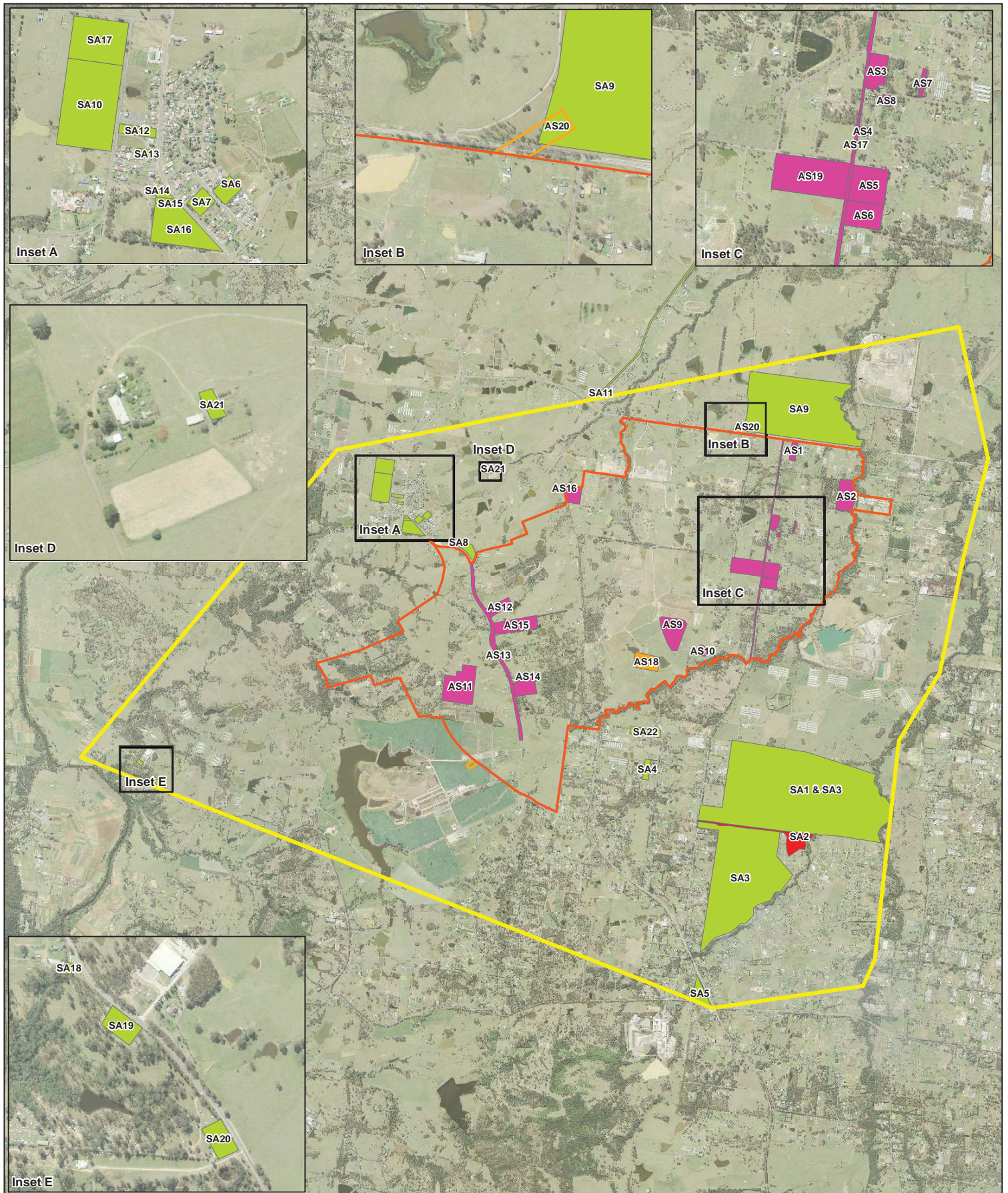
Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS15	St Francis Xavier Church and cemetery	St Francis Xavier Church and cemetery is considered to be significant for its historic and social values, and for its associations with the Anschau family. The site is also considered to be significant for its research values, as it is the site of one of the earliest churches in the Luddenham area, and may be the site of much earlier burials.	Developing Australia's cultural life – worshipping – worshipping together, making places for worship Marking the phases of life – dying – dealing with human remains, mourning the dead, remembering the dead	Commonwealth
AS16	Jackson Road cottage	The Jackson Road cottage is considered to be a representative example of a late nineteenth century farming cottage. The site is considered to be significant for its rarity, research potential, principal characteristics and aesthetic values.	Working – working on the land Developing Australia's cultural life- living in the country and rural settlements Developing Australia's cultural life – living in and around Australian homes	Commonwealth
AS17	Badgerys Creek Road alignment within the airport site	The Badgerys Creek Road alignment is considered to be historically significant as one of the earliest roads in the area, predating the subdivision of early land grants in the area. This item is strongly associated with James Badgery, who allegedly selected the route as a short cut to his property.	Developing local, regional and national economies – moving goods and people – moving goods and people on land Building settlements, towns and cities – supplying urban services	Commonwealth
AS18	Spredenber	The significance of the site of Spredenber is currently unknown. The site is very overgrown and it is not known whether evidence of the (presumed) homestead remains on the site.	Unknown	Unknown

Item no.	Name	Summary statement of significance	Australian themes	Level of significance
AS19	Howe residence	The site of the Howe residence is considered to have heritage significance for its historical and associative values. The Howes were a prominent family who lived in the Badgerys Creek area from the early nineteenth century.	Developing Australia's cultural life- living in the country and rural settlements Developing Australia's cultural life – living in and around Australian homes	Commonwealth
AS 20	Part McGarvie-Smith Farm	The McGarvie-Smith Farm is considered to have heritage significance for its historic, associative and technical values. The farm was commenced as a place of teaching animal husbandry to veterinary students at the University of Sydney and has associations with Sir Frederick Tout.	Developing local, regional and national economies – developing primary production – breeding animals; Working – working on the land; Educating – training people for the workplace.	Local

4.2 Significance assessment of the airport site

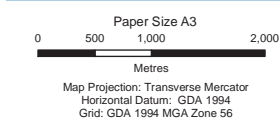
The cultural significance of the airport site is derived from the following factors:

- The region developed as a centre of agricultural production in the nineteenth century. The airport site was associated with the production of wheat and later orcharding.
- The airport site includes Blaxland's early land grant, Luddenham Estate. This land grant and subsequent subdivision represent some of the early attempts to develop an agricultural and pastoral economy in Australia. These farmlands have continued in rural use and due to the integrity of subdivision pattern provide insight into early agricultural production.
- The airport site is crossed by The Northern Road and Badgerys Creek Road, which have historic associations with development in Badgerys Creek and more generally in the region.
- The airport site retains longstanding historic associations with the nineteenth and early twentieth century market for the supply of meat and livestock for metropolitan Sydney. Remnant tracts of cleared grazing land at Badgerys Creek continue to provide insight into this economic activity.
- The airport site includes a public school which demonstrates the development of public education from the late 1800s. The scale, material and design of the school buildings reflect the evolving fortunes of Badgerys Creek, education reform, community and architectural styles.
- The emergence of a settled village and farm community at Badgerys Creek in the last half of the nineteenth century is historically associated with the breakup of the large estates for closer settlement. This is demonstrated in street alignments, subdivision patterns, dwellings, churches and cemeteries, community gathering places, recreation grounds, park reserves, and places for education.



LEGEND

- Study area
- Airport site
- HIAL
- Commonwealth significance
- Local significance
- State significance
- Undetermined significance



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European and other heritage items within the study area

Figure 2

5 Impact assessment

5.1 Stage 1 development

Construction

Site preparation and bulk earthworks for Stage 1 will be undertaken including demolition and removal of all existing dwelling structures and most other infrastructure on the airport site.

The area disturbed by earthworks (approximately 1,150 hectares) would be largely located in the northernmost part of the site. Some development activities may occur in the remaining area, subject to the requirements of the Airports Act.

All identified European and other heritage items within the airport site will be directly impacted by the initial construction works and it is unlikely that any known archaeological deposits within the airport site could be preserved in situ.

Part of McGarvie-Smith Farm will be physically impacted by construction of the HIAL, however it is considered that the works will not impact on the heritage significance of the item.

Operation

The Stage 1 development at the site will cater for approximately 10 million annual passenger movements.

Eighteen identified European and other heritage items within the study area are likely to be indirectly impacted by the operation of the initial stage of the airport development. Impacts are likely to include changes to landscape, vistas and ambience.

5.2 Long term development

Construction

To meet expected future demand for air travel, a second parallel runway, is expected to be required, separated by approximately 1,900 metres from the first runway. Current forecasts suggest that the development of the second runway could be required around 2050.

There are no expected additional construction impacts on heritage items associated with the construction of the long term development.

Operation

By around 2063 the total number of passenger movements per year is forecast to be approximately 82 million. An indicative long term layout of the development is illustrated the main volume of the EIS.

No additional heritage items will be indirectly impacted by the long term operation of the airport.

Table 11 summarises the impacts to each identified European and other heritage item as well as the stage of development (i.e. Stage 1 development or long term development) which results in the predicted impact.

Likely impacts to European and other heritage sites

Table 10 European and other heritage items impacted by the project

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
	Airport site	Commonwealth	Direct, Stage 1 development	Oral history, interpretation, archive and curation
AS1	Pennell's property 2170 Elizabeth Drive, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations
AS2	Gardiner Road farm complex 5 Gardiner Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all structures and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, inventory of moveable heritage items, staged demolition, archaeological investigations, cultural plantings, relocation of structures
AS3	Badgerys Creek Public School Corner of Pitt Street and Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all structures associated with this site as a result of earthworks.	Archival recording, inventory of moveable heritage items, staged demolition, relocation of structures
AS4	Badgerys Creek butchery Lot 51A Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations
AS5	Badgerys Creek post office Lot 52 Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations
AS6	Saw pit 61 Badgerys Creek Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
AS7	Badgerys Creek Uniting Church and cemetery 15 Pitt Street, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, relocation of remains interred at cemetery site
AS8	St John's Anglican Church and cemetery 30 Pitt Street, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, relocation of remains interred at cemetery site
AS9	Braeburn homestead 55 Longleys Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations, cultural plantings
AS10	Orange Hill homestead 5 Jagelman Street, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Destruction of any archaeological evidence associated with this site as a result of earthworks.	Archaeological investigations, cultural plantings
AS11	Vicary's Winery 1935 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all structures and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, inventory of moveable heritage items, staged demolition, archaeological investigations, cultural plantings, relocation of structures
AS12	Well 1972 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of well and destruction of any archaeological evidence associated with this site as a result of earthworks.	Archival recording, staged demolition, archaeological investigations

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
AS13	The Northern Road alignment within the airport site	Commonwealth	Direct, Stage 1 development: Removal of all evidence of The Northern Road alignment through the airport site as a result of earthworks.	Archaeological investigations
AS14	Anschau Vineyard, Steinberg and grave(s) 1845-1875 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Relocation of remains interred at cemetery site, archaeological investigations, cultural plantings
AS15	St Francis Xavier Church and cemetery 1966 The Northern Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all graves and destruction of any archaeological evidence associated with this site as a result of earthworks.	Relocation of remains interred at cemetery site, archaeological investigations, cultural plantings
AS16	Jackson Road cottage Lot 2 Jackson Road, Luddenham	Commonwealth	Direct, Stage 1 development: Removal of all structures associated with this site as a result of earthworks.	Archival recording, staged demolition, archaeological investigations
AS17	Badgerys Creek Road alignment within the airport site	Commonwealth	Direct, Stage 1 development: Removal of all evidence of the Badgerys Creek Road alignment through the airport site. The southern section of Badgerys Creek Road is proposed to be retained but is expected to be removed to enable construction of the second runway when required.	Archaeological investigations
AS18	Spredenbergs 55 Longleys Road, Badgerys	Unknown	Direct, Stage 1 development: Removal of any archaeological evidence associated with the site.	Archaeological investigations

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
AS19	Howe residence Corner of Badgerys Creek Road and Longleys Road, Badgerys Creek	Commonwealth	Direct, Stage 1 development: Removal of all archaeological evidence associated with the site.	Archaeological investigations
AS 20	Part McGarvie Smith Farm 124 Elizabeth Drive, Badgerys Creek	Local	Direct physical impact; Stage 1 development, however area of impact is confined to a small area and adjacent to a current driveway. It is not considered to degrade the significance of the item.	None required
SA1	Former Overseas Telecommunications Commission site group Badgerys Creek Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact.	None required
SA2	Kelvin 30 The Retreat, Bringelly	State	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA3	Two RAAF water tanks Badgerys Creek Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact.	None required
SA4	Mount Pleasant homestead 3 Shannon Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA5	Bringelly Public School group 1205 The Northern Road, Bringelly	Local	None	None required
SA6	Willmington Reserve 17 Jamison Street, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site	None required
SA7	Luddenham Public School The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
SA8	Lawson's Inn Lot 2 DP 623457, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA9	McGarvie Smith University Farm (excepting HIAL) 124 Elizabeth Drive, Badgerys Creek	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA10	Brick cottage 21-55 Campbell Street, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA11	Luddenham Road alignment	Local	Indirect, direct, Stage 1 development: Visual impact, impact to southern alignment of Luddenham Road following Elizabeth Drive realignment	None required
SA12	Weatherboard cottage 3065-3067 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA13	Weatherboard cottage 3075 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA14	Luddenham Progress Hall 3091-3095 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA15	Luddenham Uniting Church and cemetery 3097-3099 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA16	St James Anglican Church and cemetery 3101-3125 The Northern Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA17	Showground 428-452 Park Road, Luddenham	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site	None required

Item no.	Item name and location	Heritage significance	Impact and stage	Recommended mitigation
SA18	Shadforth Monument Greendale Road, Greendale	Local	None	None required
SA19	Private dwelling (former St Marks) Greendale Road, Greendale	Local	None	None required
SA20	Greendale Roman Catholic Cemetery Greendale Road, Greendale	Local	None	None required
SA21	Vertical slab dairy Lot 10, Adams Road, Badgerys Creek	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required
SA22	Evergreen homestead Off Derwent Road, Bringelly	Local	Indirect, Stage 1 development: Visual impact, impact to ambience of site.	None required

6 Mitigation and management

A number of mitigation and management measures are proposed prior to the commencement of construction, including further archival and archaeological investigations.

6.1 Specific measures

Archival recording

It is recommended that archival recording is undertaken for the following items.

- Badgerys Creek Public school.
- Vicary's Winery.
- Gardiner Road farm complex.
- Well at 1972 The Northern Road.
- Jackson Road cottage.
- St John's Anglican Church and cemetery.
- Badgerys Creek Uniting Church and cemetery.

The archival recording should have regard to the NSW OEH guidelines *How to Prepare Archival Records of Heritage Items* (1998) and *Guidelines for Photographic Recording of Heritage Items Using Film or Digital Capture* (2006) and should include the preparation of a photographic record and measured drawings of existing features which contribute to the heritage significance of each item. The archival recording should be prepared for the original buildings within the context of their landscape setting, local environment and associations with other buildings and features. The recording will ensure that the history and environment of each structure can be retained for future reference and research.

At the completion of the archival record, copies should be lodged at the on-site archive, Liverpool City Council archive, the library of the Heritage Division of the OEH and the State Library of NSW.

Inventory of moveable heritage items

It is recommended that an inventory of moveable heritage items is prepared for the following items.

- Gardiner Road farm complex.
- Badgerys Creek Public school.
- Vicary's Winery.

Individual items which are part of a heritage item may make an important contribution to the heritage significance of the item, or may have heritage significance in their own right. These may include tools of the trade and machinery. The inventory should be undertaken prior to the demolition or relocation of structures.

A catalogue of these items should be compiled by a heritage consultant. The catalogue should include information on the history, location, designer, creator, and previous owners or users of the item. At the completion of the inventory copies should be lodged at the on-site archive, Liverpool City Council archive, the library of the Heritage Division of the OEH and the State Library of NSW.

Staged demolition

It is recommended that staged demolition is undertaken for the following items.

- Gardiner Road farm complex.
- Badgerys Creek Public School.
- Vicary's Winery.
- Well at 1972 The Northern Road.
- Jackson Road cottage.

The staged demolition should seek to gain additional information about each item, including original finishes, earlier configurations, profiles of earlier structures, positions of earlier openings, and construction technologies used. It may be appropriate to catalogue a series of surface finishes and detailing from some items. At the completion of the staged demolition, copies of the records should be lodged at the on-site archive, Liverpool City Council archive, the library of the Heritage Division of the OEH and the State Library of NSW.

Cemetery sites

It is recommended that the relocation of remains interred in graves be undertaken for the following sites.

- St John's Anglican Church and cemetery.
- Badgerys Creek Uniting Church and cemetery.
- St Francis Xavier Church and cemetery.
- Grave(s) at Anschau Vineyard.

Prior to exhumation and reburial, the following should be undertaken:

- identification of the number of grave cuts at each site (including consideration of a buffer of at least 10 metres beyond the consecrated ground);
- production of a funeral register. This should provide any relevant details of the deceased and their executors or living relatives, and identify any reserved plots and the appropriate contact for the plot;
- determination of the number of burials recorded at each cemetery, and the number of burials exhumed from each cemetery;
- review of church, Government and other records to estimate the number of bodies likely to remain in situ, relative to the number of grave cuts identified;
- consideration of the heritage impact of relocation of burials; and
- consultation with the NSW Department of Health and other relevant agencies.

Determination of the preferred site(s) for the relocation of remains and the process of exhumation should be undertaken in consultation with all relevant stakeholder groups, including family members of the deceased, church groups and religious bodies. All relocation works must have regard to public health and heritage requirements.

Archaeological investigations

It is recommended that targeted archaeological investigations are undertaken at the following sites.

- Pennell's.
 - Archaeological test excavation should be undertaken at Pennell's to determine whether evidence of Pennell's use of the property remains on the site.
- Gardiner Road farm complex.
 - Archaeological test excavation should be undertaken at Gardiner Road farm complex, particularly under the cottage and slab huts and in their immediate vicinity to understand the age, layout and use of the site.
- Badgerys Creek butchery site.
 - Archaeological investigations should be undertaken at Badgerys Creek butchery site to understand the development of the site.
- Badgerys Creek post office site.
 - Archaeological test excavations should be undertaken at Badgerys Creek post office site to determine whether evidence of the post office remains on the site.
- Saw pit.
 - The saw pit should be drained and the site recorded prior to destruction. In the event that evidence of the use of the saw pit, including structural remains and/or machinery is present on the site, it should be recorded prior to removal.
- Braeburn homestead site.
 - Archaeological investigations should be undertaken at Braeburn homestead site to further understand the age, size and likely occupants of the place. Consideration should also be given to excavation of the dump site associated with the homestead.
- Orange Hill homestead site.
 - Archaeological investigations should be undertaken at the Orange Hill homestead site to further understand the age, size and likely occupants of the place. The wells should be excavated and, if relevant, their contents recorded.
- Vicary's Winery.
 - Archaeological investigations should be undertaken at Vicary's Winery, particularly in the immediate vicinity of the c.1860s dwelling.
- Well at 1972 The Northern Road.
 - Archaeological investigations should be undertaken in the immediate vicinity of the well at 1972 The Northern Road in order to understand whether previous structures were present on the site.
- The Northern Road alignment.
 - Archaeological investigations of former parts of The Northern Road alignment, particularly in the vicinity of St Francis Xavier Church should be undertaken to identify whether early road construction technologies such as corduroy were used in the alignment.
- Anschau Vineyard and Steinberg.
 - Archaeological investigations of Anschau Vineyard, and particularly in the immediate vicinity of Steinberg, should be undertaken to understand the layout and use of the site.

- St Francis Xavier Church.
 - Archaeological investigations of St Francis Xavier Church site should be undertaken to determine the layout of structures on the site.
- Jackson Road cottage.
 - Archaeological investigations in the immediate vicinity of Jackson Road cottage should be undertaken to understand the layout of the site, likely age, and likely occupants.
- Spredenberg.
 - Following vegetation clearance this site should be surveyed, and, if warranted, archaeological investigations undertaken to understand the layout of the site, likely age, and likely occupants.
- Howe residence.
 - Archaeological investigations should be undertaken at the Howe residence to understand the layout of the site, activities undertaken, and likely age.

Archaeological works should be undertaken in a manner generally consistent with the requirements of the NSW *Heritage Act 1977* and associated guidelines and best practice.

Cultural plantings

It is recommended that a botanist or garden historian is commissioned to investigate cultural plantings at the following sites.

- Gardiner Road farm complex.
- Braeburn homestead site.
- Orange Hill homestead site.
- Vicary's Winery.
- Anschau Vineyard.
- St Francis Xavier Church site.

Cultural plantings should be investigated to identify whether heirloom varieties are present at these sites. In the event that heirloom varieties are identified, consideration should be given to collecting samples for propagation. Opportunities for planting of heirloom varieties at the Western Sydney Airport should be explored.

Relocation of structures

It is recommended that options for the potential relocation of original buildings be explored at the following sites.

- Vicary's Winery.
- Badgerys Creek Public School.
- Gardiner Road farm complex.

Oral history

Consideration should be given to preparing an oral history of the airport site. Descriptions and reminiscences by people who have close association with the Badgerys Creek area may reveal additional information about the history and significance of the place.

This should be undertaken by an historian or anthropologist with experience in oral history. The oral history should be recorded professionally, and transcribed for archival purposes.

Interpretation

It is recommended that heritage information be placed on site during the construction phases to interpret the historic development and use of the airport site. Information could be in the form of heritage images and text on construction hoarding, or laminated posters adjacent to general project information boards.

Prior to the commencement of construction, a heritage interpretation strategy should be prepared for the airport site.

Consideration should be given to the identification of a place or facility for curating and displaying artefacts recovered from archaeological investigations, and interpretation of the airport site.

Consideration should be given to the development of a small museum space or display within the airport terminal. This could be beyond the security screening, and in a public space for travelers to peruse while waiting for flights. The museum should be used to interpret the heritage of the airport site.

On-site archive

Consideration should be given to the development of an archive within the airport development. This should house records relating to the history of the airport site, should be secure, and should be accessible to the public on request.

Retrofitting of architectural noise treatments

In the event that identified European and other heritage items are required to be retrofitted with architectural noise treatments, a heritage impact assessment should be prepared for these items prior to the installation of works. Relevant permits and/or approvals may be required from the relevant council and/or from the Heritage Division of the OEH.

6.2 General measures

Commonwealth Heritage values

This assessment has identified a range of Commonwealth Heritage values within the airport site. It is recommended that the Department of Infrastructure and Regional Development consider the Commonwealth Heritage provisions of the EPBC Act and the commitments established in the Department of Infrastructure and Transport Heritage Strategy (2011) when developing its strategy for managing these heritage values as part of the development of the proposed airport.

European heritage management plan

A European and other heritage management plan should be developed and implemented as part of the construction environmental management framework for the development of the airport site. This management plan should include the mitigation and management measures detailed in this technical report.

Heritage induction

European and other heritage awareness training should be provided for contractors involved in demolition and/or earthworks on the airport site. This training should be provided prior to the commencement of works to ensure an understanding of potential heritage items that may be impacted by the project, details of

commitments in the European and other heritage management sub plan, and procedures to be undertaken in the event of unexpected finds.

Discovery of unexpected archaeological deposits, features or materials protocol

If at any time during the construction of the project unexpected European and other heritage archaeological deposits, features or materials are encountered an unexpected finds procedure should be followed.

Specifically, the following actions should be undertaken:

- All construction that has the potential to harm the archaeological deposit, feature or material should cease, including stopping all construction within at least 25 metres. Only construction that is required to comply with occupational and environmental health and safety standards and/or to protect the deposit, feature or material should occur. Construction that does not have the potential to harm the deposit, feature or material should only continue if it is outside the minimum 25 metre buffer.
- The site supervisor should inform the developer's staff of the discovery.
- A suitably qualified and experienced archaeologist should be contacted as soon as practicable in relation to the unexpected discovery of any European and other heritage. The archaeologist should be responsible for recording the location and context of any unexpected find. Any materials, features and/or deposits should be analysed and/or catalogued and any official site records should be created or updated as appropriate. The archaeologist should also make recommendations for the management of the unexpected find in relation to the project.
- It is preferable to avoid impacts to European and other heritage where possible. If avoidance is not possible, the deposit, feature or material should be salvaged if this is recommended by the archaeologist. The aims of the salvage excavation should be to obtain as much information as possible from the deposit, feature or material.
- The archaeologist should prepare a report detailing the investigation, salvage and analysis results at the completion of the works. Copies of this report should be lodged with the developer and the Heritage Division of the OEH library.
- The developer should be responsible for the costs associated with the assessment, cataloguing, labelling, packaging etc. of any European and other heritage materials, features and/or deposits.
- Work should recommence within the area of exclusion when:
 - Appropriate protective measures have been implemented.
 - Relevant records have been updated and/or completed.
 - All parties agree there is no other prudent or feasible course of action.

Discovery of human remains protocol

In the event that construction of the project reveals possible human skeletal material the following procedure should apply:

- As soon as remains are exposed all construction shall immediately stop in that location and the area clearly demarcated using a method that does not result in additional ground disturbance. The site supervisor should be notified immediately to allow assessment and management.
- The site supervisor should notify the Environmental Representative of the client.
- The site supervisor should notify Police.
- A physical or forensic anthropologist should inspect the remains in situ. This should be organised by Police unless otherwise directed by Police. A determination should be made of ancestry (Aboriginal or not) and antiquity (prehistoric, historic or forensic).

- If the remains are identified as forensic, the area will be deemed a crime scene.
- If the remains are identified as Aboriginal, the procedure for identification of Aboriginal human remains should be followed (refer Appendix 7 of the Western Sydney Airport Aboriginal cultural heritage assessment (Navin Officer 2015)).
- If the remains are identified as European or other (non-Aboriginal), the site should be secured and the archaeologist contacted. Management of the remains would be determined through liaison with the client, the Coroner's Office, relevant government agencies and the archaeologist.
- If the remains are identified as not being human, work could recommence once the appropriate clearances have been given.

7 Conclusion

7.1 Key findings of the assessment

This report has assessed the potential impact on the European and other heritage values of the Western Sydney Airport site and study area. Through heritage register searches, review of previous heritage studies, historic research, field survey and test excavation, a total of 41 European and other heritage items were identified. Assessment of the heritage significance of those items identified one locally significant heritage item, 18 items of Commonwealth Heritage significance and one item of undetermined heritage significance within the airport site; and one state significant heritage item, and 21 locally significant heritage items outside of the airport site but within the study area.

This assessment has identified a range of Commonwealth Heritage values that variously fulfil seven of the nine CHL significance criteria. Values include those associated with the historic, aesthetic, social and associative significance, as well as values relating to rarity, principal characteristics of a place, and the potential to yield information. It should be noted that Commonwealth Heritage values relate to the significant values of places on land owned or controlled by the Australian Government based on the Australian Heritage Council's threshold for identification of such values being local heritage significance. A local level of heritage significance does not necessarily infer a need for in situ conservation.

The revised draft Airport Plan authorises the removal and/or demolition of most existing structures and certain infrastructure at the site to facilitate development of an airport. All identified European and other heritage items within the airport site would be directly impacted by the Stage 1 development. Part of one item beyond the airport site, but on an associated site within the study area, would be subject to direct impact, and a range of indirect impacts would result at these places as a result of the initial development and the long term airport development.

Mitigation and management measures for those items within the airport site involve the realisation of the information and research potential associated with each site, and with the airport site as a whole, through a range of methods.

General management measures have also been recommended, including the development and implementation of a European and other heritage management sub plan, a procedure for unexpected finds, a procedure for the identification of human remains, and the provision of heritage induction training for contractors working on demolition or earthworks on the site.

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Appendix A

Significance assessments

AS 1 Pennell's

List	-
Type of item	Archaeological
Primary address	2170 Elizabeth Drive, Badgerys Creek
DIRD ID	404573

Site description

Noted on the map of the Eastern Division of Luddenham Estate 1859 (Plate A1) is "Pennells". The property is believed to be the home of Samuel Pennell (also transcribed in various sources as "Pinnell"), a convict sent to Australia in 1820 for stealing.

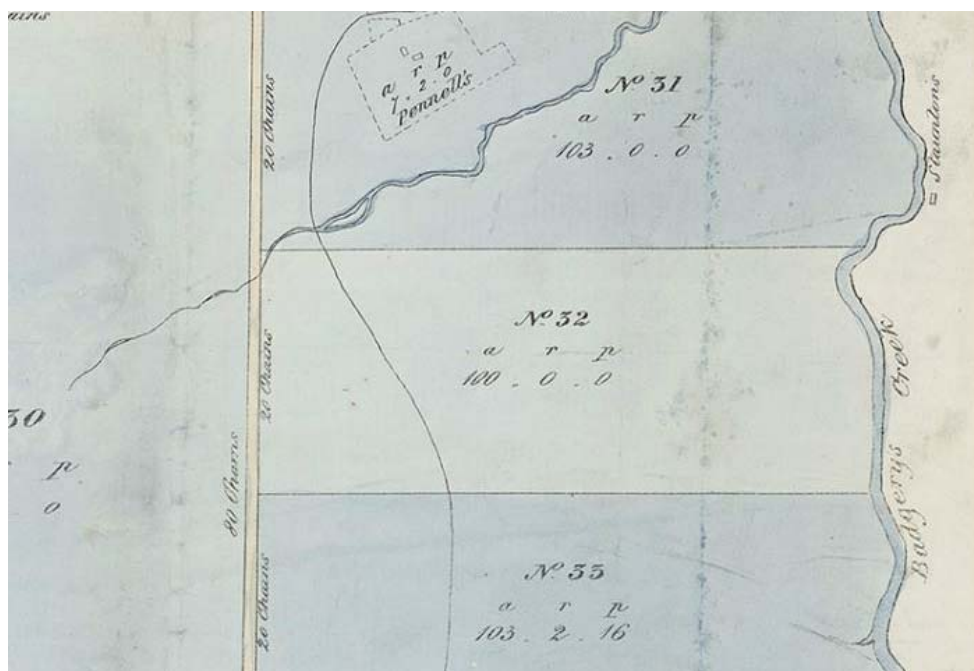


Plate A1 Plan of the Eastern Division of the Luddenham Estate, 1859. (Source: State Library of NSW)

On his arrival in Sydney, Pennell was placed into the service of Sir Nicholas Bayley, who had numerous land holdings across Sydney, including a holding called "Bayley Park" to the east of James Badger's holding.

Nicholas Bayley wrote the following character reference for him as part of his ticket of leave in 1825:

I hereby certify that Samuel Pinnell who came by the ship Asia which arrived in the year 1820 has not been convicted of any crime or misdemeanour in this Colony but is to our certain belief an honest, sober and industrious character having served faithfully the late Nicholas Bayley Esq. and family in the District of Cabramatta from his arrival in the Colony to the present time. (NSW State Records 1825)

In the General Muster for 1825, Pennell is listed as being employed by Mr Norton of Bringelly (NSW State Records 1825). He was granted his Certificate of Freedom in 1832 and listed his occupation as a "farmer's man" (NSW State Records 1832). In 1851, he married Mary Ann Johnson (nee Pendergast) at Sydney and they thereafter settled at Badgerys Creek. Samuel and Mary had five sons and Mary had two daughters from a previous marriage. All children were born before Samuel and Mary's marriage. Pennell died near Penrith in 1874 and Mary died the following year. Both were buried in Luddenham's Anglican cemetery.

This property was viewed from the road as access was not permitted at the time of inspection. It is likely that this site has subsurface evidence of Pennell's. The current building on this property is the Luddenham Scout

Hall. In the event that evidence of Pennell's is identified on this site, it is likely to be of Commonwealth significance.

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The property was a locally known property warranting inclusion on the Eastern Division of Luddenham Estate map. The property was known as "Exeter Farms" after Badgerys Estate.	Commonwealth
Rarity	Little information exists regarding Pennell or his property. It therefore does not meet this criterion.	None
Research	In the event that subsurface evidence of Pennell's property is present on the site this may provide information about early farming and homesteading practices in the area.	Commonwealth
Principal characteristics of a class of place	Pennell's is not considered to meet this criterion.	None
Aesthetics	Pennell's is not considered to meet this criterion.	None
Creative or technical achievement	Pennell's is not considered to meet this criterion.	None
Social value	It is unknown whether Pennell's farm has any social value, however given the paucity of information and evidence relating to the farm, it is considered unlikely.	None
Significant people	There is little information regarding Pennell or his farm. The site is not considered to meet this criterion.	None
Indigenous values	Pennell's is not considered to meet this criterion.	None
Australian historic themes		
Working – working on the land Developing Australia's cultural life – living in and around Australian homes Developing Australia's cultural life – living in the country and rural settlements		
Statement of significance		
Pennell's property is likely to contain subsurface archaeological evidence of an early homestead on the site. Pennell was a former convict come farmer's man, and evidence of his dwelling may reveal a mid nineteenth century farming property. It is considered to be of Commonwealth heritage significance.		

AS2 Gardiner Road farm complex

List	-
Type of item	Farmstead and outbuildings
Primary address	5 Gardiner Road, Badgerys Creek
DIRD ID	404680, 404681

Site description

The farm complex on Gardiner Road is located at the easternmost area of John Blaxland's former estate, Luddenham (Godden Mackay 1997). Favourable environmental conditions and notably the failure of agricultural soils around Sydney and Parramatta necessitated the early settlement of the area to augment the colony's food supply. These were critical factors in the initial settlement of Badgerys Creek.

Blaxland mortgaged Luddenham estate to the Australian Trust Company in 1842. Following his death in 1845 his two sons, Edward James Blaxland and Arthur Blaxland, inherited all of his real estate. His sons defaulted under the mortgage and the estate was sold to Sir Charles Nicholson in 1851 (Thorp n.d). The property formed part of the 100 acre Lot 32 of the Eastern Division of Luddenham Estate (Plate A2). In 1859, Lot 32 the property was described as "open forest land, no improvements" (*Sydney Morning Herald*, 29 October 1859).

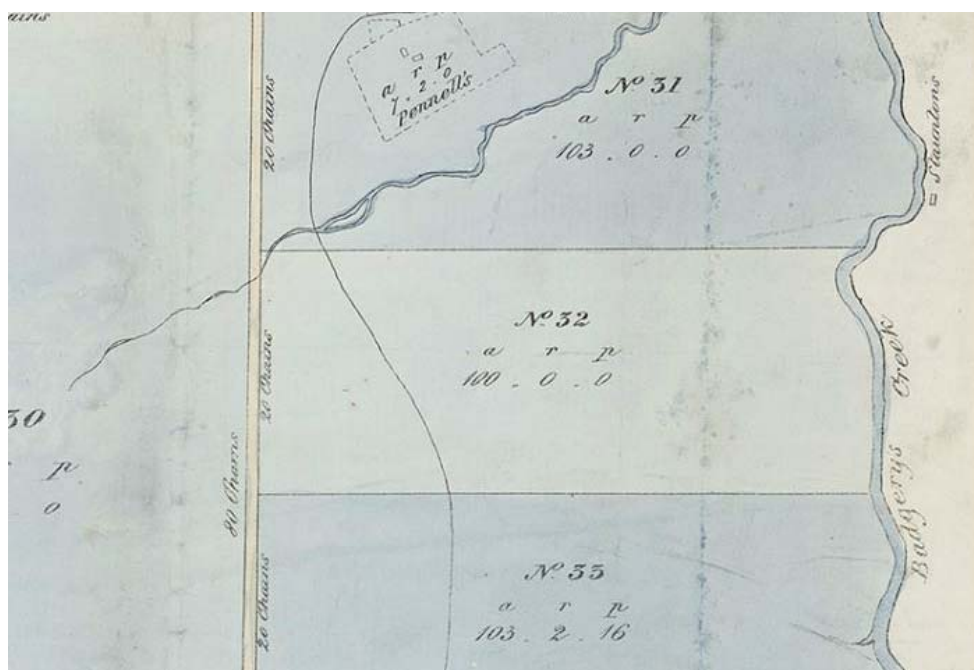


Plate A2 Part of the Plan of the Eastern Division of Luddenham Estate. Lot 32 is located centrally, bounded to the east by Badgerys Creek. (Source: National Library of Australia)

Between 1860 and 1882, the estate was subdivided and gradually sold by Nicholson. The lots along the eastern boundary of the airport site, including the current farm complex on Gardiner Road, were acquired by James Green of Sydney, painter; Ebenezer Vickery of Sydney, merchant; and Richard Watkins of Waverley, contractor. Property speculation was common at the time, and the land was re-subdivided into small farms of between four and nine acres. Sales of these lots began in 1887, with the whole of the land in Lots 32, 33, 34 and 36 being sold by the turn of the century.

During the further subdivision of the Eastern Division, Lot 32 was divided into Lots 30 and 31, as shown on Deposited Plan 1451 (Plate A3), before being further subdivided (Plate A4). Gardiner Road farm complex comprises the former Lot 10 of DP 1841.

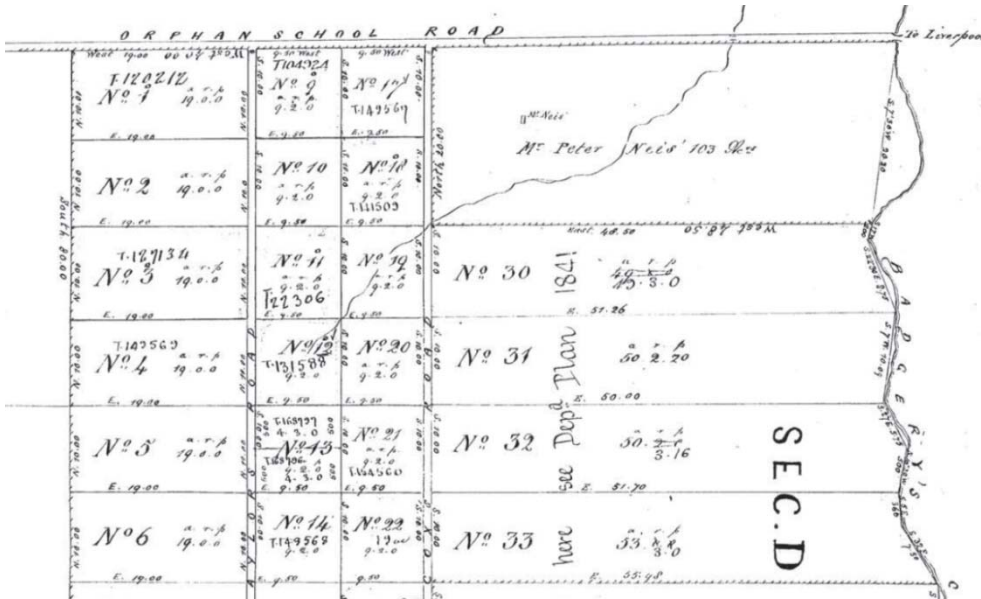


Plate A3 Deposited Plan 1451 showing Lots 30 and 31. (Source: NSW Land and Property Information)

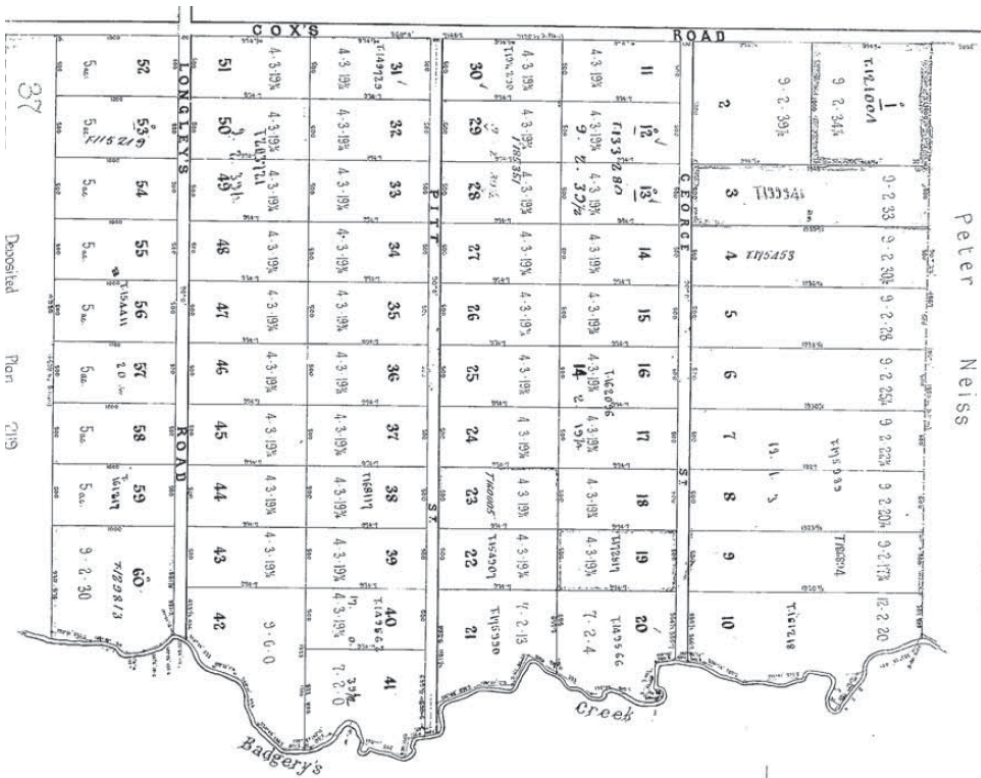


Plate A4 Deposited Plan 1841 following the subdivision of Lots 30 and 31, showing Lot 10 extended through to Peter Neiss' property. (Source: NSW Land and Property Information)

Peter Neiss purchased the property which fronted Elizabeth Drive. In the 1920s, Lesley Dorahy purchased Lot 10, which extended from George Street to Elizabeth Drive and operated a poultry farm there (Plate A5). Dick Watkin also owned a portion of the property (Donald and Gulson 1996:27).



Plate A5 Lesley Dorahy on the poultry farm in the 1940s. (Source: Donald and Gulson 1996:27)

In July 1953, Ralph (Rudolf) Wiener purchased the poultry farm. Wiener was born in Vienna at the turn of the century and moved to Yugoslavia after World War I, where he worked before moving to Australia. Wiener engaged Roger Woods to assist on the farm and two years later entered a partnership with Woods which lasted 20 years. Together, they built up the farm from around 1200 to between 14,000 and 20,000 birds (Donald and Gulson 1996:31).

Wiener occupied the cottage on the property (Plate A6). In 1963, Woods married and built a second residence on the property.



Plate A6 Ralph Wiener's residence. (Source: Donald and Gulson 1996:31)

In the 1960s, the poultry industry experienced significant changes, with the introduction of the California style laying cage. Wiener and Woods had one of the first of these cages in the district, built in 1960. The new practice resulted in increased production and over-supply in the market. In the late 1960s, due to significant losses in overseas sales, the New South Wales government introduced regulation of the industry, limiting farmers to a specific number of fowls producing enough eggs for local consumption only. As a result of regulation, Wiener and Woods' production was cut by 17 per cent (Donald and Gulson 1996:106-107). Woods continued to operate the farm until recently.

The farm complex includes a single storey Georgian-style cottage with corrugated iron gable roof, and skillion verandah carried on timber posts. The cottage is small in scale and was described as well finished and well preserved at the time of the 1997 *Draft EIS* (Godden Mackay 1997), but was falling into a state of disrepair at the time of the inspection (see also Australian Museum Consulting 2014).

To the rear (north) of the cottage is a group of farm buildings which appear to date from the early to mid twentieth century. These buildings have low pitched corrugated iron skillion and hipped roofs, bush pole framing and are clad with slab timber. All are painted white and some have later wing additions. They are typical small farm outbuildings and appear to have had a range of uses, including as stables, barns, garages, byres and possibly a former dairy.

The cottage is of simple weatherboard construction with corrugated iron gable roof and two external brick chimneys at the east wall (Plate A7). The weatherboard appears to enclose an original slab cottage that is likely to pre-date the ascribed 1890s date. The cottage has been modified with the addition of newer windows and doors which date to its most recent period of use. The cottage has a rear fibro skillion addition, which appears to house the kitchen as it has a brick chimney.

Immediately east of the cottage and connected by a skillion addition, are two small timber slab huts. One of these has been lined with fibro and appeared to have been used as a bedroom. Remnant lath and plaster is visible through gaps in the timber cladding of the hut. A brick lined cistern is located north east of the cottage (Plate A8). Incorporated around the cottage are a number of cultural plantings of varying ages. Withered remains of wisteria were noted on the roof of the slab hut portion of the homestead, with the stumps of wisteria noted along the northern elevation of the slab hut. Other cultural plantings noted included orange trees, cypress pine, boronia and a number of palms (foxtail, kentia, fan). These plantings were chiefly in the vicinity of the cottage. A row of mature trees on the southern boundary of the property marked the alignment of the eastern end of Gardiner Road (formerly George Street), which was never constructed.



Plate A7 View north toward the cottage. (Source: RPS 2015)



Plate A8 Cistern behind Gardiner Road cottage. (Source: RPS 2015)

A sleep-out and garage is located north west of the cottage. The sleep-out is of fibro construction with corrugated roofing (Plate A9).

A shed is located immediately north of the sleep-out and garage (Plate A10). The shed is constructed of pole timber with corrugated iron cladding. There is a red painted grain hopper located immediately north of the shed, which feeds internal troughs.



Plate A9 View west toward sleep-out and garage. (Source: RPS 2015)



Plate A10 View west towards shed and hopper. (Source: RPS 2015)

Immediately north of the shed and hopper is a Lysaght silo, presumably used to store grain for the poultry operation (Plate A11). The silo appears to be similar to those constructed in the mid-twentieth century and is a ubiquitous piece of farming infrastructure.



Plate A11 Lysaght silo. (Source: RPS 2015)

North of the outbuildings, and opposite the Lysaght silo, is a water tank on a stand. The stand is constructed of pole timber. This is a vernacular tank stand arrangement (Plate A12).



Plate A12 Water tank on stand; outbuildings behind. (Source: RPS 2015)

North of the Lysaght silo is a collapsed and overgrown byre (Plate A13). The byre appears to be contemporaneous with the shed.



Plate A13 View west toward byre. (Source: RPS 2015)

Across the north eastern part of the property are five clusters of poultry sheds, in varying states of decay. These appear to be of mid-twentieth century construction (Plate A14).



Plate A14 One of several sets of poultry sheds on the site. (Source: RPS 2015)

Immediately opposite the shed are a series of extremely overgrown outbuildings. These are primarily timber framed buildings with corrugated iron cladding, aligned to the north of the cottage. These were unable to be accessed at the time of inspection, and it is presumed they are contemporaneous with the construction of the shed (Plate A15).



Plate A15 View south toward outbuildings. (Source: RPS 2015)

West of the cottage is a residence which was built on the property in 1963 when Woods was first married (Plate A16).



Plate A16 View north east toward 1960s house. Sleep-out visible at rear. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The Gardiner Road farm complex contains a number of buildings of various styles, ages and fabric. The original timber slab building is still standing and is of historic interest, as is the adjoining weatherboard cottage. The farm outbuildings also vary in ages, fabric and styles. Collectively they reflect the growth of a farming complex from a single building to a substantial agricultural enterprise.	Commonwealth
Rarity	The Gardiner Road farm complex has a number of buildings which demonstrate early construction techniques including the use of slab timber, and pole construction. It is also important because of its demonstration of the rural practice of incorporating older structures into new structures, as well as the re-use and re-purposing of the outbuildings as the need arose. Whilst likely to have once been common in the area, it is now one of the few remaining examples of this type of complex. The timber slab building is a rare example of the types of early farm buildings that would have been built in the area in the early years of European settlement. Although many would have been built, this building is one of the very few to survive. It has been somewhat adapted as an extension to a later adjoining dwelling, but is still relatively intact.	Commonwealth
Research	Gardiner Road farm complex has several buildings which have the potential to yield information relating to early construction techniques. There is high potential for the remains of former outbuildings and other structures associated with the use of the farm. Due to the limited information available about the use of the farm between 1860 and 1920, such information has the potential to contribute to our understanding of the use and significance of the farm prior to the use of the farm for poultry.	Commonwealth

Significance assessment		
Criterion	Discussion	Heritage significance
Principal characteristics of a class of place	The Gardiner Road farm complex is an excellent example of a farming complex that has grown organically, which has adapted and incorporated older buildings into a new complex each time. This applies to both the residential and farming buildings.	Commonwealth
Aesthetics	Aesthetically, the timber slab building and the weatherboard cottage are relatively intact examples of such structures and have aesthetic appeal in their context. These elements therefore meet this criterion.	Commonwealth
Creative or technical achievement	Gardiner Road farm complex is the site of the first use of the California chicken cage and appears to have been an early adopter of technology to maximise efficiencies. Despite this, there is no evidence to suggest that the site meets this criterion.	None
Social value	Gardiner Road farm complex is not considered to meet this criterion.	None
Significant people	Gardiner Road farm complex is not considered to meet this criterion.	None
Indigenous values	Gardiner Road farm complex is not considered to meet this criterion.	None
Australian historic themes		
<p>Developing local economies – developing primary production – breeding animals, developing agricultural industries. Working – working on the land. Developing Australia’s cultural life – living in and around Australian homes Developing Australia’s cultural life – living in the country and rural settlements</p>		
Statement of significance		
<p>The Gardiner Road farm complex is a typical turn-of-the-century modest farm cottage which retains its (overgrown) gardens and semi-rural context. Although once common, cottages such as this have become rare in Western Sydney in the past three decades.</p> <p>The group of farm outbuildings were once typical of the area but are now rare in the vicinity. They demonstrate building techniques and designs for agricultural activities. They illustrate the nature of settlement in the Badgerys Creek area in the early twentieth century.</p>		

AS3 Badgerys Creek Public School

List	Liverpool LEP 2008
Type of item	School
Primary address	Corner of Pitt Street and Badgerys Creek Road, Badgerys Creek
DIRD ID	404685

Site description

The village of Badgerys Creek was established following the subdivision of the larger estates in the 1880s. The formal establishment of villages led to the provision of services for new settlers.

A public school was first proposed for Badgerys Creek in 1891, but it was not approved until 1894 at which time the current site was purchased and a building erected (Plate A17). This was replaced with the current building in 1914.



Plate A17 Badgerys Creek Public School, 1908. (Source: National Library of Australia)

Badgerys Creek Public School has seen varying levels of enrolments, but was a single teacher school until the late 1960s. During the 1970s, facilities were improved and enrolments soared to around 120 pupils, taught by five teachers and a headmaster. Uncertainty following the announcement of the airport proposal in the 1980s reduced the number of enrolments.

During the 1990s, a timber cottage from a neighbouring property, Braeburn, was moved to the school to become an art classroom. It was repaired and the timber verandah added, using second hand materials. The building was known as the “old cottage” and was used as a craft room for students.

Badgerys Creek Public School consists of a pair of single storey, weatherboard school buildings (staff room and library) with shallow gables and corrugated iron clad roofs. There were a number of more recent buildings on the site including a modern hall, and a classroom block (Plate A18) which appeared to have been constructed in the 1970s-1980s. The school had been targeted by arsonists following its closure in 2014, resulting in substantial damage to a number of the buildings.



Plate A18 View south east toward classroom block. (Source: RPS 2015)

The staff room was originally used as a classroom, and was built in 1914. This small square weatherboard building, set on brick piers, has a gabled corrugated iron roof and skillion verandah across one gabled end (front elevation, facing south) which has been half enclosed with weatherboards, and a fully enclosed skillion roof verandah at the rear (north). A simply detailed face brickwork chimney also features on the southern elevation. Windows along the side walls are generally 2 x 6 pane double hung sash windows with four paned casement to the verandah room. Internally, the building featured tongue, groove and beaded paneling to the walls and ceiling and a simple brick fireplace. This building has been substantially damaged by recent fires in 2015 and is in a very poor state of repair (Plate A19).

Facing the staff room across the central playground is a later weatherboard classroom typical of many in this style built throughout the state in the early years of the twentieth century (Plate A20). This building was used as the school library. A deep, timber framed verandah lines the front (north) elevation with one end enclosed. The windows are generally 2 x 2 pane double hung sashes.



Plate A19 View toward western wall of the staff room, note extensive fire damage. (Source: RPS 2015)



Plate A20 View south east toward library. (Source: RPS 2015)

The wash room is located to the rear (north) of the staff room (Plate A21). The western wall of the wash room is of brick construction, with the remaining three walls partially enclosed with timber slabs. The wash room has a number of drains for former wash basins along the eastern wall, and existing wash basins along the western wall.

The hall was constructed circa 2000, is of modern construction and is largely clad in corrugated iron (Plate A22). The hall appears to have a poured concrete slab foundation. At the time of inspection, the hall was boarded up, but appeared to have been targeted by vandals for copper wire.



Plate A21 View north west toward wash room. (Source: RPS 2015)



Plate A22 View north toward hall. (Source: RPS 2015)

The “old cottage” was the school’s art room (Plate A23). This building was relocated to the school site from Braeburn Homestead by Mr Parsons. The building is constructed of weatherboards, now painted, with a corrugated iron gable roof and bull nosed verandah. The building was affectionately known as “Slanty” by the Braeburn residents as it slanted. The core of the building is of a very traditional construction and form, but overall, it shows a mixture of materials from different periods. The building verandah was added to the building by Ray Freestone using a mixture of recycled building materials, including timber from the original Braeburn homestead, following its relocation (Badgerys Creek Public School 1995). The building is mounted on modern brick piers. School assemblies were held in front of the old cottage until the school’s closure in 2014.



Plate A23 View south toward the old cottage. (Source: RPS 2015)

Formerly located to the west of the school buildings and east of the courts, was a small, c. one metre high, red brick monument capped with a square sandstone slab. A plaque on the monument dedicated it to the pioneering Badgery family, reading:

James Badgery Pioneer with his wife Elizabeth landed at Sydney from England in 1799 and settled at Badgerys Creek in 1803

The rear of the monument reads:

This monument is built from the original home-made bricks and contains relics from the home

Following a number of arson attacks at the school in late 2014 and early 2015, the monument was relocated to Luddenham Primary School for safekeeping.

The Badgerys Creek Public School site generally features asphalt playgrounds surrounded by grass and numerous, largely native trees. Some introduced species including jacarandas feature on the site. A small school orchard was situated between the staff room and the wash room, however, the trees were removed following the school's closure. Multi purpose sports courts are located at the south west corner of the site (Plate A24).



Plate A24 View west across former monument location to courts. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	Badgerys Creek Public School demonstrates the history of education and settlement in the Badgerys Creek area.	Commonwealth
Rarity	Badgerys Creek Public School is not considered to meet this criterion.	None
Research	Badgerys Creek Public School has buildings of timber slab construction (the staff room and old cottage). Both have the potential to yield information relating to early construction techniques.	Commonwealth
Principal characteristics of a class of place	Badgerys Creek Public School is not considered to meet this criterion.	None
Aesthetics	Badgerys Creek Public School is a fine (albeit now vandalised) example of a late semi-rural nineteenth to early twentieth century school and is aesthetically pleasing.	Commonwealth
Creative or technical achievement	Badgerys Creek Public School is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Social value	Badgerys Creek Public School was in use as a school for over 100 years. The school is located in the vicinity of two early churches and a community hall and served as an epicenter for the widely dispersed community. The school is considered to have strong social associations for the Badgerys Creek community.	Commonwealth
Significant people	Badgerys Creek Public School is not considered to meet this criterion.	None
Indigenous values	Badgerys Creek Public School is not considered to meet this criterion.	None
Australian historic themes		
Building settlements, towns and cities – developing institutions Educating – establishing schools		
Statement of significance		
Badgerys Creek Public School is a fine and representative example of a small rural school which contains original elements that date to the turn of the century. The school has historic significance as an element in the development of the area, and aesthetic qualities in its historic buildings and setting. It has social significance for the local community and for past students and residents of the area. The integrity and intactness of the school has been compromised by vandalism and arson which has occurred since the school's closure in 2014. Badgerys Creek Public School site demonstrates the history of education and settlement in the area. It is located in the vicinity of two early churches and a community hall and serves as an epicentre for a widely dispersed community.		

AS4 Badgerys Creek butchery

List	-
Type of item	Archaeological
Primary address	Lot 51A Badgerys Creek Road, Badgerys Creek
DIRD ID	404659

Site description

Badgerys Creek butchery site is located at the corner of Badgerys Creek Road and Longleys Road. The butchery was one of two shops in Badgerys Creek. Oral histories collected by Donald and Gulson (1996) relate the origins of the butchery to the Shadlow family, specifically Thomas Shadlow, born 1833. Shadlow purchased 1 rood 26 perches (approximately 1518m²) at St Mary's in the district of Evans near South Creek on 24 June 1842 (Donald and Gulson 1996:21). According to Lorraine Nobbs of Badgerys Creek, her father had related a story about Thomas Shadlow owning a butchers shop in the South Creek area in the mid-1800s. Thomas' son, Robert "Bobbie" Shadlow (1869-1959), was also a butcher, and due to his longevity was still remembered by some local residents when they were interviewed by Donald and Gulson. Bobbie's daughter-in-law, Gladys Shadlow (nee Weiss) suggested that the butchery on Badgerys Creek Road was established by Bobbie Shadlow in 1886 (Donald and Gulson 1996:116). Bobbie's son, Jack was also a butcher, and allegedly took up the trade because his mother did not want him to become a soldier (Donald and Gulson 1996:116). Badgerys Creek butchers served the local area until 1994, at which time it was run by Trevor Roots (Tovey 2009). A personal communication from Roots to Godden Mackay during their European cultural sites survey (Godden Mackay 1997) suggested that the butchery had only been owned by three families, of which the Shadlows were one. Land ownership details only mention Frances Annie Shadlow and Trevor Root.

After Root left the butchery, the building was sold to industrial hire company, Atomic Hire, which used it as a depot. Atomic Hire was acquired by National Hire in December 1997, and the decision was made to keep all offices including the Badgerys Creek branch.

In 1997 and prior to the demolition of the butchery building, Godden Mackay described the butchery as follows:

A small brick building, now painted blue with a white painted central horizontal stripe. The site consists of the original butchery building and two later additions. All the building sections have corrugated iron roofing, with the earliest addition, on the south side, also being constructed of corrugated iron. There is a relatively recent pressed-brick addition to the rear of the structure. The main building has a hipped roof, and both additions are skillion roofed. There are two pane sash windows, one on the original structure and one on the brick wing. There is also a short verandah with three supporting posts on the north side of the building. (Godden Mackay 1997:Appendix B) (Plate A25)

It has features that are typical in a small township, such as its detachment from the town centre, its setting within an open paddock and its compact, brick-walled form. (Godden Mackay 1997:5-15)

Godden Mackay considered the butchery to be an example of a typical semi-rural retail facility, dating from before World War II, which demonstrated "the form and extent of a retail butchery in this context" (Godden Mackay 1997:5-15).



Plate A25 Former butchers at Badgerys Creek. (Source: Godden Mackay 1997)



Plate A26 Aerial view of the Badgerys Creek butcher site, 1965. (Source: Land and Property Information)

At the time of inspection the butchery site was only able to be viewed from the road (Plate A27). The site was overgrown and it was impossible to determine the location of the former butchery from the road.



Plate A27 Badgerys Creek butchery site, viewed from Badgerys Creek Road. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The butchery had been operating at the site for over a hundred years before its demolition in the 1990s. It therefore has historical significance.	Commonwealth
Rarity	The butchery was one of two shops in Badgerys Creek, the other being a general store. This would have made both the operation and the shop itself of considerable local rarity. However, the shop and business are now gone. The site does not fulfil this criterion.	None
Research	The butchery has now been demolished, however given its long use, it may still retain some archaeological evidence to add to the history of the site. It therefore fulfils this criterion.	Commonwealth
Principal characteristics of a class of place	The butchery was demolished in the 1990s. It therefore does not fulfil this criterion.	None.
Aesthetics	The butchery was demolished in the 1990s and therefore does not fulfil this criterion.	None
Creative or technical achievement	The butchery was demolished in the 1990s and therefore does not fulfil this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Social value	As one of the two retail outlets in the Badgerys Creek area, it is assumed that the butchery had significant social value for the residents. It was also connected with the Shadlow family and therefore would have had additional social significance due to the Shadlows' long history in Badgerys Creek (see below). It would have fulfilled this criterion prior to its demolition, however as the families and the butchery have gone, it no longer retains that social significance.	Commonwealth
Significant people	The butchery was connected with the Shadlow family, who had roots in the Badgerys Creek area since the early nineteenth century. Their descendants still lived in the area and therefore were prominent in many of the ventures and activities undertaken in Badgerys Creek. This connection therefore fulfils this criterion.	Commonwealth
Indigenous values	There are no known indigenous values attached to the butchery. It therefore does not fulfil this criterion.	None
Australian historic themes		
Developing local, regional and national economies – Feeding people – Retailing foods and beverages		
Statement of significance		
The Badgerys Creek butchery site is considered to be significant for its associations with the Shadlow family, and for its social significance as one of two retail outlets in Badgerys Creek.		

AS5 Badgerys Creek post office

List	-
Type of item	Archaeological
Primary address	Lot 52 Badgerys Creek Road, Badgerys Creek
DIRD ID	404660

Site description

This is the site of the former Badgerys Creek post office which was opened in 1894 and operated until 1989. The first receiving officer was Mr Williams, who also ferried the post between Luddenham Post Office and Badgerys Creek Post Office. The post office was a central hub for residents of the area who would call in to collect their mail and newspapers.

At the time of inspection, the site was overgrown and no surface evidence of the post office remained. The property was more recently the site of the general store, which was boarded up at the time of inspection (Plate A28). It is likely that subsurface evidence of the Badgerys Creek post office remains on the site.



Plate A28 Badgerys Creek post office location, general store at the left. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The post office represented the recognition of Badgerys Creek as its own area, rather than an outlying post of Luddenham, St Marys (South Creek) or Bringelly.	Commonwealth
Rarity	The post office site is not rare and does not meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Research	Subsurface evidence of the post office is likely to contribute an understanding to rural postal history, particularly in the development of the post office as Badgerys Creek grew.	Commonwealth
Principal characteristics of a class of place	Badgerys Creek post office site is not considered to meet this criterion.	None
Aesthetics	Badgerys Creek post office site is not considered to meet this criterion.	None
Creative or technical achievement	Badgerys Creek post office site is not considered to meet this criterion.	None
Social value	The post office provided a connection for its residents outside of Badgerys Creek and was an important centre of personal and official communication prior to the advent of the telephone. It therefore was of important social value.	Commonwealth
Significant people	Badgerys Creek post office site is not considered to meet this criterion.	None
Indigenous values	Badgerys Creek post office site is not considered to meet this criterion.	None
Australian historic themes		
<p>Developing local, regional and national economies – establishing communications – establishing postal services</p> <p>Building settlements, towns and cities – developing institutions, making settlements to serve rural Australia</p> <p>Governing – administering Australia – providing services and welfare</p> <p>Governing – establishing regional and local identity</p>		
Statement of significance		
<p>Badgerys Creek post office site is considered to be significant for its historic and social values. The establishment of a post office at Badgerys Creek signified its independence as a village, rather than as an outpost of Luddenham, St Mary's or Bringelly. The post office provided an important connection and central hub for the local community. It was an important centre of personal and official communication.</p>		

AS6 Saw pit

List	-
Type of item	Archaeological
Primary address	61 Badgerys Creek Road, Badgerys Creek
DIRD ID	404656

Site description

The dam on this property is thought to be the site of a former saw pit marked on an 1859 map of Luddenham. The shape and location of the dam generally corresponds with that marked on the map.

This property was inspected from the road as it was fenced and very overgrown at the time of inspection (Plate A29).



Plate A29 View of saw pit location from Longleys Road. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	There is little surviving information regarding the saw pit other than the 1859 Luddenham Estate map.	Commonwealth
Rarity	The saw pit is not rare. It therefore does not fulfil this criterion.	None
Research	The saw pit has been filled in with water and as such the research values of the site are unable to be determined.	Unknown
Principal characteristics of a class of place	The saw pit is not considered to meet this criterion.	None
Aesthetics	The saw pit is not considered to meet this criterion.	None
Creative or technical achievement	The saw pit is not considered to meet this criterion.	None
Social value	The saw pit is not considered to meet this criterion.	None
Significant people	The saw pit is not considered to meet this criterion.	None
Indigenous values	The saw pit is not considered to meet this criterion.	None
Australian historic themes		
Developing local, regional and national economies – utilising natural resources – making forests into a saleable resource		
Statement of significance		
The saw pit is considered to be significant for its historic values. There is very little surviving information relating to the site except an early map of the Badgerys Creek area. The site is currently full of water and as such the research values of the site are unable to be determined.		

AS7 Badgerys Creek Uniting Church and cemetery

List	-
Type of item	Archaeological, burials
Primary address	15 Pitt Street, Badgerys Creek
DIRD ID	404773

Site description

Badgerys Creek Uniting Church and cemetery site is located at 15 Pitt Street, Badgerys Creek.

The Methodist Mission Hall, as the Church was first known, was opened for public worship on 26 January 1898, an event celebrated by 200 people with a tea, sporting contests and a concert. A correspondent reporting on the opening celebrations noted that the hall was “a neat little weatherboard structure” and although built by the Primitive Methodist Society, it was to be used interdenominationally (*Nepean Times*, 1898). The correspondent hailed the day as a “red letter day in the annals of Badgerys Creek history”. In the opening ceremony, the Reverend T Davies spoke of his hope that the hall would be “used in every way possible for the advancement of moral and religious culture” (*Nepean Times* 1898:3).

The Church was built to service the small rural community of Badgerys Creek. In 1927, an application by the Church to use the ground as a cemetery was approved by the Nepean Shire Council. Prior to this, parishioners were buried at Luddenham Methodist Church, including members of the Longley family, however it appears that burials were taking place from an earlier time:

Badgerys Creek: The newcomers at Mr W Longley's late home here are having their share of trouble. Mrs Briggs had her sister down from Bathurst, and while there she died, leaving two children. The funeral was very largely attended, and much sympathy was shown towards the bereaved ones. Mr F Emery had charge of the funeral arrangements, and the remains were interred in the new cemetery – the first burial there (Nepean Times 13 July 1912).

An article in the *Nepean Times* on 6 February 1958 reports on the sixtieth anniversary of the Church, meaning that the church was constructed in 1898. It was initially constructed for use by all denominations, but predominantly used by the Methodists (now the Uniting Church) and Anglicans until 1912, when the Anglican Church was built. The article states that “(P)rior to the erection of the church, services were held in the homes of Messrs Wye and Swan...” (*Nepean Times* 1958).

The site appears to have housed a simple weatherboard church building and a hall building at the rear of the site. This is visible in historical photographs and aerial imagery of the site (Plates A30, A31)

The church was removed in the early 1990s following acquisition of the site by the Australian Government. A sign at the gate describes the site as “The Uniting Church in Australia, Badgerys Creek” (Plate A32).

Inspection of the site confirmed the general layout and description as presented in Australian Museum Consulting 2014. Possible presence of unmarked graves at this site was noted. Evidence of the church and hall structures including building rubble, glass, and ceramics were noted centrally on the site. Cultural plantings were noted at the rear of the property. Two marked graves are enclosed within a small white picket fence north-west of the church's original position. One of the graves has a sandstone headstone with marble name plate, dated December 1936; the other has an uncut piece of rock as a headstone and a steel plate with “1972” engraved on it. Another space contains a depression in the ground indicating an unmarked grave. Fresh flowers were noted on the grave of Daphne Howe (Plate A33).



Plate A30 Badgerys Creek Uniting Church and cemetery site, undated. Note hall building at rear. (Source: Donald and Gulson 1996)



Plate A31 Aerial photograph of Badgerys Creek Uniting Church and cemetery site, note hall building at rear of church, 1965. (Source: Land and Property Information)



Plate A32 Badgerys Creek Uniting Church and cemetery, view from Pitt Street. (Source: RPS 2015)



Plate A33 Badgerys Creek Uniting Church cemetery, view toward former Church site. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	Badgerys Creek Uniting Church was the first consecrated place of worship in the Badgerys Creek area, built in 1898. It was used by both Methodists and Anglicans for worship until the construction of St John's Anglican Church in 1912. It also became a regular meeting place and venue for many social activities for the Badgerys Creek community. The church was demolished in the 1990s however two marked graves remain in the cemetery.	Commonwealth
Rarity	Badgerys Creek Uniting Church and cemetery is consistent with other small, rural church and cemetery sites. It is not considered a rare item and therefore does not meet this criterion.	None
Research	There is a high potential for unmarked burials within this property. The site has the potential to yield valuable information regarding informal burial practices in rural communities. This may provide further information on the pastoral role of the church in small rural communities aside from the formal spiritual model.	Commonwealth
Principal characteristics of a class of place	Badgerys Creek Uniting Church was demolished in the 1990s following acquisition of the land by the Australian Government. The cemetery was approved by the Nepean Shire Council in 1927 and has two marked graves, both believed to be from the Howe family. More graves may be present. It is probable that the cemetery was being used from an earlier time, given media reports detailed the first burial in 1912, but permission from the local council was not given until 1927.	Commonwealth
Aesthetics	Badgerys Creek Uniting Church and cemetery is located in a picturesque site overlooking Badgerys Creek. Structural features at the site are not considered to have any aesthetic significance.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Creative or technical achievement	Badgerys Creek Uniting Church was demolished in the 1990s. The cemetery does not display any features that could be considered to be of creative or technical significance. It therefore does not meet this criterion.	None
Social value	Badgerys Creek Uniting Church was the first place of worship in the Badgerys Creek area. It was used by both Methodists and Anglicans, with clergy from each faith preaching on alternate weeks. Local worshippers, however, attended church every week, regardless of personal affiliations or which denomination was preaching. This demonstrates the church's high social value for past communities. However, current attitudes to the Church and cemetery's social values would need to be established via community engagement.	Commonwealth
Significant people	Badgerys Creek Uniting Church and cemetery were constructed by the local Methodist population wanting a place of worship. There are no people of local, State or National significance connected with the Church. It therefore does not meet this criterion.	None
Indigenous values	There are no indigenous values connected to the Badgerys Creek United Church and cemetery site.	None
Australian historic themes		
Developing Australia's cultural life – worshipping – worshipping together, making places for worship		
Marking the phases of life – dying – dealing with human remains, mourning the dead, remembering the dead		
Statement of significance		
Badgerys Creek Uniting Church and cemetery is considered to be of significance primarily for its historic, research and social values. The Church was the first formal place of worship in Badgerys Creek, and despite being used by both Methodists and Anglicans, local worshippers attended every week regardless of personal affiliations. The cemetery has two marked graves, and is likely to have unmarked graves which may reveal evidence about early burial practices in Badgerys Creek.		

AS8 St John's Anglican Church and cemetery

List	Liverpool LEP 2008
Type of item	Archaeological, burials
Primary address	30 Pitt Street, Badgerys Creek
DIRD ID	404689

Site description

The St John's Anglican Church Group is located near the intersection of Pitt Street and Badgerys Creek Road adjacent to an important early settlement centre with the Public School, former Methodist Church site and cemetery (now Uniting Church) and early cottages. All that remains on the site is the cemetery. The Church was removed or demolished at same stage since 1992.

St John's Anglican Church was built in the early 1900s to service the Anglican community in rural area (Plate A34). The site currently consists of a churchyard and cemetery with numerous graves, an open lawn and mature tree planting, generally native Eucalyptus species and pines, oleanders, pittosporum and other exotic shrubs, around the perimeter.



Plate A34 St John's Anglican Church, Badgerys Creek. (Source: Office of Environment and Heritage)

The cemetery consists of three rows of graves, facing east, containing at least 37 graves (Plate A35). The grave furniture is predominantly twentieth century concrete 'desks' with granite or marble plaques, kerbing and gravel or tile infill. There is also one war grave at the site. The main families represented at the site are Nobbs and Cox.

A small monument is located within the church yard. This is shown in Plate A34 above, however, has since been truncated and the bell tower removed. It has a brick base with corrugated iron roof, and a plaque which reads "In memory of CJ and A Swan. Erected by their daughter, 1955".

At the time of inspection, the neighbour informed RPS that bones had been identified during civil (possibly drainage) works behind the cemetery site. There is a high potential for unmarked graves at this site.



Plate A35 Rows of graves at St John’s Anglican Church and cemetery site. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	There is a high potential for unmarked burials within this property. The site has the potential to yield valuable information regarding informal burial practices in rural communities. This may provide further information on the pastoral role of the church in small rural communities aside from the formal spiritual model.	Commonwealth
Rarity	St John’s Anglican Church was demolished in the 1990s following acquisition of the land by the Australian Government. The cemetery is consistent with other cemeteries in small communities both in the local area and across New South Wales.	None
Research	There is potential for further burials to be present within the cemetery. Local residents informed the survey team that bones were noted on the surface on properties near the cemetery following civil works.	Commonwealth
Principal characteristics of a class of place	St John’s Anglican Church and cemetery is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Aesthetics	The site has a semi rural setting with mature (albeit overgrown) planting.	Commonwealth
Creative or technical achievement	St John's Anglican Church and cemetery is not considered to meet this criterion.	None
Social value	The church site and cemetery represent high social value for worshippers of the Anglican faith.	Commonwealth
Significant people	The cemetery contains the remains of a World War 1 veteran (Edward Cox) and a number of Badgerys Creek pioneer families, such as the Nobbs, the Coxs and the Shadlows.	Commonwealth
Indigenous values	St John's Anglican Church and cemetery is not considered to meet this criterion.	None
Australian historic themes		
Developing Australia's cultural life – worshipping		
Marking the phases of life – dying – dealing with human remains, mourning the dead, remembering the dead		
Statement of significance		
St John's Anglican Church Group demonstrates the foundation and development of the Anglican Church in a small settlement, Badgerys Creek, in the environs of Liverpool. Many early families of the area are buried in the cemetery. The site also provides evidence of early native vegetation species of the area and introduced exotic plantings. The plantings are representative of late nineteenth and early twentieth century trends in cemetery landscaping. There is the potential to gain more information on the site from further architectural, archaeological and documentary research.		

AS9 Braeburn homestead

List	-
Type of item	Archaeological
Primary address	55 Longleys Road, Badgerys Creek
DIRD ID	404600

Site description

Braeburn is located at 55 Longleys Road, Badgerys Creek. Braeburn was a c.1910 homestead and associated land holdings.

The farm occupied land originally within the Eastern Division of John Blaxland's farm, Luddenham Estate. Lot 38 of the Eastern Division of Luddenham Estate was purchased by William Longley in 1912. Lot 38 is shown on the original plan of subdivision as being 145 acres and bounded to the north by a road and to the south by Badgerys Creek.

Braeburn was owned by the Longley family for a large part of the nineteenth century. Newspaper reports from April 1912 note that William Longley had been an orchardist at Badgerys Creek for nearly 50 years. He had also been a councillor with the Nepean Shire since 1908 and therefore had achieved local standing. William was the eldest son of James Longley, orchardist, who resided at Orange Hill, Badgerys Creek. William and several of his brothers also had their residence listed in electoral records as 'Orange Hill, Bringelly'.

The cottage comprised a single storey farm homestead of timber construction built on brick piers. The main house had brick chimneys, long wide verandahs on all sides and a hipped roof. The bull nosed verandah roofs were supported on square chamfered posts. External walls were clad with weatherboard – some rusticated, some splayed. A simple separate weatherboard shed was located close to the house (Plate A36). In 1991, Braeburn had been vacant for several years and was in derelict condition (Godden Mackay 1997). The homestead was still standing in 1997, but was demolished in the late 1990s.

The most recent leaseholders for the property were in residence at the time of Australian Museum Consulting's inspection of the site in 2014. The leaseholder provided a location for the Braeburn homestead site and advised that the original homestead – Orange Hill – was located at the top of a nearby hill.

Braeburn homestead was located on a relatively flat area set in a garden with mature trees, overlooking a dam (Australian Museum Consulting 2014). Plantings including kurrajong, African olive, a mature yucca, and violet nightshade were present in the vicinity of the homestead (Plate A38). Approximately 200 metres south of the homestead site was an overgrown area with pandanus trees marking the rubbish dump for the homestead. The site had been subject to extensive disturbance by recent farming activities, and the homestead site was under long grass. The concrete remains of the garage with poured concrete slab and corrugated iron impressions were visible. Extensive construction rubble was noted about the site, including broken bricks.



Plate A36 Braeburn homestead, c.1991. (Source: Liverpool City Library)



Plate A37 1965 aerial photograph of Braeburn homestead site. (Source: Land and Property Information)



Plate A38 View of Braeburn homestead site, note plantings. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	Although Braeburn was a well known property in the Badgerys Creek area, there were no events or processes that meet the threshold of significance under this criterion.	None
Rarity	Structural evidence at Braeburn is no longer standing, and subsurface evidence is thought to have been substantially destroyed by modern farming. Braeburn does not meet this criterion.	None
Research	There may be some archaeological potential associated with the Braeburn homestead site, however it has been subject to extensive and intensive farming in recent years which may have destroyed all archaeological evidence. In the event that archaeological evidence is extant on the property it may reveal something of the use of the property by the Longley family.	Commonwealth
Principal characteristics of a class of place	Braeburn homestead site is not considered to meet this criterion.	None
Aesthetics	Braeburn is positioned on an elevated site overlooking Badgerys Creek.	Commonwealth

Significance assessment		
Criterion	Discussion	Heritage significance
Creative or technical achievement	Braeburn homestead is not considered to meet this criterion.	None
Social value	Braeburn was owned by the Longley family and was part of its Orange Hill estate until the Longleys left the area. It retains its social value with the remaining residents of Badgerys Creek. Braeburn is located on Longleys Road, named for the family.	Commonwealth
Significant people	Braeburn belonged to the Longley family who were residents of Badgerys Creek from the mid nineteenth century. Members of that family were instrumental in lobbying for both a church and a school for Badgerys Creek, and were later involved in local government.	Commonwealth
Indigenous values	Braeburn homestead site is not considered to meet this criterion.	None
Australian historic themes		
Developing Australia's cultural life – Living in and around Australian homes		
Developing Australia's cultural life – Living in the country and rural settlements		
Statement of significance		
Braeburn had a long time association with the Longley family of Badgerys Creek. The property is assessed as being of significance on the basis of its aesthetic, research and social values and association with the Longley family.		

AS10 Orange Hill homestead

List	-
Type of item	Archaeological
Primary address	5 Jagelman Street, Badgerys Creek
DIRD ID	404610

Site description

Orange Hill is thought to be the name of the earlier homestead site at Braeburn, identified by the most recent leaseholder of the property (Australian Museum 2014). Orange Hill is located on a prominent hill approximately 450 metres east of the Braeburn homestead site. The site is small, and is readily identified by stands of cape honeysuckle (Plate A39).

William Longley's father, James Longley was an orchardist who resided at Orange Hill, Badgerys Creek. James' holding was described in an 1885 Parliamentary Return of Landholders as being 583 acres, holding seven horses, 13 cattle, 127 sheep and two pigs (NSW Legislative Assembly 1885). James died at Luddenham in 1895. In 1912, William Longley sold 55 acres of his Braeburn property to Alexander Biggs. On the land were "old houses, lights, fences, rights of way, paths, passages, water and watercourses" (Deed Registers Book 973 No. 618). It is thought that the old houses may have included Orange Hill.

According to Australian Museum Consulting (2014:44), the leaseholder was aware that there was a well at the earlier homestead site. Two wells were identified on the site by Australian Museum Consulting, they were described as "quite overgrown and each had modern rubbish tossed across the openings."



Plate A39 Cape honeysuckle trees marking the location of Orange Hill homestead. (Source: RPS 2015)

A number of sandstock bricks with rectangular frogs were identified at the site. It was noted by Australian Museum Consulting that there was no mortar on the bricks, indicating that they should predate the introduction of Portland cement in the 1870s (Australian Museum Consulting 2014:44). A line of trees on the adjacent property 404600 may have marked access to the site.

Orange Hill homestead site was test excavated to determine the location of the dwelling at the property. A 2 x 1 metre trench was excavated over a feature comprising bricks embedded into the ground surface and partially overgrown with grass. This trench initially revealed a scatter of bricks, some whole, but most broken. Following removal of the bricks, a course of sandstone blocks was uncovered (Plate A40). These are likely to have been stone flagging. Artefacts uncovered include an iron hinge, an iron door key, ceramic pieces, glass and nails.



Plate A40 Sandstone flagging identified at Orange Hill homestead site. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	“Orange Hill” was the original home of the Longley family, who were tenants of the farm prior to their purchase following the subdivision. The road to its north is named “Longley’s Road” after that family.	Commonwealth
Rarity	Orange Hill is a locally rare example of an early homestead site in the Badgerys Creek area.	Commonwealth

Significance assessment		
Criterion	Discussion	Heritage significance
Research	Test excavations revealed the footings of a structure associated with Orange Hill. It has the potential to yield further information regarding a long-used, single-family residential complex.	Commonwealth
Principal characteristics of a class of place	Orange Hill homestead site is not considered to meet this criterion.	None
Aesthetics	Orange Hill homestead site is located in an elevated position overlooking the Badgerys Creek area and with views to the Blue Mountains.	Commonwealth
Creative or technical achievement	Orange Hill homestead site is not considered to meet this criterion.	None
Social value	Orange Hill homestead site is not considered to meet this criterion.	None
Significant people	The Longley family played a large part in the development of Badgerys Creek into a settlement, and were involved in the establishment of the school and the Methodist church. William Longley was a long-serving member of the Nepean Shire Council.	Commonwealth
Indigenous values	Orange Hill homestead site is not considered to meet this criterion.	None
Australian historic themes		
Developing Australia's cultural life – living in and around Australian homes		
Developing Australia's cultural life – living in the country and rural settlements		
Statement of significance		
Orange Hill was the original home in the area of the Longley family, who were well known and influential in the Badgerys Creek area. Orange Hill is considered to be significant for its historic and research values, and associations with significant people.		

AS11 Vicary's Winery

List	Liverpool LEP 2008
Type of item	Complex/group
Primary address	1935 The Northern Road, Luddenham
DIRD ID	404757

Site description

Vicary's Winery group is located at 1935 The Northern Road. The property was originally part of Blaxland's Luddenham Estate. In 1842, Blaxland transferred a mortgage for the Estate to the Australian Trust Company, excluding 300 acres bounded on the east by The Northern Road, and by Gore's, Wentworth's, and Piper's land.

From the 1880s, the property operated as a working farm. The site features a c.1860 slab homestead, and a c.1880s woolshed and shearer's quarters.

In 1916, Cecil Vicary purchased the property for the purposes of establishing a dairy and vineyard. Vicary converted the woolshed to a dairy, the vineyards were planted in 1917 and commercial production began in 1923. In 1947, Vicary was granted a licence to sell wine from his cellar door at Luddenham:

Cecil Wilfred Vicary, of "The Vineyards", Bringelly Road, Luddenham, applied for a spirit merchants licence, but Mr John Clapin (formerly of Penrith) said that his clients business was that of an old established vigneron, who would give an undertaking that he would use it for no other purpose than wine-making and the carrying on of his business.

The licensing inspectors report stated that the applicant was a man of good character. The inspector opposed the application on the grounds that the reasonable requirements of the neighbourhood did not justify it.

Private objectors added the objection that the premises proposed to be licensed were not suitable.

Applicant, Cecil Vicary, said 'he bought the property about 30 years ago and commenced the vineyard about 20 years ago. People from metropolls and country bought wine (as allowed by law to vignerons) from him. His place was a quarter of a mile off the road. He had built in anticipation of carrying on his business as applied for. The building would hold 10,000 gallons. He had been producing, on an average, during the last 12 or 15 years about 1000 gallons a year. Production varied considerably, mostly owing to weather. In wine-making, it was necessary to blend light wines with standard wines. He needed to buy in large quantities for blending.

Louis Harold Skidmore (Shire President), Mulgoa and John Armstrong Morgan, Wallacia, gave evidence in support of the application.

Granted in View of Undertaking

Mr Wells, L.M (giving his decision): Applicant is a vigneron and desires to blend his wine with other wines in excess of the percentage at present. He desires to deliver his wine; he desires to buy more than five gallons from vignerons for blending and desires to sell more than 5-gallon lots. For that reason he needs a spirit merchant's licence. He had given an undertaking on oath that he will not sell beers or spirits and will deal only in wines, and not depart from that undertaking without first obtaining the permission of this court. In view of the undertaking which he has given, I grant the application. (Nepean Times, 23 January 1947)



Plate A41 Advertisement for Vicary's "Vineyards". (Source: *Nepean Times*, 5 April 1951)

Vicary's is believed to be the oldest continually operating winery in Sydney with wine processing still occurring until 2015. The winery is the sole survivor of a previously flourishing viticulture industry on the south-west Cumberland Plains, established from the 1830s and 1840s. It was relocated to the Hunter Valley from the 1860s after constant outbreaks of phylloxera and other vine pests in the region. Early vineyards included Blaxland's Leeholme at Luddenham, Captain Chisholm at Gladswood, Narellan and several properties in the Mulgoa Valley (Godden Mackay 1997).

Vicary's Winery group consists of a combination of surviving earlier structures and a range of modern buildings constructed as the wine making technology at the site was progressively updated. The property includes a vineyard situated north of the major wine-making complex. The wine-making complex includes a collection of c.1950s and 1980s sheds which house modern winemaking equipment. One nineteenth century winepress is on display at the cellar door. The cellar door building was built in 1923, and is constructed of red brick ashlar with sandstone stone work facing around the double doors and windows (Plate A42). A number of later sheds, ablutions blocks, and an old train carriage are also present within the complex (Plate A43, A44).



Plate A42 Vicary's Winery cellar door building. (Source: RPS 2015)



Plate A43 Vicary's Winery group abluitions and ancillary sheds. (Source: RPS 2015)



Plate A44 Vicary's Winery group, train carriage at right, extension to woolshed at left. (Source: RPS 2015)

Significant surviving earlier structures are the woolshed (former dairy) (Plate A45) to the west of the complex and slab homestead to the north of the complex. Since 1992, there have been a number of modifications to the complex. The woolshed has been substantially altered, including an extension to the western end of the shed to facilitate its use as a dance hall and wedding venue. Cow bails (Plate A46), presumably from the former dairy, remain at the front of the woolshed.



Plate A45 Vicary's Winery woolshed. (Source: RPS 2015)



Plate A46 Vicary's Winery group, cow bails outside the woolshed. (Source: RPS 2015)

The slab horse shed recorded in 1992 no longer remains on site. A description of the horse shed in 1997 indicated its condition was very poor and collapse was imminent.

The c.1860 slab homestead (Plate A47) remained in a garden setting at the time of inspection, albeit overgrown. The homestead was occupied at the time of the inspection and as such was largely inaccessible. The original slab house has symmetrical Georgian design with roof line and wide verandahs typical of the 1840s-1860s. The brick chimney is external, and although rendered and painted white, sandstock bricks are

visible, indicating an early date for the original structure. Later accretions, including weatherboard cladding to the east wall, fibro infilled verandahs and a fibro wing to the west of the house (Plate A48) are typical of early twentieth century Federation style architecture.



Plate A47 Vicary's Winery front of c.1860 slab homestead. (Source: RPS 2015)



Plate A48 Vicary's Winery, rear of c.1860 slab homestead, fibro wing at right. (Source: RPS 2015)

At the time of inspection, Chris Niccol continued to make wine, crushing around 40 tonnes per year for his own and other wineries in the area. The Sydney basin is classified as a phylloxera quarantine area, and as such, local grapes cannot be processed outside this area. Inspection of the site confirmed the general layout

and description as presented in Australian Museum Consulting 2014. The slab horse shed recorded in 1992 no longer remains on site. A description of the structure in 1997 indicated its condition was very poor and collapse was imminent. Early and winemaking machinery was also noted on the site.

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	From the 1880s Vicary's operated as a working farm and featured a slab homestead, woolshed and shearers quarters. In 1916, Cecil Vicary purchased the property for the purposes of establishing a vineyard. The property has continued to operate as a vineyard, and its surviving complex of structures demonstrate the history of a one thriving, but now diminished, industry in the area.	Commonwealth
Rarity	Vicary's Winery group is a rare complex of structures which document the agricultural use of the property from the 1880s to the present. Further, the complex represents the last remnant of the local wine industry, which is rare in the local area.	Commonwealth
Research	The property as the potential to contain archaeological evidence of former outbuildings. Due to the limited information available about early use of the property as a farm, such information has the potential to provide further information about the use and significance of the property.	Commonwealth
Principal characteristics of a class of place	The use of the property is consistent with other farms and vineyards in the local area. The complex of structures demonstrates the use of the property as a farm and vineyard.	Commonwealth
Aesthetics	Vicary's Winery group is an intact example of a complex of structures associated with the use of the property as a farm and a vineyard from the 1880s. The structures have aesthetic significance within a rural setting.	Commonwealth
Creative or technical achievement	Vicary's Winery group is not considered to meet this criterion.	None
Social value	Vicary's Winery group is not considered to meet this criterion.	None
Significant people	Vicary's Winery group is associated with Cecil Vicary, a significant person in the local area.	Commonwealth

Significance assessment		
Criterion	Discussion	Heritage significance
Indigenous values	Vicary's Winery group is not considered to meet this criterion.	None
Australian historic themes		
Developing local, regional and national economies – developing primary production – grazing stock, developing agricultural industries		
Developing local, regional and national economies – feeding people – preserving food and beverages		
Developing Australia's cultural life – living in the country and rural settlements, living in and around Australian homes		
Statement of significance		
Vicary's Winery group is an intact set of structures which document the agricultural change in the Luddenham area since the original granting of land to Blaxland in the early nineteenth century. The group includes structures such as a slab house, slab hut and former dairy (woolshed) which relate to the small scale agricultural industry of the late nineteenth century. Since the twentieth century, the group has been predominantly in use as a winery and its surviving vineyard and complex demonstrate the history of a once thriving, but now diminished, wine industry in the Luddenham, Badgerys, Mulgoa area. It is Sydney's oldest continually operating winery.		

AS12 Well

List	-
Type of item	Archaeological
Primary address	1972 The Northern Road, Luddenham
DIRD ID	404774

Site description

1972 The Northern Road formed part of Blaxland's Luddenham Estate. In October 1859, the *Sydney Morning Herald* published a description of Luddenham Estate, noting No 24 of the Eastern Division, of which this property was part, as "Uncleared". The property was purchased by Philip and John Anschau in 1860, on the proviso that they pay £362, 18 shillings and 3 pence by 1 January 1867, an arrangement on which it appears they defaulted. As a result, the property was resold to Andrew and Mary McGarrity on 31 October 1870.

In 1876, the property was sold to Isaac Earlam who ran it and adjacent properties as an orchard and vineyard. In 1960, the property left the Earlam family and was purchased by Yero Bautovich, an immigrant from Yugoslavia.

At the time of the site inspection, the field team was informed that the house on this property had been constructed about a sandstone well. Bautovich appears to have constructed the present house (Plate A49) about the sandstone well (Plate A50). The well is likely to have been constructed by the Earlam family as part of their development of the property as an orchard and vineyard.



Plate A49 House at 1972 The Northern Road. (Source: RPS 2015)



Plate A50 Internal sandstone lined well at 1972 The Northern Road, capped with fibro and timber. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	This property was utilised throughout the second half of the nineteenth and first half of the twentieth century as an orchard and vineyard. Such agricultural practices were common in the area and there are some structures which have not been assessed on the property which may be associated with these agricultural practices. A sandstone-lined well, undated, remains intact inside the current residence.	Commonwealth
Rarity	The presence of a sandstone lined well on the site is rare in the local context.	Commonwealth
Research	This item is not considered to meet this criterion.	None
Principal characteristics of a class of place	This item is not considered to meet this criterion.	None
Aesthetics	This item is not considered to meet this criterion.	None
Creative or technical achievement	This item is not considered to meet this criterion.	None
Social value	This item is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Significant people	This property is associated with the Earlem family, specifically Isaac Earlam, who originally purchased the land from Nicholson and his son Victor Earlam, who were significant people in the local area.	Commonwealth
Indigenous values	This item is not considered to meet this criterion.	None
Australian historic themes		
Developing local, regional and national economies – developing primary production – developing agricultural industries Developing Australia’s cultural life – living in the country and rural settlements, living in and around Australian homes		
Statement of significance		
The well at 1972 The Northern Road appears to have been associated with the Earlam family’s use of the site from the late nineteenth century. The site is considered to be significant for its historical and rarity values, as well as its associations with the Earlams.		

AS13 The Northern Road alignment

List	-
Type of item	Archaeological
Primary address	The Northern Road, Luddenham
DIRD ID	-

Site description

Within the airport site, The Northern Road alignment has been modified a number of times, including opposite St Francis Xavier Church, and near the site of Lawson's Inn. The Northern Road is a very early road alignment and has been known by other names, including "North Road" and "the Bringelly Road". The Northern Road was initially used to connect Camden and Windsor. A notice in the *Sydney Gazette* by W. Oxley made the following statement:

In consequence of numerous Applications as to the Line of Road to be followed by Persons travelling to Windsor, and the Parts adjacent, to the Southern settlements of Minto, Airds, and Appin. - NOTICE is hereby given that the road from Windsor, which was marked by Order of Governor BLIGH, to Frogmore Estate in Melville District, is the Road to be followed from Windsor and from thence the Public Road continues, as at present used, to Minto, Cooke, Airds and Appin. This Cross Road from Windsor ends in the new Bringelly Road, about three-quarters of a mile West of the Cow-pasture Road. (Sydney Gazette and New South Wales Advertiser, 15 September 1821)

The Northern Road is noted on a map of the Bringelly area in 1834 as North Road (Plate A51).

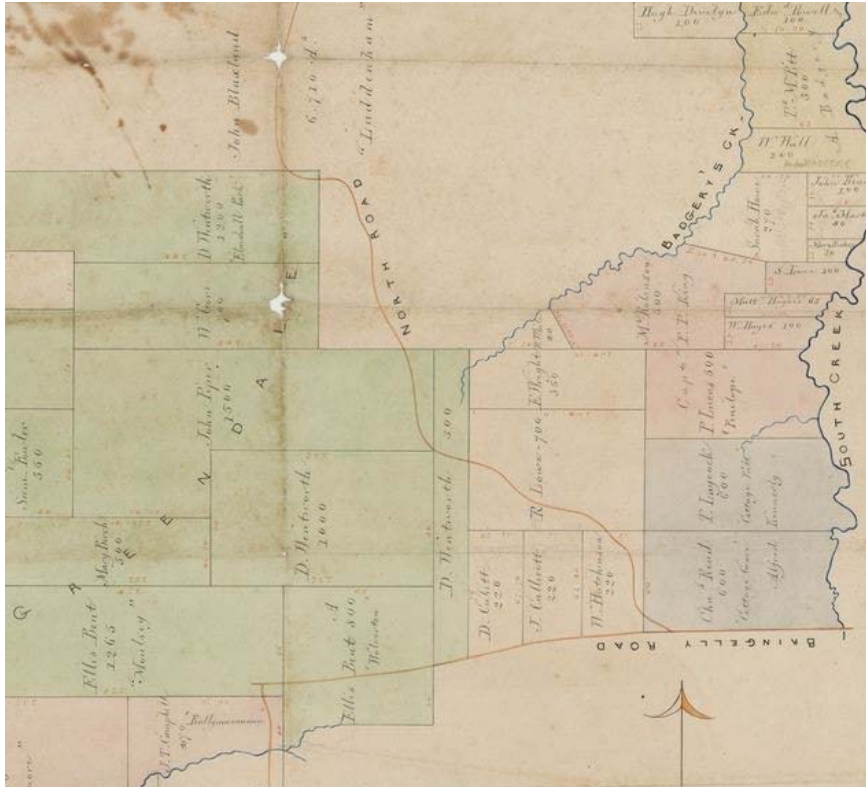


Plate A51 Cadastral plan of the Parish of Bringelly, 1834, note North Road. (Source: State Library of NSW)

The alignment of The Northern Road has changed a number of times. Notable deviations within the airport site include those immediately south of Luddenham and near St Francis Xavier Church and cemetery site.

Significance assessment		
Criterion	Discussion	Heritage significance within the airport site
Events and processes	The Northern Road has been an important historic thoroughfare linking the nascent communities of Camden and Windsor. Although it has been upgraded and alignments in some sections have changed, it has followed the same basic route since the early nineteenth century.	Commonwealth
Rarity	The Northern Road is not considered to meet this criterion.	None
Research	The alignment of the road has been well mapped since its construction. However there may be areas of the original alignment that demonstrate early road building techniques and materials.	Commonwealth
Principal characteristics of a class of place	The Northern Road is not considered to meet this criterion.	None
Aesthetics	The Northern Road is not considered to meet this criterion.	None
Creative or technical achievement	The Northern Road is not considered to meet this criterion.	None
Social value	The Northern Road is not considered to meet this criterion.	None
Significant people	The Northern Road is not considered to meet this criterion.	None
Indigenous values	The Northern Road is not considered to meet this criterion.	None
Australian historic themes		
Developing local, regional and national economies – moving goods and people – building and maintaining roads, moving goods and people on land Building settlements, towns and cities – supplying urban services		
Statement of significance		
The Northern Road alignment is considered to be significant as one of the earliest roads in the area, predating the subdivision of early land grants in the area.		

AS14 Anschau Vineyard, Steinberg and grave(s)

List	-
Type of item	Archaeological, burials
Primary address	1845-1875 The Northern Road, Luddenham
DIRD ID	404800

Site description

The former Anschau Vineyard site is located on the eastern side of The Northern Road south of Luddenham. Anschau Vineyard was one of a number of small vineyards operating in the region from the late 1800s. The Parish Map for Bringelly of 1953 shows Lot 25 of the Eastern Division of Luddenham Estate as containing "Anchau" trigonometry station. The property measures 247 acres, 1 rood 16 perches and is bounded on its western side by The Northern Road.

Franz Johann Anschau arrived in Sydney on 4 April 1849 onboard the *Beluah* with his wife, Elizabeth, and their children Philip, Franz Jnr, Elizabeth, Apollonia and Joseph. Anschau's occupation was listed as wine cooper, with Philip, Franz Jnr and Johann listed as vine dressers. It is likely that Anschau was brought to Australia from Germany by Macarthur for his Camden estates (Australian Museum Consulting 2014). Many of the German vintners brought to Camden later established vineyards in the local area, and the Anschau family may be among the earliest vigneron to venture into Badgerys Creek (Australian Museum Consulting 2014). In the 1850s, Franz Anschau established a tannery and a vineyard near Luddenham (Sydney Vignerons Association 1995).

In 1877, Franz Anschau established a winery on his property, Steinberg, near Luddenham (Paul Davies Pty Ltd 2007:153). Little information is known regarding the winery, however the Anschau family appear to have prospered. Franz Anschau died at Luddenham in 1876. Following his death, the property passed to his son Francis and the family continued to run the vineyard and other interests in the area. Following Francis' death in 1896, he granted a life estate to his wife Elizabeth, and devised that it would pass to his sisters following the death of his wife.

In 1896, only two people in the Penrith Licensing District had wine licenses, being Elizabeth Anschau of Luddenham and Beaumont Wilson of Badgerys Creek. The following year, Elizabeth Anschau and Frederick Petith, both of Luddenham, each had a wine license along with William F Emert of Mount Druitt. *Sands Directory* of 1903 lists Mrs F Anschau as being at the "Wine Shop, Luddenham".

In 1908, Elizabeth, Apollonia and Margaretha Anschau sold part of their land on The Northern Road at Luddenham to the trustees of the Roman Catholic diocese. St Francis Xavier Church was constructed on this land in 1912 (Catholic Archdiocese of Parramatta, undated).

In 1927, Elizabeth Anschau was still at Steinberg, and was recorded as having five horses and 22 cattle on 196 acres (*Sands Directory* 1927). Elizabeth died in December of that year, and left her estate to her sisters, Apollonia and Margaretha. Margaretha died in 1933, leaving her portion of the estate to Apollonia. Apollonia died in 1954, leaving the estate to FL and KJ Harvey.

A newspaper article in 1954 reported the death of 94 year old Appelona (sic) Anschau, who had lived her whole life at Steinberg. The following is noted about the vineyard:

Mr and Mrs Franz Anschau... came out from Germany years before and married here. At Luddenham, on 200 acres, he industriously conducted a farm, vineyard and wine cellars. (Nepean Times, 15 July 1954)

At the time of Godden Mackay's inspection of the site for the 1997 *Draft EIS*, the following commentary was made:

There appears to be no building remaining from this property, however, the outline of a structure and the vineyard to its north are distinguished by a square imprint and by variations in the colour and density of the grass now growing over the area. There are visible lines of furrows across the west-sloping ground where the vines were once planted. (Godden Mackay 1997)

These furrow lines are clearly visible in an aerial photograph of the site, taken in 1965 (Plate A52). There is no remaining evidence of the vineyard (Plate A53).



Plate A52 1965 aerial photograph of Anschau Vineyard site, note furrows on western slope and structures on the site. (Source: Land and Property Information, NSW 1404 5166 Cumberland 1965 series, Run 22, 29/08.1965).

During the 2015 site inspection of the former Anschau Vineyard and Steinberg site, the former owner of the property, Julia Palmer, advised that there were ruins of a homestead and some blacksmith's tools located approximately 100 metres behind the current house complex. Several sandstock bricks, iron and other building materials were noted, as well as the overgrown ruin of Steinberg (Plate A54, A55). Owing to several warnings from the occupier regarding snakes at the site, the building material was photographed and mapped, however the extensive vegetation covering did not allow for a comprehensive assessment. It was clear that this was the site of a substantial dwelling of mid to late nineteenth century construction. The presence of a number of tools used for blacksmithing located at the rear of the homestead indicated the possibility of subsurface footings for other outbuildings. Four large timber posts forming a square around the homestead site were also recorded, possibly demarcating a residential precinct for the homestead.

In late June 2015, around the time the property was due to be vacated, Palmer reported the site of a suspected grave to Pam Kennison, property manager of the airport site. At the time of reporting, the grave had not been subject to inspection, however, this is likely to be the grave of an Anschau family member.



Plate A53 View toward Anschau Vineyard site from The Northern Road. (Source: RPS 2015)



Plate A54 View east to the ruin of Steinberg, thickly covered in vegetation. (Source: RPS 2015)



Plate A55 Collected iron thought to be evidence of a smithy near Steinberg. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The Anschau vineyard was one of the earliest vineyards in the Luddenham area. Aerial photographs show furrows consistent with the vineyards. Steinberg was the name of the homestead and property. It is listed as the address of many individuals from Luddenham's Anschau family through to the death of Apollonia Anschau in 1954.	Commonwealth
Rarity	The Luddenham and Badgerys Creek area was known for its orchards and vineyards and was actively promoted as such in the late nineteenth and early twentieth century. The vineyard was not a rare pursuit in the local area, however, the presence of blacksmithing tools adjacent to the remains of Steinberg homestead may represent a rare example of a mid nineteenth century self-sufficient family property.	Commonwealth

Significance assessment		
Criterion	Discussion	Heritage significance
Research	The property is considered likely to have subsurface integrity. As an early vineyard site, this place has the potential to provide an insight into the lives and activities of the people who lived and worked in the local wine industry that would not be available from other sources. Any archaeological evidence of Steinberg homestead and the associated smithy is likely to add to the current information relating to the Anschau family and their vineyard business.	Commonwealth
Principal characteristics of a class of place	The vineyard is consistent with other ventures undertaken in the Badgerys Creek and Luddenham area. The area was actively promoted by real estate agents as land ideal for orchards and vineyards, and used Anschau's vineyard as demonstration of this.	Commonwealth
Aesthetics	Steinberg is located on a west facing slope of a dominant ridgeline which runs roughly north-south adjacent to The Northern Road alignment. The property has views to the Blue Mountains and meets this criterion.	Commonwealth
Creative or technical achievement	Anschau Vineyard is the location of one of the earliest vineyards in the Badgerys Creek area.	Commonwealth
Social value	The property was a cornerstone of early agriculture and viticulture in the area, and was often held up as an example of success.	Commonwealth
Significant people	Anschau Vineyard and Steinberg site was associated with the Anschau family. The Anschau family was locally prominent, donating land to the Catholic Church for the establishment of a Church, called St Francis Xavier after Francis Anschau.	Commonwealth
Indigenous values	Anschau Vineyard and Steinberg is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Australian historic themes		
	Peopling Australia – migrating – changing the face of rural and urban Australia through migration Developing local, regional and national economies – developing primary production – developing agricultural industries Developing local, regional and national economies – feeding people – preserving food and beverages Marking the phases of life – dying – dealing with human remains Developing Australia’s cultural life – living in and around Australia homes Developing Australia’s cultural life – living in the country and rural settlements	
Statement of significance		
	Anschau Vineyard and Steinberg is assessed as being of significance for its historic associations with the prominent Anschau family, who had close connections with the development of a Catholic presence in Luddenham.	

AS15 St Francis Xavier Church and cemetery

List	-
Type of item	Archaeological
Primary address	1966 The Northern Road, Luddenham
DIRD ID	404607

Site description

St Francis Xavier Church and cemetery site is located at 1966 The Northern Road, Luddenham.

St Francis Xavier Church was constructed in 1912 on land variously described as sold or donated by the Anschau family to the Roman Catholic diocese in 1908.

Some sources mention a cemetery present at the site prior to the construction of the Church, however the scope of this information is limited. An article in the *Nepean Times* in 1911 stated:

Beside the road leading from Luddenham, on an elevated position, there was a cemetery for many years only; but recently a new Catholic Church has been built within the fence of "God's acre". Originally the ground for this cemetery was donated by the late Mr Francis Anschau, whose daughters live at 'Steinberg' Luddenham. The Catholics of Luddenham had no church wherein to worship until the happy thought occurred to them to build one, and have journeyed to Mulgoa for many years to attend worship. That thought has been realised with an accomplished fact, in as much as the church has been completed, thanks to the special efforts of the Misses Anschau who made a special appeal to all their friends and especially their own relatives. Although the church is only weatherboard, it will serve its purpose for many years. This structure was built by Mr F. Petith and Sons, who agreed that the labor [sic] of erection at the church was to be their contribution, and it was no small contribution. (Nepean Times, 21 October 1911)

A newspaper article in 1954 reporting the death of Apollonia Anschau at age 94 reveals further details about the Anschau family's involvement in the Church:

It is worthy of note that portion of the Catholic Cemetery at Luddenham was a gift from the family to the Church.... The funeral [of Apollonia] took place on Wednesday, July 7, when the remains were interred in the Catholic Cemetery at Luddenham with those of her two sisters. Nearby is a grave in which her father and mother were buried. Miss Appelona [sic] Anschau, some years ago, prepared inscriptions for the one headstone for the grave of her two sisters and herself, the inscription relating to herself to be added at the appropriate time. (Nepean Times, 15 July 1954)

Apollonia's parents died well before the establishment of the church and it seems the earlier date for the cemetery is probable. Their remains were moved from St Francis Xavier at Luddenham to the Roman Catholic cemetery at Greendale in the 1990s. As the church was not consecrated until 1912, Franz Snr's burial at the site in 1876 raises the possibility of other unrecorded burials dating from the intervening period.

Aside from the Anschau and Petith families, other families known to have been buried at St Francis Xavier cemetery include the Dorahy, Salmon, Neiss and Flynn families. These surnames have long been associated with the Luddenham and Badgerys Creek areas.

Burials in the cemetery were exhumed and reinterred at St Francis Xavier Church at Greendale, including many members of the Anschau family. The contents of the original St Francis Xavier Church were also removed to the Greendale church.

At the time of inspection, the property was largely abandoned and overgrown, with large open areas of grass central to the property (Plate A57). Neighbours from both adjoining properties told of how they have found

pieces of coffins and grave furniture throughout the paddock, mentioning that the exhumation of graves from the site appeared to have been rushed and messy.

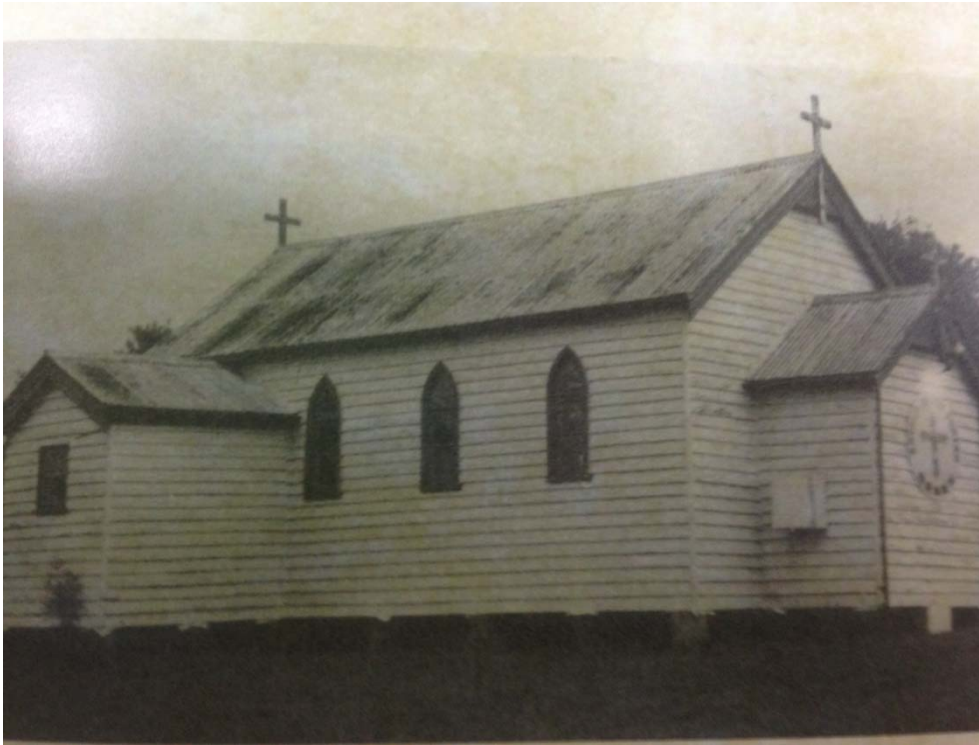


Plate A56 Undated photograph of St Francis Xavier Church. (Source: Wilmington 2013:35)



Plate A57 Open areas within St Francis Xavier Church and cemetery site. (Source: RPS 2015)

The ruins of a structure including timber and a concrete slab were identified east of the Church and cemetery (Plate A58). The provenance of this structure is currently unknown.



Plate A58 Ruins of unknown structure, St Francis Xavier Church and cemetery. (Source: RPS 2015)



Plate A59 St Francis Xavier Church Greendale, with relocated headstones from the original site. (Source: RPS 2014)



Plate A60 Plaque at St Francis Xavier Greendale. (Source: RPS 2015)

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The church and cemetery are historically significant as the first Catholic church in the vicinity. There are also reports that the cemetery predated the church, indicating the potential for unmarked and/or unrecorded graves.	Commonwealth
Rarity	The church and cemetery site is consistent with others in rural areas. The item does not meet this criterion.	None
Research	There is scope for further research on the cemetery, particularly in regard to early burial practices in the Luddenham area.	Commonwealth
Principal characteristics of a class of place	St Francis Xavier Church and cemetery site is not considered to meet this criterion.	None
Aesthetics	St Francis Xavier Church and cemetery site is located in an elevated position overlooking the Luddenham area, with views to the Blue Mountains.	Commonwealth
Creative or technical achievement	St Francis Xavier Church and cemetery site is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Social value	The church and cemetery site is likely to have high social value to Catholics in the area, particularly those whose family were first buried there.	Commonwealth
Significant people	The church and cemetery site is located on land donated by the Anschau family, who owned the nearby "Steinberg" homestead and were involved in early winemaking.	Commonwealth
Indigenous values	St Francis Xavier Church and cemetery site is not considered to meet this criterion.	None
Australian historic themes		
Developing Australia's cultural life – worshipping – worshipping together, making places for worship		
Marking the phases of life – dying – dealing with human remains, mourning the dead, remembering the dead		
Statement of significance		
St Francis Xavier Catholic Church and Cemetery is considered to be significant for its historic and social values, and for its associations with the Anschau family. The site is also considered to be significant for its research values, as it is the site of one of the earliest churches in the Luddenham area, and may be the site of much earlier burials.		

AS16 Jackson Road cottage

List	-
Type of item	Cottage and farm buildings
Primary address	Lot 2 Jackson Road, Luddenham
DIRD ID	404804

Site description

Lot 2 Jackson Road is located at the intersection of Jackson and Anton Roads, Luddenham

The property was once part of Blaxland's Luddenham Estate, and was offered for sale in the late 1880s as part of the Luddenham Farms. Luddenham Farms were advertised as "orchard and vineyard land" with "local residents who have turned their attention to orchard planting and grape culture [having] met with wonderful success" (Swyny 1900).

The property has a c.1890 house and several ancillary farming structures. The house is of simple rectangular form with skillion additions to the rear, and bullnose verandah about three sides on chamfered posts (Plate A61, A62). The brick walls are internally plaster rendered. The exterior of the house is rendered and painted.

At this time, it is unclear who built the house at Lot 2 Jackson Road, however, the property was owned by Ebenezer Vicary and transferred to James Manton, blacksmith of Woolloomooloo in 1887. In 1891, Manton sold the property, and it is unclear whether it was improved at the time of sale.



Plate A61 Undated photograph of house at Lot 2 Jackson Road. (Source: Donald and Gulson 1996)



Plate A62 Lot 2 Jackson Road house. (Source: RPS 2015)

The original part of the house has two rooms with an internal fireplace. The kitchen is housed within the skillion addition, which appears to have replaced an earlier skillion structure with fireplace to exterior wall (Plate A62). There is a fibro bathroom and laundry addition at the rear of the kitchen.



Plate A63 Lot 2 Jackson Road farm shed with accretions. (Source: RPS 2015)

The ancillary farming buildings include a series of corrugated iron clad sheds with accretions (Plate A63). These were in use at the time of inspection and as such, full examination was not permitted. Infrastructure including services and septic were present within the property.

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	There are no known events or processes associated with this place.	None
Rarity	The c. 1890 dwelling is a rare example in the local landscape. Though a number of others are known to have been built in the local area, it is one of the few remaining examples.	Commonwealth
Research	Potential archaeological remains of former outbuildings and other structures associated with the use of the farm. Due to the limited information available about the use of the farm from 1870 onwards, such information has the potential to further our understanding of the use and significance of the farm.	Commonwealth
Principal characteristics of a class of place	The c. 1890 dwelling demonstrates the principal characteristics of an early cottage including a gable roof with a medium pitch and a bullnose verandah.	Commonwealth
Aesthetics	Intact example of a c. 1890 dwelling which has aesthetic significance due to its rural setting.	Commonwealth
Creative or technical achievement	Jackson Road cottage is not considered to meet this criterion.	None
Social value	Jackson Road cottage is not considered to meet this criterion.	None
Significant people	Jackson Road cottage is not considered to meet this criterion.	None
Indigenous values	Jackson Road cottage is not considered to meet this criterion.	None
Australian historic themes		
Working – working on the land		
Developing Australia’s cultural life – living in the country and rural settlements		
Developing Australia’s cultural life – living in and around Australian homes		
Statement of significance		
The Jackson Road cottage is considered to be a representative example of a late nineteenth century farming cottage. The site is considered to be significant for its rarity, research potential, principal characteristics and aesthetic values.		

AS17 Badgerys Creek Road alignment

List	-
Type of item	Archaeological
Primary address	Badgerys Creek Road, Badgerys Creek
DIRD ID	-

Site description

Badgerys Creek Road has been noted on maps since the 1850s and was known variously as Badgerys Creek Road and Cox's Road. The alignment has altered little since that time.

It is believed that James Badgery may have been responsible for the road alignment from a charge of trespass against him by Sir John Jamison. According to the *Sydney Gazette*:

In 1815 the defendant, to save himself the trouble of prosecuting the highway from his own residence to his Nepean farm, made a road across Lord's Folly farm, by which he lessened the distance about 1½ miles. This cross-road, which had received the name of 'Badgery's Road' had been open for the last seven years. This farm (Lord's Folly) became the property of the plaintiff, who had the whole, for many miles round, securely fenced in; in accomplishing which object, Badgery's road was necessarily shut up. A few months since, the defendant, with his family, on their return from Richmond thought proper to pursue his favourite and, what he esteemed, his own road. When he came to the fence upon the side nearest to his farm, it was discovered to be closed up by a strong railing. Without the least hesitancy, Mr Badgery dismounted and broke down the fence, having previously offered a government servant of the plaintiff two dollars for an axe, to enable him to destroy the fence; at the same time affirming he would take it down as fast as Sir John could put it up. (Sydney Gazette and New South Wales Advertiser, 8 November 1822)

However, there are no maps to confirm that "Badgery's Road" is indeed the same as "Badgerys Creek Road". Both Badgery's and Jamison's holdings were located on the northern side of Elizabeth Drive (Orphan School Road) and it is probable that the subject of the trespass was in that locality.

The 1859 Eastern Division of the Luddenham Estate names the road "Cox's Road", presumably as the road led to the property owned by the Cox family.

Significance assessment		
Criterion	Discussion	Heritage significance of Badgerys Creek Road within the airport site
Events and processes	Badgerys Creek Road has followed roughly the same alignment since its construction and has been used as the main road in Badgerys Creek ever since.	Commonwealth
Rarity	Badgerys Creek Road alignment is not considered to meet this criterion.	None
Research	Investigation of the Badgerys Creek Road alignment may reveal evidence about early road construction methods in the area.	Commonwealth
Principal characteristics of a class of place	Badgerys Creek Road alignment is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance of Badgerys Creek Road within the airport site
Aesthetics	Badgerys Creek Road alignment is not considered to meet this criterion.	None
Creative or technical achievement	Badgerys Creek Road alignment is not considered to meet this criterion.	None
Social value	Apart from its extensive use by local residents, it is unlikely that the road has any social value from a heritage perspective.	None
Significant people	There is some suggestion that the road was originally laid down and used by James Badgery.	Commonwealth
Indigenous values	Badgerys Creek Road alignment is not considered to meet this criterion.	None
Australian historic themes		
Developing local, regional and national economies – moving goods and people – building and maintaining roads, moving goods and people on land		
Building settlements, towns and cities – supplying urban services		
Statement of significance		
The Badgerys Creek Road alignment is considered to be historically significant as one of the earliest roads in the area, predating the subdivision of the early land grants. This item is strongly associated with James Badgery, who allegedly selected the route as a short cut to his property.		

AS18 Spredenberg

List	-
Type of item	Archaeological
Primary address	55 Longleys Road, Badgerys Creek
DIRD ID	404600

Site description

This site was the area marked “Spredenburg” on the Eastern Division of the Luddenham Estate map (1859). A house was noted in the general area of Spredenburg on the 1947 aerial photograph of the area.

On inspection, the site was completely overgrown with blackberries, however a number of modern bricks and other builders refuse were observed on the surface and atop the blackberry bushes (Plate A64). No heritage building material was observed. The heritage significance of this site cannot be assessed until vegetation has been cleared from the site.



Plate A64 View west across the site of Spredenburg. (Source: RPS 2015)

AS19 Howe residence

List	-
Type of item	Archaeological
Primary address	Corner Badgerys Creek Road and Longleys Road, Badgerys Creek
DIRD ID	404363

Site description

This site was shown to the excavation team by the property's leaseholder. It was located on a property on the south western intersection of Badgerys Creek Road and Longleys Road, with an access from Badgerys Creek Road, opposite the former Badgerys Creek post office site leading to a flattened area. According to the leaseholder, this property was once owned by the Howe family, members of whom had lived in the area since the early nineteenth century.

Analysis of the 1947 aerial photograph shows a residence at this site. A number of features consistent with the remains of a homestead were identified during the survey, including a rectangular perimeter of exotic trees, marking the residential area, a number of wooden posts, bricks and corrugated iron (Plate A65). A brick-lined circular depression was noted at the west of the residential area, most likely the remains of a well (Plate A66). Some fence posts, both metal and timber, were still in place.



Plate A65 View west across the site of the Howe residence. (Source: RPS 2015)



Plate A66 Circular, brick lined depression (well) at Howe's residence. (Source: RPS 2015)

Plate A67

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	This site is associated with the Howe residence and meets this criterion.	Commonwealth
Rarity	The Howe residence is not considered to meet this criterion.	None
Research	Investigation of the Howe residence may reveal evidence of early residential occupation in Badgerys Creek area.	Commonwealth
Principal characteristics of a class of place	The Howe residence is not considered to meet this criterion.	None
Aesthetics	The Howe residence is not considered to meet this criterion.	None
Creative or technical achievement	The Howe residence is not considered to meet this criterion.	None
Social value	The Howe residence is not considered to meet this criterion.	None
Significant people	This site is associated with the Howes, a prominent family who lived in the Badgerys Creek area from the early nineteenth century.	Commonwealth
Indigenous values	The Howe residence is not considered to meet this criterion.	None
Australian historic themes		
Developing Australia's cultural life – living in the country and rural settlements, living in and around Australian homes		
Statement of significance		
The site of the Howe residence is considered to be of heritage significance for its historical and associative values. The Howes were a prominent family who lived in Badgerys Creek from the early nineteenth century.		

AS20 McGarvie Smith Farm

List	Schedule 5, <i>Penrith Local Environmental Plan 2010</i>
Type of item	Built
Primary address	1793-1951 Elizabeth Drive, Badgerys Creek
DIRD ID	-

Site description

This property is located on the northern side of Elizabeth Drive at Badgerys Creek and is outside of the Commonwealth land reserved for the airport. The property is located within the Penrith local government area and measures approximately 160 ha.

A small area associated with this property will be used to install High Intensity Approach Lighting (HIAL) as part of the Western Sydney Airport infrastructure. The area is rectangular in shape and is adjacent to the driveway entrance to the property from Elizabeth Drive.

Significance assessment		
Criterion	Discussion	Heritage significance
Events and processes	The McGarvie Smith Farm has been continuously operating since 1936. The site, through the McGarvie Smith Institute, was associated with the University of Sydney, Sir John McGarvie Smith and Sir Frederick Tout. It was established as a teaching farm for veterinary students at Sydney University. It therefore fulfils this criterion.	Local
Rarity	Whilst the purpose of the farm is rare, the farm itself is not.	None
Research	There may be some research potential in the existing buildings and archives of the facility relating to the earlier teaching and farming practices. However this research potential is considered to be confined to the existing operational buildings on the property.	Local
Principal characteristics of a class of place	The McGarvie Smith farm is considered to contain the principal characteristics of a farm and therefore meets this criterion.	None
Aesthetics	The McGarvie Smith Farm is not considered to meet this criterion.	None

Significance assessment		
Criterion	Discussion	Heritage significance
Creative or technical achievement	The McGarvie Smith Farm may demonstrate technical achievements, being a teaching facility . McGarvie Smith developed an anthrax vaccine and the Institute which he founded also founded this farm. The farm has also been teaching animal husbandry to veterinary students since 1936. It is considered that the item fulfils this criterion.	Local
Social value	The McGarvie Smith Farm is not considered to meet this criterion.	None
Significant people	This site is associated with John McGarvie-Smith, who invented a vaccine for anthrax and whose Institution founded the farm. It is also associated with Sir Frederick Tout, who was a director of the McGarvie Institute and assisted in its running. It is also associated with the University of Sydney, who continue to own and run the farm.,	Local
Indigenous values	No known indigenous values are attached to the item.	None
Australian historic themes		
Developing local, regional and national economies – developing primary production – breeding animals; Working – working on the land; Educating – training people for the workplace.		
Statement of significance		
The McGarvie Smith Farm is considered to be of heritage significance for its historical, technical and associative values. The McGarvie Smith Farm was and is a place of both learning and employment since 1936. It is associated with John McGarvie Smith, Sir Frederick Tout and the University of Sydney.		