Australia Pacific LNG Project

Volume 5: Attachments

Attachment 40: Non-Indigenous Heritage Technical Report – Pipeline

Australia Pacific LNG Main Transmission Pipeline

Non-Indigenous cultural heritage

Australia Pacific LNG Report

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1. Introduction

Australia Pacific LNG Pty Limited proposes to develop a project which enables the creation of a world scale, long-term industry, utilising Australia Pacific LNG's substantial coal seam gas resources in Queensland. Australia Pacific LNG holds significant interests in less developed areas across the Walloons Fairway in the Surat Basin, which together with the Talinga coal seam gas fields constitutes the Walloons gas fields development area.

The main gas transmission pipeline will connect the Walloons gas fields with the LNG plant on Curtis Island in Gladstone (Plate 1). The pipeline will be approximately 450 km long, 42 inches in diameter and will be buried underground. Where practicable the pipeline will be co-located with other high pressure gas transmission pipelines, including the Callide and Gladstone State Development Area Common-user Infrastructure Corridors being developed by the Queensland Government.

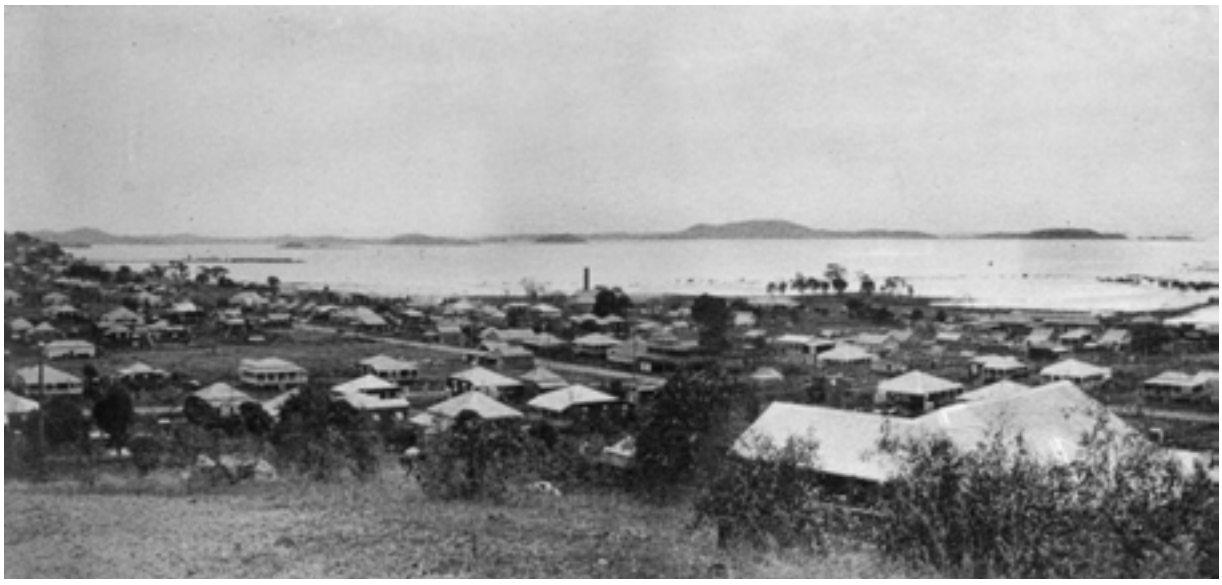

Plate 1 View across Gladstone towards Curtis Island. (Composite view created from photos taken by Richard Daintree c.1870 State Library of Queensland)

1.1 Study Area

The pipeline study area, which includes the proposed pipeline alignment centred within a 10km wide buffer zone traverses a diverse range of landscapes between the coal seam gas field near the Central Queensland town of Miles and the LNG Plant on Curtis Island, off the Central Queensland coast (See Figure 1). It passes through undulating downs of the Brigalow Belt around Miles, Wandoan and Taroom. This area was formerly covered with dense brigalow (*Acacia harpophylla*) scrub, but is now substantially cleared for agriculture and cattle grazing. The route crosses the Great Dividing Range east of Wandoan and the Calliope and Callide Ranges to the east of Biloela. In the Barakula area to the east of the proposed pipeline alignment is the Barakula State forest, predominantly vegetated with ironbark and cypress forests. To the west of the proposed pipeline alignment is Precipice and Isla Gorge National Parks. The line skirts the northern edge of the Mount Larcom Range, then crosses the Narrows, a 1.5km channel separating the mainland at Friend Point from Laird Point on Curtis Island. The Narrows channel is subject to rapid water flow at the change of tide and shifting shoals have resulted in the grounding of numerous vessels (hence the need to consider shipwreck legislation). Figure 1, Appendix 1, shows the study corridor in relation to recorded Non-Indigenous sites

1.2 Purpose

This investigation describes the non-Indigenous heritage and post-contact land-use history of the proposed Australia Pacific LNG main transmission pipeline. It documents the registered heritage places and potentially significant site locations in and around the project area, and proposes measures to mitigate any impacts that might result from the project.

The specific aims of this non-Indigenous heritage assessment are to:

- Meet the requirements for non-Indigenous heritage in the project Terms of Reference
- Identify historical themes relevant to the non-Indigenous use of the transmission proposed pipeline alignment
- Identify known non-Indigenous heritage sites within the pipeline study area
- Assess the likelihood of further items of heritage significance occurring in the pipeline study area
- Assess the significance of sites located in the pipeline study area, in terms of their meeting criteria defined for inclusion in Local, State or National heritage registers
- Provide advice on appropriate measures for the mitigation of impacts to identified heritage sites, appropriate to their level of significance
- Propose a methodology for the management of non-Indigenous heritage sites identified during construction on the pipeline.

1.3 Legislative framework

In Queensland, both Commonwealth and State legislation protects non-Indigenous heritage sites. This heritage legislation works in concert with planning instruments, which require consideration of heritage sites in the planning approval process.

1.3.1 Commonwealth legislation

Three pieces of Commonwealth legislation serve to protect Australia's heritage. These are the *Environment Protection and Biodiversity Conservation Act,* 1999*,* the *Australian Heritage Council Act,* 2003, and the *Historic Shipwrecks Act*, 1976. The Commonwealth authority responsible for the administration of this legislation is the Department of Environment, Water, Heritage and the Arts (DEWHA).

Environment Protection and Biodiversity Conservation Act, 1999

This legislation provides protection for items and places with World, National or Commonwealth heritage values. It is the primary piece of Federal environmental legislation in Australia, providing the legal framework for the protection and management of nationally and internationally recognised flora, fauna, ecological communities and, of greatest relevance to this discussion, cultural heritage places defined under the Act as being of national significance.

Both nominated and listed cultural heritage sites can be protected under this Act, either through inclusion on the National Heritage List or, on the Commonwealth Heritage List if they are within Commonwealth land or waters. In 2003 The *Australian Heritage Council Act, 2003*, established the Australian Heritage Council to administer the National Heritage List and Commonwealth Heritage List.

The criteria used for inclusion on the National (and Commonwealth) Heritage List include:

- Importance in the course of Australia ‘s natural or cultural history
- Possession of uncommon or endangered aspects of Australia ‘s natural or cultural history
- Potential to contribute to an understanding of Australia ‘s natural or cultural history
- Importance in demonstrating the key characteristics of a class of natural or cultural places
- Importance in exhibiting aesthetic characteristics valued by a community or cultural group
- Importance in demonstrating creative or technical achievement at a particular period
- Special association with a particular community for social, cultural or spiritual reasons
- Special association with the life or works of persons of importance in Australia ‘s history, and
- Importance as part of Indigenous tradition.

World heritage properties and national heritage places are recognised as a matter of national environmental significance under the *Environmental Protection and Biodiversity Conservation Act.* Any action likely to have a significant impact on the heritage values of a world heritage place or national heritage place require approval under the Act.

The Australian Heritage Council Act, 2003

The *Australian Heritage Council Act, 2003* established the Australian Heritage Council as the principal advisory body to the Australian Government on heritage matters, particularly in relation to administering the lists created under the *Environment Protection and Biodiversity Conservation Act,* 1999. It replaced the Australian Heritage Commission, the authority previously responsible for assisting in the administration of Federal heritage legislation and for creating the Register of the National Estate on which were placed items of recognised heritage value.

The role of the Australian Heritage Council is to:

- Assess heritage items and places for inclusion in the National Heritage List or Commonwealth Heritage List
- Advise the Minister in relation to the inclusion of places in, and the removal of places from, the List of Overseas Places of Historic Significance to Australia
- Advise the minister on matters relating to the condition of places included in the National Heritage List or Commonwealth Heritage List
- Advise the minister on the Commonwealth’s responsibilities for historic shipwrecks
- Promote the identification, assessment, conservation and monitoring of heritage, and
- Keep the Register of the National Estate.

The Australian Heritage Commission had from 1975 maintained a list of significant heritage locations on the *Register of the National Estate*. More than 13,000 items were listed, including non-Indigenous heritage sites. With the introduction of the *Australian Heritage Council Act,* 2003, the Register of the National Estate was closed to new entries from 19 February 2007. From that date until February 2012, it will remain a statutory instrument, with the Minister required to consider it when making decisions under the *Environment Protection and Biodiversity Conservation Act*, 1999. In the transition period, entries on the Register of the National Estate are being transferred to local, State and National heritage registers, where appropriate. From February 2012, the Register of the National Estate will

remain as a publicly available archive, but all reference to it will be removed from the *Environment Protection and Biodiversity Conservation Act*.

The National Heritage Places Inventory is maintained by DEWHA, and contains summary information about places listed in State, Territory and Commonwealth Heritage Registers and Lists. It is as an online, searchable database.

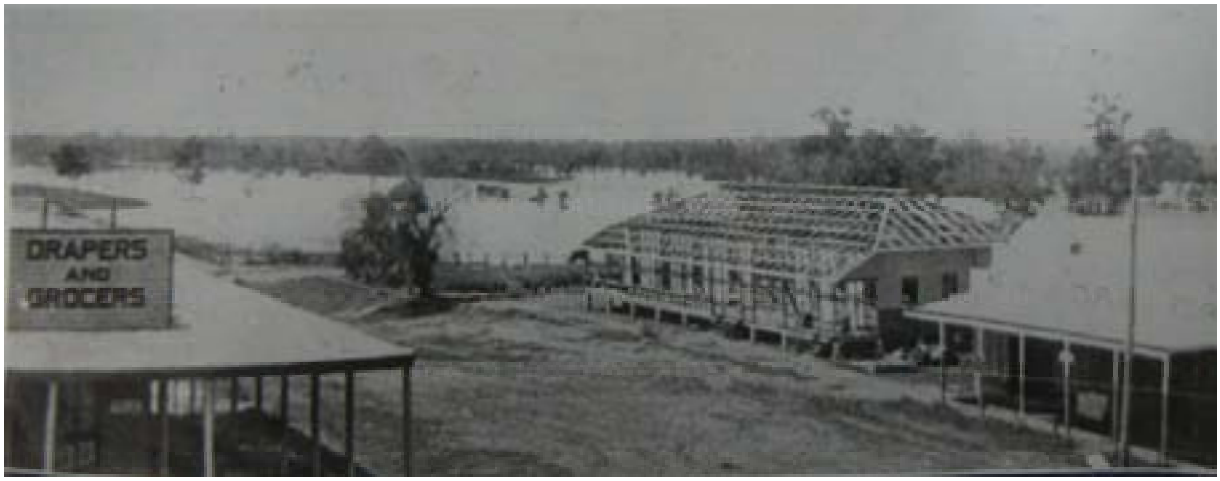

Plate 2 Taroom showing the Dawson River in flood (1928). Taroom and District Historical Society Museum.

Historic Shipwrecks Act, 1976

This Commonwealth legislation protects shipwrecks and associated relics more than 75 years old in Commonwealth waters. All wrecks are recorded in the Australian National Shipwrecks Database with details of their location, if this is known. Each of the States and the Northern Territory has complementary legislation for State waters including bays, harbours and rivers. The Minister for DEWHA can also make a determination to protect historically significant wrecks or relics less than 75 years old.

1.3.2 State legislation

The Queensland authority responsible for non-Indigenous heritage protection in the state is the Department of Environment and Resource Management (DERM). This State Department keeps a register of significant heritage places and sites, the *Queensland Heritage Register*, and administers the *Queensland Heritage Act*, 1992 (QHA).

Queensland Heritage Act, 1992

For non-Indigenous heritage, the *Queensland Heritage Act, 1992* provides specific pathways to protection. Its stated aim is 'to provide for the conservation of Queensland's cultural heritage for the benefit of the community and future generations.' (Section 2.1). To meet these objectives, the Act (Section 2) enabled:

- The establishment of the Queensland Heritage Council
- Creation of the Queensland Heritage Register
- Creation of local heritage registers

- Regulation, in conjunction with other legislation, of development affecting the cultural heritage significance of registered places
- Provision for heritage agreements to encourage appropriate management of registered places, and
- Provision for appropriate enforcement powers to help protect Queensland's cultural heritage.

The Queensland Heritage Register, established under Section 31 of the Act, is a record of State heritage places and protected areas (Section 6), and, since amendments in 2008, also includes archaeological sites. Register entries include details of the boundaries of the area or place, its history, a description of its fabric and whether it is the subject of a heritage agreement. For State heritage places, a statement of significance is required, addressing cultural heritage criteria defined by the Act. For archaeological places, a statement of significance, relating to established archaeological criteria, is required. For protected areas, a statement of significance, relevant to its declaration as a protected area, is required. The Register is a public document.

The Act addresses the obligations and rights of developers. The main requirement is that, under Section 68 of the Act, development of a place listed on the Queensland Heritage Register can only proceed with the approval of the Chief Executive. Any damage to a site or place listed or provisionally listed on the Queensland Heritage Register, attracts a penalty.

Not all places and objects of heritage value are known prior to development. This is particularly the case with archaeological sites, sometimes unearthed during construction. The obligation here, under Section 89 of the Act, is for a person to advise the chief executive about any archaeological artefacts that are an important source of information about an aspect of Queensland's history. The discovery must be notified in a timely manner with advice on where it was discovered, photographs and a description. Once artefacts have been reported, it is an offence under Section 90 of the Act to interfere with these artefacts, within 20 business days of informing the Chief Executive of their discovery. 'Interfere' includes: 'damage, destroy, disturb, expose or move' (Section 88).

Not all significant heritage places are listed on the register, but may be known to members of the public. A place can be nominated for inclusion on the Queensland Heritage Register at any time and pending development may prompt such nomination. The Minister may issue a stop order to protect from damage any place (entered on the Register or not) considered to be of cultural heritage significance. A stop order will operate for up to 40 business days until the place has been assessed and further decisions made about its fate (Section 154).

1.3.3 Local legislation

Amendments to the *Queensland Heritage Act* 1992, introduced in 2008, required local government agencies to establish their own registers of heritage places, unless they already had satisfactory measures in place to protect sites under existing planning instruments (Sections 112,113).

A further 2008 amendment also provided for the integration of State and local government assessment and approval processes under the Integrated Development Assessment System (IDAS) of the *Integrated Planning Act* 1997 (Section 121). Sites listed on local government heritage schedules within the project area are subject to assessment provisions specified under this Act. Similar provisions are made in the replacement legislation (*Sustainable Planning Act*, 2009) to be introduced in December 2009.

1.4 Cultural heritage significance

Cultural heritage can be defined as the integration of the links between history and humanity. Places with cultural heritage significance provide a sense of the connections between the community and landscape, between the past and the present and are the tangible traces of the Australian identity and experience.

The evaluation of site significance undertaken in this study derives from a framework identified in the Burra Charter which urges consideration of the aesthetic, historic, scientific, social and spiritual values of places in the past, present and in the future (Marquis-Kyle and Walker 1994). Within this framework, the significance assessment of locations identified within 5km of the proposed transmission pipeline alignment, has been carried out using criteria laid down in Section 35 of the *Queensland Heritage Act*, 1992 to identify heritage items of State significance. These criteria are:

a) The place is important in demonstrating the evolution or pattern of Queensland's history

b) The place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage

c) The place has potential to yield information that will contribute to an understanding of Queensland's history

d) The place is important in demonstrating the principal characteristics of a particular class of cultural places

e) The place is important because of its aesthetic significance

f) The place is important in demonstrating a high degree of creative or technical achievement at a particular period

g) The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons, and/or

h) The place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

These criteria are founded six *cultural heritage values*: aesthetic, architectural, historical, scientific, social and technological.

To be entered into the Queensland Heritage Register as an archaeological place, a site or place must have the potential to contain an archaeological artefact that is an important source of information about Queensland's history (Section 60).

Any site or place, which meets the criteria, may be included on the Queensland Heritage Register. The legislation clearly states that places are not to be excluded on the grounds that similar sites have previously been listed (Section 35(2)).

In addition to locations deemed to be of National, State or Local significance, and recognised though their listing on relevant heritage lists and registers, there are other sites that do not meet register listing criteria, but which still provide a setting in which to understand the region's historical land-use. These locations have been described in recent studies as being sites of historical interest (HI) (Archaeo Cultural Heritage Services 2009). This assessed low heritage value does not warrant the level of protection that is necessary for sites of Local, State and National heritage significance.

1.4.1 Scientific assessment criteria

Most of the sites found in the proposed pipeline corridor are archaeological sites. These do not necessarily rate highly in terms of the values used to evaluate significance: aesthetic, architectural, historical, social or technological. They do, however, rate more highly when evaluated for their scientific values.

There are a number of criteria used to assess site significance from a scientific perspective. These criteria include the site's integrity, its structure and contents: qualities allowing the assessment of its value for research purposes. In addition to the above criteria, a site may also be of scientific significance simply because it is rare.

Site integrity

Site integrity refers to the degree to which a site has been disturbed, or alternatively, to how well it has been preserved. Disturbance may have occurred in the past through repeated use of a site, or may be recent, resulting from erosion or recent land-use. The spatial distribution of artefacts and features at a site can provide important clues about the nature of a site's use, and therefore, sites which are least disturbed, are generally of greater value for research purposes.

Site structure

Structure refers to the physical dimensions of a site, including stratigraphy, size and the patterning of archaeological material and presence or absence of built structures. A site with undisturbed sub-surface deposits has greater research potential than a site that has been modified by subsequent land-use. Often a site's structure can only be determined through remote sensing techniques or from sub-surface examination.

Site contents

This category refers to the range of occupation material and structures found in a site. Some sites contain a diverse range of cultural items, allowing various aspects of site's history to be elucidated. An evaluation of site contents provides some indication of the potential of a site to address current and future research questions.

It is necessary to consider the scientific values, in addition to the community values of non-Indigenous heritage sites, to fully assess their significance. Management decisions are developed appropriate to the level of significance.

Plate 3 Leichhardt Tree, Leichhardt Highway, Taroom.

2. Methodology

2.1 Method

The non-Indigenous heritage assessment for the transmission pipeline portion of the project was carried out using:

- On-line resources, principally for information on legislation, heritage site data bases, histories, general information
- A search of the Australian Heritage Places Inventory (AHPI) for listed sites of international and national significance (World Heritage List, National Heritage List and Register of the National Estate)
- A search of the National Shipwrecks database
- A search of the Queensland Shipwreck database
- A search of the Queensland Heritage Register
- A search of the register of the National Trust of Queensland
- A search of the Origin Energy cultural heritage database
- A search of data in heritage studies previously carried out in the region through which the pipeline passes
- A search of data in EIS cultural heritage assessments previously carried out in the area
- Requests for schedules of local heritage sites from local Government authorities
- Requests for information to historical societies
- Publicly available books and histories
- Discussions with individuals and organisations with an interest in the region's heritage, and
- Localised field survey along the transmission proposed pipeline alignment, in areas where landowner access had been given.

A contextual history of the area has been provided and previous studies reviewed. Site information from the various site databases and data sources, has been collated and mapped. To provide a context in which to assess the heritage values of the sites in the project area, heritage locations in the surrounding area have also been considered. While this may have resulted in the inclusion of sites well distant from the location of the planned development, it has ensured that significant heritage places that might be indirectly impacted by the project are also identified and helps to contextualise sites in the study area.

2.2 Field investigations

To test the validity of the site distribution models, a short program of field inspection was undertaken at various points in the proposed pipeline corridor to identify locations with non-Indigenous heritage values. This was constructive, in identifying sites and places along road and rail corridors and around the fringes of settlements, containing locally significant non-Indigenous heritage sites. The field investigations also revealed invaluable information on heritage sites from members of the local

community. While field inspections revealed a few previously unrecorded sites, community members were able to identify numerous sites and locations of local heritage significance. These have been included in this analysis.

2.3 Consultation

Information on non-Indigenous heritage sites along the proposed pipeline alignment came from a wide range of sources, however, the most valuable of these were long-term residents of the districts passed by the proposed pipeline alignment; people with a passion for the recording of local history and the protection of sites associated with that history. Many of the sites they identified were recorded in no other source, or were only known from vague written references. Additionally, representatives of organisations charged with protecting heritage sites, including Regional Council officers and the National Trust of Queensland, provided valuable insights into the listed sites along the route. The people contacted as part of this investigation are listed in Table 1.

Table 1 List of heritage contacts for the proposed gas transmission line portion of the Australia Pacific LNG Project

Contact	Organisation or location	Region
Beryl and Harold Rennick	Chinchilla Field Naturalist Club	Miles and district
Beryl Dwyer	Chinchilla	Miles and district
Merlene Coates Freeman	Miles and District Historical Village and Museum Committee	Miles and district
Dinah Frazer	Wandoan Heritage Society	Wandoan District
Hilda Heffernan	Miles and District Historical Village and Museum Committee	Miles and district
Dr Val Dennis Heritage Information Officer	National Trust of Queensland	Entire gas field area
Information officer	Maranoa Regional Council	Southern portion of pipeline area
Information officer	Western Downs Regional Council	Southern portion of pipeline area
Amy Lockyer	Banana Shire Council	Banana Shire
Information Officer	Calliope River Historical Village	Port Curtis and hinterland
Information Officer	Gladstone Regional Council	Gladstone and district
Neville Robertson-Hughes	Gladstone Maritime Museum	Gladstone and district
Danny Aischlemann	Gladstone Maritime Museum	Gladstone and district
J.W. Harris	Gladstone	Curtis Island, Gladstone, Calliope region
Information Officer	Miriam Vale Museum	Miriam Vale and district
Dr Val Dennis Heritage Information Officer	National Trust of Queensland	Entire pipeline corridor area

While individuals and groups from the local community have been consulted about non-Indigenous heritage sites in the vicinity of the proposed Australia Pacific LNG gas transmission pipeline, further documentation of the region's heritage values will be sought from the community. This will inevitably provide additional information on the nature and location of sites in and around the proposed pipeline alignment.

2.4 Limitations

There are limitations in the data collected for this project. The data is limited because heritage lists, the first source of information on non-Indigenous heritage sites, contain a bias in the types of sites recorded. The bias is essentially toward built heritage and away from archaeological sites. Most registered non-Indigenous cultural heritage sites and places in Queensland have been recorded as a result of the interests of members of local historical societies, the National Trust and in more recent times by academics, heritage architects and cultural heritage practitioners. There is an overwhelming bias in favour of public buildings, homesteads and monuments, with few listed archaeological sites other than mine sites. Admittedly, only since early-2008 has heritage legislation in Queensland recognised the value of non-Indigenous archaeological sites as well as buildings.

Field surveys and to a greater extent, the community consultation program have addressed some of these limitations, and have led to the recording of numerous new sites. Once the pipeline alignment has been finalised and prior to construction, detailed field inspection will take place. This will ensure that unidentified sites are located, and appropriate impact mitigation measures are implemented.

There has been limited access along sections of the proposed pipeline alignment. Land access agreements are being negotiated with individual property owners, and until negotiations have been completed, site inspection along these sections cannot be conducted. Field inspections were therefore restricted to areas of public land, and properties where land access agreements were in place.

As the process of proposed pipeline alignment refinement has been evolving, and will continue in response to further identification of route constraints, portions of the alignment that were initially researched have changed. This has resulted in some previously inspected areas now being well outside the proposed pipeline corridor.

3. Existing Environment

Included in this section is a brief history of the regions through which the proposed pipeline will pass, investigating relevant themes to provide the context in which to evaluate non-Indigenous heritage places and sites. Registered heritage sites, sites identified in earlier studies, and locations with heritage significance recorded during localised field surveys carried out during this investigation, are noted.

3.1 Historical Context

Exploration and mapping

Exploration of the region near the southern end of the proposed pipeline alignment commenced in the mid-19th Century, with Ludwig Leichhardt's expedition to Port Essington (near the site of present day Darwin). On 1st October 1844, he set out from *Jimbour* (*Jimba*) station 27km northeast of Dalby, which at the time was on the northwest pastoral frontier (Black 1978:1).

One of Leichhardt's camps was at Dogwood Creek, later the site of Miles (Robb 1996:x), another was near Guluguba (Partlett 1986:24). Leichhardt passed through the following districts: Guluguba, the Dawson River, Taroom and Palm River Valley. Squatters followed, encouraged by descriptions of the land, particularly those written by John Gilbert, the naturalist in Leichhardt's party. *Juandah* (now Wandoan), *Taroom* and *Palm Tree Valley* were three of the earliest inland stations, taken up along the tracks of Leichhardt.

After returning from Port Essington, Leichhardt undertook a second expedition, starting out again from *Jimbour* in 1846/47. He travelled close to his previous route, intending to then branch off west to reach the west coast of Australia, but he turned back near Peak Range due to illness in his party. They camped at Charley Creek, a tributary of the Condamine, and again at Dogwood Creek, 3.2km (2 miles) higher up than his original camp (Bunce 1857:114).

A number of trees marked with Leichhardt's distinctive 'LL', have been found. One was at his camp at Dried Beef Creek and the section of trunk with the initials was removed and sent to the Queensland Museum. Another was found at Guluguba in 1921. This tree was later lost in a bushfire (Partlett 1982:24).

A party sent to search for Leichhardt in November 1844 found three initialed trees on the southern side of the upper Dawson River and was told by Indigenous people at Eurombah that they had seen his party (French 1989:87). At Taroom, a tree which is claimed to bear the initials 'LL' is still alive in the main street. While the markings have been covered by regrowth, it is a site of State heritage significance (Queensland Heritage Register). Gregory, who also searched for Leichhardt's lost party, found European campsites, initials on trees attributed to Leichhardt's expedition, and steel axe-cut tree-stumps.

In the central portion of the pipeline study area, from Cracow north to beyond Biloela, it was 'pastoralist-explorers' who arrived first. Cunningham had discovered the Darling Downs in 1827, and in 1840 Patrick Lesley became the first person to settle there. Within eighteen months the whole of the Downs was claimed (marked out by initials on trees) though it was not yet all stocked. Those wanting land were forced to search further afield.

Principal among these were the Archer brothers who arrived overland via the Darling Downs. After exploring the Burnett River they finally, in 1848, set up stations at Eidsvold and Coonambula. Other

'pastoralist-explorers' arrived with their flocks looking for land. A Scotsman named Ross took his sheep and established a run in the Cracow district in 1851. By the time land north of Eidsvold was officially released, the land had already been claimed by squatters (Perry 2005).

In 1802, Matthew Flinders identified and mapped Port Curtis and various features of the landscape including Mount Larcom and South Trees Point on the mainland (both of which were important landmarks), Facing Island, and Sea Hill on Curtis Island. In 1823 John Oxley spent sixteen days at Port Curtis, exploring and mapping the coastline and in 1848 Owen Stanley again surveyed the entrance to the port.

Sites and locations associated with the early exploration and mapping phase of settlement and found in the pipeline corridor include the following:

- Leichhardt trees and associated campsites between Miles and Taroom
- Mount Larcom.

Contact with Indigenous people

Miles and district

By the time Ludwig Leichhardt traversed the Miles district in 1844, Aboriginal people of the Darling Downs had already been coexisting with the flocks and herds of the early European pastoralists for four years.

Initial contacts with the early explorers were mostly uneventful, with Leichhardt describing the Aboriginal people he encountered as friendly. It was not until the squatters arrived shortly after, that conflict with the Aboriginal people commenced. This conflict took the form of skirmishes with shepherds living in isolated huts, with some murders on both sides.

In 1848 conflict occurred near Barakula. Pastoralists had sought 'relief' claiming 6,000 sheep and eight settlers had been killed. A year later Matthew Buscall Goggs, the lessee of *Wongongera* station, reported another ten murdered and also his intention to take action.

Taroom district

Serious conflict erupted in the Taroom district following the massacre of Europeans at *Hornet Bank*. *Hornet Bank* on the upper Dawson River had been taken up by Andrew Scott in 1853, at the time the western-most property on the river. On the morning of 27 October 1857 a group of Iman men attacked the homestead and eleven at the station were murdered. Retaliatory raids are claimed to have cost the lives of hundreds of Aboriginal people, many of whom had no connection with the murders.

After the attack at *Hornet Bank*, Aboriginal groups amalgamated. An old story is re-told by Fox (1959:105) that after the massacre at Hornet Bank, the Iman Aboriginal people also raided *Juandah,* the property that later became Wandoan:

> *… where in the ensuing struggle one hundred and fifty of them were killed. They were buried on a sand ridge west of the homestead … [Fox 1959:105]*

In most areas, Aboriginal people were employed as station hands, stockmen, cooks, maids or nursemaids from the earliest times and lived in camps on the stations. By the 1880s Aboriginal people who were not working on stations congregated in permanent fringe camps outside the towns. A large camp of a hundred Aboriginal people had formed on the outskirts of Taroom. After objections from the locals the government established the Taroom Aboriginal Settlement. It was in operation until 1927. Indigenous people were brought in from surrounding stations and housed in barracks. Rations were

supplied and their activities monitored by a superintendant. They were moved to Woorabinda in 1927 when the Nathan Dam was to be built and the area was to be flooded (Fox 1959:131-132).

Banana and Biloela districts

The first European casualty in the Banana Shire area was Sandy Ross, one of the first pastoralist-explorers to travel overland with his flock looking for land. He was speared before he claimed any land and his 500 sheep were driven off (his gravesite is at Boam Creek, 14km east of Theodore). Native police contingents were based near Gladstone, Eidsvold, Banana and Rannes. Attacks continued however, including attacks on teamsters, police and shepherds. In many districts the squatters retaliated (Perry 2005).

Perry (2005:15) summed up the relations between black and white in the region as follows:

> *Integrated in the history of settlement along the Dawson and its tributaries is some of Australia's most intense racial conflict. For more than a decade the infamous 'frontier triangle' from south of Taroom through Rannes to Gracemere and west to the McKenzie River, truly earned its reputation as black man and white lost their lives in a vicious state of outright warfare. (Perry 2005:15)*

Gladstone and its hinterland

In and around the northern end of the proposed pipeline alignment, initial contact was both from maritime and overland explorers. Maritime exploration and visits by government officials to Gladstone led to the first skirmishes. In 1802 as explorer Matthew Flinders and his party approached the southern end of Curtis Island, a small group of Aboriginal men pelted them with stones. Musket shots were fired above the heads of the Aboriginal attackers.

When Colonel Barney sailed along the nearby coast in 1846 on his way to do a preliminary survey of Port Curtis for a penal settlement, he met with a large number of Indigenous people asking for flour and talking in English. He assumed they had contact with whalers in the area (Hogan 1898:37). He was received well and helped to find water to fill the ships casks (McDonald 1988:10).

McCabe and O'Connell were involved in a number of incidents, and a Native Mounted Police camp was set up, but for a while the residency was a safe place for Indigenous people where they could gather and live in their gunyahs, relatively safe from the settlers and Native Police (McDonald 1988). There were sporadic outbreaks of violence including an attack on McCabe's camp.

In the Gladstone hinterland there was a major incident, very early in the settlement period. This occurred at *Mount Larcom* station, 35km from Gladstone, in 1855. Four Europeans and an Aboriginal man were murdered and the station was ransacked. Murray of the Native Mounted Police, assisted by squatters from neighbouring pastoral leases, took revenge, killing many (McDonald 1988:17). The site of these incidents is very near the proposed proposed pipeline alignment beside the Common User Corridor.

Sites associated with Indigenous contact history in the proposed pipeline corridor include:

- Ross' gravesite at Boam Creek
- Constable O'Dywer's grave
- the Fraser family gravesite and memorial at Hornet Bank
- Former Mount Larcom station and massacre sites, and
- Police Creek near Gladstone

Archaeological traces of contact between Indigenous and non-Indigenous people may include sites containing artefacts made from introduced material (glass, iron, ceramic), massacre sites (bullets, disorganised human remains, fortified homesteads), evidence of station camps (such as hearths, horseshoes, stone artefacts adjacent to homesteads), town camps, and the remains of segregated settlements.

Pastoralism

Reports of Leichhardt's expedition in 1844-1845 were published on his return in 1846 and squatters and their flocks soon followed. The squatters used shepherds, including convicts, each with a flock of about 1,700 sheep. The Native Mounted Police lived in barracks at the various properties on a semi-permanent basis and these were deployed to different areas as the need arose.

In 1864, half the male population in the Banana Shire was comprised of shepherds, leading a solitary life in the bush. Sheep were herded into folds at night to protect them from dingoes and Aboriginal attacks (Perry 2005:42). Archaeological traces of these shepherds' camps still remain, "…still recognisable by grassy mounds of compacted manure and a few marked bottle trees." (Perry 2005:43). In other areas sheep folds made from piled branches can be found.

By the 1870s wool growing became less profitable as burr infestations spread, leading to spoiling of the wool. This led to the wholesale introduction of cattle. The first cattle were herded from the Hunter Valley in New South Wales. Shepherds were replaced with fences, which were expensive to build but cheaper to maintain than shepherds.

The town of Taroom was founded as a response to the demand for services from those on the surrounding pastoral properties (Dick 1960:9). Many of the town's early buildings are of local heritage significance.

Port Curtis was proclaimed a pastoral district in 1854. At that time Boyne Island, to the south of Port Curtis, was already a sheep run, and a number of runs had already been claimed as far west as Biloela.

Sites associated with the pastoral expansion through the study area include:

- remains of Juandah Homestead
- Kilburnie Homestead
- Greycliffe Homestead (original site)
- Greycliffe Homestead
- former Mount Larcom Homestead, and
- Langmorn Homestead.

Material remains of pastoralism are likely to include blazed trees, bridle trails, remains of station buildings, woolsheds, fences, stockyards and graves. They may also include material associated with shepherds such as sheep folds, personal belongings, or remains of huts. Archaeological traces of many of the head stations remain, even where the homestead is still intact and previously recorded. Each head station typically contained a homestead, workers cottages, single men's quarters, a blacksmiths shop, a meat house and sometimes a schoolroom (Perry 2005:43).

Closer settlement

Closer settlement schemes were introduced by governments from the 1860s, aimed at breaking up the large land holdings of the squatters. Land Acts from 1860 were intended to increase the number of settlers who could use the land for grazing. Closer Settlement Acts in the 1900s were more specifically aimed at increasing the agricultural potential of the land by expanding beyond beef cattle production, to dairying, wheat, cotton, sugar and fruit growing and market gardening. Some schemes were localised and the timing of their introduction varied across the study area. Some were more successful than others. All of the closer settlement schemes resulted in extensive land clearing.

In the 1860s a Land Act was introduced, aimed at restricting squatters to land that they actually used. Leases were to be stocked and lease size was restricted. In 1868 Crown Lands legislation was enacted that consolidated the leases of individual pastoralists and allowed for a portion of the combined leases to be resumed.

In 1884 the Dutton Land Act was passed, bringing in the first real round of 'closer settlement'. It allowed for the resumption of half of each consolidated pastoral lease, with that half to be divided into smaller grazing selections.

Juandah was subjected to the policy and became a 'surrendered holding'. Part of *Juandah* was surveyed as a town (Wandoan) and part was opened for closer settlement. By 1910 *Juandah* comprised only the homestead and 4,000 acres from the original 63,200 acres acquired in 1847.

In some areas, closer settlement was unsuccessful, for example at Columboola, between Chinchilla and Miles, where the farms were simply too small to support the families who moved there, and neighbouring blocks were eventually amalgamated (Robb 1996:v).

Another round of closer settlement occurred in the 1920s and 30s when once again land was resumed and offered for selection. This coincided with the growth of Wandoan and Guluguba as rail towns. It also coincided with the infestation of prickly pear leading to many people abandon their new selections.

From Taroom through to Miles, closer settlement only really became successful after 1950, when new techniques and machinery made it possible to clear the dense brigalow scrub. New machinery also made it possible to plough in brigalow country.

The 1906 Closer Settlement Act was the first to affect the pastoralists in areas near Gladstone, and was aimed specifically at encouraging a diversification of land use. Soils were not suitable for agriculture in this area and various efforts to grow cotton and sugar cane met with little success. However, those living in Yarwun and Targinnie, settlements that had briefly thrived on gold, adapted to closer settlement by growing tropical fruits (McDonald 1988).

Places associated with the closer settlement are the White Russian settlement at Targinnie, Hay Barn and Milking Yards at Mount Larcom, Kilburnie Homestead, Glebe Homestead, Biloela Butter Factory, and the town of Theodore. Archaeological traces of this closer settlement period include fencing and gates, the styles of which can be linked to specific time periods (Fox 1959:173), as well as remains of farmhouses, and of the new agricultural industries, such as dairies, haybarns, irrigation channels, flour mills, butter factories and cream depots.

Plate 4 Chinchilla Butter Factory under construction in 1910. (Oxley Library)

Gold

The first goldrush in Queensland occurred in 1858 at the Canoona goldfields on the Fitzroy River near *Gracemere* (48km northwest of Rockhampton). Although it turned out not to be a spectacular find, it was a spectacular rush, and quite suddenly brought thousands of prospectors to the Rockhampton area. Forty ships arrived from Sydney and Melbourne.

> *Port Curtis has made a sensation ... It is the topic of all talk, the theme of all discussion … people are madly disposing of their property to be off to Port Curtis [Pearson1858:15]*

Over 15,000 prospectors arrived by ship from Sydney and Melbourne, and overland via the Darling Downs, only to find the claims had been exaggerated and the alluvial leads were soon worked out. Thousands of prospectors were stranded and the Victorian government intervened, sending ships to bring people back. Some stayed on, prospecting in the Gladstone district.

Traces of gold had been found by Captain O'Connell, Government resident at Gladstone, and in 1861 gold was found at Calliope. In 1862 gold was found in the nearby Fitzroy area, centred on Crocodile Creek, 21km west of Rockhampton. Thousands of Chinese miners arrived, many straight from Canton, and it was at Crocodile Creek that the first serious clash between Europeans and Chinese miners occurred. The Europeans attacked the Chinese and destroyed their dwellings. Conflict with the local Aboriginal people also occurred. In 1867 gold was found at Gympie and in 1868 a new major rush began in Townsville, leaving the Fitzroy field abandoned (Hasluck 1971 (6):1091,1094).

In the Gladstone hinterland there were numerous goldfields including Calliope, Cania, Tablelands (Barmundoo) and others, with major finds at Mount Morgan (north of the study area) and Many Peaks (south and east of the study area). Copper was found at Kroombit.

Gold was the reason for many towns, not always on the goldfields. A lagoon where Banana is now located, was at first a stopping place for those who had travelled overland to the Canoona goldfield. Traders accumulated to service the traffic and it eventually became a town. (Perry 2005:45)

Gold was found at Raglan in 1867 and by 1880 was being mined in the Targinnie/Yarwun area, near Mount Larcom. An undated map from the period shows two large goldfields in the area, gazetted as the 'Fitzroy Goldfields'.

In 1901 a new reef mine opened on *Targinnie* Station, owned by the Archers of *Gracemere*. It was taken over by a Scottish Company and much gold was recovered. A mine also began at Mount Larcom. Targinnie, Mount Larcom and Yarwun all began as mining towns. Mining flourished until war and the consequent shortage of labour caused all these enterprises to close (McDonald 1988).

Gold was first found in Cracow in 1887 but distractions elsewhere led to it remaining unmined. It was re-visited in 1913, but WWI intervened. In 1931 gold was again found at Cracow by people from Taroom, seeking work during the Depression. This appears to have been the pattern throughout the district, with small finds, a local rush and then abandonment. Gold was found in the Mount Rainbow Goldfield, which includes Mount Buckland and Specimen Hill, and it was a similar story of intermittent success, beginning in 1890 and continuing at times throughout the final years of the 19th Century.

There is evidence of gold prospecting and mining across a wide area of the regions traversed by the pipeline. The locations of some mining leases has been mapped (for example Perry 2005:87), however the location of individual gold mining sites is difficult to predict, and may not always correspond to a lease. Goldfields were exploited widely and often briefly before being abandoned. Gold was recovered from both reefs and alluvial gravels, so mine sites are located both in the ranges and hills (where the gold reefs were found) and the rivers and creeks into which the alluvial gold was washed.

There are many sites associated with gold mining through the northern regions traversed by the proposed pipeline alignment. These include:

- Cania Gold Field, Barmundoo Gold Field
- Mount Rainbow Gold Field
- Maxwellton Gold Field
- Mount Bennett Gold Field
- Targinnie Goldfield
- Targinnie School
- Targinnie Cemetery, and
- Cracow Gold Field

Archaeological traces of gold mining include mineshafts, mullock heaps, processing sites (stamper batteries) and mining camps, along with sites in the associated mining towns established on level ground near the diggings. Prospecting areas, mines and associated camps and townships will all contain significant sites.

Coal

Coal seams were exposed by low water levels in the Dawson River near Baralaba during a lengthy drought in the early 1900s (Perry 2005). This led to the development of the Dawson Colliery (a site now nominated for inclusion on the Banana Local Heritage overlay). Coal was also found in Kroombit station on the right bank of Callide Creek (McDonald 1988:316). In the 1960s coal mining began at the Callide mine near Biloela, and now comprises three mines, a power station and dam.

In 1961 Gladstone began its present industrialisation because of coal mining in the Moura/ Kiangra area. Rail from the Moura mines connected with port facilities at Gladstone, ushering in the present era of a modern, industrialised Gladstone.

The Dawson Colliery is located just outside the pipeline study corridor. It demonstrates both the underground and surface features of a coal mine. Other major sites located in or around the study area are the Moura Mine, the site of the closed Kiangra mine, both situated south of Banana, and the Callide Coal Mine and Power Station with associated dam northeast of Biloela.

Many of the traces of early mining at the working coalmines have been obliterated by subsequent mining. Some features will remain and are worthy of protection. This includes the early rail network built to transport the coal to the coast for export and to fuel power stations.

Rail

The importance of the railway and influence on regional development can be seen at several places along the pipeline corridor. At the southern end of the pipeline, the Great Western line was built to speed access to eastern markets for graziers west of the Darling Downs. The train reached Dalby in 1868, Chinchilla and Miles in 1878. The branch line from Miles to *Juandah* was built in 1913.

The size of each town in the brigalow belt is determined in large part by its access to rail, for example Miles has the poorest soil but is the biggest town, being on the main Western rail line and at the junction with the Wandoan line, whereas Taroom suffered from being distant from the Wandoan railhead. Although Wandoan was annexed from *Juandah*, it was the arrival of the railway that led to the town thriving. With the decline in the importance of railways for transportation, so too has Wandoan.

The initial choice of Rockhampton as a railhead over Gladstone, slowed development in Gladstone for many years. When an extension from Rockhampton finally reached Gladstone it opened up the port to exports. The event that completely changed Gladstone into a thriving industrial port was, however, the construction of a rail link from the coalfields at Moura. (McDonald 1988)

Significant archaeological traces of the railway throughout the study area include abandoned railway stations, sawmills, fettlers' huts, and the site of railway settlements, as well as abandoned railway lines.

Prickly pear

Prickly pear or common pest pear (*Opuntia stricta*) was introduced into Australia from the Americas in the early 1800s, as a drought stock fodder, or according to some by Matthew Goggs of *Chinchilla* Station as a garden ornamental. Without natural enemies and in a favourable climate, it spread rapidly, and for many years made the land unusable. By 1879 it had begun to spread widely and by 1895 it was declared a noxious weed in Queensland. By 1920, 60 million acres (243,000 km^2) was unusable and this was spreading by 1 million acres (4,000km^2) annually.

> *The 1920s and early 1930s was a period of declining population (in many of the brigalow belt towns). The problem of dense prickly pear cactus infestation of brigalow land had assumed grave proportions. [Dick 1960:11]*

People around Wandoan and Chinchilla abandoned their selections and many families moved from the area. The infestation was almost total and though new settlers were offered land, on the condition they clear the pear, it was an impossible task.

In 1924, Alan Dodd was in control of an experimental research station ('The Bug Farm') on a property known as *The Shanti*, west of Chinchilla. Dodd as head of the biological control section of the Queensland Lands Department travelled to Argentina and brought back 3,000 *Cactoblastis* eggs. They were bred successfully and trialed in facilities in Brisbane and Chinchilla. In 1932 the Prickly Pear Land Commission reported that the problem had been solved. The control of the pear resulted in an almost magical transformation of the landscape and to the lives of the settlers. Those who had stayed reaped the rewards of their newly productive selections. The Chinchilla Cactoblastis breeding station was crucial in this process.

War and Depression

Just as prickly pear was coming under control, came the Great Depression and World War II. During the Depression, residents of Taroom went looking for work and instead found gold at Cracow.

During World War II, labour shortages led to the collapse of the mining industry and problems for agriculture. American soldiers camped at Gladstone showground and the Australian Women's Army disembarked at Gladstone for service in rural areas. A compound was set up at Biloela, and they picked cotton on the surrounding farms (Perry 2005). An American Services contingent stayed at Columboola and loaded ammunitions onto trucks from an ammunitions dump situated there. At the time a watchtower was built nearby (Robb 1996:133,135).

After World War II, the introduction of greater mechanisation in farming transformed the country, particularly brigalow country. Slow and labour-intensive ringbarking stopped and wholesale clearing using bulldozers and stick rakes took over (Hando 1994). This allowed more widespread forest clearing and cultivation of previously forested areas. This also resulted in the destruction of historical archaeological sites associated with the old pastoral stations.

Wandoan was an important centre for soldier settlement, as was Mount Larcom. Many small holdings were taken up at the time, with small, weatherboard cottages built on their land. It became apparent that these small holdings were uneconomical and many were abandoned, with the land being reincorporated into neighbouring properties.

The beginnings of Gladstone

While Leichhardt was exploring the inland and the first of the 'pastoralist explorers' were moving north from the Darling Downs, Port Curtis was being planned as a penal settlement. In January 1847, George Barney and an advance party of seventy-nine people, including women and children, sailed to Port Curtis to establish the settlement. Their ship ran aground and they set up camp on Facing Island. While they waited for a second ship to transfer them to the mainland, news that transportation had ended came from the Colonial Office and the party was recalled.

In 1853 Francis McCabe was sent to survey the new town of Gladstone. It was to be a government residency as Gladstone was to be the administrative centre for a new colony of 'North Australia', which was to take in the northern part of New South Wales, the future Queensland and most of the future Northern Territory. Maurice O'Connell arrived to take over the running of the town but he too, was recalled, in 1859, when Queensland became a separate colony, administered from Moreton Bay. A Government residency for the mooted 'North Australia' was no longer required. Gladstone's population reached 200 but had already declined, as a year earlier, in 1858, gold was discovered at Canoona near the Fitzroy River and the action quite suddenly moved from Gladstone to Rockhampton. Thousands of diggers sailed from Sydney and Melbourne to the new goldfields at Canoona, and Gladstone people joined the rush.

There are a number of heritage places in and around Gladstone that date from the early years of settlement. Two heritage studies (Allom Lovell 1999 and McDonald 2001) have identified these and some have been listed on the Queensland Heritage Register or on the local heritage list included in the Gladstone planning scheme. The list includes significant heritage buildings as well as graves and historic campsites.

Navigation of The Narrows

The Narrows, the channel separating Curtis Island from the mainland, has a history dating from the earliest period of European contact. Matthew Flinders travelled it from north to south but mentions only the swarms of mosquitoes (McDonald 2001). When Rockhampton became the centre of a short-lived goldrush, many prospectors travelled by boat through the Narrows on their way to the goldfields. Small vessels ran aground and crew members were speared searching for water. The channel is of varying depth and subject to high tidal variation, so that boats still need safe anchorage to wait out the tide. The entrance to Graham Creek is one such safe anchorage (McDonald 2001). An early description of the Narrows reads:

> *(The Narrows has) ample depth and scope for the passage of large vessels, save at one spot, where a natural causeway of rock supplies a ford which cattle can cross at low water, and consequently bars the channel against shipping. Voyagers are thus compelled to submit to a long detour by the exterior of the island, skirting the ocean marge of its rugged and mountainous length. [cited in Traill 1980:84]*

Colin Archer, the earliest squatter in the Fitzroy River district, regularly navigated the Narrows from 1855, sailing stores north to Rockhampton in the *Ellida* and backloading wool to Rockhampton for shipment to Sydney (McDonald 2001:24). The channel was beaconed in 1867. In 1890 and again in 1896 attempts were made to dredge it (Lucas 1994:103). It was eventually cleared by hand so that a regular steamer, the *Miner*, could maintain communication between Gladstone and Rockhampton.

The Narrows was used to transport timber felled on Curtis Island, and numerous small sawmills operated near Gladstone. Logs were loaded on barges in Ramsey Creek, three kilometres from the Narrows (McDonald 2001:42). The wrecks of four barges, used to transport timber, are still in the Narrows, two on Curtis Island, at the entrance to Pacific Creek (Sea Hill) and near the entrance to Graham Creek (northern bank), the other two on the mainland shore, one in Targinnie Creek, the other on Friend Point, opposite Laird Point. The barges are sites of local heritage significance.

The proposed pipeline will cross The Narrows between Friend Point and Laird Point on Curtis Island. It is possible that relics of the early maritime history survive in this area. No definitive reports of extant submerged wrecks, nor anecdotal evidence from fishermen or local commercial divers (personal communication), that there might be submerged wrecks have been obtained for the area.

Curtis Island pastoralism

The first cattle station registered on Curtis Island was *Monte Christo,* which took up almost the entire island. It was registered in 1862 but indications are that it was first stocked in 1858 (Praed 1890:11). Novelist Rosa Campbell Praed went there after her marriage in 1872. When Campbell Praed's husband purchased the property, half was resumed.

> *The greatest part of the island was merged in a large cattle station … and the remainder comprised the pilot station above mentioned, and an extensive tract of land formerly appropriated by the government for a mission station for conversion of aboriginals, but never used for that purpose … at that time, except the huts at the pilot station and the owners residence [at the cattle station] there was not a habitation upon it. [Praed 1890:11]*

In 1916 part of the Monte Christo run was resumed for closer settlement and was sub-divided. New lots were made available for selection in 1918 and by 1920 most blocks had been taken up. The farmers who took up these blocks were mostly growing crops such as bananas, and several dairy farms existed.

Monte Christo remains in the northern part of the island. Cattle were, and still are walked across The Narrows to Gracemere saleyards.

Several heritage places and sites, relating to the pastoral phase of settlement, are known from Curtis Island. None are on legislated heritage lists, although McDonald (2001) identified these in her review of the heritage resources of the Curtis Coast. McDonald ascribed State or Local significance to some of the sites, including *Monte Christo* Station, although they have not been listed.

While the pastoral industry expanded onto Curtis Island, shipping activity along The Narrows increased, leading to maritime misadventure and loss of shipping. Curtis Island, while providing the cattle needed to feed the rapidly increasing population on the mainland, remained isolated. Unlike parts of the adjacent mainland, Curtis Island had no part in the huge historical themes of gold rushes, the Chinese and the major conflicts with Indigenous people that occurred at the goldfields.

3.2 Known non-Indigenous heritage sites

Site information includes sites listed on Commonwealth, National and State heritage registers, and local heritage lists. Local heritage sites are sometimes included in a local heritage register or else a heritage overlay or schedule of historic cultural places used in local planning schemes. The National Trust of Queensland lists additional sites; others are identified from local histories, previous heritage surveys, conversations with local people, and preliminary fieldwork carried out for this review.

Field investigations were conducted in the vicinity of Miles, Cracow, Biloela, Callide Range, Mount Alma, Targinnie, Friend Point and Curtis Island. Much of the activity was confined to road reserves in the southern portions of the proposed pipeline alignment, although detailed field inspections were undertaken in forests near Cracow and the Callide Range, where land access had been approved. No non-Indigenous sites were detected as a result of these field studies.

More intensive investigation was undertaken in the area around Port Curtis. A water-based survey took place around the coastline of Friend Point and in Graham Creek. A number of items of non-Indigenous heritage were identified and these are documented in this report. A land-based survey of portions of the proposed pipeline alignment at Laird Point was undertaken, leading to the documentation of several heritage sites on Curtis Island.

3.2.1 Registered sites of Commonwealth, National and State Significance

Sites in this category include those registered on Commonwealth, National and State heritage lists. These are contained in the Australian Heritage Places Inventory, and associated contributing lists: the World Heritage List, National Heritage List, the Register of the National Estate, and the State Heritage Register.

Within the pipeline corridor the Great Barrier Reef is registered on the World Heritage List. Only one site listed on the State Heritage Register was located in the 10km wide pipeline corridor. This is the Kilburnie Homestead site, located near Biloela (Table 2). The homestead site is situated 2.2km to the north of the proposed pipeline alignment, although the boundary of the property on which it is found is approximately 300m from the proposed alignment.

Table 2 Sites on National and state heritage lists

Site Name	Location (Proximity to pipeline alignment)	Source	Description
Great Barrier Reef World Heritage Area	Crossed by pipeline within the GSDA Common-user Corridor	World Heritage List, indicative listing on both the National Heritage and Commonwealth Heritage lists, and Register of the National Estate	Curtis Island (World Heritage Land) and surrounding waters (World Heritage Marine)
Kilbirnie Homestead	531 Argoon-Kilburnie Road Jambin, near Biloela (2.5km north of the proposed pipeline alignment)	Queensland Heritage Register, Register of the National Estate	Scotsman John Campbell arrived in 1873 to work as overseer on Dumgree station. He later acquired a flock and took up a selection that had been part of Dumgree and named it Kilburnie. (Perry 2005:39). The complex includes the in situ house built in 1903, a prior house used as a separate kitchen wing, fencing, sheds and gravesites. The site relates to early pastoral station life and to the resumption of portions of stations as smaller selections, and includes association with generations of the Campbell family.

3.2.2 National shipwrecks database

Under sea pipeline construction may impact on maritime sites, including shipwrecks. There have been a number of shipwrecks in the Gladstone Harbour – Curtis Island area. Most are not in the area between Gladstone and Curtis Island, however, the possibility for wrecks must be considered. Known wrecks in the Gladstone area include the following, although the precise location of wrecks is not always known. Some of these vessels were repaired and remained in service, although items from these vessels may have been lost overboard. Shipwrecks more than 75 years old gain automatic protection under the *Historic Shipwrecks Act,* 1976. Wrecks on the National Shipwreck Database from the Port Curtis area include a number lost around Curtis Island. These are listed in Table 3 and their locations are mapped in Figure 1, Map 1, with information on the vessels obtained from the National Shipwreck database and Loney (1993).

Several additional shipwrecks to those registered are known from research conducted by the Gladstone Maritime Museum. These are not of sufficient age to have gained automatic protection under the Shipwrecks Act, although they are of local heritage value. The vessel details reported from this region are listed in Table 4.

3.2.3 Sites of local or regional heritage significance

Sites listed in local heritage registers and schedules to local environmental planning schemes, those listed by the National Trust of Queensland and others recorded in local histories and heritage studies are listed below in Table 5. In some cases references to sites have been found, but their exact locations are unknown. Detailed field inspection will take place along the pipeline alignment prior to construction, to ensure that none of these sites are located nearby. Proximity to the proposed pipeline alignment has been calculated for all known sites.

Table 3 Shipwrecks protected under the Historic Shipwrecks Act, 1976 in and around Curtis Island

Shipwreck Id	Name	Type	Date wrecked	Where wrecked	Description
5401	Jenny Lind	Schooner	12.9.1862	Seal Rocks near the southern entrance to Port Curtis	The vessel was attempting to enter Port Curtis by the South Passage and not the North Passage, the normal route. It ran aground on Seal Rocks off Hummock Hill Island. The crew abandoned the vessel. It was carrying a load of grain and produce, most of which could be salvaged. The vessel was refloated.
5474	Duke of York	Barque	13.8.1837	South of Facing Island	Wrecked when returning to Sydney with 300 barrels of whale oil. The crew reached Moreton Bay and were transferred to Sydney in late September. The Duke of York had on board the crew of the wrecked schooner 'Active' rescued off Fiji. Two of the crew were killed on Fraser Island by Aborigines.
5506	Lord Auckland	Barque	25.1.1847	Port Curtis (Gladstone)	Sailed from Sydney to found the new settlement at Port Curtis, but grounded on Facing Island on 25 January 1847. She was refloated but was severely damaged. Several shipwrights left Sydney in the cutter George, and she was repaired sufficiently to sail back to Sydney. Further repairs again saw her fully operational.
5566	Sable Chief	Brigantine	17.12.1856	Sable Chief Rocks off Facing Island	Built on the Manning River, this vessel was sailing from Rockhampton to Glasgow, when it foundered on the rocks off Facing Island. The crew saved bales of wool. No lives were lost although the ship was lost.
5577	Timandra	Barque	23.10.1858	Sea Hill Point, Keppel Bay	Built in Sunderland, England in 1843. 301 tons displacement, 105 crew, wrecked at the northern end of Curtis Island.
5615	Loda	Barque	19.2.1866	Wreck Reef off Cape Capricorn	Damaged in a cyclone near Bampton Shoals and adrift. Ship was abandoned by the crew near Wreck Reef who then set off for Hervey Bay. Debris from the vessel washed ashore at Cape Capricorn. (Loney 1993).

Shipwreck Id	Name	Type	Date wrecked	Where wrecked	Description
5638	Prince Regent	Barque	20.8.1869	South Trees Point/Gladstone	Used as a whaling vessel in the late 1840s and early 1850s out of Hobart. Beached while loading cattle and could not be refloated. Relics in Gladstone Maritime Museum.
5707	Scottish Knight	Barque	10.1.1880	South Trees Inlet	The Argus (Melbourne) of 11 March 1880 makes mention of the sale of the wool clip salvaged from the wrecked vessel.
5717	Sarah Cooper	Schooner	3.2.1881	Bustard Bay	Vessel of 30 tons displacement, washed ashore in Bustard Bay and was wrecked.
5771	Terrigal	Ketch	23.8.1887	Off Round Hill, Gladstone.	Built in Terrigal in 1870, 22 tons gross displacement.
5861	Glanworth	Steamer	26.1.1896	Gatcombe Head	Struck rocks off Settlement Point. Crew rescued from Gatcombe Head.
5871	Violet	Ketch	23.2.1896	Cape Capricorn	After losing sails in gale was washed up in lee of Cape Capricorn and was totally wrecked.
6042	Lady Darling	Cutter	26.3.1866	Bar of Jenny Lind Creek	The vessel was moored in Jenny Lind Creek when the lines holding it broke and it was washed onto the bar. It broke up in several days.
6050	Lombard	Barque	7.3.1867	Between Gladstone and Indian Head	Originally operated in Victorian waters in the 1860s. Departed Gladstone with a load of cattle for New Zealand on 7 April 1867 and disappeared. A week later dead cattle were sighted near Indian Head, followed by pieces of the vessel near Port Macquarie, NSW.
6053	Live Yankee	Cutter	1.1.1868	Jenny Lind Creek	Foundered while crossing the bar at Jenny Lind Creek. One man was swept overboard and drowned.
6062	Capricorn	Cutter	7.10.1870		The Capricorn left Bustard Head with a cargo of timber and struck the East Banks south of Gatcombe Head. The crew clung to wreckage for 6 hours before being rescued by the pilot boat under the

Shipwreck Id	Name	Type	Date wrecked	Where wrecked	Description
					command of Pilot Jansen.
6079	Florence Irving	Steamer	1877	Ship Rock, Cape Capricorn	Struck Ship Rock. Little is known of this wreck, and is often confused with a vessel of the same name that was wrecked off NSW. Courier Mail reports mail times for this vessel the previous year (20 April 1876).
6112	Eliza		1.9.1868	Between Gladstone and Mackay	No
6313	Moonta	Schooner	7.2.1899	Gatcombe Head	The vessel drifted onto rocks at Gatcombe Head. A board of enquiry determined that the master of the ship was blame.
6377	Myee	Motor Vessel	1.1.1915	Gladstone	Little is known of the fate of this vessel.

Table 4 Recent shipwrecks in the Port Curtis region

Name	Type	Date wrecked	Where wrecked	Description
Director II	Schooner	18.10.1940	Gatcombe Head	Lost near Gladstone.
Barbara	Pilot Boat	March 1948	Gladstone	Lost in a Cyclone in 1948 off Gladstone
Una	Fishing Vessel	1956	Graham Creek	No details known (Personal communication Danny Aeschlimann)
Joy Bird	Racing sloop	1.10.1958	2.3km north east of Cape Capricorn	Concrete hull, submerged in 20m of water.
Moorah	Scallop trawler	12.9.1970	Gladstone, towed to Tide Island and beached	Caught fire at wharf in Gladstone and the hulk was towed to Tide Island. 294 tons. (Personal communication Danny Aeschlimann)
Bindaree	Fishing trawler	1970s	East of Curtis Island	55' long timber fishing trawler that sank in heavy seas 9.3km northeast of North Point.

Name	Type	Date wrecked	Where wrecked	Description
Linda Jane	Fishing trawler	1996	East of Hummocky Island	This timber fishing trawler sank in 1996 in approximately 35m of water approximately 10nm off Hummocky Island.
Melissa	Scallop trawler	1990	East of Cape Capricorn	Timber scallop trawler that caught fire and burnt to the waterline while fishing off Curtis Island. In 32m of water.
Moreton Star	Fishing trawler	October 2000	East of Facing Island	A 50' (15m) timber trawler that sank in 20m of water while returning from fishing the local reefs.
Nautilus	Barge	1928	27km east of Facing Island	160' (49m) barge with 300 ton displacement. The barge sank while being towed to Brisbane for scrapping.
Red Dolphin	Yacht	1982	16km east of Facing Island	A 30' (10m) yacht that sank in 28m of water while being towed after suffering engine failure.

Table 5 Non-Indigenous heritage sites of local significance located near the proposed pipeline alignment

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
Cracow district sites			
Camboon Homestead and Station Site	Camboon – Crowsdale Road (1.8km west of proposed pipeline alignment)	National Trust reported site	The original lease for Camboon was taken up by James Reid in 1856.
Calliope river sites			
Mount Rainbow Goldfield	A small field (14 square miles) including Mount Buckland and Specimen Hill at the headwaters	Geological Survey of Queensland 2009	Gold was discovered in the field in 1890 (The Brisbane Courier 16 July 1890) and mines were initially operated by the Goldsmith Company (Lees 1899:9). The early miners did not meet with much

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
	of Collards Creek, on the southern slopes of Callide Creek. (Approximately 1.4km to south of proposed pipeline alignment)		success (The Brisbane Courier 21/4/1891). The Mount Rainbow Company brought a stamper battery to the field in 1891. In 1892 reports suggested the field was no longer productive [The Brisbane Courier 12 April 1892] however it continued for several years.
Stone pitching	Located on old road. (120m south of proposed pipeline alignment)	Personal communication J.W. Harris	Provides evidence of old road construction in the district.
The Mole Hill	A prominent landmark located by the old bullock track to Gladstone. (900m to west of proposed pipeline alignment)	Personal communication J.W. Harris 1973 Survey Map 9049 Biloela Provisional Edition	A teamster was attacked by Aboriginal people and killed. His clothes, including a red shirt, were stolen. An Aboriginal man wearing that shirt was later caught (Mount Redshirt is found 4.4km to the northwest). After the attack, the road was moved to the present alignment.
Mount Alma Homestead	Located 6km north of the Dawson Highway, off Mount Alma Road. (1.5km north of proposed pipeline alignment)	National Trust of Queensland	An early pastoral run with a long association with one family, a portion of the Calliope run, which began as a sheep run but moved to cattle. A series of structures, stock yards and dip
Mount Larcom Goldfield	North of Mount Alma Crossing	Geological Survey of Queensland Personal communication J.W. Harris	Provisional mining field, although it may have been incorrectly mapped and gazetted, and rather lies around Cedar Vale 7km to the west, where there are numerous traces of early mining.
Mount Larcom sites			

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
Former Mount Larcom Homestead	Lot 2 on SP147877 (550m north of proposed pipeline alignment)	McDonald 1988, 2001, Archaeo Cultural Heritage Services 2007, Connell Hatch 2008, CQCHM 2009, CQCHM 2009 Site 39	There is little evidence of Mount Larcom Homestead except for outlines of the foundation and some ornamental species (eg bougainvillea tree). 'The old homestead, flanked by its six early graves, was still occupied in 1924' (McDonald 1988:272).
Mt Larcom Station Shepherd's hut	Lot 2 on SP147877 (850m north of proposed pipeline alignment)	Personal communication J.W. Harris	A shepherd's hut site and possible grave near Larcom Creek. Traces of the hut may remain.
Targinnie sites			
Targinnie Landing	Targinie Creek (near proposed pipeline alignment)	McDonald 2001	The original Crown lease of Targinnie Station was taken up in 1855 by Richard Palmer. A berthing slipway was cut through the mangroves to bring goods to the station. The location can still be discerned, although the mangroves have regrown.
Humpy Creek slipway	Humpy Creek, a tributary of Targinie Creek (near proposed pipeline alignment)	McDonald 2001:49	This slipway was used for loading timber and berthing boats.
Timber barge	Targinie Creek (near proposed pipeline alignment)	Survey Australia Pacific LNG 2009	This barge has been described by local residents as located in Targinie Creek, although it was not found during the field survey. Associated with the timber industry.
Timber barge	Friend Point (near proposed pipeline	Survey Australia Pacific LNG 2009	This barge was described by local residents, although no traces could be found during a survey of the area. Associated with the

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
	alignment)		timber industry.
Targinnie Goldfield (part of Langmorn Goldfield)	Around Targinie settlement (4.1km south of proposed pipeline alignment)	McDonald 2001, Geological Survey of Queensland 2009:79	Gold was found on Targinnie Station in 1900 by a koala shooter. A syndicate was formed by Edward Archer and the Archer Reef mine. The field was proclaimed in 1901 and in the same year the mine was producing with a trial crushing of 5 tons averaging more than 3 ounces of gold to the ton. The mine was sold by the Archers in 1907 and it was being worked until 1916. In 1928 the mine was again in operation (McDonald 2001:49). Numerous reefs were worked for gold, but no great depths attained.
Targinnie School (Early)	Targinie (4.9km south of proposed pipeline alignment)	McDonald 2001	A provisional school was established in the Targinnie township in 1903, to educate children of miners working the Archer Reef. When the mine closed, the school and businesses in the township closed. A new school was opened in 1923 when closer settlement brought prosperity with the production of fruit, until 1968, when children were required to attended school in Gladstone (McDonald 2001:50).
Curtis Island sites			
Graham Creek	Curtis Island (600m north of proposed pipeline alignment)	McDonald 2001	Graham Creek is considered locally significant as an historically important place of safe anchorage at low tide.
Timber barge	Graham Creek (1.07km north of proposed pipeline alignment)	Survey Australia Pacific LNG 2009. Personal communication Danny Aischlaman.	This timber pontoon is located on the northern bank of Graham Creek. It has a timber deck and is supported by pontoons. The pontoons were originally protected by a copper skin, although this was reportedly salvaged in recent years.

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
Jetty	Laird Point (700m north of proposed pipeline alignment)	Survey Australia Pacific LNG 2009	This wharf is located on the southern bank of Graham Creek, on the bank are six uprights and five large beams are completely submerged a short distance to the east.
Timber fences	Laird Point (crossed by proposed pipeline alignment)	Survey Australia Pacific LNG 2009	This fenceline comprises split ironbark posts with hand-bored holes to accommodate three strands of wire.
Price family house site	Laird Point (near proposed pipeline alignment)	Personal communication J.W. Harris	This house was occupied by the Price family, a family with 14 children. They lived in a house on a low rise overlooking Graham Creek. When visited approximately 40 years ago, the location had a brick-lined underground tank and posts (Personal communication J.W. Harris)
Grave	Laird Point (near proposed pipeline alignment)	Personal communication J.W. Harris	This is the grave of William Alfred Price, who died aged approximately 15 months on 15.1.1905, during a cyclone. The child had been ill and due to a cyclone, the family had been unable to transport him across the Narrows to get medical assistance. The child was buried near the house site. Laird Point (Personal communication J.W. Harris)

3.2.4 Review of Existing Heritage Reports

Allom Lovell 1999 Gladstone Cultural Heritage Study

In 1999 Gladstone City Council and the Environmental Protection Agency undertook the 'Gladstone Cultural Heritage Study'. Allom Lovell, wrote a history of the area and identified 111 heritage sites, primarily within Gladstone. Gladstone Council was advised on heritage planning as a result of the study. Allom Lovell describe the heritage of Gladstone as primarily one of late 20th century places overlying an early 19th century form, and describe their 'list' as an ongoing process of identifying places of importance to Gladstone. Apart from sites already on the Queensland Heritage Register all sites identified were considered to be locally significant.

McDonald, L. 2001 An overview of the historical cultural heritage resources of the Curtis Coast

McDonald supplemented the Allom Lovell Study, looking more broadly at the Curtis Coast. She documented the local history and consulted with local people. She documented 65 additional sites in this process and assigned recommended levels of significance. Because of the work of Allom Lovell (1999) and McDonald (2001), a more comprehensive list of local heritage sites has been prepared for the Gladstone area than for any other portion of the proposed pipeline alignment.

Archaeo Cultural Heritage Services 2007 Gladstone – Fitzroy Pipeline Project Environmental Impact Statement.

This pipeline was to connect water from the Fitzroy River, north of Gracemere, to Gladstone, and overlaps with the current study area in a line Raglan-Yarwun-Gladstone. The Cultural Heritage report for the Gladstone- Fitzroy Pipeline provides a detailed history of the local area, identifies registered sites, and reports on results of a field survey. Two locally significant sites were identified in the Raglan area (HAS1, a survey tree, and HAS3, a Stone Culvert and Twelve Mile Road). One locally significant site was identified in the Yarwun area (HAS4, a survey tree). Four places of historic interest were also noted and mapped: a historical dump in the Raglan area, and a house and windmill near Yarwun. Mining traces have been found on private land near Yarwun but its location has not (Loveday 1979 cited in Archaeo 2007:598).

The Twelve Mile Road identified in this study may have relevance to the current project. It is a well-maintained gravel road, built in 1904 as the main road between Gladstone and Rockhampton. Elements of this road, for example the stone culvert, retain historic value. The proposed pipeline alignment crosses this road route.

Archaeo Cultural Heritage Services 2009 Non-Indigenous Heritage Investigation for the Gladstone LNG Project.

This study is part of the EIS for the GLNG Pipeline Project. The GLNG route takes on a similar alignment to the Australia Pacific LNG proposed pipeline alignment between Biloela and Curtis Island. The report records results of a field survey along the route. Sites and locations of historic interest identified from this source, which have relevance to the Australia Pacific study area are: three sites near Biloela (Former Dudarcho Homestead and two survey trees), and three sites near Calliope (Hazel Dean Homestead and two survey trees).

Connell Hatch 2008 Queensland Rail Moura Link - Aldoga Rail Project

The geographical area involved in this study is Yarwun to Mount Larcom and Mount Larcom to the Moura Rail Link. Connell Hatch note five previously unrecorded non-Indigenous heritage sites. These are the former Mount Larcom Homestead, Mount Larcom massacre site, Euroa Station and Yards, Milking Yards and Hay Barn, all in the vicinity of Mount Larcom.

Connell Hatch 2009 Surat Basin Rail Project. Environmental Impact Statement, Non-Indigenous Cultural Heritage Section

This is part of the EIS for the Surat Basin Rain Project. It is a list of registered sites in the area. Note is made of one significant site not listed on any of the registers, that is Juandah Homestead, and a detailed record of this site is provided.

Central Queensland Cultural Heritage Management Pty Ltd) 2009 Non-Indigenous Cultural Heritage Impact Assessment Study for the Surat Gladstone Pipeline Project

This assessment is part of the EIS for a pipeline from near Kogan to Fisherman's Bend north of Gladstone. The route follows an approximately similar alignment to the Australia Pacific LNG proposed pipeline alignment, though in the main is offset to the east. Twelve new sites were identified. Two sites identified from this source, which are near the Australia Pacific LNG project area are the 'Defence Road' between Theodore and Camboon, and a non-Indigenous midden site near Gladstone.

A field survey of the proposed route identified 40 previously unrecorded non-Indigenous heritage sites. These include European scarred trees (3), gravesites (5 locations), stone bridges (12), homestead remains (2), stockyards and yards (5), Chinese shepherds sites (2), sleeper cutters camp, shooters camp, machinery dump and schools or school remains (2). Further sites of these types are also likely to occur along the Australia Pacific LNG proposed pipeline alignment.

The sites identified in these various heritage studies are listed below in Table 6.

Table 6 Sites identified in regional heritage studies and located near the proposed pipeline alignment.

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
Wandoan district sites			
Corrugated iron shed	On northern side of Roche Creek Road, on the edge of the State Forest. (200m west of proposed pipeline alignment)	CQCHM 2009 Site 14	A hardwood timber framed shed with corrugated iron roof and eastern and western walls. The shed is divided into two rooms by a half wall running east –west. The southern room contains a hardwood bench. The northern room is open and has a raised tongue and groove wooden floor. Various tools and pieces of machinery are found in the shed.
Cracow district sites			
Cockatoo School	On rise, to west of Ponty Pool Road (900m east of proposed pipeline alignment)	QCLNG 2009 Site 15	This suite of buildings includes a weatherboard and steel clad school building with corrugated iron roof and a shelter annex, a demountable toilet block, corrugated iron clad shed next to a synthetic tennis court, play equipment and a teacher's residence. The buildings appear to date from the 1960s or 1970s.
Rubbish Drain Site	In erosion gully on Nine Mile Creek adjacent to Red Range Road. (120m east of proposed pipeline alignment)	CQCHM 2009 Site 16	Historical rubbish exposed in a roadside drain, including corrugated 35galvanized iron, hoop iron, older style beer stubbies, older style crown seal long neck beer bottles, crockery, petrol or kerosene tin pieces and plain glass bottles.
Defence Road	Pipeline route runs parallel to this road for approximately 23km from near the Eidsvold Theodore Road to near Camboon Station.	CQCHM 2009 QCLNG 2009	This comprises a series of timber and stone bridges located along Defence Road, between Theodore and Camboon, built by the Civil Alien Corp in 1943, following the 1941 attack on Pearl Harbour. The road was upgraded to provide an inland link to North Queensland should it be required.

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
	(Parallels proposed pipeline alignment and crosses road once, south of Horse Creek)		
Ross Creek Stone Bridge	Defence Road 2.3km north of junction with Eidsvold – Theodore Road. (2.7km to east of proposed pipeline alignment)	CQCHM 2009 Site 33	This bridge comprises dressed stone and concrete abutments, but no central pylon. It is approximately 10m in length. Although the timber deck remains in situ, it is not the original. The bridge remains in use.
Fraser Gully Stone Bridge	Defence Road 4.3km north of junction with Eidsvold – Theodore Road. (1.5km east of proposed pipeline alignment)	CQCHM 2009 Site 32	This bridge comprises dressed stone and concrete abutments, but no central pylon. It is approximately 20m in length. Although the timber deck remains in situ, it is not the original. The bridge remains in use.
Grants Creek Stone Bridge	Defence Road 10.3km north of junction with Eidsvold – Theodore Road. (280m west of proposed pipeline alignment)	CQCHM 2009 Site 31	This bridge comprises a single dressed stone and concrete pylon and similar abutments. It is approximately 20m in length. Although the timber deck remains in situ, it is not the original. The bridge remains in use.
Cracow Creek Bridge	Defence Road 11.5km north of junction with Eidsvold – Theodore Road. (90m east of proposed pipeline alignment)	CQCHM 2009 Site 30	This bridge comprises two dressed stone and concrete pylons and similar abutments. It is approximately 30m in length. Although the timber deck remains in situ, it is not the original. The bridge is no longer in use.
Cracow Creek Bridge Camp	Defence Road 11.7km north of junction with Eidsvold – Theodore Road. (30m west of proposed pipeline alignment)	CQCHM 2009 Site 29	The construction camp is found on the eastern side of Defence Road and approximately 200m north of the Cracow Creek Bridge. It contains debris associated with bridge construction, ceramic and glass shards.
Horse Creek Stone Bridge	Defence Road, 21.5km to north of Eidsvold – Theodore Road. (230m	CQCHM 2009 Site 28	This bridge comprises two central pylons, made from local stone set in concrete. The original bridge would have been

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
	west of proposed pipeline alignment)		approximately 30m in length although the original deck is no longer present. Substantial, rusted steel bolts, originally used to attach the deck timbers remain in situ.
Delusion Creek Stone Bridge	Defence Road, 4.44km to south of junction with Camboon – Crowsdale Road. (440m west of proposed pipeline alignment)	CQCHM 2009 Site 27	Bridge is approximately 40m in length with two local stone pylons. Decking timbers have been replaced.
Stone Bridge	Defence Road, 1.45km to west of junction with Camboon – Crowsdale Road. (4.2km west of proposed pipeline alignment)	CQCHM 2009 Site 26	This bridge is approximately 60m in length and has the original decking timbers. It is currently unused. This bridge has a single central pylon made from cast concrete. Substantial rough-dressed timber beams support the timber deck. Precast concrete beams are used on deck.
Biloela region sites			
Former Dudarcho Homestead	Near Kilburnie Homestead (1.8km to north of proposed pipeline alignment)	Archaeo Cultural Heritage Services 2009 (HAS-09)	Remnant features of the early pastoral period of sheep holdings, prior to the change to cattle.
Hazeldean homestead	Near Calliope Crossing (1.4km south of proposed pipeline alignment)	Archaeo Cultural Heritage Services 2009 CQCHM 2009 Site 35	This homestead complex represents various phases of continuous operation from the 1890s to the present, under the ownership of the Farmer family. The original house was timber slab (no longer evident). The earliest remaining fabric is a gabled weatherboard structure now used as a kitchen. Initially (1900s to 1950s) operated as a dairy, and since as a cattle property.
Hazeldean Graves	Near the Mount Alma Crossing, 1.8km north of the Dawson	CQCHM 2009 Site 36	Two graves located on the bank of the Calliope River. The graves date from 1894 and 1895 and are ancestors of the

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
	Highway (1.6km south of proposed pipeline alignment)		current owners. The grave is surrounded by a timber and galvanized pipe fence.
Kaluda Park Boiler and Yards	Kaluda Park (2.3km west of proposed pipeline alignment)	Archaeo Cultural Heritage Services 2009	This It is a former steam boiler is located in the Mt Larcom Provisional Gold Field and may be associated with mining or other industry at the site. Timber stockyards with mature vegetation are found nearby.
Mount Larcom Station Graves	Located 200m south of Larcom Creek and 540m to the east of the Bruce Highway (410m to north of proposed pipeline alignment)	McDonald 1988, 2001, CQCHM 2009 Site 37	The suspected gravesite comprises a concrete slab with broken concrete blocks that may have been the base of headstones. Traces of a fence around the graves still survive (Moses 2004:155). It is thought that victims of another attack at a 'lambing station' 8km from the station may be buried beside the other victims (McDonald 2001:47).
Mount Larcom Station yards	On the edge of Larcom Creek (approximately 300m north of proposed pipeline alignment)	CQCHM 2009 Site 38	Post and rail yards made with hand tools. Posts are approximately 1.2m high and originally had a top, bottom and middle rail. None of the rails survive.
Mount Larcom Massacre Site	Lot 2 on SP147877 (550m north of proposed pipeline alignment)	McDonald 1988	Occurred at the homestead. The victims are buried in graves near the homestead site.
Euroa Homestead	Mount Larcom Station, Lot 200 SP116496 (2.03km east of proposed pipeline alignment)	McDonald 1988, National Trust of Queensland, Connell Hatch 2008	This homestead was built in the 1920s by A.H.Stirrat who bought Mount Larcom station. He owned the combined Euroa, Fairview, Wycheproof and Mt. Alma stations. He built this new homestead in a different location to the old Mount Larcom Homestead. It was built 'replete with every

Site Name	Location (Proximity to proposed pipeline alignment)	Source	Description
			convenience' (McDonald 1988:272).
Haybarn, Mount Larcom	On western flank of Mount Larcom Range Euroa station. (2.03km south of proposed pipeline alignment)	Connell Hatch 2008	Relates to the new agricultural industries which came about with closer settlement.
Milking Yards, Mt Larcom	1.7km east of Bruce Highway and 160m south of Larcom Creek. (40m east of proposed pipeline alignment)	Connell Hatch 2008 CHCHM 2009, Site 40	Associated with the new pastoral industries that arose with closer settlement.
Survey tree	East of Mount Larcom in road reserve. (380m north of proposed pipeline alignment)	Archaeo Cultural Heritage Services 2009	A mature ironbark with distinct broad arrow survey mark on weathered scar, and later brass plaque survey mark.

4. Potential Impacts

At the time of preparation of this review, a final transmission pipeline alignment had been selected. Of the 43 known non-Indigenous heritage sites and locations found within the 10km study corridor, only three are likely to be affected by pipeline construction. These are:

- The Mount Larcom Provisional Mining field, situated near the Calliope River. This Provisional Mining Field is crossed by the proposed pipeline alignment.
- Milking yards on Mount Larcom Station, 40m from the proposed pipeline alignment; and
- Timber fence posts on Curtis Island, which will be directly impacted by pipeline construction.

All items are of low significance and of a local nature. The Provisional Mining Field is a late 19th Century feature, although the absence of physical traces and an absence of associated historical or oral historical information to corroborate its status, casts doubt that mining ever occurred in this locality.

Indirect impacts may occur to two other sites. These are:

- The Defence Road, located between the Eidsvold – Theodore Road and Camboon Station. Although there is only one road crossing, the pipeline alignment parallels the road for approximately 23km, passing within 110m of eight historic bridges. There may be features associated with road construction near the road and within 40m of the Cracow Creek camp. There may be other features associated with road construction nearby. The Defence Road was built in 1943, during World War II and is potentially a site of State heritage significance. Increased construction traffic may result in unintended impacts to the road and bridges.
- The jetty on Graham Creek will not be affected by direct construction impacts, as is situated at least 700m from the nearest Plant associated impacts. It is thought unlikely that indirect impacts, such as might arise from pipeline construction (560m to south), or increased wash from vessels using The Narrows or Graham Creek, will have any impact on these archaeological traces.

The identified sites within the 10km wide pipeline corridor, their proximity to the pipeline, their assessed significance and potential impacts are listed in Table 7.

Table 7 Non-Indigenous heritage sites located within 5km of the proposed pipeline alignment

Site Name	Proximity to pipeline	Listing	Significance	Potential impacts
Corrugated iron shed	200m west of proposed pipeline alignment	Nil	Local (Low)	Avoided
Cockatoo School	900m east of proposed pipeline alignment	Nil	Local (High)	Avoided
Rubbish Drain Site	120m east of proposed pipeline alignment	Nil	Local (Low)	Avoided

Site Name	Proximity to pipeline	Listing	Significance	Potential impacts
Defence Road	Crossed in one place	Nil	Local (High)	Impacts associated with road crossing
Ross Creek Stone Bridge	2.7km to east of proposed pipeline alignment	Nil	Local (High)	Indirect impacts are possible from increased construction traffic
Fraser Gully Stone Bridge	1.5km east of proposed pipeline alignment	Nil	Local (High)	Indirect impacts are possible from increased construction traffic
Grants Creek Stone Bridge	280m west of proposed pipeline alignment	Nil	Local (High)	Indirect impacts are possible from increased construction traffic
Cracow Creek Bridge	90m east of proposed pipeline alignment	Nil	Local (High)	Avoided
Cracow Creek Bridge Camp	30m west of proposed pipeline alignment	Nil	Local (High)	May be affected by pipeline construction
Horse Creek Stone Bridge	230m west of proposed pipeline alignment	Nil	Local (High)	Avoided
Delusion Creek Stone Bridge	440m west of proposed pipeline alignment	Nil	Local (High)	Indirect impacts are possible from increased construction traffic
Stone Bridge	4.2m west of proposed pipeline alignment	Nil	Local (High)	Avoided
Camboon Homestead and Station Site	1.8km west of proposed pipeline alignment	National Trust of Queensland	Local (High)	Avoided
Kilbirnie Homestead	2.5km north of proposed pipeline alignment	QHR, RNE	State (High)	Avoided
Former Dudarcho Homestead	1.8km north of proposed pipeline alignment	Nil	Local (High)	Avoided

Site Name	Proximity to pipeline	Listing	Significance	Potential impacts
Mount Rainbow Goldfield	1.4km to south of proposed pipeline alignment	Nil	Local (Moderate)	Avoided
Stone pitching	120m south of proposed pipeline alignment	Nil	Local (Moderate)	Avoided
The Mole Hill	900m west of proposed pipeline alignment	Nil	Local (High)	Avoided
Mt Alma Homestead	1.5km north of proposed pipeline alignment	National Trust of Queensland	Local (High)	Avoided
Hazel Dean homestead	1.4km south of proposed pipeline alignment	Nil	Local (High)	Avoided
Hazel Dean graves	1.6km south of proposed pipeline alignment	Nil	Local (High)	Avoided
Kaluda Park Boiler and Yards	2.3km west of proposed pipeline alignment	Nil	Local (Moderate)	Avoided
Mount Larcom goldfield	Crossed by proposed pipeline alignment	Nil	Local (Moderate)	Traversed by line, but no mining features are present
Former Mount Larcom Homestead	550m north of proposed pipeline alignment	Nil	State (High)	Avoided by route relocation to south
Mount Larcom Shepherd's hut	850m north of proposed pipeline alignment	Nil	State (Moderate)	Avoided by route relocation to south
Mount Larcom Massacre Site	550m north of proposed pipeline alignment	Nil	State (High)	Avoided by route relocation to south
Mount Larcom Station Graves	410m to north of proposed pipeline alignment	Nil	State (High)	Avoided by route relocation to south
Mount Larcom yards	300m north of proposed pipeline alignment	Nil	Local (Low)	Avoided

Site Name	Proximity to pipeline	Listing	Significance	Potential impacts
Euroa Homestead	2.03km east of proposed pipeline alignment	National Trust of Queensland	Moderate (State)	Avoided
Haybarn, Mount Larcom	2.03km south of proposed pipeline alignment	Nil	Low (Local)	Avoided
Milking Yards, Mt Larcom	40m east of proposed pipeline alignment	Nil	Low (Local)	May be impacted by pipeline construction
Survey tree	380m north of proposed pipeline alignment	Nil	Low (Local)	Avoided
Targinnie Landing	Near proposed pipeline alignment	Nil	Low (Local)	May be impacted
Humpy Creek slipway	Near proposed pipeline alignment	Nil	Low (Local)	May be impacted
Timber barge	Near proposed pipeline alignment	Nil	Low (Local)	May be impacted
Timber barge	Near proposed pipeline alignment	Nil	Low (Local)	May be impacted
Targinnie Goldfield part of Langmorn Goldfield	4.1km south of proposed pipeline alignment	Nil	Moderate (Local)	Avoided
Targinnie School Early	4.9km south of proposed pipeline alignment	Nil	Moderate (Local)	Avoided
Great Barrier Reef World Heritage Area	Crossed	World Heritage	International (High)	No non-Indigenous cultural heritage sites or cultural landscapes have been identified in this portion of the pipeline corridor
Una fishing vessel	Not affected	Nil	Local (Low)	Not affected
Graham Creek	600m north of proposed pipeline alignment	Nil	High (Local)	Avoided
Timber barge	1.07km north of proposed pipeline	Nil	Moderate (Local)	Avoided

Site Name	Proximity to pipeline	Listing	Significance	Potential impacts
	alignment			
Jetty	700m north of proposed pipeline alignment	Nil	Moderate (Local)	Avoided
Timber fences	Crossed by proposed pipeline alignment	Nil	Low (Local)	Up to 5 fence posts will be removed by pipeline construction
Price family house site	Near proposed pipeline alignment	Nil	Moderate (Local)	Evidence from oral history. Not located in project area during fieldwork. Will be avoided.
William Price's grave	Near proposed pipeline alignment	Nil	High (Local)	Evidence from oral history. Not located in project area during fieldwork. Will be avoided.

4.1 Potential impacts to undetected sites

Only localised field surveys have been undertaken along the proposed pipeline alignment as part of this investigation. These have mostly targeted areas of environmental sensitivity and rugged terrain in the Callide Range and Calliope Range. In light of the findings of these investigations and in conjunction with other environmental and engineering considerations, the proposed pipeline alignment has been moved from several sensitive locations, in some cases by a considerable distance.

As only a small portion of the route has been subject to detailed non-Indigenous site survey, it is likely that previously undetected sites occur in the pipeline corridor. These may include a diverse range of sites associated with the various industries identified in the site history. Based on the results of earlier site investigations, and the range of sites previously documented, these could be of low to moderate heritage significance. Once the final route has been selected, detailed field survey will be conducted to examine all areas that will be affected by construction. Sites that are located during this additional survey will be managed in accordance with an Environmental Management Plan to be formulated prior to construction.

4.2 Cumulative impacts

In addition to impacts that will arise from construction of the pipeline, further infrastructure is planned at either end of the proposed pipeline alignment. Gas field developments at the southern end of the route may result in further impacts to previously unidentified heritage sites, although flexibility in placement of facilities in the gasfield will ordinarily ensure the avoidance of sites of heritage significance. The development of an LNG Plant on Curtis Island, at the northern end of the route, will lead to the loss of several historical fencelines and a concrete stock trough, of low, local significance.

A short section of fence line will remain on Laird Point between Graham Creek and the plant site, and will remain as a representative sample of this site type.

In addition, to the effects on non-Indigenous heritage sites of construction of the three components of this project: pipeline, gas field and LNG Plant, are the potential effects of several other projects paralleling this development. If all of these parallel pipeline projects are built, other non-Indigenous sites may be at risk. The proposed GLNG LNG pipeline parallels the Australia Pacific LNG pipeline alignment from west of Biloela to Curtis Island. The only sites that are near both projects are the Dudarcho Homestead site, although this is threatened by neither, and two sites on Curtis Island: Chinaman's Bay Loading Site (HAS-29) and Curtis Island Industrial Working Site (HAS-30), at risk from the GLNG project. A further site: disused cattle yards (Site CINICH01) will be directly impacted by the construction of the QGC Plant facility (QGC 2009 Volume 8: 78). Arrow Energy is proposing a similar pipeline from the Surat Basin to Gladstone, with facilities at Fishermans Landing, north of Gladstone, rather than crossing to Curtis Island.

Through detailed archival recording of these impacted sites, all of local heritage value, recovery of information on early non-Indigenous land use will ensure that the loss of information on sites is minimised.

4.3 Matters of National Environmental Significance

The proposed pipeline alignment crosses the Great Barrier Reef World Heritage area. There are no heritage sites of National or State heritage significance identified along the proposed pipeline alignment. A registered heritage place listed on the Register of the National Estate, Cape Capricorn Lightstation, is situated at the northern end of Curtis Island, and is 28km from the proposed development. It would not be affected directly or indirectly by construction of the proposed Australia Pacific LNG transmission pipeline.

A number of shipwrecks are known from the Port Curtis district. These include 20 on the National Shipwreck database and another six less than 75 years old, and therefore not protected by Commonwealth shipwreck legislation. None of these wrecks is found near the proposed pipeline alignment. The nearest wreck to the pipeline is the *Una*, a fishing vessel sunk in Graham Creek in 1956, and more than 500m from the pipeline.

Kilbirnie Homestead, a site on the Register of the National Estate and also listed on the Queensland Heritage Register, is located 2.5km north of the proposed pipeline alignment and would not be affected.

5. Mitigation and Management

There are five options available for the management of development impacts to heritage sites. These encompass: avoidance, relocation, salvage, archival recording and interpretation. In most cases a combination of these measures is the best approach to preserving a site's heritage values. These principles will be followed when deciding on the impact mitigation measures along the proposed pipeline alignment.

Avoidance

The simplest means of protecting heritage sites from development impacts entails relocation of facilities so the sites are avoided. Where the sites remain in close proximity to construction activities it may be necessary to erect barriers to protect the site from accidental impacts.

Relocation

In some instances where impacts are unavoidable, it may be possible for relocation of the heritage items, either to a nearby area that is not threatened by construction impacts, or to a museum.

Salvage

Controlled archaeological excavation may be an option for recovery of information and relics from sites threatened by construction impacts. Once the site has been investigated and the information or relics recovered, development proceeds in the site area.

Archival recording

Detailed archival recording of heritage items that are to be impacted by development is a minimum requirement. DERM has guidelines for archival photographic recording and plan drawings for heritage sites to ensure that these records accurately document threatened sites.

Interpretation

Either as part of a salvage and recovery program, or in isolation, the pubic interpretation of a site likely to be impacted by development can inform the community of the heritage values of sites that might be lost or damaged through development. In some instances, it is possible to incorporate elements of the archaeological features in public displays as part of the development.

Procedures to be followed to ensure that non-Indigenous heritage sites are protected during construction of the proposed Australia Pacific LNG transmission pipeline will include:

Australia Pacific LNG commit to implementing the following procedures to manage the potential effects of the construction and operation of the Project gas fields on non- Indigenous heritage sites

Design

- Detailed field studies will take place after selection of the final proposed pipeline alignment
- A heritage management plan will be prepared to manage the potential impacts identified in **Error! Reference source not found**. as well as any likely impacts identified during field investigations. The heritage management plan will be prepared in consultation with relevant stakeholders, including the Department of Environment and Resource Management as required.

- Avoidance, wherever practical, of previously recorded non-Indigenous heritage sites through careful placement of infrastructure
- Construction and Operation
- Heritage management plan will be implemented as developed
- Procedures will be put in place to provide for the timely reporting and protection of heritage items and archaeological artefacts discovered during construction, consistent with requirements under the Queensland Heritage Act 1992
- All workers will be inducted about the importance of non-Indigenous heritage sites and the procedures to be followed on their discovery
- Assessment of non-Indigenous site significance using criteria established under the Queensland Heritage Act, to determine the appropriate protection measures for sites identified during previous field inspections or uncovered during construction.

5.1 Mitigation of impacts along the proposed Australia Pacific LNG Pipeline alignment

Ideally, all non-Indigenous heritage sites would be protected during construction of the Australia Pacific LNG Pipeline, however, impacts to previously undetected non-Indigenous heritage sites may still occur. Through the initial constraints analysis stage of the project in which known sites were identified, mapped and avoided, through the selective fieldwork stage, in which further sites were located and route revisions implemented to ensure that sites would be avoided, every effort has been made to relocate the pipeline through areas distant from known sites.

A further stage of the project will occur when detailed field studies are conducted to identify previously unidentified sites in areas traversed by the proposed pipeline alignment. Minor route revisions will then be implemented to ensure that, wherever possible, sites are entirely avoided. In cases where avoidance is impossible, further consultation with DERM will occur to ensure that the most appropriate protection, recording and remediation measures are put in place.

Impact mitigation measures that are required to ensure the protection of sites along the proposed Australia Pacific LNG transmission proposed pipeline alignment are listed in Table 8.

Table 8 Impact mitigation measures for sites within 1km of the proposed pipeline alignment

Site Name	Proximity to pipeline	Impact mitigation measures
Corrugated iron shed	200m west of proposed pipeline alignment	Minor route relocation will take place to avoid site curtilage. On-site monitoring of excavation will take place by a qualified archaeologist to ensure that uncovered sub-surface features are documented.
Cockatoo School	900m east of proposed pipeline alignment	As this site is located at some distance from the construction corridor, there will be no direct impacts.
Rubbish Drain Site	120m east of proposed pipeline alignment	Construction impacts to this site will be avoided through fencing of the site during construction to ensure that there are no accidental impacts.
Defence Road	Crossed in one place	Impacts at the Defence Road crossing will be avoided by

Site Name	Proximity to pipeline	Impact mitigation measures
		minimising the right-of-way in areas likely to contain heritage items. Detailed investigation of the crossing location will take place prior to construction.
Ross Creek Stone Bridge	2.7km to east of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Fraser Gully Stone Bridge	1.5km east of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Grants Creek Stone Bridge	750m east of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Cracow Creek Bridge	970m east of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Cracow Creek Bridge Camp	1.06km east of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Horse Creek Stone Bridge	230m west of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Delusion Creek Stone Bridge	110m west of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Stone Bridge	2.6km west of proposed pipeline alignment	A diversion track will be constructed for use by heavy construction vehicles, should engineering inspections reveal the structure is at risk from increased construction traffic. Appropriate remediation measures, designed in consultation with DERM, will be

Site Name	Proximity to pipeline	Impact mitigation measures
		implemented if necessary.
Camboon Homestead and Station Site	1.2km to west of proposed pipeline alignment	Indirect impacts such as vibration will be monitored, if required, during construction. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Kilbirnie Homestead	2.2km north of proposed pipeline alignment	This site will be avoided by construction activities.
Former Dudarcho Homestead	1.7km north of proposed pipeline alignment	This site will be avoided by construction activities.
Mount Rainbow Goldfield	1.4km to south of proposed pipeline alignment	This site is avoided by construction activities.
Mt Alma Homestead	1.5km north of proposed pipeline alignment	This site is avoided by construction activities.
Hazel Dean homestead	1.4km south of proposed pipeline alignment	This site is avoided by construction activities.
Hazel Dean graves	1.6km south of proposed pipeline alignment	This site is avoided by construction activities.
Kaluda Park Boiler and Yards	2.3km west of proposed pipeline alignment	This site is avoided by construction activities.
Mount Larcom goldfield	Crossed by proposed pipeline alignment	Traversed by line, but no mining features are present. Further site investigations will be conducted to ensure any extant mining features are avoided or if impacts are unavoidable, that appropriate mitigation measures formulated in consultation with DERM, are implemented.
Barmundoo Homestead, Mount Larcom		Building relocated and distant from pipeline. Original homestead site location is presently unknown
Former Mount Larcom Homestead	550m north of proposed pipeline alignment	Avoided by route relocation to south. Site impacts will be monitored. Protective fencing will be erected along pipeline right-of-way to prevent accidental damage.
Mount Larcom Massacre Site	550m north of proposed pipeline alignment	Avoided by route relocation to south. Site impacts will be monitored. Protective fencing will be erected along pipeline right-of-way to prevent accidental damage.

Site Name	Proximity to pipeline	Impact mitigation measures
Mount Larcom Shepherd's hut	850m north of proposed pipeline alignment	Avoided by route relocation to south. Site impacts will be monitored. Protective fencing will be erected along pipeline right-of-way to prevent accidental damage.
Mount Larcom Station Graves	410m to north of proposed pipeline alignment	Avoided by route relocation to south. Site impacts will be monitored. Protective fencing will be erected along pipeline right-of-way to prevent accidental damage.
Mount Larcom yards	300m north of proposed pipeline alignment	Avoided by route relocation to south. Site impacts will be monitored. Protective fencing will be erected along pipeline right-of-way to prevent accidental damage.
Euroa Homestead	2.03km east of proposed pipeline alignment	This site is avoided by construction activities.
Haybarn, Mount Larcom	2.03km south of proposed pipeline alignment	This site is avoided by construction activities.
Milking Yards, Mt Larcom	40m east of proposed pipeline alignment	This site is avoided by construction activities.
Survey tree	380m north of proposed pipeline alignment	This site is avoided by construction activities.
Targinnie Landing	Near proposed pipeline alignment	Further field inspection will be necessary to locate this site. Appropriate protection measures will be implemented, in consultation with DERM.
Humpy Creek slipway	Near proposed pipeline alignment	Further field inspection will be necessary to locate this site. Appropriate protection measures will be implemented, in consultation with DERM.
Timber barge	Near proposed pipeline alignment	Further field inspection will be necessary to locate this site. Appropriate protection measures will be implemented, in consultation with DERM.
Timber barge	Near proposed pipeline alignment	Further field inspection will be necessary to locate this site. Appropriate protection measures will be implemented, in consultation with DERM.
Targinnie Goldfield part of Langmorn Goldfield	4.1km south of proposed pipeline alignment	Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Targinnie School Early	4.9km south of proposed pipeline alignment	This site is avoided by construction activities.

Site Name	Proximity to pipeline	Impact mitigation measures
Great Barrier Reef World Heritage Area	Crossed	No non-Indigenous cultural heritage sites or cultural landscapes have been identified in the portion of the pipeline corridor crossing the World Heritage Area.
Una fishing vessel	Not located	This site is avoided by construction activities.
Graham Creek	600m north of proposed pipeline alignment	This site is avoided by construction activities.
Timber barge	1.07km north of proposed pipeline alignment	This site is avoided by construction activities..
Jetty	700m north of proposed pipeline alignment	Further site recording will take place prior to construction Indirect impacts such as noise, vibration and dust will be monitored during construction. Appropriate remediation measures, designed in consultation with DERM, will be implemented if necessary.
Timber fences	Crossed by proposed pipeline alignment	Pipeline right-of-way will be minimised near fence crossing. Temporary fencing will be necessary to ensure that construction impacts are minimised.
Water tank	Near proposed pipeline alignment	Evidence from oral history. Not located in project area during targeted fieldwork. The site will be avoided.
Grave	Near proposed pipeline alignment	Evidence from oral history. Not located in project area during targeted fieldwork. The site will be avoided.

6. Recommendations

As the proposed pipeline alignment traverses significant site provinces and areas of identified National environmental significance (Great Barrier Marine Park), measures will be put in place to minimise construction impacts to identified and previously undetected non-Indigenous heritage sites.

6.1 Previously undetected sites

Previously undetected non-Indigenous heritage sites may occur in the project area. If so, these are likely to include archaeological sites associated with a variety of historical land use practices. To ensure that these are recorded and their heritage values assessed, it will be necessary for the following steps to be implemented during construction, should they be uncovered:

a) All work in the vicinity of the suspected heritage site must cease and a temporary buffer of at least 50m established to ensure that impacts are avoided.

b) The Project Manager and Heritage Department Manager shall be notified.

c) The Project Archaeologist shall be advised of the finding, and will inspect the suspected heritage items to assess them and ensure that the provisions of Section 89 of the *Queensland Heritage Act*, 1992, in relation to non-Indigenous archaeological sites are met.

d) The Project Archaeologist will liaise with officers of DERM, to ensure that the heritage items are properly recorded, their significance assessed and appropriate management measures implemented. These measures may include the protection and avoidance of the site; investigation and recording of the heritage items; removal of the heritage items; or excavation of the historical items and their removal for safekeeping.

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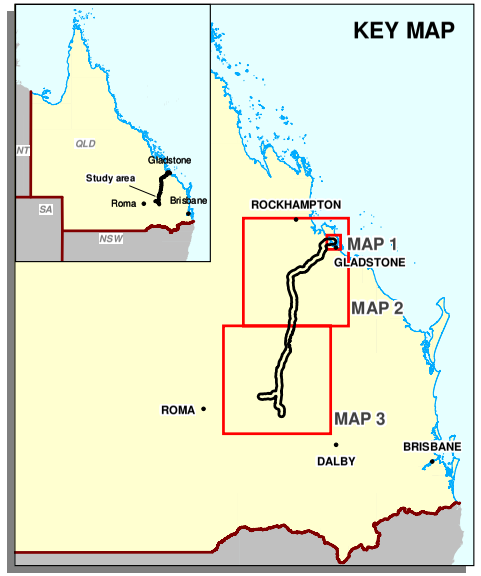
Appendix A Figures



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Additional Non-Indigenous Cultural Heritage Site data supplied by Heritage Consulting Australia on 08/12/2009.
Wreck Site data supplied by Heritage Consulting Australia on 29/11/2009

Rev	Date	Revision Description	ORIG	CHK	ENG	APPD
0	15/02/2010	Issued for use	KM	DH	WT	RB

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AUSTRALIA PACIFIC LNG PROJECT
Figure 1 - Non-indigenous Cultural Heritage Sites along Pipeline Study Corridor (Map 1 of 3)

Project No: 301001-00448	Figure: 00448-00-EN-DAL-0416	Rev: 0

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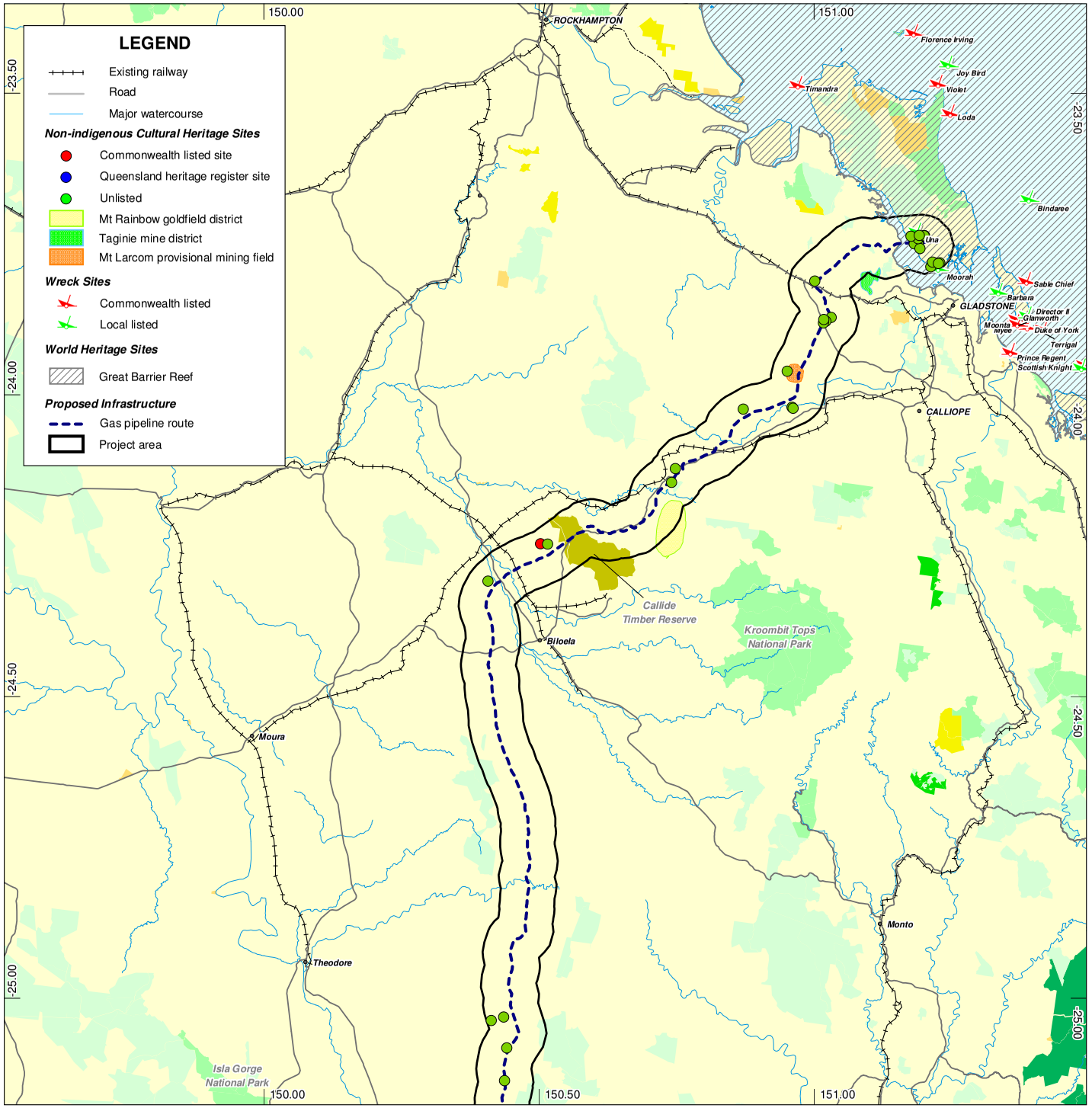

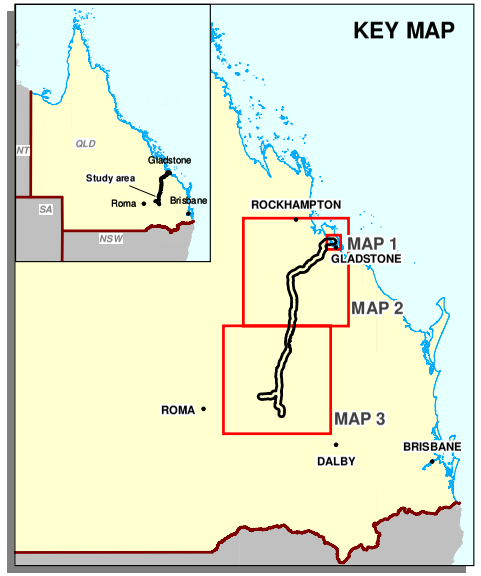

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Preferred pipeline alignment supplied by client 03/11/2009

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SCALE - 1:750,000 (at A3)

Latitude / Longitude
Geocentric Datum of Australia 1994

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Rev	Date	Revision Description	ORIG	CHK	ENG	APPD
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AUSTRALIA PACIFIC LNG PROJECT
Figure 1 - Non-indigenous Cultural Heritage Sites along Pipeline Study Corridor (Map 2 of 3)

Project No: 301001-00448	Figure: 00448-00-EN-DAL-0325	Rev: 0

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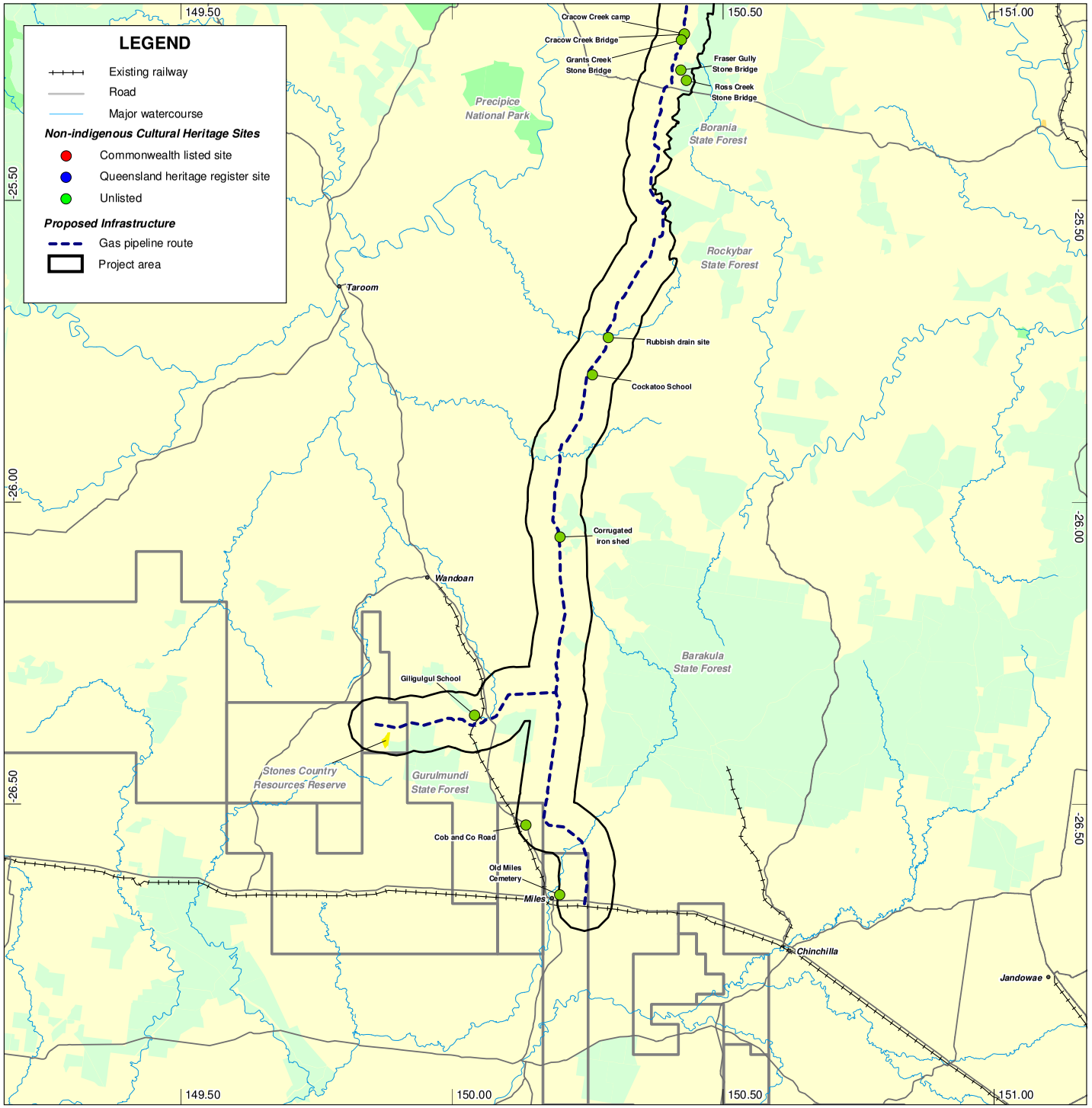

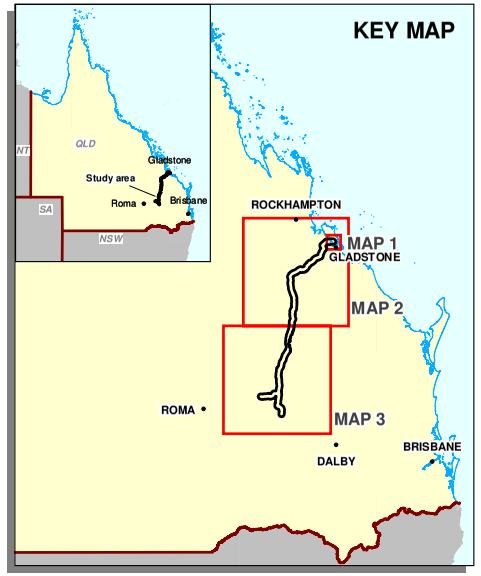

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Preferred pipeline alignment supplied by client 03/11/2009

0 25km

SCALE - 1:750,000 (at A3)

Latitude / Longitude
Geocentric Datum of Australia 1994

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Figure 1 - Non-indigenous Cultural Heritage Sites along Pipeline Study Corridor (Map 3 of 3)

Project No: 301001-00448	Figure: 00448-00-EN-DAL-0326	Rev: 0

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