25. NON-INDIGENOUS CULTURAL HERITAGE

This chapter describes the non-Indigenous cultural heritage environment within and surrounding the Arrow LNG Plant study area. Non-Indigenous cultural heritage refers to cultural heritage sites and archaeological places that were established post European contact by persons of non-Indigenous lineage.

This chapter is informed by the Arrow LNG Plant Non-Indigenous Cultural Heritage Impact Assessment undertaken by Heritage Consulting Australia Pty Ltd (Appendix 19, Non-Indigenous Cultural Heritage Impact Assessment).

Objectives have been developed based on relevant legislative context with the aim of protecting the existing environment and identified environmental values. The objectives for non-Indigenous cultural heritage are provided in Box 25.1.

Box 25.1 Objectives: Non-Indigenous cultural heritage

- To record the non-Indigenous cultural heritage values in the study area.
- To manage impacts to non-Indigenous cultural heritage during project construction and operation.

For impacts relating to Indigenous cultural heritage see Chapter 24, Indigenous Cultural Heritage.

25.1 Legislative Context and Standards

In Queensland, non-Indigenous cultural heritage sites of significance are protected at three levels of government; Commonwealth, state and local. The legislation underpinning this protection and the code of practice nationally accepted for measuring non-Indigenous cultural heritage significance are described below.

25.1.1 Legislation

Three pieces of Commonwealth legislation are administered by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities:

- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The EPBC Act provides the legal framework for protection of sites of national, Commonwealth and international significance. The act defines criteria for listing sites on national heritage lists, and offers legislative protection to listed sites. These criteria have been used to define the assessment method in the present non-Indigenous cultural heritage assessment. Under the act, any development that could impact on a nominated or listed heritage place of national or international significance requires ministerial approval before it can proceed.
- Australian Heritage Council Act 2003. This act established the Australian Heritage Council as the advisory body to the Minister for Sustainability, Environment, Water, Population and Communities on heritage matters and administrative authority for heritage lists created under the EPBC Act. The Australian Heritage Council maintains the Register of the National Estate and Commonwealth Heritage List. The Register of the National Estate has been closed to new entries since February 2007 and the Australian Heritage Council is in a process of transferring all sites to Commonwealth, state and local heritage lists. In the transition period until February 2012, the register remains as a statutory instrument to be considered by the minister under the EPBC Act. Both heritage lists have been consulted to inform this non-Indigenous cultural heritage impact assessment.

 Historic Shipwrecks Act 1976. This act provides the legal framework for protection of shipwrecks and associated relics more than 75 years old in Commonwealth waters. Cultural heritage items listed under this act are placed on the Australian National Shipwrecks Database (DSEWPC, 2011f). This database was reviewed in the non-Indigenous cultural heritage impact assessment.

Non-Indigenous cultural heritage items of state significance are protected by the *Queensland Heritage Act 1992.* This act is administered by the Queensland Heritage Council (under the Department of Environment and Resource Management) and recognises significant sites by listing them on the Queensland Heritage Register. Sites on this register include cultural heritage sites and archaeological sites (sites that contain only buried heritage artefacts) that are relevant to Queensland's history. The act also defines criteria for how state significance should be assigned to sites of cultural heritage in Queensland; these criteria have been used to inform this non-Indigenous cultural heritage impact assessment. Under the act, any development that could damage a listed site on the Queensland Heritage Register can only proceed with the approval of the Chief Executive of the Department of Environment and Resource Management (DERM). In the event that heritage sites are uncovered as part of a development, the Chief Executive of DERM must be notified before development can resume.

Protection for heritage sites of local significance is recognised by local government planning schemes. The study area falls within the Gladstone Regional Council Planning Scheme Heritage Overlay (SKM, 2006), which was reviewed to identify any registered sites.

25.1.2 Standards

The Burra Charter is the accepted standard for measuring the significance of cultural heritage sites and items in Australia (Australia ICOMOS, 2000). The Burra Charter was developed by cultural heritage specialists to define criteria for measuring significance and prescribe measures for the management and protection of significant places. The charter was adapted from European heritage guidelines, modified for Australian conditions, and ratified by Australia International Council on Monuments and Sites in 1999.

The Burra Charter defines cultural significance as the aesthetic, historic, scientific, social and spiritual value of a place for past, present and future generations (Australia ICOMOS, 1999).

25.2 Assessment Method

The non-Indigenous cultural heritage impact assessment was supported by a detailed desktop study and field study (Appendix 19, Non-Indigenous Cultural Heritage Impact Assessment). Significance was assigned to sites of non-Indigenous cultural heritage using the following method.

25.2.1 Baseline Method

A desktop review of available literature identified known non-Indigenous cultural heritage values and places in the study area. Reference material included heritage registers, publicly available books, cultural heritage impact assessments previously undertaken in the study area, library and museum resources, historical cadastral maps, and consultation with local historians and local residents.

The following heritage registers were searched:

- World Heritage List.
- National Heritage List.
- Commonwealth Heritage List.

- Register of the National Estate.
- National Shipwrecks Database.
- Queensland Heritage Register.
- National Trust of Queensland.
- Gladstone Regional Council Planning Scheme Heritage Overlay.
- Gladstone Regional Council Local Heritage List.

The World Heritage List, National Heritage List, Commonwealth Heritage List, Register of the National Estate and Queensland Heritage Register are all component parts of the Australian Heritage Places Inventory, a co-operative project between Commonwealth, state and territory governments.

Results of the desktop study, a field reconnaissance and the outcomes of local consultation were used to plan detailed field investigations. The investigations were conducted from February to June 2010, in September 2010 and again in May 2011. Cultural heritage sites and places identified and examined during the field study were mapped and assessed for their cultural heritage significance. The study area for the desktop review consisted of a 2 km buffer around the project area, with field investigations targeted to Curtis Island.

A sensitivity map for the study area was generated based on the distribution of known sites, location of landscape features and historical accounts. The objective of the map is to highlight areas where additional (unknown) sites of non-Indigenous cultural heritage are likely to occur.

25.2.2 Impact Assessment

The significance of a cultural heritage site or item is a measure of its importance to Australians, Queenslanders, or members of a local community. Significance at each of these levels is recognised by listings on Commonwealth, state and local heritage registers. Sites that do not meet criteria for listing on these registers may still add value in providing context to the historical use of a region; sites such as these are referred to as places with local historical interest.

Cultural heritage sites in the study area have been assessed for their significance using criteria modified from the Burra Charter and the Queensland Heritage Act. The act defines eight heritage significance indicators that are used to quantify a site's eligibility for listing on the Queensland Heritage Register. The degree to which each of these significance indicators is met, is measured by eight threshold indicators. The indicators assist in determining whether a site should be listed as having state significance, local significance, or local heritage interest.

The eight significance indicators are:

- Evolution or pattern of Queensland's history. Sites and places that document historic figures, events, phases, movements, processes, activities or ways of life that help illustrate Queensland's history.
- Rare, uncommon or endangered aspects of Queensland's cultural heritage. Sites and places that document customs, processes, functions, land uses, designs, activities and ways of life that are no longer common or that were never common.
- Understanding of Queensland's history. Sites and places that can contribute to a better understanding of Queensland's history.
- Demonstrating characters of a particular class of cultural places. Sites and places that illustrate a way of life, ideology, custom, land use, function, work of particular designer,

architect or architectural style or form, or use of construction techniques, which contribute to an understanding of Queensland's history.

- Aesthetic significance. Sites and places with attributes of beauty, evocative qualities, landmark qualities, expressive qualities or symbolic meaning.
- Degree of creative or technical achievement at a particular period. Sites and places with artistic or architectural values that may display innovation or new technology, represent new construction techniques or designs, or may be evidence of the creative adaptation of existing technologies.
- Associations with a particular community or cultural group for social, cultural or spiritual reasons. Sites and places that represent a significant landmark, meeting or gathering place; have a connection with events that have had a profound effect on a particular community or ethnic group; have an importance in connection with ceremonial or ritual activities; or have a place in meeting an essential community need.
- Association with a person, group or organisation important in Queensland's history. Sites and places with demonstrable connections with people, groups or organisations that have contributed to the evolution or development of Queensland's society or physical environment.

The degree to which each significance indicator is met is quantified using the following threshold indicators:

- Integrity.
- · Representativeness.
- Antiquity.
- Pattern of settlement/regional importance.
- Importance of the sum of the parts.
- Innovation.
- Importance of association.
- Identification in a study or survey.

Integrity and representativeness are the most relevant threshold indicators in historically rural settings such as that of the study area. Sites with integrity and representativeness have substantial research potential and therefore possess important heritage value.

Integrity refers to how a site or place has responded to disturbance. Sites with integrity display preserved features from the earliest periods of construction and occupation. Sites that have experienced disturbance by subsequent phases of building and occupation may not meet the integrity threshold.

Representativeness refers to how common a site type is in the local setting. Poorly represented sites are generally rare and provide information that cannot be equally obtained from other sites in the region. Common sites that do not contain unique information do not meet the representativeness threshold.

25.2.3 Limitations

Non-Indigenous cultural heritage assessments are often restricted by biases in the existing data in the public domain. The methods of data collection mean that heritage lists tend to contain many built structures and few sites with exclusively archaeological traces. Consequently, the majority of listed sites in Queensland present an incomplete representation of non-Indigenous cultural heritage of the region.

Coffey Environments 7033_7_Ch25_v3 25-4 The extent of vegetation ground cover in the study area impeded the detection of surface traces that might indicate archaeological sites. Field investigations were targeted to areas of moderate to high non-Indigenous cultural heritage sensitivity and do not cover the entire project area.

25.3 Existing Environment and Social Values

This section provides a brief history of the study area and presents the findings of the desktop and field studies and non-Indigenous cultural heritage sensitivity mapping.

25.3.1 History

European occupation in the study area began in 1853 with the settlement of Gladstone by surveyor Francis McCabe. The deep port provided relatively easy access to the coast and population growth was sustained by cattle grazing and the livestock processing industry. European settlement of Curtis Island did not occur until 1858 when a small pilot station was established at Sea Hill.

On the mainland, changes in land use since the time of settlement have given rise to a highly modified landscape. Beginning with widespread pastoralism (and cattle export), different land uses have shaped the mainland landscape and include:

- Agriculture (dairying, wheat, cotton, sugar and fruit).
- Timber felling.
- Gold mining.
- Coal mining.
- Expansion of the manufacturing industry.

Several small pastoral districts were established in the area and Gladstone developed as the main regional centre. Gold rushes in the mid to late nineteenth century promoted the development of mining settlements, most notably the township of Targinnie.

The construction of Queensland's largest power station in Gladstone in 1969 and the extension of rail lines transformed the town from a pastoral regional centre to a thriving industrial precinct supported by manufacturing and exports. Coal exports and an alumina smelter provided the town with revenue to expand commercial services and residential accommodation. Today, Gladstone is the second largest industrial city in Queensland. The coal seam gas industry is now leading the next stage in Gladstone's growth with the development of LNG facilities and their supporting infrastructure.

On Curtis Island, pastoralism has been limited and the landscape remains relatively intact. Native vegetation is still widespread although there is evidence of clearing. The first cattle station on Curtis Island, "Monte Christo", was registered in 1862. Cattle raised on the island were swum across The Narrows at low tide for processing at the Gracemere saleyards. Southwestern Curtis Island is now zoned as an industry precinct for LNG production.

25.3.2 Registered Sites in the Study Area

There are no registered non-Indigenous cultural heritage sites of Commonwealth, state or local significance in the study area.

The following registered items were recorded near the study area, but will not be impacted by the project:

- Four heritage sites and thirteen historic shipwrecks of national heritage significance.
- Ten heritage sites of state heritage significance.



• Twelve sites of local heritage significance.

Curtis Island is the largest of the islands included in the internationally recognised Great Barrier Reef World Heritage Area. Cultural heritage values are recognised in this listing but it does not include reference to specific heritage locations.

25.3.3 Unregistered Sites in the Study Area

The following non-Indigenous cultural heritage sites were identified in the study area during the literature review. None of these sites are currently registered on any heritage list. All sites were previously assessed as having either local heritage significance or local historical interest:

- Targinnie gold field, Targinnie Station and Targinie Landing (may occur in temporary workers' accommodation facility (TWAF) 8 project area).
- Kerosene Creek (infrastructure associated with the Stuart Oil Shale mine) and Boat Creek (historical disembarkation point) (located inside the study area but outside the project area).
- Historical fences, boat ramps and artefact scatters at and surrounding Fishermans Landing (located inside the study area but outside the project area).
- Various fence alignments north of Targinie Landing Road (may be located in TWAF 8 project area).
- China Bay loading facilities, Curtis Island industrial working area, fisherman's hut and stockyards (located inside the LNG plant project area).
- A loading facility, former dairy site and wharf and timber jetty (North China Bay) (located inside the study area but outside the project area).

Seven new sites were identified during the field survey within the project area. One previously discovered site was re-examined to assess its significance (the fisherman's hut). Concrete building footings were discovered in the study area near Fishermans Landing but were not considered further as they are far removed from the project area.

Eleven known or likely sites of non-Indigenous cultural heritage are located within the project area. All sites have been assigned either local heritage significance or local historical interest. These sites are listed in Table 25.1 and shown on Figure 25.1.

Site No.	Description	Location	Significance
1.	"Birkenhead" outstation site. The original "Monte Christo" outstation. Contains structures that predate recent buildings on the site, including a concrete floor of a machinery shed, yards, a pit that may indicate an outhouse and a domed brick-lined water tank.	Curtis Island – central section of the LNG plant site.	Local heritage significance
	For more recent structures on the site refer to Site No.10: former dairy/fisherman's hut (Plate 25.1).		
2.	Grave at "Birkenhead" outstation. The grave of William Alfred Prince, died 15 January 1905 at 15 months of age. Precise location unknown.	Curtis Island – central section of the LNG plant site.	Local heritage significance
3.	Post-cutting site. Remnants of trees felled to produce fence posts. Activities less than 20 years old.	Curtis Island – north of the LNG plant site.	Local historical interest

Table 25.1 Known and likely non-Indigenous cultural heritage sites

Site No.	Description	Location	Significance
4.	Old yards. Yards with old post and rail elements. Appear to be modern yards built on the site of an earlier yard structure (Plate 25.2).	Curtis Island – mid western section of the LNG plant site.	Local historical interest
5.	Stock enclosure. Stock enclosure and race built from split timber palings (Plate 25.3).	Curtis Island – southern section of the LNG plant site.	Local historical interest
6.	Historic fence line. Standing, split ironbark posts with no traces of connecting wire.	Curtis Island – north Boatshed Point.	Local historical interest
7.	Pre-1870 track alignment. Overgrown track showing the original access track to a wharf on Boatshed Point (no traces of the wharf remain).	Curtis Island – Boatshed Point.	Local heritage significance
8.	Ruins of rendered brick building. A rendered rectangular building with a small cooking alcove and concrete veranda. Roofing is no longer present (Plate 25.4).	Curtis Island – Boatshed Point.	Local historical interest
9.	China Bay yards. The site contains recent timber loading ramps near the landing at China Bay, used for loading cattle. This site was previously recorded in the study area but was not revisited in the field study for the project.	Curtis Island – North China Bay.	Local historical interest
10.	Former dairy site/fisherman's hut. Newer structures on this site include two buildings constructed of corrugated iron and split timber slabs with concrete flooring. One structure contains a rudimentary kitchen and beds. The site also contains a fenced yard with water tanks, domestic plantings and a cattle dip (Plate 25.5). The most recent buildings on this site were previously	Curtis Island – central section of the LNG plant site.	Local historical interest
	interpreted as either a former dairy or fisherman's hut. Records suggest these newer structures were constructed on the original locality of Site No. 1. "Birkenhead" outstation.		
11.	Various fence alignments (Targinnie). Fence lines marked by split timber posts crossing onto mudflats. Fence lines may extend west toward the locality of the TWAF 8 project area. This site was recorded in the study area previously but was not revisited in the field study for the project.	Mainland – in the vicinity of Targinnie (proximate to the TWAF 8 site).	Local historical interest

Table 25.1 Known and likely non-Indigenous cultural heritage sites (cont'd)

Heritage sites and features associated with the Targinnie gold field may occur in proximity to the TWAF 8 site. No sites are registered at this location and no known heritage or historic sites are recorded for this site. TWAF 8 was not visited during the field survey and the occurrence, location and significance of any heritage features at this site cannot be confirmed.

25.3.4 Sensitivity

The sensitivity mapping of the study area shows that highly sensitive areas are generally located along the coastline (both on Curtis Island and the mainland) and on level ground that is conducive to construction activities (Figure 25.2). Unknown cultural heritage sites that may be found on Curtis Island are likely to be associated with the grazing and forestry industries.





Plate 25.1 Site 1. "Birkenhead" outstation site



Plate 25.2 Site 4. Old yards



Plate 25.3 Site 5. Stock enclosure

Plate 25.4 Site 8. Ruins of rendered brick building



Plate 25.5 Site 10. Former dairy site/fisherman's hut



Within the project area, areas of high sensitivity are located on Boatshed Point and the northern section of Hamilton Point, around the rendered brick building and the "Birkenhead" outstation sites. Areas of moderate sensitivity occur around these areas of high sensitivity, and at North China Bay around the China Bay yards. The remainder of the project area, including all mainland sites, is identified as having low sensitivity for non-Indigenous cultural heritage.

25.4 Issues and Potential Impacts

Non-Indigenous cultural heritage impacts associated with the project generally relate to the clearing of land and earthworks for the construction of the LNG plant and ancillary facilities. There is little potential for disturbance during the operation or decommissioning of the project.

This assessment assumes that sites within the study area that are within 50 m of the project area will be impacted. All sites outside this area are assumed to experience no impact, even if they are within the study area.

25.4.1 Known Non-Indigenous Cultural Heritage Sites

The following known non-Indigenous cultural heritage sites will be partially or completely destroyed during the construction of the LNG plant:

- Site No. 1: "Birkenhead" outstation.
- Site No. 2: Grave at "Birkenhead" outstation.
- Site No. 3: Post-cutting site.
- Site No. 4: Old yards.
- Site No. 5: Stock enclosure.
- Site No. 6: Historic fence line (will be partially destroyed).
- Site No. 10: Former dairy site/fisherman's hut.

The following known non-Indigenous cultural heritage sites will be completely destroyed during the construction of the Boatshed Point construction camp and Boatshed Point materials offloading facility:

- Site No. 7: Pre-1870 track alignment.
- Site No. 8: Ruins of rendered brick building.

Site No. 9: China Bay yards occur in the project area for the LNG jetty and would be completely destroyed during construction. However, this site is likely to be impacted or destroyed prior to the construction of the LNG jetty because it is located within the construction footprint of the Santos Gladstone LNG project materials offloading facility, which is under construction. This site will be destroyed and no mitigation is required under the project.

Site No. 11: Various fence alignments (Targinnie) may be disturbed by the construction of TWAF 8 if found to be located within the project area.

25.4.2 Unknown Non-Indigenous Cultural Heritage Sites

Known mining sites have been found outside the project area and there is potential for previously undetected mining infrastructure to occur in the proximity of TWAF 8. If present, such sites may be impacted during construction activities.

Several non-Indigenous cultural heritage sites and places were identified during the field investigations and previous cultural heritage impact assessments for other developments in the area. Other non-Indigenous cultural heritage sites (particularly buried archaeological sites) are likely to remain undetected in the project area, even in areas where a field study has been

conducted, due to the presence of dense ground cover. Heritage sites have a higher likelihood of occurrence and identification in areas that have been designated as having high cultural heritage sensitivity in the sensitivity mapping. Construction impacts on non-Indigenous cultural heritage places may occur if they are not identified prior to construction taking place.

The operation and decommissioning of the LNG plant and its ancillary facilities would only occur in previously impacted areas. The impacts to non-Indigenous cultural heritage would be negligible during these stages of development.

25.5 Avoidance, Mitigation and Management Measures

The standard heritage practice measures for managing impacts on non-Indigenous cultural heritage sites encompass avoidance, relocation, salvage, archival recording and interpretation.

Archival recording will be the most appropriate measure for the majority of known heritage sites in the study area, given their low level of historic significance. In general, the records taken should include detail of the boundaries of the site or place, its history, a description of its fabric (the materials and assemblage of a physical structure) and a statement of its significance. Techniques such as remote sensing and excavation are used to create full archival recordings where it is suspected that part of a site is contained in a subsurface context.

A heritage management plan will be prepared prior to construction which will specify how known and unknown heritage sites are to be managed during construction. [C25.01] The plan will contain site-specific management measures for sites of local heritage significance or local historical interest, and outline the appropriate procedure to be followed in the event that new non-Indigenous cultural heritage sites or places are discovered during construction. The heritage management plan will be prepared in consultation with the Queensland Heritage Council and DERM, taking into account community interests and concerns.

The following measures will be adopted in the heritage management plan to manage impacts to non-Indigenous cultural heritage from the construction of the Arrow LNG Plant.

25.5.1 Known Non-Indigenous Cultural Heritage Sites

Record the following sites in detail prior to construction and destruction [C25.02]:

- Site No. 3: Post-cutting site.
- Site No. 4: Old yards.
- Site No. 5: Stock enclosure.
- Site No. 6: Historic fence line.
- Site No. 7: Pre-1870 track alignment.
- Site No. 8: Ruins of rendered brick building.
- Site No. 11: Various fence alignments (Targinnie).

Map the "Birkenhead" outstation (Site No. 1) and record in detail prior to construction activities. Archaeological traces of this site may exist, and remote sensing and excavation may be employed prior to construction to identify the extent of cultural heritage. [C25.03] The requirements for remote sensing will be specified in the heritage management plan and the detail of any excavation required will be determined following preconstruction surveys. The site can be destroyed following detailed recording.

The location of the grave (Site No. 2) at "Birkenhead" outstation is unknown. Employ remote sensing techniques prior to construction to try to locate the grave. Relocate the grave to an alternative location if discovered, to protect it from construction activities. [C25.04] The

Coffey Environments 7033_7_Ch25_v3 25-13 requirements for remote sensing will be specified in the heritage management plan and the detail of any excavation required will be determined following preconstruction surveys. If the grave is not discovered prior to construction, implement a procedure for accidental discovery of remains in this area. [C25.05]

25.5.2 Unknown Non-Indigenous Cultural Heritage Sites

Include in the heritage management plan prepared prior to construction, requirements for accidental discovery and management of cultural heritage items or human remains. Conflict resolution and other contingencies will also be addressed in the plan. [C25.06]

25.6 Residual Impacts

The known non-Indigenous cultural heritage sites to be impacted by the Arrow LNG Plant are not listed as significant on any national, state or local register and are of local heritage significance and historical interest only. Measures and procedures to mitigate impacts on these known and any unknown sites will be included in a heritage management plan and implemented prior to and during construction. Overall, the project will have a minor impact on the non-Indigenous heritage values of the region.

25.7 Inspection and Monitoring

Regularly inspect project activities to check for compliance with the procedures set out in the heritage management plan.

25.8 Commitments

The measures (commitments) that Arrow Energy will implement to manage impacts on non-Indigenous cultural heritage are set out in Table 25.2.

No.	Commitment
C25.01	Prepare a heritage management plan prior to construction and which specifies how known and unknown heritage sites are to be managed during construction.
C25.02	Record the following sites in detail prior to construction and destruction:
	Site No. 3: Post-cutting site.
	Site No. 4: Old yards.
	Site No. 5: Stock enclosure.
	Site No. 6: Historic fence line.
	Site No. 7: Pre-1870 track alignment.
	Site No. 8: Ruins of rendered brick building.
	 Site No. 11: Various fence alignments (Targinnie).
C25.03	Map the "Birkenhead" outstation (Site No. 1) and record in detail prior to construction activities. Archaeological traces of this site may exist and remote sensing and excavation may be employed prior to construction to identify the extent of cultural heritage.
C25.04	The location of the grave (Site No. 2) at "Birkenhead" outstation is unknown. Employ remote sensing techniques prior to construction to try to locate the grave. Relocate the grave to an alternative location if discovered, to protect it from construction activities.
C25.05	If the grave is not discovered prior to construction, implement a procedure for accidental discovery of remains in this area.
C25.06	Include in the heritage management plan prepared prior to construction, requirements for accidental discovery and management of cultural heritage items or human remains. Conflict resolution and other contingencies will also be addressed in the plan.

Table 25.2 Commitments: Non-Indigenous cultural heritage