5. ABORIGINAL CONTEXT

5.1 Tribal boundaries

The two major tribal groups in the Wells Crossing to Iluka Road project area are the Gumbainggar and the Yaygir. Tindale (1940) places a Kumbainggiri (Gumbainggar) tribe in the area from the headwaters of the Nymboida River across the range to Urunga, Coffs Harbour, Bellingen, Glenreagh and Grafton. The Gumbainggar tribe spoke a language belonging to the Kumbainggeric Group. As this tribal group covered such a large, environmentally diverse area it is probable that the language contained three or four dialects. The large territory may have supported a population of between 1,200 and 1,500 people (Hoddinott 1978).

The boundary between this group and the Yaygir (Jiegera) to the east is difficult to establish. While Tindale (1974) places the Yaygir downstream from Grafton from the south bank of the Clarence west to Cowper and south to Wooli, Heron (1991), after oral research, placed the boundary from Corindi Beach north to Black Rocks and taking in Ulmarra in the west. In contrast to the Gumbainggar, the Yaygir covered a small area, but the availability of resources both from the ocean and the Clarence River meant that the area could support a larger population. Byrne (1985) estimated a population density of 6 people to 2 km², giving a total population of 800 before white settlement. These areas are bounded to the north by the Badjelong (Bandjalong) and to the south by the Dangaddi tribal groups.

5.2 Previous archaeological studies in the region

Although archaeological research has been carried out in the Coffs Harbour-Grafton region of NSW for a number of years, very little research has been conducted in the Yamba area. To date the majority of investigations have been small-scale, often biased towards coastal contexts, and carried out in response to proposed development applications. An exception to this pattern has been broad-scaled archaeological assessments of the predicted nature of Aboriginal sites within some State Forests in the region. Such broad studies were aimed at producing strategies for management of Aboriginal heritage over large landholdings.

Archaeological investigations in hinterland areas include Byrne 1985; Godwin and Creamer 1987; Hall and Lomax 1993; Navin and Cundy 1990; Navin Officer ARM 1996; Navin and Officer 1990; Officer 1995; Officer and Navin 1994; Officer and Navin 1998a and b; and Rich 1989a and b.

McBryde (1974) produced the first regional study of Aboriginal prehistory [in Australia] in the Clarence valley. In this study a range of sites were investigated. These included middens, quarry sites and a series of rock shelter sites along the Clarence River and its tributaries.

A rock shelter site at Seelands, on the southern side of the Clarence River near Grafton, yielded radio carbon dates for the basal deposits to 6400±300 B.P (Before Present). This remains the oldest evidence of human occupation so far located on the northern NSW coast. The site contained large numbers of stone artefacts. These reflected a change in stone technology from an early core and flake tradition, dominated by uniface pebble tools in the lower levels of the deposit, to a variety of smaller artefacts such as backed blades and edge ground tools in the succeeding levels. McBryde considered the site to be a representation of an inland hunting site which was probably occupied in winter by people who moved there from summer camps on the coast. This model has been since been challenged (see Coleman 1978, and Godwin and Creamer 1987).

Several surveys by NSW National Parks and Wildlife Service (NPWS) staff have been carried out in the Northern Rivers district. These were primarily concerned with recording sites of traditional significance to local Aboriginal groups, such as ceremonial and mythological sites. Several sites occurring near the present study area were recorded during those investigations. Those surveys also

recorded a number of secular sites (Donnelly and Morris 1979, Kelly and Donovan 1976, Morris and Creamer 1976).

Byrne's 1983 report to the NPWS on the ‘Aboriginal Archaeology of North East N.S.W.' contains a synthesis of information pertaining to the region. That report has since been published in booklet form by the Department of Planning, Grafton office (DoP 1989).

Bowdler, in a study of Aboriginal sites on the Crown timber lands of the north coast, found that there were relatively few sites recorded in the forest environment. This was interpreted to be the result of minimal archaeological investigation, rather than an actual low site density in forested lands (Bowdler 1983).

Bowdler's 1983 interpretation was confirmed by the results of a survey of a 330 kV transmission line easement conducted by Navin and Officer in 1989. Fifty sites were located in forested hinterland areas from Coffs Harbour to Grafton, including open artefact scatters, shelter art sites and a silcrete quarry (Navin and Officer 1990).

The above survey area consisted of a transect 82 km long and 60 m wide, which traversed the escarpment range foothills and lowland hills of the western Orara River catchment. The 50 sites identified in the study comprised 39 artefact scatters, four scarred trees (one possibly of European origin), four rock shelter sites (three containing Aboriginal art) and three quarry sites. Six isolated finds and five Potential Archaeological Deposits (PADs) were also located. The quarry sites consisted of utilised silcrete sources from bedrock conglomerate exposures.

Average density was one site for each 1.6 km. That figure is increased to one in 1.5 km if isolated finds are included. Within the escarpment ranges the average density was one site or isolated find for each 1.3 km, compared to one site or isolated find for each 1.8 km for the lowland hills. Navin and Officer (1990) noted that the lower site detection for the lowland hills was inconsistent with predictions of relatively high occupation rates for the Clarence River lowlands based on ethnohistoric accounts. The lower site density compared to the rangelands was interpreted to reflect the impact of European land use practices and aggrading landforms (Navin and Officer 1990).

A review of artefact rock types from that survey indicates a close correlation with sources available from the underlying bedrock of surrounding landforms. Outside of the Clarence-Moreton sedimentary basin artefacts are predominantly made from fine grained metamorphic sedimentary rocks, whereas from within the basin a range of chert, silcrete, quartzite and volcanics occur, probably indicative of conglomerate facies.

With the exception of rock shelter sites, Navin and Officer (1990) identified stream flats and areas of elevated ground adjacent to wetlands or flood plains as having highest archaeological sensitivity. Flat areas on the crests of ridgelines and spurs were also found to be sensitive, but sites in these localities were likely to be of lower significance and greatly disturbed.

In 1988 and 1989 Collins conducted an analysis of Aboriginal rock art sites within the Grafton Formation sandstones of the Clarence River region of NSW (Collins 1990). Her analysis involved a review of previous work, and field survey and recording of 65 sites, 12 of which were previously unrecorded. A significant proportion of these sites were originally recorded by McBryde (1974).

The Bull Paddock group consists of 11 rock shelter sites dominated by black and red drawings and anthropomorphic (human/goanna) motif types. No stencils are reported from a total recorded assemblage of 163 graphics. Collins’ corpus of recordings yielded a total of 5,075 graphics, consisting of 3,351 abraded grooves and other simple abraded motifs (66 per cent), 62 stencils (1.2 per cent), 57 hand prints (1.1 per cent), 1,400 drawn motifs (27.6 per cent), and 205 ‘scratched’ motifs (4.0 per cent). Other than painted object delineations, such as stencils and prints, Collins did not record any painted motifs, that is, freehand graphics using wet pigment application.

Collins (1990) concluded that the Clarence River valley art sites display a consistent range of traits and can be regarded as a stylistic unit. She determined that the engraved motifs within this total assemblage display a unity in form and can be considered a discrete style.

5.3 Previous archaeological assessments in the Glenugie upgrade area

In 1993, an archaeological assessment of Forestry Commission areas within the Grafton Management Area was conducted by Hall and Lomax (1993). This investigation was the first to attempt a systematic regional overview by employing a predictively based and quantified extrapolation of survey results. Despite locating only open artefact scatters during survey, the study established a set of land-system based models for Aboriginal site location and distribution patterns within the Grafton region.

The study achieved an overall site detection rate of one artefact occurrence per 1.8 km of survey transect. The density within the escarpment range foothills was considerably lower at one artefact occurrence per 2.3 km and markedly higher in the lowland hills at one artefact occurrence per 0.1 km. However, artefact density was significantly lower on the lowland hills with an average of 1.0 artefact per 100 m^2 compared to 3.0 artefacts per 100 m^2 in the escarpment range foothills (Hall and Lomax 1993). It was concluded that relatively few sites were detected within the lowland hills because sites are more dispersed and not as strongly focused on drainage and ridge lines than for rangelands (Hall and Lomax 1993).

Two open camp sites (artefact scatters), Pheasant Creek 1 and Pheasant Creek 2/3 were identified during that study. These sites occur in the vicinity of the project area.

When considering the effect of geology on site contents it was found that there was a relative lack of artefacts in sandstone country, but relative abundance in argillite dominated geologies. This was interpreted to be a direct reflection of the availability of suitable rock types for tool manufacture from each landform suite (Hall and Lomax 1993).

5.4 Previously identified sites in the region

A search of the NSW DECC AHIMS (a register of Aboriginal heritage sites and information) within a 30 km area centred on Glenugie Peak was conducted on 14 May 2009 and encompassed the whole of the project study area. This search identified 64 site recordings (**Table 5-1**)**.** Of those 64 recordings:

- None (neither sites nor PADs) are located within the investigation corridor for the Glenugie upgrade.
- Two open camp sites, occur over a kilometre away to the east of the corridor.
- The remaining sites consist of open camp sites, rock shelters with art and/or deposits, burials, ceremonial and mythological sites, stone arrangements, scarred trees and a quarry.

Table 5-1 Details of Aboriginal site recordings within a 30 km area centred on Glenugie Peak

Site Type	Frequency
Open camp site	20
Shelter with art	15
Shelter with deposit	9
Bora/ceremonial	4
Isolated find	3
Burial	2
Scarred tree	2
Stone arrangement	2
Carved tree	1
Mound (oven)	1
Mythological	1
Ochre quarry	1
Shelter with art and deposit	1
Shelter with PAD	1
Water hole/well	1
Total	**64**

The distribution of previously recorded sites across the area of the AHIMs search reveals a number of patterns:

- Most recordings occur in the south-western (lower left) portion of the search area.
- Many recordings appear to be situated along linear traverses.
- Very few recordings occur north and east of the existing highway.

These patterns are a consequence of visibility constraints, past recording interests, and the conduct of systematic surveys as part of environmental assessments:

- The concentration of recordings in the south-western portion of the search area corresponds to the distribution of the Kangaroo Creek Sandstone, a resistant rock type which forms rock platforms, overhangs and shelters. This is in contrast to the Grafton Formation, which dominates the remainder of the search area where sandstone rock platforms and shelters are rare.
- A large proportion of the south-western recordings are rock shelters and this reflects the incidence of a rock type suitable of supporting overhangs, the interests of past recorders in sites such as rock shelters containing archaeological deposit and/or rock art, and the visual obtrusiveness of such sites.
- A series of linear development projects, such as transmission lines, water pipelines, and highway upgrades have been conducted across the southern and southwestern portions of the search area. Archaeological surveys conducted as part of the environmental assessments for these projects have resulted in recordings (mostly open camp sites) which are situated within the linear footprint of those projects.
- The near absence of recordings to the north and west of the current highway is likely to be a result of both a relative absence of past archaeological survey and the unobtrusive nature of Aboriginal sites across these landforms. Landuse practices in this area, which are characterised by forestry, agricultural and conservation, have not required substantial

development impact assessments requiring systematic archaeological survey over large areas. Aboriginal sites across this area are likely to be dominated by unobtrusive types such as open contexts of surface and subsurface stone artefact distributions. Such sites are unlikely to be recorded outside of systematic archaeological survey programs.

In summary, the pattern of previously recorded sites across the region provides little information about the likely nature of the archaeological record within the area of the project due to limitations in previous archaeological survey coverage, and a past emphasis on sites in sandstone based landscapes.

5.5 Predictive statement regarding Aboriginal sites within the project area

As part of the route selection study for the Wells Crossing to Iluka Pacific Highway upgrade, a broad scale, desktop predictive model of Aboriginal archaeological sites was drafted that enabled the mapping of broad scale areas of predicted archaeological sensitivity (RTA 2005 and 2006). That model incorporated the results of a number of regionally focused studies including more distant assessments conducted in comparable landscapes (Byrne 1985, Hall and Lomax 1993, Navin and Officer 1990, Officer and Navin 1994, Navin Officer ARM 1996, and Rich 1989a and b). The map from that predictive model is at **Figure 5-1**. According to this initial schema, the Glenugie project occurred within an area with predicted moderate to low sensitivity over most of its alignment, and traversed a narrow band of predicted high to moderate sensitivity when in close proximity to Glenugie Creek.

A set of fine scale predictive statements was also drafted as subsets of those broad scale divisions but could not be mapped, given the constraints of the mapping available and the scope of the assessment.

Following the 2008 comprehensive surface archaeological survey within the corridor of the preferred alignment (RTA 2009b), data from on-ground observation (ground truthing) has been combined with previously drafted predictions to refine predictive statements appropriate to both the lowland foothills landform in general, and the area of the upgrade project in particular. These statements revise and replace the broad scale, desktop based sensitivity mapping of the 2006 desktop study.

Lowland foothills

Although few sites have been identified in this zone, Hall and Lomax (1993:27) postulated that sites could be expected to occur in this land system in large numbers. They noted that the fewer artefacts located in the lowland foothills may be due to the absence of lithic sources suitable for stone tool manufacture (Hall and Lomax (1993:65).

Predictive statements regarding site types and locations include:

- The most likely site types are open camp sites of varying size and density, indicated by surface and/or subsurface distributions of stone artefacts.
- Aboriginal scarred trees may occur wherever old growth trees survive, but are likely to be rare in areas which have been subject to repeated cycles of forestry harvesting and/or wildfire.
- Sites may not include visible surface artefacts where situated on aggrading landforms, such as valley floor alluvium.
- Sites will tend to occur in proximity to permanent freshwater sources, on locally elevated and well drained ground.
- Larger campsites will occur on the lower slopes and low spurline crests near substantial creeks and resource-rich swamps.

- Open sites are likely to be found on locally elevated ground in and around the periphery of the floodplain.
- Surface artefact scatters are rarely detected on the immediate banks of creeks and rivers.
- Relatively sparse and small sites will occur in more gently undulating terrain not associated with swamps (Hall and Lomax 1993:27-28).
- Smaller transitory camps may be present on the crests of ridges and spurs in broken and undulating terrain.
- The distribution of sites will tend to be more diffuse, and overall site density will tend to be lower than for comparable landforms within entrenched and steep sided valleys.

The Glenugie project

With regard to the generalised statements for the lowland foothills division, the area of the upgrade project falls outside of landforms with significant potential. The project:

- Traverses, and passes in close proximity to, intermittent and non-permanent water sources only.
- Does not traverse or occur close to swamp basins, the Clarence floodplain or valley floor.
- Does not traverse any substantial areas of Quaternary valley floor sediments or aggrading landforms with clear potential for subsurface archaeological deposits.
- Would impose a minimal impact to major spurs or ridgelines where small transitory open camp sites could be expected. Watershed ridgelines are traversed only in the vicinity of Franklins Road in the south, and between Lookout and Shields Roads in the north. Each of these locations has been impacted previously by light rail operation, forestry tracks and associated harvesting operations.
- Accidental artefact discard (background scatter) is likely to occur on most landforms. This may be encountered within the project area. This is a risk for all projects.

Based on the relative absence of small scale landform divisions with archaeological sensitivity, it can be concluded that the archaeological potential of the project area is low.

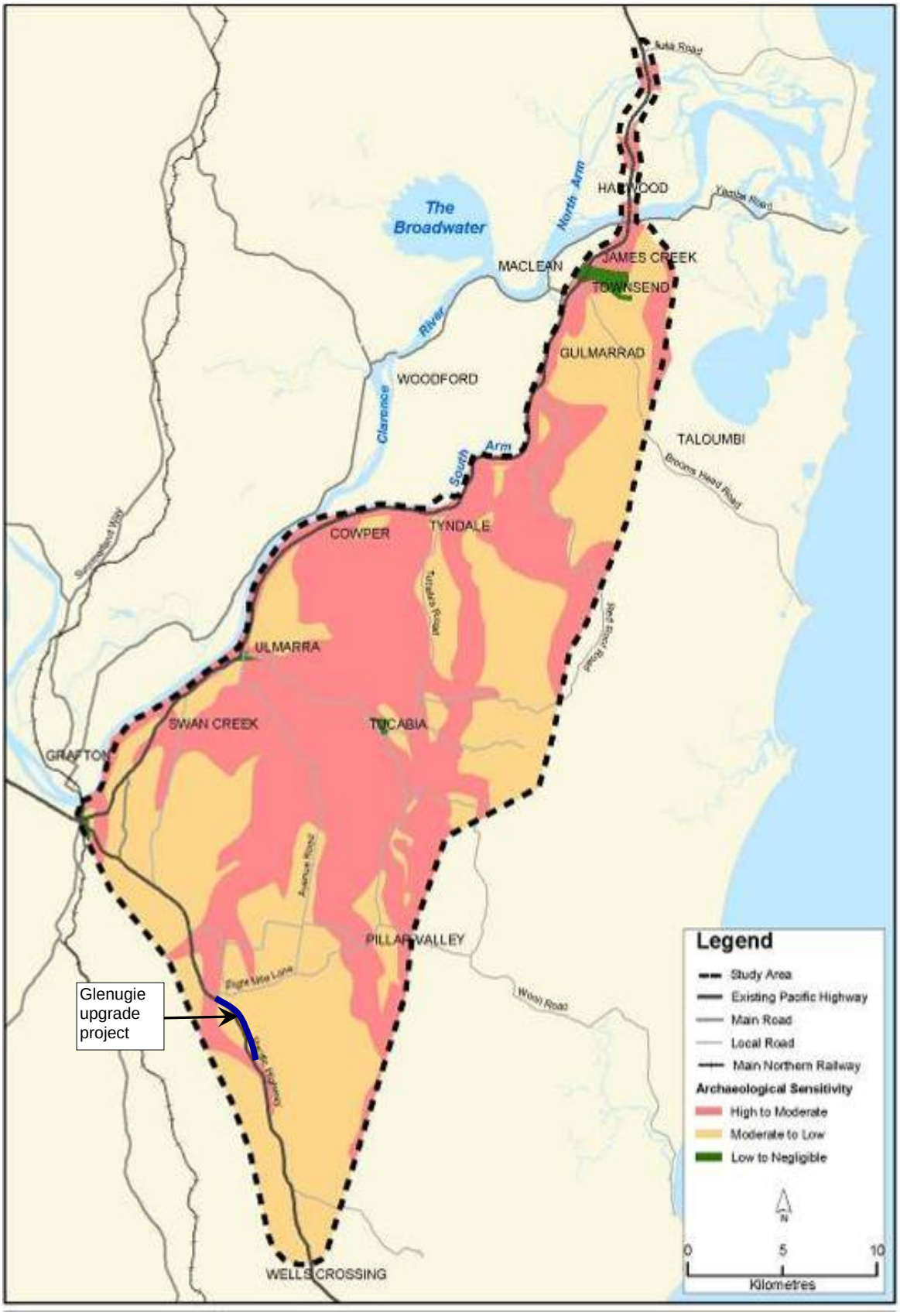

Figure 5-1 Desktop broad scale areas of Aboriginal archaeological/cultural heritage sensitivity and predicted site incidence within the study area south of the Clarence River.

5.6 Places of cultural significance

The local Aboriginal community has identified two areas of Aboriginal cultural significance in the vicinity of the project. These are Glenugie Peak and Pillar Valley. These locations were identified through both documented stories (such as Gumbaynggir Language and Cultural Group 1992) and community consultation undertaken as part of Wells Crossing to Iluka Road route selection process.

Neither of these locations is close to the Wells Crossing to Iluka preferred route or the Glenugie upgrade project and are not subject to impact from the project. The avoidance of these areas was a key factor in the selection of the preferred route of which the Glenugie upgrade is a part.

The creation of Glenugie Peak is told in a story involving two hero-ancestors, Birrugan and Mindi (his Elder), as follows:

> Long ago, all animals: kangaroos, grey wallabies, wallabies and pademelons were blind, and all belonged to Birrugan. He would kill a kangaroo and share it with the Elder. Meanwhile, the Elder would dig for yams and bring them back to camp. But he shared few of these with Birrugan. So the two of them had a quarrel. Then the Elder stole off to see Birrugan's hunting place for kangaroos.
>
> He clapped his two yamsticks together and chanted the following: "Ooy, ooy, ooy, ooy! Kangaroos, open your eyes! Open your eyes and see!" Then they saw the Elder and ran away, afraid. He went back to camp. (*Birrugan then asks the Elder, Mindi, whether he has got any yams, but Mindi said he hadn't gone out at all*).
>
> But then, Birrugan went to get some kangaroo, but they would run right away as soon as they saw anyone. (*Birrugan suspects the Elder and thinks to himself*) "Did the Elder back there come here from the rear and open the eyes of my kangaroos? He must have! I'll go back to camp, and tomorrow I'll go to his place."
>
> Then the Elder said: "Aren't there any kangaroos left?"
>
> But Birrugan just told him: "I couldn't find any. I want to go off to sleep."
>
> "Yes, [says the Elder] let's go to sleep. I'll go for yams tomorrow, and you can hunt for kangaroo."
>
> Next day the Elder went off, and Birrugan said: "I'm going too."
>
> Then he followed the Elder and secretly sat watching him gather yams and return home.
>
> (*That night both lie down without any tucker, Birrugan watches Mindi and puts a sleeping spell on him, saying, "JUWA! Sleep Mindi*.")
>
> [Birrugan says,] "Right! Now I'm going to his yam grounds." (*He digs some yams for himself; then casts the following spell*.) Then Birrugan chanted: "Rise! Rise! Turn to mountain! Heap up rock on rock! Higher and higher, massive grow! Spread into a mountain range!"
>
> He spoilt the yams. They all turned to stone. With rocks he covered them. *So he formed what is now called Glenugie Peak*. Then he returned home and told the Elder: "Stopped me getting kangaroos, did you? There's no more kangaroos; none left! You opened their eyes – you went to where they were, and opened my kangaroos' eyes. So I turned your yam grounds into mountain. Heaped rock on rock; spread them into a mountain range."
>
> The two then fought. Birrugan struck the Elder, who fled by a secret way to Yamba. But Birrugan pursued him there and struck down that clever man. Birrugan commanded him: "Turn to stone!"
>
> The final place where Birrugan fought Mindi was near Tyndale on the South Arm of the Clarence River. Here Birrugan speared and wounded Mindi who fell into the water and drowned. The Clever Water there has a rock standing in it. It is called Mindi Miirral and there "… you get sick unless you sing out *Yuway*! ("coo-ee!") placatingly."

> There is a special place for tomahawks near the cemetery in the Clarence River, called the *Wagaarr* (tomahawk) *Miirral*. Here Birrugan dropped his tomahawk after his fight with Mindi (Gumbaynggir Language and Cultural Group 1992:21-28).

Stories relating to Birrugan and Mindi link a number of culturally significant places across the district, including Yamba, Tynedale, Valla, Southwest Rocks and Smoky Cape. Glenugie Peak is an integral part of this network of interrelated sites (Gumbaynggir Language and Cultural Group 1992). Together they contribute towards a regional cultural landscape that is of great significance to the descendants of the Gumbainggar and Yaygir peoples.

An elder of the Burra:way Wa:jad Traditional Owners Group provided oral testimony which identified the following areas of cultural significance in the general region of the Glenugie upgrade project:

- Glenugie Peak – A Dreamtime Place of which this elder knew the creation story. This is an important place which should be avoided.
- Pillar Valley – Significant women's places occur in the Valley (RTA 2008).

The Garby Elders advised that the Pillar Valley (including the Pillar Rock and nearby waterholes) are a significant men's place. The Garby Elders also share stories with other groups relating to Glenugie Peak and Tyndale, and identified the Coldstream River as an important corridor linking significant areas at Glenugie, Pillar Valley and Tyndale.

In addition, as part of the Wells Crossing to Iluka Road project, a meeting was held at Franklins Road on 1 March 2006 with representatives of the Garby Elders to discuss the significance of Glenugie Peak. The meeting was attended by several representatives of the Garby Elders, and representatives of the RTA, Navin Officer Heritage Consultants and SKM.

At that meeting the Garby Elders advised the following in relation to the potential impacts of route options on Glenugie Peak:

- The Peak itself is the focus of significance. The areas around the Peak are not significant, but Aboriginal people would have passed through these areas.
- Waterholes and wetlands around Coldstream River east of the Peak may contain sites (camps, scatters, etc.) but the Elders know no significant sites in that area.
- Relocating two of the then proposed options in this area closer to the boundary with the Glenugie State Forest would not impact on the significance of Glenugie Peak to the Garby Elders.

At that time, the Garby Elders also stated that the connection between the waterholes (near Pillar Rock) and Pillar Rock, in Pillar Valley, is important, and the whole area, and areas extending further east, are highly significant to the Garby Elders.

In summary, the results of the cultural heritage assessment undertaken for the project indicate that there would be no impacts on cultural heritage.

6. NON-ABORIGINAL CONTEXT

6.1 Historical overview

6.1.1 The region

References to the Clarence River are made as early as 1799 by Flinders, who anchored his sloop in the river estuary and described Aboriginal huts on the riverbank (Flinders 1799).

In the early 1800s journeys through the Northern Rivers district by European and other settlers were generally limited to escaped convicts and wood-cutters seeking the pine and cedar forests. The Clarence River was reached by an escaping convict, Richard Craig, in 1834/5, but not explored officially by settlers until 1839 when Thomas Small, a Sydney merchant, organised an expedition to the Clarence Valley and began running cattle in the area. In the same year Captain S.A. Perry, deputy Surveyor General, entered the river in a steamer and named the Clarence (RTA Heritage Register). The Clarence River district was eventually opened up by the cedar cutters exploiting the dense `brush' along the river for its magnificent timbers. By 1845 much of the lower reaches of the river had been taken over by the cedar trade (Rich 1990).

Shortly after the first cedar getters settled in the area a village grew in the area of the city of Grafton. Originally called “The Settlement”, the first sale of town blocks took place in 1851. In 1885 Governor Fitzroy renamed the town after his grandfather, the Duke of Grafton. It was proclaimed a city in 1885.

Timber-getters were soon followed by pastoralists prompted by the affects of drought to the south and within a few years the first exploration of the Clarence, or the ‘Big River' as it was known, led to the establishment of station properties in the Grafton area in the 1840s. Grafton began to develop as a centre for timber-getting activities and a ship-building centre in the late 1830s and 1840s (RTA Heritage Register).

Earliest occupation involved the establishment of large pastoral runs centred on naturally occurring grasslands held under licence and pasture lease for the rearing of livestock, initially sheep and later cattle. Shepherds were employed to tend the flocks within a fenceless terrain and to muster them into yards and enclosures. Early aspirations to corner the NSW wheat market were ruined by rust, and the area was given over to maize and then sugar production and dairying (RTA Heritage Register). Early habitation structures and farming infrastructure tended to be minimal due to the lack of property security on government leased lands.

The gold rushes in the latter 1800s and the Robertson Land Acts from 1861 brought a dramatic increase in the non-indigenous population. The large leasehold pastoral runs were replaced by the closer settlement of small selectors, their holdings eventually impacting on even marginal country in the upper tributary valleys.

Thomas Small originally bought the land on which the town of Ulmarra is located in 1857. The town prospered with the introduction of the dairy industry after the collapse of the sugar mill. In the early 1900s the town had four blacksmiths, general stores, hospital and two hotels. Ulmarra wharf was a major pick-up point for steam and sailing vessels serving the Sydney markets. The town thrived until improved roads and technology ended its role as a major river port.

The Aboriginal population of the Clarence Valley underwent a sharp decline towards the end of the nineteenth century in the face of armed conflict and disease. By 1891 the Aboriginal people of the area were mostly settled in reserves and working on cane farms, as stockmen or in the fishing industry (RTA Heritage Register).

Timber-getting continues today in parts of the valley and there are several state forests within the study area. The sugar and dairy industries also remain, along with beef and marine industries, while tourism is now a major employment base in the region.

6.1.2 Glenugie State Forest

Glenugie State Forest was originally part of resumed land that was gazetted as Clarence Forest Reserve No 3 (also identified as FR 244A), which was notified on 2 June 1884 (although there is a notation on the map of the Parish of Lanitza, County of Clarence, of July 1886, that it was notified much earlier, on 15 September 1871). At that time, 2 June 1884, the reserve was exempted from the operation of ordinary timber licences.

That area, together with additional land to its south, was identified as State Forest No 26, which was dedicated on 10 December 1913. The area subsequently became Glenugie National Forest No. 40 on 5 July 1940, while remaining identified as a State Forest.

Glenugie Peak (Mt. Elaine) is the most prominent landscape feature within the State Forest and can be clearly seen from most points in the district. It is an extinct volcano on the eastern fringe of the plain between Halfway Creek and Grafton. Basalt from its slopes was used in the construction of the rail bed of the main North Rail Line, the major trunk line from NSW to Brisbane, over 90 years ago.

In his report to the NSW Legislative Assembly of 1 September 1915, the Chief Engineer for Railway and Tramway Construction, NSW Department of Public Works, stated,

> The Glenreagh to South Grafton, or ninth section [of the North Coast Railway], comprises a length of 27 ¾ miles, and is one of the easiest sections of the North Coast Railway. There is only one steel bridge over Sherwood Creek, and the earthworks are not heavy. The country passed through is of rather poor quality and the line for the present will terminate at South Grafton, a thriving town on the south bank of the Clarence River, and immediately opposite Grafton on the north bank. The principal difficulty met with on this section was to obtain a supply of ballast, there being no suitable stone along the line, and it was found necessary to put in a branch line to Glen Ugie Peak, a distance of over five miles, where an out-crop of basalt was obtained and broken with rotary crushers.
>
> Five stations, including South Grafton, [the others being Glenreagh, Kungala, Lanitza, and Braunstone – all of which have since closed] have been constructed, with water supplies at Glenreagh and South Grafton. The section is in a forward state and will be completed during this year (NSW Legislative Assembly Report of Public Works 1916:26).

Parts of the embankment that carried the branch line/tramway to move the crushed basalt to the rail construction site can still be seen. A NSW State Forests 1994 Environmental Impact Statement for the Grafton Management Area states that “the tramway can be discerned from the flattening of the ground for about 3 m in width along its length. From its terminus, the tramway ran through a cutting for about 150 to 200 m, which is littered with the remains of a hopper truck, bits of metal, a wooden sleeper and several bolts” (Margules Groome Pöyry Pty Ltd 1994:118).

Indications of the tramway first appear on the 1909 map of the Parish of Lanitza, with its final alignment being shown most accurately on the 1925 Parish map. The remnant alignment may still be discerned on the modern-day topographic map of the area. Extracts from these maps showing the alignment are at **Figures 6-1** to **6-3**, respectively.

Part of the tramway alignment, from its junction with the North Coast Railway Line in the southwest to its terminus at the base of Glenugie Peak in the northeast, crosses the existing Pacific Highway immediately to the south of Franklins Road and then partially follows Franklins Road to the northeast before heading north towards the Peak (**Figure 6-3**). Some of the remnant alignment is still visible in that area and will be impacted by construction of the project.

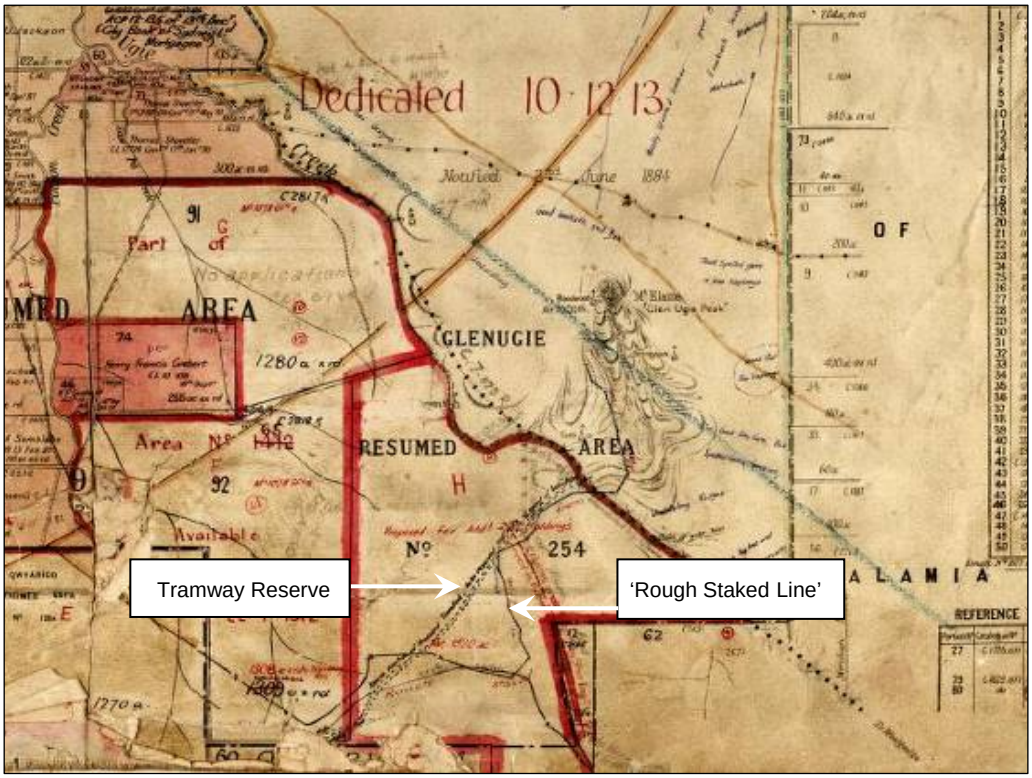

Figure 6-1 Extract from 1909 map of the Parish of Lanitza, County of Clarence, showing the locations of a 'Rough Staked Line' of the tramway and a tramway reserve (Department of Lands 105029 3rd Edition, 25 August 1909).

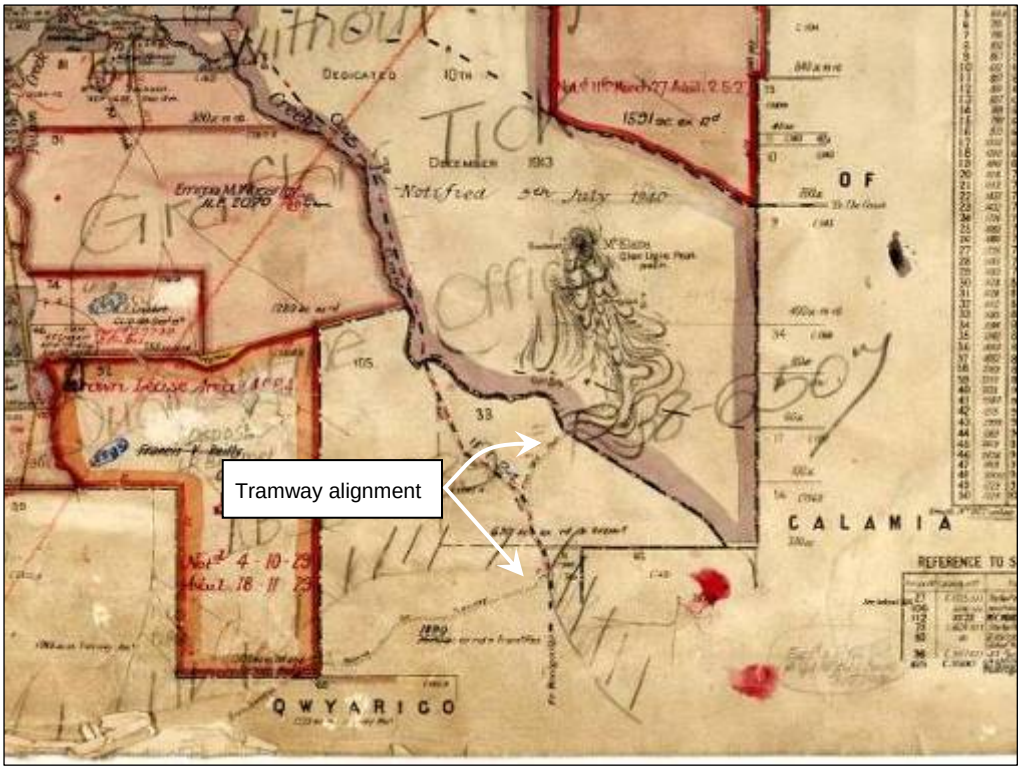

Figure 6-2 Extract from 1925 map of the Parish of Lanitza, County of Clarence, showing the final tramway alignment (Department of Lands 105028, 5th Edition, 10 March 1925).

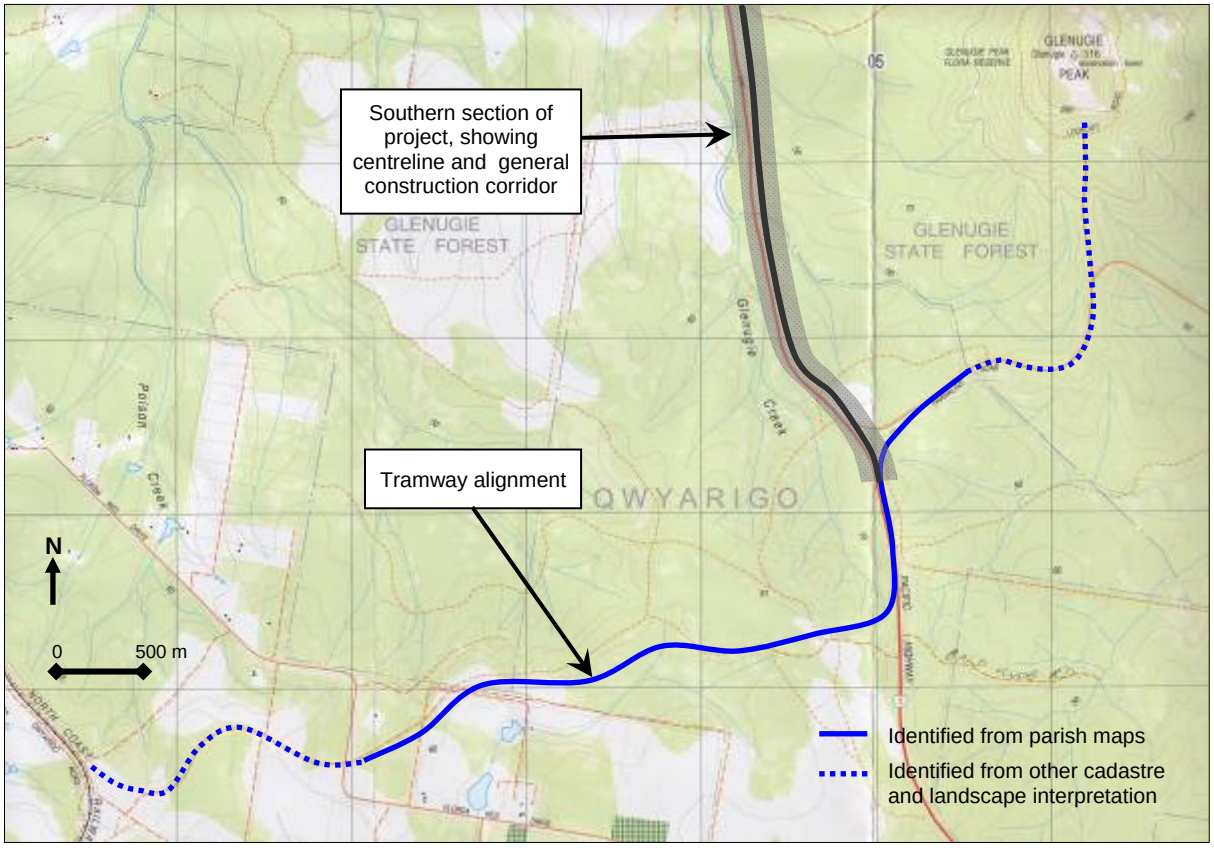

Figure 6-3 Extract from 1:25,000 topographic map showing the tramway alignment in relation to the project (Department of Lands, Pillar Valley, 9538-3N, 3rd Edition, 2005).

6.2 Previously identified sites

All of the relevant statutory and non-statutory heritage registers and lists (listed in Section 3.1) were searched on 14 May 2009 and no European heritage listings were recorded for the project area.

6.3 Predictive historical archaeology statement

The types of places or items that may form part of the historical archaeology context include:

- Below ground evidence, including building foundations, occupation deposits, features and artefacts.
- Above ground evidence, including buildings, works, industrial structures and relics that are intact or ruined.
- Areas of land that display evidence of human activity or occupation.
- Old roads, including old sections of the Pacific Highway.

Unrecorded historic sites and features of heritage significance that may occur within the project study area include:

- Nineteenth-century structures, such as timber-getters huts, which may survive as standing buildings, ruins or archaeological deposits.
- Former timber mills and/or associated infrastructure, such as timber pole structures, remains of machinery, tracks and tramways may survive within Glenugie State Forest.

- Traces of industrial processing or extractive sites, such as quarries.
- Transport and access routes such as bridle paths, stock routes, and highway alignments of varying forms and ages, may survive as abandoned remnants adjacent to modern transport routes, or as alignments now followed by more modern or upgraded road and track infrastructure.
- Old fence lines, such as post and rail fencing, along road easement boundaries.

7. SURVEY RESULTS

7.1 Aboriginal sites

No Aboriginal sites, places, objects or potential archaeological deposits (PADs) were identified along the length of the Glenugie upgrade project study corridor during the current investigation.

This finding is consistent with the predicted low Aboriginal archaeological potential of the Glenugie upgrade project area (refer Section 5.5).

The effectiveness of the refined predictive modelling for the Wells Crossing to Iluka upgrade corridor as a whole has been demonstrated however by the recording of a number of Aboriginal potential archaeological deposits outside of, and to the north of the Glenugie upgrade project area (RTA 2009b).

7.2 Non-Aboriginal heritage sites

One European historic site, being, part of the remnant 1915 North Coast Railway branch line/ tramway alignment between the existing Pacific Highway and Franklins Road was identified in the Glenugie Upgrade project study area (**Figure 7-1**). No other non-Aboriginal heritage sites were identified in the project area.

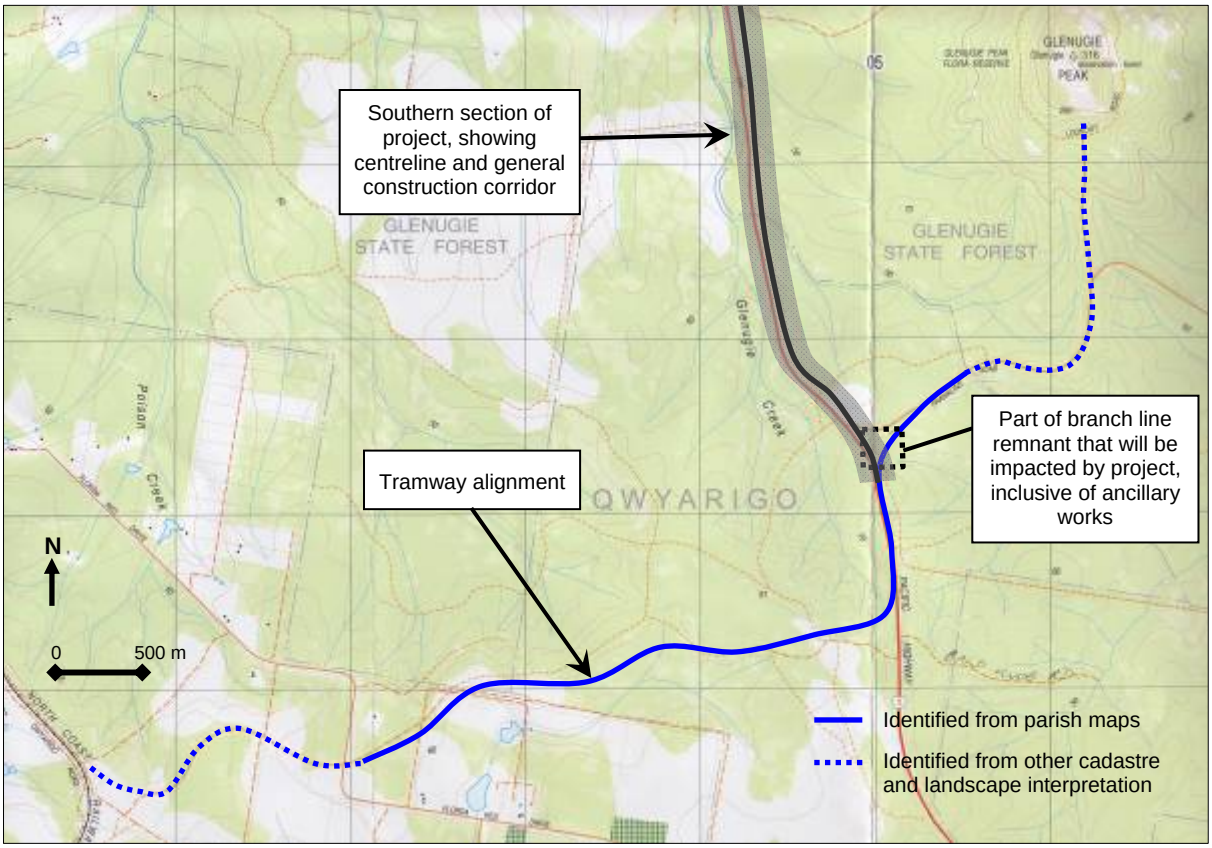

Figure 7-1 Extract from 1:25,000 topographic map showing the location of that part of the remnant tramway alignment that will be impacted by the Glenugie upgrade project (Department of Lands, Pillar Valley, 9538-3N, 3rd Edition, 2005).

The alignment is evident as a levelled, linear ground platform; approximately 3 m wide, which in places is cut or benched to a minor degree according to small scale changes in the local land surface (refer **Figure 7-2**). Shallow side embankments are evident in places. The alignment within the proposal area consists of a gradually curved section, approximately 250 m in length, extending northeast of the highway to Franklins Road (from 505022.6697307 to 505090.6697467 GDA). The construction of Franklins Road has removed traces of the tramway to the east of this point.

This remnant represents less than three per cent of the overall length of the original branch line/tramway, which was over eight kilometres, and followed the watershed ridgeline between the North Coast Railway and a hard rock quarry on Glenugie Peak. There is no intact evidence of tramway construction materials or items associated with its use (such as wooden sleepers, metal objects or the remains of hopper trucks) at that location. Buried fabric may be present but would be unlikely to have remained *in situ* due to the construction of the existing Pacific Highway.

Figure 7-2 Photographs showing parts of the remnant tramway alignment in the project construction area (top: shown crossing forest track and running in a northeast direction – facing northeast; bottom: facing northeast from forest track).

8. SIGNIFICANCE ASSESSMENT

8.1 European heritage

8.1.1 Assessment criteria

The NSW Heritage Branch has defined a methodology and set of criteria 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 and DUAP 1996, NSW Heritage Office 2000). The assessments provided in this report follow the Heritage Branch 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 1977* (as amended in 1999) for listing of items of environmental heritage that 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. **Table 8-1** provides a guide to ascribing relative value.

Table 8-1 Guide to ascribing relative heritage value (NSW Heritage Branch)

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.

8.1.2 Assessment of significance: *Part remnant branch line/tramway alignment*

This site consists of the remains of part of a linear, approximately 3 m wide, levelled, 1915 branch line/tramway alignment with some side embankments located along a length of approximately 250 m from immediately east of the existing Pacific Highway in a northeast direction towards Franklins Road. This remnant represents less than 3% of the overall length of the original branch line/tramway. There is no intact evidence of tramway construction materials or items associated with its use (such as wooden sleepers, metal objects or the remains of hopper trucks) at that location. Only the earthen embankments remain. Buried fabric may be present but would be unlikely to have remained in situ due to the construction of the existing Pacific Highway.

The branch line/tramway from the North Coast Railway to Glenugie Peak, a distance of over eight kilometres, was built in 1915 during construction of the North Coast Railway between Glenreagh and South Grafton. It was built to obtain a supply of ballast for the main rail line from the basalt of Glenugie Peak, there being no other source of suitable stone along the main line.

"The remains of a hopper truck, bits of metal, a wooden sleeper and several bolts" noted in the NSW State Forests 1994 Environmental Impact Statement for the Grafton Management Area are not in this section of the remnant tramway.

Indications of the tramway first appear on the 1909 map of the Parish of Lanitza, with its final alignment being shown most accurately on the 1925 Parish map. In his report to the NSW Legislative Assembly of 1 September 1915, the Chief Engineer for Railway and Tramway Construction, NSW Department of Public Works, provided the rationale for its construction but gave little detail as to its method of construction. The remnant alignment may still be discerned on the modern-day topographic map of the area.

Under NSW Heritage Council's heritage significance criteria, the remnant alignment meets criteria (a), (b), (e), (f) and (g), as follows:

Criterion (a) Through its identified construction date and remaining construction elements (being the levelled branch line/tramway track and some side embankments), the tramway alignment shows the necessary methods, such as the need to build a branch line to obtain suitable construction material, employed for the construction of the North Coast Rail line in the local area, and the importance of the local basalt resource of Glenugie Peak to the development of the early twentieth-century interstate (NSW – Queensland) rail network in that area. This site is therefore important in the course, or pattern, of the cultural history of the area.

Criterion (b) The tramway has a strong association with works of the Chief Engineer for Railway and Tramway Construction, NSW Department of Public Works, in 1915, and his and that department's role in the construction of the North Coast Rail line in the local area and as such is of importance in the cultural history of the local area.

Criterion (c) Does not meet the threshold for this criteria.

Criterion (d) Does not meet the threshold for this criteria.

Criterion (e) The tramway alignment has potential to yield information, such as construction methods and techniques (for instance, the placement of the alignment along contours to avoid water crossings, the width of the alignment and therefore the rail gauge and whether it was built by hand or using machinery), that will contribute to an understanding of the cultural history of the local area.

Criterion (f) Due to the need to obtain 'suitable stone' from an outcrop of basalt on Glenugie Peak for construction of the nearby section of the North Coast Rail line, the tramway alignment possesses uncommon aspects of the cultural history of the local area.

Criterion (g) The tramway alignment is important in demonstrating the principal characteristics of a class of NSW's cultural places, being, the construction of subsidiary branch lines/ tramways during mainline rail development throughout NSW.

This part of the remnant tramway alignment, between the present Pacific Highway and Franklins Road, which is the subject of this assessment, has altered or modified elements. There is no evidence of tramway construction materials or items associated with its use (such as wooden sleepers, metal objects or the remains of hopper trucks) at this location. Despite the survival of elements with little individual heritage value (such as modified earthen embankments) these contribute to the overall significance of the remnant as a larger whole. As such, this part of the remnant tramway alignment can be considered to have a moderate relative heritage value grading (as per Table 8.1).

This part of the remnant branch line/tramway alignment has been assessed as an item of local heritage significance.

9. KEY ISSUES AND MANAGEMENT CONSIDERATIONS

9.1 Aboriginal sites

No Aboriginal sites, places, objects or potential archaeological deposits (PADs) are located along the length of the project study corridor and as such none will be impacted by the project.

The risk for Aboriginal objects to be uncovered during construction is low. A protocol for unanticipated Aboriginal objects will be developed.

9.2 European sites

One European historic site, being, part of the remnant 1915 North Coast Railway branch line/ tramway alignment between the existing Pacific Highway and Franklins Road, is located in the project study area and will be impacted by the project. The site has been assessed as having local heritage significance. Impacting this minor portion of the item will not detract from its local heritage significance. This heritage item is located within the project impact zone and appropriate mitigation measures should be undertaken prior to works commencing.

It will be necessary to undertake a photographic archival record of the alignment in accordance with the Heritage Council of NSW guidelines. These guidelines are presented in two documents: *How to Prepare Archival Records of Heritage Item* (1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006).

The risk for historical relics to be uncovered during construction is low. A protocol for unidentified historical relics will be developed.

9.3 Human remains

Aboriginal or non-Aboriginal human remains are not expected to be uncovered during the project; however, in the unlikely case this may occur a protocol will be developed.

9.4 Cultural heritage induction

Previous experience in the conduct of cultural heritage management strategies in association with large development projects has found it beneficial to include a cultural heritage component in the pre-construction and on-going induction programs provided to all construction and in-field personnel. This has assisted in the communication and reinforcement of requirements, and provided an opportunity to explain the rationale behind the measures.

The cultural heritage induction component should include:

- A brief outline of the responsibilities of all personnel under relevant heritage legislation.
- The management measures included in this document, including the protocols for the discovery of human remains, Aboriginal objects and historical remains.
- A briefing on the identification of Aboriginal and historical sites including where such sites and objects may be found.

9.5 Summary

A summary of the heritage significance, potential impact of the upgrade project and recommended mitigation measure/required actions for cultural heritage relative to the project is in **Table 9-1**.

Table 9-1 Summary of archaeological potential/heritage significance, potential development impact and recommended mitigation measure/required actions.

Site ID/Item	Assessed Heritage Significance	Potential Impact of project	Recommended Mitigation Measure/ Required Action
Part remnant tramway alignment (between existing Pacific Highway and Franklins Road)	Local	Proposed upgrade will pass through remnant alignment	Archival recording required before destruction.
Previously unidentified Aboriginal objects, historical relics or human remains	-	Unlikely	Appropriate protocols to be adopted and followed.
Cultural Heritage Induction	-	-	Cultural heritage induction program to be developed and implemented.

10. RECOMMENDATIONS

Recommendations are based on a number of considerations, including field survey results, potential construction impact, and archaeological context.

10.1 Aboriginal sites and PADs

As no Aboriginal sites, places, objects or potential archaeological deposits (PADs) were identified along the length of the project study corridor; there are no recommended management actions with regard to known sites or PADs.

It is recommended that a protocol is developed and followed in the event that previously unidentified Aboriginal Objects are found within the project area.

10.2 European sites

The project will impact one locally significant European historic site, being a part of the remnant 1915 North Coast Railway branch line/ tramway alignment between the existing Pacific Highway and Franklins Road.

It is recommended that an archival record of an appropriate portion of the remnant rail alignment be undertaken in accordance with the Heritage Council of NSW guidelines, prior to the commencement of any disturbance.

In addition, it is recommended that a protocol is developed and followed in the event that previously unidentified historical relics are found within the project area.

10.3 Human remains

It is recommended that a protocol is developed and followed in the event that suspected human remains are revealed within the Project area.

10.4 Cultural heritage induction

It is recommended that a cultural heritage component be included in the induction program conducted for all construction and in-field personnel.

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