APPENDIX 4

Aboriginal Cultural Heritage Assessment

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Mackas Sand

Aboriginal Cultural Heritage Assessment of Alternate Haul Route to Lot 218 DP 1044608, Salt Ash

October 2012

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October 2012

Prepared by
Umwelt (Australia) Pty Limited

on behalf of
Mackas Sand

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Report No:	**1646/R37/Final**
Date:	**October 2012**

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1.0 Introduction

Major Project Approval 08_0142 was granted to Mackas Sand for the extraction of sand from Lot 218 in DP 1044608 and Lot 220 in DP 1049608 (refer to **Figure 1.1**). Major Project Approval 08_0142 includes provision for Mackas Sand to access Lot 218 by creating a small access road to adjoin an existing access route through the Quality Sands and Ceramics sand quarry (as shown in **Figure 1.1**).

Mackas Sand is proposing to develop an alternate haul route which will allow access to Lot 218 directly from Nelson Bay Road, as shown in **Figure 1.2**. In accordance with Section 75W of Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), Mackas Sand is seeking a modification to Major Project Approval 08_0142 to incorporate the alternate haul route. Umwelt (Australia) Pty Limited (Umwelt) has been engaged by Mackas Sand to prepare the necessary environmental assessments for the proposed modification, including this Aboriginal Cultural Heritage Assessment.

1.1 Description of the Alternate Haul Route

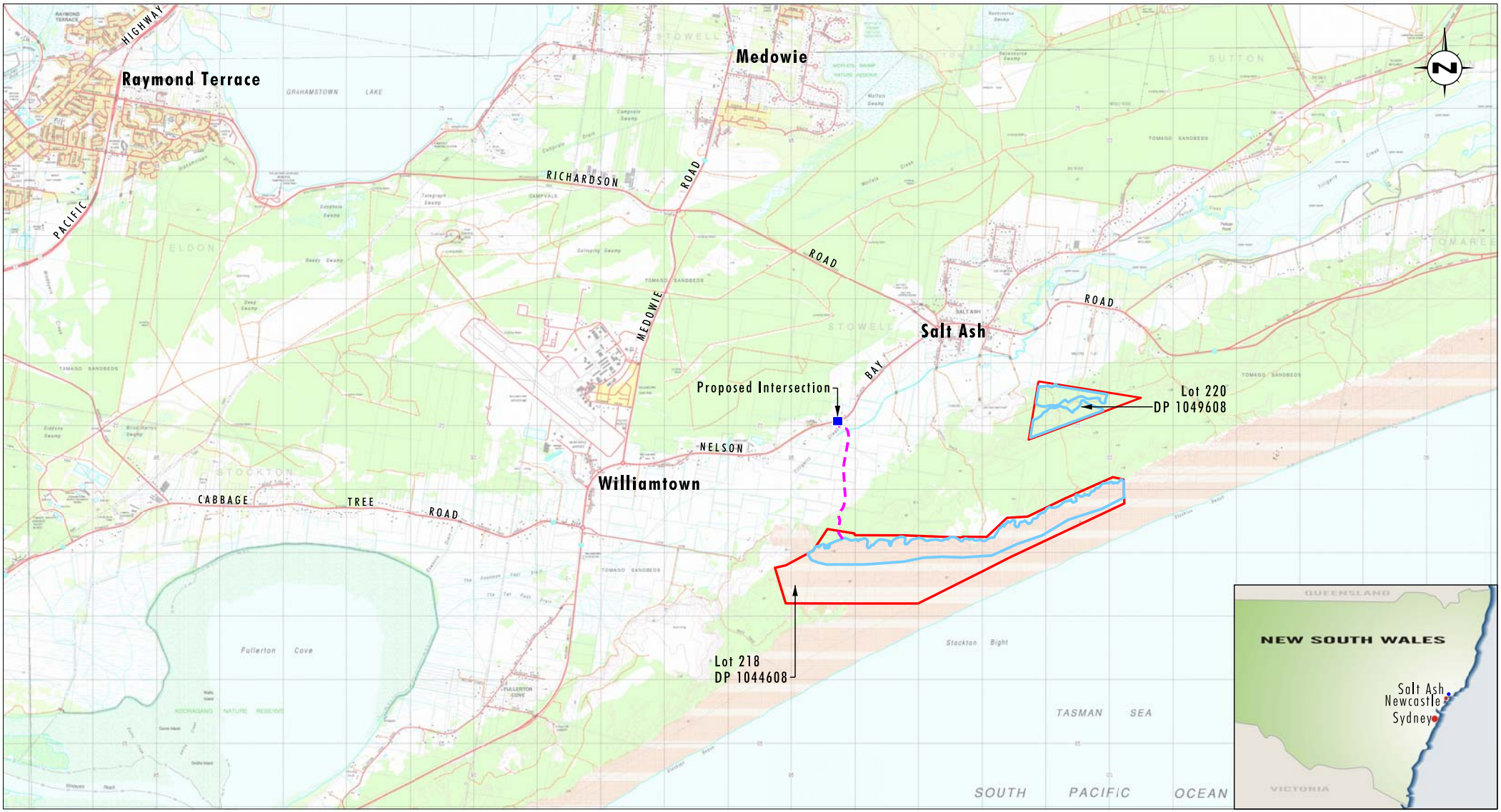
The modification sought is to construct and utilise an alternate route to access the approved sand extraction area on Lot 218 in DP 1044608 (Lot 218), Williamtown.

The approved access to Lot 218 extraction area is via Lavis Lane and then a public road reserve (Stockton Bight Track) that passes through Pt 76 and part of Pt 101 from where it leaves Stockton Bight Track and traverses across Pt 101 and Pt 13 of DP 753192 to Lot 227 DP 1097995 (Lot 227) which provides access to Lot 218. Pt 101 and Pt 13 in DP 753192 are owned by members of the Towers family and Lot 227 is owned by Worimi Local Aboriginal Land Council (WLALC).

The proposed alternate access to the Lot 218 extraction area is via a proposed new road connecting Lot 218 to Nelson Bay Road in the north. The proposed alternate haul route passes through Lot 4 DP1121457, Lot 1 DP177679, Lot 810 DP1008279, Lot 58 DP753192, and Lot 122 DP753192. Right of way has been obtained by Mackas Sand for the development of the alternate haul route, should it be approved.

The alternate haul route easement will be a gravelled surface of approximately 8 metres in width with a length of approximately 2 kilometres. A turning bay of approximately 30 metres by 30 metres will be located at the base of the mobile dune on Lot 218. Where the alternate haul route follows an existing track, it may be necessary to widen the existing track. In order to allow for construction impacts, an easement of approximately 30 metres in width was assessed along the full length of the alternate haul route. It was subsequently determined that a total disturbance width of approximately 10 metres would be adequate to account for all impacts.

Construction of the proposed alternate haul route (including the turning bay) will involve establishing a trafficable surface that can sustain heavy vehicle traffic. The level of activity required to do this will vary along the proposed alternate haul route depending on factors such as the type of vegetation present, previous disturbance (including the level of existing vegetation clearance), landform and slope angle. In general terms, these activities may include vegetation clearance, filling of areas to create a level surface and the introduction of road base (or similar) materials.



Source: Department of Lands, 2006

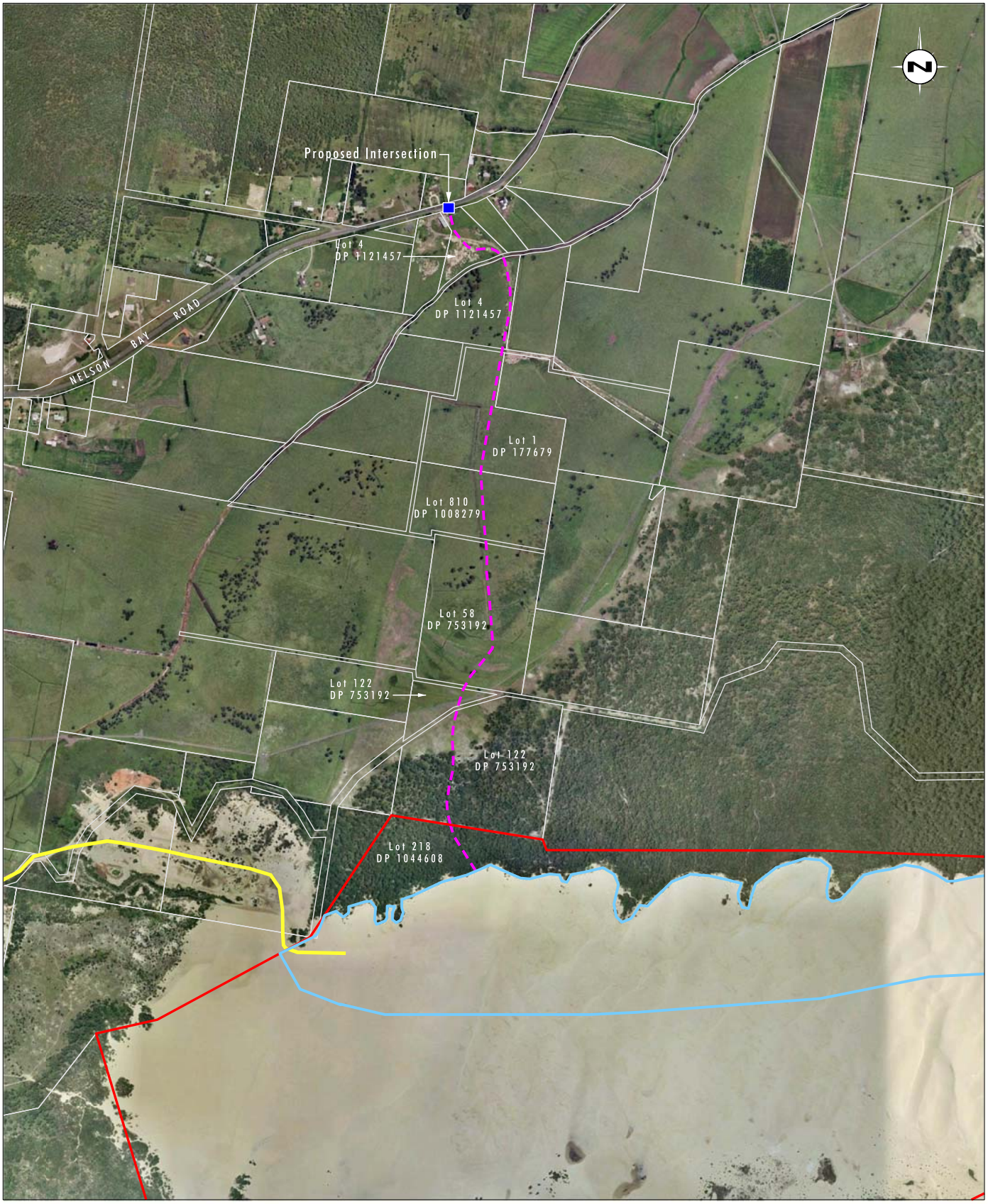
Legend

- Lot Boundaries
- Approval Areas
- Proposed Alternate Access Route
- Proposed Intersection Location

FIGURE 1.1

Locality Plan

File Name (A4): R37_V1/1646_329.dgn



Source: Google Earth (2009)

0 250 500 750m

1:15 000

Legend

- Lot Boundary (218)
- Approved Operational Area
- Proposed Alternate Access Route
- Approved Access Route
- Proposed Intersection Location

FIGURE 1.2

Proposed Alternate Access Route to Nelson Bay Road

1.2 Background Information

An Aboriginal Cultural Heritage Management Plan (ACHMP) for the approved extraction areas was completed in consultation with the relevant Aboriginal parties and in accordance with Condition 29 of Major Project Approval 08_0142 (Umwelt 2009a). The ACHMP was approved by the Department of Planning on 9 November 2009. An Aboriginal Heritage Management Group (AHMG) was subsequently established in accordance with the ACHMP.

Following development of the ACHMP, it was identified that the approved access was not preferred and an initial alternate haul route was proposed. Section 5.12 of the ACHMP specifies:

> Should Mackas Sand need to conduct activities resulting in vegetation clearance or ground disturbance outside the current approval areas, these activities will be discussed with the AHMG (including an on-call archaeologist, if required). The AHMG will provide advice regarding any requirements for additional cultural heritage inspections/investigations and/or the need to obtain appropriate permits or consents from DECCW prior to undertaking any such activities outside the current approval areas.

In accordance with Section 5.12 of the ACHMP, the AHMG (including an on-call archaeologist) were invited to conduct an inspection of the initial proposed alternate haul route on Friday 12 February 2010. Further surveys conducted with the AHMG (or nominated representative) were undertaken in March and May 2010 after preparation of a proposed survey methodology. A draft Aboriginal Cultural Heritage Assessment for the proposed initial alternate haul route was provided to the registered Aboriginal parties for review in August 2010. Comments received in response to this draft are discussed in **Section 2.1**. Prior to finalisation of this assessment, further changes were made to the proposed initial alternate haul route and were subject to additional survey conducted with the AHMG (or nominated representative) in October 2011. These changes included a section of alternate haul route within Lot 218 (previously referred to as 'Route A') that forms part of the currently proposed alternate haul route (refer to **Figure 1.2**). The altered draft Aboriginal Cultural Heritage Assessment for the proposed alternate haul route was again subject to review by the registered Aboriginal parties (refer to **Section 2.1)** and was finalised in December 2011 (Umwelt 2011). The results of this assessment are discussed further in **Section 4**.

It was subsequently identified that the proposed initial alternate haul route was also not suitable and that proposal was rescinded. The currently proposed alternate haul route was developed to allow direct access from Nelson Bay Road rather than Lavis Lane. In accordance with Section 5.12 of the ACHMP, the AHMG (and the on-call archaeologist) were invited to conduct an inspection of the currently proposed alternate haul route on Monday 30 July 2012. The inspection by the AHMG identified that construction and use of the alternate haul route may result in impacts to Aboriginal cultural heritage and the AHMG consequently recommended that the alternate haul route should be assessed in accordance with the relevant requirements and guidelines.

1.3 Relevant Cultural Heritage Legislation

Major Project Approval 08_0142 was granted to Mackas Sand under Part 3A of the EP&A Act and the proposed modification is sought under Section 75W of the EP&A Act.

1.3.1 EP&A Act

The EP&A Act regulates development activity in New South Wales. Part 3A of the EP&A Act (now repealed) previously applied to projects that were declared to be a 'Major Project' (in accordance with Section 75B of the EP&A Act) and the current approval was granted under Part 3A. The proposed modification will be considered under Section 75W of the EP&A Act and as the project approval was issued in accordance with Part 3A of the EP&A Act, the following provisions also apply to the proposed modification. Under Section 75U of the EP&A Act, it is not necessary to obtain an Aboriginal Heritage Impact Permit (AHIP) permit under Section 90 of the *National Parks and Wildlife Act 1974* ((NPW Act) - as discussed below) in relation to activities approved under Part 3A of the EP&A Act. Projects approved under Part 3A of the EP&A Act are subject to conditions of approval issued by the Department of Planning (now Department of Planning and Infrastructure - DP&I) and (where relevant) Aboriginal cultural heritage is addressed by appropriate conditions. Furthermore, Section 75J (5) of the EP&A Act states that conditions of approval for the carrying out of a project may require the proponent to comply with obligations made in a statement of commitments submitted by the proponent as part of the development approval process.

In relation to Aboriginal cultural heritage assessments, current DP&I guidelines indicate that consultation should be undertaken in accordance with the *Interim Community Consultation Requirements for Applicants* (Department of Environment, Climate Change and Water (DECCW) 2004) as the established process for ongoing consultation for projects approved under Part 3A. This is discussed further in **Section 1.4.5**.

1.3.2 New South Wales National Parks and Wildlife Act 1974

The Office of Environment and Heritage (OEH) is primarily responsible for regulating the management of Aboriginal cultural heritage in New South Wales under the NPW Act (as amended October 2010). The NPW Act is accompanied by the National Parks and Wildlife Regulation 2009 (the Regulation), the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010) and other industry-specific codes.

The objectives of the NPW Act include:

> The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to: (i) places, objects and features of significance to Aboriginal people.

The NPW Act defines an Aboriginal object as:

> 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.

Under Section 84 of the NPW Act, an Aboriginal Place must be declared by the Minister as a place that, in the opinion of the Minister, is or was of special significance with respect to Aboriginal culture.

In accordance with Section 86(1) of the NPW Act, it is an offence to harm or desecrate a known Aboriginal object, whilst it is also an offence to harm an Aboriginal object under Section 86(2). Similarly, Section 86(4) states that a person must not harm or desecrate an Aboriginal place. Harm to an object or place is defined as any act or omission that:

a) destroys, defaces or damages an object or place, or
b) in relation to an object – moves the object from the land on which it had been situated, or
c) is specified by the regulations, or
d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c),

but does not include any act or omission that:

e) desecrates the object or place, or
f) is trivial or negligible, or
g) is excluded from this definition by the regulations.

Section 87(1) of the NPW Act specifies that it is a defence to prosecution under Section 86(1) and Section 86(2) if the harm or desecration of an Aboriginal object was authorised by an AHIP and the activities were carried out in accordance with that permit. As discussed above, the provisions of Part 3A of the EP&A Act can overrule the requirement for an AHIP under the NPW Act, with these provisions applying to activities approved under Part 3A only. However, the other provisions of the NPW Act are still applicable.

Section 87(2,4) of the NPW Act establishes that it is a defence to prosecution under Section 86(2) (the strict liability offence) if due diligence was exercised to reasonably determine that the activity or omission would not result in harm to an Aboriginal object or if the activity or omission constituting the offence is a low impact act or omission (in accordance with Section 80B of the Regulation). The Regulation identifies that compliance with an industry specific code (or if such a code does not exist the generic OEH code) is taken to constitute due diligence in determining whether a proposed activity will harm an Aboriginal object. In addition, Section 3A of the Regulation specifies that an act carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010) 'is excluded from the definition of harm' as provided in the NPW Act. This may include (but is not limited to) test excavations carried out in accordance with this Code.

Consultation with the Aboriginal community is an integral part of identifying and assessing the significance of Aboriginal objects and/or places and determining and carrying out appropriate strategies to mitigate impacts upon Aboriginal heritage.

Furthermore, ongoing consultation with the Aboriginal community has been undertaken as part of Mackas Sand operations through the AHMG. The AHMG is guided by the ACHMP developed as part of Project Approval 08_0142. Consultation with regard to the project commenced on 27 February 2010 under the *Interim Community Consultation Requirements for Applicants*. However, in recognition of the change in consultation expectations, all consultation undertaken after November 2010 was generally in accordance with Section 80C (2-11) of the Regulation.

1.4 Report Structure

The key objective of this report is to assess the archaeological and Aboriginal cultural heritage significance of the alternate haul route and, where relevant, to provide appropriate mitigation and management strategies in relation to the proposal. In order to achieve this objective, the assessment involved:

- undertaking detailed consultation with relevant Aboriginal parties in accordance with the *Aboriginal Cultural heritage consultation requirements for proponents 2010* in accordance with Section 80C(2-11) of the Regulation (refer to **Section 2.0**);
- reviewing the environmental and archaeological context of the Stockton Bight region and in particular that of the proposed alternate haul route (refer to **Sections 3.0** and **4.0**) in order to develop a model with which to predict the likelihood that archaeological material (namely Aboriginal objects) will be associated with these areas (refer to **Section 5.0**) and to provide background information against which to assess the significance of any sites or PAD that may be associated with the alternate haul route;
- undertaking a survey of the previously unsurveyed portion of alternate haul route in consultation with the relevant Aboriginal parties (**Section 6.0**);
- assessing the cultural heritage significance of the alternate haul route primarily based upon the scientific and Aboriginal cultural heritage significance of any associated archaeological sites or areas of PAD in addition to considering the broader cultural landscape that comprises the alternate haul route (**Section 7.0**);
- reviewing the impacts of the alternate haul route in relation to cultural heritage (**Section 8.0**); and
- providing appropriate recommendations to manage and mitigate impacts to cultural heritage associated with the alternate haul route area (**Section 9.0**).

1.5 Project Team

This assessment report was prepared by Andy Roberts (Umwelt Senior Archaeologist) and Andy Goodwin (Umwelt Social and Environmental Analyst) and was reviewed by Nicola Roche (Umwelt Senior Archaeologist) and Peter Jamieson (Umwelt Director). The survey of the alternate haul route was conducted by Andy Roberts, Andy Goodwin, Jamie Merrick, Lennie Anderson, Anthony Anderson and Jonathan Lilley.

2.0 Aboriginal Party Consultation

This section documents the outcomes of consultation with registered Aboriginal parties in relation to current and previous proposals to modify the approved alternate haul route.

2.1 Consultation Regarding Proposed Initial Alternate Haul Route

As discussed in **Section 1.2**, consultation regarding proposed alternate haul routes has been ongoing since February 2010. All consultation was initially conducted in accordance with the *Interim Community Consultation Requirements for Applicants* (2004) and, after November 2010, in accordance with Section 80C of the NPW Regulation 2010, as discussed in **Section 1.4.1**. Consultation undertaken in accordance with these requirements is discussed below and summarised in Table 1 of **Appendix 1**.

The original notification process involved the placement of a public advertisement in the Newcastle Herald on 27 February 2010 (refer to **Appendix 1**). Letters providing notice of the proposed assessment and requesting information on known Aboriginal parties that may wish to be consulted regarding the assessment were sent to the Department of Environment Climate Change and Water (now OEH), New South Wales Native Title Services, the Office of the Registrar of Aboriginal Owners, Worimi Local Aboriginal Land Council and Port Stephens Council on 3 March 2010 (refer to **Appendix 1**). In addition, letters seeking registrations of interest for consultation regarding the assessment and providing a proposed methodology for the survey were sent on 3 March 2010 to the following Aboriginal parties previously involved in the assessment of Lot 218:

1. Worimi Local Aboriginal Land Council (WLALC);

2. Nur-Run-Gee Pty Ltd (Nur-Run-Gee);

3. Worimi Traditional Aboriginal Elders and Owners Group;

4. Mur-Roo-Ma Incorporated (Mur-Roo-Ma); and

5. Carol Ridgeway-Bissett (previously Maaiangal Aboriginal Heritage Co-operative).

All groups registered an interest in being consulted regarding the assessment with the exception of Worimi Traditional Aboriginal Elders and Owners Group. In addition, correspondence from DECCW (now OEH) identified Ms Viola Brown as an Aboriginal party who may wish to be consulted regarding the assessment. Ms Brown was contacted in writing on 22 March 2010 and subsequently registered her interest in being consulted regarding the assessment.

As discussed above, surveys of the proposed initial alternate haul route were conduted in consultation with Aboriginal parties, as listed in **Table 2.1** below.

Table 2.1 - Aboriginal Parties Represented in Surveys of Initial Alternate Haul Route

Date	Aboriginal party	Representative
29 March 2010	Worimi LALC	Jamie Merrick
	Nur-Run-Gee	Chris Collison
	Mur-Roo-Ma	Anthony Anderson
22 May 2010	Worimi LALC	Jamie Merrick
	Nur-Run-Gee	Lennie Anderson
	Mur-Roo-Ma	Anthony Anderson
10 October 2011	Worimi LALC	Jamie Merrick
	Nur-Run-Gee	Chris Collison
	Mur-Roo-Ma	Anthony Anderson

A draft Aboriginal cultural heritage assessment (Umwelt 2010a) was developed following the first two surveys and was provided to the registered Aboriginal parties for review and comment on 3 August 2010. WLALC indicated that that draft report was an accurate assessment and that the proposed management activities did not restrict or unfavourably affect the development. All other registered Aboriginal parties indicated that they objected to the initial alternate haul route on the grounds that it would result in impacts to Aboriginal cultural heritage (and in some cases, impacts to flora and fauna of cultural significance).

The survey on 10 October 2011 related to an additional change to the initial alternate haul route that included the portion of the currently proposed alternate haul route within Lot 218 (refer to **Figure 1.2**). This additional change was referred to as 'Route A'. Following the survey of Route A, a meeting was held with the registered Aboriginal parties and the draft Aboriginal cultural heritage assessment was modified to take into account the additional change. This draft assessment was again provided to the registered Aboriginal parties for comment. All Aboriginal parties reiterated their comments on the previous draft assessment, with the addition of some specific recommendations regarding an additional area of potential archaeological deposit (PAD) within Route A.

2.2 Consultation Regarding Currently Proposed Alternate Haul Route

In accordance with Section 5.12 of the ACHMP, the AHMG was consulted in regard to the current modification proposal. All current representatives of the AHMG; Anthony Anderson of Moo-roo-ma Incorporated, Lennie Anderson of Nur-Run-Gee Pty Ltd, and Jamie Merrick of WLALC were contacted by letter on 25 July 2012. An opportunity to visit the site and discuss the project was also extended to Viola Brown and Carol Ridgeway-Bisset.

Anthony Anderson of Mur-Roo-Ma, Lennie Anderson of Nur-Run-Gee Pty Ltd, Jamie Merrick, Jonathan Lilley of WLALC, as well as Andy Roberts and Andy Goodwin of Umwelt and Robert Mackenzie of Mackas Sand attended a modification project briefing to the AHMG on 30 July 2012. The modification briefing was followed with archaeological inspection of the uninspected section of the proposed alternate access road from the boundary of Lot 218 northward to Nelson Bay Road (refer to **Figure 1.2**).

Discussion and recommendations regarding the proposed modification occurred at Murrook Cultural Centre following the inspections. With regard to the proposed alternate haul route, Moo-Roo-Ma and Nur-Run-Gee reiterated their positions and recommendations as described within **Section 2.1**:

- that as access is already approved through impacted lands, further impact of any kind to highly culturally significant lands due to the current proposal is not warranted, nor approved of by those members of the AHMG.

A letter outlining the proposed survey methodology was distributed to all registered Aboriginal parties (see **Section 2.1**) on 9 August 2012. As an inspection in accordance with the methodology provided in the letter and outlined in the ACHMP had already been undertaken, it was proposed not to undertake formal survey a second time.

A copy of the draft Aboriginal Cultural Heritage Assessment was forwarded to the AHMG members on 28 September 2012. It was requested that the registered Aboriginal parties provide written comment on the modified draft report. In accordance with Section 80C of the Regulation it was particularly requested that each party comment on the following:

1. whether there are any Aboriginal objects of cultural value to Aboriginal people in the area;

2. whether there are any places of cultural value to Aboriginal people in the area; and

3. the proposed methodology for mitigation and salvage activities associated with sites/PAD subject to harm by the alternate haul route.

All reports and comments received from the Registered Aboriginal Parties are summarised in the final report and presented in full in **Appendix A**.

3.0 Environmental Context

Environmental factors such as the availability of fresh water and other resources influence the choices people make about how they use the landscape and also affect the likelihood that archaeological evidence will be present and detectible. Consequently, it is essential to consider the environmental context of the alternate haul route.

The Lot 218 approval area is located in dune fields that form part of the Outer Barrier of Stockton Bight. A detailed summary of the landscape history of the Stockton Bight area is provided in Umwelt (2009b: 3.1-3.3) and outlines the broader context for the formation of the Stockton Bight dual barrier system. Briefly, Lot 218 approval area is mainly comprised of Outer Barrier stabilised dunes that are covered by large quantities of recently deposited wind-blown sand. The previously assessed (refer to Umwelt 2011) section of the currently proposed alternate haul route adjoins the active (wind-blown) face of the transgressive dune and extends along a very gently inclined lower slope to swale interface to the border of Lot 218.

The longest section of the proposed alternate haul route from Nelson Bay Road is located within the Inter-Barrier Depression which separates the outer and inner barriers and consists of a swamp formed when the Outer Barrier blocked drainage. The proposed alternate haul route then passes through low elevation dunes gaining altitude as it enters low dunes and swales nearing Lot 218.

The area provided direct access to the swamp resources of the Inter-Barrier Depression whilst also being within two kilometres of the current beachfront and marine resources. Furthermore, the Coastal Sand Apple – Blackbutt vegetation community that populated the low dunes would have provided a very broad variety of animal and plant resources (Umwelt 2009b:3.4).

In discussing environmental factors, it is essential to consider how changes in the environment have affected the integrity and visibility of any archaeological material that may have been present. Recent environmental changes in relation to the proposed alternate haul route have resulted from the construction and use of access tracks and an electricity easement.

Furthermore, some areas of the existing tracks have been cleared of vegetation and are continually disturbed by vehicle traffic. These activities will have resulted in impacts to any surface archaeological materials that may be present and also may have affected the integrity of sub-surface deposits (if present).

In summary, the alternate haul route is located within an environmental context that would have been rich in resources utilised by Aboriginal people however, the area has been subject to varying levels of disturbance, which in turn, may have impacted on the archaeological record.

4.0 Archaeological Context

As discussed in the ACHMP (Umwelt 2009a) and in the Mackas Sand Aboriginal Cultural Heritage Assessment (Umwelt 2009b), a large number of archaeological investigations have been conducted in the local area, resulting in the identification of a large number of archaeological sites and the development of a clear understanding of the distribution and nature of sites.

4.1 OEH AHIMS Database

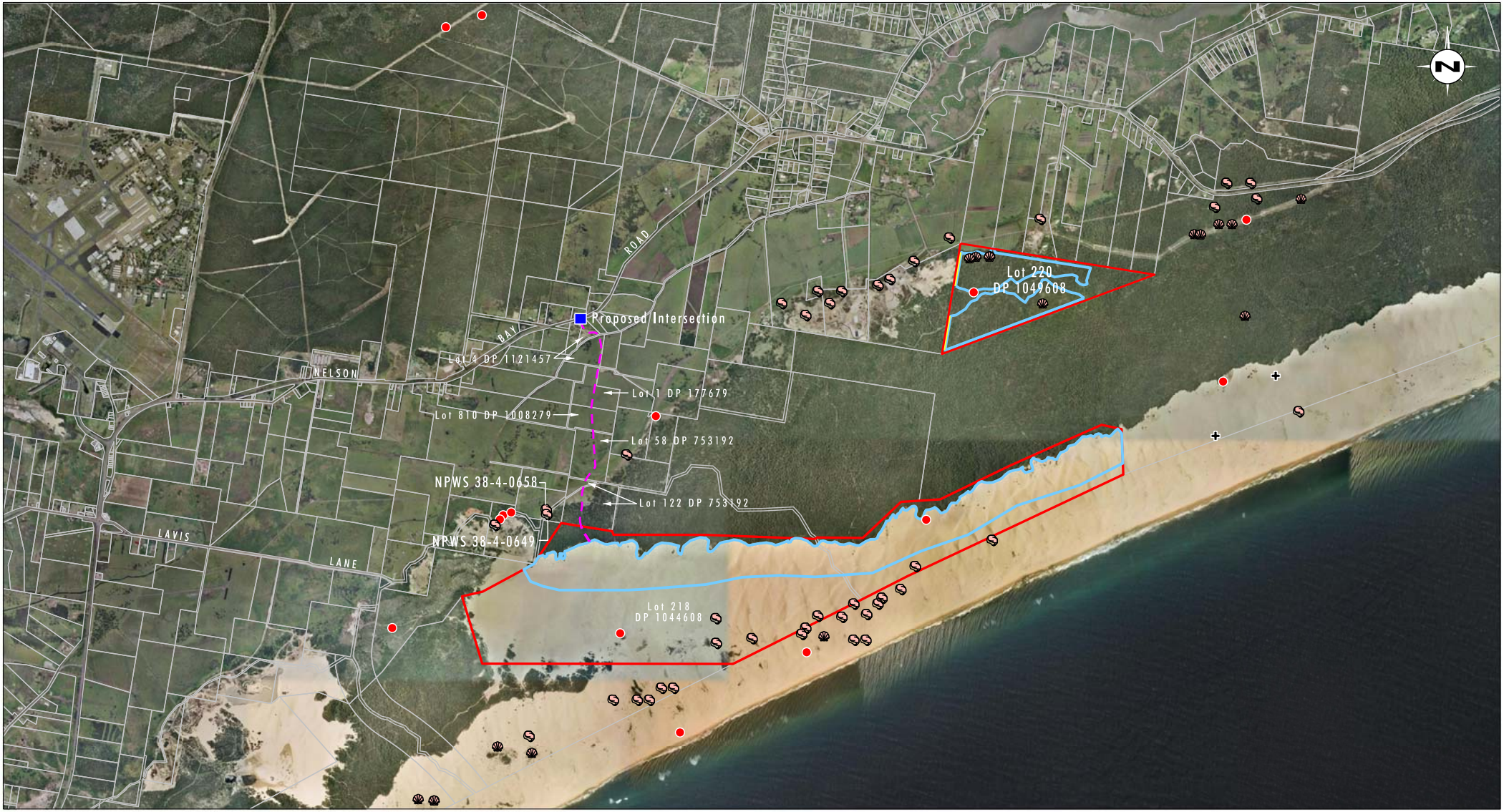
Aboriginal objects (grouped or individually depending on the circumstances) are generally registered as sites on the OEH Aboriginal Heritage Information Management System (AHIMS) database. A search of the AHIMS database was conducted on 8 August 2012 for the area bounded by MGA coordinates 394000 - 402000, Northings: 6366000 - 6373000 with a buffer of 50 metres.

Sites are listed on the AHIMS database according to site feature and may be registered as including a number of different features. The feature AFT (artefact) records the presence of artefactual material including stone, bone, shell and metal artefacts. Sites with this feature are typically stone artefact scatters (if they contain more than one artefact) or isolated artefacts (if they contain a single artefact). In this region, the features SHL (shell) or ETM (earth mound) may be combined with other features such as AFT and are generally used to denote midden sites (with the exception of burials, denoted by the feature BUR). The feature PAD (potential archaeological deposit) is often used for areas in which it is considered likely that artefacts are present below the ground surface. PADs are not strictly archaeological sites as the presence of archaeological material has not yet been demonstrated.

A total of 75 AHIMS registered sites have been recorded within the search area. These sites are listed in **Table 4.1** by site type and site feature and their location is shown in **Figure 4.1**. Middens (AFT and SHL) are the most common site type, followed by artefact scatters/isolated artefacts (ART) and sites with shell only (SHL).

Table 4.1 - AHIMS Registered Sites within the Search Area

Site Type	Site Feature(s)	Number of sites
AFT and SHL: Midden	midden shell with artefacts in association	27
AFT: Artefact scatter and/or isolated artefact	an isolated find or scatter of stone artefacts	23
SHL: Shell only	edible/useful species, shell	23
BUR: Burial	human remains	2
Total		**75**



Source: Department of Lands (2003)

0 0.5 1 2km
1:45 000

Legend

- Lot Boundaries (218 & 220)
- Approved Operational Area
- Proposed Alternate Access Route
- Proposed Intersection Location
- Artefact
- Shell
- Artefact and Shell
- Burial

FIGURE 4.1

Location of AHIMS Registered Sites

4.2 Previously Recorded Sites Associated with the Alternate Haul Route

Figure 4.1 identifies two sites located in proximity to the alternate haul route (NPWS #38-4-0658) and site A3 (NPWS #38-4-0649) originally recorded by ERM (2003) as a series of exposures containing stone artefacts and shell on an elevated area bordering the Inter-Barrier Depression. A3 was re-recorded by Umwelt (2004b:5.1) as a large scatter of fragmented shell (primarily pipi shell) and stone artefacts present in exposures on a crest of a north-east to south-west trending low dune extending into the Inter-Barrier Depression. Umwelt (2004:5.1) identified a greater distribution of surface artefacts extending to the north-east of the originally recorded location of A3 and extended the boundary of the site to encompass an area that was previously considered to be a PAD. Site A3 was defined as the shoreline and low dunes bordering the Inter-Barrier Depression, with the densest concentrations of artefacts found on the low dunes.

Archaeological salvage works were undertake at A3 under Section 90 Consent #1884 in relation to the Tomago to Tomaree Electricity Supply Upgrade (Umwelt 2010b) and resulted in the recovery of very high numbers of artefacts and large quantities of fragmented pipi shell in an artefact scatter with shell extending across a low dune formation bordering the Inter-Barrier Depression. These works involved excavations at six locations (two areas of 4 metres by 4 metres and four areas of 2 metres by 2 metres), detailed surface recording and the sieving of loose sand in an area of disturbance. Two of the excavated locations are situated in proximity to the proposed alternate haul route, spaced approximately 50 metres either side of the route centreline. The salvage program resulted in the recovery of 4437 artefacts, including a large sandstone grindstone. Approximately 6 kilograms of pipi shell were also salvaged, with less than 10 grams of estuarine species (oyster and mud whelk) recovered. In addition, a probable hearth feature was excavated within A3. The feature was lenticular in profile and contained large quantities of charcoal and a fine ash lens. Artefacts were present within the soil profile both directly above and directly below the feature. The feature was excavated and a sample of charcoal was submitted to the University of Waikato Radiocarbon Dating Laboratory for radiocarbon dating. The sample (Wk-20910) returned a date of 3224 +/- 40BP.

In comparison with other dates from Holocene contexts within Stockton Bight and given that Holocene dune stabilisation in this area is conventionally accepted to have occurred 3500 – 4000 years ago this is a very early date. A3 also provided quantitative information for the presence of sites containing relatively high densities of stone artefacts and shell on low elevation, low gradient dune spurs that protrude into the resource-rich, swampy environment of the Inter-Barrier Depression. These areas contrast to other beachward dune formations in terms of their low elevation, very low inclination and direct association with the Inter-Barrier Depression. Such sites are only identifiable where levels of exposure and vegetation are such that at least a proportion of the sub-soil is exposed. This is supported by the presence of extensive sub-surface deposits within sections of A3 where no artefactual material was visible on the ground surface.

4.3 Assessment of Initial Alternate Haul Route

As discussed in **Section 1.2**, the currently proposed alternate haul route replaces a previous proposal that was subject to an Aboriginal cultural heritage assessment (Umwelt 2011). This assessment included the section of the currently proposed alternate haul route that extends for the northern boundary of Lot 218 to the Lot 218 approval area (refer to **Figure 1.2**).

The assessment recorded further exposures of surface artefacts within site A3 and identified the area along the northern boundary of Lot 218 as a PAD on the basis that previous excavations in sections of A3 had demonstrated that this landform is associated with high density deposits of stone artefacts and shell. Furthermore, the assessment described the section of the currently proposed alternate haul route that extends from the northern boundary of Lot 218 to the Lot 218 approval area as a PAD due to its landform context but recognised that its potential was lower than the PAD directly associated with A3. A3 and the associated PAD were identified as having moderate to high archaeological significance whilst the PAD associated with the section of the currently proposed alternate haul route that extends from the northern boundary of Lot 218 to the Lot 218 approval area was assessed as having low to moderate archaeological significance.

In considering the likely impacts to the site/PADs, it was noted that the proposed haul route could be constructed in these areas using a low ground disturbance method involving laying geotextile over the natural ground surface and introducing additional fill material over the geotextile to provide a suitable surface. This was to be done progressively so that all heavy vehicle movement associated with road construction and use in the vicinity of the site/PADs was confined to areas in which geotextile and fill had already been introduced. By utilising this method, it was intended that significant ground disturbance works could be avoided. The following recommendations for management and mitigation activities within A3 and the additional PAD within the section of the currently proposed alternate haul route were provided by Umwelt (2011:27).

- Prior to the commencement of access road construction, the boundaries of the road within A3 and the additional PAD should be clearly demarcated to prevent incidental impacts outside the road corridor. Demarcation should be undertaken in consultation with the AHMG and during demarcation any Aboriginal objects present within the demarcated area will be subject to surface collection.

- Vegetation clearance (where required) will occur as a staged process as follows:

    - understorey vegetation and all trees smaller than approximately 50 centimetres diameter at chest height will be removed by earth-moving equipment or similar and placed outside the newly cleared area so that all of the newly cleared area is visible. At this stage, the AHMG will be invited to undertake an inspection of the newly cleared area;

    - following the initial inspection, any remaining large trees will be cleared by machinery (if required and in accordance with ecological tree clearance procedures) and the AHMG will be invited to inspect the additional area of ground disturbance resulting from large tree clearance (if required); and

    - during vegetation clearance (as discussed above), any Aboriginal objects such as stone artefacts and shell will be collected in accordance with the approved methodology incorporated in the ACHMP (Umwelt 2009a: Appendix 2, Attachment 3).

- Following vegetation clearance, construction of the alternate haul route is to be undertaken in accordance with the description provided above.

As discussed, this alternate haul route was not constructed but was replaced by the currently proposed alternate haul route.

4.4 Summary

The currently proposed alternate haul route includes a section that was previously assessed as a PAD (Umwelt 2011) and also intersects a large site (A3) within which previous archaeological excavations have identified high densities of stone and shell, as well as a dated hearth feature. Previous recommendations for management of haul route construction in the vicinity of this site and PAD have also been provided (Umwelt 2011) but were not enacted due to the change to the currently proposed alternate haul route.

5.0 Predictive Model

The development of a predictive model is an essential component of any archaeological assessment. It assists in identifying focal areas for survey effort and providing an indication of the site types common to the area but is also critical in assessing the likelihood that archaeological material may be present but not visible. The majority of archaeological surveys are undertaken in areas where vegetation or other factors limit ground surface visibility and thus reduce the chances that any archaeological materials that may be present on the surface will be detectable. Furthermore (and perhaps more importantly), surface survey alone does not take into account the possibility that archaeological materials may be present in a sub-surface context. Based on the environmental and archaeological contextual information discussed above, the following predictions can be made for the alternate haul route.

- It is highly unlikely that Aboriginal objects will be present within the portions of the alternate haul route that are located within the Inter-Barrier Depression. Whilst the Inter-Barrier Depression would have served as an extremely valuable resource, the very swampy nature of this area dictates that it was not suitable for the types of activities associated with the deposition of Aboriginal objects in readily detectible quantities.

- A portion of the proposed alternate haul route intersects low elevation dunes extending into the Inter-Barrier Depression that contain previously recorded site A3. It is therefore predicted that this portion of the proposed haul route is highly likely to contain both surface and sub-surface deposits of Aboriginal objects (in the form of stone artefacts and midden shell) that may extend over a relatively large area at relatively high densities.

- It is predicted that stone artefacts if present will move down in the sand over time so clear stratigraphic integrity will be rare but spatial integrity may still be retained.

- The majority of visible Aboriginal objects in low elevation dunes will have been subject to disturbance as a result of vegetation clearance, easement (and pole) construction, track construction (in some areas incorporating fill) and use and stock grazing.

6.0 Survey Methodology and Results

The survey of the alternate haul route was conducted on 30 July 2012. Survey of a larger area than required for the proposed alternate haul route was undertaken on low lying dunes near the Inter-Barrier Depression to allow for the consideration of route alignment options. Survey participants are listed in **Table 6.1**.

Table 6.1 – Survey Participants

Date	Name	Organisation
30 July 2012	Anthony Anderson	Mur-Roo-Ma
	Lennie Anderson	Nur-Run-Gee
	Jamie Merrick	Worimi LALC
	Jonathan Lilly	Worimi LALC
	Andy Roberts	Umwelt
	Andy Goodwin	Umwelt
	Robert McKenzie	Mackas Sand

The inspection methodology and results are provided below.

6.1 Survey Methodology

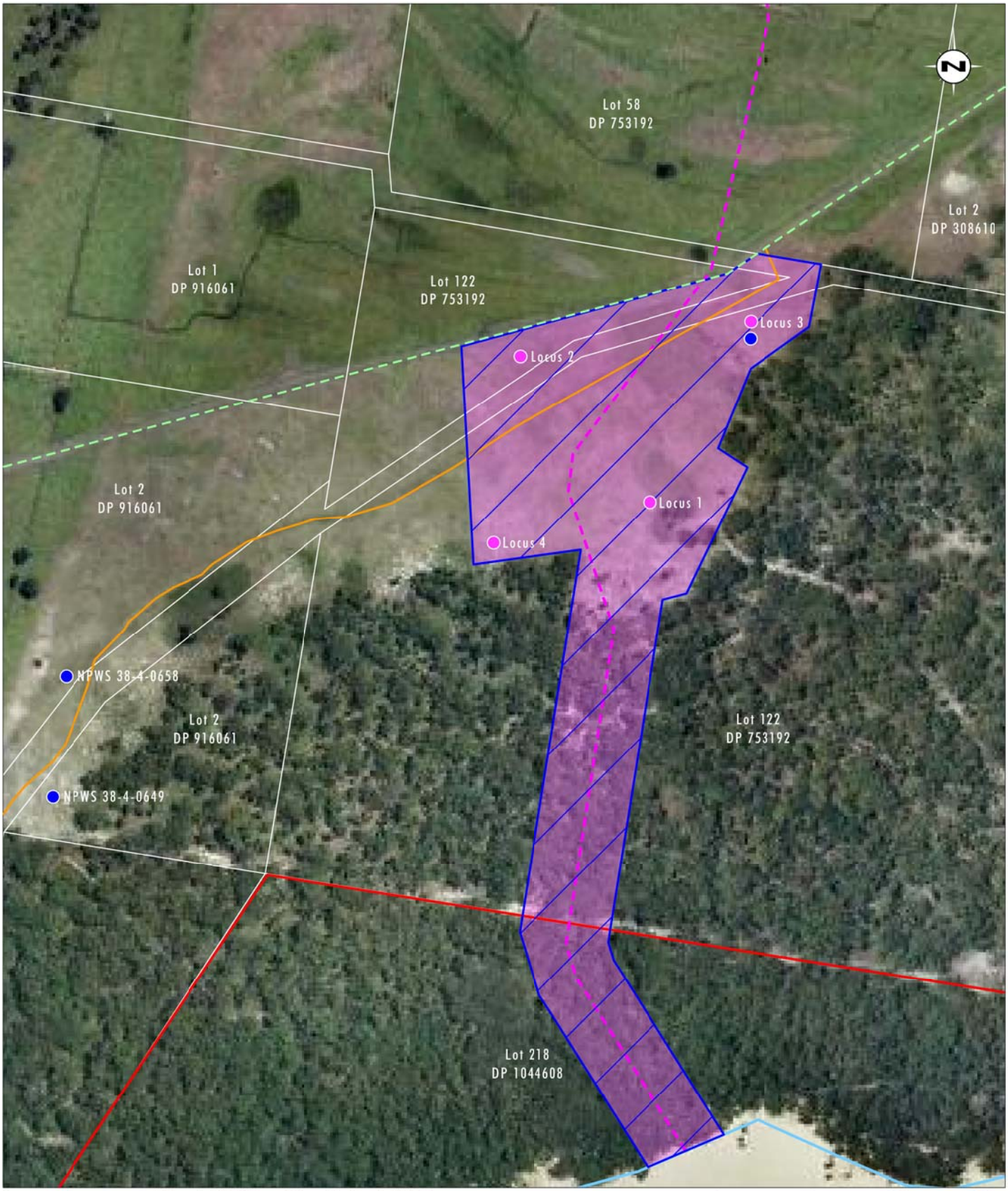
The alternate haul route was surveyed on foot with the exception of the section of the route that is located within the Inter-Barrier Depression (refer to **Figure 6.1**) and the previously assessed section of the alternate haul route (as discussed in **Section 4**). The sections of the route within the Inter-Barrier Depression were inspected from the adjoining sections of the alternate haul route. In consultation with the Aboriginal party representatives listed above, it was discussed that these areas were too wet and boggy and heavily vegetated to be effectively surveyed. Furthermore, as discussed in **Section 5.0**, it was predicted that these areas had limited archaeological potential, a prediction that was supported by the Aboriginal party representatives.

A centreline was surveyed along the proposed alternate haul route from MGA 3975721 6368345 to 395754 6368504 in two transects. A survey corridor of 50 metres width (Transect 1) that passed through woodland was widened to 120 metres (Transect 2) as it passed through cleared areas on low elevation dunes bordering the Inter-Barrier Depression. The larger area in Transect 2 was surveyed to allow some flexibility in route alignment options in this area.

6.2 Results

In total, an area of 36,000 metre square (m^2) covering approximately 380 metres (22 per cent) of the 1.7 kilometres of the proposed alternate haul route was surveyed (refer to **Plates 1** to **18, Table 6.2** and **Figure 6.1**). This area focussed on the low back dune and low elevation dunes bordering the Inter Barrier Depression.

A further 1.37 kilometres (78 per cent) of track that passes through the Inter-Barrier Depression was not surveyed (as explained in **Section 6.1**) apart from a general inspection from the vehicle. The survey is described in **Table 6.2**. All listed coordinates are in MGA (WGS84).



Source: Department of Lands (2003) and Google Earth (2006)

0 50 100 150m
1:3000

Legend

- Lot Boundary
- Approved Operational Area
- Survey Area
- PAD Area
- Proposed Alternate Access Route
- Existing Track
- Electricity Easement
- Artefact
- Loci

FIGURE 6.1

Surveyed Area of Alternate Haul Route with Identified Sites and Features

File Name (A4): R37_V1/1646_325.dgn

PLATE 1
Transect 1: view to south-east of proposed access track in woodland from MGA 395723E 6368361S

PLATE 2
Transect 1: view of ground surface at MGA 395741E 6368450S

PLATE 3
Transect 1: view of bioturbation evident along proposed access track

PLATE 4
Transect 1: view to north-east through woodland taken at MGA 395748E 6368481S

PLATE 5
Transect 2: view to east of locus 1 from MGA 395717E 6368579S showing flags marking location of midden shell

PLATE 6
Transect 2: view facing north-east from proposed access track route, showing locus 1 in background

PLATE 7
Transect 2: view facing south-east from MGA 395734E 6368653S
showing gently undulating surfaces in the proposed access track area

PLATE 8
Transect 2: view of locus 2 facing south-east from MGA 395721E 6368658S

PLATE 9
Transect 2: view to south from locus 2 at MGA 395721E 6368658S, showing easement

PLATE 10
Transect 2: view to south-west from MGA 395833E 6368678S showing locus 3 near easement

PLATE 11
Transect 2: view of locus 3 looking north showing flag marking midden shell

PLATE 12
Transect 2: view of tuff flake in locus 3

PLATE 13
Transect 2: view of fragmentary bone and shell in locus 3

PLATE 14
Transect 2: view to south east from locus 3 to locus 1 across proposed access track

PLATE 15
Transect 2: view to south from locus 3 to locus 2 (near mid-ground poles) from MGA 395833E 6368678S

PLATE 16
Transect 2: View to south from MGA 395770E 6368616S showing flags marking location of shell in locus 4

PLATE 17
Inter Barrier Depression: view of proposed route of access track from MGA 395885E 6369727S

PLATE 18
Inter Barrier Depression: view facing south of access track at MGA 396016E 6369648S

6.2.1 Effective Coverage

The level of effective coverage within the area surveyed (on low elevation dunes) for the proposed alternate haul route was 1.6 per cent of the total area subject to pedestrian survey.

It is noted that only approximately 20 per cent (380 metres) of the proposed route could be subject to pedestrian survey (as discussed in **Section 6.1**) as the remaining 80 per cent of the proposed route was located in the swamplands of the Inter-Barrier Depression and was considered to have no archaeological potential.

Table 6.2 – Pedestrian Transects and Areas surveyed

Tr. #	Area (m^2)	Geomorphic Unit/Landforms Category	General Description	Exposure Types	% exp	% vis	Effective Coverage m^2/%
1	12000 (175x75)	back dune (low)	Transect 1 incorporated 175 metres of sand-apple blackbutt woodland on an undulating low elevation dune system that extends northeast-southwest towards the Inter Barrier Depression: • General ground surface visibility was moderate. • Visibility on the track running along the northern boundary of Lot 218 was good. This track was 2 metres wide at the beginning of the transect. • Natural ground surfaces were observed throughout transect and no prior disturbance was noted with the exception of bioturbation. • No Aboriginal objects or PAD were observed within Transect 1.	bioturbation	7	15	126/1.05
2	24,000 (200x120)	low elevation dunes bordering IBD	Transect 2 incorporated 200 metres of low elevation dunes and extended to approximately 60 metres each side of the proposed alignment: • Visibility and exposure within the transect were good and only limited by sparse low grass coverage resulting from land clearance and ongoing grazing. • Use by vehicles of the track (that passes through the survey area from north-east to south-west) has resulted in limited exposures of mid to light grey sands on more elevated and well drained areas, with the majority of exposures containing light grey sands. The construction of this track also involved the use of imported gravel fill which was placed in areas of lower elevation prone to water retention between the most landward low elevation dunes. • An electricity easement passes through this transect from north-east to south-west landward of the low elevation dunes and therefore avoids areas of archaeological potential. Imported fill including tyres and sand has been used to construct the access road within the easement. • Four loci were present within Transect 2 and were identified based on the presence of midden shell, grey sands and in one case a tuff artefact. • Shell deposits and the artefact are likely to have been brought to the surface through bioturbation and do not appear to have exposed as a result of the construction or use of access tracks. • Aboriginal parties indicated that artefacts were once commonly seen on this low dune area but were no longer visible at the time of the survey.	Vehicle track Stock trampling	9	20	432/1.8

6.2.2 Archaeological Sites

Archaeological objects were identified during the survey on low elevation dunes near the proposed alternate haul route within the area previously identified as site A3. Four fragmented shell loci (one containing a tuff flake) were identified during the survey and are shown in **Figure 6.1**. Loci 1 to 4 are located within a 150 metre by 150 metre area on the crests of four discrete, low elevation dunes bordering the Inter-Barrier Depression (refer to **Plate 1** to **Plate 18)**. These loci form part of the A3 site (NPWS # 38-4-0649), as described in **Section 4.2**. Based on the results of the survey and previous archaeological investigations undertaken in this area, A3 extends right along this landform, with visible aspects of the site separated by areas of low visibility or disturbance.

Locus 1 is located on the crest of a low elevation dune adjacent to woodland (refer to **Plates 5** and **6)**. The surface distribution of shell at Locus 1 extends over an area approximately 25 metres by 15 metres. The locus contains fragmented and weathered pipi shell, with the highest density ($12/m^2$) of shell fragments being confined to an area of approximately 125 centimetres by 75 centimetres. More sparsely distributed pipi fragments are present across the crest of the low elevation dune. Exposed soils within the locus consist of mid grey fine sand with frequent charcoal flecks and fragments. Visibility within the site area was good as grasses were very low. No stone artefacts were present.

Locus 2 is located approximately 10 metres from the Inter-Barrier Depression adjacent to a vehicle track and electricity easement on a very gently inclined low elevation dune. The track and easement cuts into the toe of the dune slope and Locus 2 is exposed approximately 13 metres from the track (refer to **Plate 8** and **Plate 9**). Surface distribution of shell extends over approximately 5 by 5 metres. The site contains fragmented and weathered pipi shell, with the highest density of shell fragments ($5/m^2$) being confined to an area of approximately 75 centimetres by 50 centimetres. More sparsely distributed pipi fragments are present across the crest of the low elevation dune. Exposed soils within this locus consist of mid grey fine sand with frequent charcoal flecks and fragments. Visibility within the site area was good as grasses were very low. No stone artefacts were observed.

Locus 3 is located immediately adjacent to a vehicle track and electricity easement on a very gently inclined low elevation dune spur the crest of which is located 25 metres from the Inter-Barrier Depression. The track and easement cuts into the toe of the dune slope and Locus 3 is exposed between the track and dune crest (refer to **Plate 10** and **Plate 15**). Surface distribution of shell extends over an area approximately 25 metres by 25 metres. The site contains fragmented and weathered pipi shell, with the highest density of shell fragments ($5/m^2$) being confined to an area of approximately 125 centimetres by 125 centimetres. More sparsely distributed pipi fragments are present across the crest of the low elevation dune spur. Exposed soils within this locus consist of mid grey fine sand with frequent charcoal flecks and fragments. A tuff flake was present within Locus 3 (refer to **Plate 12**). In addition, a fragment of very heavily weathered mammalian long bone was also present (refer to **Plate 13**). As with Loci 1 and 2, visibility within the site area was good as grasses were very low.

Locus 4 is located on a very gently inclined low elevation dune approximately 100 metres from the Inter-Barrier Depression. Surface distribution of shell extends over approximately 25 metres by 20 metres. The site contains fragmented and weathered pipi shell, with the highest density of shell fragments ($8/m^2$) being confined to an area of approximately 150 centimetres by 150 centimetres. More sparsely distributed pipi fragments are present across the crest of the low elevation dune. Exposed soils within this locus consist of mid grey fine sand with frequent charcoal flecks and fragments. As with other loci in the survey area visibility within the site area was good as grasses were very low.

Four fragmented shell loci were noted during the survey of the proposed alternate haul route within the area previously identified as site A3. The majority of previously recorded archaeological material within A3 was identified at the interface of the low dune and the Inter-Barrier Depression. As was discussed in **Section 5**, this area would have provided direct access to the very rich resources of the Inter-Barrier Depression whilst also providing a slightly elevated landform suitable for camping. This is supported by the results of previous archaeological investigations within A3 in proximity to the alternate haul route which have resulted in the recovery of very high numbers of stone artefacts and large quantities of shell (predominantly pipi). Pipi is a beach species that would not have been available within the estuarine context of the Inter-Barrier Depression. The majority of shell deposited at the site must have been obtained from the beachfront prior to being transported to the shore of the Inter-Barrier Depression.

It is noted that the low relief dune landform extends south from the current interface with the Inter-Barrier Depression and that changes in the morphology of the Inter-Barrier Depression would have meant that the southern extension of this landform may, at times, have been closer to these resources. Thus whilst it would be expected that the greatest concentrations of archaeological material would be in proximity to the current interface with the Inter-Barrier Depression, it is likely that sub-surface archaeological material will be present throughout the remainder of this landform, albeit possibly at lower concentrations. For this reason, the surveyed portion of the alternate haul route south of the Inter-Barrier Depressions is assessed as a PAD, as shown in **Figure 6.1**.

6.3 Summary

The survey of the proposed alternate haul route traversed low elevation dunes bordering the Inter-barrier Depression. Archaeological objects were identified during the survey within the area previously identified as site A3. Four visible loci of this site containing shell and an isolated artefact were located immediately adjacent to the alternate haul route. This site is located within a landform that has been demonstrated to contain relatively high density sub-surface deposits (Umwelt 2010b and in prep) and is in a context known to have been extensively utilised by Aboriginal people in this region. Thus, this portion of the proposed haul route is associated with surface evidence of site A3 as well as including areas of landform identified as PAD.

7.0 Significance Assessment

The assessment of cultural significance is critical in establishing mitigation and management strategies for cultural heritage (refer to Pearson and Sullivan 1995:21). Cultural significance is defined by the Burra Charter in terms of aesthetic, scientific, historic and social values. In NSW Aboriginal cultural heritage is typically assessed according to its social and scientific significance (in accordance with the NPWS 1997) and these are defined below.

7.1 Aboriginal Cultural Significance

In assessing Aboriginal heritage, social significance is primarily equated with the significance placed on cultural (and sometimes natural) heritage by Aboriginal people and is often referred to as Aboriginal cultural significance. Aboriginal people value their heritage for a range of reasons, some of which are unique and some of which may be shared with non-Aboriginal people. Thus, Aboriginal people may consider a site containing archaeological material important for reasons related to its archaeological value but may also see the site as a tangible aspect of their culture that provides a direct link to Aboriginal people in the past. In contrast, sites, places or landscapes may also be of significance to Aboriginal people for reasons not linked to the presence of tangible archaeological materials such as the presence of places of spiritual importance, significant resources or important natural features.

As Aboriginal cultural significance relates to the values of a site, place or landscape to Aboriginal people, it must be determined by Aboriginal people. Aboriginal parties have previously indicated that Stockton Bight is of very high Aboriginal cultural significance due to its social, spiritual, aesthetic and educational value to the Aboriginal community (refer to ERM 2006).

A draft copy of this report was provided to all relevant Aboriginal parties on 28 September 2012 and it was requested that comment be provided regarding the Aboriginal cultural significance of the sites associated with the alternate haul route and on the significance of the survey areas as a whole. Responses are summarised in **Table 7.1** and included in full within **Appendix A**.

Table 7.1 – Aboriginal Parties Response Summary

Aboriginal Party	Comment Summary
Moo-Roo-Ma	In general supports management and mitigation recommendations, however strongly believes the access road should not be passed
Nur-Run-Gee	No further disturbance to landforms should be accepted.
Viola Brown (individual)	Is not in agreement with current proposal
Carol Rideway-Bissett	Is not in agreement with current proposal
WLALC	The recommendations provided do not restrict or adversely affect the proposed ‘Alternate Haul Road’

7.2 Archaeological Significance

The Burra Charter defines the archaeological significance of an Aboriginal site, object or place according to its potential to address research questions and provide greater insight into Aboriginal society and chronological changes in how Aboriginal people utilised the landscape and its resources (Australian ICOMOS Incorporated 2000:12). The major concepts underlying archaeological significance relate to the rarity and representativeness of a site, its integrity, intactness and overall research potential. Each of these concepts is relatively self-explanatory however the concept of representativeness warrants further discussion. Representativeness is closely linked with rarity and relates to the degree to which a site encapsulates the typical aspects of sites of its type at a local, regional and, in some cases, national level. In simple terms, representative value should be considered in terms of whether a site embodies the essential characteristics of sites of that type in the locality and region and whether sites of that type remain extant in a context that will allow for their continued conservation. The criteria for the assessment of archaeological significance are provided below.

7.2.1 Archaeological Significance Assessment Criteria

The criteria applied to the assessment of archaeological significance are listed in **Table 7.2**.

Table 7.2 – Criteria for Assessment of Archaeological Significance

Criterion	Low	Moderate	High
Rarity	The location of the site within the landscape, its type, integrity, contents and/or potential for sub-surface artefacts, are common within the local and regional context.	The location of the site within the landscape, its type, integrity, contents and/or potential for sub-surface artefacts, are common within the regional context but not the local context.	The location of the site within the landscape, its type, integrity, contents and/or potential for sub-surface artefacts, are rare within the local and regional context.
Representativeness	This site, when viewed in relation to its type, contents, integrity and location in the landscape, is common within a local and regional context and sites of similar nature (or in better condition) are already set aside for conservation within the region.	This site, when viewed in relation to its type, contents, integrity and location in the landscape, is uncommon within a local context but common in a regional context and sites of similar nature (or in better condition) are already set aside for conservation within the region.	This site, when viewed in relation to its type, contents, integrity and location in the landscape, is uncommon within a local and regional context and sites of similar nature (or in better condition) are not already set aside for conservation within the locality or region.
Integrity	Stratigraphic integrity of the site has clearly been destroyed due to major disturbance/loss of topsoil. The level of disturbance is likely to have removed all spatial and chronological information.	The site appears to have been subject to moderate levels of disturbance, however, there is a moderate possibility that useful spatial information can still be obtained from sub-surface investigation of the site, even if it is unlikely that any useful chronological evidence survives.	The site appears relatively undisturbed and there is a high possibility that useful spatial information can still be obtained from sub-surface investigation of the site, even if it is still unlikely that any useful chronological evidence survives. (In cases where both spatial and chronological evidence is likely to survive the site will gain additional significance from high scores for rarity and representativeness).

Table 7.2 – Criteria for Assessment of Archaeological Significance (cont.)

Criterion	Low	Moderate	High
Connectedness	There is no evidence to suggest that the site is connected to other sites in the local area or the region through: • their chronology (rarely known); and • their site type (e.g. connectedness could be argued between an axe quarry, a nearby set of axe grinding grooves and an adjacent site exhibiting evidence of axe reduction).	There is some evidence to suggest that the site is connected to other sites in the local area or the region through: • their chronology (rarely known); and • their site type (e.g. connectedness could be argued between an axe quarry, a nearby set of axe grinding grooves and an adjacent site exhibiting evidence of axe reduction).	There is good evidence to support the theory that the site is connected to other sites in the local area or the region through: • their chronology (rarely known); and • their site type (e.g. connectedness could be argued between an axe quarry, a nearby set of axe grinding grooves and an adjacent site exhibiting evidence of axe reduction).
Research Potential	The site, when viewed in relation to its type, contents, integrity and location in the landscape has limited potential to contribute to a greater understanding of how Aboriginal people lived within this area or region.	The site, when viewed in relation to its type, contents, integrity and location in the landscape has moderate potential to contribute to a greater understanding of how Aboriginal people lived within this area or region.	The site, when viewed in relation to its type, contents, integrity and location in the landscape has high potential to contribute to a greater understanding of how Aboriginal people lived within this area or region.

7.2.2 Assessment of Archaeological Significance

The assessment of archaeological significance has two components:

1) the archaeological significance of sites associated with the proposed alternate haul route; and

2) the archaeological significance of the landscape encompassed by the proposed alternate haul route as a whole.

The application of the archaeological significance criteria to sites and PADs is relatively straight forward however the assessment of the significance of the cultural landscape warrants further discussion. A cultural landscape can be defined as the connection between Aboriginal heritage (including sites and features and their relationships) and the natural elements of the landscape such as landscape history, topography and flora and fauna. Using this approach, archaeological material comprises one element of a cultural landscape and the significance of this landscape may be separate from that of the sites or features that it contains (ERM 2006:101).

Archaeological Significance of Site A3

As discussed in **Section 4.3**, site A3 (and any associated sub-surface deposits) has previously been assessed as having moderate to high archaeological significance (Umwelt 2011). Sites of this size with extensive deposits of high density stone artefacts and shell can contribute significantly to our understanding of how Aboriginal people used this area and the site has moderate to high archaeological significance based on its rarity, representativeness, integrity, connectedness and overall research potential.

Archaeological Significance of Landscape of Alternate Haul Route

The landscape associated with the alternate haul route is located at the interface between stabilised dunes of Holocene age and the Inter-Barrier Depression. The stabilised dunes would have been an area that was regularly utilised by Aboriginal people to access the rich resource base provided by the Inter-Barrier Depression. Sections of the proposed alternate haul route outside areas that have been previously been disturbed by easement or track construction and vegetation clearance have vegetation communities and associated resources very similar to those that would have been present during periods associated with the deposition of cultural materials. Sections of the alternate haul route therefore have high archaeological landscape significance because they provide a cultural landscape within which the landscape history, flora, fauna and archaeological material associated with this portion of Stockton Bight can be experienced as a whole.

The remaining sections of the alternate haul route are located within the Inter-Barrier Depression and are unlikely to contain archaeological deposits. The Inter-Barrier Depression remains significant in terms of its broader association with the stabilised dune environments likely to contain archaeological materials, as described above.

8.0 Impacts in Relation to the Archaeological Assessment

As discussed in **Section 1.1**, the construction of the alternate haul route will require the establishment of a suitable level surface of approximately 8 metres in width along the length of the alternate haul route, with a turning bay of approximately 30 metres by 30 metres located in the area adjoining Lot 218 extraction area and an overall potential construction width of 10 metres. This will involve widening of the existing vehicle tracks (where present) to create a road that can sustain heavy traffic and potential for vegetation clearance to create the turning bay.

Where feasible (with reference to environmental constraints and construction requirements) it is proposed that the alternate haul route will be constructed by the filling of areas to create a level surface. This will require clearance of native vegetation in woodland areas between an existing perimeter trail in low dunes and the grassland that borders the Inter-Barrier Depression. It may then be necessary to introduce road base (or similar) materials to create a stable surface.

Given that A3 has a moderate to high level of archaeological significance based on the previously demonstrated occurrence of sub-surface artefactual material in this area and its potential for deposits with some degree of integrity and a low to moderate significance as a cultural landscape, Mackas Sand has indicated that the alternate haul route will be constructed using a low ground disturbance method in order to mitigate impacts to this site. Consequently, Mackas Sand has indicated that the alternate haul route within the site/PAD will be constructed by laying geotextile material over the natural ground surface and introducing additional fill material (i.e. not sand from other sections of the alternate haul route) over the geotextile to provide a suitable road surface. This will be done after surface artefacts have been collected and in a progressive fashion so that all heavy vehicle movement associated with road construction and subsequent use is confined to the area in which geotexile and fill have already been introduced. Consequently, it will not be necessary to undertake significant ground disturbance works within A3 and sub-surface deposits will be protected from impacts associated with construction and use of the alternate haul route.

9.0 Archaeological Recommendations

The following mitigation and management recommendations have been developed in light of the archaeological context of the region (including the outcomes of the Aboriginal cultural heritage assessment of the initial alternate haul route); the findings of the survey; the consideration of archaeological significance, the potential impacts of the proposed development and current cultural heritage legislation. It is noted that these recommendations reiterate those provided for the section of the currently proposed alternate haul route that extends from the northern boundary of Lot 218 to the Lot 218 approval area and was previously assessed by Umwelt (2011). This reiteration is intended to provide a complete set of recommendations for the proposed alternate access route. These recommendations are provided from an archaeological perspective, with Aboriginal party recommendations provided separately in **Section 10.0**.

9.1 A3 and PAD within Section of the Currently Proposed Alternate Haul Route that Extends From the Northern Boundary of Lot 218 to the Lot 218 Approval Area

1. In consultation with the AHMG (as established under the Mackas Sand ACHMP), Mackas Sand should demarcate the route boundary from the edge of the Inter-Barrier Depression south to the intersection with the Lot 218 approved operational area (i.e. within the area identified as PAD). This demarcation should be done prior to route construction and any surface artefacts within demarcated area should be collected in consultation with the AHMG (refer to **Figure 9.1**).

2. Vegetation clearance from the edge of the Inter-Barrier Depression south to the intersection with the Lot 218 approved operational area (i.e. within the area identified as PAD) will occur as a staged process in accordance with the following methodology:

    - understorey vegetation and all trees smaller than approximately 50 centimetres diameter at chest height will be removed by earth-moving equipment or similar and placed outside the newly cleared area so that all of the newly cleared area is visible. At this stage, the AHMG will be invited to undertake an inspection of the newly cleared area;
    - following the initial inspection, the remaining large trees will be cleared by machinery (in accordance with ecological tree clearance procedures) and the AHMG will be invited to inspect the additional area of ground disturbance resulting from large tree clearance at a time determined in consultation with the AHMG; and
    - during vegetation clearance inspections (as discussed above), any Aboriginal objects such as stone artefacts and shell) will be collected in accordance with the approved methodology incorporated in the ACHMP (Umwelt 2009a: Appendix 2, Attachment 3).

3. Following vegetation clearance, construction of the alternate haul route from the edge of the Inter-Barrier Depression south to the intersection with the Lot 218 approved operational area should proceed in accordance with the description provided in **Section 8**. (i.e. road construction could commence creating a level surface of approximately 8 metres in width along the length of the alternate haul route, with a turning bay of approximately 30 metres by 30 metres located in the area adjoining Lot 218 and an overall potential construction width of 10 metres).

4. It is noted that the additional recommendations regarding this activity were provided by Aboriginal party representatives (refer to **Section 10.0**).

Source: Aerial: Google Earth (2008)

0 100 250 500m
1:10 000

Legend

- Lot 218 Boundary
- Lot 218 Approved Extraction Area
- Proposed Alternate Access Route
- Proposed Intersection Location
- Visible Midden within A3 (2012)
- Visible Midden Material within A3 (Umwelt 2011)
- Artefact Scatter within A3 (2012)
- Midden
- Artefact and Shell
- Road boundary to be demarcated prior to road construction. Any surface artefacts within the demarcated area should be collected in consultation with AHMG. AHMG given opportunity to inspect after initial vegetation clearance (underscrubbing) and following removal of large trees and to collect any surface artefacts exposed at this time. Road will then be constructed with introduced fill over geotextile fabric to ensure no subsurface impacts

FIGURE 9.1

Archaeological Management Recommendations for Access Track Construction

File Name (A4): R37_V1/1646_327.dgn

9.2 General Recommendations

1. Mackas Sand will ensure that its employees and contractors are aware that it is an offence under Section 86 of the *National Parks and Wildlife Act 1974* to harm an Aboriginal object without the consent of the Director-General of OEH or unless otherwise approved under Part 3A of the EP&A Act.

2. If Project Approval 08_0142 is modified to incorporate the alternate haul route, the Mackas Sand ACHMP should also be modified to include the alternate haul route, with all recommendations included in this assessment to be incorporated into the revised ACHMP. All provisions of the ACHMP will then apply to the alternate haul route.

3. Any Aboriginal objects (such as stone artefacts or shell fragments) salvaged in relation to the recommendations provided in **Sections 9.1** will be subject to analysis and interpretation in accordance with the methodology provided in Section 5.10 of the Mackas Sand ACHMP (Umwelt 2009a).

4. The arrangements for care and control of any salvaged Aboriginal objects will be as specified in Section 5.11 of the Mackas Sand ACHMP.

5. Should any unexpected sub-surface deposits (other than human skeletal material) be identified during construction and use of the alternate haul route, they will be managed in accordance with Section 5.8 of the Mackas Sand ACHMP (Umwelt 2009a).

6. Should any further investigations be necessary (surface collection, test excavation or salvage excavation) will be conducted in accordance with the approved methodologies provided in the Mackas Sand ACHMP (Umwelt 2009a: Appendix 2 as revised).

7. Should human/possible human skeletal material be identified during construction and use of the alternate haul route, it will be managed in accordance with Section 5.9 of the Mackas Sand ACHMP (Umwelt 2009a).

10.0 Aboriginal Party Recommendations

The specific recommendations provided by each of the relevant Aboriginal parties are listed below. This information is based on comments provided by Aboriginal parties, as detailed in **Section 2.0** and **Appendix A**. It is noted that **Section 10.1** below incorporates previous recommendations made by Aboriginal parties as part of the assessment of the initial alternate haul route (Umwelt 2011), where these recommendations remain pertinent to the currently proposed haul route. The comments provided by Aboriginal parties to earlier haul route proposals are also contained in **Appendix A**.

10.1 Recommendations Provided in Response to the Aboriginal Cultural Heritage Assessment of the Initial Alternate Haul Route

1. Worimi LALC indicated that recommendations provided in the previous draft report (which are consistent with those provided above), 'do not, in any way, restrict or unfavourably effect this development'.

2. Nur-Run-Gee recommended that existing infrastructure on Lot 218 should be utilised and is hesitant to support any variation to Project Approval 08_0142.

3. Mur-Roo-Ma recommended that the previously approved access to the sand extraction face should be utilised and the alternate haul route should not be approved.

4. Both Carol Ridgeway-Bissett and Viola Brown recommended that the proposed modification is not approved because of its impacts on Aboriginal cultural heritage and the cultural landscape, including flora and fauna.

10.2 Recommendations Provided in Response to 2012 Draft Assessment for Alternative Haul Route

Recommendations provided by Aboriginal parties during the current assessment process are qualitively similar to those provided during the 2011 assessment process. Details of comments are provided within **Appendix A**. In addition to the comments included within **Section 10.1**, Carol Ridgeway-Bissett recommended:

- that a nearby area be set aside for the reburial of artefacts. This comment was strongly supported by Viola Brown;

- ensuring proper assessment of acid sulphate soil and traffic impacts due to the proposal on Nelson Bay Road;

- ensuring proper assessment of impacts to the wider Cultural Landscape, including flora and fauna, water resources and the tangible and intangible record; and

- ensuring that any rehabilitation undertaken is effective.

11.0 References

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Umwelt (Australia) Pty Limited (Umwelt), 2009b. Environmental Assessment of Sand Extraction Operations from Lot 218 DP 1044608 and Lot 220 DP 1049608, Salt Ash Report to Mackas Sand.

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APPENDIX 1

Aboriginal Stakeholder Consultation

Appendix 1 – Aboriginal Party Consultation

Proposed Initial Alternate Haul Route

Refer to Umwelt (Australia) Pty Limited (Umwelt), 2011. *Aboriginal Cultural Heritage Assessment of proposed Alternate Haul Route to Lot 218 DP 1044608, Salt Ash* for copies of correspondence materials.

Table 1 – Proposed Initial Alternative Haul Route

Date	Type of Consultation	Authorities/Aboriginal Parties Contacted	Outcome
27/02/2010	Advertisement providing notification of assessment and opportunity to registration interest in on-going consultation.	Advertisement placed in Newcastle Herald	
03/03/2010	Letter providing notification of assessment and request to identify Aboriginal parties.	Department of Environment, Climate Change and Water	Viola Brown identified as an additional potential registrant
		Office of the Registrar of Aboriginal Owners	
		Port Stephens Shire Council	
		NSW Native Title Services	
		Worimi Local Aboriginal Land Council	
03/03/2010	Letter providing notification of assessment, invitation to register interest in on-going consultation and proposed survey methodology.	Worimi Local Aboriginal Land Council	Interest registered
		Nur-Run-Gee Pty Ltd (Nur-Run-Gee)	Interest registered
		Worimi Traditional Aboriginal Elders and Owners Group	Les Ridgeway previously indicated would no longer be involved in cultural heritage assessments
		Mur-Roo-Ma Incorporated (Mur-Roo-Ma)	Interest registered
		Maaiangal Aboriginal Heritage Cooperative	Interest registered. Carol indicated that, due to lack of insurance coverage, she would not be participating in the survey but will remain a registered party for consultation purposes

Table 1 – Proposed Initial Alternative Haul Route (cont.)

Date	Type of Consultation	Authorities/Aboriginal Parties Contacted	Outcome
29/03/2010	Initial survey of proposed access road.	Worimi Local Aboriginal Land Council	Jamie Merrick participated in survey
		Nur-Run-Gee	Chris Collison participated in survey
		Mur-Roo-Ma	Anthony Anderson participated in survey
6/05/2010	Letter providing notification of assessment, invitation to register interest in on-going consultation and proposed survey methodology.	Viola Brown	Interest registered in on-going consultation
21/05/2010	Survey of additional portion of proposed access road.	Worimi Local Aboriginal Land Council	Jamie Merrick participated in survey
		Nur-Run-Gee	Lennie Anderson participated in survey
		Mur-Roo-Ma	Anthony Anderson participated in survey
03/08/2010	Draft (initial) Aboriginal cultural heritage assessment provided to relevant Aboriginal parties for review and comment.	Worimi Local Aboriginal Land Council	Comment provided in writing
		Nur-Run-Gee Pty Ltd (Nur-Run-Gee)	Comment provided in writing
		Mur-Roo-Ma Incorporated (Mur-Roo-Ma)	Comment provided in writing
		Maaiangal Aboriginal Heritage Cooperative	Verbal comment provided
		Viola Brown	Verbal comment provided

Table 1 – Proposed Initial Alternative Haul Route (cont.)

Date	Type of Consultation	Authorities/Aboriginal Parties Contacted	Outcome
28/09/2011	Letter providing notification of alteration to proposed access road and provision of proposed additional survey methodology.	Worimi Local Aboriginal Land Council	No comment provided.
		Nur-Run-Gee Pty Ltd (Nur-Run-Gee)	Comment provided in writing.
		Mur-Roo-Ma Incorporated (Mur-Roo-Ma)	Comment provided in writing.
		Maaiangal Aboriginal Heritage Cooperative	No comment provided.
		Viola Brown	No comment provided.
10/10/2011	Survey of altered sections of proposed access road.	Worimi Local Aboriginal Land Council	Jamie Merrick participated in survey.
		Nur-Run-Gee	Chris Collison participated in survey.
		Mur-Roo-Ma	Anthony Anderson participated in survey.
27/10/2011	Discussion of survey results and potential mitigation/management strategies with survey participants.	Worimi Local Aboriginal Land Council	Jamie Merrick participated in discussion.
		Nur-Run-Gee	Lennie Anderson participated in discussion.
		Mur-Roo-Ma	Anthony Anderson was unavailable to participate in discussion but authorised Lennie Anderson to also represent views of Mur-Roo-Ma.
8/11/2011	Draft Aboriginal cultural heritage assessment provided to relevant parties for review and comment.	Worimi Local Aboriginal Land Council	Comment provided in writing.
		Nur-Run-Gee Pty Ltd (Nur-Run-Gee)	Comment provided in writing.
		Mur-Roo-Ma Incorporated (Mur-Roo-Ma)	Comment provided in writing.
		Carol Ridgeway-Bisset (previously Maaiangal Aboriginal Heritage Cooperative)	Verbal comment provided.
		Viola Brown	Verbal comment provided.

Consultation Regarding Currently Proposed Alternate Haul Route

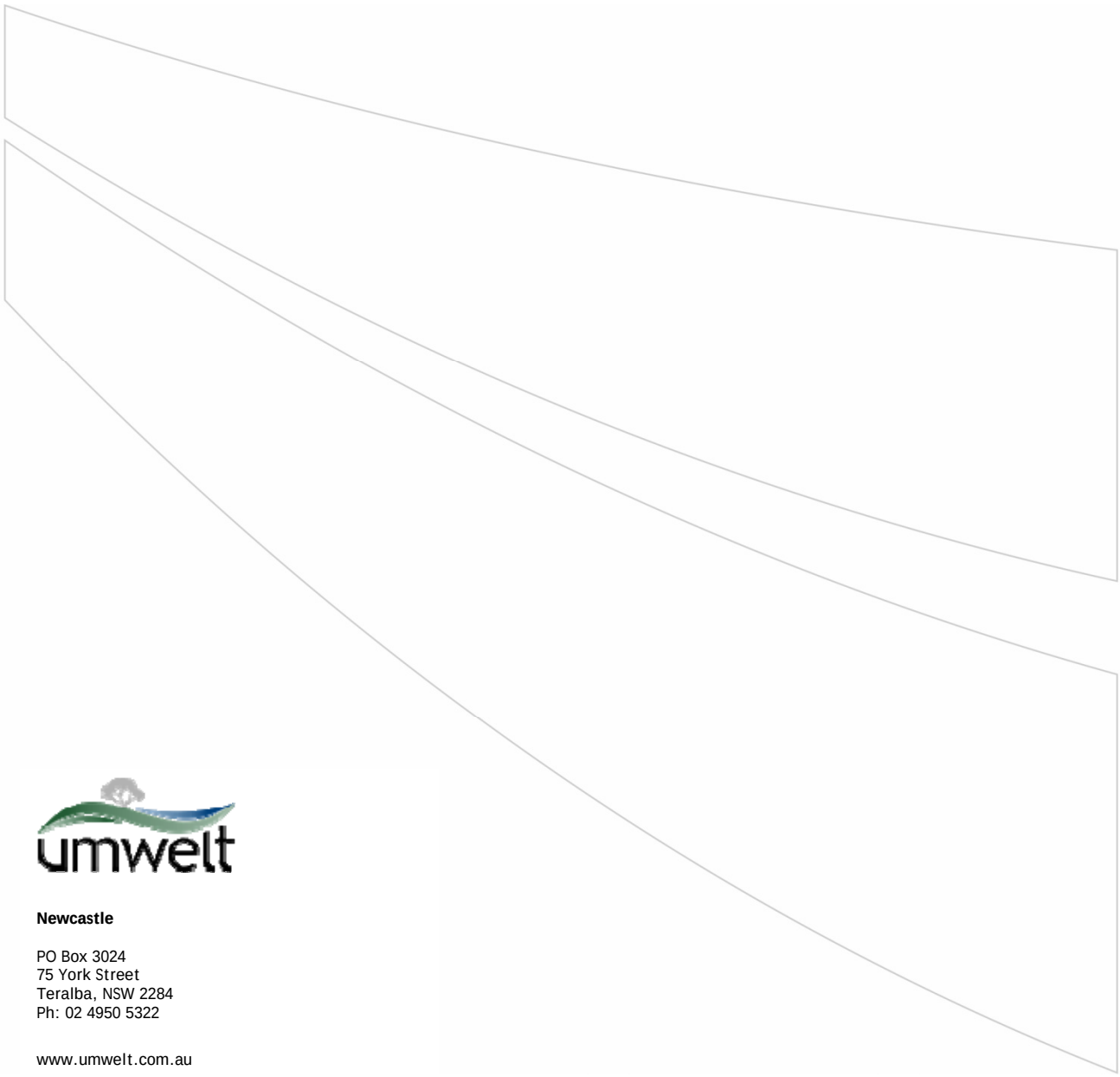
Note that ongoing communications with the Aboriginal Heritage Management Group (AHMG) that do not relate to the current modification proposal are not included within the communication record. The current record commences at the time of AHMG survey of the of sections of proposed alternate access road to Lot 218 and alternate extraction area at Lot 220 as this is when a briefing regarding the modification proposal was given. The proposed alternate extraction area at Lot 220 has since been removed from this modification application. Note that Ms Carol Ridgeway-Bissett remains a registered Aboriginal party but no longer represents Maaiangal Aboriginal Heritage Cooperative.

Table 2 - Consultation Regarding Currently Proposed Alternate Haul Route

Date	Type of Consultation	Authorities/Aboriginal Parties Contacted	Outcome
25/07/2012	Letter and email sent to member organisations of the AHMG with regard to AHMG inspection of proposed Lot 218 alternate haul route (Attached).	Worimi Local Aboriginal Land Council	Time and date for AHMG site inspection agreed.
		Nur-Run-Gee Pty Ltd (Nur-Run-Gee)	Time and date for AHMG site inspection agreed.
		Mur-Roo-Ma Incorporated (Mur-Roo-Ma)	Time and date for AHMG site inspection agreed.
30/07/2012	Discussion and survey of sections of proposed alternate access road to Lot 218 and alternate extraction area at Lot 220 (Internal to AHMG. Lot 220 modification now removed from application). Following survey, additional discussion of survey results and potential mitigation/management strategies.	Worimi Local Aboriginal Land Council	Jamie Merrick and Jono Lilley participated in survey and discussion.
		Nur-Run-Gee	Lennie Anderson participated in survey and discussion.
		Mur-Roo-Ma	Anthony Anderson participated in survey and discussion.

Table 2 - Consultation Regarding Currently Proposed Alternate Haul Route (cont.)

Date	Type of Consultation	Authorities/Aboriginal Parties Contacted	Outcome
09/08/2012	Project description and proposed survey methodology sent to registered Aboriginal parties (attached).	Worimi Local Aboriginal Land Council	Email sent on 03/09/2012 informing of approaching methodology comment due date. No comment on methodology received.
		Nur-Run-Gee	Phone call on 03/09/2012 and email on 04/09/2012 informing of approaching methodology comment due date. No comment on methodology received.
		Mur-Roo-Ma	Written comment on methodology received 16/08/2012. (attached).
		Carol Ridgeway-Bissett	Phone call on 03/09/2012 informing of approaching methodology comment due date and to reiterate opportunity for additional site survey. Survey opportunity declined and no comment on methodology received.
		Viola Brown	Phone call on 03/09/2012 informing of approaching methodology comment due date and to reiterate opportunity for additional site survey. Survey opportunity declined and no comment on methodology received.
28/09/2012	Draft Aboriginal cultural heritage assessment provided to relevant parties for review and comment via email.	Worimi Local Aboriginal Land Council	Email undeliverable; phone call follow up.
		Nur-Run-Gee	Email delivered; phone call follow up.
		Mur-Roo-Ma	Email delivered; phone call follow up.
03/10/2012	Draft Aboriginal cultural heritage assessment provided to relevant parties for review and comment as hard copy.	Worimi Local Aboriginal Land Council	Comment provided in writing 18/10/2012.
		Nur-Run-Gee	Comment provided in writing 08/10/2012.
		Mur-Roo-Ma	Comment provided in writing 09/10/2012.
		Carol Ridgeway-Bissett	Comment provided verbally 12/10/2012.
		Viola Brown	Comment provided verbally 16/10/2012: Viola affirmed the recommendations of Carol Ridgeway-Bissett, especially with regard to the burying of collected artefacts nearby.



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