APPENDIX 4

ABORIGINAL CUTURAL HERITAGE ASSESSMENT

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DRAFT

Proposed Coffs Harbour Water Treatment Plant, 140 Upper Orara Road, Karangi, NSW mid-north coast

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Aboriginal cultural heritage assessment report

December 2006

Prepared on behalf of :

Coffs Harbour City Council
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1 INTRODUCTION

1.1 Background

Coffs Harbour City Council (Council) proposes to construct a Water Treatment Plant at 140 Upper Orara Road, Karangi ('the study area'), 12 kilometres inland of Coffs Harbour on the NSW mid-north coast. This cultural heritage assessment report was commissioned by Council in response to a recommendation for subsurface archaeological testing made by Coffs Harbour and District Local Aboriginal Land Council (LALC) and Gumbula Julipi Elders Corporation representatives following an inconclusive surface inspection of the subject property.

In order to make application for the Section 87 permit (Part 6, National Parks and Wildlife Act 1974) to allow the subsurface testing to proceed as recommended by the Aboriginal field representatives, this assessment addresses the 'Interim Aboriginal Community Consultation Requirements' introduced by the NSW Department of Environment and Conservation (DEC) in January 2005.

1.2 Project description

The proposed Coffs Harbour Water Treatment Plant would directly impact less than 2.5 hectares of land. The development would involve the construction of a range of facilities, including buildings, tanks, pumps and a lagoon, as well as connecting roadways (Figure 2). As illustrated in Figure 2, some of these facilities would be constructed on a level platform excavated into the eastern portion of the property.

Owing to the extent of the necessary earthworks/excavations, it is anticipated that the proposed development would result in the destruction of any Aboriginal sites that may occur within its footprint.

Insert Figure 1

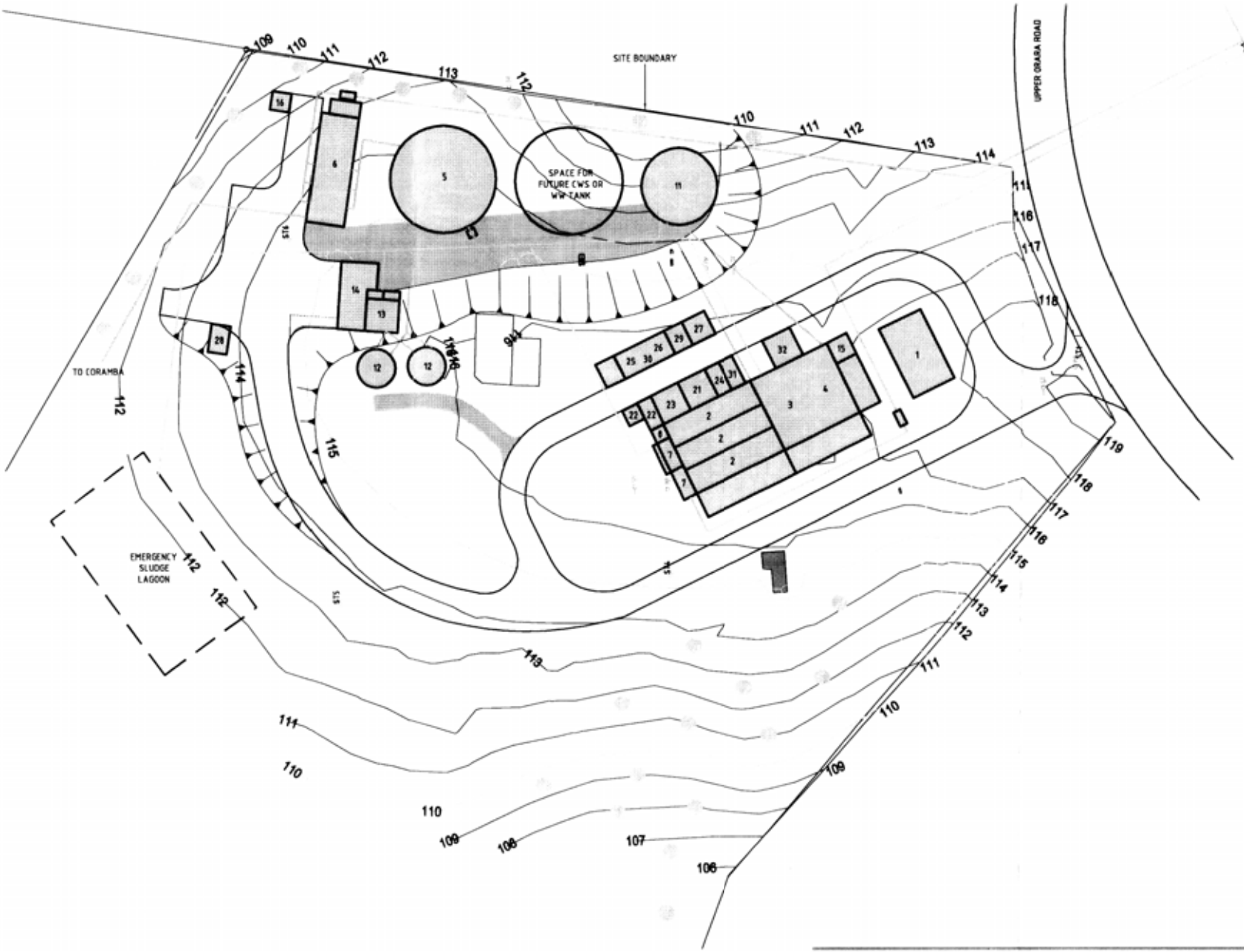

Figure 2. Proposed development layout

GHD CLIENTS | PEOPLE | PERFORMANCE

COFFS HARBOUR CITY COUNCIL
COFFS HARBOUR WTP
ALTERNATIVE WTP SITE A1
LAYOUT OPTION C

job no. 31-18991
rev no. C

Figure 13

scale | 1:1000 for A3 date | 25 AUGUST 2006

Level 8, 180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com.au W www.ghd.com.au

Plot Date: 28 August, 2006 - 12:57 PM Cad File No: 31-18991-FIg013.dwg

1.3 Location of the study area

The study area is located 1.25 kilometres west of Karangi, between Karangi Dam (750 metres south) and the Orara River (250 metres north). It is bounded to the south by Upper Orara Road, and by cleared farmland on the other sides. An electricity sub-station has been constructed on the northern end of an easterly adjacent spur (Figure 1).

2 COMPLIANCE WITH DEC INTERIM ABORIGINAL COMMUNITY CONSULTATION REQUIREMENTS

The 'Interim Aboriginal Community Consultation Requirements' prescribe DEC requirements in relation to the preparation of applications for approvals under Part 6 of the National Parks and Wildlife Act 1974. In summary, these requirements outline a number of steps that need to be taken to ensure that a transparent and informed Aboriginal consultation process is implemented prior to issue of the relevant approval/s.

2.1 Notification and registration of interests

In accordance with the Interim Requirements, notification of the development proposal and the consultant's intention to prepare this cultural heritage assessment report was mailed to the organisations listed below, inviting the registration of groups or individuals wishing to be involved in the assessment process.

- Coffs Harbour and District LALC
- Gumbula Julipi Elders Corporation
- Registrar of Aboriginal Owners, NSW Department of Aboriginal Affairs
- NSW Native Title Services
- The General Manager, Coffs Harbour City Council
- Department of Environment and Conservation (DEC)

On the 7th of October 2006, a newspaper notice was also published in the 'Coffs Harbour Advocate', inviting interested Aboriginal parties to contact Coffs Harbour City Council to formally register their interest in the assessment.

Responses were received from the Coffs Harbour and District LALC and Gumbula Julipi Elders Corporation as well as the DEC. The DEC advised that an additional opportunity to register interest should be extended to:

- Garby Elders Corporation
- Yarrawarra Aboriginal Corporation
- Mudjay Elders

Phone contact was subsequently made with Tony Perkins, Chairperson of the Garby Elders, and Tim Cowan, Manager of the Jalumbo Cultural Heritage Unit, Yarrawarra Aboriginal Corporation, inviting involvement in the assessment process. Both advised that Karangi is not within their group's area of knowledge or interest, and that the Gumbula Julipi Elders are the most appropriate group to consult in relation to Karangi. In the absence of a phone contact, a letter inviting involvement and detailing the proposed assessment methodology was also sent to Steven Hart, spokesperson for the Mudjay Elders, asking for a written or verbal (phone) response. No response was received.

As a result of the above process, the Coffs Harbour and District LALC and Gumbula Julipi Elders were formally endorsed as registered Stakeholders in relation to this assessment. As outlined in Section 1.1, these are the same two groups engaged by Council to inspect the Water Treatment Plant site, and who recommended the subsurface archaeological testing that gave rise to this report.

2.2 Assessment methodology

As required, the proposed assessment methodology was mailed to the registered Stakeholders, seeking comments with a view to informing and refining this methodology.

However, the proposed methodology was accepted unmodified by the Stakeholder groups (no responses received).

2.3 Drafting, review and finalisation of this report

A copy of this draft report has been supplied to the registered Stakeholders for review and comment. Any comments received will be duly considered, and the final report amended as necessary.

3 ENVIRONMENT AND LANDUSE EFFECTS

The study area sits within the escarpment ranges landsystem and comprises the terminal end of a small spur that extends from the foot of Mount Browne into the narrow valley of the upper Orara River. Mount Browne itself rises to an altitude of 350 metres AHD on a prominent peak 1.5 kilometres further south.

The study spur features a level to low-gradient crest elevated at 115 to 117 metres AHD, defined to the east (beyond the study boundary) by a highly modified seasonal gully that separates it from a more substantial spur on which a TransGrid electricity sub-station has been built. Although surface contours are largely intact, the spur has been cleared of its original rainforest vegetation (cf Davies 2004) for grazing and possibly past cultivation purposes and is now dominated by grass cover. Further disturbance has been caused by the construction of a house with associated garden beds and a large shed on the spur crest.

The study area forms part of the Megan Soil Landscape unit, which is characterised by strongly acid, stony and highly erodible red and brown earths and podzolic soils formed on the late Carboniferous metasediments of the Coffs Harbour association (Milford 1999). This association includes greywacke, siliceous argillite, and some quartz, chert and jasper

(Korsch 1980), all potential sources of raw material for the production of Aboriginal flaked stone tools. However, no rock outcrops or other possible stone sources (surface pebbles etc) occur in the study area, and it is anticipated that the topsoil will comprise a similar brown clay loam with ironstone pedes and fragmented quartz as identified on the adjacent easterly spur (Kelton 2005).

4 CULTURAL ASSESSMENT

4.1 Cultural background

Karangi lies within the traditional country of Gumbaingirr-speaking people, who inhabited a wide area from the Clarence River to at least as far south as the Nambucca (Enright 1934; Smythe 1949; Eades 1979; Godwin 1990). At the time of first European contact, the Gumbaingirr comprised a number of distinct but interrelated groupings of people, each associated with a defined geographical area. These groups shared economic resources, trading and ceremonial occasions, intermarried, and spoke a mutually intelligible language, even though differences of dialect or speech, of local territorial association, and some cultural practices varied from one group or locality to another. As stated by McDougall (1900:116), "each tribe kept its own belt of country, and separated into small camps, and only collected together on special occasions".

During the course of everyday life, resource exploitation seems to have been undertaken by family groups (cf Henderson 1851; Lane 1970:5.2) and often several families would co-operate to form a highly flexible 'band' that would gather or disperse as conditions demanded (Godwin 1990:97). Away from the coast, camps were shifted "about monthly as the game in the immediate vicinity became exhausted … it took several months to give each ground in the locale its turn" (McFarlane 1934-5). Base camps were established in areas protected from the elements by dense vegetation (McFarlane 1935). According to Dawson (1935), "the middle of each day was spent around the fire where the venison or

game was procured, and the remnant of the meal … was carried back to camp for evening consumption". On the basis of this description it seems that base camps would have been situated in sheltered areas offering suitable conditions, with a large number of small resource-specific sites scattered between.

Early European sources indicate that most of the Aboriginal population centred on the coastline, coastal alluvial plains and major river corridors, despite the rapid appropriation of these landsystems by timber-getters and farmers. While Aboriginal people were undoubtedly present in the escarpment ranges (cf Hodgkinson in Hobson 1978:5), historic accounts suggest low population numbers in comparison to the coastal landsystems. Even so, a large camp was situated at Bagawa, near the confluence of the Orara River and Bucca Bucca Creek, some 20 kilometres north of Karangi (Holder 1984:20). Bagawa is said to have provided a summer complement to the coast, used as a base for hunting excursions along the streams and up into the ranges (Holder 1984:20-22). In the Karangi area, there were apparently few Aboriginal residents (Kelly 1987), although many passed through "on their way to somewhere else" (Secomb 1986:46). According to Secomb, this movement was undertaken via long-established tracks.

Aboriginal landuse patterns were substantially modified in the decades following European incursion, as traditional lands were invaded and freedom to move through the country was progressively restricted. By the last decade of the 19th century, the fertile flats along the Orara River had been taken up for dairying, corn and pig production, and gold mining was underway on the eastern slopes of Mount Browne little more than a kilometre south of the study area (England 1976). Aboriginal people were often employed in the area, primarily as timber 'spotters' (A. Hope pers comm.).

Despite a decline in population numbers and the massive changes brought about by European settlement, many local Gumbaingirr were able to maintain traditional knowledge of and associations with the landscape. In addition to important ceremonial and meeting places, information relating to such things as travelling routes, resource use and relationships to land has been handed down through the generations (Goulding 2001).

4.2 Cultural heritage values of the study locality

In an effort to assess traditional and contemporary Aboriginal cultural heritage values, consultation was undertaken with Elders and knowledge-holders identified by the registered Stakeholder groups as having any potential attachments to, or relevant information about, the wider Karangi/Mount Browne locality and/or the study area in particular.

These individuals included Gumbula Julipi Elders Ken Craig, Ken Nayda and Mark Flanders, local research historian Arlene Hope, and Dee Murphy, archaeologist and long-term heritage adviser to the Garby Elders and Jalumbo Cultural Heritage Unit, Yarrawarra Aboriginal Corporation.

Consultation undertaken in conjunction with this assessment revealed Mount Coramba, a registered natural mythological site (#22-1-004) situated 4.5 kilometres north-east of the study area, to be the most culturally-significant site in the Coffs Harbour hinterland. The only other place of ceremonial, mythological or otherwise sacred significance reported by informants is a women's site associated with pools at Bangalor Falls on the Urumbilum River (a tributary of the Orara), 10.75 kilometres south-west of the study area. Cochranes Pool, in the Orara River approximately two kilometres upstream of the study area, was also reportedly always spoken of by the old people, but the degree and nature of its significance is unknown.

Upper Orara-Karangi is valued as a marchland area, which contained a network of traditional walking trails that followed the main ridges between the Bellinger and Clarence Rivers and connected the inland ranges with the coast at Bonville, Boambee and Coffs Harbour. Many of these trails were later used by bullock teams and some have since been developed as modern-day roads. None of the known transit routes are located in or near the study area.

A number of campsites used at the time of first European contact (and presumably long before) are known to have been situated close to waterways in the Upper Orara-Karangi locality. These include camps along Wongiwomble Creek at the eastern foot of Mount Browne, along Houlahans Gully south of Mount Browne, and on the site of the Karangi Public School, beside Karangi Creek 1.25 kilometres north-east of the study area.

Individuals and small family groups continued to occupy bush camps well into the 20th century, with many of the remembered camps dating from the 1940s, 50s and 60s. Both these camps and a range of other types of historic Aboriginal sites have been researched and mapped by Goulding (2001). An analysis of historic camp locations revealed the majority to have been situated on crown land reasonably close to the coastline. Camps further inland tended to be on public land in or near towns where there were accessible water supplies. A significant proportion of camps were established at a place of work or in walking distance of work, but others were used seasonally for recreation purposes, or in response to the availability of certain resources (Goulding 2001:64). Although none of the mapped historic or otherwise significant sites documented by Goulding occur in or close to the study area, the present consultation revealed that the site of the Karangi timber mill, on the opposite side of Karangi Creek 200 metres north of the Public School, has historical links with a known individual. This was a camping place used by the late Harry Buchanan, a well-known and highly regarded Gumbaingirr identity, who worked as a timber-cutter in the area during the first half of the 20th century.

With respect to the study area and its immediate surrounds, however, informants have advised that the most significant cultural heritage features are the archaeological sites recorded in the vicinity of Karangi Dam. Further camping grounds and burials are believed to exist on the slopes of Mount Browne and all of these, including any site that may occur in the study area itself, would be of cultural value as a physical link with the traditional or historic past.

5 ARCHAEOLOGICAL ASSESSMENT

5.1 Past archaeological work

A number of archaeological surveys/investigations have been conducted in response to past development proposals in the Karangi locality. These are reviewed in this section and provide an insight to the types, frequency and environmental context of sites that have been recorded. Numbers in brackets (#n) refer to DEC site identification codes.

Field surveys

In 1990, Navin and Officer surveyed a 60 metre wide transmission line easement between Karangi and Grafton. This easement runs down the spine of a major spur that extends north from Mount Browne west of Karangi Dam, crossing the Orara River just downstream of Cochrans Pool and continuing north across high timbered ridges and cleared valleys. Seventeen artefact scatters, one stone quarry and a scarred tree were recorded between Karangi and Glenreagh, mostly on ridgelines and associated knolls and spurs. Closest to the present study area was a scatter of five artefacts (#22-1-049) on a ridgeline saddle 1.25 kilometres to the north-west.

In 1994, Navin surveyed approximately 35 hectares of moderate to steeply graded ridge slopes surrounding Karangi Dam. One retouched chert artefact was detected (#22-1-199) in a re-deposited context on an excavated slope above the dam.

Also surveyed was a transmission line easement which extends inland from Coffs Harbour and across the eastern slopes of Mount Browne to terminate at the TransGrid sub-station on the spur immediately east of the study area (Mills 1997). No Aboriginal sites were detected along this section of the easement, although the crest of a spur on the eastern side of Mount Browne was considered to have some further archaeological potential.

An 8-15 metre wide pipeline route between the site of the Shannon Creek Dam near Grafton and Karangi Dam was surveyed by Officer and Navin in 1998. In the southern section, this route traverses ridge slopes, spurs and valley flats from Glenreagh to the Orara River. It then skirts along the western edge of the study spur (beyond the western boundary) to reach Upper Orara Road and Karangi Dam beyond. Four scatters of between two and five artefacts, two isolated artefact finds, one scarred eucalypt tree and three PADs (potential archaeological deposits) were recorded south of Glenreagh. All of the known artefact sites occurred on the crests of spurs fringing the Orara River valley, while the identified PADs were associated with elevated banks adjacent to streamlines.

In 2004, a survey was undertaken by the Coffs Harbour and District LALC in response to the proposed maintenance and construction of access tracks/fire breaks within 138 hectares of forest on the northern slopes of Mount Browne, above Karangi Dam. This survey resulted in the recording of two artefact scatters (#22-1-196 containing seven artefacts; and #22-1-204 containing 19 artefacts), two isolated mudstone cores and an isolated nodule of red ochre, all on spurlines. A burial site was also pinpointed close to Karangi Dam, but the source of information relating to the whereabouts of this burial was not reported (Coffs Harbour and District LALC 2004:11 [map]).

The most wide-ranging survey work so far completed in the Coffs Harbour hinterland has been that done by Davies (1993) as part of the Environmental Impact Assessment for the Coffs Harbour-Urunga Forestry Management Areas. Davies divided the management areas into landsystems and conducted sample surveys in each. Some limited area inspection was undertaken, but Davies' survey was largely geared to locating open surface sites detectable on vehicle track exposures. Although targeting areas considered to have high archaeological potential, her survey strategy was explicit in its recording of a wide range of site/environmental associations and provides valuable data on the distribution and density of stone artefact occurrences.

Across the management areas as a whole, artefact scatters and isolated artefacts were generally found on flat to gently-sloping ground, primarily on the crests of dry forested

spurs. Site frequencies varied with inland distance, with most associated with the escarpment ranges west of the Orara River. Despite the higher frequency of artefact occurrences in the escarpment ranges, however, these tended to have fewer artefacts (most often only a single find) than sites closer to the coast (Davies 1993:58-59).

As designated by Davies, the Orara East State Forest, which takes in the eastern slopes of Mount Browne, falls within the 'coastal ranges' landsystem, where artefact occurrences were found to occur at a density of 0.37 per kilometre of linear survey route ('trajectory'), or 16.59 artefacts per hectare (Davies 1993:Table 10). In all, three isolated artefacts and four artefact scatters were recorded in the 'coastal ranges'. Of the artefact scatters, two comprised three artefacts, while the other two comprised 12 and 31 artefacts. Given the low density of material at these sites, Davies believes them to most likely represent transitory rather than base camps. During her survey Davies (1993) covered 19 kilometres of forestry trails in the 'coastal ranges', although none of these were within the Orara East State Forest.

Subsurface investigations

The results of archaeological test excavations conducted by Kelton (2005) on two proposed transmission line tower locations and the site of an extension to the TransGrid sub-station (PAD #22-1-208; see Figure 1), located on the shoulder and western edge of a similar but broader spur immediately east of the present study area, are of particular relevance to this assessment.

Kelton's subsurface testing was undertaken using a 60 centimetre diameter backhoe-mounted auger supplemented by hand shovelling where necessary. The surface ('A') soil horizon was removed as a single spit to an average depth of 10 centimetres. Excavated sediments were sieved through 10 and 2.5 millimetre mesh screens, and sieve residues examined for artefact materials. In all, four auger holes were excavated on each of the proposed tower locations, but these were sterile of archaeological evidence. A systematic grid of 107 auger holes was excavated across the most potentially sensitive (undisturbed and reasonably level) parts of the 130 metre by 100 metre sub-station extension. Seven of

these yielded stone artefacts, resulting in the recovery of nine artefacts across a total excavation area of 22 square metres (ie a density of one artefact per 2.44 square metres).

The recovered stone assemblage comprised seven unmodified flakes, one flake fragment and a multi-platform core made on tuff/chert and silcrete. Despite an absence of stone cortex on any of these artefacts, Kelton (2005:32) asserts that a local stream source for the raw stone materials cannot be discounted, and reports finding a nearby location in the Orara River bed that contains water-worn pebbles of these same materials.

Kelton concluded that the overall low density of artefacts detected on the proposed sub-station extension was probably reflective of an 'edge effect' associated with Aboriginal occupation of the spur crest proper. This crest had already been impacted by construction of the existing sub-station and Casuarina Lane, which extends the length of the spur between Upper Orara Road and the Orara River.

5.2 Registered sites

DEC Aboriginal Heritage Information Management System

As listed in Table 1, 19 Aboriginal sites have been registered to date on the DEC Aboriginal Heritage Information Management System (AHIMS) within a five kilometre radius of the study area, including 10 artefact scatters, five isolated finds, three scarred trees and a natural mythological site. All of the registered artefact sites are associated with ridge and spur landforms, occurring on crests, knolls, upper slopes and mid-slopes (Table 1).

None of the registered sites are located within the study area itself, but as outlined in Section 5.1 above, nine stone artefacts were recovered during a subsurface investigation of Site #22-1-208, on an immediately adjacent spur above the Orara River.

Table 1. DEC registered sites within five kilometres of the study area

Site #	Site name	Site type	No artefacts	Environmental context
21-3-014	CH-G 3	Artefact scatter	7	Ridge crest
21-3-154	Scrimshaw	Artefact scatter	?	Ridge upper slope
22-1-004	Mt Coramba	Natural myth	N/a	Prominent mountain
22-1-049	CH-G 1	Artefact scatter	5	Ridge crest
22-1-050	CH-G 2	Artefact scatter	3	Ridge crest
22-1-054	Coramba	Scarred tree	N/a	Ridge upper slope
22-1-064	Orara River 1	Artefact scatter	2	Spurline knoll crest
22-1-110	SKP A15	Artefact scatter	>5	Spur crest near river
22-1-112	SKP IF5	Isolated find	1	Spurline knoll
22-1-135	Rosebank 1	Scarred tree	N/a	Upper spur slope
22-1-159	Wilson property	Scarred tree	N/a	Spur mid-slope
22-1-196	Karangi Dam 1	Artefact scatter	7	Spurline knoll crest
22-1-199	Karangi Dam IF1	Isolated find	1	Spur mid-slope
22-1-200	Karangi TransGrid	PAD	?	Spur crest
22-1-201	Karangi Dam 2	Isolated find	1	Spur mid-slope
22-1-202	Karangi Dam 3	Isolated find	1	Spur mid-slope
22-1-203	Karangi Dam 4	Isolated find	1	Spur upper slope
22-1-204	Karangi Dam 5	Artefact scatter	19	Spur crest and upper slope
22-1-208	TransGrid PAD	Subsurface artefact scatter	9	Spur upper slope

Other heritage registers

Searches of the Australian Heritage Database maintained by the Department of Environment and Heritage, the NSW State Heritage Register, and Heritage Items of the North Coast Regional Environmental Plan (Schedule 2), and Coffs Harbour Local Environmental Plan (Schedule 5) revealed no listed Aboriginal sites or places in or close to the study area.

5.3 Field assessment of the study area

A full field inspection of the study area was completed by Coffs Harbour and District LALC senior sites officer (and Gumbula Julipi Elder) Mark Flanders and Gumbula Julipi Elder Ken Nayda on the 6th of September 2006. No archaeological materials were detected, but surface visibility was negligible due to extensive grass cover.

Owing to the demonstrated archaeological sensitivity of level spur crests, the recovery of artefacts on the adjacent spur (Kelton 2005), and the number of artefact occurrences so far recorded during limited surveys on the northern ridges, spurs and slopes of Mount Browne, it was concluded that the study area has the potential to contain subsurface evidence of Aboriginal occupation (particularly stone artefacts) of possible cultural, educational and scientific value. Subsurface testing was recommended as the only acceptable means of determining the area's archaeological context and overall level of significance.

In order to develop a mutually-agreeable methodology for the proposed subsurface testing, the study area was re-inspected by the consultant and Mark Flanders on the 18th of September 2006. Surface visibility was again very low (see Plates 1-4) and a subsurface investigation was thus considered to provide the most appropriate means of assessing archaeological potential. As proposed in the Section 87 application, it was agreed that the subsurface investigation could be best achieved through the excavation of a series of mechanical test squares (each two square metres) placed at 15 metre intervals along the spur crest, with additional squares appropriately placed at reduced spacings in the event that artefacts are recovered.

Plate 1. View north along spur crest to the existing house

Plate 2. View south across spur crest east of the existing house

Plate 3. View 1 west across spur north of the existing house

Plate 4. View 2 west across spur north of the existing house

6 STUDY AREA SIGNIFICANCE AND JUSTIFICATION FOR SUBSURFACE INVESTIGATION

Advice from the Aboriginal Stakeholders and other individuals consulted during the course of this assessment indicates that the proposed development would have no direct or indirect impact on any known sites or places of cultural heritage significance (cf Section 4.2).

However, Stakeholder groups consider the study area to have the potential to contain undetected evidence of past Aboriginal occupation that may be significant in demonstrating traditional lifeways, providing a material link with Gumbaingirr ancestors. As advised by these Stakeholders, the existence and significance of any site that may occur in the study area could only be reliably assessed on the basis of the results of a subsurface archaeological investigation.

An analysis of all known Aboriginal site locations in the Coffs Harbour region lead to the prediction that the highest densities of artefact occurrences in the escarpment ranges would be associated with the level or gently-inclined crests of ridges and spurs, particularly those with open or east to north-east aspects supporting dry open forest (Collins 2001:76). The current study area comprises the level crest of a spur adjacent to the permanent channel of the Orara River. It has a northerly aspect, but is thought to have originally supported rainforest vegetation. The augering conducted by Kelton (2005; cf Section 5.1) represents the only controlled subsurface investigation so far undertaken in the Coffs Harbour escarpment country and this investigation focused on the shoulder and western edge of a spur rather than a spur crest itself. Given that some artefacts were recovered during augering, Kelton concluded that he had intercepted the periphery of a campsite centred on the spur crest, beyond the eastern margin of his designated investigation area.

In view of the above, the subsurface investigation recommended by Aboriginal Stakeholder groups in relation to the present study area would inform not only the cultural/ social significance of this area, but would concurrently provide a seminal opportunity to

investigate the archaeological context of a (probably) once rainforested spur crest in the escarpment ranges. The investigation thus has the capacity to provide information suitable for refinement of the predictive site location model developed by Collins (2001).

7 ASSESSMENT OUTCOMES AND RECOMMENDATIONS

Following a surface inspection by nominated representatives, the Coffs Harbour and District LALC and Gumbula Julipi Elders (the only subsequently registered Stakeholders) recommended that the study area be subject to subsurface archaeological testing ahead of development of the Coffs Harbour Water Treatment Plant. This recommendation is supported by this cultural heritage assessment. Both Stakeholder groups recognise that the development is crucial to the maintenance of the local water supply and have no principal objections to it proceeding providing this recommendation is implemented.

A review of existing site information suggests that there is a reasonable chance of artefacts occurring on the study spur, and despite its level of past disturbance, subsurface investigation of this spur is considered warranted. The investigation would enable the impacts of the proposed development to be more securely assessed. Irrespective of the results, the investigation would also provide data on archaeological site distributions of future research and management value. In the event that archaeological materials are intercepted during the investigation, the recovered artefacts and information generated will be of educational value to the Aboriginal community. The results would also facilitate the development of appropriate impact mitigation strategies in relation to the development, including any necessary site salvage, protection areas and amendments to the development layout, procedure and/or construction methodology.

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GLOSSARY

ARCHAEOLOGICAL SITE
A place containing cultural materials of sufficient quality and quantity to allow inferences about human behaviour at that location (Plog *et al* 1978:383).

ARGILLITE
A rock derived from mudstone or shale that has been altered and indurated by pressure and cementation. Argillites are mid-way in metamorphism between shale and slate (Lapidus 1987:36).

ARTEFACT
Any object having attributes as a consequence of human activity (Dunnell 1971).

ASSEMBLAGE
A set of artefacts found in association with each other and therefore assumed to belong to the one phase or one group of people (Champion 1980:11).

CARBONIFEROUS
The time interval between 360 and 290 million years ago (Lapidus 1987:90).

CHERT
A dense, extremely hard, microcrystalline or cryptocrystalline siliceous sedimentary rock, consisting mainly of inter-locking quartz crystals, sub-microscopic and sometimes containing opal (amporphous silica). Chert occurs mainly as nodular or concretionary aggregations in limestone and dolomite, and less frequently as layered deposits (banded chert). It may be an organic deposit (radiolarian chert), an inorganic precipitate (the primary deposit of colloidal silica), or as a siliceous replacement of pre-existing rocks. Flint is a variety of chert occurring as nodules in chalk and having a conchoidal fracture (Lapidus 1987:102).

CORE
A piece of stone which has been used as a source for flake production. Cores are thus generally characterised by negative flake scars (Morwood and L'Oste-Brown 1995:162).

CORTEX
The natural weathered surface of rock, not the result of human activity (McCarthy 1976:101).

CREST
Landform element standing above all or most points in the adjacent terrain. Usually smoothly convex (Speight 1990:13).

FLAKE
A piece of stone detached from a larger mass by the application of force and having a feather, hinge or step termination and a bulb of percussion. A platform may be present if the proximal end is unbroken (Crabtree 1972:64).

GREYWACKE
Sedimentary rock. A very hard, dark grey or greenish-grey, coarse-grained sandstone characterised by angular particles and rock fragments embedded in a clayey matrix (Lapidus 1987:265).

JASPER
A compact, microcrystalline variety of quartz. Its colours are variable, including white, grey, red, brown and black (Lapidus 1987:308).

METASEDIMENT
A metamorphosed sedimentary rock in which the original texture is still recognisable (Lapidus 1987:345).

MUDSTONE
A commonly-used synonym for Mudrock. A fine-grained sedimentary rock composed chiefly of particles in the silt-clay size range. Mudrock/mudstone is a general term used to distinguish the finer-grained sedimentary rocks from sandstones or limestones (Lapidus 1987:362).

MULTI-PLATFORM [ROTATED] CORE
A core with at least one negative scar running in a different direction to the remainder. Multi-directional scars indicate that the core has been rotated to get the most economical use of the raw material (Hiscock 1986:49).

NATURAL MYTHOLOGICAL SITE
Unlike archaeological sites, these sites are unmodified natural features of the landscape that derive their cultural importance from myths and ceremonies associated with them. They are sacred areas and most would have been restricted to certain members of the society (for instance, restrictions on age, gender or degrees of initiation). Usually, these sites are of enduring spiritual significance and remain an integral part of contemporary Aboriginal culture.

PODZOLIC SOIL
Soils with a strongly bleached eluvial horizon (Charman 1978:108).

QUARTZ
Crystalline silica having no cleavage but a conchoidal fracture (Lapidus 1987:429).

RETOUCH
The alteration to the primary termination of a flake caused by deliberate secondary flaking in order to resharpen or modify the edge (Crabtree 1972:89).

RIDGE
A compound landform element comprising a narrow spine crest and its immediately adjoining slope with the spine length being greater than the width (Packard 1992:100).

SADDLE
Landform element comprising a lower, relatively level point along the spine of a ridge or spur (Packard 1992:100).

SCARRED TREE
These are trees that bear scars caused through the removal of bark or wood for making material items such as canoes, shields and containers, or which have been marked for other reasons. Because scarred trees are usually associated with domestic activities, their distribution often correlates with the distribution of artefact scatters and other types of campsites (Long 1998:28).

SILCRETE
A siliceous duricrust composed of sand and gravel cemented by opal, chert and quartz, formed by chemical weathering and water evaporation (Lapidus 1987:472).

SPUR
Landform element comprising a lower, subsidiary ridge leading down from a locally dominant ridge or crest (Packard 1992:100).

STONE ARTEFACT
Fragment of stone which generally possesses one or more of the following characteristics:
- Positive or negative ring crack
- Distinct positive or negative bulb of force
- Definite eraillure scar in position beneath a platform
- Definite remnants of flake scars (ie dorsal scars and ridges)

These traits indicate the application of an external force to a core, and are characteristic of the spalls removed by humans using direct percussion. Stone artefacts which have none of the above may be identified as such if they possess ground facet/s characteristic of human industry (Hiscock 1984:128).

STONE QUARRY (ABORIGINAL)
As the locations of stone sources exploited by Aborigines, quarry sites usually show evidence of procurement and preliminary processing activities, and may be found where outcrops of suitable siliceous or igneous rocks occur. While quarry sites may be represented by as little as one or two flaked boulders or a single extraction pit, most contain a cluster of quarry pits and/or flaking floors where the stones have been trimmed to sizes suitable for transport (NPWS 1988:18-19).

TUFF
A pyroclastic rock composed mainly of volcanic ash. Tuffs may be crystal (composed mostly of crystal fragments), vitric (composed mostly of glass and pumice fragments) or lithic (composed mostly of rock fragments) (Lapidus 1987:519-520).

VALLEY FLAT
A small, gently inclined to level flat, aggraded or sometimes eroded by channelled or over-bank stream flow, typically enclosed by hillslopes (Speight 1990:34).

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APPENDIX A

Correspondence from Aboriginal Stakeholders (to be received)

PROPOSED COFFS HARBOUR WATER TREATMENT PLANT, 140 UPPER ORARA ROAD, KARANGI- SUBSURFACE ARCHAEOLOGICAL INVESTIGATION

SUMMARY

Investigation method and procedure

The subsurface archaeological investigation involved the excavation of 44 two square metre test pits, systematically spaced at 15 metre intervals across the potentially sensitive crest and upper slopes of the spur to be impacted by the development. The investigation was undertaken on the 21st, 22nd and 23rd of May 2007, with the assistance of representatives from the Coffs Harbour and District Local Aboriginal Land Council and the Gumbula Julipi Elders (the two registered Stakeholder groups).

The test pits were dug using a 3.1 ton rubber-tracked mechanical excavator mounted with a one metre wide toothless bucket. Sediments were removed from each pit in (approximate) 10 centimetre spits to the base of the surface soil (A) horizon, or deeper as necessary to determine the vertical artefact distribution. Each spit was dry sieved through a (mechanically agitated) six millimetre mesh screen. Sieve residues were carefully examined for Aboriginal cultural material, and each find bagged and labeled for later analysis.

Results

Forty stone artefacts were recovered from 23 of the 44 test pits, giving an overall average of 0.45 artefacts per square metre for the investigation area. All artefacts were recovered from the topsoil, and no cultural stratification was evident. Of the artefact-bearing pits, 13 contained one artefact, five contained two artefacts, three contained three artefacts, and two contained four artefacts. Twenty nine (66%) test pits, including 15 (65%) of the artefact-bearing pits, contained definite evidence of high level European disturbance (plough marks and/or the inclusion of European materials such as metal, glass, china, gravel etc). The remarkable abundance of earthworms in most of the pits suggested that artefacts would also have worked their way down in the topsoil profile as a result of natural bio-turbation, and may account for the prevalence of artefacts at the topsoil/underlying clay interface, where 60% (#=24) of the recovered examples were found.

The recovered artefacts are restricted to unmodified flakes and flake fragments (77.5%), cores (15.5%) and flaked pieces (5%), made primarily on locally-available volcanic and metasedimentary raw stone materials.

Conclusions

The test pit investigation revealed a sparse distribution of stone artefacts across the spur targeted for development of the Water Treatment Plant. Results suggest that this distribution occurs at a

maximum density of two artefacts per square metre, although the density over most of the investigation area proved considerably lower than this. The results also suggest that much (if not all) of the investigation site has suffered a reasonably high level of disturbance as a result of past European cultivation practices and natural bioturbation factors.

Due to the low artefact density and restricted range of artefact types, it is concluded that the investigation site was used on a short-term, itinerant basis only, probably during day-time visits by small groups ranging from seasonal base camps elsewhere in the Orara River valley. Given that the investigation spur is one of several similar spurs extending down to the Orara River from Mount Browne, material evidence for this same type of itinerant traditional use can also be expected on the other spurs. This conclusion is supported by the recovery of a small number of artefacts during the course of archaeological test excavations on the adjacent easterly spur (Kelton 2005).

Site significance

Because all Aboriginal archaeological sites contain evidence of prior Aboriginal occupation/use of the landscape, the Coffs Harbour and District Local Aboriginal Land Council and Gumbula Julipi Elders consider all sites within their territory to have at least some cultural value. However, following consideration of the investigation results and the extent of the existing disturbance, Aboriginal Stakeholders assessed the investigation site to have a low level of cultural significance.

The archaeological evidence detected as a result of the subsurface investigation defines the location of a short-term activity-specific traditional Aboriginal site situated on a coastal hinterland spur, with evidence for a limited range on on-site activities. The investigation revealed this site to contain to low-density distribution of Aboriginal stone artefacts confined to the disturbed topsoil layer. No materials suitable for dating were recovered. The results indicate that the site is not culturally stratified. It is reasonable to assume that the site was used by at least some of the people who occupied other nearby registered sites, including those on Mount Browne. However, there is no conclusive evidence for its ‘connectedness’ with any other site/s. On the basis of these factors, and given that the artefact sample systematically recovered during the present investigation is reliably representative of the site as a whole, the site is not considered to have any substantial further potential in terms of research or analysis, and is assessed to have a low level of scientific significance.

Recommendations

The investigation site has been assessed to have a low level of both Aboriginal cultural and scientific significance. Due to its low artefact density and the perceived low to negligible likelihood of *in situ* cultural materials, Coffs Harbour and District Local Aboriginal Land Council and Gumbula Julipi Elders Stakeholders have advised that the subsurface investigation has satisfactorily addressed their

cultural concerns, and that the information contained in this report has provided information of community educational value sufficient to off-set the loss of this site during the course of the proposed Water Treatment Plant development.

With the support of the registered Stakeholders it is therefore recommended that:

- The proposed Coffs Harbour Water Treatment Plant development proceed as planned.

- The Coffs Harbour and District Local Aboriginal Land Council and Gumbula Julipi Elders be given the opportunity to re-deposit artefacts recovered during the subsurface investigation in a location as close as possible to their origin, preferably on the 140 Upper Orara Road spur crest. The re-deposition location should be agreed with Coffs Harbour City Council, and the re-deposition take place once all development-related disturbance works have been completed.

  To obtain formal permission from the Department of Environment and Climate Change (DECC) to allow re-deposition of the artefacts, an 'Application for a Care Agreement for Aboriginal Objects' should be completed by the Coffs Harbour and District Local Aboriginal Land Council and/or the Gumbula Julipi Elders. Once DECC permission has been granted, details of the re-deposition location will need to be supplied to the DECC for its records.

- In the unlikely event that any material evidence of potentially high cultural significance, especially any evidence of Aboriginal burial/s, is uncovered during any stage of the development, all disturbance works must cease in the vicinity of the find. The DECC (Northern Aboriginal Heritage Unit, Coffs Harbour), Coffs Harbour and District Local Aboriginal Land Council and the Gumbula Julipi Elders should be immediately contacted for management advice.

- To maintain a positive relationship between parties, Council should continue to liaise closely with the Coffs Harbour and District Local Aboriginal Land Council and the Gumbula Julipi Elders in relation to cultural matters. To this end, these groups should be kept informed of the timetable for works associated with planning and construction of the Karangi Water Treatment Plant.