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CULTURAL HERITAGE

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

ARRAWARA CARAVAN PARK COASTAL PROTECTION WORKS



ARRAWARRA NSW

PREPARED FOR ASTORIA GROUP PTY LTD



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EXECUTIVE SUMMARY

The following is a report detailing the Cultural Heritage Due Diligence Assessment of Aboriginal cultural heritage for the proposed coastal protection works, located at Arrawarra Caravan Park, Arrawarra Beach, NSW (the 'Project'). The lands subject to assessment are identified in Figure 1 and comprise Lots 1 and 2 DP 1209371 (the 'Project Area'). The Project Area comprises the current Arrawarra Caravan Park and is located between Yarrawarra Creek (north) and Arrawarra Creek (east).

The Astoria Group Pty Ltd (the 'Proponent') is proposing to build a 'rock armoured revetment' along the eastern bank of the Arrawarra Caravan Park (Figure 2).

The brief for this project was to undertake a due diligence assessment of suitable standard to be submitted in support of the proposed Development Application. In accordance with the relevant administrative and legislative standards for New South Wales (see Section 2 below), the methods employed in this assessment included:

- a) a search of relevant Aboriginal heritage registers;
- b) a brief review of the archaeological and cultural heritage assessments pertinent to the potential heritage values associated with the Project Area.
- c) review historic and photographs of the Project Area to understand the Project Areas history;
- d) a review of existing geotechnical data to understand the geomorphological history of the Project Area;
- e) undertake a preliminary surface inspection of the Project Area to identify the extent and nature of existing disturbance; and
- f) assess the potential for the Project Area to contain significant Aboriginal heritage and the impact on the Project may have on said heritage, consistent with the Office of Environment and Heritage Due Diligence Code for the Protection of Aboriginal Objects in NSW (2010).

The methods used for this assessment are in compliance with the OEH '*Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*' 2010 and all relevant legislation as described in Section 2 of this Report. The following report complies with the accepted methodology for undertaking a Due Diligence Assessment under the *National Parks and Wildlife Act 1974*.

An analysis of historic aerial photos (1956, 1969, 1984 and 2002) was undertaken. This analysis showed significant land clearing across the project area prior to 1956 and a second phase of disturbance associated to development on the caravan park sometime between 1969 and 1984.



A search was undertaken by Keiley Hunter of Keiley Hunter Town Planning on 05 March 2014 with a buffer of 200 metres. This search returned three recorded Aboriginal sites within 200 m of the Project Area. A second search was conducted on 15 September, 2014 of the OEH Aboriginal Heritage Information Management System ('AHIMS') for Lot 1/DP789002 (AHIMS service number 147901) and Lot 12/DP835612 (AHIMS service number 147903) with a buffer of 50 m around both Lots. The search returned no recorded Aboriginal sites for Lot 1/DP789002 and two recorded Aboriginal sites for Lot 12/DP835612. An extensive search was completed by Keiley Hunter which identified the following recorded Aboriginal sites;

- a) 22-1-0034 'Arrawarra 3' (AGD 56 518800 6674500) artefact; and
- b) 22-1-0392 'Arrawarra Headland Site' (GDA 56 518761 6674645) partially destroyed artefact and shell.

A site card was requested through AHIMS however returned that the cards were not available within the database system. Issues associated with site 'Arrawarra 3' are the inaccuracy of the coordinates which suggest it was recorded pre-GPS. As such without a site card and plan this site cannot be positively located. The coordinates for the 'Arrawarra Headland Site' (#21-1-0392) place it immediately west of the Project Area, however the name of the site would suggest it is located on Arrawarra Headland. No site card was available for this site from the AHIMS database.

The shell scatter identified within the north west corner of the Project Area is identified as being part of 'Arrawarra Headland Site' (#22-1-0392) on the basis of geographic proximity to the existing site record and to the known 'Arrawarra 1' midden across the creek (Smith 1998). The shell scatter is located well within the proposed environmental protection zone and as such is not directly impacted by development application. Amelioration of disturbance from pedestrian traffic should be considered by removal of pedestrian activity or vegetative restoration of the site.

The results of the sub-surface geotechnical surveys suggest that the Project Area has a complex soil, vegetation and development history. No archaeological objects were identified in the 26 Bore Holes undertaken for the geotechnical surveys (Coffey 2003 and 2014). Given the number and distribution of the geotechnical survey samples it would be expected that should midden material consistent with the 'Arrawarra 1' (Smith 1998) occur within the Project Area that it would show up in the geotechnical survey logs. If archaeological materials have been deposited in a manner consistent with the 'Arrawarra Headland Site', that is more an 'open campsite' type of deposit, then it is not unexpected that such thin layers of material would be more vulnerable to disturbance.

The survey undertaken as part of the Rural Fire Service 10/50 tree removal approval did not identify any cultural modified/scarred trees within the Project Area. All of the trees appear to be mature, and potentially as old as 100 years.



The Consultant is of the opinion that given the extent of existing disturbance within the development footprint, the proposed rock revetment is unlikely to result in further harm to Aboriginal heritage. No Aboriginal Objects were identified within the area of Proposed Works. One known Aboriginal site ('Arrawarra Headland Site' #22-1-0392) was recorded to extend into the Project Area however is well within the proposed environmental buffer zone and has been previously disturbed.

Recommendation 1: Aboriginal Objects Find Procedure

It is recommended that if it is suspected that Aboriginal material has been uncovered as a result of development activities within the Project Area:

- a) work in the surrounding area is to stop immediately;
- b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;
- c) an appropriately qualified archaeological consultant is to be engaged to identify the material; and
- d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010).

Recommendation 2: Aboriginal Human Remains

Although it is unlikely that human remains will be located at any stage during earthworks within the Project Area, should this event arise, it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Coffs Harbour), the Coffs Harbour Local Aboriginal Land Council ('LALC') and the Office of Environment and Heritage ('OEH') Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Recommendation 3: Notifying the OEH

It is recommended that if Aboriginal cultural materials are uncovered as a result of development activities within the Project Area, they are to be registered as Sites in the Aboriginal Heritage Information Management System



(‘AHIMS’) managed by the OEH. Any management outcomes for the site will be included in the information provided to the AHIMS.

Recommendation 4: Conservation Principles

It is recommended that all effort must be taken to avoid any impacts on Aboriginal cultural heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.



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DEFINITIONS

The following definitions apply to the terms used in this report:

Aboriginal Object means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Aboriginal Place means any place declared to be an Aboriginal place (under s. 84 of the NPW Act) by the Minister administering the NPW Act, by order published in the NSW Government Gazette, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture. It may or may not contain Aboriginal Objects.

ACHCR Guidelines means the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010).

Archaeological Code of Practice means the OEH Code of Practice for Archaeological Conduct in New South Wales (2010).

Due Diligence Code means the OEH Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010).

LPI means the New South Wales Government Land and Property Information Division

NPW Act means the National Parks and Wildlife Act 1974 (NSW).

NPW Regulations means the National Parks and Wildlife Regulations 2009 (NSW).

OEH means the New South Wales Office of Environment and Heritage.

Project Area means the land subject to this assessment, and is situated at Lots 1 and 2 DP 1209371, Arrawarra Beach Road, Arrawarra Beach N.S.W, illustrated in Figure 2.

Proposed Works means all activities associated with the construction of the proposed rock revetment (Figure 2).

Proponent means the Astoria Group Pty Ltd, and all associated employees and contractors and subcontractors of the same.

The Project means the proposed coastal protection works (rock armoured revetment) proposed for the lands as described under Project Area, and as identified in Figure 4.

The Consultant means qualified archaeological staff and/or contractors of Everick Heritage Consultants Pty Ltd.



1. INTRODUCTION

1.1 Purpose of the Archaeological Investigation

The following is a report detailing the Cultural Heritage Due Diligence Assessment of Aboriginal cultural heritage for proposed coastal protection works (rock armoured revetment), located at Arrawarra Caravan Park, Arrawarra Beach, NSW (the 'Project'). The lands subject to assessment are identified in Figure 1 and comprise Lots 1 and 2 DP 1209371 (the 'Project Area'). The Project Area comprises the current Arrawarra Caravan Park and is located between Yarrawarra Creek (north) and Arrawarra Creek (east).

The intent of this investigation is to identify the potential for the Project to impact on any Aboriginal cultural heritage which may reside within the Project Area.

1.2 Proponent, Project Brief & Methodology

The Astoria Group Pty Ltd (the 'Proponent') has proposed to construct a rock armoured revetment to protect land and caravan park buildings and infrastructure from coastal processes now and in the future that may occur as a result of predicted climate change and sea level rise changes to storm surge activity on the site of the current Arrawarra Caravan Park (Figure 2).

The brief for this project was to undertake a due diligence assessment of suitable standard to be submitted in support of the proposed Development Application. In accordance with the relevant administrative and legislative standards for New South Wales (see Section 2 below), the methods employed in this assessment included:

- a) a search of relevant Aboriginal heritage registers;
- b) a brief review of the archaeological and cultural heritage assessments pertinent to the potential heritage values associated with the Project Area;
- c) review historic and photographs of the Project Area to understand the Project Areas history;
- d) a review of existing geotechnical data to understand the geomorphological history of the Project Area;
- e) undertake a preliminary surface inspection of the Project Area to identify the extent and nature of existing disturbance; and
- f) assess the potential for the Project Area to contain significant Aboriginal heritage and the impact on the Project may have on said heritage, consistent with the Office of Environment and Heritage Due Diligence Code for the Protection of Aboriginal Objects in NSW (2010).



The methods used for this assessment are in compliance with the OEH *'Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales' 2010* and all relevant legislation as described in Section 2 of this Report. The following report complies with the accepted methodology for undertaking a Due Diligence Assessment under the *National Parks and Wildlife Act 1974*.

1.3 Report Authorship

The desktop study was undertaken by Senior Archaeologist Tim Hill. The field inspection was conducted by Senior Archaeologist Tim Hill. This report was written by Tim Hill and Everick Director Tim Robins.

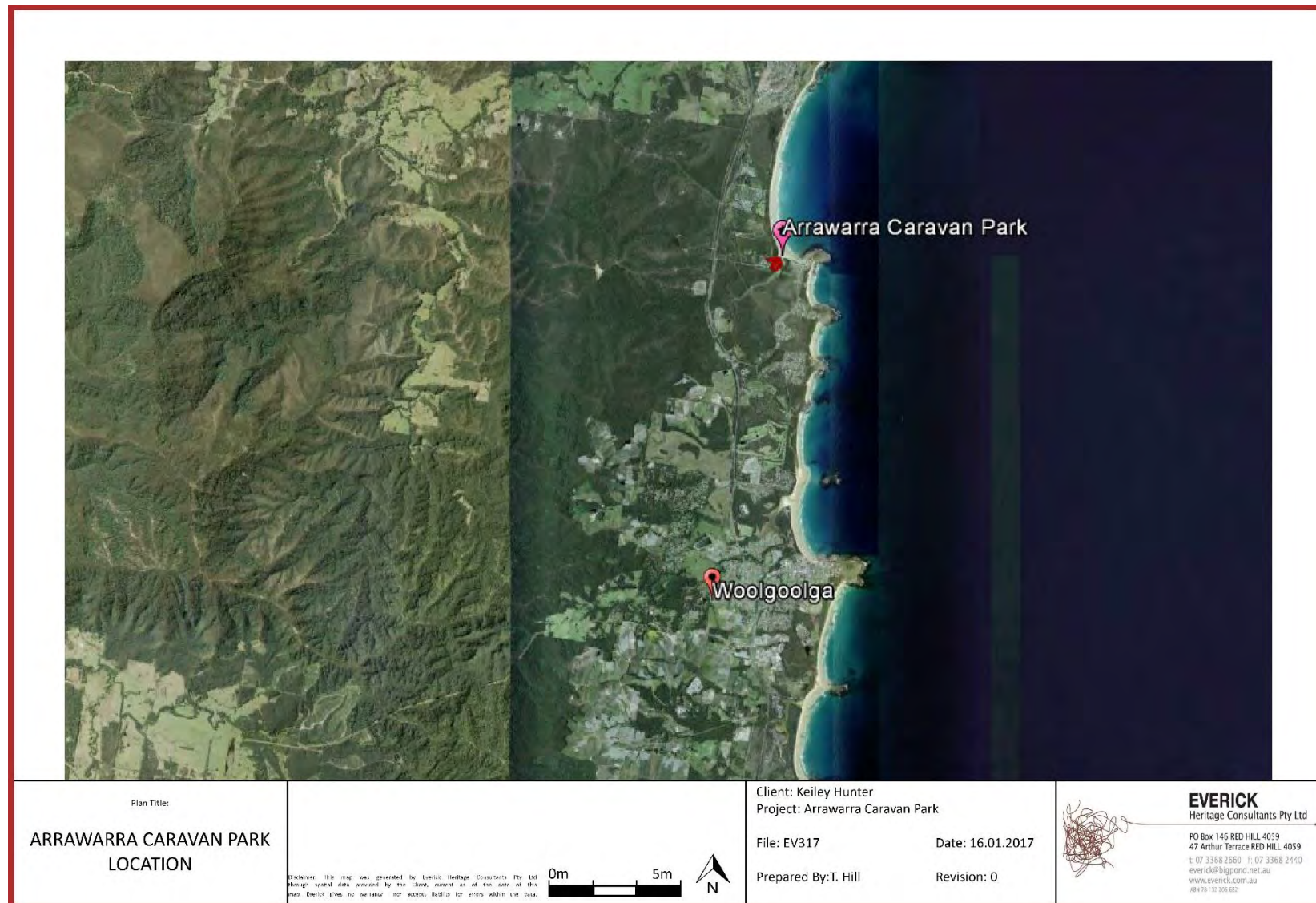


Figure 1: General location of Project Area.



Figure 2: Aerial Photo of Arrawarra Caravan Park.



2. LEGISLATIVE AND PLANNING CONTEXT

The following legislation provides the context for cultural heritage in NSW: the *National Parks and Wildlife Act 1974* (NSW), the *Environmental Planning and Assessment Act 1979* (NSW) and the *Heritage Act 1977* (NSW) and Local Council Environmental Plans and Development Control Plans. The Commonwealth also has a role in the protection of nationally significant cultural heritage through the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), *The Protection of Movable Cultural Heritage Act 1986* (Cth) and the *Historic Shipwrecks Act 1976* (Cth).

For the purposes of this assessment it is the State and local legislation that are most relevant. The consent authorities will be the Coffs Harbour Council and, where a referral agency is required, the OEH. Approval from the OEH will also be required should the Project impact on identified Aboriginal Objects. The information below lists the legislative and policy framework within which this assessment is set.

2.1 The National Parks and Wildlife Act 1974 (NSW) and the National Parks and Wildlife Regulations 2009 (NSW)

The *National Parks and Wildlife Act 1974* (NSW) ('NPW Act') is the primary legislation concerning the identification and protection of Aboriginal cultural heritage. It provides for the management of both Aboriginal Objects and Aboriginal Places. Under the NPW Act, an Aboriginal Object is any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area, regardless of whether the evidence of habitation occurred before or after non-Aboriginal settlement of the land. This means that every Aboriginal Object, regardless of its size or seeming isolation from other Objects, is protected under the Act.

An Aboriginal Place is an area of particular significance to Aboriginal people which has been *declared* an Aboriginal Place by the Minister. The drafting of this legislation reflects the traditional focus on Objects, rather than on areas of significance such as story places and ceremonial grounds. However, a gradual shift in cultural heritage management practices is occurring towards recognising the value of identifying the significance of areas to Indigenous peoples beyond their physical attributes. With the introduction of the *National Parks and Wildlife Amendment Act 2010* (NSW) the former offence provisions under Section 86 of 'disturbing', 'moving', 'removing' or 'taking possession' of Aboriginal Objects or Places have been replaced by the new offence of 'harming or desecrating'. The definition of 'harm' is 'destroying, defacing or damaging an Object'. Importantly in the context of the management recommendations in this assessment, harm to an Object that is 'trivial or negligible' will not constitute an offence.



The new amendments also significantly strengthen the penalty provisions. The issue of intent to harm Aboriginal cultural heritage has been formally addressed by separating it from inadvertent harm. The penalty for individuals who inadvertently harm Aboriginal Objects has been set at up to \$55,000, while for corporations it is \$220,000. Also introduced is the concept of '*circumstances of aggravation*' which allows for harsher penalties (up to \$110,000) for individuals who inadvertently harm Aboriginal heritage in the course of undertaking a commercial activity or have a record for committing similar offences. For those who knowingly harm Aboriginal cultural heritage, the penalty will rise substantially. The maximum penalty will be set at \$275,000 or one year imprisonment for individuals, while for corporations it will rise to \$1,100,000.

Where a land user has or is likely to undertake activities that will harm Aboriginal Objects, the Director General (OEH) has a range of enforcement powers, including stop work orders, interim protection orders and remediation orders. The amended regulations also allow for a number of penalties in support of these provisions. The NPWA also now includes a range of defense provisions for unintentionally harming Aboriginal Objects:

- a) Undertaking activities that are prescribed as '*Low Impact*';
- b) Acting in accordance with the new Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010) ('Due Diligence Code');
- c) Using a consulting archaeologist who correctly applies the OEH *Code of Practice for Archaeological Conduct in New South Wales* (2010) ("Archaeological Code of Practice") (see Appendix A); and
- d) Acting in accordance with an Aboriginal Heritage Impact Permit (AHIP).

2.1.1 '*Low Impact Activities*'

The new regulations allow for a range of low impact activities to be undertaken without the need to consult the OEH or a consulting archaeologist. Generally, those who undertake activities of this nature will not be committing an offence, even if they inadvertently harm Aboriginal Objects. These activities include:

- a) Maintenance – For example on existing roads and tracks, or on existing utilities such as underground power cables and sewage lines.
- b) Farming and Land Management – for land previously disturbed, activities such as cropping, grazing, bores, fencing, erosions control etc. *
- c) Removal of dead or dying vegetation - only if there is minimal ground disturbance.
- d) Environmental rehabilitation – weed removal, bush regeneration.



- e) Development in accordance with a Development Certificate issued under the EPA Act 1979 (provided the land is previously disturbed). *
- f) Downhole logging, sampling and coring using hand held equipment.
- g) Geochemical surveying, seismic surveying, costeaning or drilling. *

* This defense is only available where the land has been disturbed by previous activity. Disturbance is defined as a clear and observable change to the land's surface, including but not limited to land disturbed by the following: soil ploughing; urban development; rural infrastructure (such as dams and fences); roads, trails and walking tracks; pipelines, transmission lines; and storm water drainage and other similar infrastructure.

2.2 Due Diligence Code of Practice for the Protection of Aboriginal Objects

The Due Diligence Code has been applied in Section 8 of this assessment. It operates by posing a series of questions for land users before they commence development. These questions are based around assessing previous ground disturbance. An activity will generally be unlikely to harm Aboriginal Objects where it:

- a) will cause no additional ground disturbance; or
- b) is in a developed area; or
- c) is in a significantly disturbed area.

Where these criteria are not fulfilled, further assessment for Aboriginal cultural heritage will typically be required prior to commencing the activity.

2.3 The ACHCRP (2010)

The OEH has recently published the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010) ('ACHCRP'). These requirements replaced the former *Interim Community Consultation Requirements for Applicants* (2004) as of 12 April 2010. The ACHCRP provide an acceptable framework for conducting Aboriginal community consultation in preparation for Aboriginal Heritage Impact Permits. Proponents are also required to follow the ACHCRP where undertaking a project that is likely to impact on cultural heritage and/or where required by the consent authority.



2.4 The Coffs Harbour Local Environmental Plan 2013

The Coffs Harbour Local Environmental Plan 2010 ('LEP') provides statutory protection for items already listed as being of heritage significance (Schedule 5), items that fall under the ambit of the *Heritage Act 1977* (NSW) and Aboriginal Objects under the *National Parks and Wildlife Act 1974* (NSW). It aims to ensure best practice components of the heritage decision making process are followed.

For listed heritage items, or building, work, relic or tree and heritage conservation areas, the following action can only be carried out with the consent of the Coffs Harbour City Council:

- a) demolishing or moving a heritage item or a building, work, relic or tree within a heritage conservation area,
- b) altering a heritage item or a building, work, relic, tree or place within a heritage conservation area, including (in the case of a building) making changes to the detail, fabric, finish or appearance of its exterior,
- c) altering a heritage item that is a building by making structural changes to its interior,
- d) disturbing or excavating an archaeological site while 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,
- e) disturbing or excavating a heritage conservation area that is a place of Aboriginal heritage significance,
- f) erecting a building on land on which a heritage item is located or that is within a heritage conservation area,
- g) subdividing land on which a heritage item is located or that is within a heritage conservation area.

In addition, Council may not grant development consent without considering the effect the proposed development will have on the heritage significance of heritage item or heritage conservation area concerned.

Furthermore, in regards to Aboriginal heritage significance (Part 5.10.8) the consent authority must, before granting consent under this clause to the carrying out of development in a place of Aboriginal heritage significance:

- a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place, and

notify the local Aboriginal communities (in such way as it thinks appropriate) about the application and take into consideration any response received within 28 days after the notice is sent.



3. DESCRIPTION OF DEVELOPMENT PROPOSAL

Site Details: The Project Area (Figure 2) is identified as parts of Lots 1 and 2 DP 1209371 and Lot 1 DP 26125, Arrawarra Beach Road, Arrawarra. The Project Area is comprises 2.5Ha which is currently Spot X Arrawarra Beach Caravan Park between Yarrawarra Creek (north) and Arrawarra Creek (east). Arrawarra Beach is approximately 30km north of Coffs Harbour and is within the Coffs Harbour City Local Government Area.

The Project Area is within an established coastal caravan park with a mix of permanent and temporary buildings and infrastructure- including amenities block and kiosk. Disturbance to the Project Area is likely to occur during the construction of the proposed revetment which may be relevant to the Due Diligence assessment (**Figure 3**).

Proposal: The proposed revetment would involve removal of the existing rock gabion and the placement of the rock armouring along the estuarine boundary. The work will occur wholly within the site, within E2 zoned land (**Figure 4**). The environmental protection zone protects the values of the Yarrawarra Creek.

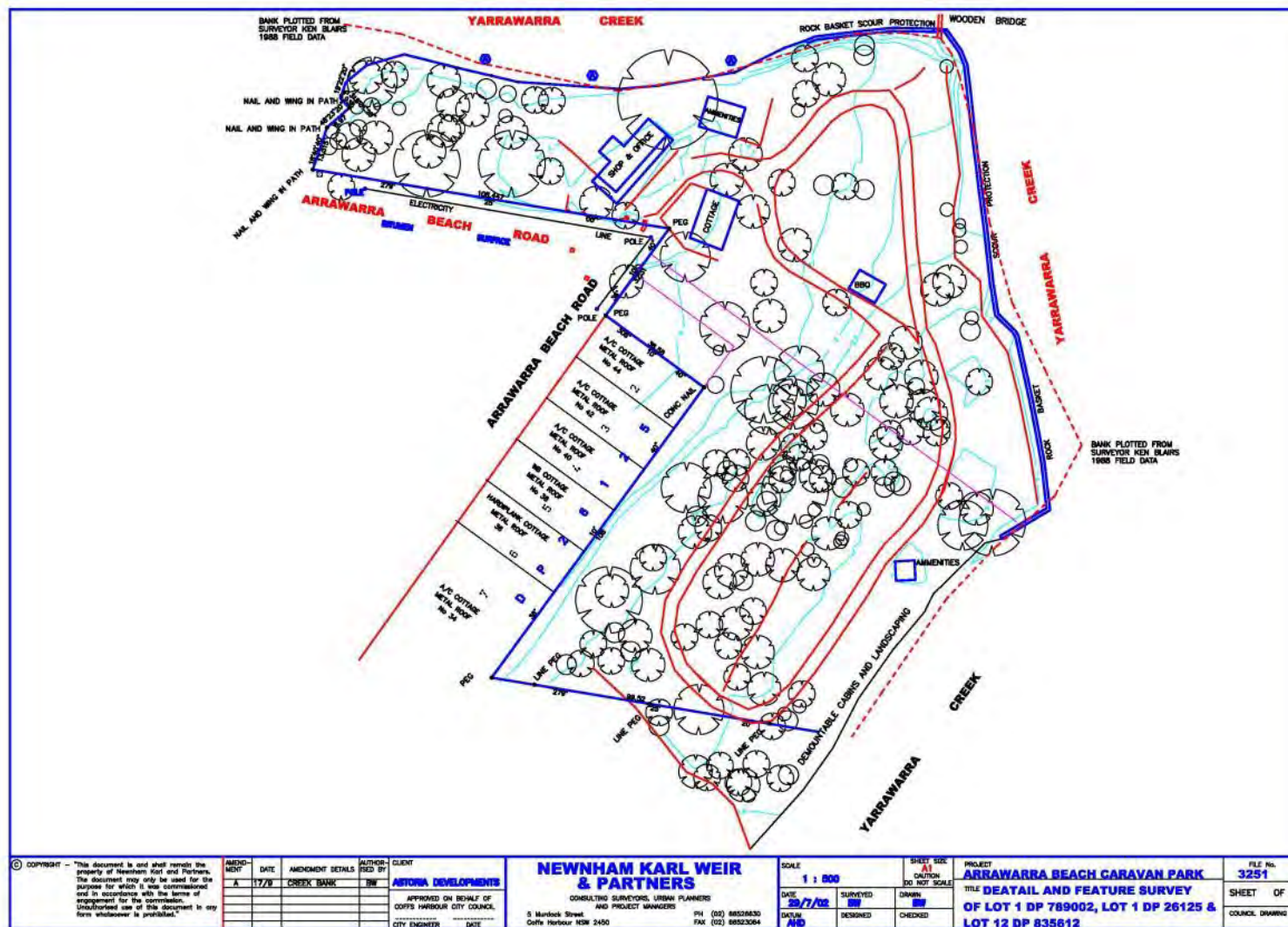


Figure 3: Project Area Site showing existing site layout.

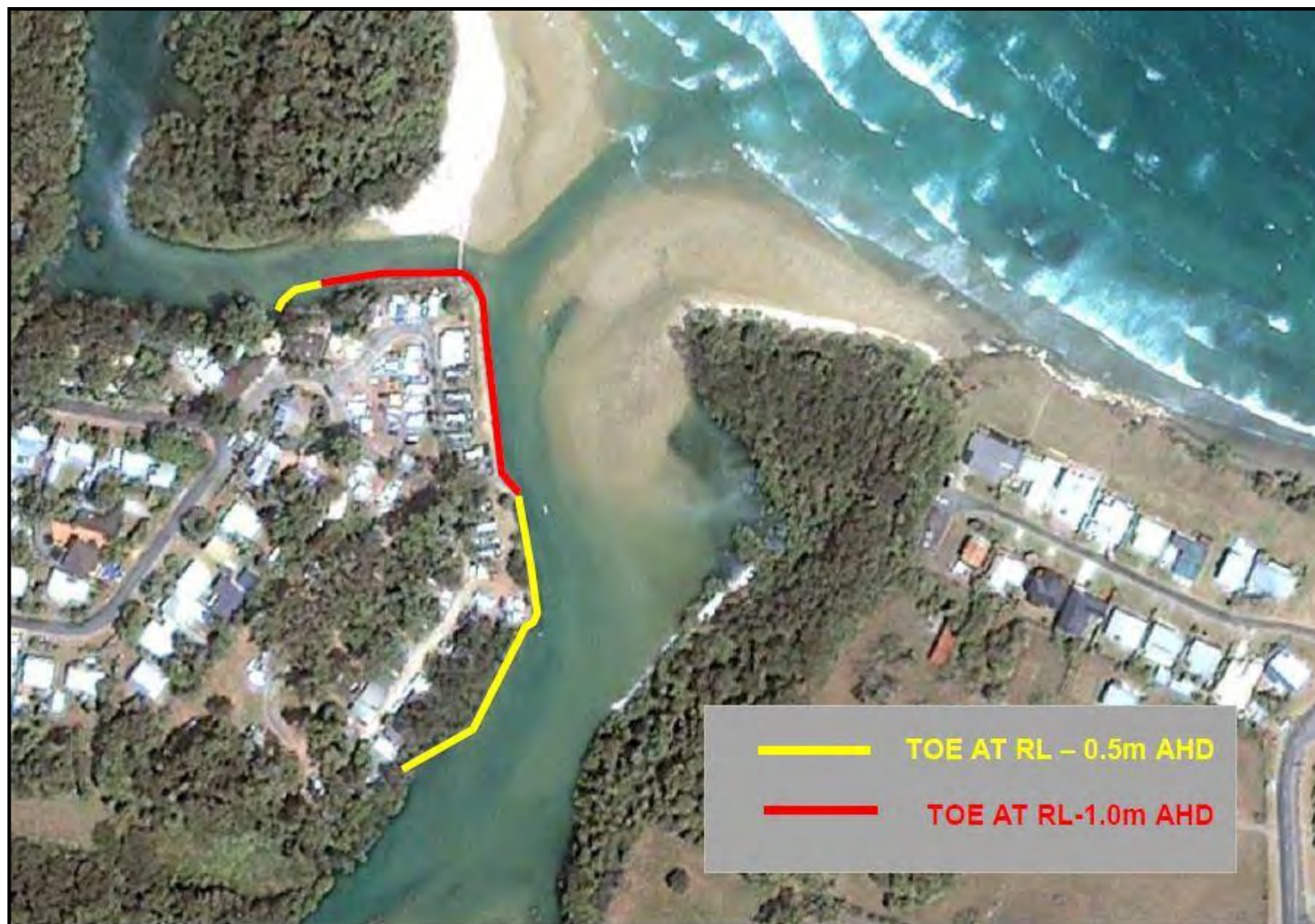


Figure 4: Proposed layout of rock revetment.



4. ABORIGINAL CULTURAL HERITAGE

4.1 The OEH Aboriginal Heritage Information Management System (AHIMS)

Care should be taken when using the AHIMS database to reach conclusions about site prevalence or distribution. For example, a lack of sites in a given area should not be seen as evidence that the area was not occupied by Aboriginal people. It may simply be an indication that it has not been surveyed, or that the survey was undertaken in areas of poor surface visibility. Further to this, care needs to be taken when looking at the classification of sites. For example, the decision to classify a site an Open Campsite containing shell rather than a Midden can be a highly subjective exercise, the threshold for which may vary between archaeologists.

A search was undertaken by Keiley Hunter (Keiley Hunter Town Planning) on 05 March 2014 with a buffer of 200 metres. This search returned 3 recorded Aboriginal sites within 200m of the Project Area. A second search was conducted on 15 September, 2014 of the OEH Aboriginal Heritage Information Management System for Lot 1/DP789002 (AHIMS service number 147901) and Lot 12/DP835612 (AHIMS service number 147903) with a buffer of 50m around both Lots. The search returned no recorded Aboriginal sites for Lot 1/DP789002 and 2 recorded Aboriginal sites for Lot 12/DP835612. An extensive search was completed by Keiley Hunter which identified the following recorded Aboriginal sites;

- a) 22-1-0034 Arrawarra 3 (AGD 518800 6674500) Artefact; and
- b) 22-1-0392 Arrawarra Headland Site (GDA 518761 6674645) Partially Destroyed Artefact and Shell.

A site card was requested through AHIMS however returned that the cards were not available within the database system. Issues associated with site Arrawarra 3 are the inaccuracy of the coordinates which suggest it was recorded pre GPS. As such without a site card and plan this site cannot be positively located. The coordinates for the Arrawarra Headland Site (#21-1-0392) place it immediately west of the Project Area- however the name of the site would suggest it is located on Arrawarra Headland. No site card was available for this site from the AHIMS database.

4.2 Other Heritage Registers: Aboriginal & Historic Cultural Heritage

The following heritage registers were accessed on 15 September 2014:

The National Heritage List (Australian Heritage Council): Contains no Aboriginal heritage listings within the Project Area.



Commonwealth Heritage List (Australian Heritage Council): Contains no Aboriginal heritage listings within the Project Area.

Register of the National Estate (Australian Heritage Council): Contains no Aboriginal heritage listings within the Project Area.

The State Heritage Register (NSW Heritage Office): Contains no Aboriginal heritage listings within the Project Area.

The State Heritage Inventory: Contains no Aboriginal heritage listings within the Project Area.

The Register of the National Trust of Australia: Contains no Aboriginal heritage listings within the Project Area.

Coffs Harbour Local Environment Plan 2013 (LEP): Contains no Aboriginal heritage listings within the Project Area. The 'Arrawarra Fishtraps' are listed and will not be impacted upon by the Project.



5. LANDSCAPE CONTEXT

5.1 Environment Locality

The Project Area is located at Arrawarra Beach- between the Yarrawarra Creek (north) and Arrawarra Creek (south).(**Figure 2** and Figure 3). Yarrawarra and Arrawarra Creeks are relatively small creeks which join and enter the ocean directly. The north east corner of the Project Area defines the confluence point of the two creeks- and the creek entrance defines the southern boundary of Corindi Beach and the western boundary of Arrawarra Beach. Arrawarra Headland is approximately 400 metres east of the creeks entrance.

The dune system to the north of Yarrawarra Creek is managed as part of the Coffs Coast Regional Park and the beachfront itself is protected to some extent as part of the Solitary Islands Marine Park. The Garby Nature Reserve protects a large tract of coastal heath to the south of Arrawarra Creek.

5.2 Geology & Soils

The Project Area is located on soils described by Morand (1999:149-152) as the Coffs Harbour landscape- being “low, flat to very gently undulating sand plain on Pleistocene beach and dune sand”. The Project Area is consistent with the mapping and soil description- being low and flat. The Underlying deposits of sand sit behind the more recent Holocene barrier dune system- which occur immediately north of Yarrawarra Creek. Characteristics of the soil which are of relevance to the archaeological assessment are high acidity- which would affect the preservation of sub-surface organic materials within midden deposits. Soil profiles are typically podzolic- being an A1/A2 horizon of organic rich sandy soil overlying a bleached sandy soils and impermeable ‘pan’ horizon. The underlying C horizon is typically yellow mottled sand. The Coffs Harbour soils are highly dynamic- with exposure to flooding and seasonal waterlogging, wind erosion, permanently high water tables and are typically ‘non-cohesive’ in nature (Morand 1999:151).

Two geotechnical surveys of the site have been completed to understand the nature of subsurface soil deposits and soil history of the site for the purposes of development of embankments and rockwalls around the Project Area. (Coffey 2003 and 2014).

The 2003 geotechnical assessment investigated and produced sub-surface logs for 12 locations across the Project Area. The report summarises soils types across the Project Area as comprising four units- being;

1. TOPSOIL. Silty SAND; fine to medium grained, dark grey, with some organic matter.



2. AEOLIAN. SAND: fine to medium grained, pale grey/ white to grey
3. ALLUVIUM. Indurated sand, fine to medium grained, black to dark brown/grey
4. ALLUVIUM. Sandy CLAY: Medium plasticity, pale brown, with trace of gravel.

Depth of boreholes varied between 0.8 and 2.1 metres and the water table appeared within several bore holes at between 1.2 and 1.9 metres below the ground surface. No shell or shell fragments were noted within the report or the bore hole logs.

5.3 Vegetation

Vegetation at the site has been identified as a degraded form of SSFCF ecological community. This community exists as a medium to tall canopy of swamp mahogany (*Eucalyptus robusta*), swamp she-oak (*Casuarina glauca*), and paperbark (*Melaleuca quinquenervia*), while in the north west, Sydney blue gum (*E. saligna*) and pink bloodwood (*Corymbia intermedia*) overlying an understorey of native and exotic species. SSFCF vegetation at the site is highly modified. Scattered trees (swamp mahogany, paperbark, swamp she-oak) and manicured grassy areas interspersed with accommodation infrastructure cover much of the site. Weed invasion is prevalent throughout and a shrub layer is typically absent due to removal for holiday accommodation and continued maintenance (mowing etc.) of park grounds (Ecological Pty Ltd 2007).

Analogous areas of Yarrawarra and Arrawarra Creek comprise a mix of Grey Mangrove (*Avicennia marina*) and Saltmarsh such as *Sueda australis*, *Sarcocornia quinqueflora* and *Sporobolus virginicus* (Ecological 2007:14).

5.4 Historic Aerial Photos

A review of Historical Aerial Photos from the years 1956, 1969, 1984 and 2002 show a significant amount of tree clearing had happened previous to **1956** (Figure 5). At this time the Project Area looks to contain several individual houses and there are no formalised roads apart from the track coming in. Significant vegetation is mostly restricted to the immediate creek banks. The residential area for Arrawarra Headland appears to have been cleared by not developed.

By 1969 (Figure 6) the payout of the present village is established and numerous houses have been constructed. Campsites and caravans are not visible in the Project Area- however several trees have grown across the site- especially in the northern areas (or south of Yarrawarra Creek). The small bridge across Yarrawarra Creek is not visible in this photo. There is similarly an increase in vegetation growth on the north bank of Yarrawarra Creek. The residential area of Arrawarra Headland has also been completed.



Figure 5: Aerial Photo 1956

By **1984** (Figure 7) vegetation across the Project Area has grown significantly and the permanent caravan sites have been established. The overall layout of the caravan park is consistent with the current layout- including what appears to be small dwellings on the southern bank of Yarrawarra Creek. The small bridge across Yarrawarra Creek is also visible.

There is no significant changes within the **2002** (Figure 8) aerial photo except for what appears to be the construction of the rock wall on the north-eastern boundary of the Project Area.



Figure 6: Aerial Photo 1969



Figure 7: Aerial Photo 1984



Figure 8: Aerial Photo 2002



6. ARCHAEOLOGICAL SYNTHESIS AND PREDICTIONS

6.1 Archaeological and Cultural heritage assessments

Although a review of previous archaeological and/or cultural heritage assessments is not a requirement of the OEH guidelines for a standard Due Diligence assessment, it is the view of the Consultant that such a review assist in the accurate formulation of archaeological models and associated recommendations.

The majority of archaeological research in the Coffs Harbour region has focused on the coastal margins and are often reports commissioned in preparation for residential or tourist developments (Piper 1976; Smith 1998a, 1998b, 1999; Murphy 2000; Dallas 2008). Of the coastal hinterland studies, most have been surface surveys undertaken in preparation for infrastructure corridors and highway / bypass routes (Godwin 1982; Rich 1989; Davies 1993; Kuskie 1993a, 1993b; Mills 1997; Macdonald and Collins 1999; Connell Wagner 2004)

Piper (1980) undertook an assessment of a coastal forest / swamp environment at Arrawarra Beach, approximately 30 km north of Coffs Harbour and immediately east of the Project Area. No Aboriginal Objects were identified during this assessment, and it was concluded that there was a low likelihood of the project impacting on unidentified Aboriginal objects. It was noted that the site was in close proximity to the Arrawarra fishtraps.

Dallas (2008) undertook an assessment of a 90 ha. coastal site at Sandy Beach, approximately 1 km north of Woolgoolga. Dallas identified two artefact scatters, an isolated artefact and two PADs during the assessment. The largest of the artefact scatters was of low density, covering a 50 m x 500 m area of coastal dune. All sites were restricted to elevated areas surrounded by lower swamp and wetter areas (Dallas 2008).

Collins (2007) completed an Aboriginal heritage assessment for upgrade of the Pacific Highway from Sapphire to Woolgoolga- immediately west of Arrawarra Beach. Two sites were documented within the highway corridor- being PADs 6 and 7. PAD 7 was identified by Garby Elders as being associated to a sacred and ceremonial site. This site is upstream from the boundary of the proposal area along Arrawarra Creek. Collins developed a predictive model which proposed that 'coastal alluvial plains' were deemed of having the highest archaeological sensitivity. Although the report argues that in situ archaeological deposits within the highway corridor deposits would be unlikely to have survived, they are still of high social and cultural significance.

Smith (1998c) documents preliminary findings for the excavation of an open shell midden at Arrawarra Beach- immediately north of the Project Area. The midden is recorded as being an in situ deposit between two culturally sterile deposits of dune sands. Investigations focussed on quantifying and cataloguing species of shellfish and



faunal bone material. Results demonstrated a suite of shellfish that are readily available from the surrounding environment including estuarine, rock platform as well as sand dwelling species. A significant number of fish bone were recorded as being well preserved. A substantial amount of stone debitage of 'greywacke' was also present at the site, demonstrating evidence for working stone at the site. Three radiocarbon dates were taken from different locations of the midden and obtained a date of approximately 1300-1000 cal BP. Smith argues that the high preservation of the shell midden at Arrawarra Beach demonstrates an in-situ cultural deposit with erosion possibly only within the last 30 years.

Vale (2000) undertook a detailed analysis of the faunal assemblages from the Arrawarra 1 shell midden and identified that of the eleven taxa of fish present within the midden material that there was a range of small to large fish species, some being not usually suited to inshore rocky environments. This was taken as evidence for the utilisation of other fishing technologies- in addition to those collected using the nearby Fish Trap.

Collins (2010) completed an archaeological assessment of the Arrawarra Beach and headland region in response to the proposal to place a rest area east of the Pacific Highway upgrade and south of Arrawarra Beach Road. The report documents several recorded sites within the vicinity of Arrawarra Beach and Arrawarra Headland. The assessment identified and located an artefact scatter located near the junction of the Pacific highway and Nash Road. The report discusses a bora ring in the centre of Arrawarra Headland; the 'fish trap' at Arrawarra Headland and a series of middens along Arrawarra and Corindi Beaches.

Davis (2004) completed an archaeological assessment for a proposed residential development at North Sapphire Beach to the south of the Project Area. Cultural material- were located- was found generally within the topsoil to a depth of approximately 20cm. Significant disturbance of soil profiles were noted in all test excavations. Analysis of the lithic assemblages demonstrated one or two flaking episodes indicating that the surveyed sites represent 'work areas' rather than camp sites. The lack of shellfish and bone remains within the assemblage and the fact that the location was in close proximity to the beach is argued to identify the locations as transitory camps or places for specific tasks such as artefact manufacture.

Ainsworth (2012) undertook an Aboriginal Impact Assessment of the coastal site on Red Rock Road to the north of the Project Area. The test pit and surface survey identified a number of stone artefact scatters with a number of charcoal flecks present within the deposits. Artefact deposits were limited to subsurface layers 5-25 cm deep, layers below this were culturally sterile. The majority of artefacts were greywacke flakes and several greywacke cores.



6.2 Potential Site Types: Aboriginal Archaeological Sites in the Coffs Harbour Region

From the review of previous archaeological and cultural heritage assessments in Coffs Harbour and the broader regional locality noted specific environment contexts including floodplains, lowland hills, estuarine creek banks and coastal dunes, are likely to contain evidence of Aboriginal occupation. The following site types and potential types have been identified in the above contexts.

6.2.1 *Isolated Artefacts*

These will consist of single stone artefacts, which may have been randomly discarded or lost. They may occur in almost any environmental context exploited by Aboriginal people. They are commonly stone axes, single cores, hammer stones, pebbles, flakes and grinding stones and/or grooves. Their presence may indicate that more extensive scatters of stone artefacts exist or existed nearby, perhaps obscured by vegetation or dispersed by mechanical means.

It is considered likely that isolated artefacts may be located within the Project Area. Care must also be taken to differentiate between culturally and machine manufactured stone objects.

6.2.2 *Open Campsites/Artefact Scatters*

Open Campsites/Artefact Scatters generally consist of scatters of stone artefacts and possibly bone and hearth features. Their exposure to the elements means that evidence of food resources used on the site (with the exception of shellfish) is usually lacking. An open campsite containing a large component of shell refuse may be described as a midden. They invariably consist of low or high density scatters of primary and secondary flakes in addition to the types of artefacts found as isolated finds. Open campsites may also contain burials when located on sand strata. Few open campsites are found on kraznozem and podzolic soils, possibly due to the destructive impacts of land clearing and the heavy vegetation cover. Detection is usually unlikely unless high degrees of surface visibility are present.

There is a low potential for artefacts scatters to be located within the Project Area to the extent of existing disturbance.



6.2.3 *Middens*

Middens are campsites which are dominated by shellfish remains. Middens are usually situated near a source of shellfish and comprise predominantly, mature oyster, pipi, whelk, cockle and cartrut species in addition to terrestrial animal and fish bone, stone artefacts, charcoal and ash from fireplaces. Middens may be composed of deep compacted debris reflecting consistent use over long periods of time, or thin scatters of shell which reflect use on a single occasion by a small group, perhaps in transit or gathering food away from a large campsite. As a general rule, middens have been consistently recorded in elevated positions beside estuarine waterways or on elevated sand substrates close to wetlands. The dominant species found in estuarine middens is oyster, while locations away from the waterways contain pipi or combinations of estuarine, open beach and rock platform species.

Based on the location of the Arrawarra Midden to the north of Yarrawarra Creek, there is a moderate potential for the Project Area to contain middens.

6.2.4 *Quarry Sites*

A stone quarry may occur where a suitable source of relatively hard rock with a uniform crystalline structure exists (e.g. chert, chalcedony and silcrete). Outcrops of Greywacke (Coramba Beds) are known to form along the Coffs Harbour coastline and are suitable in some instances for knapping.

Given that lack of visible suitable bedded rock outcrops or known sources of siliceous material occur on or near the Project Area, the potential for quarry sites is low.

6.2.5 *Scarred Trees*

Scarred trees result from the removal of bark for use as covering, shields, containers or canoes. No doubt, as an outcome of widespread intensive land clearing and natural causes very few have survived.

As the Project Area has been largely cleared of vegetation, it is reasonable to assume that no scarred trees will be located within the Project Area.



6.2.6 *Burials*

Human burials are typically individual or small group internments which can be found in sandy soil substrates, such as creek lines or within small rock crevices. Most of the known burials have been located by accidental means through mechanical disturbance or natural erosion.

Given the sandy substrates, there is a potential to locate Burials within the Project Area, however the overall risk is low owing to the likelihood of previous ground disturbance associated with established urban environments. The known high acidity of the soil formation is not conducive to preservation of organic and bone material.

6.2.7 *Ceremonial Sites*

Ceremonial grounds are typically places identified by Aboriginal groups as places of importance which were visited by groups to mark or commemorate rites or other occasions. One such example is Bora grounds, earthen mounds crafted in a circular formation which were used for the purposes of ceremonial practices. Collins (2010) identified that a Bora Ground existed on Arrawarra Headland but has since been removed.

Given the extent and nature of ground surface disturbance within the Project Area, the potential for Ceremonial sites is low.

6.2.8 *Mythological Sites*

These sites are natural features, which derive their significance from an association with stories of the creation and mythological heroes. In New South Wales it is possible to protect such sites as Aboriginal Places.

No Aboriginal Places are recorded within or near the Project Area- although Collins has indicated that a sacred/mythological sites exists in the western parts of Arrawarra Creek.

6.3 Predictive Modelling of Aboriginal Cultural Heritage

The desktop review identified a generally low to moderate potential for archaeological materials to be within the Project Area prior to European settlement. Archaeological materials at surface level are considered unlikely to occur within the Project Area primarily due to the significant amount of soil disturbance which has occurred across the entire site in the historical period.



If archaeological materials do exist on the Project Area it is likely that they would occur as sub-surface deposits similar to Arrawarra 1 midden. Factors which might affect the presence of midden material within the underlying sand deposits include the alluvial history of Arrawarra and Yarrwarra Creeks and the extent to which the Project Area has eroded and accreted over the late Holocene period; the extent to which fill has been introduced across the Project Area; and the extent to which ground disturbance has moved materials within the Project Area.



7. FIELD SURVEY: ABORIGINAL CULTURAL HERITAGE

7.1 Survey Methods

A geotechnical study was undertaken on 29 September 2014 (Coffey 2014) which provided an opportunity to visually inspect sediments from Bore Holes to better understand the site history and soil profiles across the Project Area. Participation by the Consultant in this study also provided onsite assessment of any shell material to satisfy the cultural heritage Due Diligence requirements should archaeological materials be located. A ground surface survey was completed for a 25m² quadrat around each Bore Hole. Photographs were taken as a record of general features and conditions, and to document the degree of surface visibility. Notes were made of the degree of surface visibility, the area of visibility, ground cover, land uses and any other relevant features.

The proponent has applied for tree removal under the Rural Fire Service “10/50 Code of Practice” for vegetation clearing which involves removal of trees from within 10 metres of dwellings. A pre-removal inspection was undertaken to ensure that no trees were culturally modified (or “scarred”). This inspection utilised the tree plan which exists for the Project Area.

7.2 Constraints to Site Detection

An assessment of the constraints to site detection is made to assist in formulating a view as to the effectiveness of the field inspection to find Aboriginal sites and cultural materials. It also assists in the forming of a view of the likelihood of concealed sites, keeping in mind a site specific knowledge of the impacts that European land uses and natural processes may have had on the ‘survivability’ of Aboriginal sites in a Project Area.

The constraints to site detection are almost always most influenced by post European settlement land uses and seldom by natural erosion processes. The area of surface exposure and the degree of surface visibility within exposed surfaces are usually the product of ‘recent’ land uses e.g. residential construction, road construction, natural erosion and accelerated (manmade) erosion (McDonald et al. 1990:92).

In this case the major ‘man made’ constraints to Aboriginal site survivability and detection are due to the clearing of vegetation over the whole site; the construction of gravel roads; amenities, permanent and semi-permanent dwelling; the introduction of sands and ‘foreign’ contents for landscaping and gardening; and the unknown extent but visible modification to the soil profile from “fill”.



The Project Area consists of a raised sand deposit adjacent to Yarrawarra and Arrawarra Creeks. Slope across the site is minimal- with a maximum relief of less than 2 metres. The water table is between 1.2 and 1.9 metres below ground surface (Coffey 2003). The Project Area has been extensively cleared although many large trees still occur. Introduced grasses occur on all ground surfaces which are not used for roads, amenities or dwellings. At the time of the geotechnical survey (29 September 2014) many of the open campsites were being utilised by campers which significantly reduced the locations available for survey.

7.3 Survey Coverage

The effectiveness of a sampling strategy is based upon the extent (in metres square) and 'quality' (e.g. 5%, 90%) of ground surface visibility. The available area of surface visibility and its 'quality' is dependent upon natural erosional processes and man-made (accelerated) erosional processes such as construction and / or cultivation (McDonald et al. 1990:92). 'Quality' or clearness is either impeded or enhanced by a lack of vegetation cover.

The aims of the survey sampling strategy for the geotechnical assessment where to collect information in areas which were not adequately sampled during the 2003 survey. As such this survey focussed on the eastern section of the Project Area. The sample utilised areas of open grass due to the limitations of hand auguring through gravel and fill (Figure 9, Figure 10, Figure 11, Figure 12, Figure 13, Figure 14, Figure 15, Figure 16, Figure 17, Figure 18, Figure 19, Figure 20, Figure 21 and Figure 22).

Table 1 presents information on the extent to which survey data provides sufficient evidence for an evaluation of the extent and nature of disturbance across the project area and the potential of identifying archaeological materials should they occur. The calculations in Table 1 do not provide an exact percentage of area, but a reasonable estimate.

No constraints were noted with respect to the tree survey. Several of the trees are very close to semi-permanent caravan sites- however visible access to the entire trunk was possible for all trees.



Table 1: Survey Coverage

<i>Bore Hole</i>	<i>Area (m²)</i>	<i>Exposure %</i>	<i>Visibility %</i>	<i>Area for Site Detection (m²)</i>	<i>Description of disturbance</i>
BH 1	25	5	5	1.25	Open grass campsites/ space approximately 20 metres from creek bank.
BH 2	25	5	5	1.25	Open grass camp site adjacent to a low raised concrete camping/car pad.
BH 3	25	40	40	10	Open grass camp site adjacent to a low raised concrete camping/car pad.
BH 4	25	5	5	1.25	Grassy open campsite. Some large trees nearby.
BH 5	25	5	5	1.25	Grassy open campsite. Large trees overhead and nearby to permanent caravan sites.
BH 6	25	5	5	1.25	Grassy open campsite approximately 40m to Arrawarra Creek.
BH 7	25	5	5	1.25	Grassy open campsite approximately 40m to Arrawarra Creek.
BH 8A	20	10	10	2	Narrow grassy verge between permanent caravan site and gravel road.
BH 8B	20	5	5	1	Narrow grassy verge between permanent caravan site and gravel road.
BH 8C	20	20	20	4	Narrow grassy verge between permanent caravan site and gravel road. Adjacent to a small paved area outside a caravan.
BH 9	25	20	20	5	Open grassy campsite approximately 10m from Arrawarra Creek.
BH 10	25	50	50	12.5	Within open space between semi-permanent dwellings. Immediately adjacent to a gravel access track. Approximately 30 m from Yarrawarra Creek.
BH 11	25	80	80	20	Within open space between semi-permanent dwellings. Immediately adjacent to a gravel access track.
BH 12	25	50	50	12.5	Raised creek bank south of Yarrawarra Creek and adjacent to semi-permanent dwellings. Good visibility from a pedestrian access. Mixed scatter of shell (whelk and oyster) visible on the surface approximately 3mx 3m is size. Shell looks relatively recent.



Figure 9: Bore Hole 1 (BH1) showing grass and concrete pads



Figure 10: Bore Hole 2 showing typical extent of grass cover across the open campsites



Figure 11: Bore Hole 3 showing recent disturbance and good visibility



Figure 12: Bore Hole 4 showing gravel access roads and campsites



Figure 13: Bore Hole 5 showing extent and nature of tree cover



Figure 14: Bore Hole 6 showing typical grass cover at open campsites



Figure 15: Bore Hole 7 looking north-east across open camps to permanent caravan sites



Figure 16: Bore Hole 8 showing typical view of grass verge between permanent caravans and the gravel access road



Figure 17: Bore Hole 8B showing small grassed space between permanent caravans



Figure 18: Bore Hole 8C showing extent of visibility through grass



Figure 19: Bore Hole 9 looking east across to Arrawarra Creek



Figure 20: Bore Hole 10 showing access track and semi-permanent structures



Figure 21: Bore Hole 11 showing exposed sandy soil from vehicle access



Figure 22: Bore Hole 12 showing creek bank (Yarrawara Creek in background) and shell scatter in foreground.



Figure 23: Typical tree cover in Lot 12



Figure 24: Typical tree cover in Lot 1



7.4 Survey Results and Discussion

The surface archaeological survey that took place at the time of the geotechnical survey demonstrated that across the Project Area the ground surface has been significantly disturbed.

One scatter of fragmented shell scatter was recorded on the bank of Yarrawarra Creek nearby to Bore Hole 12 (Figure 25, Figure 26 and Figure 27). This was identified as being part of the Arrawarra Headland Site #21-1-0392. This scatter was approximately 5mx3m in size and appeared to occur on the surface only. The shell was highly fragmented however did include some larger but not complete pieces of *Pyrazus ebeninus* (mud whelk) and *Saccostrea commercialensis* (oyster). The shell scatter is dispersed across the bank and has been significantly disturbed by pedestrian traffic.



Figure 25: Location of 'Arrawarra Headland Site #21-1-0392' looking east to Pacific Ocean



Figure 26: Typical distribution of shell fragments across Arrawarra Headland Site #22-1-0392



Figure 27: Typical distribution of shell fragments across Arrawarra Headland Site #22-1-0392



No archaeological materials were identified in the geotechnical logs from the 2003 (n=12) and 2014 (n=14) geotechnical surveys. A deposit of fragmented shells was recorded in three Bore Holes (being 8A, 8B and 8C). The majority of the mollusc species were identified to be *Batillaria australis* (small mud whelk), *Donax deltoids* (pipipi), *Saccostrea commercialensis* (oyster), *Anadara trepezia* (cockle) and *Pyrazus ebeninus* (mud whelk). All species are relatively common to eastern Australian coastal assemblages and although the representation of species may be consistent with assemblages reflecting shell midden, the size of specimens and the presence of gravel and pebbles suggests the deposit was formed by natural processes (Figure 28 and Figure 29). The majority of the identified molluscs demonstrate to be juvenile in age and do not represent targeting of larger adult species that would be expected within shell middens. In addition, the assemblage was highly fragmented with inclusions of pebbles suggesting the deposit is a result of natural infill.

No scarred or culturally modified trees were identified during the pre-removal survey of trees. A potential scarred tree was located outside the southern boundary of the Project Area which had a shape consistent with removal of bark for a 'shield' (Figure 30). However the trunk of this tree was very small indicating that the scar has potentially been made in the recent or historic period. As the tree is not affected by the proposed clearing program it was not inspected in greater detail. Further advice from OEH would be required before registering this tree on AHIMS.

Several of trees in the Project Area were mature and potentially date back to the 1920's however most likely are less than 40 years old. Trees included a mix of Swamp Mahogany, Paper Bark, She-Oak, Flooded Gum, Forest Red Gum, Tallowwood and Banksia. Canopy coverage varies across the Project Area- however could be summarised as 'open' (Figure 23 and Figure 24)



Figure 28: Bore Hole 8 B- Shell fragments and pebbles

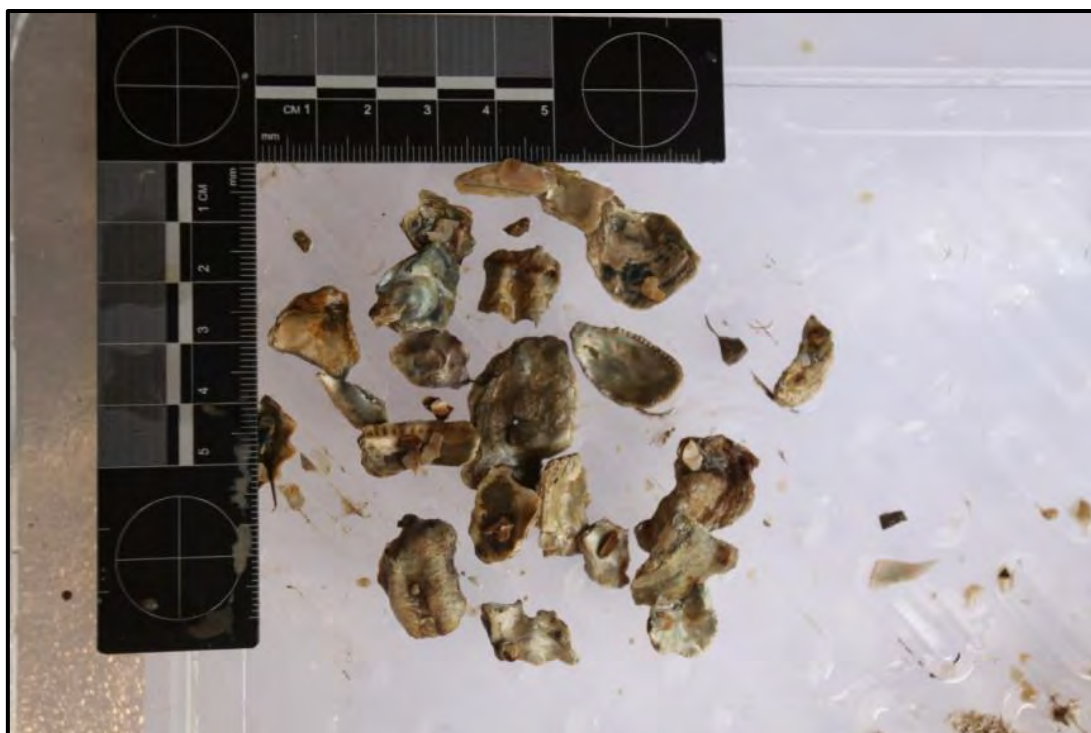


Figure 29: Bore Hole 8B- Larger shell pieces (mainly Oyster)



Figure 30: Potential scarred tree outside the southern boundary of the Project Area



8. RESULTS OF ABORIGINAL CULTURAL HERITAGE ASSESSMENT

The shell scatter identified within the north west corner of the Project Area is identified as being part of Arrawarra Headland Site (#22-1-0392) on the basis of geographic proximity to the existing record/entry and to the known Arrawarra 1 midden across the creek (Smith 1998). The shell scatter is located well within the proposed environmental protection zone and as such is not directly impacted by development application. Amelioration of disturbance from pedestrian traffic should be considered by removal of pedestrian activity or vegetative restoration of the site.

The results of the sub-surface geotechnical surveys suggest that the Project Area has a complex soil, vegetation and development history. No archaeological objects were identified in the 26 Bore Holes undertaken for the geotechnical surveys (Coffey 2003 and 2014). Given the number and distribution of the geotechnical survey samples it would be expected that should midden material consistent with the Arrawarra 1 (Smith 1998) occur within the Project Area that it would show up in the geotechnical survey logs. If archaeological materials have been deposited in a manner consistent with the Arrawarra Headland Site- that is more an 'open campsite' type of deposit- then it is not unexpected that such thin layers of material would be more vulnerable to disturbance.

The survey undertaken as part of the Rural Fire Service 10/50 tree removal approval did not identify any cultural modified/scarred trees within the Project Area. All of the trees appear to be mature- and potentially as old as 100 years.



9. CONCLUSIONS AND RECOMMENDATIONS

The Consultant is of the opinion that given the extent of existing disturbance within the development footprint, the proposed rock revetment is unlikely to result in further harm to Aboriginal Heritage. No Aboriginal Objects were identified within the area of Proposed Works. One known Aboriginal site (Arrawarra Headland Site #22-1-0392) was recorded to extend into the Project Area however is well within the proposed environmental buffer zone and has been previously disturbed.

Never-the-less, the presence of cultural (albeit disturbed) shell scatters was noted during the survey. As such the following recommendations are made for the ongoing management of potential impacts to Aboriginal cultural heritage.

Recommendation 1: Aboriginal Objects Find Procedure

It is recommended that if it is suspected that Aboriginal material has been uncovered as a result of development activities within the Project Area:

- a) work in the surrounding area is to stop immediately;
- b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;
- c) an appropriately qualified archaeological consultant is to be engaged to identify the material; and
- d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010).

Recommendation 2: Aboriginal Human Remains

Although it is unlikely that Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Coffs Harbour), the Coffs Harbour Local Aboriginal Land Council and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.



It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Recommendation 3: Notifying the OEH

It is recommended that if Aboriginal cultural materials are uncovered as a result of development activities within the Project Area, they are to be registered as Sites in the Aboriginal Heritage Information Management System (AHIMS) managed by the OEH. Any management outcomes for the site will be included in the information provided to the AHIMS.

Recommendation 4: Conservation Principles

It is recommended that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.



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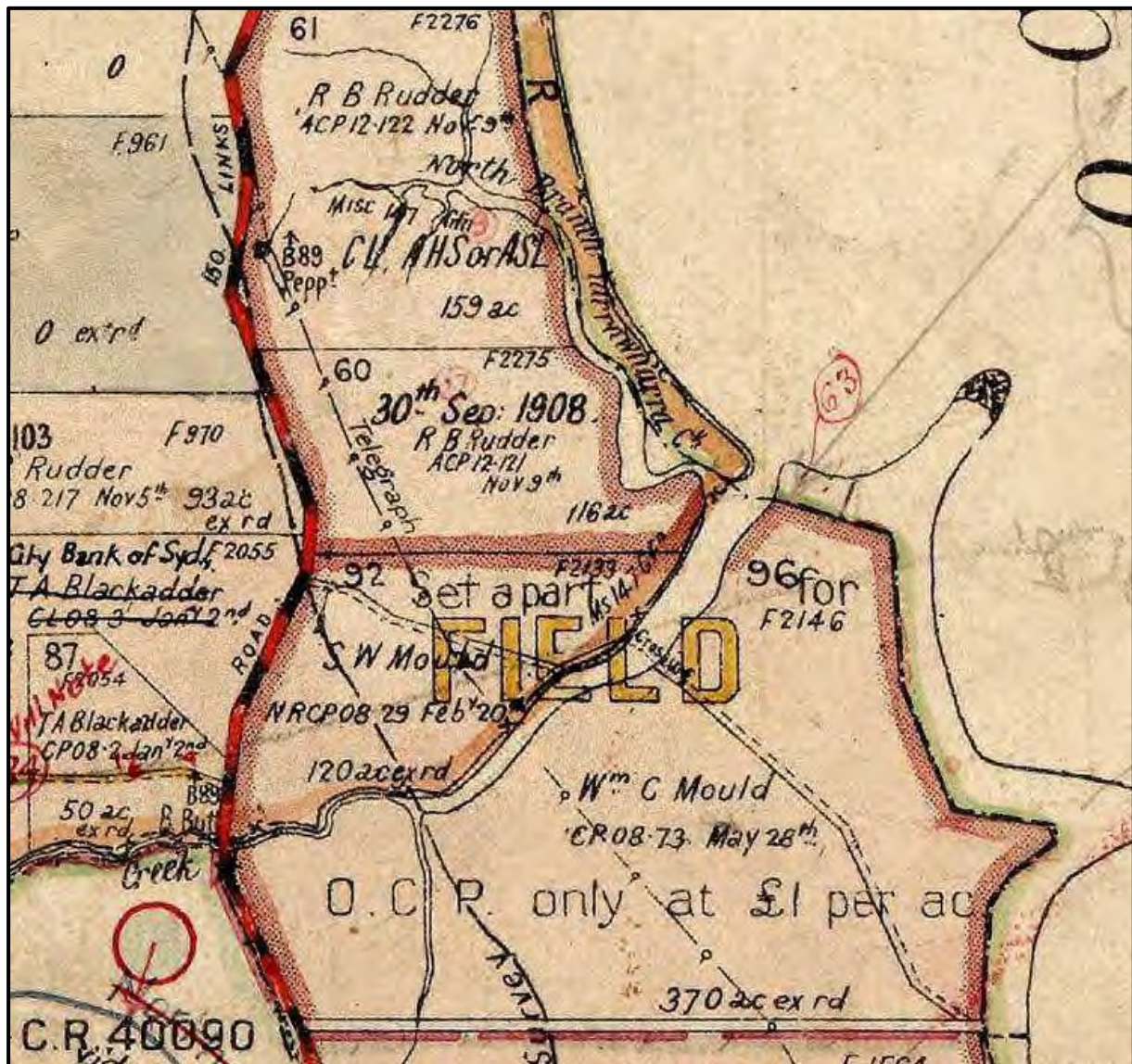


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Appendix 1. Historical Parish Maps

Parish Map- 1914



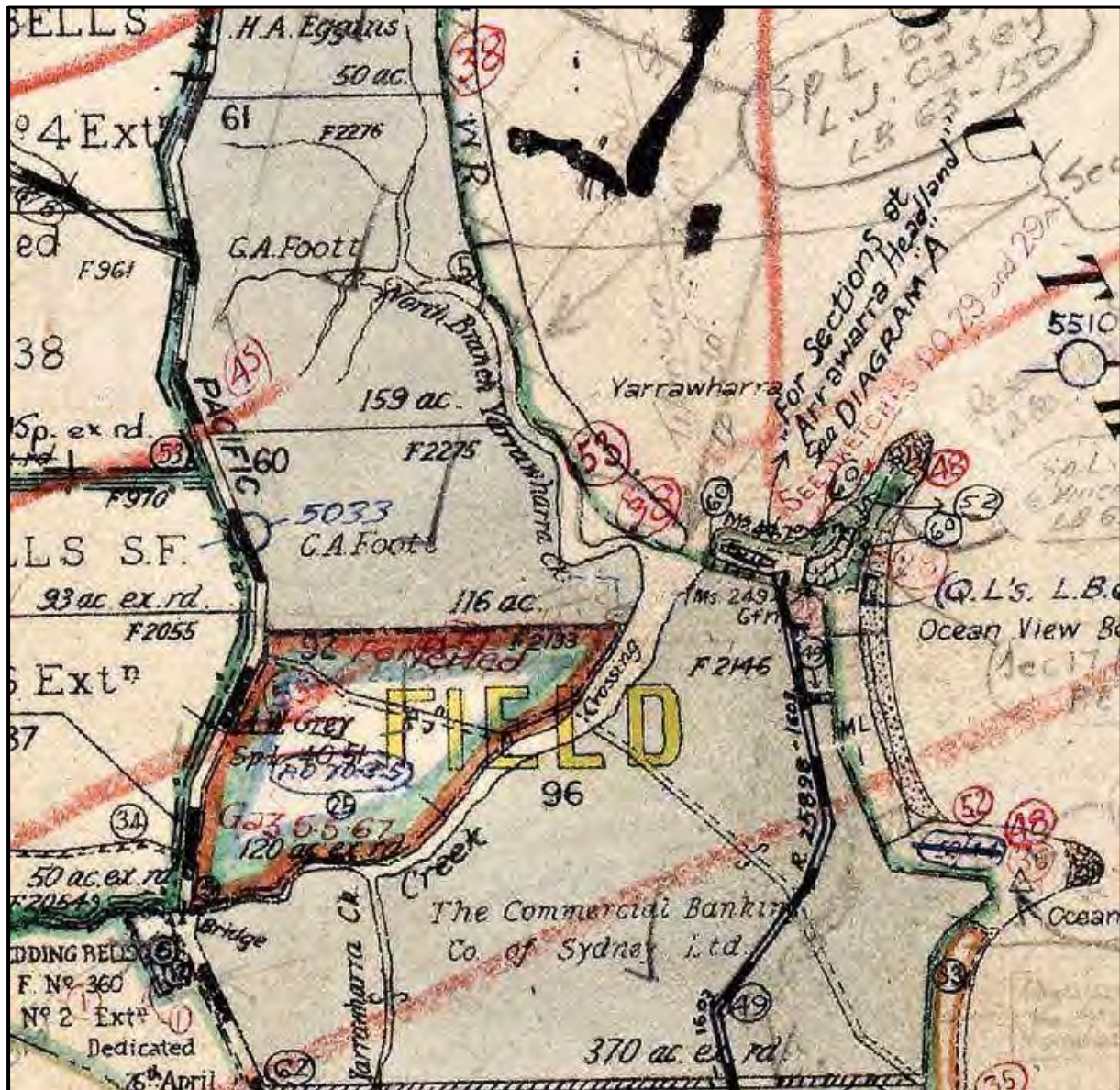


Parish Map 1936





Parish Map 1958





Parish Map 1972

