

Moorland to Herons Creek EIS

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Cultural Heritage

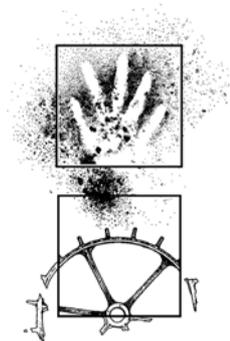




Pacific Highway Upgrade Moorland to Herons Creek EIS

Working Paper Cultural Heritage Assessment

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A Report to Ove Arup & Partners

Please note: This report contains specific site location data for the information of relevant stakeholders. In order to protect sites, large scale site location data (map references and map locations), should be omitted from any version of this report made available for public inspection or publication.

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1. SUMMARY

- The NSW Roads and Traffic Authority (RTA) is proposing to upgrade the section of the Pacific Highway by widening, duplication and/or deviation from Camp Obadiah to the existing dual carriageway at Herons Creek, between 36.6 and 58.5 kilometres north of Taree. The subject section of highway is 21.9 km in length.
- A route selection study for the proposed Moorland to Herons Creek Pacific Highway Upgrade was conducted in 2000-2001. Numerous Aboriginal and historic sites were identified in the course of the route selection study, however no permanent cultural heritage constraints were identified within the broad route selection study area. It was recommended that a detailed cultural heritage assessment of the preferred highway upgrade option be conducted as a component of the Environmental Impact Assessment.
- This report documents the results of the cultural heritage assessment of the preferred option for the upgrade of the Pacific Highway between Moorland and Herons Creek. The assessment includes literature and heritage register review, Aboriginal consultation, and field surveys.
- Eight Aboriginal sites have been identified as occurring within, or in close proximity to, the preferred option. These comprise one artefact scatter (A3), two isolated finds (A1 and A6), three possible Aboriginal scarred trees (A7, A8 and A16), the general location of a local Aboriginal corroboree in 1903 (A14) and the Middle Brother Mountain (NPWS #30-6-2).
- Six areas of Aboriginal archaeological potential (PADs 1-6) have also been recorded in the study area. They comprise landforms that could be expected to contain traces of Aboriginal occupation based on predictive site location modelling, but where poor ground surface visibility precluded an adequate assessment of archaeological sensitivity. These areas generally comprise alluvial terraces and locally elevated areas adjacent to watercourses.
- Eleven European sites have been identified as occurring within, or in close proximity to, the preferred option. These comprise three sections of a former Pacific Highway alignment, a wooden road bridge over the North Coast Railway, a reported former school site, the pylon remains of former concrete Pacific Highway bridge across the Camden Haven River, two existing concrete beam Pacific Highway bridges, a surface scatter of nineteenth century glass and ceramic fragments, and two tree stumps with springboard notches.
- The following is a summary of the main management recommendations:
 - The possible Aboriginal scarred tree A16 is located in close proximity to construction works and should be conserved alive and *in situ* within the road easement. A range of strategies are recommended to realise this objective.
 - If there is an assessed risk of accidental impact from adjacent earthworks or machinery movements to sites A1, A3, A14, then temporary fencing should be erected between the site and the zone of construction activity.
 - Temporary fencing should be installed between PAD3 and the zone of construction activity.
 - Application be made to the Director-General of the Department of Environment and Conservation for a Section 90 permit to disturb Aboriginal isolated find A6.
 - In accordance with advice provided by the DEC, all ground disturbance or excavation within the potential archaeological deposits PAD2, 4, 5 and 6 should be monitored by an archaeologist and a representative of the relevant Local Aboriginal Land Council.
 - In order to minimise impact to the Aboriginal cultural values of Middle Brother Mountain, the extent of all earthworks, ancillary works, and vegetation clearance along its basal landforms



should be minimised where feasible, and where possible located within areas of previous disturbance where possible.

- Application be made to the Director of the NSW Heritage Office for a Section 139 permit, to allow for the direct impact of site H23 (a section of the former Pacific Highway). An archival record of the site should be made prior to impact.
- Notification of the intention to impact sites H32, H34 and H36 should be provided in writing to the Director of the NSW Heritage Office with a request that a determination be made as to whether the intended impact falls under an existing exemption to section 139 permit provisions.
- Develop heritage management strategies for sites H37 and H38 - concrete beam highway bridges, where and if necessary according to the results and findings of the RTA's yet to be commissioned heritage study of all RTA controlled pre 1948 concrete beam bridges in the Northern Region.
- If bridge construction over the Stewarts and Camden Haven Rivers involves excavation of the river beds, then, where the excavation methodology allows, the excavated sediments should be monitored by a suitably qualified archaeologist.
- All heritage recordings with conservation management requirements that are situated within or in close proximity to the road works should be identified on a construction management plan. All management requirements should be included within the plan.



2. INTRODUCTION

The NSW Roads and Traffic Authority (RTA) is proposing to upgrade the section of the Pacific Highway by widening, duplication and/or deviation from Camp Obadiah to the existing dual carriageway at Herons Creek, between 36.6 and 58.5 kilometres north of Taree. The subject section of highway is 21.9 km in length. (Figures 2a-2c).

This report documents the results of the cultural heritage assessment of the preferred Moorland to Herons Creek Pacific Highway Upgrade route. The report was commissioned by Ove Arup & Partners on behalf of the NSW RTA and forms the cultural heritage component of the Environmental Impact Assessment (EIA) for the proposed highway upgrade.

2.1 Background to the present study

A route selection study for the proposed Moorland to Herons Creek Pacific Highway Upgrade was conducted in 2000-2001. The study area consisted of a corridor of land that approximated the broad alignment of the current Pacific Highway, and extended from 2.5 km south of Johns River, to just north of Herons Creek. The route selection study defined the cultural heritage sensitivity of the area in which various highway route options were being considered (Navin Officer Heritage Consultants 2001).

The report identified sites and places of known or potential heritage significance with the aim of facilitating the design of feasible route alignments and providing a means of assessing the potential impacts of those alignments. The identification and assessment of Aboriginal sites and places of significance were conducted with the participation of representatives of the local Aboriginal communities.

Numerous Aboriginal and historic sites were identified in the course of the route selection study, however no permanent cultural heritage constraints were identified within the broad route selection study area. The Brother Mountains were identified as places of high and special cultural significance to north coast Aboriginal people.

It was recommended that a detailed cultural heritage assessment of the preferred option for the highway upgrade be included as a component of the Environmental Impact Statement.

2.2 Report Outline

This report:

- Documents consultation conducted with the local Aboriginal community in the context of the project (Section 3).
- Documents the methodology implemented for the study (Section 4).
- Describes the environmental setting of the study area (Section 5).
- Provides a background of local and regional archaeology and history for the study area and provides predictive models for the area (Sections 6, 7 and 8).
- Documents the results of the study (Section 9).
- Assesses the significance of the study area sites (Section 10).
- Provides mitigation strategies and management recommendations for all sites located within or in close proximity to the preferred option (Section 11).



2.3 Project Personnel

Field survey was conducted by archaeologists Kelvin Officer and Charles Dearling with the field assistance of Daniel Powell and the active field participation of Trina Ridgeway, Vienna Maslin and Lance Bungie (Purfleet/Taree Local Aboriginal Land Council), and Trevor Roberts and Pat Donovan (Bunyah Local Aboriginal Land Council).

The report was prepared by Kelvin Officer and Kerry Navin.

3. ABORIGINAL PARTICIPATION

The study area falls within the boundaries of the Purfleet/Taree Local Aboriginal Land Council, based at Taree, and the Bunyah Local Aboriginal Land Council, based at Wauchope. The Birpai Local Aboriginal Land Council, based in Port Macquarie, also has a recognised interest the study area.

Consultation with each of these organisations occurred as part of the route selection phase of the project, prior to the finalisation of the current preferred alignment. This included pre-fieldwork meetings, participation in fieldwork, and the review of draft recommendations. The results of this consultation program have been reported previously (Navin Officer Heritage Consultants 2001). Consultation with, and the participation of Aboriginal community representatives in the current investigation, continued and extended the work completed in the route selection phase.

Representatives of the Purfleet/Taree and Bunyah Local Aboriginal Land Councils were invited to participate in the field surveys of the preferred route option. Ms Trina Ridgeway, Ms Vienna Maslin and Mr Lance Bungie represented the interest of the Purfleet/Taree Local Aboriginal Land Council in the field study. Mr Trevor Roberts and Mr Pat Donovan represented the interests of the Bunyah Local Aboriginal Land Council in the field study. The results and management implications of the survey were discussed with each representative during the field program.

Following completion of the draft report, a summary of the draft, together with excerpts of the results and recommendations were provided to the Purfleet/Taree Local Aboriginal Land Council and the Bunyah Local Aboriginal Land Council. Individual meetings were subsequently held on the 4 November 2002 with representatives from each Land Council to discuss and review the draft recommendations. Michael Dibbs and Angela Donovan represented the Bunyah LALC, and John Clark represented Purfleet/Taree Local Aboriginal Land Council. Both Land Councils expressed generalised acceptance of the preferred upgrade option, noting that it mostly followed the original highway corridor. Both Land Councils endorsed the recommended management strategies presented in this report. Each supported the practice of archaeological testing of the identified PADs, and the collection of artefacts that may otherwise be disturbed by construction impacts. Bunyah LALC stressed the importance of avoiding the reported corroboree ground, site A14.

Each Land Council was invited to provide a brief written report documenting their views and any specific Aboriginal cultural assessments they wished to make.

A full copy of the finalised report will be forwarded to each of the Purfleet/Taree, Bunyah and Birpai Land Councils for their information.

Records of Aboriginal Participation are included in Appendix 1.



4. STUDY METHODOLOGY

4.1 Study Components

This study included the following elements:

- Incorporation of research and survey results from a heritage investigation for a previous route selection study (Navin Officer Heritage Consultants 2001).
- A review of site cards, reports and associated documents relevant to the study area and surrounding region held by the NSW DEC [formerly NSW NPWS].
- A review of heritage listings and schedules held by local, State and National government authorities, including:
 - the Register of the National Estate (the National Heritage Council),
 - the State Heritage Register and State Heritage Inventory (NSW Heritage Office),
 - the Register of the National Trust (National Trust of Australia (NSW)),
 - the heritage schedule attached to the Hastings Shire Council LEP (1987),
 - the Maritime Heritage Online database (NSW Heritage Office), and
 - the Section 170 Heritage and Conservation Registers held by the Roads and Traffic Authority, the State Rail Authority (Rail Heritage Unit), and the NSW Department of Education and Training.
- A review of local heritage literature applicable to the area and consultation with local heritage researchers.
- Consultation with representatives of the Bunyah and Purfleet Taree Local Aboriginal Land Councils. Representatives from each Council accompanied the archaeologists and participated in the archaeological field survey of the study area.
- Consultation and separate field inspections with DEC representatives.
- Compilation of a predictive site location model for the study area based on collated data for comparable and/or adjacent areas, data collected in the course of the route selection studies, and an assessment of previous landscape disturbance.
- Comprehensive field survey of the preferred highway route.
- Preparation of a report documenting the results of the study.

4.2 Field Survey

Comprehensive field survey of the preferred highway route was conducted in August 2002 by two archaeologists, a field assistant and Aboriginal representatives from the Bunyah and Purfleet Taree Local Aboriginal Land Councils. The survey aimed to identify all visible Aboriginal and historic sites and features in the proposed road reservation and to define areas of archaeological potential that may require subsurface testing.

Survey for Aboriginal sites involved walking the entire highway upgrade route with personnel spaced (relatively evenly) across the easement. Traverses were also conducted along adjacent micro-topographic features considered to have archaeological potential (such as creek banks, crest lines and terrace edges), and all existing natural ground surface exposures were inspected. All examples of old growth native trees in the survey area were inspected for possible Aboriginal scarring.



4.3 Post survey consultation with the DEC

Following the identification of four potential archaeological deposits (PAD2, PAD4, PAD5 and PAD6) within areas of probable construction disturbance within the proposed road corridor, application was made in February 2003 to the NSW National Parks and Wildlife Service (now the Department of Conservation and Environment) for a Section 87 permit to conduct archaeological subsurface testing of these deposits. The application was supported in writing by both the Bunyah Local Aboriginal Land Council and the Purfleet-Taree Local Aboriginal Land Council.

The application was initially denied by the NPWS in May of 2003, and then subject to reconsideration following responses from Navin Officer Heritage Consultants and the RTA.

The NPWS recommended that instead of archaeological investigation, construction activities in these areas be monitored by appropriate representatives of the Aboriginal communities. In the event that Aboriginal cultural material is exposed during construction, then work should 'cease immediately, and NPWS be notified, whereby the appropriate licence be issued' (correspondence from the Manager, Northern Aboriginal Heritage Unit, to Kelvin Officer 12 May 2003).

At the request of the DEC, Northern Aboriginal Heritage Unit, a field inspection of the PAD areas and the preferred highway alignment was conducted on the 26 February 2004. Representatives of the RTA, Arup, the DEC, and Navin Officer Heritage Consultants were in attendance. All of the identified PADs (PAD1-6) were inspected, together with sites A7 and A8.

Following this inspection, the DEC informed the RTA that further archaeological investigation of the identified PADs would not be required or approved. The DEC recommended that any construction-related excavation into the PAD deposits should be appropriately monitored. A request for the justification of this decision to be provided in writing has been made by the consultants to the Northern Aboriginal Heritage Unit of the DEC.

A response from the DEC had not been received at the time of completion of this Working Paper.



Figure 2a The Moorland to Herons Creek study area (Lorne 1:25,000 topographic 3rd Ed LIC 2000 and Cooperook 1:100,000 topographic 2nd Ed CMA 1987).



Figure 2b The Moorland to Herons Creek study area (Lorne 1:25,000 topographic 3rd Ed LIC 2000).



Figure 2c The Moorland to Herons Creek study area
(Byabarra 1:100,000 topographic map 3rd Ed LIC 2000).



5. ENVIRONMENTAL CONTEXT

The study area is situated half way between Port Macquarie and Taree on the NSW North Coast.

The study area consists of a corridor of land that corresponds to the required road reservation for the placement, construction and maintenance of the preferred option for the Pacific Highway upgrade between Moorland and Herons Creek. The corridor is approximately 22 kilometres long and includes widths of up to 220 m.

5.1 Geomorphology

The study area can be broadly characterised as occurring along a transitional zone between the coastal plain and the hinterland ranges.

The coastal plain that occurs within and extends to the east of the study area is dominated by aeolian, fluvial and lacustrine landforms that have formed from Quaternary sediments. The plain typically consists of dunal and beach ridge sand barriers, behind which have formed estuarine lakes, which are in turn fed by hinterland drainage lines, and are bounded on their hinterland side either by valley floor alluvial flats, or bedrock topographies of varying gradients.

The hinterland rangelands extend eastward into the coastal plain in the middle and at either end of the study area. At the southern and northern ends, bedrock of the Camden Haven Group has formed low gradient foothill ranges in the area of Johns River State Forest. These Triassic aged rocks include mudstone, lithic and tuffaceous sandstones, conglomerates and felsic volcanics and are less resistant to weathering than the Granitoids (granite, granodiorite and microgranite), which have formed the Brother Mountains. Conglomerate facies within the Camden Haven Group have been noted to include rounded pebbles of chalcedonic quartz, jasper, yellow and red quartzites (Voisey 1939 in Collins 1995). These occur as lag gravels on bedrock slopes and as fluvial gravels in the larger streams and riverbeds. These, together with acid volcanic rocks associated with the Lorne Basin rhyolitic rocks, would have been potential sources of stone material for Aboriginal tool production.

The study area passes immediately adjacent to the basal slopes of the South Brother Mountain, and traverses the basal terminal slopes of the Middle Brother Mountain. Around Middle Brother, the study area follows the boundary between the bedrock slopes of the mountain and the Quaternary sediments of the Stewarts and Camden Haven River valleys, and the Watson Taylors Lake basin.

Between the Camden Haven River and Herons Creek, the study area traverses a low range of hills that are aligned roughly north-south and have formed principally from Carboniferous rocks of the Byabbara beds. These include lithic sandstone, siltstone, mudstone, tuff and limestone. Small areas of Camden Haven Group rocks also occur to the east and south.

The study area traverses three main fluvial corridors and their lower catchments: The Stewarts River, the Camden Haven River, and Herons Creek. Each flows into two coastal plain estuary lakes that in turn share a single ocean entrance along Camden Haven Inlet. The Camden Haven has the largest catchment, with an area of 720 km². Each of the three catchments includes headwaters on the Broken Bago Range, (up to 767 m elevation), 22 km to the west of Kew. The catchments are dominated by bedrock of the Lorne Basin, and consist mostly of the Camden Haven Group and the Byabbara Beds in the north, with pockets of rhyolitic volcanics and granitoids.

The Stewarts and Camden Haven River valleys are situated in the southern and middle half of the study area. These rivers drain the southern and northern falls of the Middle Brother range and discharge into Watson Taylors Lake at the southern and northern end of the lake basin. The Camden Haven River entrance into the lake is associated with an elongate (birdsfoot) delta that projects into the middle of the basin. The lake is a tidal estuary connected to the ocean via Camden Haven Inlet, with an entrance at Camden Head. The tidal influence on the Camden Haven River extends upstream for 15 km to Logans Crossing, a former highway crossing 2 km north of Kendall. The



Stewarts River tidal limit is similarly located at a former highway crossing, 5.2 km upstream from its lake mouth.

The Herons Creek valley is situated at the northern end of the study area and drains into Queens Lake from the northwest. Queens Lake is a tidal estuary with an area of 11 km². Herons Creek remains tidal up to 5 km upstream from its lake entrance. The study area is situated one kilometre west of this point.

The valley floors and adjacent low hills are characterised by slopes which range between 0 - 6%. The hills above these lower slopes generally have gradients of 12% or greater, with elevations of 50 - 60 m. The three Brother Mountains form prominent, locally discrete, and relatively steep sided ranges which rise to elevations of 494 m, 558 and 490 m (South, Middle and North Brother respectively), adjacent to the coastal plain. As such, one or more Brother Mountain provides the predominant skyline element across the entire study area.

5.2 Climate

The study area occurs near the southern limit of the subtropical zone. Generally the local climate is mild to warm, with hot periods ameliorated by cooling afternoon coastal breezes. Frosts are infrequent and generally occur over winter in low-lying areas away from the coast. Rainfall is predominant during the summer months, with an annual average of 1553 millimetres, although there is no marked dry season with 98 rainy days per year. The mean daily maximum and minimum temperatures range from 26°C - 19°C in February to 18°C - 7°C in July.

5.3 Landuse

The study area is characterised by a mosaic of differing landuse that will have variably affected the integrity of the cultural resource of the area. The village areas (Kew, Johns River, Herons Creek) have undergone extensive landsurface change as a result of road and building construction, landscaping and installation of services. Similarly the existing Pacific Highway corridor has been subject to major landscape modification. Away from the villages, low gradient and well-drained privately owned land is predominantly cleared to form grasslands or open woodland grazing environments. Forest vegetation remains on higher gradients (eg the Three Brothers).

Disturbance to Aboriginal sites will have variously occurred as a result of original land clearance, forestry, quarrying and pastoral activities. Certain types of fragile Aboriginal site types would have been destroyed, while others such as larger campsites may have been partially destroyed or scattered. In aggrading topographies such as alluvial flats and basal slopes, undisturbed artefactual material may remain below the plough zone. In cleared areas that have undergone minimal ploughing, Aboriginal artefact scatters are likely to have survived with their size and distribution within a horizontal plane relatively intact. The degree of vertical disturbance will depend on the depth and type of the soil profile, the extent of ploughing, and type of clearing methods practised.

Major ground disturbance associated with rural and village residential development will have certainly destroyed and disturbed both Aboriginal and non-indigenous archaeological sites.

Forestry activities frequently have a major impact on Aboriginal sites such as scarred trees and open artefact scatters located on crests where logging tracks are made. The removal of old growth trees from logged areas minimises the potential for surviving Aboriginal scars.



6. ABORIGINAL ARCHAEOLOGICAL CONTEXT

6.1 Aboriginal tribal boundaries, ethno-history and settlement patterns

Aboriginal tribal boundaries, ethno-history and settlement patterns have been discussed in the route selection study and this information will not be presented here. The reader is referred to the route selection report for this contextual information (Navin Officer Heritage Consultants 2000:15-18).

6.2 Summary of previous studies in the region

Archaeological surveys and assessments in the region around the present study area have been conducted since the late 1970s. More recently, the upgrading of the Pacific Highway has generated considerable archaeological research in what was previously a relatively archaeologically unknown area. Such investigations are mostly limited to an overview/assessment of a defined broad area (in the route selection process) followed by detailed assessment of a narrow, preferred route alignment, often including subsurface archaeological testing programs.

The results of such investigations as a whole are of limited archaeological value as they have studied in detail a narrow arbitrary easement that in fact represents a line drawn across the landscape. However the investigations do provide a glimpse of the remaining Aboriginal archaeological resource and continue to add data to the growing corpus of archaeological information for the NSW mid and north coast.

Immediately north of the present study area Comber (1990) conducted an assessment of the Pacific Highway deviation between Herons Creek and Ryans Road, Port Macquarie. The Herons Creek Deviation dual carriageway was opened to traffic in 1998. Comber's road corridor was approximately 11 km long (and 75 m wide) and traversed the flat coastal plain before reaching the Great Dividing Range. Most of the route passed through State Forests that had been subject to logging. Ground visibility in the surveyed area was generally low. No Aboriginal sites were found within the road corridor, and this was attributed to previous landscape disturbance and poor ground surface visibility.

Collins (1997a, 1998a, 1999a, 1999b, 2000) has conducted a number of archaeological surveys and assessments south of the present study area relating to the Pacific Highway Upgrading Project.

In 1997 Collins conducted an Aboriginal archaeological assessment of the proposed 4.2 km long Coopernook Traffic Relief Route. The proposed road corridor traversed the Lansdowne River floodplain at an elevation of less than one metre and crossed a ridge system (the Manning River - Camden Haven River watershed). One artefact scatter, comprising nine stone artefacts was located on a slightly elevated area between Coopernook Creek and a swamp. A levee on the northern bank of the Lansdowne River was identified as an area of archaeological potential.

Subsequently, Collins (1999a) conducted a program of subsurface testing on the levee, excavating ninety nine (mechanical) auger holes and one 50 x 50 cm shovel test pit. Each auger hole was 0.16 m² and the total excavated area was 15.9 m². Five stone artefacts were recovered from the test pits. Collins interprets the site as reflecting 'a single transient stop-over rather than actual levee occupation' (Collins 1999a: abstract).

In 1998 Collins conducted an Aboriginal archaeological assessment of the proposed 7.2 km long Taree Bypass to Coopernook Bypass. The study area comprised a total of approximately 24 ha and roughly bisected Jones Island mid-way between the Manning River floodplain and Ghinni Ghinni Creek about 7-8 km inland from the coast. No Aboriginal sites were identified in the course of the survey, however a local informant reported finding pebble axes while ploughing his paddocks. A natural levee on the southern bank Ghinni Ghinni Creek was defined as an area of potential archaeological deposit (Collins 1998a).

This PAD was subsequently excavated by Collins in September 1999 (Collins 2000). Twenty five mechanical auger holes and three 50 cm² shovel pits were excavated on the levee. Three Aboriginal



stone artefacts were recovered from the excavation. Collins interprets the site as reflecting 'a single transient stop-over rather than actual levee occupation' (Collins 2000: abstract).

An initial (preliminary) assessment of four proposed options for upgrading of the Pacific Highway between Cooperook and Moorland was prepared by Resource Planning Pty Ltd in 1991. Survey for the 10 km long Moorland Pacific Highway Upgrade (immediately south of present study area) was conducted by Collins in 1999 (Collins 1999b). This road corridor traversed low undulating hills near the margin of the coastal plain approximately 7-8 km inland from the coast. No Aboriginal sites were located during the field survey. An area of Crown Land adjoining Pipeclay Creek south of village of Moorland was identified as a campsite that was occupied on a semi-permanent basis following European settlement. Collins assessed the road corridor as low archaeological potential.

A number of other linear surveys have been conducted through, and in the vicinity of, the present study area. Brayshaw (1977) surveyed the Taree-Kempsey 132 kV transmission line, which passes to the west of the present study area and crosses the Pacific Highway at Herons Creek. Coleman (1981) surveyed a transect along the northern bank of the Hastings River and Kuskie (1992) surveyed an Optus optical fibre cable between Beresfield and Coffs Harbour. No Aboriginal sites were located as a result of these surveys.

Surveys of discrete land areas have been conducted to assess the potential impact to the archaeological resource of various development proposals in the region, including housing, extractive industries and communication towers.

Dean Jones (1989) surveyed a small area of land 900 m north-northeast of the crest of Middle Brother Mountain and within the Middle Brother State Forest. A major UHF/VHF transmitting station was proposed for the area. No Aboriginal sites were located in the course of this survey.

Similarly, no Aboriginal sites were identified in the course of a survey for a proposed hard rock quarry on Middle Brother Mountain (Navin 1992). The study area included a portion of ridge-crest and associated spurline, a low-gradient rise on the basal slopes, and a small section of the adjacent alluvial corridor and floodplain of Stewarts River. The ridge was situated at the southeastern end of the Middle Brother Mountain complex and adjacent to the valley floor of Stewarts River.

Further east, Bonhomme (1988) conducted a survey for a proposed residential subdivision on the footslopes of North Brother Mountain at Laurieton. This area was subsequently re-surveyed by Sullivan (1995). Two scarred trees and an isolated artefact were recorded in the course of the survey. Other surveys and assessments conducted to the east of the present study area include Bell 1983 (Laurieton), Rich 1990a, 1992 (Dunbogan), Collins 1993 (Dunbogan), Silcox 1995 (Camden Haven), Collins 1996 (Bonny Hills).

In March 1995 Collins conducted a survey for a proposed extension to an existing gravel quarry at Kew. The 18 ha area comprised 'part of low north-south trending coastal hill system sandwiched between Herons Creek in the north and Camden Haven River in the south' (Collins 1995:1). The majority of the surveyed area was highly disturbed and was considered to have low archaeological potential. A Blackbutt tree (*Eucalyptus pilularis*) with two scars evident on its trunk was recorded as an Aboriginal site (NPWS Site #30-6-91). The scarred tree was located on wet forested flats in the quarry study area.

Collins (1997b) surveyed an eight hectare site where it was proposed to construct a high school, about one kilometre east of Kew. The area occupied part of the crest and southern slopes of a low ridge which descends to a swampy lowlands on the southwestern shore of Queens Lake (ibid:6). No Aboriginal sites were recorded in the survey.

No Aboriginal sites were identified during an archaeological survey conducted for the Kew Kendall Sewerage Scheme (Collins 1998b). The Sewage Treatment Plant (STP) site was located 2.3 km northeast of Kew and approximately 500 m east of the Pacific Highway. The STP site was in the upper catchment of Herons Creek and was situated on the crest of a spur that runs towards Herons Creek at an elevation of approximately 16-18 m AHD.



6.2.1 *The Three Brothers Mountains*

Several surveys by NPWS staff were carried out in northern NSW in the 1970s and 1980s. These were primarily concerned with recording sites of traditional significance to local Aboriginal groups, such as ceremonial and mythological sites. The surveys also recorded a number of secular sites (eg. Creamer 1984, Kelly and Donovan 1976).

The Three Brothers Mountains - NPWS Site #30-6-1 (South Brother), #30-3-2 (Middle Brother) and #30-3-23 (North Brother) were originally entered on the NPWS Site Register in 1976 as result of these *Sites of Significance* surveys. A waterfall and scarred tree on Middle Brother Mountain (#30-6-36) were subsequently placed on the Register in 1984 by Howard Creamer.

South and Middle Brother Mountains are located northwest and southwest of the village of Johns River. North Brother is located east of Kew and between Watson Taylors Lake and Queens Lake. The Brothers are Aboriginal mythological sites, forming part of a well-known dreaming story that was told to Ray Kelly by a Gumbangirra tribal man, Harry Buchanan, in the 1970s. This story is well-documented (Nayutah & Finlay nd:71-72; NSW NPWS Site Cards, NPWS Pamphlet, Gay 2000) and relates the tale of the Three Birroguns (brothers). The local Aboriginal community has requested that the story not be recounted in the assessment reports for the highway upgrade (pers comm: Birpai LALC to Kelvin Officer. 11.2000).

In a remarkable coincidence, Captain James Cook, noting that the 'hills bore some resemblance to each other' called the mountains '*The Three Brothers*' as he sailed past them in 1770 (Captain Cook's Log May 12th 1770).

Middle Brother Mountain, consisting of the Middle Brother National Park and flanked by Middle Brother State Forest, is entered on the Register of the National Estates Database as an Indicative Place, ie it is not registered but is being considered for registration. Database No: 018856, File No: 1/18/140/0017. The entry is for natural heritage values only, (though the mountain also has high Aboriginal cultural values).

A '*Brothers Mountains Coastal Conservation Area*' is classified by the National Trust (NSW) and appears to include the basal slopes around Watson Taylors Lake.

The Three Brothers Mountains are presently in the process of being considered by the NSW NPWS for gazettal as an Aboriginal Place under the National Parks and Wildlife Act

6.3 Sites identified in the Route Selection Study

The route selection study for the Moorland to Herons Creek Upgrade determined that some 124 Aboriginal sites had been previously recorded in a 250 km² area centred on the study area. Site types include scarred trees, burials, shell middens, stone arrangements, artefact scatters, isolated finds, rockshelters with deposit, and natural mythological sites. Seven Aboriginal sites were recorded on the NPWS Register of Aboriginal Sites as occurring within or near the route selection study area. These comprised the Three Brothers Mountains, a stone arrangement, two scarred trees and a reported Aboriginal burial place

Fifteen Aboriginal sites were recorded in the course of the targeted field surveys conducted within and near the Moorland-Herons Creek route selection study area. These comprised six isolated finds (A1, A2, A4, A5, A6, A12), three artefact scatters (A3, A9, A11), three possible Aboriginal scarred trees (A7, A9), a reported Aboriginal subsurface archaeological deposit (A13), a reported corroboree ground (A14), and a reported Aboriginal stone arrangement.

All the Aboriginal archaeological sites recorded within or near the route selection study area appeared to be consistent with the site location criteria outlined in the predictive model for the region. Of the nine stone artefact occurrences, four were located on low spurline or knoll crests and upper slopes, and three were situated on the elevated edges of alluvial terraces. The remaining two recordings were isolated finds situated on basal and mid slope contexts.



7. HISTORIC OVERVIEW

7.1 Early history

The first European references to the Camden Haven area were made in 1770, when Captain James Cook sailed along the mid north coast of NSW in the *Endeavour*. The ship's logbook makes reference to 'three remarkable large high hills lying continuance to each other and not far from shore As these hills bore some resemblance to each other we called them The Three Brothers' (Saturday May 12th, 1770).

New South Wales' Surveyor General, John Oxley, led the first overland expedition to the Hastings, reaching the valley in September 1818. In October 1818 Oxley travelled for several days, south from Port Macquarie to South Brother Mountain, noting the richness and diversity of the countryside. Oxley's report of the expedition noted 'heavily timbered country studded with brushes' in the Camden Haven region (in Fenning 1997:1). He also noted numerous parties of 'natives' and many canoes on Queens Lake (October 14 & 15, in CHHS 1997:8).

Oxley's description of the vegetation is consistent with reconstructions of the pre-European landscape which consisted of dense forest on the hinterland slopes and valleys, with 'brush' or multi storeyed and rainforest type forest communities along the banks of drainage lines, gullies and sheltered contexts (Birrell 1987).

The success of Oxley's expedition was recognised by Governor Lachlan Macquarie who bestowed a substantial land grant on Oxley and who, within twelve months, recommended Port Macquarie as a penal settlement to the Earl of Bathurst (Fenning 1997:1). In 1821, three ships arrived to establish the penal settlement of Port Macquarie. By 1825 it contained 1357 male and 69 female prisoners (Turner 1990:5). As part of the settlement's security, soldiers were stationed on the edge of Soldiers Bay on the eastern coast of Watson Taylors Lake in an attempt to discourage a southern escape route for convicts (CHHS 1997:10).

By the mid 1820s mud oyster shells collected from the Camden Haven and Queens Lake were being burnt for the manufacture of lime for the building program at Port Macquarie, and also in Sydney (CHHS 1997:11, Turner 1990:6). Lime burners camps were set upon the shores of Queens Lake and at the foot of North Brother Mountain (CHLEI 1987:1). It is conceivable that Aboriginal midden shell from the Laurieton area was also quarried for this purpose.

Cedar getters were amongst the first Europeans to penetrate the Camden Haven hinterlands. Their activity in the first half of the nineteenth century is attested by the development of wharves and early log hauling tracks along the valleys. At Johns River, 1860s land surveys show an 'Old Cedar Road', from Hannom Vale terminating at a wharf ('Bird's Wharf') at the limit of navigation on 'Stewards River' (on old portion 40, Parish of Stewart). The cedar road alignment appears to have been replicated in a section of the modern vehicle track that accesses the southern lower floodplain of the Stewarts River (CHHS 1997:30).

The early European occupation of the region up to the 1860s is not well documented. During this time the area probably remained a southern outpost of Port Macquarie, with industries such as lime-burning, cedar cutting, and bush grazing requiring only a low level of occupation. In 1830 Governor Darling declared the Hastings Valley open to free settlers, retaining some prisoners for private assignment and sending the remainder to Norfolk Island (Turner 1990:6). In 1844 Anabella Boswell, niece of Major Innes, noted seeing cattle grazing in a small valley south of Grants Head. The surveyor Clement Hodgeson followed the line of marked trees from Port Macquarie to the Manning in 1845. The route followed the western side of Watson Taylors Lake. He made no mention of white settlement but noted that the natives were friendly and could speak a little English, an indication of early but consistent contact, most probably from cedar cutters and passing ships (CHLEI 1987:6).

By the 1870s the alienation of land was restricted mainly to a scatter of smallholdings adjacent to the major creeks and rivers. The focus on the purchase of valley floor lands for the development of agriculture or forest resources continued to the end of the century (Birrell 1987). The high rainfall of



the district made it unsuitable for sheep, and early agriculture was limited and focused on dairying for a local market, beef cattle and crops such as maize (Turner 1990:8). Dairying became a significant local industry in the late nineteenth century with the creation of creameries and butter factories following the invention of steam driven mechanical separators and refrigeration. Around the turn of the century a butter factory was established at Kendall. Citrus growing was also noted as an establishing local industry at this time (unknown c.1919:79).

7.2 The timber industry and local settlement

By far the most important economic activity within the study area was logging and saw-milling. The location of mills, the navigable portion of rivers and lakes, and the effective crossing and loading points for through travel and trade, became the main determinants of towns and settlements within the region. Milling began in the 1870s and by 1900 the Camden Haven area was one of the busiest producers of hardwood timbers in the State (Turner 1990:14).

Recognition of the importance of managing the timber resource on remaining crown lands prompted the declaration of Timber Reserves in the late 1800s and a network of State Forests in the first two decades of the twentieth century. Around the study area these were: Kendall and Kew State Forests (Nos 61 & 62) in 1914, Middle Brother State Forest (No. 284) in 1916 (with extensions in 1921 and 1933), Camden Haven State Forest (No. 684) in 1918 and Johns River State Forest (No. 804) in 1926.

The first sawmill on the Camden Haven was established at Laurieton (then known as Peach Grove) by Joseph Laurie around 1875. Laurieton, situated on Camden Haven Inlet, was ideally situated to be supplied with logs from the hinterland forests surrounding the Camden Haven River and the Queens and Watson Taylors Lakes. Each of these waterways could be navigated by droghers and logs were initially winched directly on board and transported to the downstream mills. Following the felling of the near-shore resource, bullock teams were used to haul the logs to wharves established at convenient sites along the navigable waterways.

Droghers were flat-bottomed log punts that originally relied on tidal movement for propulsion but were quickly fitted with steam engines with either side or rear mounted paddles. Droghers were used for transporting logs and timber from the late 1800s up to the 1950s. The Camden Haven Historical Society notes that seven steam-driven droghers worked on the Camden Haven (CHHS 1997:29). The remains of a drogher were visible for a long period of the twentieth century on the south bank of the Camden Haven River, some 250 m downstream of the present highway bridge (site H20) (CHLEI 1987:23).

Bullock teams were the predominant means for transporting heavy loads across land until tractors became available in the 1930s. Horse teams were employed on the early wooden rail tramways, and later replaced by steam locomotives in the early twentieth century (Fenning 1997:23-24, CHLEI 1987:55). By the 1930s, forest tramways had given way to the use of motor lorry and roads as the main means of transporting logs to local mills. The Longworth tramway that extended 18 km from Tipperary in the Lorne forests to a wharf at Kendall was in use from around 1914 till 1933 (Fenning 1997:31)

Most early mills followed a boom and bust cycle according to the exploitation of the local resource. However, early in the twentieth century some long-term enterprises became established, such as those run by Bob Longworth who arrived in 1900 after taking over the last of the early mills, and by Alf Noone who established the Herons Creek Timber Mills in 1915, an enterprise which was to evolve into the present Boral mill at Herons Creek (Fenning 1997:6).

Ross Glen was a property and settlement established by Frederick D. Ross in around 1870. At the time this location was known as Camden Haven Punt after the small ferry crossing of the River in operation there. Frederick constructed a store, hotel, post office and the area's first police station to cater for travellers and the increasing number of settlers. The post office was established in 1878 (CHLEI 1987:28). The last police officer stationed at Rossglen was Frederick Day, who retired in 1877 (Fenning 1997:6-7). Following the construction of a bridge across the river, the Rossglen hotel, store and police station enterprises were moved to Kew. The police station building was



subsequently purchased by the Maher family (Fenning 1997:7), and still stands in a modified form (site H11) (CHLEI 1987:22).

In 1880 the Manning River area's third Catholic church was constructed at Rossglen on the north side of the river (site H1). It was later moved to Camden Haven [Kendall] (CHHS 1997:76,99). On the north side of the river the Camden Haven Bridge Hotel was built early in the 1890s for Dan Williams. The building was later destroyed by fire (site H10) (CHHS 1997:99). Opposite the hotel was a farrier's shop which was later converted to a garage, prior to being demolished (CHLE 1987:22).

A wharf, known as Haydon's Wharf, was established on the southern riverbank at Rossglen for loading logs onto droghers bound for Laurieton. Jack Haydon, who settled at Hannam Vale on the Stewarts River, used this site along with Johns River, for transporting cedar logs. The arrival of the railway in 1915 with a platform at Rossglen, boosted the economic potential of Rossglen. In 1920 Bill Haydon and Jack and Johnny McInnes built a sawmill adjacent to the railway station to take advantage of the rail siding (site H15). The mill also utilised a wharf, situated some 100 m downstream of the bridge. The mill received logs from the adjacent Middle Brother Mountain forest, some of which were transported by tramway. After Johnny McInnes died, the mill was bought by Bill Collins who later sold out to Herons Creek Timber Mills which instigated the mill's closure in the 1950s (Fenning 1997:7, 24, 35, 58). At the time of its closure it may have been the last mill operating on, and utilising the Camden Haven River (CHLEI 1987:23).

The Rossglen railway station was closed in 1960 and was subsequently demolished (CHLEI 1987:22).

The last mill to operate at Rossglen was built by Aubrey Ivers in 1931. It was situated adjacent to the rail line on the basal slopes of Watson Taylors Lake (site H8). The mill burnt down a year later but was rebuilt and operated till 1958. Ivers' Mill depended on road transported logs from privately owned forests for its production, which included orders for many large fishing boats (Fenning 1997:65).

The Fagan Brothers came to Kendall (then known as Camden Haven) in 1870 and quickly established an economic base with a local store and a sawmill. They were responsible for employing Henry Kendall as a clerk and storekeeper in the town from 1875 to 1881. The town was officially renamed Kendall in 1891 to mark the poet's period of residency there (CHHS 1997:65). One of the most important sawmills in Kendall was built in 1909 by Jack & Len Steinmetz on the edge of the Camden Haven River near the present shopping centre. The mill had its own jetty and operated two droghers (Fenning 1997:33).

The township of Kew was originally known as the Crossroads and boasted a hotel known as '*The Stables*' (after the coach stables opposite), which was built in 1891. The hotel was later known as '*The Royal Hotel*' early in the twentieth century. The building was burnt down around 1924 and rebuilt in 1925 as '*The Kew Hotel*' now again called the *Royal Hotel* (site H16) (CHHS 1997:99-100).

The Federal Mill was built at Struggletown, Kew, in the 1880s on Homedale Road by Mr Adkins. This was one of the first mills to be built inland from Laurieton (site H13). The mill operated a tramline from the mill to forest situated several miles west of Herons Creek (Fenning 1997:10).

Downstream, Captain McColmb built the IXL Mill on the river, south of Kendall in the 1920s, near the entrance of Batar Creek. A contemporary pamphlet notes a mill one mile downstream of Kendall owned by the Hays Brothers which is 'tapping the forest of Balar's Creek' and presently constructing a tramline (unknown c.1919:77).

In around 1919 the establishment of a 'Wood Distillation Plant' was reported at Kew (unknown c.1919:23). The plant erected by Mr F. Wilson was described as the 'only establishment of its kind in the State', and consisted of large iron retorts built into a furnace of brickwork, and a system of condensing tubes and evaporating pans. The process involved the conversion of 'old dead and waste timber' into pyroligneous acid and include the use of lime and sulphuric acid. Bi-products listed included wood tar and charcoal. An acid factory was also reported to exist in Kendall in the 1880s (in Turner 1990:20).



In 1953 Charles Fenning moved his milling operation from Lorne to Kew, on the site of the present Camden Haven Golf Club building. The mill closed in 1962 (Fenning 1997:41, 165).

The Camden Haven River was originally known as Johns River (or St Johns River), the name subsequently being adopted by the township of Johns River on Stewarts River (CHHS 1997:30). The town appears to have formed in the latter half of the nineteenth century as a collection of land selections and converging roads centred on 'Bird's wharf' at the limit of river navigation, and crossing points for north-south travellers. The first settler at Johns River was Thomas Crossingham (CHHS 1997:34). Mail was being delivered at Bird's wharf from about 1862. A post office was established in 1897 (CHHS 1997:38). The school was opened in 1871. Sid Tiedman was a notable operator of the garage at Johns River (site H12) (Fenning 1997:73). Cyril Crossingham operated a small mill at Johns River (Fenning 1997:73).

Hérons Creek was a settlement established by timber workers around 1890, and consisted principally of small selections with cleared grasslands suitable for supporting bullock teams (Fenning 1997). The first house was reportedly built by George William Crane on the bank of the creek in 1850 (HCPSC 1993:42). The area's extensive log resource was quickly recognised however and early logging involved hauling mill logs and girders to Bobs Creek wharf (on Herons Creek?) for transport to Laurieton. A tramline of wooden rails was constructed to connect Herons Creek with Kendall. The line terminated at a roundabout where Mr Keith Shoemith now lives and included branch lines to other parts of the forest. A depression left by the line can be seen through the Herons Creek cemetery (site H6) (HCPSC 1993:42).

In 1915 Alf Noone formed Herons Creek Timber Mills Pty Ltd and established a sawmill at Herons Creek (Fenning 1997:39). By about 1920, two mill enterprises at Herons Creek, one reportedly named Noon & Brown and the other 'Browns Mill' had amalgamated under Herons Creek Timber Mills Ltd (HCPSC 1993:46). The Herons Creek mill burnt down around 1933 and was rebuilt on the same site, on the Main Road through the town (HCPSC 1993:46). During the Depression the mill formed a partnership with the Zinc Corporation Ltd and provided mine timbers from blackbutt for mining operations at Broken Hill. In 1947 the mill company shares were sold to the Zinc Corporation and Noone retired. His sons Leo and Ken purchased the Kew Hotel.

The Zinc Corporation subsequently commenced a policy of buying out local mills in the 1950s and 60s, including Longworths (Laurieton) Ltd in 1956, and the Rossglen Mill, then owned by Bill Collins. These acquisitions included privately owned forest resources and State Forest log quotas and increased the company's access to local timber resources. The combined quotas were amalgamated at a centralised mill and a new mill was constructed around the existing mill between 1959 and 1961, the old mill eventually being taken away (Fenning 1979:42, HCPSC 1993:46). The mill was subsequently sold to Duncan's Holdings Pty Ltd from CRA (the successors to the Zinc Corporation) in 1985, and has been absorbed into the Boral Company.

7.3 Transport corridors and the Great North Road

The corridor that defines the present study area approximates an alignment of travel which was established by European travellers since the region was being developed by cedar getters and settlers travelling to Port Macquarie from the 1830s. The original route to Port Macquarie from the Manning River involved skirting around the eastern side of the South and Middle Brother mountains, and then crossing Camden Haven River to follow the southern base of the North Brother to reach the soldiers outpost just south of present day Laurieton. After crossing the arm of Queens Lake travellers either journeyed along the coast or turned inland along the western shore of Lake Innes (CHHS 1997:12).

Originally this route would have been marked simply by a line of blazed trees. In 1857 a road to Port Macquarie was directed through Rossglen and Logans Crossing (CHHS 1997:67). This route was used by mail coaches that travelled from Johns River, around the western shore of Watson Taylors Lake to Ross Glen (then known as Camden Haven, one of several localities to use this name). Prior to the punt crossing, the coach route is believed to have followed the western river bank and associated basal slopes to Logans Crossing, 2 km north of Kendall (CHHS 1997:38). This early road route may have approximated the present alignment of a now rarely used travelling stock route which



remains as a cadastral corridor between Rossglen, Kendall and Logans Crossing (site H25). The reserve was officially gazetted in 1880 (Johns River Parish map 1937).

A punt was introduced at Rossglen in around 1865-6 to facilitate the crossing of the Camden Haven River (known originally as Johns River) (CHHS 1997:67, Fenning 1997:7). The punt was replaced by a timber bridge with a drawbridge lifting span in the middle deck, probably in the late nineteenth century (site H24). The lifting span was required to allow passage for coastal steamers and droghers docking at Camden Haven [Kendall] (Fenning 1997:7).

Local oral tradition identifies a now privately-owned forest dirt track (on old portion 19), one kilometre to the northwest of the Rossglen crossing, as a former 'main road' to Kew (site H22) (pers. comm. Stan Foster 2000). This is supported by the presence of a small cemetery and former school site on this route (sites H2 & H3). However, probably by the time the timber bridge across the Camden Haven River was constructed, the main highway was aligned along what is now recognised as the old highway road. Sections of this road remain open, providing access to Rossglen, the Kew Police Station (site H23), and to Herons Creek.

The drawbridge was superseded by a reinforced concrete bridge on a new highway alignment in 1938-1939. The current highway alignment dates from this period. The bridge was constructed by Alf Anderson for 11,000 pounds. Both the concrete and timber bridges are shown on the 1943 1:63,360 Camden Haven topographic map. The 1956 Parish of Camden Haven map similarly shows the wooden bridge together with new concrete bridge and new highway alignment (Parish of Camden Haven 1956 9th Ed). The old bridge was eventually dismantled and the materials sold or burnt. The iron was bought by Sid Teidman, who operated a blacksmiths business at Johns River (CHHS 1997:68).

A set of concrete pylons remain standing immediately downstream of the existing Camden Haven River highway bridge (site H21). These relate to the structural failure of the first concrete bridge at this site. The structure was found to be cracking and was deemed to be unsafe. The bridge was subsequently demolished (pers. comm. Stan Foster 2000). The present bridge was quickly constructed on an alignment close to the first in 1984.

Under the direction of the NSW Main Roads Board, the Pacific Highway was gradually improved and by 1952 a continuous bitumen and concrete pavement was completed for its entire 592 miles from Sydney to Brisbane (Turner 1990:12).

Regular steamer services commenced from Port Macquarie to the Hunter in 1831 (Turner 1990:12). Steam powered shipping would become a principal means of transporting produce from the Camden Haven into the late nineteenth and early twentieth centuries. This was chiefly due to the navigable quality of the lakes and major rivers. The Allen Tayler & Co shipping line, for example, included regular stops at Camden Haven, Laurieton, Kew and Kendall, for both passengers and goods (Richards 1996:94). The number of ships using local ports and wharves on the Camden Haven, however, dwindled dramatically following the completion of the railway in 1914.

Several local references exist to the loss of various maritime craft, however further detail or confirmation has not yet been found (CHHS 1997:36). The 'Maori Queen' sank in Johns River [Stewarts River] near the mouth of Passion Fruit Creek (site H18). The 'Waldnesses', a ketch of 50 tons was struck by a squall and partly disabled, while attempting to leave Camden Haven with a cargo of timber. The craft foundered in the narrowest part of the channel and went ashore and was lost in 1878 (site H19) (CHHS 1997:36). This may refer to Camden Haven Inlet, near Laurieton, or to Kendall or Rossglen townships on the Camden Haven River all of which were formerly known by variants of the Camden Haven name (CHHS 1997:38,47).

In 1914 the first train ran on the newly completed Taree to Kendall line which had been under construction since 1910. Stops included Herons Creek, Kendall, Rossglen, Johns River and Moorland (CHHS 1997:71). Rossglen station was demolished after 1960. Herons Creek station was demolished in 1980 (HCPSC 1993:44). The Kendall station survives as the only original station building complex on the North Coast Railway (Higginbotham 1990:16). The line was extended to Wauchope in 1915 and reached Kempsey in 1917 (Turner 1990:12). Some original timber over-bridges remain on the line within the study area (sites H29, H30 & H31).



7.4 Sites identified in the Route Selection Study

The main historic themes identified in the study area are early exploration, lime-burning, the timber industry, grazing and transport corridors.

Thirty two historic sites were identified through literature review, local consultation and targeted field surveys conducted within and near the route selection study area (Navin Officer Heritage Consultants 2001). These included standing structures, ruins, archaeological deposits, and reported locations of buildings, bridges, and shipwrecks.

7.5 Concurrent Heritage Investigations

The RTA have advised that a study of the heritage significance of all pre 1948 RTA controlled concrete beam road bridges within the Northern Region will be commissioned in the future. This study will include the two existing highway bridges within the study area, bridge no. 1815 over Stoney Creek and no. 1820 over Herons Creek. (Refer section 10.3 for site details).

The regional scope and the site-type specialisation of this study will offer the most effective means of assessing the potential significance of the study area bridges and any management requirements. For these reasons, assessment of these sites has not been attempted in this investigation.



8. SITES LISTED ON HERITAGE SCHEDULES AND REGISTERS

Heritage databases were searched to ascertain if known sites in the study area were listed (refer section 4.1 for a list of schedules and registers consulted). The following listed or registered places/items occur in relative proximity to the preferred option. Only the Middle Brother Mountain Indicative Place listing on the Register of the National Estate and the National Trust (NSW) '*Brothers Mountains Coastal Conservation Area*' classification will be directly impacted by the preferred option.

- Middle Brother Mountain, consisting of the Middle brother State Forest and Middle Brother National Park is entered on the Register of the National Estates Database as an Indicative Place, ie it is not registered but is being considered for registration. Database No: 018856, File No: 1/18/140/0017. The entry is for natural heritage values only, (though the mountain also has high Aboriginal cultural values).
- The western easement boundary for the preferred option will encroach upon the current boundary of the Middle Brother State Forest between chainages 9000 – 9540 and 11630 – 11990.
- A '*Brothers Mountains Coastal Conservation Area*' is classified by the National Trust (NSW) and appears to include the basal slopes around Watson Taylors Lake. As a consequence this area includes the current pacific highway corridor, together with the associated preferred option.
- The Three Brothers Mountains are presently in the process of being considered by the NSW NPWS for gazettal as an Aboriginal Place under the National Parks and Wildlife Act.
- The Royal Hotel (formerly the Stables Hotel), corner Ocean Drive and Pacific Highway, Lot 1 D.P. 557965, Kew, is gazetted as a Heritage Item in the Hastings LEP (Gazette. No 86) (SHI Database no. 1730121).
- The Kew Police Station Building, No. 20 Tathra Road, Kew, Part Portion 62, is gazetted as a Heritage Item in the Hastings LEP (Gazette. No 86) (SHI Database no. 1730131).
- There are a number of Aboriginal sites which have been registered on the NSW NPWS Aboriginal Sites Register and occur within or partly within the study area (refer Section 6.0 above).
- There are no items or places within the study area which are listed on the Heritage and Conservation (section 170) Registers of the State Rail Authority, Roads and Traffic Authority, and the Department of Education and Training.



9. PREDICTIVE MODELS

Predictive models have been formulated for both Aboriginal and European archaeological sites in order to augment the limited known site database, and to provide a more effective basis for assessing the likely impact of a road option on heritage values. Brief descriptions of Aboriginal site types are provided in Appendix 3.

9.1 Aboriginal sites

Extensive archaeological research has been conducted throughout the central/north coast region of NSW (eg. Hall & Lomax 1993; Klaver & Heffernan 1991; Navin & Officer 1990). When combined with data collected in the course of the route selection study for the Moorland to Herons Creek project it is possible to generate a set of generalised criteria for predicting the location of Aboriginal sites within the landforms represented in the Moorland to Herons Creek study area.

The results of archaeological investigations to date indicate that along the NSW coast, rocky shore, beach, estuarine and hinterland environments were each exploited by Aborigines. The densest and most diverse remains are generally found along the coast where food resources were richer. Exploitation of estuarine and immediate hinterland environments was probably more sporadic and shorter term, possibly using freshwater swamps as a key resource zone.

General patterns of site location according to terrain and vegetation were described in the City of Greater Taree Heritage Study (Klaver & Heffernan 1991a, b and c). Site densities obtained by combining the existing sites on the NPWS Site Register with the results of limited field survey indicated that:

- 8% of sites were found in rugged terrain, predominantly in dry sclerophyll eucalypt forest,
- 3% were found in hilly to steep terrain,
- 19% were located in undulating to hilly terrain either in dry sclerophyll eucalypt forest, along estuarine stream bank corridors, or in coastal heath, and
- 70% were located in flat terrain, predominantly in coastal heath, and also along estuarine stream bank corridors, woodland, dry sclerophyll eucalypt forest and in subtropical rainforest.

Based on regional patterns of site occurrence, there is a high likelihood of the existence and discovery of Aboriginal sites in the widening floodplains of rivers such as the Stewarts and Camden Haven as they merge into the coastal plain.

Site location criteria may be summarised as follows:

- Open artefact scatters (or camp sites) are most likely to occur on relatively level, well-drained ground, adjacent to sources of freshwater (eg. swamps and creeks) and estuarine lakes and wetlands, or along the crests of ridgelines.
- Topographically pronounced ridgelines which afford effective through-access across, and relative to, the surrounding landscape will tend to contain more and larger sites, mostly camp sites evidenced by open artefact scatters.
- Estuarine shell midden sites may be located on elevated ground close to the estuarine environments of the Stewarts and Camden Haven Rivers, Herons Creek, and Watson Taylors Lake. Such sites may only be present as subsurface deposits, given their location on actively aggrading flood plain surfaces.
- Burial sites are generally found in landforms characterised by a relatively deep profile of soft sediments such as aeolian sand and alluvium. Burials can also occur in the deposits of occupation sites such as middens.
- Aboriginal scarred trees may occur wherever old-growth trees survive, typically within areas of selectively logged forest, or remnant vegetation on privately owned lands. Given the degree of logging within the study area, this type of site may be comparatively rare.



- Quarry or stone procurement sites are likely to be found in association with natural outcrops or accumulations of suitable rock types such as fine-grained igneous rocks, quartzites and silcretes. Exposures of conglomerate and fluvial channel gravels are the most likely sources within the study area.
- Sites such as rock shelters, grinding grooves and engravings are unlikely to be present in the study area due to the relative absence of suitable sandstones, and of bedrock exposures which support substantial overhangs.
- Isolated finds can occur anywhere in the landscape and may represent the random loss or deliberate discard of artefacts, or the remains of dispersed artefact scatters.
- The locations of mythological sites or story places can be identified from oral histories and remembered traditional knowledge. The Three Brother Mountains are good examples of natural formations that have traditional and special Aboriginal significance identified through story.
- Rare and fragile site types such as stone arrangements are difficult to predict, beyond the criteria for a relatively undisturbed and stable land surface.

9.2 Historic sites and features

The main historic themes identified in the general region of the study area are early exploration, lime-burning, the logging and milling industries, grazing and dairying, and the development of access and transport corridors, including water, road and rail transport (Turner 1990).

Most remaining historic structures and features are likely to be focused along the early centres and corridors of occupation, industry, travel and transport. These include the settlements of Johns River, Rossglen, Kew and Herons Creek; the navigable portions of the Stewarts River, Camden Haven River and Herons Creek, prominent river and creek crossings, and the north-south road corridors which connected these elements.

Sites and features of heritage significance which relate to historic settlement and which may occur within the study area are:

- the ruins of former structures and dwellings such as selector's and timber-getters huts;
- timber mills and associated infrastructure such as timber pole structures, remains of machinery, tracks and tramways;
- standing buildings and other infrastructure within town and urban landscapes;
- traces of agricultural and industrial processing or extractive sites such as dairies, factories, and quarries;
- rail corridor features and infrastructure;
- archaeological sites such as the remains of former structures and dwellings such as homesteads, houses and huts, including associated refuse dumps;
- transport and access routes such as bridle paths, stock routes, and highway alignments of varying forms and ages;
- road and rail bridges
- movable objects and fragments, including domestic articles such as bottles and porcelain, and agricultural or industrial objects such as equipment remnants including ploughs and vehicles;
- shipwrecks and other submerged structures or deposits such as wharves and piers associated with activities on the local waterways.

Structures of historic interest and heritage significance may be standing, ruined, buried, abandoned or still in use.



10. STUDY RESULTS

10.1 Aboriginal sites

Eight Aboriginal sites and six areas of archaeological potential (PADs) have been identified within, or in relative proximity to, the preferred option. These recordings are described below. Illustrations of many of the recordings are provided in Appendix 5. A site summary with map grid references is provided in Table A61 (in restricted Appendix 6). Site locations are shown in Figures A6:1, A6:2 and A6:3 (in restricted Appendix 6).

A1 Isolated Find

This isolated artefact was located on the mid-slopes of a low spurline, west of the Highway and adjacent to Watson Taylors Lake. The artefact was visible on a gravel vehicle track (150 x 4 m). The site condition was generally good. The potential for the site to be larger than recorded and to contain *in situ* subsurface material is considered to be moderate.

This site will not be subject to direct impact from highway upgrade construction works. It is situated within the existing highway easement, and approximately 30m west of (and upslope of) proposed earthworks for the highway upgrade.

1. dark grey meta-sedimentary flake, (fine grained chert?), potlid fractures on ventral surface 33 x 24 x 6 mm

A3 Artefact Scatter

This site consists of scatter of stone artefacts exposed along a track (150 x 3 m) situated on the crest of a low spurline which runs parallel to the northern bank of Stewarts River and west of the railway line, between the railway line and the highway. The track serves as a driveway to a nearby home, which was transported to the site 12 years ago. The site condition is very good. The potential for the site to be larger than recorded and to contain more artefacts is considered to be high. The potential for the site to be associated with *in situ* subsurface material is considered to be moderate.

This site is located 10 m south of the existing highway easement and approximately 30 m south of proposed earthworks for the highway upgrade.

1. dark grey patinated meta-sedimentary flake, partially backed - with backing along half on one margin, 29 x 25 x 6 mm
2. dark grey patinated meta-sedimentary flake fragment (broken), 10 x 9 x 4 mm
3. dark grey fine-grained chert retouched flake, secondary flaking along one margin, 28 x 18 x 6 mm
4. dark grey fine-grained chert flake, broken, 27 x 17 x 6 mm
5. dark grey fine/medium grained meta-sedimentary flake, recent edge damage, 43 x 30 x 7 mm
6. grey silcrete flake, broken, 32 x 20 x 15 mm
7. grey silcrete core, bipolar working, 15% alluvial pebble cortex, 50 x 34 x 23 mm

A6 Isolated Find

This isolated artefact was identified within an extensive area of recently ploughed ground situated on low gradient basal slopes 350 m south of Herons Creek and just north of Cluleys Road. The area of exposure was 300 x 300 m, with an exposure incidence of 98% and visibility of 95%. The site condition is good. The potential for the site to be larger than recorded and to contain more artefacts is considered to be low. The potential for the site to be associated with *in situ* subsurface material is considered to be low.



1. light grey fine-grained meta-sedimentary retouched flake, (unpatinated colour is dark grey), secondary flaking/usewear along one margin, recent breakage evident, 51 x 25x 13 mm

This site would be directly impacted by earthworks associated with the Cluleys Road intersection and approach.

A7 Aboriginal Scarred Tree

This possible Aboriginal scarred tree (based on a possible/probable/definite scale (Refer Appendix 4) is situated on the mid-slopes of a low spurline near the intersection of Bobs Creek Road and the Pacific Highway, approximately 400 m north of the Herons Creek Bridge. The tree is a Eucalypt which has rough, fine bark in the lower 1/3 and smooth cream bark (with scribbles) on the top 2/3. The edges of the original scar are impossible to determine from surface features alone. The tree is in excellent condition, although hollow. The original scar surface is burnt and missing. An alternative origin for the scar may be as a result of fire - the scar may have originally extended to the ground.

This site is situated just outside of, and east of, the existing and highway upgrade easement. It will not be directly impacted by construction works. (Plate 1).

Approximate height of tree:	30-35m
Girth of tree (at breast height)	4.65m
Maximum scar length (including regrowth):	288+cm
Inside scar length (excluding regrowth):	181cm
Maximum scar width (including regrowth):	60+cm
Inside scar width (excluding regrowth):	14cm
Maximum width of regrowth:	indeterminate
Maximum depth of regrowth:	indeterminate
Height of inside scar above ground:	95cm
Scar faces	N
Axe marks?	none visible

A8 Possible Aboriginal Scarred Tree

This possible Aboriginal scarred tree (based on a possible/probable/definite scale) is situated on the mid-slopes of a low spurline near the intersection of Bobs Creek Road and the Pacific Highway, approximately 400 m north of the Herons Creek Bridge. The tree is a Eucalypt which has rough, fine bark in the lower 1/3 and smooth cream bark (with scribbles) on the top 2/3 (same species as A7). The tree is in excellent condition. The original scar surface is missing. The scar may have an alternative European origin related to the TSR.

This site is situated just outside of, and east of, the existing and highway upgrade easement. It will not be directly impacted by construction works. (Plate 2).

Approximate height of tree:	30-35m
Girth of tree (at breast height)	4.86m
Maximum scar length (including regrowth):	164+cm
Inside scar length (excluding regrowth):	65cm
Maximum scar width (including regrowth):	60+cm
Inside scar width (excluding regrowth):	12cm
Maximum width of regrowth:	29+cm
Maximum depth of regrowth:	indeterminate
Height of inside scar above ground:	89cm
Scar faces	NE
Axe marks?	none visible



A14 Reported Place of Last Local Aboriginal Corroboree in 1903 (general location)

This recording is the reported location of the last Aboriginal corroboree conducted in the local area. The location was shown to Stan Foster by Davey Lachlan, an earlier resident who moved to the district in 1879 and was taught bushcraft by local Aborigines. The corroboree is said to have taken place in 1903. The reported location occurs in the general area of the boundary of remnant forest and grasslands, on southeast-facing, low gradient spurline upper slopes.

This area is situated west of and adjacent to, but outside of, the existing and highway upgrade easement.

A16 Possible Aboriginal Scarred Tree

This tree is located in open forest on basal slopes 500 m south Camden Haven River, approximately 40 m southwest of the Pacific Highway (from a point just south of an existing drainage culvert), and 5 m southwest of an unsealed forestry track. The tree is situated between the track and a row of remnant wooden posts for a former round-wire fenceline, and is some 45 m west of the junction of the unsealed track and a recent, rough logging track.

The tree is a smooth-barked Eucalypt and appears to be in poor health. It is missing major crown limbs, has some dieback, and 80% of the canopy has poor leaf cover. Half of the tree trunk is dead. The original scar surface is partly missing and exhibits some termite activity. (Plate 3).

Alternative interpretations for the scar are that it may be an old forestry scar or a boundary marker scar.

The tree is situated within the existing highway easement, and between a proposed new carriageway and a new service road (for Ross Glen Road) – both on the west side of the existing highway carriageway. Based on measured distances from the existing highway blacktop, the proposed cut for the new carriageway will be around 8 m northeast of the tree.

Approximate height of tree:	30-40m
Girth of tree (at breast height)	4.1 m
Inside scar length (excluding regrowth):	118cm
scar length (including regrowth):	275cm
Maximum width of regrowth	35-40cm
Maximum depth of regrowth	22cm
Maximum scar width (excluding regrowth):	35cm
Maximum scar width (including regrowth):	108?cm
Height of inside scar above ground:	125cm
base of regrowth above ground	75cm
Scar faces	S
Axe marks?	no

NPWS Site No. 30-6-02 Middle Brother Mountain

This site is a traditional Aboriginal story place and a cosmological site of regional significance. Refer section 6.2.1 (above) for more detail. There is no clearly defined boundary for the site or the area with Aboriginal significance. Discussions with local Aboriginal community representatives indicate that the whole mountain is significant and that this is inclusive of its basal slopes. The existing highway traverses the basal slopes of the mountain where they interface with the flats fringing Watson Taylor Lake and Stewarts River. The highway upgrade will include new earthworks including filling and excavation within the same general corridor as the existing highway.

10.2 Areas of Identified Archaeological Potential

Six areas of subsurface archaeological potential were identified within or in relative proximity to the preferred option. These are termed Potential Archaeological Deposits (or PADs). They comprise landforms that could be expected to contain traces of Aboriginal occupation based on predictive site



location modelling, but where poor ground surface visibility precluded an adequate assessment of archaeological sensitivity.

PAD1 - Terrace remnant south of Stewarts River

This recording consists of a locally elevated rise situated between a small drainage gully to the southwest, and the edge of an upper alluvial terrace to the north (Plate 4). The rise appears to be a remnant of the adjoining upslope terrace, and owes its present form to the removal of surrounding sediment through flood scour and gullying. The rise has the form of a low spurline that is aligned approximately northwest – southeast.

The terrace is situated on the southern edge of the current Stewarts River floodplain and is located some 50 m southeast of the southern abutment of the present highway bridge over the River.

The approximate dimensions of the PAD are 60 x 20 m. The deposit is considered to have moderate to high archaeological potential.

This PAD is situated outside of the existing and proposed highway upgrade easement and will not be directly impacted by the highway upgrade works.

PAD2 – Stewarts River floodplain

This recording consists of the southern bank of Stewarts River, associated levee deposits, alluvial flats and a low terrace platform located within the area of the proposed road crossing of the river (Plate 5). The upper soil profile on the levee and alluvial flats in this location are likely to date to the historic period, however there is potential for prehistoric Aboriginal archaeological remains to occur in lower sediments. The PAD includes a margin of land up to 200 m from the southern riverbank. The northern riverbank is extensively disturbed and does not have archaeological potential.

The deposit is considered to have archaeological potential ranging from low to moderate.

This PAD would be directly impacted by excavations for bridge pier foundations, and by general movement of heavy machinery within the easement.

PAD3 – Terrace margin north of Camden River

This recording consists of the edge of an upper alluvial terrace and an associated 50 m to 100 m margin of ground upslope from the terrace scarp. The terrace is situated on the northern edge of the current floodplain of the Camden Haven River, which at this location is swampy and forms an intermittent wetland basin. The PAD provides a locally elevated landform adjacent to the wetland. A prominent advertising billboard has been constructed on the terrace edge (Plate 6).

The terrace edge extends into the current and proposed western side of the highway easement and has been partially disturbed by the excavation of a drainage channel. Although, some good ground surface exposures were inspected within the channel section, no artefactual material was observed. The channel cutting reveals a duplex soil with a distinct A and B-horizon boundary. Despite the lack of observed artefacts, the predictive Aboriginal site location model would indicate a moderate to high archaeological potential for this landform.

The terrace has been extensively disturbed on the eastern side of the proposed highway and no potential exists in this area.

This PAD extends into the existing highway easement on the western side of the existing carriageway. Apart from drainage works, all proposed highway upgrade works will be situated to the east of the existing carriageway. There is therefore no construction-related requirement to directly impact this PAD.



PAD4 - Northern creek bank and terrace deposit south Herons Creek

This recording consists of the locally elevated northern banks of an unnamed tributary situated on the western and eastern side of the present highway, to the south and east of the highway intersection with the road into Herons Creek township (Plate 7). This landform appears to be a remnant portion of a high alluvial terrace deposit. West of the highway, the ground on the southern side of the creek is low-lying and has low archaeological potential. Some isolated areas on the northern side of the creek may have been impacted by the removal of tree stumps, and possibly also by grading, however the creek bank reveals a natural soil profile suggesting that the northern elevated landform is not the result of artificial filling. To the east of the highway, the creekline changes its direction from east to north and drains onto the Herons Creek floodplain. The creek gully has cut through the edge of a high alluvial terrace and consequently formed a pronounced and elevated spur between the gully and the terrace edge which extends some 30 m to the east of the highway.

The approximate dimensions of the PAD are 150 m in length, and extending up to 50 m upslope from the creek bank. This area is considered to have archaeological potential ranging from low to moderate.

This PAD will be directly impacted by filling on either side of the existing carriageway.

PAD5 – Terrace margin south of Herons Creek

This recording consists of the edge of an elevated alluvial terrace and any associated relatively undisturbed ground, extending away from the terrace scarp (Plate 8). It is situated to the east and west of current highway. This PAD is situated on the same terrace landform as PAD4 and is bordered on its eastern side by the same unnamed tributary creekline. The area was inspected from the adjacent highway easement because access was not available to the survey team. A farmhouse and associated outbuildings occupy a portion of the terrace surface on the west side of and adjacent to a highway cutting. The construction of these buildings is likely to have disturbed or destroyed any archaeological deposits within the building 'footprint' and an ill-defined adjacent margin. Despite this development area, archaeological potential exists in surrounding areas and on the eastern side of the existing highway. Other areas of potential are situated on the basal slopes of the terrace scarp. These slopes area adjacent to the present Herons Creek floodplain.

The approximate maximum extent of this PAD is 200 x 150 m. The area is considered to have moderate archaeological potential.

This PAD will be directly impacted by both filling and excavation on either side of the existing carriageway.

PAD6 – Levee deposit on south bank of Herons Creek

This recording consists of elevated ground between Herons Creek and a flood channel to the south, on the western side of the present highway., This deposit is immediately adjacent to the southern bank of Herons Creek and most probably represents a levee bank. The high ground is approximately 10 to 15 m south of the actual creek bank, and around 15 to 20 m southwest of a footbridge over Herons Creek. The area is vegetated with a regenerating low wet forest including camphor laurels and a vine understorey.

The approximate dimensions of the PAD are 100 x 20 m. The area is considered to have archaeological potential ranging from low to moderate.

This PAD will be directly impacted by filling associated with a new northbound carriageway.



10.3 European sites

Eleven European sites have been identified as occurring within, or in relative proximity to, the preferred option. These recordings are described below. Illustrations of many of the recordings are provided in Appendix 5. A site summary is provided in Table 1. Site locations are shown in Figures 10.1, 10.2 and 10.3.

H9 Reported former school site

This site comprises the approximate location of a reported school site that serviced children from workers' families on Ivers Mill and surrounding areas. The Mill started in 1932. Only 8 or 9 children attended the school (pers. comm. John Foster 2000). The building was said to have red cedar detailing and operated in the 1940s and 50s. It was located in a clearing, approximately 100 m west of the highway, opposite Ivers Mill (now demolished). Garden bulbs are said to still grow at the site. After the closure of the school, the building is said to have been used by 'swaggies' who burnt the cedar fittings for warmth (pers. comm. John Foster 2002).

This location has been extensively disturbed by forestry track construction and logging depot operations. The area is characterised by former tracks and graded piles of spoil. No trace of a building platform, or remnants of a structure could be found. A single small fragment of white clear glazed ceramic was noted. It is concluded that no appreciable remains of this structure remain within its reported former location.

This recording is located outside of the existing and highway upgrade easement and is situated approximately 25 m to the west of proposed areas of construction fill.

H21 Pylon remains of former concrete Pacific Highway bridge

This site consists of a set of concrete pylons and associated abutments located immediately downstream of the existing Camden Haven River Pacific Highway bridge (Plate 11). These relate to the first concrete bridge at this site that suffered structural failure. The structure was found to be cracking and was deemed to be unsafe and subsequently demolished. The present bridge was quickly constructed on an alignment close to and immediately west of the first bridge in 1984. This site is some 30 m east of the existing bridge.

The highway upgrade involves the construction of a new parallel bridge to the west of the current bridge, ie. upstream from these remains. Construction works for the highway upgrade will not directly impact the pylons. However, the RTA may consider removing the pylons to improve river navigation and amenity, depending on an assessment of practicality and cost-effectiveness.

H23 Section of a former Pacific Highway alignment

This is a 550 m section of former Pacific Highway is located south of the Kew police station and can be followed for a distance of 500 m. The road platform averages 5 m in width and consists of a gravelly clay substrate which is overlain with a surface of locally quarried alluvial conglomerate pebbles. No culverts are evident. The corridor includes both a section of elevated road platform and an excavated cutting up to 80 cm deep (Plate 12). Significant gulying and associated erosional loss of the road surface and foundation is occurring within the sloped cutting at the southern end of the road remnant. Some C19th century glass fragments are visible on adjacent slopes.

This road section follows the original nineteenth century roadway to the south of Kew (c.f. Camden Haven Parish map 2nd Ed c1886). The road served as the main thoroughfare until the present highway alignment was constructed in the early 1940s. (Figure 10.1). The morphology of the road therefore probably dates from this period, with some modifications related to maintenance. The road appears to have become impassable in the last 10-20 years due to erosion and the cessation of maintenance.

All but the far northern end of this remnant will be directly impacted by the highway upgrade.



Most of the road remnant will be directly impacted by construction of the highway upgrade.

H33 Section of former Pacific Highway alignment

This recording consists of an approximately 200 m interval of a now disused portion of the former Pacific Highway. It is located some 400 m north of the Johns River general store and garage. The road is now overgrown (Plate 9).

The road is situated along an original late nineteenth century road reserve and alignment, however the current road morphology relates to the 1980s, when this section of highway was bypassed when the present Stewarts River highway bridge was constructed (c.f. Stewart Parish map 2nd Ed 1880s). The road platform has been raised above the natural land surface that is relatively low lying, especially to the west, and averages 13 m to 14 m in width, including shoulders. The road originally contained a sealed bitumen surface.

This road remnant would be directly impacted by the highway upgrade.

H34 Surface scatter of nineteenth century glass and ceramic fragments

This recording consists of a surface scatter of late nineteenth century bottle glass and ceramics, in an area of approximately five by eight metres (Plates 13 and 14). The scatter is located on the basal, south facing slopes of a ridgeline saddle, some 60 m north of Ocean Drive. It is situated adjacent to, and north of, a dirt entrance track. The area has been heavily disturbed by logging. Soils in the area are shallow and the site has poor potential to contain significant or *in situ* subsurface archaeological deposits.

It is probable that this scatter is the remains of a dump situated behind a residential house or other building. The most probable location for such a structure was downslope and to the south, facing Ocean Drive. This area has been heavily disturbed by earthworks and there appears to be no potential for subsurface remains.

This recording will be directly impacted at least partially by construction of a traffic circle on Ocean Drive.

H35 Tree stump with springboard notches

This site is located approximately 70 m east of the existing highway within forested crown land. The site consists of the stump of a large Eucalypt tree which has been felled by hand using axes and springboards to reach the desired cut point (Plate 16). Four springboard notches are evident, two on the north side (100 and 250 cm above the ground) and two on the south side (110 and 230 cm above the ground). Typical notch dimensions are 15 x 4 x 10 cm (L x W x D). The stump is around 3.8 m high and has been impacted by fire and termite attack. The stump is now hollow for most of its length.

This is a typical example of perhaps three or four similar sites situated within the study area.

The stump will not be directly impacted by the development. It is located approximately 27 m east of the boundary of the highway upgrade easement, and approximately 46 m east of a proposed cut boundary.

H36 Tree stump with springboard notches

This site is located just outside of the existing road easement (but also outside of private boundary fencing), on the southwestern side of the highway intersection with the access road to Herons Creek township. The site consists of the stump of a large Eucalypt tree which has been felled by hand using axes and springboards to reach the desired cut point. A number of springboard notches are evident. The stump is around 2.0 m high and has been impacted by fire and termite attack. The stump is in relatively poor condition.



This site would be directly impacted by highway construction. It is situated within an area of proposed fill.

H37 Concrete Beam Pacific Highway Bridge over Stoney Creek (RTA Bridge No. 1815)

This single span bridge was built in 1938 and is of concrete beam construction. It was widened in 1980. The span length is 15.2 m and the total bridge length is 24.1 m. The current bridge width is 9.2 m.

This bridge will be replaced as part of the highway upgrade.

H38 Concrete Beam Pacific Highway Bridge over Herons Creek (RTA Bridge No. 1820)

This double span bridge was built in 1940 and replaced a low level and angled crossing (possibly a ford) of Herons Creek along an original nineteenth century road alignment. The bridge is of concrete beam construction. It was widened in 1977. Each span length is 12.2 m and the total bridge length is 25.4 m. The current bridge width is 9.2 m.

This bridge will be replaced as part of the highway upgrade.



Table 1: Inventory of historic sites

Site ID Map Code	Site Type	AMG Reference (AGD) based on 2 nd Ed 1:25k topographic maps	Area/boundary description	Anticipated impact or location relative to preferred option	Comments	Approximate Chainage (N=northbound S=southbound)
H9	reported former school site	47490.649430	remains reportedly occur within a 60 m radius of this point	outside of highway easement, approx. 25 m west of construction fill	approximate location only	9550 N
H21	pylon remains of former concrete Pacific Highway bridge over Camden Haven River	47451.649715 – 47476.649704	situated around 30 m east (downstream) of the existing highway bridge	will not be directly impacted by construction works	may be demolished at request of government authorities	12625 – 12770 S
H23	section of former Pacific Highway, dates to the early 1940s	47354.649901 – 47364.649951	follows or approximates alignment of existing dirt track and/or cadastral road easement, approx. 550 m long	all but far northern end of road remnant will be directly impacted by construction works	extends south of Kew police station, N	14840 – 15300 N
H30	wooden road bridge over North Coast Railway, just north of Stewarts River	47251.649093	site includes bridge structure and abutments	bridge is located outside of, highway easement and approx. 25 m away from construction fill	may date from 1914	5150 S
H32	section of former Pacific Highway, dates to the early 1940s	47392.650097 – 47386.650062	road remnant follows contour in an arc to the east and between the two defined points, approx. 300 m in length	most of the road remnant will be directly impacted by highway construction	poorly preserved at either end where abuts existing carriageway	16600 – 16900 S
H33	section of former Pacific Highway, dates to 1980s	47120.648957 – 47126.648980	straight 200 m remnant, just N of Johns River town	will be directly impacted by highway construction		3200 – 3450 S
H34	surface scatter of late nineteenth century glass and ceramic fragments	474045.6499904	basal, south facing slopes of a ridgeline saddle, scatter is approx. 5 x 8 m	will be directly impacted, at least partially by new traffic circle on Ocean Drive		15828 S
H35	tree stump with springboard notches	474315.6504533	crest of broad, ill-defined spurline	around 27 m east of new highway easement boundary, 46 m east of construction excavations		20545 S



Site ID Map Code	Site Type	AMG Reference (AGD) based on 2 nd Ed 1:25k topographic maps	Area/boundary description	Anticipated impact or location relative to preferred option	Comments	Approximate Chainage (N=northbound S=southbound)
H36	tree stump with springboard notches	47425.650511	just SW of intersection of Highway with access road to Herons Creek	will be directly impacted by highway construction	poor condition	21107 N
H37	1938 Concrete Pacific Highway bridge	47467.649360	spans Stoney Creek	will be replaced by new bridge	widened in 1980	8784 S
H38	1940 Concrete Pacific Highway bridge	474350.650555	spans Herons Creek	will be replaced by new bridge	widened in 1977	21550 S

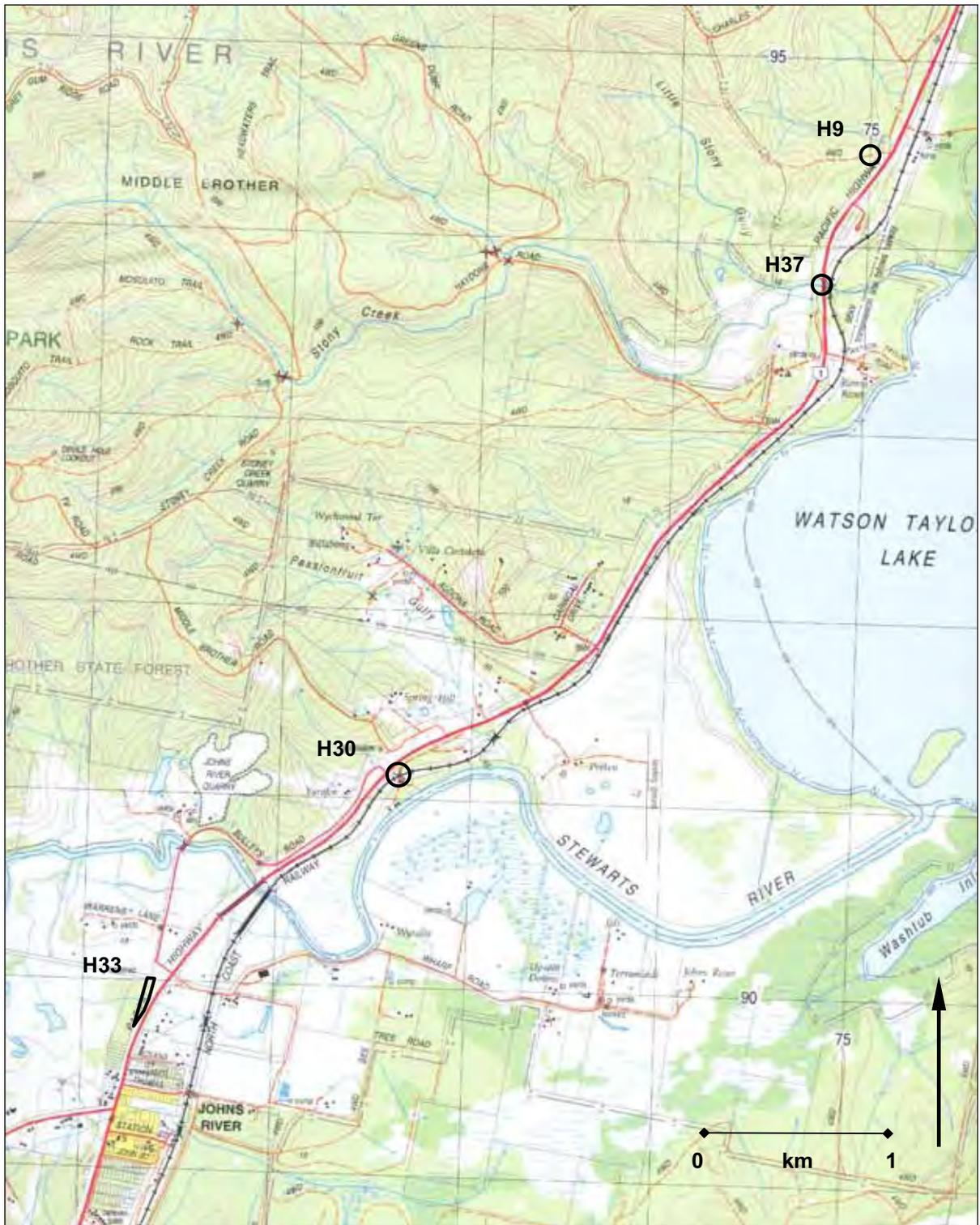


Figure 10.2 Location of historic sites and features within, and close to, the Moorland to Herons Creek study area (Lorne 1:25,000 topographic 3rd Ed LIC 2000).



Figure 10.3 Location of historic sites and features within, and close to, the Moorland to Herons Creek study area (Lorne 1:25,000 topographic 3rd Ed LIC 2000)..

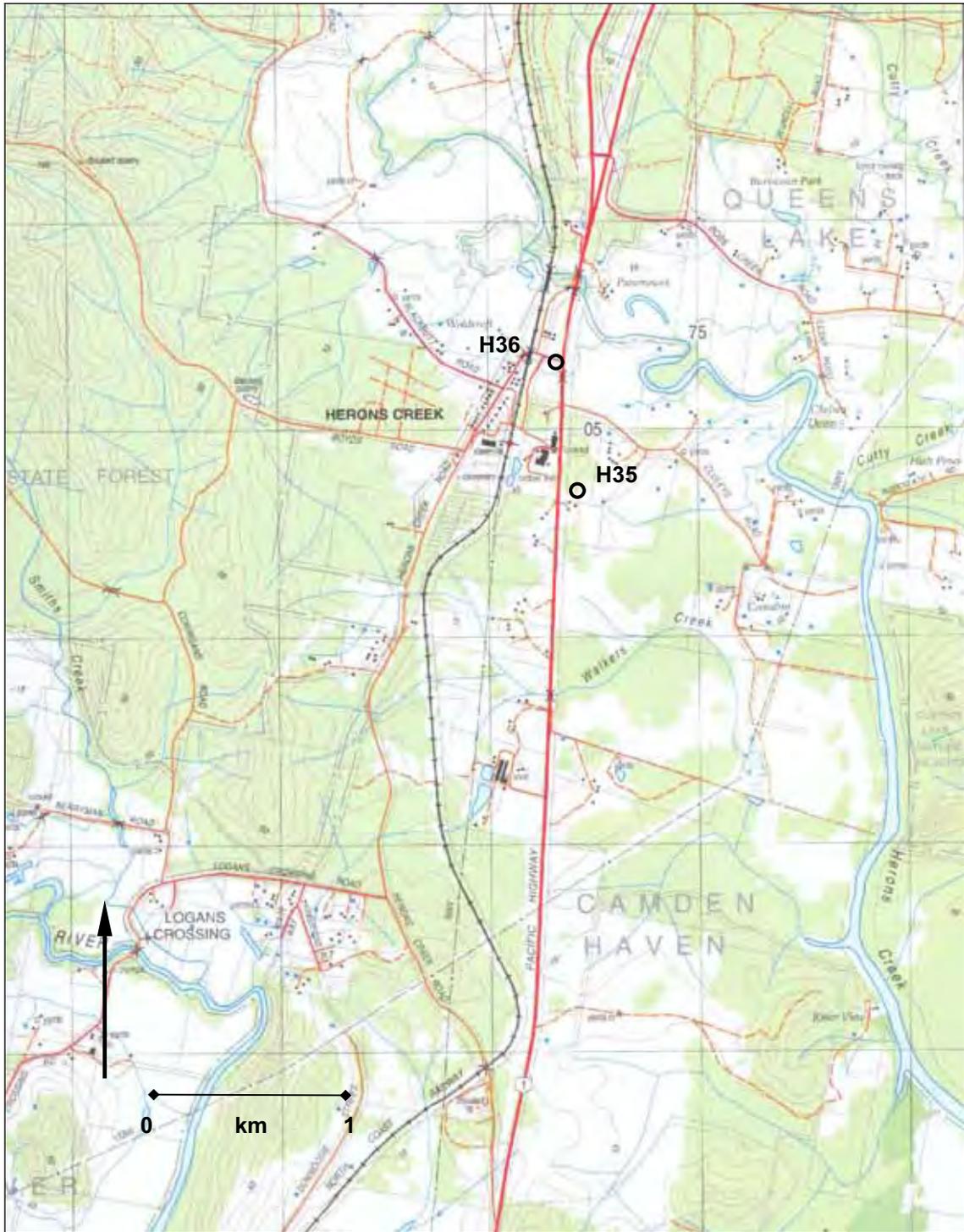


Figure 10.4 Location of historic sites and features within, and close to, the Moorland to Herons Creek study area (Bybarra 1:100,000 topographic map 3rd Ed LIC 2000).



11. SIGNIFICANCE ASSESSMENT

11.1 Aboriginal Heritage

11.1.1 Assessment Criteria

The Burra Charter of Australia defines cultural significance as 'aesthetic, historic, scientific or social value for past, present and future generations' (Aust. ICOMOS 1987). The assessment of the cultural significance of a place is based on this definition but often varies in the precise criteria used according to the analytical discipline and the nature of the site, object or place.

In general, Aboriginal archaeological sites are assessed using five potential categories of significance:

- significance to contemporary Aboriginal people,
- scientific or archaeological significance,
- aesthetic value,
- representativeness, and
- value as an educational and/or recreational resource.

Many sites will be significant according to several categories and the exact criteria used will vary according to the nature and purpose of the evaluation. Cultural significance is a relative value based on variable references within social and scientific practice. The cultural significance of a place is therefore not a fixed assessment and may vary with changes in knowledge and social perceptions.

Aboriginal significance can be defined as the cultural values of a place held by and manifest within the local and wider contemporary Aboriginal community. Places of significance may be landscape features as well as archaeologically definable traces of past human activity. The significance of a place can be the result of several factors including: continuity of tradition, occupation or action; historical association; custodianship or concern for the protection and maintenance of places; and the value of sites as tangible and meaningful links with the lifestyle and values of community ancestors. Aboriginal cultural significance may or may not parallel the archaeological significance of a site.

Scientific significance can be defined as the present and future research potential of the artefactual material occurring within a place or site. This is also known as archaeological significance.

There are two major criteria used in assessing scientific significance:

1. The potential of a place to provide information which is of value in scientific analysis and the resolution of potential research questions. Sites may fall into this category because they: contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a constituent of a larger significant structure such as a site complex.
2. The representativeness of a place. Representativeness is a measure of the degree to which a place is characteristic of other places of its type, content, context or location. Under this criteria a place may be significant because it is very rare or because it provides a characteristic example or reference.

The value of an Aboriginal place as an educational resource is dependent on: the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

The principal aim of cultural resource management is the conservation of a representative sample of site types and variation from differing social and environmental contexts. Sites with inherently unique



features, or which are poorly represented elsewhere in similar environment types, are considered to have relatively high cultural significance.

The heritage significance of a place can be usefully classified according to a comparative scale which combines a relative value with a geographic context. In this way a site can be of low, moderate or high significance within a local, regional or national context. This system provides a means of comparison, between and across places. However it does not necessarily imply that a place with a limited sphere of significance is of lesser value than one of greater reference.

The following assessments are made with full reference to the scientific, aesthetic, representative and educational criteria outlined above. Reference to Aboriginal cultural values has also been made where these values have been communicated to the consultants. It should be noted that Aboriginal cultural significance can only be determined by the Aboriginal community, and that confirmation of this significance component is dependent on written submissions by the appropriate representative organisations. It can be noted that all Aboriginal sites are important to Aboriginal people as tangible links with their past.

11.1.2 The Study Area

Scarred Trees - Recordings A7, A8 and A16

Based on the present database, scarred trees must be considered a locally rare site type and sites A7, A8 and A16 could be considered to be of high local significance. However an Aboriginal origin cannot definitely be attributed to these scars due to difficulties in assessing the age of the trees and the scar regrowth.

On present indications trees A7 and A8 will not be adversely impacted by the proposed road development.

Tree A16 is situated around 8 m from a proposed carriageway excavation and in relative proximity to a side road providing access to Ross Glen Road. If it is anticipated that this tree will be unavoidably impacted by development works, further assessment by a botanist is required before a fully informed assessment of cultural significance can be made.

Based on the present level of recording for these sites, A7, A8 and A16 are considered to have moderate to high significance within a local context.

Artefact Scatters & Isolated Finds - Recordings A1, A3 and A6

Other than to record their locations and content, small and/or disturbed artefact scatters and isolated finds are generally not considered significant under the categories defined above. However, site A1 and A3 have moderate potential to be associated with *in situ* subsurface material. If impact is anticipated in the vicinity of these sites then further investigation in the form of archaeological subsurface testing would be required to enable an informed cultural heritage assessment to be made.

Sites with stratified deposits (meaning chronologically distinct layers of occupation remains), or large assemblages of subsurface and relatively undisturbed artefacts, are likely to have a high significance within a local and regional context.

Isolated Find A6 is considered to have low significance, based on the low potential for the site to be: larger than recorded, to contain more artefacts, and to be associated with *in situ* subsurface material.

Reported Aboriginal Sites - Recording A14

This site has high significance to the local Aboriginal community as the location of a 'corroboree' within historic times (1903). The close proximity of this site to Kew, and the fact that it was remembered by the local European community suggests that the 'corroboree' did not include secret or restricted elements and may have been intended as a public display. This recording provides a



link with the social practices of the local Aboriginal community around the turn of the twentieth century.

The significance of this site rests primarily with its cultural significance to Aboriginal people. Further archaeological investigation of the site is unlikely to change or further our understanding of the site.

This site is considered to have moderate to high significance within a local context.

Middle Brother Mountain - Recording NPWS #30-6-2

The Middle Brother Mountain has strong and special cultural significance to the Aboriginal communities of the NSW mid and north coast. Together, the North, Middle and South Brother Mountains constitute a traditional story place and an integral part of the cultural landscape and cosmology of the NSW North Coast. Middle Brother Mountain can be considered to have high Aboriginal cultural significance within local and regional contexts.



11.2 European Heritage

11.2.1 Assessment Criteria

The NSW Heritage Office and Department of Urban Affairs and Planning have defined a set of criteria and methodology for the assessment of cultural heritage significance for items and places, where these do not include Aboriginal heritage from the pre-contact period (NSW Heritage Office & DUAP 1996, NSW Heritage Office 2000). The assessments provided in this report follow the Heritage Office methodology.

The following heritage assessment criteria are those set out for Listing on the State Heritage Register. In many cases items will be significant under only one or two criteria. The State Heritage Register was established under Part 3A of the Heritage Act (as amended in 1999) for listing of items of environmental heritage which are of state heritage significance. Environmental heritage means those places, buildings, works, relics, moveable objects, and precincts, of state or local heritage significance (section 4, Heritage Act 1977).

An item will be considered to be of State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

- Criterion (a)** an item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (b)** an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (c)** an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
- Criterion (d)** an item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
- Criterion (e)** an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (f)** an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);
- Criterion (g)** an item is important in demonstrating the principal characteristics of a class of NSW's
 - cultural or natural places; or
 - cultural or natural environments.
 - or a class of the local area's
 - cultural or natural places; or
 - cultural or natural environments.

An item is not to be excluded from the Register on the ground that items with similar characteristics have already been listed on the Register. Only particularly complex items or places will be significant under all criteria.

In using these criteria it is important to assess the values first, then the local or State context in which they may be significant.

Different components of a place may make a different relative contribution to its heritage value. For example, loss of integrity or condition may diminish significance. In some cases it is constructive to note the relative contribution of an item or its components. The following table provides a guide to ascribing relative value:



Grading	Justification	Status
Exceptional	Rare or outstanding item of local or State significance. High degree of intactness Item can be interpreted relatively easily.	Fulfils criteria for local or State listing.
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Little	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.
Intrusive	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.

11.2.2 The Study Area

Site Identification	Grading under Significance Criteria							Summary
	a	b	c	d	e	f	g	
H9 reported former school site								below threshold of significance criteria
H21 pylon remains of former concrete Pacific Highway bridge over Camden Haven River	L							below threshold of significance criteria
H23 former highway remnant	M						M	moderate significance within a local context: local representative value
H30 wooden rail over-bridge	M						H	moderate significance within a local context
H32 former highway remnant	L						L	below threshold of significance criteria
H33 former highway remnant								below threshold of significance criteria
H34 scatter of C19th artefacts	L				L			below threshold of significance criteria



Site Identification	Grading under Significance Criteria							Summary
	a	b	c	d	e	f	g	
H35 tree stump with notches							M	low significance within a local context
H36 tree stump with notches							L	below threshold of significance criteria
H37 concrete beam bridge	<i>pending current investigation by RTA</i>							(refer section 7.5)
H38 concrete beam bridge	<i>pending current investigation by RTA</i>							(refer section 7.5)



12. IMPACT ASSESSMENT AND MITIGATION STRATEGIES

12.1 Aboriginal recordings

Aboriginal heritage recordings A1, A3, A7, A8, A14, and PAD1 will not be directly impacted by construction of the preferred option. Of these, site A14, the reported location of the 1903 Aboriginal corroboree is located immediately adjacent to the western boundary of the existing highway easement and site A3 is approximately 10 m south of the easement. Site A1 is situated within the existing highway easement.

In order to prevent accidental damage to these sites, their location should be identified on construction management plans with a clear statement of the requirement to avoid ground disturbance in these areas. If there is an assessed risk of accidental impact from adjacent earthworks or machinery movements, then temporary fencing should be erected between the site and the zone of construction activity to define no-go and no-disturbance areas.

The possible Aboriginal scarred tree A16 is situated approximately 8 m southwest of a proposed cut for a new northbound carriageway. The preferred management strategy is to conserve the tree alive and *in situ* within the road easement. In order to realise this aim the following actions are required:

- Conduct an accurate survey of the tree and confirm its location relative to the edge of proposed earthworks.
- Erect a temporary fence around the tree, inclusive of its estimated root zone (roughly equivalent to a radius defined by the furthest extent of the tree canopy), for the period of construction. The aim of the fence is to define a no-go and no disturbance area, off limits to heavy machinery and materials storage.
- Prevent ground surface disturbance and excavation within the area of the tree's root zone. Drainage ditches should be located downslope and outside of this zone.
- Maximise the retention of native vegetation around the tree.

If accurate survey of the tree determines a location subject to unavoidable construction impact then further assessment of the tree by a botanist is required. This would aim to determine the probable age of the tree, and in particular the age and origin of the scar. An age determination that was consistent with an Aboriginal origin would strengthen the interpretation made in this report. Appropriate management strategies should be developed for the tree commensurate with its interpretation and the nature of the unavoidable impact. This may involve archival recording and/or physical salvage of the scar, or a recommendation for no further work.

Isolated Find A6 will be directly impacted by construction works. It is recommended that application be made to the Director-General of the Department of Environment and Conservation for a Section 90 permit to disturb this relic. The local Land Council have expressed their desire to recover any artefacts in areas which will be subject to direct impact.

The potential archaeological deposits PAD2, 4, 5 and 6 will be directly impacted by construction works. All will be impacted by placing fill material over the existing deposits. PAD2 and PAD5 will also be impacted by excavation into existing deposits. In accordance with advice provided by the DEC, all excavation or ground disturbance within these should be monitored by an archaeologist and a representative of the relevant Local Aboriginal Land Council. In the event that Aboriginal Objects are exposed by construction activities then all work in the vicinity of the find should cease and advice sought from the DEC. Construction works in the area of the find cannot recommence without receipt of a Section 90 permit from the DEC.

PAD3 will not be directly impacted by construction works but does extend into the existing highway easement. In order to prevent accidental or peripheral disturbance to this area, temporary fencing should be installed between the PAD and the zone of construction activity. The aim of the fencing is



to identify a no-go and no-disturbance area during the period of construction. No activities which involve ground surface disturbance should occur within the fenced off area.

The preferred highway option will necessarily involve some additional filling and excavation within the basal landforms of the Middle Brother Mountain. This is because the highway upgrade will closely follow the existing highway alignment and its traverse along the interface between the mountain basal slopes and the adjacent coastal plain. The whole of the mountain has cultural significance to Aboriginal people and these works must represent a certain degree of impact to the Mountain.

In addition, an Indicative listing on the Register of the National Estate proposes the former Middle Brother State Forest area (now inclusive of Middle Brother National Park), for registration (refer section 8.0). There will be a small degree of encroachment on State Forest boundaries between chainages 9000 – 9540 and 11630 – 11990.

During discussions with representatives of the local Aboriginal communities about the potential impacts of the highway on Middle Brother Mountain, the following points were made:

- The possibility was recognised that some degree of new excavation and earthworks may be required.
- The highway upgrade should approximate the existing alignment and no new highway alignments should be constructed.
- Earthworks and especially excavations should be kept as small in area as possible.
- The location and reuse of the existing highway footprint and corridor should be a priority.
- All earthworks should be stabilised and vegetated in order to minimise the erosion hazard and to mitigate the visual impact of the road.

The design of the preferred option has been realised with reference to these priorities.

12.2 European sites

European heritage recordings H9, H30 and H35 will not be directly impacted by construction of the preferred option.

The pylon remains of a former Pacific Highway bridge H21 may be demolished if requested by government agencies, and depending on an assessment of feasibility and cost benefits. The pylons do not qualify as relics under the NSW Heritage Act (1977) and fall below the threshold of local or State significance criteria. Consequently there are no statutory heritage constraints regarding their removal.

Recording H33, a section of the former Pacific Highway dating to the 1980s, similarly does not qualify as a relic and falls below the threshold of significance criteria. There is no statutory heritage constraint regarding impact to this site.

Recordings H32, H34 and H36 qualify as relics under the NSW Heritage Act (1977) but fall below the threshold of local or State significance criteria. Due to this significance assessment, a section 139 (excavation) permit under the NSW Heritage Act (1977) may not be required as a prerequisite for the commencement of construction activity. It is recommended that notification of the intention to impact these sites should be provided in writing to the Director of the NSW Heritage Office with a request that a determination be made as to whether the intended impact falls under an existing exemption to section 139 permit provisions. No impact can occur until this advice is received and acted upon.

Recording H23, a remnant section of the Pacific Highway dating to the 1940s, falls within the definition of a relic and is assessed as having local significance. Accordingly receipt of a section 139 (excavation) permit from the Director of the NSW Heritage Office will be required prior to the commencement of construction impact. In order to mitigate the impact on the heritage values of this



site, it is recommended that an archival record of the site be made prior to impact, and as a condition of the permit. This recording program could also include site H32, a smaller and less significant portion of the same road.

The sections of the Camden Haven and Stewarts Rivers which will be spanned by bridges for the preferred option were extensively utilised in the past as maritime corridors for trade and transport. Former wharves and jetties are known from both upstream and downstream of the bridge locations (Navin Officer Heritage Consultants 2001). As a consequence, there is some potential for the river bed sediments in the bridge locations to contain maritime relics. If the construction of the bridges will involve excavation of the river bed sediments, then, where the excavation methodology allows, the content of these excavated sediments should be monitored by a suitably qualified archaeologist. The objective of the monitoring program is the recording and where warranted, collection of any exposed maritime relics. If relics are detected then further excavation should cease, pending advice from the NSW Heritage Office.

Both sites H37 and H38, concrete beam highway bridges, would be replaced as part of the preferred option. These sites have not been assessed in this investigation, however there are 173 RTA-controlled bridges open to traffic which were built before 1948 and which have at least one 'CBEAM' (reinforced concrete beam) span in the structure. Of these, 63 bridges have been modified in some way including both the two bridges in the study area. These two bridges are to be included in a yet to be commissioned RTA heritage assessment of RTA pre-1948 concrete beam bridges in the Northern Region which it is understood would develop heritage management strategies for these and other similar bridges in the region



13. RECOMMENDATIONS

13.1 Aboriginal Heritage

1. The possible Aboriginal scarred tree A16 should be conserved alive and *in situ* within the road easement. In order to realise this aim the following actions are required:
 - Conduct an accurate survey of the tree and confirm its location relative to the edge of proposed earthworks.
 - Erect a temporary fence around the tree, inclusive of its estimated root zone (roughly equivalent to a radius defined by the furthest extent of the tree canopy), for the period of construction. The aim of the fence is to define a no-go and no disturbance area, off limits to heavy machinery and materials storage.
 - Prevent ground surface disturbance and excavation within the area of the tree's root zone. Drainage ditches should be located downslope and outside of this zone.
 - Maximise the retention of native vegetation around the tree.
2. If accurate survey of the tree determines a location subject to unavoidable construction impact then further assessment of the tree by a botanist is required. This would aim to determine the probable age of the tree, and in particular the age and origin of the scar. An age determination that was consistent with an Aboriginal origin would strengthen the interpretation made in this report. Appropriate management strategies should be developed for the tree commensurate with its interpretation and the nature of the unavoidable impact.
3. If there is an assessed risk of accidental impact from adjacent earthworks or machinery movements to sites A1, A3, A14, then temporary fencing should be erected between the site and the zone of construction activity to define no-go and no-disturbance areas.
4. It is recommended that application be made to the Director-General of the Department of Environment and Conservation for a Section 90 permit to disturb Aboriginal isolated find A6.
5. In accordance with advice provided by the DEC, all excavation or ground disturbance within the identified potential archaeological deposits subject to direct impact, PAD2, 4, 5 and 6, should be monitored by an archaeologist and a representative of the relevant Local Aboriginal Land Council. In the event that Aboriginal Objects are exposed by construction activities then all work in the vicinity of the find should cease and advice sought from the DEC. Construction works in the area of the find cannot recommence without receipt of a Section 90 permit from the DEC.
6. Temporary fencing should be installed between PAD3 and the zone of construction activity. The aim of the fencing is to identify a no-go area during the period of construction. No activities which involve ground surface disturbance should occur within the fenced off area.
7. In order to minimise impact to the Aboriginal cultural values of Middle Brother Mountain, the extent of all earthworks, ancillary works, and vegetation clearance along its basal landforms (between chainage 4200 – 12300) should be minimised where feasible, and where possible located within areas of previous disturbance where possible. All earthworks should be stabilised and vegetated in order to minimise the erosion hazard and to mitigate the visual impact of the road.

13.2 European Heritage

8. No further action is required in relation to the section of former Pacific Highway alignment (H33), and the pylon remains of a former concrete Pacific Highway bridge (H21), These recordings do not constitute relics as defined by the NSW Heritage Act (1977) and fall below the threshold of the significance assessment criteria.



9. Sites H32 (a section of the former Pacific Highway), H34 (a surface scatter of nineteenth century glass and ceramic fragments) and H36 (tree stump with springboard notches) are relics as defined by the Heritage Act (1977), but are not assessed as having local or State level significance. Accordingly, notification of the intention to impact these sites should be provided in writing to the Director of the NSW Heritage Office with a request that a determination be made as to whether the intended impact falls under an existing exemption to section 139 permit provisions. No impact can occur until this advice is received and acted upon. It is recommended that an archival recording of site H32 be conducted as part of the recording program for site H23 (a longer section of the same former road alignment), prior to its impact.
10. Site H23 (a section of the former Pacific Highway) is a relic and assessed as having local significance. It is recommended that application be made to the Director of the NSW Heritage Office for a Section 139 permit, to allow for the direct impact of this site. An archival record of the site should be made prior to impact, and as a condition of the permit. Impact can only occur following receipt of the permit.
11. The RTA should develop heritage management strategies for sites H37 and H38 - concrete beam highway bridges, where and if necessary according to the results and findings of its yet to be commissioned heritage study of all RTA controlled pre 1948 concrete beam bridges in the Northern Region.
12. If the construction of bridges over the Stewarts and Camden Haven Rivers will involve the excavation of fluvial sediments in the active beds of these rivers, then, where the excavation methodology allows, the content of these excavated sediments should be monitored by a suitably qualified archaeologist. The objective of this program is the recording and where warranted, collection, of any exposed maritime relics. If relics are detected then further excavation should cease, pending advice from the NSW Heritage Office.

13.3 General

13. All heritage recordings with conservation management requirements that are situated within or in close proximity to the road works should be identified on a construction management plan. All management requirements such as disturbance prevention or boundary fencing should be included within the plan. Recordings which are relevant to this recommendation include A1, A3, A7, A8, A14, A16, H30, H35, PAD3.
14. In the event that a previously unrecorded or assessed Aboriginal Object (as defined by the NSW National Parks Act 1974) or Relic (as defined by the NSW Heritage Act 1977) is exposed during construction works, then all work in the vicinity of the find should cease and advice sought from the Department of Environment and Conservation (DEC) or NSW Heritage Office (respectively).
15. Three copies of this report should be forwarded to the DEC at the following address:

Cultural Heritage Officer
Department of Environment and Conservation
Northern Directorate
Locked Bag 914
COFFS HARBOUR NSW 2450

16. One copy of this report should be forwarded to the NSW Heritage Office at the following address:

NSW Heritage Office
Locked Bag 5020
Parramatta NSW 2124



17. One copy of this report should be forwarded to each of the Purfleet Taree, Birpai and Bunya Local Aboriginal Land Councils:

Ms Vienna Maslin
Cultural Heritage Officer
Purfleet Taree LALC
PO Box 346
Taree NSW 2430

Mr William Holten
Chairperson
Birpai LALC
Aston St
Port Macquarie NSW 2444

Ms Deana Willmott
Bunya LALC
PO Box 287
Wauchope NSW 2446



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