

# Appendix 29

Indigenous Cultural Heritage,  
Jangga Native Title Area

**BYERWEN PROJECT DESK TOP REPORT,  
INDIGENOUS CULTURAL HERITAGE,  
JANGGA NATIVE TITLE AREA**

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## 1. INTRODUCTION

This report presents the results of cultural heritage desk top research and analysis of those portions of several mine leases and exploration tenements held by Q Coal within the Jangga Native Title claim area as part of the Byerwen Coal Project, Central Queensland.

The project area lies in the northern portion of the Queensland Central Highlands on the 100 000:1 Topographic Map of Byerwen 8455 (Ed. 1). The Byerwen Project consists of ML 70434, ML70435, ML70436, EPC 614 and EPC739. The mine leases include land between, and west of, Newlands and Suttor Creek mines held by Xstrata, covering portions of Suttor Creek, Suttor North, Wollombi and Byerwen pastoral holdings and covers portions of Lancewood, Newlands, Suttor Creek, Byerwen, Wards Well and Talwood pastoral holdings.

### 1.1 Terms of Reference

The goal of the report is to provide detailed background information relating to existing knowledge of:

1. types of Cultural heritage finds and significance of such finds on areas surrounding the Byerwen Project;
2. Identify any known areas of Cultural Heritage Significance within or around the area of the Byerwen Project;
3. Provide information to allow the Jangga People and Byerwen Coal to focus survey and clearance activities on areas within the Byerwen Project area that have a higher probability of Cultural Heritage finds;
4. Provide information to allow the Jangga People and Byerwen Coal to identify areas within the Byerwen Project Area that have a high, medium and low likelihood of subsurface finds.

The report will form the basis of a broader cultural heritage report to be prepared for the Byerwen EIS and will inform the current discussions regarding the Byerwen Project CHMP including cultural heritage surveys.

This study has engaged in the following tasks:

1. Database, register and report based cultural heritage searches;
2. Assessment and analysis of data derived from the searches above;
3. the production of a report that describes the existing indigenous cultural heritage values that may be affected by the Byerwen Project based on:-
  - i. searches of cultural heritage information contained in the cultural heritage register and database held by the Cultural Heritage Coordination Unit within DERM;
  - ii. existing Cultural Heritage survey work performed in areas immediately surrounding the Byerwen Coal Project; and,
  - iii. any other information relevant to meet the goals of the report.
4. Production of a map delineating:-
  - i. known areas of Cultural Heritage Significance within and around the area of the Byerwen Project;
  - ii. the assessed likelihood of subsurface finds (high, medium or low) in the area of the Project based on experience at surrounding mine sites in Jangga Country.

The report will also provide information relating to the most probable locations for finds (eg. soil types, geographic features (drainage lines) based on experience during cultural heritage surveys on area surrounding the Byerwen Coal Project.

Any requirements of the Jangga People relating to confidentiality of site data or information contained within the report must be highlighted.

## 1.2 Description of Project Area

**ML70434** is an irregular, stepped, parcel of land with maximum extension 8x18km that extends north from Suttor Creek coal mine in Suttor Creek pastoral lease, crossing the Suttor Creek coal mine haul road, and turning west and north across Suttor North pastoral land into the eastern outlying mesas of the Leichhardt Range. The Cerito-Elphinstone Road crosses the northern end of this parcel. The northern half of this parcel takes in large areas of undisturbed rugged landscape with intact old *Acacia* forests.

**ML70435** lies totally in Wollombi pastoral holding to the west of the above. It is also an irregularly shaped parcel extending north approximately 8km from Suttor Creek. The southern half of this parcel is relatively narrow, approximately 2km, and it passes through old growth forest containing the Missing Link Rail line easement. The northern half widens to a maximum of 6km. It lies on undulating land that has been mostly cleared apart from riparian vegetation along two creek lines. A stock route easement also crosses this section heading west across ML70436 and the Suttor River.

**ML70436** is a long parcel along the western side of 70434 and 70435, approximately 2km by 17km long, extending north from about 1.7km north of Wollombi homestead, crossing several bends of the Suttor River, and cutting a transect through the Leichhardt Range. The Missing Link rail line runs for about 11km through this ML. The Cerito-Elphinstone Road also cuts across it near the northern Jangga boundary.

The EPCs extend eastwards towards Glenden township and southwards to Wards Well pastoral holding, taking in Suttor Creek, Lancewood, old Talwood and Wards Well homesteads. The most southerly extent is several kilometres south of The Suttor Development Road. A significant portion of the southern EPC739 lies outside the current registered Jangga claim area but within the external Jangga boundary on land where native title has been extinguished. As this report focuses purely on cultural heritage issues it is included in this report.

### **1.3. Climate, Topography and Geology**

This region is characterised by a hot, dry climate for most of the year with rainfall generally occurring in the summer months from November to March. This region is drought prone and has suffered several severe and prolonged droughts throughout its settlement history (O'Donnell 1989). Temperatures well in excess of 32°C are common in summer, while winter frosts occur relatively frequently (Queensland Resources Atlas 1980: 24).

The northern end of the study area lies west of Newlands Coal Mine and within the Leichhardt Range. The southern end lies near the Denham Range. The study area passes through land with elevations between 350 metres ASL near the Leichhardt Range at the northern end and 200

metres ASL towards the south eastern end.

The Leichhardt Range is the watershed for waters which are part of the vast Burdekin River system. The Denham Range is the watershed for waters flowing easterly into the Isaac River (part of the Fitzroy system) and westerly into the Suttor River (part of the Burdekin system) and it also delineates the approximate boundaries of the registered Native Title claims in the region.

The general geology of the area has been described by Malone (1969). The northern sector of the route adjacent to the Leichhardt Range lies within the Tertiary Suttor formation which consists mainly of quartz sandstone and sandy and silicified clay stone. The topography of the Suttor Formation appears as tablelands, mesas and rubble covered rises covered in *Acacia* forests. Province 5 (The Wyarra Hills) of the Queensland Brigalow Belt contains the Leichhardt Range and surrounding region (Sattler and Williams 1999:11/79). The predominant vegetation consists of old *Acacia Shirleyi* (Lancewood) and *Acacia catenulata* (Bendee) forests, and open Eucalypt woodland. The two *Acacia* species occupy the same environmental niche (sandy soils on eroded tertiary landforms and weathered sandstone outcrops). The wood of both was used traditionally to manufacture implements and weapons (Sattler and Williams 1999:11/6).

The southern half is situated predominantly on Quaternary deposits of undifferentiated alluvial sand, soils and lateritic gravels, with confined surface exposures of the Permian and Blenheim Subgroups (containing lithic sandstone, siltstone, shale, tuff, ashstone, rhyolite, schist, slate and hornfels). The terrain in the southern half of the study area is flat to undulating. The southern half of the project area lies within Province 6 (The Northern Bowen Basin) which is predominantly undulating with *Acacia harpophylla* (brigalow) and *Euc. cambageana* (Dawson gum) dominant on clay soils, while *E. crebra* (narrow leaved ironbark) and *Euc. populnea* (Poplar box) dominate on the shallower, texture-contrast soils...The sandstone ranges are dominated by *Euc. crebra* and *Corymbia sp.* (bloodwood) (Sattler and Williams 1999:11/6).

Clearing of the Brigalow forest for pasture has been responsible for considerable modification to portions of the natural environment of the study area and regrowth is evident over much of these areas.

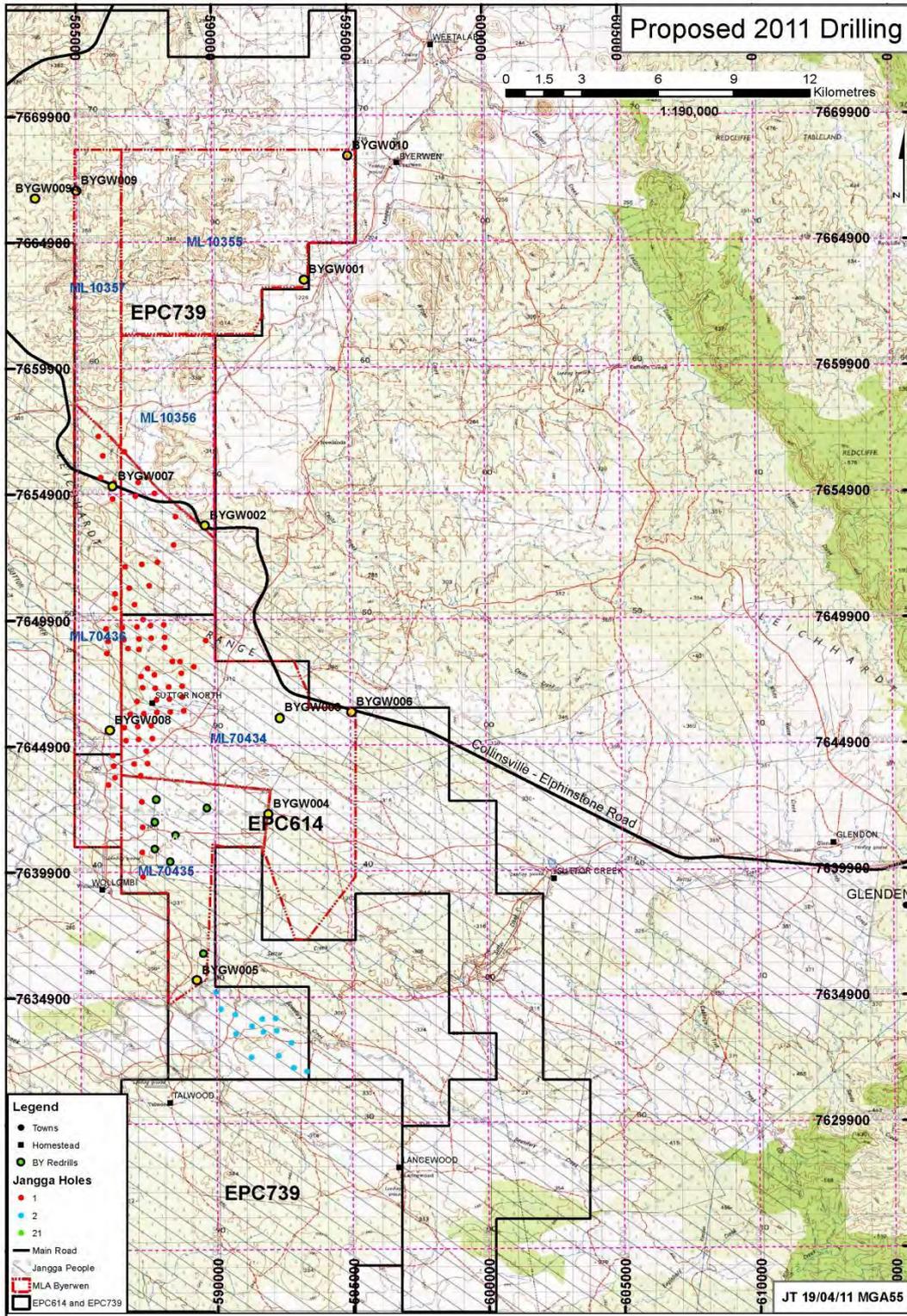


Figure 1. Byerwen Project area (map courtesy QCoal Pty Ltd).

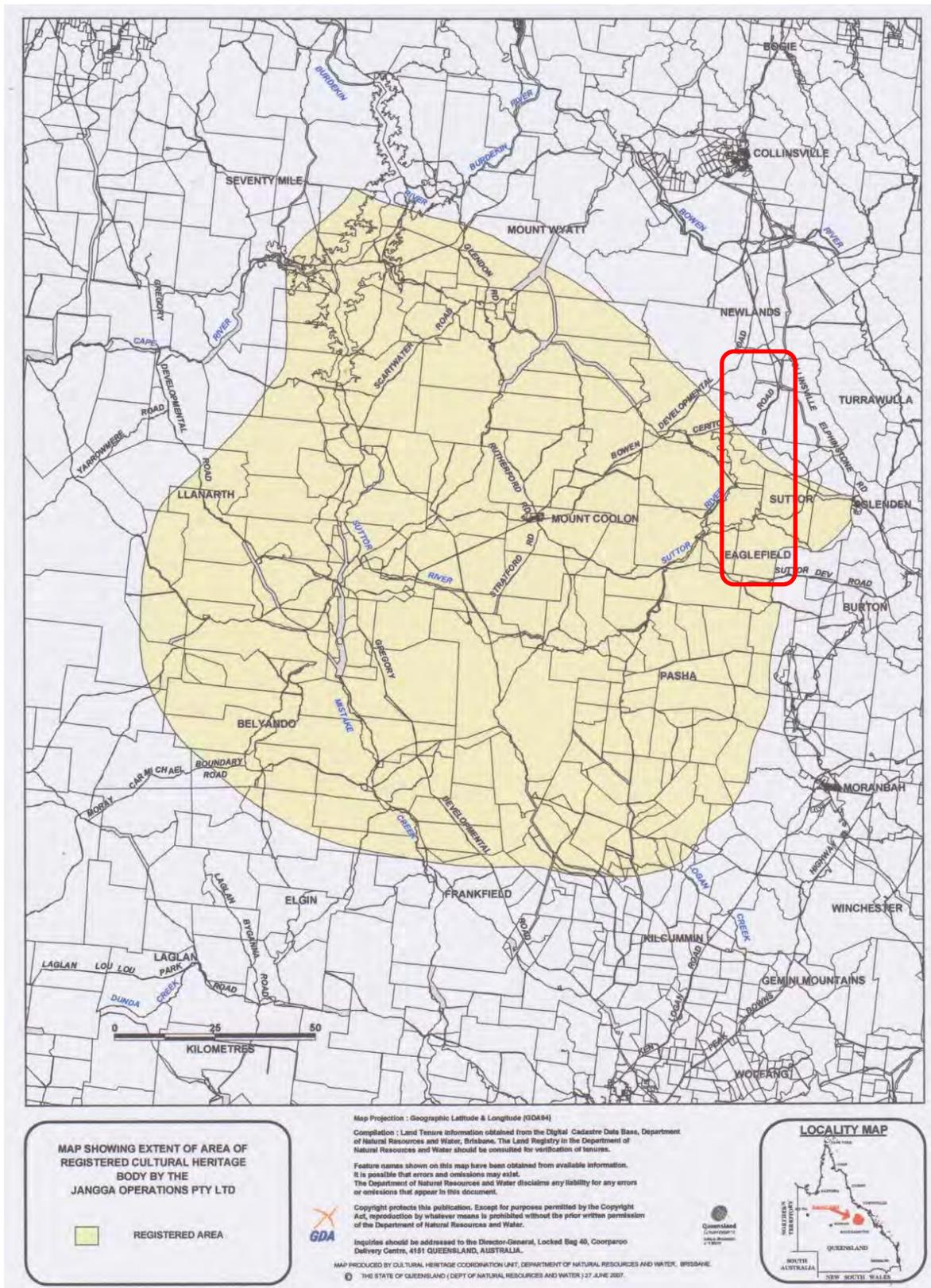


Figure 2. Map showing general region around Byerwen project area overlying area of Jangga Cultural Heritage Body responsibility (Map courtesy Cultural Heritage Coordination Unit, DERM).

## 2. CULTURAL HERITAGE LEGISLATION

### 2.1 Burra Charter

Indigenous Cultural Heritage in Queensland is protected by *The Aboriginal Cultural Heritage Act (2003)*. Non-Indigenous and post-contact Indigenous Cultural Heritage is protected by the *Queensland Heritage Act (1992)*. Like all Australian states and territories, Queensland legislation derives its philosophical principles from *The ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter) 1977*. The following definitions are Central to the Charter:

- „Conservation“ means all the processes of looking after a place so as to retain its *cultural significance*“ (Article 1.4).
- Cultural significance is defined as meaning *„aesthetic, historic, scientific or social value for past, present or future generations“* (Article 1.2).

The Burra Charter has not always been found appropriate for places of significance to Aboriginal people so it has been adapted in the *„Guidelines for the Protection, Management and Use of Aboriginal and Torres Strait Islander Cultural Heritage Places“* drafted by the Australian Cultural Development Office. It lists seven principles that should ideally guide the process of Aboriginal cultural heritage investigation and management:-

1. Aboriginal...people have the right to be involved in decisions affecting their cultural heritage, and in the on-going management of their sites and heritage places. (Their) involvement in management should be continuous.
2. Decisions about cultural heritage places should be made as a result of a conscious and logical planning process which is guided by and maintains the cultural significance, taking into account all the management issues affecting the place and identifying the objectives for the management of the place.
3. Identifying which Aboriginal...people have rights to speak for the place, and/or have interests in the place must be done at the beginning of the decision-making process.
4. The concerns of all interest groups must be taken into account, and the interests of the relevant Aboriginal ...group are paramount.

5. Decisions should be taken at the local level. Planning should be directed by the relevant Aboriginal community and all main interest groups and organisations should be fully involved. This should be supported by competent technical planning and effective negotiation processes.
6. Actions affecting places should be considered only after the cultural significance of the place has been established and agreed to by its relevant indigenous community or owners, and a Statement of Objectives has been agreed upon.
7. Records of places, decisions made about them and about what is done at heritage places should be kept unless it is not culturally appropriate. Storage of and access to information must be determined by the decision-making group.

## 2.2 Queensland State Legislation

### 2.2.1 *The Aboriginal Cultural Heritage Act 2003 (Queensland)*

Under this Act „Cultural Heritage“ is defined as anything that is:-

- (a) a significant Aboriginal area in Queensland; or
- (b) a significant Aboriginal object; or
- (c) evidence, of archaeological or historic significance, of Aboriginal occupation of an area of Queensland (Section 8).

Aboriginal Cultural Heritage includes:-

- archaeological sites (such as artefact scatters, hearths, stone tool knapping areas, scarred trees and stone arrangements);
- places that have traditional stories or traditional knowledge associated with them;
- historically important places (such as old built dwellings, stockmen"s" camps or tracks);
- places that are important for other reasons including contemporary ones (eg. food or ochre-getting places or places used for recreational purposes).

The Queensland Department of Environment and Resource Management (DERM) is the administering and compliance authority of *The Aboriginal Cultural Heritage Act 2003*. The following principles are fundamental to its operation under the Act:

- recognition, protection and conservation of Aboriginal cultural heritage should be based on respect for Aboriginal, cultural and traditional practices;
- Aboriginal people should be recognised as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage;

- it is important to respect, preserve and maintain knowledge, innovations and practices of Aboriginal communities and to promote understanding of Aboriginal cultural heritage;
- activities involved in recognition, protection and conservation of Aboriginal cultural heritage are important because they allow Aboriginal people to reaffirm their obligations to “law and country”;
- there is a need to establish timely and efficient processes for the management of activities that may harm Aboriginal cultural heritage.

Under The Act, a significant Aboriginal area or object must be significant to Aboriginal people because of either or both of the following:

- (a) Aboriginal tradition;
- (b) the history, including contemporary history, of any Aboriginal party for the area (Sections 9, 10).

Section 11 of the Act stipulates that *if a particular object or structure is evidence of Aboriginal occupation, the area immediately surrounding that object etc is also evidence of Aboriginal occupation...the object or structure cannot be separated from its context without destroying or diminishing the object or structure’s significance as evidence of Aboriginal occupation.* The accent of this legislation is thus on the protection of areas of cultural significance rather than just the significant objects or items themselves.

Section 12 of the Act provides information about identifying significant Aboriginal areas:-

- It is *not necessary for an area to contain markings or other physical evidence indicating Aboriginal occupation or otherwise, eg. the area might be a ceremonial place, a birthing place, a burial place or the site of a massacre.*
- *If significant objects exist in the area and their significance is intrinsically linked to the location, then the objects themselves make the place significant and if appropriate both the area and objects become significant.*
- *In identifying a significant area, authoritative information may be had from anthropological, biogeographical, historical and archaeological sources.*

### 2.2.1.1 Extent of Protection

The Act exerts blanket protection over all Indigenous cultural heritage in Queensland regardless of the Native Title status of that land. Cultural Heritage items and place of significance to Aboriginal people may exist in areas where Native Title has been extinguished eg. freehold land.

### 2.2.1.2 Duty of Care Guidelines

The Act contains a general Duty of Care to take all reasonable and practical steps to be aware of, and to avoid harming, Aboriginal cultural heritage. Section 23(1) requires that a person must exercise due diligence and reasonable precaution before undertaking an activity that may harm Aboriginal heritage. Everyone has a responsibility to exercise Duty of Care. Duty of Care Guidelines attached to The Act set out key indicators of compliance which include, but are not limited to, the following:-

- proof of consultation with the registered native title applicants,
- cultural heritage studies undertaken in association with the registered native title applicants,
- searches of cultural heritage information contained in the cultural heritage register and database held by the Cultural Heritage Coordination Unit within DERM,
- a Cultural Heritage Management Plan (CHMP) or other agreement with the registered native title applicants.

### 2.2.1.3 Penalties

There are substantial penalties for failing to safeguard the Aboriginal cultural heritage values of Queensland. These penalties consist of:

*Monetary penalties:*

- \$75,000 for an individual
- \$750,000 for a corporation;

*Injunctions*, issued by the Land and Resources Tribunal;

*Stop orders*, issued by The Minister, for an activity that is harming or is likely to harm Aboriginal cultural heritage objects or values.

### 2.2.1.4 Cultural Heritage Management Plan

The CHMP is a key tool in the process of heritage management. Management plans describe the heritage significance of a place and the policies, agreed by all parties, required to retain these values.

Wherever an Environmental Impact Statement (EIS) is undertaken, a cultural heritage management plan is mandatory if the project requires some form of permit, approval or licence. This means that high-impact developments will be able to go ahead only when an effective CHMP has been agreed between the proponent and Native Title Party/ies, and the CHMP is registered with the State Authority.

Where the legislation does not automatically require a mandatory cultural heritage management plan, the legislation allows for the development of voluntary CHMPs as a measure to encourage industry to adopt best practice. Any activity undertaken in accordance with a cultural heritage management plan approved under the legislation satisfies the Duty of Care requirement.

#### **2.2.1.5 *The Register and Site Database***

A register of Aboriginal Cultural Heritage is maintained within the Cultural Heritage Unit, Department of Environment and Resource Management (DERM). This register contains information that has been collected by the Environmental Protection Agency between the 1930s and the commencement of the Act in early 2004. This information is confidential and basic details will be provided to authorised persons on an 'as needs' basis. A database of Aboriginal Cultural Heritage consisting of information collected since the *Aboriginal Cultural Heritage Act* 2003 commenced is also maintained within the Unit.

#### **2.2.2 *The Queensland Heritage Act 1992***

This Act provides for the conservation and protection of all places that derive from the post-European contact history of Queensland, including Indigenous places (eg. stockmen's camps, buildings constructed for Aboriginal people, post-contact Aboriginal graves etc). Under this Act, places and items must be entered into a Queensland Heritage Register in order to be protected. Substantial penalties may apply for damage to a place or items that has been entered on the Register.

As from 2005 the Queensland Heritage Council adopted the revised Burra Charter (1999) as a guideline for making decisions under the Queensland Heritage Act 1992.

In order for a place to be entered onto the Queensland Heritage Register (Section 23 [1]) it must satisfy at least one of the following significance criteria:

- important in demonstrating the evolution or pattern of Queensland's history;
- important in demonstrating rare, uncommon or endangered aspects of Queensland's heritage;
- potential to yield information that will contribute to an understanding of Queensland's history;
- important in demonstrating the principal characteristics of a particular class of cultural places;
- important in exhibiting particular aesthetic characteristics valued by the community or a particular cultural group;
- important in demonstrating a high degree of creative or technical achievement at a particular period;
- a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- a special association with the life or work of a particular person, group or community of importance in Queensland's history.

Under Section 89, Part 9 of the *Queensland Heritage Act 1992*, a person who discovers a thing the person knows, or ought reasonably to know, is an archaeological artefact that is an important source of information about an aspect of Queensland's history must give the Chief Executive a notice under this section. The notice must:-

- (a) be given to the Chief Executive as soon as practicable after the person discovers the thing; and
- (b) state where the thing was discovered; and
- (c) include a description or photographs of the thing.

Penalties for not doing so may be high (100 penalty points).

## 2.3 Federal Legislation

Two pieces of federal legislation relevant to Queensland Indigenous Cultural Heritage are *The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1986*. These Acts are summarised below.

### **2.3.1 Environment Protection and Biodiversity Conservation (EPBC) Act 1999**

A new Federal heritage system came into effect on 1 January 2004 to protect Australia's national heritage places. Nationally important heritage values now have legal protection under The Environment Protection and Biodiversity Conservation (EPBC) Act 1999, administered by the Federal Department of Sustainability, Environment, Water, Population and Communities (SEWPAC).

Under this system, national heritage joins six other matters of national environmental significance (NES matters) already specifically protected under the EPBC Act. By law, no one can take any action that has, will have, or is likely to have, a significant impact on any of these matters without approval from the Australian Government Minister for the Environment and Heritage. There are severe penalties for those who do. An action includes a project, development, undertaking, an activity, or series of activities.

The main elements of the heritage system include:-

- the creation of an advisory body, the Australian Heritage Council;
- the creation of a National Heritage List that records places with outstanding natural and cultural heritage values that contribute to Australia's national identity.
- the creation of a Commonwealth Heritage List that comprises natural, Indigenous and historic heritage places owned or managed by the Australian Government.
- retention of the existing Register of the National Estate.

The laws also established the Australian Heritage Council, which replaced the Australian Heritage Commission as the Australian Government's independent expert advisory panel on heritage matters. The Australian Heritage Council consists of a Chair and six members, including two Indigenous people with appropriate heritage experience or expertise.

If the Minister decides that the action is likely to have a significant impact on a matter of national environmental significance, then the action requires approval under the EPBC Act, and vice versa. If the Minister's decision is that an action does not require approval, a person will not contravene the Act if the action is taken in accordance with that decision. If the Minister's decision is that an action requires approval, then an environmental assessment of the action

must be carried out. The Minister decides whether to approve the action, and what conditions (if any) to impose, after considering the environmental assessment.

When a place that may have Indigenous heritage values is nominated to the National or Commonwealth Heritage Lists, the Australian Heritage Council must seek the views of Indigenous people with rights or interests in the place as part of its assessment. The Council must present these Indigenous views to the Minister so he/she can take these into account when making decisions as to the listing of the place.

Under the EPBC Act, there are penalties for anyone who takes an action that results, or will result in, a significant impact on the national heritage values, to the extent they are Indigenous heritage values, of a place. The laws also enable Indigenous people to seek Federal Court injunctions against any activities that have a significant impact on the national Indigenous heritage values of a listed place.

Indigenous people will be involved in developing management plans for places with Indigenous heritage significance on the National or Commonwealth Heritage List. National heritage places on Indigenous land will be managed through conservation agreements, which will operate in the same way as Indigenous Protected Areas.

### **2.3.2 *Aboriginal and Torres Strait Islander (ATSI) Heritage Protection Act 1986***

The purpose of the Aboriginal and Torres Strait Islander (ATSI) Heritage Protection Act 1986 is to preserve and protect areas and objects of particular significance to Aboriginal Australians from injury or desecration. This legislation can provide particular protection for sacred sites. Any steps necessary for the protection of a threatened place are outlined in a gazetted Ministerial Declaration (Sections 9 and 10), and this can include the prevention of development. As well as providing protection to areas, it can also protect objects by Declaration, and in particular Aboriginal skeletal remains (Section 12). Heavy penalties may be levied in the case of contravention of provisions of a Declaration (Section 22). Although this is a Federal Act, it can be invoked if a State is unwilling or unable to provide protection for such sites or objects.

### 3 CULTURAL SIGNIFICANCE ASSESSMENT

The assessment of cultural significance and a statement of cultural significance are essential prerequisites in making decisions about the future management of a place (Burra Charter 1999: Guidelines Section 1.3). In making an assessment of significance it is necessary to understand the nature of the 'fabric' or all the physical material of the place by close, systematic examination, preferably supplemented by other information, for example documentary (including archival) or oral (*Burra Charter 1999: Definitions, Article 1*). It is also recognised that „significance“ may reside in the place itself, its setting, use, associations, meanings, records, related places and objects (Burra Charter 1999: Notes on the 1999 revisions to the Burra Charter: Note 1). Article 5 states that „*Conservation of a place should take into consideration all aspects of its cultural significance without unwarranted emphasis on any one aspect at the expense of others*“. This examination should ideally be supplemented by other information about the place, eg., from Indigenous people who are the primary source of information on the value of Indigenous heritage places and how they are best conserved.

#### 3.1 Criteria for Significance Assessment

Thematic criteria are applied in making an assessment of types of significance. Comparative criteria are applied in order to assess the degree of significance. Following is a short description of each type.

##### 3.1.1 Thematic Criteria

###### *Scientific (archaeological) significance*

The scientific significance of a place is assessed according to its research potential. Research potential refers to the potential of an object, a site or an area to enhance our understanding of past human activities or on past environmental conditions that may not be available in documentary sources (eg. previous research or oral histories). Archaeological sites can supplement other information on local histories by identifying physical relics of human activities, past climates and vegetation patterns, or past diets and resources by the identification and

analysis of plant, shell and bone remains. Such information may be used to answer specific questions or more general and theoretical ones.

#### *Historical significance*

An object or area may be significant for its associations with important people, an historical event or historical processes. The historical significance of archaeological objects and areas relates to the importance of particular periods of occupation of an area and includes the historical links of an object or area. It may also be important in providing tangible evidence of a particular phase in the Aboriginal /European contact period in Queensland.

#### *Aesthetic significance*

An area or object may be significant for its particular style, craftsmanship, quality, design or beauty. Aesthetic significance may not always be relevant to the cultural heritage significance of archaeological remains but it may be relevant for archaeological objects and areas that may also feature above ground remains, or other associated structures. This type of significance may consider how an object or area is situated within the wider landscape.

#### *Technological significance*

Sites and artefacts may yield information on the use of particular technologies, providing evidence of technological achievement at a particular period by consideration of particular features or attributes.

#### *Social (cultural) significance*

This type of significance relates to the importance of an object or area to the community. To Aboriginal people all places that contain Aboriginal archaeological material may be culturally significant as this material within its context provides direct tangible links with the past and it is likely to inspire strong feelings of identification with the object or area. A place that has no archaeological component may be significant because it is a story place or for some past event for some inherent spiritual quality.

The criteria used by Aboriginal people to assess cultural significance may be quite different from criteria that address other types of significance. Aboriginal people may base significance on traditional, historical, contemporary and other cultural values, but comparative criteria such as rarity, uniqueness and representativeness are often not relevant in their significance

assessments, and the Aboriginal cultural values of a site or place may override other forms of significance assessment. The assessment of Aboriginal cultural heritage significance of the items recorded in this study can be made only by the Traditional Owners.

### 3.1.2 Comparative criteria

#### *Representativeness*

Representativeness refers to the ability of one site or a sample of sites to represent as accurately as possible the range and frequency of site types in a particular area. The notion of representativeness is also related to the maintenance of site diversity.

#### *Rarity*

An object or area may be significant through the presence of rare, unusual or particularly good examples of a specific type of object or feature. Usually the rarer a site, the greater is its significance. In areas where physical, archaeological remains are rare, all sites must be considered significant until proven otherwise. The following would also fall into this category:-

- older sites,
- those that contain attributes not found elsewhere,
- those in which the archaeological material is unusually well preserved.

#### *Intactness, Condition, Integrity*

The intactness, condition, or integrity of objects or an area may influence levels of significance. For any given place significance will be greater where evidence of its association, or the event that created it, survives *in situ* rather than where it has been changed or evidence of context does not survive.

#### *Archaeological Potential*

Objects or areas may have the potential to yield additional information through archaeological investigation which would not be readily available through other research techniques. The scientific significance of a site generally increases as its potential to provide information increases. The significance of *in situ* remains may be enhanced through their capacity to demonstrate a particular function, event, way of life, or use. Areas with undisturbed, *in situ* objects or remains do have a higher interpretive potential than those that have undergone disturbance.

## 4. CULTURAL HERITAGE BACKGROUND

### 4.1 Ethno-history and post-contact Aboriginal History

The following primary and secondary ethno-historical, anthropological and historical sources have been used in the compilation of this report:-

- Muirhead in Curr (1887) and Tindale (1974) for anthropological/linguistic and cultural information on traditional Aboriginal people in the region;
- Gilbert (1854), Leichhardt (1847), Fetherstonhaugh (1917) and Murray (1860, 1863) for journals and diaries describing people at contact in the region;
- Brayshaw (1977 and 1990), May (1983), Breslin (1992) and Wright (1981), for Aboriginal historical research on this region.

Tindale's map of tribal boundaries delineates the study area as lying within the traditional territory of the Jangga people (Tindale 1974). These lands are described by Tindale as encompassing „...*the eastern headwaters of Suttor River, south to near Glenavon station...north to the Burdekin River...*“, a total area of approximately 10,900 km<sup>2</sup> (Tindale 1974:170). Research undertaken for native title has more recently resulted in amendments to Tindale's boundaries but his work still remains a valuable primary source of information.

Muirhead in Curr (1887:18-35) recorded vocabulary, customs, marriage rituals and stories of several „burra“ (probably clan groups) in the area round the Belyando, Suttor and Alice Rivers between Clermont and the Burdekin River. Of these he noted that Elgin Downs to the west of the project area was the country of the *Muthoburra*. An anonymous contributor from Avon Downs also provided some information on the people whose country this was. He called them the *Narboo Murre* and indicated that in the twenty five years since white arrival their numbers had shrunk from 500 to 100 'souls' (Curr 1887:36-39).

Leichhardt's expedition was the first of several early exploratory parties to pass through this region in the middle of the 19<sup>th</sup> century. Departing from the Darling Downs in October 1844 in search of an overland route to Port Essington on the north coast of Australia, Leichhardt and John Gilbert (a member of his party), recorded the first European impressions of landforms, geology, soils, flora and fauna in this region in early March 1845.

On coming upon Suttor Creek, he recorded:-

*...we came to the head of another creek, which I called "Suttor Creek" after - Suttor Esq., who made me a present of four bullocks when I started on this expedition; four or five miles further down we found it well supplied with water holes. Here, however, patches of scrub appeared. The ridges were covered with iron-coloured quartz pebbles, which made our bullocks footsore. The marjoram was abundant, particularly near the scrubs, and filled the air with a most exquisite odour...As we followed the creek, it became broader, and the Casuarinas were more frequent. Its bed was sandy, occasionally filled with reeds, and contained numerous waterholes...where the sandstone rock formed more retentive bases...*

(Leichhardt 1847:172-176).

The party had a number of encounters with the people who would now be described as Jangga near the Suttor River, on 14<sup>th</sup>, 17<sup>th</sup>, 22<sup>nd</sup>, 23<sup>rd</sup> and 25<sup>th</sup> March 1845. In the first encounter, a man and his pregnant wife hailed Charley, one of the Aboriginal members of the party, but on seeing Mr. Roper, they climbed adjacent trees.

*'...As Mr Roper moved around the base of the tree, in order to look the Blackfellow in the face, and to speak with him, the latter studiously avoided looking at Mr Roper, by shifting round and round the trunk like an iguana. At last he answered the enquiry for water, by pointing to the W.N.W. and averted their faces'.*

Further down the river, a group of people who were camped at a waterhole fled at their approach:-

*...the men driving the shrieking women and children before them. Upon Mr Roper galloping after them, one athletic fellow turned round and threatened to throw his boomerang; at this sign of hostility Mr. Roper prudently retired. Kangaroo and other nets made of some plant and not of bark, koolimans, boomerangs, waddies, and a fine opossum cloak were found at the camp, but were left untouched by our companions. (Leichhardt 1847:179-180).*

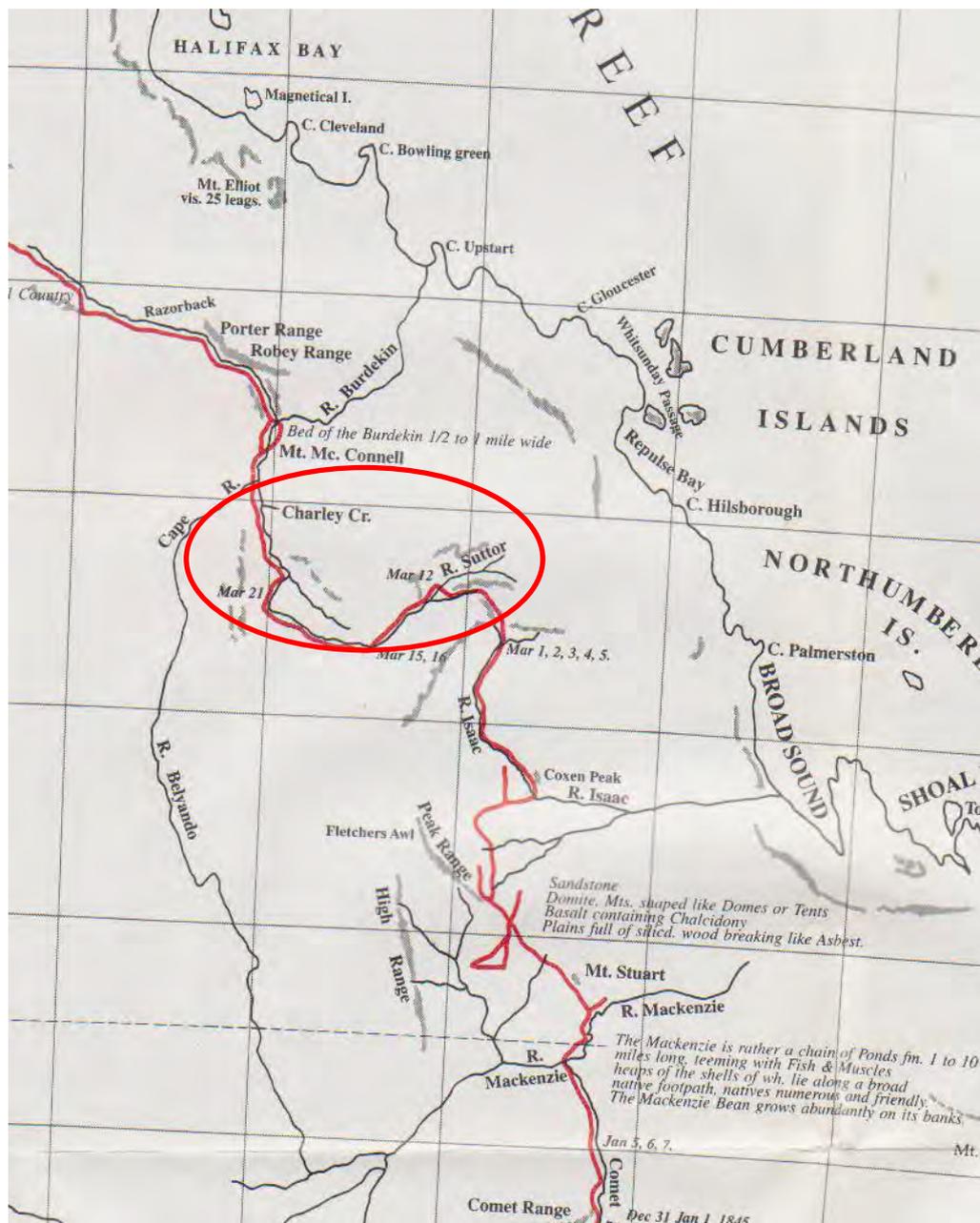


Figure 3. Extract of map from Leichhardt's journal showing the party's route through the region and approximate area of Jangga (Leichhardt 1847).

The party passed in the vicinity of the project area in mid-March 1845 (see Figure 3). An entry on 17th March describes coming on:-

*a three mile long, broad sheet of water in a dense Bauhinia and Brigalow (Bricklow) scrub, probably in the main channel of the Suttor River, which was host to swarms of ducks, pelicans, land-turtles and shags*  
(Leichhardt 1847:185).

The party followed a well-beaten path along its banks and noted numerous heaps of mussel shells. Leichhardt called the region of this lagoon 'the lake of the Suttor'. In the same entry he observed that:-

*...the natives were very numerous in these parts, and their tracks were everywhere visible. They had even followed the tracks of Mr. Gilbert's and Mr. Brown's horses of the preceding day'*  
(Leichhardt 1847:183).

On March 20th, as they continued down the river they found waterholes 'along the low ridges', then a section where:-

*the creek divided into channels, forming large islands of a mile and a mile and a-half in length, covered with scrub, over which freshes had swept...'*,

then three large waterholes several miles apart. Beside each one they found:-

*'recent camps of the natives...and a beaten path from one to the other. One of these holes was crossed by a weir made of sticks for catching fish. Bones of large fish, turtle shells, and heaps of 'muscles', were strewn round the fireplaces...A little later they surprised two women cooking mussels who fled leaving their meal, leaving their dinners to their unwelcome visitors, who quickly dispatched the agreeable repast;. Farther on they saw four men, who were too shy to approach. Charley also, whilst bringing in the horses on the morning of the 22<sup>nd</sup>, passed a '...numerous camp, who quietly rose and gazed at him, but did not utter a single word'*  
(Leichhardt 1847:187-188).

From this date until their arrival at the Cape River the party had two more encounters in which they surprised Aboriginal people (1847: 190 and 193-194).

The next recorded visit to the region occurred two years later, in October and early November 1856, when the Gregory brothers' surveying party followed the Suttor River from its junction with the Burdekin River upstream to the Belyando River (Gregory 1884). The party had two encounters with Aboriginal people. The first was described when they:-

*...encamped on a fine grassy flat a quarter of a mile from the Suttor River. Mt. McConnel bearing north 172<sup>o</sup>. About 10am we heard some blacks calling in our rear, and soon after came in sight, but would not allow any of the party to approach them, till one of the horsemen cantering up quickly, some of the blacks climbed into trees, where, after making signs to them that it was desirable that they should pursue an opposite route to ours, we left them to descend at leisure...*  
(Gregory 1884:188).

The second occurred five days later further south along the Suttor River, when the party surprised:-

*„...some blacks, who decamped into the (brigalow) scrub...“* (Gregory 1884:189).

The favourable reports of Leichhardt, Gregory and others resulted in land being tendered for and runs first leased in the early 1860s. Prior to the creation of Queensland as a state, the *New South Wales Land Act* allowed hundreds of square miles to be taken up on a single tender and left unoccupied and unstocked. In 1863 the new Queensland Government made it compulsory for anyone taking up land to stock and occupy it. Following a pattern of settlement throughout Queensland, pastoralists sought out the most fertile areas with permanent water where Aboriginal settlement was also most intensive. As in other newly settled districts, units of Native Mounted Police were installed in strategic locations to „protect“ white settlement by „dispersing“ (shooting) Aborigines who resisted the invasion. In this region the conflict was documented by new settlers:- De Satge (1901) in the Clermont region to Suttor region, Fetherstonhaugh (1907) in the Moranbah/Suttor River area, Andrew Murray (1860, 1863) in the Suttor River/Police Creek region, Albert Wright near Avon Downs (1981). These journals are the only known record of the immediate aftermath of the arrival of Europeans in the region, and of Aboriginal people's activities, albeit from a biased viewpoint.

Andrew Murray was one of the pastoralists who came up to this region on an exploratory trip in 1860 after he had travelled with John McKay's party and staked out a run near what is now Mackay township. He returned in late 1863/early 1864 with his wife and family to claim land. First settling near the Suttor River west of Burton Downs, he received advice from „*the native police that there was some good country some distance away*“ so he travelled northwest and was the first one to record the vast floodplains of the Suttor and its tributaries, and Aboriginal people living off the land in the region:-

After following down for about five miles we got out of ridges on to flat, wide open timbered, white-box country, well grassed. On the wide flat, timber grew in varied distances from the creek, back about a mile. It was Brigalow scrub. The scrub had nice patches of salt-bush in it. For miles we travelled on down through good grazing country. The strange part of it was there was not another creek or gully coming into the main creek which was gradually getting smaller in the channel and fewer waterholes. Surely in a country where such phenomenal heavy rains occurred, one wondered where the flood waters go. The only answer was "all over the country for miles on either side". Where the ridges were high, the course of the creek, and the waterholes were large, where the back country was flat the channel of the creek was small. After travelling until about 4:30pm, we came on the first creek coming in from the north east. The water was muddy so called it "Black Creek", crossed it and going down a short distance along the bank of the main creek I saw the first nigger in a shallow lagoon, I told the others and we watched him. He was quite naked and looking intently at the water. He did not see us, but every now and again he would pick up something and slip

it into his left hand held against his stomach. We moved quietly on, but he heard and saw us and made off to a big flood-box tree. He dropped what he had been picking up and climbed the tree like a monkey. Looking to see what he had dropped, I noticed a small heap of water crabs crawling about, also two dingo pups about two months old and a small fire in a trench about six inches wide, four or five inches deep and fifteen inches long, a sort of oven he was heating to cook the crabs. The pups ran away. We tried to get information from him about the country, but he was shaking and laughing with fright. A strongly built man. I got McKay's black boy to speak to him. They gabbered away for a while, the language seemed the same, but our boy said he did not understand a word.

He took up land that became two runs, „Police Creek“ and „Rosetta Creek“ (named after the creeks), next to Conway station, and in the next two years reported several violent incidents on and near the stations.

When Murray and his family were returning from Bowen after their first delivery of wool in 1865, as they passed through Conway they were told that the cook and a boy collecting rams had been speared. Retribution was swift when the native police under Fred Murray tracked eight Aboriginal men 70 miles to the Cape River and shot them. They found on arrival back at their station that their humpy had been robbed. Next day Aborigines tried to spear one of the employees but were repelled. Another raid occurred in March 1866 when a tarpaulin and some ironwork were stolen:-

*They came one bright moonlight night and stole a tarpaulin and some iron work. I knew they were about, I could smell them plainly and the dogs were making a row. I went out with a double barrel gun in each hand. I thought they were taking the sheep out of the yard. I walked up to the shed and round the yard and saw nothing. Had I thought to look, I might have seen their tracks in the dust. We were busy with a March lambing at the time. I was putting out small lots of ewes and lambs in one direction and Adam in another, when about sunrise, I thought about the noise the dogs had made and the smell of the blacks and went out to the shed, before getting there I came on their tracks. They had been behind the trees when I went up and might easily have been speared. But I was not to be killed there. Going on I saw the cloth on which we had been drying some locks was gone and the wool scattered all the way towards the scrub, and our good tarpaulin was gone. As soon as we got the sheep all out we got our horses and Adam and I tracked them to where they had ripped the cloth up and from thence, we followed their tracks for miles... Fred Murray came up and lessened their number a bit so we had no more trouble with them. I went out once after that with the police and we got one and some fragments of wool packs and pieces of tarpaulin.*

(Murray, A. Diary 1864).

Cuthbert Fetherstonhaugh owned Vine Creek station west of the Suttor River, near the southern end of Jangga territory, in the early to mid-1860's when frontier violence was at its height. He related an incident while at Vine Creek in 1864, in which a large flock of sheep was stolen and two shepherds killed by Aborigines, one of the killings at a place called Murdering Lagoon (on

Llanarth Station). Fetherstonhaugh related how these murders made him feel quite differently about the Aboriginal people who had done them, and *breaking (his) heart to be after them to avenge these murders* (Fetherstonhaugh 1917:272). A punitive expedition was carried out with the Native Police. After a ten day chase they found a group who they assumed were responsible (they were carrying a blanket and part of a book) and shot all twelve of the men. A number of women were also captured and Fetherstonhaugh and the Lieutenant shared their dinner among the corpses and the roped and bound women (Fetherstonhaugh 1917:270-274). He noted that within a period of six weeks of this incident, in a 200 mile radius, „...the violence escalated and twenty-one whites were killed by the Blacks“.

At Avon Downs two shepherds were killed and one wounded. In response to this, the owner Mr Campbell, Fetherstonhaugh and Mr. Black of Eaglefield station gave chase and killed one man and wounded another. Subsequent to this, Avon Downs shepherds refused to venture out alone, and it was reported smoke of Aboriginal fires was seen close to the station (Wright 1981:147). Mr. Campbell had set up the original homestead on the long lagoon in Trump Creek which had been the Jangga's chief camping-place, and opposite this lay a dense brigalow scrub which sheltered many of the Aborigines, as did the scrubs along the Suttor River (Wright 1984:146). Albert Wright, grandfather of poet Judith Wright, together with his brother Fred, took over as managers of Avon Downs station in September 1868 and owners from 1871 until 1876 in the middle of a disastrous drought and a food shortage on the station. In their second month, the Jangga camped on the opposite side of the lagoon and indicated to Albert that they wanted to be 'let in', a request that was met with deep suspicion as they had no idea of the strength of the Jangga. Albert gave them permission to stay and, apart from several incidents inspired by neighbours, there appears to have been little trouble while Albert remained at the station and they even participated in station work. In the floods following the drought in 1869 the Jangga are reported to have taken pity on the white men who were suffering from a diet devoid of fresh vegetables and fruit and brought in fresh fruit in the form of handfuls of 'boorooms' (native blackcurrant) (Wright 1981:164). The station appears to have been undermanned and without Albert's expertise for several years after this, and his absence from the station is possibly responsible for the down turn in black-white relations in this period. In 1873 the Jangga on Avon Downs were reported to have speared cattle, raided the station store and burnt out the whole of the run, scattering the cattle beyond the boundaries (Wright 1981:187-189).

On Elgin Downs it was reported that Mrs Muirhead donned male attire when the men were absent on station business, and with carbine under one arm, adopted a male walk round the homestead, upon which a reconnoitering band of Aboriginal warriors dispersed (O'Donnell 1989:4).

Remnants of Jangga resistance were still reported in 1876 (Wright 1981:203). By the end of the century the remnants of the Jangga people had generally been absorbed into the pastoral industry. This is the period during which Jangga people became closely connected, as stockmen and workers, with the „old“ stations such as Byerwen, Newlands, Glenavon and Eaglefield, thus maintaining their connection with their traditional land. Many Jangga people trace various ancestors to these older cattle properties and they have a great deal of local knowledge passed down to them from these pastoral ancestors.



Figure 4. Historic map (circa. 1887) of the region showing old pastoral holdings.

## 4.2 Archaeological Background

This section contains a review of archaeological information relevant to the project area, derived from two main sources:-

- previous academic archaeological research. Some academic archaeological research has been undertaken in this and adjacent regions (eg. Brayshaw 1977; Knight 1990 and 1993) but this region remains comparatively unstudied from an academic/scientific archaeological perspective.

- unpublished cultural heritage reports on mining and infrastructure projects in the local region. Some of these projects are within the boundaries of the Byerwen project area.

#### **4.2.1 Academic/scientific Research**

Brayshaw's pioneering research work in the Burdekin/Suttor region (1977 and 1990) recorded a variety of archaeological sites such as freshwater shell middens, stone arrangements, scarred trees, fish traps, native wells, stone quarries and a number of rock shelters containing Aboriginal artwork between the Suttor River and the Leichhardt Range. Brayshaw's work is still the only major academic archaeological research to be done in this region. Part of her research included the collection of all available documentary historical, ethnographic and archaeological information on the Suttor River region, resulting in an extensive data base of written material and material culture which is presented as a series of Appendices in her 1990 publication (Appendices 3A to 6A:211-248).

Brayshaw Vol 1. 237-8 makes the point that though the ethnographic literature indicates „numerous heaps of muscle shells“ (sic) 1847:185), there is no evidence whatever of these heaps today. It is probably partly a result of the Aborigines“ habit of camping in the bed of the river during the dry season, as observed by Leichhardt (1847:187-8) and partly a result of the huge floods that have occurred in the intervening years. In this respect there is a gap in the archaeological evidence, the nature and significance of which could not have been determined in the absence of the ethnographic evidence (Brayshaw 238).

The depth of known Aboriginal occupation in the region is generally defined by C<sup>14</sup> dates from these areas. The closest dates to this area are from Suttor Creek near Glenden where several small Aboriginal fireplaces have been dated to between 200 and 800 years (Hatte and Oliver in prep.). The very first Pleistocene date (>10,000 years) for Aboriginal occupation of Australia (in excess of 16,000 BP) was obtained from the central Queensland sandstone belt west of Springsure (Mulvaney and Joyce 1965). The Whitsunday region has also revealed a long occupation depth of some 8,500 years (Barker 1989, 1990, 1991), while the Hughenden area has yielded a number of calibrated basal dates of around 10,000 years (Morwood 1990). A recent date of 5240±40 BP from fireplace charcoal at a depth of 7cm on Poitrel coal mine near Coppabella is the second oldest date for an open site in Queensland (Hatte and Oliver in prep.). More recently, several fireplaces on an eroded gully on Burton Coal mine (approximately 30km

east of the project area) have yielded dates of 8290±40BP and 8260±40BP, making them the oldest open sites in Queensland (Hatte and Oliver in prep).

#### **4.2.2 Cultural Heritage Reports**

The majority of cultural heritage reports concern areas towards the eastern half of the Jangga claim area where projects have tended to concentrate (eg. Newlands coal mine and associated infrastructure [1978], Suttor Creek coal mine and associated infrastructure [1997 onwards], Enertrade gas pipeline [2003]; the Cerito-Elphinstone road [2004], SunWater pipeline [2006]; the Missing Link Rail line [2006, 2008]; the Hancock rail line project [2010], exploration projects for gold (Straits [2007] and Drummond Gold [2007] and coal (EPC659 [2006]

##### **4.2.2.1 Newlands**

The initial archaeological study for the Newlands coal mine site included the rail corridor to Collinsville, the proposed Glenden township, the water pipeline from the Bowen River and two open cut mining areas on Eastern Creek station. This survey was undertaken by Hill in 1978. This survey took 31 days during which time Hill walked an estimated 627.3 kilometres in foot transects. Hill noted that the mine site areas ranged from flat, cleared country with occasional stands of woodlands and dense brigalow scrub, to deeply folded contours with steep sided razor backed ridges and deep gullies. The rocky ridges were dominated by brigalow associated with bendeel, lancewood and rosewood. The western portion of the lease was dominated by black, cracking clay soils while the eastern portion featured red, sandier soils which were littered with a heavy deposit of pebbles, cobbles and some boulders, the majority being silcrete (Hill 1978:5). Covering as it did a range of areas in the district, this study would be expected to supply some prediction of the finds to be expected in this project.

It was stated in this report that *„...the mining areas comprised one vast artefact scatter...“* and *that „...it was hardly possible to walk more than 50 m without sighting artefacts...“* but he did indicate that there was a clear decrease in densities of artefacts from south to north (Hill 1978:16). The recorded size of artefact scatters ranged from 20m diameter to as large as 800 x 200m (Hill 1978:20). Cerito Creek appeared to be the major focus for the densest artefact scatters. Both the site of Glenden township and the 260 m contour at Grid Ref. 929/588 contained outcropping reefs with stone extraction areas and artefact scatters. Another minor

quarry from an outcropping reef was also identified in the area. One scarred coolabah tree was also found on a proposed powerline easement.

#### 4.2.2.2 *Suttor Creek, Wollombi and Lancewood (ML4761)*

In 1997 an initial assessment was undertaken on Suttor Creek, Wollombi and Lancewood stations of a 6,000 hectare parcel of land held under ML4761 (Hatte 1997). The Byerwen project area surrounds this mine lease. It was found that much of the study area had undergone considerable modification and disturbance from a range of pastoral and agricultural activities in the past 140 years since European arrival, and particularly in the last three decades (clearing and cultivation). Extensive stone artefact scatters (including various formal tool types) made from a rich variety of raw material (silcrete, petrified wood, jasper, basalt, chert, quartz, sandstone) were recorded throughout, in often very dense artefact concentrations (>20artefacts/m<sup>2</sup> in the following areas:-

- the alluvial flats and terraces associated with Suttor Creek, Boundary Creek and feeder gullies,
- around Gilgai within the Brigalow scrub (numerous extensive, disturbed scatters in regrowth Brigalow),
- around low, stony rises,
- the sloping land to the north and south of Suttor Creek;
- in association with several surface silcrete outcroppings.

Formal tool types included stone axes (including a grooved example), blades, knives, points, adzes, cores (both single and multi-platform) and grinding stones (the latter found in large quantities along Boundary Creek). A number of well preserved artefact knapping floors were also observed within the scatters. A number of stone lined Aboriginal fireplaces were found within surface artefact scatters along Suttor Creek within the proposed mine impact area. Subsequent survey work located several concentrations of Aboriginal fireplaces in cleared Brigalow between Suttor Creek and Boundary Creek. As a general rule these fireplaces were in areas exposed by topsoil erosion estimated to be up to 30cm depth. A silcrete extraction area was also found on a low rise between the two creeks.

Old brigalow in Wollombi station was found to contain medium density artefact scatters, silcrete extraction areas within surface silcrete outcrops and high densities of artefacts in erosion closer to Suttor Creek.

Six trees containing scars of Aboriginal origin were located in the vicinity of Suttor Creek and additional ones were recorded in box forest on the western edge of the lease, close to the boundary with ML70435.

The evidence indicates clearly that Suttor Creek and Boundary Creek were both heavily utilised by Aboriginal people as living and working places. This archaeological evidence contradicts Leichhardt's observation that he did not see any people until the party reached the Suttor River.

Further survey work, extensive salvages and archaeological research have been undertaken in the past decade over the following areas, some of which impinge on the Byerwen Project Area:-

- the western end of the mine lease, adjacent to ML70435, in the old Brigalow forest and along the alluvial flats of Suttor Creek. Significant cultural heritage values were found to be associated with the old Brigalow forest and Suttor Creek. In the process a number of fireplaces have been identified and excavated along the high terraces of Suttor Creek and in cleared brigalow beside former gilgai. Several fireplaces have been dated, one to 700 years BP („before present“) and another to almost 400years BP.
- The Suttor Creek haul road between Newlands Mine and Suttor Creek mine lease, passing through ML70434, a total distance of about 11km. The team undertook a survey of a 60m easement designed to accommodate the haul road and an adjacent powerline. The survey resulted in the identification of a number of low to medium density artefact scatters, isolated artefacts and two large silcrete outcrops/Aboriginal stone extraction sites covered in low brigalow regrowth (in the easterly sweep of the road to the mine). The westerly one was an extensive outcrop of white silcrete cobbles (approximately 400x250 metres) which Aboriginal people had heavily exploited. It is located round Grid Ref. 593000/7640750 (Datum AGD84).

Two narrow easements already ran through the stony rise though there appeared to be minimal disturbance to the extraction site itself.

A smaller rise was also found to contain a sparse scatter of similar silcrete cobbles and though there had been some exploitation, it was sporadic and scattered. This one extended from Grid Ref. (Datum AGD84) E.0594517/N.7639733 to a small gully at E.0594675/N.7639536.

Cultural heritage mitigation work was undertaken on the easement. All surface artefacts were salvaged and relocated outside the easement. One artefact scatter was fenced. As relocation of the larger silcrete extraction site was out of the question, it was covered with enviro-matting and layers of soil to seal and stabilise the surface. It was agreed with Xstrata that it would be lifted and removed at the end of the life of the haul road.

Subsurface archaeological potential was tested on the alluvial flats north of Suttor Creek where a backhoe excavated a series of shallow test trenches. Sparse artefacts were found to a depth of approximately 50cm. This test was limited by the fact that the heavy clumping clay soil was not wet-sieved; the occurrence of finds was subject purely to the eyes of the monitors.

#### 4.2.2.3 The Enertrade Gas pipeline

The Enertrade gas pipeline runs N/S along the western edge of EPC739 and ML70435, and up through ML70436 on the Leichhardt Range. Fifty-five cultural heritage sites and items were recorded along this route between south of the Suttor development Road and the Collinsville-Mt Coolon Road (Hatte 2003). They consisted mainly of artefact scatters and isolated artefacts, a great percentage of which were formal tool types such as grindstones and cores. Several rare site and implement types were also located, eg. intact ochre beds and ochre grinding stones on a long slope north of Suttor Creek. These were assessed as having a very high level of significance.

Though most of the cultural heritage finds were located on watercourse banks, some were found in cleared *Acacia harpophylla* (brigalow) forest. Suttor Creek was found to be a major focus of activity and was assessed as a potentially highly significant area.

#### 4.2.2.4 Cerito-Elphinstone Road

A study was undertaken for the Cerito-Elphinstone Road in 2005. The Cerito-Elphinstone Road runs down through ML 70436 in Cerito and Byerwen station then swings to the east

towards Glenden township. A short section also runs through the north eastern corner of ML70434 at the junction with the Suttor Creek mine haul road.

The cultural heritage finds of Aboriginal origin consisted of isolated silcrete and petrified wood artefacts found at various points along the easement, on the Leichhardt range and on the flat valley on the eastern foothills of the range. It was also noted that this valley area is likely to have subsurface archaeological potential.

#### *4.2.2.5 SunWater pipeline (Burdekin River to Moranbah)*

The Sunwater pipeline ran generally on the western side of the Enertrade pipeline described above (Hatte 2006). The cultural heritage survey of the Jangga sector resulted in the identification and recording of seven complex open artefact scatters, most with either partially buried fireplaces or artefact knapping floors (or both), as well as isolated fireplaces, isolated artefacts and areas with subsurface archaeological potential. A number of natural features with cultural values (such as individual trees and stands of trees with cultural uses) were also identified. The sites recorded in the initial assessment report were at Turkey Gully, Spring Creek, within several hundred metres of Suttor Creek (slopes, flats and in remnant Eucalypt and acacia forests), Eaglefield Creek and several feeder gullies, and Gum Tree Creek. In several cases the boundaries of the sites extended far beyond the easement boundary. Though they generally tended to be disturbed, mainly from the effects of construction of the adjacent gas pipeline, or from erosion caused by land clearing, they contained a rich variety of stone material and tool types. Formal tool types (eg. blades, scrapers, grindstones, hammerstones and cores) were common in the assemblages. These sites were assessed as significant on the basis of both scientific (archaeological) and Indigenous cultural values. Other natural features were also assessed as potentially significant along the corridor. It was determined that there would be potentially negative impacts on these sites with the construction of the pipeline. Many natural features were avoided in construction, and a salvage and monitoring programme was undertaken along the entire Jangga section of the pipeline.

#### *4.2.2.6 The Missing Link Project (2005, 2008-2010)*

The Missing Link rail line, presently under construction, runs northerly through EPC739, ML 70435 and ML70436. It provides a cross section of landscape types and cultural heritage that

might be expected in a these landscapes. The initial cultural heritage study of the proposed Northern Missing Link alignment corridor, a distance of 63km, was undertaken in mid 2005.

One hundred and twenty four (124) Aboriginal cultural heritage sites, items and places of cultural heritage significance were recorded along the corridor. They consisted of single artefacts and artefact scatters (some associated with fireplaces, stone artefact flaking floors and/or other working areas), scarred trees and other significant features and areas of cultural significance. Four areas in particular were assessed as highly significant on the basis of both scientific and Aboriginal cultural values:-

- The section extending though the mesas south of Cerito-Elphinstone Road in Suttor North and Byerwen pastoral leases;
- the Suttor Creek area in Wollombi and Lancewood pastoral leases (cultural finds such as scarred trees and fairly dense artefact scatters were found up 1kilometre on each side);
- a mesa several kilometres north of Suttor Development Road in Lancewood pastoral lease;
- Eaglefield Creek and its tributaries in Eaglefield pastoral lease.

Jangga personnel subsequently salvaged and monitored in 2008 during the initial topsoil disturbance for construction of the rail line. Team members salvaged and relocated all artefacts outside the easement opposite the find and these locations were noted in the site inspection sheets. Wherever identified artefacts had been recorded in the initial survey, the team found artefacts in the 2008 salvage and there were generally many more artefacts than had been found in 2005. This is a common situation when there has been a length time interval with several wet seasons between recording and salvage.

A number of test pits were excavated with backhoe and dingo on the terraces associated with Suttor Creek. Subsurface artefacts were found in the sediments up to 60cm depth.

#### 4.2.2.7 *Hancock Rail link*

A field survey of the easement for this rail link was undertaken in late 2010. A section of it will run roughly parallel on the western side to the Enertrade, Sunwater and Missing Link easements. The total distance in the Jangga area is approximately 138km. Close to the Suttor North/Byerwen boundary this easement will run adjacent to the Missing Link.

The cultural heritage field study resulted in the identification of the following cultural materials and features:-

1. fifty one occurrences of one or two isolated artefacts;
2. sixteen surface stone artefact scatters containing artefacts of various types and raw materials, mostly silcrete, occurring mainly in association with creek and river terraces, gullies and drainage lines. Some were found to be associated with the following:-
3. two fireplaces/hearths;
4. a silcrete source/extraction area;
5. an artefact knapping floor;
6. a possible ceremonial site;
7. a stone working area.
8. twenty one scarred trees, *Euc. Populnea* (poplar box), *Coolabah* (Coolabah) and *Euc. crebra* (narrow leaved ironbark), with a twenty three scars of likely Aboriginal cultural origin;
9. natural features with potential cultural significance.

Cultural materials were found to be associated with rivers, creeks, gullies, drainage lines, and gilgai (either in alluvium or on older eroded ground surfaces) and in the existing and cleared *Acacia* and *Eucalypt* dominant forests.

In spite of the ground visibility constraints operating in the entire survey area, the results were sufficient to make it clear that site distribution was not random and there was a clear concentration of occupation in areas which would retain water.

#### 4.2.3 Results of Site Register and Database searches

A search was undertaken of the Queensland state site register and database held in the Aboriginal cultural heritage coordination unit in the Department of Environment and Resource Management. The response from the Unit (Appendix 1) indicated that two hundred and three

(203) registered sites or objects lie within the study area (labelled J1-203 in this report). When these locations were mapped by QCoal personnel (Figures 5-8) it was noted that thirteen of these (J77-81 and J196-203) are actually depicted as being within the Birri native title claim area but still in the Byerwen project area (see Figure 8 and Appendix 1).

## **4.3 Summary of sites types and predictions**

### **4.3.1 Artefact Scatters**

All of the cultural heritage studies discussed above have identified the open stone artefact scatter and isolated artefacts as the most common types of Aboriginal cultural site recorded in the region. Typically such sites are found on the alluvial terraces of streams and eroding gullies where they may extend for several kilometres (eg. Suttor and Boundary Creeks) and a range of distinct activity areas. They are by no means, however, limited to such areas.

As indicated above, artefact scatters are also frequently found in association with such features as scarred trees, hearths or fireplaces, artefact knapping areas, outcrops of stone and ceremonial areas. Other locations where artefact scatters are commonly identified are around the gilgai in cleared or remnant Brigalow forests and in other Acacia forests (eg. Bendee, Lancewood, Rosewood and Mulga).

The range of raw stone materials identified in artefact scatters is often a reflection of the availability of local stone. As already indicated, there is a rich variety of stone in the Jangga region. Though the most frequently occurring stone material in the archaeological record is silcrete, other materials commonly include, petrified wood, chert, sandstone, basalt and other fine volcanics such as rhyolite, mudstone, siltstone and ashstone, crystalline and milky quartz. Occasionally an exotic stone type will be found in an artefact scatter; these stones may provide evidence of trade with a more distant area.

### **4.3.2 Scarred trees**

Archaeologically, the classic shape of a cultural scar on an old tree is oval and symmetrical. The ends are rounded and the base of the scar lies above the ground. They may show stone or old

steel axe marks or other evidence of human activity. The tree would have to be of an age that could have accommodated a scar prior to European arrival in the district (ca. 1860) or up to several decades afterwards. It should also be one of the tree species that is suitable for bark removal, where the bark can be levered off in sufficiently large quantities to be useful for the intended purpose (eg. container, shield, canoe, shelter, or for carrying or wrapping the deceased in burial ceremonies). It is often difficult to establish whether a scar on an old tree is of natural or of cultural origin because the tree has continued to grow after the original scarring event. This may have had the effect of closing a scar or altering its shape. The traditional owners have a wealth of cultural knowledge about other reasons to account for why Aboriginal people utilised bark in the past and this requires a broadening of expectations of what a cultural scar should look like, rather than the classic shape, eg. people may have cut around three sides of the required bark shape then ripped it to the ground for use as a sleeping mat or a shelter (cf. Roth 1984:55-66).

An important feature of very old *Euc. Populnea* (and possibly hollow coolabah) trees was their traditional use as burial places. Traditional tree burial is still common knowledge among contemporary traditional owners. These trees were commonly used as the final resting places for human remains. The bones of the deceased, or the entire body, were placed into holes that were either natural or cut into the tree for this specific purpose. The Jangga Elders (Col and Les McLennan) stated that an entire body was sometimes placed upright in the hollow tree after being wrapped tightly.

Roth (1907) indicated that the required apertures for the secondary burial of the bones were “from twelve to twenty two inches long by five to seven inches wide” (pp. 396-398). Roth described a variety of burial practices throughout Queensland including several different ones from the area between Mackay and Miriamvale. The latter ones differ in detail from the practices reported here but have the common thread of burial of the bones in hollow trees. Other details mention the entire bodies of children being placed into the hollows. Another variation was for a close female relative to carry dilly bags containing small portions of the deceased for a period, prior to being buried in a tree with the other disinterred remains. Roth also reported that “deformed people were pushed or jammed naked into a hollow log” (p.402).

Roth indicated that at the time he gathered this information, traditional burial practices were rapidly dying out with closer European settlement, if not already extinct. Thus it is possible that the more detailed or complex aspects of local burial practices had been forgotten even at that stage.

#### 4.3.3 Fireplaces/hearths

Two general types of Aboriginal fireplaces have been noted in the course of fieldwork in the region:

- Heating and working fireplaces that are generally fairly small (<50cm diameter)
- Cooking fireplaces that were originally in holes dug in the ground. They consisted of a bed of heat stones, or other heating material, on which food was placed and then covered over to make an oven. Murray described the small cooking fire in his journal as „...a small fire in a trench about six inches wide, four or five inches deep and fifteen inches long, a sort of oven he was heating to cook the crabs...” (this report p. 27)

Archaeologically, fireplaces become visible when the ground surface around them has eroded, leaving them exposed. Three main stages have been noted in the gradual process of deflation of the heating/working small fireplaces:-

- Initial exposure as small compacted mounds;
- Deflation of the mounds and the appearance of burnt material such as burnt stone or clay fragments;
- Dispersal of the burnt stone and clay as a result of erosion and/or animal disturbance.

Fireplaces are often difficult to recognise, and once recognised they are well on the way to destruction. The best and only protection for them is protection and stabilisation of the surrounding environment.

#### 4.3.4 Trails, Ceremonial places and Rock Art Sites

There are a number of ceremonial places (sometimes taking the form of complex stone arrangements) and a network of traditional travelling trails throughout the country. The trails are

discrete, sometimes overgrown or rendered almost unidentifiable to the untrained eye by land clearing, but they are an important testimony of a range of past activities (travelling, hunting, gathering, attending ceremonies, etc). The Jangga traditional owners know many of the traditional tracks through their country and five ceremonial grounds („playgrounds“) on Cerito, Conway, Bungobyne, Terang and Whynot stations which are occasionally visited by them to inspect their condition. These ceremonial places tend to be located on flat stone platforms in large bare places above small watercourses. An additional ceremonial place was found during the Hancock rail link field survey.

Rock art sites may also have been used for ceremonial purposes, in which case they may be located in small rockshelters or overhangs associated with the place. One such rock art site associated with a ceremonial site was found in the past few years. Other rock art sites may hold records in pictorial form (eg. hand stencils of group members, maps of the area or routes to other places). Rock art sites are located only where there are suitable rock surfaces to hold the painted image.

#### **4.3.5 Organic material and native wells**

Although ethno-historic records make note of wooden and fibre artefacts, stone tools, marked trees, native wells, possum skin cloaks etc., it is unlikely that organic materials (fibre, wood, skin, fur and feathers) would survive after prolonged exposure in open situations. They would survive only in protected environments such as sandstone and limestone caves and deep rockshelters or buried in floor deposits in such places.

Untended native wells in river and creek beds are unlikely to have survived the impact of floods and erosion. If they are natural holes and depressions in rock they do survive, on rare occasions still with their stone covers intact.

#### **4.3.6 Natural features**

Together with the material culture there are numerous aspects of the natural environment which are also protected under the provisions of *The Aboriginal Cultural Heritage Act 2003* (see Section 2). For the Jangga people many trees are important, even today, for both secular and spiritual reasons. The bark of poplar box, coolabah and other trees was removed for dishes, canoes, sleeping mats, possum and honey holes etc. There are also groves of hollow *Euc. Populnea*

(poplar box) trees which are effectively cemeteries as the remains of Jangga ancestors were traditionally placed through holes in the hollow trunks. Many of these trees have been destroyed by clearing but many remain in the old forests and the locations of some of these are known to Jangga Elders.

Ochre sources are particularly important to Aboriginal people. Many rocky hill slopes contain large outcrops of ochre. At a point where the Missing Link and the Hancock rail line run adjacent to each other through two mesas south of Cerito Road in Byerwen, a large outcrop of bright yellow ochre was found eroding and powdering out of the side of the mesa. At another location on a mesa in Lancewood station on the Missing Link rail line pink ochre stones were recorded. Red/brown and purple ochre outcrops have also been recorded. On the Sunwater pipeline easement on the northern slope of Suttor Creek, ochre „pods“ were gradually being exposed.

Other natural features in the landscape may have a high degree of significance as story places. These types of features may include small hills, cliff lines, particular outcrops of soil or stone. Some senior Jangga people have some knowledge of these places but they may not wish to share the details. They will, however, assert that particular places are highly significant and are off limits to developments. These places may not have any associated archaeological material or sites. The place may have been so important that people went there only at very specific times for specific purposes.

#### **4.4 Summary and Predictive Table**

From the information provided in this report of cultural heritage that has been recorded and/or is known of, it is possible to develop a table linking landscape types with potential cultural heritage sites/places/objects together with potential archaeological or cultural significance. Two points are stressed:-

- As the project area is so extensive, this study has been done on a fairly gross level. It has described the most relevant studies that have been undertaken in the local region adjacent to or within the boundaries of the project area, but minor studies have also been undertaken

at a smaller scale on specific places. One case in point is mitigation and salvage work that may have been recently done on Newlands and Suttor Creeks mines;

- this information is **not** prescriptive or definitive. It should not be used as a reason not to address Duty of Care in places whose potential significance is not predicted to be high or medium.

Id. No.	Landscape type or feature	Potential site types	Potential Archaeological significance	Potential Cultural significance
1	Blade ploughed or cultivated land	Very disturbed context, may be <i>in situ</i> artefacts below plough depth	low	low
2	Cleared <i>Acacia</i> forest (brigalow, bendee, rosewood lancewood)	Artefacts or artefact scatters (camp sites)	Low to medium, especially near gilgai or sandy clay flats (depends on number, preservation, dimensions and site integrity)	Low to medium
3	Cleared eucalypt forest	Artefacts or artefact scatters (grindstones may indicate seed grinding places).	Low to medium (depends on number, preservation, dimensions and site integrity)	Low to medium
4	Uncleared brigalow	Artefacts or artefact scatters (camp sites)	Medium to high especially near gilgai or sandy clay flats (depends on number, preservation, dimensions and site integrity)	High
5	Uncleared Eucalypt forest	Scarred trees, burial trees, old fruit trees, old tracks, artefacts and artefact scatters (mainly near watercourses and lagoons)	Medium to high	High
6	Stone outcrops	Extraction site for artefactual stone , artefact scatter, fireplaces, possible story places	Medium to High (depends on number, preservation, dimensions and site integrity)	High
7	Mesas and old land surfaces	Extensive complex camp sites, (artefacts, knapping floors, fireplaces, ochre deposits, other working areas), ceremonial sites, scarred trees, story places, art sites, old tracks,	High	High
8	Watercourse banks and terraces, slopes, alluvial flats	Artefact scatters/old camping and working sites (artefacts, knapping floors, fireplaces, ochre deposits, other working areas), scarred trees, old tracks, fresh water shell middens	High	High

**Table 1. Prediction of archaeological and cultural potential in different landscape types.**

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## **APPENDIX 1**

**List showing search data set in Byerwen Project Area (cf. Fig 8)**

EPC	Latitude	Longitude	Recdate	Attribute	Aboriginal Party	Site Label
614	-21.364	147.9015	19971001	ARTEFACT	Jangga Operations	J1
614	-21.3651	147.9	19971001	ARTEFACT	Jangga Operations	J2
614	-21.3646	147.9107	19971001	ARTEFACT	Jangga Operations	J3
614	-21.3635	147.9172	19971001	ARTEFACT	Jangga Operations	J4
614	-21.3628	147.9126	19971001	ARTEFACT	Jangga Operations	J5
614	-21.3434	147.9187	19971001	ARTEFACT	Jangga Operations	J6
614	-21.3487	147.9173	19971001	ARTEFACT	Jangga Operations	J7
614	-21.3495	147.9172	19971001	ARTEFACT	Jangga Operations	J8
614	-21.3519	147.9166	19971001	ARTEFACT	Jangga Operations	J9
614	-21.3531	147.9165	19971001	ARTEFACT	Jangga Operations	J10
614	-21.3546	147.9171	19971001	ARTEFACT	Jangga Operations	J11
614	-21.3447	147.9205	19971001	ARTEFACT	Jangga Operations	J12
614	-21.3439	147.9207	19971001	ARTEFACT	Jangga Operations	J13
614	-21.3456	147.915	19971001	ARTEFACT	Jangga Operations	J14
614	-21.3469	147.9151	19971001	ARTEFACT	Jangga Operations	J15
614	-21.3534	147.9166	19971001	ARTEFACT	Jangga Operations	J16
614	-21.3395	147.9201	19971001	ARTEFACT	Jangga Operations	J17
614	-21.3412	147.9197	19971001	ARTEFACT	Jangga Operations	J18
614	-21.3469	147.9185	19971001	ARTEFACT	Jangga Operations	J19
614	-21.3482	147.92	19971001	ARTEFACT	Jangga Operations	J20
614	-21.3412	147.927	19971001	ARTEFACT	Jangga Operations	J21
614	-21.3503	147.9512	19971001	ARTEFACT	Jangga Operations	J22
614	-21.3795	147.9541	19971001	ARTEFACT	Jangga Operations	J23
614	-21.3893	147.9559	19971001	ARTEFACT	Jangga Operations	J24
614	-21.3912	147.9549	19971001	QUARRY, ARTEFACT	Jangga Operations	J25
614	-21.388	147.9534	19971001	ARTEFACT	Jangga Operations	J26
614	-21.2702	147.9	19780905	HEARTH, ARTEFACT, Campsite	Jangga Operations	J27
614	-21.3189	147.8334	20030414	ARTEFACT	Jangga Operations	J28
614	-21.3206	147.8334	20030414	ARTEFACT	Jangga Operations	J29
614	-21.3215	147.8329	20030414	TREE	Jangga Operations	J30

614	-21.2864	147.8348	20050630	ARTEFACT	Jangga Operations	J31
614	-21.3206	147.8555	20050630	ARTEFACT, RESOURCE	Jangga Operations	J32
614	-21.3207	147.8557	20050630	ARTEFACT, RESOURCE	Jangga Operations	J33
614	-21.3205	147.8553	20050630	ARTEFACT, RESOURCE	Jangga Operations	J34
614	-21.3201	147.855	20050630	ARTEFACT, RESOURCE	Jangga Operations	J35
614	-21.321	147.8563	20050630	ARTEFACT, RESOURCE	Jangga Operations	J36
614	-21.3828	147.8619	20050630	ARTEFACT	Jangga Operations	J37
614	-21.383	147.8619	20050630	ARTEFACT	Jangga Operations	J38
614	-21.3835	147.8617	20050630	ARTEFACT	Jangga Operations	J39
614	-21.3824	147.8621	20050630	ARTEFACT	Jangga Operations	J40
614	-21.3829	147.8619	20050630	TREE	Jangga Operations	J41
614	-21.3851	147.8623	20050630	ARTEFACT	Jangga Operations	J42
614	-21.3843	147.8619	20050630	ARTEFACT	Jangga Operations	J43
614	-21.3841	147.8622	20050630	ARTEFACT	Jangga Operations	J44
614	-21.384	147.8618	20050630	ARTEFACT	Jangga Operations	J45
614	-21.3846	147.8618	20050630	ARTEFACT	Jangga Operations	J46
614	-21.384	147.8617	20050630	ARTEFACT	Jangga Operations	J47
614	-21.384	147.8616	20050630	ARTEFACT	Jangga Operations	J48
614	-21.3845	147.8621	20050630	ARTEFACT	Jangga Operations	J49
614	-21.3863	147.8621	20050630	TREE	Jangga Operations	J50
614	-21.3902	147.8626	20050630	TREE	Jangga Operations	J51
614	-21.3904	147.8627	20050630	TREE	Jangga Operations	J52
614	-21.391	147.862	20050630	TREE	Jangga Operations	J53
614	-21.3953	147.8619	20050630	ARTEFACT	Jangga Operations	J54
614	-21.3977	147.862	20050630	ARTEFACT	Jangga Operations	J55
614	-21.3936	147.8622	20050630	LANDFEAT	Jangga Operations	J56
614	-21.3234	147.8435	20050630	ARTEFACT	Jangga Operations	J57
614	-21.323	147.8432	20050630	ARTEFACT	Jangga Operations	J58
614	-21.3645	147.8596	20050630	ARTEFACT	Jangga Operations	J59
614	-21.3646	147.8592	20050630	ARTEFACT	Jangga Operations	J60
614	-21.3254	147.8474	20050630	TREE	Jangga Operations	J61
614	-21.3653	147.8588	20050630	ARTEFACT	Jangga Operations	J62
614	-21.3646	147.8591	20050630	ARTEFACT	Jangga Operations	J63

614	-21.3704	147.8615	20050630	ARTEFACT	Jangga Operations	J64
614	-21.3721	147.8621	20050630	TREE	Jangga Operations	J65
739	-21.5269	147.9285	19960501	ARTEFACT	QC99/34	J66
739	-21.5203	147.9339	19960501	Sandstone Grindstone	QC99/34	J67
739	-21.5276	147.9286	19960501	ARTEFACT	QC99/34	J68
739	-21.5382	147.9238	19960501	QUARRY, ARTEFACT	QC99/34	J69
739	-21.5724	147.9236	19960501	ARTEFACT	QC99/34	J70
739	-21.5775	147.9227	19960501	ARTEFACT	QC99/34	J71
739	-21.5725	147.9226	19960501	ARTEFACT	QC99/34	J72
739	-21.2707	147.824	20030414	Grinding Dish	Jangga Operations	J73
739	-21.2894	147.8306	20030414	ARTEFACT	Jangga Operations	J74
739	-21.2886	147.8297	20030414	ARTEFACT	Jangga Operations	J75
739	-21.4253	147.8448	20030414	Grindstone	Jangga Operations	J76
739	-21.061	147.8088	20030414	ARTEFACT	QC98/12	J77
739	-21.0613	147.8084	20030414	ARTEFACT	QC98/12	J78
739	-21.0624	147.8077	20021129	ARTEFACT	QC98/12	J79
739	-21.0588	147.8129	20021129	ARTEFACT	QC98/12	J80
739	-21.0555	147.8164	20021129	ARTEFACT	QC98/12	J81
739	-21.1941	147.8241	20031030	ARTEFACT	Jangga Operations	J82
739	-21.1923	147.821	20031030	ARTEFACT	Jangga Operations	J83
739	-21.1954	147.8569	20031030	ARTEFACT	QC98/12	J84
739	-21.1956	147.8198	20031030	ARTEFACT	Jangga Operations	J85
739	-21.1855	147.8378	20050630	ARTEFACT	QC98/12	J86
739	-21.1853	147.8381	20050630	ARTEFACT	QC98/12	J87
739	-21.1952	147.8353	20050630	ARTEFACT, CULTURAL	Jangga Operations	J88
739	-21.1975	147.8339	20050630	ARTEFACT	Jangga Operations	J89
739	-21.1986	147.8331	20050630	LANDFEAT	Jangga Operations	J90
739	-21.2044	147.8296	20050630	ARTEFACT	Jangga Operations	J91
739	-21.2054	147.8285	20050630	ARTEFACT	Jangga Operations	J92
739	-21.206	147.8276	20050630	ARTEFACT	Jangga Operations	J93
739	-21.2062	147.8273	20050630	ARTEFACT	Jangga Operations	J94
739	-21.2062	147.8272	20050630	ARTEFACT	Jangga Operations	J95
739	-21.2061	147.8271	20050630	ARTEFACT	Jangga Operations	J96

739	-21.2061	147.8273	20050630	ARTEFACT	Jangga Operations	J97
739	-21.2073	147.826	20050630	ARTEFACT	Jangga Operations	J98
739	-21.2111	147.8264	20050630	ARTEFACT	Jangga Operations	J99
739	-21.2111	147.8267	20050630	ARTEFACT	Jangga Operations	J100
739	-21.2114	147.8255	20050630	ARTEFACT	Jangga Operations	J101
739	-21.217	147.8246	20050630	RESOURCE	Jangga Operations	J102
739	-21.2172	147.8247	20050630	ARTEFACT	Jangga Operations	J103
739	-21.2174	147.8244	20050630	ARTEFACT	Jangga Operations	J104
739	-21.2193	147.8239	20050630	ARTEFACT	Jangga Operations	J105
739	-21.2216	147.8227	20050630	LANDFEAT	Jangga Operations	J106
739	-21.2834	147.8332	20050630	HEARTH	Jangga Operations	J107
739	-21.2838	147.8337	20050630	HEARTH	Jangga Operations	J108
739	-21.4172	147.8615	20050630	ARTEFACT	Jangga Operations	J109
739	-21.4256	147.8605	20050630	RESOURCE	Jangga Operations	J110
739	-21.4275	147.8607	20050630	ARTEFACT	Jangga Operations	J111
739	-21.4351	147.86	20050630	ARTEFACT	Jangga Operations	J112
739	-21.439	147.86	20050630	TREE	Jangga Operations	J113
739	-21.443	147.86	20050630	ARTEFACT	Jangga Operations	J114
739	-21.445	147.8595	20050630	HEARTH, ARTEFACT	Jangga Operations	J115
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739	-21.4763	147.8585	20050630	LANDFEAT	Jangga Operations	J117
739	-21.4782	147.8591	20050630	ARTEFACT	Jangga Operations	J118
739	-21.4805	147.859	20050630	ARTEFACT	Jangga Operations	J119
739	-21.4844	147.8591	20050630	ARTEFACT	Jangga Operations	J120
739	-21.4848	147.8591	20050630	ARTEFACT	Jangga Operations	J121
739	-21.4945	147.8617	20050630	ARTEFACT	Jangga Operations	J122
739	-21.4961	147.8617	20050630	CULTURAL	Jangga Operations	J123
739	-21.4963	147.8617	20050630	ARTEFACT, RESOURCE	Jangga Operations	J124
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739	-21.4963	147.8615	20050630	ARTEFACT, RESOURCE	Jangga Operations	J129

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739	-21.5022	147.8685	20050630	ARTEFACT	Jangga Operations	J137
739	-21.5055	147.8713	20050630	LANDFEAT	Jangga Operations	J138
739	-21.5098	147.8747	20050630	CULTURAL	Jangga Operations	J139
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739	-21.5305	147.8946	20050630	ARTEFACT	Jangga Operations	J150
739	-21.5313	147.8962	20050630	ARTEFACT	Jangga Operations	J151
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739	-21.5727	147.9281	20050630	ARTEFACT	QC99/34	J154
739	-21.5747	147.9266	20050630	ARTEFACT	QC99/34	J155
739	-21.185	147.8378	20050630	TREE	QC98/12	J156
739	-21.1876	147.8352	20050630	TREE	QC98/12	J157
739	-21.1951	147.8296	20050630	CULTURAL	Jangga Operations	J158
739	-21.2053	147.8246	20050630	HEARTH, ARTEFACT	Jangga Operations	J159
739	-21.2053	147.8246	20050630	HEARTH, ARTEFACT	Jangga Operations	J160
739	-21.2053	147.8245	20050630	HEARTH, ARTEFACT	Jangga Operations	J161
739	-21.2055	147.8245	20050630	HEARTH, ARTEFACT	Jangga Operations	J162

739	-21.2049	147.8255	20050630	HEARTH, ARTEFACT	Jangga Operations	J163
739	-21.2062	147.8253	20050630	ARTEFACT	Jangga Operations	J164
739	-21.2098	147.8247	20050630	ARTEFACT	Jangga Operations	J165
739	-21.52	147.8805	20050601	HEARTH, ARTEFACT	Jangga Operations	J166
739	-21.5201	147.8806	20050601	HEARTH, ARTEFACT	Jangga Operations	J167
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739	-21.4229	147.8445	20050601	HEARTH, ARTEFACT	Jangga Operations	J176
739	-21.1683	147.8668	20050623	ARTEFACT	QC98/12	J177
739	-21.171	147.864	20050623	ARTEFACT	QC98/12	J178
739	-21.1709	147.8642	20050623	ARTEFACT	QC98/12	J179
739	-21.1703	147.8645	20050623	ARTEFACT	QC98/12	J180
739	-21.1734	147.8587	20050623	ARTEFACT	QC98/12	J181
739	-21.1782	147.8486	20050623	ARTEFACT	QC98/12	J182
739	-21.1753	147.8531	20050623	ARTEFACT	QC98/12	J183
739	-21.1809	147.8448	20050623	ARTEFACT	QC98/12	J184
739	-21.1846	147.843	20050623	ARTEFACT	QC98/12	J185
739	-21.1865	147.8414	20050623	ARTEFACT, LANDFEAT	QC98/12	J186
739	-21.1841	147.8369	20050623	ARTEFACT	QC98/12	J187
739	-21.1829	147.8379	20050623	ARTEFACT	QC98/12	J188
739	-21.1821	147.8384	20050623	ARTEFACT	QC98/12	J189
739	-21.1775	147.8416	20050623	LANDFEAT	QC98/12	J190
739	-21.1781	147.841	20050623	LANDFEAT	QC98/12	J191
739	-21.1768	147.8421	20050623	LANDFEAT	QC98/12	J192
739	-21.1762	147.8425	20050623	LANDFEAT	QC98/12	J193
739	-21.1771	147.8419	20050623	LANDFEAT	QC98/12	J194
739	-21.1741	147.8472	20050623	LANDFEAT	QC98/12	J195

739	-21.0577	147.8159	20050413	ARTEFACT	QC98/12	J196
739	-21.06	147.8135	20050413	ARTEFACT	QC98/12	J197
739	-21.06	147.814	20050413	ARTEFACT	QC98/12	J198
739	-21.0602	147.8129	20050413	LANDFEAT	QC98/12	J199
739	-21.0612	147.8109	20050413	LANDFEAT	QC98/12	J200
739	-21.0618	147.8095	20050413	LANDFEAT	QC98/12	J201
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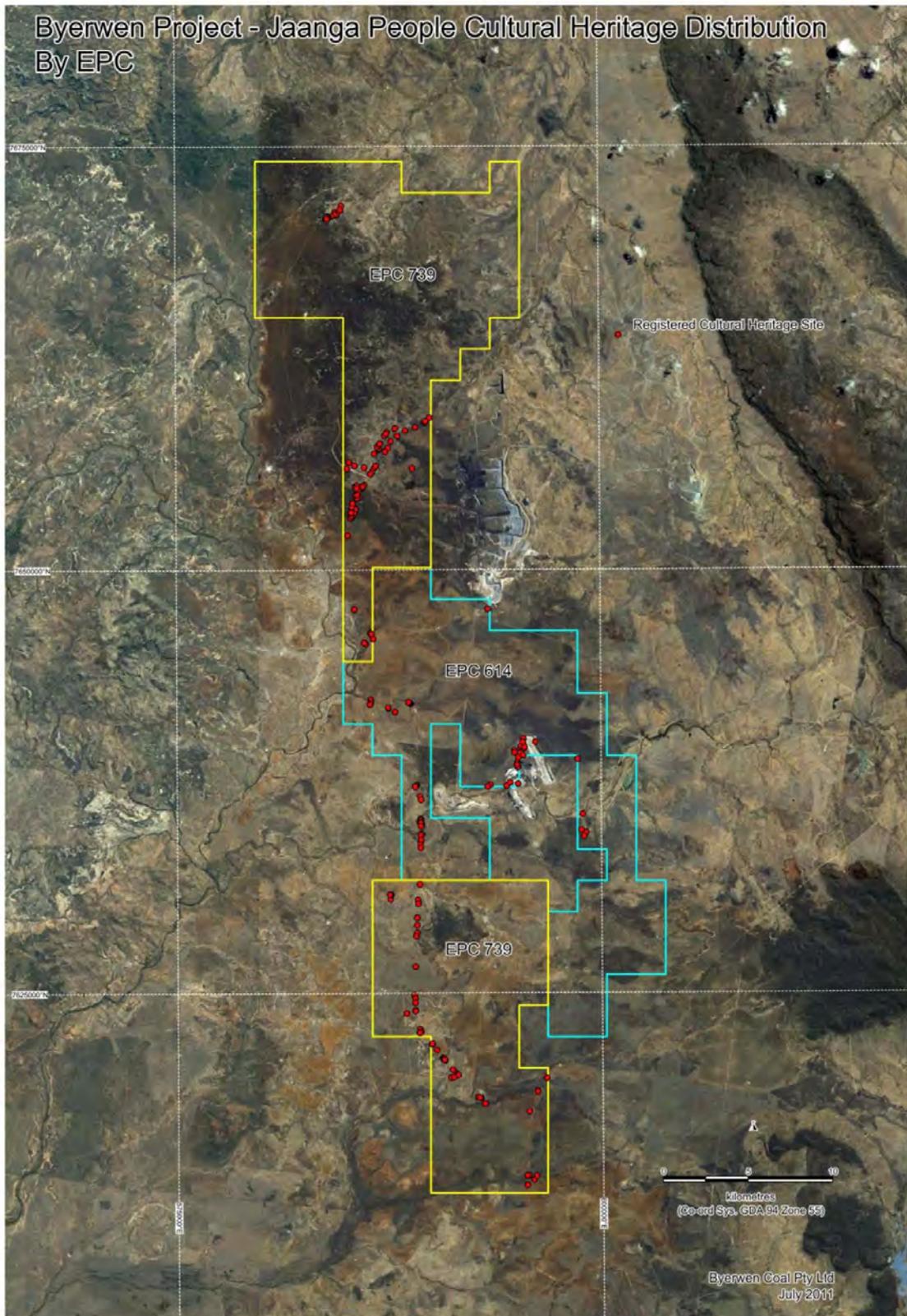


Figure 5

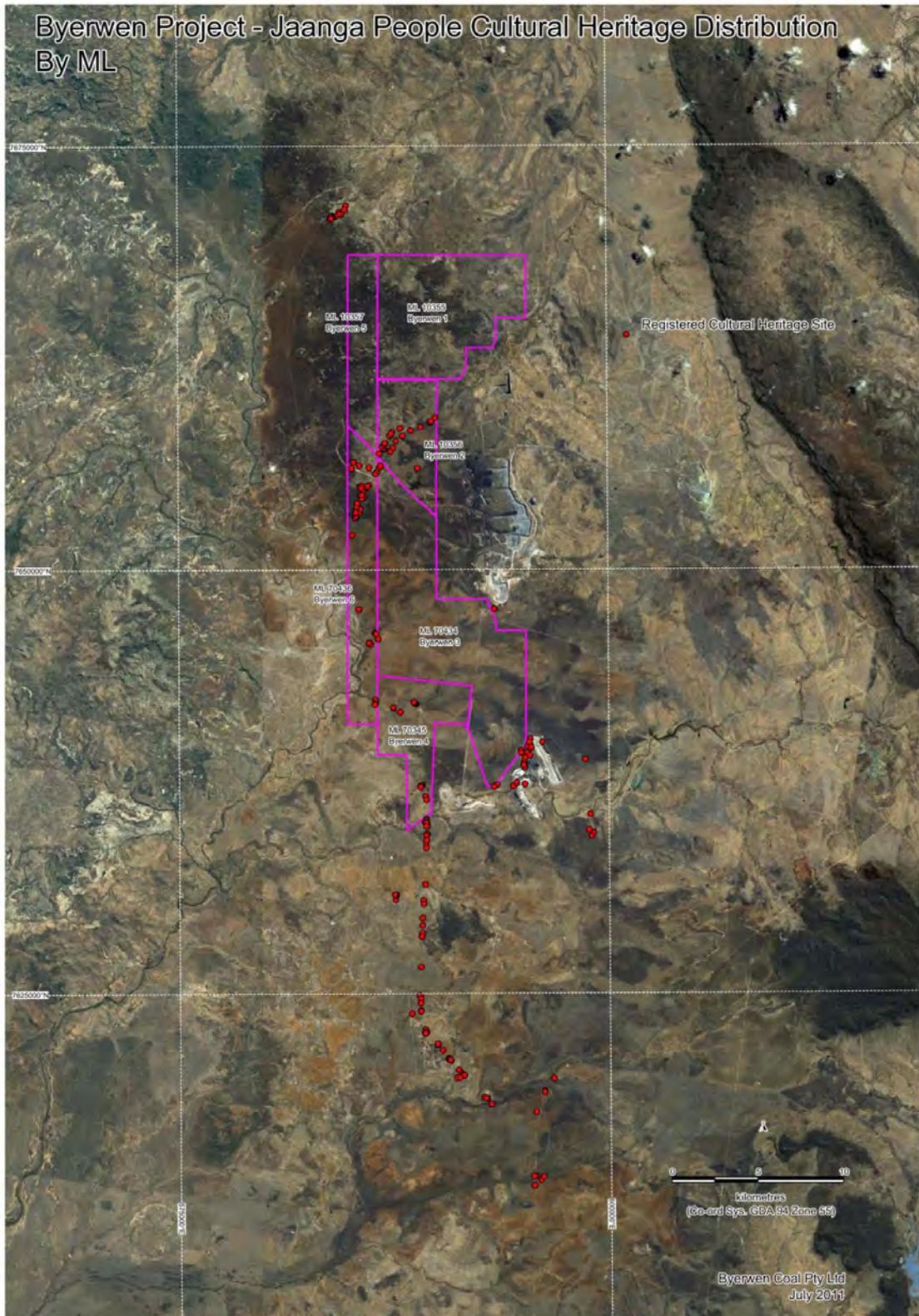


Figure 6

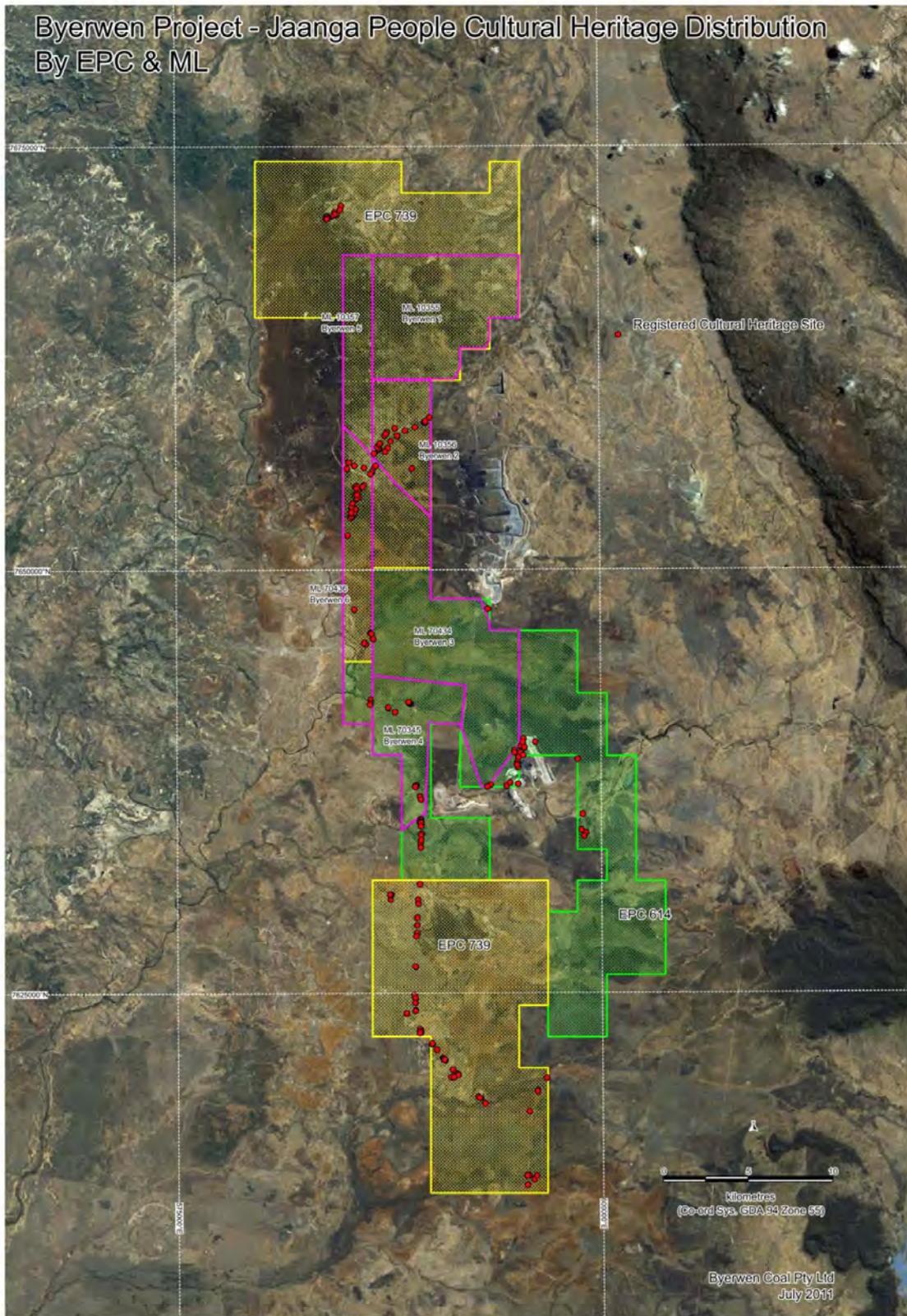


Figure 7

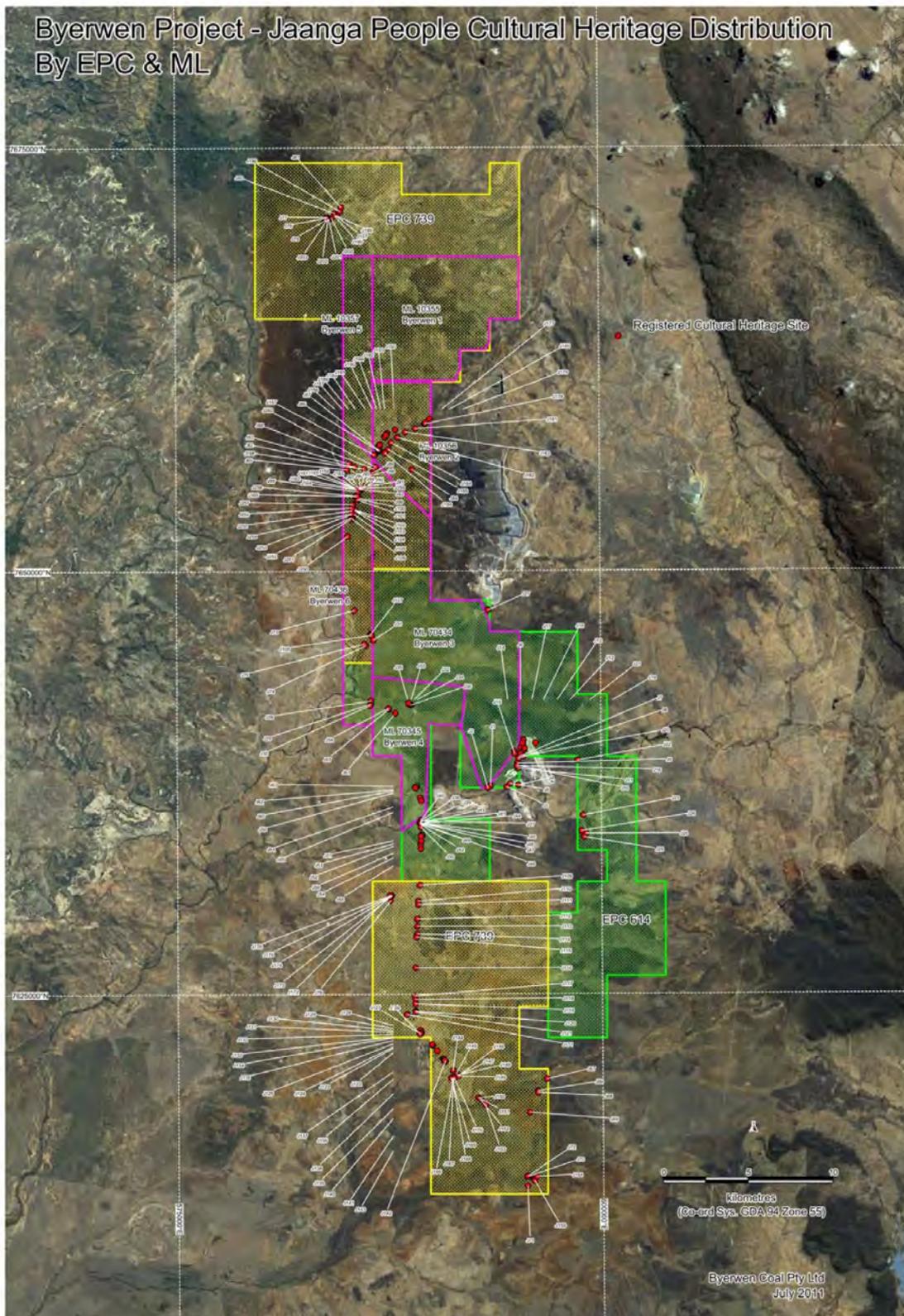


Figure 8