

INSITE HERITAGE
PO BOX 98
WANGI WANGI NSW 2267
02 49755818

ARCHAEOLOGICAL
ASSESSMENT FOR THE
PROPOSED CONDUCTOR AND
ROD FACILITY BY MIDAL
CABLES INTERNATIONAL PTY
LTD AT TOMAGO NSW

**Report to
GHD Pty Ltd**

Date
1st July 2011

TABLE OF CONTENTS

| | |
|---|-----------|
| Table of Contents..... | 2 |
| List of Figures | 3 |
| List of Tables..... | 3 |
| CHAPTER 1 – PROJECT OVERVIEW | 4 |
| 1.1 Summary..... | 4 |
| 1.2 Community Consultation..... | 4 |
| 1.3 Proposed Development..... | 5 |
| 1.4 Author Identification | 5 |
| CHAPTER 2 – Background | 6 |
| 2.1 Environment | 6 |
| 2.2 Archaeological Context..... | 8 |
| 2.3 AHIMS results and Model of..... | 9 |
| CHAPTER 3 – Survey Information..... | 11 |
| 3.1 Survey Objective and Strategy..... | 11 |
| 3.2 Survey Coverage..... | 11 |
| 3.3 Results | 13 |
| CHAPTER 4 – Analysis and Management Recommendations..... | 16 |
| 4.1 Relevent Legislation | 16 |
| 4.2 Significance Criteria | 16 |
| 4.3 Discussion..... | 17 |
| 4.4 Management Recommendations | 17 |
| Methodology for monitoring by the community..... | 18 |
| Glossary | 19 |
| Bibliography..... | 22 |
| Appendix A – Community Reports..... | 23 |

LIST OF FIGURES

Figure 1 The red square denotes the approx position of the study area. Source Roy et al 19956

Figure 2 Study area located primarily on disturbed land within Tea Gardens variant A-(Mattei 1995)7

Figure 3 The broader area showing Moffats, Grahamstown and Racecourse Swamps. source Thom et al.1992.....8

Figure 4 AHIMS sites plotted on 1:25,000 topographic map Beresfield. 10

Figure 5 Survey Units 1 & 212

LIST OF TABLES

Table 1 AHIMS recorded sites (see Figure 1).....9

Table 2 Survey Details13

CHAPTER 1 – PROJECT OVERVIEW

1.1 SUMMARY

Insite Heritage Pty Ltd were commissioned by GHD Pty Ltd on behalf of Midal Cables International Pty Ltd to prepare a cultural heritage assessment of a proposed conductor rod facility at Tomago NSW.

Midal Cables International Pty Ltd (Midal) propose to construct a aluminium rod and conductor facility adjacent to Tomago Aluminium Smelter, Port Stephens. The 2.8 ha site is generally disturbed, having been sand mined historically and is currently occupied by vacant industrial sheds. An access road is also proposed to connect the facility with Tomago Aluminium, which traverses 150 m of vegetation regrowth. The site is shown in Figures 1 & 2.

The aim of the assessment is to identify and assess the impact on Aboriginal archaeological relics within the footprint of the development and to consult with the Aboriginal community regarding the cultural significance of the project area.

The project will be assessed under Part 3A of the EP&A Act. As the project is a new proposal there will not be any requirement for permits under the *NPW Act 1974*. The cultural heritage assessment was carried by Candice Anderson of Mur-Roo Ma and Christopher Collison of Nur-Run Gee Pty Ltd, and Paul Roberts representative of Worimi Local Aboriginal Land Council (WLALC), Elizabeth Wyatt and Angela Besant of Insite Heritage.

No artefacts were located during the survey where a portion of the site was heavily disturbed, another portion had quite high effective surface visibility due to a recent fire and the remaining area which had very low surface visibility.

The consultation that occurred on the site at the time of the field work, indicated that the community as represented did not identify any specific cultural values that would be a constraint upon develop and requested monitoring of the earthworks on the site.

1.2 COMMUNITY CONSULTATION

In order to identify potential cultural knowledge holders relevant to the study area by following the DECC 2005 consultation guidelines as per the Director Generals Requirements. Letters requesting the contact details of potential stakeholders were sent to:

DECCW
Native Title Services
Office of the Registrar
Port Stephens Council
Worimi LALC

The project was advertised in the Newcastle Herald on the 13th September 2010.

Project notifications and invitations to registers as stakeholders were sent to all those on the list supplied by DECCW; Mrs Viola Brown, Nur-Run-Gee Pty Ltd, Mur Roo Ma, Worimi Aboriginal Traditional Elders and Owners Group Inc and Mrs Carol Ridgeway-Bisset of Maaiangal Aboriginal Heritage. Responses were received from Nur-Run-Gee and Mur-Roo-Ma. Cacatua Cultural Consultants also registered as a result of the advertisement. The site inspection was then undertaken by Worimi LALC, Nur-Run-Gee Pty Ltd and Mur-Roo-Ma Inc and the draft report supplied to all stakeholders for comment. No issues were raised by the draft report reviews and the community comments can be seen in full in Appendix A.

1.3 PROPOSED DEVELOPMENT

The proposed development is an aluminium rod and conductor facility utilising molten aluminium from the Tomago Aluminium Smelter via a direct haul road. The property comprises Lots 5 and 6 DP 270328 and has an area of 2.8 ha. The site is zoned 4(a) Industrial – General under Port Stephens Local Environmental Plan 2000 and is located in the Tomago Industrial Area. The site is located in the Tomago Aluminium Corporation Buffer Zone which acts as an environmental management zone designed to reduce land uses that are incompatible with the smelter. Access to the site is via School Drive and the development will utilise existing gravel roads and an additional haul road to be constructed to link the site with the smelter. The haul road will be located on Tomago Aluminium Company land and maintained by Midal.

The proposal will comprise the following key features:

1. The haul road from the smelter to the north and the proposed facility approximately 150 m long for transporting the molten aluminium.
2. A building 98 m by 38m and 8 m high to house the gas fired furnace and rolling mill for the manufacture of the aluminium rod, associated gas fired furnace and rolling mill control rooms and undercover rod storage.
3. Cooling towers and infrastructure associated with the gas fired furnace and rolling mill.
4. A building 124m by 46m and 8m high holding the wire drawing machines, stranding machines and associated facilities.
5. Laboratories and administration buildings.
6. Stores building, electrical and mechanical workshops,.
7. Hardstand movement, loading areas, and car parking.
8. Detention and nutrient control facilities associated with extensive water recycling facilities to maximise water reuse in the manufacturing process.
9. On site sewage treatment plan
10. All required utility upgrades and connections.
11. Potential minor upgrade of the private road servicing the Community Title subdivision of which the study area forms a part.

The facility is proposed to operate 24 hours a day, seven days a week with a total workforce of 119 persons.

The manufacturing activities within the facility are the formation of aluminium rod in building no. 1 and aluminium wire and aluminium conductors in Building no 2 (Figure 3). The facility will produce 50,000 tonnes of aluminium rod annually with half being exported and the remainder will be processed into wire and stranded into conductors.

1.4 AUTHOR IDENTIFICATION

The site assessment and reporting was prepared by Elizabeth Wyatt and Angela Besant of Insite Heritage. Figures 1, 2 & 3 were provided courtesy of GHD.

2.1 ENVIRONMENTAL CONTEXT

Geology & Soils

The study area is located within the Tea Gardens variant A soil landscapes (Matthei 1995).

The site is located on the extensive Pleistocene beach ridges and sandsheets on the Tomago Coastal Plain. The plain is bordered by the interbarrier depression of Tilligerry Creek to the south and Medowie to the north. The beach ridges and sandsheets comprise marine and Aeolian quartz sands (Matthei 1995:212). Soils are deep, imperfectly drained Humus Podzols on ridges with poorly drained Peaty Humus Podzols in swales.

The study area lies on an area that has been reworked by wind action producing irregular low sandy rises and broad deflation basins and swales (ibid:213). The elevation of the study area is about 3.5 meters and can be described as a plain. The study area is located in an area identified as Holocene flood plain alluvium by (Thom et al:104).

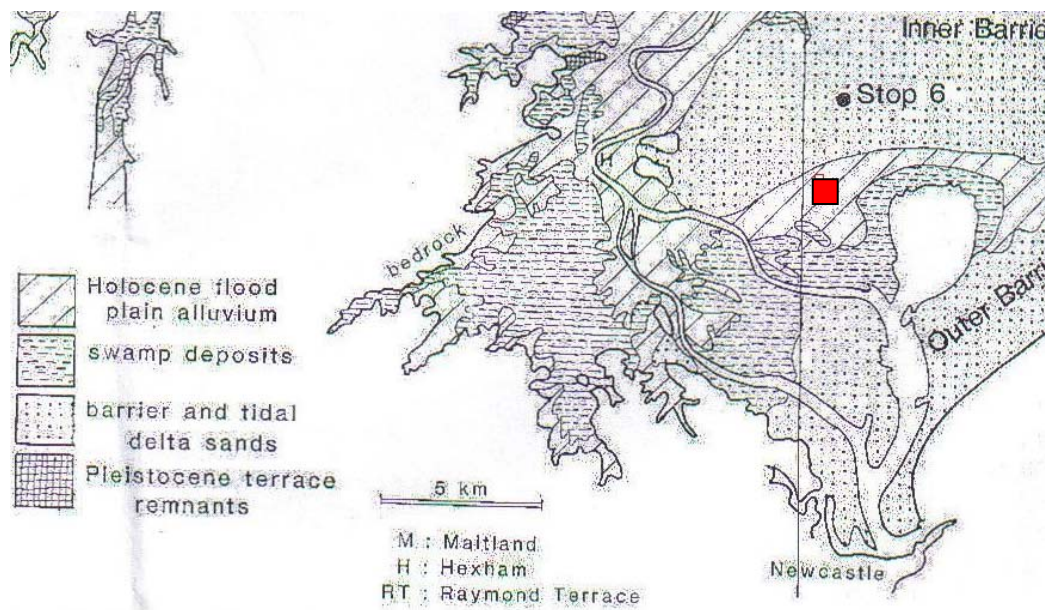


Figure 1 The red square denotes the approx position of the study area. Source Roy et al 1995

Vegetation

Vegetation within the Tea Gardens A soil landscapes is wet heath forest. Wet heath is dominant by *Banksia oblongifolia*, *Melaleuca nodosa*, *Melaleuca linariifolia*, *Xanthorrhoea fulva*, *Callistemon citrinus*, *Hakea teretifolia* and *Persoonia* spp. (geebung).

2.2 ARCHAEOLOGICAL CONTEXT

To the north east of the study area the Salt Ash Weapons Range (2850 ha) at Medowie has an interim listing on the Register of the National Estate as a site that contains evidence of Aboriginal occupation between the Late Glacial maximum and the late Holocene. Sites have been dated to between 15,000 and 7,500 year before present where artefact scatters have been found immediately over palaeosol in the inner barrier dune (Dean-Jones 1991, Baker 1994, AMBS 2001). The sites are associated with the exploitation of the Moffat's and Racecourses Swamps. These areas appear to have been a focus of occupation with a concentration of sites around the former Grahamstown swamp (now a dam) in the terminal Pleistocene / early Holocene period.

The sites located by Indigenous outcomes to the east of the study area are likely to relate to more recent occupation of the wetland margins associated with Fullerton Cove, given that this area of the Pleistocene dunes have been subject to extensive reworking and then deposition of Holocene flood deposits. The sites located by Dean Jones in the area of the speedway probably also relate to occupation focussed on the mangroves and wetlands on the inner meander of the Hunter River.

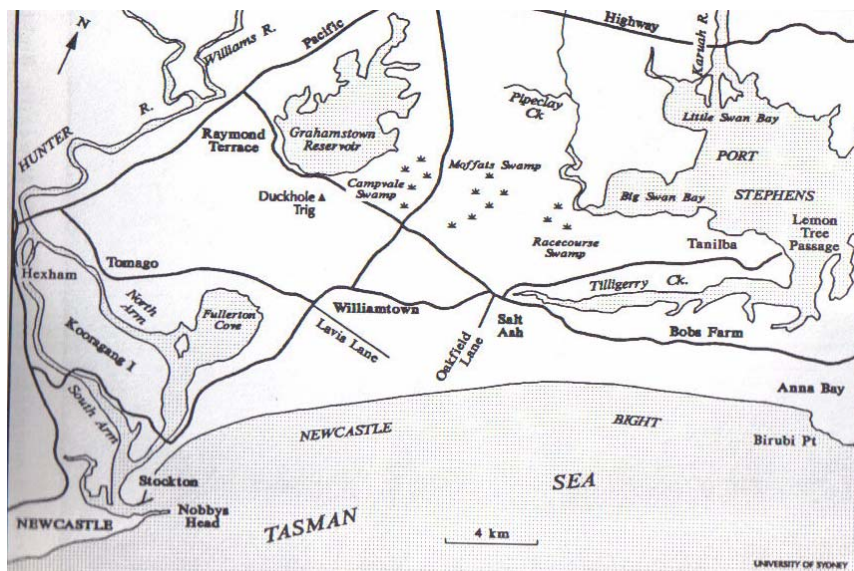


Figure 3 The broader area showing Moffats, Grahamstown and Racecourse Swamps. source Thom et al.1992

There are two reports of particular significance to the study area. The first was done by Indigenous Outcomes (Kitchener, 2006 A&B) at the Redlake site about 4 km east of the Midal site. The study area contained 8 artefact scatters in the 114 hectare site. Test excavations were then carried out at the locations of three of the sites T1, T7, and T8 located on a gently sloping spur crest overlooking the low lying swamp area within the Fullerton Cove.

Site T1 was described by Kitchener as occurring in a gentle inclined crest measuring 15 metres x 10 metres on small sandy terrace. Forty-two artefacts were recorded on the surface

Site T7 was located in an erosion scald on the mid slope of a sandy ridge sloping down to Fullerton Cove.

T8 was located in an erosion scald on the mid slope of sandy ridge only 5 metres east of the site T7.

The majority of the sites recorded on this site appear to be on low sandy ridges looking onto Fullerton Cove. The soil landscape map indicates that this area is the interface between the

Pleistocene sand dunes of the Tea Gardens (variant A) soil landscape and the Bobs Farm soil landscape which then becomes the Fullerton Cove soil landscape. This gives a picture of the environmental context of this area, low sand dune fronting on to a margin wetlands /low lying estuarine flats on to mangroves and salt marsh. This would indicate a sensitive area located on the margins of interconnecting environmental zones.

The other relevant study was the recent assessment of the Sandvik site to the south west of the study area, south of the aluminium smelter (Wheeler and Campbell 2007). Two areas of potential archaeological deposit were identified. The high potential area was located at the rear of the property (north) on the margins of a low lying area on the basis that it was a potential area of wetland margin. The area of moderate potential encompassed the area of plain forming the south western part of the property. The visibility in both these areas was low. As the project is being assessed under Part 3(a) of the EPA Act, the testing of these areas has been suggested for after the approval process. RPS subsequently developed a construction heritage management plan (2009) that allowed for monitoring of earthworks by the Aboriginal stakeholders. ERM (2003) surveyed an area north of Fullerton Cove for an electricity upgrade locating two sites and the western end of the route, overlooking the interbarrier depression, about five km east of the study area.

2.3 AHIMS RESULTS AND MODEL OF

AHIMS search data found nine sites within 20 sq kilometres of the site. The sites include a scarred tree, seven open camp sites and one area of archaeological potential (registered to allow for community monitoring of earthworks). Three of the open sites have been subject to an Aboriginal Heritage Impact Permit (#2504) and the monitoring of the PAD (AHIP 3026) area has not yet occurred, so the character of any site in the work area is not yet known. The site to the west of the study area is a scarred tree recorded by Brayshaw, the site south of the study area is the PAD recorded by Besant and the sites recorded to the west were recorded by Skene and relate to the Indigenous Outcomes report discussed previously.

The study area may contain smaller artefact scatters associated with transient occupation of the plains area set back from the inter barrier depression and the Hunter River. Major occupation sites are likely to have been drawn to focus on the wetlands associated with Fullerton Cove to the east or the Hunter River to the south where a variety of resource zones converge.

Table 1 AHIMS recorded sites (see Figure 1)

| Site ID | Site Name | Site features |
|-----------|------------|--------------------|
| 38-4-0963 | Tomago 3 | Open site artefact |
| 38-4-0966 | Tomago 8 | Open site artefact |
| 38-4-0967 | Tomago 7 | Open site artefact |
| 38-4-0075 | Tomago | Modified tree |
| 38-4-0961 | Tomago 1 | Open site artefact |
| 38-4-0964 | Tomago 4 | Open site artefact |
| 38-4-0965 | Tomago 5 | Open site artefact |
| 38-4-1139 | Minmet PAD | PAD |
| 38-4-0962 | Tomago 2 | Open site artefact |

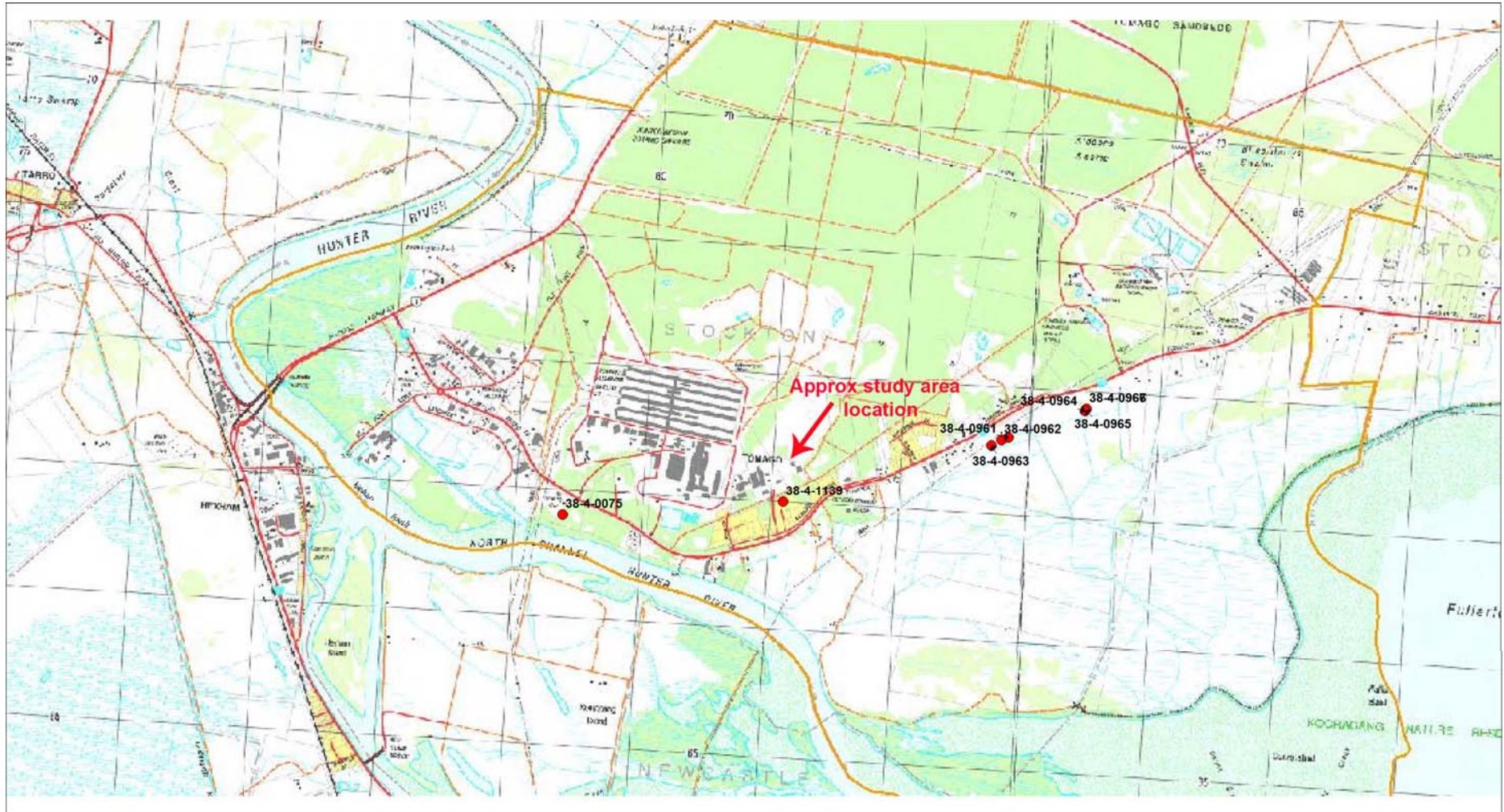


Figure 4 AHIMS sites plotted on 1:25,000 topographic map Beresfield.

CHAPTER 3 – SURVEY INFORMATION

3.1 SURVEY OBJECTIVE AND STRATEGY

The objective of the survey was to identify any surface artefacts that have not been previously recorded and to draw conclusions regarding the potential of the study area for sub-surface deposit. The survey also aimed to provide the information for the preparation of the impact assessment of the proposal.

3.2 SURVEY COVERAGE

The survey was carried out by foot in a series of transects that focussed on areas of exposure. The main body of the proposal area was found to have been covered in fill by the previous industrial activity on the site. The fill was gravel and the initial geotechnical report suggests that this cover is thin over 4.5m of Quaternary sands. Ground water is intercepted at 2 to 4 m and the soils are acid sulphate.

Survey area 1 – comprised Lots 5 & 6 an area that has been previously developed for industrial use. This area was completely covered in imported gravels and fills and archaeological visibility was negligible. The area is located on plain that has been previously sand mined prior to redevelopment for industrial activities.

Survey area 2 – comprises the Tomago Aluminium land surveyed for the haul road corridor. This land is vegetated with regrowth and dead standing trees. Areas of natural surface were evident where vehicles had made informal tracks. The area comprised white sand and the potential impacts of sand mining cannot be excluded.

In these areas of vehicle disturbance the surface was loose white sand and the topography was consistent with plain / elevated wetlands which are drained by drains on adjacent properties.

Table 2 Survey Details

| Survey area | Landform Unit | Length | Surface Visibility | Arch visibility | Comments | Effective cover |
|-------------|---------------|-----------|--------------------|-----------------|--|-----------------|
| SA1 | Plain T1 | 100m x 4m | 0% | 0% | Gravel and fill | 0 sqm |
| SA1 | Plain T2 | 100m x 4m | 0% | 0% | Gravel and fill | 0 sqm |
| SA1 | Plain T3 | 100m x 4m | 5% | 100% | Gravel and fill Small area of excavated disturbance | 20 sq m |
| SA2 | Plain T4 | 150m x 4m | 20% | 100% | Minor surface disturbance by vehicles / tracks | 120 sqm |
| SA2 | Plain T5 | 150m x 4m | 20% | 100% | Minor surface disturbance by vehicles / tracks | 120 sqm |

3.3 RESULTS

No artefacts were located in the approximately 2.8 hectares surveyed. Approximately 0.3% of the study area was suitable for artefact detection. If large artefact scatters were prevalent on the site this is sufficient opportunity to locate some evidence. The survey is consistent with the model which hypothesises that larger sites will be located to the east and the west of the study area on wetland margins.

There were no trees on site of sufficient age to have the potential for scarring, indeed the size range of the trees indicate that the study area has been completely cleared in the last 15 years or so.

The visibility in survey area 2 varied from 100% to areas of dense undergrowth with visibility of <5%. The visibility for the survey unit has been averaged at 20%. Where areas of high visibility occurred, not within but adjacent to the haul road corridor, these were also inspected for purposes of extrapolation.

In general it was noted that survey unit 1 (Lots 5&6) was highly disturbed with evidence of previous industrial activity on the site including standing buildings and a total cover of imported fill.

Survey unit 2 was more productive in terms of archaeological visibility and provided a reasonable sample area for the basis of the conclusions. The area was devoid of evidence of cultural material.



Plate 1 View West across the southern end of Lot 5 survey area 1



Plate 2 view west across the mid of lot 5 and former building areas, .survey area 1.



Plate 3 Gravel surfacing over lots 5 & 6, survey area 1



Plate 4 small area of exposure in gravel background Lot 6, survey area 1

CHAPTER 4 – ANALYSIS AND MANAGEMENT RECOMMENDATIONS

4.1 RELEVANT LEGISLATION

This project has been accepted by the NSW Department of Planning as a Part 3A application. Whilst Part 3A does not require approvals from the Office Environment and Heritage, the report aims to address the intent of the NP&W Act 1974, which protects Aboriginal cultural heritage objects and places.

The National Parks and Wildlife Act 1974 (as amended)

The NPW Act (section 90) provides statutory protection for all material evidence of Aboriginal occupation of NSW. Aboriginal places which are areas of cultural significance to the Aboriginal community, are also protected by the 1974 Act (section 84) that states:

“the Minister may declare lands to be ‘protected archaeological areas’ to preserve Aboriginal places and relics; and

it is an offence to disturb or destroy an Aboriginal place or relic without first obtaining written consent from the Director of National Parks and Wildlife Service NSW.”

4.2 SIGNIFICANCE CRITERIA

The basic processes of assessing significance for items of heritage are outlined by *The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance: the Burra Charter* (amended 1999) and its associated *Guidelines*. Sites may be significant according to several criteria, including scientific or archaeological significance, significance to Aboriginal people, aesthetic value, the degree to which a site is representative of archaeological and/or cultural type, and value as an educational resource. In New South Wales the nature of significance relates to historic, aesthetic, social, scientific, cultural or educational criteria and sites are also assessed on the degree to which they exhibit rare or representative characteristics of their type, or whether they exhibit historic or cultural connections.

SCIENTIFIC SIGNIFICANCE

In order to determine scientific significance it is necessary to first place sites within a local and regional context. This process enables the assessment of any individual site in terms of merit against other sites of similar nature within similar contexts.

PUBLIC SIGNIFICANCE

The sites are assessed in terms of their educational value, to enhance community knowledge and appreciation of cultural heritage.

CULTURAL SIGNIFICANCE

Generally, all sites are of significance to the Aboriginal people. It has been recognised however that with the widespread nature of site distribution, sites will eventually be impacted upon by development. It is however necessary to conserve where possible sites which are of high significance to the community.

REPRESENTATIVE SIGNIFICANCE

Site significance is rated low, medium and high. The significance of individual sites is determined by factors such as representativeness, rarity, and the sites potential to add scientific data to what is known about past human occupation of the Australian continent. Conservation outcomes are determined by comparison of a site's qualities with known sites in the region that have been protected

4.3 DISCUSSION

The potential significance of finds that may be made during the course of monitoring of the work is likely to be low to moderate, with isolated finds / small artefact scatters most likely to be found. Should a burial be unearthed this would be a significant find as would a hearth or a large artefact scatter comprising a complex assemblage of implements or evidence of extensive knapping.

Given that no artefacts were found in the available assessable area, it is reasonable to assume that the relatively small area of low visibility subject to assessment is unlikely to contain an extensive and complex archaeological site. Unfortunately, the nature of burials makes them very difficult to locate by surface methods or even sub-surface testing, so it is acknowledged that a burial may occur on the site, however given the high water table the potential for preservation is low.

The impact of development on lots 5&6 will be relatively low with excavation required for the building footings and services only – the roads, hardstand areas and car parks are likely to be raised with fill. The haul road will be cleared prior to construction and this will be the opportunity to determine the presence or complete absence of surface artefacts and any other cultural material.

The end levels involved in the development have yet to be determined. On the basis of a review of the plans it is noted that the majority of construction is open vehicle access / parking with the actual footprint of building at 4080 sqm metres. The building will be light weight construction and probably placed on a raft slab. Some elements of the workshop may require deeper larger footings that may involve excavation to a metre in their locations.

Given the size of the site and the relatively low potential for significant archaeological surface sites, it is considered appropriate to allow monitoring of earthworks by the Aboriginal stakeholders with an archaeologist on call if required.

A work method statement should be prepared prior to monitoring and should detail a methodology that allows the continuation of work in the case of low significance finds, including discussions with the stakeholders regarding an appropriate place to relocate or house any artefacts located. Note that should any artefacts be located an AHIMS site card should be completed and lodged and a Care and Control permit be sought prior to removal of any objects from the site.

4.4 MANAGEMENT RECOMMENDATIONS

On the basis of the survey and community consultation it is considered that:

1. There are no archaeological or cultural constraints to the development as proposed.
2. The client engage the Aboriginal stakeholders to provide monitoring of initial services with a methodology outlined in a work method statement.

3. Should a site of potential high significance be located, work should cease and a management strategy developed with the Aboriginal stakeholders and an archaeologist.

The client should be aware that if evidence of a burial is located work must cease and the NSW Police notified.

METHODOLOGY FOR MONITORING BY THE COMMUNITY

1. Provide information to contractors so that potential artefacts can be readily identified.
2. Resurvey the haul road corridor once the site has been cleared and vegetation removed.
3. Should artefacts be found they must be recorded and remain secured on site until a Care and Control permit issued by OEH.
4. Monitor the excavation of footings for heavy installations if warranted. Should the surface be sterile and excavation to end levels of the building footings also sterile then the monitoring of the deeper footings may be done by the inspection of spoil heaps.
5. Should a burial be located work should cease and notifications made as above.

GLOSSARY

Angular Fragment: Flaking debris that lacks diagnostic features. Also referred to as a flaked piece (Holdaway & Stern 2004:113).

Artefact: Any object, usually portable, that has been made or shaped by human hand (Mulvaney & Kamminga 1999:425).

Assemblage: A set of artefacts found in close association with each other (Flood 1989: 281).

Backed: Unidirectional or bi-directional retouch located on one lateral margin of a tool (Holdaway & Stern 2004:159).

Backed Blade: A blade with one margin deliberately blunted to form a penknife-like back (Flood 1989:281).

Basalt: Volcanic igneous rock dark in colour (black – dark grey). Fine grained containing 45-55% silica, iron and magnesium. (Holdaway & Stern 2004:22).

Bioturbation: Reworking of sediments through the action of ground dwelling life forms such as ants, termites, and earthworms (Mulvaney & Kamminga 1999:425).

Blade: A parallel sided flake, twice as long as it is wide (Flood 1989:282).

Broken Flake: A flake fragment which displays only part of the diagnostic features of a complete flake. Broken flakes are classed as either Proximal flakes, Medial flakes and distal flakes depending on their visible attributes (Holdaway & Stern 2004:111).

Chert: A fine grained crystalline aggregate of silica (Flood 1989:82).

Clay: Sediment that contains particles less than 4 µm in size (Kearey 2001:49).

Coal: Combustible sedimentary rock, greater than 50% carbonaceous material (Kearney 2001:51).

Colluvial: Transported by non fluvial processes (Kearey 2001:53).

Conglomerate: Sedimentary rock containing rounded clasts greater than 2 mm in size (Kearey 2001:56).

Core: A piece of stone, often a cobble or pebble but also quarried stone, from which flakes have been struck for toolmaking (Mulvaney & Kamminga 1999:426).

Core Tool: A core bearing trimming or use wear indicating its use as an implement (Flood 1989:282).

Cortex: Outer weathered surface of a rock or mineral (Holdaway & Stern 2004:144).

Debitage: The waste product from tool manufacture (Holdaway & Stern 2004:154).

Distal Flake: Flakes which have a termination but do not show a platform or evidence of an impact point (Holdaway & Stern 2004:111).

Dorsal Surface: Retains part of the original surface of the core or scars from earlier flake removals (Holdaway & Stern 2004:143).

Erosion: Process where particles are detached from rock or soil and transported away principally via water, wind, ice and air (Kearey 2001:88).

Flake: A piece of stone detached by striking a core with another stone (Flood 1989:283).

Flake piece/s: Refer to angular fragment.

Geometric Microlith: A microlith of triangular, trapezoidal or other geometric shape, with an abruptly trimmed thick margin (Flood 1989: 283).

Geomorphology: The description and interpretations of landforms (Mulvaney & Kamminga 1999:426).

Hearth: The site of a campfire (Flood 1989:284).

Heat Treatment: Also referred to as heat shatter. The natural or human induced process of heating raw materials to change their properties prior to tool manufacture. Observable changes include alterations in colour, lustre and crystalline structure (Holdaway & Stern 2004:29).

Knapping Floor: evidence of the flaking of stone tools from a core. Generally contains cores and discard flakes.

Loam: A soil which contains approximately equal proportions of sand, silt and clay (Kearey 2001:156).

Medial flake: Flake or flake fragment with an identifiable ventral surface but lacking proximal and distal margins (Holdaway & Stern 2004:111).

Microlith: A variety of small, less than 3 centimetres in size, retouched implements of various shapes (Mulvaney & Kamminga 1999: 427, Flood 1989:285).

Microblade Cores: Provide the blanks for the small –tool tradition – Bondi points and geometric microliths. Less than 10 cm in maximum dimension. Flake scars are parallel and elongate and long relative to core size (Holdaway & Stern 2004:204).

Midden: Aboriginal occupation site consisting chiefly of shells with minor components of other refuse such as ash, stone artefacts and animal bones (Mulvaney & Kamminga 1999:427).

Mudstone: Used to refer to the fine to very fine grained sedimentary rocks of siltstones and mudstones (Holdaway & Stern 2004:20).

Open Campsite: A surface of stone and other artefacts exposed on the ground surface (Flood 1989:285).

Permian: Geological time period from 290 – 245 Ma (Kearey 2001:200).

Platform: The area on a stone core on which a blow is struck to detach a flake. The detached flake bears on its butt end the original striking platform (Flood 1989: 287).

Podzolic: Acid soils with strong texture contrast between sandy or loamy topsoils and clay subsoils (Matthei 1995:319).

Porcellanite: A rock formed by the thermal metamorphism of a soil horizon in basalt (Kearey 2001:208).

Proximal flake: broken flakes that do not have a termination but exhibit features from where the flake was struck from the core such as a platform, bulb of percussion, impact point (Holdaway & Stern 2004:110).

Quartz: Common mineral with naturally sharp edges and poor fracturing properties. Colour ranging from clear, to milky white and pink (Flood 1989:286).

Quartzite: Homogenous medium to coarse grained metamorphosed sandstone (Flood 1989:286).

Retouch: To shape, sharpen or blunt a stone tool by flaking (Mulvaney & Kamminga 1999:428).

Retouched flake: Flakes removed during retouching of a tool (Holdaway & Stern 2004:173).

Sandstone: A sedimentary rock comprised of greater than 25% clasts of sand grains 0.625-2mm in diameters (Kearey 2001:234).

Scarred tree: Trees which have had portions of their barked removed (Mulvaney & Kamminga 1999:32).

Scraper: A flake with one or more margins displaying retouch along the entire margin (Holdaway & Stern 2004:227).

Shale: A sedimentary rock with particles less than 4µm in diameter (Kearey 2001:242).

Silcrete: A sedimentary rock comprising of quartz grains in a matrix of fine grained – amorphous silica (Holdaway & Stern 2004:24).

Soloth (or Solodic): Acid soils with strong texture contrast between pale topsoil and clay subsoil with coarse blocky or columnar structure (Matthei 1995:319).

Stratigraphy: The study of natural and cultural sedimentary strata (Mulvaney & Kamminga 1999: 428).

Symmetrical backed artefact: see geometric microlith.

Thumbnail Scraper: A small flake with a convex scraper edge opposite the platform of the flake and with a shape similar to a thumbnail (Holdaway & Stern 2004:234).

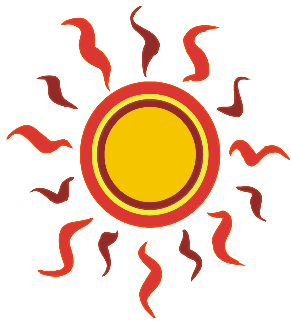
Use-wear: Alteration of an artefact caused by its use (Holdaway & Stern 2004:41).

BIBLIOGRAPHY

| | | |
|-------------------------------|------|--|
| AMBS | 2001 | <i>Salt Ash Weapon Rang Aboriginal Heritage Assessment.</i> |
| Baker, N. | 1994 | <i>Moffats Swamp Dune: Final Report on Archaeological Salvage, Testing and Artefact analysis.</i> Report to RZM Pty Ltd |
| Dean-Jones, P. | 1992 | <i>Environmental Modelling for Archaeological Site Potential in the Central Lowlands of the Hunter Valley.</i> Hunter Valley Aboriginal Sites Assessment Project. |
| Flood, J. | 1989 | <i>Archaeology of the Dreamtime.</i> The story of prehistoric Australia and its people. New Addition. Collins Publishers, Sydney. |
| Holdaway, S. and Stern, N. | 2004 | <i>A Record in Stone. The study of Australia's flaked stone artefacts.</i> Aboriginal Studies Press, Canberra. |
| Indigenous Outcomes | 2006 | <i>Subsurface investigations of selected Aboriginal sites on proposed industrial area Tomago</i> Report to Redlake Pty Ltd |
| Insite Heritage Pty Ltd | 2008 | Archaeological Assessment for the Proposed Expansion of Operations at Minmet Tomago NSW Report to Advitech Pty Ltd |
| Kearey, P. | 2001 | <i>The New Penguin Dictionary of Geology.</i> 2 nd Edition. Penguin Books, London. |
| Matthei, L.E. | 1995 | <i>Soil Landscapes of the Newcastle 1:100 000 Sheet</i> Report. Department of Land and Water Conservation, Sydney. |
| Mulvaney, J. and Kamminga, J. | 1999 | <i>Prehistory of Australia.</i> Allen & Unwin, St Leonard's. |
| Roy, P.S. et al | 1995 | Quaternary geology of the Hunter delta – an estuarine valley -fill case study in S. Sloan and M. A. Allman (eds) Conference on the Engineering Geology of the Hunter – Gosford Region. Newcastle University, February 1995 Australian Geomechanics Society p 84-89 |
| Thom, B. et al | 1992 | <i>Coastal Geomorphology and Quaternary Geology fo the Port Stephens – Myall Lakes Area.</i> Australian National University |
| Wheeler, J & Campbell, L. | 2007 | <i>Sandvik National NSW Headquarters Archaeological Assessment.</i> Report to ATB Morton Pty Ltd |

APPENDIX A – COMMUNITY REPORTS

Nur-Run-Gee Pty Ltd
ABN 37 096 307 701



**INDIGENOUS ARCHAEOLOGIST
CULTURAL AND HERITAGE
CONSULTANT
LICENCED BUILDER**

22 Popplewell Road
Fern Bay 2295

Phone: 02 49 201578
Mobile: 0408 618 874 Leanne
Mobile: 0431 334 365 Lennie
Email:
goodman@kooee.com.au

2nd May 2011

In Site Heritage
Attention Angela Beasant
PO Box 726
Wangi Wangi NSW 2267

Dear Angela

**Re: Draft Archaeological Assessment for the Proposed Conductor
and Rod Facility by Midal Cables International Pty Ltd at Tomago
NSW**

Thank you for the opportunity to comment on the Draft
Archaeological Assessment for the Proposed Conductor and Rod
Facility by Midal Cables International Pty Ltd at Tomago NSW

After reading the draft report, Nur-Run-Gee P/L agrees with and
understands the proposed methodology as well sections 4.30
Discussion and 4.4 Management Recommendations that Insite
Heritage have stated in the report.

If you have any further enquiries please do not hesitate to
contact us.

Yours Sincerely

Lennie Anderson
Worimi Traditional Owner
Indigenous Archaeologist
Director
Nur-Run-Gee Pty Ltd



Cacatua Culture Consultants

Entity of Carcatchua Pty Ltd

ABN: 87 145 082 480 ACN: 145 082 480

5 April 2011

Angela Besant
Insite Heritage Pty Ltd
Wangi Wangi NSW 2267

RE: **Preparation of an Aboriginal Cultural Heritage impact assessment for proposed rod and conductor manufacturing facility and associated haul road off School Drive, Tomago NSW.**

Angela,

We have read and discuss your letter dated 16th March 2011. The impact that will take place within this area is also clear. We are in full support of the steps within the Methodologies and the undertakings that were listed in your letter.

We would also like to add that we do not take our business aim lightly we believe that all Australian Aboriginal Heritage Culture is important and should be preserved on country where humanly possible. Where in this case something is located and it is not possible to leave on country, we believe that preservation and safe keeping of Artefacts should be undertaken so that our future generations may understand there past.

However we are aware that our views may differ from those that claim country or are considered T.O's of the area, if this is so and they wish for other items to be added to the methodologies then we would support them.

Yours truly

George Sampson
Manager

Email: cacatua@resetsdl.net.au

UNIT 1b, 11 Glenwood Drive THORNTON NSW 2322 Ph: 02 4028 6942 Fax: 02 4028 6943
65 Jaeger Avenue, GUNNEDAH NSW 2380 Mob: 0403 765 019 Fax: 02 6742 1491
22 Ibis Parade WOODBERRY NSW 2322 Ph: 02 4964 4685 Fax: 02 4964 4635



WORIMI LOCAL ABORIGINAL LAND COUNCIL

ABN 51 352 201 603

Tuesday 3rd May 2011

2163 Nelson Bay Rd
Williamtown NSW 2318

Insite Heritage Pty Ltd
Attention: Elizabeth Wyatt
PO BOX 98
Wangi Wangi NSW 2267

PO Box 56
Tanilba Bay NSW 2319

Dear Elizabeth,

Phone: 02 4965 1500
Fax: 02 4965 1799

**ARCHAEOLOGICAL ASSESSMENT
FOR THE PROPOSED
CONDUCTOR AND ROD FACILITY
BY MIDAL CABLES INTERNATIONAL PTY LTD AT TOMAGO NSW**

info@worimi.org.au

Thank you for your Draft Archaeological Assessment dated 28th April 2011, regarding the above mentioned project in the Tomago area.

I note the findings in the Draft Archaeological Assessment has been deemed true and correct and duly noted by Site Officer Jamie Merrick who was present.

Should you require any further information please contact Jackie Henderson (02) 4965 1500 or by email jackie@worimi.org.au at your earliest convenience.

Yours sincerely,

Jackie Henderson
Administration Officer
Worimi Local Aboriginal Land Council



Mur-Roo-Ma Inc

9 Vardon Road Fern Bay
2295 N.S.W Australia

ABN : 978 077 194 84

Phone / Fax : 02 49281910

Mobile : 0402 82 74 82

E-mail : murroomainc1@gmail.com

To Insight Heritage

Angela Besant

10/5/2011

Our organisation Mur-roo-ma Inc has read and discussed the draft report for Midal Tomago

We confirm the following:

1. Mur-roo-ma Inc fully understand and the contents of this report
2. That a representative of our organisation attended the site for the assessment
3. We agree with the methodology for monitoring
4. We do endorse the recommendations in this report
5. That to the best of our knowledge all reasonable care and action has been taken to identify any Aboriginal Objects or potential on the land.

Comments

Mur-roo-ma Inc fully understands and agree with the Recommendations put forward in the report.

All possible Aboriginal objects within the project area are of great value to our people as they are in all our lands

Therefore it is our belief that the proposed construction should proceed

Anthony Anderson

CEO

Mur-roo-ma Inc

Anthony Anderson

CEO

Mur-roo-ma Inc