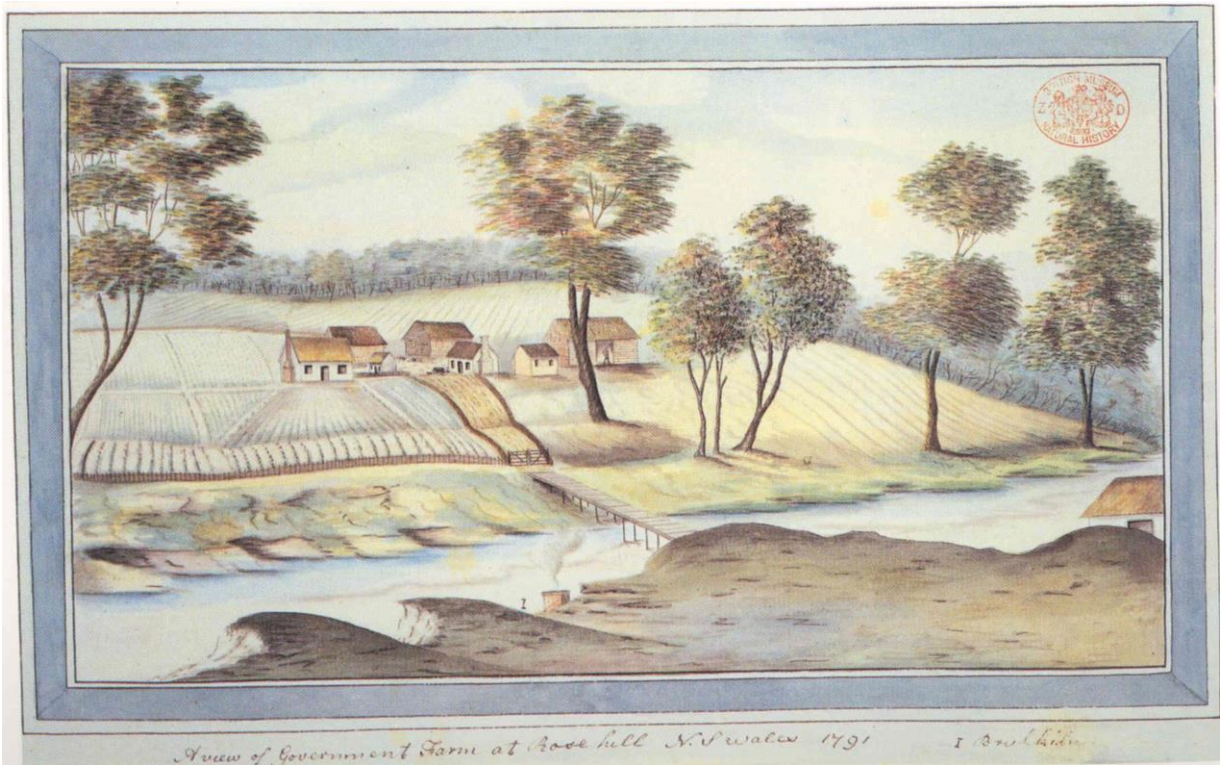
Western Sydney Stadium

Historical Archaeological Assessment & S96 Modification Heritage Impact Statement



'A view of Government Farm at Rose Hill N.S. Wales, 1791', Natural History Museum, London.

Report to

Lendlease

January 2017

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Executive Summary

Results

- The study area is partly within areas of the State and potentially Nationally significant sites of the Government Farm and Watermill, and their associated cultural landscape belonging to the beginnings of British settlement in Australia.
- This archaeology should be conserved *in situ* and interpreted within the proposed redevelopment.
- Schedule 2, Condition B20 of SSD 7534 requires the retention *in situ* of archaeology of State or National significance.
- The earthworks within the stadium footprint are considered unlikely to have any impact on archaeology of State or National significance.
- The earthworks associated with the lowering of the training field has potential to impact archaeology of State or National significance, as well as the landscape which was part of the State significant Government Farm.
- The earthworks and proposed remediation within the site of the Government Watermill and its cultural landscape need to be managed so as to retain the significance of the site and its landscape.
- Careful archaeological testing in the Farm and Watermill areas should provide information to allow for the removal of contaminated material with the intention of leaving natural soil and the landscape and archaeology of the site *in situ*. Any proposal to remove natural soil may impact on potential State or Nationally significant archaeology or remnant landscape, some of which is in areas to be handed back to Parramatta Park.
- A program of archaeological testing should be initiated to resolve detail design issues to avoid impacts on the predicted archaeology. This will require the writing of an Archaeological Research Design.
- As the proposed testing is part of an SSD application, no additional approvals are required for undertaking the archaeological testing program, although consultation with the Heritage Council and Parramatta Park Trust will be required for the testing program. If works are proposed to be undertaken outside the SSD DA study area they would require approval under the *Heritage Act, 1977*.
- Some of the area of the site is within the buffer zone of the World Heritage Area or immediately adjacent. It is all within a 'highly sensitive area' associated with the WHA and therefore needs to be appropriately managed.
- The civil works involve a headwall for a stormwater line which will flow into the Parramatta River within the WHA buffer zone. This should be redesigned to be outside the WHA buffer zone.

Recommendations

1. Recognise the significant of the project area where it intrudes into areas of State and potentially National significant archaeology.
2. Maintain the SHR and Parramatta Park boundaries and limit impacts/intrusions within these areas.
3. There should be no impacts on archaeology of potentially State or National significance.
4. Minimise impacts within the Government Farm preliminary curtilage and the site of the Government Watermill.
5. The project needs to carefully consider the location of carparks so as not to present any further intrusion into the curtilage of the Government Farm or Watermill.

6. Any reduction of levels within the asbestos-contaminated mounds should be undertaken following archaeological testing and then be the subject of archaeological monitoring, so as to retain the significant archaeology and landscape.
7. An Archaeological Research design should be written outlining the risk issues for the remediation program. The archaeological testing will provide for a strategy to limit impacts on potential archaeology of State significance. This testing will need to be undertaken in consultation with the Heritage Council of NSW.
8. Detail design should minimise any potential impacts.
9. A Statement of Heritage Impact will need to be written for the site and assess the submission as part of a Stage 2 DA. It is likely that an Archaeological Research Design may also be needed but this depends on proposed impacts. There may be a likelihood for unexpected finds.
10. An Interpretation Strategy and Plan will need to be written for the proposed development.
11. The civil works, including stormwater drainage, should be redesigned so as not to intrude into the WHA buffer zone.

CONTENTS

Document Status

Name	Date	Purpose	Author	Approved
Draft 1	23/1/1017	Client Review	Nick Pitt, Mary Casey	Mary Casey
Draft 2	30/1/2017	Updated design and comments	Mary Casey	Mary Casey Tony Lowe
Final	2/2/2017		Mary Casey	Mary Casey Tony Lowe

1.0 Background

1.1 Introduction

This report supports an application made under section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to modify Development Consent, SSD 16_7534 relating to the Stage 1 concept proposal and demolition works approval for the redevelopment of the Western Sydney Stadium.

Development Consent SSD 16_7534 was granted on 7 December 2016 by the Minister for Planning for the following components of the development:

- **Concept Proposal** for the Western Sydney Stadium, including building envelopes, a new 30,000 seat stadium, 500 surface car parking spaces, access, ancillary infrastructure and landscaping; and
- **Detailed works** for staged demolition and removal of the existing stadium and associated infrastructure and the Parramatta Swimming Centre.

This section 96 application (the Modification Application) constitutes the first modification to the consent.

1.2 Overview of Proposed Modifications

The modification application seeks to expand the approved range of site preparation works to include piling and remediation, as outlined below:

- Remediation works comprising the excavation and storage of contaminated materials and bulk excavation. Contaminated materials will be stored on site and capped below ground in accordance with the recommendations outlined in the Remedial Action Plan.
- Piling works which will comprise the driving and drilling of concrete piles to establish foundations for the construction of a stadium located within the Stage 1 building envelope.

1.3 Site Description

The Western Sydney Stadium is located at 11-13 O'Connell Street, within the Parramatta Park on the north-western edge of the Parramatta CBD. It is bound to the south and west by the Parramatta Park and the Parramatta River, the Parramatta Rugby Leagues Club to the north and O'Connell Street to the east. The Site is located within the City of Parramatta local government area (LGA).

A locational context plan and location plan are provided at Figure 1.1, Figure 1.2, and Figure 1.3.

Figure 1.1: Proposed Western Sydney Stadium concept design. Lendlease 2016.

Figure 1.2: Study area for the Concept Approval. Lendlease 2016.

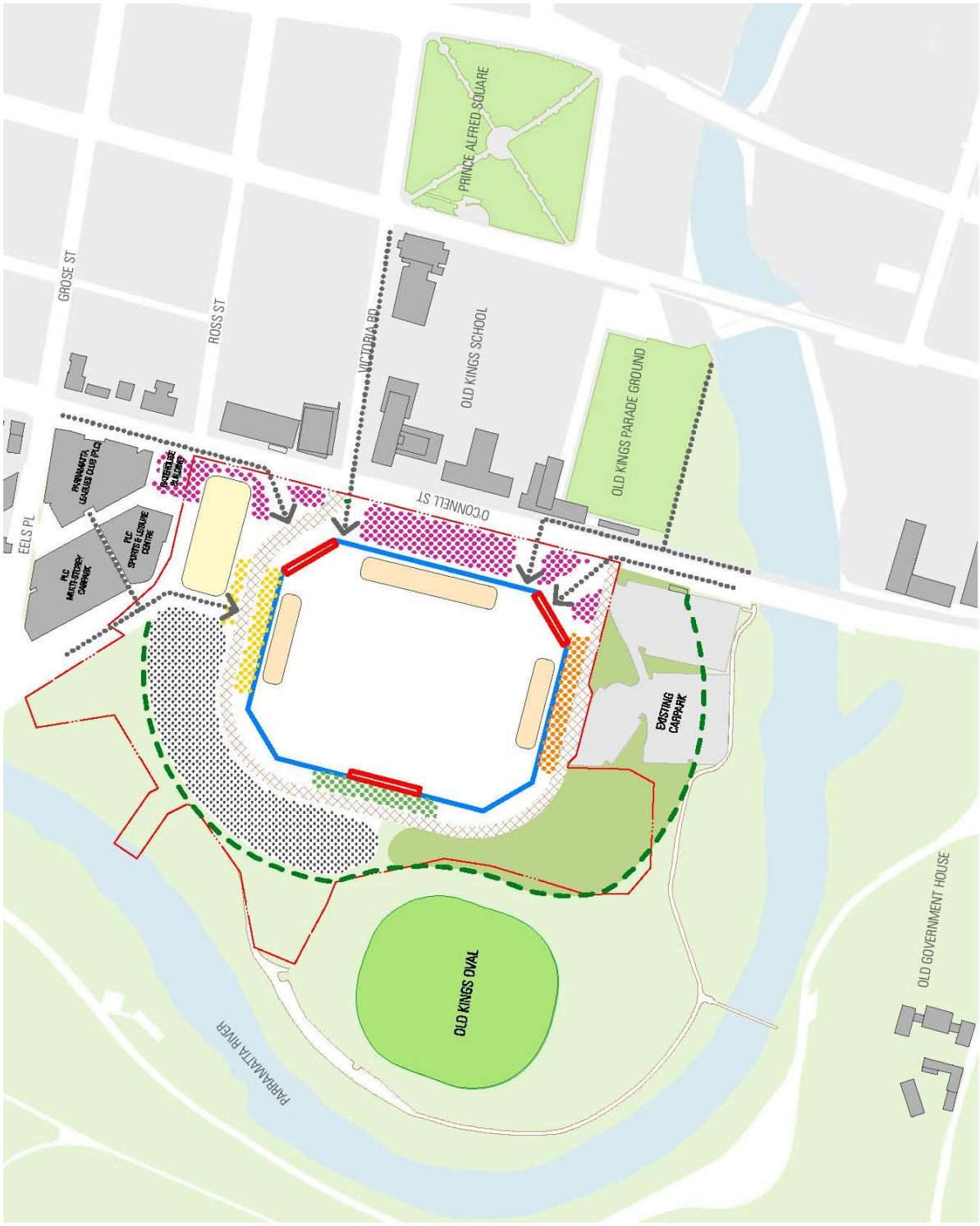


Figure 1.3: Plan of the proposed S96 (modification) works for the Stadium. Lendlease

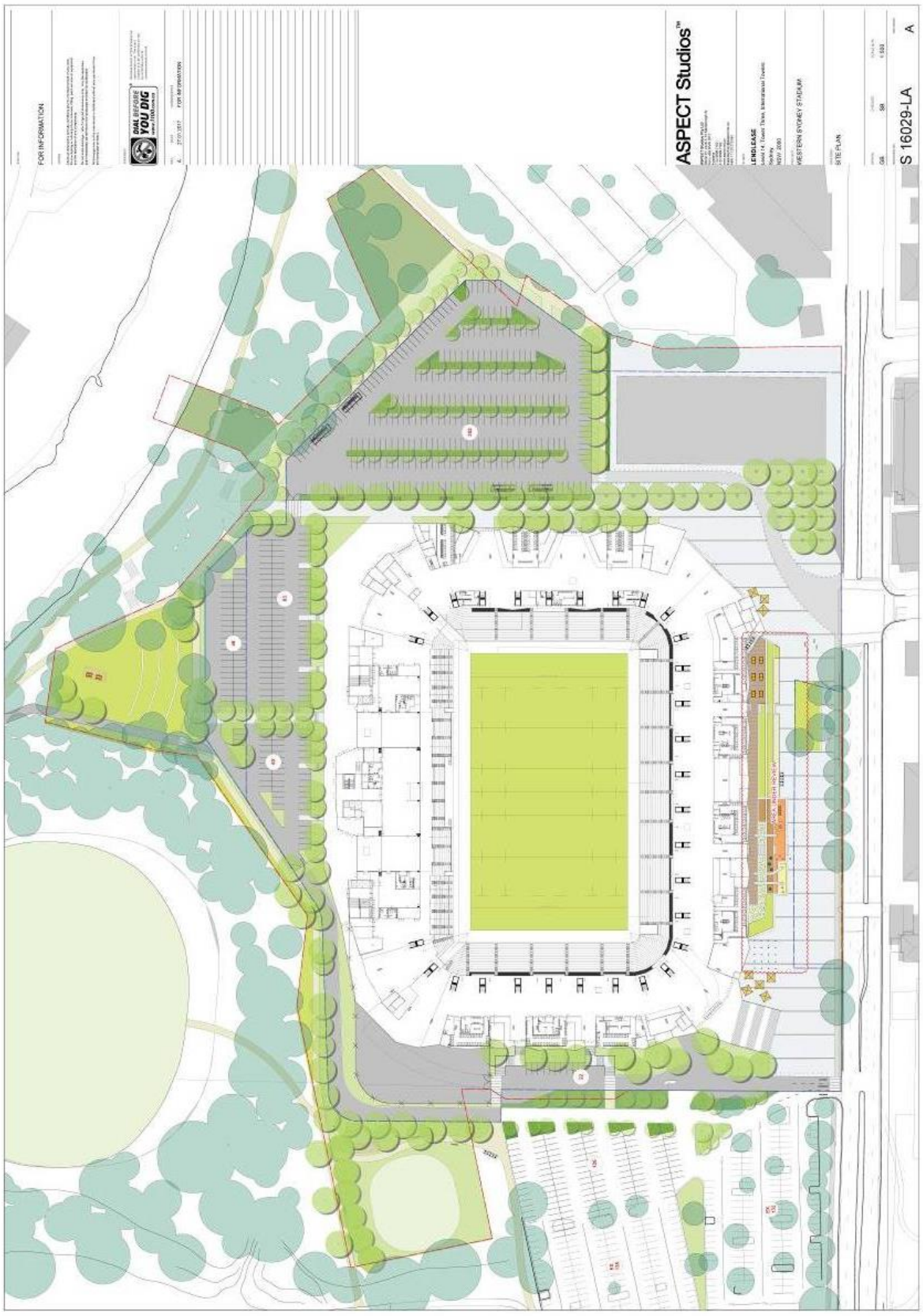


Figure 1.4: Plan of the proposed stadium and surrounding site.

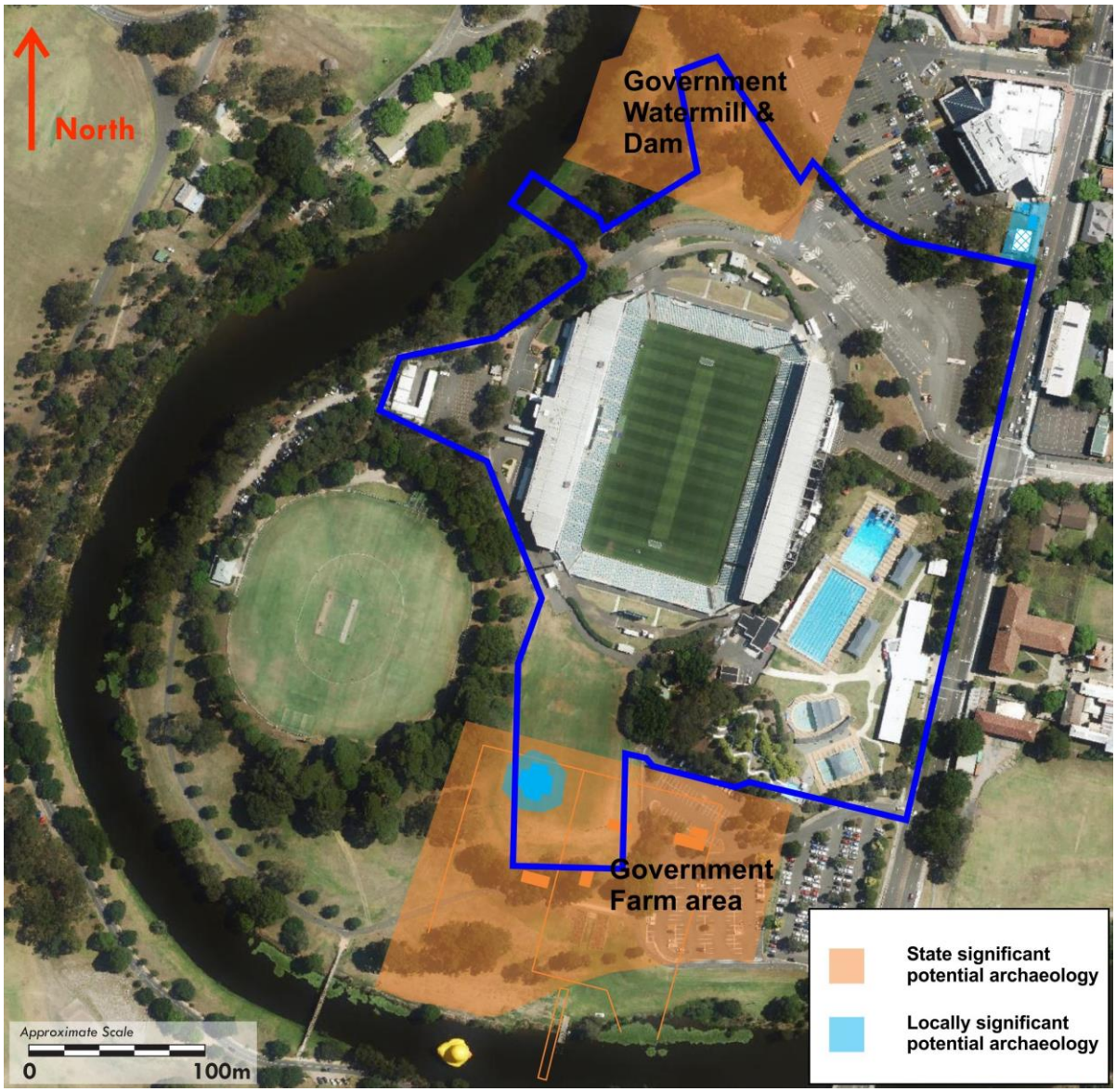


Figure 1.5: The study area (blue) overlaid on the existing site with the existing curtilages of the archaeological sites of the Government Farm (south) and Government Watermill (north) as identified in Casey & Lowe 2014 and included in the AECOM Stage 1 EIS desktop review. The orange areas have potential to contain archaeology of State significance and also potentially of National significance.

1.4 SSD 7534 Conditions of Consent

The conditions of consent for the Concept Design and Stage 1 demolition works (SSD 7534) include the following requirements related to Historical Archaeology:

Schedule 2 – Conditions of Consent for Concept Proposal

Part B – Conditions to be satisfied in future development applications

Archaeology

B20. Future Development Applications(s) shall include an updated Archaeological Assessment identifying the predicted locations and appropriate buffer zones of archaeological relics in or near the current project boundary area.

The Archaeological Assessment shall include clear mapping to assist in the detailed design of the Future Development Applications to ensure archaeological relics of State and

National heritage significance are conserved in-situ and not impacted by the development or associated landscaping, fencing, car parking or service provision.

The Archaeological Assessment must be prepared by a suitably qualified historical archaeologist who meets the Heritage Council's Excavation Directors Criteria for State significant archaeology.

Schedule 3

Part B – Prior to commencement of works

Archaeology

B12. A historic heritage induction for the site must occur for all personnel undertaking excavation. The induction should include a brief history of the site, prove and discuss a copy of the archaeological exclusion zones and details of how to deal with unexpected finds.

B13. An unexpected finds protocol must be created to manage the unexpected discovery of potential relics during Stage 1 works. This should include details of what constitutes an archaeological relic of the project, stop work procedures, procedures for contacting a suitably qualified archaeologist to assess the find, and processes for notification and consultation with the Heritage Council. If a relic is uncovered work must cease in the affected area(s) and the Heritage Council of NSW must be notified. Work may only recommence after approval from the Heritage Council. Additional assessment and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery.

Part C – During Construction

Impact of Below Ground (sub-surface) Works – Non-Aboriginal Relics

C26. If any archaeological relics are uncovered during the course of the work, then all works shall cease immediately in that area and the OEH Heritage Branch shall be contacted. Depending on the possible significance of the relics, and archaeological assessment and an excavation permit under the NSW Heritage Act 1977 may be required before further works can continue in that area.

1.5 Statutory Constraints

1.5.1 Environmental Planning & Assessment Act 1979

The current project is being undertaken as a State significant development under Part 4, Division 4.1 of the Environmental Planning & Assessment Act 1979 (application number SSD 16_7534, Concept and Stage 1 demolition works). The conditions for consent (Section 1.4) included the requirement for a (Historical) Archaeological Assessment by a suitably qualified historical archaeologist who meets the Heritage Council's Excavation Directors Criteria for State significant archaeology.

This Historical Archaeological Assessment has been prepared in accordance with the guidelines of the NSW Heritage Council for the assessment of archaeological sites. Dr Mary Casey meets the Heritage Council's criteria for Excavation Directors for State significant sites.

89J Approvals etc - legislation that does not apply

Section 89J of the Environmental Planning & Assessment Act 1979 states:

1. The following authorisations are not required for State significant development that is authorised by a development consent granted after the commencement of this Division (and accordingly the provisions of any Act that prohibit an activity without such an authority do not apply):
   …
   (c) an approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977*,

(d) an Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*.

…

2. Division 8 of Part 6 of the *Heritage Act 1977* does not apply to prevent or interfere with the carrying out of State significant development that is authorised by a development consent granted after the commencement of this Division.

In effect, the Department of Planning and Infrastructure provides consent to impact on relics or works under 89J. Therefore, no approvals are required under S139 or S57 of the *Heritage Act 1977* or S90 of the *National Parks and Wildlife Act 1974*. The Department of Planning and Infrastructure will of course consult with the Heritage Council of NSW and the Office of Environment and Planning, both the Heritage Division and the Aboriginal Heritage Section, and the proposed work needs to conform with Heritage Division and Aboriginal Heritage guidelines. This section does not exempt requirements under S170 of the Heritage Act.

1.5.2 *NSW Heritage Act 1977*

1.5.3 State Heritage Register Listing, S57, *Heritage Act 1977*

Part of the study area is listed on the NSW State Heritage Register (SHR) as Item 00596, 'Parramatta Park and Old Government House' (Figure 1.6). This is the area of the swimming pool. The impact on the swimming pool was addressed in the EIS and approved in the Concept Approval.

Listing a heritage item and the associated archaeology on the State Heritage Register (SHR) means that the State Government has agreed with the assessment of significance of this place as being worthy of conservation into the future for the heritage of the State. Such listings are managed under S57 of the *Heritage Act 1977.* Any impact within the identified curtilage of an SHR area or within it requires an approval from the NSW Heritage Council under S60 of the *Heritage Act 1977* except where this is exempt under S89J of the EP&A Act. It is noted that the Stage 1 Approval relates to the footprint of SSD 7543 and works outside this footprint would be subject to the *Heritage Act 1977*.

1.5.4 S139-146, NSW Heritage Act 1977

When a site is not being assessed under the *EP&A Act*, Part 4.1 or when work to it is being undertaken outside of the Part 4.1 approval, the main legislative constraint on archaeological remains are the relics provisions of the *Heritage Act* 1977. **Provisions relating to S139 of the *Heritage Act 1977* are suspended by Part 4.1, Division 4.1, S89J, this suspension relating to the approvals process.**

According to Section 139:

> *(1) A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.*
>
> *(2) A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.*
>
> *…*
>
> *(4) The Heritage Council may by order published in the Gazette create exceptions to this section, either unconditionally or subject to conditions, in respect of any of the following:*
>
> *a. any relic of a specified kind or description,*
> *b. any disturbance or excavation of a specified kind or description,*
> *c. any disturbance or excavation of land in a specified location or having specified features or attributes,*

> *d. any disturbance or excavation of land in respect of which an archaeological assessment approved by the Heritage Council indicates that there is little likelihood of there being any relics in the land.*

A 'relic' is an item of 'environmental heritage'. Environmental heritage is defined by the *Heritage Act 1977* (amended) as:

> *those places, buildings, works, relics, moveable objects, and precincts of State or local heritage significance.* (Section 4)

A relic as further defined by the Act as:

> *any deposit, object or material evidence that:*
> *a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement; and*
> *b) is of State or local heritage significance.* (Section 4)

Any item identified as an historical archaeological site or relic cannot be impacted upon without an **excavation permit**. An excavation permit forms an approval from the Heritage Council for permission to 'disturb' a relic.

An application for an excavation permit must be made to the Heritage Council of NSW (Section 140) (or its delegate) and it will take approximately three to six weeks to be processed. The application for a permit must nominate a qualified archaeologist to manage the disturbance of the relics. There is a processing fee for each excavation permit application, the details of which can be obtained from the Heritage Division, Office of Environment and Heritage website. It is noted that this part of the Heritage Act is suspended by a Part 4.1 approval.

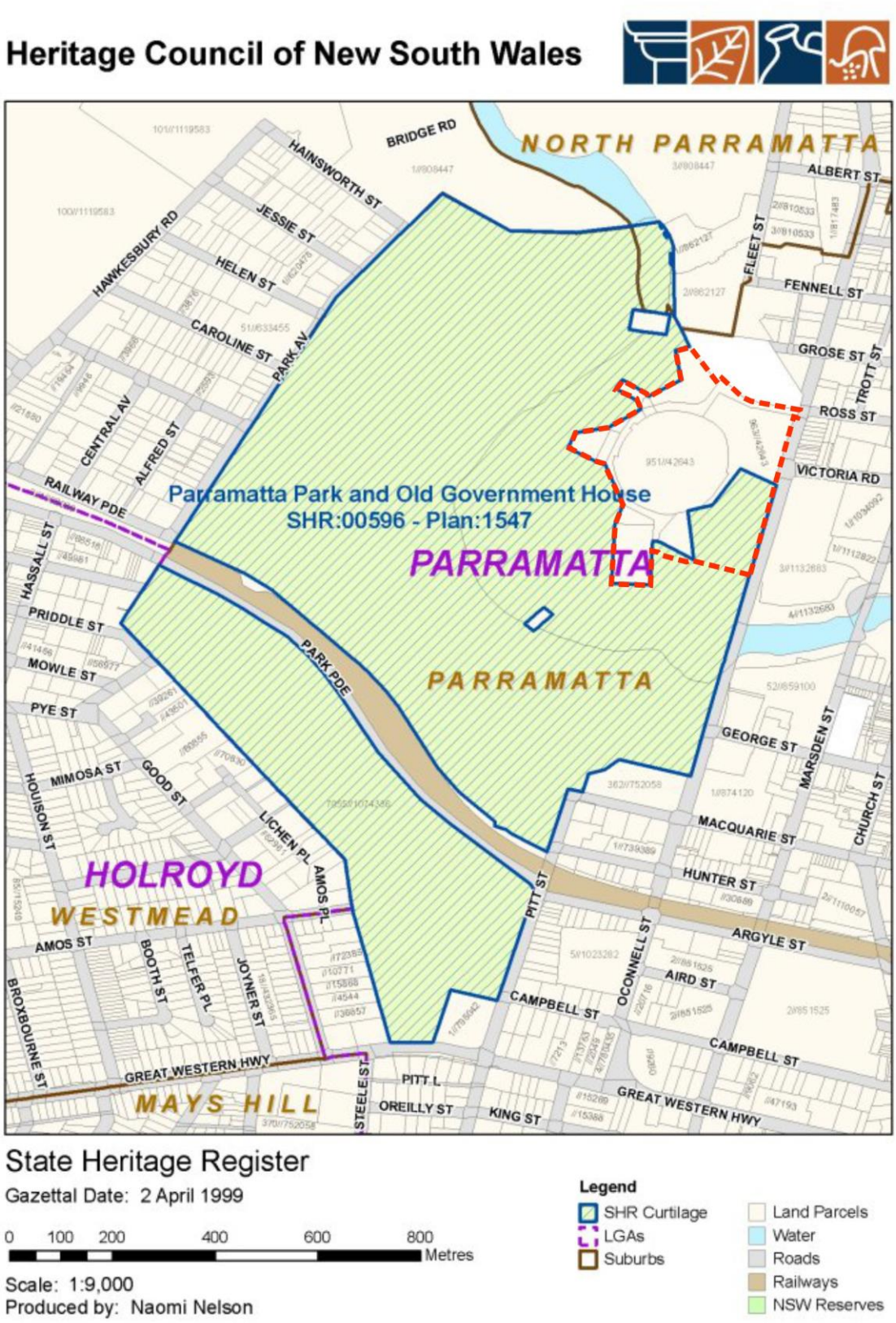


Figure 1.6: Plan showing the extent of the SHR boundary within the study area (outlined in red).

1.6 Heritage Listings

1.6.1 Parramatta Local Environmental Plan 2011

Parramatta Park and Old Government House are listed in Parramatta Local Environmental Plan (LEP) 2011 as heritage item I00596. Part of the Parramatta Park LEP curtilage lies within the Western Sydney Stadium study area (Figure 1.7). A number of other sites are adjacent to the study area (Figure 1.7, Table 1.1).

Table 1.1: Parramatta Local Environmental Plan 2011 Schedule 5 heritage items

Item Name	Address	Suburb	Significance	LEP No.
Parramatta Park and old government house	O'Connell Street	Parramatta	State	I00596
Heritage brick drain	1A, 1C and 5A Fleet Street, 1 Fennell Street and 73A O'Connell Street	North Parramatta	Local	I360
Roseneath and potential archaeological site	40 O'Connell Street	Parramatta	State	I00042
Convent of Our Lady of Mercy and associated buildings	2, 4 and 6 Victoria Road	Parramatta	Local	I550
Parramatta Girls' Training School (Norma Parker Correctional Centre)	1A and 1C Fleet Street	North Parramatta	State	I00811
Marsden Rehabilitation Centre (and potential archaeological site)	24 and 24A O'Connell Street and 3 Marist Place	Parramatta	State	I00826 and I00771
North Parramatta Conservation Area			Local	

1.6.2 NSW State Heritage Register

Parramatta Park and Old Government House are listed on the NSW State Heritage Register as item 596. Part of the SHR Curtilage lies within the Western Sydney Stadium curtilage (Figure 1.6). Listing on the SHR has certain legal implications (discussed above in Section 1.5.3).

1.6.3 National Heritage List

The National Heritage List (NHL) is a list of natural, historic and Indigenous places of outstanding significance. It is managed by Australian Government. The NHL includes 'Old Government House and the Government Domain – Parramatta' as a place of National heritage significance for its historic association with British colonial settlement from 1788.[1] The NHL curtilage does not include the present study area (Figure 1.8).

The study area is also to the south of the Former Female Factory Parramatta, which is presently under assessment for listing as a place on the National Heritage List. The proposed boundary for this listing includes the Norma Parker Centre, which formerly was the site of the Roman Catholic Orphan School (1844-1886) and the Parramatta Industrial Girls' School (1886-1974). The current list of NHL assessments anticipates that the proposed listing will be assessed by 30 June 2019.[2]

1.6.4 World Heritage List

Part of Parramatta Park and Old Government House are listed on the World Heritage List as part of the Australian Convict Sites listing.[3] The World Heritage Listing includes a buffer zone. Part of this buffer zone lies within the present study area (Figure 1.9).

[1] http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=105957 [accessed 24/01/2017].
[2] http://www.environment.gov.au/heritage/organisations/australian-heritage-council/national-heritage-assessments/parramatta-female-factory-precinct; http://www.environment.gov.au/system/files/pages/8ac00639-6069-454e-a191-e6b8a3eed9a2/files/fpal-amalgamated-june2016.pdf [accessed 27/01/2017].
[3] http://whc.unesco.org/en/list/1306/ [accessed 24/01/2017].

In 2015, the Federal, State and Local Governments entered into a Conservation Agreement. This identified a 'highly sensitive' area which includes the present study area (Figure 1.10). Annexure B of the Conservation Agreement included the following requirements that apply to the study area:

Area A.2 - Parramatta Stadium Site, Parramatta Pool and Car Park

a. At least 80% of the building height must be contained below the level of the surrounding established tree canopy of Parramatta Park when viewed from any of the key viewing locations from OGHD shown in Figure 4.3.3.7.7 [(Figure 11)]. Any building element must be oriented so as to minimise the visual impact from these viewing locations.

b. External building materials must be muted in colour with matt finishes to minimise contrast with the park surrounds and be complementary to its setting.

c. Signage on the upper level of buildings must not face the Domain of Parramatta Park.[4]

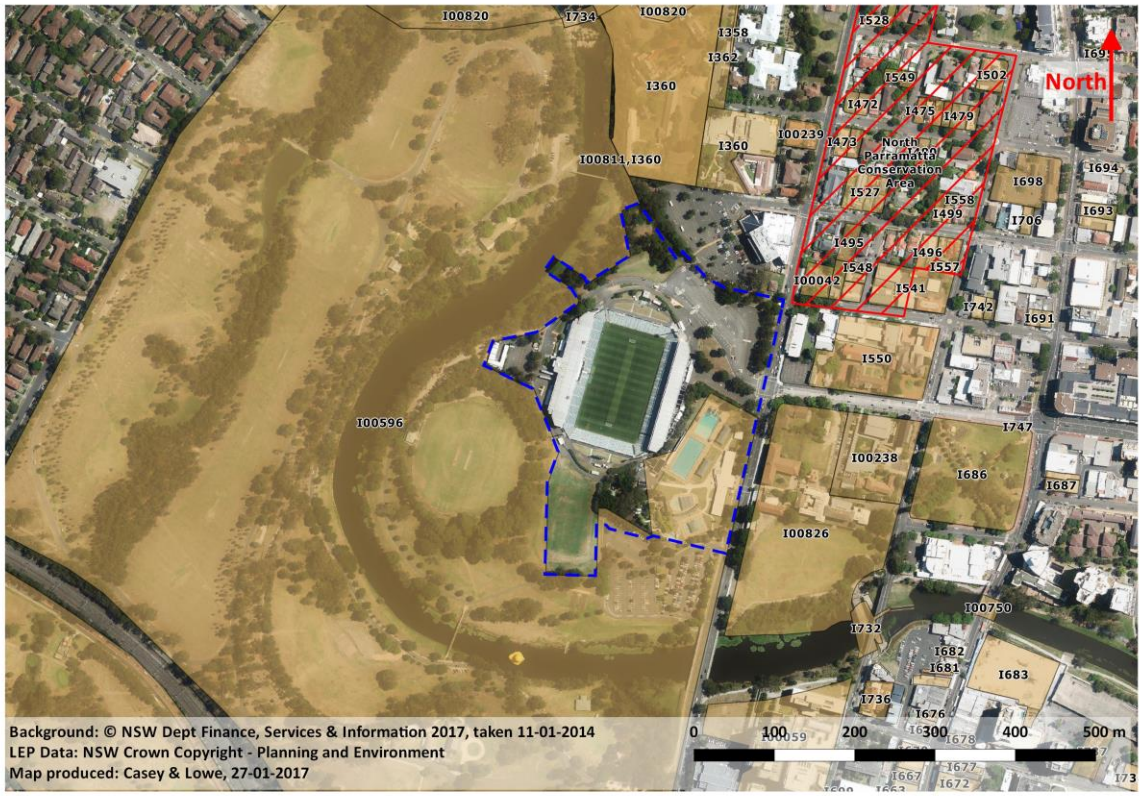


Figure 1.7: Parramatta LEP 2011 Heritage Items in the vicinity of the Western Sydney Stadium study area, outlined in blue. Map produced by Casey & Lowe using Department of Planning data, January 2017.

[4] Australian Government 2015, http://www.environment.gov.au/system/files/pages/4b63db66-1d8e-4427-91d1-951aff442414/files/ca-nsw-convict-sites.pdf

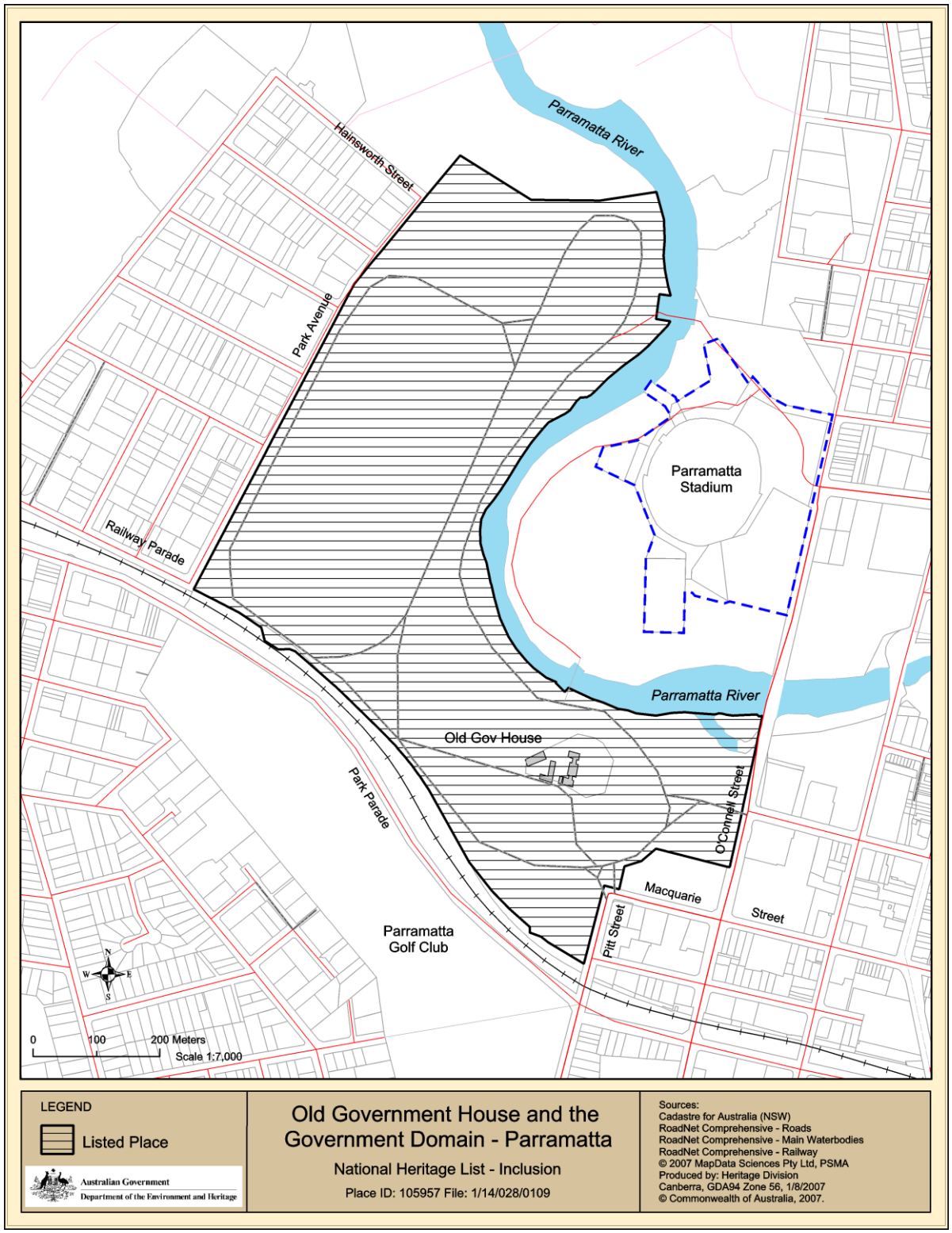


Figure 1.8: National Heritage List map, study area marked in blue.

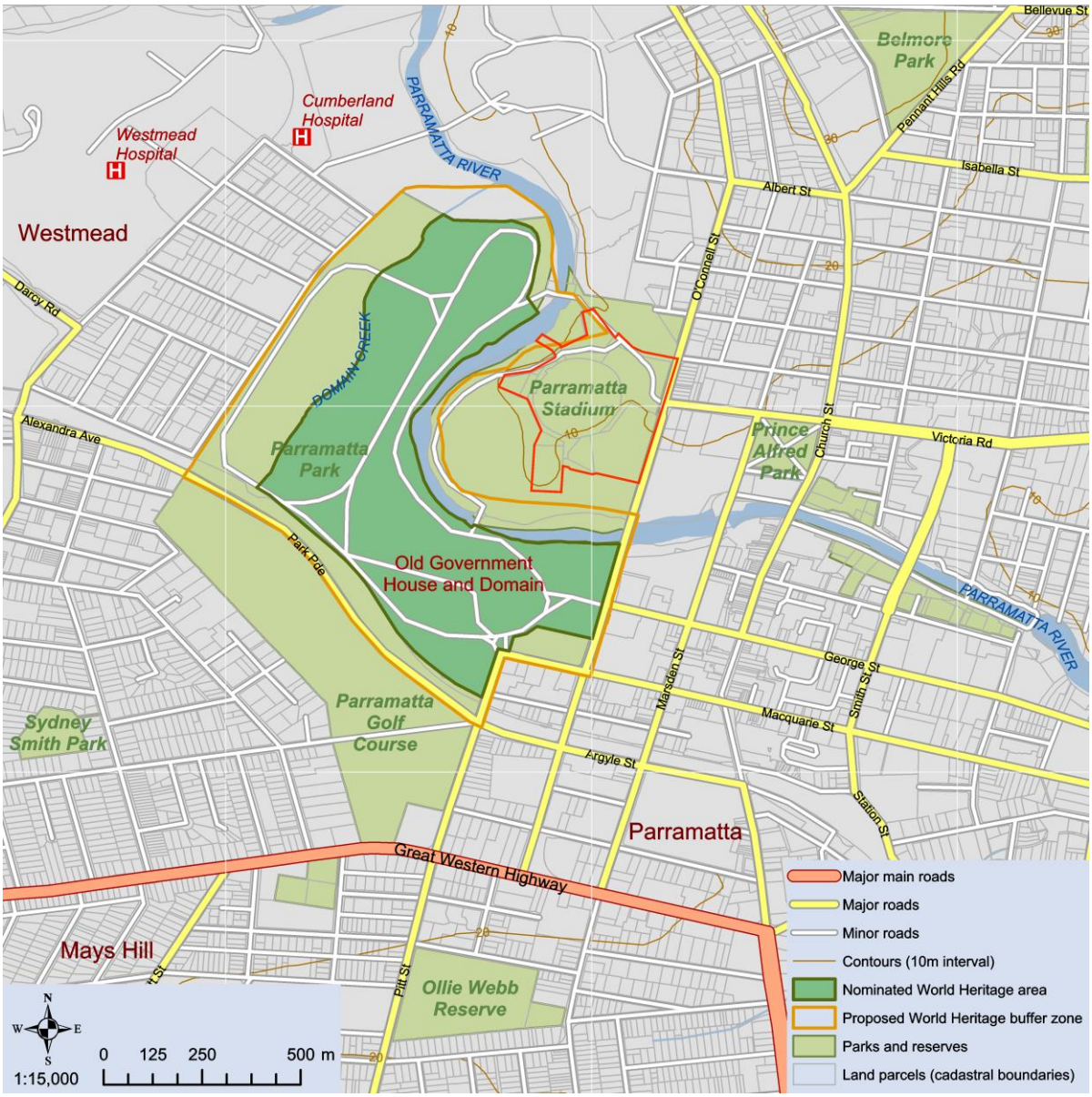
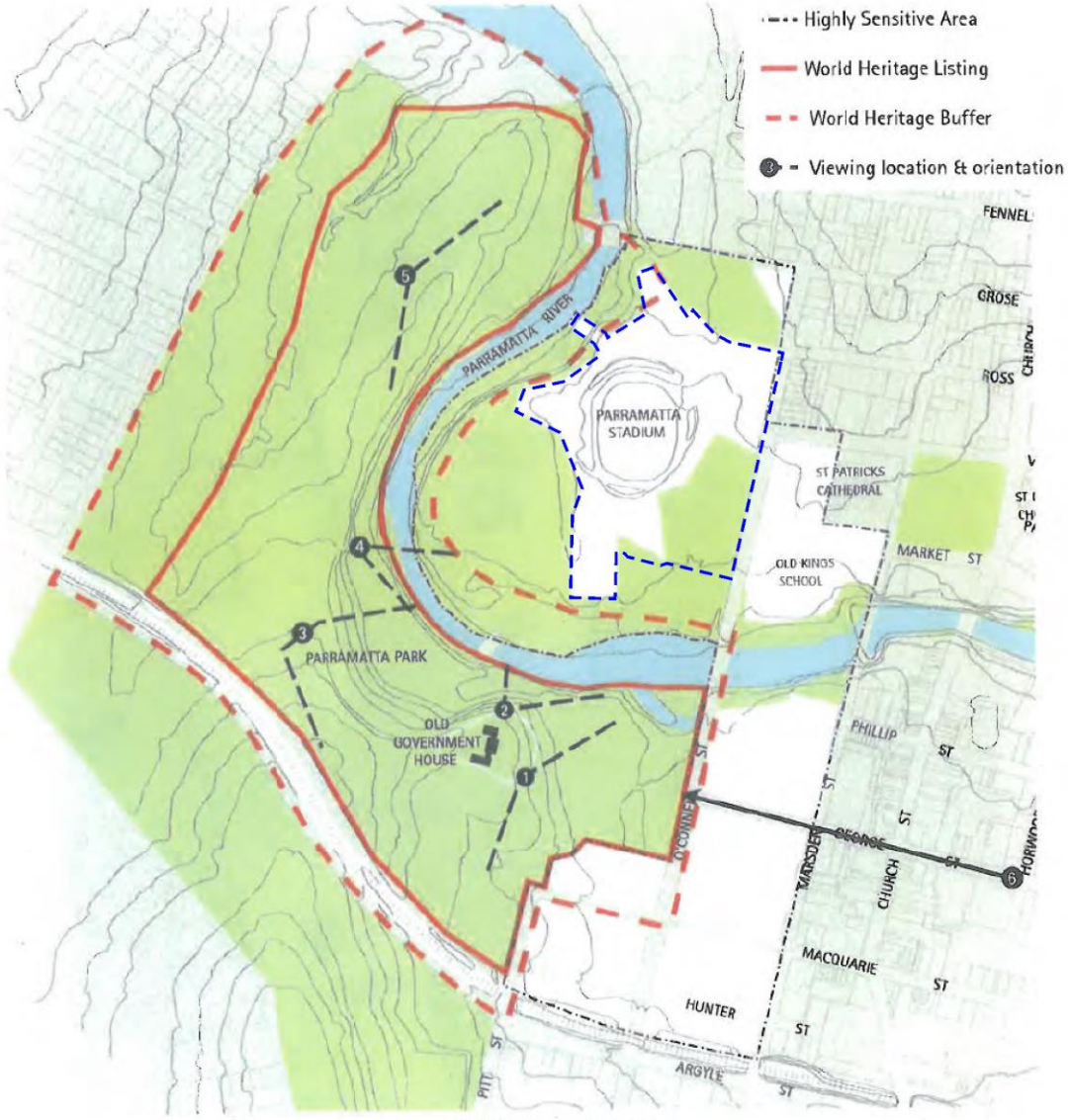


Figure 1.9: 'Old Government House and Domain, NSW', showing the buffer zone for the WHA extending into the norther western sections of the study area. Australian Convict Sites, map produced by Environmental Resources Information Network Australian Government Department of the Environment, Water, Heritage and the Arts, 2008. Study area added in red. UNESCO website.



OGHD Viewing Locations

Map reference	View
1	From lawns east and south of OGH towards the city
2	From NE corner of OGH to Old Kings School
3	From Bath House area west of OGH to city
4	Parramatta River views towards city from road within Parramatta Park on west side of river
5	From Dairy Precinct within Parramatta Park looking north east and south east towards city
6	West along George Street towards Gatehouse of OGH

Figure 1.10: Map of Highly Sensitive Area surrounding Old Government House and Domain, World Heritage Site, from 2015 Conservation Agreement. Study area added in blue.

1.7 Archaeological Zoning Plans

The historical archaeological potential of Parramatta generally and Parramatta Park has led to a number of different curtilages being identified for the key sites within the study area. This current report has produced the most reliable analysis of curtilage and archaeological potential and supersedes all earlier reports. For the curtilages themselves we have adopted Casey & Lowe 2014 (Figure 1.5), which was also adopted in the EIS (AECOM 2016a).

This report will discuss previous archaeological zoning and management plans in detail in Section 4.2.

1.8 Previous reports

The following reports have specifically considered the archaeological potential of the study area:

Casey & Lowe 2014 *Baseline Archaeological Assessment and Statement for Heritage Impact Historical Archaeology, Cumberland Precinct, Sports & Leisure Precinct, Parramatta North Urban Renewal - Rezoning*, report to UrbanGrowth, October 2014.

AECOM 2016 *Western Sydney Stadium, Technical Working Paper: Historic Heritage*, Western Sydney Stadium EIS, Appendix I, report to Infrastructure NSW, July 2016.

These reports have been examined in the preparation of this report.

1.9 Authorship

This report has been prepared by Nick Pitt, Archaeologist/Researcher and Dr Mary Casey, Director, Casey & Lowe. Dr Casey meets the NSW Heritage Council criteria for an Excavation Director of a site containing State significant archaeology. It has been reviewed by Tony Lowe, Director, Casey & Lowe.

The report utilises material from a number of previous reports prepared by Casey & Lowe, including *Baseline Archaeological Assessment and Statement for Heritage Impact Historical Archaeology, Cumberland Precinct, Sports & Leisure Precinct, Parramatta North Urban Renewal - Rezoning*, report to UrbanGrowth, October 2014 (BAA).

1.10 Abbreviations

ACM	asbestos containing material
BAA	Baseline Archaeological Assessment – specifically the 2014 Casey & Lowe report, *Baseline Archaeological Assessment and Statement for Heritage Impact Historical Archaeology, Cumberland Precinct, Sports & Leisure Precinct, Parramatta North Urban Renewal - Rezoning*.
HLRV	Historic Land Records Viewer (http://images.maps.nsw.gov.au/pixel.htm)
LEP	Local Environmental Plan
LPI	Land and Property Information (NSW)
NHL	National Heritage List
NLA	National Library of NSW
NMA	National Museum of Australia
PPT	Parramatta Park Trust
n.d.	not dated
SLNSW	State Library of NSW
SHR	State Heritage Register
SRNSW	State Archives and Records Authority of NSW
WSS	Western Sydney Stadium

2.0 Historical Context

2.1 Background

An analysis is important as the beginnings and changes to early Parramatta are complex and often obscured by a lack of historical records. The layering of the archaeology presents a confusion of possible interpretations which therefore require a firmer historical and landscape framework through which to interpret the findings of individual archaeological sites. It involves a review of the whole range of maps, plans and images, some previously unpublished and unanalysed, within the context of the remaking of Parramatta and its archaeological landscape.

The maps and images are explored through the lens of government administration and its intentions and the need to grow crops successfully to sustain the purposes of British Imperialism and colonialism in the Colony of New South Wales, with its associated needs for successful agriculture, food production and processing, convict accommodation and the eventual development of a free settlement occupied by emancipated convicts and settlers.

Parramatta's river terraces were covered by woodlands dominated by eucalypts, in particular grey box (*Eucalyptus moluccana*) and forest red gum (*Eucalyptus tereticormis*), with an open grassy understorey. Mangroves (*Avicennia marina*) may have colonised the river margins up to the tidal limit, approximately below Charles Street. The common reed (*Phragmites australis*), paperbarks (*Melaleuca linariifolia)* and rough barked native apple (*Angophora floribunda*) are predicted to have occupied wetter and drier areas on the lower river terraces respectively.[5] Stands of these trees can be seen in many images, often represented as encircling the settlement and illustrating the extent of clearing which had been undertaken.

2.2 Parramatta Beginnings (1788-1789)

Before British colonists arrived in the area, the traditional Aboriginal inhabitants lived throughout the area. This report does not cover the Aboriginal history and prior land use of the study area. An Aboriginal Archaeological Assessment is being was prepared for the EIS which accompanied the Concept Design and Stage 1 SSD application and a new Aboriginal Archaeological Assessment has been prepared by Comber Consultants for the project and S96 application.[6]

The Western Sydney Stadium site is within the early colonial landscape of Rose Hill and Parramatta. The settlement at Parramatta was the third British settlement in Australia after Sydney Cove and Norfolk Island. It began with the transformation of the landscape from an entirely Aboriginal place to a military redoubt and agricultural settlement, and then a township. Up to at least the 1830s, Parramatta continued to be a place where the local Aboriginal population and the newly arrived British settlers interacted.

Initial British settlement on Rose Hill was established in November 1788 by Governor Phillip who had sent out exploring parties to survey Sydney Harbour and the river at the head of the harbour shortly after landing at Sydney Cove. The area of Parramatta, at the head of the Parramatta River which feeds into Sydney Harbour, was discovered about three months after settlement. On Sunday 2 November 1788 Governor Phillip and others, including marines, established a military redoubt on Rose Hill.[7] The detachment of marines was to include a captain, two officers and 25 non-

[5] Macphail & Casey 2008:47.

[6] AECOM 2016b:68-69.

[7] Tench reports it as 3 November. Tench, W. 1979, *Sydney's First Four Years*, originally published as *A complete account of the settlement at Port Jackson,* facsimile edition first published 1961, Library of Australian History and the Royal Australian Historical Society, Sydney, p. 136.

commissioned officers as well as 40 or 50 convicts.[8] The marines were to protect the new settlement from attacks by Aboriginal people. A redoubt is a small ditched fortification, typically enclosed with earthen embankments on four sides – a ditch is dug and the spoil is thrown up to form a raised defensive mound.

Convicts were sent to Rose Hill to commence farming as this land was considered to be more fertile than the land near Sydney where Farm Cove was found to be rocky, with shallow, poor soils and a poor place to grow crops. In contrast, the ground at Parramatta 'was of a stiff clayey nature, free from that rock which everywhere covered the surface at Sydney Cove, well clothed with timber, and unobstructed by underwood'.[9] Initially an agricultural settlement, Rose Hill soon expanded into a small town and grew in importance, becoming the centre of British settlement for some years, with Sydney Cove remaining as the port town, main home of the governor and a major brickmaking area.

By February 1789 Rose Hill was a small settlement where the convicts and military 'still lived under tents' and 'very little molestation was at this time given by the natives' but there was ill treatment of the original inhabitants by the new arrivals.[10] By 14 July 1789 the convicts' tents had been replaced by huts and the soldiers were living in barracks within the redoubt which also contained the provisions store. The Government Farm was built with a house for Edward Dodd, and barn and granaries, into which wheat and barley was to be placed (Figure 2.3). The convicts had huts with gardens which they worked for themselves.

By June 1791 relations with some Aboriginal people had developed but there were considerable ups and downs. Collins describes the deterioration of the relationship:

> Since the establishment of that familiar intercourse which now subsisted between us and the natives, several of them had found it their interest to sell or exchange fish among the people at Parramatta; they being contented to receive a small quantity of either bread or salt meat in barter for mullet, bream, and other fish. To the officers who resided there this proved a great convenience, and they encouraged the natives to visit them as often as they could bring them fish. There were, however, among the convicts some who were so unthinking, or so depraved, as wantonly to destroy a canoe belonging to a fine young man, a native, who had left it at some little distance from the settlement, and as he hoped out of the way of observation, while he went with some fish to the huts. His rage at finding his canoe destroyed was inconceivable; and he threatened to take his own revenge, and in his own way, upon all white people. Three of the six people who had done him the injury, however, were so well described by some one who had seen them, that, being closely followed, they were taken and punished, as were the remainder in a few days after.
>
> The instant effect of all this was, that the natives discontinued to bring up fish; and Bal-loo-derry, whose canoe had been destroyed, although he had been taught to believe that one of the six convicts had been hanged for the offence, meeting a few days afterwards with a poor wretch who had strayed from Parramatta as far as the Flats, he wounded him in two places with a spear. This act of Ballooderry's was followed by the governor's strictly forbidding him to appear again at any of the settlements; the other natives, his friends, being alarmed, Parramatta was seldom visited by any of them, and all commerce with them was destroyed. How much greater claim to the appellation of savages had the wretches who were the cause of this, than the native who was the sufferer? [11]

[8] Gov. Phillip to Lord Sydney 30 October 1788, *Historical Records of New South Wales* (HRNSW), vol 1(2):209; Major Ross to Henry Nepean 16 November, 1788, HRNSW 1(2):213.

[9] Collins, D. 1975 *An account of the English Colony in New South Wales*, Brian Fletcher (ed.), Royal Australian Historical Society and AH & AW Reed, Sydney, vol 1, p. 37, November 1788; Governor Phillip to Sydney *Historical Records of Australia* (HRA), Series 1, Vol. 1:143, 12 February, 1790.

[10] Collins 1975 (1):46, 14th February 1789.

[11] Collins 1975 (1):.137–139, June 1791.

2.3 Early Agriculture and the Government Farm (1790s)

The agricultural settlement was established in November 1788 and by February 1789 land was being cleared and cultivated. The removal of the trees was more difficult than anticipated due to the spread of the roots and the absence of cattle or horses to provide additional effort to assist with removing the trees.[12] James Smith was the original person placed in charge of the government farm at Parramatta but Edward Dodd replaced him by March 1789. Dodd was Governor Phillip's personal servant who had managed the farming at Farm Cove and proved to be an extremely capable overseer of the convicts.[13]

There are various reports of the success of agriculture at Rose Hill. On 16 November, 1790, Captain Tench toured the locality with Rev. Richard Johnson, 'the best farmer in the country', and Dodd. The cleared land equalled 200 acres (81 hectares), with 55 acres (22.3 hectares) of wheat, barley, some oats and 30 acres (21.1 hectares) of maize, and the rest either cleared land or occupied by buildings and gardens. There were to be four pens or enclosures of 20 acres (8 hectares) each for cattle and two of these had already been built. There was a house in the centre of each enclosure to accommodate the person to take care of the cattle. The cleared land gave 'to them a very park-like and beautiful appearance'.[14]

There were no ploughs available to turn the soil and each convict had to hoe 16 rods a day (approx. 400 sq yards or 334 sq m), although this size meant that it was 'just scratched over' and not well turned. The ground was left open for some months before the remains of the trees were burnt and the ashes dug in. Dodd did not think areas could be replanted after the first crop without 'a large supply of cattle' to provide manure to fertilise the soil.[15]

In the southern part of the Stadium site, within Parramatta Park, is the site of the Government Farm. The Government Farm was a neat group of buildings within cleared and tilled ground accessible by a bridge across the river, with the barn and granary(s). The earliest depiction of the site is a roughly sketched map, prepared by William Bradley, probably in May 1789, when he visited Rose Hill (Figure 2.1). Bradley's sketch depicts four farm structures, one to the west of the bridge/entrance road and three to the east.

Another early sketch map of the site was drawn by Philip Gidley King when he visited Rose Hill in April 1790 (Figure 2.2). King also described the Government Farm at the same time:

> On the Opposite Side of the Brook is a farm house, where a Servant of Governor Phillips lives, & who is charged with the Superintendance of the Convicts & the Cultivation of the ground, to which charge he is very equal, & is of the greatest use to the Governor, as he has no other free person whatever to overlook the least piece of work carrying on by the Convicts; near this Farm house is a very good Barn & Granary…[16]

King's sketch shows five structures within the farm group, with one additional building on the east side of the bridge/entrance road. Two of these buildings are labelled - 'Granary' and 'Barn'.

There are two 1791 watercolour painting depicting the Government Farm some months after King's visit (Figure 2.3, Figure 2.4). The key one shows a direct view of the farm. By this time, the fenced off area surrounding the farm buildings was a well-organised garden with pathways and rows of plants. There was a dirt entrance road locked by a gate opposite the bridge (line of Pitt Street), two cottages with chimneys and what appears to be three tree stumps. The rest of the structures to the

[12] Collins 1975 (1):46, 14 February 1798.
[13] Collins 1975 (1):52, 546 n.18, March 1789.
[14] Tench 1979:193, November 16, 1790.
[15] Tench 1979:194, November 16, 1790.
[16] Journal of P G King, SLNSW SAFE / C 115 pp386-387 [a version of this text had been published in Hunter 1793:402-403].

rear appear to be farm buildings such as the granary and barn. It is possible one of these may have been the blacksmiths shop. The buildings appear to be a mix of timber, wattle and daub and possibility brick, notably the two fireplaces. An early brick kiln is indicated on the southern shore. The second watercolour focuses on the river and the crescent but also includes the northern foreshore with the southern farm buildings being located on the second terrace (Figure 2.4). A large-scale map from around 1791 shows the approximate location of the Government Farm buildings (Figure 2.5). It also shows the area to the north of the farm in cultivation.

The most reliable cartographic depiction of the Government Farm comes from a map of Parramatta typically dated to 1792 (Figure 2.6). This map is thought to have been based on actual measurements, and has proved relatively reliable on locating archaeological features around Parramatta. Nevertheless, limitations in the accuracy of the original survey must be recognised. Any overlay of this map onto contemporary plans will also have some uncertainty, perhaps as great as ±15m. It is noted that at the Parramatta Justice Precinct where this plan was used to identify buildings was found to have an error of approximately 5m.[17] The 1792 map shows four buildings within the Government Farm area, including two buildings corresponding to the granary and barn shown on King's 1790 sketch map (Figure 2.2). It also clearly shows that the bridge leading to the farm was in line with the centre of Pitt Street, which at the time extended into what is now Parramatta Park.

The slight differences between these contemporary depictions of the Government Farm may indicate that the farm buildings were being modified during the late 1780s and early 1790s. Alternatively, some differences may be due to the original depictions being inaccurate or incomplete.

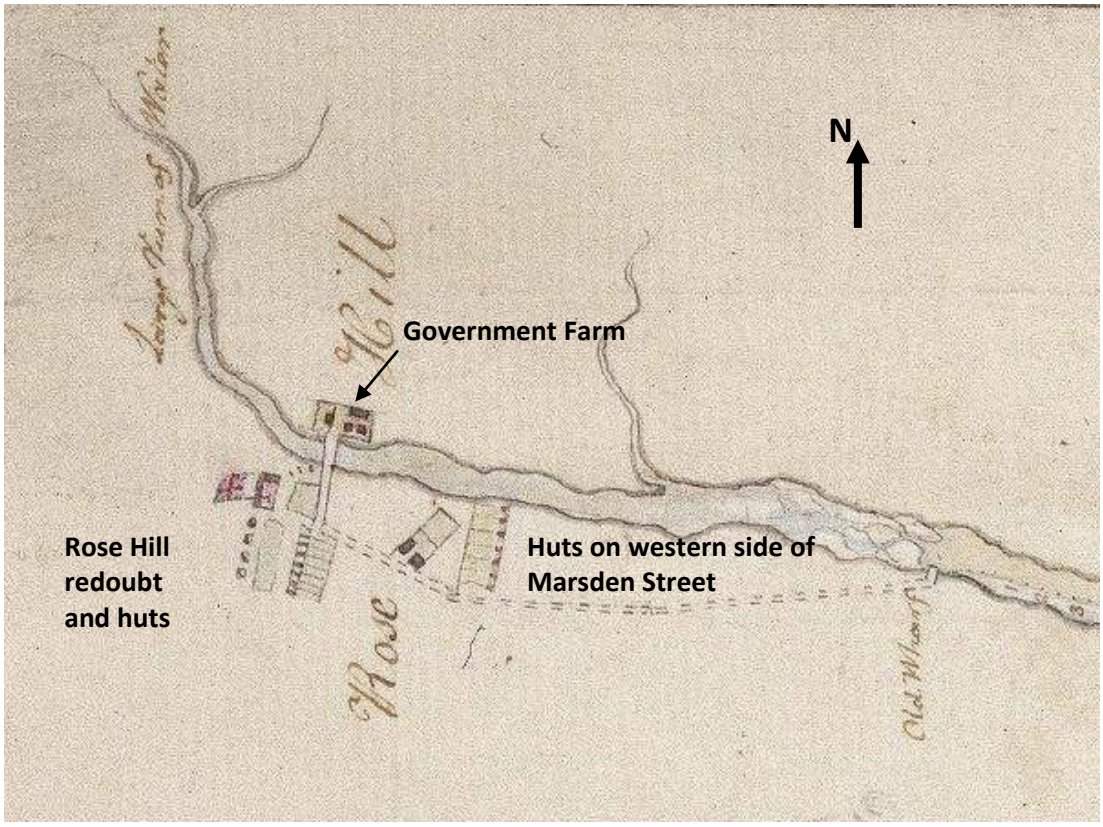


Figure 2.1: Sketch of Rose Hill by William Bradley, probably May 1789 when he visited Rose Hill. This is one of only two sketch plans to show the settlement of Rose Hill prior to the laying out of Parramatta's main streets in July 1790. SLNSW SAFE/MT4 140/1792/1, chart 4, digital order no. a127082.

[17] Mary Casey pers comm.

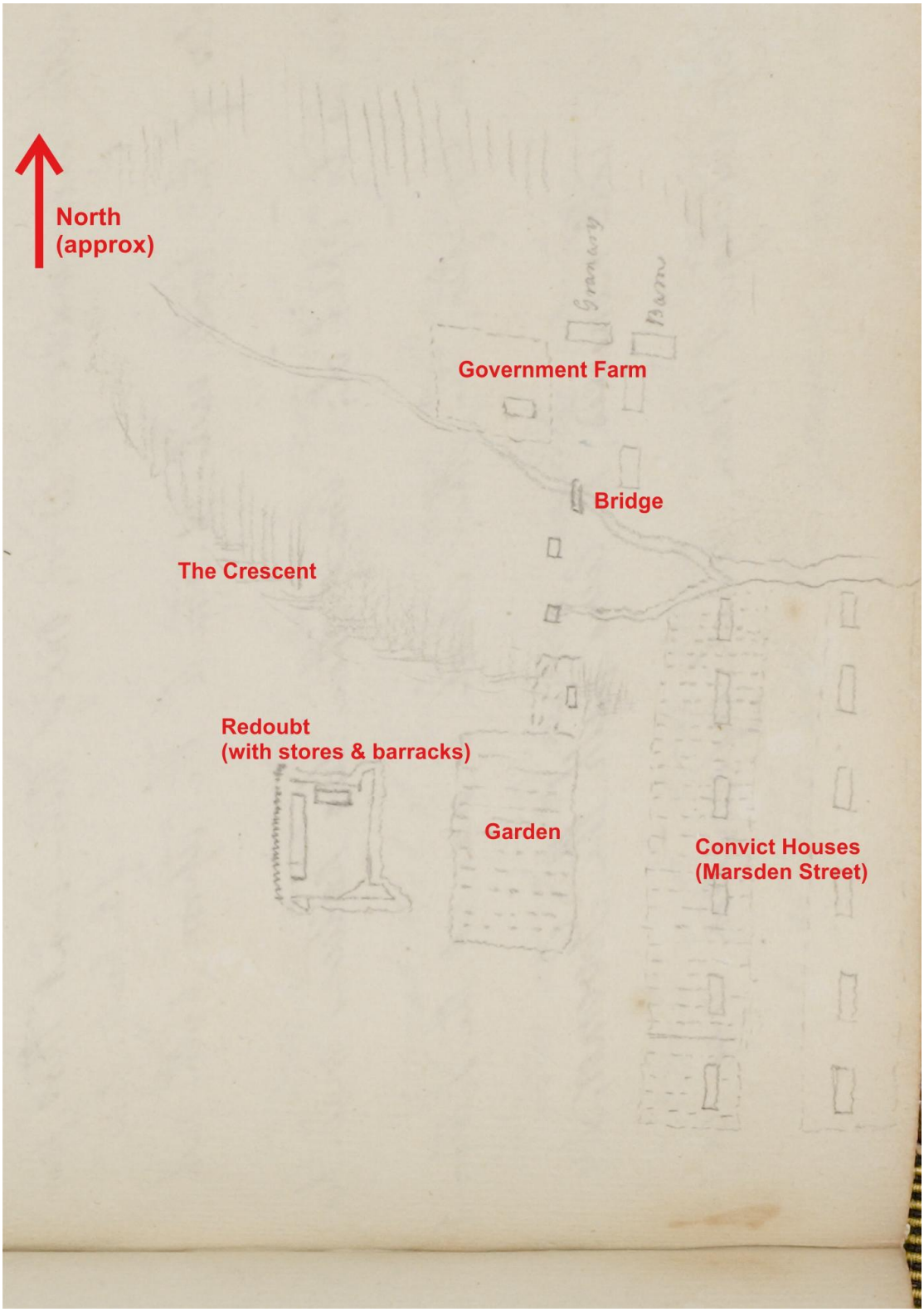


Figure 2.2: Annotated copy of an untitled sketch map of the Rose Hill settlement around April 1790, contained in the copy of 'Remarks & Journal kept on the Expedition to form a Colony' by Philip Gidley King, p 391. Note King's own labels 'Granary' and 'Barn', and the hatches used to indicate steeply sloping ground. SLNSW, SAFE/C115, digital order no. a1519256.

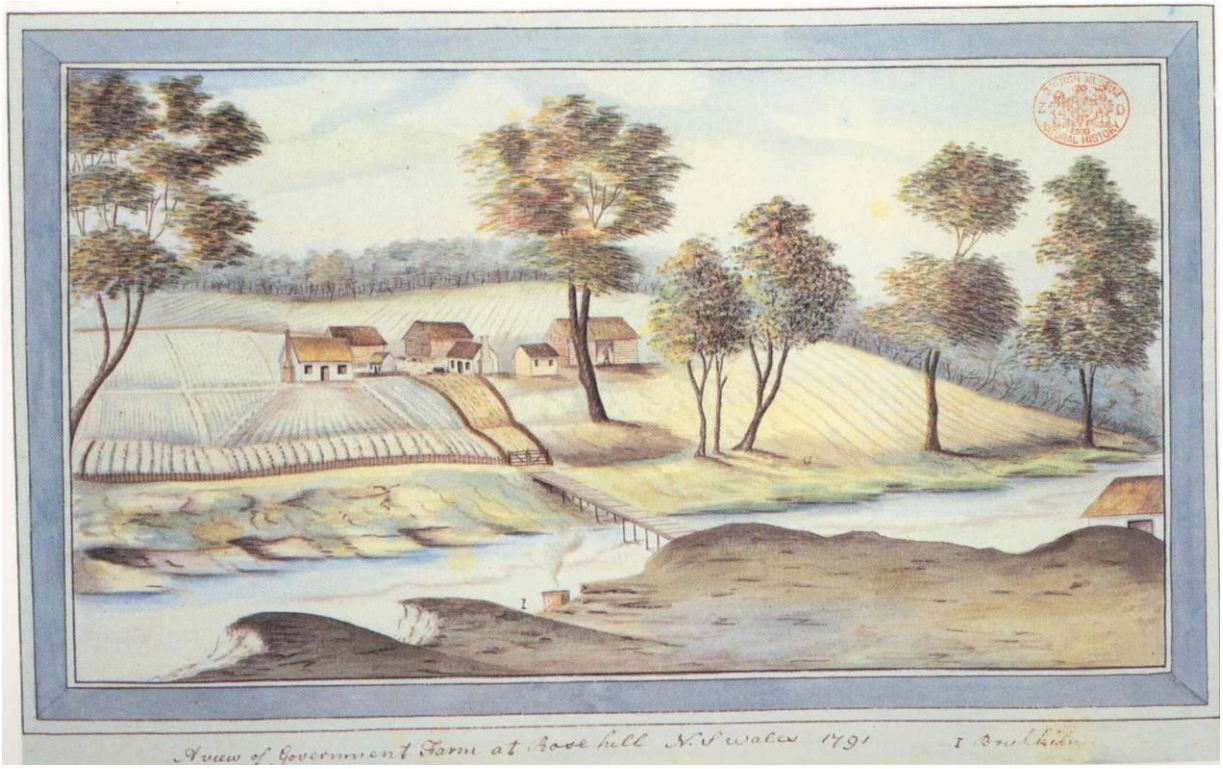


Figure 2.3: Government Farm with one or possibly two cottages, a barn with a man threshing in the doorway, perhaps two granaries and a few other structures. The area within the fence is completely cultivated and does not appear to be used for grazing, possibly because very few animals had been brought to the colony at this time. *A view of Government Farm at Rose Hill N.S. Wales, 1791*, Port Jackson Painter, Watling and Lambert Collection, Natural History Museum, British Museum.

Figure 2.4: The government Farm is shown on the northern bank (left) on the second of the river terraces. This painting is considered to be by the same artist as Figure 2.3. To the right is the crescent with hills along the top line of the crescent. View at Rose Hill Port Jackson, artist unknown, DG SV1AQ/24, State Library NSW.

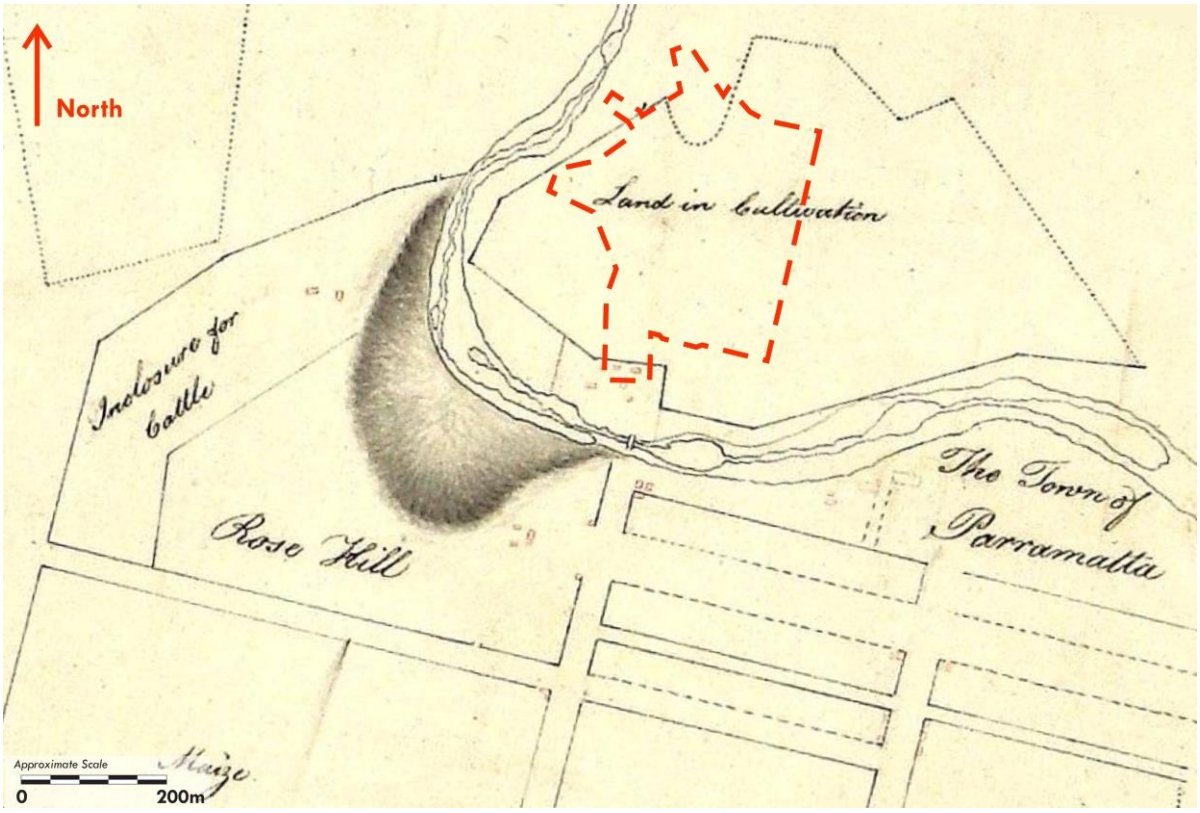


Figure 2.5: Detail of 'Plan and Survey of Parramatta and the Settlements in its vicinity', c.1791. The approximate location of the study area is outlined in red. Note the Government Farm with the 'Land in Cultivation'. By 1791, areas of agriculture within the main town had been replaced by the newly laid out township. TNA (UK) CO 700/New South Wales3.

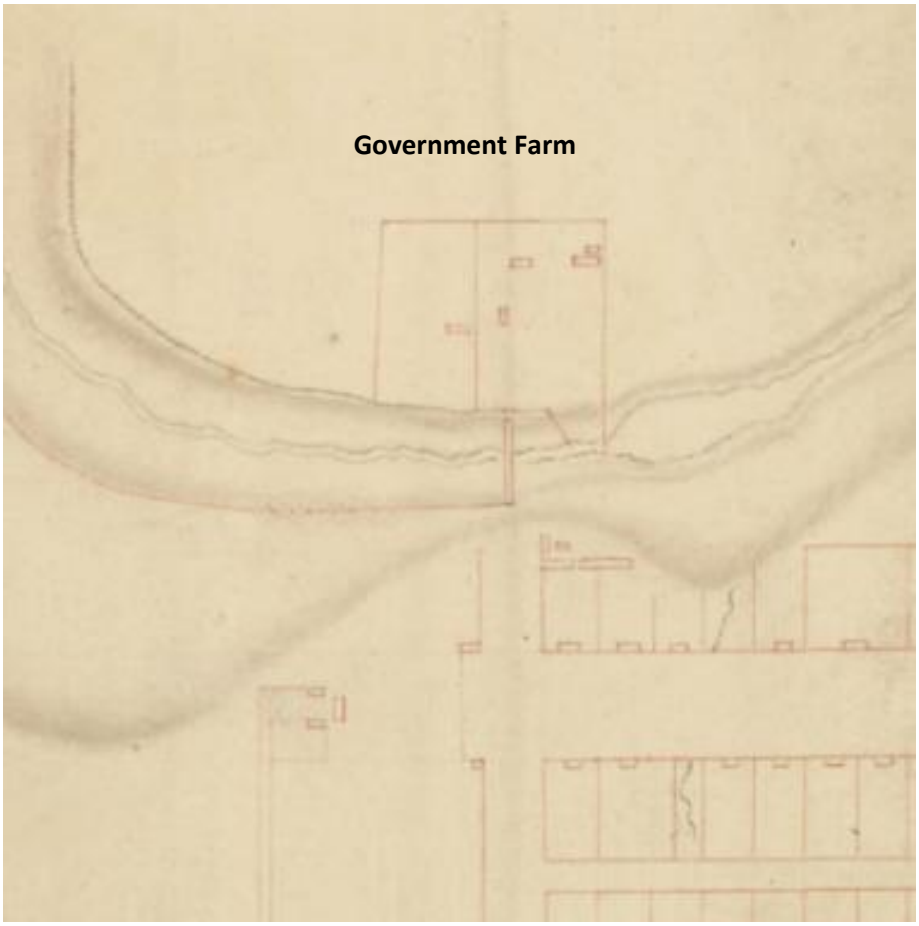


Figure 2.6: Detail of a 1792 plan of Parramatta showing the Government Farm with the bridge on the alignment of original and modern Pitt Street. The farm contained four structures on the eastern side and what was probably Dodd's residence on the western side of the fence. UK Archives, CO700 New South Wales 4.

2.4 Later uses of the Government Farm (1800-1810s)

Henry Dodd died on 28 January 1791. However, the Government Farm continued to be used for some time. Although the 1804 plan of Parramatta (Figure 2.7) does not show any structures or allotments in the vicinity of the Government Farm, there is good evidence that it was divided into two lots, and occupied by the Sir Joseph Banks' botanist, George Caley, and the trusted former convicts Thomas and Elizabeth Eccles.

On 1 January 1806 Governor King granted a lease of seven years to George Caley for 1 acre, 2 roods and 18 perches (0.65 Ha) on the north side of the Parramatta River. At the same time, he granted another lease of 14 years to Thomas Eccles for 1 acre, 2 roods and 25 perches (0.67 Ha).[18] By comparison, the measured area of the Government farm as shown on the 1792 map is approximately four acres (1.6 Ha).

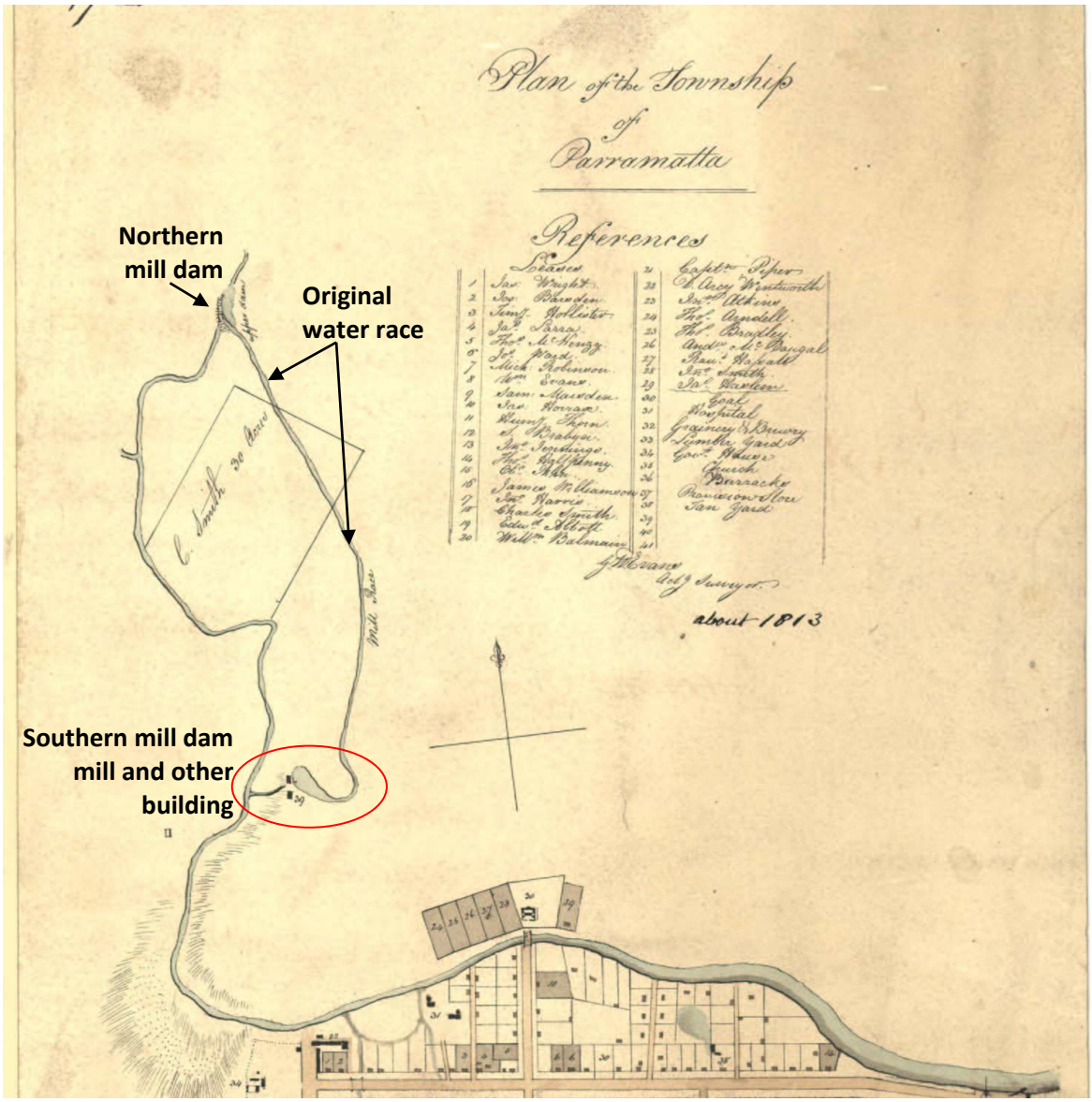


Figure 2.7: 1804 Map of Parramatta showing the 1799-1803 mill and race in relation to Charles Smith's Grant, and southern and northern dam with the mill race extending to the north into the Parramatta North precinct. The Government Farm is not shown on this plan. Meehan drawing of Evans' survey, UK National Archives CO700 NSW22.

[18] NSW LPI Land Grants Bk 3, Nos. 187(2) and 187(3).

The two leases were surveyed at the same time on 9 May 1806, and although the description made at the time is somewhat hard to follow, it is clear that the two lots were adjacent to each other (Figure 2.8).[19] The fieldbook description also includes a measured line roughly 13.7 chains (276 m) north from the southwest corner of the granary to 'Eccles's Cor[ner]'.[20] The southwest corner of the granary, as shown on the 1804 map, was near the former intersection of Pitt and George Streets (now within Parramatta Park). This measurement, although fairly rough and inaccurate, places the leases within the general area of the Government Farm as shown on the 1792 map (Figure 2.6). George Caley's own 1806 map of the Government Watermill also places his house in the general vicinity of the former Government Farm (Figure 2.9).

The 1806 leases both use the phrase 'the allotment of ground now in the occupation of', which indicates that both Eccles and Caley lived on their lots before 1806. George Caley was Sir Joseph Banks' personal collector of botanical specimens, and lived at Parramatta from around May 1800 on a site chosen by Philip Gidley King on behalf of Governor Hunter. There appears to have been a house already on the site, but another new house was also built for Caley around September 1800.[21] Thomas and Elizabeth Eccles had lived in Parramatta since early 1801, after time on Norfolk Island. There, Philip Gidley King had recommended Eccles for a pardon based on his services as a gardener.[22] Both Caley and Thomas Eccles had close connections to Governor King, which may have influenced the location of their lots near Government House. Both Eccles and Caley's leases were excluded from the later grant of 105 acres north of the Parramatta River made by Governor King to William Bligh in August 1806.[23]

Caley left Parramatta in 1808, after Banks ended his employment. Thomas Eccles continued to live at Parramatta, presumably on his allotment, until his death in April 1814, aged in his 80s or 90s. After his death, Elizabeth Eccles (also known as Betty) moved to the Government Dairy, where she lived until her death in 1835, aged 105.[24]

Some, including the historian James Jervis, have suggested that Caley's botanic garden and house were on the same site as the land which Governor Brisbane leased to the Agricultural Society for a Horticultural Garden in the 1820s and later used as the site of the Kings School.[25] However, it is clear from correspondence from the Agricultural Society in 1833, that they only occupied the site for roughly ten years before it was offered as the site for the new school.[26] Therefore, based on Meheen's fieldbook evidence and Caley's plan, his house and garden were within the locality of the former Government Farm.

[19] Surveyor-General, Field Books, No 32, J Meehan, 1804, SRNSW SZ 865, p 15.

[20] The actual text of the fieldbook reads, "from SW Cor of Granary N17½W 4 [chains] N8⅔E 6 [chains] N15¾E 370 [links] Eccles's Cor".

[21] Else-Mitchell 1967; McClymont 2014.

[22] Cameron 2016; Dunn n.d.; 'Eccles, Thomas (1737–1814)', People Australia, http://peopleaustralia.anu.edu.au/biography/eccles-thomas-24901/text33461.

[23] NSW LPI Land Grants Bk 3, No. 217.

[24] Else-Mitchell 1967; Dunn n.d.

[25] McClymont 2014.

[26] Peddle Thorp Architects 1994:34.

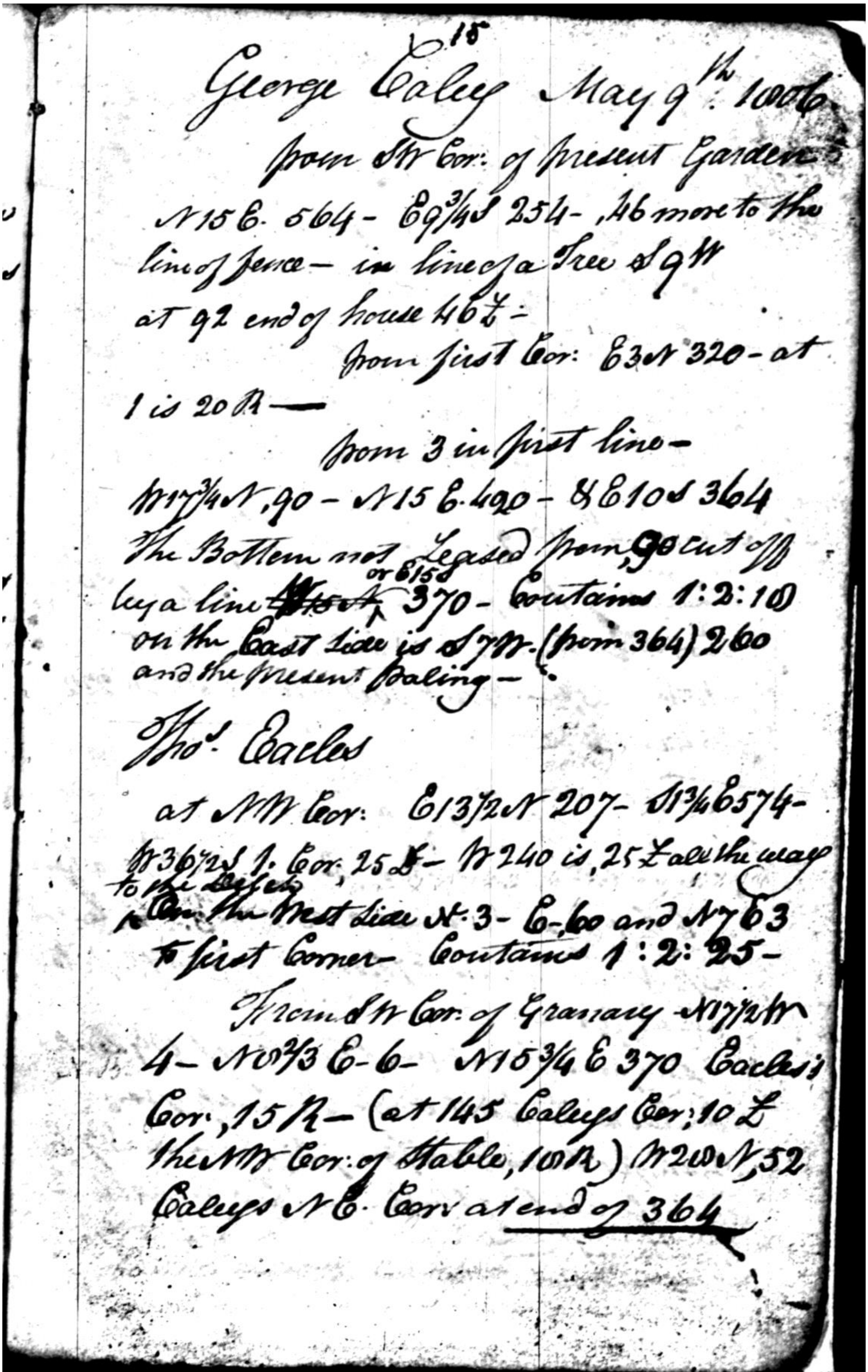


Figure 2.8: The 1806 fieldbook descriptions of George Caley's and Thomas Eccles' leases, which show that they were adjacent to each other. All measurements are in either links or chains. Surveyor-General, Field Books, No 32, J Meehan, 1804, SRNSW SZ 865, p 15 (copy from ancestry.com).

2.5 Government Watermill and Race (1799-c.1820)

In 1799 Governor John Hunter made preparations for the construction of a watermill in Parramatta. It was one in a number of attempts to provide the colony with an efficient and reliable way to mill large quantities of grain using equipment brought out with him in 1795.[27] Hunter's plan was to utilise tidal changes in the river at Parramatta and he announced in September 1800 the construction of 'a large water-mill'. By this time part of the water works were 'considerably advanced and some part of the machinery prepared'.[28]

Andrew MacDougall, John Bowman and John Smith arrived in the colony in May 1798 with books and plans supplied by the British Government for the construction of mills. From December 1799, ten carpenters, wheelwrights, barrow makers and labourers were employed on the project. The mill on the eastern bank of the Parramatta River was 'a little upstream of Governor's House on the Crescent' where flat stones formed a 'natural low weir and a causeway' at a site thought in the 1990s to be near the present day Norma Parker Centre.[29]

Governor King succeeded Hunter in September 1800 and assumed control of the colony and water mill construction. Other than the mill, the project required the construction of mill races and dams to direct and control the water supply. The mill race began at a point just north of the junction between Toongabbie Creek and the Parramatta River, ran due southeast through ex-convict Charles Smith's 30-acre farm, and followed a line to the site of the watermill. The location of the mill race, dams and mill in relation to the town are shown on Acting Surveyor G. W. Evans' 'Plan of the Township of Parramatta', based on an 1804 survey (Figure 2.7).[30]

Initially Rev. Samuel Marsden, the Superintendent of Public Works, supervised the construction of the mill but in 1803 the work was entrusted to convict Nathaniel Lucas, a skilled carpenter recently arrived from Norfolk Island with Alexander Dollis, a master boat builder and former superintendent of the island. Nathaniel Lucas had worked with Lieutenant Governor King on Norfolk Island and Governor King considered him to be a competent mill builder.[31] Finding some of the work of poor standard it was dismantled and rebuilt.[32] Allegedly motivated by the advantages of its location, about 1803 Samuel Marsden purchased Smith's 30-acre farm that was 'out of cultivation' and through which the mill races ran. His ownership was formalised by a grant from Lachlan Macquarie in 1812, increasing its area to 36 acres and extending it to the riverbank at its northwest corner.[33]

In January 1804, the mill project was nearing completion and had the potential to contribute to the colonial economy as a labour saving device and improving the quality of milled flour. The three-storey, roughly-built stone mill measured nine yards by eight yards (8.23m x 7.32m), and had an overshot wheel 18 feet (5.48 m) in diameter and 18 inches (0.46m) in width. A spacious granary formed part of the design for the upper floor.[34]

Mill operations commenced, but major flaws soon became apparent in the planning and construction of the dams, races and mill. Sandy soil made many of the structures and races unstable, and unreliable water supplies led to insufficient water for operation. Excess water supplies proved equally difficult to manage. Alexander Dollis, who had overseen much of the mill

[27] Tatrai 1994:24-25.
[28] *HRNSW* Vol 4 p 154 cited in Tatrai 1994:28.
[29] Tatrai 1994:29, 31.
[30] 'Plan of the Township of Parramatta', GW Evans, Acting Surveyor, survey dated to 1804 [although annotated 'about 1813'], ML SLNSW Z/M2 811.1301/1813/1.
[31] Nathanial Lucas built one of the three wind mills within the Sydney Domain.
[32] Tatrai 1994:32-33; *Sydney Gazette* 23 Oct 1803:2.
[33] Grants register Series 7 p51, LPI; Caley cited in Tatrai 1994:84.
[34] Tatrai 1994:32-33; Caley cited in Tatrai 1994:83; *Sydney Gazette* 15 Jan 1804.

construction, left the colony in March 1804 and Lucas went on to establish his own mill in Sydney, leaving the project without skilled labour to attend to the problems.[35] Heavy rain in the following month caused serious damage to dams and races, and structural repairs involved the installation of piling and casing to reinforce the earthen dam walls. The lining of the largest dam neared completion in August 1804. Governor King relayed to his superiors his disappointment considering the great labour and expense invested in the mill and dam 'erected on the same spot designed by Governor Hunter as the only situation likely to be supplied with water'.[36]

Between 1803 and 1806 George Caley wrote an account of the construction of the Government watermill.[37] Caley lived on a lease to the south of the new mill and closely observed its progress. Scathing criticisms were directed at Rev. Marsden, whom he suspected of mismanagement and accused of general ignorance about the technical requirements of the project. In particular Caley questioned Marsden's motives behind the acquisition of Smith's Farm and its proximity to the location of a better site for a mill. Marsden later built his own watermill near the Government's northern mill dam opposite the junction of Toongabbie Creek.[38]

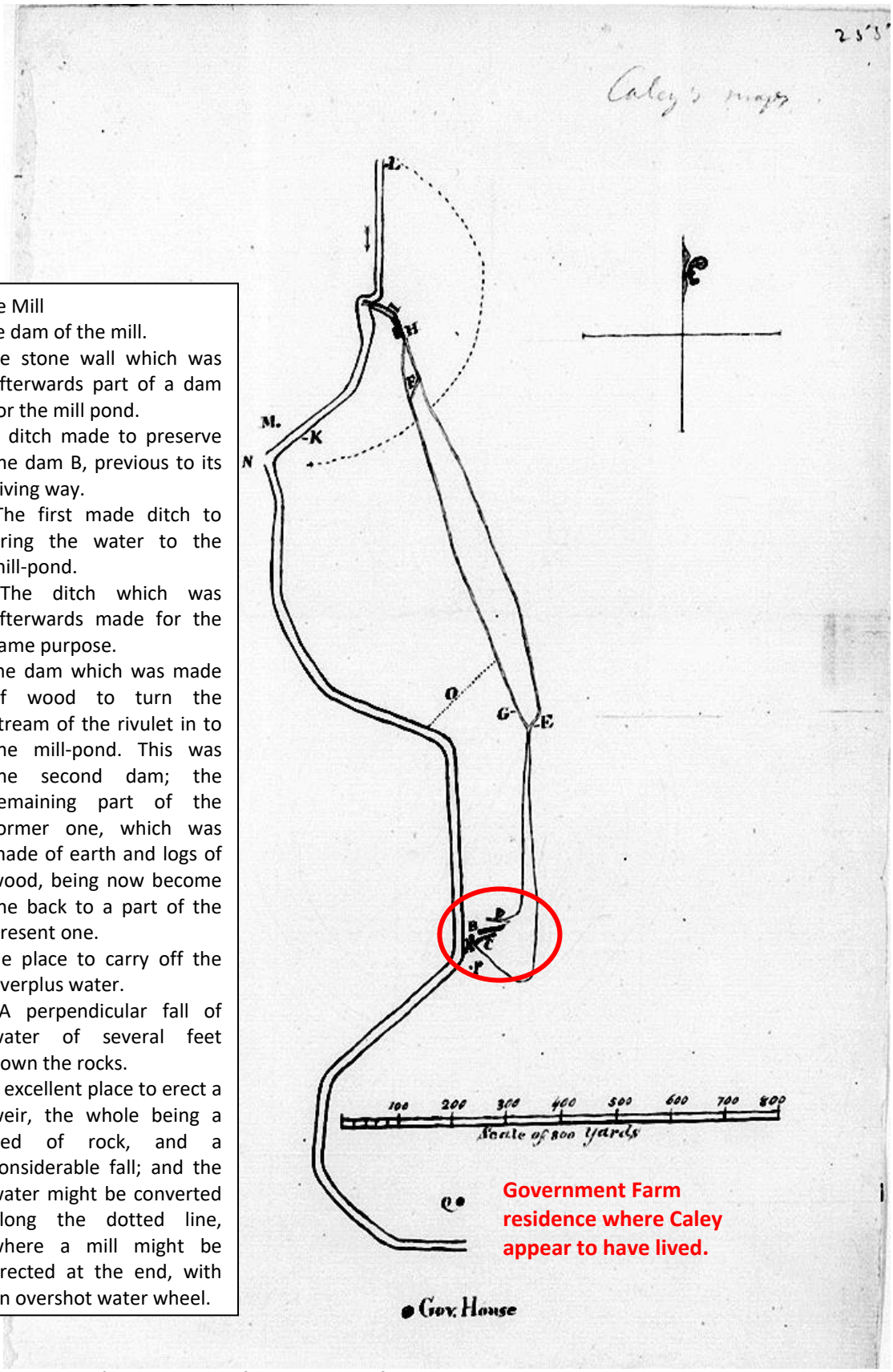
Caley outlined the flaws inherent in the Government watermill, in particular:

- The close proximity of the mill to the river, risking flood damage.
- Use of earth mortar in masonry walling in the dam walls, allowing water to seep through.
- No provision for an overflow during flooding.
- Shortage of labourers and skilled labour.
- The mill races had loose sides and washed away.
- The mill races were too shallow in places and later races were dug to a greater depth through bedrock.
- The water wheel worked intermittently due to irregular water flow.[39]

Caley's account provides additional information integral to an understanding of his diagram, and discuses later repairs and alterations associated with the mill works. A key to the features associated with the mill and millrace are listed in Table 2.1 below.[40] Features A, B, C, D, P and Q are located within the general locality of the Western Sydney Stadium study area and the other features are within Parramatta North Urban Transformation precinct.

Despite King's disappointment, the mill resumed operation, albeit dependent on irregular water supplies and prone to damage in inclement weather.[41] Millwrights worked from a shed to the south of the mill. In January 1805, the dam to the north at 'HI' was altered and a new mill race dug at a new location. Work was completed just prior to a flood breaching the dam wall. Strategies attempting to save the structure included a ditch dug at 'D' to provide an overflow, and earth piled on the top of the dam. The mill operated through the remainder of February and March and, due to the fast pace of the waterwheel, as much water was lost as was useful in the mill's operation. New breaches in the dam near the mill led to the construction of a stone dam wall.[42]

[35] Caley cited in Tatrai 1994:85; Tatrai 1994:35.
[36] King to Hobart 14 Aug 1804, *Historical Records of Australia*, Series 1 Vol 5, 12, 45-46, 171.
[37] Tatrai, 1994:35; Caley's account reproduced in Tatrai 1994:82-91.
[38] Caley cited in Tatrai 1994:83.
[39] Tatrai 1994:36; Caley in Tatrai 1994:84-88.
[40] Caley in Tatrai 1994: 81.
[41] King to Hobart, 14 Aug 1804, *HRA* Ser 1 Vol 5, 1915, 27, 45-46, 171; King to Camden *HRA* Ser 1 Vol 5, 1915, 653.
[42] Caley in Tatrai 1994:86-88.



A: The Mill
B: The dam of the mill.
C: The stone wall which was afterwards part of a dam for the mill pond.
D: A ditch made to preserve the dam B, previous to its giving way.
EH: The first made ditch to bring the water to the mill-pond.
FG: The ditch which was afterwards made for the same purpose.
IH: The dam which was made of wood to turn the stream of the rivulet in to the mill-pond. This was the second dam; the remaining part of the former one, which was made of earth and logs of wood, being now become the back to a part of the present one.
H: The place to carry off the overplus water.
K: A perpendicular fall of water of several feet down the rocks.
L: An excellent place to erect a weir, the whole being a bed of rock, and a considerable fall; and the water might be converted along the dotted line, where a mill might be erected at the end, with an overshot water wheel.

Figure 2.9: Caley's sketch plan of the location of the Government Watermill, Parramatta, c.1806. The area of the watermill is circled (Series 18.089). Series 18: Correspondence, being mainly letters received by Banks from George Caley, 1795-1809, 1814, CY3680-726, ML, SLNSW. See Table 2.1 for full key.

Table 2.1: Key to Caley's schematic plan of the Government watermill at Parramatta, c.1806 (Tatrai 1994, 81).

A	*The mill*	*H*	*The place to carry off the over-plus water*
B	*The Dam of the Mil-pond, and showing the breach*	*K*	*A perpendicular fall of water of several feet down the rocks*
C	*The stone wall which was afterwards in building as a dam for the mill-pond*	*L*	*An excellent place to erect a weir, the while being a bed of rock, and a considerable fall, and the water might be erected at the end, with an over-shot water wheel*
D	*A ditch made to preserve the dam B, previous to its giving way*	*M*	*A farm laying waste, or uncultivated*
EH	*The first made ditch to bring water to the mill-pond*	*N*	*The conflux of another rivulet*
FG	*The ditch was afterwards made for the same purpose*	*DK*	*The Rev. Marsden's land*
GH	*When this ditch was cut deeper, it was carried more direct at the other end*	***P***	*The shed in which the mill-wrights worked*
IH	*The dam which was made of wood to turn the stream of the rivulet in to the mill-pond. This was the second dam; the remaining part of the former one, which was made of earth and logs of wood, being now become the back to a part of the present one*	***Q***	*My* [Caley's] *habitation*

The construction of the stonework kept a number of hands in employment until mid-April 1806 at which time the pressure of the water forced much of it to give way, and not for the first time. The workmen were removed from the job, leaving an area to complete measuring 50 yards long, 2¾ yards wide and 6 yards high at its greatest depth (45.7 x 2.5 x 5.5m). The wall consisted of two skins of masonry about a foot apart (300mm), tied together at intervals by stonework. Mortar was used in places, however, it was generally set with clay. The face of the dam wall was laid with squared stones but the inner skin was rubble and clay. A trough in the wall allowed for water to be drained from the pond and there was an area left for a sluice.[43]

Marsden compounded problems by felling trees to block the thoroughfare through Smith's Farm, hindering access to repair of the dam and races to the north. Further potential challenges to the mill's ongoing operation followed in 1806 when, contrary to orders, King granted the incoming governor William Bligh 105 acres to the south of the mill. Four acres was reserved 'for the use of the mill race and pond, and to the river, and also a road fifty feet wide to communicate with the mill'. Another exception to exclusive occupation included the preservation of the original terms of existing leases to Caley and Thomas Eccles.[44] During his term Bligh did not improve the already cleared land or use the pasture but maintained his right to its ownership.[45] The grant was cancelled in 1819 but a legal battle over the title continued until 1841 when Bligh's executors formally surrendered their claim.

[43] Caley in Tatrai 1994:88-89.

[44] Tatrai 1994:52.

[45] Macquarie to Bathurst, 7 Oct 1814, *HRA*, Series 1, Vol 8, 1916, 339.

The culmination of two and a half years of work was an unfinished watermill, that was poorly designed and positioned, and with fundamental weaknesses. Even if successful it was only built to work one pair of millstones, therefore lacking the output necessary for increasing demands.[46]

Despite the watermill's problems it is thought to have operated at times and by 1814 wheelwright George Howell of Parramatta is thought to have been operating it.[47] Olga Tatrai suggests in *Wind and Watermills of Old Parramatta* that George Howell operated the government mill, in conjunction with miller John Walker. The skilled wheelwright had worked in Parramatta as overseer, was familiar with the locality and had the necessary skills to oversee a mill. Through association, the government mill had become known as "Howell's Mill". Howell was less competent with financial matters and in December 1820 a debt to Simeon Lord resulted in the auction of the interests, rights and claims to the Parramatta mill and other property.[48] Some months earlier Lord was partly renumerated by the government to the amount of £100 for the removal of Howell's mill, the equipment of which could be utilised in his own mills in dressing cloth for the government.[49] The sale and removal of the equipment marked the end for the government watermill that successive colonial governors had envisaged would be an asset to Parramatta and the colony.

The location of the watermill is known from a number of historical maps and other sources. The general location of the mill and mill race are known from Evan's 1804 map of Parramatta, and Caley's 1806 sketch map of the mill (Figure 2.7, Figure 2.9). The mill is also one of the features labelled on an undated (c.1803) survey thought to be by the surveyor Charles Grimes (Figure 2.10). It also is shown on another map of Parramatta made in 1814.[50] All these maps show the Government Mill in roughly the same location, roughly the northwest corner of the Study Area. The difficulty with all these early maps is that they each show the mill and dam in a slightly different location, leading to the conclusion that the precise location which they show is inaccurate. However, the southern mill dam survived as a landscape feature up to the 1960s. As a result, the position of the mill and dam can be determined using later, more accurate maps.[51] Ebsworth's 1887 map of Parramatta Park shows that the dam & mill race were in the northwest of the study area, just south of a carriage drive which follows the present road to the Parramatta River, south of the Norma Parker Centre. This same formation survived until at least 1961 (Figure 2.12, Figure 5.13).

[46] Caley in Tatrai 1994: 90.

[47] Meehan, Surveyor's Field Book 73, 2/4746, SRNSW cited by H. Weatherburn in Higginbotham, 1991, np [35].

[48] Tatrai 1994: 53-54; *Sydney Gazette* 28 Dec 1820, 2.

[49] *Sydney Gazette* 29 Jul 1820, 2.

[50] 'Plan of the Township of Parramatta in New South Wales 1814', signed L. M[acquarie], 1 Oct 1814, SLNSW M2 811.1301/1814/1.

[51] This approach was also taken in the 2014 Baseline Archaeological Assessment. See Casey & Lowe 2014:223-224.

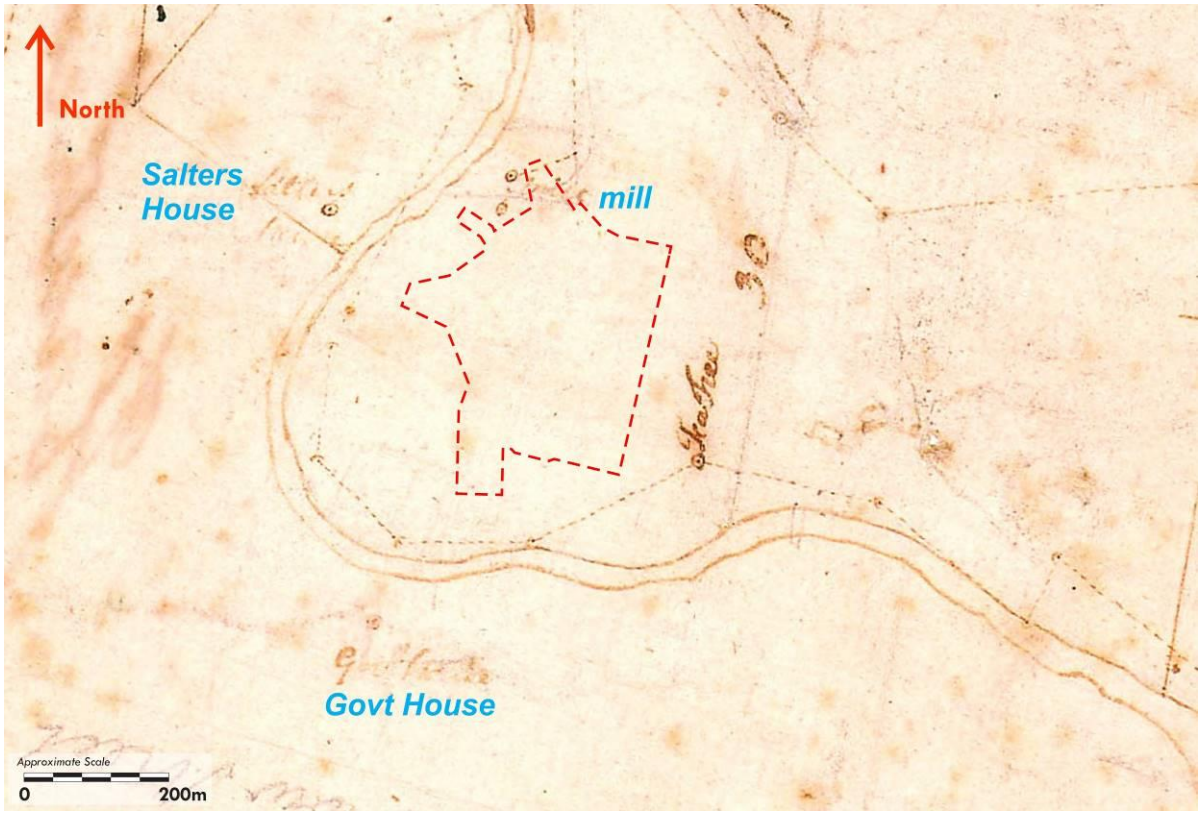


Figure 2.10: Detail of 'Survey showing Smith's land at Parramatta…,' Surveyor C. Grimes, n.d. (c.1803). The faint pencil labels have been transcribed in blue. Approximate location of study area outlined in red. SRNSW P.1213, SR Item SZ407.

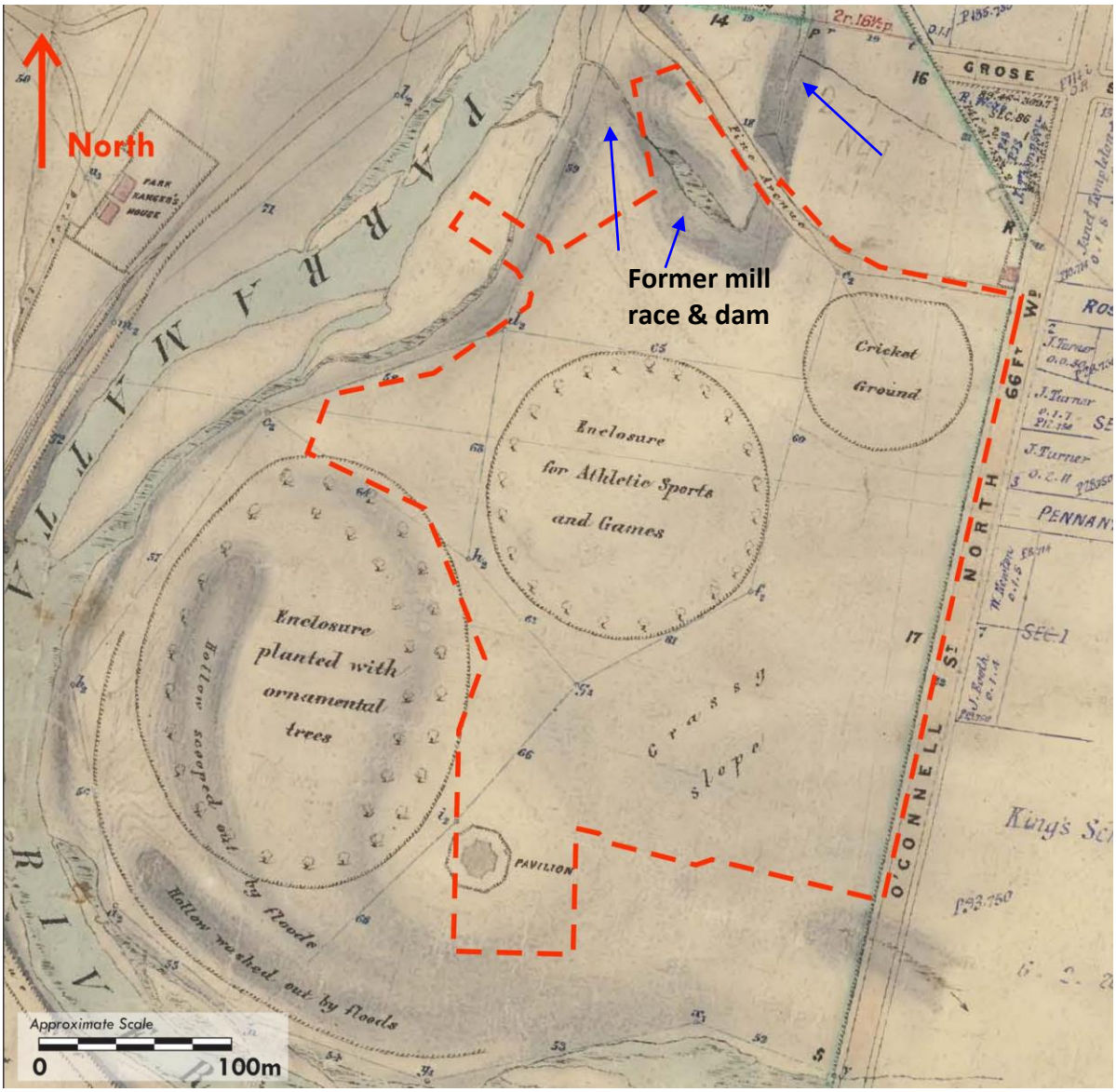


Figure 2.11: Detail of Ebsworth's 1887 survey showing a watercourse running from the site of the Female Reformatory south to a point south of Pine Avenue and then northwest towards the river. The watercourse and a pond along its course correspond with the location of the former mill race and dam of the Government watermill. Ms 80-Sy, LPI.

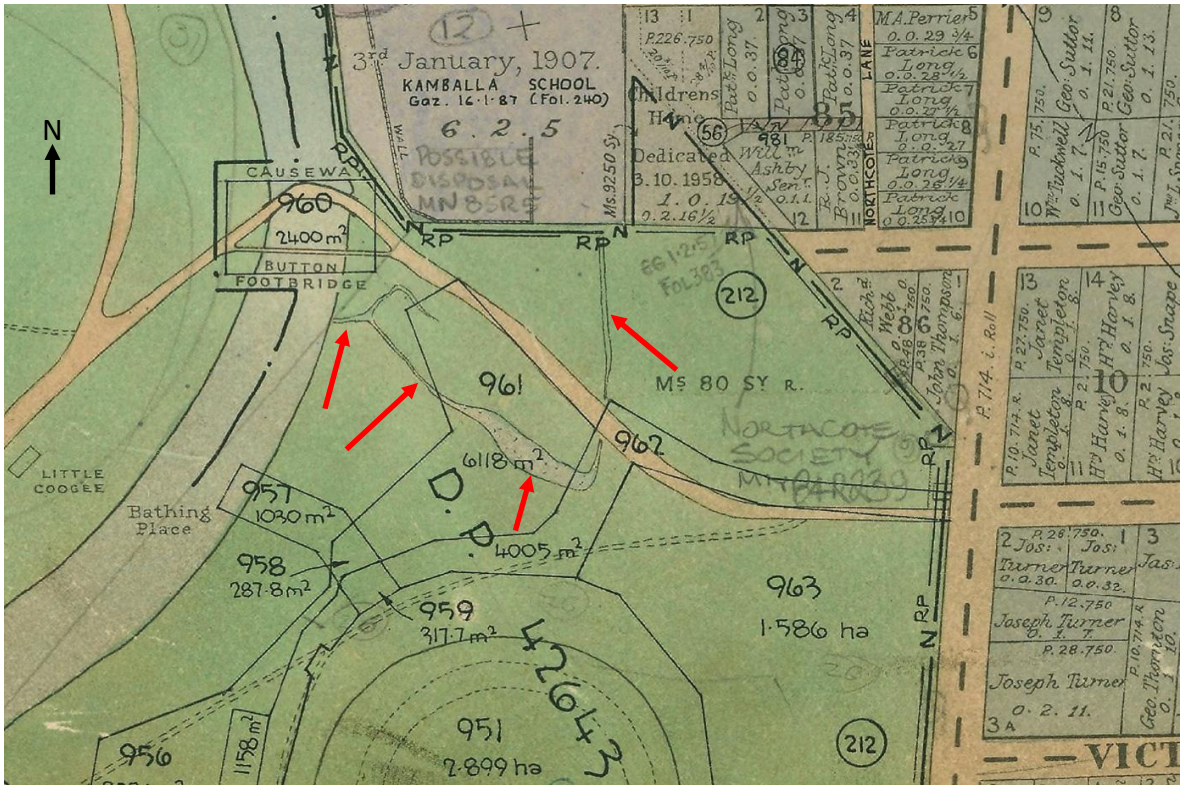


Figure 2.12: Part of a town map of Parramatta showing the watercourse running south and then west toward the Parramatta River in 1961. This site corresponds to that of the c1803 Government Watermill. The red arrows indicate the location of the mill races and the mill dam, all of which were still surviving in 1961. This also has some of the modern subdivision boundaries which are shown on many of the maps within the study area. Town of Parramatta, 24 May 1961, LPI.

2.6 Sports & Leisure Precinct - later Park Uses

As discussed elsewhere, Governor King's grant of 105 acres to the incoming governor, William Bligh in 1806 for a private domain was a contravention of standing orders. The grant included reservations for the operation of the watermill and continuation of existing leases to George Caley and Thomas Eccles.[52] It comprised cleared land that was originally cultivated for government purposes prior to parts being leased privately.[53] Bligh's grant was cancelled in 1819 but a legal battle over the ownership continued until 1841 when his executors formally surrendered their claim.

From 1810 Governor Lachlan Macquarie began the work of extending and improving upon the plan of Parramatta and the vice regal domain. An attempt was made to revoke or withdraw leases and grants issued in breach of orders, including the one Governor King to Governor Bligh. Bligh's grant blocked the future expansion of the town to the north of the river, as well as the adjacent river possessing 'good water' untainted by tidal flow in the neighbourhood. Macquarie proposed the site as a suitable location for a factory for female convicts manufacturing linen and wool cloth.[54] The construction of the factory commenced on land in the northern part of Bligh's grant c.1818 and it was operating by February 1821.[55]

2.6.1 Ross Street Gatehouse

Notwithstanding Bligh's claim, Macquarie reincorporated it into the Government Domain and from c.1823 a road and small timber bridge were built connecting the western parts of the Domain to a new gatehouse on O'Connell Street facing Ross Street at North Parramatta. The date of construction of the gatehouse is not known. The building served as a 'tradesmen's entrance' and the gatekeepers restricted unwanted use of the Domain.[56] O'Connell Street North and the Ross Street Gatehouse to the southeast of the Female Factory are recorded on William Meadows Brownrigg's 1844 plan of Parramatta (Figure 2.13) but it was not shown on Johnstone's 1836 plan (Figure 2.14).

By 1847 a stone gatehouse had superseded the 'erection from which the appellative was given 'Mud Lodge'. It is not known whether the name referred to an earlier structure or the waterlogged land at the building site.[57] From 1858 a gatekeeper stationed at the gatehouse kept watch over the entrance, collected fees and controlled stock entering or leaving the park.[58] Surveyor Edward Ebsworth recorded the gatehouse in an 1887 survey of the park, showing the building encroaching onto O'Connell Street (Figure 2.15). A plan from 1895 shows a smaller outbuilding has been constructed behind the gatehouse by this date (Figure 2.16).

In 1935 builders Messrs Muston and Lavers constructed a new 'Lodge' to plans prepared by Mr MacDonald, an architect, at which time the earlier encroachment on the street was corrected.[59] A history of the gatehouse and gatekeepers is provided in Michael Flynn's 1996 report, 'The Ross St Gatehouse: Its Historic Context in Relation to Parramatta Park'.

[52] Tatrai 1994:52.
[53] Macquarie to Bathurst, 7 Oct 1814, *HRA*, Series 1, Vol 8, 1916, 339.
[54] Macquarie to Bathurst, 7 Oct 1814, *HRA*, Series 1, Vol 8, 1916, 339.
[55] M. Flynn, 'The Ross St Gatehouse: Its Historic Context in Relation to Parramatta Park: Research Report for the Information & Cultural Exchange', March 1966 [1996], 12.
[56] Flynn 1966 [1996]:13; *SMH* 18 May 1847, 2.
[57] *SMH* 18 May 1847, 2.
[58] Flynn 1966 [1996]:17-20.
[59] Flynn 1966 [1996]:42.

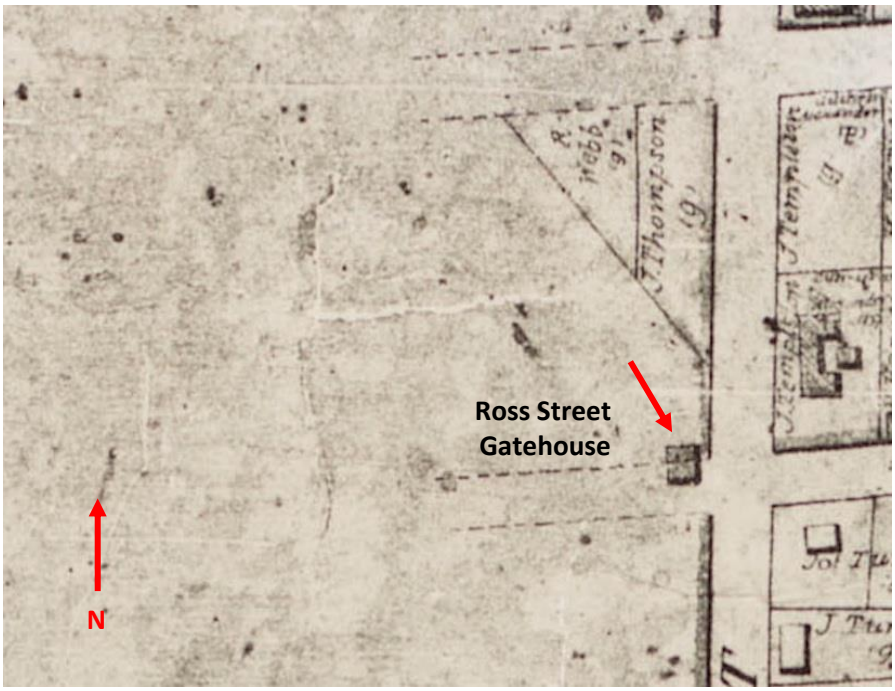


Figure 2.13: The Ross Street gatehouse on the western side of O'Connell Street in 1844. Brownrigg, 'Map of Parramatta', Z/M3 811.1301/1844/1 ML SLNSW.

Figure 2.14: The 'Mud Lodge' is not shown on the corner of O'Connell and Ross Streets in 1836. Johnstone's 1836 'Map of Parramatta' compiled from Richard's 1831 survey. SRNSW SG Map. P.714a, Item No. 4799.

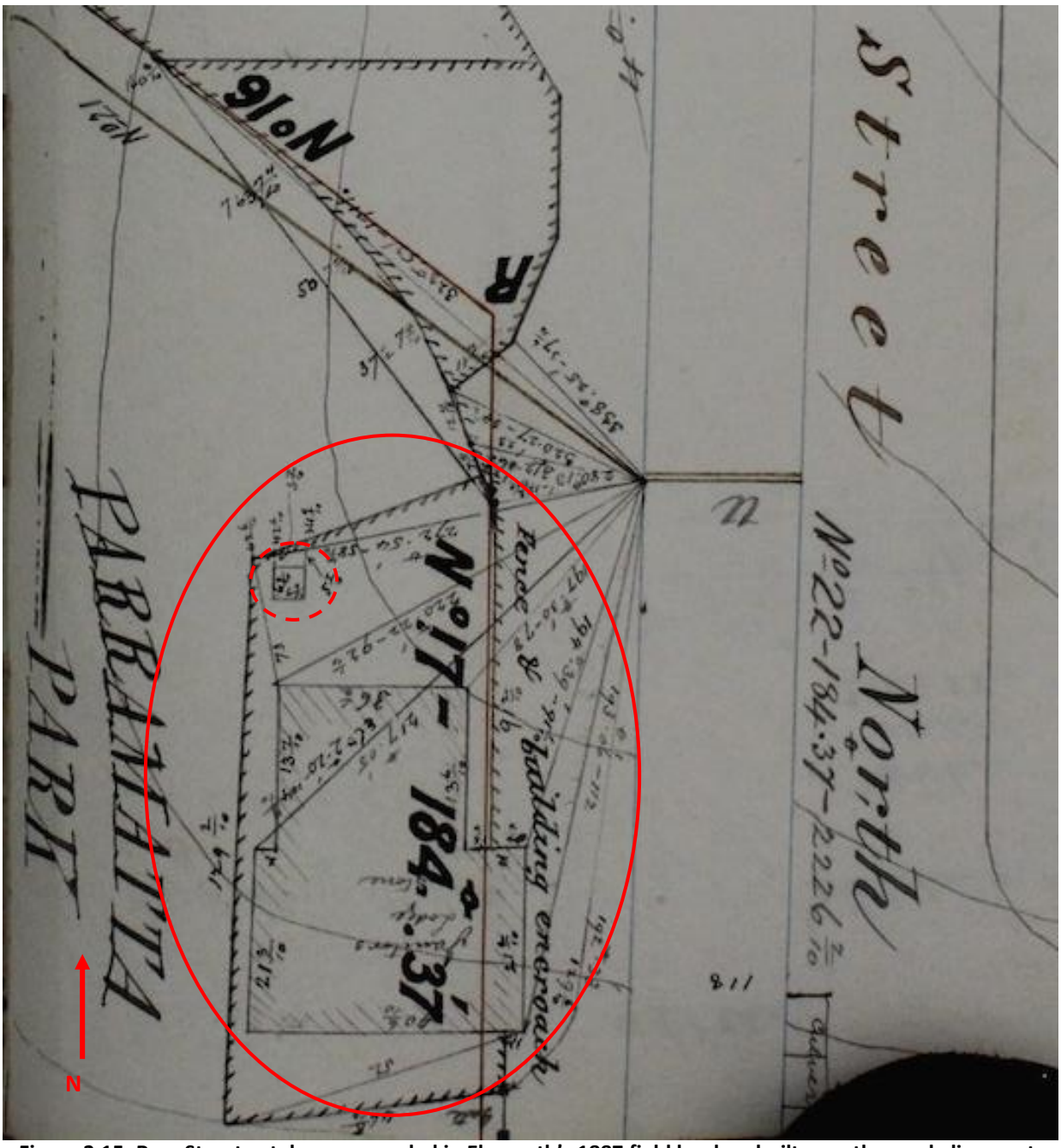


Figure 2.15: Ross Street gatehouse recorded in Ebsworth's 1887 field book as built over the road alignment. The building is annotated 'Janitor's Lodge...Stone'. Note the possible cesspit (dashed in red). FB 87/7 No 3666, p28, SRNSW.

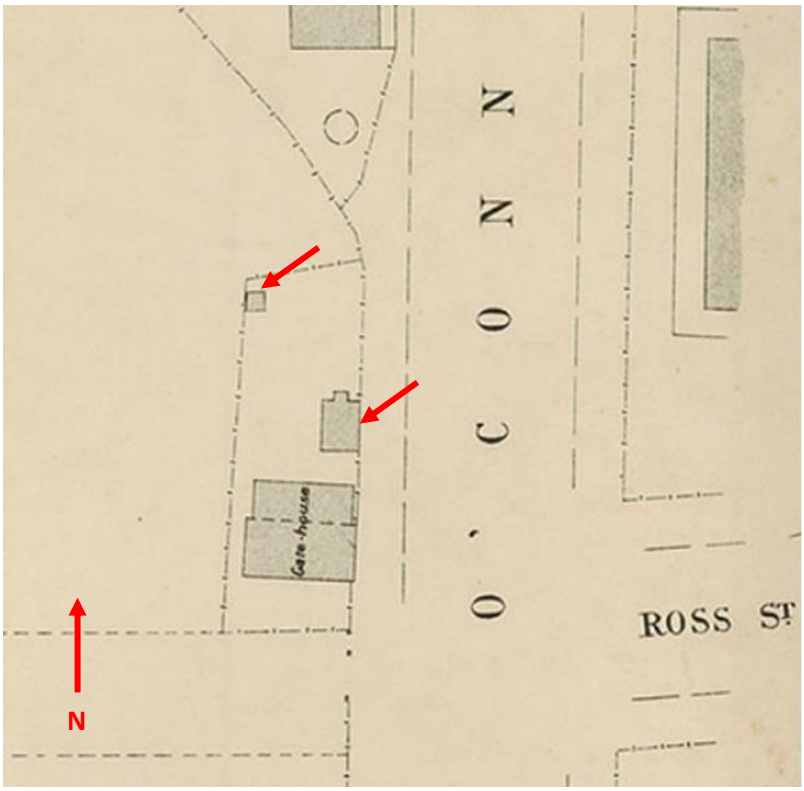


Figure 2.16: Plan of the Gatehouse in 1895; note the smaller outbuilding and possible cesspit (arrowed in red). The current gatehouse building is set further northwest within the block. Parramatta Sheet 41, Dept. of Lands, ML, SLNSW.

2.6.2 Parramatta Racecourse, Cricket and Sports Grounds

From 1846 Governor Sir Charles FitzRoy restricted the public's 'customary access' to the Government Domain during his administration.[60] Contrary to criticisms that he appropriated the Domain for his own use, in 1847 he approved an application for the Cumberland Turf Club (named Parramatta Jockey Club from November 1879) to build a racecourse in part of the Domain called Fox's Paddock near the 'Mud Lodge'. The first event was planned for 15 June (later postponed) and tenders called for woodwork to build the course in 'Mud Lodge Paddock'. Ross Street Lodge served as the racecourse entrance for nearly 40 years.[61]

In May 1847 the racecourse was built on a cleared, level area in the Domain with a circuit of just under a mile, less than the former course in south Parramatta but considered to be in a 'superior' location.[62] Management of the grandstand, entrance gates and booths to the course were auctioned prior to race meetings.[63] An 1858 plan of Parramatta illustrates the large racecourse extending from the river in the south and west, to O'Connell Street in the east (Figure 2.17). The racecourse moved to Rosehill in 1885, however, the park racecourse continued to be used for training until 1893.[64]

[60] Flynn 1966 [1996]:15.
[61] *Parramatta Messenger* 22 May 1847 and *Cumberland Express* 22 May 1847 cited in Flynn, 1966 [1996]: 15-16.
[62] *SMH* 18 May 1847, 2.
[63] *SMH* 15 Jun 1847, 1.
[64] Rosen, *Government House Parramatta 1788-2000;* Caroline Simpson 2003: 215.

Figure 2.17: Part of Kirkby's plan of a park proposed for Parramatta illustrating the extent of the racecourse in the Government Domain at North Parramatta in January 1858 (Map SR Item 4807, SRNSW reproduced from Rosen 2003:118).

In 31 March 1863, a 'New Cricket Ground' opened at Parramatta sharing the northern Domain grounds with the racecourse, creating competing interests in the site's use. Descriptions suggest that the cricket ground was originally located within the racecourse track. The Alfreds Cricket Club was unsuccessful in their request for permission in 1875 to demolish the racecourse stands and reuse materials for their own pavilion and dressing rooms. In 1880, during the days when the rules of cricket were somewhat fluid, a team of 22 players from the club defeated a touring England team of 11.[65] In 1883 Kings School leased the southernmost ground and the Alfred Cricket Club retained the northernmost ground. The Parramatta Cricket Club secured the lease of the northern ground in 1888. During the 1880s, the cricket club changed its name several times, firstly to 'Parramatta District' and then to 'Central Cumberland Electorate'. Probably by extension from the Cricket Club, the north sports oval became known as Cumberland Oval.[66]

During the late 19th century, Parramatta Park north of the Parramatta River was beautified in various ways. A bridge to link the north and south sides of the park was built in 1886, but washed away around 1888. It took until 1925 for it to be replaced by the Noller Bridge, which still stands.[67]

[65] Cheyne Wharton 1911:138-139.

[66] *SMH* 30 Mar 1863, 1; Rosen 2003:215, 216; 'Fuller's Map of Parramatta', G. McKinnon, 1883, ML SLNSW; Cheyne Wharton 1911:138-139.

[67] PPT 2008:31, 33; *Sydney Morning Herald* 30 September 1925, p 18.

Sometime prior to 1887, an octagonal pavilion was built on the north side of the river, within the present study area (Figure 2.11). It was located on a gentle spur, which would have presented attractive views. The purpose of this pavilion is unclear, but it may have been used as a bandstand. In 1924-25, work took place on a new cricket wicket 'almost in a line with the old bandstand' – although this bandstand may have been elsewhere.[68] By 1930, the earlier Pavilion appears to have been demolished and replaced with a pavilion to its south (Figure 5.10).

As Cumberland Oval became more extensively used, seating provisions for spectators increased. The last grandstand to be known as 'Cumberland Oval' was built in 1936. It became the home ground of the Parramatta District Rugby League Club (later the Parramatta Eels) when it entered the NSWRL in 1947. The largest crowd at the old ground was 22,470 people, for a match between the Eels and South Sydney on 26 April 1971.[69]

Based on aerial photographs, sometime in the 1960s, the embankment around Cumberland Oval was expanded and the watercourse associated with the former Government Watermill and Dam was filled in to expand the carpark area. Evidence supplied by James Hardie to the NSW EPA (then part of the Department of Environment, Climate Change and Water) indicated that asbestos containing material had been dumped somewhere around 'Cumberland Oval' at some unspecified time. The filled area was 'referred to as access road around oval, car park and embankment'.[70] This description is consistent with the 1960s landscaping, which filled in the former mill pond depression to form a carpark.

In 1977, there was a proposal for a new stadium to replace Cumberland Oval. This redevelopment faced strong opposition from many concerned about its environmental and heritage impacts on Parramatta Park. However, some form of reconstruction became inevitable after fans burnt down the old stand following the 1981 Grand Final. Parramatta Stadium was built between 1984 and 1986, when it was opened with great fanfare by Queen Elizabeth II. The redevelopment included works that lowered the playing surface up to 4m, from approximately RL 12.5-13 to RL 9.0-9.3.[71] It was renamed Pirtek Stadium in 2013 as part of a commercial naming-rights sponsorship arrangement. In September 2015, the NSW Government announced that the stadium would be rebuilt. The Western Sydney Wanders played their last game on the site in March 2016. The Parramatta Eels played their last game at the old Parramatta Stadium in August 2016.[72]

[68] Rosen 2003, Appendix I, p 54, citing PPT Minute Book, 10 July 1924; *Cumberland Argus* 5 June 1925, p 10b.

[69] 'Parramatta Stadium', *Wikipedia*, https://en.wikipedia.org/wiki/Parramatta_Stadium [accessed 18/01/2017].

[70] DECCW 2009:38.

[71] Douglas Partners 2016:1.

[72] 'Parramatta Stadium', *Wikipedia*; 'History of Parramatta Stadium', http://www.1eyedeel.com/forum/topics/history-of-parramatta-stadium [accessed 18/01/2017]; *Sunday Telegraph* 27 August 2016, http://www.dailytelegraph.com.au/sport/nrl/teams/eels/the-eels-great-the-queen-and-the-parramatta-stadium-conversation/news-story/57ebdb53d683ed34c05801e9b2d05bec

Figure 2.18: Detail of oblique aerial photograph showing Cumberland Oval c.1950s, taken by Frank Hurley, looking southeast. nla.obj-157515572.

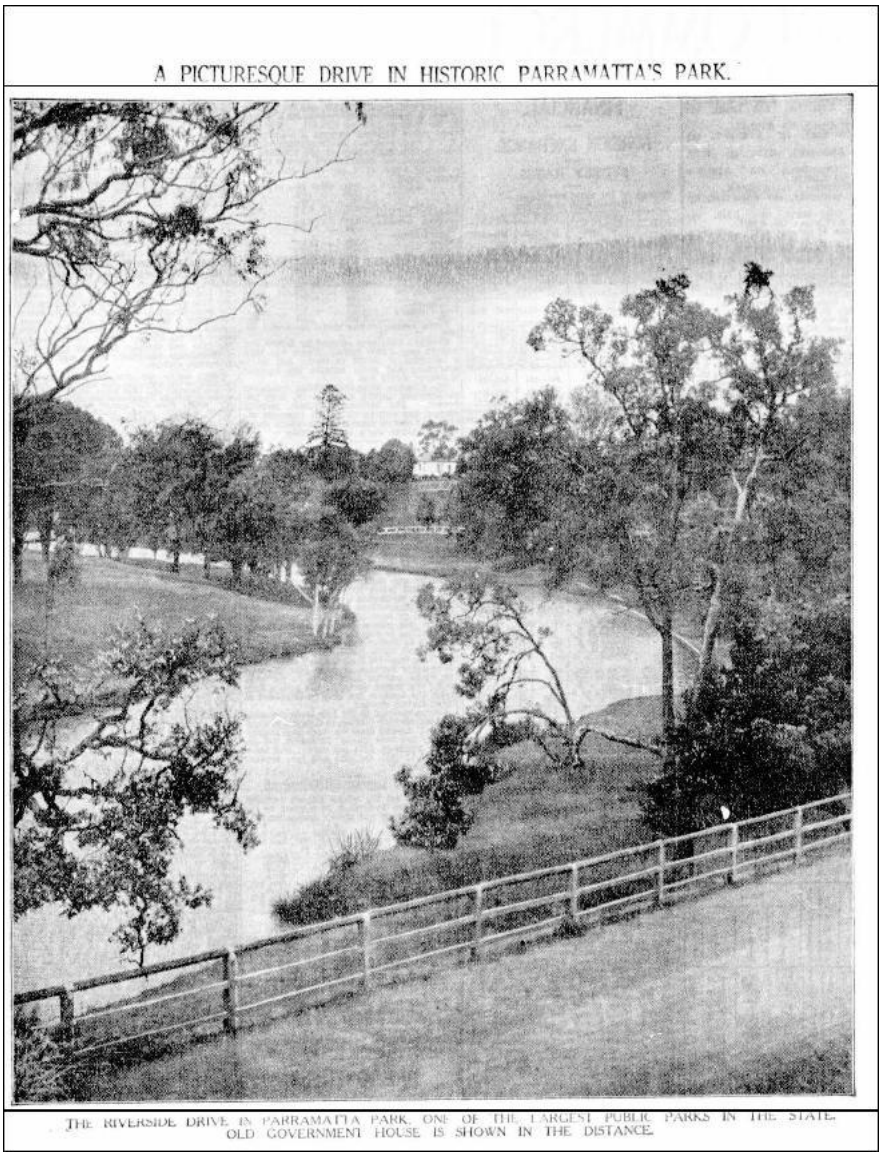


Figure 2.19: View of Parramatta River, looking east towards Old Government House. The north side of the Parramatta River is on the left of this photograph. *Sydney Morning Herald* 3 February 1933, p 12.

Figure 2.20: Parramatta Park, April 1934. This photo is thought to show the north side of the Parramatta River, just to the west of the Noller Bridge. SLNSW Government Printing Office 1 – 01748.

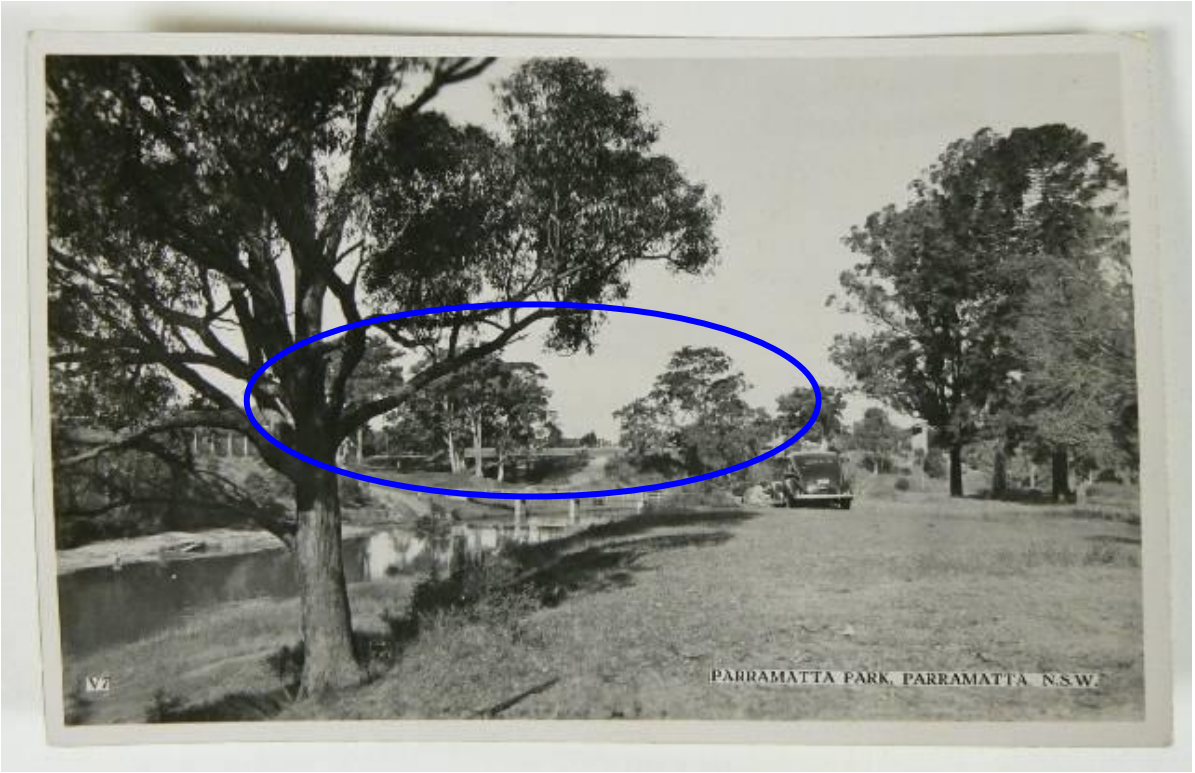


Figure 2.21: Parramatta Park, looking south, towards Cumberland Oval, from a position north of the upper weir, n.d., possibly c.1950s. Study area circled in blue. NMA Josef Lebovic Gallery collection no. 1, obj no. 1986.0117.5509.

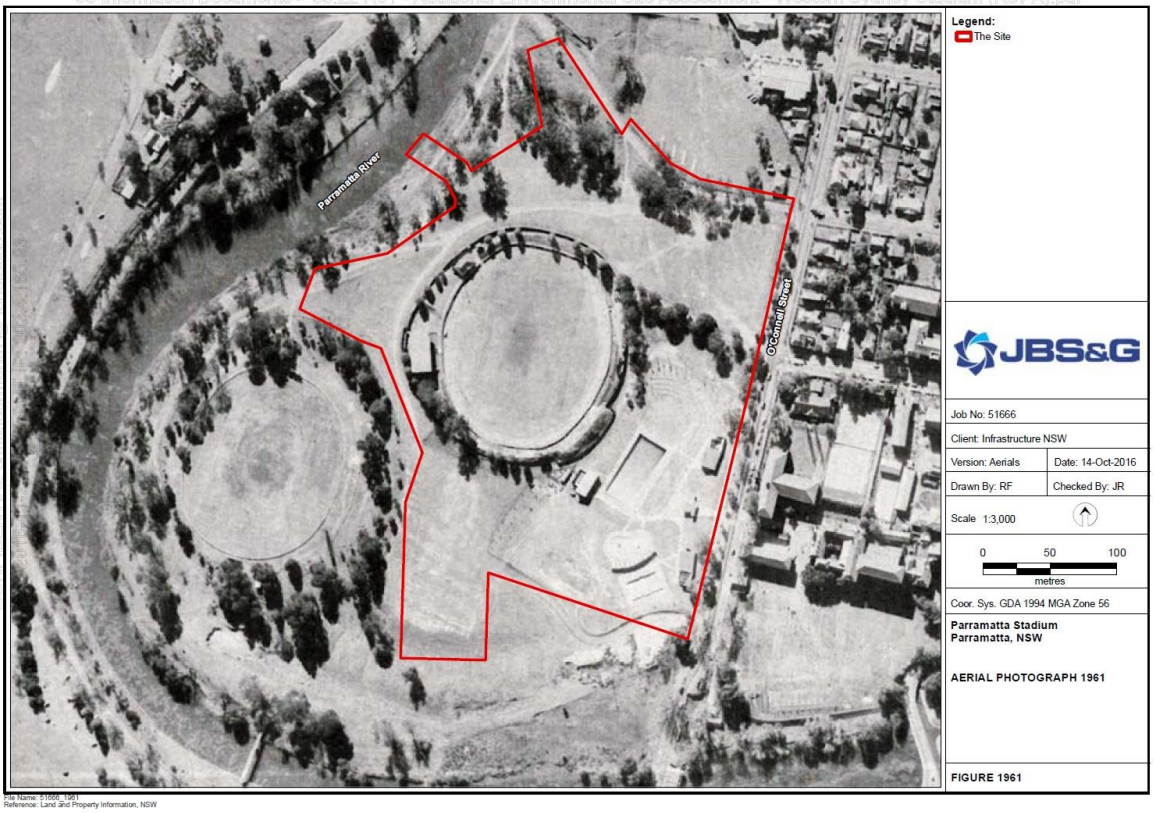


Figure 2.22: 1961 aerial photograph, from JBS&G 2016b. Study area outlined in red.

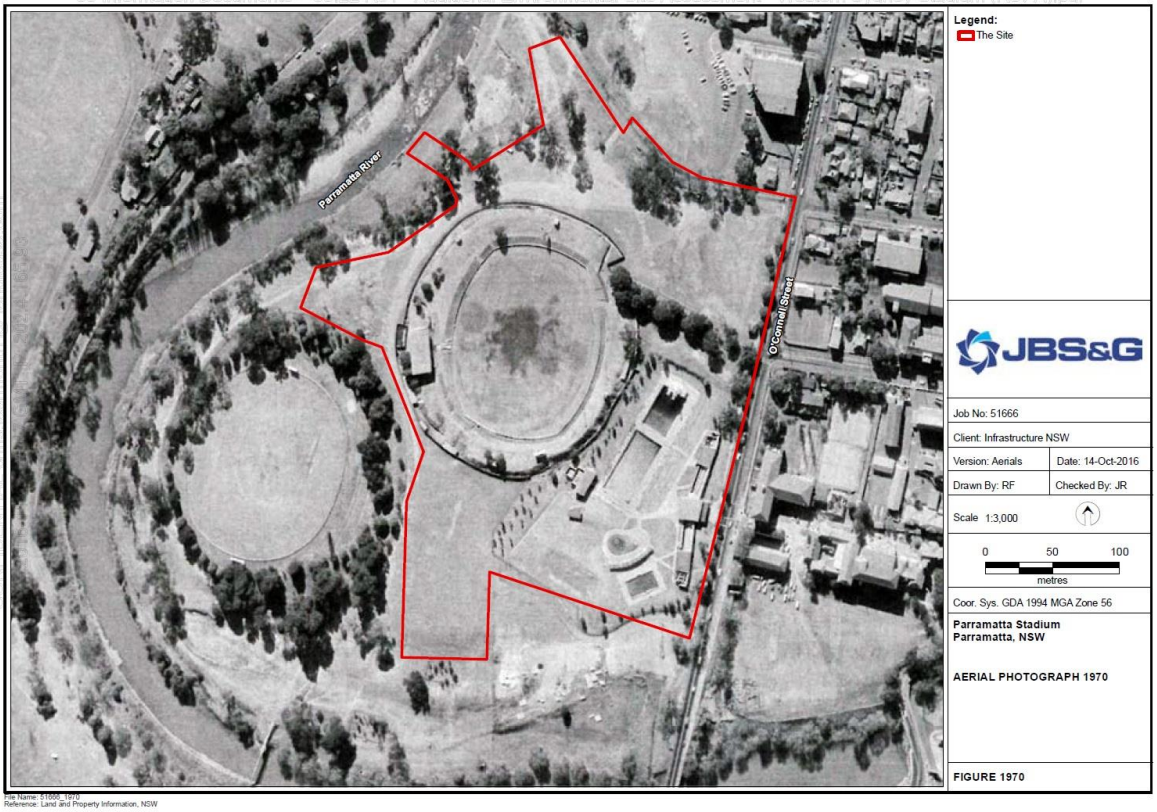


Figure 2.23: 1970 aerial photograph, from JBS&G 2016b. Study area outlined in red.

2.6.3 Parramatta Stadium and Swimming Centre

The northern part of the park underwent major changes in the mid to late 20th century including the construction of a rugby league oval, swimming centre, Parramatta Stadium, training facilities and car parking, all of which had a significant impact on the natural and historic landscape.[73]

The Parramatta Swimming Centre was built between 1958 and 1966, spurred on in part by the success of Australia at the Melbourne Olympic Games. Before World War 1 most facilities were netted pools located within major waterways including the harbour, ocean beaches and rivers. After World War 2, several factors combined to increase demand for in-ground public pools in Sydney. In 1944, learn-to-swim programs became compulsory for NSW primary school children. The spread of Sydney to the western suburbs mean that harbour and ocean beaches became less accessible and by the mid-1950s 40 per cent of the population of greater Sydney lived beyond the reach of public transport, meaning the need for closer amenities.

The earliest bathing house in Parramatta was built by Governor Brisbane for his personal use. The Centennial Baths opened in 1888 on the site of the present Riverside Theatres. After they fell into disrepair and closed in the 1930s, there were no formal swimming facilities until the construction of the swimming centre. The concept of the Parramatta War Memorial Swimming Centre was first raised in 1955 and it was originally planned to have five pools. Work continued on the complex during the 1960s and the complex is still standing.

Rugby union was played at Cumberland Oval from 1879, and rugby league from 1910. In 1986, Cumberland Oval was replaced by Parramatta Stadium, which has a capacity of over 20,000 and a large carpark for over 360 vehicles.[74]

[73] 'Parramatta Park Master Plan', DPWS Landscape Design Group, 15 Jan 2002, 17-18.

[74] Information about Parramatta Stadium from http://www.parramattastadium.com.au/page/stadium, accessed on 21.08/2014.

3.0 Comparative Context

3.1 Archaeology of Parramatta

This comparative analysis draws on work Casey & Lowe have undertaken on other sites in Parramatta including the Parramatta North Urban Transformation (PNUT) project, the Parramatta Justice Precinct, Parramatta Square and Parramatta Park.

There have been many archaeological excavations in Parramatta. It is considered to be one of the most significant archaeological areas of colonial archaeological sites in Australia, as seen by the listing of Old Government House and Parramatta Park on the World Heritage List. Parramatta Park contains many important archaeological sites: early remains of Old Government House as well as the oldest extant government house in Australia along with standing cottages and gatehouses and substantial archaeological remains of:

- The original agricultural settlement
- Buried rows of convict huts
- Local industrial areas established by Governor King
- The lumberyard
- A significant artefact collection.

Many of these remains date to the early period of settlement, either the initial agricultural settlement (1788-1790) or the early layout of the town of Parramatta. Parramatta had many early period structures and archaeology belonging to the incarceration and management of convicts and their attending military guards and the infrastructure which supported them:

- Rum Corps Barracks in Robin Thomas Reserve (SHR).[75]
- Lancer Barracks (SHR).
- Convict Hospital, now the Parramatta Justice Precinct (SHR)[76]
- Convict Barracks, the site of Arthur Phillip High School.
- There is the site of the later convict barracks at the eastern end of Parramatta which was later used as a men's benevolent home.
- The Parramatta Female Factory (SHR).

All of these sites are part of the convict system which provided labour and workers for the local area but the management of these places also provided a living to Parramatta. Only one of these major convict period sites pre-dates Governor Macquarie - the Rum Corp Barracks at the eastern end of town. The rest were part of the second stage of the Imperial convict system which gathered pace after the end of the Napoleonic wars in Europe and when Britain was able to send ships of backlogged convicts awaiting transportation to New South Wales.

Other contemporary convict sites which are both built and archaeological are the Government Stables at the Conservatorium of Music (SHR), Hyde Park Barracks (SHR, NHL, World Heritage Listed), the site of First Government House (SHR, NHL), the NSW National Trust building or the former military hospital (SHR), Cockatoo Island (SHR, NHL, WHL), Old Sydney Burial Ground at the Sydney Town Hall (SHR) and the dock yard at the Museum of Contemporary Art. Then there are a number of barracks outside Sydney and Parramatta at Windsor and Liverpool, Port Macquarie and Newcastle. While some are substantial archaeological sites, the details of others are not known.

Most of the excavated archaeological sites in Parramatta relate to convict huts and date from the 1790s, which by c.1809 were occupied by private leaseholders. Many of these have been excavated

[75] Casey & Lowe 2015 'Archaeological Assessment & Impact Statement, Robin Thomas Reserve, Parramatta', report to Parramatta City Council.

[76] http://www.caseyandlowe.com.au/sitepjp.htm

since the 1980s. They lined George Street and the northern side of Macquarie Street. As part of the Parramatta Historical Archaeological Management Strategy (PHALMS), mapping of the convict landscape of Parramatta and its research potential indicates that this is a diminishing resource (Figure 3.1, Figure 3.2, Figure 3.3). This mapping in 2000 does not take into account the removal of archaeology in the subsequent 16 years.

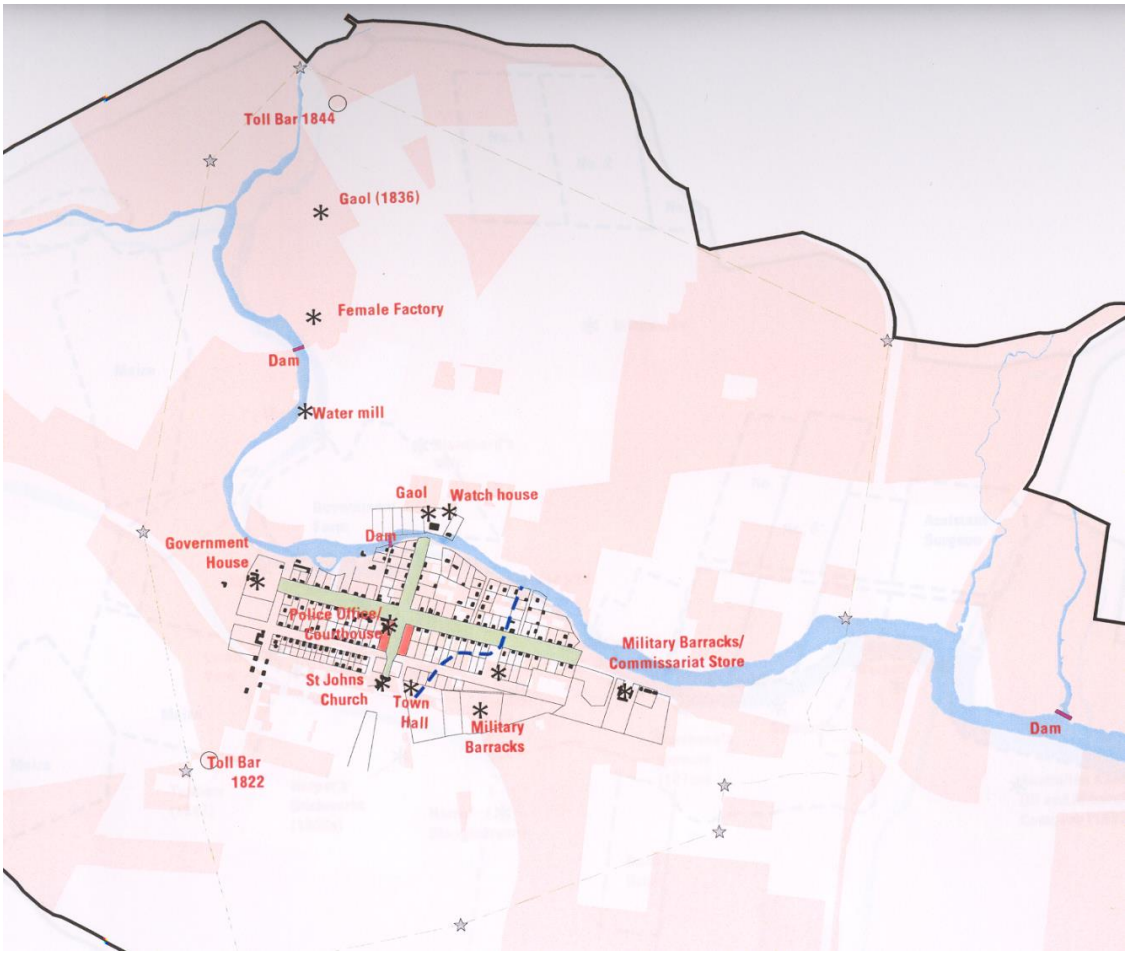


Figure 3.1: Mapping of a landscape of control which shows the Government Watermill, the Female Factory and Parramatta Gaol among the key sites places and sites. PHALMS 2000, Godden Mackay Logan.

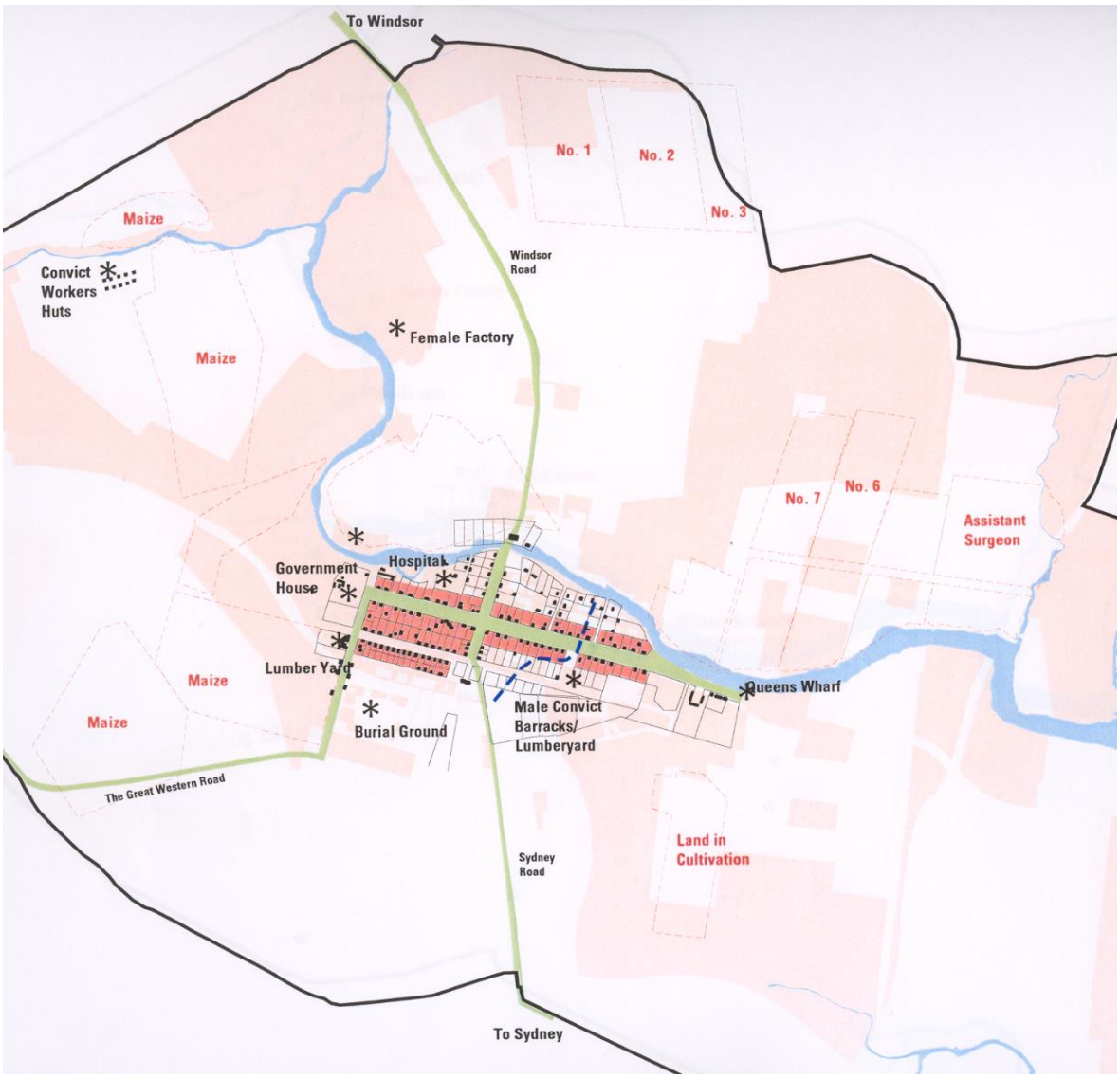


Figure 3.2: Mapping of Parramatta's convict landscape with the Government Farm highlighted. The township is the focus of occupation with the Farm located some distance to the north and away from the main road, Old Windsor Road. PHALMS 2000, Godden Mackay.

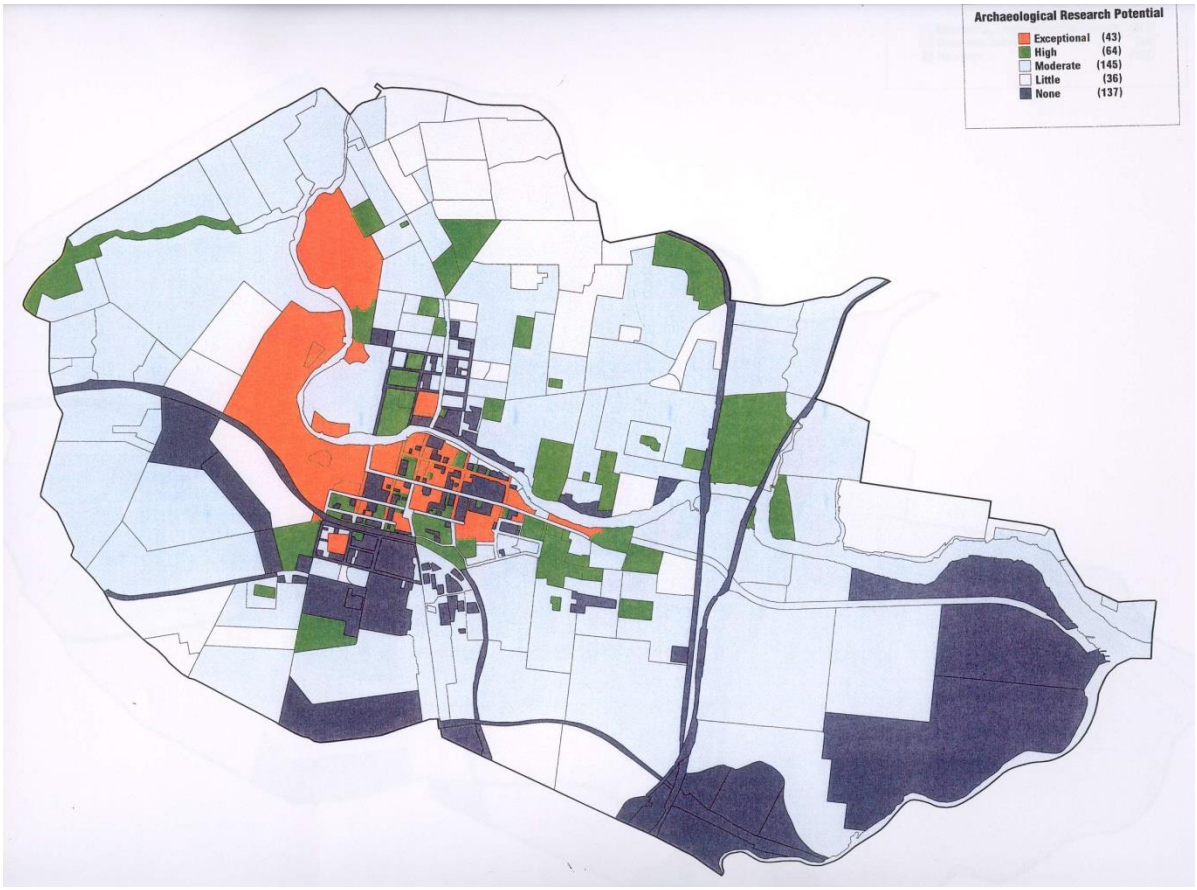


Figure 3.3: Mapping of research potential where the areas of Parramatta Park, the Government Farm and Watermill, the Female Factory, Convict Hospital and parts of the pre-1823 Parramatta convict town are coloured orange as having exceptional significance and green has high significance, both of which would be of State significance under the current significance criteria. The dark blue areas indicate where archaeological remains have been removed in 2000. Many more sites have been removed since this time but a number have also been conserved *in situ*. PHALMS 2000, Godden Mackay Logan.

3.2 Development of Milling in New South Wales

3.2.1 Grinding grain to make bread or why mills were important to the early settlement of New South Wales[77]

The provision of flour and bread was an important part of feeding the early colony. The composition of bread was a concern to the inhabitants of Sydney Cove. Since 1801 the constituent parts of bread had been the subject of government orders. There was a scarcity of grain in May 1801 when the standard for making bread was established by Governor King. This standard consisted of 100 pounds of meal, made of 24 pounds of bran and 76 pounds of wheat flour. Bread made for ships was to be half Indian corn and half wheat meal. Penalties would be imposed for disobeying these orders.[78] A week later orders for the size of a standard bread loaf were issued: when freshly baked it should weigh 2 pounds 1 ounce, and when one day old it should weigh 2 pounds.[79]

[77] Casey 2002, Chapter 11; this will be updated for the AMS.
[78] Government Gazette and Orders (GGO) 8 May 1801 HRNSW 4:364.
[79] GGO 14 May 1801 HRNSW 4:367.

Two days later the deputy commissary and the quartermaster undertook an experiment to determine or confirm the appropriate proportions of wheat and flour at the milling and the baking stages. For this experiment the flour was to be ground at Palmer's mill (Conservatorium of Music site) and probably baked in his adjacent bakehouse. While the loaves were baking they were to be guarded by a sentinel and a constable. This allowed the government to prove that a ratio of 3 pounds of wheat was sufficient to make a 2-pound loaf of bread.[80] In July 1802 the bakers were identified as charging more for baking bread than the charge for the equivalent quantity of wheat, producing a profit of 6 shillings and 7½ pence on a bushel of wheat valued at 8 shillings. To stop this practice, the price of wheat was pegged at 8 shillings per bushel and maize at 4 shillings per bushel.[81] In 1804 the charge for grinding wheat into flour was to be no more than £1 per bushel. Therefore, to maintain an acceptable price for bread under a situation of scarcity the price of grain and for grinding grain were regulated as well as the constituent parts and weight of a loaf of bread.[82] The government was involved in the most basic level of control in the society – fixing the price of food and the making and baking of bread.

King complained about the lack of public ovens for baking bread and criticised how baking added the equivalent price of one pound of flour on each full weekly ration of 9½ pounds of bread or nearly five loaves. At that time, King reported that 8 pounds of flour would make 10 pounds of bread. King chose not to build public ovens because it would have only limited savings. Privately-run commercial bread ovens were therefore the only source of bread for the whole colony unless of course a private individual had an oven suitable for baking their own bread.[83]

In April 1806, following floods in the Hawkesbury and devastation of the grain crop, attempts were made to restrict consumption of bread by licensing the bakers, thereby controlling who could be a baker. Each licensed baker had to find two people to provide sureties of 50 pounds each and had to supply a list of their customers to the magistrates each week. Further rules included making 27 loaves of 2 pound 2 ounces each from a bushel of wheat, with 56 pounds of wheat to the bushel. Prices were set for both barter and money sales. Prohibitions were instituted on baking 'any cakes, biscuit, nor any kind of pastry whatever'.[84]

3.2.2 Early Mills

The early history of milling in NSW is a story of failure and repeated attempts before eventually leading to the successful milling of grains to bake bread for the daily food consumption and provision of rations. One of the first successful windmills was Commissary Palmer's private mill and bakery at the Sydney Conservatorium site (c.1800). Governor Hunter proposed that the first watermill on mainland Australia would operate on tidal changes in the Parramatta River.[85] By September 1800 the watermill was quite advanced. Governor King took over the administration of the colony and continued its construction and during 1803 and 1804 under the auspices of different mill builders. The dams and ditches or mill races were dug but in a 'very hasty manner'.

While the Government Watermill at Parramatta was the first on mainland Australia, an earlier watermill was built on Norfolk Island, built by Nathaniel Lucas in 1795 under instructions by

[80] GGO 19 May 1801, HRNSW 4:368.
[81] GGO 2 July 1803, HRNSW 4:796-797.
[82] GGO 17 February 1804 HRNSW 5:310.
[83] King to Hobart 1 March 1804, HRNSW 5:322.
[84] GGO 5 April 1806, HRNSW 6:57-58, 64.
[85] Recent research is questioning the tidal nature of the watermill. It is possible that this is why Hunter chose the site but it is also possible that it failed and King had it redesigned to deal with the water held back behind a dam just to the north of the Parramatta Gaol. Later tidal mills were further down the river.

Governor King.[86] The Parramatta mill operated intermittently due to a range of flaws in its design. Key among these was its inability to manage too little or too much water. Rev. Samuel Marsden was involved in the mill's construction and was accused of mismanagement by George Caley. George Howell is thought to have been operating this mill in 1814 until it ceased to operate in 1820 when it was sold to Simeon Lord who dismantled it and reused the machinery. It is referred to as Howell's mill. The site of the lower (main) dam, mill pond, and mill house and other buildings are within the northwest corner of the study area and are within Parramatta Park and the stadium land.

Nathaniel Lucas's Watermill on Norfolk Island

Lieutenant Governor King commissioned Nathaniel Lucas to erect a watermill on Norfolk Island, the second settlement established by the members of the First Fleet, March 1788. The mill was located on a natural creek line which drained into the swamps at Kingston and was built by 1795.[87] This watermill was built of timber and had an overshot wheel. The site of the timber watermill is currently covered with debris. The head of the tail race and sluice appear to survive but the extent is currently unclear.

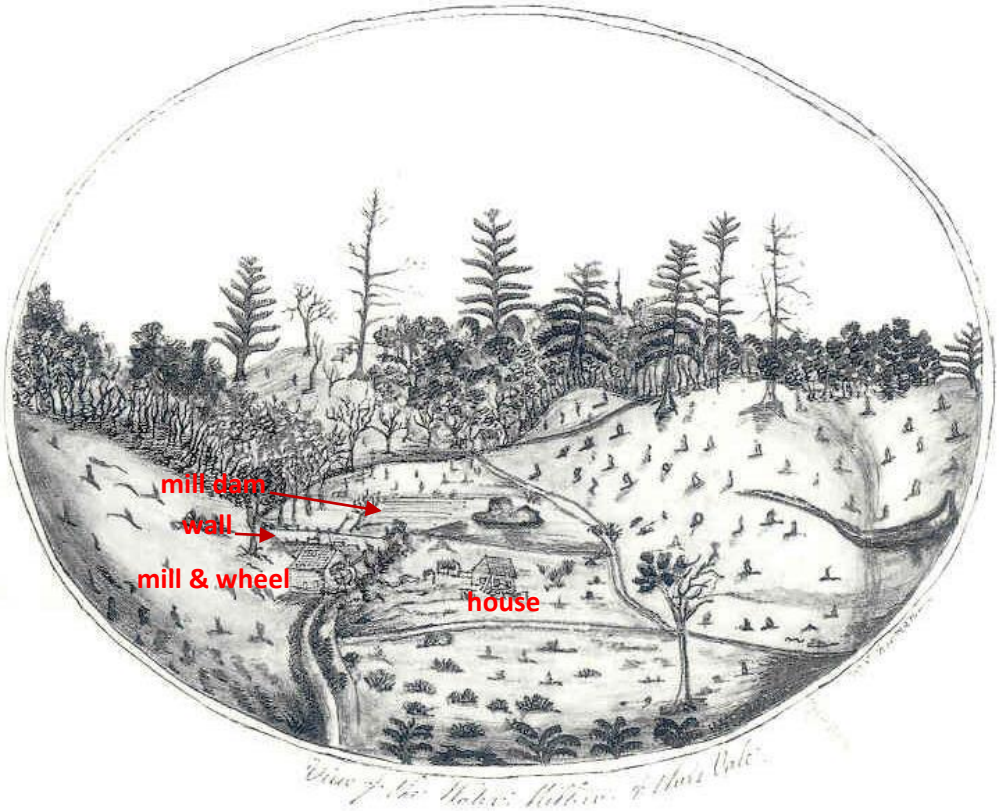


Figure 3.4: 1795 watermill built by Nathanial Lucas, Norfolk Island. Note the large mill dam and the associated road system which would have delivered the wheat and taken away the flour. There is also a likely wall which probably had a sluice gate. The mill house and water wheel with a shute bringing the water onto the wheel.

[86] Kingston and Arthur's Vale Historic Area, Heritage Management Plan, Exhibition Draft, February 2015: 25. http://www.kavha.gov.nf/pdfs/KAVHA%20HMP%20-%20Exhibition%20Draft,%20February%202015%20SECURED.pdf. Greg Jackman, 2016, 'Convicts, Droughts and Shipwrecks: the Sydney Watermills of John Lucas in the 1820's'.

[87] KAVHA Conservation Management Plan 2007:120.

Figure 3.5: View along the natural creek line with forms the headrace feeding into the mill pond. The original watermill would have been located on lower ground to the right. Watermill Valley, Norfolk Island. Tony Lowe.

Figure 3.6: Mill pond with sluice on the right leading to the site of the first watermill. This mill pond was associated with the first and second watermills. It is thought that the current sluice is the overflow sluice for the second watermill. The chimney of the second watermill is just visible to the right of the blue car. Watermill Valley, Norfolk Island. Tony Lowe

Figure 3.7: Ruins of the second watermill, 1820s, Watermill Valley, Norfolk Island. Tony Lowe

There is some contemporary archaeology of water and windmill on Norfolk Island but this does not have the same type of significance attached to those found within the settlement of Parramatta. The settlement at Norfolk Island did not change the course of the history of British settlement in Australia. Rather the settlement was disbanded and there were a series of evacuations in 1807 and 1808 and by 1813 all British convicts and settlers had been moved to Van Diemen 's Land. The mill itself was partially dismantled and transported to Sydney, and possibly used at Parramatta. There are known remnant mill structures and landscape at Kingston from this settlement. The mill site and its archaeology is part of the Kingston and Arthur's Vale Historic Area (KAVHA) which is listed as part of the convict National Heritage List and the World Heritage Area list.[88]

3.2.3 More Mills in Parramatta

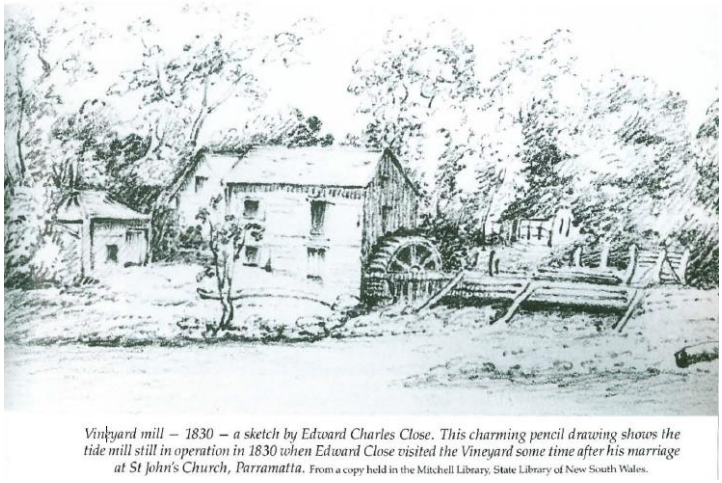
There are a number of watermills in Parramatta, notably Rev. Samuel Marsden's mill which operated from the 1810s to c.1838 and is known to be located within the Cumberland Hospital, Parramatta North group (Figure 3.8). Howell's mill, frequently referred to is in fact the Government watermill his main mill is built at a later time. At a time, similar to Marsden erecting his mill c.1810, John Bolger built his windmill c.1810. He was a carpenter who had appropriate skills to erect his own mill. His lease was situated near the boundary of Marsden's land on the north side of the river, separated 'by a ditch forming the Government enclosure'.[89] Colonel Paterson allowed him to use government millstones. It appears to operate between 1811 and 1812 when the land was sold to Judge Ellis Bent. This land was incorporated into the Government Domain in 1814.[90]

[88] http://www.environment.gov.au/heritage/places/national/kavha, accessed 23/01/2017

[89] Tatrai 1994:46.

[90] Tatrai 1994:51.

Figure 3.8: Rev. Samuel Marsden's three-storey watermill with a tail race and culvert with an adjacent timber cottage with brick fireplace and skillions. 'Mr Marsden's Mill', J. Lycett 1820. SLNSW PX*D 41, f.1, digital order no. a1120001.



Vineyard mill — 1830 — a sketch by Edward Charles Close. This charming pencil drawing shows the tide mill still in operation in 1830 when Edward Close visited the Vineyard some time after his marriage at St John's Church, Parramatta. From a copy held in the Mitchell Library, State Library of New South Wales.

Figure 3.9: Hannibal Macarthur's Vineyard tidal mill in 1830, Tatrai 1994:50.

Land records suggest that Reverend Samuel Marsden (1765-1838), 'chaplain, missionary and farmer' purchased Smith's 30 acres, although a formal transaction between the two has not been found.[91] Caley states that Marsden purchased Smith's Farm, 'now out of cultivation', between 1803 and 1806 with the aim of developing his own mill at a better location on the river and learning from past experience.[92] Title to Marsden's Mill Dam Farm, increased to 36 acres, was confirmed on 25 August 1812 by a grant signed by Governor Lachlan Macquarie. The farm was:

> …bounded on the South East side by part of Bligh's Farm, On the South West and North sides by the Parramatta River and on the East side by a Deep Dyke designed as a Mill Race….[93]

Grant conditions included the cultivation of ten acres in the next five years and the Government's right to build a public road through it. Note is not made of reservations for the use of the government mill race, as included in Governor William Bligh's 105 acre grant to the south.[94]

It is not known how Mill Dam Farm was managed or used between early 1807 and 1809 during Marsden's visit to England.[95] Circa 1810 to 1812 Marsden built a private watermill at a location upstream at Toongabbie and Darling Mills Creeks, adjacent to the land he had acquired from Charles Smith. This location took advantage of improved waterflow and secure foundations for the

[91] AT Yarwood, 'Samuel Marsden (1765-1838)', *ADB*, Vol 2, Melbourne University Press, 1967.
[92] Caley in Tatrai 1994:84; *Land Grants 1788-1809*, 1974, 12-13.
[93] Grants register Series 7 p51, LPI.
[94] Tatrai 1994:52-53; Grants register Series 7 p51, LPI.
[95] Yarwood, 'Samuel Marsden', *ADB*, 1967.

mill. This took advantage of Marsden's experience, through his involvement in establishing the Government Mill as well as information gathered from elsewhere. Marsden's watermill appears to have still been in operation in 1838 when he died.[96] A sale notice dating to December 1841 described 'an Old Flour Mill, the Stone Foundation and Timbers of which are in a state of high preservation, and with a few repairs could be converted into an excellent Residence'.[97] This description may imply that the mill was no longer used after 1841, as argued by Carol Liston.[98] Adjacent to the mill, Rev. Marsden built a cottage and workers' housing (Figure 3.8).[99]

The next attempt at milling was Hannibal Macarthur's tidal mill at 'Vineyard' further to the east on the Parramatta River (Figure 3.9). Said to be in operation as early as 1819 it undertook grinding for government with the closing of the Government watermill around the time construction commenced of the Female Factory. Hannibal Macarthur employed miller Thomas Easterbook in 1825.[100] George Howell, after completing operating the Government watermill, established his own post-windmill nearby c.1824, supposedly near the western side of the Cumberland Oval (Figure 3.10). This mill appears to have operated into the 1830s. In 1820 Thomas Howard built a crane mill which was worked by a horse or a bullock and could grind three to four bushels of grain an hour and was supposedly located in Macquarie Street.[101]

Figure 3.10: Detail of Lycett's painting of Parramatta showing what Tatrai considers to be Howell's windmill on the hill behind St Johns church. ML, SLNSW

3.2.4 Introduction of Steam Mills

It is not until 1826 that the first steam mill was introduced to Parramatta, in contrast to John Dickson's 1815-1816 steam mill on Darling Harbour in Sydney and Thomas Barker's second steam mill in the colony in 1825.[102] The archaeology of both these mills is considered to be of State significance and remains of Dickson buildings and dam wall are known to survive buried under reclaimed land in southern Darling Harbour. Much of Barker's mill site has been removed by a

[96] Tatrai 1994:44.

[97] *Sydney Gazette* 18 December 1841, p 1e.

[98] Heritage Design Services 2000b:52.

[99] Higginbotham 2009:23.

[100] Tatrai 1994:51, 58-59.

[101] Tatrai 1994:58.

[102] Casey & Lowe 'Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) Concept Plan, The Haymarket – SSDA2, Non-Indigenous Archaeological Assessment and Impact Statement', March 2013: 16-23, 87-89.

number of development projects, including the Cross City Tunnel and Darling Quarter, and was to the north of Dickson's mill.[103] Steam mill technology in Darling Harbour and Parramatta was used to grind grain but as there was never enough work they were also turned to manufacturing textiles.

John Dickson (1774-1843), a free settler and business entrepreneur, arrived in Sydney in October 1813 with £10,000 of goods and machinery to establish a steam mill. The enterprising engineer was recommended to Governor Lachlan Macquarie in March 1813 as 'an excellent Engineer and Millwright' and granted land in Sydney 'and the interior proportionate to his capital'. Arriving with a steam engine, tools and turning lathes worth £5200, Dickson established himself in Cockle Bay (Darling Harbour).[104] Thomas Barker was among the apprentices accompanying Dickson to the colony. He became a key figure in the industrial development in Darling Harbour through his own mill and business enterprises, as well as being involved in the management of Dickson's Mill and his estate.[105] Both Dickson's and Barker's steam mills ground grain and manufactured textiles to produce a sufficient profit.

3.2.5 Early Windmills in Sydney[106]

In early Sydney, the high areas above government house reflected the main concern of feeding the colony – the construction of windmills for grinding grain to make flour and baking of bread to feed the colony. During the first interregnum (1793-1795), the period of administration between Governor Phillip departing and the arrival of Governor Hunter, one of the few building projects persisted with was building grinding mills. These mills were rarely successful. Hunter continued with the building of mills and eventually completed the first windmill but it was neither efficient nor sound. He started to erect a second mill but King had to complete it. The first successful and efficient windmill was Palmer's small timber mill that was part of a commercial complex with the bakehouse established on the high ground in the Government Domain.

Commissary John Palmer's timber windmill and stone bakehouse were built on the modern site of the Sydney Conservatorium of Music by May 1801 with construction appearing to have been undertaken over a four-month period at the end of 1800, probably commencing shortly after Palmer returned to the colony from England in late 1800. It was one of three windmills built between 1800 and 1807, aligned along the spine of the eastern side of Sydney Cove. John Palmer built two of these mills and Nathaniel Lucas built the southern post-mill in 1805. It was later stated that Palmer's two mills, bakehouse and dwelling house cost 'upwards of 5,000 pounds', although the later mill was a large stone mill and more expensive and would have constituted more than half this amount (Fairlie, Clark, Jones & Co to Goderich 15 March 1833).

Under Governor Bligh, Palmer had full direction of the government windmills, as well as his private mills, and the government stores and granaries. This produced a conflict of interest in Palmer's financial dealings and with no one to look over his shoulder, he seems to have taken advantage of his opportunities. He reportedly used an alias, Christopher Palmer, to hide some of his dealings (Harris to King 25 October 1807, HRNSW 6:340-42; Harris to Mrs King 25 October 1807, HRNSW 6:343-47; Examinations after Bligh's arrest, HRNSW 6: 447-448, 450, 590; Erskine and King to Treasury, 3 August 1811, HRNSW 7:569-570).

[103] Casey & Lowe reports online.

[104] *Sydney Gazette* 17 Jun 1815: 2; GP Walsh, 'Dickson, John (1774-1843)', *Australian Dictionary of Biography*, 1966, http://adb.anu.edu.au; Property brought by John Dickson to NSW, Letter 26 Oct 1813, Reel 6043, 4/1728, p257, SRNSW; Free settlers to receive grants of land, Fiche 3266; 9/2652 p14, SRNSW. Note: 'Dickson' is sometimes recorded in sources as 'Dixon'.

[105] Godden Mackay Pty Ltd, Oct 1992: 24.

[106] Casey 2002, Chapter 11.

Palmer's mill was demolished c.1815 for the construction of the new neo-Gothic Government Stables and the only evidence that survived is the associated bakehouse and buried archaeological deposits, a small circular brick well inside the Bakehouse footings, and artefacts thought to be associated with the occupation of the bakehouse.

By 1807 the ridgelines and skyline of Sydney Cove were dominated by five working mills and the defunct first mill was now enclosed behind the newly built walls of Fort Phillip (1804) on modern Observatory Hill. This spill over of private commercial enterprise into the area of Phillip's Domain was part of the maintenance and survival of the colony, which as late as 1809 was suffering from flooding of the grain crops growing on the Hawkesbury. Grain was in short supply. These high places were a centre of utilitarian activities essential to feeding and maintaining the colony. It is for these reasons that King granted these leases and this is part of the reason why Bligh did not seek to have them removed from the Domain although they were clearly a visual intrusion into the new landscape he was trying to make.[107]

3.2.6 Milling in the Hawkesbury

This section requires further research for the AMS. Preliminary research has identified mills dating from the 1810s and 1820s being either ruined or archaeological sites.

3.2.6.1 Little Wheeny Creek Watermill

Among other recognised watermills in New South Wales is Little Wheeny Creek near Kurrajong which was built about 1810-1816. The first mill was located on the upper part of Wheeny Creek and then a second one was built further down the creek. A section of the mill race was built with stone walling and is said to be extant.[108] This may be contemporary with Marsden's watermill and would assist with determining how his mill operated. Currently there are other watermills on the Cooks River as well as Little Wheeny Creek. A site visit to this mill has been organised and will be included in the AMS. Figure 1.6 shows the extent of the likely mill race.

To provide a clearer historical context for understanding the significance of the two mill sites and races within PNHS it is considered important to recognise the extent of these mills.

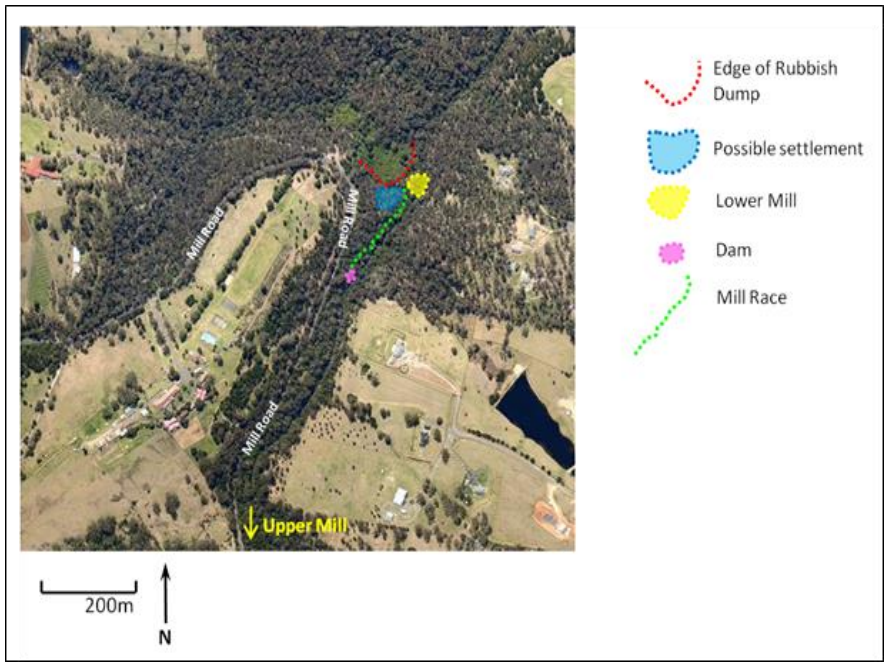


Figure 3.11: Plan of dam, watermill sites and likely race at Little Wheeny Creek; Adele Anderson and Nicky Corbett.

[107] See Casey 2002: PhD, Ch. 11.

[108] Little Wheeny Creek Mill site, Kurrajong, lower Blue Mountains, NSW; eds Adele Anderson and Nicky Corbett, University of Sydney essay 2010.

3.2.7 Thomas Arndell's Mill, Catti National Park

Further research is required on this mill which is a ruin within Catti National Park but has no easily available publication or report.

3.2.8 Two watermills in the Liverpool Region

John Lucas, the son of Nathanial Lucas, was apprenticed to his father and understood how to build watermills. He built one on the Woronora River and another his Brisbane Mill on the Williams Creek in the 1820s.[109] The watermills were serviced by small ships providing grain via the river and then taking the flour out. There was no suitable road access during the operation of the mills. John Lucas used convict labour to erect his mills and they were located in a way that allowed him to avoid the taxes being paid on grain delivered through Port Jackson as they could ship through Botany Bay. The location away from good road access is part of the reason why the two mills probably failed.

[109] Greg Jackson 2016.

4.0 Overview of Zoning Plans and Statutory Context

4.1 Archaeological Potential & Significance

The study area and the surrounding landscape has potential to contain archaeological remains of State and also of potential National significance (Figure 4.1, Table 3.1). These are exceptional sites which include the site of the Government watermill, the first watermill on mainland Australia with the associated mill dam and parts of the mill race and an associated creekline which fed into the mill dam. The southern site is the Government Farm which is where the original farm buildings were built for agriculture in New South Wales, as illustrated in Figure 2.3.

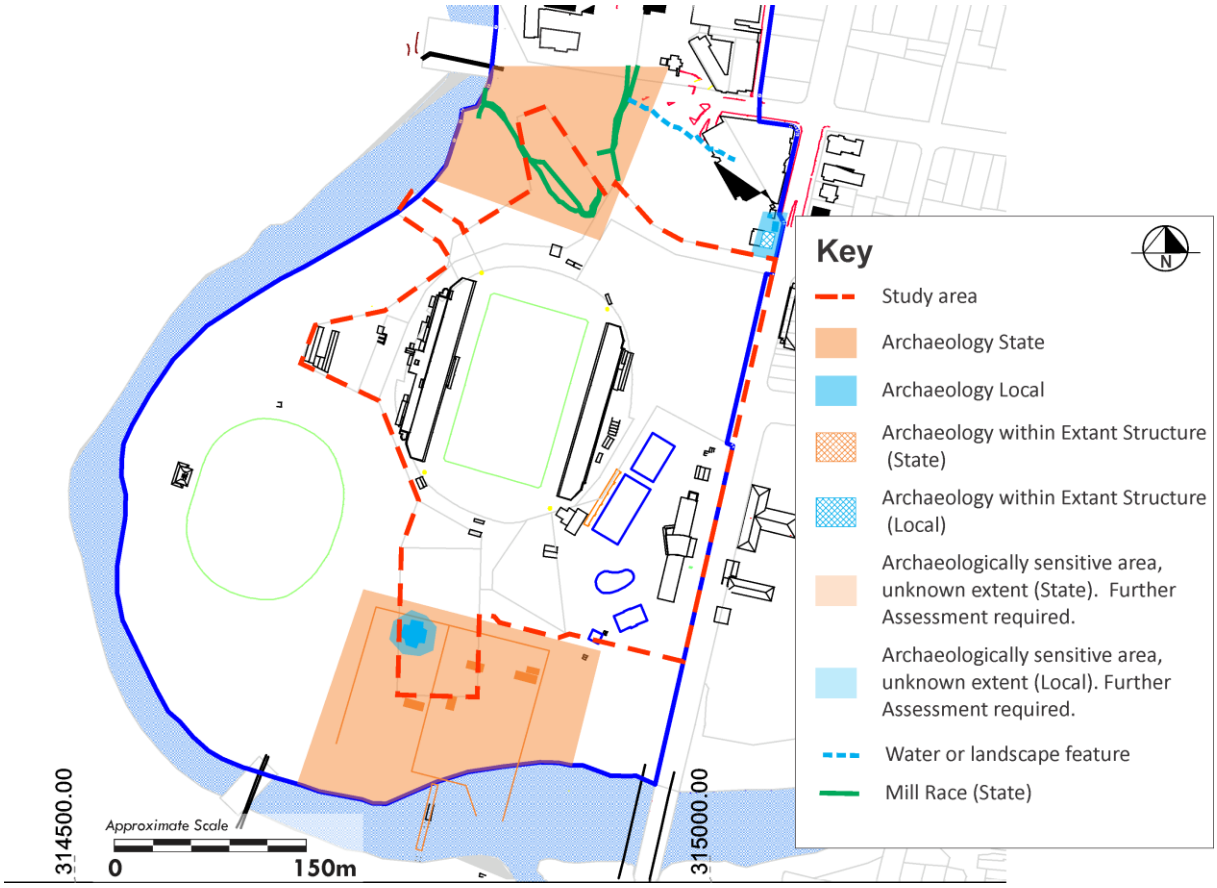


Figure 4.1: Items/precincts of State significance are coloured orange, items of local significance are coloured blue. Overlay of Government Farm (south) shows a preliminary curtilage for this heritage item. Notably the Government Farm curtilage includes the boundaries shown on the 1792 plan of Parramatta plus a buffer. The boundary between Parramatta Park and the study area are shown as pale grey lines, see Table 4.1

Table 4.1: List of relevant archaeological sites identified in the Casey & Lowe 2014 Baseline Archaeological Assessment.

Figure Reference	Item	Description	Dates	Re-Assessed Level of Potential	Preliminary Level of Significance
1	Government Farm/Dodd's Farm	Structural remains of at least six farm buildings, evidence of agricultural practices, such as fencelines and furrows.	1789-1810	Moderate	State
2	Government Watermill	Structural remains of watermill buildings.	1803-c.1816	Moderate	State
3	Mill races and Mill Pond	Earthworks or structural remains of millraces.	1803-c.1890s	Moderate	State
4	Ross Street Gatehouse	Second phase structure still extant. Potential remains of first phase include footings of structure, outbuilding and cesspit.	1840s-1935, 1935 - extant	Moderate	Local
5	Parramatta Racecourse, Cricket and Sports Grounds	Grandstand, compacted surfaces, fences.	1847-c.1984	No - Low	Local
6	Pavilion	Footings	c.1887	No - Low	Local
7	Parramatta Swimming Centre	—	1958 - extant	None	None
8	Parramatta Stadium	—	1986 - extant	None	None

4.2 Previous Archaeological Zoning & Management Plans

4.2.1 1989 – Higginbotham

The *Future of Parramatta's Past. An Archaeological zoning plan, 1788-1844*, Edward Higginbotham and Paul-Alan Johnson (1989) provides a location for the key sites affecting the current proposal. This zoning plan identified the potential site for both the Government Farm (2) and the Government Watermill (28), and being within Parramatta Park (Figure 4.2).

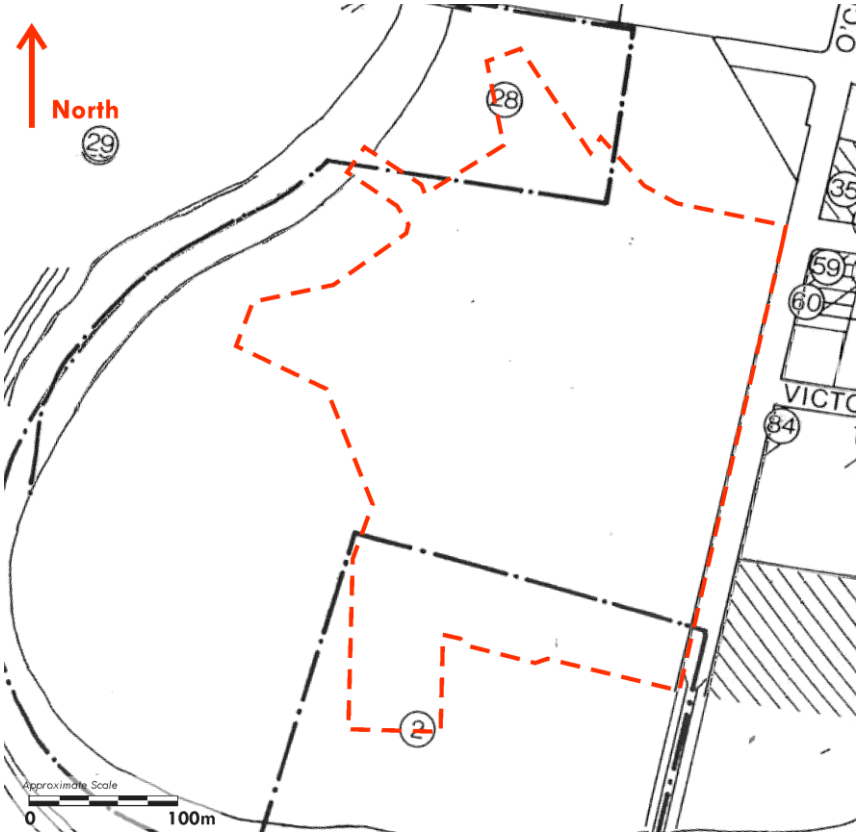


Figure 4.2: Plan from, Higginbotham and Johnson (1989), showing the predicted locations of the Government Farm (2) and the Government Watermill (28).

4.2.2 1995 – Godden Mackay

In 1995 Godden Mackay produced the *Parramatta Park, Parramatta, Archaeological Zoning Plan*, for Parramatta City Council. Their plan of sensitivity mapped the Government Farm (5), a pavilion (8) within the farm area, and the mill and millrace (44) (Figure 4.3). These locations are similar to Higginbotham and Johnson 1989 (above). While the copy available to us is an annotated draft, a key item noted is that:

> However, in light of the value of the site, as a historic place, with social, aesthetic and technological attributes, any investigations undertaken should be predicated upon the option for future in situ conservation (1995:47).

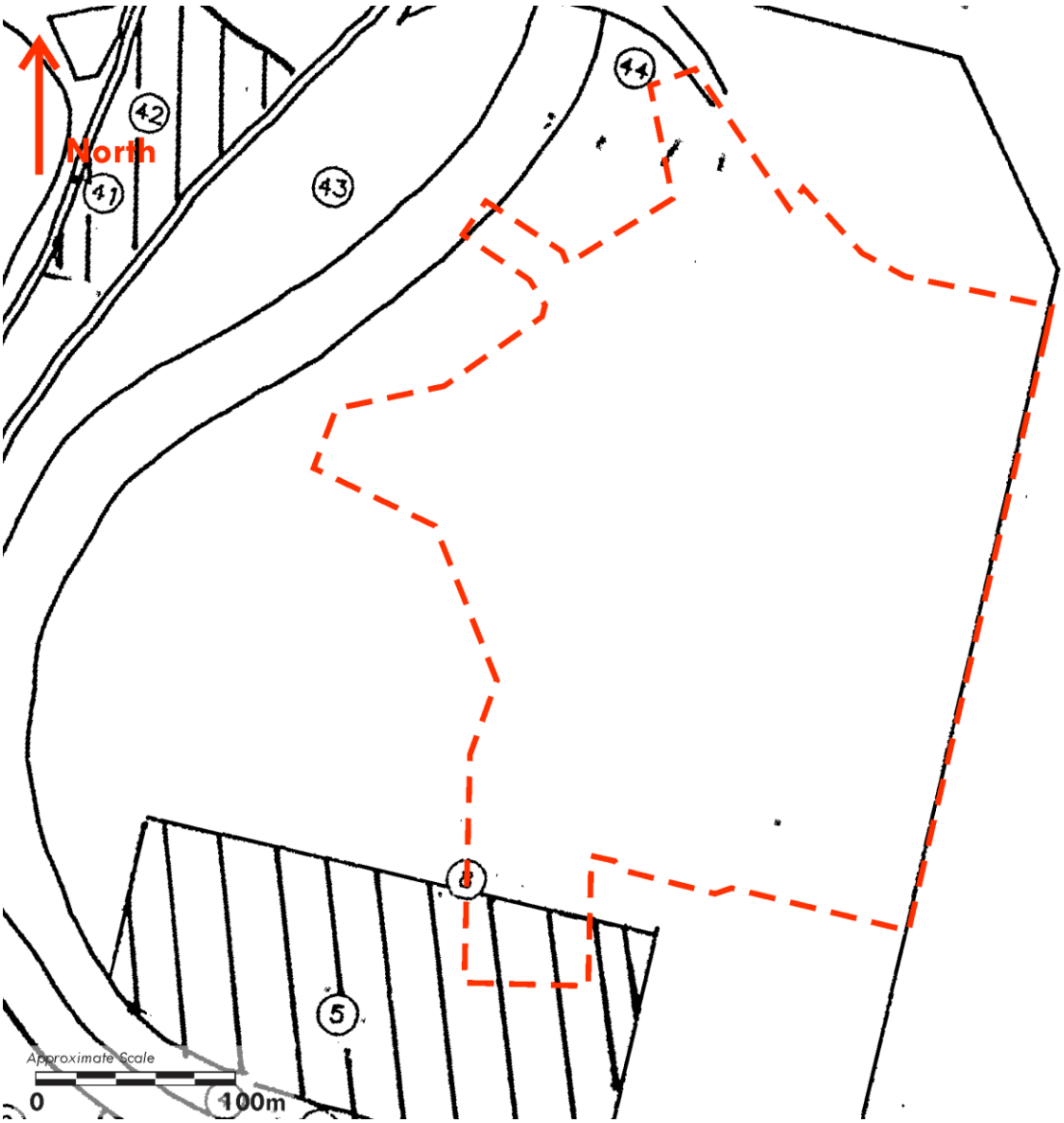


Figure 4.3: Plan from Godden Mackay 1995. The study area has been added.

4.2.3 1997 – Robert Varman

Varman's *Archaeological Zoning Plan for Parramatta Park* is detailed but does not include site curtilages, only a numbered site with uncertain boundaries (Figure 4.4):

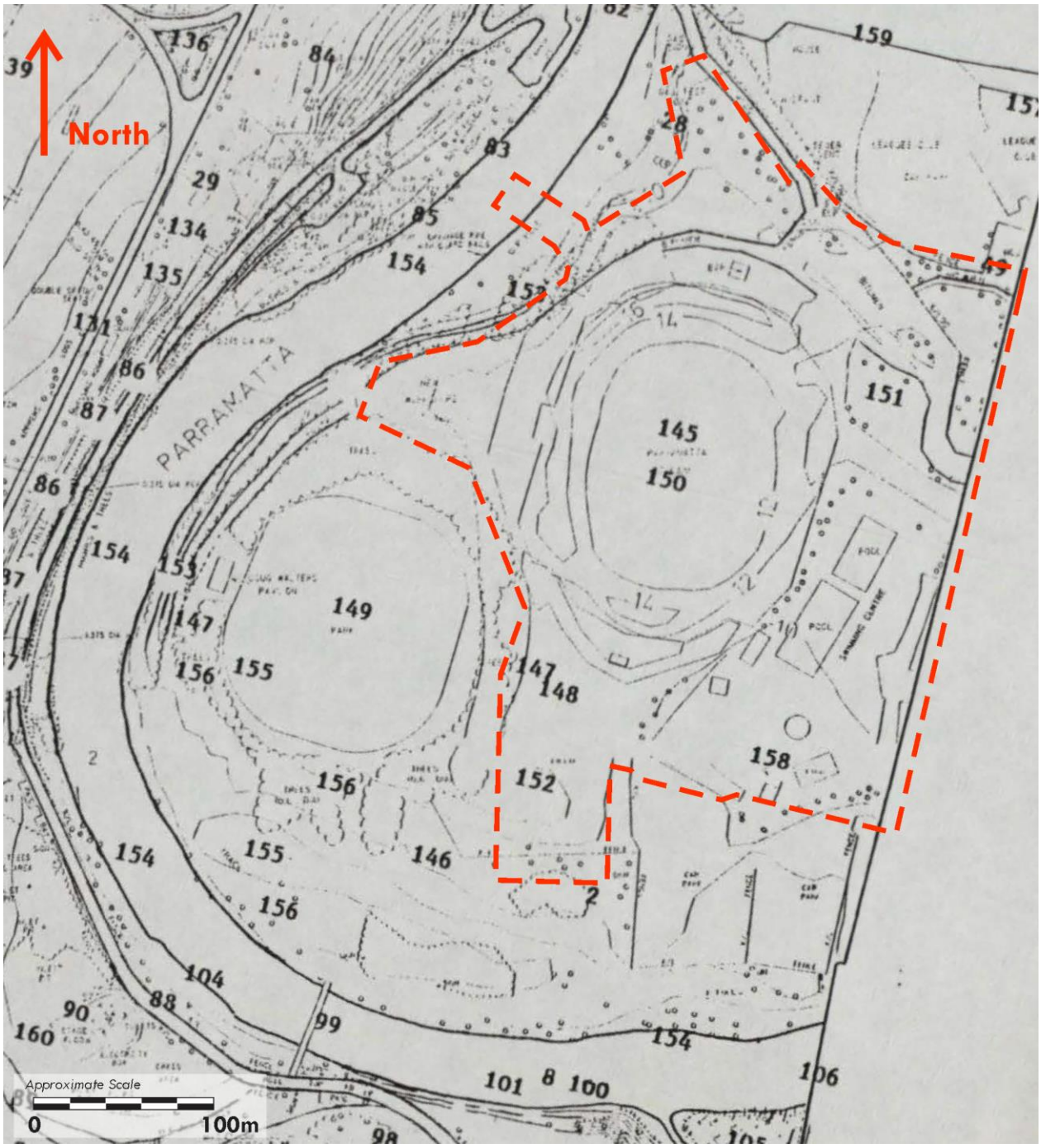


Figure 4.4: Varman's zoning plan, includes number of sites and an overlay of the study area (dashed red). See table of numbers Table 4.2. Varman 1997:56.

Table 4.2: List of potential archaeological sites and heritage items identified by Varman, 1997 (Figure 4.4, Figure 4.5, Figure 4.6).

Varman site number	Name of site	Comment on 1791 watercolour
Government Farm		
2	Government Farm, Dodd's Farm, Clark's Farm, Clarke's Farm (Occupied by George Caley c. 1800-1806.	
2a	Dodd's house built in or by July 1789	Wattle & daub with brick fireplace and chimney, thatch roofing
2b	Granary, early 1790	Timber, possibly log or split logs, thatch roofing
2c	Barn, early 1790, threshing by 1791	Timber, possibly log or split logs, thatch roofing
2d	Granary, by 1791	
2e	Secondary cottage by 1791	Wattle and daub with stone fireplace and chimney, thatch roof
2f	Very small hut 1791	Wattle and daub and thatch roof
2g	Small structure, possibly a store or workshop, by 1791	Uncertain, slightly pink which may make it brick.
2h	Front, double gate and fencing by 1791	Logs or split logs
2i	Fenced drive to building, by 1791 in line with the bridge of Bridge (Pitt) Street	Paling fence with gaps or brush fencing,
2j	Cleared fields	Possibly with a freshly spouting crop
Government Watermill (1997:68-80)		
28a	Mill house, 1803, 1804	
28b	Log dam, 1803/1804	
28c	Stone dam, 1805, 1806	
28d	Mill pond with emergency run-off (Feb 1805)	
28e	Mill-wrights shed, 1803/04, by Marsden's cow shed	
28f	Ancient eucalyptus tree next to the river	
Ross Street Gatehouse		
49	Back Lodge, Mud Lodge, North Gatehouse, O'Connell street Gatehouse, Ross Street, Gatehouse	
Other archaeological sites/heritage items		
147	Parramatta Race Course,1847 to about 1856	1997:221
148	Parramatta Race Course: New Race course around 1856	
149	Old Kings Oval	
150	Cricket Ground, Stadium site, Parramatta Stadium	
151	Small Oval, 1887 indicated as a Cricket Ground	
152	Pavilion	1997:223
153	Remnant bushland	
155	Evidence of catastrophic flooding	River terraces as shown on Ebsworth's 1887 plan
156	Old tree plantings	
158	Swimming Complex	

Figure 4.5: Annotated version of 1791 figure with names discussed in Table 4.2. Varman 1997:33

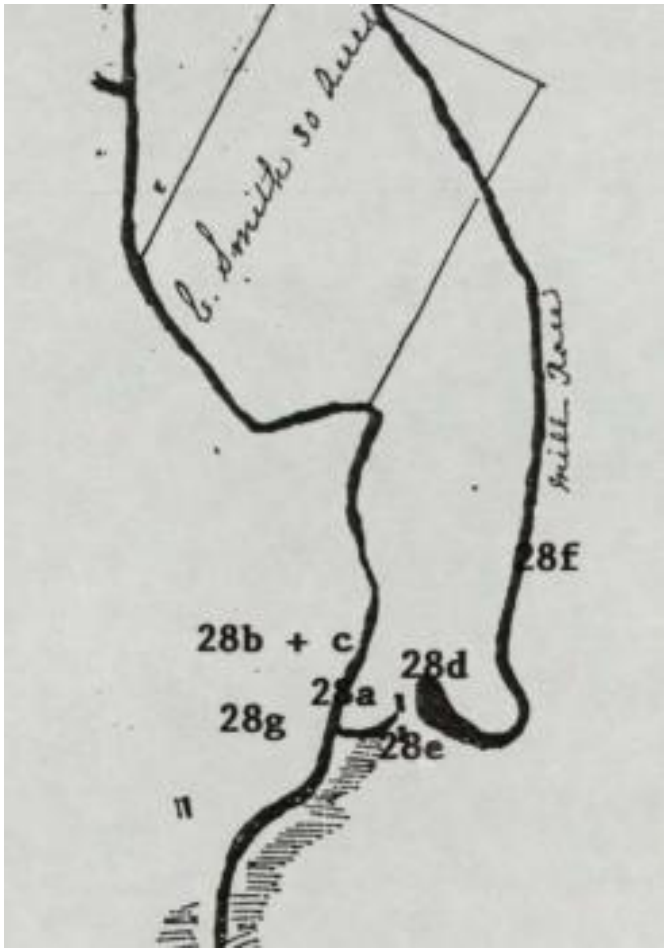


Figure 4.6: Location of watermill features identified by Varman 1997: 82

4.2.4 PHALMS AMU Preliminary Statements of Significance

The *Parramatta Historical Archaeological Management Strategy* (PHALMS) identified a series of Archaeological Management Units (AMUs) which contain adequate Statements of Significance for the purpose of this report and which address the key archaeological values of the study area and includes values reassessed for the Parramatta North Urban Transformation and Figure 4.1. It is noted that the curtilages of the PHALMS mapping are inadequate for the Government Farm (3239) (Figure 4.7). The curtilage for the Former Government Farm used for PHALMS is smaller than that included in the 1995 Godden Mackay Archaeological Zoning Plan for Parramatta Park (Figure 4.3), and that produced by Casey & Lowe in 2014 (Figure 4.1).

AMU 3247, Site of Watermill, Parramatta Park

This AMU has exceptional archaeological research potential.

The site of a government watermill begun in 1798 and completed in 1804. The mill was unsuccessful, later leased to George Howell then dismantled in 1820, when Howell was made bankrupt.

The physical archaeological evidence within this area may include built landforms, structural features, open deposits and scatters, ecological samples and individual artefacts which have potential to yield information relating to major historic themes including Technology, Utilities, Labour and Government and Administration and Environment.

Archaeological evidence at this site is likely to be largely intact.

This AMU is of State significance.[110]

AMU 3239, Part of Former Government Farm

This AMU has exceptional archaeological research potential.

Established as a government farm in 1789 by Governor Phillip, across Parramatta River from Government House. The complex was also then used by government botanist George Caley and granted to Bligh in 1806 when the role of a government farm had been taken over by private farms. Macquarie rescinded the lease, and the area became part of the Government Domain until 1859 when Parramatta Park was formed and opened for sporting and recreational use by the general public.

The physical archaeological evidence within this area may include built landforms, open deposits and scatters, ecological samples and individual artefacts which have potential to yield information relating to major historic themes including Government and Administration, Agriculture, Convicts, Labour, Housing, Science and Environment.

Archaeological evidence at this site is likely to be largely intact, though subject to minor disturbance in some areas.

This AMU is of State significance.[111]

AMU 3118, Parramatta Stadium, Leagues Club, Swimming Centre, Old Kings Oval

This AMU has moderate archaeological research potential.

The Government Domain was first established by Governor Phillip in 1790. In 1857, much of the Domain was offered for sale and 100 hectares retained as Parramatta Park. From this time, the part of Parramatta Park east of the River was used for sports and recreation, and in the twentieth century, many new sports facilities have been introduced.

[110] http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2243247, accessed 18 July 2014, date significance updated 6 November 2000.
[111] http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2243239, accessed 18 July 2014, date significance updated 6 November 2000.

The physical archaeological evidence within this area may include built landforms, structural features, intact subfloor deposits, open deposits and scatters, ecological samples and individual artefacts which have potential to yield information relating to major historic themes including Government and Administration, Sport and Leisure.

Archaeological evidence at this site is likely to be subject to major disturbance.

This AMU is of Local significance.[112]

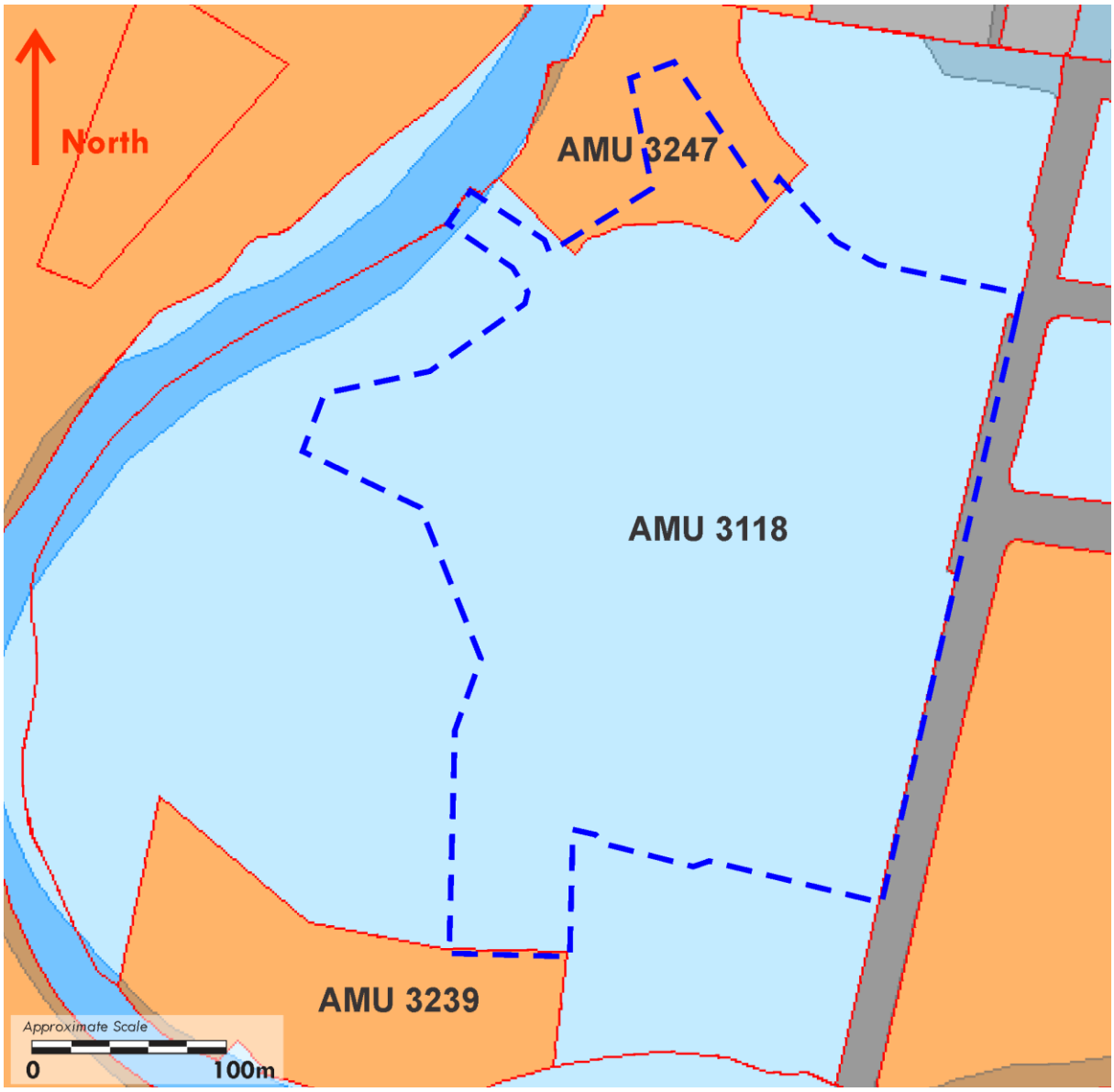


Figure 4.7: AMUs within the study area (blue line). It is noted that AMU 3239 is less extensive than Casey & Lowe 2014. Blue indicates local significance and orange State significance. PHALMS 2000

[112] http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2243118, accessed 18 July 2014, date significance updated 28 October 2000.

4.3 Environmental Impact Statement for Western Sydney Stadium – Stage 1 DA

4.3.1 SEARs for Stage 1DA

Key Issue 11, dot point 2, noted the requirement to provide 'a detailed historical archaeological assessment which discusses the likelihood of significant archaeology being present on the site and how such archaeology will be impacted'. It is noted that the Heritage Division's submission considers the Impact Statement prepared for the EIS to be inadequate and non-complaint with the SEARs. The Heritage Division, Office of Environment & Heritage's submission Condition 9 stated:

> An updated Archaeological Assessment must be completed prior to the commencement of Stage 1 works and the completion of the detailed design which identifies in detail the predicted locations and appropriate buffer zones of archaeological relics in or near the study area. This should include clear mapping to assist in detailed design of Stage 2 of this project to ensure archaeological relics of State and National heritage significance are conserved in-situ and not impacted by the development or associated landscaping, fencing, car parking or service provision. The archaeological assessment must be prepared by a suitably qualified historical archaeologist who meets the Heritage Council's Excavation Directors Criteria for State significant archaeology.

It is noted that the authors of the archaeological components of the EIS do not meet the Heritage Council guidelines for Excavation Director criteria for State significant sites.[113] It is considered likely that a detailed Archaeological Assessment will need to be written which is compliant with the Heritage Council guidelines. This current report is a detailed Archaeological Assessment in line with these guidelines.

4.3.2 The EIS Stage 1 and Assessment of Impacts on Historical Archaeology

The EIS addressed a Concept Proposal which was approved, SSD 7534. Specifically, the Proposal includes:

- Concept Proposal for the Western Sydney Stadium, including parking and access facilities, ancillary infrastructure and landscaping.
- Staged demolition and removal of the existing stadium and associated infrastructure, including the existing stadium and the associated hardstand areas where required (footpaths, roads, car parks etc.), and the Parramatta Swimming Centre.

Works associated with the removal of below ground infrastructure, excavation works, and construction of the Western Sydney Stadium will be assessed under Stage 2 DA.

The Stage 1 EIS assessed the Concept Design and indicated that:

> As currently proposed, there would be no ground breaking works within either of these parts of the Site and, consequently, no potential for impact to an element of high/very high cultural heritage sensitivity, resulting in a neutral significance of impact. In this area, the Proposal is thus assessed as causing no change to an element of high/very/high cultural sensitivity, resulting in a neutral significant of impact (EIS TP Heritage 2016:38).

This assessment of the proposal's lack of impact is not illustrated in the report but the above statement has to be taken as the main assumption underpinning the desktop study for the historical archaeological reporting for the EIS. The Stage 1 Concept Proposal is for demolition only and did not include excavation or remediation. It is noted that while the Stage 1 Demolition EIS has made the above assessment, this does not include an assessment of the current S96 modification nor the Stage 2 construction which this current proposal is addressing in a preliminary stage. It is noted that the S96 modification and Stage 2 is likely to have more impacts than identified in the Stage 1 Demolition EIS. The risk to the project relates to the likelihood of impacts on the

[113] It is noted that the author of this report does meet these guidelines.

archaeology which is associated with the S96 modification and any Stage 2 application. The Stage 1 approval has said the State and Nationally significant archaeology should be retained *in situ*.

Figure 4.8: Plan showing the footprint of the EIS Stage 1, demolition. This Demolition Stage 1 DA boundary, the red line, is close to the current boundary with Parramatta Park, except for the southeastern area.

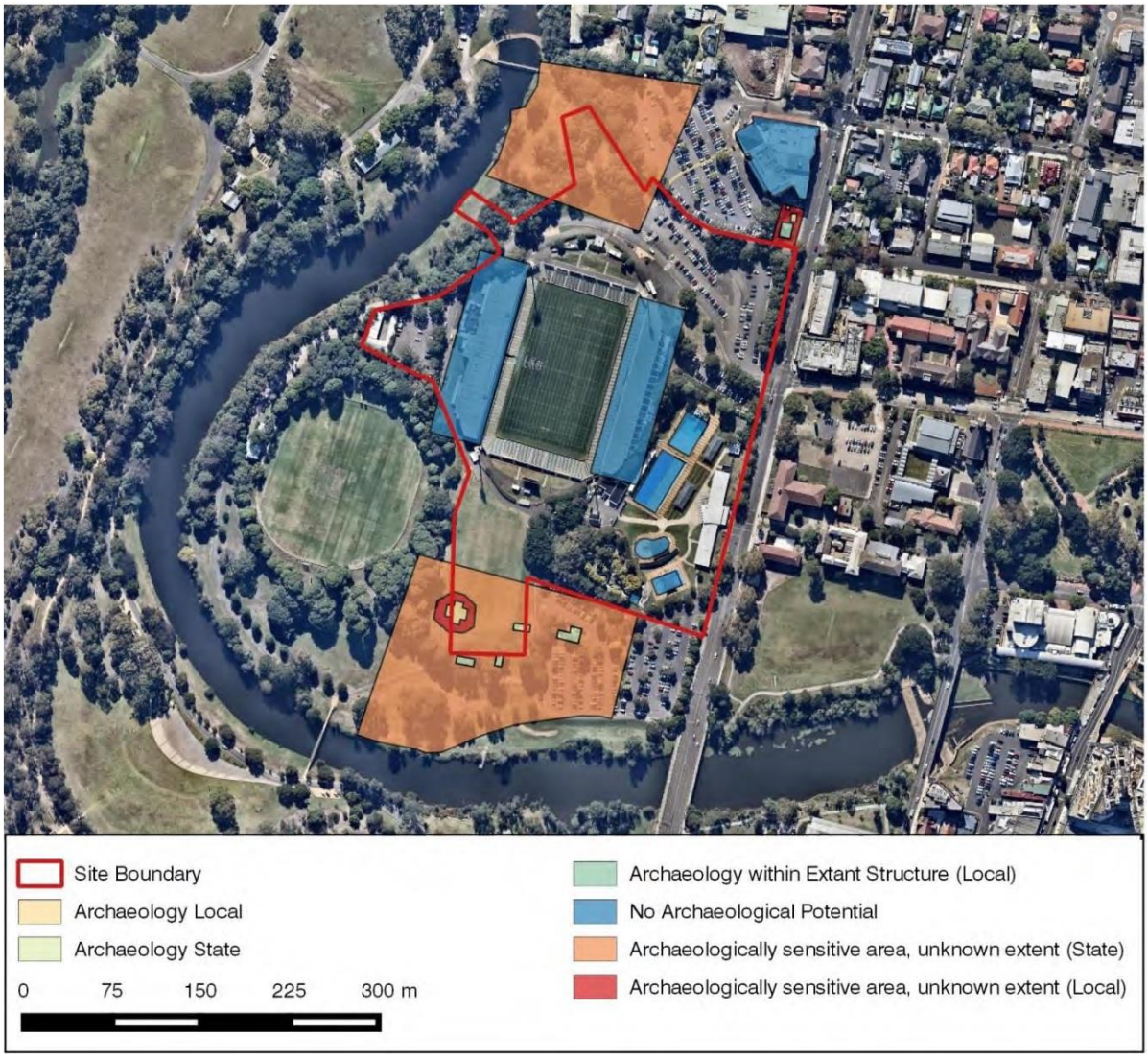


Figure 4.9: Figure from the EIS based on Figure 4.1 above. The study area extends into the area of the Government Farm. AECOM 2016a:22, figure 10.

4.3.3 Approval of Concept Design/Demolition – SSD 7534

Schedule 2 – Conditions of Consent for Concept Proposal

Part B – Conditions to be satisfied in future development applications

Archaeology

B20. Future Development Applications(s) shall include an updated Archaeological Assessment identifying the predicted locations and appropriate buffer zones of archaeological relics in or near the current project boundary area.

The Archaeological Assessment shall include clear mapping to assist in the detailed design of the Future Development Applications to ensure archaeological relics of State and National heritage significance are conserved in-situ and not impacted by the development or associated landscaping, fencing, car parking or service provision.

The Archaeological Assessment must be prepared by a suitably qualified historical archaeologist who meets the Heritage Council's Excavation Directors Criteria for State significant archaeology.

This report is written to provide an Archaeological Assessment which complies with this condition of consent. It is noted that one of the principal authors of this report, Dr Mary Casey, meets the Heritage Council criteria for State sites. Further, this report has been reviewed by Tony Lowe who also meets these criteria. Therefore, this report is compliant with the Conditions of Consent for the Stage 1 DA. It is noted that this condition also requires that the design of the Stadium and its associated excavation must 'ensure archaeological relics of State and National heritage significance are conserved in-situ and not impacted by the development or associated landscaping, fencing, car parking or service provision'. This is a key constraint on the site remediation. Likely constraints are mostly addressed at the management of the remediation of contamination at the site and associated landscaping. The following chapters are designed to address this issue further but also provides a standalone Archaeological Assessment.

4.3.4 Curtilage for Government Farm and Watermill

Issues arising from Condition 20B relates to the boundaries established in Casey & Lowe 2014 which have been adopted in this report and in the EIS. These boundaries relate to earlier reports but are based on the most recently available information which is not necessarily publicly available.

This curtilage is based on an overlay of the latest, most accurate plan showing the location of the farm. This is basically limited to the 1792 plan which shows some of the early street grid and the Government Farm. Further to this we have used the archaeological remains of the 1792 convict hospital and possibly one of the convict huts from the Government Farm phase at the Parramatta Justice Precinct. This was then overlaid using survey data to limit potential issues with the scale to the areas. As noted above, there is likely to be an error of $\pm$5m to 15m when using the 1792 plan.

To accommodate the areas of the site predicted to contain the Government Farm we have included a buffer zone, and to the east, within the carpark, we have included an additional buffer to allow for sideways shift. Also, the topography of the site does create further potential inaccuracies within this overlay. Analysis in Sections 2 and 4 indicates a strong likelihood that the Government Farm was located on the second terrace rather than two terraces, the second and third terrace. An overlay on both terraces would create some difficulty in using the farm but this is all theoretical.

It is noted that there is considerable further information to use for the location of the watermill site, millpond and the water races. In addition, archaeological testing is being undertaken within the PNUT project which may allow us to further inform the WSS project.

5.0 Archaeological Potential

5.1 Previous landscape modifications

Environmental investigations have found evidence of contamination with asbestos in areas with identified archaeological potential for remains of State Significance (Figure 5.1). The extent to which remediation may be undertaken in these areas is likely to be a constraint for the site. Therefore, for the purposes of providing guidance for the project, we have undertaken detailed research of how the landscape was modified, mostly during the 20th century.

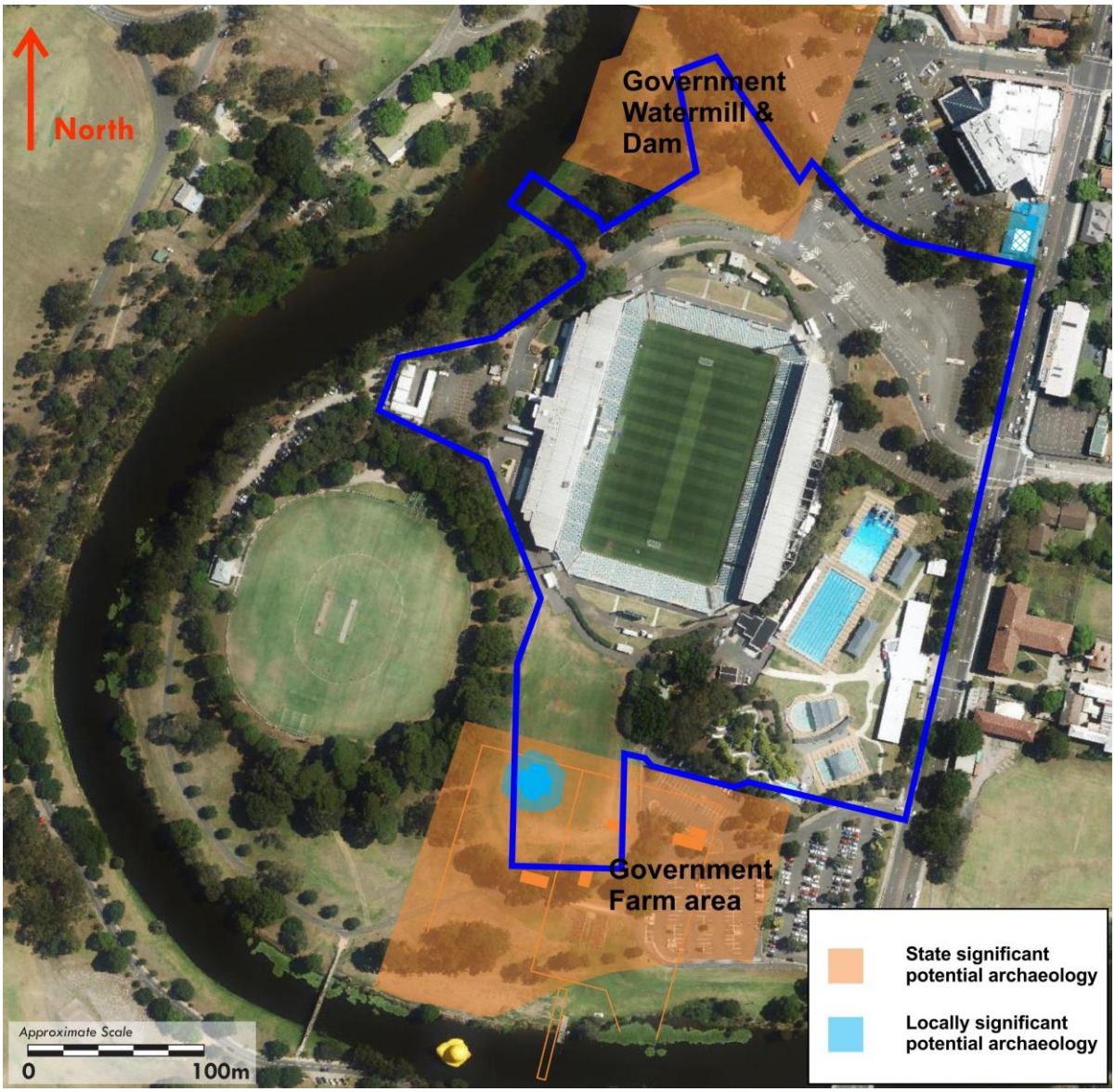


Figure 5.1: Areas of archaeological potential identified in the 2014 Baseline Archaeological Assessment (Casey & Lowe 2014). Western Sydney Stadium study area outlined in blue. Background aerial photograph taken 11-01-2014, ©NSW Department Finance, Services & Innovation 2017 (CC-BY-A).

5.1.1 Government Watermill and Dam site

5.1.1.1 Summary

The Government watermill and mill-wrights' shed were located at the west side of the dam/mill pond which supplied the mill. A road led to the mill. There is a good possibility that the present road down to the Parramatta River follows the route of this historic road.

Although the dam wall broke sometime after the mill fell into disuse (c.1820), the dam itself persisted as a visible landscape feature until the 1960s. It is likely that between the 1820s and 1960s, a substantial amount of material filled up the dam, through both alluvial silting and deliberate dumping. During the 1960s, the former dam was completely filled, to create a level area which was used as a carpark. The friable asbestos fill found during environmental testing may have come from this phase. In the 1980s, the area was landscaped further. The present mound was constructed, rising three to four metres above the surrounding level area to its south.

Removal of the 1980s mound has only a low possibility to disturb the potential archaeological remains of the mill and dam site. Removal of fill below the surrounding level area (around RL 13 to 14) would have a moderate to high potential to disturb the potential archaeological remains, particularly given that the 1960s (and earlier) material is expected to fill in historic depressions, and so surround the potential archaeological remains of the mill buildings.

5.1.1.2 Discussion of historical evidence

The Government watermill was located on the west side of a dam constructed in the early 19th century. Evans' 1804 map of Parramatta shows two buildings near the west side of this dam (Figure 2.7). Based on Caley's annotated 1806 map (Figure 2.9), the north building was the actual three-storey mill building, while the south building was the 'shed in which the mill-wrights worked'. By 1806, when the area surrounding the mill was granted to William Bligh, there was a road which led to the mill.[114]

Although the dam wall for the mill pond broke or was demolished sometime after the mill was demolished, the actual depression and embankments surrounding the mill pond survived much longer. It appeared on the 1887 map of Parramatta Park (Figure 5.2). A creek/drain ran into the former pond from the north, along the line of the old mill race. At least part of the dam wall may also have survived, adjacent to the carriage drive that led from the river to O'Connell Street. This area was marked 'knob' in the fieldbook sketch made in preparation for the 1887 map (Figure 5.3). The carriage drive may represent the earlier road leading to the mill, which was referred to in Bligh's grant.

The former mill pond remained visible as a depression up to the 1960s. According to Robert Varman's 1997 *Archaeological Zoning Plan for Parramatta Park*, the former creekline or water race or even the mill pond, a 'natural hollow' was used 'as a place to dump unwanted fill', until 'very recent years'. He also commented that a 'number of drain pipes have been excavated through the area'.[115] Historic aerial photographs indicate that the pond was finally levelled with the surrounding carpark sometime between 1961 and 1970 (Figure 5.13, Figure 5.14). An undated photograph, probably taken in the 1970s, makes it clear that the area was relatively flat at the time (Figure 5.18). Information supplied by James Hardie to the Environmental Protection Agency (EPA) around 2007 (then part of the NSW Department of Environment, Climate Change and Water) indicated that material containing asbestos had been dumped somewhere around 'Cumberland Oval' at some unspecified time. The filled area was 'referred to as access road around oval, car park and

[114] NSW LPI Land Grants Bk 3, No. 217.

[115] Varman 1997:Vol 1, p 68.

embankment'.[116] This description is consistent with the 1960s landscaping, which filled in the former mill pond depression to form a carpark.

Between 1982 and 1986, the area was further landscaped, and a mound roughly 3 to 4 metres above the surrounding carpark was constructed on the site (Figure 5.15, Figure 5.16). However, historic overlays suggest that the rough alignment of the carriage drive leading down to the Parramatta River has not changed in the area since the 19th century.

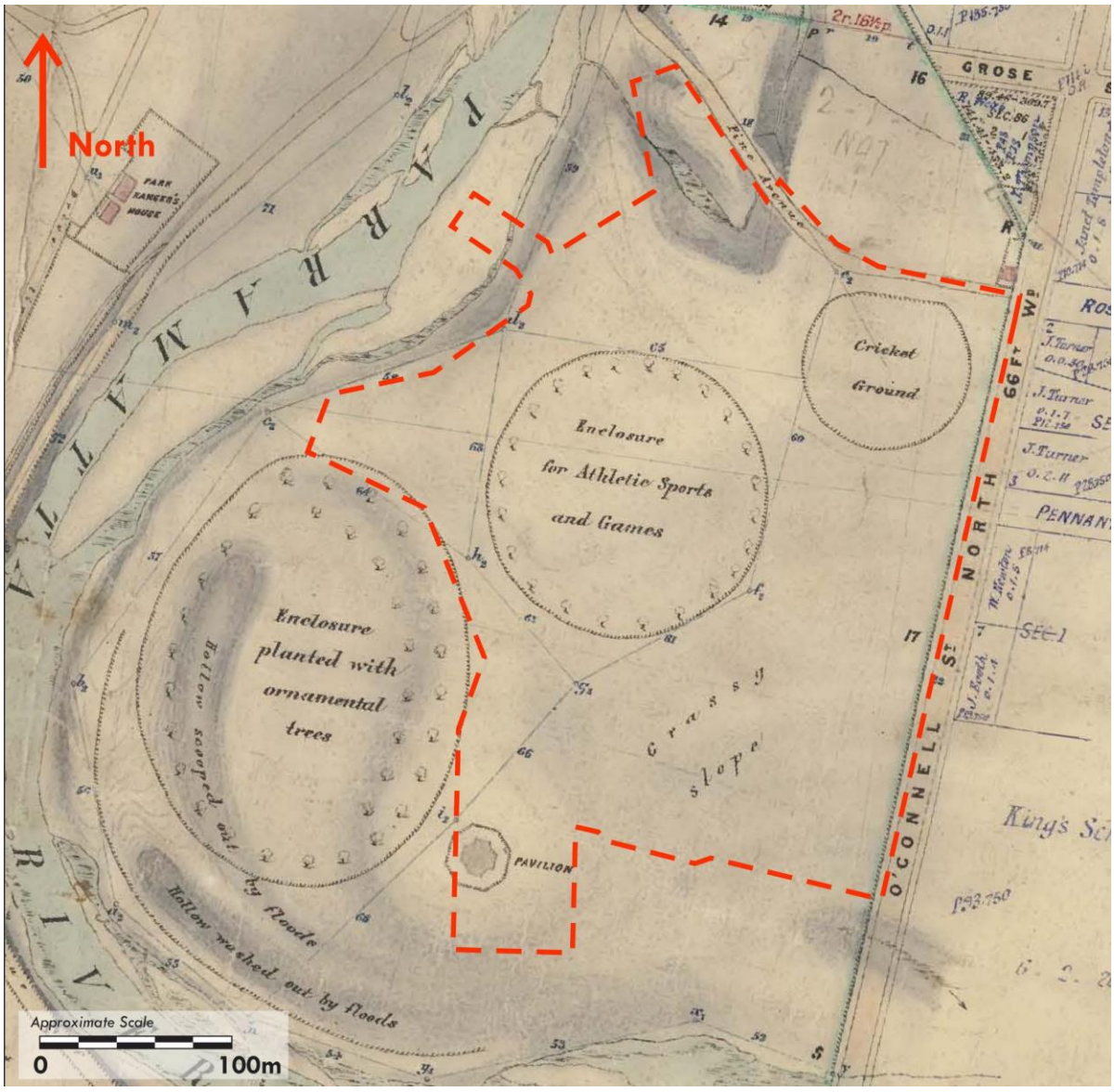


Figure 5.2: Detail of 'Plan of Parramatta Park, Town of Parramatta', 1887, Surveyed by Edward Ebsworth. Study area outlined in red. Crown Plan MS 80 Sy, NSW LPI.

[116] DECCW 2009:38.

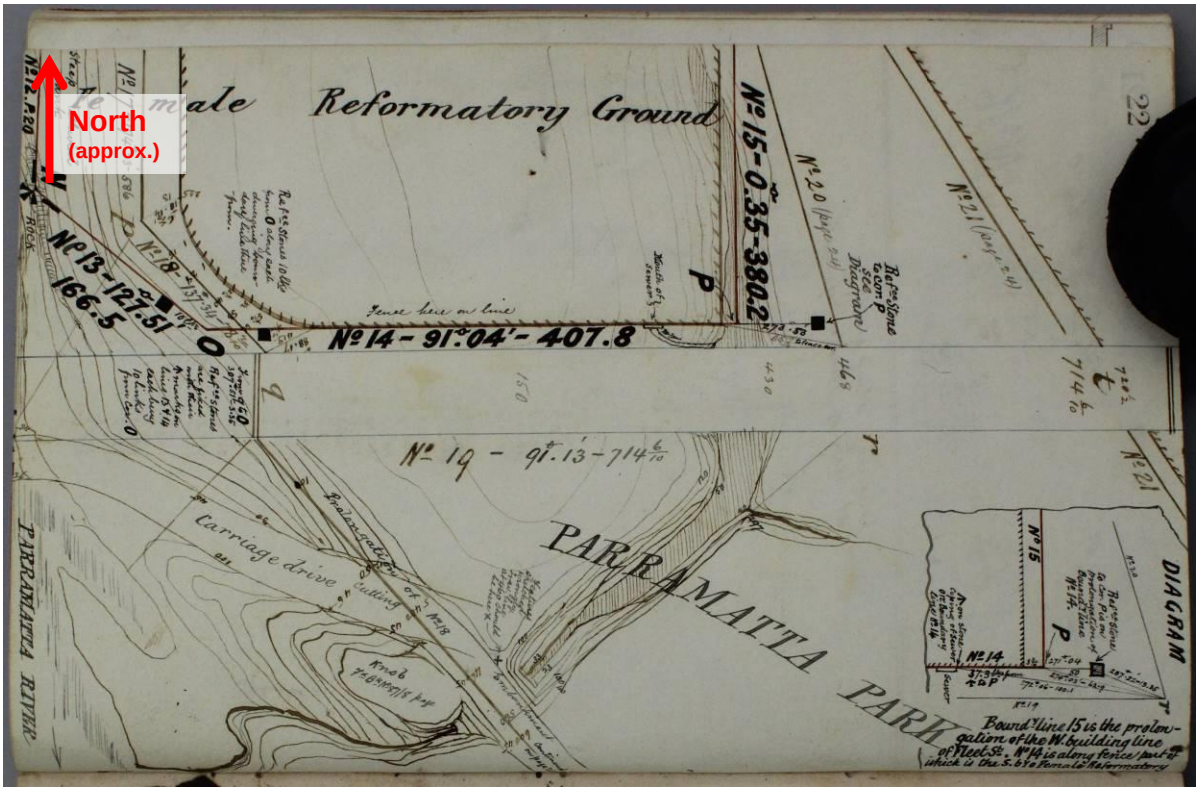


Figure 5.3: Sketch showing the carriage drive and the 'knob' thought to be a remaining part of the mill dam wall. Surveyor Edward Ebsworth's fieldbook, 1887. SRNSW FB 87/7 No 3666, p 22.

Figure 5.4: Detail of oblique aerial photograph showing location of former mill pond (circled), c.1950s, taken by Frank Hurley, looking southeast. nla.obj-157515572.

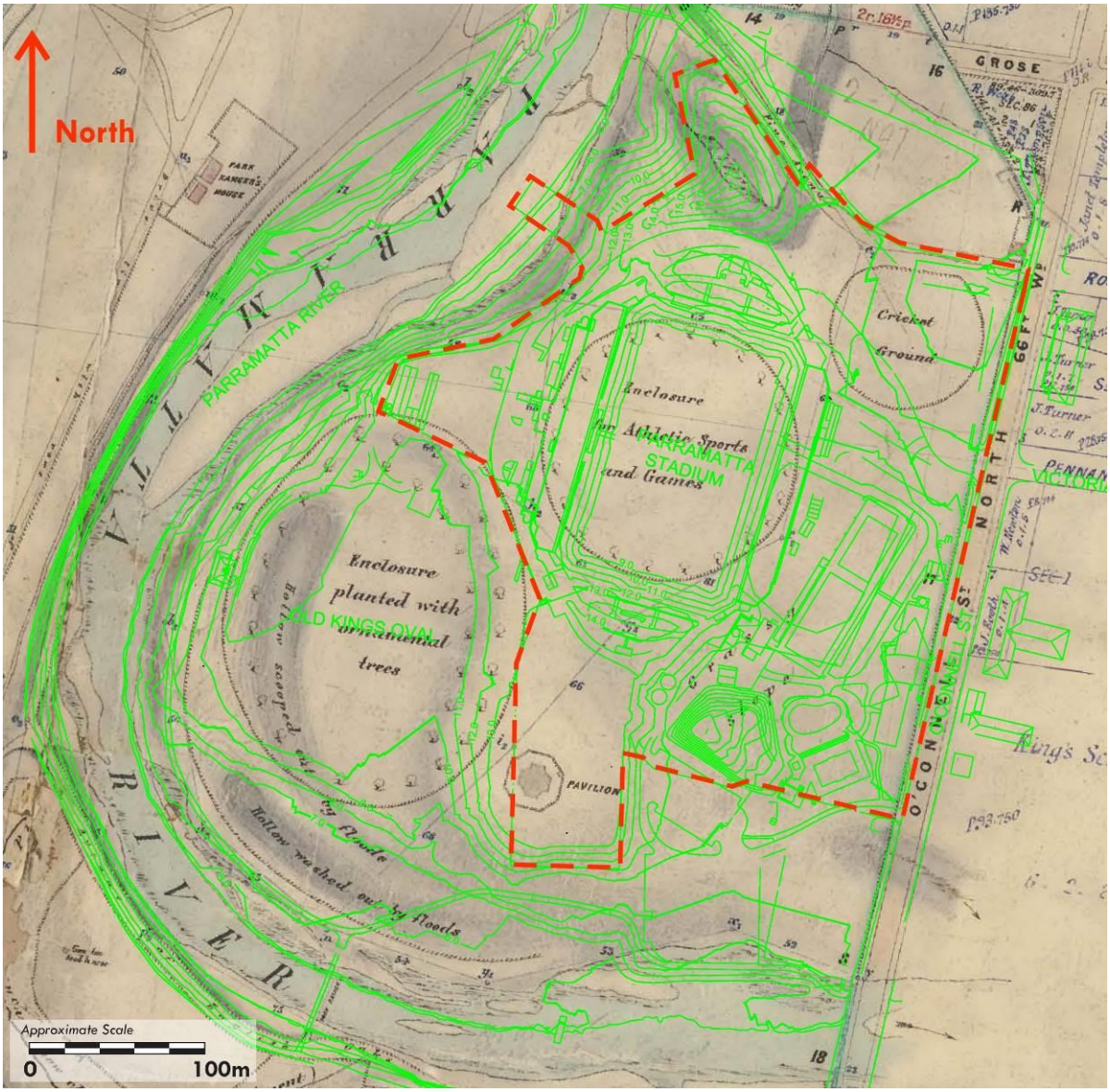


Figure 5.5: Detail of 'Plan of Parramatta Park, Town of Parramatta', 1887, Surveyed by Edward Ebsworth overlaid with 2016 survey of the site included in the Concept Design (green). Study area outlined in red. Crown Plan MS 80 Sy, NSW LPI.

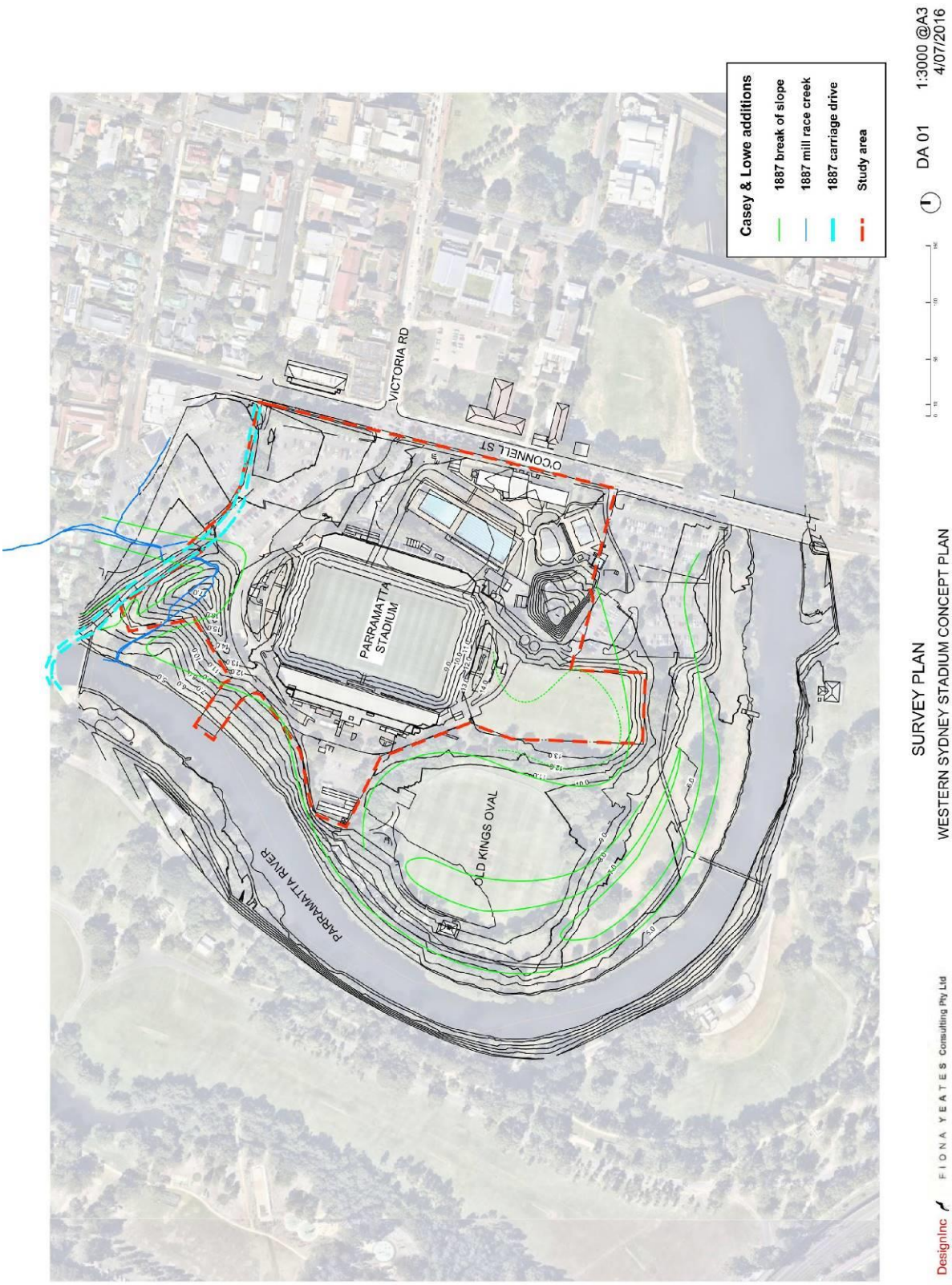


Figure 5.6: Survey Plan, Western Sydney Stadium Concept Plan, 4/7/2016, with additional features from 1887 plan of the site (Figure 5.5, Crown Plan MS 80 Sy, NSW LPI). Survey supplied by client with additions by Casey & Lowe.

5.1.1.3 Discussion of previous environmental testing results

Testing of the mound on the site of the former millpond by Environmental Investigation Services (EIS) in 2014 found contamination with asbestos in four of five boreholes. Asbestos associated with fibre-cement fragments was found in BH8, BH9 and BH10. Cores for BH8 to BH11 were terminated due to suspected friable asbestos at depths ranging between 3.0m (BH8) and 6.0m (BH9). No asbestos contamination was recorded in BH7, which also had 2.2m of fill.[117]

The 2014 report suggested that the asbestos containing material came from contaminated fill deposited in the 1980s, when the mound was created. However, the historical evidence suggests that this area was landscaped in two phases: the first, in the 1960s, made a level carpark by completely filling in the former mill dam, which already was heavily silted and subject to dumping; the second, in the 1980s, which created the present mound. Given that the friable asbestos occurs at depths roughly corresponding to the carpark surrounding the mound, it is plausible that it was dumped on the site during the 1960s. This would be consistent with what is seen anecdotally on other archaeological sites around Parramatta, where contexts dated to the 1950s or 1960s will have lenses of asbestos-rich fill. Anecdotally, fill was available from local factories, although this has not been confirmed through documentary sources.

Figure 5.7: Borehole Location Plan, man-made hill area (former mill pond site), Environmental Investigation Services (EIS) 2014a.

[117] EIS 2014a:27, borehole logs.

5.1.2 Government Farm/Training Field Site

5.1.2.1 Summary

Although the Government Farm/Training Field site is contaminated with bonded asbestos pieces up to a maximum depth of 2.5m, the historical evidence does not support the view that the ground level has been significantly modified in this area since 1930. The 1930 historic ground level is likely to have been similar to Cumberland Oval before Parramatta Stadium was built, or possibly slightly lower, which would be roughly equivalent to between RL 12 and RL 13.

This area has been naturally terraced since at least the late 18th century. The approximate locations for changes of slope on the east and south have not changed since at least the 1880s (Figure 5.2). The training field area has been at a higher level than the Old Kings School Oval since at least the 1880s. It is likely to always have been naturally higher ground.

The western side of the playing field area appears to have been slightly modified between 1887 and 1930, when a gentle spur was modified to form a rectangular playing field. Some asbestos contamination may have been introduced at that time. Further contamination may have come from top-dressing of the playing fields during the mid-20th century.

Due to the potentially nationally significant archaeological remains within the training fields area, the extent and nature of the asbestos contamination should be re-examined, either through archaeological testing of the extent of asbestos-bearing overburden or other strategy. Any remediation strategy will need to take into account the potential archaeological remains on the site and avoid impacts.

5.1.2.2 Discussion of historical evidence

Historic depictions of the Government Farm show that it was located on a naturally-formed terrace, above the Parramatta River (Figure 2.3, Figure 2.6). The ground behind the farm also sloped upwards, possibly forming another natural terrace. This upper terrace may be indicated by hatching in King's 1790 sketch map (Figure 2.2).

Historic maps or images show the topography of the site during the 19th century. However, Ebsworth's 1887 survey and map of Parramatta Park does indicate the relative topography of the area (Figure 5.2, Figure 5.8, Figure 5.9). At this time, there were two terraces on the north river bank in the vicinity of the former Government Farm site. The upper terrace formed a gentle spur, roughly in the vicinity of the present Training Field. At the south end of this spur was an octagonal pavilion. The pavilion was probably located here to take advantage of this prominent position. A 'grassy slope' occupied the area now filled with the swimming pool water slides.

In 1924, two new cricket wickets were proposed. One was located 'outside the central Cumberland Oval', the other was 'almost in a line with the old bandstand'.[118] These may have been the two cricket pitches visible on the 1930 aerial, particularly if the pavilion shown on the 1887 map was the bandstand. Work on the wicket near the bandstand still had not commenced in June 1925.[119]

Based on aerial photography few changes appear to have taken place to the training fields between 1930 and 1943 (Figure 5.10, Figure 5.11). The 1943 aerial of the site has strong shadows, which help to indicate the topography of the site. The aerial shows that topography of the area had changed only slightly since Ebsworth's 1887 survey. The major change appears to have been some possible levelling which had made the gentle spur more rectangular in shape. This probably was to

[118] Rosen 2003, Appendix I, p 54, citing PPT Minute Book, 10 July 1924.
[119] *Cumberland Argus* 5 June 1925, p 10b.

allow the area to be used for sports. These changes probably took place before 1930, as there already was a cricket wicket in this area by that date.

Between 1948 and 1950, the playing surface of Cumberland Oval was extensively refreshed. The oval was 'completely harrowed, fertilised, limed and top-dressed' with Prospect soil, and made to be 'as level as possible'.[120] However, these expensive works are likely to have been limited to the main Cumberland Oval, rather than the training fields to its south.

An oblique aerial of the site, probably dating to the 1950s, shows that the training fields were relatively level at that time (Figure 5.17). This photo also shows that the training fields were roughly the same level, or possibly slightly lower than the playing surface of Cumberland Oval at that time. According to a later geotechnical report made prior to redevelopment of the site, the old playing surface of Cumberland Oval ranged between RL 12.5 and RL 13.[121]

Later aerial photographs indicate that the training field area changed little until the present swimming pool carpark was constructed around 1970 (Figure 5.13, Figure 5.14, Figure 5.15, Figure 5.16). The carpark was probably levelled by importing material and then grading the area.

The Training Field area may have been modified between 1982 and 1986, around the time that the old Parramatta Stadium was built. However, the evidence for this from historic aerial photography is equivocal, and the field largely appears unchanged during this period.

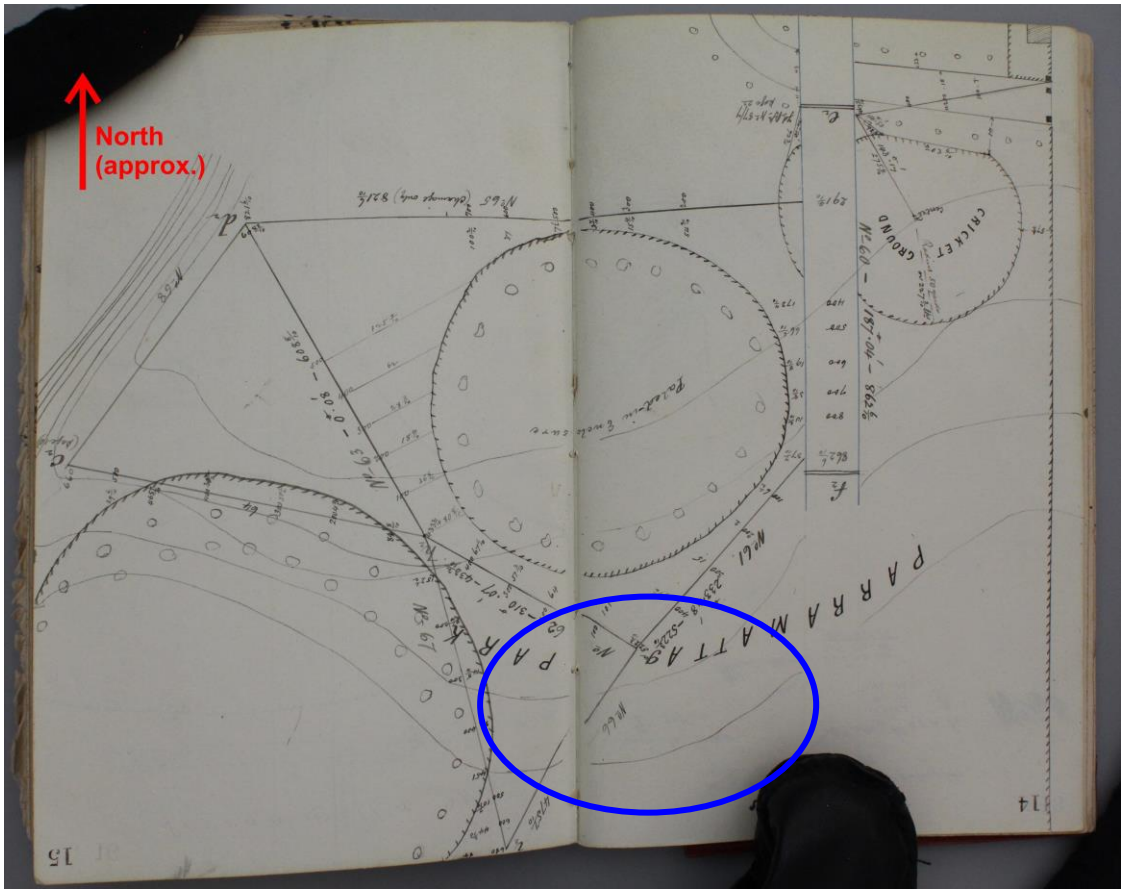


Figure 5.8: Sketch showing the three ovals on the north side of the Parramatta River, Surveyor Edward Ebsworth's fieldbook, 1887. Approximate location of training fields circled in blue. SRNSW FB 87/8 No 3667, pp 14-15.

[120] *Cumberland Argus* 23 November 1949, p 12c; see also *Cumberland Argus* 27 August 1947, p 12d.

[121] JBS&G 2016a:17.

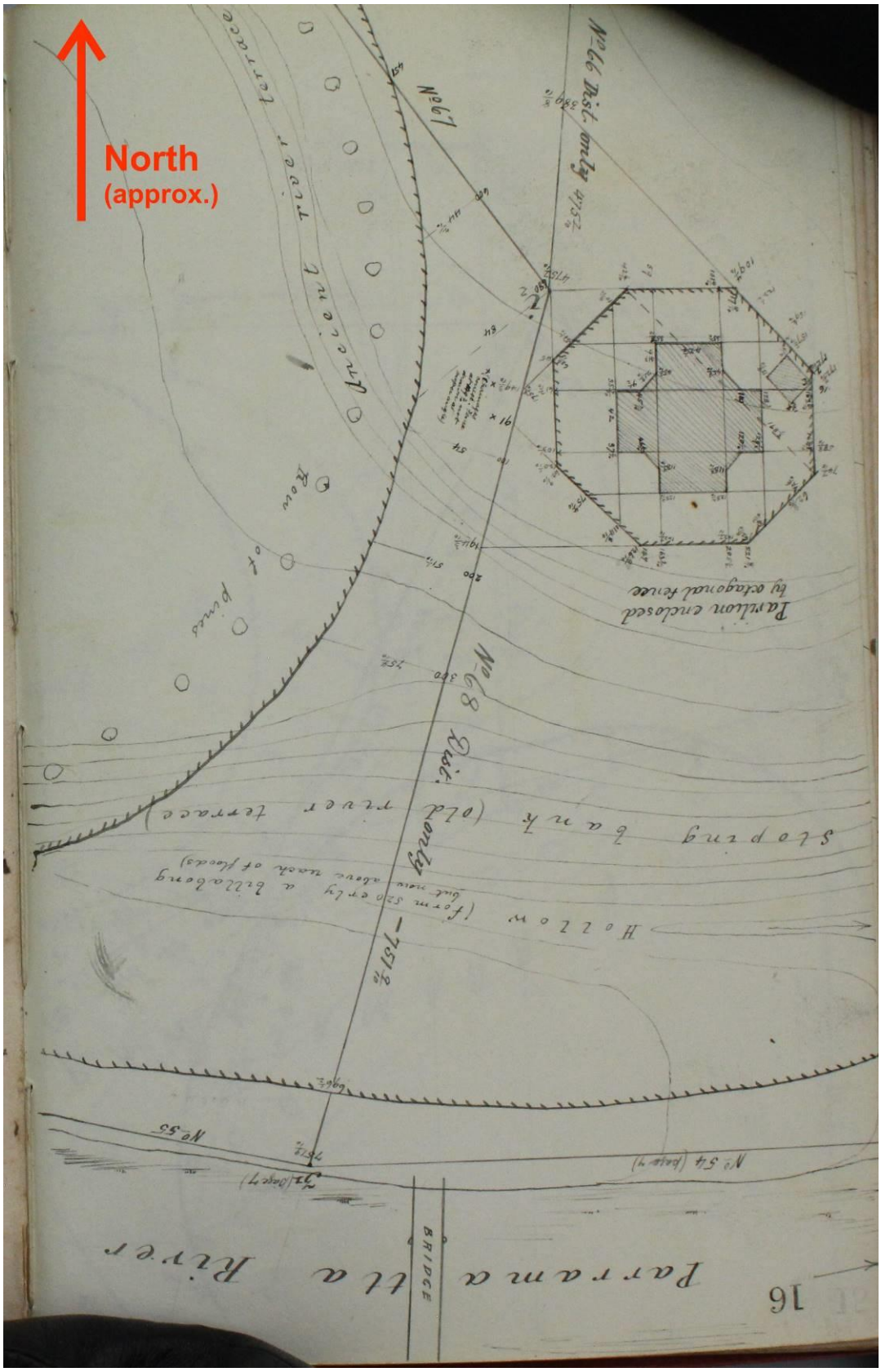


Figure 5.9: Sketch showing the topography near the pavilion on the north side of the Parramatta River, Surveyor Edward Ebsworth's fieldbook, 1887. Note the steeply sloping ground to the west of the pavilion, leading down to Old Kings School Oval. SRNSW FB 87/8 No 3667, p 16.

Figure 5.10: 1930 Aerial showing the study area outlined in red. Sydney Survey, Map 3424-1296, Date 6-3-30, Commonwealth of Australia, Geoscience Australia.

Figure 5.11: 1943 aerial photograph. Green lines representing the breaks of slope shown on the 1887 crown plan have been added. Study area outlined in red. NSW LPI Six Maps viewer.

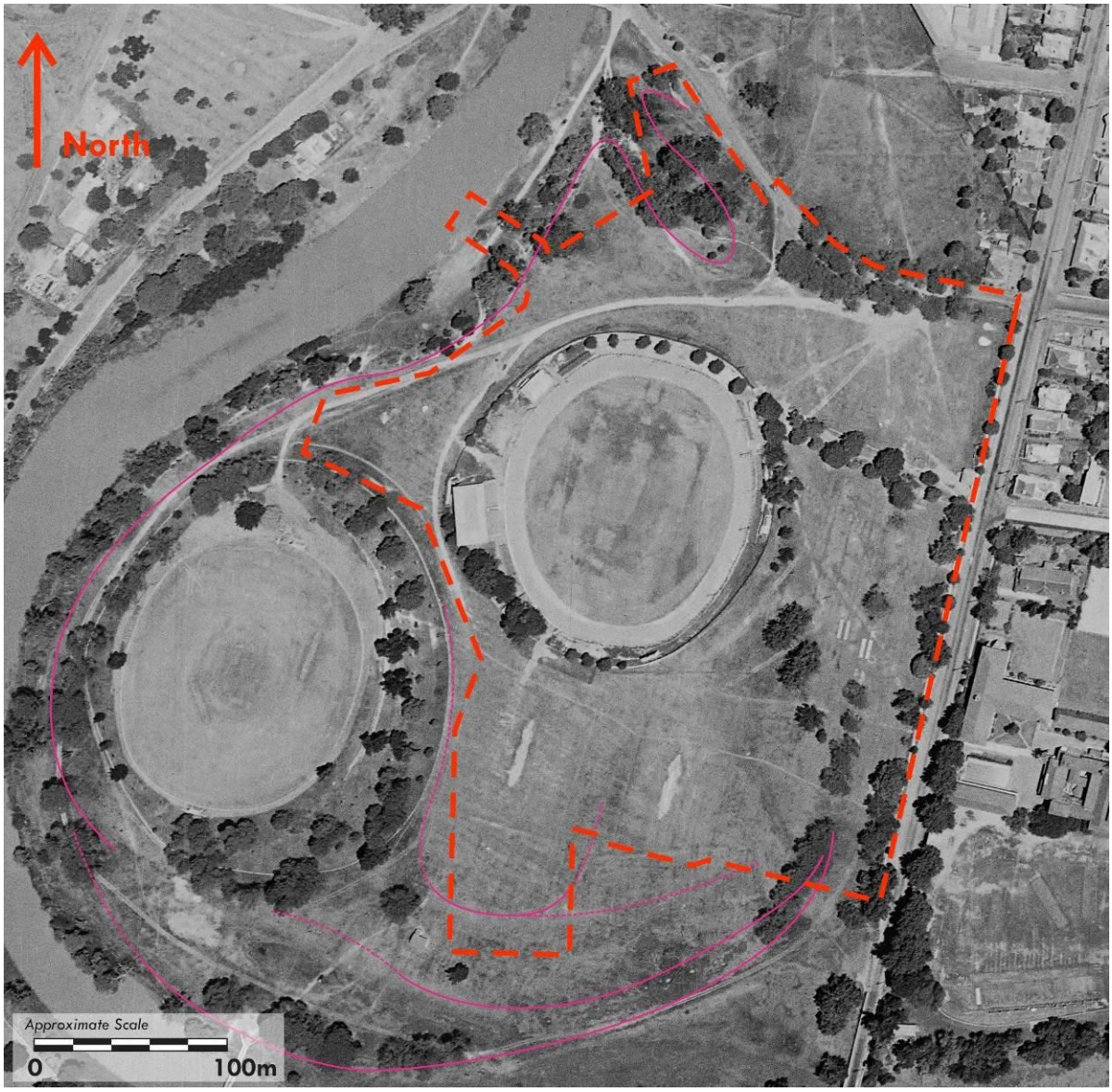


Figure 5.12: 1955 aerial photograph. Pink lines representing the breaks of slope visible on the 1943 aerial photograph have been added. Study area outlined in red. NSW Run 233-5198, NSW LPI.

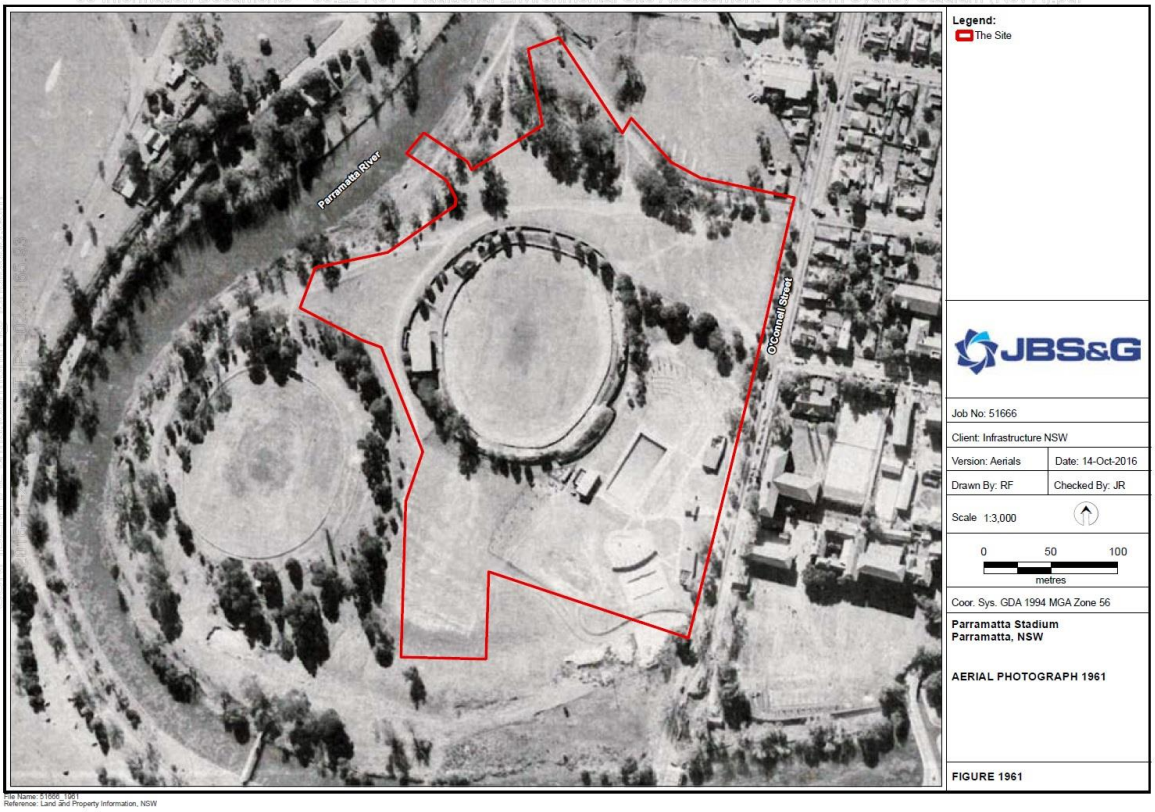


Figure 5.13: 1961 aerial photograph, from JBS&G 2016b. Study area outlined in red.

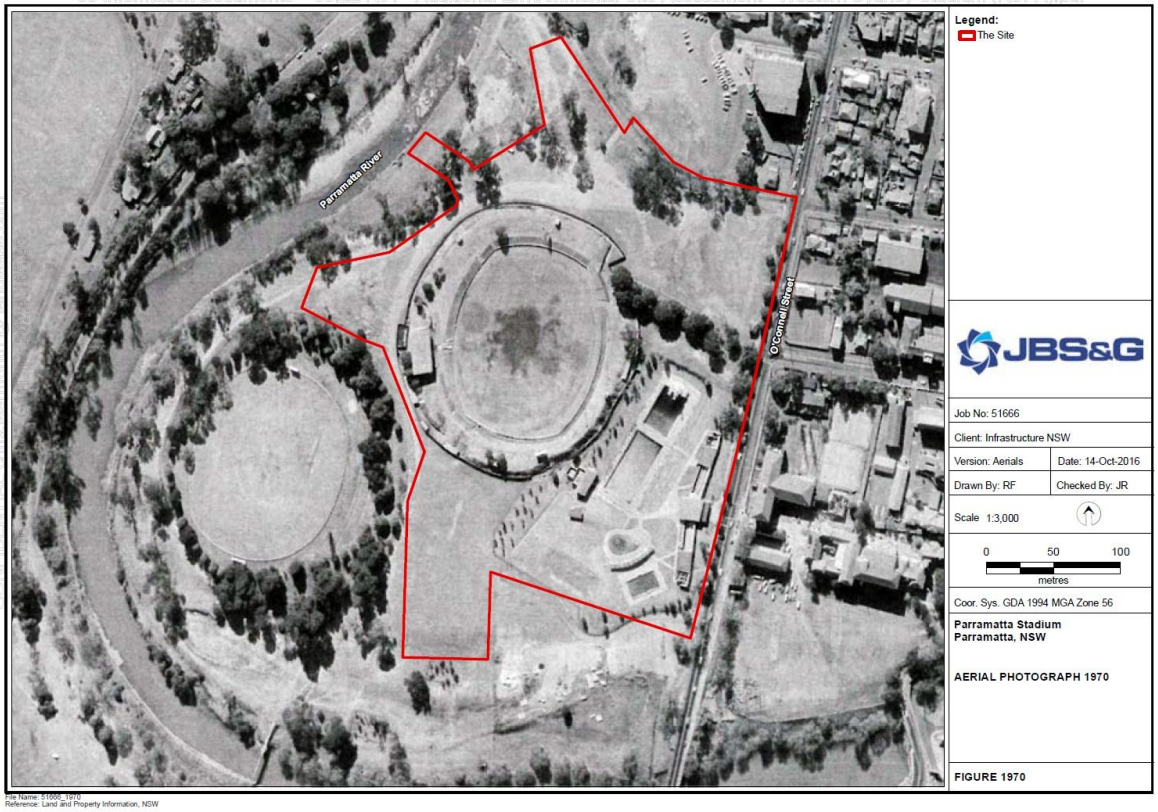


Figure 5.14: 1970 aerial photograph, from JBS&G 2016b. Study area outlined in red.

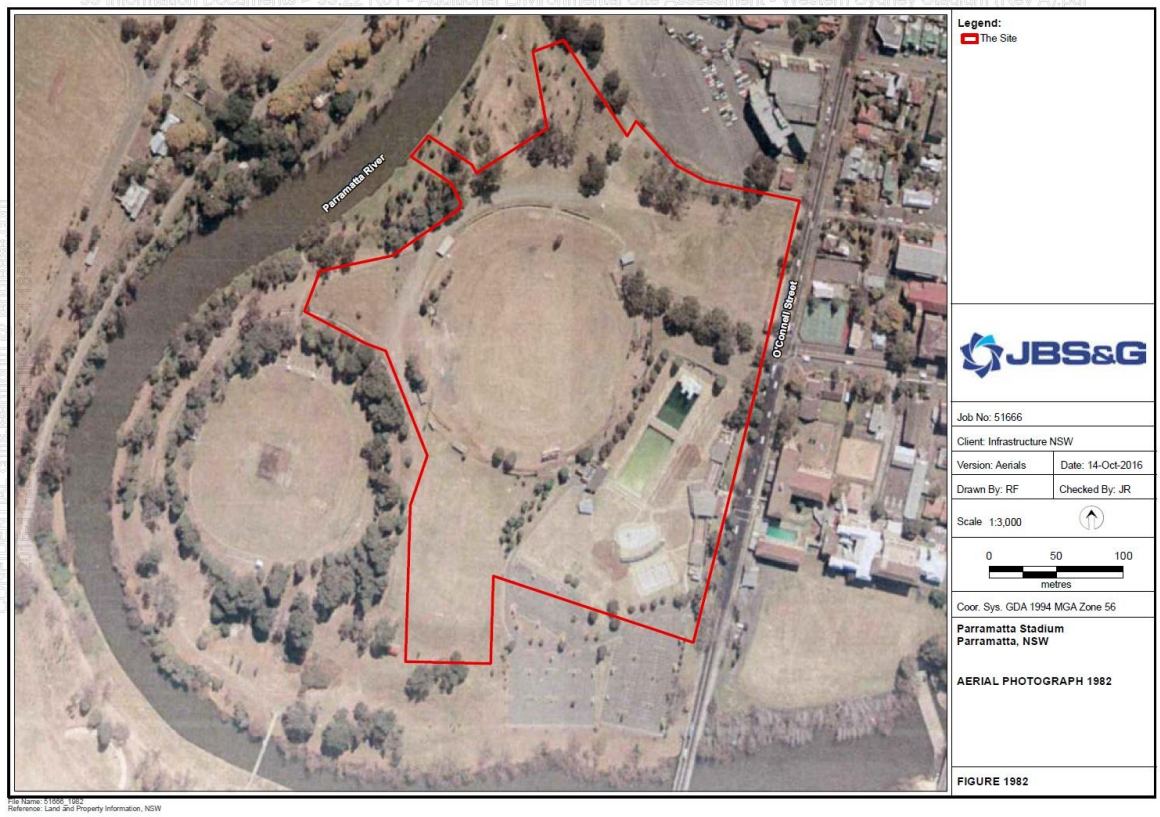


Figure 5.15: 1982 aerial photograph, from JBS&G 2016b. Study area outlined in red.

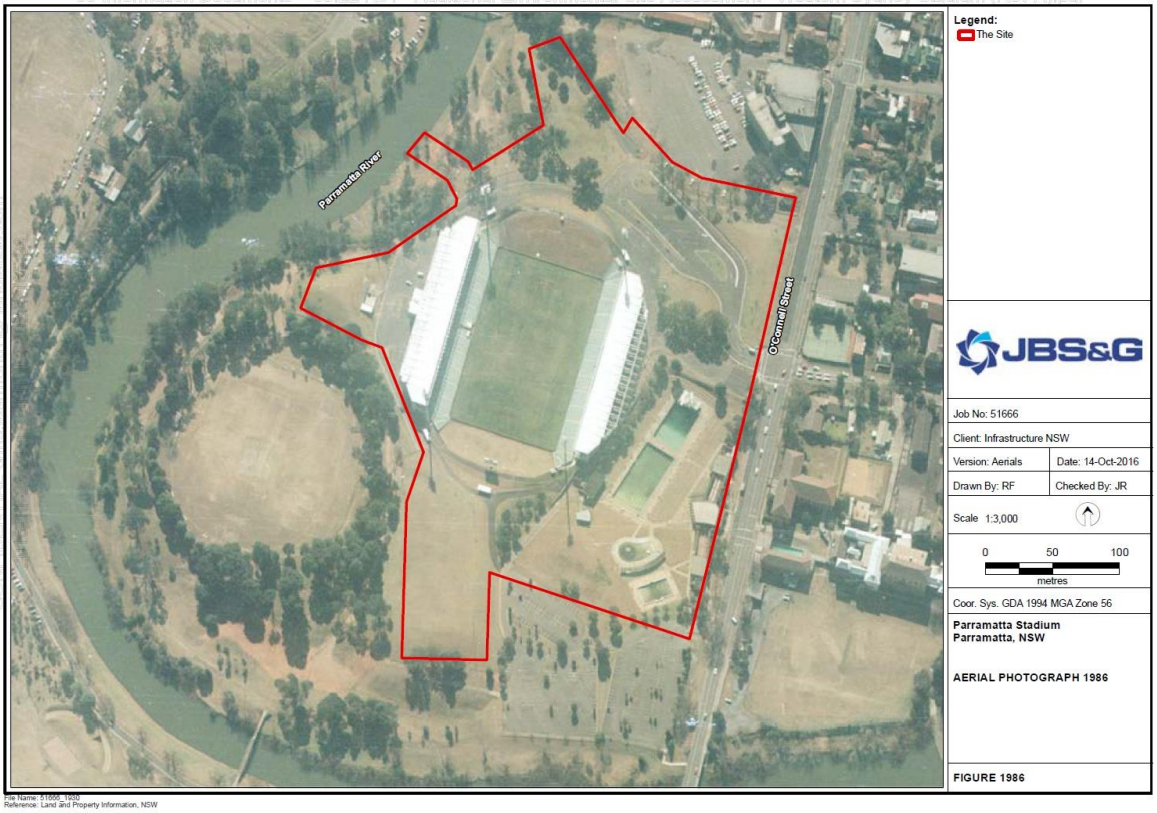


Figure 5.16: 1986 aerial photograph, from JBS&G 2016b. Study area outlined in red.

Figure 5.17: Detail of oblique aerial photograph showing Cumberland Oval c.1950s, taken by Frank Hurley, looking southeast. nla.obj-157515572.

Figure 5.18: Undated photo [c.1970s] of Cumberland Oval prior to redevelopment, looking northeast. From album online at http://www.1eyedeel.com/photo/cumberland-oval2 [accessed 19/01/2017]

5.1.2.3 Discussion of previous environmental testing results

Two phases of testing by Environmental Investigation Services (EIS) in 2014 found contamination with asbestos fibre-cement fragments within the training field area at depths between 0.3 and 2.5m (Figure 5.19, Table 5.1). Asbestos containing material (ACM) was mostly found within sandy or silty clay, which often contained traces of other material such as ash, brick or glass. The natural soil below the 'fill' was generally either 'clayey sand' or 'silty clay'.

Table 5.1: Summary table of 2014 EIS boreholes where asbestos containing material (ACM) was found. Based on data in JBS&G 2016a, Appendices J & K, and Table B.

Borehole	Depth detected (m below ground level)	Method of detection	Material found	Description of surrounding material
BH101	0.4-0.5	Lab sample	**ACM**	**FILL:** Clayey sand, fine to medium grained, red brown, trace of fine grained sub angular ironstone gravel.
BH201	1.3	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, medium plasticity, light brown and red brown, trace of ash, fine to medium grained igneous and shale gravel.
BH201	1.9	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, medium to high plasticity, light brown and grey, trace of ash and root fibres.
BH203	2.4	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Sandy clay, low plasticity, red brown, trace of brick fragments and fine to coarse grained ironstone gravel.
BH204	1.3, 2.2, 2.4	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, low plasticity, red brown, with sand, trace of ash, brick fragments, slag, glass and fine to medium grained igneous and sandstone gravel.
BH205	1.4, 2.2, 2.5	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, medium to high plasticity, red brown, with sand, trace of ash and slag.
BH207	1.3	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, medium plasticity, red brown, trace of sand, ash and fine to medium grained igneous and sandstone gravel.
BH209	1.4	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, high plasticity, light brown, grey, red brown, trace of sand and root fibres.
BH210	1.4	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, high plasticity, red brown and orange brown, trace of slag, ash, glass and fine to medium grained igneous and sandstone gravel.
BH210	1.0-1.5	Lab sample	**ACM**	
BH211	1.2, 1.4, 1.5	Borehole log remarks	**Fibre-Cement fragments**	**FILL**: Silty sand, low plasticity, red brown and orange brown, trace of ash, glass and metal fragments and fine to medium grained sandstone and igneous gravel.
BH211	1.0-1.5	Lab sample	**ACM**	
BH211	2.0, 2.2	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty clay, low plasticity, brown, light brown, trace of ash and slag and igneous and sandstone gravel.
BH211	1.5-1.95	Lab sample	**ACM**	
BH212	0.5-0.95	Lab sample	**ACM**	**FILL:** Silty sandy clay, low to medium plasticity, red brown, with sand, trace of fine to coarse grained igneous gravel, fine to medium grained sandstone gravel.
BH212	2.5	Borehole log remarks	**Fibre-Cement fragments**	**FILL:** Silty sandy clay, low to medium plasticity, red brown, with sand, trace of ash.
BH213	0.3-0.5	Lab sample	**ACM**	**FILL:** Sandy silty clay, low to medium plasticity, brown, trace of brick fragments, root fibres, concrete and ash.

The material containing asbestos must have been brought onto the site during the 20th century. However, it is not immediately clear when this occurred. Local production and use of asbestos fibre-cement products began in Sydney during the First World War. Wunderlich began manufacturing 'Durabestos' in the Sydney suburb of Cabarita in 1915. James Hardie began production of 'Fibrolite' at Camellia, near Parramatta, in 1917.[122] Although initially unusual, asbestos fibre-cement products gradually became more common in Australia throughout the 20th century, until they were phased out in the 1980s.

[122] Haigh 2006:18.

The analysis of historic aerial photographs suggests that there was no major episode of significant levelling of the training fields between 1930 and the present day. Some levelling may have occurred between 1887 and 1930, when the earlier gentle spur appears to have been modified to form a slightly larger, rectangular sports ground. This may have occurred during the mid-1920s, when new cricket wickets were put in this area. The asbestos containing material may have been deposited in the training ground area as part of this process. Further fibre-cement may have been deposited during top-dressing the training field during the mid 20th century.

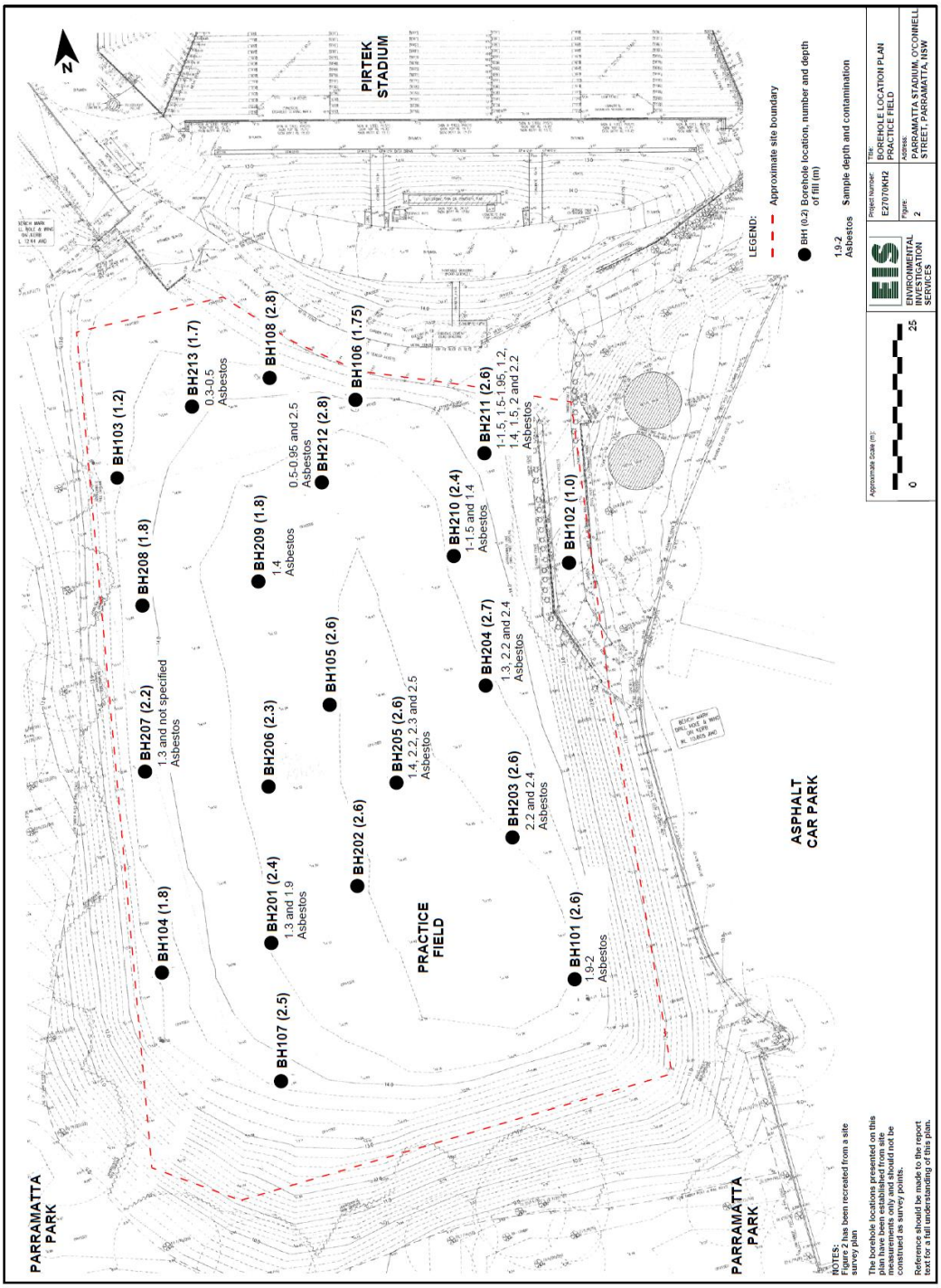


Figure 5.19: Borehole Location Plan, practice field, Environmental Investigation Services (EIS) 2014, reproduced in JBS&G 2016a, Appendix J.

5.2 Archaeological Phases

The potential archaeological remains within the study area include:

Phase 1: Natural Landform

The landform as present in 1788. This is important for understanding early farming but also

Phase 2: Aboriginal occupation

Occupation of the site and the landscape by Aboriginal people.

Phase 3 (1788-c.1800). Initial agricultural settlement, focusing on using convict labour to clearing and till the ground and plant of crops. This was followed by the successful production of crops which required the construction of the Government Farm buildings to store and process the crops and possibly store other supplies.

Phase 4a (1800-c.1814): Probable demolition or collapse of the Government Farm which was subdivided into two properties - George Caley and the Eccles. Caley possibly established his botanical garden for growing plants to send to Sir Joseph Banks. The nature of the Eccles housing is unclear but presumably involved a house, a garden and outbuildings. Once these leases expired the site of the former farm appears to have been absorbed into the 105 acre grant of Governor Bligh.

Phase 4b (c.1803-1820) Government Watermill

The construction and operation of the Government Watermill to provide for the ability of governors Hunter and King to process large quantities of grain for the colony. There were few successful mills in this locality other than Palmer's mill in Sydney. Also included outbuildings and may have included a miller's house.

Phase 5: Government Domain/Bligh's Grant

- Ross Street Gatehouse, archaeological site, pre-1840s construction and demolished for the current gatehouse in 1935.
- Roadway into the site, or carriageway.
- Restricted access into the Domain by the public up to the 1840s.

Phase 6: Parramatta Park and Playing Fields

- Establishment of the Turf Club (1847) and later Jockey Club (1879), involved construction of a racecourse in a level part of the Domain. Included grandstand, entrance gates and booths. The racecourse covered most of the flat ground above the river terraces
- Cricket Ground established in 1863. Added a cricket ground which was used by the Kings School from 1883.
- Filling of the mill dam and creek line, probably in the 1960s with further landscaping in the 1980s.
- Interpretation of the Government Farm in the 1990s.

Phase 7: Parramatta Stadium and Swimming Pool

- Parramatta War Memorial Swimming Centre, commenced in 1950s/60s and it is currently in use.
- Construction of the existing complex which reduced the ground within the Stadium by up to 4m.

6.0 Heritage Significance

6.1 Heritage Significance

Heritage significance is distinct from archaeological potential. Assessment of archaeological potential considers the probability of physical evidence from previous human activity to still exist on a site. Assessment of heritage significance for archaeological features considers the cultural values associated with those remains.[123]

This assessment of archaeological heritage significance has been written to be in accordance with the Heritage Branch 2009 guidelines: *Assessing Significance for Historical Archaeological Sites and 'Relics'*.

These guidelines provide the following discussion of heritage significance:

> Apart from NSW State guidelines, the nationally recognised Australia ICOMOS Charter for the Conservation of Places of Significance (*The Burra Charter*) also defines 'cultural significance' as meaning:
>
> > '*aesthetic, historic, scientific and social value for past, present and future generations.'*
>
> Significance is therefore an expression of the cultural value afforded a place, site or item.
>
> Understanding what is meant by value in a heritage sense is fundamental, since any society will only make an effort to conserve things it values. In terms of built heritage, what we have inherited from the past is usually places that have been continuously cared for. Conversely, many archaeological sites will comprise places which, for whatever reason, have not been cared for until the relatively recent period.
>
> Our society considers that many places and items we have inherited from the past have heritage significance because they embody, demonstrate, represent or are tangible expressions of values society recognises and supports. Our future heritage will be what we keep from our inheritance to pass on to the following generations.[124]

6.2 Basis of Assessment of Heritage Significance

To identify the heritage significance of an archaeological site it is necessary to discuss and assess the significance of the study area. This process allowed for the analysis of the site's overall values. These criteria are part of the system of assessment which is centred on the *Burra Charter* of Australia ICOMOS. The Burra Charter principles are important to the assessment, conservation and management of sites and relics. The assessment of heritage significance is enshrined through legislation in the NSW *Heritage Act* 1977 and implemented through the *NSW Heritage Manual* and the *Archaeological Assessment Guidelines* and *Assessing Significance for Historical Archaeological Sites and 'Relics'*.[125]

The following criteria have been developed by the NSW Heritage Council.[126] They form the basis for current assessments of heritage significance, including archaeological heritage:

Criterion (a): *Historic Significance – (evolution)*

> 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);

[123] This distinction has long been recognised by historical archaeologists working in heritage management, but has recently been restated in *Practice Note – The Burra Charter and Archaeological Practice* (Australia ICOMOS 2013:7).

[124] NSW Heritage Branch 2009:1-2. Note that this passage quotes the 1988 version of the *Burra Charter*. The 1999 and 2013 revisions also include 'spiritual value' in their definition of cultural significance.

[125] NSW Heritage Office 1996:25-27; NSW Heritage Office 2001; NSW Heritage Branch 2009.

[126] NSW Heritage Office 2001; NSW Heritage Branch 2009:3.

Criterion (b): *Associative Significance* – (*association*)

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

Criterion (c): *Aesthetic Significance* – (scenic qualities / creative accomplishments)

an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the cultural or natural history of the local area);

Criterion (d): *Social Significance – (contemporary community esteem)*

an item has a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the cultural or natural history of the local area);

Criterion (e): *Technical/Research Significance – (archaeological, educational, research potential and scientific values)*

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

Criterion (f): *Rarity*

an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (g): *Representativeness*

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

To be assessed as having heritage significance an item must:

- meet at least one of the one of the seven significance criteria
- retain the integrity of its key attributes

If an item is to be considered to be of State significance it should meet more than one criterion, namely in the case of relics, its research potential.[127] As the 2009 guide states:

> Archaeological Significance may be linked to other significance categories especially where sites were created as a result of a specific historic event or decision, or when sites have been the actual location of particular incidents, events or occupancies.
>
> Other relevant factors may be comparative values related to the intactness and rarity of individual items. The rarity of individual site types is an important factor, which should inform management decisions.[128]

Relics must also be ranked according to their heritage significance as having:

- Local Significance
- State Significance

If a potential relic is not considered to reach the local or State significance threshold then it is not a relic under the NSW *Heritage Act* 1977.

Section 4A of the NSW *Heritage Act* 1977 defines the two levels of heritage significance as follows:

[127] NSW Heritage Branch 2009:9.

[128] NSW Heritage Branch 2009:10.

> *'State heritage significance',* in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.
>
> *'local heritage significance',* in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.[129]

6.2.1 Research Potential

The heritage significance of archaeological remains most often lies in their research potential (criterion e of the Heritage Council criteria). The assessment of research potential has its own peculiarities compared with the assessment of other heritage items. The 1996 *Archaeological Assessment Guidelines* comment:

> Research potential is the most relevant criterion for assessing archaeological sites. However, assessing research potential for archaeological sites can be difficult as the nature or extent of features is sometimes unknown, therefore judgements must be formed on the basis of expected or potential attributes. One benefit of a detailed archaeological assessment is that the element of judgement can be made more rigorous by historical or other research.[130]

Assessment of Research Potential

Once the archaeological potential of a site has been determined and research themes and likely research questions identified, through a process of archaeological investigation and analysis, the following inclusion guidelines should be applied:

> *Does the site:*
>
> *(a) contribute knowledge which no other resource can?*
> *(b) contribute knowledge which no other site can?*
> *(c) is the knowledge relevant to general questions about human history or other substantive problems relating to Australian History, or does it contribute to other major research questions?*[131]

If the answer to these questions is 'yes', then the site will have archaeological research potential. The new significance guidelines have taken a broader approach.

6.2.2 Level of Heritage Significance

New criteria were developed in 2009 to identify whether the archaeological resource is of Local or State significance.[132] The following four criteria were identified in the 2009:

- *Archaeological Research Potential (current NSW Heritage Criterion E).*
- *Associations with individuals, events or groups of historical importance (NSW Heritage Criteria A, B & D).*
- *Aesthetic or technical significance (NSW Heritage Criterion C).*
- *Ability to demonstrate the past through archaeological remains (NSW Heritage Criteria A, C, F & G).*[133]

The new significance guidelines were designed to assess significance in light of the amendments to the definition of relics needing to be of either local or State significance. The examples provided were fairly obvious ones but do not help us work out how a less obvious site has State rather than

[129] NSW Heritage Act 1977 (current January 2014), section 4A; NSW Heritage Branch 2009:6.
[130] NSW Heritage Office 1996:26.
[131] Bickford & Sullivan 1984:23.
[132] NSW Heritage Branch 2009.
[133] NSW Heritage Branch 2009:11-13.

local significance. This means that it is basically down to the skill and expertise of the archaeologist assessing the site to make the distinction between local and State significance.

6.3 Discussion of Heritage Significance

6.3.1 Discussion of Heritage Significance

This discussion was prepared in accordance with the current Heritage Division guidelines and have built on the analysis and significance assessment already undertaken for the PNUT project where the archaeology of the Government Watermill is also thought to survive.[134]

Criterion (a): *Historic Significance - (evolution)*
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);

British settlement in Rose Hill was established on 2 November 1788, less than 10 months after the British landing at Sydney Cove. The Rose Hill settlement was essential to achieving successful farming and ensuring the survival of the fragile penal colony, a grand plan of the British government and George III. The land at Rose Hill was better for growing crops, due to the alluvial soils and because the trees, although large and difficult to remove, were spaced further apart as a result of Aboriginal firestick farming. Governor Phillip, an officer and 10 men completed a small redoubt before the main group of convicts and marines arrived some days later. As the initial Rose Hill settlement turned into a small town, eventually called Parramatta, the use of the study area was modified and became part of a sport and cultural place, later being part of the Government Domain.

The site of the Government Farm buildings was the centre of the work undertaken by Dodd to achieve successful production of wheat, maize (Indian corn), barley and other crops. To achieve this Dodd needed to undertake a series of tasks:

- The successful use of convicts to undertake the manual labour required to clear the ground, till it and then plant it with suitable crops.
- Strategies for watering the crops and the ground, that have not really be discussed in the historical literature to date.
- The work at this site produced the first successful growing of crops in the newly established British penal settlement.
- Work out which were the best times to grow the grain crops which could then be stored in the granary.
- The reasons to locate the core of farm buildings on the northern side of the river is unclear.
- Failure at this site may have meant failure of the British colony.
- Farming was across the whole of Rose Hill and Parramatta, including the core of the town laid out by Governor Phillip and August Alt in July 1790.
- The location of the crops and storage of grain meant it was located close to the Government Mill which provided for ease of access.

The Government Watermill, the second watermill built by the British penal enterprise, was the first on mainland Australia. Preliminary research supports that this mill was built with the successful assistance of Nathanial Lucas who worked with King on Norfolk Island. Unlike most other contemporary watermills this was a rubble stone mill, while most of the pre-1820s mills were made of timber, a more lightweight structure. Nathanial Lucas was a trained carpenter. While not necessarily successful in working permanently the watermill continued to operate and grind grain.

[134] NSW Heritage Branch 2009.

The early history of milling in NSW is a story of failure and repeated attempts before eventually leading to the successful milling of grains. One of the first successful windmills was Commissary Palmer's private mill and bakery at the Sydney Conservatorium site. Governor Hunter proposed that the first watermill on mainland Australia would operate on tidal changes in the Parramatta River, although it was located some distance from the tidal change, near O'Connell Street according to the 1814 map of Parramatta. By September 1800 the watermill was quite advanced. Governor King took over the administration of the colony and continued its construction and during 1803 and 1804 under the auspices of different mill builders. The dams and ditches or mill races were erected but in a 'very hasty manner'.

The determination of both governors Hunter and King to construct a watermill, even though they did not have suitably skilled people, testifies to the need to feed the colony, the price of grain and bread, and recognition of how much grain it took to make a loaf of bread. Once suitable amounts of grain were grown it needed to be ground to produce bread or make meal. Hand grinding was a slow and difficult task and could not be done in sufficient quantities and therefore needed to be mechanised. The actions of Hunter and King built on the failures of the First Interregnum when attempts to erect windmills in Sydney failed. The success of milling is closely linked with the ability of the colony to be self-sufficient.

These two sites, the Government Farm and the Government Mill, are part of the core of successful agricultural activities undertaken and surviving as archaeological remains within Parramatta Park. They are part of a series of pre-1820s archaeological remains relating to the first two stages of British settlement and establishment of the colony.

Criterion (b): *Associative Significance* – (*association*)

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

The archaeology of the study area is associated with early colonial governors Phillip, Hunter and King. The Government Farm was associated with Dodd who achieved successful production of crops to feed a colony in great stress. The Rev. Samuel Marsden was involved in the mill's construction and was accused of mismanagement by George Caley. Nathaniel Lucas was involved in its construction. George Howell is thought to have been operating this mill in 1814. The mill ceased to operate in 1820 when it was sold to Simeon Lord who dismantled it and reused the machinery.

All of these names are significant in the colony of New South Wales.

Criterion (c): Aesthetic Significance - (scenic qualities / creative accomplishments)

an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the cultural or natural history of the local area);

One of the issues not discussed in detail at this stage is that the landform of the river terraces contributes to the significance of the site. Typically, these have not been fully explored and will be developed further in the Stage 2 Impact Statement.

The remains within the study area have no predicted potential for aesthetic significance. As acknowledged in PHALMS 'the archaeological resources of this AMU have no known aesthetic significance although it is recognised that exposed *in situ* archaeological remains may have distinctive/attractive visual qualities'. While archaeological remains of the mill and dam may have aesthetic value, mostly through their novelty and age, they are also important in demonstrating technical achievement in NSW. The technology of the watermill modified the landscape to take advantage of the natural drop in water levels. Therefore, the remnant landscape surrounding the mill itself has technical significance as it played an integral role in the success or failure of the mill. Analysis of the historic maps and the landform provides baseline data which allows us to read this landscape, and determine that elements were part of the landscape of 1788 and these should be retained and enhanced because this technical significance is unparalleled on mainland Australia.

Criterion (d): *Social Significance - (contemporary community esteem)*

an item has a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the cultural or natural history of the local area);

The archaeology of the Government Farm and Watermill are part of Parramatta Park, and they are associated with the establishment of the original British colony and with members of the First Fleet. Therefore, the archaeology of this site is considered to have considerable social values to the contemporary community, including Aboriginal people.

Criterion (e): *Technical/Research Significance- (archaeological, educational, research potential and scientific values)*

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);

The historical archaeology of the current site is closely associated with the beginnings of British settlement of Australia and administration of the colony, through the early governors and convicts and their attempts to feed the colony during difficult times and move them from government-supplied rations.

The Government Watermill and mill dam are expression of the convict landscape, of the flaws and failings of the early colony and the ability of the governors and their staff to build mills and feed the colony and control corrupt practices, such as how much grain may be required for a loaf of bread. Its presence in the landscape for at least 80 years represents a resonance of the convict past and a physical barrier to avoid in daily progress around the asylum-period landscape of the northern part of the site.

Possibly relevant research questions include:

Survival of the British Colony – Rose Hill Settlement

- Nature of the First Fleet settlement of Rose Hill and the beginning of British penetration into the hinterland of Sydney Cove, to assist with the support of the colonial experiment through successful agriculture and expansion of settlement.

- Range of evidence for the nature, disposition and material culture of this settlement.
- Evidence of the difficulty of survival in a new environment, such as the nature of diet based on rations and possible modification of scarce material culture resources, such as tools.
- Evidence for early farming and clearing within the Historic Sites
- How does this information amend or challenge the written history of this period?

Contact between Aboriginals and the British

- What evidence is there about the lives of Aboriginal people and the nature of interaction with the British arrivals in the Contact period? How were the behaviours of British and Aboriginal people modified by this interaction and how was it expressed in the landscape?

Establishing the Convict Town

- Nature of habitation by groups of male convicts.
- Evidence for material culture, how it was reused, adapted, modified, stolen, hidden and general resistance to military control and enforced labouring on the Government Farm.
- Nature of diet including evidence for possible vegetables grown in the convict gardens.
- Nature of individual identity in Colonial Parramatta, as evidenced by personal attire, and representation of class and behaviour, such as the 'convict dandy'.
- While the initial settlement was part of the Capitalist movement from Britain setting up a new colony and building new markets, very little of this was evident or materially explicit in the original colony or even understood by many historians outside the major historical revision of the reasons for settlement now provided by Alan Frost. How do we examine the Capitalist underpinning of this society which quickly turns into rampant capitalism with the development of monopolistic practice against which various governors sought to prevail but often failed? Can we read this in government activity such as the establishment of the mill races to supply the Government Watermill through the site by Governor Hunter and then Governor King), as well as the expansion of accommodation by Governor King within what became the Domain?

Landscape of Colonial Parramatta

- How does the evidence from this site feed into the current perceptions of the convict-period landscape of Parramatta? Other issues to be considered are resistance to the way in which control manifested itself in the landscape and in daily life. Issues of power are central to the expression of landscapes of control.
- Evidence for the pre-European landscape.
- Nature and effect of modification of the pre-European landscape.
- Remaking of the landscape – the social, cultural and political context and how it was manifest in this landscape.[135] Are many of the same issues influencing the way in which the landscape was formed similar to those which affected the Sydney Domain?
- Order and amenity: is the layout of houses and other structures the result of cultural and social practices? What was the role of these practices in changing the landscape and modifying people's behaviour?[136]

Technology

[135] This general topic was the focus of Mary Casey's 2002 PhD thesis in relation to the Sydney Domain (Casey 2002). Development of these ideas in relation to Parramatta was undertaken in Casey 2009, in Casey & Hendriksen (eds) 2009.
[136] Some of these issues were the focus of analysis in Casey 2002.

- What is the evidence for technology of the watermills and how does it compare to other places?

Life in the Various Residential Households

- The range and variation apparent within the households, as evidenced by artefacts, structures, features and uses of this place.
- Evidence for the nature of childhood and the way in which gender identities were constructed.
- The nature of the material culture and consumption patterns of the various households; how these remains related to the transformation of their environment from frontier and rural town and to an urban place.
  - Layout of the house and outbuildings and how this structured life in these households.
  - Is there evidence for customary patterns (buildings, food, religious practice, cultural artefacts)?
  - How was material culture used to represent personal, ethnic, religious and/or group identity?
  - Are the different lots developed differently?

Other Relevant Questions

It should be noted that the archaeological evidence may provide us with a range of information we are not expecting and the research questions are likely to evolve depending upon the type of evidence and artefacts found at the site.

Criterion (f): *Rarity*

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);

The archaeology of the Government Farm and Watermill is both rare and irreplaceable within the history of New South Wales and Australia. The Ross Street gatehouse is one a series of gatehouses associated with Parramatta Park and is the main one which has a complete set of archaeology associated with the gatehouse.

Criterion (g): *Representativeness*

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

This criterion does not relate to the archaeology of the early phases. Perhaps the archaeology of the pavilion would fall into this phase. Also, the archaeology of the Ross Street Gatehouse should also be representative. The archaeology of the sporting period would fall into being representative of contemporary archaeological remains but there is quite limited archaeology and it is unlikely to inform us about the sporting practices of this period that are not currently available from historical research or archives. The significance of the sporting history of the site is unlikely to reside in the archaeology of the place.

6.4 Statement of Significance

This site is within a remnant landscape which was used for agricultural and productive purposes through the operation of the group of early farm buildings which formed the core of the Government Farm, and the Government Watermill with its mill dam, races and watermill site. They are the first on mainland Australia and are considered to be unique as part of the success of agriculture in Parramatta. The archaeology of the site is associated with governors Hunter and King, who both sought to stop the corrupting power of the civilian and military officers by providing other strategies to combat their influences, as well as Henry Dodd who ran the Government Farm, Nathanial Lucas, Rev. Samuel Marsden and George Caley. The remnant colonial landscape formed a central element for siting the watermill and allows us to read how the mill operated within this landscape and offers a rare example of aesthetic/technical values from the beginnings of British colonial settlement.

The archaeology of the farm and watermill should be able to testify to, exemplify, and offer insight into the history of this place, especially when examined through properly defined archaeological research questions, such as those relating to: survival of the British Colony, technology of farming and watermills, the changing landscape of Parramatta from 1788 to modern times, survival of the British Colony and the agricultural settlement and contact between Aboriginal People and the British colonists. Therefore, this site is part of a State and potential Nationally significant archaeological and remnant landscape belonging to the beginnings of early colonial Australia.

The archaeology of Ross Street gatehouse is considered likely to offer insight into the early Government Domain, Parramatta Park and the lifeways of the residential households. The archaeology and remnant and partly buried landscape of the Government Farm and Watermill are considered to be of State significance and potentially of National significance. They need to be read as part of a rare landscape of lost agriculture and technical practices which hardly survive, other than perhaps on Norfolk Island.

7.0 Development Impacts and Mitigation

7.1 Proposed works in Modification

The Stage 1 demolition works involve the demolition of all existing buildings within the study area. The demolition will include the removal of the existing stadium, swimming pool, water slides and associated auxiliary structures. The Section 96 modification to the Stage 1 DA conditions of consent proposes to bring forward bulk excavation and site remediation works previously scheduled for Stage 2 of the project.

The S96 proposed **bulk excavation** involve the removal of 5.8m of fill in places (Figure 7.1). Other parts of the site will be filled in to raise the ground level. In particular, the former swimming pool will require up to 8.7m of fill material in order to raise the ground level to approximately RL 14.5.

Within the area of recognised archaeological potential associated with the former Government Farm, up to **3.4m of contaminated fill** is proposed to be removed (Figure 7.5). It is estimated that this would reduce the level of the area to around RL 11. To the north, just outside of the area of archaeological sensitivity, up to 5.0 m of fill will be removed.

In the northwest of the study area, within the area of archaeological potential associated with the Government Watermill, up to **4.0m of contaminated fill** is proposed be removed. This work proposes to remove the existing mound and make the landscape level with the carpark to its south, at approximately RL 14.25. In the west of the study area, a spur will be reduced by up to 1.2m, again an area considered to contain fill requiring remediation.

The **piling works** underneath the stadium footings will comprise borehole drilling and concreting to establish foundations for the construction of a stadium located within the Stage 1 building envelope. The footings are required to complete the site preparation works and are arranged in a general layout that will not predetermine the location of the stadium within the Stage 1 building envelope (Figure 7.2).

There are also **civil works** which require the excavation of trenches for stormwater with a 1000mm diameter, and a detention basin (Figure 7.3, Figure 7.4). At the western end is a headwall which will feed the output of a large storage pit. The undertaking of these civil works is to be deferred to Stage 2 but requires approval as part of this proposal.

7.2 Impact of proposed works

The proposed demolition and bulk excavation works include substantial earthworks within areas identified as having the potential to contain State significant archaeological remains (Figure 7.5). It is noted that the current stadium area was reduced by 4m during its construction which would have removed archaeology within these areas, if it was present. Proposed reduction of the existing mound around **the stadium** will remove fill brought into create the mound - again this is **considered to have no archaeological impact.**

The proposed earthworks within the former Government Farm area would reduce the ground level to around RL 11 in the area of the present Training Fields. However, as discussed in Section 5.1.2, there is good reason to believe that the ground level in this area has not been this low since before the time of British colonisation in 1788. During most of the 20th century, the ground level was probably similar to the former surface of Cumberland Oval, at RL 12 to 13. **These proposed works could impact on archaeological remains associated with the former Government Farm area.**

Any proposed reductions within the former Government Farm area should be subject to archaeological testing to determine the level of the potential archaeology, the survival of the

archaeology of the government farm. Condition B20 of the Stage 1 conditions of consent (Section 1.4) expects that 'archaeological relics of State and National heritage significance are conserved in-situ and not impacted by the development or associated landscaping, fencing, car parking or service provision'.

The proposed earthworks within the former Government Watermill and Dam area would reduce the ground level to around RL 14.25. This reduction would likely be limited to the removal of the existing 1980s mound. Provided that the reduction is limited to the removal of 1980s fill, the potential impact to the State significant archaeology is low to moderate. However, if further fill is removed, either to the north of the present mound, or elsewhere, then the potential to disturb the archaeological material on the site will be moderate to high. Again, this should be the subject of archaeological testing.

The proposed piling is within the footprint of the stadium and is fully within the footprint of the bulk excavation works and should have no impact on known archaeological remains (Figure 7.1). It is noted that the current stadium area was reduced by 4m during its construction which would have removed archaeology within these areas. The proposed civil works have some potential to impact on the WHA buffer zone.

7.2.1 Summary of Proposed Impacts on Significance

As outlined above, the proposed stadium is to be built in areas with no known archaeological potential and of considerable disturbance from previous excavation. Therefore, **the earthworks for the stadium should have no impact on archaeology of local, State or National significance.**

The current proposal includes remediation of fills introduced into areas containing potentially State or Nationally significant archaeology and some civil works associated with stormwater outlet and headwall within the WHA buffer zone (Figure 7.5). These include:

- The Training Field area which extends into the proposed curtilage of the Government Farm.
- The northwestern section which is within the Government Watermill site, including fills dumped within the remains of the mill dam and water race.
- Civil works which are proposed to extend into the WHA buffer zone - this area is considered unlikely to contain State or Nationally significant archaeology but is a significant aspect of the retention of the cultural values of the WHA.

All of these works have the potential to impact on the State and National significant archaeology and cultural landscape of the Government Domain. These works require considerable mitigation to prevent impacts on significant archaeology and the cultural landscape of the Government Farm. It is considered that the following strategies are a means to determining the viability of this suggested strategy.

7.3 Mitigation Strategy

7.3.1 The Stadium

Much of the proposed S96 modification works associated with the construction of the stadium are within areas which are not considered to contain local or State significant archaeology. Therefore, the stadium, due to previous earthworks and absence of known remnant historic occupation, should be able to be built without any impact on State or Nationally significant archaeology.

Therefore, mitigation in relation to historical archaeological for the excavation for the stadium construction is limited to monitoring of the Aboriginal testing program and an unexpected finds policy.

7.3.2 The Government Farm

The removal of contaminated fill from the training field area is currently proposed which will see the area reduced by 3.4m. This reduction would have the potential to impact on the curtilage, landscape and archaeology of the Government Farm. This has exceptional heritage significance. While contaminated material needs to be removed, these works should be undertaken using methods which will have no impact on the significance of this archaeological and cultural landscape. This includes the river terraces as well as the fenced area of the Government Farm identified from the 1792 map.

To determine the level at which significant archaeology or natural landscapes elements and soil profiles may survive, archaeological testing will need to be undertaken to clarify the extent of introduced contaminated fills and where natural material survives. It is hoped that this testing allows for a methodology to be developed to remove the contaminated fill but not the natural soils and landscape which contain the significant archaeology, soil profiles with remnant palynological information, hoe and possibly plough marks, as well as the remains of buildings associated with the beginnings of British settlement in Australia.

7.3.3 The Government Watermill, Mill Dam and Water Race

The archaeology and terrain of this site is mostly buried beneath contaminated fill, potentially up to 4m deep. This current proposal intends to remediate these fills. The only way to mitigate the potential impacts on the first watermill site on mainland Australia it is proposed to undertake archaeological testing to confirm the nature of a quite complex terrain which was previously infilled.

To determine the level at which significant archaeology or the landscape elements, including the complex terrain of the mill dam and water race may survive, archaeological testing will need to be undertaken to clarify the extent of introduced contaminated fills and where natural material survives. It is hoped that this testing allows for a methodology to be developed to remove the contaminated fill but not the natural soils and the terrain of the watermill features which include the significant archaeology and soil profiles, as well as the remains of mill buildings and features associated with the beginnings of British settlement of Australia.

7.3.4 Civil Works with the World Heritage Area Buffer Zone

There is no known potential historical archaeology known in this area but any design, notably of the head wall and the emptying of water into the Parramatta River, needs to be appropriately designed to accommodate the international significance of the WHA and the cultural landscape of Parramatta Park. It is noted that this area is part of the land to be transferred back to the park with the land swap of the swimming pool area. It is therefore likely that this area will be included in an amended gazettal of the SHR boundary of Parramatta Park following the completion of the Western Sydney Stadium development. Careful redesign of the stormwater system is required as part of Stage 2 to ensure the design does not have an impact on State and National heritage significance. The preference is to remove it from the buffer zone of the WHA which at this point includes Parramatta River.

7.4 Managing Significance

- Archaeological testing will need to be undertaken in the areas of the Government Farm and the Government Watermill to help determine an appropriate methodology for retaining the State and Nationally significant archaeology of these two sites and their cultural landscapes. The archaeology and cultural landscape of this place has exceptional heritage values and should not be removed by the proposed works.

- Careful design will be required to minimise impacts from the proposed civil works. The exiting of a stormwater pipe and associated headwall into the Parramatta River and the area included within the WHA buffer zone should be reconsidered and redesigned away from this area. It is noted that this area will be returned to Parramatta Park.

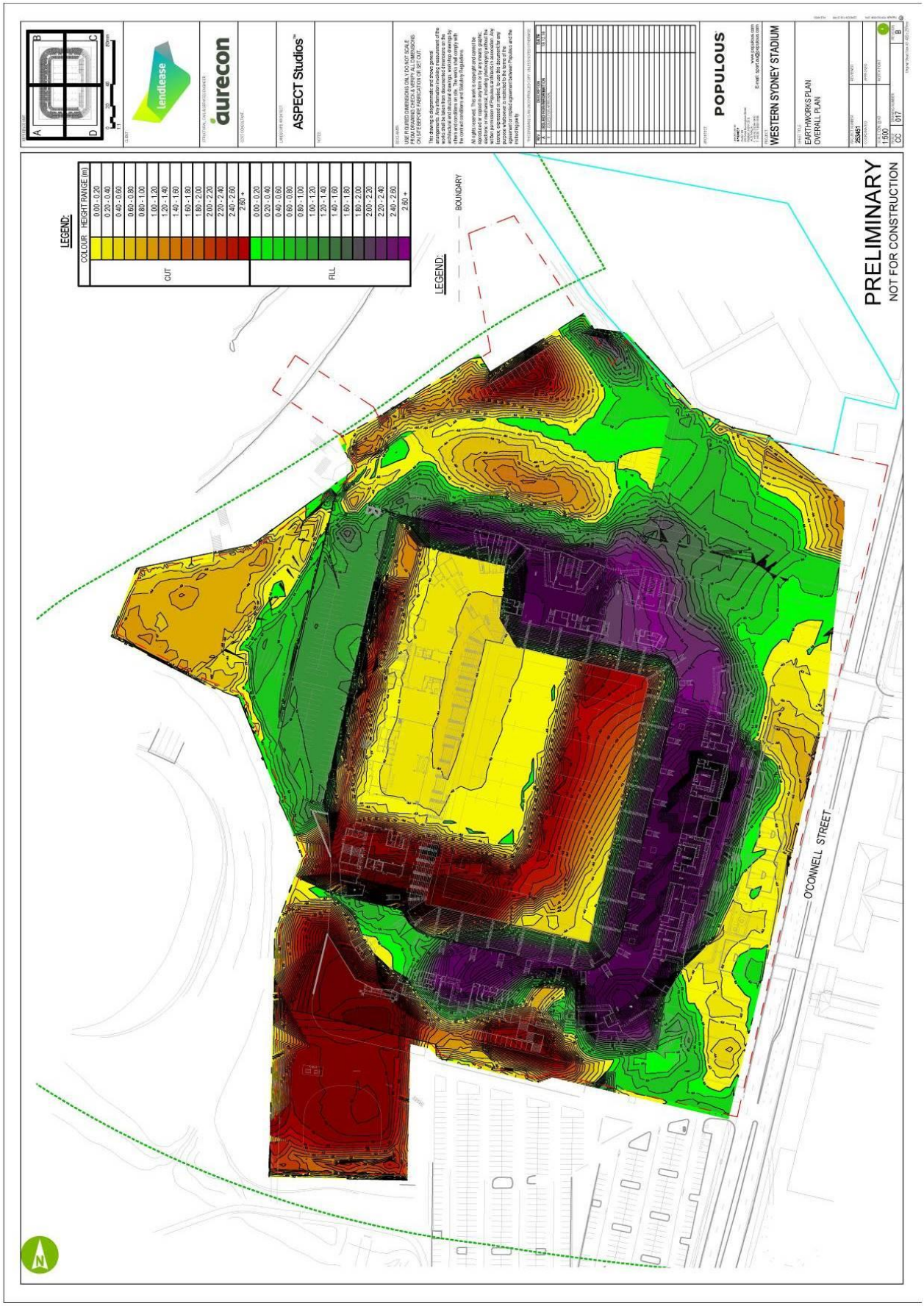


Figure 7.1: Earthworks plan, Western Sydney Stadium, preliminary version, revision A, received 3.02.2017.

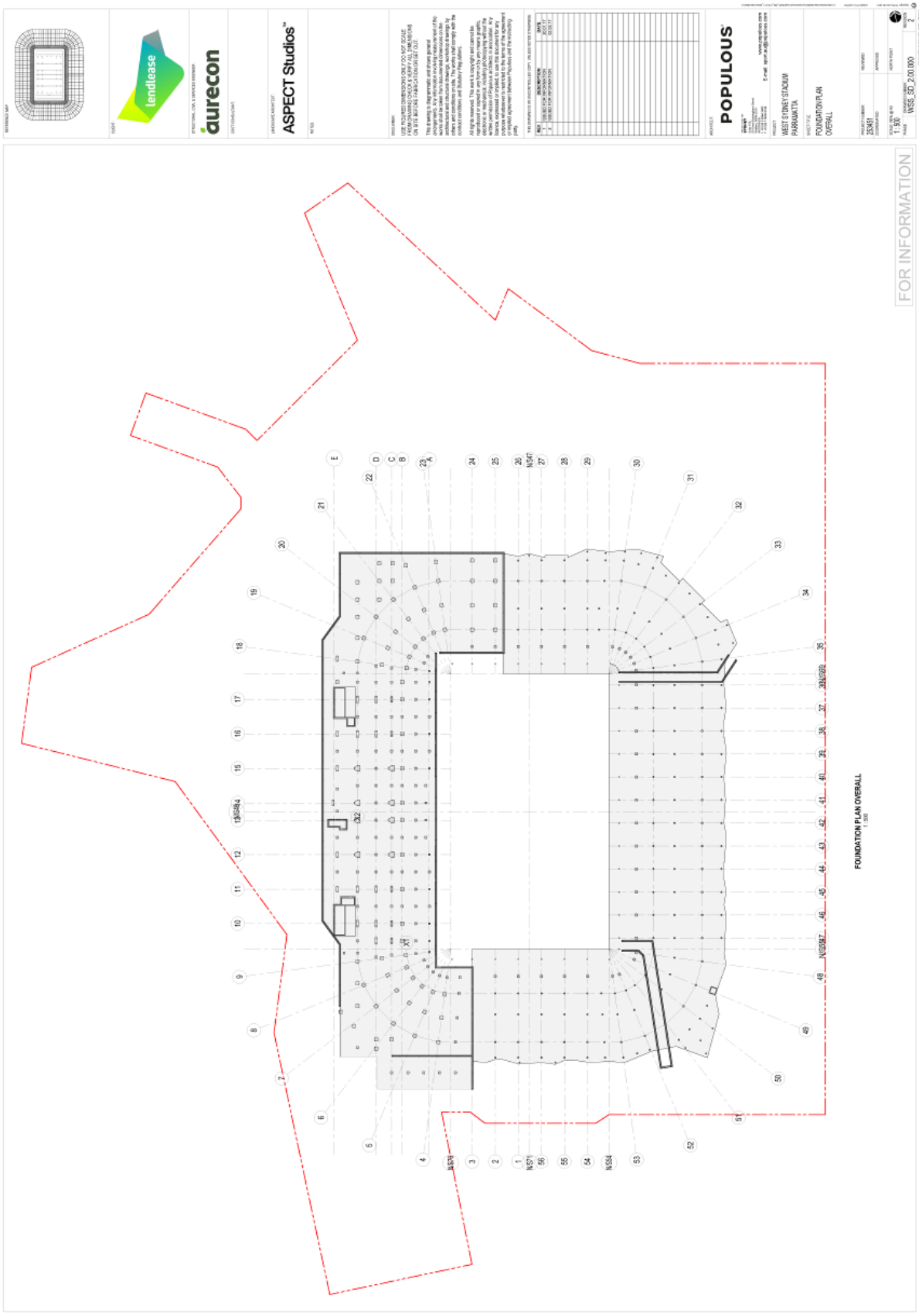


Figure 7.2: Piling plan for the stadium. All piles are within the footprint of the cut and fill area and there is no impact on the Government Farm or the Watermill from these works.

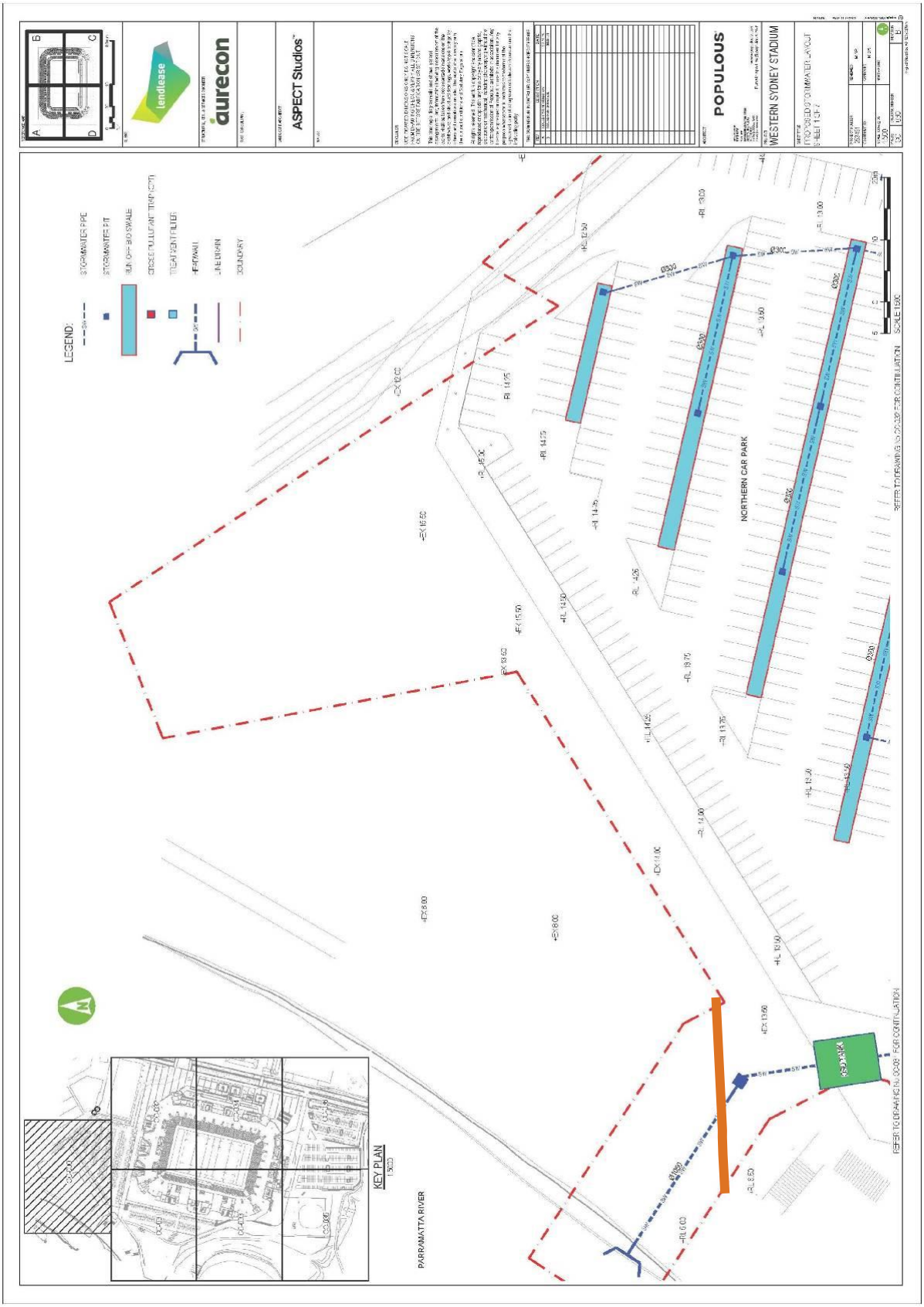


Figure 7.3: Plan showing civil works, a 1000mm diameter stormwater pipe, a stormwater detention pit and headwall. The stormwater line and headwall extends into the World Heritage buffer zone; see Figure 1.9 The orange line indicates the approximate position of the buffer zone, which includes the land to the west and the river. Lendlease 3.2.2017

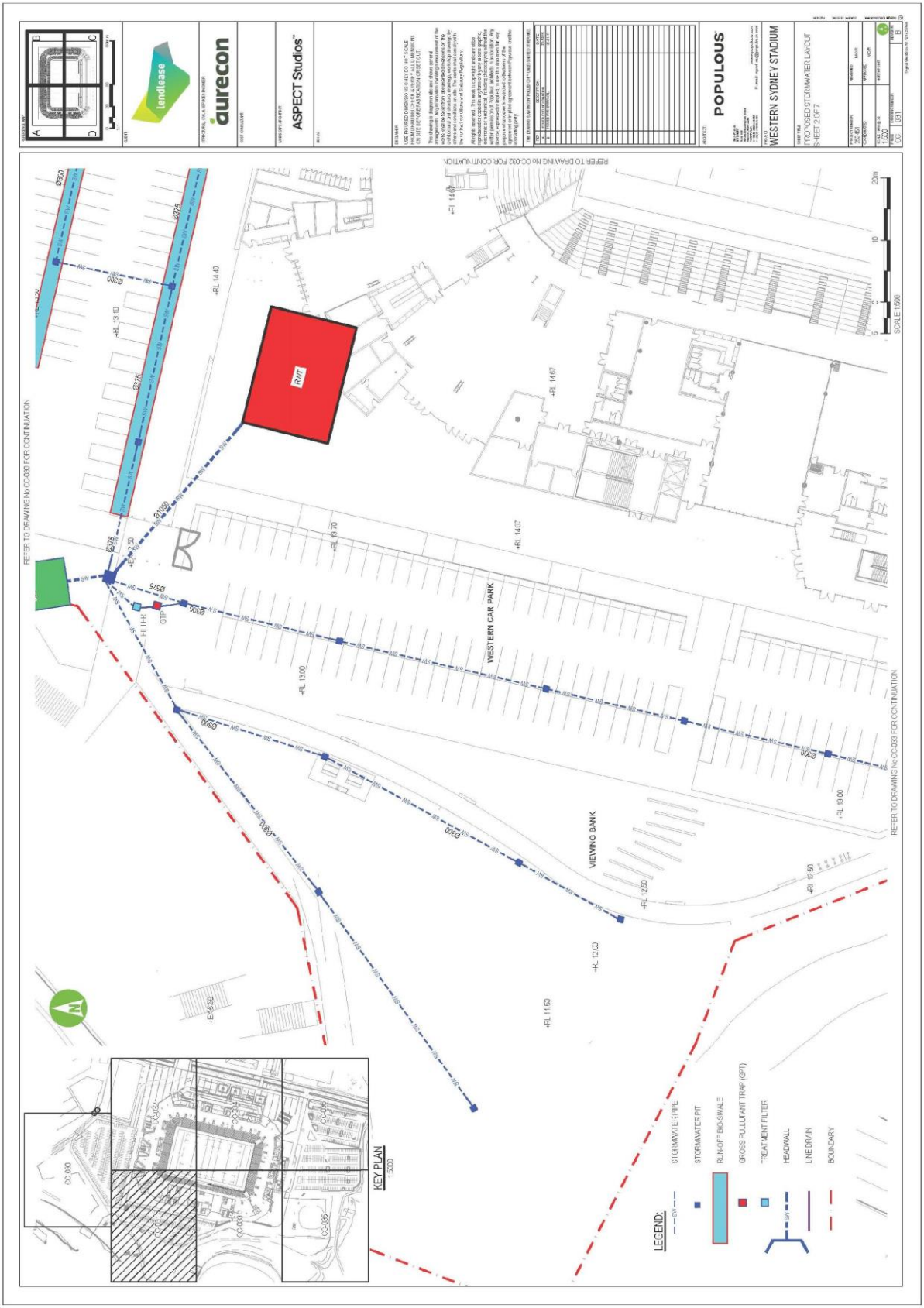


Figure 7.4: Preliminary design of the stormwater with a large pit and services in an area not considered to have any known archaeological potential. Lendlease 3.2.2017

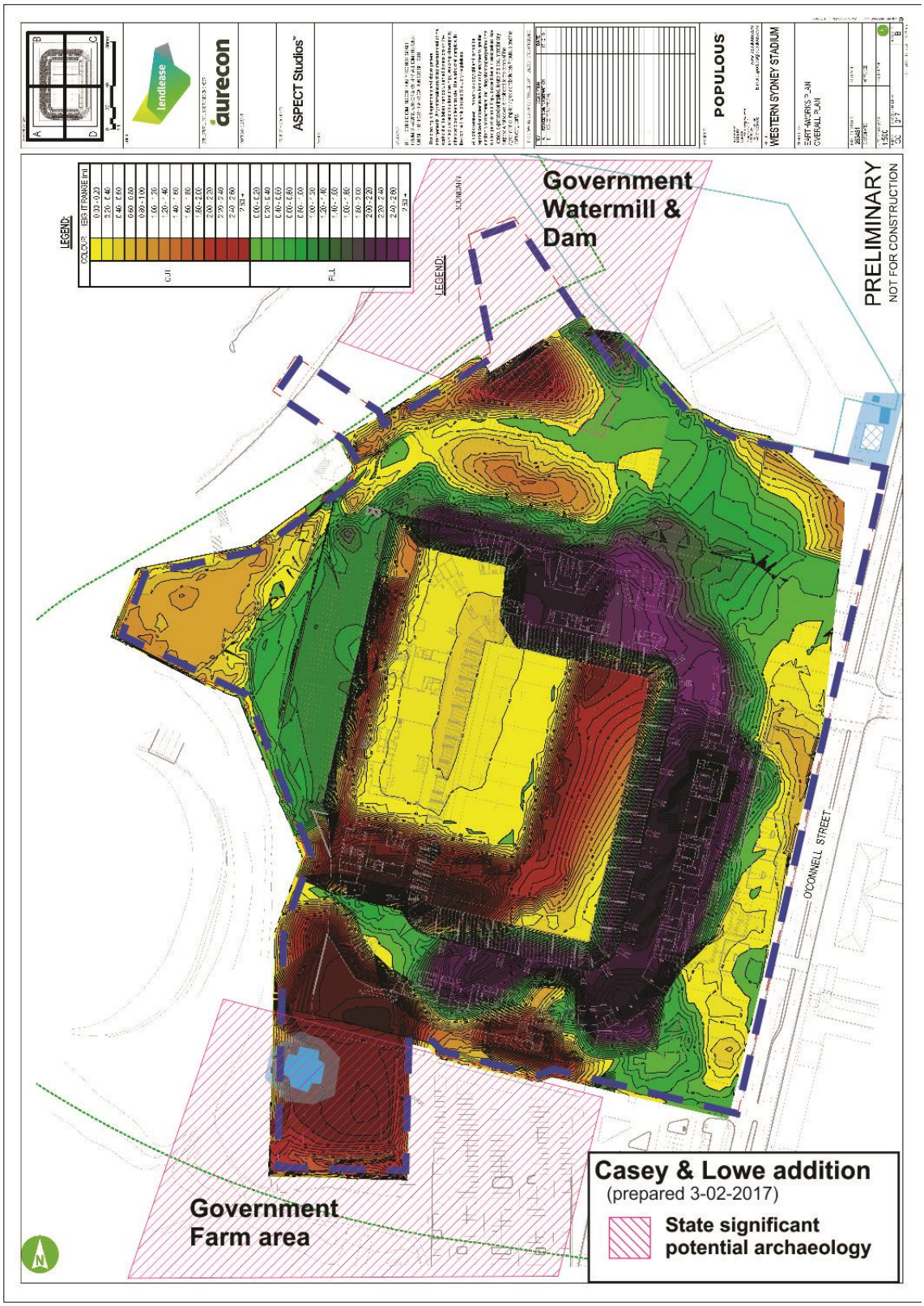


Figure 7.5: Earthworks plan, Western Sydney Stadium, with areas of State significant potential archaeology hatched in pink. Study area outlined in blue. Base plan supplied by Lendlease, additions by Casey & Lowe.

8.0 Results & Recommendations

8.1 Results

- The study area is partly within areas of the State and potentially Nationally significant sites of the Government Farm and Watermill, and their associated cultural landscape belonging to the beginnings of British settlement in Australia.
- This archaeology and its landscape should be conserved *in situ* and interpreted within the proposed redevelopment.
- Schedule 2, Condition B20 of SSD 7534 requires the retention *in situ* of archaeology of State or Nationally significance.
- The earthworks within the stadium footprint are considered unlikely to have any impact on archaeology of State or National significance.
- The earthworks associated with the lowering of the training field has potential to impact archaeology of State or National significance, as well as the landscape which was part of the State significant Government Farm.
- The earthworks and proposed remediation within the site of the Government Watermill and its cultural landscape need to be managed so as to retain the significance of the site and its landscape.
- Careful archaeological testing in the Farm and Watermill areas should provide information to allow for the removal of contaminated material with the intention of leaving natural soil and the landscape and archaeology of the site *in situ*. Any proposal to remove natural soil may impact on potential State or Nationally significant archaeology or remnant landscape, some of which is in areas to be handed back to Parramatta Park.
- A program of archaeological testing should be initiated to resolve detail design issues to avoid impacts on the archaeology. This will require the writing of an Archaeological Research Design. This should be undertaken as soon as possible.
- As the proposed testing is part of an SSD application, no additional approvals are required for undertaking the archaeological testing program, although consultation with the Heritage Council and Parramatta Park Trust will be required for the testing program. If works are proposed to be undertaken outside the SSD DA study area they would require approval under the *Heritage Act, 1977*.
- Some of the area of the site is within the buffer zone of the World Heritage Area or immediately adjacent. It is all within a 'highly sensitive area' associated with the WHA and therefore needs to be appropriately managed.
- The civil works involve a headwall for a stormwater line which will flow into the Parramatta River within the WHA buffer zone. This should be redesigned to be outside the WHA buffer zone.

8.2 Recommendations

1. Recognise the significant of the project area where it intrudes into areas of State and potentially National significant archaeology.
2. Maintain the SHR and Parramatta Park boundaries and limit impacts/intrusions within these areas.
3. There should be no impacts on archaeology of potentially State or National significance.
4. Minimise impacts within the Government Farm preliminary curtilage and the site of the Government Watermill.
5. The project needs to carefully consider the location of carparks so as not to present any further intrusion into the curtilage of the Government Farm or Watermill.

6. Any reduction of levels within the asbestos-contaminated mounds should be undertaken following archaeological testing and then be the subject of archaeological monitoring/program, so as to retain the significant archaeology and its landscape.
7. An Archaeological Research Design should be written outlining the risk issues for the remediation program. The archaeological testing will provide for a strategy to limit impacts on potential archaeology of State significance. This testing will need to be undertaken in consultation with the Heritage Council of NSW.
8. Detail design should minimise any potential impacts.
9. A Statement of Heritage Impact will need to be written for the site and assess the submission as part of a Stage 2 DA. It is likely that an Archaeological Research Design may also be needed but this depends on proposed impacts. There may be a likelihood for unexpected finds.
10. An Interpretation Strategy and Plan will need to be written for the proposed development.
11. The civil works, including stormwater drainage, should be redesigned so as not to intrude into the WHA buffer zone.

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