

# NSW Roads and Maritime Services

## WOOLGOOLGA TO BALLINA | PACIFIC HIGHWAY UPGRADE ENVIRONMENTAL IMPACT STATEMENT

### MAIN VOLUME 1B

#### Chapter 12 – Aboriginal heritage

##### Chapter summary

This chapter presents the findings of detailed studies to understand the Aboriginal cultural heritage values in the project area, and to assess potential impacts of the project. It also presents measures to mitigate these potential impacts.

The studies involved field surveys of around 1865 hectares (the remainder of the project is not considered a risk for cultural heritage sites or places, due to a high level of previous disturbance, and so does not require survey).

Following the survey, 50 potential archaeological deposits and 54 Aboriginal heritage sites were identified and recorded within or near the project boundary.

Subsequently, 48 potential archaeological deposits were excavated, and 30 of these were found to contain subsurface Aboriginal deposits. Those potential archaeological deposits with Aboriginal deposits were then confirmed as being a site. Others were reassessed as not having archaeological potential.

In addition, 20 Aboriginal cultural places were identified within the project boundary.

The studies found that:

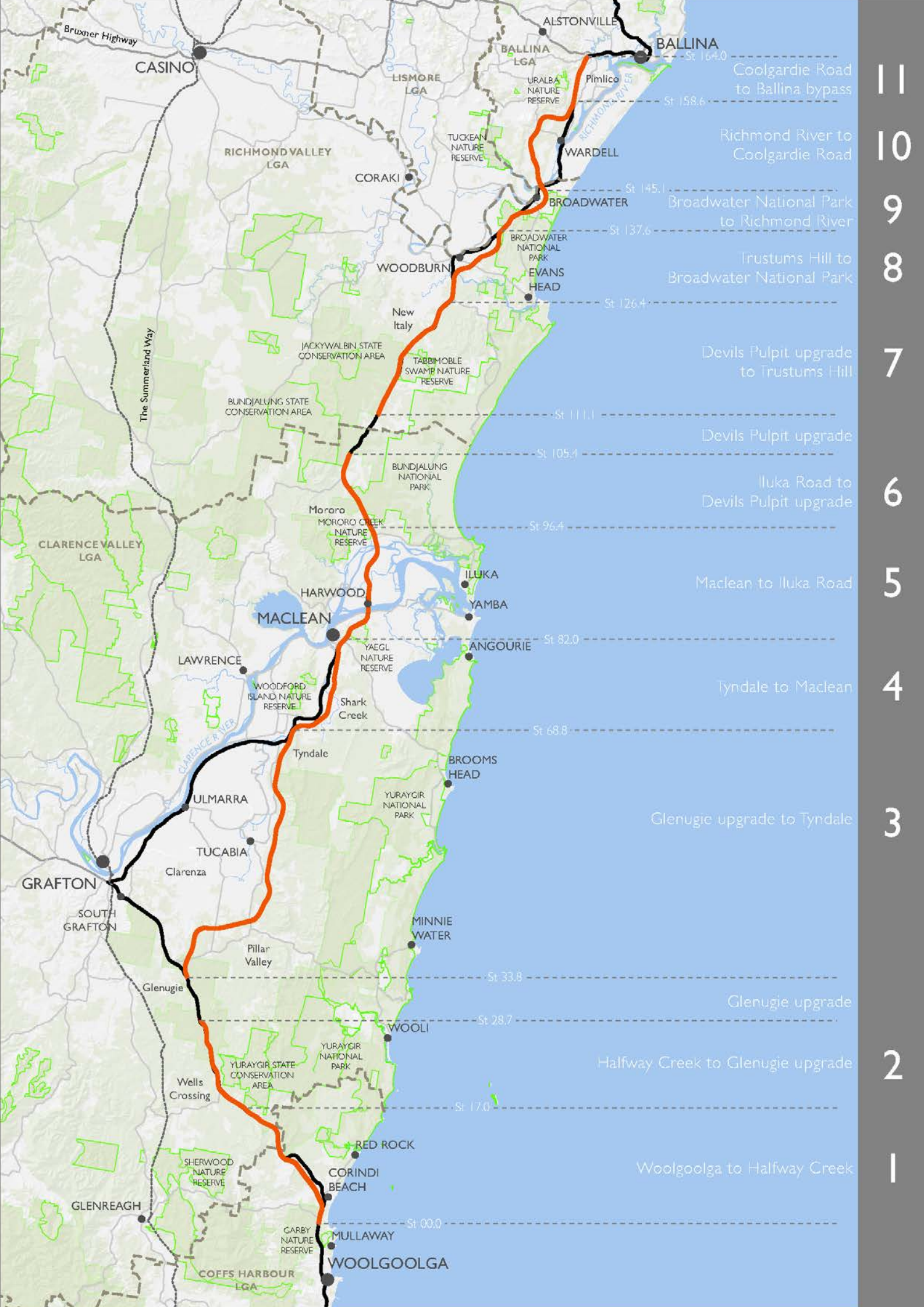
- One potential archaeological deposit and 38 archaeological sites near or within the project boundary are likely to be impacted by the project
- Eleven Aboriginal cultural places are likely to be impacted by the project.

This chapter presents a number of measures to mitigate these impacts. These include salvage excavation of larger sites, collecting artefacts, detailed analysis, dating, reporting cultural material, creating protective buffer zones around Aboriginal heritage sites, and further investigating potential archaeological deposit sites.

Aboriginal stakeholders have been involved throughout the development and assessment of the project. Their involvement has included attendance at Aboriginal focus group meetings, reviewing and commenting on draft reports, and undertaking fieldwork activities.

RMS 12.604B

ISBN 978-1-922041-81-4



- 11
- 10
- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1

Coolgardie Road to Ballina bypass  
Richmond River to Coolgardie Road  
Broadwater National Park to Richmond River  
Trustums Hill to Broadwater National Park  
Devils Pulpit upgrade to Trustums Hill  
Devils Pulpit upgrade  
Iluka Road to Devils Pulpit upgrade  
Maclean to Iluka Road  
Tyndale to Maclean  
Glenugie upgrade to Tyndale  
Glenugie upgrade  
Halfway Creek to Glenugie upgrade  
Woolgoolga to Halfway Creek

St 164.0  
St 158.6  
St 145.1  
St 137.6  
St 126.4  
St 111.1  
St 105.4  
St 96.4  
St 82.0  
St 68.8  
St 33.8  
St 28.7  
St 17.0  
St 00.0

CASINO  
LISMORE LGA  
RICHMOND VALLEY LGA  
CORAKI  
WOODBURN  
NEW ITALY  
JACKY WALBIN STATE CONSERVATION AREA  
BUNDJALUNG STATE CONSERVATION AREA  
CLARENCE VALLEY LGA  
MORORO MORORO CREEK NATURE RESERVE  
HARWOOD  
MACLEAN  
LAWRENCE  
WOODFORD ISLAND NATURE RESERVE  
TYNDALE  
ULMARRA  
TUCABIA  
CLARENZA  
SOUTH GRAFTON  
GRAFTON  
GLENUGIE  
WELLS CROSSING  
YURAYGIR STATE CONSERVATION AREA  
SHERWOOD NATURE RESERVE  
GLENREAGH  
CORINDI BEACH  
MULLAWAY  
WOOLGOOLGA  
COFFS HARBOUR LGA  
CARBY NATURE RESERVE  
BROADWATER  
EVANS HEAD  
BROADWATER NATIONAL PARK  
TUCKEAN NATURE RESERVE  
URALBA NATURE RESERVE  
PIMLICO  
WARDEN  
ALSTONVILLE  
BALLINA LGA  
BALLINA  
RICHMOND RIVER  
ILUKA  
YAMBA  
ANGOURIE  
BROOMS HEAD  
MINNIE WATER  
WOOLI

# Contents

<b>12</b>	<b>Aboriginal heritage .....</b>	<b>12-1</b>
12.1	Assessment methodology .....	12-2
12.1.1	Assessment approach.....	12-2
12.1.2	Aboriginal community consultation.....	12-5
12.1.3	Literature and database review .....	12-10
12.1.4	Previous archaeological investigations .....	12-10
12.1.5	Predictive model of Aboriginal archaeological sites .....	12-11
12.1.6	Field survey .....	12-16
12.1.7	Subsurface investigations .....	12-28
12.2	Existing environment .....	12-29
12.2.1	Woolgoolga to Wells Crossing .....	12-29
12.2.2	Wells Crossing to Iluka Road .....	12-39
12.2.3	Iluka Road to Woodburn.....	12-49
12.2.4	Woodburn to Ballina .....	12-57
12.2.5	Summary of findings.....	12-72
12.3	Assessment of impacts.....	12-76
12.3.1	Impact avoidance .....	12-76
12.3.2	Potential impacts on Aboriginal archaeological sites .....	12-77
12.3.3	Potential impacts on Aboriginal cultural places .....	12-87
12.3.4	Cumulative impacts .....	12-90
12.4	Management of impacts .....	12-92
12.4.1	Aboriginal heritage management plan .....	12-92
12.4.2	Effectiveness of mitigation.....	12-92
	<b>References.....</b>	<b>12-106</b>

## Tables and Figures

Table 12-1: Summary of project sections in relation to the Aboriginal cultural heritage assessments12-3

Table 12-2: Predictive model of landforms where Aboriginal archaeological sites are likely to occur12-12

Table 12-3: Woolgoolga to Wells Crossing: Aboriginal cultural places within 200 metres of the project boundary..... 12-31

Table 12-4: Woolgoolga to Wells Crossing: Aboriginal heritage areas or sites recorded following project field survey and subsurface testing .....

12-33

Table 12-5: Woolgoolga to Wells Crossing: Summary of significance of Aboriginal cultural places near or within the project boundary .....

12-38

Table 12-6: Woolgoolga to Wells Crossing: Summary of significance of Aboriginal archaeological sites near or within the project boundary .....

12-38

Table 12-7: Wells Crossing to Iluka Road: Aboriginal cultural places within 200 metres of the project boundary..... 12-40

Table 12-8: Wells Crossing to Iluka Road: Aboriginal heritage areas or sites following project field survey and subsurface testing..... 12-43



Table 12-9: Wells Crossing to Iluka Road: Summary of significance of Aboriginal cultural places near or within the project boundary .....	12-48
Table 12-10: Wells Crossing to Iluka Road: Summary of significance of Aboriginal archaeological sites near or within the project boundary .....	12-48
Table 12-11: Iluka Road to Woodburn: Aboriginal cultural places within 200 metres of the project boundary .....	12-50
Table 12-12: Iluka Road to Woodburn: Aboriginal heritage areas or sites following project field survey and subsurface testing .....	12-53
Table 12-13: Iluka Road to Woodburn: Summary of significance of Aboriginal cultural places and archaeological sites near or within the project boundary .....	12-56
Table 12-14: Iluka Road to Woodburn: Summary of significance of Aboriginal cultural places and archaeological sites near or within the project boundary .....	12-56
Table 12-15: Woodburn to Ballina: Aboriginal cultural places.....	12-58
Table 12-16: Woodburn to Ballina: Aboriginal heritage areas or sites following project field survey and subsurface testing .....	12-61
Table 12-17: Woodburn to Ballina: Summary of significance of Aboriginal cultural places near or within the project boundary .....	12-70
Table 12-18: Woodburn to Ballina: Summary of significance of Aboriginal archaeological sites near or within the project boundary.....	12-71
Table 12-19: Woolgoolga to Ballina: Summary of recorded Aboriginal archaeological sites near or within the project boundary.....	12-73
Table 12-20: Impacts to Aboriginal archaeological sites within or near the project boundary .....	12-79
Table 12-21: Impacts to Aboriginal cultural places within or near the project boundary.....	12-88
Table 12-22: Management requirement for Aboriginal archaeological sites and cultural places.....	12-93
Figure 12-1: Project alignment showing previous project sections compared with the current project sections.....	12-4
Figure 12-2: Survey coverage and sites identified during field survey: Section 1.....	12-17
Figure 12-3: Survey coverage and sites identified during field survey: Section 2.....	12-18
Figure 12-4: Survey coverage and sites identified during field survey: Section 3.....	12-19
Figure 12-5: Survey coverage and sites identified during field survey: Section 4.....	12-20
Figure 12-6: Survey coverage and sites identified during field survey: Section 5.....	12-21
Figure 12-7: Survey coverage and sites identified during field survey: Section 6.....	12-22
Figure 12-8: Survey coverage and sites identified during field survey: Section 7.....	12-23
Figure 12-9: Survey coverage and sites identified during field survey: Section 8.....	12-24
Figure 12-10: Survey coverage and sites identified during field survey: Section 9.....	12-25
Figure 12-11: Survey coverage and sites identified during field survey: Section 10.....	12-26
Figure 12-12: Survey coverage and sites identified during field survey: Section 11.....	12-27
Figure 12-13: Woolgoolga to Wells Crossing: Aboriginal heritage sites (registered on AHIMS) .....	12-32
Figure 12-14: Woolgoolga to Wells Crossing: Subsurface investigations.....	12-37
Figure 12-15: Wells Crossing to Iluka Road: Aboriginal heritage sites (registered on AHIMS) .....	12-42
Figure 12-16: Wells Crossing to Iluka Road: Subsurface investigations .....	12-47
Figure 12-17: Iluka Road to Woodburn: Aboriginal heritage sites (registered on AHIMS) .....	12-52

Figure 12-18: Iluka Road to Woodburn: Subsurface investigations .....	12-55
Figure 12-19: Woodburn to Ballina: Aboriginal heritage sites (registered on AHIMS) .....	12-60
Figure 12-20: Woodburn to Ballina: Subsurface investigations .....	12-69



## 12 Aboriginal heritage

This chapter describes existing Aboriginal cultural heritage values in the study area, assesses potential direct and indirect impacts of the project, and proposes measures to avoid, manage, and mitigate potential impacts. It addresses the Director General's environmental assessment requirements.

The information presented in this chapter has been derived from the Working paper – Aboriginal cultural assessment (SKM, 2012).

Director General's requirements	Where addressed
The EIS must address heritage – including but not limited to:	Section 12.3.1
<ul style="list-style-type: none"> <li>Impacts to <i>Aboriginal heritage</i> (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project should be assessed.</li> </ul>	Section 12.3.2
Where impacts are identified, the assessment shall:	Section 12.4
<ul style="list-style-type: none"> <li>Outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) generally consistent with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (Department of Environment and Conservation, 2005)</li> </ul>	Section 12.4.2
<ul style="list-style-type: none"> <li>Be undertaken by a suitably qualified heritage consultant(s)</li> </ul>	Section 12.1.1
<ul style="list-style-type: none"> <li>Demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures)</li> </ul>	Section 12.1.2 Section 12.1.7 Section 12.2.1 Section 12.2.2 Section 12.2.3 Section 12.2.4 Section 12.3 Section 12.4
<ul style="list-style-type: none"> <li>Develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations of the areas of PAD identified in a manner that establishes the full spatial extent and significance of any archaeological evidence across each area of PAD, and include the results of these excavations.</li> </ul>	Section 12.1.1 Section 12.1.2 Section 12.1.7 Section 12.2.1 Section 12.2.2 Section 12.2.3 Section 12.2.4

## 12.1 Assessment methodology

### 12.1.1 Assessment approach

The Aboriginal cultural heritage assessment for the project was undertaken by qualified heritage consultants in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b), Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, 2005a). The Aboriginal cultural heritage assessment was undertaken by suitably qualified and experienced archaeologists and heritage consultants, primarily Joseph Brooke (Bachelor of Archaeology (Honours), 6 years experience), Robyn Jenkins (Bachelor of Arts, Bachelor of Social Science (Honours), and 5 years experience), and Vanessa Edmonds (Bachelor of Arts, Master of Letters, 25 years experience) as detailed in Section 1.2.3 of Working paper – Aboriginal cultural assessment. The assessments involved:

- Reviewing archaeological fieldwork and consultation conducted during 2005 to 2009 for the previous development projects (Woolgoolga to Wells Crossing project, Wells Crossing to Iluka Road project, Iluka Road to Woodburn project, and Woodburn to Ballina project)
- Reviewing literature relevant to the project and surrounding landscape
- Considering information derived through consultation with elders and knowledge holders for the region during Aboriginal focus group (AFG) meetings (held between May 2005 and June 2012)
- Considering information derived through consultation with elders and knowledge holders for the region outside of AFG meetings (for example, oral history recording, site visits with elders) (Section 3 of Working paper – Aboriginal cultural assessment)
- Considering field survey information provided by Aboriginal site officers regarding Aboriginal objects and cultural issues
- Ongoing consultation with the NSW Office of Environment and Heritage regarding consultation processes, investigation and findings (refer to Chapter 7 of the EIS).

The methodology of the archaeological assessment built on each of the stages listed below, through ongoing consultation and revision. The stages were broadly structured as follows:

- Desktop assessment to develop a predictive model
- Survey program
- Subsurface testing program.

The procedure and the steps followed for preparing a cultural heritage assessment report was guided by those set out in the Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI) (RMS, 2011). The procedure involves four stages of consultation and investigation that assess known or potential impacts to Aboriginal cultural heritage:

- Stage 1: Initial RMS assessment to determine whether the project is likely to harm Aboriginal cultural heritage or not, and whether further assessment or investigation is required
- Stage 2: Further assessment and site survey with specific Aboriginal stakeholders and an archaeologist to assess a project's potential to harm Aboriginal cultural heritage, and to determine whether formal Aboriginal community consultation and a cultural heritage assessment report is required
- Stage 3: Formal consultation and preparation of a cultural heritage assessment report harm to Aboriginal objects or places will occur or is likely to occur. Aboriginal parties are involved in the preparation of the report and this stage may also involve archaeological testing
- Stage 4: Implement project mitigation measures, which may include salvage excavation in accordance with an AHIP and/or a project approval or determination under the Environmental Planning and Assessment Act 1979.



The significance of Aboriginal heritage evidence was assessed using the four values of the Burra Charter (Australian ICOMOS, 1999), namely:

- Social values
- Historical values
- Scientific values
- Aesthetic values.

The assessment involved different forms of consultation with knowledge holders as identified by the registered Aboriginal stakeholders groups, listed below in Section 12.1.2.

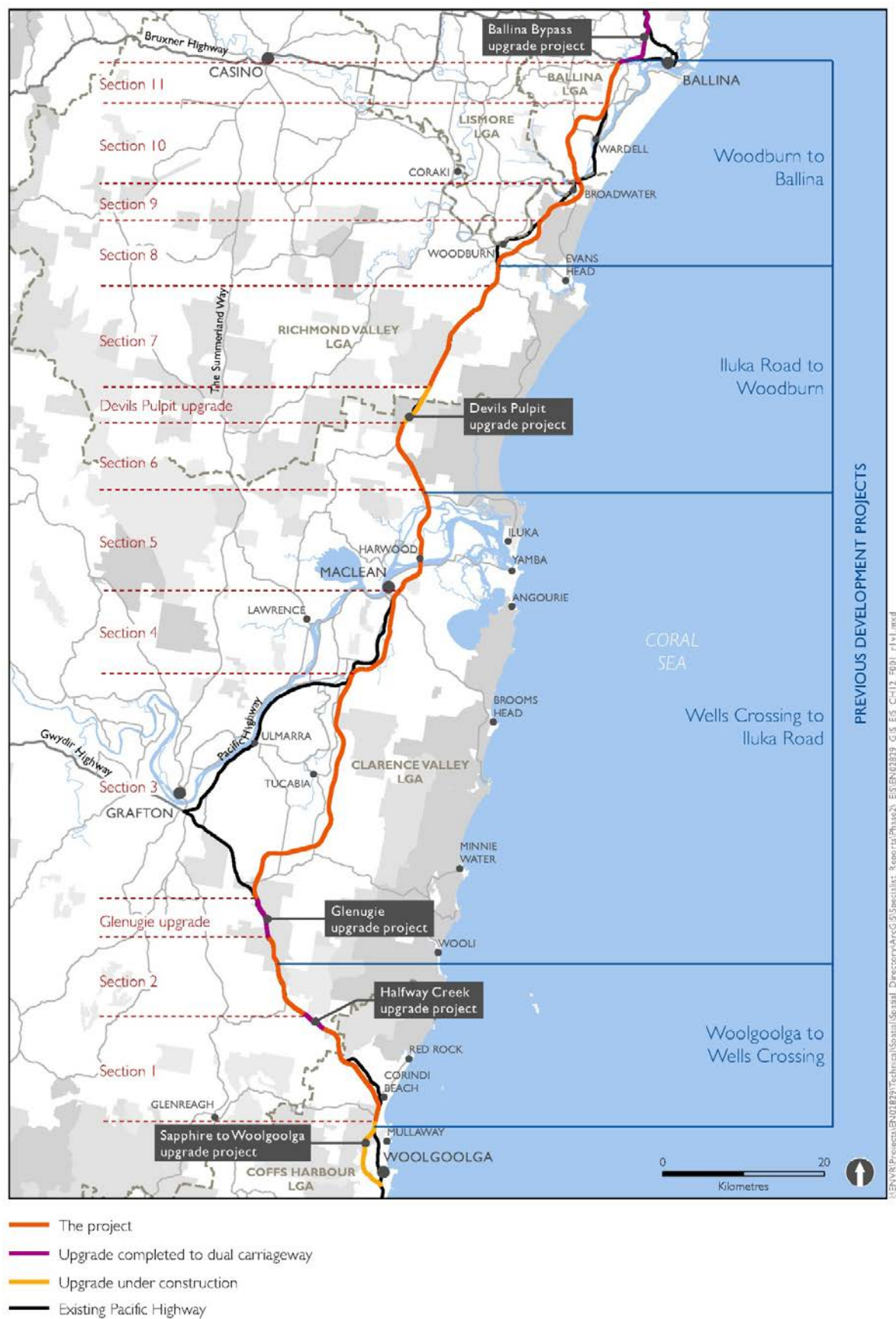
The information provided has contributed to an understanding of the cultural value of the broader landscape within which the project is located. Knowledge holders have provided information about the traditional presence of Aboriginal people in the landscape, ceremonial sites and the impact of European land management practices on their traditional land, and consequently their culture. The cultural assessment identified locations of Aboriginal cultural value within the project.

The Aboriginal cultural heritage assessment was undertaken with four AFGs, including registered stakeholders, to determine and assess potential impacts and to develop and select options and mitigation measures. These four groups were based on the four previous development projects initiated from 2004 (Woolgoolga to Wells Crossing, Wells Crossing to Iluka Road, Iluka Road to Woodburn, and Woodburn to Ballina). New stakeholder registration was undertaken for each AFG. This allowed consultation processes to continue with existing stakeholders and provided an opportunity for additional stakeholders to become involved.

Table 12-1 and Figure 12-1 identifies the project section and the associated four previous development project sections.

**Table 12-1: Summary of project sections in relation to the Aboriginal cultural heritage assessments**

Current project section	Location	Previous project section and AFG
1	Woolgoolga to Halfway Creek	Woolgoolga to Wells Crossing
2	Halfway Creek to Glenugie upgrade	Woolgoolga to Wells Crossing
3	Glenugie upgrade to Tyndale	Wells Crossing to Iluka Road
4	Tyndale to Maclean	Wells Crossing to Iluka Road
5	Maclean to Iluka Road	Wells Crossing to Iluka Road
6	Iluka interchange to Devil's Pulpit upgrade	Iluka Road to Woodburn
7	Devil's Pulpit upgrade to Trustums Hill	Iluka Road to Woodburn
8	Trustums Hill to Broadwater National Park	Iluka Road to Woodburn and Woodburn to Ballina
9	Broadwater National Park to Richmond River	Woodburn to Ballina
10	Richmond River to Coolgardie Road	Woodburn to Ballina
11	Coolgardie Road to Ballina bypass	Woodburn to Ballina



## 12.1.2 Aboriginal community consultation

### Consultation framework

Aboriginal stakeholder engagement and involvement has been important for the identification of Aboriginal cultural values.

In summary, the consultation undertaken to date has followed government and RMS consultation guidelines. Consultation for this project has been undertaken over a long period, beginning in 2004 and, consequently, has occurred under several consultation frameworks, as listed below:

- Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) 2011 (RMS, 2011)
- Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRP) 2010 (DECCW, 2010a)
- Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC 2005a)
- Interim Community Consultation Requirements for Applicants (DEC 2005b).

Consultation has included Aboriginal community involvement at AFG meetings during the route development, concept design and environmental assessment phases; reviewing and commenting on draft reports; providing knowledge of culture and history; and undertaking fieldwork activities.

### Consultation methodology

The consultation strategy adopted in 2010 was to ensure continuity from previous consultation (see Section 3 of Working paper – Aboriginal cultural heritage assessment). Where possible, the RMS Aboriginal Cultural Heritage Advisor with knowledge of previous consultation attended the AFG meetings (AFGs). The current phase of consultation involved:

- Notification (including advertisement) for stakeholder registration for the AFG
- Registration of registered Aboriginal stakeholders for the AFG
- Holding AFG meetings
- Undertaking archaeological survey and subsurface test excavations with the Aboriginal site officers nominated in AFG meetings
- Providing assessment methodologies and statements of findings to the AFG and requesting comments
- Providing stakeholders with a draft Cultural Heritage Assessment Report (forming part of the current Working paper – Aboriginal cultural assessment) for comment
- Incorporating comments received on the Cultural Heritage Assessment Report into the final report

In addition to the AFG meetings, consultation with nominated Aboriginal site officers was incorporated as part of the archaeological survey. Typical items discussed were:

- Options for mitigation of impact to Aboriginal sites and potential archaeological deposits (PADs)
- Potential significance of Aboriginal sites
- Information pertaining to any Aboriginal cultural sites
- Previous survey coverage and findings

#### **KEY TERM – Aboriginal stakeholders**

**Members of a local Aboriginal land council, Aboriginal groups, or other Aboriginal people who have registered their interest with the RMS to be consulted about a proposed RMS project or activity.**

### Notification, identification and registration of stakeholders

Letters were sent to a number of agencies on 19 October 2010 with a closing date of 3 November 2010, seeking names of Aboriginal people who may have an interest in the project and who hold knowledge relevant to determining the cultural significance of Aboriginal objects and / or places.

These agencies were:

- The office of the Registrar of the Aboriginal Land Rights Act 1983
- Office of Environment and Heritage
- Relevant local Aboriginal land councils
- Relevant local councils
- The National Native Title Tribunal
- Native Title Services Corporation Limited
- Northern Rivers Catchment Management Authority.

The OEH nominated 11 potential stakeholders. Letters were sent on the 11 November 2010 to those nominated stakeholders seeking registration of interest. The closing date for registration was 2 December 2010 with an AFG scheduled for 8 December 2010. Stakeholders were made aware of this meeting date as they registered, and were followed by a formal invitation two weeks prior to the meeting (around 25 November 2010).

Newspaper advertisements appeared in November 2010 in the following publications

- The Northern Star (next available)
- Ballina Shire Advocate (11 and 25 November)
- National Indigenous Times (11 and 25 November)
- Deadly Vibe Magazine (November issue)
- In Vibe Magazine (November issues)
- The Koori Mail (3 and 17 November).



**Photo 1: Artefact scatter, chert multi-directional core, at WWC39 (AHIMS Site ID: 22-1-0343)**

## AFGs and stakeholders

Eighteen Aboriginal stakeholder groups registered for the AFGs established for the project. Those Aboriginal stakeholders were:

- Bandjalang Local Aboriginal Land Council
- Bandjalang Native Title Group
- Bandjalang Native Title Claimants
- Birrigan Gargle Local Aboriginal Land Council
- Bogal Local Aboriginal Land Council
- Burabi Aboriginal Corporation
- Burra:way Wa:jad Traditional Owners Group
- Coffs Harbour and District Local Aboriginal Land Council
- Garlambirla Guuyu-girwaa Corporation
- Grafton-Ngerrie Local Aboriginal Land Council
- Gubba Gunya Aboriginal Corporation
- Jali Local Aboriginal Land Council
- Ngulingah Local Aboriginal Land Council
- Numbahjing Title Claimants
- Tweed, Byron and Ballina Community Transport Inc
- Yaegl Local Aboriginal Land Council
- Yaegl Native Title Claimants Group
- Yarrawarra Aboriginal Corporation (incorporating the Garby Elders Group).

The registered stakeholder groups were provided with relevant information about the project, participated in the AFG meetings, were provided with copies of the proposed methodology for the archaeological field survey and subsurface 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 project between August 2010 and May 2012. The Aboriginal representatives generally expressed satisfaction with the methodology and with the consultation process, and had a strong interest in the findings (as detailed in Section 3 of Working paper – Aboriginal cultural assessment).

Between May 2005 and June 2012, 37 AFG meetings were held with the registered stakeholders. The AFG provided a forum for representatives of the registered Aboriginal stakeholder groups to meet with RMS to discuss known areas and sites of Aboriginal cultural significance. The AFG also enabled the Aboriginal stakeholder groups to be kept informed on the progress of the project.

In addition to the AFG meetings, consultation with nominated Aboriginal site officers was incorporated as part of the archaeological survey. Typical items discussed were:

- Potential significance of Aboriginal sites
- Information pertaining to any Aboriginal cultural sites
- Previous survey coverage and findings.

During fieldwork, nominated Aboriginal site officers were engaged to assist with the identification and investigation of sites and PADs during survey and sub-surface test excavations, as well as to identify any cultural places (refer to Section 3 of Working paper – Aboriginal cultural assessment).

## Woolgoolga to Wells Crossing

Two AFG meetings were held in February 2006 and February 2007. Aboriginal site officers nominated to represent the AFG were invited to attend fieldwork activities and accompanied archaeologists during the survey period. AFG stakeholders were provided with a draft of the cultural heritage assessment for review and comment (refer to Section 3 and Appendix D of Working paper – Aboriginal cultural assessment (Woolgoolga to Wells Crossing)).



During 2010 to 2012 five AFG meetings were held to ensure stakeholders were meaningfully engaged and had an opportunity to provide input and comment on the process (refer to Section 3 and Appendix E of Working paper – Aboriginal cultural assessment (Woolgoolga to Wells Crossing)).

The first two AFG meetings, held in August 2010 and September 2010, provided a background to the project between Woolgoolga and Wells Crossing. Discussions were held over plans showing the project boundary, previously surveyed areas and registered Aboriginal sites and PADs. The primary aims of the first two meetings were to:

- Explain the concept design phase of the project
- Inform the registered Aboriginal stakeholders that further targeted archaeological survey was proposed along the boundary of the project (following identification of gaps in survey coverage) and present the methodology for the survey
- Request Aboriginal site officer assistance with the survey (following the RMS procedures for engagement)
- Discuss any issues arising from the presentation and discussion.

The third AFG meeting was held after completion of the field survey in October 2011. The primary aims of this were to:

- Present the results of the archaeological survey
- Discuss the significance of any new Aboriginal cultural heritage sites recorded within the project boundary
- Discuss potential mitigation strategies for sites recorded in the project boundary
- Present the archaeological and cultural methodologies for assessment of PADs in the project boundary.

The fourth AFG meeting was held in December 2011, after the majority of the sub-surface testing program had been completed. The primary aims of this were to:

- Present the results of the sub-surface testing program
- Discuss the significance of the Aboriginal cultural heritage sites recorded within the boundary of the project
- Discuss management recommendation, including the development of salvage and protection requirements.

The fifth AFG meeting was held in June 2012 and no Aboriginal representatives were in attendance. Project issues were then discussed at the Wells Crossing to Iluka Road AFG meeting (June 2012)

The final draft of the Working paper – Aboriginal cultural assessment (Woolgoolga to Wells Crossing) was provided to stakeholders for comment on 26 June 2012 with comments and recommendations made within eight weeks of this date by Aboriginal stakeholders provided in Appendix E of the working paper.

### **Wells Crossing to Iluka Road**

Five AFG meetings were held in May 2005, February 2006, September 2007, September 2008 and June 2009. Aboriginal site officers nominated to represent the AFG were invited to attend fieldwork activities and accompanied archaeologists during the survey period. AFG stakeholders were provided with a draft of the cultural heritage assessment for review and comment (refer to Section 3 and Appendix D of Working paper – Aboriginal cultural assessment (Wells Crossing to Iluka Road)).

Five AFG meetings were held during August 2010, September 2010, October 2011, December 2011 and June 2012 (refer to Section 3 and Appendix E of Working paper – Aboriginal cultural assessment (Wells Crossing to Iluka Road)).

The primary aims for 2010 to 2012 meetings followed those of the Woolgoolga to Wells Crossing AFG meetings.

The final draft of the Working paper – Aboriginal cultural assessment (Wells Crossing to Iluka Road) was provided to stakeholders for comment on 26 June 2012 with comments and recommendations made within eight weeks of this date by Aboriginal stakeholders provided in Appendix E of the working paper.

### **Iluka Road to Woodburn**

One AFG meeting was held in June 2007. Aboriginal site officers nominated to represent the AFG were invited to attend fieldwork activities and accompanied archaeologists during the survey period. AFG stakeholders were provided with a draft of the cultural heritage assessment for review and comment (refer to Section 3 and Appendix D of Working paper – Aboriginal cultural assessment (Iluka Road to Woodburn)).

Six AFG meetings were held during 2010 to 2012 (refer to Section 3 and Appendix E of Working paper – Aboriginal cultural assessment (Iluka Road to Woodburn)). The primary aims for the August 2010, September 2010, and October 2010 meetings followed those of the three Woolgoolga to Wells Crossing AFG meetings.

The fourth AFG meeting was held in October 2011, prior to sub-surface testing. The primary aims of this meeting were to:

- Discuss the sub-surface methodology
- Inform interested stakeholders on the site officer nomination process.

The fifth AFG meeting was held after the majority of the sub-surface testing program had been completed, in December 2011. The primary aims of this meeting were to:

- Present the results of the sub-surface testing program
- Discuss the significance of the Aboriginal cultural heritage site recorded within the boundary of the project
- Discuss management recommendations, including the development of salvage and protection requirements.

The summary results and recommendations of the Working paper – Aboriginal cultural assessment (Iluka Road to Woodburn) were presented to stakeholders at the sixth AFG meeting in June 2012. Comments and recommendations were also provided by stakeholders (refer to Appendix E of the Working paper).

### **Woodburn to Ballina**

Six AFG meetings were held in August 2005, September 2005 (two), October 2005, December 2005 and March 2006. Aboriginal site officers nominated to represent the AFG were invited to attend fieldwork activities and accompanied archaeologists during the survey period. AFG stakeholders were provided with a draft of the cultural heritage assessment for review and comment (refer to Appendix D of Working paper – Aboriginal cultural assessment (Woodburn to Ballina)).

Seven AFG meetings were held during 2010 to 2012 (refer to Appendix E of Working paper – Aboriginal cultural assessment (Woodburn to Ballina)). The primary aims for the August 2010, September 2010, December 2010, October 2011 and December 2011 meetings followed those of the four Woolgoolga to Wells Crossing AFG meetings.

In March 2012, the sixth AFG meeting was held primarily to address issues surrounding the recent identification of a site north of Richmond River; this meeting included a field visit to the site with stakeholders and a local knowledge holder. The meeting was restricted to attendees with cultural interest in the area to ensure that important cultural knowledge was kept confidential to the appropriate knowledge holders.

The seventh AFG meeting was held in May 2012 to discuss potential recommendations and management options for avoidance, minimisation and mitigation of impact to Aboriginal heritage sites between Woodburn and Ballina.

The final draft of the Working paper – Aboriginal cultural assessment (Woodburn and Ballina) was provided to stakeholders for comment on 20 June 2012 with comments and recommendations made within eight weeks of this date by Aboriginal stakeholders provided in Appendix E of the working paper.

### **12.1.3 Literature and database review**

The following heritage registers and planning instruments were reviewed to ascertain whether any Aboriginal heritage sites had previously been recorded within or near the project:

- Local council LEPs
- Aboriginal Heritage Information Management System (AHIMS) maintained by the Office of Environment and Heritage
- National Heritage List
- Commonwealth Heritage List
- Searches of the National Native Title Register
- Register of Native Title Claims
- Register of Aboriginal Land Use Agreements.

In addition, previous investigations specific to the project were reviewed.

### **12.1.4 Previous archaeological investigations**

The region around the project is relatively poorly studied in regard to the archaeology of Aboriginal occupation. Previous archaeological investigation has generally focussed more on the coast. Studies have been conducted for transmission lines and for small, isolated projects by local councils, and there have been occasional locality-wide studies for road or forestry projects. These studies provide a reasonable overview of the area.

#### **Woolgoolga to Wells Crossing**

Aboriginal heritage assessment was previously undertaken between the Woolgoolga and Wells Crossing previous development project (Kuskie 2008). Kuskie's (2008) assessment commenced in 2005 and considered a 200 metre wide area along the same alignment as the current project boundary, with a few omissions due to more recent design changes. Kuskie (2008) aimed to identify Aboriginal heritage constraints to be considered in the project.

Kuskie (2008) undertook field survey across the assessment area in April 2007, with representatives from relevant (at the time) AFGs, all within the current project boundary.

#### **Wells Crossing to Iluka Road**

Preliminary Aboriginal heritage assessment was undertaken between the Wells Crossing and Iluka Road previous development project (Navin Officer, 2009). Navin Officer's (2009) assessment commenced in 2006 and considered an area very similar to the current project boundary. Navin Officer (2009) aimed to identify all Aboriginal heritage constraints for the area, so that they could be considered in the project.

Navin Officer (2009) undertook field survey across 90 per cent of the assessment area, almost all of which is within the current project boundary.

#### **Iluka Road to Woodburn**

Collins (2008) conducted an Aboriginal heritage assessment during the previous development project between Iluka Road and Woodburn, and identified a number of archaeological heritage constraints within the area.

Previous investigations relating to other developments within or near the project boundary were undertaken prior to 1993 (Hall and Lomax, 1993).

## Woodburn to Ballina

Preliminary Aboriginal heritage assessment was undertaken between Woodburn and Ballina during the route selection phase of the previous development project (Collins 2005). Collins' (2005) assessment commenced in 2004 and considered a number of route options, including the current route. Collins (2005) aimed to identify the main Aboriginal heritage constraints for each of the route options, so that these could be considered in selecting the most appropriate route.

Collins (2005) undertook sample field survey across the route options, targeting areas that had previously not been surveyed for Aboriginal heritage, including some areas within the current Woodburn to Ballina project boundary.

### 12.1.5 Predictive model of Aboriginal archaeological sites

A predictive model was developed to assist with the identification of the nature and extent of Aboriginal heritage items that may be present within and near to the project. The predictive model (Table 12-2) was based on:

- Land systems (potential usage patterns) and landform units
- Previous archaeological surveys conducted within the region
- The distribution of recorded sites and known site density
- Traditional Aboriginal land use patterns
- Areas of significance to the local Aboriginal community
- Observations recorded by European settlers.

The nature of the archaeological sites recorded within the boundary of the project between Woolgoolga and Ballina allows some insight into the pre-contact occupation of the area. The distribution of the archaeological sites recorded during investigation for the project reinforces the pattern suggested in the predictive model (identified in Table 12-2). Elevated areas, mainly spurs, terraces and sandy rises, adjacent to swamps, creeks, and rivers show the largest proportion of archaeological sites. These areas would have provided good vantage points with good ventilation in warmer months. They would have provided access to water sources and associated resource-rich zones within and around them. During wetter months, these areas would have provided well-drained, drier areas above the lower lying waterlogged, flooded, or flood prone areas.

**Table 12-2: Predictive model of landforms where Aboriginal archaeological sites are likely to occur**

Project section	Land system	Specific landscape characteristics	Location within / near the project corridor	Landforms with high probability of Aboriginal sites	Sensitivity rating	Likely site types	Factors influencing occurrence
1	Coastal plain	Relatively flat plain behind dune barrier on coast, with depressions comprising brackish lagoons, swamps and marshes.	Arrawarra and south of Corindi, Wells Crossing, Halfway Creek, ending around Dirty Creek.	Any raised areas.	Moderate	Isolated stone artefacts and small stone artefact scatters, shell middens.	Infilling from aeolian dune mobility, aggrading alluvium, and colluviums may have concealed sites and even sensitive landforms.
1, 2, 3	Coastal range	Ridgelines dissected by ephemeral and permanent waterways and small river valleys. Overlooking coastal plain and swamps.	Wells Crossing, Halfway Creek, ending around Dirty Creek. Includes Dirty Creek Range (also known as Coast Range).	Close to freshwater sources on locally elevated well-drained land. Would have formed walking paths between coastal and inland resources.	Moderate	Isolated stone artefacts and small stone artefact scatters.	Relatively shallow soils have limited potential for stratified and in-situ deposits due to post-contact land use.
1,2		Foot slopes and spurs of range adjacent valley flats. Gradients are generally gentle and elevation less than 40 m above sea level.	Dirty Creek, Corindi and Arrawarra.	Flat, low spur crests near substantial creeks and resource-rich swamps.	High	Small and more substantial stone artefact scatters, bora/ceremonial rings.	Relatively shallow soils have limited potential for stratified and in-situ deposits due to post-contact land use.
1		Broad alluvial valley flats.	Corindi River, Dirty Creek.	Flat alluvial terraces near substantial creeks, rivers and resource-rich swamps. Burials may occur in deep alluvial deposits.	Moderate–High	Small and more substantial stone artefact scatters, burials, bora/ceremonial rings.	Aboriginal sites may be concealed by aggrading alluvium.



Project section	Land system	Specific landscape characteristics	Location within / near the project corridor	Landforms with high probability of Aboriginal sites	Sensitivity rating	Likely site types	Factors influencing occurrence
12, 3	Glenugie Creek Catchment	Low spur lines separated by tributary streamlines.	Wells Crossing to Shark Creek	Flat areas of low spur lines overlooking water sources.	Low–moderate	Isolated stone artefacts and small stone artefact scatters.	Sensitive landforms have been subject to some disturbance during the historical period.
3, 4, 5	Clarence River Valley	Steep Coastal Hills consisting of low hills, very steep peaks and escarpments and well defined ridgelines and gullies.	Wells Crossing to Iluka Road: Encompasses the towns of Grafton, Tyndale, Harwood, Iluka and Yamba.	In close proximity to freshwater sources on locally elevated land. Larger campsites would exist on the lower slopes and low spur line crests near substantial creeks and resource-rich swamps.	High	Stone artefact scatters and scarred trees.	Disturbance due to forestry and wildfire. Aggrading landforms may conceal archaeological sites.
3		Coastal range sitting on Kangaroo Creek Sandstone and Grafton Formation geological features.		Rock shelters associated with the Kangaroo Creek Sandstone and in close proximity to freshwater sources.	High	Rock shelters, stone artefact scatters and scarred trees.	Disturbance due to forestry and wildfire. Aggrading landforms may conceal archaeological sites.
3, 4, 5, 6	Clarence River Valley	Clarence River floodplain consisting of an undulating plain of low rises, levees, terraces and depressed flood channels.	Southern end of project corridor, around Iluka Road.	Raised areas of alluvial deposits.	Low–moderate	Isolated stone artefacts, small stone artefact scatters and scarred trees.	Aboriginal sites may be concealed by aggrading alluvium.
6, 7, 8	Tabbimoble rises	Low hills and undulating rises up to 40 m above sea level.	South of Woodburn and within the Richmond River Ranges to just north of Iluka Road.	Flatter areas of mid-slopes, ridges and spur crests.	Moderate	Isolated stone artefacts, small stone artefact scatters.	Disturbance due to road construction, logging and other pastoral activities.

Project section	Land system	Specific landscape characteristics	Location within / near the project corridor	Landforms with high probability of Aboriginal sites	Sensitivity rating	Likely site types	Factors influencing occurrence
6		Lowland areas with elevations of less than 10 m above sea level consisting of alluvial floodplains, back swamps and drainage channels.	South of Woodburn and within the Richmond River Ranges to just north of Iluka Road	Margins of larger streams and swamps on flatter areas of well-drained foot slopes and banks.	Moderate	Isolated stone artefacts, small stone artefact scatters, and scarred trees.	Disturbance due to road construction, logging and other pastoral activities.
8, 9, 10, 11	Richmond Alluvial Plain	Alluvial plain of low-lying flat terrain, about 5 m above sea level. Area has been drained, cleared and extensively cultivated.	Woodburn to Ballina: Richmond River	Locally elevated rises, particularly those on swamp/forest ecotones and the banks of swamps and estuaries.	Low–moderate	Stone artefact scatters and isolated artefacts.	Erosion and disturbance in the historical period due to land clearing
8, 9, 10	Coastal barriers	Sand plain characterised by low-relief dunes and swales.	Woodburn to Ballina	Unmined sand rises and creeks, gullies and swamps.	High	Stone artefact scatters, middens, bora / ceremonial rings and burials.	Aboriginal sites may have been covered by shifting sands and vegetation.
8, 10, 11		Poorly drained swamps.	Woodburn to Ballina	On margins of swamps.	Moderate–high	Stone artefact scatters	-
9, 10	Coastal Ramp	Low-relief erosional landscape of rolling hills, undulating rises and low gradient slopes.	Woodburn to Ballina: Forms the eastern edge of the Blackwall Range which extends southwards from the Alstonville Plateau and forms outlying hills around Broadwater.	Foot slopes and crests of rises and low spurs that offer level ground close to creeks and wetlands especially where these elements supported schlerophyll forest rather than rainforest. Larger campsites may potentially exist on flat creek banks.	Moderate–High	Isolated stone artefacts and small stone artefact scatters, and scarred trees.	Disturbance due to land clearance, cattle trampling, cane cultivation, quarrying, house construction and erosion.

Project section	Land system	Specific landscape characteristics	Location within / near the project corridor	Landforms with high probability of Aboriginal sites	Sensitivity rating	Likely site types	Factors influencing occurrence
8, 9, 10, 11	Richmond Alluvial Plain Alluvial plain of low lying flat terrain	Alluvial plain of low lying flat terrain, about 5 metres above sea level. Area has been drained, cleared and extensively cultivated.	Woodburn to Ballina: Richmond River	Locally elevated rises, particularly those on swamp/forest ecotones and the banks of swamps and estuaries.	Low-Moderate	Stone artefact scatters and isolated artefacts	Erosion and disturbance in the historical period due to land-clearance.

### 12.1.6 Field survey

A comprehensive archaeological field survey was undertaken between August 2010 and May 2012 to complement field surveys of the previous development project (Kuskie, 2008; Navin Officer, 2009; Collins, 2006; Collins, 2008), including surveying areas not previously surveyed. Previously surveyed areas were only resurveyed where it was considered that survey coverage was not sufficient. The survey team included Aboriginal stakeholder representatives for each relevant AFG and experienced qualified archaeologists (primarily Joseph Brooke, Robyn Jenkins, and Vanessa Edmonds). The technical standards for the survey met the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b).

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.

#### Survey coverage

The field survey covered about 1865 hectares, 84 per cent, of the area within the project boundary (2220 hectares). The remaining 355 hectares, 16 per cent, of the area within the project boundary was assessed as not requiring survey, due to previous high disturbances likely to have destroyed any archaeological evidence. Survey coverage and sites that were identified during these field surveys are depicted on Figure 12-2 to Figure 12-12.

Impacts to Aboriginal heritage sites identified within or near the project have been assessed, with identified Aboriginal heritage items near the project surveyed. As yet unidentified Aboriginal heritage sites may exist near the project.

The main survey constraints were the need for permission to access properties, and vegetation cover, such as heavily waterlogged swamps and sugarcane plantations. However, properties were, mostly able to be assessed either from the road or from an adjacent property. Where this was not possible, survey areas were assessed based on in-the-field consultation with site officers, observations, topographic data, and predictive modelling.

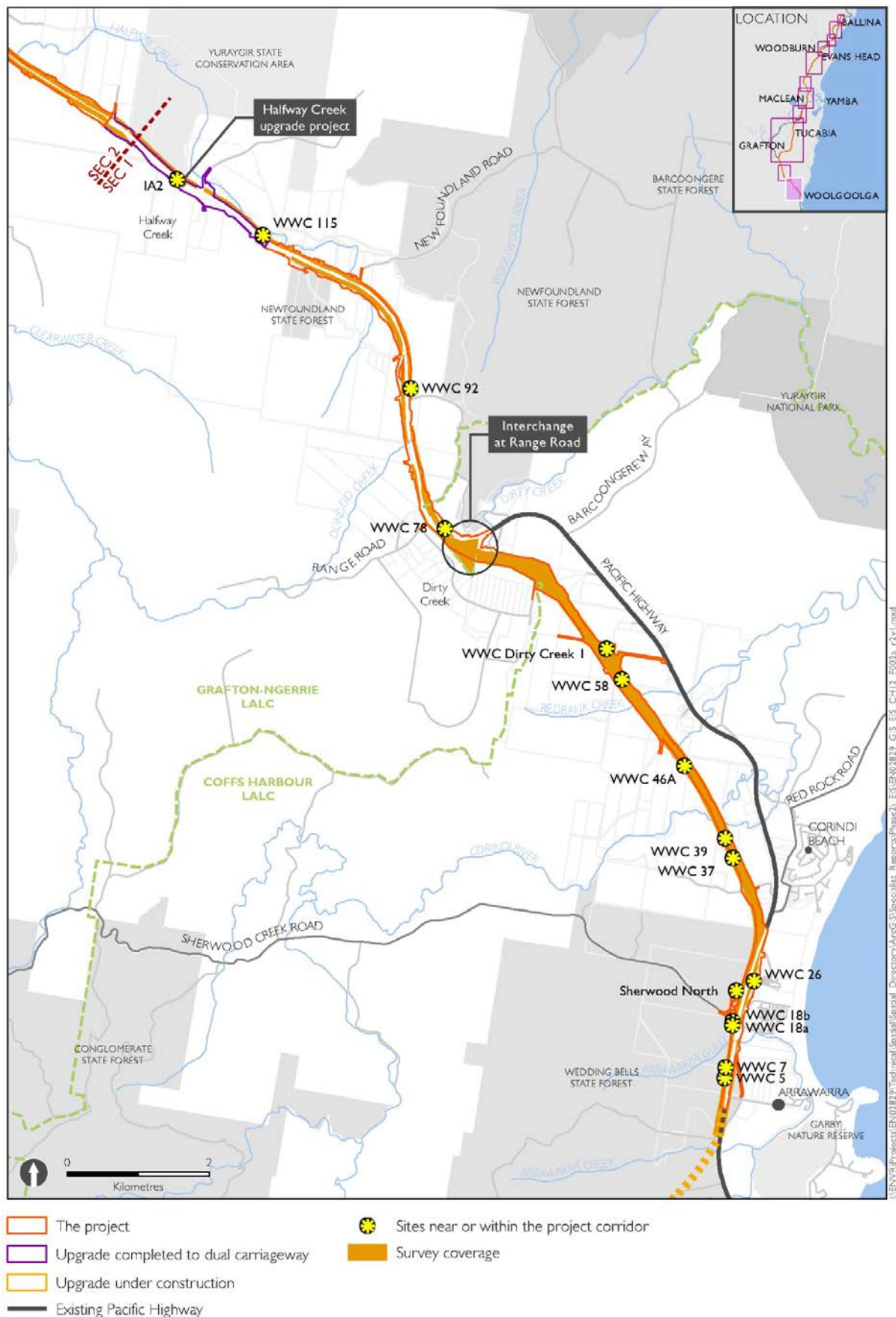
The survey coverage was comprehensive for obtrusive site types (such as scarred trees and rock shelters), but more limited for the less obtrusive site types (such as stone artefacts, middens and burials). However, areas where these sites were likely to occur were identified as PADs and assessed during the subsurface testing program. Survey work was used to draw broad conclusions on the Aboriginal values and resources located within the project boundary and the impact the project may have on them.

#### Study area

The study area comprises the areas within and near the project boundary between Woolgoolga and Ballina at potential risk of impact from project construction. This area is generally 150 metres wide, but typically wider where interchanges, large cuttings and earth embankments are proposed.

Proposed areas for ancillary facilities were identified later in the assessment stage. Those outside the project boundary have therefore not been subject to field investigation. As part of the cultural heritage investigation, ancillary areas have been assessed at a desktop level to determine the potential risk of impact on Aboriginal heritage and to identify whether any require further investigation to determine potential risk of impact.

The impact of ancillary facilities would vary due to the different levels of ground disturbance required at each site. Ancillary facilities where the risk of impact on Aboriginal cultural heritage is not sufficiently known (that is, areas located outside of the project boundary) would, at minimum, require survey and a separate Aboriginal archaeological report. As such, field investigation, with Aboriginal site officers, would occur for around 40 per cent of the proposed ancillary facilities and would be undertaken concurrently with the display of the EIS.



**Figure 12-2: Survey coverage and sites identified during field survey: Section 1**



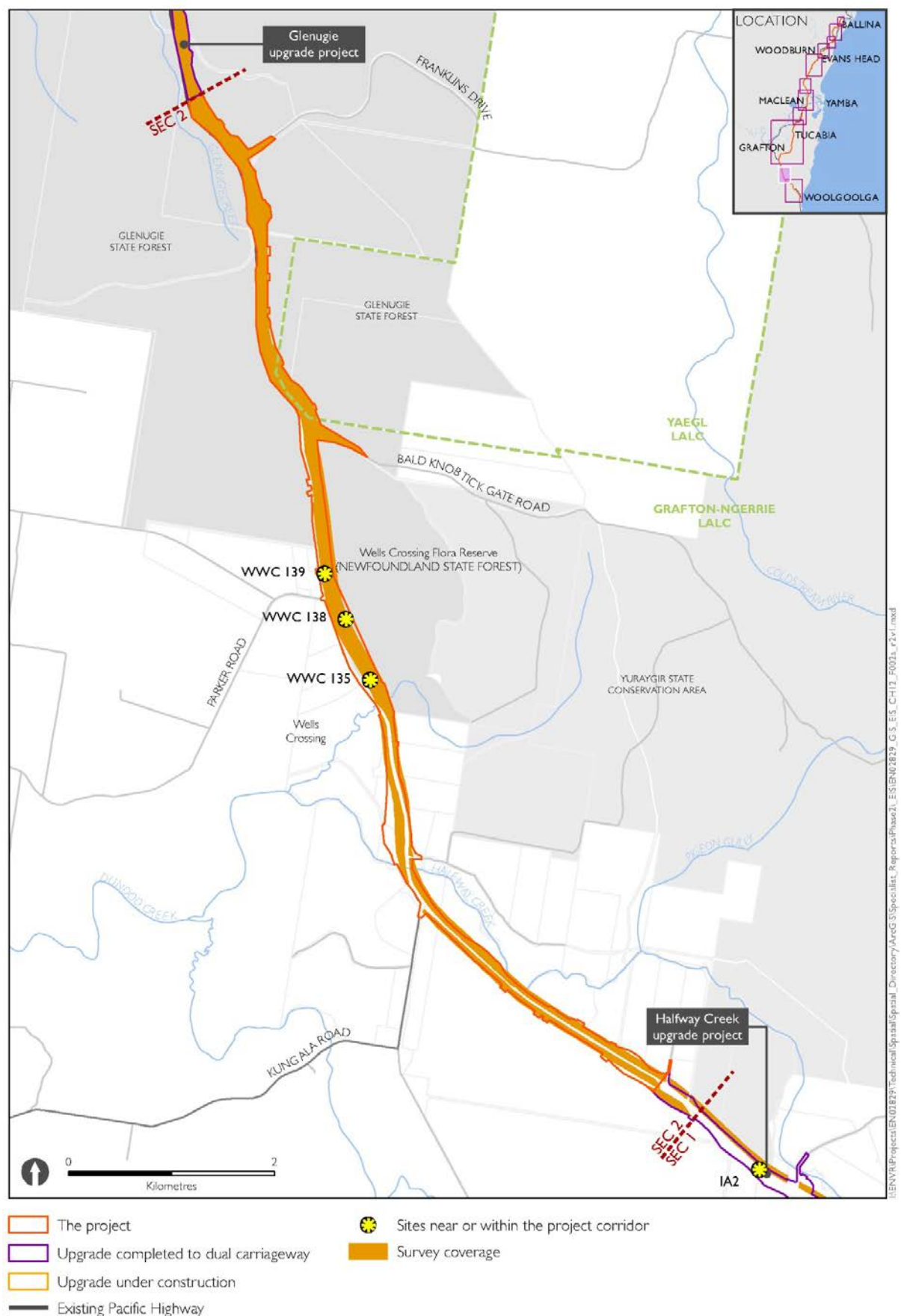
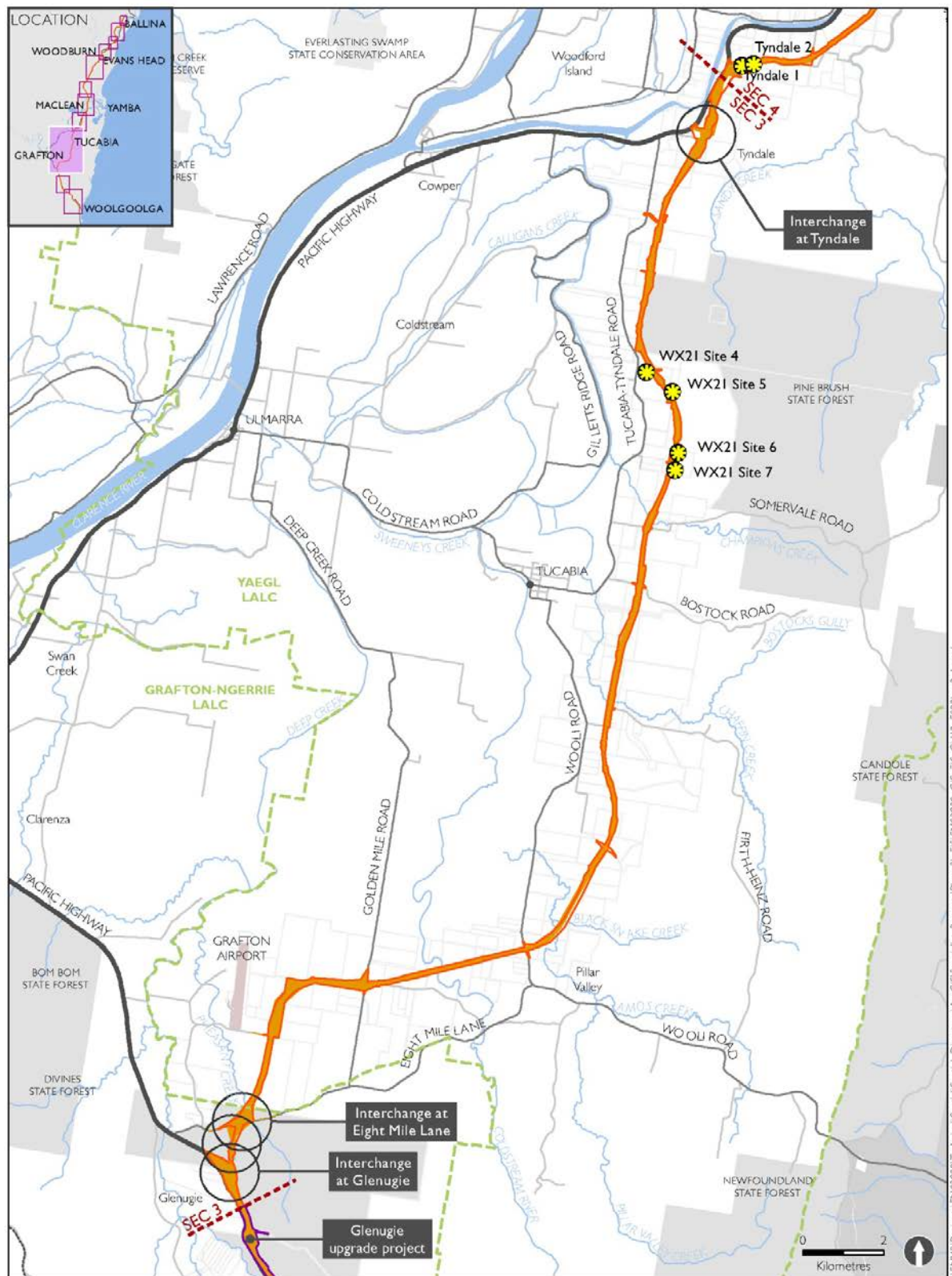


Figure 12-3: Survey coverage and sites identified during field survey: Section 2



**Figure 12-4: Survey coverage and sites identified during field survey: Section 3**

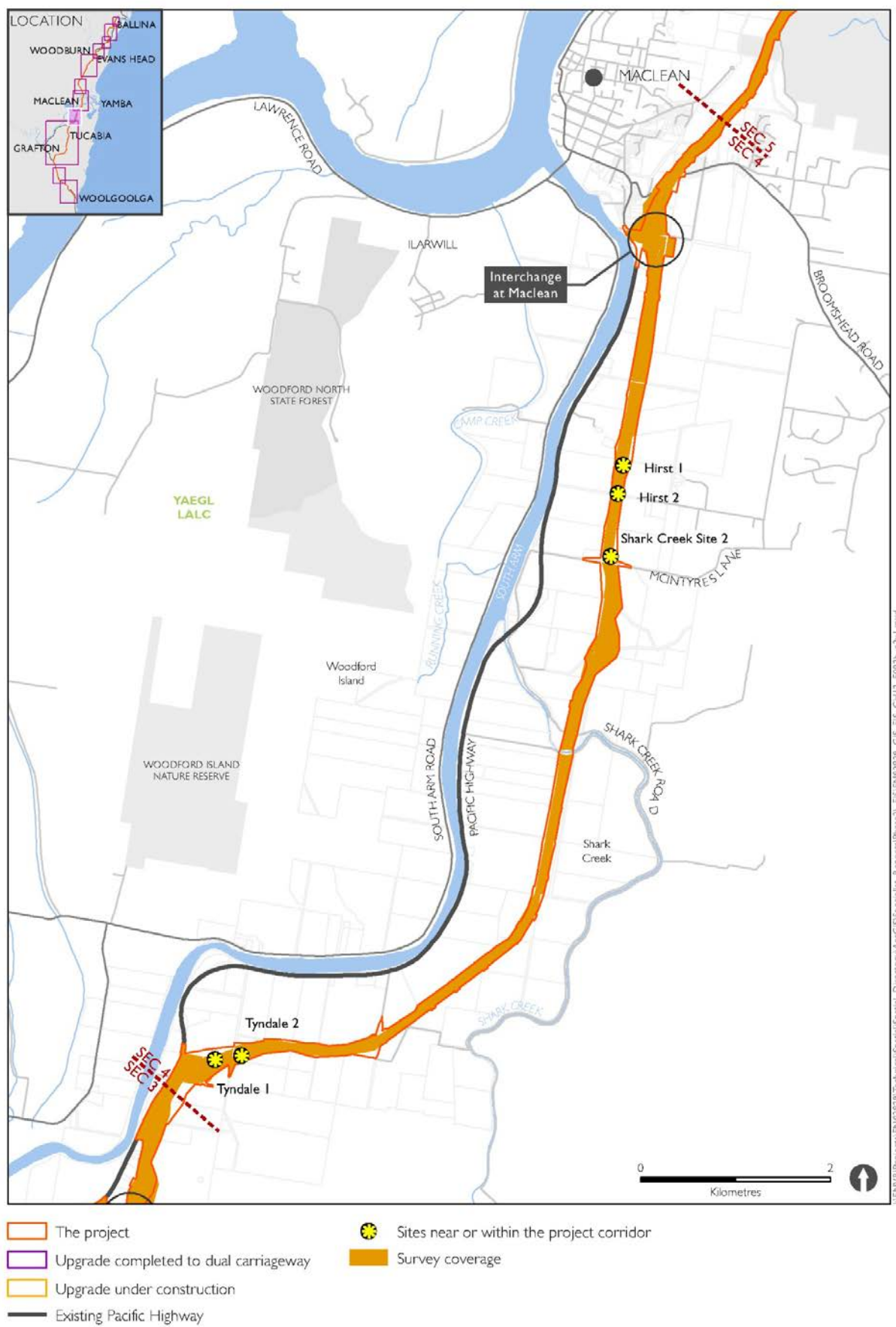
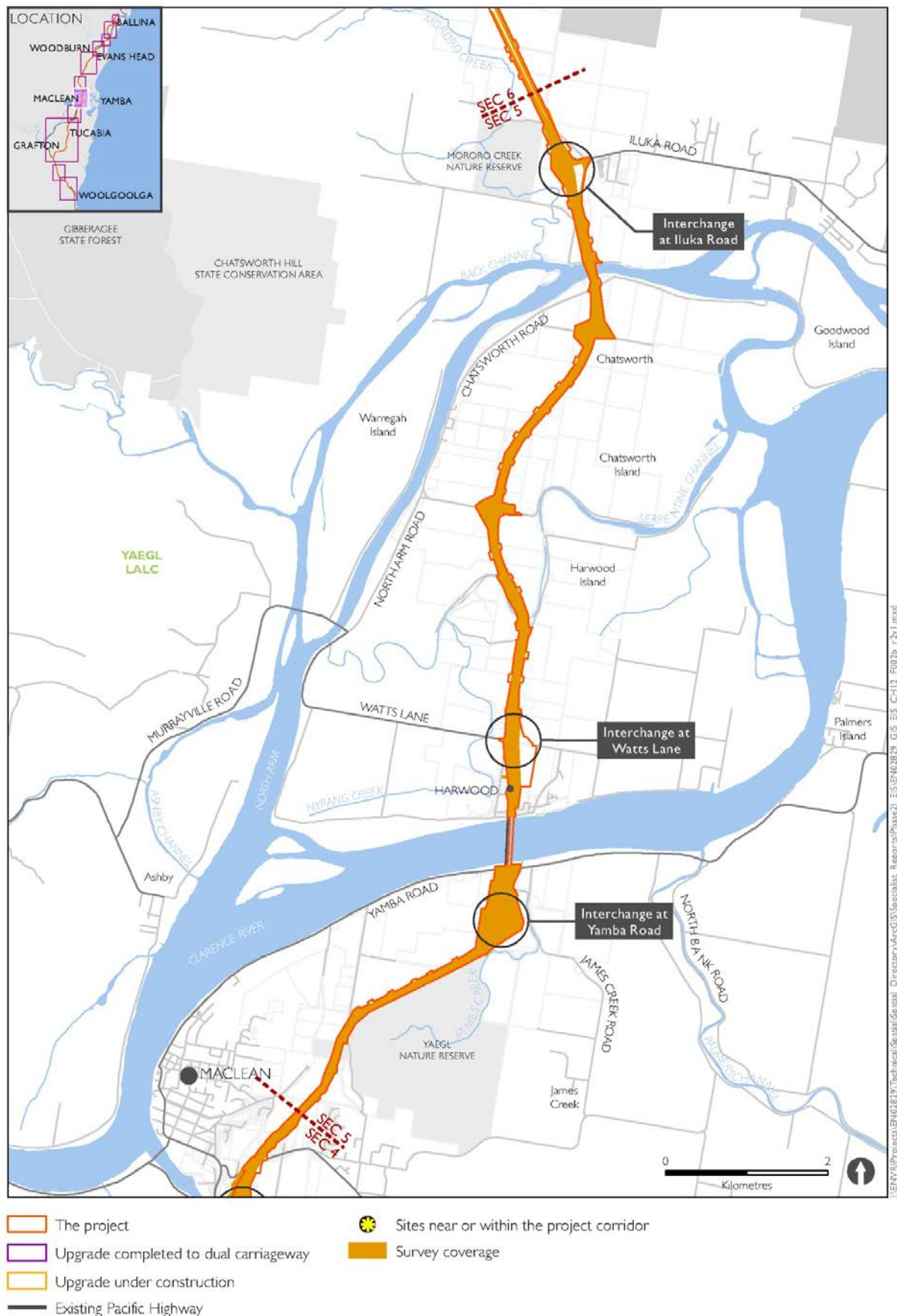


Figure 12-5: Survey coverage and sites identified during field survey: Section 4





**Figure 12-6: Survey coverage and sites identified during field survey: Section 5**



- The project
- Upgrade completed to dual carriageway
- Upgrade under construction
- Existing Pacific Highway
- ✱ Sites near or within the project corridor

**Figure 12-7: Survey coverage and sites identified during field survey: Section 6**



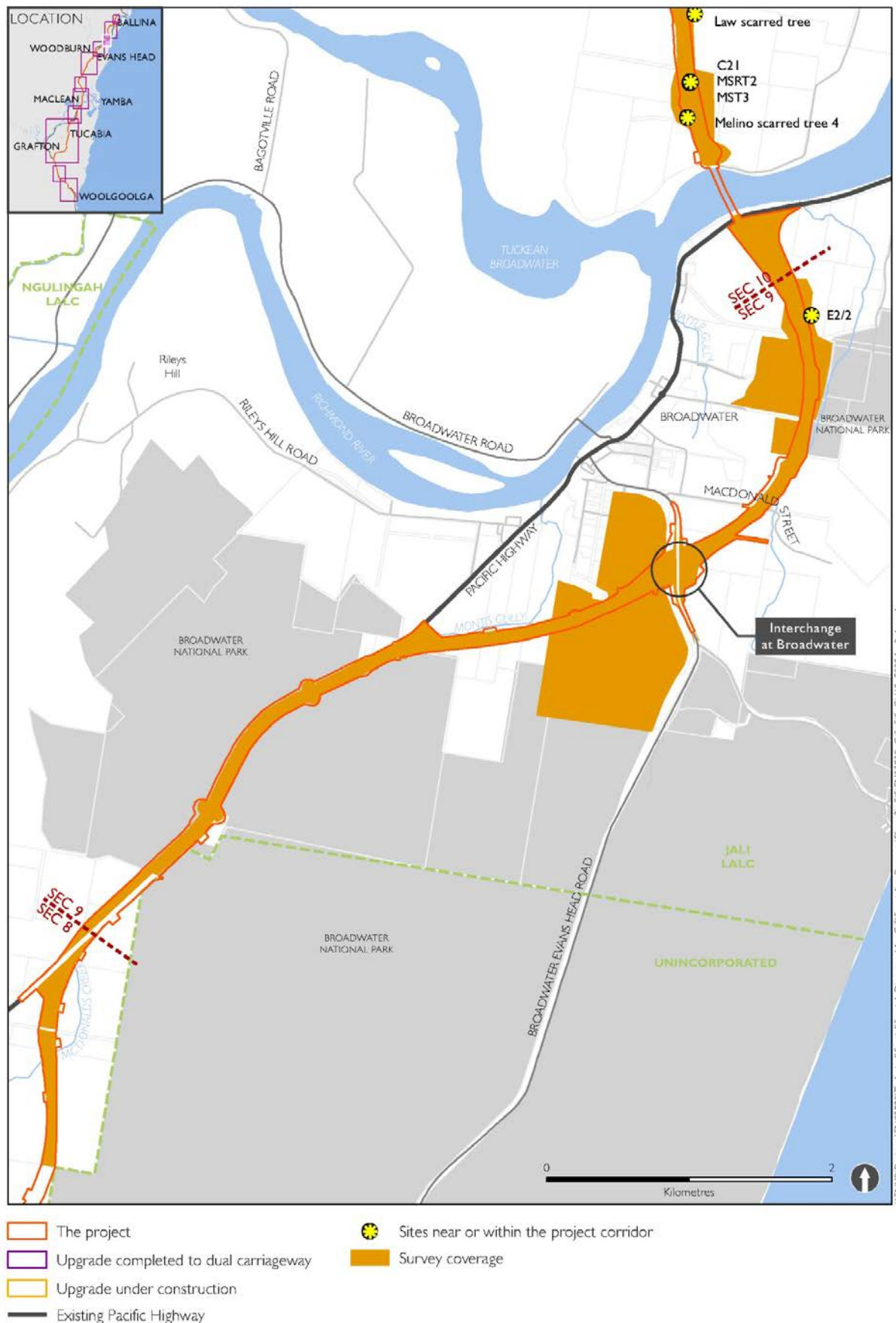


- The project
- Upgrade completed to dual carriageway
- Upgrade under construction
- Existing Pacific Highway
- ✱ Sites near or within the project corridor

**Figure 12-8: Survey coverage and sites identified during field survey: Section 7**



Figure 12-9: Survey coverage and sites identified during field survey: Section 8



**Figure 12-10: Survey coverage and sites identified during field survey: Section 9**



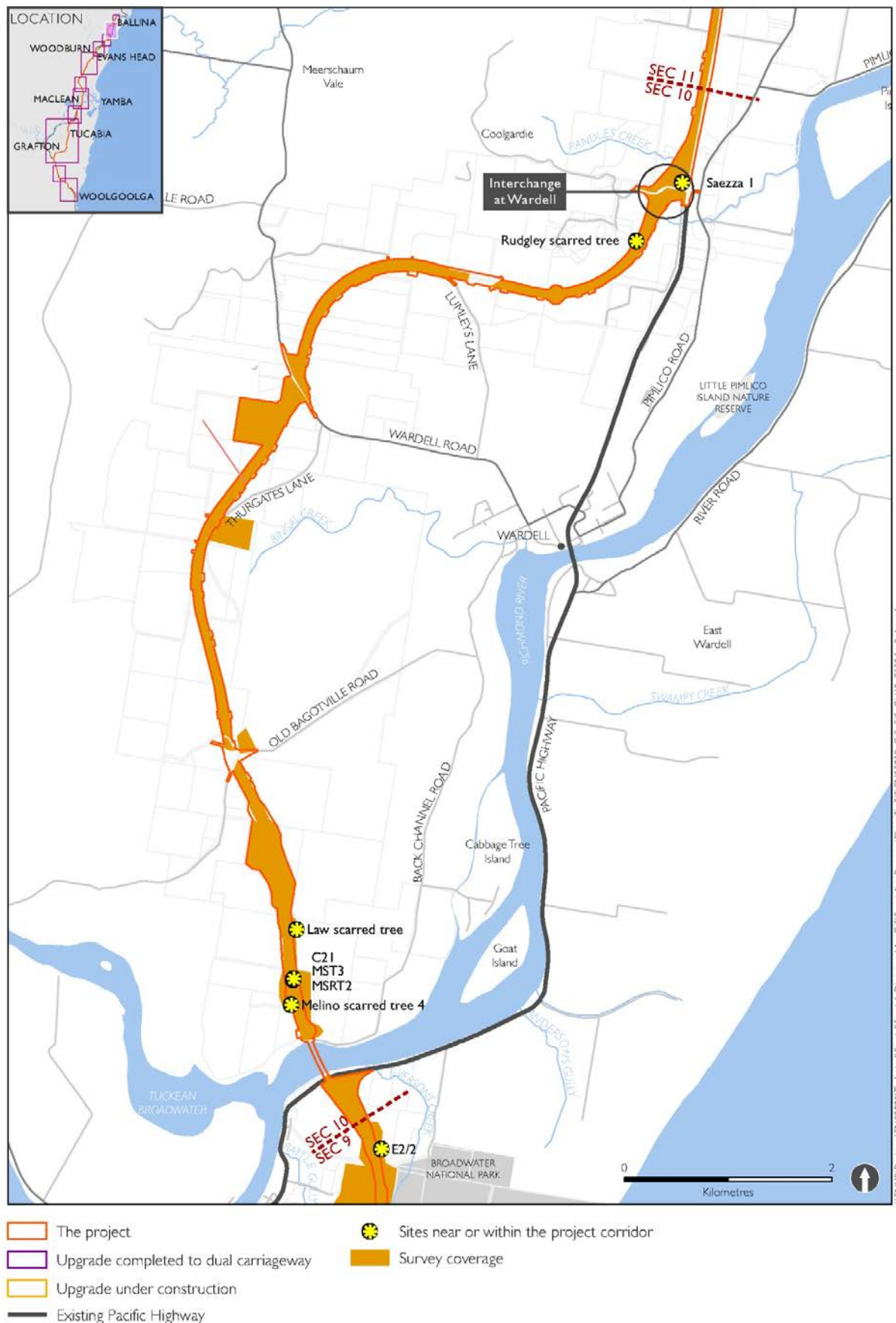


Figure 12-11: Survey coverage and sites identified during field survey: Section 10



**Figure 12-12: Survey coverage and sites identified during field survey: Section 11**

## 12.1.7 Subsurface investigations

### Potential archaeological deposits

The methodology for subsurface investigations was in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b), and the Director General's requirements.

Forty-nine areas of potential archaeological deposit (PAD) were identified within the project boundary (refer to Section 6.3 of Working paper – Aboriginal cultural assessment), as follows:

- Ten were identified between Woolgoolga and Wells Crossing
- Fifteen were identified between Wells Crossing and Iluka Road
- Three were identified between Iluka Road and Woodburn
- Twenty-one were identified between Woodburn and Ballina.

Subsurface test excavations took place at 48 of the 50 PAD sites identified within the project boundary. Two PADs were not assessed; one due to property inaccessibility (owner permission constraints) and the other because it would not be impacted by project construction (potential impact to this PAD through subsurface investigation was therefore not justified).

The PAD that could not be investigated due to property inaccessibility would be tested in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b) prior to construction. Appropriate avoidance, management or mitigation measures would be developed in consultation with the relevant Aboriginal stakeholders. Refer to Section 12.3.1 of this EIS.

The Code of Practice requirements for the test excavations include:

- Excavating only within the project boundary
- Excavating a series of 0.5 metre x 0.5 metre test pits by hand tools and in a controlled manner
- Excavating below archaeological deposits and into sterile soils
- Excavating no more than 0.5 per cent of the test area, unless the site is less than 50 metres squared
- Aboriginal objects that were uncovered during test excavation be analysed in the field.

All Aboriginal objects, features and other non-cultural inclusions were recorded when excavated. Following detailed analysis in the field, all artefacts were left in situ, or reburied.

### Participation by Aboriginal representatives

The following Aboriginal stakeholder groups participated in these subsurface investigations:

- Woolgoolga to Wells Crossing: Representatives from the Yarrawarra Aboriginal Corporation, Grafton-Ngerrie Local Aboriginal Land Council, Garby Elders, Coffs Harbour Local Aboriginal Land Council, and the Garlambirla Guuyu-girrwa Corporation. The investigations were undertaken between 14 November 2011 and 15 May 2012.
- Wells Crossing to Iluka Road: Representatives from the Yaegl Local Aboriginal Land Council and the Birrigan Gargle Local Aboriginal Land Council. The investigations were undertaken between 25 October 2011 and 18 December 2011.
- Iluka Road to Woodburn: Representatives from the Jali Local Aboriginal Land Council, Burabi Aboriginal Corporation, Yaegl Local Aboriginal Land Council and Native Title Claim, Bandjalang Native Title Group, and the Bogal Gargle Local Aboriginal Land Council. The investigations were undertaken between 12 December 2011 and 23 December 2011.
- Woodburn to Ballina: Representatives from the Jali Local Aboriginal Land Council, Burabi Aboriginal Corporation, and the Bandjalang Native Title Group. The investigations were undertaken between 7 November and 23 December 2011.



## 12.2 Existing environment

### 12.2.1 Woolgoolga to Wells Crossing

#### Context

Two Aboriginal language groups are represented between Woolgoolga to Wells Crossing:

- Yaegl (Yaygir)
- Kumbaingiri (Gumbaynggir).

The lower Clarence River was occupied by Yaegl (Yaygir) Aboriginal people, who were the northern neighbours of the Kumbaingiri (Gumbaynggir). On Friday 12 August 1799, Mathew Flinders recorded an Aboriginal settlement at the mouth of the Clarence River (Piper, 1982). Flinders described large dome-shaped bark huts, baskets, nets and other evidence that suggested that the occupants of the Iluka area pursued a hunting/fishing economy supplemented with vegetable foods.

According to Tindale (1940), the Kumbaingiri (Gumbaynggir) occupied the headwaters of the Nymboida River across the range to Urunga, Coffs Harbour, Bellingen, Glenreagh and Grafton, south and west of the Yaegl language group. The Kumbaingiri spoke a language belonging to the Kumbainggeric Group. According to Crowley (1979), Yaegl and Gumbaynggir originated from the same proto-language to become distinct subgroups on their own. As this tribal group covered such a large, environmentally diverse area it is probable that the language contained three or four dialects and supported a population of between 1200 and 1500 people (Hoddinott, 1978).

#### Native title

During the initial AFG meetings, it was noted that Native Title claimants may exist for the project. On 2 September 2010, searches of the National Native Title Register, Register of Native Title Claims, unregistered claimant applications and the Register of Aboriginal Land Use Agreements found that several claimants exist within the study area between Woolgoolga and Wells Crossing.

A new Native Title search conducted in February 2012 found no new groups listed.

Native Title claimants were identified as stakeholders and consulted during the cultural assessment (refer to Section 3 of Working paper – Aboriginal cultural assessment). As Native Title holders have specific rights in relation to cultural heritage, it should be noted that there are no Native Title holders within the project boundary.

#### Aboriginal stakeholder consultation

Aboriginal site officers from the following organisations participated in field assessments and / or provided comment on the Working paper – Aboriginal cultural assessment (refer to Section 3 of Working paper):

- Coffs Harbour and District Local Aboriginal Land Council
- Grafton-Ngerrie Local Aboriginal Land Council
- Garlambirla Guuyugirrwa Corporation
- Yarrawarra Cultural Centre (Yarrawarra Aboriginal Corporation including the Garby Elders Group)

Potential significance, impacts, management recommendations, and mitigation measures of Aboriginal cultural values were determined and assessed during fieldwork in consultation with nominated Aboriginal site officers.

Notable comments from site officers (from Coffs Harbour LALC and Yarrawarra (Garby Elders) site officers) during field work included:

- Details of the importance and sensitivity of landforms in respective areas
- Discussion of the type, scope and methodology for potential further investigation (eg survey, sub-surface testing, etc).

Further discussions during AFG meetings took place, and the final draft report including all assessment and recommendations was sent to all registered Aboriginal stakeholders, and discussed at AFG meetings and further stakeholder meetings as required. Details are provided in Section 12.1.2, with records of consultation provided in Section 3 and Appendix E of Working paper – Aboriginal cultural assessment.

### **Aboriginal cultural places**

Five Aboriginal cultural places within 200 metres of the project boundary between Woolgoolga and Wells Crossing were identified from Aboriginal consultation and are described in Table 12-3.



**Photo 2: Isolated artefact, complete quartz crystal flake, at WX21 Site 6 (AHIMS Site ID: 09-4-0106)**

**Table 12-3: Woolgoolga to Wells Crossing: Aboriginal cultural places within 200 metres of the project boundary**

Place name (ID)	Description
Corindi Massacres Site (CP1)	In the Corindi area, at least two massacres of Aboriginal people occurred in the 1800s (Cane, 1988). These are located outside the project corridor.
Burials (historic) (CP2)	The Yarrawarra Aboriginal Corporation (1995) sought to identify oral historical information pertaining to some burials and determined that a burial site probably lay west of the Pacific Highway and north of Kangaroo Trail Road. Kuskie (2008) determined that the Woolgoolga to Wells Crossing project would not directly impact any known burials, and further consultation with the Garby Elders (Milton Duroux and Anthony Dootson) confirmed that cultural values associated with this general area would not be subject to impacts.
Corindi Beach Corridors of Movement (CP3)	Corridors of movement and significant cultural areas are located around Mullaway to Arrawarra and Corindi to Corindi Beach (Goulding, 2002 cited in Kuskie, 2008). Kuskie (2008) mentioned a corridor of movement near a service station within the project.
Halfway Creek Ceremonial Site (CP4)	A bora/ceremonial site occurs at Halfway Creek, close to the project boundary (Kuskie 2008; Murphy 1996); however, the exact location of the site is unknown. Documented discussions with the Garby Elders and Grafton-Ngerrie LALC indicated that the area was considered culturally significant. Consultation and inspection undertaken during the previous project investigations allowed the project alignment to be adjusted to avoid impact to this site (see Working paper – Aboriginal cultural assessment, Appendix D.2).
Birrugan and Mindi spiritual sites (CP5)	The creation of Glenugie Peak involved two ancestors; Birrugan and Mindi (his elder). The two fought over food and Birrugan became so angry that he piled all of the yams he was collecting into a mound, which became the Glenugie Peak (Gumbaynggir Language and Cultural Group, 1992 cited in Navin Officer 2009).

No additional Aboriginal cultural places were identified during the field survey.

### Aboriginal archaeological sites

A search of the Aboriginal Heritage Information Management System (AHIMS) undertaken in 2010, and an updated search in February 2012, identified 14 recorded Aboriginal sites relevant to the project between Woolgoolga and Wells Crossing (illustrated in Figure 12-13).

During the field survey, 16 Aboriginal heritage sites and 12 PADs (nine associated with existing sites, including four newly identified standalone PADs) located within or near the project boundary were identified and recorded. After completion of subsurface testing and cultural assessment, two previously recorded sites and one PAD were assessed as no longer being sites. Resulting in 14 Aboriginal heritage sites and 11 PADs (nine associated with existing sites and two standalone PADs) identified as relevant to the project. These sites have subsequently been registered on the Aboriginal Heritage Information Management System (illustrated in Figure 12-13), and are described in Table 12-4.

#### KEY TERM – Aboriginal cultural heritage

**Aboriginal cultural heritage consists of places and items that are of significance to Aboriginal people because of their traditions, observances, lore, customs, beliefs and history. It provides evidence of the lives and existence of Aboriginal people before European settlement through to the present. It may comprise tangible and intangible elements.**



- The project
- Upgrade completed to dual carriageway
- Upgrade under construction
- Existing Pacific Highway
- ★ Aboriginal heritage site

Figure 12-13: Woolgoolga to Wells Crossing: Aboriginal heritage sites (registered on AHIMS)



**Table 12-4: Woolgoolga to Wells Crossing: Aboriginal heritage areas or sites recorded following project field survey and subsurface testing**

<b>Name (AHIMS ID)</b>	<b>Previous type(s)</b>	<b>Description</b>	<b>Updated name</b>	<b>Updated site type(s)</b>
WWC5 (22-1-0348)	Site – Artefact scatter and PAD	Located on a spur crest at Farm Trail on the western side of existing highway.	WWC5	Site – Artefact scatter Site not within the project boundary
WWC7 (22-1-0347)	Site – Isolated artefact	Located on flat north of Farm Trail on west side of existing highway.	WWC7	Site – Isolated artefact Site not within the project boundary
WWC18 (22-1-0346)	Site – Artefact scatter and PAD	Located across a broad area on a spur crest at Sherwood Creek Road, west of the existing highway. The site is partially within, and partially adjacent to, the project boundary.	WWC18	Site – Artefact scatter
WWC26 (22-1-0345)	Site – Isolated artefact	Located on the eastern side of the existing highway and west of Eggins Drive.	WWC26	Site – Isolated artefact
Sherwood North (22-1-0402)	PAD	Located on a spur in closed woodland, with a cleared section for a single-carriage gravel track.	Sherwood North	Site – Artefact scatter
Sherwood Creek Road to Kangaroo Trail (22-1-0401)	PAD	Located on a broad, low-lying portion of coastal plain from north of Sherwood Creek Road to near Kangaroo Trail Road. There are known Aboriginal burials in similar context nearby.	Sherwood Creek Road to Kangaroo Trail	PAD – not located within the project boundary
WWC37 (22-1-0344)	Site – Artefact scatter and PAD	Located south of Corindi River; shallow skeletal soil.	WWC37	Site – Artefact scatter
WWC39 (22-1-0343)	Site – Artefact scatter and PAD	Located on a prominent very gentle ridge crest south of the Corindi River and adjacent gentle simple slope leading north to creek and creek flats. The site comprises several less common artefact types. Deposits are potentially relatively deep and intact in places, although levels of disturbance are also possibly high in portions of this area. There is a high potential for subsurface deposit.	WWC39	Site – Artefact scatter
WWC 46 (22-1-0342)	Site – Isolated artefact and PAD	Located on a vehicle track in forest on flat land north of Corindi Creek. Deep alluvial soils inferred. There are known Aboriginal burials in similar contexts nearby.	WWC46	Site – Artefact scatter

Name (AHIMS ID)	Previous type(s)	Description	Updated name	Updated site type(s)
WWC 53/A (22-1-0349)	Site – Isolated artefact	Located on a margin of vehicle track north of Redbank Creek.	WWC53	Site – Isolated artefact
WWC Dirty Creek 1 (22-1-0403)	PAD	Located on the upper slopes and crests of spurs north of Redbank Creek.	WWC Dirty Creek 1c	PAD – Occurrences 1a, 1b, and 1d all showed no signs of material, so are no longer considered to have potential – WWC Dirty Creek 1c is thickly vegetated and on a sensitive landform, and is still considered to have potential
Dirty Creek PAD (13-4-0178)	PAD	Located on slopes and the top of a rise near Dirty Creek.	n/a	No material found from sub-surface testing – no longer considered to be a PAD site
WWC 78/A (13-4-0162)	Site – Isolated artefact	Located east of existing highway and Range Road.	WWC 78	Site – Isolated artefact
WWC92 (13-4-0161)	Site – Isolated artefact	Located east of the existing highway and Falconers Road.	WWC92	Site – Isolated artefact No material found from sub-surface testing within the boundary of the project, site is therefore located outside boundary of the project
WWC115 (13-4-0160)	Site – Artefact scatter and PAD	Located east of the existing highway at Halfway Creek duplication near 'Milleara'. There is moderate potential for subsurface deposit. The area has since been disturbed through road construction and no evidence of a site was found.	WWC115	Site – Artefact scatter No material found from sub-surface testing within the boundary of the project, site is therefore located outside boundary of the project
IA2 (13-4-0092)	Site – Isolated artefact	The site is impacted by the Halfway Creek duplication.	IA2	Site has previously been destroyed - No longer a site
WWC 135/A (13-4-0159)	Site – Artefact scatter and PAD	Located east of the existing highway immediately north of Wells Crossing. There is moderate to high potential for subsurface deposit.	WWC135	Site – Artefact scatter



Name (AHIMS ID)	Previous type(s)	Description	Updated name	Updated site type(s)
WWC 138/A (13-4-0158)	Site – Isolated artefact	Located on a vehicle track north of Wells Crossing and east of the existing highway and Parker Road. Shallow skeletal soil restricts potential for subsurface deposit.	WWC138	Site – Isolated artefact
WWC139/A (13-4-0157)	Site – Isolated artefact and PAD	Located on a vehicle track north of Wells Crossing and east of the existing highway and Parker Road. There is moderate potential for subsurface deposit.	WWC139/A	Site – Isolated artefact
Pacific Highway Scar Tree 1 (13-4-0174)	Site – Scarred tree	Eucalypt tree.	n/a	Inspection of the site with traditional knowledge holders confirmed that this is not a site

\* Updated type and name of the site following completion of the subsurface testing and assessment of cultural values of the sites.

## Subsurface investigations

Archaeological subsurface investigations were undertaken at 10 of the 12 PADs identified within and near the project boundary between Woolgoolga and Wells Crossing (see Figure 12-14). All but one low-risk standalone PAD (which was inaccessible during the assessment as owner permission had not yet been obtained) were excavated; this PAD (WWC Dirty Creek 1) would be investigated prior to construction. The remaining two PADs (one associated with an existing site and one standalone) were inspected but determined not to be sites within the project boundary, and therefore were not test excavated.

Five PADs (all associated with existing sites) contained subsurface Aboriginal deposits, two had no deposits, and one standalone PAD was assessed as no longer being a site.

The site with the most artefacts recovered was WWC39. This site is located on the lower slope of a spur with a swampy area at the base. The Corindi River runs along the northern border of the site. During the subsurface investigation, 231 artefacts, predominantly silcrete and chert, were recovered from this site. Flakes dominated the assemblage, with the majority of artefacts not showing signs of retouch or use-wear. This supports the theory that this site was used to manufacture tools and not as an area where they were used.

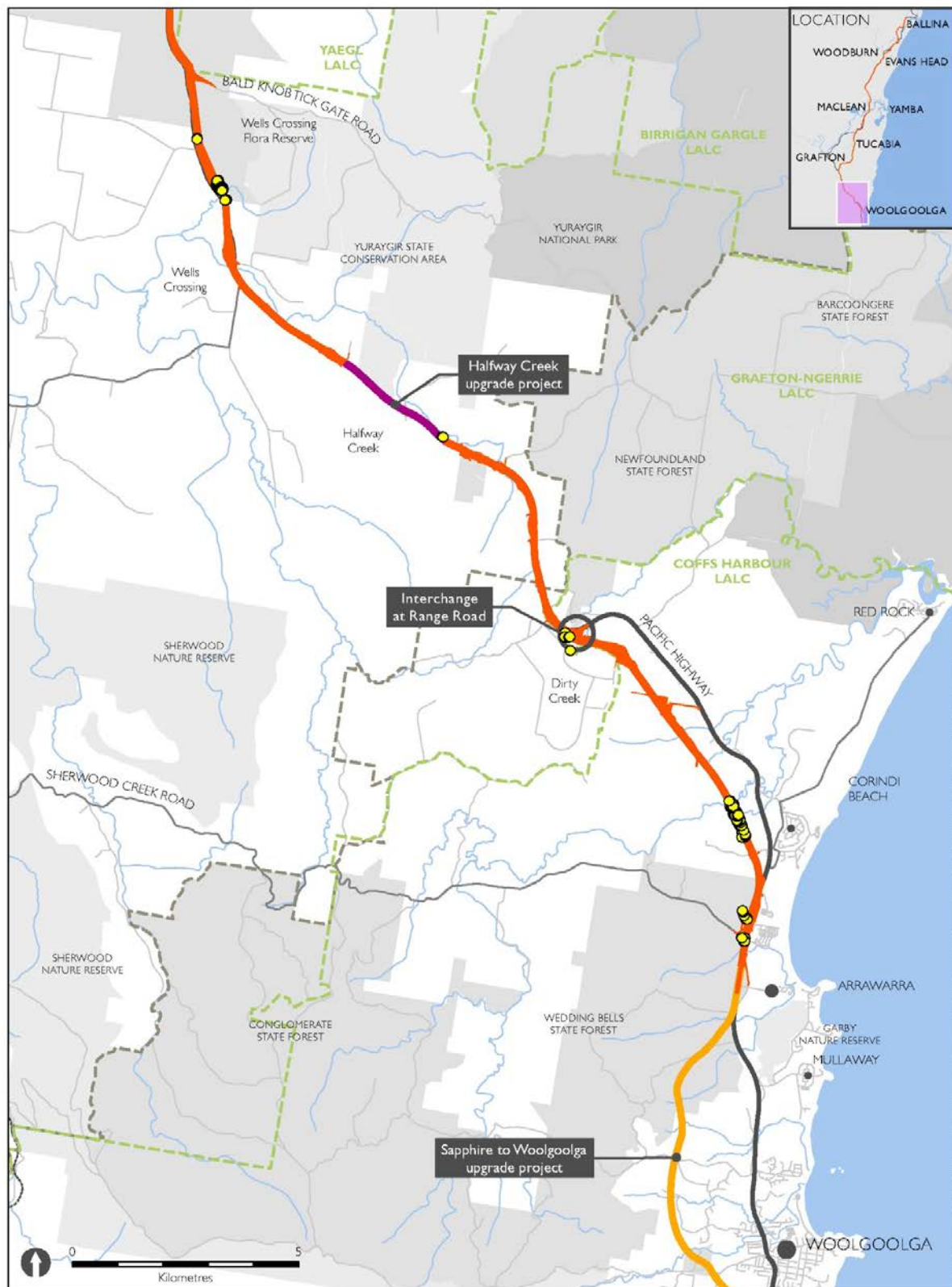
## Summary of key findings

The archaeological sites recorded within the project boundary between Woolgoolga and Wells Crossing represent stone artefact manufacture sites. Sites identified during consultation with Aboriginal stakeholders include burial sites and corridors of movement. Findings indicate that Aboriginal people were both occupying and using resources along the coast.

In general, surface visibility and subsurface exposure encountered across the project was good. The overall level of effective coverage is considered quite high and sufficient to present an effective assessment of the Aboriginal heritage resources identified.



**Photo 3: Artefact scatter, complete silcrete flake, at WX21 Site 4 (AHIMS Site ID: 09-4-0104)**



**Figure 12-14: Woolgoolga to Wells Crossing: Subsurface investigations**

## Significance of Aboriginal heritage evidence

The results of the significance assessment for the recorded Aboriginal cultural places and archaeological sites are summarised in Table 12-5 and Table 12-6. Application of some of the criteria to the Aboriginal cultural places is not possible due to the intangible nature of these places (an intangible 'place' cannot have aesthetic significance and cannot be assessed scientifically).

**Table 12-5: Woolgoolga to Wells Crossing: Summary of significance of Aboriginal cultural places near or within the project boundary**

ID	Place name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
CP1	Corindi Massacres Site	n/a	High	n/a	Moderate–high	High
CP2	Burials (historic)	n/a	High	n/a	Moderate	High
CP3	Corindi Beach Corridors of Movement	n/a	Moderate	n/a	Moderate	Moderate
CP4	Halfway Creek Ceremonial Site	Was not able to be assessed	High	Was not able to be assessed	Moderate	High
CP5	Birrigan and Mindi Spiritual	n/a	High	High	n/a	High

**Table 12-6: Woolgoolga to Wells Crossing: Summary of significance of Aboriginal archaeological sites near or within the project boundary**

AHIMS ID	Name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
22-1-0348	WWC5	Low	Low-Moderate	n/a	n/a	Low
22-1-0347	WWC7	Low	Low	n/a	n/a	Low
22-1-0346	WWC18	Low	Low–moderate	n/a	n/a	Low
22-1-0345	WWC26	Low	Low	n/a	n/a	Low
22-1-0403	Sherwood North	Low	Low–moderate	n/a	n/a	Low–moderate
22-1-0344	WWC37	Low	Low–moderate	n/a	n/a	Low
22-1-0343	WWC39	Moderate	Moderate	Moderate	Moderate	Moderate
22-1-0342	WWC46	Low-moderate	Low–moderate	Low–moderate		Low–moderate
22-1-0349	WWC53	Low	Low	n/a	n/a	Low
22-1-0403	WWC Dirty Creek 1	Unable to be assessed				
13-4-0162	WWC78	Low	Low	n/a	n/a	Low
13-4-0161	WWC92	Low	Low	n/a	Low	Low
13-4-0092	IA2	Unable to be assessed – no longer a site				
13-4-0160	WWC115	Low	Low–moderate	n/a	n/a	Low
13-4-0159	WWC135	Low	Low–moderate	n/a	Low	Low
13-4-0158	WWC138	Low	Low	n/a	n/a	Low
13-4-0157	WWC139	Low	Low	n/a	n/a	Low



## Significance of Aboriginal cultural places

The following Aboriginal cultural places are of contemporary and/or historical significance to the Aboriginal community:

- **Corindi Massacres Site:** Overall the Corindi Massacre Site has a high level of significance at the regional scale. It has high social significance to the traditional owners as the site of massacres of Aboriginal people in the 19th century and is also, therefore, culturally sensitive. The site also has moderate–high historical significance as it reflects the pattern of interactions between local Aboriginal people and European people in the region from the 19th century
- **Burials (historic):** The burials and the surrounding areas are of high social significance to the traditional owners. The burials have moderate historical significance as they relate to ancestors of the current traditional owners from the historical period
- **Corindi Beach Corridors of Movement:** Overall the Corindi Beach Corridors of Movement have a moderate level of significance at the regional scale. They have moderate social significance as pathways and corridors between significant areas in the region, and moderate historical significance through the continued knowledge of the areas by the present-day community members and their use in the historical period
- **Halfway Creek Ceremonial Site:** Based on the limited assessment of significance to date, Halfway Creek Ceremonial Site has a moderate–high level of significance at the regional level. It has high social significance as an important location for ceremonies from prehistoric times through to the historical period. It is also of moderate historical importance for this reason. The scientific and aesthetic significance of the site was unable to be assessed
- **Birrugan and Mindi Spiritual Sites:** Overall the Birrugan and Mindi Spiritual Sites are of high significance at the local level. The association of the landscape features with key stories about ancestors are of high significance both socially and aesthetically.

### 12.2.2 Wells Crossing to Iluka Road

#### Context

Three Aboriginal language groups are represented between Wells Crossing and Iluka Road:

- Bundjalung
- Yaegl (Yaygir)
- Kumbainggiri (Gumbaynggir).

Prior to European colonisation, about 20 different dialects of the Bundjalung language were spoken north of the Clarence River to the Logan River in south-eastern Queensland (Collins, 2005). The ethnohistoric record suggests that the lower Richmond supported one of the densest Aboriginal populations in Australia (Collins, 2005). The Aboriginal population appears to have been concentrated along the coast, but densities of up to one person per 2.5 square kilometres have been proposed for the riverine corridor. Gollan (and cited in Collins, 2005) reported that 200 to 300 Aboriginal people would gather at Woodburn for a tribal fight and corroboree. In the foothills of the coastal ramp, which lacked resources, populations were smaller (about one person per five square kilometres (Pierce, 1971).

Information on the Yaegl and Kumbainggiri language groups is provided in Section 12.2.1.

#### Native title

During the initial AFG meetings, it was noted that Native Title claimants may exist for the project. Searches of the National Native Title Register, Register of Native Title Claims, unregistered claimant applications and the Register of Aboriginal Land Use Agreements were undertaken in September 2010. Several claimants exist for the study area between Wells Crossing and Iluka Road.

A new Native Title search conducted in February 2012 found no new groups listed.

Native Title claimants were identified as stakeholders and consulted during the cultural assessment (refer to Section 3 of Working paper – Aboriginal cultural assessment). As Native Title holders have specific rights in relation to cultural heritage, it should be noted that there are no Native Title holders within the project boundary.

### Aboriginal stakeholder consultation

Aboriginal site officers from the following organisations participated in field assessments and / or provided comment on the Working paper – Aboriginal cultural assessment (refer to Section 3 of Working paper):

- Birrigan Gargle Local Aboriginal Land Council
- Grafton-Ngerrie Local Aboriginal Land Council
- Yaegl Local Aboriginal Land Council
- Yaegl Native Title Claimant Group
- Yarrawarra Cultural Centre (Yarrawarra Aboriginal Corporation including the Garby Elders Group)

Potential significance, impacts, management recommendations, and mitigation measures of Aboriginal cultural values were determined and assessed during fieldwork in consultation with nominated Aboriginal site officers.

Notable comments from Yarrawarra site officers during field work included: details of importance and sensitivity of landforms in the respective areas and discussion of type, scope and methodology for potential further investigation (eg survey, sub-surface testing, etc).

Further discussions during AFG meetings took place, and the final draft report including all assessment and recommendations was sent to all registered Aboriginal stakeholders, and discussed at AFG meetings and further stakeholder meetings as required. Details are provided in Section 12.1.2, with records of consultation provided in Section 3 and Appendix E of Working paper – Aboriginal cultural assessment (Wells Crossing to Iluka Road).

### Aboriginal cultural places

During Aboriginal consultation, four Aboriginal cultural places were identified within 200 metres of the project boundary between Wells Crossing and Iluka Road. These are listed in Table 12-7.

**Table 12-7: Wells Crossing to Iluka Road: Aboriginal cultural places within 200 metres of the project boundary**

Place name (ID)	Information
Birrigan and Mindi Spiritual Sites (CP5)	There is a story associated with a swamp near the former Grafton Racecourse at South Grafton (Navin Officer, 2009). A group of Gumbaynggir were keeping all of the big eels for themselves, away from the rest of the group. Birrigan (a hero-ancestor) then came and took a big eel from the swamp and put it into the Clarence River. From then on the swamp had only small eels and the river had large eels (Gumbaynggir Language & Cultural Group, 1992 cited in Navin Office 2009). A place near Tyndale was the location for the final fight between Birrigan and Mindi. Birrigan speared and wounded Mindi who then fell into the water and drowned. There is a rock standing in the water of the South Arm of the Clarence River where Mindi fell. This rock is located about 150 metres from the project.
Tyndale and Woodford Island Corridors Of Movement (CP6)	There are Yaegl oral history accounts of an Aboriginal massacre site and an important traditional Aboriginal pathway, which crossed the southern arm of the river and linked Tyndale with Woodford Island (Navin Officer, 2009). This is believed to be in an area to the north of present-day Tyndale village, but the exact location is not known.
Pillar Valley Men's and Women's Sites (CP7)	The Garby Elders advised that the Pillar Valley is a significant men's place (Navin Officer 2009). There are also records of women's places occurring within the Pillar Valley.



Place name (ID)	Information
Pillar Valley Corridors Of Movement (CP8)	Traditional travel routes leading from Pillar Mountain to the Bull Paddock traverse the project at Wells Crossing and there is another nearby to the north (Kuskie, 2008). Historically known camp sites occur along these travel routes. The Garby Elders also identified the Coldstream River as an important corridor linking significant areas at Glenugie, Pillar Valley and Tyndale (Navin Officer, 2009).

Around 10 other Aboriginal cultural places were identified during the field survey but they were not within the immediate vicinity of the project boundary.

### Aboriginal archaeological sites

A search of the Aboriginal Heritage Information Management System undertaken in 2010, and an updated search in February 2012, identified two recorded Aboriginal sites in the vicinity of the project (though not within the project boundary) between Wells Crossing and Iluka Road. These sites were identified during previous field surveys.

During the field survey for the project, three new Aboriginal heritage sites and 15 new PADs (three associated with the new sites and 12 standalone PADs) were identified and recorded within or near the project boundary. After completion of subsurface testing and cultural assessment, three of these PADs were assessed as no longer being PADs or sites. The remaining three sites and 12 PADs (associated with the three sites and nine standalone PADs) have subsequently been registered on the Aboriginal Heritage Information Management System and are described in Table 12-8 and illustrated in Figure 12-15.

#### **KEY TERM – Potential archaeological deposit (PAD)**

**Any location considered to have a moderate to high potential for subsurface archaeological material.**

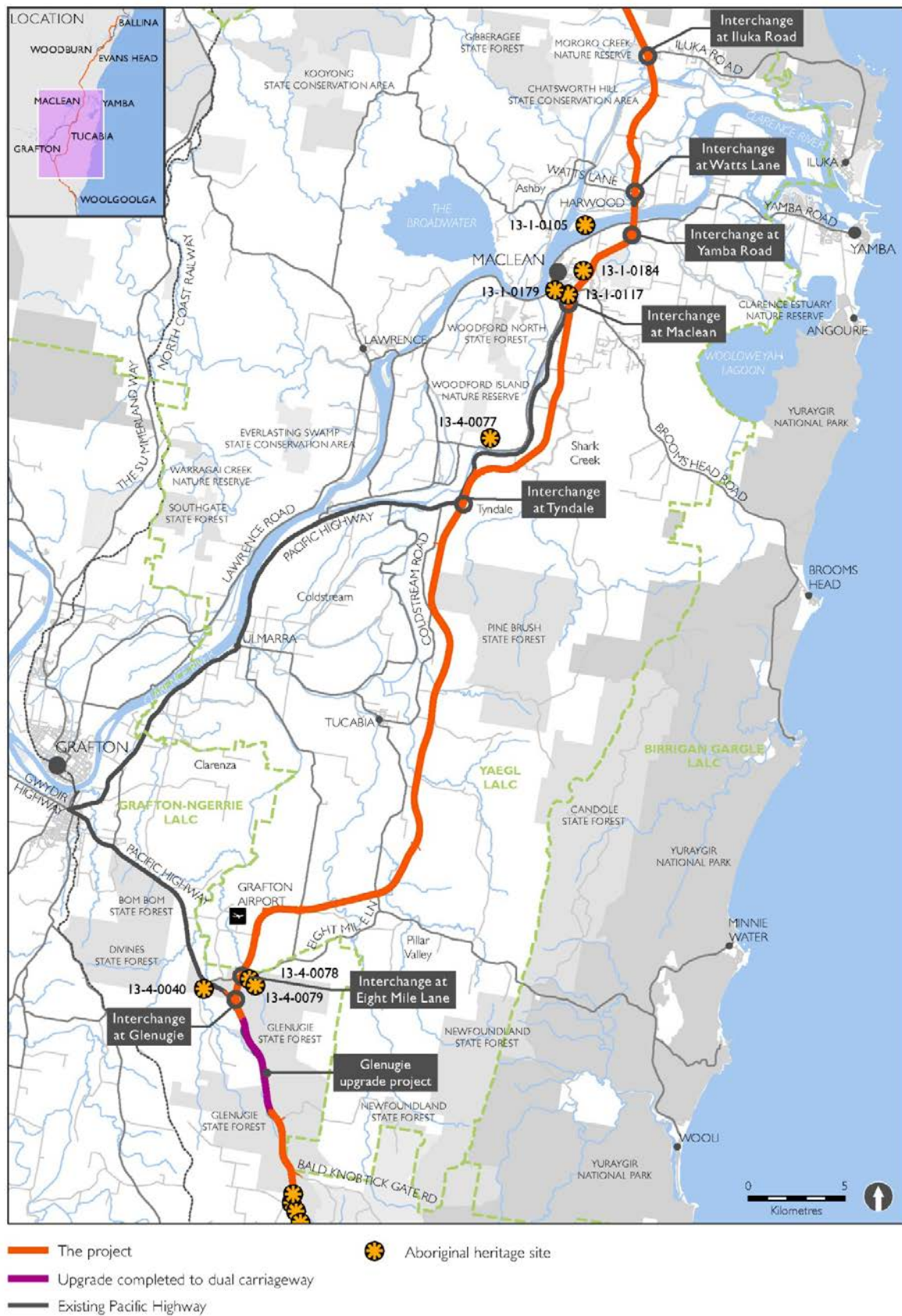


Figure 12-15: Wells Crossing to Iluka Road: Aboriginal heritage sites (registered on AHIMS)

**Table 12-8: Wells Crossing to Iluka Road: Aboriginal heritage areas or sites following project field survey and subsurface testing**

Name (AHIMS ID)	Previous type(s)	Description	Updated name	Updated site type(s)
WX2I PAD 8 (09-4-0108)	PAD	Located to the north-east of the intersection of Avenue Road and Wants Lane, on a relatively flat area of elevated ground north-east of dilapidated cattle yards.	WX2I PAD 8	No material found from sub-surface testing within the boundary of the project – PAD (outside the project boundary)
WX2I PAD 7 (09-4-0107)	PAD	Located at the eastern end of Tallowwood Road and north-east of Tallwood Lane, and is on a small spur located between two tributaries of the Coldstream River. The PAD measures about 50 m x 25 m.	WX2I Site 7	Site – Artefact scatter
WX2I PAD 6 (09-4-0106)	PAD	Located at the eastern end of Tallwood Lane on a slightly sloping area on the lower slopes of a small spur. The spur faces towards a tributary of the Coldstream River. The PAD measures about 75 m x 30 m.	WX2I Site 6	Site – Isolated artefact
WX2I PAD 5 (09-4-0105)	PAD	Located north-east of Tallwood Lane on the lower slopes of a small spur which faces a swampy area and the Coldstream River. The PAD measures about 75 m x 30 m.	WX2I Site 5	Site – Isolated artefact
WX2I PAD 4 (09-4-0104)	PAD	Located east of Tucabia Road on the mid-slopes of a small spur that faces a swampy area and the Coldstream River to the west. The PAD measures about 50 m x 25 m.	WX2I Site 4	Site – Artefact scatter
Tyndale 1 (09-4-0099)	Site – Isolated artefact and PAD	Located on the slopes and crest of a rise overlooking the floodplain of the Clarence River.	Tyndale 1	Site – Artefact scatter
Tyndale 2 PAD (13-1-0115)	PAD	Located on a well-defined silty sand palaeo-terrace overlooking the swampy floodplain of the Clarence River.	Tyndale 2 Site	Site – Artefact scatter
Shark Creek PAD 4 (13-4-0172)	PAD	Located on the upper slopes and crest of a sandstone ridge spur, overlooking Shark Creek.	Shark Creek PAD 4	No material found from sub-surface testing within the boundary of the project – PAD (outside the project boundary)
Shark Creek PAD 3 (13-4-0171)	PAD	Located on the upper slopes and crest of a sandstone ridge and spur above the floodplain of the Clarence River.	Shark Creek PAD 3	No material found from sub-surface testing within the boundary of the project – PAD (outside the project boundary)

Name (AHIMS ID)	Previous type(s)	Description	Updated name	Updated site type(s)
PAD 14 (09-4-0098)	PAD	Located on top of the ridgeline, overlooking the floodplain of the Clarence River.	None	No material found from sub-surface testing – no longer considered to be a PAD or site
Shark Creek PAD 1 (13-4-0173)	PAD	Located on the flat crest of a gradually sloping ridge spur overlooking the floodplain of the Clarence River.	None	No material found from sub-surface testing – no longer considered to be a PAD or site
Shark Creek PAD 2 (13-4-0170)	PAD	Located on the flat lower slopes of a spur above the swampy floodplain of the Clarence River.	Shark Creek Site 2	Site – Artefact scatter
Hirst 2 (13-1-0185)	Site – Isolated artefact and PAD	Located on a spur overlooking the swampy floodplain of the Clarence River.	Hirst 2	Site – Isolated artefact
Hirst 1 (09-1-0206)	Site – Isolated artefact and PAD	Located on the middle slopes of a ridge spur overlooking the swampy floodplain of the Clarence River.	Hirst 1	Site – Isolated artefact
PAD 15 (04-4-0130)	PAD	Foot slopes at the edge of expansive swamp on Clarence River floodplain.	None	No material found from sub-surface testing – no longer considered to be a PAD or site

\* Updated type and name of the site following completion of the subsurface testing and assessment of cultural values of the sites.

## Subsurface investigations

Archaeological subsurface investigations were undertaken at 15 PADs identified within the project boundary between Wells Crossing and Iluka Road (see Figure 12-16). Of these 15 PADs, three standalone PADs were assessed as not having any archaeological potential and three standalone PADs were located outside of the project boundary.

As a result of the subsurface testing, nine PADs (three associated with sites and six standalone) contained subsurface Aboriginal deposits and were confirmed as being sites within the project boundary.

Of the nine confirmed sites, each had less than 10 artefacts discovered during subsurface testing. No new artefacts were found within the other three (standalone) PADs located outside of the project boundary.

A brief description of the findings of the subsurface investigations for these areas is provided below.

### WX2I Site 7

The site is located on the middle and lower slopes of a sandy rise and is subject to erosive processes and, possibly, land clearing in the past. The site consists of an artefact scatter with two chert artefacts.

### WX2I Site 6

The site is located on the middle slopes of a sandy rise and consists of a single, isolated artefact.

### WX2I Site 5

The site is located on the middle slope near a rise, and consists of a single, isolated quartz artefact.

### WX2I Site 4

The site is located near a track on the top of a spur in an area subject to logging and land clearing. It is near residential properties. The site consists of a scatter of five artefacts comprising chalcedony, silcrete and quartzite.

### Tyndale 1

The site is located on the mid to upper slope of a hill, in semi-closed forest with rocky exposures and sandy soils. The site consists of an artefact scatter with two artefacts.

### Tyndale 2

The site is located on land being farmed for sugar cane. It consists of an artefact scatter with nine artefacts.

### Shark Creek Site 2

The site is located on the lower slopes of a spur, above a floodplain. The area has previously been cleared and is being farmed for sugar cane. The site consists of an artefact scatter with three artefacts.

### Hirst 2

The site is located on the mid to lower slope of a hill, on the southern side of a spur, overlooking a floodplain and subject to erosive processes. The site consists of a single, isolated chert artefact.

### Hirst 1

The site is located mid-slope in an area where vegetation has previously been cleared. It consists of a single, isolated river cobble artefact.

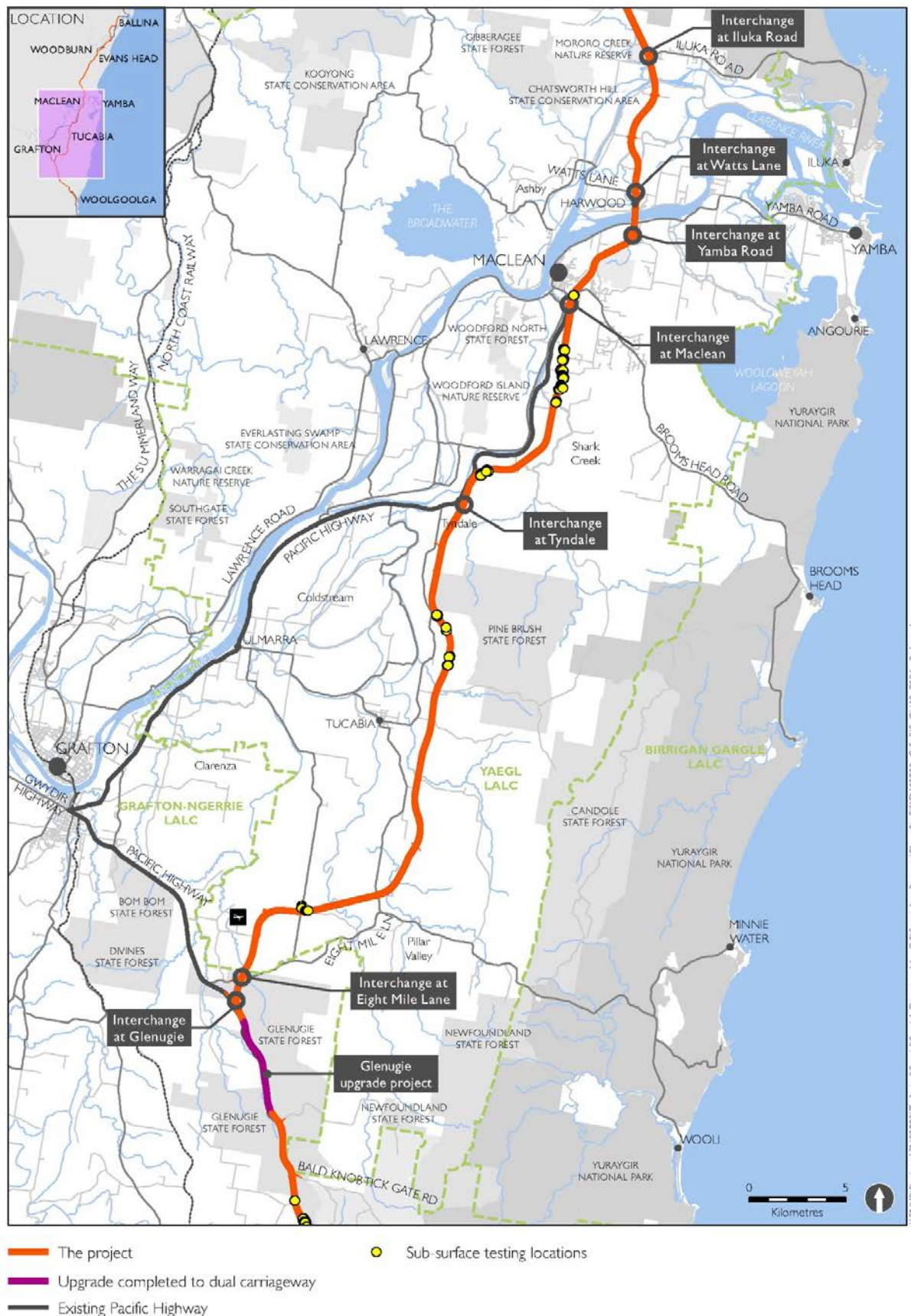


### Summary of key findings

The archaeological sites recorded within the project boundary between Wells Crossing and Iluka Road each contain a low number of artefacts. The findings reflect the movement of people around the landscape; there are resource-gathering sites, travelling routes or temporary campsites along ridges, and occupation sites next to water sources. The location and nature of the sites indicates that Aboriginal people were utilising river and swamp margins for resource extraction.



**Photo 4: Isolated artefact, complete quartz, at WX21 Site 5 (AHIMS Site ID: 09-4-0105)**



**Figure 12-16: Wells Crossing to Iluka Road: Subsurface investigations**

## Significance of Aboriginal heritage evidence

The results of the significance assessment for the recorded Aboriginal cultural places and archaeological sites are summarised in Table 12-9 and Table 12-10 respectively. It should be noted that application of some of the criteria to the Aboriginal cultural places is not possible due to the intangible nature of these places (an intangible 'place' cannot have aesthetic significance and cannot be assessed scientifically).

**Table 12-9: Wells Crossing to Iluka Road: Summary of significance of Aboriginal cultural places near or within the project boundary**

ID	Place name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
CP5	Birrugan and Mindi spiritual sites	n/a	High	n/a	n/a	High
CP6	Tyndale and Woodford Island Corridors of Movement	n/a	High	n/a	Moderate	Moderate–high
CP7	Pillar Valley Men's and Women's Sites	n/a	High	n/a	n/a	High
CP8	Pillar Valley Corridors of Movement	n/a	Moderate	n/a	Moderate	Moderate

**Table 12-10: Wells Crossing to Iluka Road: Summary of significance of Aboriginal archaeological sites near or within the project boundary**

AHIMS ID	Name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
09-4-0107	WX2I Site 7	Low	Low	n/a	n/a	Low
09-4-0106	WX2I Site 6	Low	Low	n/a	n/a	Low
09-4-0105	WX2I Site 5	Low	Low	n/a	n/a	Low
09-4-0104	WX2I Site 4	Low	Low	n/a	n/a	Low
09-4-0099	Tyndale 1	Low	Low	n/a	n/a	Low
13-4-0115	Tyndale 2	Low	Low	n/a	n/a	Low
13-4-0170	Shark Creek Site 2	Low	Low	n/a	n/a	Low
3-1-0185	Hirst 2	Low	Low	n/a	n/a	Low
09-1-0206	Hirst 1	Low	Low	n/a	n/a	Low

## Significance of Aboriginal cultural places

The following Aboriginal cultural places are of contemporary and/or historical significance to the Aboriginal community:

- **Birrugan and Mindi Spiritual Sites:** These places have high social significance to the Aboriginal communities of North Coast NSW due to the spiritual and cultural importance of the creation stories.
- **Tyndale and Woodford Island Corridors of Movement:** Overall the place has moderate to high significance as a site reflective of the traditional corridors of movement for Aboriginal people in the region. The place is also significant as a reminder of the interactions between Aboriginal people and the Europeans in the early days of settlement. The site is important in demonstrating the prevalence of Aboriginal massacre sites across the Australian landscape. The difficulty with this place lies in the exact location and, therefore, the future protection or management of the site. Anecdotal information does not indicate a location for this place
- **Pillar Valley Men's and Women's Sites:** The significance of this place is social, and specifically cultural, as it bears witness to the ceremonial and sacred significance of the landscape in the daily lives of Aboriginal communities in this area
- **Pillar Valley Corridors of Movement:** This place has moderate social and historical significance. It has social significance as it represents known pathways of movement between important cultural and social places in the Pillar valley and the North Coast. It has historical significance because campsites in the Pillar Valley were documented during the historical period

### 12.2.3 Iluka Road to Woodburn

#### Context

Three Aboriginal language groups are represented along the Iluka Road to Woodburn section of the project:

- Yaegl
- Nyangbal
- Bundjalung.

The Bundjalung inhabited the region north of the Clarence River to the Logan River in south-eastern Queensland. Speakers of the Nyangbal language group occupied the region east of Bundjalung along the coastal plain and encompassing Ballina.

Information on the Yaegl and the Bundjalung language groups is provided in Section 12.2.1 and Section 12.2.2 respectively.

#### Native title

During the initial AFG meetings, it was noted that Native Title claimants may exist for the project. Searches of the National Native Title Register, Register of Native Title Claims, unregistered claimant applications and the Register of Aboriginal Land Use Agreements were undertaken in September 2010. Several claimants exist for the study area between Iluka Road and Woodburn.

A new Native Title search was conducted in February 2012 and found no new groups listed.

Native Title claimants were identified as stakeholders and consulted during the cultural assessment (refer to Section 3 of Working paper – Aboriginal cultural assessment Iluka Road to Woodburn). As Native Title holders have specific rights in relation to cultural heritage, it should be noted that there are no Native Title holders within the project boundary.

Aboriginal stakeholder consultation

Aboriginal site officers from the following organisations participated in field assessments and / or provided comment on the Working paper (refer to Section 3 of Working paper– Aboriginal cultural assessment Iluka Road to Woodburn):

- Bandjanlang People Native Title claimants
- Birrigan Gargle Local Aboriginal Land Council
- Bogal Local Aboriginal Land Council
- Burabi Aboriginal Corporation
- Jali Local Aboriginal Land Council
- Ngulingah Local Aboriginal Land Council
- Yaegl Local Aboriginal Land Council
- Yaegl Native Title Claimants Group

Potential significance, impacts, management recommendations, and mitigation measures of Aboriginal cultural values were determined and assessed during fieldwork in consultation with nominated Aboriginal site officers.

Notable comments from site officers during field work included:

- From Jali and Yaegl site officers, details regarding nature, locations and connections in landscape; between tangible and intangible cultural heritage sites and important landscape features, and potential cultural significance
- From site officers, details of importance and sensitivity of landforms in the respective areas and discussion of type, scope and methodology for potential further investigation (eg survey, sub-surface testing, etc)
- From Jali and Burabi site officers, discussion of potential significance of archaeological sites and sensitivity of PADs recorded during the field survey.

Further discussions during AFG meetings took place, and the final draft report including all assessment and recommendations was sent to all registered Aboriginal stakeholders, and discussed at AFG meetings and further stakeholder meetings as required. Details are provided in Section 12.1.2, with records of consultation provided in Section 3 and Appendix E of Working paper – Aboriginal cultural assessment.

Aboriginal cultural places

One Aboriginal cultural place was identified within 200 metres of the project boundary between Iluka Road and Woodburn. It is listed in Table 12-11.

Table 12-11: Iluka Road to Woodburn: Aboriginal cultural places within 200 metres of the project boundary

Place name (ID)	Information
Withheld (CP9)	A tree with engraved markings is reported to be situated in the general vicinity of New Italy. The tree is associated with a women’s site and was recorded during field survey (Collins 2008). The tree is registered on AHIMS (13-1-0111).

Five other Aboriginal cultural places were identified during the field survey, but they were not within or near the project boundary.



### Aboriginal archaeological sites

A search of the Aboriginal Heritage Information Management System in 2010, and an updated search in February 2012, identified seven recorded Aboriginal sites within and near the project boundary between Iluka Road and Woodburn, including those sites identified during previous surveys.

In addition, during the field survey for the project, seven Aboriginal heritage sites and three PADs (two associated with existing sites, one standalone) were identified and recorded within or near the project boundary. After completion of subsurface testing and cultural assessment, one PAD (standalone) was assessed as no longer being a site. This resulted in seven Aboriginal heritage sites and two PADs (both associated with existing sites) being located within or near the project boundary. These sites have subsequently been registered on the Aboriginal Heritage Management System (illustrated in Figure 12-17), and are described in Table 12-12.



Photo 5: Shell midden, complete chert flake, at E2/2 (AHIMS Site ID: 13-1-0109)



**Figure 12-17: Iluka Road to Woodburn: Aboriginal heritage sites (registered on AHIMS)**

**Table 12-12: Iluka Road to Woodburn: Aboriginal heritage areas or sites following project field survey and subsurface testing**

Name (AHIMS ID)	Previous type(s)	Description	Updated name	Updated site type(s)
IR2W1 (13-1-0114)	Site – Isolated artefact	Located on a compact clay exposure on the creek flat south of Tabbimoble Creek. No further artefacts could be detected and in view of past disturbance it is concluded that the site location has little further archaeological potential.	IR2W1	Site – Isolated artefact
Bolger PAD (13-1-0186)	PAD	Located on a low, flat sandy rise adjacent to a swamp.	None	No material found from sub-surface testing - no longer considered to be a PAD or site
Withheld (13-1-0111)	Site - Modified tree	Located outside the project boundary in the general vicinity of New Italy (further information withheld due to cultural sensitivity).	Withheld	Site – Modified tree (located outside project boundary)
IR2W2 PAD (13-1-0112)	Site – Artefact scatter and PAD	Located on a section of track that extends across the northern upper slope and crest of an undulating ridgeline. The site measures about 120 m x 2 m, and comprises nine visible stone artefacts of a range of materials.	IR2W2	Site – Artefact scatter
C3/2/2 (13-1-0110)	Site – Burial	Located outside the project boundary. Location information withheld due to cultural sensitivity of burial sites.	C3/2/2	Site – Burial (located outside project boundary)
IR2W3 (13-1-0113)	Site – Isolated artefact	Located on the level crest of an undulating ridge. The artefact is a Greywacke flake. There has been significant disturbance in and around site.	IR2W3	Site – Isolated artefact
Saw Pit Creek / New Italy (13-1-0059)	Site – Burial	Located outside the project boundary. Location information withheld due to cultural sensitivity of burial sites.	Saw Pit Creek / New Italy	Site – Burial (located outside project boundary)
IR2W4 PAD (13-1-0115)	Site – Isolated artefact and PAD	Pebble tool located on the northern upper slopes of a ridge.	IR2W4	Site – Artefact scatter

\* Updated type and name of the site following completion of the subsurface testing and assessment of cultural values of the sites.

## **Subsurface investigations**

Archaeological subsurface investigations within the project boundary between Iluka Road and Woodburn (refer to Figure 12-18) were undertaken at the three recorded PAD sites: IR2W4, IR2W2 and Bolger PAD. Subsurface Aboriginal deposits were found at IR2W4 and IR2W2 (both associated with existing sites), but Bolger PAD (standalone) was found not to be a site.

A brief description of the findings of the subsurface investigations for these areas is provided below.

### **IR2W4**

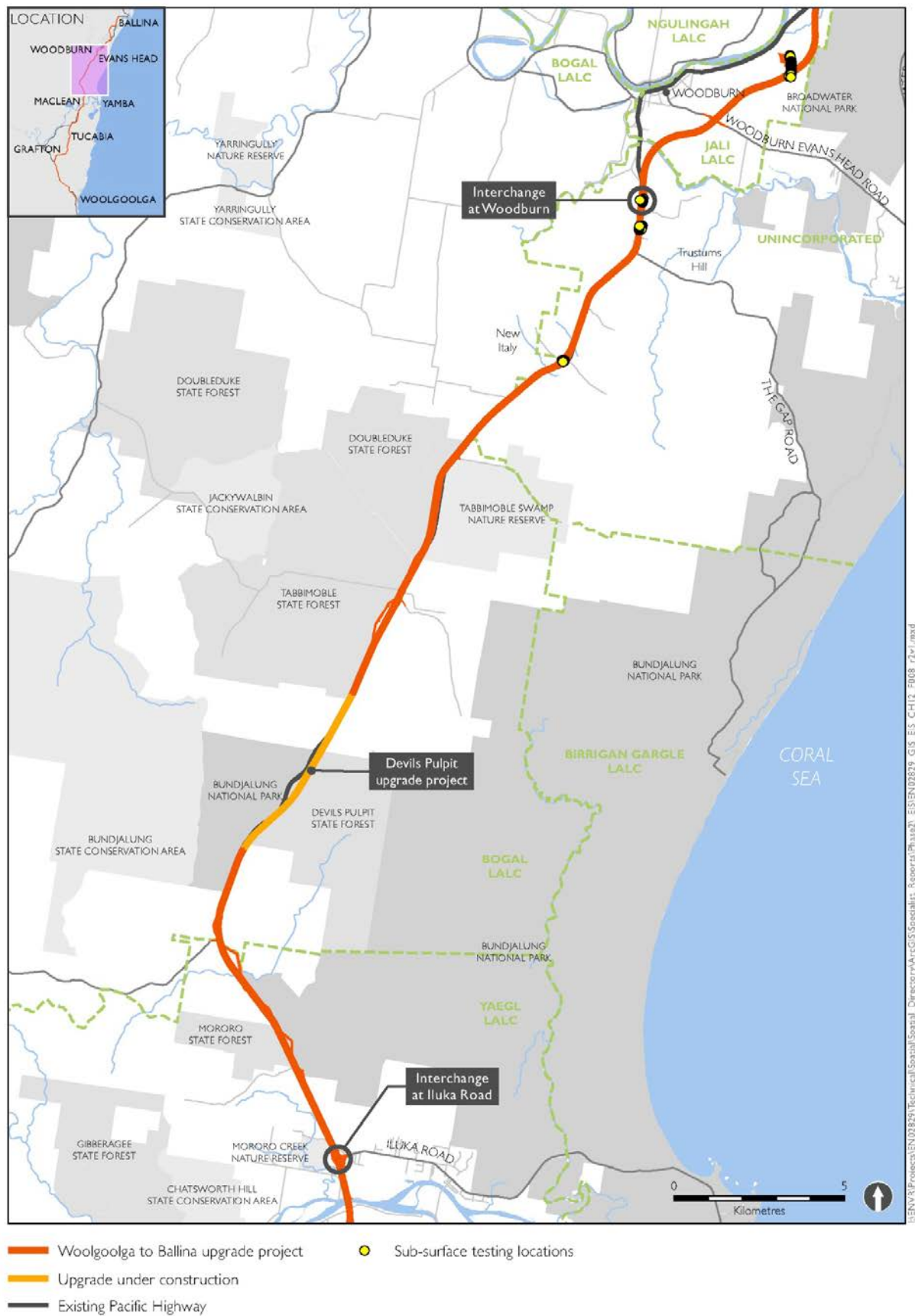
This site broadly falls within the Tabbimoble Rises low hills and undulating rises landscape unit. The area is south of the Richmond River and within the Richmond River Ranges. The site is unlikely to have been larger in extent or variability despite disturbance due to road construction, logging and other pastoral activities. IR2W4 is a single component (artefact scatter) site, with 11 stone artefacts, predominantly of silcrete, discovered during subsurface testing.

### **IR2W2**

This is the only other site recorded with a subsurface component within the Iluka Road to Woodburn section. The site is located within the Tabbimoble Rises low hills and undulating rises landscape unit, and includes chalcedony and silcrete raw materials. Three artefacts were recovered during subsurface testing.

## **Summary of key findings**

The archaeological sites recorded within the project boundary between Iluka Road and Woodburn allow little insight into pre-contact and post-contact occupation of the area, due to the small number of sites, small number of artefacts recovered, and the limitations this posed during the artefact analysis. The archaeological sites reflect the movement of Aboriginal people around the landscape. The location and nature of the sites indicate that Aboriginal people were using the low hills and undulating rises in an ephemeral way, most likely while moving between the coast, major rivers and the hinterland.



**Figure 12-18: Iluka Road to Woodburn: Subsurface investigations**



## Significance of Aboriginal heritage evidence

The results of the significance assessment for the recorded Aboriginal cultural places and archaeological sites are summarised in Table 12-13 and Table 12-14. It should be noted that application of some of the criteria to the Aboriginal cultural places is not possible due to the intangible nature of these places (an intangible 'place' cannot have aesthetic significance and cannot be assessed scientifically).

**Table 12-13: Iluka Road to Woodburn: Summary of significance of Aboriginal cultural places and archaeological sites near or within the project boundary**

ID	Name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
CP9	Withheld	Moderate	High	Moderate–high	High	High

**Table 12-14: Iluka Road to Woodburn: Summary of significance of Aboriginal cultural places and archaeological sites near or within the project boundary**

AHIMS ID	Name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
13-1-0114	IR2W1	Low	Low	n/a	n/a	Low
13-1-0111	Scarred/engraved tree	Moderate	High	Moderate–high	High	High
13-1-0112	IR2W2	Low	Moderate	n/a	n/a	Low–moderate
13-1-0110	C3/2/2	Moderate–high	High	n/a	Unknown	Moderate–high
13-1-0113	IR2W3	Low	Low–moderate	n/a	n/a	Low
13-1-0059	Saw Pit Creek/ New Italy	Moderate	High	n/a	Moderate	Moderate–high
13-1-0115	IR2W4	Low	Moderate	n/a	n/a	Low–moderate

## Significance of Aboriginal cultural places

The only Aboriginal cultural place of contemporary and/or historical significance to the Aboriginal community is a scarred/engraved tree in the vicinity of New Italy.

Overall, the scarred/engraved tree is of high significance at the local level and moderate significance at the regional level. It is highly socially significant due to its association with a women's ceremonial site. It has high historical significance as one of the few remaining 'markers' in the landscape representative of occupation of the region by Aboriginal people until the historical period. It has moderate scientific significance due to its condition, rarity and the presence of engravings. The tree has some research and educational potential.

### 12.2.4 Woodburn to Ballina

#### Context

Three Aboriginal language groups are represented along the Woodburn to Ballina section of the project:

- Bundjalung
- Nyangbal
- Yaegl (Yaygir).

Information on the Yaegl, Bundjalung, and the Nyangbal language groups is provided in Section 12.2.1 and Section 12.2.2 respectively.

#### Native title

During the initial AFG meetings, it was noted that Native Title claimants may exist for the project. Searches of the National Native Title Register, Register of Native Title Claims, unregistered claimant applications and the Register of Aboriginal Land Use Agreements were undertaken in September 2010. Several claimants exist for the study area between Woodburn and Ballina.

A new Native Title search conducted in April 2012 found no new groups listed.

Native Title claimants were identified as stakeholders and consulted during the cultural assessment (refer to Section 3 of Working paper – Aboriginal cultural assessment Woodburn to Ballina). As Native Title holders have specific rights in relation to cultural heritage, it should be noted that there are no Native Title holders within the project boundary.

#### Aboriginal stakeholder consultation

Aboriginal site officers from the following organisations participated in field assessments and / or provided comment on the Working paper (refer to Section 3 of Working paper – Aboriginal cultural assessment Woodburn to Ballina):

- Bandjalang People Native Title claimants
- Birrigan Gargle Local Aboriginal Land Council
- Burabi Aboriginal Corporation
- Gubba Gunya Aboriginal Corporation
- Jali Local Aboriginal Land Council

Potential significance, impacts, management recommendations, and mitigation measures of Aboriginal cultural values were determined and assessed during fieldwork in consultation with nominated Aboriginal site officers.

Notable comments from site officers during field work included:

- From Jali LALC site officers, details regarding nature, locations and connections in landscape; between tangible and intangible cultural heritage sites and important landscape features, and potential cultural significance of this
- From Jali LALC site officers, details of Chinese Gambling areas
- From Jali LALC and Burabi Aboriginal Corporations site officers, details of the importance and sensitivity of landscapes and landforms in respective areas
- From Jali LALC and Burabi Aboriginal Corporations site officers, discussion of the type, scope and methodology for potential further investigation (eg survey, sub-surface testing, etc)
- From Jali LALC and Burabi Aboriginal Corporations site officers, discussion of potential significance of archaeological sites and sensitivity of PADs recorded during the field survey.

Further discussions during AFG meetings took place, and the final draft report including all assessment and recommendations was sent to all registered Aboriginal stakeholders, and discussed at AFG meetings and further stakeholder meetings as required. Details are provided in Section 12.1.2, with records of consultation provided in Section 3 and Appendix E of Working paper – Aboriginal cultural assessment.

### Aboriginal cultural places

Eleven Aboriginal cultural places were identified between Woodburn and Ballina, as described in Table 12-15. The names of the below Aboriginal cultural places have been changed due to cultural sensitivity.

**Table 12-15: Woodburn to Ballina: Aboriginal cultural places**

Place name (ID)	Information
Place A (CP10)	This is the site of a secret story surrounding a spiritual being associated with blue stones.
Place B (CP11)	This was an important central point for many pathways across the landscape.
Place C (CP12)	This was the location of a massacre of Aboriginal people by the Native Mounted Police (Collins, 2005).
Place D (CP13)	This is a coastal barrier intercepted by the project corridor. It was assessed by several stakeholders as highly significant and culturally sensitive. It was used for camping and ceremonies from prehistoric times through to the early 20th century (Steele, 1984) and is believed to contain campsites (Heron and Faulkner, 1998), burials and evidence of a massacre of Aboriginal people by the Native Mounted Police.
Place E (CP14)	This is a location where children were hidden from the Native Mounted Police and protectorate.
Place F (CP15)	This was originally a European quarry and later became a waterhole for local people. Due to the minerals leaching through the sediment, the water was a bright blue colour. Aboriginal children from the Wardell area would regularly go swimming there in historic times. Although no longer the bright blue colour it was, this area is currently within the project corridor and is of contemporary social and cultural significance.
Place G (CP16)	There were two areas associated with Chinese gambling and Aboriginal people who lived on Cabbage Tree Island. Gambling was not allowed on Cabbage Tree Island, so Aboriginal men would travel from the island to areas where the Chinese set up gambling tables. One of these gambling areas is within the project boundary.
Place H (CP17)	This is a spiritual site inhabited by a vengeful spirit.
Place I (CP18)	This site contains a group of three (unregistered) scarred trees near Wardell Road (Collins, 2005). Jali LALC requested that the scarred trees not be disturbed during construction.
Place J (CP19)	This was an important meeting place near Teven Junction.
Place K (CP20)	This area includes many areas of high cultural significance to the local community (eg Cabbage Tree Island and Goat Island) and forms a cohesive and interconnected cultural landscape. In part, this is connected by the sand ridges which link up to higher points in the landscape.

Six other areas of Aboriginal cultural sensitivity were identified during the field survey. However, they were not near the project boundary.

### Aboriginal archaeological sites

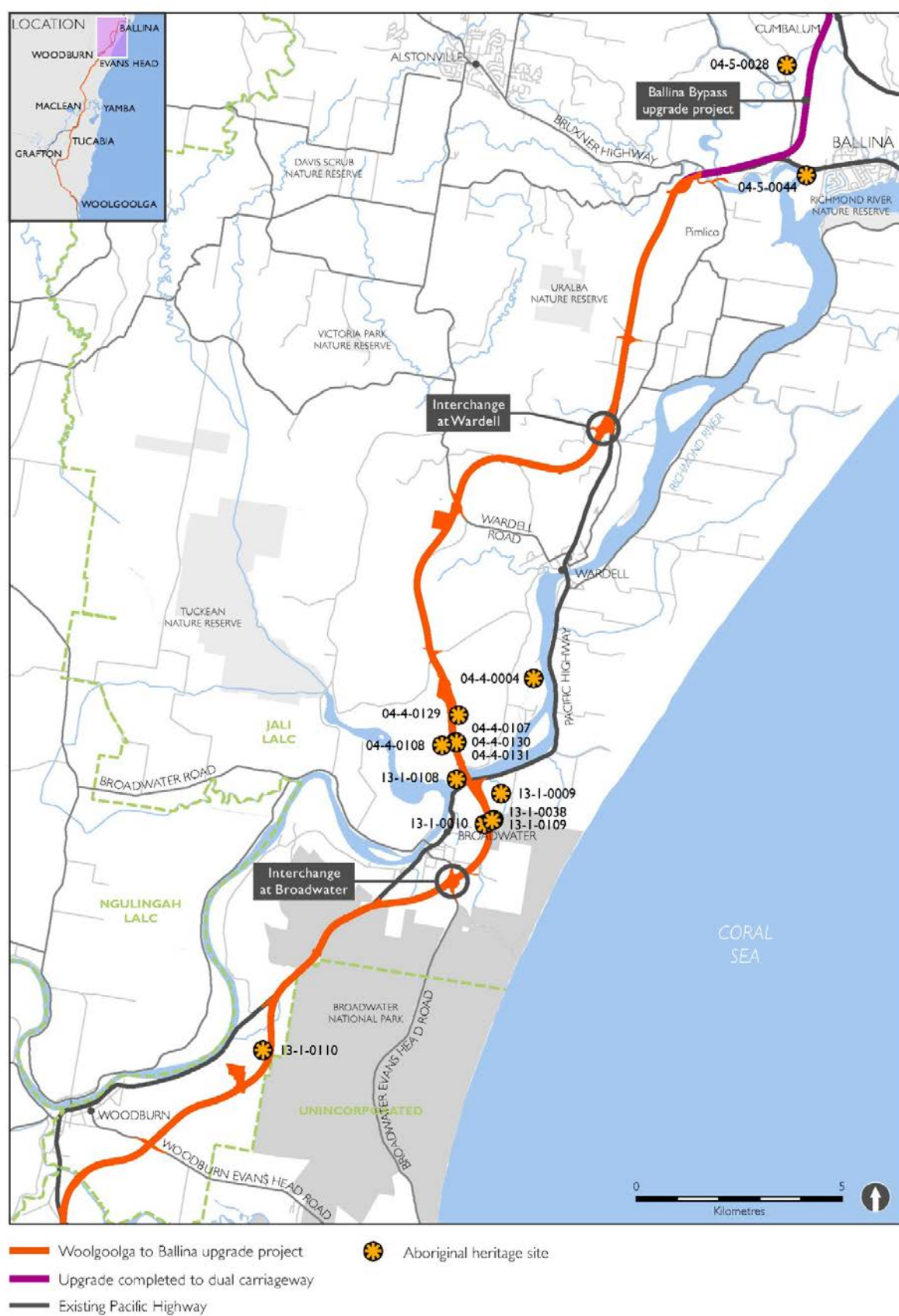
A search of the Aboriginal Heritage Information Management System in 2010, and an updated search in February 2012, identified eight recorded Aboriginal sites relevant to the project between Woodburn and Ballina (illustrated in Figure 12-19).

During the field survey for the project, 14 Aboriginal heritage sites (3 new) and 20 PADs (five associated with existing sites and 15 standalone) were identified and recorded within or near the project boundary between Woodburn and Ballina. After completion of subsurface testing and cultural assessment five PADs (all standalone) were assessed as no longer being sites. Resulting in 14 Aboriginal heritage sites and 15 PADs (five associated with existing sites and 10 standalone). These sites have subsequently been registered on the Aboriginal Heritage Management Information System (illustrated in Figure 12-19), and are described in Table 12-16.



Photo 6: Artefact scatter, sample of artefacts, at PAD 11 (AHIMS Site ID: 13-1-0189)





**Figure 12-19: Woodburn to Ballina: Aboriginal heritage sites (registered on AHIMS)**



**Table 12-16: Woodburn to Ballina: Aboriginal heritage areas or sites following project field survey and subsurface testing**

Name (AHIMS ID)	Previous type(s)	Description	Updated name *	Updated site type(s) *
Gittoes Jali site, and PADs 6 and 7 (09-1-0204, 09-1-0205, 09-1-0203)	Site – Isolated artefact & PADs	Located on the crest and slopes of a ridgeline, that constitutes an uncommon piece of raised land in an otherwise flat terrain. The area is cleared with clumps of trees and is used for grazing. Adjacent paddocks are used for farming.  411 stone artefacts (chert, fine-grained siliceous, cobble, basalt, chalcedony, sandstone, crystal quartz) were discovered.	Gittoes Jali	Site – Artefact scatter, paint wells, ground stone, scarred tree
Gittoes Jali 2 (Not registered)	Site – Artefact scatter	Two sandstone artefacts located on a floodplain near an ephemeral floodway that probably represents an old waterway.	Gittoes Jali 2	Site – Artefact scatter
Gittoes Jali 3 (Not registered)	Site – Isolated artefact	The site consists of one flaked river cobble located on the middle slopes of a steep hill, overlooking the Richmond River floodplain.	Gittoes Jali 3	Site – Isolated artefact
PAD 13 (13-1-0190)	PAD	Located on a long, low sandy rise above the floodplain and adjacent the old coastlines.	N/A	No material found from sub-surface testing – no longer considered to be a PAD or site
PAD 10 (13-1-0188)	PAD	Located on the upper slopes and flat crest of a rise. It is the continuation of PAD 8 on the western side of Evans Head Road.	N/A	No material found from sub-surface testing – no longer considered to be a PAD or site
PAD 8 (13-1-0187)	PAD	Located on the upper slopes and flat crest of a rise, about 1 km from Cooks Hill.	N/A	No material found from sub-surface testing – no longer considered to be a PAD or site
PAD 11 (13-1-0189)	PAD	Located on a low, sandy rise below Cooks Hill and adjacent to a drainage line. The area is a cleared paddock, which appears to be grazed and is surrounded by woodland. A large sand quarry is located nearby.  1003 stone artefacts (chert, chalcedony and quartz) were discovered.	Site 11	Site – Artefact scatter

Name (AHIMS ID)	Previous type(s)	Description	Updated name *	Updated site type(s) *
E2/2 (13-1-0109)	Site – Artefact scatter, shell midden & PAD	Located on a sandy rise, which is covered with new growth woodland. It is adjacent to Cooks Hill and the Richmond River floodplain. There is some heavy disturbance in parts due to sand extraction. The site is associated with artefacts and midden material, and adjacent to a bora ground in Broadwater National Park.  13 flaked stone artefacts (chert, chalcedony, quartz, silcrete, igneous material and granite/ quartzite) were discovered along with some fragments of shell (Donax deltoides).	E2/2	Site – Artefact scatter, shell midden
Cooks Hill, Broadwater (13-1-0038) and Broadwater (13-1-0010)	Site – Ceremonial ground (Bora ring)	Located on the top of a sand rise near the boundary of an existing sand quarry and Broadwater National Park. Duplicate records exist on the AHIMS register, and are considered one site for this project. The site was apparently identified last in the late 1990s, but has not been able to be relocated in current investigations, and has either been destroyed, or is located further east into Broadwater National Park than its currently recorded location.	Cooks Hill, Broadwater	Site - Ceremonial ground (Bora ring) (outside of the project boundary)

Name (AHIMS ID)	Previous type(s)	Description	Updated name *	Updated site type(s) *
Gumi PAD (04-4-0180)	Site – Possible scarred tree & PAD mound	<p>Located on the mid-slope of a hill, adjacent to the Richmond River. A single Red Mahogany that has been scarred was located on the mid-slope of a hill. Within 20 m of the scarred tree is a mounded area with some scattered stone. The tree appears to be quite young, and the scar not consistent with those made from Aboriginal tradition or others in the region, leaving the listing of the tree as a site as questionable from an archaeological perspective.</p> <p>The mound was subject to GPR and test-excavation to determine if it was a burial mound or contained other archaeological deposits. Aboriginal stakeholders were concerned that a buried stone arrangement existed here. GPR survey in this area was inconclusive, but suggested that it was not likely that a stone arrangement existed here. Detailed test-excavation confirmed no archaeological deposits existed here. Jali LALC believes the tree marks the location of a spring. This spring was in evidence during heavy rains at the time of test-excavation. The spring as not been noted at any time during previous visits where it has not been raining. The conclusion is that the spring is only operational during heavy rains and would not therefore be a focus for visitation to this area. Investigation into the age and nature of the scar is ongoing.</p>	Gumi Site	Site – Possible scarred tree
Law PAD (04-4-0168)	PAD	Located on the crest and upper slopes of a ridge and flat slopes of a spur. The site has shallow, rocky soils, with low–moderate potential for Aboriginal heritage material to be present.	Law PAD	PAD – not likely to be impacted (outside the construction footprint)
Melino Scarred Tree 4 (04-4-0166)	Site – Scarred tree	Located on the lower slopes of a ridgeline adjacent to a low sand ridge, just north of the Richmond River. This slab scarred tree has been burnt out. Remnant axe marks can be identified on the bottom of the scar.	Melino Scarred Tree 4	Site – Scarred tree

Name (AHIMS ID)	Previous type(s)	Description	Updated name *	Updated site type(s) *
Melino PAD (04-4-0173)	PAD	Located near the floodplain of the Richmond River. There are two distinct landforms within this site. One is the upper slope of a hill and the second is a relatively flat sandy area that likely represents the crest and upper slopes of a low, deflated sand dune. The area is cleared with scattered trees and is surrounded by open woodland. 212 stone artefacts (basalt, chalcedony, chert cobble, dolerite, fine grained siliceous, quartz, quartzite, silcrete) were discovered. A shell midden was also located within part of the site; the shell species was pipi ( <i>Donax deltooides</i> ).	Melino Site	Site – Artefact scatter, shell midden
Melino Artefact Scatter (Not registered)	Site – Artefact scatter	This site comprises three flaked and ground stone artefacts found in a disturbed context amongst some animal pens at the bottom of a steep ridge.	Melino Artefact Scatter	Site – Artefact scatter
MST3 (04-4-0131)	Site – Scarred tree	Located on swampy flat ground adjacent to a low sand ridge. The scarred tree is a mature brush box, with epicormic growth and steel axe-marks.	MST3	Site – Scarred tree
C21 (04-4-0107)	Site – Scarred tree	Located on swampy flat ground adjacent to a low sand ridge. The scarred tree is a mature brush box tree, with epicormic growth and steel axe-marks.	C21	Site – Scarred tree
MSRT2 (04-4-0130)	Site – Scarred tree	Located on swampy flat ground adjacent to a low sand ridge. The scarred tree is a mature brush box tree, with steel axe-marks.	MSRT2	Site – Scarred tree
MST1 (04-4-0129)	Site – Scarred tree	Located on the lower slopes of a ridge, adjacent to a swampy area. The scarred tree is a mature brush box tree, with axe-marks.	MST1	Site – Scarred tree (outside the construction footprint)
PAD 2 (04-4-0178)	PAD	Located on a low, sandy rise adjacent to a swamp. The area is cleared with scattered trees and is lightly grazed. 21 flaked stone artefacts (chalcedony, chert, fine grained siliceous, quartz, silcrete) were discovered.	Site 2	Site – Artefact scatter
PAD 3 (04-4-0175)	PAD	Located on a rise in a swampy area. The area is cleared with isolated trees and appears to have been lightly grazed. Four flaked stone artefacts, (two of which are broken) made of various raw materials (chert, silicified quartz, river cobble) were discovered?.	Site 3	Site – Artefact scatter

Name (AHIMS ID)	Previous type(s)	Description	Updated name *	Updated site type(s) *
PAD 4 (04-4-0132)	PAD	Located on the crest of a saddle, which has been cleared and is grazed. 15 flaked stone artefacts (chalcedony, chert, silcrete) were discovered.	Site 4	Site – Artefact scatter
PAD 1 (04-4-0179)	PAD	Located on a low, sandy rise that is dominated by a large grove of trees. The area is cleared, lightly grazed and adjacent to open woodland. Seven flaked stone artefacts (chert) were discovered.	Site 1	Site – Artefact scatter
Rudgley Cultural PAD (04-4-0171)	PAD	Located on the edge of a gentle slope in cleared area with woodlands to the east and west. The area is currently grazed.	N/A	No material found from sub-surface testing – no longer considered to be a PAD or site
Rudgley Scarred Tree (04-4-0170)	Site – Scarred tree	Located on the lower slopes of a hill. The tree is dead and the scar is interpreted by the Aboriginal stakeholders to possibly be a shield scar.	Rudgley Scarred Tree	Site – Scarred tree
Rudgley PAD 2 (04-4-0169)	PAD	Located on a slight, sandy rise within open woodland. The water table was encountered at 1 m. Three flaked stone artefacts (chert) were discovered.	Rudgley Site 2	Site – Artefact scatter
Rudgley PAD 1a and	PAD	Located on the crest of a spur adjacent to natural springs and a swamp. The area is cleared with isolated trees and is bordered by woodland. Six flaked stone artefacts (chert, basalt) were discovered.	Rudgley Site 1a and	Site – Artefact scatter
Rudgley PAD 1b (04-4-0167)		Located mid-slope of a ridgeline running almost north–south. The area is cleared with woodlands to the east and west and appears to be lightly grazed. Five flaked stone artefacts (chert, chalcedony) were discovered.	Rudgley Site 1b	
Saezza 1 (04-4-0171)	Site – Isolated artefact and PAD	Located on a small rise above a creek. The area is extremely disturbed, with a thin soil profile situated on a compact clay layer. There are also cleared areas within an open forest, and evidence of logging. 60 flaked stone artefacts (chalcedony, quartz and chert) were discovered.	Saezza 1	Site – Artefact scatter (outside the construction footprint)



Name (AHIMS ID)	Previous type(s)	Description	Updated name *	Updated site type(s) *
Saezza PAD 1 (04-4-0172)	PAD	Located on a small sandy rise above a swamp. The area is cleared, surrounded by open forest, and located near a house block.	N/A	No material found from sub-surface testing – no longer considered to be a PAD or site
PAD 12 (04-4-0176)	PAD	The site is located on a low sandy rise. The area is grassed and is currently used for grazing, bordered by an open forest. 15 flaked stone artefacts (chert) were discovered.	Site 12	Site – Artefact scatter

\* Updated type and name of the site following completion of the subsurface testing and assessment of cultural values of the sites

## Subsurface investigations

Archaeological subsurface investigations were undertaken at 19 of the 20 PADs identified within the project boundary between Woodburn and Ballina (see Figure 12-20). The remaining PAD was not assessed as it would not be impacted by project construction and the potential impact to the PAD through subsurface test excavation was therefore not justified. Of the 20 PADs excavated, 14 contained subsurface Aboriginal deposits.

As a result of the subsurface testing, 14 PADs were confirmed as being sites, and five were assessed as not having archaeological potential within the boundary of the project.

A brief description of the heritage evidence potential and key findings of the subsurface investigations for these areas is provided below.

### Gittoes Jali

The Gittoes Jali site broadly falls within the Richmond alluvial plain landscape unit. Initially identified as three separate PADs, the site extends along a sandstone ridge and overlooks the Richmond River and floodplain. A water spring is present on the lower slopes of the ridgeline. Also visible from this site are distinctive landmarks, such as Cooks Hill, the Evans River and the coastline.

Identified during survey and subsurface testing were 411 artefacts, predominately chert, but with significant quantities of basalt, chalcedony, cobble, quartzite, and silcrete. Of note was a single blue agate artefact, which was considered to be a unique type of artefact by Aboriginal stakeholders on site during the excavation. Agate is also an uncommon raw material to be located within an archaeological deposit.

The artefacts found at Gittoes Jali yielded important information about the use of the site and occupation of the locality by Aboriginal people.

### Site 11

Site 11 is located within the coastal barriers (sand dune) landscape unit. Cooks Hill is directly to the west and overlooks the site. The area is surrounded by the Richmond River floodplain and previous (ancient) coastlines. It is likely that prior to disturbance from sand quarrying, the sand dune at site 11 would have comprised part of the same landform as E2/2, which is 300 metres to the north.

Mechanical excavation of site 11 identified a knapping floor within the centre of the site (a knapping floor is a place where people 'knapped', or shaped, flakes). This knapping floor accounts for 947 artefacts of the overall 1003 artefacts recovered from the site.

### E2/2 site

Site E2/2 is located within the coastal barriers (sand dune) landscape unit. Cooks Hill is directly to the south and overlooks the site. The area is surrounded by the Richmond River floodplain and previous coastlines. It is likely that prior to disturbance from sand quarrying operations, the sand dune for E2/2 would have comprised part of the same landform as Site 11, which is 300 metres to the south. This is a multi-component site with stone artefacts, shell midden and known modern occupation by the traditional owners.

The known contents of this site include 13 flaked artefacts, predominately of chalcedony and quartz. Two artefacts had been retouched.

### Melino site

The Melino Site is located within the coastal barriers (sand dune) landscape unit. The Richmond River bounds the area to the south and east, while Cooks Hill can be seen directly to the south-east. This is a multi-component site with stone artefacts, shell midden, known modern occupation by the traditional owners and scarred trees.

The known contents of this site include 219 flaked artefacts, predominately of chert, but with nine other raw materials also present. The assortment of raw materials indicates that a variety of sources were exploited, locally and perhaps farther afield.

Less than 10 per cent of the artefacts found have evidence of retouching, edge damage and backing, which is a form of deliberate blunting of an edge. It is likely that although the initial reduction may have taken place elsewhere, manufacture and maintenance of artefacts was conducted on site.

#### **Site 2**

Site 2 is located within the coastal barriers (sand dune) landscape unit. It is a flat sandy rise adjacent to both Bingall Creek and a low-lying swampy area (Richmond River floodplain). The majority of artefacts on site were flakes manufactured from quartz, followed by chalcedony with only three other raw material types present.

#### **Site 4**

Site 4 is located within the coastal ramp landscape unit. It is a low saddle at the end of a ridge spur overlooking a low-lying swampy area (Richmond River floodplain). Site 2 and Site 3 are located about 800 metres to the south of this site and can be seen, only due to the recent clearance of trees. Chalcedony flakes were the most common type present on site, with flaked fragments and angular fragments also recorded.

#### **Saezza 1**

Saezza 1 is located within the coastal ramp landscape unit. The site is located on a small rise above a small waterway.

The known contents of this site include 60 flaked artefacts, predominantly of chert, with quartz and chalcedony raw materials also present. Cortex was present on 12 artefacts, indicating that while reduction took place, the majority of that process may have been conducted elsewhere.

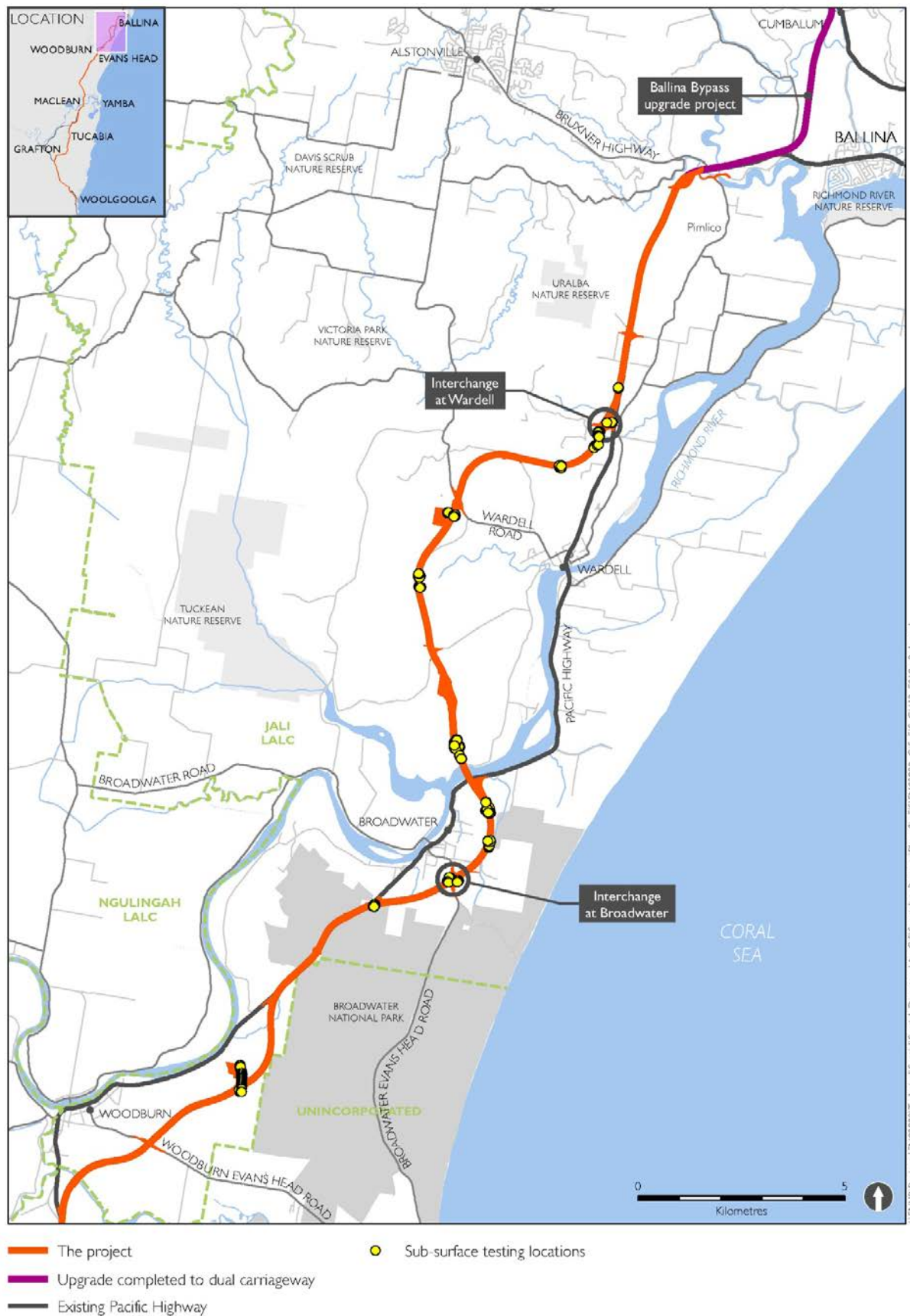
#### **Site 12**

Site 12 is located within the coastal barriers (sand dune) landscape unit. The site is located on a low sandy rise and bordered by an open forest. The area is grassed and currently used for grazing.

The known contents of this site include 15 flaked artefacts, all manufactured from chert. A low proportion of artefacts have cortex, and no cores were found during the testing. No retouching or edge damage was recorded, and flaked fragments were the most common type recovered.

#### **Other sites**

Of the other 16 sites recorded (with a subsurface component), eight sites (Gittoes Jali 2, Gittoes Jali 3, Melino Artefact Scatter, Site 3, Site 1, Rudgley site 2, Rudgley site 1 (1a and 1b)) contained less than 10 artefacts. All of these sites were located within the coastal ramp landscape unit, with the exception of Site 3, which was within the coastal barrier landscape unit. It should be noted that Site 3 was not excavated to its fullest potential as the investigation was a test excavation stage only. It is highly likely that once deeper excavation could be undertaken at the site, a higher density of artefacts would be uncovered.



## Significance of Aboriginal heritage evidence

The results of the significance assessment for the recorded Aboriginal heritage evidence and Aboriginal cultural places (place names have been changed due to cultural sensitivity) are summarised in Table 12-17 and Table 12-18 respectively. It should be noted that application of some of the criteria to the Aboriginal cultural places is not possible due to the intangible nature of these places (an intangible 'place' cannot have aesthetic significance and cannot be assessed scientifically).

**Table 12-17: Woodburn to Ballina: Summary of significance of Aboriginal cultural places near or within the project boundary**

ID	Place name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
CP10	Place A	None	Moderate	N/A	N/A	Assessed as part of Gittoes Jali site
CP11	Place B	None	Moderate	None	Moderate	Moderate
CP12	Place C	None	High	None	Moderate–high	High
CP13	Place D	None	High	Low	Moderate	Moderate–high
CP14	Place E	None	Moderate	Low–moderate	Moderate	Moderate
CP15	Place F	None	Low–moderate	Low	Low–moderate	Low–moderate
CP16	Place G	None	Low–moderate	Low–moderate	Low–moderate	Low–moderate
CP17	Place H	None	Moderate–high	None	None	Moderate–high
CP18	Place I	None	Moderate–high	Low–moderate	Low	Moderate
CP19	Place J	None	Moderate	Low	Moderate	Moderate
CP20	Place K	None	Moderate–high	Moderate	Low	Moderate



**Photo 7: Artefact scatter, sample of artefacts, at Saezza 1 (AHIMS Site ID: 04-4-0171)**



**Table 12-18: Woodburn to Ballina: Summary of significance of Aboriginal archaeological sites near or within the project boundary**

AHIMS ID	Name	Scientific significance	Social significance	Aesthetic significance	Historic significance	Overall significance
09-1-0204, 09-1-0205 and 09-1-0203	Gittoes Jali	High	High	Low	None	High
Not registered	Gittoes Jali 2	Low	Moderate	Low	Low	Low
Not registered	Gittoes Jali 3	Low	Low	Low	Low	Low
13-1-0189	Site 11	Moderate–high	Moderate–high	None	Moderate	Moderate–high
13-1-0109	E2/2	Moderate	Moderate–high	Low	Moderate–high	Moderate–high
13-1-0038 and 13-1-0010	Cooks Hill, Broadwater	Unknown	Moderate–high	Unknown	Moderate	Unknown
04-4-0180	Gumi Site	Low	Moderate–high	Low	Low–moderate	Moderate
04-4-0168	Law PAD	The significance of the Law PAD site was unable to be assessed as it is not likely to be impacted by the project and was thus not subject to any sub-surface investigation.				
04-4-0166	Melino Scarred Tree 4	Moderate	Moderate–high	Low	Low–moderate	Moderate–high
Not registered	Melino Artefact Scatter	Low	Moderate	Low	Low	Low
04-4-0173	Melino Site	High	High	Low	Moderate	High
04-4-0131	MST3	High	High	Moderate–high	Low–moderate	High
04-4-0107	C21	High	High	Moderate–high	Low–moderate	High
04-4-0130	MSRT2	High	High	Moderate–high	Low–moderate	High
04-4-0129	MST1	Moderate–high	Moderate–high	Low–moderate	Low–moderate	Moderate–high
04-4-0175	Site 3	Low–moderate	Moderate	Low	None	Low–moderate
04-4-0178	Site 2	Low–moderate	Moderate	Low	None	Low–moderate
04-4-0132	Site 4	Low	Low–moderate	None	None	Low–moderate
04-4-0179	Site 1	Low	Low–moderate	Low	None	Low–moderate
04-4-0170	Rudgley Scarred Tree	Moderate–high	Moderate–high	Low	None	Moderate–high
04-4-0169	Rudgley Site 2	Low	Low–moderate	Low	None	Low
04-4-0167	Rudgley Site 1a and 1b	Low	Low–moderate	None	None	Low
04-4-0171	Saezza 1	Low–moderate	Moderate	Low	None	Moderate
04-4-0176	Site 12	Low–moderate	Moderate	Low	None	Moderate

## Significance of Aboriginal cultural places

The following Aboriginal cultural places (place names changed due to cultural sensitivity) are of contemporary and/or historical significance to the Aboriginal community:

- Place A is linked to the Gittoes Jali site, where a piece of blue agate was excavated. For this reason, the Gittoes Jali site is afforded more cultural importance. The Gittoes Jali site has a high level of significance at the regional and possibly State level
- Place B is a traditional Corridor of Movement and has a moderate level of significance at the regional scale
- Place C is the location of a massacre of Aboriginal people by the Native Mounted Police in the 19<sup>th</sup> Century. This place has a high level of significance at the regional scale and is important in demonstrating the prevalence of Aboriginal massacre sites across the Australian landscape
- Place D has a moderate–high level of significance at the regional scale as the area was used for camping and ceremonies
- Place E is a site that demonstrates the interaction of Aboriginal and European people and the response of Aboriginal people to the government and legislative structures imposed on them. This place has a moderate level of significance at the local scale
- Place F has a low–moderate level of significance at the local scale through its use as a waterhole for local people
- Place G has a low–moderate level of significance at the local scale as the site of interactions between Aboriginal and non-Aboriginal people in the local area and in demonstrating the response of Aboriginal people to rules and restrictions imposed upon them
- Place H has a moderate–high level of significance to the traditional owners across the region, which continues to impact on Aboriginal people and their use of the area today
- Place I has a moderate level of significance at the local scale and indicates an important visual marker in the landscape
- Place J was used as a meeting place by Aboriginal people, it has a moderate level of significance at the local scale
- Place K has a moderate level of significance at the regional scale as it forms a cohesive and interconnected cultural landscape including many specifically identified areas of importance, including Cabbage Tree Island, Goat Island, as well as intangible creation and secret stories associated with this landscape.

### 12.2.5 Summary of findings

A summary of recorded Aboriginal heritage sites from Woolgoolga to Ballina are provided in Table 12-19 and below.

**Table 12-19: Woolgoolga to Ballina: Summary of recorded Aboriginal archaeological sites near or within the project boundary**

Name (AHIMS ID)	Type(s)	Total excavation	Number of artefacts	Project section
<b>Woolgoolga to Wells Crossing</b>				
WWC5 (22-1-0348)	Artefact scatter	Not in project boundary	Not in project boundary	1
WWC7 (22-1-0347)	Isolated artefact	Not in project boundary	1	1
WWC18 (22-1-0346)	Artefact scatter	20 (0.5 m x 0.5 m)	1 Artefact (silcrete)	1
WWC26 (22-1-0345)	Isolated artefact	Not in corridor	Not in project boundary	1
Sherwood North (22-1-0402)	Artefact scatter	11 (0.5 m x 0.5 m)	8 (none in project boundary)	1
WWC37 (22-1-0344)	Artefact scatter	33 (0.5 m x 0.5 m)	1 Artefact (chert)	1
WWC39 (22-1-0343)	Artefact scatter	99 (0.5 m x 0.5 m)	98 Artefacts (agate, chalcedony, chert, silcrete, mudstone, quartz, quartzite) 134 Surface Artefacts (bone, chalcedony, chert, glass, quartz, quartzite, silcrete)	1
WWC 46 (22-1-0342)	Isolated artefact	30 (0.5 m x 0.5 m)	3 Artefacts (chert, silcrete)	1
WWC53 (22-1-0349)	Isolated artefact	None	1	1
WWC Dirty Creek 1	PAD	None	0	1
WWC 78 (13-4-0162)	Isolated artefact	None	1	1
WWC92 (13-4-0161)	Isolated artefact	Not in project boundary	1	1
IA2 (13-4-0092)	Isolated artefact	None	This site is impacted by the existing Halfway Creek duplication	1
WWC115 (13-4-0160)	Artefact scatter	4 (0.5 m x 0.5 m)	None	1
WWC 135 (13-4-0159)	Artefact scatter	132 (0.5 m x 0.5 m)	5 Artefacts (silcrete, quartz, glass)	2
WWC 138 (13-4-0158)	Isolated artefact	None	1	2
WWC139/A (13-4-0157)	Isolated artefact	3 (0.5 m x 0.5 m)	None	2
<b>Wells Crossing to Iluka Road</b>				
WX2I Site 7 (09-4-0107)	Artefact scatter	24 (0.5 m x 0.5 m)	2 artefacts (chert)	3
WX2I Site 6 (09-4-0106)	Isolated artefact	27 (0.5 m x 0.5 m)	1 artefact (crystal quartz)	3
WX2I Site 5 (09-4-0105)	Isolated artefact	9 (0.5 m x 0.5 m)	1 artefact (quartz)	3
WX2I Site 4 (09-4-0104)	Artefact scatter	44 (0.5 m x 0.5 m)	5 artefacts (chalcedony, silcrete, quartzite)	3
Tyndale 1 (09-4-0099)	Artefact scatter	58 (0.5 m x 0.5 m)	2 artefacts (river cobble, chert)	4
Tyndale 2 Site (13-1-0115)	Artefact scatter	17 (0.5 m x 0.5 m)	9 artefacts (basalt, chalcedony, chert, quartz, silcrete)	4

Name (AHIMS ID)	Type(s)	Total excavation	Number of artefacts	Project section
Shark Creek Site 2 (13-4-0170)	Artefact scatter	27 (0.5 m x 0.5 m)	3 artefacts (silcrete, chert)	4
Hirst 2 (13-1-0185)	Isolated artefact	43 (0.5 m x 0.5 m)	1 artefact (chert)	4
Hirst 1 (09-1-0206)	Isolated artefact	38 (0.5 m x 0.5 m)	1 artefact	4
<b>Iluka Road to Woodburn</b>				
IR2W1 (13-1-0114)	Isolated artefact	None	1	7
Withheld (13-1-0111)	Modified tree	None	0	7
IR2W2 (13-1-0112)	Artefact scatter	20 (0.5 m x 0.5 m)	3 artefacts (silcrete, chalcedony)	8
C3/2/2 (13-1-0110)	Burial	None	0	8
IR2W3 (13-1-0113)	Isolated artefact	None	1	8
Saw Pit Creek / New Italy (13-1-0059)	Burial	None	0	8
IR2W4 (13-1-0115)	Artefact scatter	20 (0.5 m x 0.5 m)	11 artefacts (chalcedony, fine grained siliceous, silcrete)	8
<b>Woodburn to Ballina</b>				
Gittoes Jali (09-1-0204, 09-1-0205, 09-1-0203)	Artefact scatter, Paint Wells, Ground Stone	131 (0.5 m x 0.5 m)	386 artefacts (chert, fine grained siliceous, cobble, basalt, chalcedony, sandstone, crystal quartz)	8
Gittoes Jali 2 (not registered)	Artefact scatter	None	2 (river cobble)	8
Gittoes Jali 3 (not registered)	Isolated artefact	None	1 (river cobble)	8
Site 11 (13-1-0189)	Artefact scatter	17 (0.5 m x 0.5 m) 6 metres x 1 metres (mechanical trenches)	1003 artefacts (chert, chalcedony and quartz)	9
E2/2 (13-1-0109)	Artefact scatter, shell midden	40 (0.5 m x 0.5 m) 6 metres x 1 metres (mechanical trenches)	13 artefacts (chert, chalcedony, quartz, silcrete, igneous material and granite/quartzite) Shell midden (Donax deltooides)	9
Cooks Hill, Broadwater (13-1-0038) and Broadwater (13-1-0010)	Site - Ceremonial ground (Bora ring)	None	0	9
Gumi Site (04-4-0180)	Scarred tree	3 square metres	0	10

Name (AHIMS ID)	Type(s)	Total excavation	Number of artefacts	Project section
Melino Scarred Tree 4 (04-4-0166)	Scarred tree	None	0	10
Melino Artefact Scatter (not registered)	Artefact scatter	None	3	10
Melino Site (04-4-0173)	Artefact scatter, shell midden	87 (0.5 m x 0.5 m) 6 metres x 1 metres (mechanical trenches) 1 (1 metres x 1 m) 1 (2 metres x 1 m)	212 artefacts (basalt, chalcedony, chert, river cobble, dolerite, fine grained siliceous, quartz, quartzite, silcrete) Shell midden (Donax deltoides)	10
MST3 (04-4-0131)	Scarred tree	None	0	10
C21 (04-4-0107)	Scarred tree	None	0	10
MSRT2 (04-4-0130)	Scarred tree	None	0	10
MST1 (04-4-0129)	Scarred tree	None – not within project boundary	0	10
Site 2 (04-4-0178)	Artefact scatter	34 (0.5 m x 0.5 m) 6 metres x 1 metres (mechanical trenches)	21 artefacts (chalcedony, chert, fine grained siliceous, quartz, silcrete)	10
Site 3 (04-4-0175)	Artefact scatter	8 (0.5 m x 0.5 m)	4 artefacts (chert, silicified quartz, river cobble)	10
Site 4 (04-4-0132)	Artefact scatter	35 (0.5 m x 0.5 m)	15 artefacts (chalcedony, chert, silcrete)	10
Site 1 (04-4-0179)	Artefact scatter	12 (0.5 m x 0.5 m)	7 artefacts (chert)	10
Rudgley Scarred Tree (04-4-0170)	Scarred tree	None	0	10
Rudgley Site 2 (04-4-0169)	Site – Artefact scat	6 (0.5 m x 0.5 m)	3 artefacts (chert)	10
Rudgley Site 1a and Rudgley Site 1b (04-4-0167)	Artefact scatter	15 (0.5 m x 0.5 m) 26 (0.5 m x 0.5 m)	5 artefacts (chert, chalcedony) 6 artefacts (chert, basalt)	10
Saezza 1 (04-4-0171)	Artefact scatter	7 (0.5 m x 0.5 m)	60 artefacts (chalcedony, quartz and chert)	11
Site 12 (04-4-0176)	Artefact scatter	8 (0.5 m x 0.5 m)	15 artefacts (chert)	11



## 12.3 Assessment of impacts

During the development of the previous development projects, in consultation with Aboriginal site officers, the alignment was modified where possible to avoid or reduce impacts on identified Aboriginal cultural values, particularly those of high significance.

The potential impact on Aboriginal cultural places and archaeological sites recorded within or near the project boundary has been considered, with the majority of impacts likely to occur during the construction of the project. The types of impact that would occur include:

- Direct impacts from construction that would destroy or partially impact sites
- Indirect impacts during operation, such as visual impact on culturally sensitive, secret and/or gender-specific places; and modification of cultural landscapes, which would impact on environmental and cultural flows to culturally significant waterways.

These impacts (either permanent or temporary) on Aboriginal cultural places or archaeological sites and can be site-specific or applied on a regional scale.

Potential significance, impacts, management recommendations, and mitigation measures of Aboriginal cultural values were determined and assessed during fieldwork in consultation with nominated Aboriginal site officers, discussed during AFG meetings, and the final draft report including all assessment and recommendations was sent to all registered Aboriginal stakeholders, and discussed at AFG meetings and further stakeholder meetings as required. Further details are provided in Section 12.1.2, with records of consultation provided in Section 3 and Appendix E of Working paper – Aboriginal cultural assessment.

### 12.3.1 Impact avoidance

All recorded Aboriginal cultural places and archaeological sites recorded within or near the project boundary have been considered in relation to the proposed road construction, operation and associated activities, and where possible, RMS has sought to avoid and reduce impacts to cultural heritage values (refer to Section 8 of Working paper – Aboriginal cultural assessment)

Examples of project refinements made to avoid Aboriginal cultural sites and archaeological sites are listed below.

#### Woolgoolga to Wells Crossing

- The boundary of the project between Woolgoolga and Wells Crossing was realigned to avoid burials near Arrawarra and Corindi
- The boundary of the project was refined and moved west to avoid a previously identified bora / ceremonial site located to the east of the existing highway in the vicinity of Halfway Creek.

#### Wells Crossing to Iluka Road

- The project boundary between Wells Crossing and Iluka Road was realigned to avoid impact to a culturally sensitive area at Tyndale
- Geotechnical investigations between Tyndale and Maclean were adjusted following the field survey to ensure that investigations would not impact on archaeological sites or PADs
- The project boundary was considerably realigned to avoid significant Pillar Valley men's and women's sites.

### **Iluka Road to Woodburn**

- The boundary of the project between Iluka Road and Woodburn was realigned to avoid impact to a burial site and an important engraved tree near New Italy.
- The boundary of the project was realigned to avoid impact to a massacre site on the southern side of Woodburn.

### **Woodburn to Ballina**

- The project alignment between Woodburn and Ballina was selected to avoid all impact to cultural place Place H
- The boundary of the project was realigned to avoid impact to a massacre site at Woodburn
- The project alignment was selected to avoid impact to the Wardell Bush Camp and Cabbage Tree Island, as these were seen to be highly significant contemporary places. There was a perception in parts of the Aboriginal community that this realignment was a very positive adjustment to the route options then under consideration
- The project refined to avoid four scarred trees (MST2, MST3, Melino Scarred Tree 4 and C21) just north of the Richmond River. Three of these (MST2, MST3, and C21) are in very close proximity (around five metres) to each other, making them rare. The trees are retained within the boundary of the project, to afford them more protection than if they were outside the boundary
- Rudgley Scarred Tree has been avoided by the construction footprint, but has been retained within the project boundary to ensure its protection.

## **12.3.2 Potential impacts on Aboriginal archaeological sites**

### **Woolgoolga to Wells Crossing**

Fifteen Aboriginal heritage sites have been identified within or near the project boundary between Woolgoolga and Wells Crossing.

The project would totally or partially impact on sites WWC18, Sherwood North, WWC37, WWC39, WWC46, WWC53, WWC Dirty Creek 1 (PAD), WWC78, WWC135 and WWC138. These sites were assessed as having a low, low–moderate or moderate level of significance in the local context.

Sites WWC5, WWC26 WWC115, and WWC139 are located immediately adjacent to the project boundary. Construction activities would need to be undertaken in such a way that impacts would be avoided. These sites were assessed as having a low level of significance in the local context.

Site IA2 had previously been destroyed.

### **Wells Crossing to Iluka Road**

Nine Aboriginal heritage sites have been identified within or near the project boundary between Wells Crossing and Iluka Road.

The project would totally or partially impact on sites WX2I Site 7, WX2I Site 6, WX2I Site 5, WX2I Site 4, Tyndale 2, Shark Creek Site 2, Hirst 2, and Hirst 1. These sites were assessed as having a moderate, moderate–high, or high level of significance in the local context.

The Tyndale 1 site is located immediately adjacent to the proposed location for construction activities and therefore impacts would be avoided, subject to implementation of appropriate management measures. This site was assessed as having a moderate–high level of significance in the local context.

### **Iluka Road to Woodburn**

Six Aboriginal heritage sites and one cultural place have been identified within or near the project boundary between Iluka Road and Woodburn.

The project would totally or partially impact on sites IR2W-1, IR2W-2, IR2W-3, and IR2W-4. These sites were assessed as having a low or low–moderate level of significance in the local context.

Sites C3/2/2, and Saw Pit Creek/New Italy are located immediately adjacent to the proposed location for construction activities and therefore impacts may be avoided, subject to implementation of appropriate management measures. These sites were assessed as having a moderate–high level of significance in the local context.

### **Woodburn to Ballina**

Twenty-one Aboriginal heritage sites have been identified within or near the project boundary between Woodburn and Ballina.

The project would totally or partially impact on the following sites assessed as having a moderate, moderate–high, or high level of significance in the local context: Gittoes Jali, Site 11, E2/2, Gumi Site, Melino Site, Melino Scarred Tree 4, C21, MSRT2, and Site 12.

It would totally or partially impact on the following sites assessed as having a low or low–moderate level of significance in the local context: Gittoes Jali 3, Melino Artefact Scatter, Site 3, Site 2, Site 1, Rudgley Site 2, and Rudgley Site 1A and 1B.

Sites Cooks Hills Broadwater, Gittoes Jali 2, Law PAD, MST3, MST1, Rudgley Scarred Tree, and Saezza 1 are located immediately adjacent to the proposed location for construction activities and therefore impacts may be avoided, subject to implementation of appropriate management measures. These sites were assessed as having a moderate, moderate–high, or high level of significance in the local context, with the exception of the Law PAD site, where the significance could not be determined.

### **Ancillary facilities**

The impact of ancillary facilities would vary due to the different levels of ground disturbance required at each site. Where an Aboriginal cultural place is identified partially or wholly within an ancillary area, further consultation with registered Aboriginal parties, and their approval would be sought regarding the appropriateness of the ancillary area and proposed works there.

### **Summary of potential impacts**

The impacts of the project on Aboriginal heritage would be moderate to high in the absence of appropriate management measures. However, with the implementation of appropriate management measures as described in Section 12.4, the risk of residual impacts on Aboriginal heritage from the project can be reduced to moderate.

The impacts on Aboriginal archaeological sites within or near the project boundary are summarised in Table 12-20 below.

**Table 12-20: Impacts to Aboriginal archaeological sites within or near the project boundary**

AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
<b>Woolgoolga to Wells Crossing</b>					
22-1-0348	WWC5	Low	Artefact scatter	No direct or indirect impact	WWC 5 is located outside, immediately adjacent to the project boundary, and to the west of the proposed highway alignment. No direct or indirect impact is likely from the project.
22-1-0347	WWC7	Low	Isolated artefact	No direct or indirect impact	WWC 7 is located outside, immediately adjacent to the project boundary, and to the west of the project. No direct or indirect impact is likely from the project.
22-1-0346	WWC18	Low	Artefact scatter	Direct	WWC18 would be subject to excavation about 25 m long for a road cutting. The result would be the removal of about 5 per cent of the site, which would have only minimal irreversible impact on its heritage values. Part of the site is within the project boundary and would be avoided by the proposed highway alignment, and part of the site is outside the project boundary to the west and would be avoided.
22-1-0345	WWC26	Low	Isolated artefact	No direct or indirect impact	WWC26 is within the project boundary, but direct impact would be avoided by the proposed highway alignment. Fencing would be required to ensure that impacts from associated activities are avoided.
22-1-0403	Sherwood North	Low	Artefact scatter	Direct	Sherwood North would be subject to excavation about 60 m long for an embanked road. The result would be the removal of about 5 per cent of the site but with only minimal irreversible impact on its heritage values. The majority of the site is outside the project boundary to the north-west and would be avoided.
22-1-0344	WWC37	Low–moderate	Artefact scatter	Direct	WWC37 would be subject to excavation for a cut and embanked road about 85 m long. The result would be the removal of about 50 per cent of the site and irreversible impact on its heritage values. Part of the site is within the project boundary but would be avoided by the proposed highway alignment, and part of the site is outside the project boundary to the west and would be avoided.
22-1-0343	WWC39	Moderate	Artefact scatter	Direct	WWC39 would be subject to excavation through the middle of the site for an embanked road about 360 m long. The result would be the impact to and removal of about 60 per cent of the site and irreversible impact on its heritage values.

AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
22-1-0342	WWC46	Low–moderate	Artefact scatter	Direct	WWC46 would be subject to excavation for an embanked road for two sections, one about 75 m long, the other about 30 m long. The result would be the removal of about 30 per cent of both parts (locus A and B) of the site and irreversible impact on part of its heritage values. Part of the site is within the project boundary but would be avoided by the proposed highway alignment, and part of the site is outside the project boundary to the east and would be avoided.
22-1-0349	WWC53	Low	Isolated artefact	Direct	WWC53 is likely to be subject to excavation for a road cutting about 5 m long. The result would be the removal of 100 per cent of the site and irreversible impact on its heritage values. This site is located close to, but outside the proposed highway alignment. As such, it may be able to be avoided during the detailed design of the project.
22-1-0403	WWC Dirty Creek 1	Low potential (significance cannot be identified for PAD)	PAD	Direct	<p>Due to the widening of the road in the vicinity of Corindi Creek, WWC Dirty Creek 1 would be subject to excavation to provide road cutting for approximately 500 m in length. The result would be the removal of approximately 30% of the site and irreversible impact to its heritage values. Parts of the site are located outside the construction footprint to the east, and would thus be avoided by the project. Fencing would be required to ensure impact from associated activities is avoided.</p> <p>This site was inaccessible during the Aboriginal heritage impact assessment due to no permission to access the property from the property owner at the time of the assessment. As impact here is not likely to be significant, and the site is not likely to be highly significant, access would be sought following submission of the EIS and findings reported during the submissions reporting phase.</p>
13-4-0162	WWC 78	Low	Isolated artefact	Direct	WWC78 would be subject to excavation for a road cutting about 20 m long. The result would be the removal of 100 per cent of the site and irreversible impact on its heritage values.
13-4-0161	WWC92	Low	Isolated artefact	No direct or indirect impact	WWC92 is outside and immediately adjacent to the project boundary. There would be no direct or indirect impact likely from the project. Fencing may be required to ensure impacts are avoided.
13-4-0092	IA2	Low	Isolated artefact	Previously destroyed	N/A
13-4-0160	WWC115	Low	Artefact scatter	No direct or indirect impact	WWC115 is outside and immediately adjacent to the project boundary. There would be no direct or indirect impact likely from the project. Fencing may be required to ensure impacts are avoided.



AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
13-4-0159	WWC135	Low–moderate	Isolated artefact	Direct	WWC135 would be subject to excavation through the middle of the site for an embanked road about 180 m long. The result would be the removal of about 70 per cent of the site and irreversible impact on its heritage values. Part of the site is within the project boundary but would be avoided by the proposed highway alignment, and a small portion of the site is outside the project boundary to the east and west and would be avoided. Fencing would be required within the project boundary to ensure impacts from associated activities are avoided.
13-4-0158	WWC138	Low	Artefact scatter	Direct	WWC138 would be subject to excavation for a road embankment about 5 m long. The result would be the removal of 100 per cent of the site and irreversible impact on its heritage values.
13-4-0157	WWC139	Low	Artefact scatter	No direct or indirect impact	WWC139 is within the project boundary, but direct impact would be avoided by the concept design. Fencing would be required to ensure impacts from associated activities are avoided.
<b>Wells Crossing to Iluka Road</b>					
09-4-0107	WX2I Site 7	High	Site – Artefact scatter	Direct	About 5 per cent of WX2I Site 7 is likely to be subject to excavation for a road cutting about 30 m long. The result would be the removal of about 5 per cent of the site and irreversible impact on this part of its heritage values.
09-4-0106	WX2I Site 6	Moderate–high	Site – Isolated artefact	Direct	About 10 per cent of WX2I Site 6 is likely to be subject to excavation for a road cutting about 60 m long. The result would be the removal of about 10 per cent of the site and irreversible impact on this part of its heritage values.
09-4-0105	WX2I Site 5	Moderate–high	Site – Isolated artefact	Direct	About 5 per cent of WX2I Site 5 is likely to be subject to excavation for a road cutting about 60 m long. The result would be the removal of about 5 per cent of the site and irreversible impact on this part of its heritage values.
09-4-0104	WX2I Site 4	Moderate	Site – Artefact scatter	Direct	About 10 per cent of WX2I Site 4 is likely to be subject to excavation for a road about 60 m long. The result would be the removal of about 10 per cent of the site and irreversible impact on this part of its heritage values.
09-4-0099	Tyndale 1	Moderate–high	Site – Artefact scatter	Avoid	Tyndale 1 is within the project boundary, but would be avoided by the proposed highway alignment. No indirect impact is likely. Fencing may be required to ensure impacts from associated activities are avoided.

AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
13-1-0115	Tyndale 2	TBA	Site – Artefact scatter	Direct	Tyndale 2 would be subject to excavation for an embanked road and culvert about 170 m long. The result would be the removal of 100 per cent of the site and irreversible impact on all its heritage value.
13-4-0170	Shark Creek Site 2	High	Site – Artefact scatter	Direct	Shark Creek Site 2 would be subject to excavation for an embanked road about 25 m long. The result would be the removal of 100 per cent of the site and irreversible impact on all its heritage value.
13-1-0185	Hirst 2	Moderate–high	Site – Artefact Scatter	Direct	Hirst 2 would be subject to excavation for a road cutting about 45 m long. The result would be the removal of 100 per cent of the site and irreversible impact on all its heritage value.
09-1-0206	Hirst 1	High	Site – Isolated artefact	Direct	Hirst 2 would be subject to excavation for a road cutting about 25 m long. The result would be the removal of 100 per cent of the site and irreversible impact on all its heritage value.
<b>Iluka Road to Woodburn</b>					
13-1-0114	IR2W-1	Low	Isolated artefact	Direct	All of IR2W-1 and its values would be impacted directly by construction of the project.
13-1-0111	Scarred / engraved Tree	High	Modified tree	No direct or indirect impact	No direct or indirect impacts on this site are likely from the project.
13-1-0112	IR2W-2	Low–moderate	Artefact scatter	Direct	Part of IR2W-2 would be directly impacted by construction of the project. Part of this site extends to the east and west outside the project boundary. The project would have a moderate impact on the cultural heritage values of this site.
13-1-0110	C3/2/2	Moderate–high	Burial	No direct or indirect impact	The project is not likely to have direct or indirect impacts on this site.
13-1-0113	IR2W-3	Low	Isolated artefact	Direct	All of this site and its values would be impacted directly by construction of the project.
13-1-0059	Saw Pit Creek/ New Italy	Moderate–high	Burial	No direct or indirect impact	The project is not likely to have direct or indirect impacts on this site.
13-1-0115	IR2W-4	Low–moderate	Artefact scatter	Direct	All of this site and its values would be impacted directly by construction of the project.

AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
<b>Woodburn to Ballina</b>					
09-1-0204, 09-1-0205, 09-1-0203	Gittoes Jali	High	Artefact scatter, paint wells, ground rock, scarred tree	Direct	<p>Prior to survey and testing RMS had identified Gittoes Jali (also referred to as Lang Hill) as a potential major source of construction fill. Testing has resulted in an assessment of its high cultural significance. RMS has since undertaken extensive exploration of redesign options and further sought the opinion of RAPs to a number of possible outcomes varying from avoidance to direct impact.</p> <p>Resource extraction over an area of about 79,800 m<sup>2</sup> would be undertaken that would involve the excavation and removal of sediments. In addition, the southern part of the site would be subject to excavation to construct a road about 200 m long; this area overlaps the resource extraction area. These impacts would result in the complete destruction of about 95 per cent of this site and irreversible impact on its heritage values.</p> <p>The scarred tree is currently outside the project boundary and is not likely to be impacted. Avoiding this site was considered. However, due to a large number of other constraints nearby, this has not been deemed possible. For example, moving the project boundary to the south would result in direct impacts on an Endangered Ecological Community and a threatened species, and impacts further along the corridor on Broadwater National Park; moving to the west would likely result in impacts on wetlands, endangered fauna, and a known Aboriginal burial site further along the corridor. Undertaking resource extraction at another site would make the project substantially more expensive to build.</p> <p>RMS will continue its investigation of avoiding parts of this site, with the extent of excavation would to be reviewed in consultation with the relevant Aboriginal stakeholders.</p>
Not registered	Gittoes Jali 2	Low	Artefact scatter	No direct or indirect impact	<p>This site is located within the boundary of the project, but outside the construction footprint. Consequently, no direct or indirect impact is likely from the project.</p> <p>Fencing may be required to ensure impact from associated activities is avoided.</p>
Not registered	Gittoes Jali 3	Low	Isolated Artefact	Direct	<p>Resource extraction over an area of approximately 79,800 m<sup>2</sup> is proposed to be undertaken that would result in the excavation and removal of sediments that would result in the complete destruction of the site and irreversible impact to its heritage values.</p> <p>RMS is continuing investigation of avoiding parts of this area, which may result in avoidance of this site.</p> <p>The extent of excavation would be reviewed in consultation with the relevant Aboriginal stakeholders.</p>
13-1-0189	Site 11	Moderate–high	Artefact scatter	Direct	<p>Site 11 would be subject to excavation to construct a road about 150 m long. The result would be the removal of about 80 per cent of the site and irreversible impact on its heritage values.</p>

AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
13-1-0109	E2/2	Moderate–high	Artefact scatter, shell midden	Direct	E2/2 would be subject to excavation to construct a road about 600 m long. The result would be the removal of about 50 per cent of the site and irreversible impact on its heritage values. More significant deposits of this site exist immediately outside the project boundary to the east and west, including one intact protected portion on the sand plain, so impact on the values of the site would be low–moderate.
13-1-0038 and 13-1-0010	Cooks Hill, Broadwater	Moderate	Ceremonial ground (Bora ring)	No direct or indirect impact	The project is not likely to have direct or indirect impacts on this site.
04-4-0180	Gumi Site	Moderate–high	Scarred tree, and mounded area (to be investigated)	Direct	Currently, Gumi site is proposed to be subject to excavation to provide embanked construction of road for about 40 metres in length. The result would be the complete removal of the scarred tree and irreversible impact to its heritage values.  Attempting to avoid impact to this site by realigning the project further west is likely to result in impact to Aboriginal sites (possibly MST3, MSRT2, C21 and almost certainly Melino Scarred Tree 4, and denser shell deposits of Melino site) that would otherwise be avoided further to the north of Gumi, avoidance to this site on this basis is not therefore justified. Based on the majority of stakeholder comments, impact to Gumi site was preferred over realignment and impact to Melino Scarred Tree. It should be noted that Jali Local Aboriginal Land Council did not approve with any impact to these sites. Further investigation of the tree would be undertaken to confirm its significance.
04-4-0168	Law PAD	Low potential (significance cannot be identified for PAD)	PAD	No direct or indirect impact	This PAD is located within the boundary of the project, but outside the construction footprint, therefore potential impact via sub-surface testing was not justified. No direct or indirect impact is likely from the project.  Fencing may be required to ensure incidental impact from associated activities is avoided.
04-4-0173	Melino Site	High	Artefact scatter, shell midden	Direct	The exact extent of Melino Site has not been fully determined as the site extends beyond the project boundary. However, its extent has been estimated based on the landform on which it occurs, and the location of shell material identified at the western extent. Based on the estimated extent, Melino Site would be subject to excavation to construct a cut and embanked road about 220 m long. The result would be the removal of about 20 per cent of the site and irreversible impact on its heritage values. Deposits of this site exist immediately outside the project boundary to the west, so impact on the values of the site would be moderate.

AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
04-4-0166	Melino Scarred Tree 4	Moderate–high	Scarred tree	Indirect	This scarred tree lies within the project boundary, but would not be directly impacted by the project. Fencing would be required to ensure impacts from associated activities are avoided. There may be a low-level indirect impact on the values of the site as the site would be visible from the road during construction and operation.
Not registered	Melino Artefact Scatter	Low	Artefact scatter	Direct	Melino Artefact Scatter would be subject to fill to construct the road for approximately 20 metres in length. The result will be the complete covering of 100% of the site by the road, and irreversible impact to its heritage values
04-4-0131	MST3	High	Scarred tree	No direct or indirect impact	This scarred tree lies within the project boundary, but would not be directly impacted by the project. Fencing would be required to ensure impacts from associated activities are avoided. In addition, the project would not have an indirect impact on the tree as the scar faces away from the proposed road.
04-4-0107	C21	High	Scarred tree	Indirect	This scarred tree lies within the project boundary, but would not be directly impacted by the project. Fencing would be required to ensure impacts from associated activities are avoided. There may be a low-level indirect impact on the values of the site as the site would be visible from the road during construction and operation.
04-4-0130	MST2	High	Scarred tree	Indirect	This scarred tree lies within the project boundary, but would not be directly impacted by the project. Fencing would be required to ensure impacts from associated activities are avoided. There may be a low-level indirect impact on the values of the site as the site would be visible from the road during construction and operation.
04-4-0129	MST1	Moderate–high	Scarred tree	No direct or indirect impact	The project is not likely to have direct or indirect impacts on this site.
04-4-0175	Site 3	Low–moderate	Artefact scatter	Direct	Site 3 would be subject to excavation to construct an embanked road about 140 m long. The result would be the removal of about 50 per cent of the site and irreversible impact on its heritage values.
04-4-0178	Site 2	Low–moderate	Artefact scatter	Direct	Site 2 would be subject to excavation to construct an embanked road about 120 m long. The result would be the removal of about 90 per cent of the site and irreversible impact on almost all its heritage values.



AHIMS ID	Updated name	Overall significance	New site type(s)	Impact	Description
04-4-0132	Site 4	Low–moderate	Artefact scatter	Direct	Site 4 would be subject to excavation to construct a road cutting about 55 m long. The result would be the removal of about 70 per cent of the site and irreversible impact on its heritage values.
04-4-0179	Site 1	Low–moderate	Artefact scatter	Direct	Site 1 would be subject to excavation to construct an embanked road and culvert about 70 m long. The result would be the removal of 100 per cent of the site and irreversible impact on all its heritage value.
04-4-0170	Rudgley Scarred Tree	Moderate–high	Scarred tree	No direct or indirect impact	Rudgley Scarred Tree lies within the project boundary, but would be avoided by the proposed highway alignment. In addition, the project would not have an indirect impact on the tree as the scar faces away from the proposed road. Fencing would be required to ensure impacts from associated activities are avoided.
04-4-0169	Rudgley Site 2	Low	Artefact scatter	Direct	About 40 per cent of Rudgley Site 2 is outside the project boundary and would not be impacted. About 40 per cent is within the project boundary, but would not be impacted by the project. The remaining 20 per cent of Rudgley Site 2 would be subject to excavation to construct a road embankment about 25 m long. The result would be the removal of about 20 per cent of the site and irreversible impact on this part of its heritage values.
04-4-0167	Rudgley Site 1a and 1b	Low	Artefact scatter	Direct	About 50 per cent of Rudgley Site 1a and 1b (the 1a portion) is within the project boundary, but is not likely to be impacted by the project; fencing would be required to ensure impacts from associated activities are avoided. The remaining 50 per cent of the site (the 1b portion) would be subject to excavation to construct a road cutting about 30 m long. The result would be the removal of about 50 per cent of the site and irreversible impact on this part of its heritage values.
04-4-0171	Saezza 1	Moderate	Artefact scatter	No direct or indirect impact	Saezza 1 is within the project boundary, but would be avoided by the proposed highway alignment. Fencing would be required to ensure impacts from associated activities are avoided.
04-4-0176	Site 12	Moderate	Artefact scatter	Direct	This entire Site 12 is within the project boundary. About 10 per cent of the site is likely to be subject to excavation to construct a road embankment about 35 m long. The result would be the removal of about 10 per cent of the site and irreversible impact on this part of its heritage values.

### 12.3.3 Potential impacts on Aboriginal cultural places

#### Woolgoolga to Wells Crossing

Five Aboriginal cultural places near or within the project boundary have been identified between Woolgoolga and Wells Crossing (refer to Table 12-21). One of these places, Corindi Beach Corridors of Movement, would be traversed by the project. The project would result in a partial impact on the cultural heritage values of this place, which comprises a whole landscape and therefore cannot be entirely avoided by the project (this place is similarly impacted by the existing Pacific Highway).

#### Wells Crossing to Iluka Road

Four Aboriginal cultural places near or within the project boundary have been identified between Wells Crossing and Iluka Road (refer to Table 12-21). Two of these places would be traversed by the project:

- Tyndale and Woodford Island Corridors of Movement: Impacts on the cultural values and significance of this place are likely, as the project would pass between Woodford Island and Tyndale
- Pillar Valley Corridors of Movement: The project would result in a partial impact on the cultural heritage values of this place, which comprises a whole landscape and therefore cannot be reasonably avoided by the project.

#### Iluka Road to Woodburn

One Aboriginal cultural place near the project boundary has been identified between Iluka Road and Woodburn (refer to Table 12-21): a modified tree, which would not be impacted by the project as it is outside the project boundary.

#### Woodburn to Ballina

Eleven Aboriginal cultural places (places names have been changed due to cultural sensitivity) near or within the project boundary have been identified between Woodburn and Ballina (refer to Table 12-21). Five of these would be traversed and three would be indirectly impacted by the project:

- Place A: The project would impact on the context of the place due to excavation of the associated Gittoes Jali site, but the cultural heritage values of the place would not be removed as they relate to a story not specifically related to a physical location
- Place B: Irreversible impact on the cultural heritage values of this place would result from the project
- Place C: The project would partially diminish the cultural heritage significance of this place
- Place D: The cultural heritage values of this place would be diminished by the project
- Place E: Indirect impact of this place through increased and/or polluted water runoff during construction and/or operation of the project may occur
- Place F: The physical aspect of this place would be completely destroyed by the project resulting in irreversible impact on heritage values
- Place G: The project would irreversibly diminish the overall heritage values of the place
- Place K: The project route through this cultural place would result in irreversible impacts on the cultural heritage values, as well as moderate impacts on the connectivity between sites and places within this landscape.

Table 12-21: Impacts to Aboriginal cultural places within or near the project boundary

ID	Place name	Overall significance	Impact	Description
<b>Woolgoolga to Wells Crossing</b>				
CP1	Corindi Massacres	High	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
CP2	Burials (historic)	High	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
CP3	Corindi Beach Corridors of Movement	Moderate	Direct	Unavoidable partial impact on this landscape as encompasses whole region. The construction of the road across this boundary would result in irreversible impact on the cultural heritage values, as well as the connectivity between sites and places within this landscape.
CP4	Halfway Creek Ceremonial Site	High	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
CP5	Birrugan and Mindi Spiritual Sites	High	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
<b>Wells Crossing to Iluka Road</b>				
CP5	Birrugan and Mindi Spiritual Sites	High	No direct or indirect impact	No direct or indirect impacts to the cultural heritage values of this place is likely from the project.
CP6	Tyndale and Woodford Island Corridors of Movement	Moderate	Direct	This area would be partially impacted by excavation for construction of the road. The cultural heritage values and significance of this place would be diminished by the impact.
CP7	Pillar Valley Men's and Women's Sites	High	No direct or indirect impact	No direct or indirect impacts to the cultural heritage values of this place is likely from the project.
CP8	Pillar Valley Corridors of Movement	Moderate	Direct	Unavoidable partial impact on the landscape. The construction of the road across this corridor would result in irreversible impact to the cultural heritage values of this place.
<b>Iluka Road to Woodburn</b>				
CP9	Withheld	High	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
<b>Woodburn to Ballina</b>				
CP10	Place A	Moderate	Indirect	This is an intangible place, but is associated with an artefact at the Gittoes Jali site. The Gittoes Jali site would be almost entirely impacted, but the artefact itself would be recovered and preserved. Subsequently, the context of the place would be removed through excavation for resource extraction (see Gittoes Jali), but the cultural heritage values of the place would not be removed, as they relate to a story not specifically related to a physical location.

ID	Place name	Overall significance	Impact	Description
CP11	Place B	Moderate	Direct	Unavoidable partial impact on the landscape. The construction of the road across this corridor would result in irreversible impact to the cultural heritage values of this place.
CP12	Place C	High	Indeterminate	Through consultation, it appears that this place did not have a specific focal point but probably spread across a large area on and around Cooks Hill. Thus, it is difficult to determine the extent of impact on this place, due to its diffuse and indeterminate extent. Impacts of the project would partially diminish the cultural heritage significance of the place.
CP13	Place D	High	Direct	Efforts have been made to reduce the impact on this general area, including an intact portion of E2/2. This place occurs over a large, indeterminate area, though linked to E2/2. It would likely be partially impacted by excavation for construction of the road; the cultural heritage values and significance of this place would be diminished by the impact.
CP14	Place E	Moderate	Indirect	This place is within the project boundary, but would be avoided by the proposed highway alignment. However, it may be indirectly impacted by increased and/or polluted water runoff during construction and/or operation of the project.
CP15	Place F	Low–moderate	Direct	Place F would be subject to excavation to construct a cut and embanked road about 110 m long. The result would be the removal of about 80 per cent of the place, which would completely destroy the physical aspect of this place and irreversible impact on its heritage values.
CP16	Place G	Low–moderate	Direct	The southern of the two stands of clustering bamboo associated with Chinese gambling would be at least partially removed for excavation to construct an embanked road about 35 m long. The result would be the removal of about 50 per cent of the overall place and irreversible diminishment of the overall heritage values of the place.
CP17	Place H	Moderate–high	No direct or indirect impact	This intangible place is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
CP18	Place I	Moderate	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
CP19	Place J	Moderate	No direct or indirect impact	This area is outside the project boundary and is unlikely to be directly or indirectly impacted by the project.
CP20	Place K	Moderate–high	Direct	Unavoidable partial impact on this landscape as encompasses whole region. The construction of the road across this boundary would result in irreversible impact on the cultural heritage values, as well as the connectivity between sites and places within this landscape.

### 12.3.4 Cumulative impacts

The nature of the cultural heritage resources identified within the project boundary can be compared with other studies and sites in the region to provide a framework for assessing potential cumulative impacts. An assessment of cumulative impacts on a local and regional scale helps to develop management strategies for the project, and to determine the significance of the impacts of the project in the region generally.

#### Project alone

In terms of the project, 54 Aboriginal heritage sites have been identified within or near the project boundary. Of these, 38 sites and one PAD would be directly or indirectly impacted by the project, and the remaining 17 would be avoided by project construction. These 38 sites (and one PAD), which would be directly or indirectly impacted by the project, have been assessed as having a low to high level of significance within the local context.

Twenty Aboriginal cultural places have also been identified within or near the project boundary, with 11 being subject to some level of impact.

Around 63 kilometres, 40 per cent, of the project boundary involves widening the existing road corridor, and so carries lesser risk of additional impact to sites that are not already affected by former road construction.

#### Regional scale

Around 18 per cent of the project boundary has been extensively impacted by previous earthmoving works and construction (predominantly the current and previous alignments of the Pacific Highway), such that there is no potential for Aboriginal heritage evidence to survive in those portions of the project boundary. Outside these areas, activities such as sand-quarrying, cane farming and logging over long periods, have disturbed much of the project so that many non-robust archaeological site types, such as scarred trees, bora rings, shell deposit and burials have been destroyed, and more robust site types (such as artefact sites) have lost much of their integrity. Conversely, because of this disturbance, the potential impact of the project to Aboriginal cultural heritage is smaller, as most of the project boundary has already been at least moderately disturbed.

Given the relatively low number of sites and places that would be directly impacted by the project (in comparison to the number of sites and areas of potential sites existing in the region), and the knowledge gained through consultation and investigation, it is considered that the regional loss of cultural heritage resources due to the project would be low. However, there is likely to be a moderate-high loss in project sections north of Woodburn where 17 sites (encompassing 43 per cent of the 38 identified impacted sites) and eight cultural places (72 per cent of the 11 impacted cultural sites) would be directly or indirectly impacted by the project.

Through route design and selection RMS avoided impact to more significant Aboriginal cultural places and archaeological sites, such as burials, carved trees and ceremonial sites, thus leading to reduced cumulative impact to the Aboriginal values of the region.

#### Pacific Highway Upgrade Program

The project is part of the Pacific Highway Upgrade Program, being implemented by the RMS to provide continuous dual carriageway on the Pacific Highway between Hexham 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.

An accurate cumulative impact assessment of the project is hindered due to lack of a comparative dataset, as only a very small proportion of NSW has been the subject of comprehensive archaeological survey. The gaps in archaeological survey across the project region mean that the AHIMS register does not provide a complete baseline for a comprehensive cumulative assessment.

Given the nature of Aboriginal land use patterns and tribal boundaries, and an incomplete dataset, a quantitative statement regarding the potential impacts of the project in the context of the Pacific Highway Upgrade Program as a whole cannot be made.



However it can be noted that the majority of the archaeological sites are common (eg small flaked-stone artefact scatters) within the region the existing Pacific Highway passes through, with few exceptional raw materials or artefact types. Many of these site types and associated landforms still exist un-impacted (and likely unrecorded) within the region. This notion is also supported by the large number of landform based PADs located within (and also extend outside) the Pacific Highway corridor.

Additionally, investigations for the Pacific Highway Upgrade Program often form the largest investigations in the regions that they traverse, and so add greatly to our understanding of archaeology and Aboriginal occupation in these regions, and thus provide a positive legacy for these regions. However, the permanency of the Pacific Highway is contrasted with the less stable nature of heritage and will unfortunately and inevitably lead to some loss of cultural heritage values of the region.

The project, including the management measures outlined in Section 12.4, has been assessed as having a moderate impact on Aboriginal heritage in the local context. Further, the recorded sites that would be impacted have been assessed as being of moderate significance in a regional context. Therefore, it is considered that the project 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.



**Photo 8: View towards Cooks Hill, Broadwater**

## 12.4 Management of impacts

Measures to manage and address the potential impacts of the project on Aboriginal heritage have been developed in consultation with Aboriginal stakeholders, and in keeping with the requirements of the NSW *National Parks and Wildlife Act 1974* and the *Environmental Planning and Assessment Act 1979*.

### 12.4.1 Aboriginal heritage management plan

Prior to construction, an Aboriginal heritage management plan would be prepared in consultation with the registered Aboriginal stakeholder groups. The plan would provide measures to manage impacts on known Aboriginal heritage evidence as identified in this assessment, and would include the measures listed in Table 12-22.

### 12.4.2 Effectiveness of mitigation

As required by the Director-General's requirements, being the management measures listed in Table 12-22 below will be effective in avoiding impact, consistent with both the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010b) and the Draft Guidelines for Aboriginal Cultural Heritage impact assessment and Community Consultation (DEC, 2005a). Where avoidance is not possible, these measures will be effective in mitigating impacts to sites and places. These mitigation measures are a summary of those identified in Working paper – Aboriginal cultural assessment.

Management measures (listed in Table 12-22) were developed during fieldwork in consultation with nominated Aboriginal site officers, during AFG meetings, and the final draft Working paper – Aboriginal cultural assessment (including all assessment and recommendations) was sent to all registered Aboriginal stakeholder groups, and discussed at AFG meetings.

To ensure the effectiveness of the mitigation proposed and to be adaptable to any finds during the salvage that are significantly different to those in this Chapter, the salvage excavation methodology and quotas proposed in Table 12-22 must be reviewed while the salvage is underway, by at least the time 50 per cent of the quota has been reached. This should involve a discussion with the contracted archaeologist, and relevant registered Aboriginal parties. Any increase or decrease to the quota, or change of methodology proposed must be approved by the RMS Senior Environmental Environment Specialist Heritage, or the OEH. If no change to the quota is proposed, then the salvage may be completed. At any time (including after the review mentioned above), if significantly different findings are made, the quotas/methodology should be reviewed as mentioned above.

The management measures have been based on the significance assessment (described in Working paper – Aboriginal cultural assessment) and the current expected impact to sites and places (as described in this Chapter and further quantified in Table 12-22). Should impacts to sites within the boundary of the project change by more than 10 per cent, these management recommendations should be reviewed, as they may need to be adjusted according to the nature of the increase or reduction of impact. For example, an increase or decrease in impact to a site may warrant more or less of the site to be salvaged, or may warrant the nature of the mitigation to be altered more significantly. The appropriateness of changes to salvage quotas or management recommendations would be done on a site-by-site basis, taking account of the specific changes to the impact, and would be done in consultation with registered Aboriginal stakeholder groups.

**Table 12-22: Management requirement for Aboriginal archaeological sites and cultural places**

Issue	Mitigation ID no	Management measure	Timing	Relevant section
General impacts to Aboriginal archaeological sites	AH1	Where artefact concentrations per square metre (over all depths) encountered are 50 per cent greater than previously encountered, additional salvage excavation using hand tools would be undertaken. If these artefact concentrations are encountered during machine excavation, then machine excavation would stop within 20 metres of the artefact concentrations. Up to, but no more than, an additional six square metres would be excavated in this situation at that site, unless rare features are encountered, in which case discussions with the registered Aboriginal stakeholders and NSW Office of Environment and Heritage would be undertaken to agree on a suitable approach.	Pre-construction and construction	All
	AH2	For areas avoided by construction, exclusion zones would be put in place to ensure archaeological deposits are not incidentally damaged. These would be fenced with parawebbing or some other similar fencing that would exclude entry by people or plant to avoid incidental impacts on the site.	Construction	All
	AH3	Salvage excavation and systematic collection of previously recorded artefacts that would be impacted by the project, along with any other impacted sites that are identified prior to or during construction, to be undertaken by qualified archaeologists in conjunction with the registered Aboriginal stakeholders <ul style="list-style-type: none"> <li>The location of excavations would be within the area of the site to be impacted, and would be decided upon in the field by a qualified archaeologist and registered Aboriginal stakeholders</li> <li>If any datable material is located, a minimum of two samples (per archaeological site) would be subject to either radiocarbon, standard or accelerated mass spectrometry dating</li> <li>For all salvaged material, suitable storage would be agreed upon with the registered Aboriginal stakeholders prior to commencing salvage in those areas.</li> </ul>	Construction	All
	AH4	Curation of any collected heritage evidence in an appropriate manner, as determined in consultation with the registered Aboriginal stakeholders and the NSW Office of Environment and Heritage and in accordance with the National Parks and Wildlife Act 1974, details of the material's nature and context would also be provided.	Construction and post-construction	All
	AH5	Preparation of a detailed technical report documenting the results of the salvage excavations and the archaeological material analysis. Development of a summary report (to be made public) to accompany the technical report.	Construction and post-construction	All
	AH6	Lodgement of site records with NSW Office of Environment and Heritage for any previously unrecorded Aboriginal heritage evidence that is identified and for any evidence that is salvaged.	Construction and post-construction	All

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Human skeletal remains	AH7	<p>In the event that the project reveals possible human skeletal remains, the following procedure would be followed (in accordance with RMS' Standard Management Procedures: Unexpected Archaeological Finds 2011:</p> <ul style="list-style-type: none"> <li>• As soon as remains are exposed, all construction would halt at that location immediately and the on-site supervisor would be immediately notified to allow assessment and management</li> <li>• The on-site supervisor would notify the Environmental Representative, RMS Project Manager and RMS Senior Environmental Officer. Police, EPA (Environment Line on 131 555) and the Heritage Branch ((02) 9873 8500) would also be contacted</li> <li>• A physical or forensic anthropologist would inspect the remains in situ (organised by the police unless otherwise directed by the police) and make a determination of ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or forensic)</li> <li>• Should the remains be identified as a forensic matter (ie crime scene), liaison with the police would be undertaken</li> <li>• Should the remains be identified as Aboriginal, liaison with RMS, the EPA, the Department of Planning and Infrastructure (DP&amp;I) and registered Aboriginal stakeholders would be undertaken</li> <li>• Should the remains be identified as non-Aboriginal (historical), liaison with RMS, the Heritage Branch and the DP&amp;I would be undertaken</li> <li>• No construction is to recommence in the area until appropriate clearances have been given.</li> </ul>	Construction	All
Aboriginal stakeholder consultation	AH8	Aboriginal focus group consultation (through letters or meetings), would occur at least once every six months, prior to and during construction (unless management actions have been completed).	Pre-construction and construction	All
	AH9	Further consultation with the registered Aboriginal stakeholders in relation to the project to provide them with the opportunity to be involved in the ongoing management of the Aboriginal heritage resource within the project boundary.	Construction and post-construction	All
Awareness of Aboriginal heritage	AH10	Aboriginal cultural awareness training for all relevant staff and contractors prior to commencing work on-site. This could include information about Aboriginal culture and history of the locality, nature of the identified and potential Aboriginal heritage evidence and cultural values within the project boundary, heritage management measures and protocols, and legal obligations. This service would be provided by suitably trained personnel from local Aboriginal organisations represented by the relevant registered stakeholders for that area.	Pre-construction and construction	All
	AH11	Appropriate precautionary measures to avoid identified heritage evidence. This would include informing relevant staff and contractors of the nature and location of the items and the need to avoid impacts, and temporary protective fencing and signage.	Pre-construction and construction	All

Issue	Mitigation ID no	Management measure	Timing	Relevant section
	AH12	Prepare an Aboriginal heritage interpretation strategy as part of the Aboriginal heritage management plan. This will identify how archaeological and cultural information can be sustainably communicated to different audiences, including the local Aboriginal community, the local general public and the broader group of people interested in Aboriginal heritage as part of the North Coast's history. Measures would include opportunities for promoting salvage and investigation, the recovery of information, permanent installations and ways of marking the presence of Aboriginal people in the landscape, including, signage, interpretation products such as written materials, and through place naming.	Pre-construction and construction	All
	AH13	Regular review of the Aboriginal heritage management plan to establish that it is functioning to the standard required.	Pre-construction and construction	All
	AH14	Compliance auditing of the cultural heritage management measures would be undertaken every three months during construction.	Construction	All
Ancillary facilities	AH15	At all locations proposed for ancillary facilities that are situated outside the current boundary of the project: <ul style="list-style-type: none"> <li>Before the commencement of the use of the ancillary facilities area for the project, field survey would be undertaken by a suitably qualified and experienced heritage consultant. Any Aboriginal heritage items identified would be assessed for their level of significance, and appropriate recommendations presented to RMS for avoidance, harm minimisation and / or impact mitigation.</li> <li>Any investigation should be in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (OEH 2010), and have regard to the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (DECCW 2010b).</li> </ul>	Pre-construction	All
Impacts on WWC39	AH16	Salvage excavation would be undertaken within the portion of the site to be impacted. Each excavation would be undertaken in 50 mm spits to sterile base deposits. <ul style="list-style-type: none"> <li>The WWC39 (22-1-0343) site, 80 m<sup>2</sup> would be excavated by machine (a mechanical sieve and an excavator (about 900 mm bucket)).</li> </ul> <p>Around 40% of the site would be avoided by construction, exclusion zones would be put in place to ensure the remaining archaeological deposits are not incidentally damaged. These would be fenced with parawebbing or other similar fencing that would exclude entry by people or plant to avoid incidental impacts on the site.</p>	Construction	1
Impacts on WWC46	AH17	Salvage excavation would be undertaken within the portion of the site to be impacted. Each excavation would be undertaken in 50 mm spits to sterile base deposits. <ul style="list-style-type: none"> <li>The WWC46 (22-1-0342) site, 40 m<sup>2</sup> would be excavated by machine (a mechanical sieve and an excavator (about 900 mm bucket)).</li> </ul>	Construction	1



Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on WWC Dirty Creek 1	AH18	<p>Due to restricted property access the WWC Dirty Creek 1 (22-1-0403) site has only been subject to field survey. Therefore the following approach would be followed:</p> <ul style="list-style-type: none"> <li>Subsurface testing: The methodology outlined in the Working paper – Aboriginal Cultural Heritage Assessment: Woolgoolga to Wells Crossing Section Volume 2 would be applied if identified as being required</li> <li>Salvage would be undertaken if the requirement is identified during subsurface testing. The triggers for subsurface testing would be: <ul style="list-style-type: none"> <li>More than 10 but less than 50 artefacts – a minimum of 10 m<sup>2</sup> to be excavated by machine</li> <li>More than 50 but less than 100 artefacts – a minimum of 30 m<sup>2</sup> to be excavated by machine</li> <li>More than 100 but less than 300 artefacts – a minimum of 60 m<sup>2</sup> to be excavated by machine and hand excavation. If multiple site components are identified or a higher number of artefacts (300+) are identified within the area, these salvage measures may require revision</li> </ul> </li> <li>All salvage quotas and revisions to salvage quotas would be approved by RMS' Senior Environmental Officer (Heritage), or the Office of Environment and Heritage</li> <li>All machine excavation would be undertaken with a mechanical sieve and an excavator (900 mm bucket)</li> <li>Each excavation would be undertaken in 50 mm spits to sterile base deposits.</li> </ul>	Construction	1
Impacts on Tyndale 2	AH19	<p>Salvage excavation would be undertaken within the portion of the site to be impacted. Each excavation would be undertaken in 50 mm spits to sterile base deposits.</p> <ul style="list-style-type: none"> <li>The Tyndale 2 (13-1-0115) site, 20 m<sup>2</sup> would be excavated by machine (a mechanical sieve and an excavator (900 mm or 1100 mm bucket)).</li> </ul>	Construction	4
Impacts on IR2W4	AH20	<p>Salvage excavation would be undertaken within the portion of the site to be impacted. Each excavation would be undertaken in 50 mm spits to sterile base deposits.</p> <ul style="list-style-type: none"> <li>The IR2W4 (13-1-0115) site, 60 m<sup>2</sup> would be excavated by machine (a mechanical sieve and an excavator (900 mm bucket)).</li> </ul>	Construction	8

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on Gittoes Jali	AH21	<p>For the Gittoes Jali (09-1-0204, 09-1-0205, 09-1-0203) site:</p> <ul style="list-style-type: none"> <li>Where possible, impacts on the Gittoes Jali site would be reduced or avoided. To avoid impact, avoided areas would be fenced to ensure they are protected. If avoidance is not an option, then extensive salvage is recommended</li> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment from the site to 0.6 m depth that is proposed to be used outside the boundary of the site would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas</li> <li>250 m<sup>2</sup> would be excavated by machine, which would be undertaken with a mechanical sieve and excavator (900 mm bucket). Hand excavation of around 130 m<sup>2</sup> would be undertaken in a controlled manner using trowels and / or shovels and 5 mm hand or mechanical sieves. This would be undertaken using an open excavation methodology to explore the features (such as knapping events, caches, etc) initially detected during subsurface testing (and any new features detected). Intra-site variability should be explored to attempt to detect activity zones within the site.</li> </ul> <p>Paint wells and grinding rock:</p> <ul style="list-style-type: none"> <li>Residue analysis would be undertaken to determine if any pigment is found within the wells. This would be undertaken by a suitably qualified consultant</li> <li>The location of these paint wells would be accurately plotted and drawn</li> <li>If the paint wells cannot be avoided, they would be relocated; this would require consultation with the registered Aboriginal stakeholders.</li> </ul> <p>Geomorphology assessment:</p> <ul style="list-style-type: none"> <li>A geomorphology assessment would be undertaken that encompasses the Gittoes Jali, E2/2, Site 11, and Melino sites. The assessment would be non-invasive, but could use observations of the machine salvage excavation.</li> </ul> <p>Material source:</p> <ul style="list-style-type: none"> <li>The extent of excavation at Lang Hill (encompassing the Gittoes Jali sites) would be reviewed in consultation with relevant Aboriginal stakeholders and consideration of urban design guidelines.</li> </ul>	Pre-construction and construction	8

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on E2/2	AH22	<p>For the E2/2 (13-1-01-09) site:</p> <ul style="list-style-type: none"> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment from the site to 1.5 m depth that is proposed to be used outside the boundary of the sites would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas</li> </ul> <p>Shell Midden</p> <ul style="list-style-type: none"> <li>Hand excavation of 10 m<sup>2</sup> (near the fence line) of the midden that would be impacted to a total depth of 500 mm. This would be excavated in a controlled manner using trowels and 3 mm and 5 mm nested sieves</li> <li>It is recommended that a sequence of dates (radiocarbon or AMS) be collected from the hand excavation</li> <li>All shell recovered would be subject to analysis including minimum number of individuals (MNI) and weight (g). An analysis of the number of individual specimens (NISP) may also be undertaken if deemed appropriate.</li> </ul> <p>Area surrounding the shell midden</p> <ul style="list-style-type: none"> <li>80 m<sup>2</sup> would be excavated by machine (a mechanical sieve and an excavator (900 mm bucket))</li> </ul> <p>Overburden</p> <ul style="list-style-type: none"> <li>All overburden would be removed and sieved for cultural materials, to ensure any cultural material located within the overburden is collected.</li> </ul> <p>Geomorphology assessment</p> <ul style="list-style-type: none"> <li>A geomorphology assessment would be undertaken that encompasses the Gittoes Jali, E2/2, Site 11, and Melino sites. The assessment would be non-invasive, but could use observations of the machine salvage excavation.</li> </ul>	Pre-construction and construction	9

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on Site 11	AH23	<p>For Site 11 (13-1-0189):</p> <ul style="list-style-type: none"> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment from the sites to 1.5 m depth that are proposed to be used outside the boundary of the sites would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas</li> <li>A minimum of 100 m<sup>2</sup> would be excavated by machine, which would be undertaken with a mechanical sieve and excavator (900 mm bucket). A minimum of 20 m<sup>2</sup> would be excavated by hand within the vicinity of the mechanical transect where a knapping floor was identified (543354E/6790489N). This would be excavated in a controlled manner using trowels and 3 mm and 5 mm nested sieves</li> </ul> <p>Geomorphology assessment</p> <p>A geomorphology assessment would be undertaken that encompasses the Gittoes Jali, E2/2, Site 11, and Melino sites. The assessment would be non-invasive, but could use observations of the machine salvage excavation.</p>	Pre-construction and construction	9

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on Melino	AH24	<p>For the Melino (04-4-0173) site:</p> <ul style="list-style-type: none"> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment from the sites to 1.5 m depth that are proposed to be used outside the boundary of the sites would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas</li> <li>An artefact scatter including a discrete knapping floor was located on the top of the rise. 30 m<sup>2</sup> would be excavated by machine. This would be undertaken with a mechanical sieve and excavator (900 mm bucket). Unless it can be avoided, directly adjacent to the original 1 m x 1 m Test Pit (542652E/6702777N), two 2 m x 1 m areas would require hand excavation. These would be excavated in a controlled manner using trowels and 5 mm sieve</li> </ul> <p>Shell Midden</p> <ul style="list-style-type: none"> <li>Hand excavation of 20 m<sup>2</sup> of the midden that would be impacted to a total depth of 1 m (this would be excavated in a controlled manner using trowels and 3 mm and 5 mm nested sieves)</li> <li>It is recommended that a sequence of dates (radiocarbon or AMS) be collected from the hand excavation</li> <li>All shell recovered would be subject to analysis including minimum number of individuals (MNI) and weight (g). An analysis of the number of individual specimens (NISP) may also be undertaken if deemed appropriate.</li> </ul> <p>Area surrounding the shell midden</p> <ul style="list-style-type: none"> <li>100 m<sup>2</sup> would be excavated by machine (a mechanical sieve and an excavator (900 mm bucket))</li> </ul> <p>Geomorphology assessment</p> <ul style="list-style-type: none"> <li>A geomorphology assessment would be undertaken that encompasses the Gittoes Jali, E2/2, Site 11, and Melino sites. The assessment would be non-invasive, but could use observations of the machine salvage excavation.</li> </ul>	Pre-construction and construction	10



Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on Site 1	AH25	<p>For Site 1 (04-4-0179):</p> <ul style="list-style-type: none"> <li>Further mechanical excavation would be undertaken in order to reach and record the depth of the archaeological deposit</li> <li>10 m<sup>2</sup> to be excavated by machine. This would be undertaken with a mechanical sieve and an excavator (900 mm bucket). If constraints such as the water table are encountered, measures would be taken to safely stabilise and then proceed with deeper excavation</li> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment to 1 m depth from the site that is proposed to be used outside the boundary of the site would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas.</li> </ul>	Pre-construction and construction	10
Impacts on Site 2	AH26	<p>For Site 2 (04-4-0178):</p> <ul style="list-style-type: none"> <li>Further mechanical excavation would be undertaken in order to reach and record the depth of the archaeological deposit</li> <li>30 m<sup>2</sup> to be excavated by machine. This would be undertaken with a mechanical sieve and an excavator (900 mm bucket). If constraints such as the water table are encountered, measures would be taken to safely stabilise and then proceed with deeper excavation</li> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment to 1.5 m depth from the site that is proposed to be used outside the boundary of the site would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas.</li> </ul> <p>Excavation at Site 2 would be undertaken at a time of the year when the water table is at its lowest, to ensure maximum depth can be reached with a machine.</p>	Pre-construction and construction	10
Impacts on Site 3	AH27	<p>For Site 3 (04-4-0175):</p> <ul style="list-style-type: none"> <li>Further mechanical excavation would be undertaken in order to reach and record the depth of the archaeological deposit</li> <li>40 m<sup>2</sup> to be excavated by machine. This would be undertaken with a mechanical sieve and an excavator (900 mm bucket). If constraints such as the water table are encountered, measures would be taken to safely stabilise and then proceed with deeper excavation</li> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment to 1.5 m depth from the site that is proposed to be used outside the boundary of the site would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas.</li> </ul> <p>Excavation at Site 3 would be undertaken at a time of the year when the water table is at its lowest, to ensure maximum depth can be reached with a machine.</p>	Pre-construction and construction	10

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on Site 4	AH28	<p>For Site 4 (04-04-0132):</p> <ul style="list-style-type: none"> <li>Further mechanical excavation would be undertaken in order to reach and record the depth of the archaeological deposit</li> <li>20 m<sup>2</sup> to be excavated by machine. This would be undertaken with a mechanical sieve and an excavator (900 mm bucket). If constraints such as the water table are encountered, measures would be taken to safely stabilise and then proceed with deeper excavation</li> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment to 0.5 m depth from the site that is proposed to be used outside the boundary of the site would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas.</li> </ul>	Pre-construction and construction	10
Impacts on Site 12	AH29	<p>For Site 12 (04-4-0176):</p> <ul style="list-style-type: none"> <li>Further mechanical excavation would be undertaken in order to reach and record the depth of the archaeological deposit</li> <li>10 m<sup>2</sup> to be excavated by machine. This would be undertaken with a mechanical sieve and an excavator (900 mm bucket). If constraints such as the water table are encountered, measures would be taken to safely stabilise and then proceed with deeper excavation</li> <li>Salvage excavation would be undertaken in 50 mm spits to sterile base deposits</li> <li>Any sediment to 1.2 m depth from the site that is proposed to be used outside the boundary of the site would be sieved to remove any cultural material to ensure new sites are not recorded in relocation areas.</li> </ul>	Pre-construction and construction	10, 11
Impacts on the Gumi Scarred Tree	AH30	<p>For the Gumi site (04-4-0180):</p> <ul style="list-style-type: none"> <li>The Gumi scarred tree would be removed and the trunk would be relocated to an area agreed to with the registered stakeholder groups and Roads and Maritime Services – an arborist would be consulted to guide in the removal of the tree</li> <li>The location would be visually protected during the construction and operation of the road with culturally sensitive plantings or by existing vegetation</li> <li>Access to the tree would be provided for local Aboriginal people to enable them to be able to use the tree as a teaching site.</li> </ul>	Pre-construction and construction	10

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on the Melino Scarred Tree	AH31	<p>For the Melino Scarred Tree 4 (04-4-0166) site:</p> <ul style="list-style-type: none"> <li>Prior to construction a 15 m exclusion zone would be established around the scarred tree and maintained until construction activities have ceased. The exclusion zone would be fenced using chain wire or plastic mesh and star pickets. 'Do Not Enter' signage would be attached to the fencing. A representative of the Local Aboriginal Land Council would be present during establishment of the fencing</li> </ul> <p>An arborist would be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</p>	Pre-construction and construction	10
Impacts on the MST3 Scarred Tree	AH32	<p>For the MST3 (04-4-0131) site:</p> <ul style="list-style-type: none"> <li>Prior to construction a 15 m exclusion zone would be established around the scarred trees and maintained until construction activities have ceased. The exclusion zone would be fenced using chain wire or plastic mesh and star pickets. 'Do Not Enter' signage would be attached to the fencing. A representative of the Local Aboriginal Land Council would be present during establishment of the fencing</li> </ul> <p>An arborist would be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</p>	Pre-construction and construction	10
Impacts on the C21 Scarred Tree	AH33	<p>For the C21 (04-4-0107) site:</p> <ul style="list-style-type: none"> <li>Prior to construction a 15 m exclusion zone would be established around the scarred trees and maintained until construction activities have ceased. The exclusion zone would be fenced using chain wire or plastic mesh and star pickets. 'Do Not Enter' signage would be attached to the fencing. A representative of the Local Aboriginal Land Council would be present during establishment of the fencing</li> </ul> <p>An arborist would be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</p>	Pre-construction and construction	10
Impacts on the MSRT2 Scarred Tree	AH34	<p>For the MSRT2 (04-4-0130) site:</p> <ul style="list-style-type: none"> <li>Prior to construction a 15 m exclusion zone would be established around the scarred trees and maintained until construction activities have ceased. The exclusion zone would be fenced using chain wire or plastic mesh and star pickets. 'Do Not Enter' signage would be attached to the fencing. A representative of the Local Aboriginal Land Council would be present during establishment of the fencing</li> </ul> <p>An arborist would be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</p>	Pre-construction and construction	10

Issue	Mitigation ID no	Management measure	Timing	Relevant section
Impacts on the Rudgley Scarred Tree	AH35	<p>For the Rudgley Scarred Tree (04-4-0170) site:</p> <ul style="list-style-type: none"> <li>Prior to construction a 15 m exclusion zone would be established around the scarred trees and maintained until construction activities have ceased. The exclusion zone would be fenced using chain wire or plastic mesh and star pickets. 'Do Not Enter' signage would be attached to the fencing. A representative of the Local Aboriginal Land Council would be present during establishment of the fencing</li> <li>An arborist would be consulted to develop an ongoing management strategy to ensure the preservation and health of the tree.</li> </ul>	Pre-construction and construction	10
Impacts to Corridors of Movement	AH36	<ul style="list-style-type: none"> <li>Aboriginal culture and heritage awareness induction workshops would be undertaken by all construction staff</li> <li>Educational and cultural signage would be placed at viable locations along the highway in this locality, potentially describing the history of Aboriginal occupation of the area. At a minimum, signage would include acknowledging the area as the traditional lands of the Gumbaynggir peoples. Any signage would be subject to approval by the registered Aboriginal stakeholders.</li> </ul>	Pre-construction, during, and post-construction	1
	AH37	<p>Tyndale and Woodford Island Corridors of Movement:</p> <ul style="list-style-type: none"> <li>Pedestrian access across the project would be provided if reasonable and feasible within the existing local road network, to maintain the connectivity of this corridor of movement.</li> </ul>	Pre-construction, during, and post-construction	3
	AH38	<p>Pillar Valley Corridors of Movement:</p> <ul style="list-style-type: none"> <li>Pedestrian access across the project would be provided if reasonable and feasible within the existing local road network, to maintain the connectivity of this corridor of movement.</li> </ul>	Pre-construction, during, and post-construction	3
Direct impact on culturally significant places	AH39	<p>Place B</p> <ul style="list-style-type: none"> <li>To maintain connectivity, access would be provided across the project area, from the end of Richmond Road, Pine Tree Road, or Fischer Street to Broadwater National Park during construction and operation, in consultation with the traditional owners</li> <li>Pedestrian access within the project boundary would be provided where feasible and reasonable from the eastern side of the project to the western side of Broadwater National Park. A connection from the existing Pacific Highway to Broadwater National Park along Eversons Lane would be considered, in consultation with traditional owners and relevant land owners.</li> </ul>	Pre-construction, during, and post-construction	9, 10

Issue	Mitigation ID no	Management measure	Timing	Relevant section
	AH40	Place D <ul style="list-style-type: none"> <li>Signage acknowledging the traditional owners of the area and providing information on culture would be installed within the highway corridor between Woodburn and Wardell as agreed with the registered stakeholder group.</li> </ul>	Pre-construction, during, and post-construction	9, 10
	AH41	Place K <ul style="list-style-type: none"> <li>To gather further information on the broader landscape, it is recommended that a geomorphological assessment within the extent of Place K be undertaken, including the geomorphological setting of the archaeological sites within this landscape, and how the landscape has formed and changed over the last 40,000 years. This would take into account both the cultural and scientific significance of the place.</li> <li>A report would be produced by a geomorphologist in conjunction with an archaeologist / anthropologist.</li> </ul>	Pre-construction, during, and post-construction	11
Indirect impact on culturally significant places	AH42	Place E <ul style="list-style-type: none"> <li>This place would be fenced prior to and during construction to avoid incidental impact on it.</li> <li>Surface water runoff from the construction site or from the highway pavement during operation of the project would be prevented from directly entering into Place E.</li> </ul>	Pre-construction, during, and post-construction	9
Indeterminate impact on culturally significant places	AH43	Place C <ul style="list-style-type: none"> <li>An education package would be prepared to pass information associated with this area onto future generations. This would include at a minimum a printed document detailing the story of the occupation of this area and the ensuing massacre. Further research and interviews would be undertaken for this purpose. Where possible, oral recordings and/or video footage would also be compiled into the package</li> <li>Caution would be undertaken in and around the project in this area with regard to potential human remains.</li> </ul>	Pre-construction, during, and post-construction	9, 10



## References

- Australian ICOMOS 1999, *The Burra Charter: The Australia ICOMOS charter for places of cultural significance*, Accessed online at [www.australia.icomos.org/publications/charters/](http://www.australia.icomos.org/publications/charters/).
- Burke, H 2007, *The History and Archaeology of Corindi Lake*, Unpublished report to the Yarrawarra Aboriginal Corporation and the University of New England, Armidale, Australia.
- Cane, S 1988, *The Red Rock Mob: Aboriginal Relationships with the Red Rock – Corindi Area*, Unpublished report to Grafton Lands Office, Grafton, Australia.
- Collins, J 2005, *Upgrading the Pacific Highway Woodburn to Ballina Route Selection Study: Aboriginal Heritage Assessment*, Unpublished report to Hyder Consulting, North Sydney, Australia.
- Collins, J 2007, *Pacific Highway Upgrade Sapphire to Woolgoolga: Working paper Aboriginal Heritage Assessment*, Unpublished report for Connell Wagner Pty Ltd, Neutral Bay, Australia.
- Collins, J 2008, *Iluka Road to Woodburn: Aboriginal Heritage Assessment – Working paper*, Unpublished report for Connell Wagner Pty Ltd, Neutral Bay, Australia.
- Crowley, T 1979, *The Middle Clarence Dialects of the Bandjalang*, Australian Institute of Aboriginal Studies, Canberra, Australia.
- Crowley, T 1997, 'Chipping Away at the Past: A Northern NSW perspective', in McConville, P and Evans, N (Eds) *Archaeology and Linguistics*, Oxford University Press, pp 275-296.
- Department of Environment and Conservation (DEC) 2005a, *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*, NSW Government, Sydney, Australia.
- Department of Environment and Conservation (DEC) 2005b, *Interim Community Consultation Requirements for Applicants*, NSW Government, Sydney, Australia, Accessed online, <http://www.environment.nsw.gov.au/resources/cultureheritage/interimConsultationGuidelines.pdf>.
- Department of Environment, Climate Change, and Water (DECCW) 2010a, *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (ACHCRP)*, NSW Government, Sydney, Australia, Accessed online <http://www.alc.org.au/media/43239/1004%20deccw%20community%20consultation%20requirements.pdf>.
- Department of Environment, Climate Change, and Water (DECCW) 2010b, *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*, NSW Government, Sydney, Australia, Accessed online <http://www.environment.nsw.gov.au>.
- Hall, R and Lomax, K 1993, *An archaeological assessment of the Grafton management area*, Unpublished report for Forestry Commission of New South Wales, West Pennant Hills, Australia.
- Hoddinott, W C 1978, 'The Languages and Myth of the New England Area', in *Records of Times Past*, Ed: McBryde, I, Canberra: Australian Institute of Aboriginal Studies, pp 52-64.
- Kuskie, P 2008, *Woolgoolga to Wells Crossing: Aboriginal Heritage Report – Working paper*, Unpublished report to GHD Pty Ltd and RTA, Sydney, Australia.
- Murphy, D 1996, *Halfway Creek Aboriginal Heritage: Report from Yarrawarra Aboriginal Corporation, proposed Highway Upgrading*, Unpublished report to NSW NPWS, Sydney, Australia.
- Navin Officer 2009, *Wells Crossing to Iluka Road Upgrading the Pacific Highway: Concept Design Report Cultural Heritage Working paper*, Unpublished report to Sinclair Knight Merz Pty Ltd, St Leonards, Australia.
- Office of Environment and Heritage (OEH) 2010, *Code of Practice for the Protection of Aboriginal Objects in New South Wales*, NSW Government, Sydney, Australia.
- Office of Environment and Heritage (OEH) 2011, *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in New South Wales*, NSW Government, Sydney, Australia.

Pierce, R G 1971, *The Effects of Aquatic Foods on the Diet and Economy of the Aborigines of the North Coast at the Time of First Settlement*, BA(Hons) Thesis, University of New England, Armidale, Australia.

Piper, A 1982, *A Preliminary Archaeological Survey of Aboriginal Sites Affected by the Alternative Proposals for a 66,000 Volt Transmission Line*, Iluka New South Wales, Unpublished report for the Northern Rivers County Council, Grafton, Australia.

Roads and Maritime Services (RMS) 2011, *Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI)*, Roads and Maritime Services of NSW, Sydney, Australia.

Roads and Traffic Authority (RTA) 2006, *Wells Crossing to Iluka Road Preferred Route Report*, Roads and Traffic Authority of NSW, Sydney, Australia.

Sinclair Knight Merz (SKM) 2012, *Working paper – Aboriginal cultural assessment*, Sinclair Knight Merz, St Leonards, Sydney.

Smith, A 1998, *Corindi Beach South 1, Excavation Report and Preliminary Analysis Results*, Unpublished report for Yarrawarra Aboriginal Corporation, NPWS, NSW, Department of Archaeology and Palaeoanthropology, University of New England, Armidale, Australia.

Tindale, N B 1940, 'Australian Aboriginal Tribes: A Field Survey', *Transactions of the Royal Society of South Australia*, No 64.

Yarrawarra Aboriginal Corporation 1995, *Section 2: Study of Aboriginal Values: Investigation of the Relationships between the Gumbaingirr People of Corindi Beach and proposed Sewerage Treatment Works Site C. Appendix in Appleton, J and W Beck (ed) The Archaeological Investigation of the Site of the Proposed Corindi Sewerage Scheme North of Coffs Harbour, Mid North Coast NSW*, Unpublished report to Department of Public Works and Services, Sydney, Australia.