

# 74 Edinburgh Road, Marrickville

Aboriginal Cultural Heritage Research  
Design and Excavation Methodology

Report prepared for Root Partnerships

October 2022



Artefact Heritage  
ABN 73 144 973 526  
Suite 56, Jones Bay Wharf  
26-32 Pirrama Road  
Pyrmont NSW 2009  
Australia

+61 2 9518 8411  
office@artefact.net.au

## Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
1	30 June 2022	Josh Symons; Sandra Wallace	Josh Symons; Sandra Wallace	30 June 2022	First draft
2	13 September 2022	Josh Symons; Sandra Wallace	Josh Symons; Sandra Wallace	13 September 2022	Final draft
3	19 October 2022	Ryan Taddeucci	Ryan Taddeucci	19 October 2022	Final

<b>Last saved:</b>	30 June 2022
<b>File name:</b>	FINAL 74 Edinburgh Road ARDEM 19 October 2022
<b>Project name:</b>	22136 74 Edinburgh Road Marrickville
<b>Author:</b>	Josh Symons, Michael Lever
<b>Project manager:</b>	Dr Sandra Wallace
<b>Project number:</b>	22136
<b>Name of organisation:</b>	Artefact Heritage
<b>Document version:</b>	3

© Artefact Heritage Services

This document is and shall remain the property of Artefact Heritage Services. This document may only be used for the purposes for which it was commissioned and in accordance with the Terms of the Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Disclaimer: Artefact Heritage Services has completed this document in accordance with the relevant federal, state and local legislation and current industry best practice. The company accepts no liability for any damages or loss incurred as a result of reliance placed upon the document content or for any purpose other than that for which it was intended.

# CONTENTS

<b>1.0</b>	<b>Introduction.....</b>	<b>1</b>
1.1	The study area.....	1
1.2	Proposed works .....	1
1.3	Conditions of Approval .....	4
1.3.1	CoA B44 .....	4
1.3.2	CoA B45 .....	4
<b>2.0</b>	<b>Consultation.....</b>	<b>5</b>
2.1	Review of Aboriginal RDEM .....	5
<b>3.0</b>	<b>Summary of 2021 ACHAR Findings.....</b>	<b>7</b>
3.1	ACHAR recommendations .....	8
<b>4.0</b>	<b>Previous archaeological investigations.....</b>	<b>10</b>
4.1	Sydney Metro City and Southwest Chatswood to Sydenham ACHAR (Artefact 2016: 36) .	10
4.2	Sydney Metro, City and Southwest Archaeological Method Statement for Marrickville Dive Site (AMBS 2017) and Report on the Historical Archaeological in the Marrickville Dive Site (AMBS 2018)	10
4.3	MetroGrid Project Test Excavation of Buried Shell Bed at Fraser Park, Marrickville, NSW – Preliminary Report (McIntyre-Tamwoy 2003) .....	11
<b>5.0</b>	<b>assessment of Archaeological Potential.....</b>	<b>13</b>
5.1	Borehole Logs.....	13
5.1.1	Borehole 1 .....	13
5.1.2	Borehole 2 .....	13
5.1.3	Borehole 3 .....	14
5.1.4	Borehole 4 .....	14
5.1.5	Borehole 5 .....	14
5.1.6	Borehole 6 .....	14
5.1.7	Borehole 7 .....	14
5.1.8	Borehole 8 .....	14
5.1.9	Borehole 9 .....	15
5.1.10	Borehole 10 .....	15
5.1.11	Borehole 11 .....	15
5.2	Summary .....	15
5.3	Assessment of archaeological potential .....	19
<b>6.0</b>	<b>Excavation Methodology.....</b>	<b>21</b>
6.1	Excavation justification .....	21
6.2	Research questions .....	22
6.3	Participation in archaeological investigations.....	22
6.4	Aboriginal archaeological Excavation Director (ED).....	22

6.5	Geomorphology .....	22
6.6	Excavation methodology .....	22
6.6.1	Underground services .....	22
6.6.2	Stage one .....	23
6.6.3	Stage two.....	23
6.6.4	Sieving .....	24
6.6.5	Water table .....	25
6.6.6	Contamination.....	25
6.7	Hold points and notification .....	25
6.8	Human remains .....	26
6.9	Artefacts retrieved from fill.....	26
6.10	Non-Aboriginal archaeology .....	26
6.11	Protection of the archaeological resource during excavation.....	26
6.12	Site clearance .....	26
6.13	Reporting and analysis .....	27
6.14	Temporary and long-term management of retrieved Aboriginal objects .....	27
<b>7.0</b>	<b>References .....</b>	<b>29</b>



## FIGURES

Figure 1: The study area .....	2
Figure 2: Proposed works from Urbis (2021: 64) ACHAR.....	3
Figure 3: Location of AMBS (2018) and McIntyre-Tamwoy (2003) investigations in relation to the study area .....	12
Figure 4: Location of boreholes and depth of clay beneath fill .....	16
Figure 5: Approximate extent of Gumbramorra Swamp from different sources.....	17
Figure 6: Location of the study area and previous archaeological investigations (AMBS 2018; McIntyre-Tamwoy 2003) in relation to the approximate extent of Gumbramorra Swamp .....	18
Figure 7: Location of primary bulk earthworks areas, as advised by information from the ACHAR (2021) and Roots Partnership .....	28

TABLES

Table 1: Registered Aboriginal parties ..... 5

Table 2: RAP responses following review of RDEM ..... 6

Table 3: SSD-10468 Conditions of Approval B44 and B45..... 21

## 1.0 INTRODUCTION

Artefact Heritage (Artefact) have been engaged to prepare an Aboriginal Cultural Heritage Research Design and Excavation Methodology (Aboriginal RDEM) in accordance with B44 of the Conditions of Approval for a determined State Significant Development (SSD) application for 74 Edinburgh Road, Marrickville. The proposed works at 74 Edinburgh Road include demolition of existing structures on the site and construction of a warehouse and distribution centre and associated offices.

NSW Department of Planning and Environment (DPE) refer to the project as: *Woolworths CFC and Warehouse, Marrickville (SSD-10468)*.

An Aboriginal cultural heritage assessment report (ACHAR) was prepared by Urbis (2021) for the SSD application. That ACHAR assessed potential for buried Aboriginal archaeological deposits at 74 Edinburgh Road beneath layers of concrete capping and introduced fill across the site. The ACHAR recommended that further archaeological investigation of the site take place, including archaeological excavation and monitoring of bulk earthworks.

### 1.1 The study area

The study area is identified as 74 Edinburgh Road, including Lot 202 DP 1133999, Lot 3 DP 318232, and Lot 3 DP 180969 (see Figure 1).

### 1.2 Proposed works

A description of the proposed works from the Urbis (2021: 63) ACHAR includes the following:

---

*The proposal seeks the demolition of existing structures and landscaping across the subject site and construction of a two-storey warehouse facility. A two-storey car park would be constructed adjacent to Edinburgh Road and a two-storey hardstand loading and delivery area adjacent to Sydney Steel Road.*

*Bulk excavation works would be located within the northern and south-western components of the subject area in association with the flood storage area and OSD tanks. The precise depth of excavation works has not been provided, however, appears to be approximately 4.5 metres based on the Typical underground OSD and flood plain excavation extent section. Box culverts would be installed along the north-western boundary of the site and columns with pile caps across the majority of the subject area. Landscaping would also be undertaken along the north-eastern and south-eastern boundaries.*

*Geotechnical information from boreholes placed in the nearby Murray Street road easement and the Edgeware Road easement revealed a soil profile consisting of between 0.7–1.3 m of fill overlying a 0.6 m of thick silty clay alluvium layer, which overlies residual sediments to a depth of 7.5 m.*

*Aboriginal archaeological resources prior to or temporally associated with the early colonial occupation of the subject site, if present, would be located beneath imported fill associated with the early 20th century land reclamations. Any works which involve excavation at a depth greater than 0.7-1.3m may impact on deposits that may contain Aboriginal archaeological resources.*

---



Figure 1: The study area



Document Path: D:\GIS\GIS\_Mapping\22136\_74 Edinburgh Road\MXD\22136\_Study Area\_v1\_220623.mxd



### Figure 2: Proposed works from Urbis (2021: 64) ACHAR

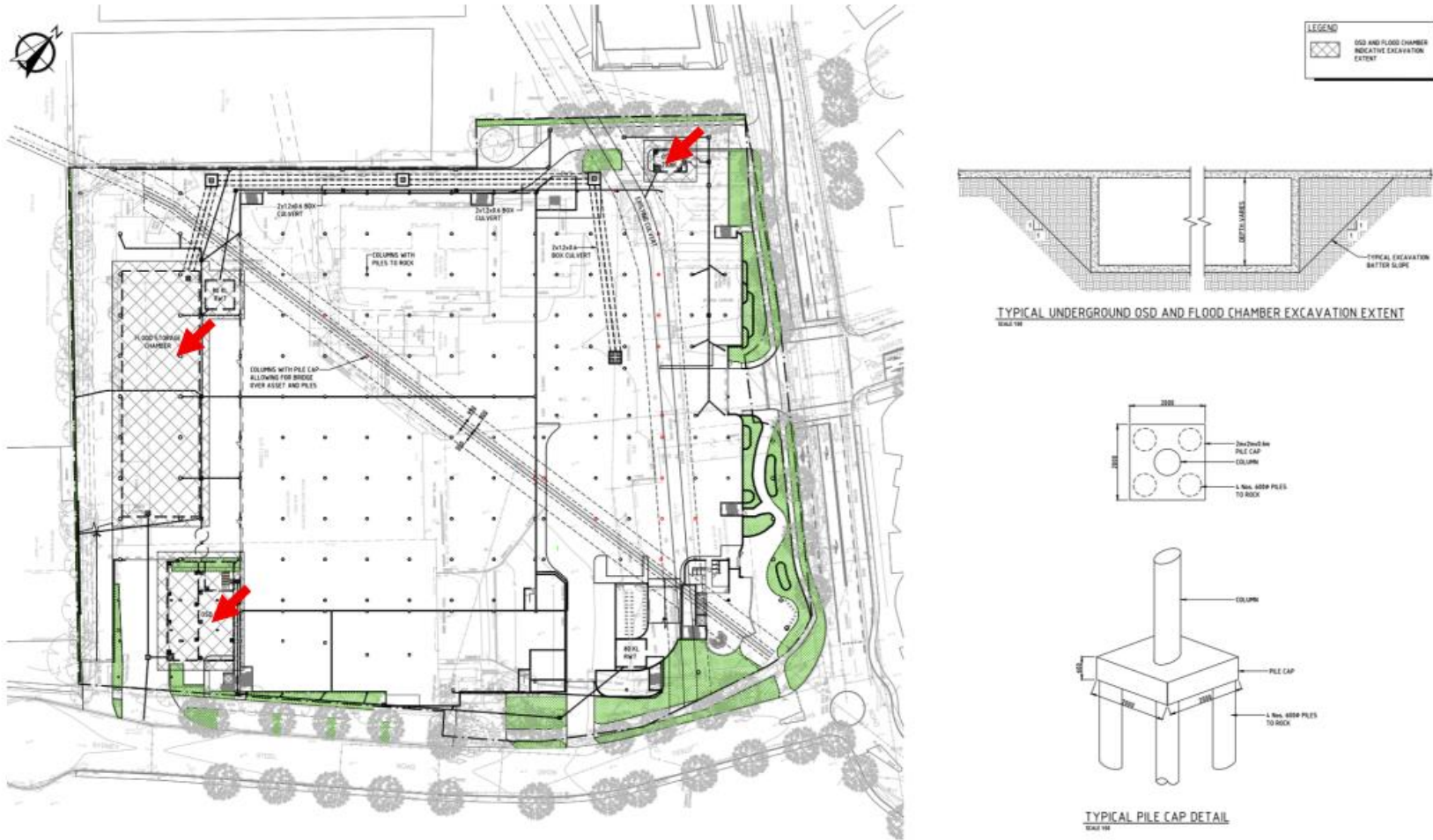


Figure 34 – Excavation extent plan. Note the proposed bulk excavation areas marked by the red arrows.

Source: Richmond + Ross, August 2020

## 1.3 Conditions of Approval

### 1.3.1 CoA B44

Prior to the commencement of construction or any other surface disturbance for the development, the Applicant must prepare an Aboriginal cultural heritage research design and excavation methodology (Aboriginal RDEM) for the development. The Aboriginal RDEM must form part of the development's CEMP (see condition C2), and must:

- a) be prepared by a suitably qualified and experienced Aboriginal cultural heritage expert(s);
- b) be prepared in consultation with the registered Aboriginal parties and Heritage NSW;
- c) be submitted to the Planning Secretary; and
- d) include the following matters:
  - i. Aboriginal cultural heritage research questions;
  - ii. details of the proposed staging and timing of the excavation works;
  - iii. a staged testing and excavation methodology for those areas of the site with moderate and moderate to high archaeological potential;
  - iv. detailed triggers for expansion of test pits to salvage excavation;
  - v. a methodology for the excavation of any found features (including, but not limited to, hearths, knapping floors and middens);
  - vi. an artefact analysis methodology;
  - vii. clear stop points where additional consultation with registered Aboriginal parties and Heritage NSW would be undertaken if significant Aboriginal objects are identified;
  - viii. sampling, dating and storage procedures; and
  - ix. a protocol for reporting any artefacts found during the excavation works.

### 1.3.2 CoA B45

The Applicant must:

- a) not commence bulk earthworks until the Aboriginal RDEM has been submitted to the Planning Secretary; and
- b) implement the most recent version of the Aboriginal RDEM submitted to the Planning Secretary for the duration of the bulk earthworks.

## 2.0 CONSULTATION

Consultation with registered Aboriginal parties (RAPs) was conducted throughout preparation of the ACHAR. Consultation with RAPs will continue throughout preparation of the Aboriginal RDEM and archaeological investigation program.

Consultation with RAPs throughout preparation of the ACHAR was undertaken in accordance with Clause 80c of the NSW National Parks and Wildlife Regulation 2019. RAPs registered for consultation for this project are listed in Table 1.

**Table 1: Registered Aboriginal parties**

Organisation / Individual	Contact Person
Metropolitan Local Aboriginal Land Council	Selina Timothy
Inner West Council Aboriginal Community Advisory Committee	Deborah Lennis
A1 Indigenous Services	Carolyn Hickey
Barking Owl Aboriginal Corporation	Jody Kulakowski
Butucarbin Aboriginal Corporation	Lowanna Gibson
Didge Ngunawal Clan	Lilly Carroll & Paul Boyd
Ginninderra Aboriginal Corporation	Steven Johnson & Krystle Carroll
Gulaga	Wendy Smith
Kamilaroi Yankuntjatjara Working Group	Phil Khan
Merrigarn	Shaun Carroll
Muragadi Heritage Indigenous Corporation	Jesse Johnson
Murra Bidgee Mullangari Aboriginal Corporation	Ryan Johnson & Darleen Johnson
Ngambaa Cultural Connections	Kaarina Slater
Thoorga Nura	John Carriage
Wailwan Aboriginal Group	Philip Boney
Widescope Indigenous Group	Steven Hickey & Donna Hickey

### 2.1 Review of Aboriginal RDEM

The RDEM was submitted to the RAPs for review on 14 September 2022, the responses are provided in Table 2.



**Table 2: RAP responses following review of RDEM**

Organisation	Comment
A1 Indigenous Services	Supports the information provided in the report and the methodology. Please consider including A1's employee's, the Kawalkan workforce and the Women's Circle Employees for all future field work. Please feel free to publish my name, and response but not the email
Gulaga	Satisfied with the report
Didge Ngunawal Clan	Satisfied with the report
Kamilaroi Yankuntjatjara Working Group	Thanks for issuing the report.
Ginninderra Aboriginal Corporation	Agree with the recommendations of the report

### 3.0 SUMMARY OF 2021 ACHAR FINDINGS

From review of existing soil mapping information Urbis identify that the study area is located within the Birrong soil landscape and in close proximity to the shallower residual soils of the Blacktown soil landscape (Urbis 2021: 31). The Birrong soil landscape is described as generally consisting of deep silty clay loam overlaying clay.

Urbis (2021: 31) note that the study area was likely within the Gumbramorra Swamp, and possibly near the margins of the swamp due to the proximity of the Blacktown soil landscape in the local area. Based on the analysis of soil landscapes, Urbis (2021: 31) note that it is more likely for portions of deeper soils such as the Birrong soil landscape to have survived historical disturbance in the area:

---

*The depth of natural soils is relevant to the potential for archaeological materials to be present, especially in areas where disturbance is high. In general, as disturbance level increases, the integrity of any potential archaeological resource decreases. However, disturbance might not remove the archaeological potential even if it decreases integrity of the resources substantially. Although located close to the shallow Blacktown Soil Landscape, the relatively deep soils of the Birrong Soil Landscape in which the subject area is located may mitigate the effects of ground disturbance on archaeological potential.*

*As discussed in Section 2.8 below, disturbance is determined to be moderate to high across the subject area, resulting from vegetation clearance, historical commercial and industrial activities and the construction of the canal. However, any impact of ground disturbing activities may be restricted to the upper portions of the natural soil profile. It is considered that archaeological potential may remain in sub-surface deposits where the natural soil profile is intact.*

---

Urbis identify that a covered concrete canal runs through the northern portion of the study area and flows east and then southwest through an open concrete canal towards a large drainage pit near Sydenham Station. Water then flows southwest to the Cooks River. Urbis suggest that the canal replaced a former natural watercourse that flowed through the area, which was likely part of the natural drainage system for Gumbramorra Swamp' (Urbis 2021: 33). Urbis indicate that based on archaeological predictive models for the region that there is higher archaeological potential in proximity to watercourses.

The study area landform is described as flat. Analysis of borehole logs concluded that the sediments underlying concrete capping and fill across the site were representative of the Birrong soil landscape, 'with ground disturbance likely being limited to the upper fraction of the natural soil profile' (Urbis 2021: 37). The remnant Birrong soil landscape is identified as silty clay of various colours, with standing water encountered at depths varying between 2.5 and 8.8 metres below ground level.

Urbis note the study area demonstrates high potential for buried archaeological deposits, including moderate potential for buried artefact scatters and isolated finds, and moderate potential for evidence of contact archaeological sites due to the area being at the margins of European settlement in the 19<sup>th</sup> century.

The Urbis ACHAR concluded that:

---

*There are no registered Aboriginal objects and/or archaeological sites within the subject area*

*The original landscape is covered by between 0.7–1.3 m of imported fill and the ground surface visibility within the subject area is considered zero*

*There are landscape features with potential for Aboriginal objects or archaeological deposits located within the subject area*

*Despite an extensive built environment and drainage modification, the deep nature of the residual underlying sediments indicates that there is likely to be some remaining archaeological potential at the site. This report concludes that there is moderate-high archaeological potential for Aboriginal objects in sub-surface contexts where there have not been extensive sub-surface impacts*

*Additional investigation is considered warranted in the form archaeological monitoring to establish the presence or absence of Aboriginal objects and archaeological resources within the subject area*

*No additional Aboriginal cultural heritage values have been identified by the RAPs*

*The RAPs have expressed their support for the proposed recommendations and additional works*

---

### 3.1 ACHAR recommendations

The ACHAR provides the following recommendations for further investigation and management of archaeological potential within the study area (Urbis 2021: 68):

---

*Development of Archaeological Research Design (ARD) and Monitoring/Excavation Methodology (MEM)*

*Prior to construction subsurface archaeological investigation must be carried out, informed by an Archaeological Research Design (ARD) and Monitoring/Excavation Methodology (MEM), to investigate the identified landscape features and their potential for retaining Aboriginal objects and archaeological resources.*

*Archaeological Monitoring*

*Following the approval of the SSDA and parallel with the commencement of earthworks, during the removal of the existing slab and areas of proposed bulk excavation archaeological monitoring should be undertaken to ensure no potential Aboriginal archaeological deposits are harmed during the works.*

*The objectives of the archaeological monitoring are the following:*

- To confirm the presence or absence of Aboriginal objects and archaeological resources at the selected bulk excavation works within the subject area.*



- *If present, investigate the nature, spatial and stratigraphical extent and integrity of the archaeological resource*
  - *Include RAPs in the investigation and gathering of information on any archaeological resources identified through the archaeological excavation*
  - *Ensure that the development can proceed with minimal risk of harming Aboriginal objects and to ensure the development of a nuanced Chance Find*
-

## 4.0 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Artefact has reviewed several archaeological reports from the surrounding area relevant to informing preparation of the Aboriginal RDEM.

### 4.1 Sydney Metro City and Southwest Chatswood to Sydenham ACHAR (Artefact 2016: 36)

The ACHAR prepared by Artefact in 2016 for the Sydney Metro and Southwest Chatswood to Sydenham project identified the possibility of buried sediments with archaeological potential at the Marrickville Dive Site (Artefact 2016: 36):

---

*Geotechnical information indicates that natural sediments are located beneath the built structures across the Marrickville dive site. There is potential for Aboriginal objects to occur in the sub-surface archaeological deposits where there are surviving intact spoil [sic] profiles. Any Aboriginal objects that may be identified within this area may therefore be considered to be of moderate to high archaeological significance.*

---

An archaeological method statement (AMS) and a program of archaeological monitoring of boreholes across the Marrickville dive site took place in 2017 and 2018 (AMBS 2017 and 2018). The conclusion of that program of archaeological investigation was that the Marrickville dive site was located within the former Gumbramorra Swamp, with materials encountered beneath the ground surface primarily consisting of reclamation fill. The AMS and results of archaeological monitoring are discussed in more detail below.

### 4.2 Sydney Metro, City and Southwest Archaeological Method Statement for Marrickville Dive Site (AMBS 2017) and Report on the Historical Archaeological in the Marrickville Dive Site (AMBS 2018)

The Marrickville Dive Site Archaeological Method Statement (AMS) noted the historical presence of the Gumbramorra Swamp in the vicinity of Edinburgh Road, describing it as (AMBS 2017: 6):

---

*The Gumbramorra Swamp was a marshland emptying into Gumbramorra Creek and then into Cooks River. The size of the swamp fluctuated, expanding in the wet season and contracting in dry seasons (Meador 2008). It consisted of marshland at the foot of declining sandstone and shoal ridges, in a relatively narrow area surrounded by low hills. At the mouth of the Gumbramorra Creek were mudflats and mangroves (Meador, 2008). Large areas of swampland were present across areas of Sydney into the late nineteenth century, especially around Cooks River, Sheas Creek, Botany and Waterloo.*

---

AMBS (2017: 6-7) note that the boundaries of the swamp were likely to fluctuate depending on the amount of rainfall and waterflow into the area, and that management and fencing the swamp was likely to have commenced in the first half of the 19<sup>th</sup> century. After a series of large-scale flooding events that impacted a number of structures in the area, formal methods of draining and reclamation of the swamp

was completed by 1897 (AMBS 2017: 9). Draining the swamp included the construction of three brick drains with concrete caps through the swamp (AMBS 2017: 11). AMBS note the likelihood of fill being used as part of the swamp reclamation process (AMBS 2017: 16):

---

*Although not specifically referred to in the sources, draining the Gumbramorra Swamp probably included reclamation to raise the level of the land above the swamp to make it habitable. As such, it is likely that the reclamation fills will include industrial waste derived, in particular, from the local brickworks and possible for the nearby [sic] Sydenham Pottery.*

---

Monitoring and testing of reclamation fills across the Marrickville Dive Site took place in 2017. The program included archaeological monitoring of boreholes and mechanically excavated pits for contamination testing.

The results of monitoring the test pits and boreholes 'confirmed the assessment that the site would demonstrate the process of reclamation of the Gumbramorra Swamp' (AMBS 2018: 3). The results identified a range of different fills, generally C horizon clays, with no discernible source. AMBS (2018: 2) conclude the monitoring results as:

---

*The monitoring of bore and test pits confirmed the reclamation and later industrial activities on the site and that there was little potential for significant relics, deposits or features to be present in the site*

---

Based on those results, no further archaeological investigation of the Marrickville Dive Site took place beyond the monitoring of bores and pits for contamination testing.

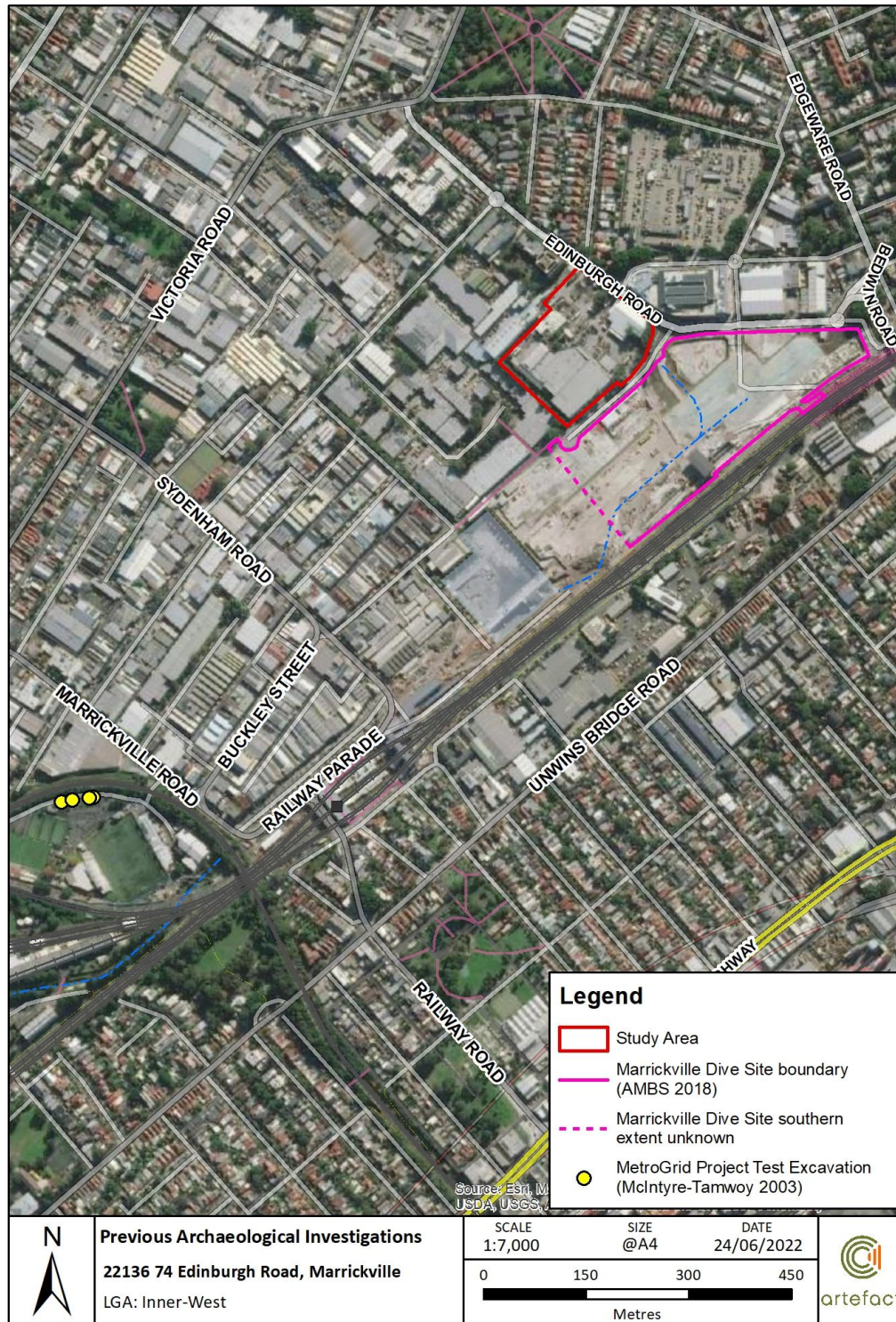
#### 4.3 MetroGrid Project Test Excavation of Buried Shell Bed at Fraser Park, Marrickville, NSW – Preliminary Report (McIntyre-Tamwoy 2003)

Fraser Park PAD (AHIMS ID 45-6-2654) is recorded approximately 900 metres southwest of the study area. Test excavations by machine were conducted in 2003. Five test pits were excavated along a proposed underground service alignment. Excavation identified layers of introduced fill overlying natural swamp deposit and naturally deposited shell beds. It was noted that due to the nature of the silt associated with the shell bed the shell was deposited when that area was underwater. In conclusion prior to British settlement, the Fraser Park area had previously been underwater, and a low-lying swamp. The approximate extent of Gumramorra Swamp shown in

Figure 5 indicates that Fraser Park is located within the former extent of the swamp, which is confirmed by the results of test excavation in 2003.



Figure 3: Location of AMBS (2018) and McIntyre-Tamwoy (2003) investigations in relation to the study area



Document Path: D:\GIS\GIS\_Mapping\22136\_74 Edinburgh Road\MXD\22136\_Previours Archaeological Investigations\_v1\_220623.mxd

## 5.0 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

Urbis (2020, p33) identified that the study area is within Birrong soils, possibly near an interface with Blacktown soils. Urbis notes that Birrong soils have potential for depths greater than 250 millimetres (mm). Urbis also notes that the study area is near or within the historical footprint of the Gumbramorra Swamp but considers that it likely lay marginal to the swamp and that, therefore, deeper Birrong soils may retain archaeological potential at depths below the effects of ground disturbance in the study area.

Urbis (2020, p39) examination of geotechnical analysis does not differentiate any specific soil horizon(s) associated with the Birrong soil landscape that may be archaeologically sensitive.

The A1 horizon of Birrong soil is given as: bg1–Dark brown pedal silty clay loam. This is a dark brown silty loam or silty clay loam with moderately pedal structure and rough ped fabric. It generally occurs as topsoil. Texture can range from loam to silty clay loam with fine sand and silt often being present. <sup>1</sup>

The A2 horizon of Birrong soil is given as bleached hardsetting clay loam. This is a bleached, clay loam to fine sandy clay loam with weakly pedal to apedal massive structure that is hardsetting when dry. This material contains large amounts of silt and fine sand. <sup>2</sup>

Subsequent strata of Birrong soil include orange mottled silty clay, brown mottled clay and grey clay that are likely to be archaeologically sterile.

### Summary

None of the 11 boreholes analysed contain soil profiles that match A1 or A2 Birrong soil units. All show upper strata containing between 850mm and 3.6m of fill, above clay units consistent with lower Birrong soil units. Evidence for large scale and deep historical excavation is present in Borehole 11 in which brick fragments are present at 4.5m below current surface.

## 5.1 Borehole Logs

### 5.1.1 Borehole 1

Fill material to 900mm depth above fill material to 1.2m of grey and dark grey silty clay with trace of ash noted as ‘Possibly Natural’. This material between 900mm and 1.2m does not match Birrong A1 or A2 unit descriptions. This material noted in bore log as ‘Possibly Natural’ may be *in situ* deeper material and not archaeologically sensitive Birrong soil.

Subsequent units include Alluvial highly plastic silty clay to 3.8m depth.

**Findings:** Material between 900mm and 1.2m is unlikely to be preserved Birrong A1 or A2 soils. Natural soils appear to have been removed to 1.2m depth.

### 5.1.2 Borehole 2

Fill material to 850mm. Alluvial silty clay, medium plasticity, orange brown, to termination at 1.95m.

---

<sup>1</sup> <https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9130bg.pdf>

<sup>2</sup> <https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9130bg.pdf>

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 850mm depth.

#### 5.1.3 Borehole 3

Fill over concrete to 800mm, above fill of mottled clay containing ash and slag to 1.25m. This above alluvial highly plastic mottled clay to shale at 9.1m.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 1.25m depth.

#### 5.1.4 Borehole 4

Two layers of variably compacted fill including silty sand, sandstone gravel, ash, slag and ironstone gravel to 1.4m depth. Above alluvial highly plastic mottled silty clay to 10.6m.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 1.4m depth. Presence of ironstone gravel may indicate location was subject to inundation.

#### 5.1.5 Borehole 5

Concrete above silty sandy gravel, brick and slag fragments to 3.6m above alluvial highly plastic mottled silty clay to termination at 7.5m.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 3.6m depth.

#### 5.1.6 Borehole 6

Fill of silty sandy gravel, sand, silty clay with traces of ash to 1m, above alluvial plastic mottled silty clay.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 1m depth.

#### 5.1.7 Borehole 7

Fill consisting of gravelly sand, fine to coarse grained, light brown, fine to coarse grained sandstone gravel, medium to coarse grained igneous gravel, trace silt to 1.25m above fill of silty clay, high plasticity, orange brown, brown and dark brown, trace of fine to medium grained igneous gravel and ash to 2.25m, above alluvial highly plastic clay.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 2.25m depth.

#### 5.1.8 Borehole 8

Fill of gravelly sand, fine to coarse grained, light brown, fine to coarse grained sandstone gravel, medium to coarse grained igneous gravel, trace of concrete fragments and silt to 850mm, above fill of silty clay of



high plasticity, brown and dark brown, trace of ash and fine to coarse grained sandstone and igneous gravel to 1.65m. Above alluvial highly plastic silty clay.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 1.65m depth.

#### 5.1.9 Borehole 9

Fill of gravelly sand, fine to coarse grained, dark grey, fine to coarse grained igneous gravel to 450mm. Fill of mixed silty clay, high plasticity, trace of fine to coarse grained sand, and fine to coarse grained igneous gravel to 1.45m, above alluvial highly plastic mottled clay.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 1.45m depth.

#### 5.1.10 Borehole 10

Fill of silty sand, fine to coarse grained, brown, trace of concrete and brick fragments and clay lumps to 500mm above fill of silty clay, medium plasticity, mixed colours, trace of concrete and brick fragments to 1.25m. Above alluvial highly plastic mottled clay.

**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to 1.25m depth.

#### 5.1.11 Borehole 11

Fill of gravelly sand, fine to medium grained, brown and dark brown, fine to medium grained igneous gravel, with building material (nails) to 1m, above highly plastic silty clay, mottled. Grades of clay vary, at 4.5m to 5m clay includes brick fragments.

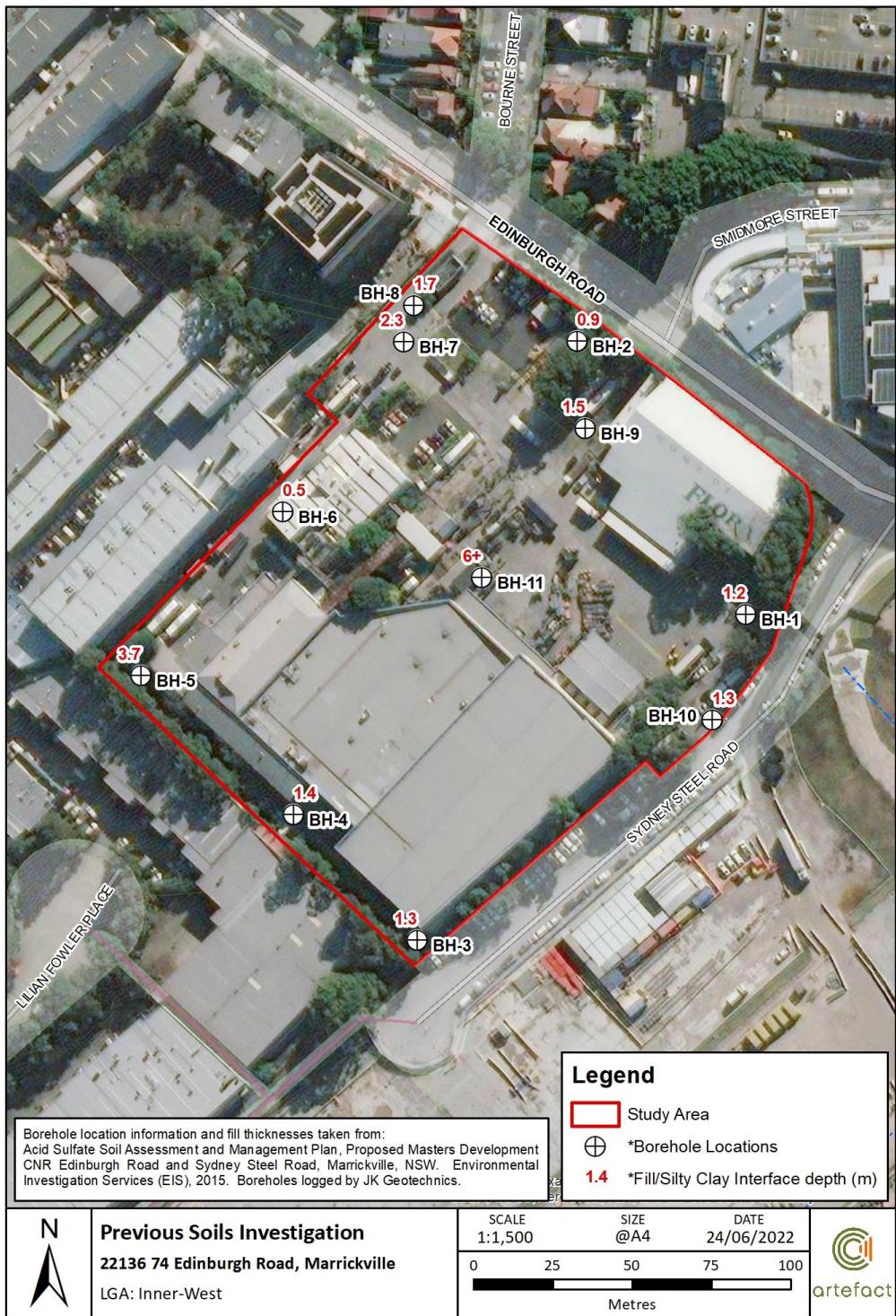
**Findings:** No material present that matches Birrong A1 or A2 soils units. Natural soils appear to have been removed to minimum 1m depth. Evidence for large scale deep excavation in presence of brick fragments at greater than 4.5m depth.

## 5.2 Summary

The bore logs from 74 Edinburgh Road do not identify any A1 or A2 contexts of the Birrong soil landscape. Neither do the bore logs identify any evidence of the Blacktown soil landscape.

It is possible potentially archaeologically sensitive silty loam horizons of the former Gumbramorra Swamp were removed when the site was filled and capped with concrete for extant use of the area for industrial purposes.

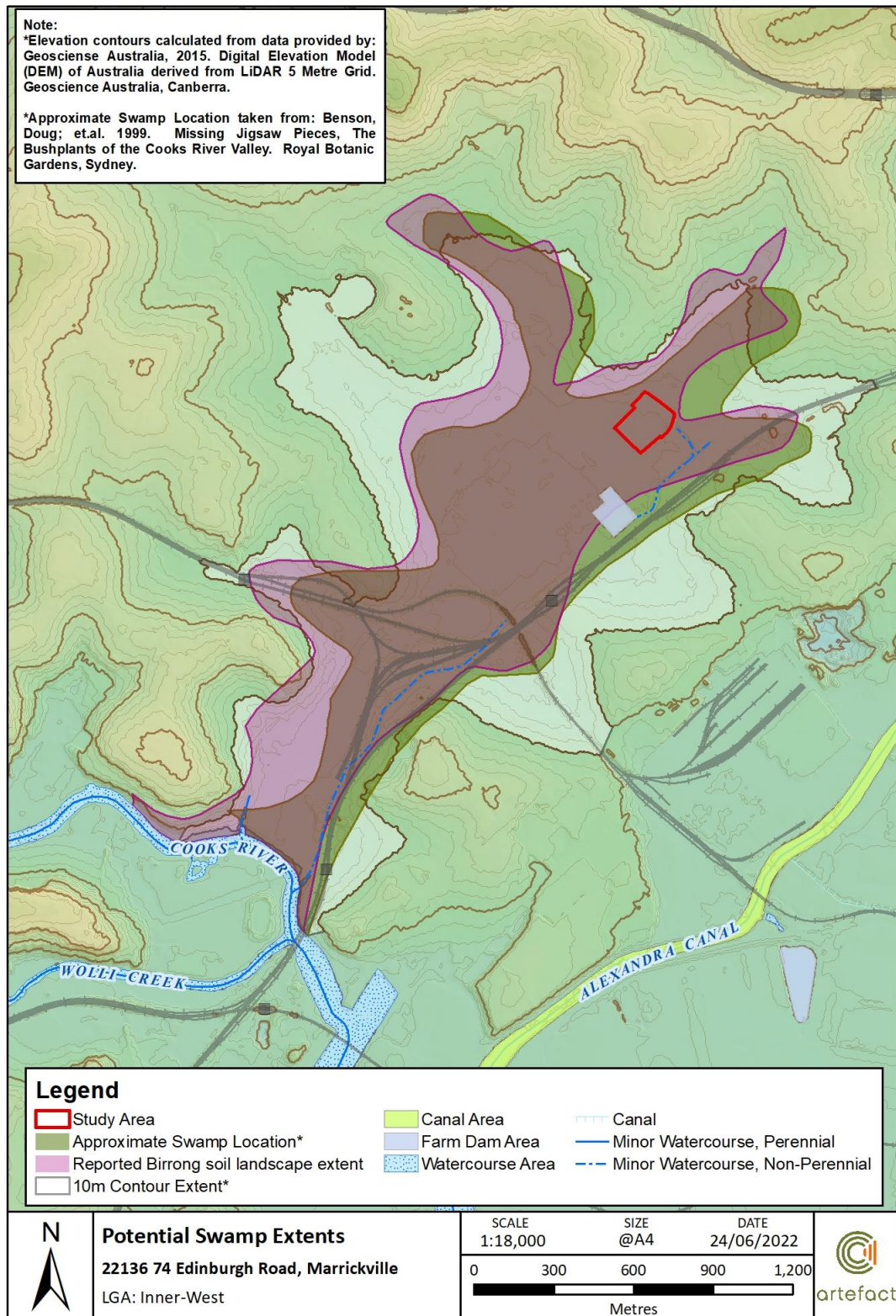
Figure 4: Location of boreholes and depth of clay beneath fill



Document Path: D:\GIS\GIS\_Mapping\22136\_74 Edinburgh Road\MXD\22136\_Previious Geotechnical Study\_v1\_220623.mxd

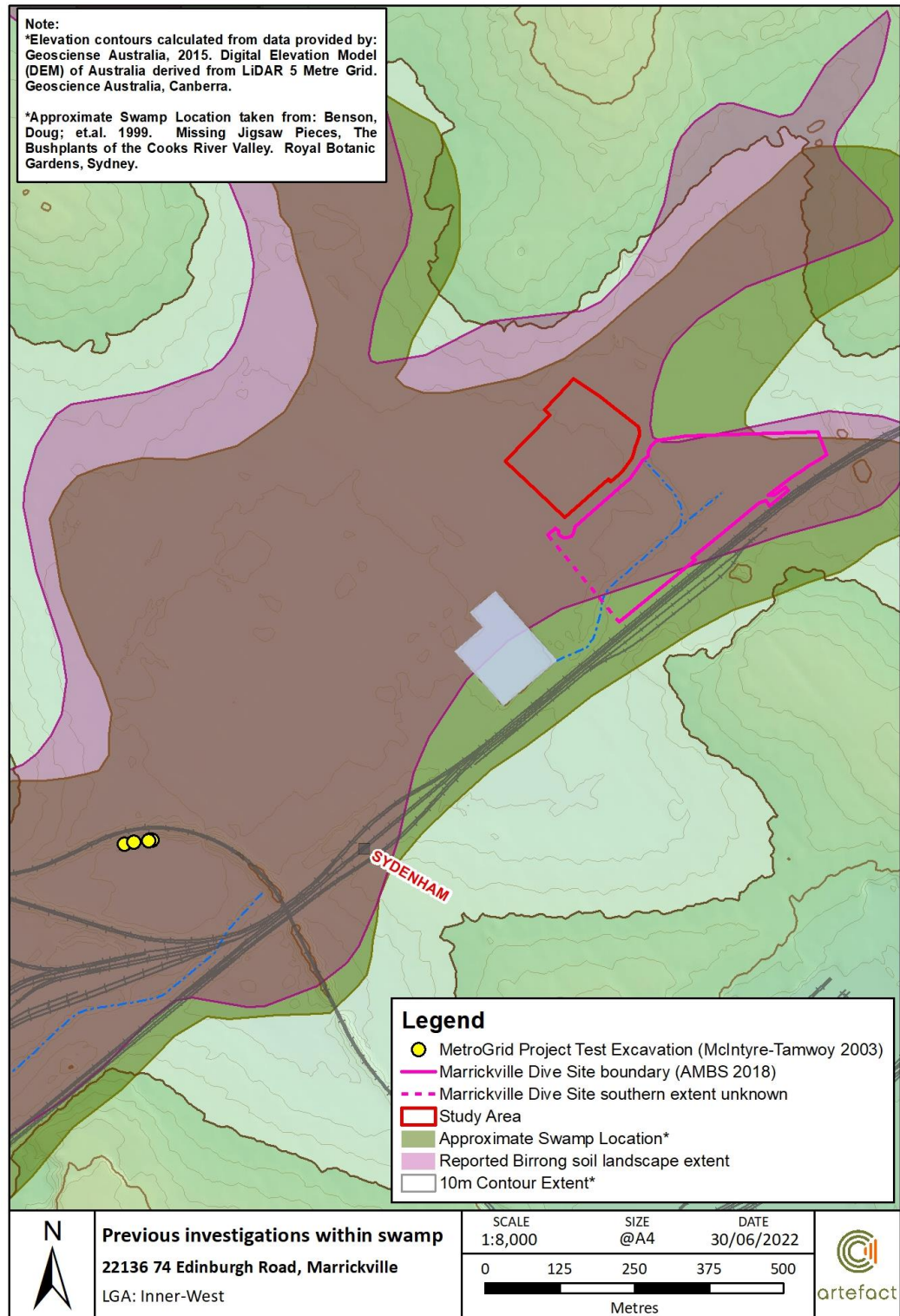


Figure 5: Approximate extent of Gumbramorra Swamp from different sources



Document Path: D:\GIS\GIS\_Mapping\22136\_74 Edinburgh Road\MXD\22136\_swamp map\_v1\_220624.mxd

**Figure 6: Location of the study area and previous archaeological investigations (AMBS 2018; McIntyre-Tamwoy 2003) in relation to the approximate extent of Gumbramorra Swamp**





### 5.3 Assessment of archaeological potential

The project ACHAR (2021) assessed the study area as demonstrating high potential for potential archaeological deposit (PAD). That assessment was based on an assessment of the study area as being located close to the margins of Gumbramorra Swamp, and the possible survival of deeper soils associated with the Birrong soil landscape.

This Aboriginal ARDEM has identified the following:

- The study area is likely to have been located in Gumbramorra Swamp
- Gumbramorra Swamp was drained and subject to reclamation in the late 19<sup>th</sup> century. Archaeological investigation for the Metro project adjacent to 74 Edinburgh Road identified layers of clay reclamation fill
- Previous archaeological investigations in the former Gumbramorra Swamp have not identified any Aboriginal archaeological contexts. Previous archaeological investigations adjacent to 74 Edinburgh Road identified reclamation fill and no archaeologically sensitive contexts (AMBS 2018 – see Figure 3). Previous archaeological investigations at Fraser Park identified fill over natural estuarine contexts and no archaeologically sensitive contexts (McIntyre-Tamwoy 2003 – see Figure 3). In common with 74 Edinburgh Road, both of those previous investigations were located within the former extent of Gumbramorra Swamp.
- The bore logs show buried clay associated with the deeper contexts of the Birrong soil landscape. No loamy sediments associated with the upper soil profiles of the Birrong soil landscape have been identified within the study area
- The swamp landform context suggests that archaeological evidence of Aboriginal activities is more likely to be associated with higher elevation contexts to the north and northwest of the study area, in areas with shallower Blacktown soil landscape. No evidence of the Blacktown soil landscape has been identified within the study area
- The bore logs suggest that the upper profiles of the Birrong soil landscape have been removed, possibly during reclamation and/or when stabilising fill was brought in to underlay the concrete capping across the site

The following predictive statements are made for the study area:

- Any surviving A1 and A2 soil horizon contexts of the Birrong soil landscape have the potential to provide information on whether there is archaeological evidence of utilisation of the swamp. The water levels of the swamp did fluctuate, meaning there may be evidence of use of the area during periods of lower water levels. However, none of the bore logs identify surviving A1 and A2 horizons. One of the aims of further archaeological investigation of the site will be to confirm the findings of the bore logs

- Any surviving Blacktown soil landscapes have high archaeological potential as those contexts would have been located on the periphery of the swamp. None of the bore logs identify any evidence of remnant Blacktown soil landscapes within the study area, and soil landscape mapping and elevation models (see
- 
- Figure 5) indicate the study area was in a low-lying area associated with the Gumbramorra swamp

Overall, any surviving A1 and A2 horizons of the Birrong soil landscape have archaeological potential. However, bore log data suggests that A1 and A2 horizons may have been removed from the site either during swamp reclamation or when the area was filled and prepared for construction in the 20<sup>th</sup> century.

## 6.0 EXCAVATION METHODOLOGY

This excavation methodology is prepared to meet CoA B44 and B45 as detailed in Table 3 below.

**Table 3: SSD-10468 Conditions of Approval B44 and B45**

CoA	Condition
	<p>Prior to the commencement of construction or any other surface disturbance for the development, the Applicant must prepare an Aboriginal cultural heritage research design and excavation methodology (Aboriginal RDEM) for the development. The Aboriginal RDEM must form part of the development's CEMP (see condition C2), and must:</p> <ul style="list-style-type: none"><li>a) be prepared by a suitably qualified and experienced Aboriginal cultural heritage expert(s);</li><li>b) be prepared in consultation with the registered Aboriginal parties and Heritage NSW;</li><li>c) be submitted to the Planning Secretary; and</li><li>d) include the following matters:<ul style="list-style-type: none"><li>i. Aboriginal cultural heritage research questions;</li><li>ii. details of the proposed staging and timing of the excavation works;</li><li>iii. a staged testing and excavation methodology for those areas of the site with moderate and moderate to high archaeological potential;</li><li>iv. detailed triggers for expansion of test pits to salvage excavation;</li><li>v. a methodology for the excavation of any found features (including, but not limited to, hearths, knapping floors and middens);</li><li>vi. an artefact analysis methodology;</li><li>vii. clear stop points where additional consultation with registered Aboriginal parties and Heritage NSW would be undertaken if significant Aboriginal objects are identified;</li><li>viii. sampling, dating and storage procedures; and</li><li>ix. a protocol for reporting any artefacts found during the excavation works.</li></ul></li></ul>
B44	
B45	<ul style="list-style-type: none"><li>a) not commence bulk earthworks until the Aboriginal RDEM has been submitted to the Planning Secretary; and</li><li>b) implement the most recent version of the Aboriginal RDEM submitted to the Planning Secretary for the duration of the bulk earthworks.</li></ul>

### 6.1 Excavation justification

The ACHAR (2021) identified that bulk earthworks have the potential to impact areas of archaeological potential associated with the Birrong soil landscape. The Aboriginal ARDEM has identified that the upper profile of the Birrong soil landscape most likely to demonstrate archaeological potential is absent from the borehole logs across the study area.

Therefore, the justification for archaeological investigation of the study area is to confirm if the upper archaeologically sensitive contexts of the Birrong soil landscape survive in the bulk earthworks areas of

the study area not subject to borehole examination. The results of that archaeological investigation would determine if further archaeological excavation is warranted.

## 6.2 Research questions

Key research questions for the proposed archaeological investigation include:

- Intactness and survival of the upper portions of the Birrong soil landscape. Is there evidence of surviving A1 and A2 horizon contexts within the study area?
- Nature and extent – establish the nature and extent of any identified Aboriginal archaeological contexts
- Significance – assess the archaeological and cultural significance of any identified Aboriginal sites in consultation with RAPs
- Comparative – compare the results of the excavation with previous archaeological investigations in the area

## 6.3 Participation in archaeological investigations

RAP representatives would participate in all Aboriginal archaeological excavations.

## 6.4 Aboriginal archaeological Excavation Director (ED)

The Aboriginal archaeological ED will oversee the archaeological investigations and determine when enough information has been retrieved to cease investigations. The Aboriginal archaeological ED must meet the qualification requirements as outlined in Section 1.6 of the Heritage NSW code of practice (<https://www.heritage.nsw.gov.au/assets/Uploads/publications/524/code-of-practice-for-archaeological-investigation-of-aboriginal-objects-100783.pdf>).

## 6.5 Geomorphology

A geomorphologist will be involved in the investigative process if required.

## 6.6 Excavation methodology

### 6.6.1 Underground services

It is anticipated that preliminary Non-Destructive Digging (NDD) investigations or other invasive ground-disturbing activities may be required to confirm below ground services. These activities take place to ensure safety of the archaeological team and other workers on site. The Aboriginal archaeological ED will determine if archaeological monitoring of underground service relocation is required. It is not anticipated that material removed through NDD will be sieved or investigated archaeologically.



### 6.6.2 Stage one

Stage one excavation will involve machine excavation of sample pits in areas not already subject to geotechnical investigations. It is anticipated that the primary areas for investigation will be the bulk earthworks areas and portion of the site proposed for canal realignment (see Figure 7).

The purpose of stage one investigation is to confirm whether there are archaeologically sensitive soil contexts within the study area, primarily the upper horizons of the Birrong soil landscape or the A horizon of the Blacktown soil landscape.

An indicative total of between three (n=3) and five (n=5) stage one trenches would be excavated across the study area. Stage one trenches will be spaced between 15 and 30 metres apart where two or more are placed in close proximity to each other. Mechanical trenches would be approximately 2 metres long and 1 metre wide. The exact size of the pit will depend on the conditions encountered in the field, such as depth of excavation and stability of the section walls. A larger pit will be required for deeper excavation. A flat edged bucket must be used on the machine for excavation at depths where archaeologically sensitive contexts may be encountered.

Concrete capping and fill will be retrieved as one context. Archaeologists on site will document brief observations of the fill and inclusions. Contexts beneath the fill will be excavated by machine in approximately 200 millimetre spits. The reason for machine rather than hand excavation is due to the varying depth of fill across the site and safety considerations for entering the open trench. The purpose of stage one excavation is to confirm the presence or absence of archaeologically sensitive contexts.

Geotechnical bore logs indicate some areas have between four and six metres of overlying fill. In areas where the depth of fill is too deep to safely excavate by machine, other methods of investigation such as auguring and/or push tubes using a sonic rig, can be utilised for stage one investigation.

Any spit or material retrieved by augur/push tube with archaeologically sensitive contexts will be sieved. Examples of archaeologically sensitive contexts include:

- Upper loam contexts of the Birrong soil landscape
- A horizon contexts of the Blacktown soil landscapes
- Encountered shell or other visual indicators of archaeological contexts

Any spits or material retrieved by augur/push tube with no archaeologically sensitive contexts, such as the lower clay contexts of the Birrong soil landscape, will not be sieved.

Excavation of each stage one investigation location will cease where it is determined that archaeologically sterile layers have been reached or when the depth of proposed impacts has been reached.

### 6.6.3 Stage two

Triggers for Stage two excavation include:

- Identification of archaeologically sensitive soil contexts, including upper loam contexts of the Birrong soil landscape or A horizon contexts of the Blacktown soil landscapes.
- Identification of Aboriginal objects

- Identification of evidence of archaeological features such as a possible hearth

Stage two excavation would involve expanding the stage one trench and continuing archaeological excavation. Expansion of the stage one pit will necessitate removal of the concrete capping and underlying fill contexts by machine as per the stage one methodology down to the archaeologically sensitive layer. Excavation will not expand beyond the depth and extent of proposed works in that area.

Stage two excavation of areas with Aboriginal objects and/or archaeological features such as hearths or midden material will proceed by hand excavation and all retrieved material sieved. Hand excavation will be undertaken in 1 metre x 1 metre squares excavated in 100 millimetre spits or stratigraphic contexts. Pits can be undertaken in less than 1m x 1m where there is limited space such as reaching the edge of the works boundary in that location.

Stage two excavation of archaeologically sensitive soil contexts with no Aboriginal objects can proceed by machine and all retrieved material sieved. Machine excavation will be in 100 millimetre spits using a flat edge bucket and each spit deposited in separate piles for sieving. Machine excavation will cease and hand excavation commence where Aboriginal objects and/or archaeological features are identified during excavation and sieving.

Where there are limits to the area that can be expanded and safe access to hand excavate is not possible, the Aboriginal archaeological ED will determine whether shoring is required for safe access to excavate or if excavation will continue using a machine. That decision will be based on the nature of the stage one finds in that location. Identification of Aboriginal objects and/or archaeological features such as a hearth or midden may require further investigation by hand excavation and sieving. Shoring, if practicable and justified, will be utilised in those circumstances. Machine excavation will be utilised where it is either not safe to enter the excavation area, shoring is not practicable, and/or where shoring and hand excavation is not justified.

In areas too deep/unsafe for machine or hand excavation, an alternative approach utilising augurs and/or push tubes with a sonic rig will be utilised. The Aboriginal archaeological ED will determine the approach for deeper contexts. A push tube methodology using a sonic rig should be utilised where stratigraphically sensitive contexts and/or archaeological features such as hearths or middens are being investigated. Push tube allow the extraction of more intact samples compared with using an augur and can allow the extraction of samples suitable for dating if required.

**The Aboriginal archaeological ED must note relevant hold points and notification processes outlined in Section 6.7 of this methodology.**

Stage two excavation will cease in the following circumstances:

- the depth and extent of the proposed works have been reached
- enough information has been retrieved to characterise the extent and significance of the site
- archaeological features such as hearths or middens will be excavated in full

#### 6.6.4 Sieving

All retrieved material from hand excavation would be sieved through nested 5mm and 3mm sieve mesh. It is likely that most material would be wet sieved, however dry sieving may be more appropriate in certain contexts.

Shell material retrieved in bulk will be placed in large, labelled, resealable bags on site. Bulk deposits of shell may be directly bagged and not sieved on site.

#### 6.6.5 Water table

The Aboriginal archaeological ED will determine the practicability of continuing archaeological excavation if the water table is reached. The decision to continue excavation below the water table will depend upon:

- The nature of the finds of archaeological excavation in that area
- What type of practical measures to manage water in the excavation area are available and how effective they are at managing the safety implications of working in a deep excavation below the water table
- The practicality of continuing excavation below the water table in that area

Where it is not possible to continue hand excavation, the Aboriginal archaeological ED will determine if continuing excavation by machine is an appropriate alternative.

Archaeological excavation will cease where there are safety concerns associated with continuing archaeological excavation below the water table.

#### 6.6.6 Contamination

No archaeological excavation, sieving, or collection/storage of any materials and/or contexts hazardous to human health will take place. Acid Sulphate Soils and/or Possible Acid Sulphate Soils will need to be managed in accordance with relevant site protocols and will not be handled/sieved/collected for archaeological purposes if unsafe to do so.

### 6.7 Hold points and notification

Hold points will be enacted and stop all works on site in the applicable area in the following circumstances:

**Notification of approach for stage two excavation** – the Aboriginal archaeological ED will oversee preparation of a memo outlining the proposed excavation approach for stage two excavation based on the nature and depth of the results of stage one excavation. Where deeper contexts and/or areas unsafe for continued hand/machine excavation are encountered, the memo will outline the proposed approach for augur / push tube using a sonic rig investigation in that area, including an outline of how many augurs / push tubes are proposed. The memo will be forwarded to RAPs by email, with a period of 14 days for review and comment. The memo will also be forwarded by the Proponent to the DPE Environmental Representative to confirm compliance with the Conditions of Approval before commencement of stage 2 excavation

**Notification of the identification of significant Aboriginal objects** – where significant Aboriginal objects are identified, such as a high density of stone artefacts, intact midden, and/or a hearth, archaeological excavation will cease, and the area protected during the notification and consultation process (see Section 6.11 for protection of the archaeological resource). A memo/short report will be prepared outlining the nature and potential significance of the encountered find(s), as well as the

proposed approach for further archaeological investigation and any plans for retrieving samples for dating, pollen analysis, analysis of faunal remains, etc. The memo/short report must be forwarded to RAPs for 28 days review and comment. The memo/short report must also be forwarded to Heritage NSW via the [heritagemailbox@environment.nsw.gov.au](mailto:heritagemailbox@environment.nsw.gov.au) email address and forwarded by the Proponent to the DPE Environment Representative to confirm compliance with the Conditions of Approval.

**Notification of the completion of archaeological investigation** – the Aboriginal archaeological ED will notify RAPs in an emailed written memo outlining a summary of excavation results and confirming that no further archaeological investigation will take place on site. The memo sent to RAPs will be forwarded by the Proponent to the DPE Environmental Representative to confirm compliance with the Conditions of Approval

**Heritage NSW AHIMS site register** – the Aboriginal archaeological ED will ensure that the AHIMS site register is updated in a timely manner with the nature and location of any Aboriginal objects identified during archaeological investigation on site.

## 6.8 Human remains

All archaeological investigation works will cease where human remains are identified and the unexpected finds procedure enacted.

## 6.9 Artefacts retrieved from fill

Where artefacts are identified in fill, the find will be recorded and stored in the nominated temporary locked storage area.

## 6.10 Non-Aboriginal archaeology

If non-Aboriginal archaeology is encountered, works will cease in that location and a historical archaeology specialist will be involved in assessing the find and advising on any requirements for further reporting, archaeological investigation, and approvals.

## 6.11 Protection of the archaeological resource during excavation

Where there is a halt in excavation, such as a cessation of excavation due to weather conditions, suitable measures will be put in place to protect open archaeological excavation until works re-commence.

Protective measures may include back-filling open Excavation Units under the guidance of an archaeologist and include protection of any remaining archaeological resource using geofab material or similar and clean back-fill. Other protective measures may include the site contractor deploying sand bags and sediment fencing to divert surface water away from open Excavation Units.

## 6.12 Site clearance

The Aboriginal excavation ED will issue clearance for all or a portion of the study area at the completion of archaeological investigation. The clearance will be in the form of a memo or report.

## 6.13 Reporting and analysis

Bulk shell material will be weighed, and sample recorded. Where the shell material is identified as intact midden deposit, the Aboriginal archaeological ED will determine whether specialists will be required to record the shell material in more detail, analysis of faunal remains, etc. Depending on the nature of the retrieved material further sieving through a fine mesh and/or other sorting of the material in collaboration with relevant specialists must be considered.

All Aboriginal objects retrieved during the course of archaeological excavation would be washed and placed in re-sealable bags for further analysis and recording. Once test excavation has been completed, the artefact assemblage would be recorded and stored as stipulated in the Heritage NSW code of practice. This includes recording key attributes of material, artefact type, platform type, termination type and dimensions, as well as photographic and drawn records of representative artefacts. All recorded information would be entered into a Microsoft Excel (or similar) table with detail linked to the provenance of each artefact. Once entered into the Excel table, the data can be readily supplied with associated reporting to RAPs and the proponent in either electronic or hard-copy form. An archaeologist experienced in stone artefact recording will conduct the attribute recording and analysis.

All artefacts would be given a unique number and stored in double re-sealable snap lock bags. A permanent marker will be used to record the provenance and unique number of artefacts in each bag in writing on the outside of the bag and on an archival grade tag such as Dupont <sup>TM</sup> Tyvek <sup>®</sup> paper.

A report will be prepared at the completion of archaeological investigations outlining:

- Project background and approvals
- Archaeological investigation details – dates, personnel
- Archaeological methodology employed throughout investigations
- Summary of stratigraphy
- Analysis of any Aboriginal objects retrieved
- Discussion and comparison with the results of other archaeological investigations in the area
- Significance assessment
- Long-term management of retrieved Aboriginal objects

A copy of the report must be provided to RAPs, the AHIMS site register, and the DPE Environmental Representative.

## 6.14 Temporary and long-term management of retrieved Aboriginal objects

The temporary repository of any retrieved artefacts will be a locked cupboard on the premises of the archaeological consultant or the Proponent / a representative of the Proponent.

Further consultation with RAPs will be required during the project to determine the preferred long-term care and management of any retrieved Aboriginal artefacts once the nature, location, significance and size of the assemblage is known.



Figure 7: Location of primary bulk earthworks areas, as advised by information from the ACHAR (2021) and Roots Partnership



## 7.0 REFERENCES

Benson, D., Ondinea, D., Bear, V., 1999. *Missing Jigsaw Pieces: The Bushplants of the Cooks River Valley*. Royal Botanic Gardens Sydney.

Environmental Investigation Services, 2015. 'Acid Sulphate Soil Assessment and Management Plan Proposed Master Development CNR Edinburgh Road and Sydney Steel Road, Marrickville, NSW'. Report to Masters Home Improvement.

Lindbergh, J., 2018. 'Report on the Historical Archaeology in the Marrickville Dive site'. Report to Sydney Metro.

McIntyre-Tamwoy, S., 2003. 'MetroGrid Project Test Excavation of Buried Shell Bed at Fraser Park, Marrickville, NSW: A Preliminary Report on the Findings': A report to TransGrid.



artefact

Artefact Heritage  
ABN 73 144 973 526  
Suite 56, Jones Bay Wharf  
26-32 Pirrama Road  
Pyrmont NSW 2009 Australia  
+61 2 9518 8411  
[office@artefact.net.au](mailto:office@artefact.net.au)  
[www.artefact.net.au](http://www.artefact.net.au)