



Roads and Traffic Authority of NSW

Oxley Highway to Kempsey Upgrading the Pacific Highway Environmental Assessment

MAIN VOLUME

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19. Aboriginal heritage

This chapter describes existing Aboriginal cultural heritage values in the Proposal area, assesses potential impacts of the Proposal and proposes management measures to mitigate potential impacts.

The information presented in this chapter is drawn from the *Aboriginal Heritage Working Paper*, provided in **Volume 3** of this Environmental Assessment, and additional consultation with representatives of the local Aboriginal community. The *Aboriginal Heritage Impact Assessment of the Proposed Upgrade of the Pacific Highway between the Oxley Highway and Kempsey, New South Wales* prepared by South East Archaeology (2010) formed the basis for the *Aboriginal Heritage Working Paper*. The report prepared by South East Archaeology is a confidential report that will not be released to the public in order to protect the Aboriginal heritage evidence identified in that report.

The Director-General's environmental assessment requirements identify a number of key issues to be addressed in relation to Aboriginal heritage. **Table 19-1** indicates where the aspects of the Director-General's environmental assessment requirements that relate to Aboriginal heritage are addressed, either in this chapter or in other chapters (in *italics*).

Table 19-1 **Aboriginal heritage**

Environmental assessment requirements	Where addressed
Indigenous heritage – including but not limited to:	
Aboriginal cultural heritage values of the route, specifically on both artefact, potential archaeological deposits and landscape cultural values (such as watercourses) and mitigation measures, where relevant.	Sections 19.2 and 019.3
Regional scale cumulative impacts and identify the significance of the impacts of the project in the context of the PHUP.	Section 19.3.3

19.1 Assessment approach

19.1.1 Assessment methodology

The Aboriginal heritage impact assessment for the Proposal was undertaken in accordance with the RTA's *Aboriginal Heritage Guidelines* (2002). The assessment included:

- An initial predictive desk-top study undertaken in consultation with the Aboriginal community to assist with the selection of feasible route options.
- Detailed investigations of the Proposal including a review of the archaeological, cultural and environmental background of the area. Comprehensive field surveys were undertaken with registered Aboriginal stakeholders.
- Sub-surface investigations, consultation, analysis and reporting.

The assessment has been undertaken with reference to the following guidelines:

- *Aboriginal Heritage Guidelines* (RTA 2002).
- *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DECCW 2005).
- *Aboriginal Cultural Heritage Standards and Guidelines Kit* (NPWS 1997).
- *Interim Community Consultation Requirements for Applicants* (DEC 2004b).

19.1.2 Aboriginal community consultation

A comprehensive program of Aboriginal consultation and involvement in the project has occurred since route selection studies commenced in 2004. The consultation has been undertaken with reference to the *Aboriginal Heritage Guidelines* (RTA 2002) and *Interim Community Consultation Requirements for Applicants* (DEC 2004b). In light of the extensive consultation undertaken prior to 2008, the *RTA Procedure For Aboriginal Cultural Heritage Consultation and Investigation* (RTA 2008) was not applied, however the Aboriginal consultation program conducted for the Proposal generally accords with the principles of those guidelines.

In April 2010, the *Interim Community Consultation Requirements for Applicants* were replaced with *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010). The new guidelines contain transitional provisions, stating that consultation processes commenced under the interim guidelines should continue under those interim guidelines. Further information regarding the comprehensive consultation undertaken for the Proposal is provided in the *Aboriginal Heritage Working Paper*, provided in **Volume 3** of this Environmental Assessment.

Three Aboriginal stakeholder groups registered for the Aboriginal cultural heritage consultation group (known as the Aboriginal focus group) established for the Proposal. Those Aboriginal stakeholders were:

- Kempsey Local Aboriginal Land Council.
- Dunghutti Elders Corporation.
- Birpai Local Aboriginal Land Council.

The registered stakeholders were provided with relevant information about the Proposal, participated in the Aboriginal focus group meetings, were provided copies of the proposed methodology for the field survey and sub-surface investigations, and were involved in a number of informal meetings and discussions.

Representatives from the registered Aboriginal stakeholder groups participated in the field survey for the Proposal in March 2007, and the sub-surface testing undertaken in November and December 2007. The Aboriginal representatives expressed satisfaction with the methodology adopted and the consultation process, as well as having a strong interest in the findings.

The Aboriginal focus group met on three occasions for the Proposal, on 27 February 2006, 8 February 2007 and 23 February 2010. The Aboriginal focus group provided a forum for representatives of the registered Aboriginal groups to meet with the RTA to discuss known areas and sites of Aboriginal cultural significance. The Aboriginal focus group also enabled the Aboriginal representatives to be kept informed on the progress of the Proposal.

The registered stakeholders were provided with a draft of the *Aboriginal Heritage Impact Assessment of the Proposed Upgrade of the Pacific Highway between the Oxley Highway and Kempsey, New South Wales* prepared by South East Archaeology (2010) on 23 February 2010. The registered stakeholders were invited to provide comments prior to its finalisation, in accordance with the *Interim Community Consultation Requirements for Applicants* (DEC 2004b). A number of attempts were made between March and August 2010 to obtain feedback from the stakeholders on the draft report. At the time of finalising this Environmental Assessment, no feedback had been received, and the RTA was continuing to make efforts to obtain this feedback.

The *Aboriginal Heritage Impact Assessment of the Proposed Upgrade of the Pacific Highway between the Oxley Highway and Kempsey, New South Wales* prepared by South East Archaeology (2010) formed the basis for the *Aboriginal Heritage Working Paper* provided in **Volume 3** of this Environmental Assessment.

19.1.3 Literature and database review

Heritage registers and planning instruments were reviewed to ascertain whether any Aboriginal heritage sites had previously been recorded within or adjacent to the Proposal. This included a review of the following:

- Aboriginal Heritage Information Management System maintained by DECCW.
- National Heritage List, Commonwealth Heritage List and Register of the National Estate.
- *North Coast Regional Environmental Plan*.
- *Hastings Local Environmental Plan 2001*.
- *Kempsey Local Environmental Plan 1987*.

Additional research was conducted at the National Library of Australia and by accessing the DECCW catalogue of Aboriginal site records and archaeological reports.

Searches of the National Native Title Register, Register of Native Title Claims and Register of Aboriginal Land Use Agreements and for unregistered claimant applications with the National Native Title Tribunal were also undertaken for the local government areas of Port Macquarie-Hastings and Kempsey.

Results of the database searches are provided in **Section 19.2.2**.

19.1.4 Previous archaeological investigations

Prior to and unrelated to this assessment a number of archaeological surveys and excavations have been undertaken within the vicinity of the Proposal for development and academic research purposes. Examination of the more relevant investigations indicates that there is a range of site types and a variety of outcomes from the site investigations in the Proposal area and the broader region. These earlier investigations have assisted with both the identification of typical site locations for this area and the development of a predictive model of potential site locations for the Proposal.

19.1.5 Predictive model of site location

A predictive model was developed to assist with the identification of the nature and extent of Aboriginal heritage items that may be present within a 2 kilometre-wide area encompassing the Proposal. The predictive model and a comprehensive program of Aboriginal community consultation informed the scope of detailed field surveys for the Proposal.

The predictive model was based on information from a range of sources including:

- Identification of land systems (potential usage patterns) and landform units.
- Previous archaeological surveys conducted within the region.
- Distribution of recorded sites and known site density.
- Traditional Aboriginal land use patterns.
- Identification of areas of significance to the local Aboriginal community.

Following completion of the field survey and subsequent sub-surface investigations the predictive model was refined (**Section 19.2.4**) based on the new evidence gathered.

19.1.6 Field survey

A comprehensive field survey of the Proposal was undertaken by South East Archaeology over nine days in March 2007 covering an area of approximately 37 kilometres in length with an average width of 150 metres. Representatives of the Kempsey Local Aboriginal Land Council, Dunghutti Elders Corporation and the Birpai Local Aboriginal Land Council participated in this survey.

During the field survey, the Aboriginal stakeholders provided input on areas of cultural significance within the study area such as:

- Sites or places associated with ceremonies, spiritual or mythological beliefs and traditional knowledge.
- Sites or places of Aboriginal cultural significance from the post European contact period.
- Sites or places of contemporary Aboriginal cultural significance.

Results of the field survey are provided in **Section 19.2.2**.

Survey coverage

The total area subject to field survey was approximately 560 hectares. Approximately 100 hectares (approximately 18 per cent) is highly disturbed by previous development including the existing Pacific Highway and was subject to a brief visual inspection. This confirmed that these areas had negligible potential for any Aboriginal heritage evidence to survive.

Virtually the entire length of the Proposal was inspected on foot during the field survey, representing an area of approximately 413 hectares (approximately 74 per cent).

At the time of the field survey access was not available to a number of properties, representing an area of approximately 47 hectares (approximately 8 per cent). Most of these properties comprise portions of survey areas that were sampled to some extent, in adjoining properties for which access was available. In addition, many of the properties for which access was not available comprise areas of low heritage potential and/or very low surface visibility, and inspection is not considered to be necessary. However, four of these properties have been identified as requiring field survey to confirm the potential for Aboriginal heritage evidence to be present. This would be undertaken during the detailed design phase.

Despite the low ground surface visibility in some areas due to the grass cover, the level and nature of effective survey coverage was considered satisfactory to present a valid assessment of the Aboriginal cultural heritage resource within the area. Given the comprehensive nature of the survey coverage, it was considered that there would only be a low likelihood of discovering any further unknown Aboriginal objects apart from stone artefacts.

The detailed field surveys did not include those sections of the service road network that would use existing local roads as shown on **Figure 6-1a** to **Figure 6-1b** and **Figure 6-2a** to **Figure 6-2q**. Discussion regarding the applicability of the findings of this assessment to the proposed service and access roads is provided in **Section 19.3.4**.

19.1.7 Sub-surface investigations

During the field survey, three areas were identified as having a high potential for deposits of stone artefacts, particularly deposits that may be of significance. These potential deposits occur on a hill crest north of the Hastings River and two hill crests north of the Wilson River. Sub-surface investigations were undertaken for two of these potential deposits to obtain more information about the nature and extent of the heritage evidence in these locations.

A sub-surface investigation methodology was formulated in consultation with the Aboriginal stakeholders and conducted at the potential deposit north of the Hastings River and at one deposit north of the Wilson River. Sub-surface investigation was not undertaken on the second crest north of the Wilson River due to its small spatial extent, existing high levels of impact and similarity to the other crest north of the Wilson River that was being investigated.

Representatives from the Birpai Local Aboriginal Land Council and the Dunghutti Elders Corporation participated in these sub-surface investigations, which were undertaken in November and December 2007. Results of the sub-surface investigations are provided in **Section 19.2.3**.

19.2 Existing Aboriginal heritage environment

19.2.1 Context

The Birpai people traditionally occupied lands in the southern section of the area between Port Macquarie and Kempsey, and the Dunghutti people occupied lands in the northern section of the area. Major interactions between the two peoples occurred in the area to the north of the Hastings River and the south of the Wilson River.

Historically, Aboriginal occupation in the area was predominantly focused on the more abundant and diverse resource rich zones located along the margins of the coast, estuaries, lakes, wetlands and rivers. Outside of these primary resource zones, sporadic occupation of secondary resource zones focused on smaller watercourses, particularly those within close proximity of higher order watercourses and associated flats and terraces. There was a strong preference for camping on level ground, adjacent to reliable water sources and more abundant subsistence resource areas.

Occupation outside these primary and secondary resource zones tended to involve hunting and gathering activities by small parties of men and/or women and children, along with transitory movement between locations, and also for the procurement of stone materials.

19.2.2 Aboriginal cultural heritage values

Culturally sensitive areas

Four areas of cultural sensitivity were identified from the comprehensive program of Aboriginal consultation undertaken for the Proposal. Further information regarding the consultation and the nature of these sites is provided in the *Aboriginal Heritage Impact Assessment of the Proposed Upgrade of the Pacific Highway between the Oxley Highway and Kempsey, New South Wales* prepared by South East Archaeology (2010).

These four areas were taken into account in the field survey and as part of the ongoing development of the Proposal. An additional area of cultural sensitivity was identified later in the development process. All five areas are described in **Table 19-2**.

Table 19-2 Areas of Aboriginal cultural heritage sensitivity

Site name	Description
Sancroix Road ceremonial	This area is reported by elderly non-Aboriginal residents to occur on a hill crest to the west of the Proposal
Hastings River	The Hastings River is a large river that rises on the eastern slopes of the Great Divide and flows generally eastward to the Pacific Ocean at Port Macquarie. The Proposal traverses the Hastings River through a highly modified agricultural landscape, several hundred metres to the west of the existing highway and bridge, about nine kilometres west of the river's mouth. The river is approximately 400 metres wide in the vicinity of the Proposal and saline, with alluvial flats flanking either bank.
Maria River	The Maria River is a higher order tributary of the Hastings River, which is saline and estuarine in its lower reaches, but retains fresh water in its upper and middle reaches, including in the vicinity of the Proposal.
Dalhunty Island	Dalhunty Island is an island within the Wilson River, a large tributary of the Maria River. The island measures about 1.5 kilometres in length and several hundred metres in width, and is largely comprised of alluvial sediments. The island is located east of Telegraph Point and approximately one kilometre west of the junction of the Wilson River with the Maria River.
Ochre site	This site is located in a road cutting in the southern part of the Proposal. This ochre vein was exposed by road construction activity in about 1968.

No additional areas of Aboriginal cultural sensitivity were identified during the field survey. However, some information in the form of traditional or historical knowledge was provided by the Aboriginal stakeholders. This information indicated that the ridgelines north of the Hastings and Wilson rivers were likely corridors of movement for Aboriginal people in the past (Birpai Local Aboriginal Land Council representative, pers. comm., 2007). These ridgelines are included in the areas subject to sub-surface investigations (**Section 19.1.7** and **19.2.3**).

Following completion of the field survey, further consultation with representatives of the Birpai Local Aboriginal Land Council resulted in the identification of an exposed ochre site in a road cutting in the southern part of the Proposal. This ochre site has also been included in **Table 19-2** as an area of cultural sensitivity.

Aboriginal archaeological sites

Investigations undertaken for the route option development and preferred route selection phases of the Proposal identified a number of recorded Aboriginal sites in the broader area encompassing the Proposal. An updated search of the DECCW Aboriginal Heritage Information Management System undertaken in August 2009 identified a total of 32 recorded Aboriginal sites in the vicinity of the Proposal, and includes those sites identified during previous surveys. No other Aboriginal sites are listed within the area on any other heritage register or planning instrument.

During the 2007 field survey for the Proposal, eight Aboriginal heritage sites were recorded within the immediate vicinity of the Proposal. These sites have subsequently been registered on the DECCW Aboriginal Heritage Information Management System. The eight sites are described in **Table 19-3**. Two additional sites (OHK46 and OHK47) were identified during the subsequent sub-surface investigations and these are discussed in **Section 19.2.3**.

Table 19-3 Aboriginal heritage sites recorded during the field survey

Site name	DECCW #	Slope/ landform	Potential for sub-surface deposits	Site type
OHK54/A	#30-3-0401	Level-very gentle Spur crest	Low	Isolated artefact
OHK90/A	#30-3-0393 and 30-3-0400	Level-very gentle Ridge crest	High	Artefact scatter
OHK91/A	#30-3-0394 and #30-3-0399	Gentle ridge crest	High	Artefact scatter
OHK91/B	#30-3-0394 and #30-3-0399	Gentle ridge crest	High	Artefact scatter
OHK92/A	#30-3-0395 and #30-3-0398	Gentle Simple slope	Moderate-high	Artefact scatter
OHK92/B	#30-3-0395 and #30-3-0398	Gentle Simple slope	Moderate-high	Artefact scatter
OHK104/A	#30-3-0397	Gentle Simple slope	Moderate	Isolated artefact
OHK219/A	#30-3-0396	Gentle Spur crest	Low	Isolated artefact

Native title

Searches of the National Native Title Register, Register of Native Title Claims and Register of Aboriginal Land Use Agreements and for unregistered claimant applications with the National Native Title Tribunal were undertaken for the local government areas of Port Macquarie-Hastings and Kempsey on 8 March 2005, 7 June 2007 and 5 November 2009.

No claims, agreements or applications are listed within the study area.

19.2.3 Sub-surface investigations

Archaeological sub-surface investigations were undertaken in two locations – north of the Hastings River and north of the Wilson River. As outlined in **Section 19.1.7**, sub-surface investigation was not undertaken on the second crest north of the Wilson River due to its small spatial extent, existing high levels of impact and similarity to the other crest north of the Wilson River that was being investigated.

A brief description of the heritage evidence potential and key findings of the sub-surface investigations for these two areas is provided below.

Hastings River sub-surface investigation area

This area is located on a gentle slope and low spur crest north of the Hastings River. A total of 144 stone artefacts were recovered during the sub-surface investigation, which represents a generally low density of artefacts at this site.

Two new sites were identified during the sub-surface investigations at this location, OHK46 and OHK47 both of which were comprised of artefact deposits.

Based on the artefact evidence uncovered, it is considered that the evidence represents transitory movement, as well as hunting and/or gathering activities without camping. This is based on the types of artefacts discovered, and the absence of evidence of longer-term occupation. These events appear to have comprised multiple short duration episodes.

It appears that the microliths (backed artefacts) were discarded away from their location of manufacture because the nearest source of the artefact material is located a number kilometres to the west in a different geological context. The discarding of artefacts and tools was mostly accidental as complete useable tools were unlikely to have been discarded intentionally. Scenarios for the accidental discarding of tools could include hunting and/or gathering events away from the base camp, groups passing through the area on the way to other areas or battles between different groups. The presence of a number of used artefacts indicates that food preparation and artefact repair or maintenance could also have been undertaken at this location.

The intensity of use of this area is considered to have been relatively low compared with the hill crest north of the Wilson River. However, the level of usage at this location could still have been higher than many other environmental contexts in this general area. This can be surmised because the other contexts tend to be located at a greater distance from higher order watercourses and multiple resource zones, or are located in steeper countryside less suitable for occupation. The investigation also indicated that the intensity of use of the adjoining gentle slope was considerably lower than the actual hill crest.



Hastings River sub-surface investigation area

Wilson River sub-surface investigation area

This area is located on a gentle hill crest and gentle simple slope to the north of the Wilson River. During the field survey sites OHK90, OHK91/A, OHK91/B, OHK92/A and OHK92/B were recorded (**Table 19-3**). These sites demonstrated a range of artefact types and stone materials, including less common types.

A total of 1049 stone artefacts were recovered during the sub-surface investigation. A number of artefact clusters are present at this location, including several that are of very high density.

Based on the artefact evidence uncovered during the sub-surface investigations, and a conservative interpretation of those results, it is considered that the use of this location comprised mainly hunting and/or gathering activities without camping. This is based on the types of artefacts discovered, and the absence of evidence of longer-term occupation. Similar to the Hastings River sub-surface investigation area, these events appear to have been multiple short duration episodes, and could also have included transitory movement through this area.



Wilson River excavation

Discarded microliths (backed artefacts) were found that had been manufactured in this area and in other locations. It appears that refitting of spear barbs onto spear shafts also occurred at this location, in association with the manufacture of new microliths. The presence of a number of used artefacts indicates that food preparation and artefact repair or maintenance could also have been undertaken.

The investigation also indicated that the intensity of use of the adjoining gentle slope was somewhat lower than the actual hill crest, but still relatively high compared with the Hastings River area. Direct evidence of encampments was not uncovered, but cannot be discounted.

Summary of key findings

During the sub-surface investigations, conditions of ground disturbance were assessed as moderate to high within the sub-surface investigation areas. Impacts to the areas from recent land use practices were noted, including vegetation removal, vehicle tracks, and stockpiling of timber and other materials. Notwithstanding these impacts, the sub-surface investigation results still demonstrated a moderate degree of integrity.

In general terms, the nature of occupation within the Hastings River and Wilson River areas could represent a variety of circumstances including:

- Transitory movement.
- Ceremonial activity.
- Hunting and/or gathering (without camping).
- Camping by small hunting and/or gathering parties.
- Larger congregations of groups.

Stone knapping (manufacture of stone blades or tools) is the primary identifiable Aboriginal activity in each of the areas investigated. It is likely that multiple, sporadic episodes of occupation occurred at both the Hastings River and Wilson River locations. The Wilson River location was subject to significantly more episodes of occupation than the Hastings River location. It also appears that virtually all stone materials discarded on-site were transported to the area from elsewhere, although in a number of cases retooling and manufacturing activities could have been undertaken at these locations.

19.2.4 Refined predictive model of site location

Following completion of the field survey and sub-surface investigations the predictive model of site location was refined based on the new evidence collected. The refined model assisted with determining the potential for the Proposal to impact on potential Aboriginal heritage evidence not recorded during the field survey, sub-surface investigations and arising from Aboriginal community consultation. The findings of the refined predictive model are summarised in **Table 19-4**.

Table 19-4 Refined predictive model of Aboriginal site location

Site type	Discussion	Assessed potential for presence
Carved trees / scarred trees	A relatively low number of mature trees of sufficient age to host scars were identified and inspected but no evidence of Aboriginal scarring was identified.	Very low but cannot be discounted
Obtrusive sites such as grinding grooves, bora/ceremonial sites, rock shelters or stone arrangements	No evidence of any obtrusive sites was identified. Given the comprehensive nature of the survey coverage (particularly for obtrusive site types) and on the basis of the field survey results it was considered unlikely that further sites would be present.	Very low to negligible

Site type	Discussion	Assessed potential for presence
Lithic quarry sites	Few sources of stone of sufficient size and quality to be utilised for manufacturing stone artefacts were identified. Minor potential material sources for lithic quarry sites were identified however no direct evidence of lithic procurement was found.	Very low
Shell midden deposits	Most of the Proposal is distant from shellfish sources of the beach, rock platforms and estuaries (current and former). The notable exceptions to this are around the Hastings River, Wilson River, Pipers Creek and Smiths Creek, where current or former estuarine sources are in closer proximity.	Very low but cannot be discounted Low (Hastings and Wilson rivers, Pipers and Smiths creeks)
Stone artefact evidence (surface and sub-surface)	Stone artefact evidence has been identified at a very low density consistent with background discard (an average of approximately 0.0016 artefacts per square metre). A trend for relatively higher artefact discard was identified in the vicinity of some hill crests and adjacent slopes. These results are consistent with those from other surveys elsewhere in south eastern Australia and general models of Aboriginal occupation. Further stone artefacts are expected to occur within undisturbed areas in a distribution and density consistent with these findings. The potential for further stone artefact evidence is as follows: - Negligible in the highly disturbed areas that have been totally impacted by recent land use (eg existing highway). - Low to very low, particularly for sub-surface deposits that may be in situ and/or of research value, for the vast majority of the Proposal area. - Moderate to high in the immediate vicinity of Cooperabung Creek, Smiths Creek, Pipers Creek and Maria River as these areas were likely used for encampments and focused activity. - High for the hill crests and adjacent slopes to the north of the Hastings River and the Wilson River, following completion of the sub-surface investigations. These areas have a high potential to host further evidence of Aboriginal occupation (possibly including encampments and focused activity, along with repeated transitory movement) that could be of significance.	Negligible to very low (Highly disturbed areas of the Proposal and existing highway) Moderate to high (Cooperabung Creek, Smiths Creek, Pipers Creek and Maria River) High (hill crests and adjacent slopes north of the Hastings and Wilson rivers)
Burial sites	No evidence of burial sites was identified. Much of the Proposal is located in areas of moderate to high disturbance or in areas not traditionally used for burials, with the exception of the alluvial sediments around the Hastings River and Wilson River (including Dalhenty Island).	Very low but cannot be discounted Low (Hastings and Wilson rivers)

Site type	Discussion	Assessed potential for presence
Sites of traditional cultural significance (ie associated with ceremonies, spiritual/ mythological beliefs and traditional knowledge, which date from the pre-contact period and have persisted until the present time)	Five sites have been identified through the comprehensive program of community consultation. While no further sites have been identified it is possible that other sites do exist given the continuing very strong attachment of the local Aboriginal people to the area.	Possible

19.2.5 Significance of Aboriginal heritage evidence

The significance of Aboriginal heritage evidence was assessed using the following criteria derived from the relevant aspects of the Burra Charter (Australia ICOMOS 1999):

- Scientific (archaeological) value (which includes sub-criteria of research potential, representativeness, nature of evidence and integrity).
- Cultural value (importance to Aboriginal people).
- Educational value.
- Historic value.
- Aesthetic value.

Greater emphasis is generally placed on scientific and cultural criteria when assessing the significance of Aboriginal heritage evidence in Australia.

The results of the significance assessment for the recorded Aboriginal heritage evidence and culturally sensitive areas are summarised in **Table 19-5**. Further details on the assessment can be found in the *Aboriginal Heritage Working Paper* provided in **Volume 3** of this Environmental Assessment. It should be noted that application of some of the criteria to the culturally sensitive areas is not possible. This significance of the culturally sensitive areas is further discussed below.

Table 19-5 Significance of Aboriginal heritage evidence

Site name	Significance criteria					
	Scientific (archaeological) value		Cultural value	Educational value	Historic value	Aesthetic value
	Local context	Regional context				
OHK46/A	Low - Moderate	Low	Yes	Below threshold	Below threshold	Below threshold
OHK47/A	Low	Low	Yes	Below threshold	Below threshold	Below threshold
OHK54/A	Low	Low	Yes	Below threshold	Below threshold	Below threshold
OHK90/A	Moderate - High	Low	Yes	Below threshold	Below threshold	Below threshold

Site name	Significance criteria					
	Scientific (archaeological) value		Cultural value	Educational value	Historic value	Aesthetic value
	Local context	Regional context				
OHK91/A	Moderate - High	Low	Yes	Below threshold	Below threshold	Below threshold
OHK91/B	Moderate - High	Low	Yes	Below threshold	Below threshold	Below threshold
OHK92/A	Moderate - high	Low	Yes	Below threshold	Below threshold	Below threshold
OHK92/B	Moderate - high	Low	Yes	Below threshold	Below threshold	Below threshold
OHK104/A	Low	Low	Yes	Below threshold	Below threshold	Below threshold
OHK219/A	Low	Low	Yes	Below threshold	Below threshold	Below threshold
Sancrox Road ceremonial	n/a	n/a	Yes	n/a	Yes	n/a
Hastings River	n/a	n/a	Yes	n/a	Yes	n/a
Maria River	n/a	n/a	Yes	n/a	Yes	n/a
Dalhunty Island	n/a	n/a	Yes	n/a	Yes	n/a
Ochre site	n/a	n/a	Yes	n/a	Yes	n/a

Culturally sensitive areas

The areas of cultural sensitivity are of contemporary and/or historical significance to the Aboriginal community, particularly the Dunghutti Elders:

- **Sancrox Road Ceremonial:** This area has been identified in previous research based on historical accounts by a non-indigenous local resident of corroboree style activity occurring in this locality. Previous research concluded that the site is of high cultural significance. The significance relates to the site location and not any physical manifestations of any ceremonial practices, which may have been impacted by subsequent non-indigenous land use.
- **Hastings River:** Typically, major natural landscape features such as key watercourses (for example, the Hastings River) can be of cultural value due to their association with resource procurement or in this case, cultural boundaries. A Dunghutti Elder asserts that a cultural boundary between the Dunghutti to the north and Birpai to the south exists along the Hastings River and conflicts between the groups occurred in the vicinity of this landscape feature.
- **Maria River:** This landscape feature is of some contemporary cultural significance to a Dunghutti Elder, relating to family knowledge and their father's caution that the area in general should be avoided when alone.
- **Dalhunty Island:** This is an island within the Wilson River, another major natural landscape feature, which a Dunghutti Elder regards as an area of cultural sensitivity for potential burials.

- Ochre Site: An ochre vein was exposed by road construction activities in about 1968 and is located in a cutting on the existing highway. Since exposure this resource has been identified and used by local Aboriginal people for ceremonial purposes.

In general terms, the attachment of the Dunghutti Elders and others to the landscape and continuing strong cultural connections with the locality of the present study area is evident. As identified by Goulding (2002) and others, land is a fundamental part of Aboriginal culture and connections to country are integral to the health and wellbeing of Aboriginal people. Based on consultation undertaken with the Aboriginal community and investigations to date, including the information derived from the single informant regarding the Hastings River, Maria River and Dalhenty Island as areas of cultural sensitivity, it is concluded that the significance of these areas is relatively low within a local and regional context.

19.3 Potential Aboriginal heritage impacts

19.3.1 Aboriginal archaeological sites

Recorded sites

Ten Aboriginal heritage sites, all stone artefact occurrences, have been identified within the immediate vicinity of the Proposal. Eight of these were identified during the field survey and two were identified during the sub-surface investigations.

The Proposal would totally or substantially impact on sites OHK46/A, OHK47/A, OHK54/A, OHK90/A, OHK91/A and OHK219/A. Sites OHK46/A, OHK47/A, OHK54/A and OHK219/A were assessed as having a low or low to moderate level of significance in the local context, while sites OHK90/A and OHK91/A were assessed as having a moderate to high level of significance in the local context.

Sites OHK91/B, OHK92/A, OHK92/B and OHK104/A are located immediately adjacent to the proposed construction activities and therefore impacts may be avoided, subject to appropriate management measures being implemented. Sites OHK91/B, OHK92/A and OHK92/B were assessed as having a moderate to high level of significance in the local context, while site 104/A was assessed as having a low level of significance in the local context.

Potential for unrecorded Aboriginal heritage evidence

As shown in **Table 19-4**, the refined predictive model of site location has determined the potential for occurrence of unrecorded Aboriginal heritage evidence to occur in the vicinity of the Proposal. The potential impact on this unrecorded evidence is summarised below.

The potential for carved trees / scarred trees, obtrusive sites and lithic quarry sites was assessed as very low or negligible and as a result the Proposal is highly unlikely to result in any impacts to these forms of potential heritage resource.

The potential for shell midden deposits has been assessed as very low for most of the Proposal and low around the Hastings River, Wilson River, Pipers Creek and Smiths Creek. As such, it is concluded that the Proposal is unlikely to result in any impacts to this form of potential heritage evidence.

The potential for burial sites has been assessed as very low for most of the Proposal, and low around the Hastings and Wilson rivers. Impacts would occur along the Proposal in these areas around the Hastings and Wilson rivers (including Dalhenty Island), typically within a corridor of approximately 100 metres in width. While the field survey and associated background research did not identify any Aboriginal skeletal remains that could be affected by the Proposal, there is a possibility that skeletal remains could be found during the construction phase. Most of these areas would involve the construction of bridge structures or fill embankments on top of the existing ground surface. As a result, there would be minimal ground surface disturbance in these areas apart from the construction of drainage structures, flood relief structures and bridge abutments and piers.

Further stone artefacts are expected to occur across the undisturbed parts of the Proposal, in a distribution and density consistent with the survey and sub-surface investigation results. Notwithstanding an expected generally very low density distribution of artefacts, for the vast majority of the Proposal the potential for stone artefacts (surface or sub-surface) was assessed as low to very low.

Areas in the immediate vicinity of Cooperabung Creek, Smiths Creek, Pipers Creek and Maria River, and hill crests and adjacent slopes to the north of the Hastings River and the Wilson River, have a moderate to high potential for the presence of stone artefacts. These areas would be impacted to varying degrees by the Proposal. Further since the completion of the field survey at Cooperabung Creek, Smiths Creek, Pipers Creek and Maria River the Proposal design has been refined and the potential impacts require further consideration as discussed in **Section 19.4**.

Summary of potential impacts

Based on the investigations undertaken it is concluded that the impacts of the Proposal on Aboriginal heritage would be low to moderate in the absence of appropriate management measures. However, with the implementation of appropriate management measures as described in **Section 19.4**, it is concluded that the risk of residual impacts to Aboriginal heritage from the Proposal can be reduced to very low.

19.3.2 Culturally sensitive areas

Five culturally sensitive areas have been identified (**Table 19-2**) of which four would be traversed by the Proposal as summarised below. Further information regarding these sites is provided in the *Aboriginal Heritage Working Paper* provided in **Volume 3** of this Environmental Assessment.

Sancrox Road ceremonial

The Sancrox Road ceremonial site is located several hundred metres to the west of the Proposal, therefore no direct physical impacts would occur. A broader area of cultural sensitivity was identified by the Aboriginal community around this locality. The Proposal includes upgrading the existing highway along the current alignment. This is unlikely to result in indirect visual or intangible impacts to the cultural values of the Sancrox Road ceremonial area.

Hastings River

The Proposal would involve construction of a new alignment and bridges at the Hastings River, several hundred metres to the west of the existing highway and bridge, through a highly modified agricultural landscape. The Proposal would largely involve emplacement of fill across the floodplain. Impacts to the broader area of cultural sensitivity along the Hastings River would be confined in extent to a narrow, linear corridor, and therefore would not significantly detract from the overall landscape feature and general cultural value.

Maria River

The Proposal would traverse the Maria River in an area already disturbed by the existing highway. The Proposal would use the existing bridges at this location and no significant additional impacts are expected to occur. As such the impacts to any cultural values of the Maria River area would be minimal. The older concrete-decked timber bridge at Maria River would be retained as part of the western service road subject to re-evaluation of its condition during the detailed design phase.

Dalhunty Island

A new alignment and bridges would be constructed at the Wilson River, crossing the eastern tip of Dalhunty Island. Subject to detailed design, the visual and/or physical impacts, if any, would be confined to the eastern tip of the island. As such, the impacts to any cultural values of the location would be minimal. Impacts to the broader extent of the island have been avoided through consideration of cultural heritage values during the route selection process.

Ochre site

The ochre site currently used by the Birpai people is located in an existing highway cutting in the southern part of the proposal. Since it was exposed in about 1968, the Aboriginal people who use this resource stop their vehicles on the edge of the highway and enter the cutting on foot. The cutting containing the ochre would be widened and at least part of the ochre vein would be removed. Given the higher speed limit proposed for the upgraded highway, and the road safety problems associated with interaction between pedestrians and high speed traffic, it would not be possible to allow for continued access to this ochre site directly from the upgraded highway.

19.3.3 Regional scale cumulative impacts

The nature of the cultural heritage resources identified within the Proposal footprint can be compared with other studies and sites in the region to provide a framework for assessing potential cumulative impacts. An assessment of cumulative heritage impacts on a regional scale aids in the development of management strategies for the Proposal, and in determining the significance of the impacts of the Proposal in the region generally and in the context of the Pacific Highway Upgrade Program.

Potential regional scale impacts – Proposal alone

In terms of the Proposal, 10 Aboriginal heritage sites (all stone artefact occurrences) have been identified within the immediate vicinity, and could be impacted by the Proposal. All of these sites were assessed as having a low level of significance in the regional context. As a result the potential loss of these sites would in themselves not represent a noticeable regional scale impact. Five areas of cultural sensitivity have also been identified in the vicinity of the Proposal, of which four would be impacted. However due to nature of these sites and the proposed works, these impacts are not expected to result in the permanent loss of any Aboriginal heritage evidence on a local or regional scale.

Potential regional scale impacts – Proposal in the local area

Background research undertaken for the Proposal has identified that there are a number of previous studies that would be suitable for comparison with this assessment. A number of key similarities have been identified with other survey areas in the locality, particularly those undertaken in similar environmental contexts and which have resulted in the identification of low numbers of small artefact scatter sites. These similarities include the:

- Predominance of stone artefact evidence.
- Similar stone material and artefact types.
- Low artefact numbers and densities.
- The presence of evidence in similar environmental contexts.

The Kempsey to Eungai Pacific Highway upgrade adjoins the northern boundary of the Proposal. It is similar in length, and passes through a similar kind of topography comprising coastal floodplain and adjoining foothills. The only major differences are that it would cross only one major river, it contains a much larger floodplain system than the Proposal, and it also has a tendency to follow the foothills rather than cut across them.

Five small artefact scatter sites were identified along the Kempsey to Eungai upgrade (compared with 10 for the Proposal), along with a possible scarred tree. The Kempsey to Eungai artefact scatters occur in similar environmental contexts (ridge and spur crests and on the basal slopes of spurs) and contain similar stone material and artefact types to the evidence uncovered in this study. However, 12 potential archaeological deposits were identified in the Kempsey to Eungai upgrade in comparison with only three sites, which were subject to sub-surface investigations, for this assessment.

Comprehensive data collected in the broader regional-scale study of the Kempsey and Wauchope State Forest Management Areas also provides a suitable broad-scale comparison. However, this study involved a much broader suite of environmental contexts, and the artefact density also had a tendency to be higher on ridge crests and areas of lower gradient.

Within the Port Macquarie to Kempsey area of the Mid North Coast it is probable that areas where cultural heritage resources are likely to be lost (such as urban areas and roads) account for less than 10 per cent of the area. It is estimated that other land use impacts such as agricultural and pastoral use that could result in the loss of these resources make up about 20 per cent of the locality. State forest activities occupy a similar area of about 20 per cent but, depending on the intensity of the forestry activities, would be less likely to result in the loss of cultural heritage resources.

Areas specifically reserved for conservation such as national parks, nature reserves and registered conservation zones account for between 30 to 40 per cent of the locality. These conserved areas include Kumbatine National Park, Maria National Park, Rawdon Creek Nature Reserve, Cooperabung Creek Nature Reserve and Limeburners Creek Nature Reserve. These conservation areas would be expected to include many of the same environmental contexts, and similar cultural heritage resources identified within the Proposal area.

It is considered that while the Proposal would impact areas of known cultural heritage, the relatively narrow and linear nature of the impact, presence of similar environmental contexts and potential heritage resources outside and adjacent to the Proposal, it would be unlikely to contribute to a significant loss of local or regional cultural heritage resources.

Potential regional scale impacts – Proposal in the context of the Pacific Highway Upgrade Program

The Proposal is part of the Pacific Highway Upgrade Program, being implemented by the RTA as part of a joint commitment by the NSW and Federal Governments to provide continuous dual carriageway on the Pacific Highway between Hexham (near the F3 Freeway) and the Queensland border. A number of sections have already been constructed and opened for use, while others remain in either the planning or construction phase. These sections pass through a variety of landscapes and have variable degrees of impacts in a local and regional context. Given the nature of Aboriginal land use patterns and tribal boundaries it is difficult to make a quantitative statement regarding the potential impacts of the Proposal in the context of the Pacific Highway Upgrade Program as a whole.

However, given that the Proposal, with the implementation of appropriate management measures, has been assessed as having a low impact on Aboriginal heritage in the local context and that the recorded sites that would be impacted have been assessed as being of low significance in a regional context, it is considered that the Proposal in the context of the Pacific Highway Upgrade Program would be unlikely to contribute to a significant loss of local or regional cultural heritage resources.

19.3.4 Service road network

New service and access roads that would be constructed as part of the Proposal have been assessed as part of the upgraded highway as discussed above. Those sections of the service road network that would use existing local roads as shown on **Figure 6-1a** to **Figure 6-1b** and **Figure 6-2a** to **Figure 6-2q** are considered below. Subject to further assessment and detailed design, some sections of these existing local roads may require upgrading to meet the required minimum criteria for service roads. To date, no specific Aboriginal investigations have been undertaken for these existing local roads, however some sections are located immediately adjacent to the area where detailed Aboriginal investigations have been undertaken for the Proposal. The desktop assessment has been undertaken with reference to the detailed investigations discussed above, in particular the predictive site model, to determine the likely impacts of these additional service road sections.

From Fernbank Creek to the Haydons Wharf Road half interchange, the existing highway would be used as the service road. Investigations undertaken for the Proposal identified that the existing highway passes through a landscape assessed as being sensitive for Aboriginal evidence, particularly the floodplain areas. It is not proposed to upgrade this section of existing highway and accordingly there are no expected impacts to Aboriginal heritage items, places or areas of cultural sensitivity.

North of the Haydons Wharf Road half interchange, the service road network would use existing sections of Cooperabung Drive. Parts of the existing road reserve are relatively undisturbed while land beyond this is generally heavily disturbed. There are no known recorded sites in the immediate vicinity. Undisturbed spur crests in the vicinity of the Proposal to the east were assessed as having a moderate to high potential for a range of artefacts and/or sub-surface deposits. Based on this, it can be inferred that the parts of the landscape through which this service road passes would have a similar level of potential to encounter Aboriginal heritage evidence. Subject to further design to determine the extent of any required road upgrade, areas with potential to contain previously unrecorded Aboriginal heritage evidence could be disturbed.

At Kundabung the service road network would use Rodeo Drive and Ravenswood Road. Parts of the existing road reserve are relatively undisturbed while land beyond this is generally moderately to heavily disturbed. Detailed Aboriginal heritage investigations have been undertaken for the Proposal immediately to the east and no items or places of heritage significance were recorded. This area was assessed as having a generally low likelihood of unrecorded artefacts and/or sub-surface deposits. Subject to further design to determine the extent of any required road upgrade it is considered unlikely that Aboriginal heritage evidence would be impacted.

North of Ravenswood Road the existing highway would be used as the service road. In this area the landscape is characterised by heavily forested areas including Maria River State Forest. There are no known recorded sites in the immediate vicinity. Detailed Aboriginal heritage investigations have been undertaken for the Proposal immediately to the east and no items or places of heritage significance were recorded. As it is not proposed to upgrade this section of existing highway there are no expected impacts to Aboriginal heritage items, places or areas of cultural sensitivity.

A proposed new access road is required to connect Kemps Road from just north of Maria River to the proposed interchange at the southern limit of the Kempsey to Eungai upgrade. To date no detailed Aboriginal heritage investigations have been undertaken for this proposed new access road and there are no known recorded sites in the immediate vicinity. While the general area has been assessed as having low potential for unrecorded Aboriginal heritage evidence, given that it would pass through heavily forested country for the majority of its length that is relatively undisturbed and is in proximity to Maria River, it is considered possible that construction of this new access road could disturb areas with potential to contain previously unrecorded Aboriginal heritage evidence.

19.3.5 Staging implications

In preparing this Environmental Assessment, the potential Aboriginal heritage impacts of the possible staging option described in **Section 7.3.2** in comparison to the construction of the entire Proposal to a full motorway standard have been considered as outlined below.

In this regard, both the staging option and motorway standard upgrade would traverse areas of Aboriginal cultural and heritage sensitivity. While there would be two separate construction periods, there would be no additional impacts on areas of Aboriginal cultural or heritage sensitivity apart from those already discussed in **Section 19.3**.

Potential impacts to Aboriginal heritage would be managed as discussed in **Section 19.4.1**, for both this staging option and the ultimate motorway standard upgrade.

Should the Proposal be delivered in stages, the staging report described in **Section 7.3.3** would detail the Aboriginal cultural and heritage impacts of the staging option. If any additional or altered impacts are identified, the staging report would further assess these impacts and identify appropriate management measures.

19.4 Management of impacts

The formulation of management measures has been undertaken following completion of the detailed investigations discussed in this chapter and in consultation with the Aboriginal stakeholders. In addition, they have been formulated with consideration of legal requirements under the NSW *National Parks and Wildlife Act 1974* and the EP&A Act.

19.4.1 Aboriginal heritage management plan

Prior to construction an Aboriginal heritage management plan would be developed in consultation with the registered Aboriginal stakeholders which would specify the policies, procedures and management measures to address the potential impacts of the Proposal on Aboriginal heritage. The plan would provide management measures to:

- Manage the impacts on known Aboriginal heritage evidence as identified in this assessment.
- Provide for further targeted investigations in the areas of moderate to high potential for the presence of further Aboriginal heritage evidence.
- Provide the procedures to respond in the event of discovery of previously unrecorded Aboriginal heritage evidence.

Specific management measures that would be incorporated into the plan include:

- In order to mitigate the impacts of development upon the cultural and scientific values of the identified and potential heritage evidence and to retrieve and conserve samples of evidence, a program of salvage would be undertaken by a qualified archaeologist in conjunction with the registered Aboriginal stakeholders that includes:
 - o Systematically collecting stone artefacts from the identified Aboriginal sites that would be totally or substantially impacted (sites OHK46/A, OHK47/A, OHK54/A, OHK90/A, OHK91/A and OHK219/A), along with any other impacted sites that are identified prior to or during construction.
 - o Conducting targeted mechanical surface scrapes within a sample of the areas of moderate to high potential that would be impacted at Cooperabung Creek, Smiths Creek, Pipers Creek and, should the existing timber bridge require replacement, Maria River, along with localised hand excavation of any features of significance that are identified.
 - o Conducting targeted mechanical surface scrapes within a sample of the areas of high potential that would be impacted at the hill crests and adjacent slopes to the north of the Hastings River and to the north of the Wilson River, along with localised hand excavation of any features of significance that are identified.
 - o Curation of any collected heritage evidence in an appropriate manner, as determined in consultation with the registered Aboriginal stakeholders and DECCW and in accordance with the *National Parks and Wildlife Act 1974*.
 - o An appropriate level of analysis of the collected evidence with reference to the DECCW *Aboriginal Cultural Heritage Standards and Guidelines Kit* (1997).
 - o Lodgement of site records with DECCW for any previously unrecorded Aboriginal heritage evidence that is identified and for any evidence that is salvaged.
- Where impacts would be avoided to the identified heritage evidence, appropriate precautionary measures, such as informing relevant staff and contractors of the nature and location of the items and need to avoid impacts, along with temporary protective fencing and signage, would be implemented for those sites (sites OHK91/B, OHK92/A, OHK92/B and OHK104/A) within close proximity of the area of works.

- In order to mitigate the minor and intangible impacts to the areas of cultural sensitivity and cultural values in general, all relevant staff and contractors would receive Aboriginal cultural heritage awareness training prior to commencing work onsite. This could include information about the Aboriginal culture and history of the locality, nature of the identified and potential Aboriginal heritage evidence and cultural values within the Proposal area, heritage management measures and protocols, and legal obligations.
- To help mitigate the longer term impacts to the areas of cultural sensitivity and value in general, provisions would be included in the Aboriginal heritage management plan for the development of heritage interpretation and educational opportunities in consultation with the Aboriginal stakeholders. These could include temporary cultural heritage information boards during construction and permanent interpretation panels or signage in appropriate locations.
- Provisions would be included to guide the management of any previously unrecorded Aboriginal heritage sites that may be identified within the Proposal area. Management provisions would vary in relation to the nature of any evidence identified, its significance and the nature of the proposed impacts, and could include temporary protection, avoidance of impacts, mitigation, monitoring or unmitigated impact.
- Should any skeletal remains be detected during the course of construction, work in that location would cease immediately and the finds be reported to the appropriate authorities, including the Police, DECCW and Aboriginal stakeholders. Subject to the Police requiring no further involvement, appropriate management measures would be developed in consultation with DECCW and Aboriginal stakeholders.
- The Aboriginal heritage management plan would be regularly verified to establish that it is functioning as designed to the standard required.
- Further consultation would be pursued with the registered Aboriginal stakeholders in relation to the Proposal to provide them with the opportunity to be involved in the ongoing management of the Aboriginal heritage resource within the Proposal area.

19.4.2 Further archaeological survey

Archaeological survey would be conducted to sample all of the potential impact areas that could not be sampled during the present assessment, or where design refinements would result in impacts outside the area surveyed, prior to construction in these areas. This survey would be conducted using the same methodology as for this assessment. Subsequent to the survey, management strategies would be implemented as outlined in the Aboriginal heritage management plan for any previously unrecorded sites that may be identified.

These areas are:

- Four properties for which access was not available during the 2007 field survey and which have been identified as requiring field survey to confirm the potential for Aboriginal heritage evidence to be present.
- Subject to detailed design and the extent of any required upgrades to existing roads that would form part of the service road network, scoping of further Aboriginal heritage assessment would be undertaken for:
 - o Cooperabung Drive north of the Haydons Wharf Road half interchange.
 - o The proposed new access road from Kemps Road from just north of Maria River to the proposed interchange at the southern limit of the Kempsey to Eungai upgrade.

Archaeological investigations would be undertaken by archaeologists qualified and experienced in Aboriginal heritage, in consultation with the registered Aboriginal stakeholders who should be afforded the opportunity to be involved in any field studies as per the *Interim Community Consultation Requirements for Applicants* (DECC 2004b).

19.4.3 Ochre site

As it would not be possible to allow for continued access to the current ochre site directly from the upgraded highway, the RTA would consult with the Birpai Local Aboriginal Land Council regarding management of the impacts on this culturally sensitive area. Some of the options that would be considered include recovery of the ochre during construction and relocating it to a suitable site in consultation with the Aboriginal stakeholders, or providing alternate access to the ochre resource in situ in the road reserve for the adjoining service road if the ochre vein extends into that area.

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