

HISTORICAL ARCHAEOLOGICAL ASSESSMENT

**UNIVERSITY OF SYDNEY
ELECTRICAL
ENGINEERING BUILDING**

20 NOVEMBER 2017
SH1210
FINAL
PREPARED FOR LAING O'ROURKE AUSTRALIA

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Stephen Davies, B Arts Dip. Ed., Dip. T&CP, Dip. Cons. Studies
Associate Director	Lynette Gurr, B Arts (Hons), BSc Arch (Hons), B Arch, M Heritage and Conservation; Tina King BA (Hons Archaeology) M Cultural Heritage, M.ICOMOS
Consultant	Holly Maclean, B Arts (Archaeology/Anthropology) B Soc Sci (Hons), M Cultural Heritage
Project Code	SH1210
Report Number	02 - Final

TABLE OF CONTENTS

Executive Summary	i
1. Introduction	1
1.1. Project Background.....	1
1.2. Site Location and Description	1
1.3. Methodology	2
1.4. Statutory Framework and Heritage Status.....	2
1.4.1. Heritage Act 1977	2
1.4.2. S170 Heritage Register.....	2
1.4.3. Sydney Local Environment Plan 2012.....	2
1.5. Limitations.....	3
2. Understanding the Place	4
2.1. The University of Sydney – Pre-European History	4
2.2. Early Land Use – Grose farm	4
2.3. Early Land Use – Darlington Area	5
2.4. Expansion of The University	7
3. The Proposal.....	9
3.1. Description of the Proposed Works	9
4. Physical Evidence.....	12
4.1. Description of Setting.....	12
4.2. The Subject Site.....	14
5. Potential Archaeological Resource	15
5.1. Previous Investigation and Reports	15
5.2. Assessment of Archaeological Potential.....	17
5.3. Assessment of Archaeological Research POtential	17
5.4. Assessment of Archaeological Significance	18
5.4.1. Summary Statement on the Potential Archaeological Resource.....	19
5.5. Summary of Potential Impacts on Archaeological Resource.....	19
6. Conclusion and Recommendations	20
6.1. Conclusion	20
6.1.1. Site Management.....	20
6.2. Recommendations	20
6.2.1. Implementation of a Chance Finds Procedure	20
7. References.....	21
Disclaimer	22

EXECUTIVE SUMMARY

Urbis has been engaged by Laing O'Rourke Australia to prepare an Historical Archaeological Assessment (HAA) of the site of the Electrical Engineering Building (J03) (the subject site), located at Maze Crescent, within the Engineering and Technology Precinct of the Darlington Campus of The University of Sydney.

This HAA is prepared in response to the Secretaries Environmental Assessment Requirements (SEAR), and is intended to accompany an application for Stage 1 refurbishment of the southern wing of the Electrical Engineering Building (Building J03), construction of a new northern wing, and demolition of the current northern wing of the Electrical Engineering Building.

The University of Sydney, Darlington Campus, is not recognised on any heritage registers for its archaeological potential. "The University of Sydney" is listed on the University's s170 register under the Heritage Act 1977. This entry does not identify archaeological potential or significance as a component of the site's significance.

The subject site is located on land that was cleared and used for farming purposes in the late 18th to early 19th Century, subdivided in the early to mid-19th Century and gazetted as the municipality of Darlington, and acquired by the University of Sydney in the mid-20th Century for an expansion of its campus. Development at and around the subject site in the 19th to 20th Century initially included establishment of roadways, terrace housing, industrial and commercial buildings. Following acquisition of the land by the University, these structures were demolished and the land substantially cleared and graded to construct the University's Engineering Precinct.

Currently, the subject site is proposed for partial refurbishment of the building, associated landscaping, demolition of the northern wing and its replacement with a new tower. It is understood that the excavation works associated with the construction of the new tower are to be horizontally restricted to the existing northern wing footprint. Excavation is understood to be generally restricted to the vertical limits of the existing wing.

The assessment of archaeological potential and archaeological research potential in this HAA asserts that on account of the significant levels of clearing and excavation that took place during the construction of the present Engineering Precinct, extant and intact in-situ remains of earlier phases of occupation on site are highly unlikely. Previous archaeological assessments and excavations near the subject site have shown that sub-surface soil profiles are significantly disturbed, and high levels of fill material are present throughout the site.

Where archaeological relics exist, primarily in the form of artefacts, these are unlikely to be in-situ and are therefore unlikely to have research potential. Should relics in the form of artefacts or building foundations be extant, these are unlikely to yield research information that cannot be established from other sources; however they may provide some comparative research value with other similar sites in the Sydney CBD and other inner city areas.

While the chances of finding in-situ archaeological features is considered low, the process to be undertaken in the event of an unanticipated discovery should be included in the site induction to ensure legislative obligations are met. Where archaeological relics not identified in this archaeological assessment are unexpectedly discovered during excavation, work must cease in the affected area and the Heritage Division must be notified in writing in accordance with s146 of the Heritage Act 1977. Depending on the nature of the discovery, additional assessment and possibly a s140 excavation permit may be required prior to the recommencement of excavation in the affected area.

1. INTRODUCTION

Urbis has been engaged by Laing O'Rourke Australia to prepare an Historical Archaeological Assessment (HAA) of the site of the Electrical Engineering Building (J03), located within the Engineering and Technology Precinct of the Darlington Campus of The University of Sydney.

1.1. PROJECT BACKGROUND

The University of Sydney is preparing a development application for Stage 1 refurbishment of the southern wing of the Electrical Engineering Building (Building J03) and construction of a new, 14-storey northern wing. This requires demolition of the current northern wing of the Electrical Engineering Building. This (HAA) is a response to the Secretaries Environmental Assessment Requirements (SEAR), which states:

A historical archaeological assessment should be prepared by a historical archaeologist in accordance with the Heritage Division, Office of Environment and Heritage Guidelines Assessing Significance for Historical Archaeological Sites and 'Relics' 2009. This assessment should identify what relics, if any, are likely to be present, assess their significance and consider the impacts from the proposal on this potential resource. Where harm is likely to occur, it is recommended that the significance of the relics be considered in determining an appropriate mitigation strategy. In the event that harm cannot be avoided in whole or Part, an appropriate Research Design and Excavation Methodology should also be prepared to guide any proposed excavation.

This HAA is being prepared in conjunction with a Heritage Impact Statement (HIS) (Urbis 2017), which is also a condition of the SEAR.

1.2. SITE LOCATION AND DESCRIPTION

The subject site is located at Maze Crescent, The University of Sydney, within the Darlington Campus. The site is located within the eastern portion of the university campus comprising the Engineering Precinct. The Engineering Precinct is bounded by Cleveland Street to the north, City Road to the northwest, Butlin Avenue and Codrington Street to the west, Abercrombie Street to the south and Shepherd Street to the east. The precinct has internal streets. The Engineering Building is located south of the corner of Maze Crescent and Blackwattle Creek Lane (see Figure 1).



Figure 1 – Locality map indicating the subject site circled in red

Source – Sixmaps 2017

1.3. METHODOLOGY

This HAA has been prepared with reference to the NSW Office of Environment and Heritage (OEH) (2009) *Guideline Assessing Significance for Historical Archaeological Sites and 'Relics'*. The philosophy and process adopted is that guided by the *Australia ICOMOS Burra Charter* 1999 (revised 2013).

1.4. STATUTORY FRAMEWORK AND HERITAGE STATUS

1.4.1. Heritage Act 1977

The *NSW Heritage Act 1977* (the Act) is the primary item of State legislation affording protection to items of environmental heritage (natural and cultural) in NSW. The Act is designed to protect both listed heritage items, such as standing structures, and potential archaeological remains or relics.

Under the Act, items of 'environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items are listed on the NSW State Heritage Register (SHR) and are given automatic protection under the Act against any activities that may damage or affect its heritage significance.

The SHR was established under s22 of the Act and is a list of places and objects of importance to the people of NSW, including archaeological sites.

Archaeological features and deposits are afforded statutory protection by the 'relics provision'. Section 4(1) of the Act (as amended 2009) defines 'relic' as follows:

any deposit, artefact, 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.

Sections 139 to 146 of the Act require that excavation or disturbance of land that is likely to contain, or is believed may contain, archaeological relics is undertaken in accordance with an excavation permit issued by the Heritage Council (or in accordance with a gazetted exception under s139(4) of the Act). In addition, s139[1] of the Act states that:

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.

In such cases, an excavation permit under Section 140 is required. The Heritage Council can, under s139(4) of the Act, also grant an exception in certain circumstances from the need for a permit. Note that no formal listing is required for archaeological relics; they are automatically protected if they are of local or state significance.

The University is not listed on the SHR, nor is the Electrical Engineering building.

1.4.2. S170 Heritage Register

Section 170 of the Act requires Government agencies to identify, conserve and manage heritage assets owned, occupied or managed by that agency. This Section requires agencies to keep a register of heritage items, known as a Heritage and Conservation Register (or more commonly known as a s170 Register) and form part of the State Heritage Inventory (SHI). The register includes places with identified heritage value including buildings, natural places, moveable heritage, archaeological places, landscapes and Aboriginal heritage.

The University maintains a s170 Register. 'The University of Sydney' is listed on the s170 Register. The Electrical Engineering building is not included on the Register in its own right.

1.4.3. Sydney Local Environment Plan 2012

The Sydney Local Environment Plan (LEP) 2012 is also relevant in relation to the control of development with regards to heritage within the subject site and surrounds. In relation to heritage, the LEP's objectives are

to conserve the heritage of the City of Sydney through the protection of the significance of heritage items, conservation areas, archaeological sites and Aboriginal places of heritage significance.

Schedule 5 of the LEP provides a list of identified heritage items. The University of Sydney Engineering Precinct is not listed as a heritage item in Schedule 5 of the LEP. It is not located within a heritage conservation area. It is located in the vicinity of a heritage item:

- 96–148 City Road, Darlington (Former Darlington Primary School including interior) – Item No: I524.

Two heritage conservation areas adjoin the Engineering Precinct with the border along Shepherd Street:

- Chippendale/Darlington - Darling Nursery Estate (Map reference: C10); and
- Darlington/Newtown - Golden Grove (Map reference: C18).

The University campus (Camperdown) is listed as the *University of Sydney Heritage Conservation Area (1858-1940)* under the database number 2431001. This listing refers to the Camperdown campus, and excludes the engineering precinct.

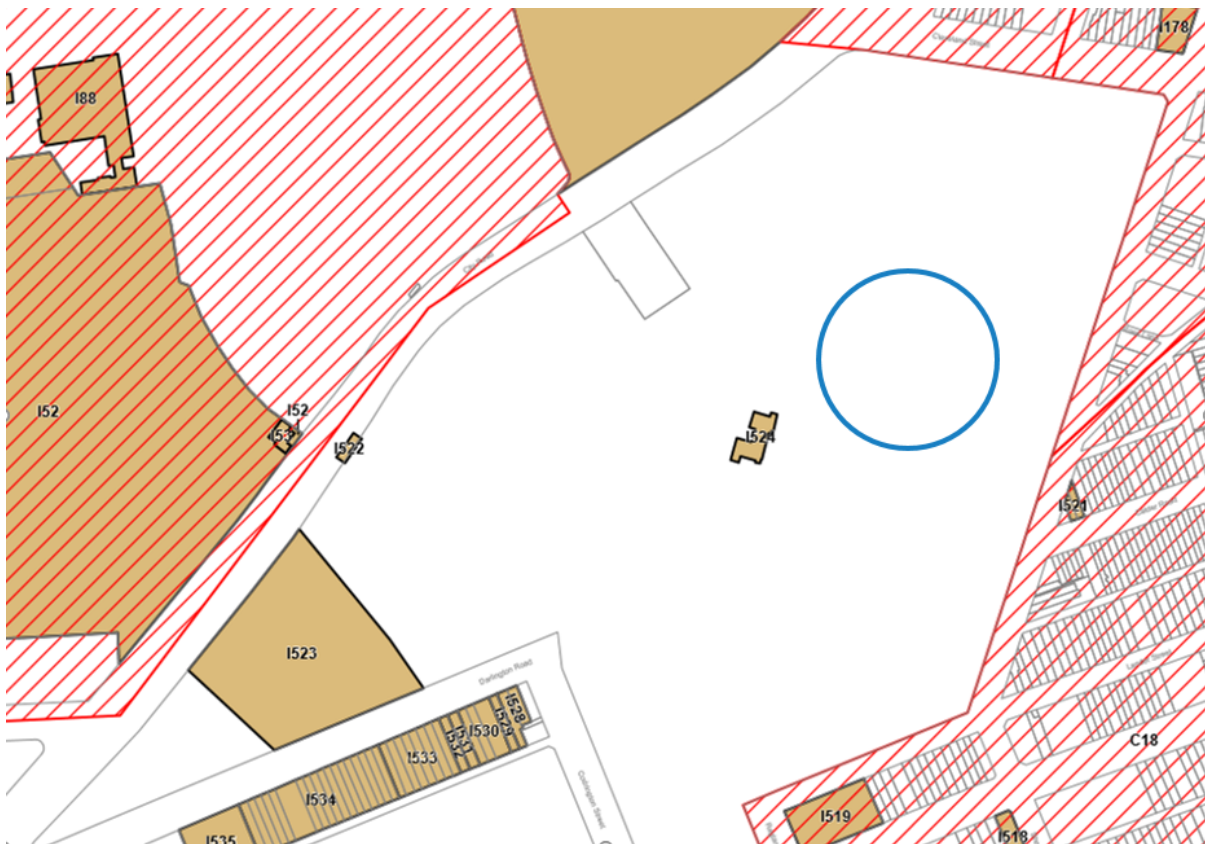


Figure 2 – Approximate location of subject site, contextualised with Conservation Areas and nearby heritage listed items

Source – Sydney LEP

1.5. LIMITATIONS

This report is limited to a presentation and analysis of the historical archaeological (non-Aboriginal) potential of the subject site.

No archaeological excavation or sub-surface testing has been undertaken for the purposes of this report.

2. UNDERSTANDING THE PLACE

This section is primarily focussed on the history and development of the Darlington area, and the University of Sydney Darlington Campus Engineering Precinct. It generally excludes broader historical information about the establishment of the University's Camperdown campus. It is further noted that the following section is primarily concerned with the historic (non-Aboriginal) development of the subject site.

2.1. THE UNIVERSITY OF SYDNEY – PRE-EUROPEAN HISTORY

The grounds of the University of Sydney (Camperdown and Darlington campus') originally formed part of the land occupied by the Aboriginal people of the Cadigal and/or Wannigal clans. Early colonists' observations of the original inhabitants of the Port Jackson to Botany Bay area indicate that people broadly subsisted on fish, shellfish, land animals and birds. A variety of materials were utilised for tool and weapon production, including bone, stone, shell, animal skin, bark and reeds. These accounts also noted that shell was more widely procured for use by coastal groups, opposed to stone which was favoured by hinterland groups (Kerr, Attenbrow, Australian Museum, Stanborough, Ellsmore 2002: A6-A7). Whilst Aboriginal people were observed in the area which would become the University of Sydney, no activities were recorded as being specifically undertaken on this land, and no archaeological evidence relating to Aboriginal occupation of the land has been identified to date (Kerr et al 2002; The Planning Team (TPT) 2014). Kerr et al (2002: A6) note that Aboriginal people were alienated from traditional lands within and around the University grounds rapidly following contact.

2.2. EARLY LAND USE – GROSE FARM

In 1788, Governor Phillip set aside reserves for Crown (400 acres), church, and school purposes (200 acres) near the present day junction of Paramatta and City Roads. The land was used for grazing horses and cattle. The University of Sydney (Camperdown) would ultimately be established on the 400 acres of Crown reserve; and the future suburb of Darlington, and the Darlington Campus of the University, would be established within the 200 acres set aside for school purposes (Kerr et al 2002).

In 1792, Lieutenant-Governor Francis Grose was granted a 14-year lease of 30 acres out of the 400-acre Crown which he used for farming. Leases of the adjacent lands were later granted to other officers for cultivation. It is believed that Grose sold his lease to another officer in 1794, but eventually reverted to Crown land in 1823 (Casey & Lowe 2004). Despite Grose no longer owning the land, the name Grose Farm would, by the mid-1800s, apply to approximately 500 acres of land between Newtown Road (present day City Road) and Parramatta Road (Kerr et al 2002). This is shown in Figure 3, with Grose Farm coloured in green.



Figure 3 - Showing Grose Farm and alignments of (future) City Road and Parramatta Road

Source: Historical Land Records Viewer (HLRV), Parish Petersham County Cumberland. Undated map, but likely late 1800s.

2.3. EARLY LAND USE – DARLINGTON AREA

In the 1820s, land to the south-east of Newtown Road (which is present day City Road) and to the north-east of the study area, was taken up by a number of notable individuals (Kerr et al 2002: A18). William Hutchinson, whose land became known as Golden Grove, was used for grazing of cattle; Robert Cooper established a brewery; William Chippendale undertook a variety of agricultural pursuits including growing potatoes and barley, and grazing cattle; and Thomas Shepperd, the established a nursery and fruit garden which became known as the Darling Nursery. Shepperd also constructed a house along City Road, which he named Darling House. The house and nursery are believed to have been named in respect of Governor Darling, and subsequently the name Darlington is believed to have been derived from the name of the nursery (Fitzgerald 2008; Kerr et al 2002). Shepperd became one of Sydney's leading horticulturalists, and street names in the area such as Rose, Ivy and Vine reflect Shepperd's horticultural pursuits.

Roads and tracks were soon established in the area, including (Old) Newtown Road (present day Darlington Road and Maze Road). This road crossed between the present day subject site and the future Darlington Public School (established 1878) grounds, however the boggy nature of the soils required establishment of an alternative road for easier access. This route ('New' Newtown Road) forms the present-day City Road (Kerr et al 2002:A18) (refer Figure 4) .

In 1842, Cleveland Street (north-east of the subject site) was gazetted as the boundary road of the City of Sydney (Fitzgerald 2008). Residents living south of the Street were denied their appeal to be included within the City boundary, and consequently formed their own municipality of Darlington, which was gazetted in 1864 (Kerr et al 2002). The municipality was defined by the boundaries of Blackwattle Creek, Cleveland Street and Codrington Street and population in the mid-1860s was 700 (Kerr et al 2002; Casey & Lowe 2004).



Figure 4 – 1887 map, showing road alignments, city boundary and approximate location of subject site. Also showing land resumed for future establishment of Eveleigh Railway Workshops.

Source – *Historical Atlas of Sydney, City of Sydney and Suburbs 1887*

The Eveleigh Railway Workshops was established in 1882, which offered hundreds of jobs and had a significant impact on the rapid suburbanisation and industrialisation of Darlington. Land in the area was rapidly subdivided, with Shepherd's Nursery the last to be subdivided, in 1883 (Kerr et al 2002; Fitzgerald 2008). Narrow streets were formed and terrace houses for the working class established, a Town Hall was constructed, the area was sewered in 1888 and roads sealed in 1890 (Fitzgerald 2008). By the turn of the 20th Century, Darlington became an incredibly densely populated and industrialised suburb, housing 3,500

people and boasting a jam factory, iron foundry, zinc and brass works, cabinet factories, cordial factory, portmanteau factory, numerous small businesses and a variety of other industrial and commercial interests (Kerr et al 2002:A19).

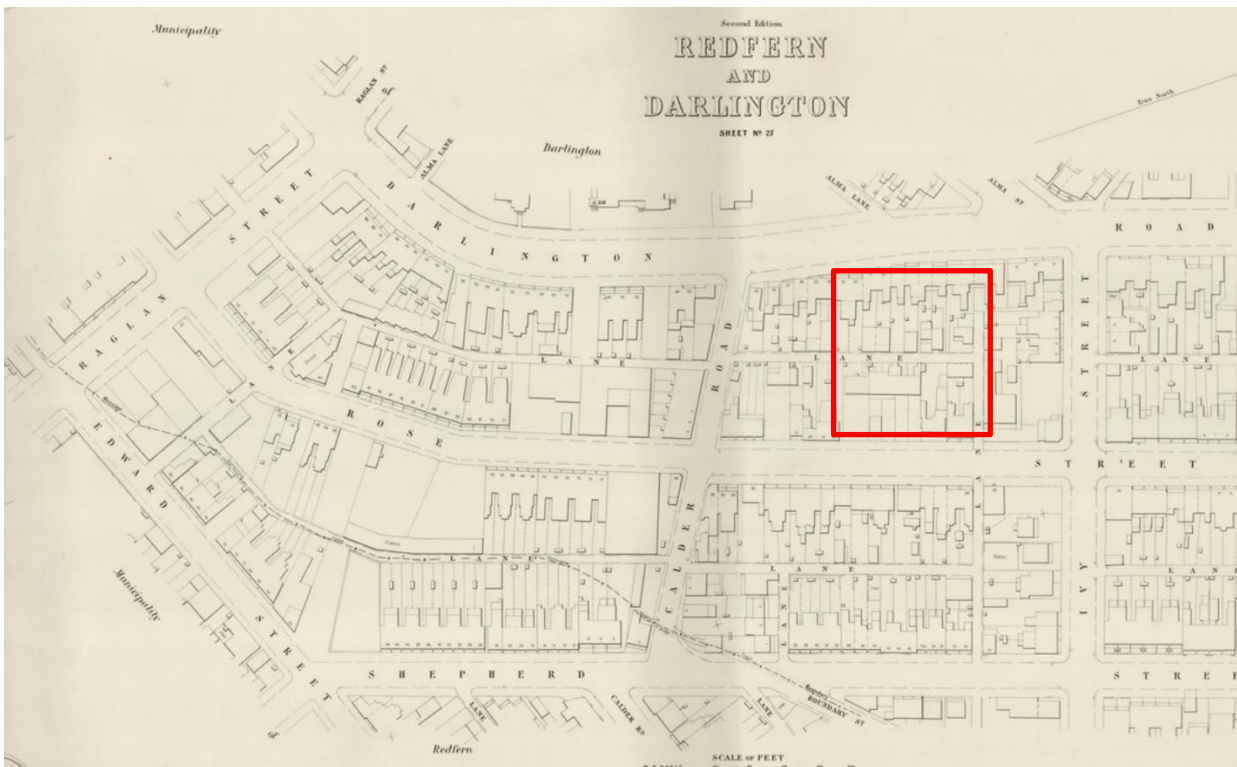


Figure 5 – Redfern and Darlington, Sheet No 27, NSW Department of Lands, 1883, showing the development within the subject site at the end of the 19th century. The subject site is bounded by Darlington Road (now Maze Crescent), Ivy Street (now Blackwattle Creek Lane), Shepherd Street and Calder Lane (no longer evident)

Source: State Library of NSW, Mitchell Map Collection (Z/M Ser 4 811.17/1)

Darlington was eventually amalgamated with the City of Sydney in 1948. By this time, industrial activity was beginning to overwhelm the suburb. Fitzgerald (2008) notes that the area was starting to be viewed as a slum. The aerial images at Pictures 1 and 2 below show Darlington in 1948 and 1969.



Picture 1– Aerial of Darlington 1949, focussed on subject site. Showing intensive development, arrangement of roads, and approximate location of subject site indicated.

Source: City of Sydney, Historical Atlas of Sydney, Aerial Photographic Survey 1949 – Map 75



Picture 2– Aerial of Darlington and Redfern 1962. Showing intensive development, arrangement of roads, and approximate location of subject site indicated.

Source: City of Sydney, Historical Atlas of Sydney, Aerial Photographic Survey 1949 – Map 75

2.4. EXPANSION OF THE UNIVERSITY

Following World War II, the University was intent on expanding its campus, particularly south of City Road – incorporating the highly industrialised Darlington area. Under the County of Cumberland Planning Scheme, approximately 70 acres (reduced to 35 acres in 1960) of land in Darlington in the vicinity of City Road were re-zoned as ‘special uses’ or University Extension Area (Kerr et al 2002; Fitzgerald 2008). With the exception of a few properties that were untouched, including some terrace houses, the (former) Blind, Deaf and Dumb Institute and a section of the Darlington Public School, the expansion resulted in the demolition of approximately 650 dwellings, 28 house/shops or shop-only buildings, 47 factories, five pubs, a dance hall (the Surryville) the Darlington Town Hall, a bank and the post office and the population decreased by approximately 2,000 people (Kerr et al 2002; Fitzgerald 2008). Initially, properties purchased by the University were left vacant for a period of time, but issues with vandalism and vegetation overgrowth led to a policy of immediate demolition (Fitzgerald 2008). In addition to the demolition that occurred, the land was widely cleared of vegetation and streets were built over or realigned, including Maze Crescent which was formed by earlier Alma Street and parts of Darlington Road (Fitzgerald 2008).

The expansion of the University began in the late 1950s and continued in the decades to follow. Pictures 3-6 show demolition and construction in Darlington during the 1960s.



Picture 3 – View from Darlington Road towards materials and structure lab, 1963

Source: *City of Sydney Archives NSCA CRS 48-3468*



Picture 4 – Demolition along Codrington Street, 1965

Source: *City of Sydney Archives NSCA CRS48-4561*



Picture 5 – Demolition at Rose and Calder Streets

Source: *City of Sydney Archives NSCA CRS 48-4452*



Picture 6 – View from Maze Lane toward new school of Civil Engineering

Source: *City of Sydney Archives NSCA CRS 48-4451*

In 1959, the first building in the University extension area was completed for Architecture. The eastern section of the Darlington area, towards Cleveland Street, was designated for development as a large Engineering precinct. Development of the engineering precinct began in 1963 when the Civil and Mining Engineering Building was constructed. This was closely followed by the Chemical Engineering in 1964, Electrical Engineering and Mechanical and Aeronautical Engineering in 1965 and the Peter Nichol Russell Building in 1966. The PNR building (1965-1966) completed the enclosure of the Engineers' Lawn and established a series of elevated concourses, wings and pedestrian walkways. This structure integrated the Chemical Engineering, Civil Engineering and Electrical Engineering structures into a unified whole.

By 1975, the entire engineering faculty had been relocated to the Darlington campus. This reflected the University's plans of the 1950s-1960s to redesign the university into functional precincts, whereby all related faculties and facilities would be sited in convenient, recognisable areas (TPT 2014). Whilst the majority of buildings within the Engineering Precinct were constructed in the 1960s to 1970s, building construction and landscaping has continued through to the mid-2000s. Overall, the layout of the campus reflects the early layout of the land grants and the later streets of the suburb, including Darlington and Alma Roads (now Maze Crescent), Shepherd Street, Abercrombie Street, Rose Street and several others.

3. THE PROPOSAL

3.1. DESCRIPTION OF THE PROPOSED WORKS

The proposed works to the Electrical Engineering Building to create the Micro Engineering Building will include the following (Urbis 2017):

- 4,000m² new Research laboratories;
- 2 x Teaching laboratories;
- Associated workspace and support;
- Precinct wide loading docks; and Informal and outdoor learning;
- Retention and refurbishment of the existing (southern wing) of the Electrical Engineering Building;
- Demolition of the existing northern wing of the Electrical Engineering Building and construction of new;
- Remove portion of existing Engineering Walk and replace with new walkway;
- Remove existing Garden Courtyard east of the Electrical Engineering Building to become new roof-top Garden;
- Refurbishment of the existing southern wing of the Electrical Engineering Building with central atrium comprising the following:
 - Level 01 – Offices, Gardeners and Maintenance Store, Waste Store, Bulk Store, Research Lab, Autoclave, Plant;
 - Level 02 – Substation, Plant, Teaching and Learning spaces (closed and open);
 - Level 03 – Void to new wing and void for plant to portions of existing wing incorporating Library, Lounge, amenities, 4 x passenger lifts and 1 x goods lift and Display;
 - Level 04 – Refurbish existing Laboratories and new Teaching and Learning (enclosed) and Prep areas;
 - Level 05 - Refurbish Existing Laboratories and new Research Laboratories;
 - Level 06 - Refurbish Existing Laboratories and new Research Laboratories;
 - Level 07 – Refurbish existing for Post Graduates Offices and Boardroom and new Post-Doctoral research areas and Meeting Rooms;
 - Level 08 – Refurbish existing Offices and new Research Laboratories;
 - Level 09 – Existing Tower and New Research Laboratories;
 - Level 10 – Existing Tower and New Plant;
 - Level 11 – Existing and New Roof.
- Extend landscape to area north of Mechanical Engineering Building (adjoining Blackwattle Creek Lane).
- Remove existing carpark to area south of Mechanical Engineering Building to construct retention basin with new landscaping over.

The extent of works is shown in Figure 6 over page. Figure 7 shows the Electrical Engineering building existing heights and heights of proposed new buildings.

Pictures 7 and 8 show views to the existing northern wing.

The refurbishment of the existing building will involve no excavation. The construction of the new northern wing will require demolition of the existing 2-storey wing, and construction of new tower. It is understood that the new building will be located within the footprint of the existing. Sub-surface excavation is understood to be limited and generally confined to the vertical extent of the existing structure.

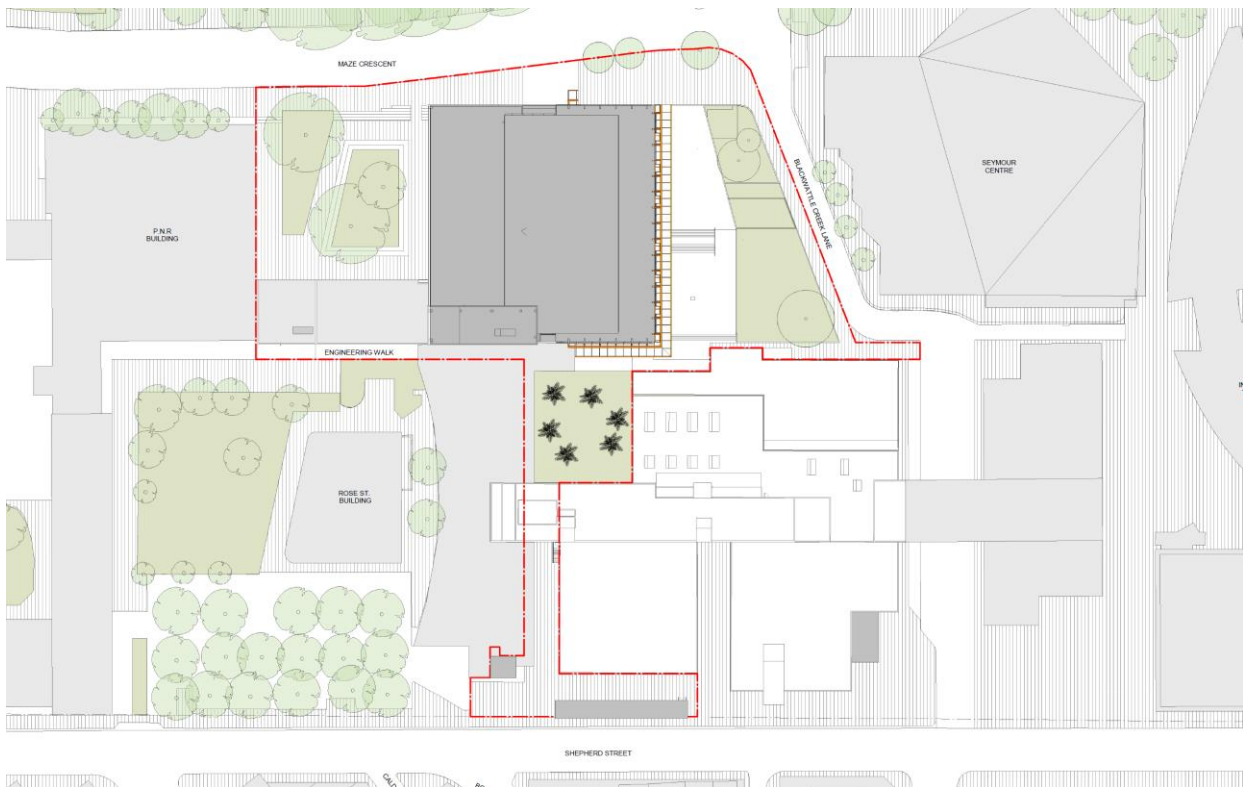
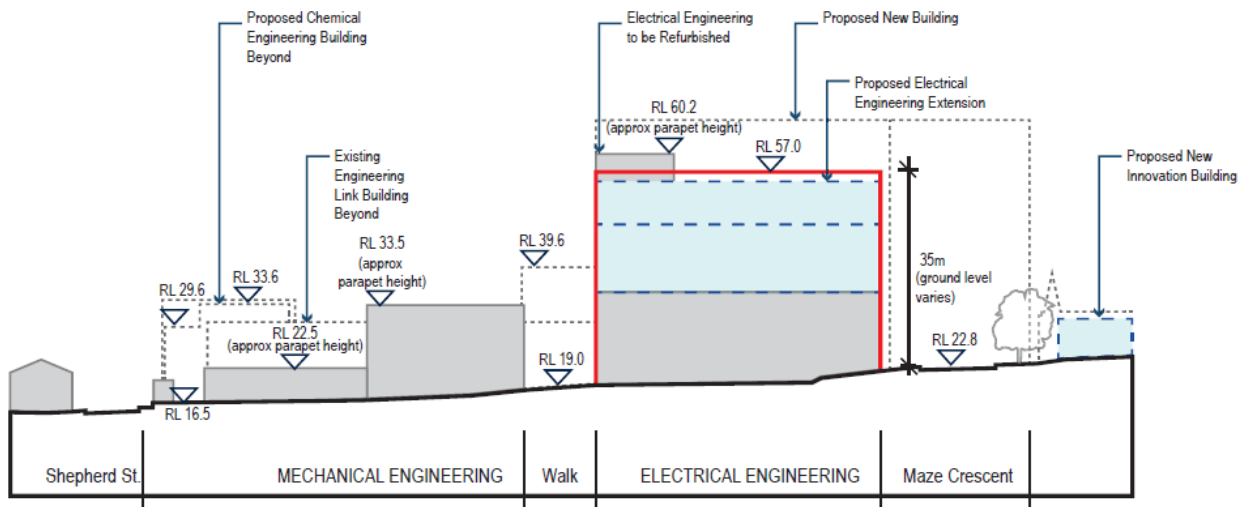


Figure 6 – Extent of works indicated in red

Source: Cox Architects Proposed Site Plan Dwg A-DA-1122



01 ENGINEERING - SECTION 1 PROPOSED

Figure 7 – Electrical Engineering building showing the heights of existing and proposed buildings

Source: Campus Improvement Program, Engineering Section 1 - Proposed, Dwg: SSD-D-14



Picture 7 – Northern wing with adjacent landscaping
Source: Urbis, November 2017



Picture 8 – View to northern wing with balance of building behind
Source: Urbis, November 2017

4. PHYSICAL EVIDENCE

4.1. DESCRIPTION OF SETTING

The Electrical Engineering Building (J03) is located on the eastern side of the University of Sydney, Darlington Campus, Engineering Precinct. This Precinct is comprised of 11 faculty buildings, various sheds and ancillary structures, and a car park. The Electrical Engineering building addresses Maze Crescent, an internal roadway (see Figure 8).

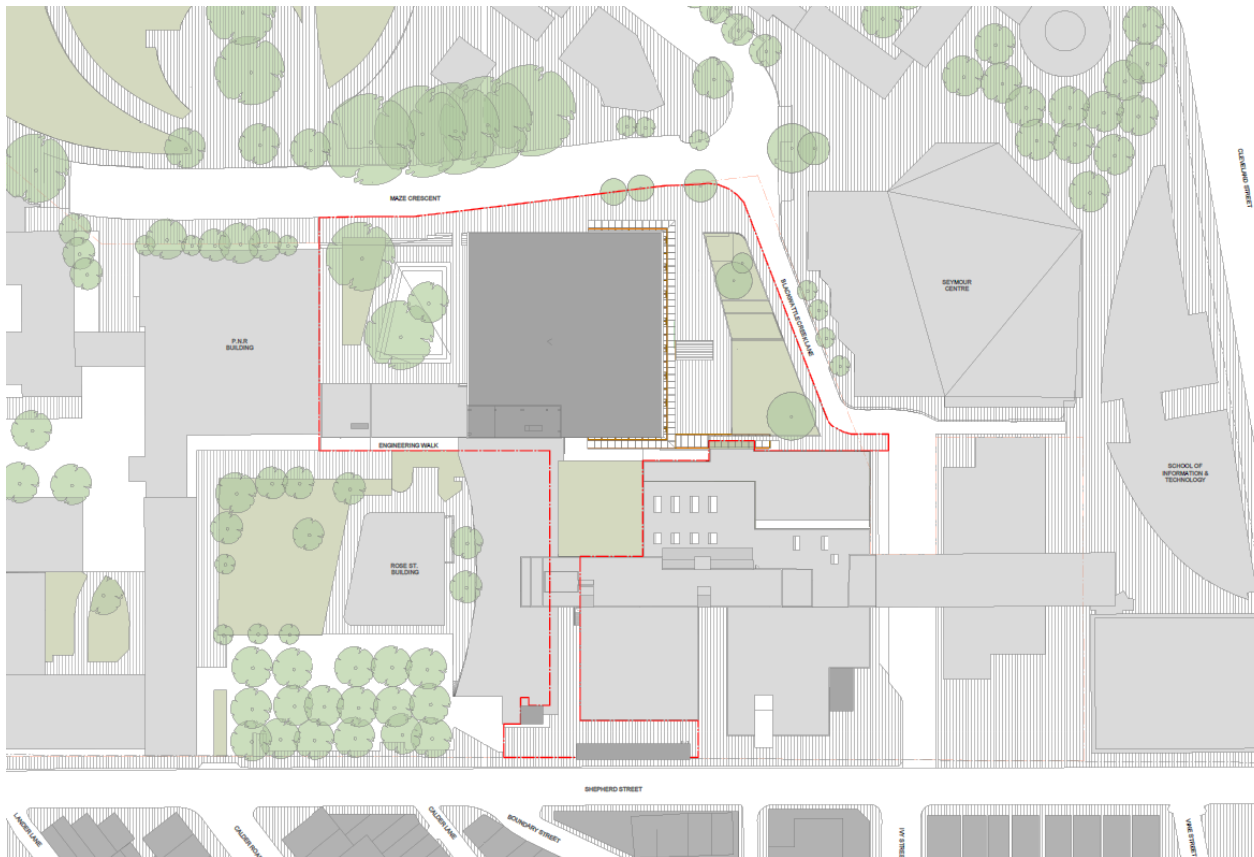


Figure 8 – Site Plan showing the subject site for the Electrical Engineering building (J03) outlined in red (not oriented in a northerly direction)

Source: Architect Cox, Site Survey Plan, Dwg No: A-DA-1001

Generally, the area directly surrounding the Electrical Engineering Building is highly developed, including buildings, soft and hard landscaping, water features, roads and car parks. The majority of the developed areas dates from the 1950s expansion of the University, with the exception of the remaining building of the Old Darlington School, which is sited south-east of the Electrical Engineering Building. The land generally surrounding the School, known as Cadigal Green, is a grassed public area which visually separates the City Road buildings and the Engineering buildings. Pictures 9-14 show the development context of the subject area.



Picture 9 – View to surrounding buildings and roadways
Source: Urbis 2017



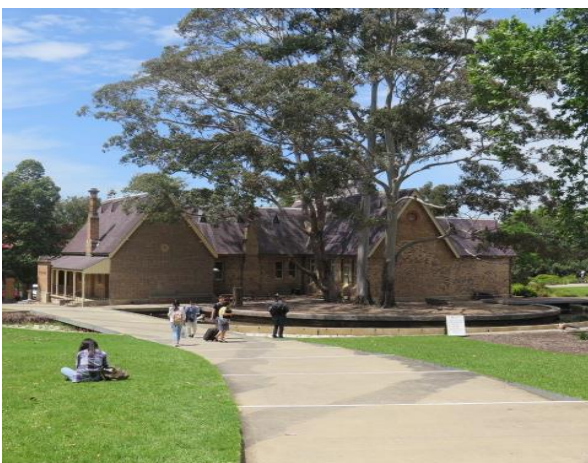
Picture 10 – Surrounding buildings, roadways and hardscape
Source: Urbis 2017



Picture 11 – Glasshouse sited west of the subject site
Source: Urbis 2017



Picture 12 – Mechanical Engineering Building
Source: Urbis 2017



Picture 13 – Old Darlington School and water feature
Source: Urbis 2017



Picture 14 – Cadigal Green and water feature
Source: Urbis 2017

4.2. THE SUBJECT SITE

The Electrical Engineering Building comprises a three-level podium with a central courtyard / pedestrian circulation concourse on the north-west axis. The axial circulation route is typical planning feature of the Engineering Precinct. Teaching wings are located on the eastern and western side of the central concourse.

The Electrical Engineering Building is designed in the Late Twentieth Century Brutalist style, and its construction is off-form concrete with infill brickwork. The northern wing is two storeys, and the southern wing is six-storeys with an additional two levels (including plant) on the eastern tower. Each level is expressed as a shadow-line in the off-form concrete wall. The western entry to the building (at right) comprises a two-level bridge element with metal balustrading and metal grille door at ground floor entry. A sculptural courtyard has been established between the Mechanical Engineering Building and the Engineering Link building.

The internal finishes include glass mosaic tile in the main entrance, concrete flooring with timber floors used in some of the electrical engineering laboratories with vinyl tiles. Quarry tiles are used in areas of high traffic. Generally, window frames are steel. Some windows have timber detailing.

The subject site is highly developed, with hardscaping including walkways, steps, ramps; and landscaping including planting of trees and establishment of gardens and green spaces. The ground levels surrounding the building have been subject to significant modification. The subject site is shown in Pictures 15-18.



Picture 15 – Northern elevation of building

Source: *Urbis 2017*



Picture 16 – Western elevation of building

Source: *Urbis 2017*



Picture 17 – Sculptural Courtyard

Source: *Urbis 2017*



Picture 18 – Building courtyard

Source: *Urbis 2017*

5. POTENTIAL ARCHAEOLOGICAL RESOURCE

This section presents an assessment of the potential for an historical archaeological resource, or 'relics' to be present at the subject site. The archaeological resources of any site are finite and have the potential to provide insights into everyday life that are not available from any other resource. The archaeological resources of a site may be as relics, structural remains including wall footings, wells, cisterns and privies, or deposits laid down as a result of occupational activity on the site.

5.1. PREVIOUS INVESTIGATION AND REPORTS

Key reports and findings are summarised below.

Grounds Conservation Plan, Volume 1, 2002. Pearson et al.

During preparation of the University of Sydney Grounds Conservation Plan (GCP) (2002), the survey team identified that a sub-surface foundation of a building adjacent to the Old Darlington School was clearly visible. They further identify that many early residential terraces and buildings did not have deep footings, and assert the potential for undisturbed sub-surface deposits throughout the campus, predicated on the possibility that the demolition process associated with the extension of the University did not involve disturbance of foundations or underlying deposits of some earlier buildings.

The authors further assert that, based on the land use history of the area, the survival of 'relics' in areas with intensive or multiple phases of building, demolition, rebuilding or substantial ground disturbance is unlikely.

This report did not include a detailed archaeological survey. No areas of high archaeological potential were identified, however, the following areas within the Darlington Campus are identified as having some level of archaeological potential (historic):

- Darlington School, Town Hall, terraces site, on the area surrounding the former Darlington School not yet disturbed by the University. This area has a moderate to high level of disturbance, and has moderate to low historical archaeological potential;
- Housing and commercial building sites between Maze Crescent and City Road, not yet intensively developed by the University. This area has moderate to low archaeological potential;

Grounds Conservation Plan, 2014. The Planning Team.

It is noted that the GCP (2002) was updated in 2014 (TPT). No additional archaeological surveys were undertaken, and no changes were made to the areas of archaeological potential. The assessment of significance for the University against Criterion (e) of the NSW state heritage criteria, as relevant to this report, is as follows:

Several sites have archaeological potential to provide further information about Indigenous and Colonial occupation of the land; however because of the level of development that has occurred over the past 200 years, it is very unlikely that many, if any, undisturbed archaeological sites exist within the University grounds.

University of Sydney Campus Non-Indigenous Archaeological Assessment, 2010. Casey & Lowe.

Casey & Lowe undertook an archaeological assessment of Maze Green (i.e. Cadigal Green) as part of the University's Campus 2010 program and potential development of the area.

The authors identify the Maze Green area as being less disturbed than the surrounding Darlington Campus and as a result suggest that the Green would have higher archaeological potential than the balance of the Campus. This is furthered by stating that areas outside the Green are regarded as having limited archaeological potential due to the disturbance caused by the construction of the present university buildings.

The report presents an assessment of the significance of potential archaeological remains. The findings are summarised as follows:

Remains would have the potential to provide evidence for the development from farmland to residential suburb to university. Much of the remains would be connected to the residential occupation. However, much of the area has been removed or substantially disturbed by university development. Remains

belonging to the initial land-use of the area would be a rare resource. Remains associated with the occupation of the 19th Century working-class terraces would be replicated in many other places in the inner-city area. Any remains would have a limited ability to answer research questions, and would have a moderate to low level of local significance.

To understand the archaeological potential of the study area, Casey & Lowe summarise a number of previous archaeological investigations undertaken in or in the vicinity of the Darlington Campus. These include:

- *Casey & Lowe 1997, Rose Street, west of Codrington Street:* At the site of the Economics Building, archaeological sampling was undertaken. Low level of archaeological remains was found, virtually restricted to the footings of the terraces and modern demolition deposits. The remains had low research potential. Cesspits has been sewered and backfilled. They further noted that *late nineteenth century remains are generally regarded as having limited archaeological potential. This is because the likelihood of finding artefact-bearing deposits which could be used reconstruct economic conditions and lifeways are rarer, because of the availability of Council rubbish collections, sewerage, tongue-and-groove floorboards and floor coverings.*
- *Casey & Lowe 2002, Anderson Stuart Building courtyard:* Archaeological monitoring was undertaken for trenching works through the courtyard for new sewerage pipes. The excavation revealed deep fill levels below the courtyard surface, seemingly debris from the building's construction. Artefacts were determined to be out of context and have no research value.
- *City Plan Heritage 2004, Cleveland Street:* Test excavations were undertaken along parts of Cleveland Road, revealing the soil profiles in the area had been cut down into subsoil. This indicated that the majority of the artefact-bearing strata had been removed. Combined with images obtained for use in the report, it was demonstrated that the Darlington area resumed for the engineering precinct had been extensively disturbed, including significant cutting down of ground levels for construction of new buildings. Picture 19¹ below shows a view north-east across the (future) Engineering Precinct and towards the junction of Cleveland and Shepherd Streets; and the level of ground disturbance as part of the site preparation for relocation of the Engineering faculty.



Picture 19 – Site disturbance across Engineering Precinct, 1968-1969

Source: *City Plan Heritage 2004, in Casey & Lowe 2010.*

¹ It is acknowledged that Picture 19, which is taken from an electronic version of a scanned document, is poor quality. To date, the original image has been unable to be located. However, the image is able to provide an indication of the clearing and excavation works undertaken throughout the (future) Engineering Precinct.

5.2. ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

Archaeological potential refers to the likelihood that there are 'relics', or evidence of past site occupation, present on a site. Identification of the potential historical archaeological resource of the subject site is based on the review and understanding of its land use and development (site formation processes) through historical research, and evaluating whether subsequent actions (either natural or human) may have impacted on evidence of former land use phases. The potential for archaeological relics to survive in a particular place is significantly affected by activities that may have caused ground disturbance. These processes include the physical development of the site (for example, phases of building construction) and the activities that occurred there.

Archaeological potential is distinct from archaeological/heritage significance, or research potential.

5.3. ASSESSMENT OF ARCHAEOLOGICAL RESEARCH POTENTIAL

Archaeological significance has long been accepted as linked directly to archaeological (or scientific) research potential: a site or resource is said to be scientifically significant when its further study may be expected to help answer questions. That is scientific significance is defined as research potential (Bickford and Sullivan, 1984 pp 23–24).² The following questions which can be used as a guide for assessing the research potential of an archaeological site within a relative framework:

1. *Can the site contribute knowledge that no other resource can?*
2. *Can the site contribute knowledge that no other site can?*
3. *Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?*

The assessment of archaeological research potential of the subject site is below, and guided by questions posited by Bickford and Smith:

1. *Can the site contribute knowledge that no other resource can?*

Any extant archaeological resource at the subject site would have the potential to contribute knowledge about the early use of the site for farming or other agricultural pursuits, and knowledge about the later (post-1860s) use of the site for residential and industrial purposes. Extant resources dating to the farming use of the site would enhance an understanding of the specific uses of that land, however it is unlikely that any extant resources would be able to contribute knowledge unattainable from other resources.

Extant resources demonstrating the residential/industrial uses of the site would be representative of a particular social class, given that the terrace housing was provided to accommodate the working class of Darlington. Any extant resources are unlikely to contribute knowledge unattainable from other similar resources in the Sydney CBD.

2. *Can the site contribute knowledge that no other site can?*

The principal value of archaeological evidence is as a scientific resource. Extant deposits relating to the early farming use of the area would be rare, and contribute site-specific knowledge, however it is unlikely that this evidence would be considered unique. Evidence of the 19th Century residential/industrial occupation is unlikely to be a rare resource or have potential to provide a unique database of information unavailable elsewhere. However it would have some comparative research value with other similar sites within the Sydney CBD and inner city.

3. *Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?*

The intactness and integrity of the potential archaeological resource is also likely to have been compromised by demolition and disturbance which has occurred within the area and therefore is likely to exist as a fragmentary resource, providing only a partial glimpse of the agricultural, domestic and industrial historical phases of the subject site since the 18th to 19th Century. It is unlikely that further study of the physical evidence would yield information that could not be sourced elsewhere, or answer any substantive or major

² Heritage Council of NSW, 2009. 'Assessing Significance for Historical Archaeological Sites and Relics'

research questions for NSW history. The research potential of the historical archaeological resource is assessed as low.

5.4. ASSESSMENT OF ARCHAEOLOGICAL SIGNIFICANCE

Table 1 presents a summary of the potential archaeological resource and condition of remains within the subject site as well as the research potential of the resource to assess the potential significance of any archaeological remains.

Table 1 – Archaeological Potential

Land-Use Phase	Potential Archaeological Resource	Integrity of Archaeological Evidence	Archaeological Potential	Potential Significance Level (Research Value)
Phase 1: Initial non-Aboriginal settlement and early land grants. Subject site is primarily cleared farmland.	<p>Evidence of land clearance (e.g. tree boles, areas of burning)</p> <p>Evidence of ground surface modification including drainage networks (earthen ditches, historic fills).</p> <p>Evidence relating to early structures, including postholes, surfaces, artefact scatters.</p> <p>Deeper features such as wells or rubbish pits.</p>	Subdivision and establishment of Darlington, followed by University construction works would have had a major impact on extant evidence from this phase of land use	Low to nil	Moderate to low, at local level
Phase 2: 19 th -20 th Century development of Darlington suburb. Subject site is developed into terrace housing and /or industrial or commercial premises.	<p>Evidence relating to the residential development across the site, and evidence reflecting the industrial activities of the suburb including:</p> <p>Structural features (footings), underfloor deposits, early services, features or rear yards including artefact scatters / isolated artefacts, laneway surfaces,</p>	The extensive demolition and clearing associated with the 20 th Century land acquisitions and University expansion, and the subsequent redevelopment of the Engineering Precinct would have had a significant impact on this phase of land use.	Low to nil	Low, at local level

Land-Use Phase	Potential Archaeological Resource	Integrity of Archaeological Evidence	Archaeological Potential	Potential Significance Level (Research Value)
	historical fills, and previous roads. Deeper sub-surface features such as WCs, wells, cisterns, pits.			

5.4.1. Summary Statement on the Potential Archaeological Resource

There is nil potential for the presence of above-ground archaeological remains to be present within the subject area, due to the significant levels of excavation that has taken place as part of building construction and landscaping/hardscaping across the Engineering Precinct.

The potential for intact sub-surface archaeological remains to be present within the subject area is considered to be low to nil.

Previous excavations (archaeological and non-archaeological) have shown the sub-surface soils to have been significantly disturbed from earlier excavation works associated with construction of the modern buildings. Cutting down of earlier ground levels and the presence of deep fill deposits demonstrates that should artefacts be identified, they would likely be found in disturbed contexts and therefore have low to nil research potential.

The cutting down of ground layers, excavation and construction associated with the Engineering Precinct would have likely destroyed any foundations of earlier 19th Century terrace housing. Similarly, there is some potential for earlier roads to have been left in-situ and built over, but given the previous assessments of sub-surface disturbance the presence of intact earlier roads is considered unlikely.

5.5. SUMMARY OF POTENTIAL IMPACTS ON ARCHAEOLOGICAL RESOURCE

The construction of the new northern wing will require demolition of the existing two-storey wing, and construction of new tower. It is understood that the new building will be located within the footprint of the existing. Sub-surface excavation is understood to be limited and generally confined to the vertical extent of the existing structure. Existing carparks and landscaped areas around the building are proposed for modification, and a retention basin is planned to the south of the building, replacing the car park.

Section 5.1 above asserts that existing sub-surface layers have been subject to significant disturbance and there is low to no potential for natural stratigraphic layers to be present within the subject site. There is limited to no potential for intact, sub-surface archaeological deposits, including earlier building footings, earlier roads or artefactual remains. Where artefacts are identified, it is highly unlikely that they would be in-situ. The proposed works are considered unlikely to impact on intact and/or significant archaeological resources.

The refurbishment of the existing building will involve no excavation and therefore no impacts on potential residual archaeological material are anticipated.

6. CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

This HAA has identified that there is generally low to nil potential for in-situ archaeological remains across the subject site. This assertion has been made with consideration of the historical development of the subject site and surrounding area, including significant ground disturbance which occurred in conjunction with the expansion of the University into Darlington and construction of the present buildings.

The research potential of the historical archaeological resource is assessed as low. It is unlikely that archaeological deposits or features that can provide meaningful research information are extant. Any artefacts identified during earthworks are unlikely to contribute previously unknown information about the subject site or the surrounding area, however they may have some level of comparative research value.

6.1.1. Site Management

Management of an archaeological resource is determined by its potential significance (research) value. If the remains are considered to have no significance or have been disturbed to such a degree that no meaningful information is likely to be retrieved, then removal without further investigation or recording is warranted.

The most comprehensive level of archaeological investigation is excavation of all or part of a site. This is recommended when an assessment has determined that a substantial resource of significance is likely to be retained in the ground, and having high research potential, which is the extent to which further study of relics likely to be found is expected to contribute to improved knowledge about NSW history which is not demonstrated by other sites or archaeological resources.

A 'middle-ground' option of archaeological involvement can require a monitoring and recording program that is undertaken during the course of bulk excavation of a site. This is often the preferred option when a preliminary archaeological assessment has indicated that the extent and condition of the identified archaeological resource is unknown, and investigation can occur on site with evidence retrieved during excavation works.

6.2. RECOMMENDATIONS

The following recommendations are made for the proposed redevelopment of the Electrical Engineering building at the University of Sydney, Darlington Campus:

6.2.1. Implementation of a Chance Finds Procedure

While the chances of finding in-situ archaeological features is considered low, the process to be undertaken in the event of an unanticipated discovery should be included in the site induction to ensure legislative obligations are met. Where archaeological relics not identified in this archaeological assessment are unexpectedly discovered during excavation, work must cease in the affected area and the Heritage Division must be notified in writing in accordance with s146 of the *Heritage Act 1977*. Depending on the nature of the discovery, additional assessment and possibly a s140 excavation permit may be required prior to the recommencement of excavation in the affected area.

7. REFERENCES

Casey & Lowe 2004. *Non-Indigenous Archaeological Assessment: University of Sydney Campus 2010*. Report to Capital Insight Pty Ltd.

Fitzgerald, S. 2008 *Darlington* The Dictionary of Sydney <https://dictionaryofsydney.org/entry/darlington>

Kerr, R., V. Attenbrow, Australian Museum, C. Stanborough, D. Ellsmore 2002. *Grounds Conservation Management Plan Appendix A: The Physical Development of Buildings and Grounds with Pre-Colonial History and Description, Summary of Planning and Built Form Development, and Overview of the Development of Australian Universities*. Prepared for the Facilities Management Office, University of Sydney.

Pearson, M., D. Marshall, D. Ellsmore, V. Attenbrow, S. Rosen, R. Kerr, C. Betteridge 2002. *University of Sydney Grounds Conservation Plan Volume 1*. Prepared for the Facilities Management Office, University of Sydney.

The Planning Team, Campus Infrastructure Services 2014. *The University of Sydney, Camperdown, NSW: Grounds Conservation Management Plan (Revised)*. Prepared for The University of Sydney Campus Infrastructure Services, based on information provided by Clive Lucas, Stapleton and Partners Pty Ltd and Circle Square Design Landscape Architects.

Urbis 2017 *Heritage Impact Statement*. Prepared for Laing O'Rourke.

DISCLAIMER

This report is dated 20 November 2017 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Laing O'Rourke Australia (**Instructing Party**) for the purpose of Historical Archaeological Assessment (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

In preparing this report, Urbis may rely on or refer to documents in a language other than English, which Urbis may arrange to be translated. Urbis is not responsible for the accuracy or completeness of such translations and disclaims any liability for any statement or opinion made in this report being inaccurate or incomplete arising from such translations.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.



BRISBANE

Level 7, 123 Albert Street
Brisbane QLD 4000
Australia
T +61 7 3007 3800

GOLD COAST

45 Nerang Street,
Southport QLD 4215
Australia
T +61 7 5600 4900

MELBOURNE

Level 12, 120 Collins Street
Melbourne VIC 3000
Australia
T +61 3 8663 4888

PERTH

Level 14, The Quadrant
1 William Street
Perth WA 6000
Australia
T +61 8 9346 0500

SYDNEY

Tower 2, Level 23, Darling Park
201 Sussex Street
Sydney NSW 2000
Australia
T +61 2 8233 9900

CISTRI – SINGAPORE

An Urbis Australia company
#12 Marina View
21 Asia Square, Tower 2
Singapore 018961
T +65 6653 3424
W cistri.com