Australia Pacific LNG Project

Volume 3: Pipeline

Chapter 6: Land Use and Planning

Contents

6. Land use and planning 6
6.1 Introduction 6
6.1.1 Purpose 6
6.1.2 Scope of work 6
6.1.3 Legislative framework 7
6.2 Methodology 12
6.3 Existing environment 13
6.3.1 Land use 13
6.3.2 Land tenure 16
6.3.3 Native Title 20
6.3.4 Mineral resources 20
6.3.5 Petroleum resources 22
6.3.6 Extractive industry resources 23
6.3.7 Infrastructure 25
6.3.8 Supporting gas pipeline infrastructure 27
6.4 Potential impacts 29
6.4.1 Regional planning frameworks 29
6.4.2 Consistency with state planning policies 37
6.4.3 Existing land uses 42
6.4.4 Mineral resources 44
6.4.5 Petroleum resources 44
6.4.6 Extractive industry resources 45
6.4.7 Infrastructure 45
6.5 Mitigation and management 46
6.5.1 Good quality agricultural land 46
6.5.2 Farming practices 47
6.5.3 Stock routes 47
6.5.4 Mineral and extractive industry resources 48
6.5.5 State forestry operations 48
6.5.6 Infrastructure and services 48
6.5.7 Natural hazards 48

6.6 Conclusion 49
6.6.1 Assessment of outcomes 49
6.6.2 Commitments 53

Figures

Figure 6.1 Good quality agricultural land (Map 1) 55
Figure 6.2 Good quality agricultural land (Map 2) 56
Figure 6.3 Good quality agricultural land (Map 3) 57
Figure 6.4 Good quality agricultural land (Map 4) 58
Figure 6.5 Good quality agricultural land (Map 5) 59
Figure 6.6 Good quality agricultural land (Map 6) 60
Figure 6.7 Good quality agricultural land (Map 7) 61
Figure 6.8 State Development Area precincts 62
Figure 6.9 Land use (Map 1) 63
Figure 6.10 Land use (Map 2) 64
Figure 6.11 Land use (Map 3) 65
Figure 6.12 Land use (Map 4) 66
Figure 6.13 Land use (Map 5) 67
Figure 6.14 Land use (Map 6) 68
Figure 6.15 Land use (Map 7) 69
Figure 6.16 Rural homesteads (Map 1) 70
Figure 6.17 Rural homesteads (Map 2) 71
Figure 6.18 Rural homesteads (Map 3) 72
Figure 6.19 Rural homesteads (Map 4) 73
Figure 6.20 Rural homesteads (Map 5) 74
Figure 6.21 Rural homesteads (Map 6) 75
Figure 6.22 Rural homesteads (Map 7) 76
Figure 6.23 Land tenure (Map 1) 77
Figure 6.24 Land tenure (Map 2) 78
Figure 6.25 Land tenure (Map 3) 79
Figure 6.26 Land tenure (Map 4) 80
Figure 6.27 Land tenure (Map 5) 81
Figure 6.28 Land tenure (Map 6) 82

Figure 6.29 Land tenure (Map 7) 83
Figure 6.30 Protected areas (Map 1) 84
Figure 6.31 Protected areas (Map 2) 85
Figure 6.32 Protected areas (Map 3) 86
Figure 6.33 Protected areas (Map 4) 87
Figure 6.34 Protected areas (Map 5) 88
Figure 6.35 Protected areas (Map 6) 89
Figure 6.36 Protected areas (Map 7) 90
Figure 6.37 Protected areas (Map 8) 91
Figure 6.38 Protected areas (Map 9) 92
Figure 6.39 Native title 93
Figure 6.40 Mining resources (Map 1) 94
Figure 6.41 Mining resources (Map 2) 95
Figure 6.42 Mining resources (Map 3) 96
Figure 6.43 Mining resources (Map 4) 97
Figure 6.44 Mining resources (Map 5) 98
Figure 6.45 Mining resources (Map 6) 99
Figure 6.46 Mining resources (Map 7) 100
Figure 6.47 Petroleum resources (Map 1) 101
Figure 6.48 Petroleum resources (Map 2) 102
Figure 6.49 Petroleum resources (Map 3) 103
Figure 6.50 Petroleum resources (Map 4) 104
Figure 6.51 Existing Infrastructure (Map 1) 105
Figure 6.52 Existing Infrastructure (Map 2) 106
Figure 6.53 Existing Infrastructure (Map 3) 107
Figure 6.54 Existing Infrastructure (Map 4) 108
Figure 6.55 Existing Infrastructure (Map 5) 109
Figure 6.56 Existing Infrastructure (Map 6) 110
Figure 6.57 Existing Infrastructure (Map 7) 111
Figure 6.58 Extractive resources (Map 1) 112
Figure 6.59 Extractive resources (Map 2) 113
Figure 6.60 Extractive resources (Map 3) 114
Figure 6.61 Extractive resources (Map 4) 115

Figure 6.62 Extractive resources (Map 5) 116
Figure 6.63 Extractive resources (Map 6) 117
Figure 6.64 Extractive resources (Map 7) 118

Tables

Table 6.1 GQAL classes 9
Table 6.2 Land use – gas pipeline corridor 13
Table 6.3 Land tenure – gas pipeline corridor 16
Table 6.4 Protected areas estate 17
Table 6.5 Stock routes – gas pipeline 19
Table 6.6 Native Title parties and claims 20
Table 6.7 Mineral tenures– gas pipeline 20
Table 6.8 Petroleum tenements – gas pipeline 22
Table 6.9 Existing extractive resources – gas pipeline corridor 24
Table 6.10 Infrastructure – gas pipeline corridor 25
Table 6.11 Gas pipeline's supporting infrastructure 27
Table 6.12 Central Queensland Regional Plan - consistency assessment 29
Table 6.13 Central Queensland strategy for sustainability - consistency assessment 32
Table 6.14 GQAL distribution – gas pipeline corridor 37
Table 6.15 GQAL potential impact 38
Table 6.16 Consistency with Curtis Coast Regional Coastal Management Plan's desired environmental outcomes 40
Table 6.17 Affected mining tenures 44
Table 6.18 Summary of environmental values, sustainability principles, potential impacts and mitigation measures 50

6. Land use and planning

6.1 Introduction

6.1.1 Purpose

This chapter describes the existing land use, land tenure, Native Title interests, resources and infrastructure in the main gas transmission pipeline corridor, which extends approximately 450km from the gas fields near Miles to the LNG facility on Curtis Island. The gas pipeline corridor covers an area 10km wide centred on the gas pipeline route, and this corridor has been used for desktop studies for the Project's environmental impact statement (EIS).

The local and regional planning frameworks applying to this area are also discussed in this chapter. The potential impacts likely to arise from the development of the gas pipeline are examined and mitigation measures are identified to manage these impacts.

Development of the gas pipeline will result in potential impacts to current land uses and planning. Australia Pacific LNG's sustainability principles will be applied to the planning, design, construction and operation of the gas pipeline to ensure that the Project's activities do not aversely impact people or the environment.

Of Australia Pacific LNG's 12 sustainability principles, key relevant sustainability principles in relation to land use and planning are:

- Minimising adverse environmental impacts and enhancing environmental benefits associated with Australia Pacific LNG's activities, products or services; conserving, protecting, and enhancing where the opportunity exists, the biodiversity values and water resources in its operational areas
- Respecting the rights, interests and diverse cultures of the communities in which it operates
- Identifying, assessing, managing, monitoring and reviewing risks to Australia Pacific LNG's workforce, its property, the environment and the communities affected by its activities.

6.1.2 Scope of work

The studies, which underpin the scope of works, were based on a desktop analysis using a geographic information system built from various databases, available satellite imagery and aerial photographs. Land use and planning impacts from the Project's gas pipeline development activities were assessed following these steps:

- Relevant legislation was considered
- Existing land use and planning activities were identified
- Potential impacts to land use and planning activities were assessed
- Mitigation measures to address these potential impacts were devised.

The discussion addresses Section 3.2.3 of the EIS terms of reference for the Project (December 2009).

6.1.3 Legislative framework

Land use planning for land comprising the gas pipeline corridor is guided by a number of regional plans (statutory and non-statutory), relevant local government authority planning schemes, and applicable State planning policies. The non-statutory, regional plans were developed before the commencement of statutory regional plans and do not have legislative power.

The discussion in this section outlines the nature of these documents.

Central Queensland Regional Plan

The Central Queensland Regional Growth Management Framework (also known as the Central Queensland Regional Plan) was endorsed by the Queensland Government in July 2002 as the principal, long term, broad-based, integrated regional planning strategy to guide the management, growth and development in the region over the next 20 years. This plan is currently a non-statutory regional plan which is being upgraded to a statutory plan.

The framework applies to lands located within the former Taroom Shire area, the Banana Shire, the former Calliope Shire and the City of Gladstone.

This regional plan focuses on six core themes:

- Resource use, conservation and management
- Economic development
- Infrastructure
- Social and cultural development
- Education, training and research
- Planning and governance.

The plan has been prepared under the *Integrated Planning Act 1997*. The framework identifies a number of policy outcomes, strategies and actions to guide development and activities within the region. It should be noted that the *Integrated Planning Act 1997* was replaced by the *Sustainable Planning Act 2009* (SPA) on the 18 December 2009, so any reference to the Integrated Planning Act includes a reference to the SPA.

Central Queensland Strategy for Sustainability – 2004 and beyond (Fitzroy Basin Association)

The Central Queensland Strategy for Sustainability – 2004 and beyond is directed at the management of the resources and environments of the river catchments of the Central Queensland region. It is a regional natural resource management plan developed by the Fitzroy Basin Association with assistance from the Australian and Queensland Governments. Development of the plan was also supported by the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust.

It aims to:

- Provide a framework for achieving continuous improvement towards the sustainable use of natural resources and the protection of the natural environment in Central Queensland
- Encourage the active participation of all stakeholders in natural resource and environmental planning, decision-making and management
- Guide investment in natural resources and environmental management in Central Queensland.

The strategy identifies a number of regional aspirations, targets and actions. The Fitzroy Basin Area incorporates the catchments of the Dawson and Calliope Rivers which are traversed by the proposed gas pipeline corridor.

Marine Parks (Great Barrier Reef Coast) Zoning Plan

The Narrows between Friend Point and Laird Point and encompassing the wetlands associated with these sites, including the waters around Kangaroo Island and Graham Creek, are located within the Great Barrier Reef Coast Marine Park. Activities within this park are managed by the provisions of the Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004. This zoning plan applies to the gas pipeline alignment as it is currently proposed to be located in part within the southern boundary of the marine park.

Gladstone Harbour Protection and Enhancement Strategy

The Gladstone Harbour Protection and Enhancement Strategy (EPA 2003) is a strategy document prepared to guide local actions by industry, government and community with a view to maintaining a healthy and functioning harbour. The strategy focuses on practicable actions the community can undertake to address issues relating to stormwater, integrated monitoring, key habitats, public access, information sharing and cultural heritage. It has been voluntarily adopted by the organisations involved in its development and is intended to complement the legislation that controls activities in the harbour. In particular, it is intended to assist in the implementation of the State Coastal Plan. The gas pipeline corridor intersects the Graham Creek and Kangaroo Island strategy areas as defined by this document.

State planning policies

State Planning Policy 1/92 – Development and the Conservation of Agricultural Land

The Queensland Government considers good quality agricultural land (GQAL) is a finite national and state resource that must be conserved and managed for the longer term. State Planning Policy 1/92 – Development and the Conservation of Agricultural Land (SPP 1/92) states that the best and most versatile farming land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose.

This land is a valuable resource that should, in general, be protected from irreversible development. Local authorities, the Planning and Environment Court; and the Government are required to have due regard to this Policy when carrying out their planning functions. This policy is relevant to decision making under the SPA.

GQAL is defined as land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources. In this context, 'agricultural land' is defined as land used for crop or animal production, but does not include intensive animal uses.

The policy describes four classes of GQAL which are described in Table 6.1:

Table 6.1 GQAL classes

Class	Description
Class A	Crop land – land that is suitable for current and potential crops with limitations to production which range from none to moderate levels.
Class B	Limited crop land – land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered suitable for cropping.
Class C	Pasture land – land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.
Class D	Non-agricultural land – land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

The lands within the gas pipeline corridor which contain GQAL are shown in Figure 6.1 to Figure 6.7. This mapping is based upon data provided by the Department of Environment and Resource Management (DERM).

SPP 1/02 – Development in the Vicinity of Certain Airports and Aviation Facilities

Gladstone Airport is a facility of State significance which is subject to the provisions of this State planning policy (SPP). The policy outlines the principles for ensuring development does not impact the operational efficiency of airports and aviation facilities such as navigational beacons and radar facilities.

The proposed gas pipeline corridor is situated approximately 13km to the north of the existing Gladstone Airport, and 320m to the south of land currently reserved for a potential airport at Kangaroo Island under the Gladstone State Development Area (GSDA).

SPP 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

SPP 1/03 sets out Queensland's interest in ensuring the natural hazards of flood, bushfire, and landslide are adequately considered in developments. A natural hazard is defined as a naturally occurring situation or condition with the potential for loss or harm to the community or environment. The policy aims to mitigate the adverse impacts of flood, bushfire and landslide for relevant development.

Within natural hazard management areas, development to which SPP 1/03 applies is to be compatible with the nature of the natural hazard, unless there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposed development. Development which is not compatible but is generally consistent with the above outcome should minimise, as far as practicable, the adverse effects from the relevant natural hazard and should not result in an unacceptable risk to people and property.

In addition, SP 1/03 also applies to development that increases the number of people in a natural hazard area, or which involves the manufacture or storage of hazardous goods.

The application of SPP 1/03 to the various components of the Project will vary considerably depending on the type of development approval required and the location of the element.

SPP 2/02 – Planning and Managing Development involving Acid Sulfate Soils

SPP 2/02 sets out Queensland's interest concerning development involving acid sulfate soils in low-lying coastal areas. This policy has effect under the *S*PA and applies to all land, soil and sediment at or below 5m Australian height datum (AHD), or mean sea level where the natural ground level is less than 20m AHD. Potential acid sulfate soils only become a problem when they are disturbed and exposed to air.

When potential acid sulfate soils are oxidised, sulphuric acid forms and the soil becomes strongly acidic. Strongly acidic soil can mobilise the naturally occurring metals in the soil. These acid sulfate soils, and any subsequent leachate, can have significant adverse effects due to the presence of abundant acid, iron, aluminium, manganese and other heavy metals. The gas pipeline traverses coastal areas which contain acid sulfate soils, and so triggers the application of this policy.

SPP 2/07 – Protection of Extractive Resources

SPP 2/07 identifies those extractive resources of State or regional significance where extractive industry development is appropriate in principle, and aims to protect those resources from developments that might prevent or severely constrain current extraction, or future extraction when the need for the resource arises. The gas pipeline corridor does not intersect any key resource areas identified under SPP 2/07. Yarwun is the nearest key resource area to the gas pipeline corridor identified under SPP 2/07.

Curtis Coast Regional Coastal Management Plan

The Curtis Coast Regional Coastal Management Plan is a statutory instrument under the *Coastal Protection and Management Act 1995* and has effect as a state planning policy under the SPA.

The plan applies to all coastal waters and all areas to the landward side of coastal waters in which there are physical features, ecological or natural processes, or human activities that affect or potentially affect the coast or coastal resources.

The plan sets out policies for the management of estuarine and marine water quality values, and for the habitats of significant species such as waders, turtle and dugong.

The gas pipeline corridor crosses the harbour in the vicinity of Friend and Laird Points and hence will be relevant to the decision making under the *Sustainable Planning Act 2009*.

Town planning schemes and other regulatory provisions

Development Scheme for the Gladstone State Development Area

The GSDA is some 28,000ha in area and incorporates lands situated to the north-west of Gladstone and on the southern part of Curtis Island, and includes the gas pipeline corridor. The GSDA was established to provide land for large-scale industrial development.

The development scheme, which is supported by a number of policies, is a land use planning instrument administered by the Queensland Coordinator-General for the purpose of guiding future development in the GSDA.

In addition to guiding future development in the GDSA, the development scheme and policies are intended to ensure that development is well planned and balanced in a way which meets the needs of industry, the Gladstone community and the environment.

The GDSA Development Scheme provides a land use approval process for the assessment of development proposals. Under this process, an application for a material change of use is made, and is assessed by the Coordinator-General against the provisions of the development scheme. Generally, all other development under the SPA (unless exempt) is assessed by the relevant assessment manager such as the Gladstone Regional Council or the Gladstone Ports Corporation.

When assessing a material change of use application, the Coordinator-General has regard to the intent, objectives and purposes of the land use designations and policies within the development scheme. Figure 6.8 shows the gas pipeline corridor's relationship to the GSDA.

Development Scheme for the Callide Infrastructure Corridor State Development Area

The Callide Infrastructure Corridor State Development Area is an infrastructure corridor to provide for the co-location of underground pipelines to transport coal seam gas from Callide to the GSDA. The corridor is approximately 44km long and is generally 200m wide. In specific areas where environmental, geographic and construction issues exist, the corridor is wider for pipe separation and construction purposes.

The development scheme, which is supported by a number of policies, is a land use planning instrument administered by the Queensland Coordinator-General for the purpose of guiding future development in the Callide Infrastructure Corridor State Development Area. Preferred land uses for the corridor are animal husbandry, gas transportation infrastructure, and to a lesser degree services infrastructure.

The development scheme's operation is similar to that described above for the GSDA. Figure 6.8 shows the location of the Callide Infrastructure Corridor State Development Area and its connection with the GSDA.

Local government authority planning schemes

The gas pipeline corridor is located within the Western Downs Regional Council, the North Burnett Regional Council, the Banana Shire Council, and the Gladstone Regional Council local government authority areas. The town planning schemes current for the gas pipeline corridor are those in force for the former Murilla, Taroom, Banana, Monto and Calliope Shire Council areas. These planning schemes will apply to the gas pipeline corridor area until such time as the current local government authorities prepare and adopt new planning schemes for their respective areas.

Under the Sustainable Planning Regulation 2009, development for an activity authorised by the *Petroleum Act 1923*, or the *Petroleum and Gas (Production and Safety) Act 2004* or development for a petroleum activity defined under the *Environmental Protection Act 1994*, is exempt from assessment against a planning scheme. Those project elements that do not fall under this exemption may require assessment against a relevant planning scheme. The gas pipeline corridor is zoned 'rural' for most of its length under these planning schemes, with the exception of the Callide Timber Reserve which is zoned 'open space'.

Port of Gladstone Land Use Plan

The current Port of Gladstone Land Use Plan 1999 may apply to the gas pipeline element of the Project. It is anticipated the gas pipes will be delivered to Gladstone by sea and will be unloaded from the ship at the existing Auckland Point wharves.

The Auckland Point area provides for a mix of general cargo handling, container storage, and throughput of coal, petroleum, grain and other miscellaneous items, including calcite and magnesite. The area also includes railway marshalling yards and deep channel access (panamax class) and has bulk handling facilities. Under the plan, Auckland Point wharves one and three provide for general imports and exports. Wharf 3 also provides for passenger vessels.

The Gladstone Port Authority Strategic Plan

The purpose of the Gladstone Port Authority Strategic Plan 1997-2047 is to identify the need for additional strategic port land into the future. The 2008 update of the strategic plan looks 50 years ahead. It indicates the Port of Gladstone harbour will be able to accommodate up to 300 million tonnes of export product by 2058.

6.2 Methodology

The information provided in this chapter has been sourced from available government and local authority databases, site visits, and from the interpretation of available satellite imagery. Geographic information system mapping and spatial analysis has been used to interpret the data and to assist in the assessment of the gas pipeline's potential impacts on the environment.

The relevant databases are:

- World heritage areas, Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA)
- Cadastre and easements, Queensland Department of Environment and Resource Management (DERM) 2009
- Aircraft facility point, power line and railway stop point (based on 1:250,000 scale topography) Commonwealth of Australia (Geoscience Australia) 2009
- Pipelines, Mines and Energy Unit, Queensland Department of Employment, Economic Development and Innovation (DEEDI), MERLIN mining tenures system and database 2009; Commonwealth of Australia (Geoscience Australia) 2009
- Mines, Key Resource Areas, mineral resources, Mines and Energy Unit, DEEDI, MERLIN mining tenures system and database 2009
- Geology, Mines and Energy Unit, DEEDI 2008
- Central West Region - Good Quality Agricultural Lands, Queensland Department of Environment and Resource Management (DERM) 2009
- Land resource data reports and maps, DERM 2008
- Queensland Land Use Mapping Program, former Queensland Department of Natural Resources and Mines 1999
- Native Title, Indigenous Land Use Agreements, Commonwealth of Australia (National Native Title Tribunal, Geoscience Australia) 2009

- Indigenous Protected Areas, DEWHA 2009
- Protected Areas of Queensland (estate), Queensland Heritage Register Boundaries, Directory of Important Wetlands, DERM 2009
- Nature Refuges and Coordinated Conservation Areas, Environmental Protection Agency, DERM 2009
- Packaged digital data – land, vegetation and water 2006, former Queensland Department of Natural Resources, Mines and Water
- Australian Land Disturbance database – Wilderness Quality, DEWHA 2009
- Restricted land, Mines and Energy Unit, DEEDI 2009
- Building points and homesteads, Commonwealth of Australia (Geoscience Australia) 2009
- Planning schemes, DERM 2009; Gladstone Regional Council, Queensland 2009
- Watercourses (based on 1:250,000 scale topography), Commonwealth of Australia (Geoscience Australia) 2009
- Wetlands, DERM 2009.

6.3 Existing environment

6.3.1 Land use

Land use over the gas pipeline corridor is show in Figure 6.9 to Figure 6.15. The data in these Figures is drawn from the Queensland Land Use Mapping Program 1999 database provided by the DERM. The predominant land use over the corridor is cattle grazing. Various forms of cropping are found in areas of more fertile soil and where the use of machinery is not constrained. Other land uses include forestry, nature conservation, resource extraction and urban activities.

The following Table 6.2 provides a summary of land usage in the 10km wide gas pipeline corridor, and along the proposed 40m wide gas pipeline right of way located within this corridor.

Table 6.2 Land use – gas pipeline corridor

Item	Pipeline corridor	Right of way
Area (ha)	438,600	2,209
Land use category	% of area	
Grazing natural vegetation / minimal use	87.90	95.11
Forestry – production*	7.44	1.02
Forestry -plantation	0.0013	-
Dry-land cropping / horticulture	2.47	2.21
Irrigated cropping / horticulture	0.40	0.42
Intensive animal / plant production	0.02	-
Rural residential	0.0045	-

Item	Pipeline corridor	Right of way
Urban	0.14	-
Mining and waste	0.05	0.045
Nature conservation / protected areas	0.58	0.0004
Water	0.75	0.72

Note: Production forestry on state forest tenures – includes grazing activities as a co-use.
Source: Queensland Land Use Mapping Program 1999, DERM.

Agriculture

Agricultural land use along the gas pipeline corridor is predominantly beef cattle grazing, supported by dry-land cropping. Irrigated cropping and intensive animal production occur but are not widespread. Cropping occurs on the alluvial areas associated with the Dawson, Callide and Calliope Rivers. The predominant crop is sorghum, with other crops being lucerne, corn and wheat. There are small pockets of horticultural cropping in the gas pipeline corridor area, mainly towards the coast.

Cropping mainly occurs on the deep, dark cracking and non-cracking clay soils (particularly of alluvial origin) which are the most productive soils in the region. The area's shallow texture contrast soils are predominantly used for grazing on improved and native pastures, while those soils with a predominance of stone support forestry activities and/or extensive grazing based on native pastures.

Approximately 44% of the gas pipeline corridor and 45% of the right of way has been identified as GQAL under State Planning Policy 1/92. The best agricultural land (Class A) is mainly associated with the deep dark clay soils identified above, and is located mainly on the alluvial plains which originally supported Brigalow vegetation.

The predominant former land use over the gas pipeline corridor on Curtis Island is cattle grazing based on natural vegetation. In line with the new industrial designation of the Curtis Island Industry Precinct, agricultural land use in the corridor is ceasing.

Forestry

Several state forests and a timber reserve are located in the gas pipeline corridor, although the proposed gas pipeline alignment passes outside most of these. These are the Gurulmundi, Binkey, Barakula, Quandong, Cherwondah, Cooaga, Mundell, Rockybar, Borania, Camboon, Belmont, Calliope Range, Scrubby Mountain and Targinie state forests and the Callide Timber Reserve.

These production forests form part of Queensland's hardwood and cypress pine timber resources and are used to provide timber to sawmills, fence posts and firewood. These forests are also used for grazing, by the honey industry, and often contain sand and gravel resources which are used for a variety of purposes.

Conservation and recreation

The gas pipeline corridor traverses a number of recreation and conservation resources. Apart from the state forest conservation resources identified above, another mainland conservation resource is the Stones Country Resources Reserve which is located to the west of the Gurulmundi State Forest. This reserve is a protected area listed under Schedule 4 of the Nature Conservation (Protected Areas) Regulation, 1994.

Timber in the state forests is managed on a sustained yield basis to ensure the basic resource is conserved. None of the identified forests provide organised recreational experiences.

Curtis Island and surrounding waters contains several conservation areas which provide for a range of nature-based recreation activities. These include the Curtis Island National Park, the Cape Capricorn Conservation Park, the Garden Island Conservation Park, the Curtis Island Conservation Park, the Curtis Island Nature Refuge, and the Curtis Island State Forest. The Great Barrier Reef Coast Marine Park situated in the Narrows and Graham Creek is a habitat protection area and is a major recreation resource.

Boat-based, recreational fishing is a major leisure activity in the Gladstone area. It is estimated that some 8,000 recreational boat trips per year occur from the Gladstone public boat ramp. While the number of vessels using the Laird Point and Graham Creek area is unknown, the Graham Creek area is recognised as a very important anchorage area for recreational vessels and as an important area for recreational fishing, particularly mud crabbing.

An informal camping area exists on the north side of Laird Point and the proposed gas pipeline corridor. This locality is used occasionally for recreational purposes.

The recreational resources of the Great Barrier Reef Marine Park are located to the east of Curtis Island, while the Great Barrier Reef World Heritage Area and associated dugong protection area are located in Gladstone Harbour. Further details on these conservation areas are provided in Volume 3 Chapter 23.

Commercial Fishing

Net and crab fisheries are the principal commercial fisheries operating in the Port Curtis area, although some beam trawling for prawns has been known to occur on occasions. The crab fishery is focused on the mud crab. Most of the commercial mud crab fishery is concentrated in The Narrows and the creeks that drain into The Narrows such as Graham Creek. The key target species in the net fishery include various species of shark, blue threadfin salmon, mullet, barramundi, and grey mackerel.

Tourism

The gas pipeline corridor is traversed by three major highways – the Leichhardt, Warrego and Dawson Highways – which provide access to tourist attractions. Tourist attractions in the districts traversed by the corridor include:

- Miles – historical village, wildflower area in the Gurulmundi State Forest, Balonne River
- Wandoan – heritage trail, Waterloo Plains environmental park
- Isla Gorge and Precipice National Parks
- Fishing in the Dawson River
- Biloela – Greycliffe Homestead, fishing Lake Callide
- Calliope – Calliope River historical village.

Mining and petroleum activities

The gas pipeline corridor traverses areas containing substantial reserves of coal and coal seam gas which are currently being investigated and developed by a number of exploration and production companies. The corridor also passes to the east of Cracow which contains a number of gold mining

leases, and through mineral development licence (MDL) 203 which is part of the Callide coalfields mining area. The corridor passes to the east of the Bracewell limestone quarries, which provide limestone to Cement Australia's plant at Fisherman's Landing. The Stuart Oil Shale lease areas at Targinie are crossed by the gas pipeline corridor.

Rural homesteads

Rural homesteads within the gas pipeline corridor area were identified through database searches. The more closely settled rural areas are located in the vicinity of Miles, Cracow and Callide. Homestead locations are shown in Figure 6.16 to Figure 6.22.

Urban uses

The larger communities near the gas pipeline are Miles, Wandoan, Taroom, Cracow, Theodore, Biloela, Mt Larcom, Calliope and Gladstone. The smaller settlements in the gas pipeline locality include Gulugaba, Cockatoo, Camboon, Prospect, Callide and Targinie. Descriptions of the key characteristics of the main communities likely to be affected by the gas pipeline development are presented in Volume 3 Chapter 20.

6.3.2 Land tenure

The gas pipeline corridor traverses four local government authority areas – the Western Downs Regional Council, Banana Shire Council and Gladstone Regional Council. The predominant land tenure in the gas pipeline corridor is freehold. The tenures applying along the gas pipeline corridor and right of way are summarised in Table 6.3 and are presented in Figure 6.23 to Figure 6.29.

Table 6.3 Land tenure – gas pipeline corridor

Item	Gas pipeline corridor	Right of way
Area (ha)	438,600	2,209
Land tenure category	% of area	
Freehold	62.44	63.01
Leasehold	25.09	31.58
National Park	0.05	-
Reserve (Timber)	1.36	0.87
Reserves (other)	0.41	1.21
Railway	0.0004	-
State forest	5.90	0.07
State land	0.28	-

Source: Digital cadastral database, Queensland, September 2009

Protected areas estate

Items of the protected areas estate that are situated in the gas pipeline corridor's zone of influence are listed in Table 6.4 and depicted in Figure 6.30 to Figure 6.38.

Table 6.4 Protected areas estate

Estate item	Location
State forests	
Curtis Island State Forest	5km to the north of the gas pipeline
Targinie State Forest	Pipeline right of way traverses this state forest at KP347
Mt Stowe State Forest	9km to the south of the gas pipeline
Scrubby Mountain State Forest	3.5km to the north west of the gas pipeline
Calliope Range State Forest	0.5km south of the gas pipeline
Belmont State Forest	3km to the west of the gas pipeline
Camboon State Forest	3.7km to the east of the gas pipeline
Borania State Forest	4.5km to the east of the gas pipeline
Rockybar State Forest	1km to the east of the gas pipeline
Mundell State Forest	3.1km to the west of the gas pipeline
Cooaga State Forest	0.2km to the east of the gas pipeline
Cherwondah State Forest	2km to the north of the gas pipeline
Quandong State Forest	0.3km to the east of the gas pipeline
Barakula State Forest	1km to the east of the gas pipeline
Binkey State Forest	2km south of the Woleebee lateral gas pipeline
Gurulmundi State Forest (includes Wildflower resource)	0.06km to the south of the gas pipeline
Reserves	
Callide Timber Reserve	Pipeline traverses this reserve (4.15km)
Stones Country Resources Reserve	Within gas pipeline corridor, 1km south of
Conservation areas	
Curtis Island Conservation Park	16km to the north of the GSDA pipeline
Cape Capricorn Conservation Park	30km to the north of the GDSA pipeline
South End Conservation Park	8.8km to the east of the GSDA pipeline
Calliope Conservation Park	12.4km to the south of the GSDA pipeline
Curtis Island Nature Refuge	8km to the north-east of the GSDA pipeline
Rivercal Nature Refuge	6.2km to the north-west of the gas pipeline
Marine parks	
Great Barrier Reef Marine Park	Ocean side of Curtis island

Estate item	Location
Great Barrier Reef Coast Marine Park	Pipeline corridor traverses the southern edge of the Habitat Protection Zone of this park. The park incorporates Graham Creek and The Narrows.
Areas of national environmental significance	
Great Barrier Reef World Heritage Area	Gladstone Harbour and Curtis Island are included in this world heritage area. The gas pipeline corridor traverses this area.
Port Curtis wetland	The marine portion of the gas pipeline corridor is located in the Port Curtis wetland which is listed in the Directory of Important Wetlands (QLD019). The wetlands are habitat for species listed under the *Environment Protection and Biodiversity Conservation Act 1999*.
Dugong Protection Area	The marine portion of the gas pipeline corridor is located in the Dugong Protection Area in Port Curtis. Dugongs are a protected species under the *Environment Protection and Biodiversity Conservation Act 1999*.
Areas of significance –	
Scenic Coastal Landscapes	Wetlands within and adjacent to the gas pipeline
Natural Resources – Endangered regional ecosystems	Pipeline corridor crosses these ecosystems
Natural resources – significant coastal wetlands	Wetlands within and adjacent to the gas pipeline
Fish habitat areas	
Fitzroy River (FHA-072)	23km to the north of the GDSA pipeline
Queensland Heritage Register/ Register of the National Estate	
Cape Capricorn Light station, Cape Capricorn	30km to the north of the GSDA pipeline
Kilbirnie Homestead, Jambin	2.4km to the north west of the gas pipeline
Restricted land	
Castlehope Dam site, Calliope River	Pipeline corridor traverses this land designation.

*Note: For information on matters of national environmental significance protected under the *Environment Protection and Biodiversity Conservation Act 1999* refer to Volume 3 Chapter 23.

The corridor traverses the Castlehope Dam site restricted area on the Calliope River. This restricted area identifies a potential catchment for this dam proposal.

Heritage and historic areas

Items of heritage significance located in and near the gas pipeline corridor are identified and discussed in Volume 3 Chapter 18 and Volume 3 Chapter 19.

Stock routes

The *Land Protection (Pest and Stock Route Management) Act 2002* establishes the Queensland's stock route network.

The primary purpose of this network is to provide for travelling stock although other secondary uses may occur within a stock route. These other uses may constitute the short-term agistment of the parts of the route, the establishment of watering agreements with private landholders, and the construction and maintenance of stock route facilities. A road that is a stock route may be used as a transport corridor for vehicles or for communication and utility infrastructure facilities (e.g. phone, power and gas lines).

The stock routes and their function are managed by DERM having regard to the Queensland Stock Route Network Management Strategy, 2009.

Under this Strategy, the stock route network is to be managed:

- To ensure it remains available for public use
- To maintain and improve the network's natural resources
- To provide travelling stock facilities for use by travelling stock.

The stock routes that are intersected or traversed by the gas pipeline are listed in Table 6.5, and their location is depicted in Figure 6.23 to Figure 6.29.

Table 6.5 Stock routes – gas pipeline

Stock route name	Pipeline location (KP)
Warrego Highway	KP001CL
Un-named	KP019WL
Un-named	KP010
Un-named	KP044
Un-named	KP069
Un-named	KP109
Un-named -adjacent to right of way	KP127 – KP148
Un-named -adjacent to right of way	KP161 – KP220
Dawson Highway	KP226
Burnett Highway	KP240
Dawson Highway	KP254 – KP257
Dawson Highway	KP271 – KP292

Key: CL = Condabri lateral; WL = Woleebee lateral; KP = kilometre point from start of gas pipeline

6.3.3 Native Title

The gas pipeline element of the Project passes through areas that are currently subject to registered claims, were previously subject to registered claims and areas that have never been subject to any claims. The known Native Title parties potentially affected by the development and the status of their Native Title claims are listed in Table 6.6.

Table 6.6 Native Title parties and claims

Party	Date claim filed	National Native Title Tribunal claim number	Claim status
Barunggam	27/01/1999	QC99/5	Previously registered
Iman People 2	30/10/1997	QC97/55	Registered
Gangulu	15/09/1997	QC97/36	Previously registered
Wulli Wulli	17/07/2000	QC00/7	Registered
Western Wakka Wakka People	27/01/1999	QC99/4	Previously registered
Port Curtis Coral Coast	25/07/2001	QC01/29	Registered

Figure 6.39 illustrates the boundaries of the Parties respective claim areas (or former claim areas).

The gas pipeline passes through areas where native title rights and interests may exist. Australia Pacific LNG will be required to obtain tenure for the gas pipeline. Australia Pacific LNG will seek to negotiate and register Indigenous Land Use Agreements for areas where native title rights and interests may exist.

6.3.4 Mineral resources

The gas pipeline corridor intersects a number of different mineral exploration tenures and leases. Table 6.7 and Figure 6.40 to Figure 6.46 provide details of these tenements and their location. Exploration permits for coal tenements affect approximately 47% of the gas pipeline corridor; exploration permits for minerals tenements 31%, mining leases 1.1%, and mineral development licences 6%.

Table 6.7 Mineral tenures– gas pipeline

Tenement holder	Tenement number	Pipeline intersection points (KP)
Exploration permit coal (EPC)		
Matilda Coal Pty Limited	1532(A)	KP231 - KP238
Metrocoal Limited	1609(A)	KP00WL - KP008WL
Aquila Coal Pty Ltd	1412(A)	KP066 - KP109
Surat Coal Pty Ltd	1278(A)	KP025WL - KP027WL
Mining Investments One Pty Ltd	1955(A)	KP021 - KP034
SE Qld Coal Pty Ltd	1041	KP011CL - KP012CL

Tenement holder	Tenement number	Pipeline intersection points (KP)
Clean Global Energy Pty Limited	1507	KP261 - KP283
Linc Energy Ltd	1536(A)	KP213 - KP241
Area Coal Pty Ltd	1896(A)	KP002 - KP004
Comet Coal And Coke Pty Ltd	1112	KP010 - KP015
Anglo Coal (Callide) Pty Ltd	188	KP249 - KP261
Metrocoal Limited	1165	KP000CL to KP009CL
Qld Coal Aust No. 1 Pty Ltd	1807(A)	KP247 - KP249
Waratah Coal Pty Ltd	1015	KP031CL - KP044CL; KP000 - KP002 KP004 - KP008
Cougar Energy UCG Pty Ltd	1118	KP15WL - KP024WL
Matilda Coal Pty Limited	1495	KP223 - KP231
Walloon Energy Pty Ltd	1808(A)	KP247 - KP249
Surat Coal Pty Limited	1134	KP024WL - KP025WL; KP017 - KP025
Xstrata Coal Queensland Pty Ltd	787	KP027WL - KP035WL
Metrocoal Limited	1164	KP008WL - KP015WL
Linc Energy Ltd	909	KP242 - KP247
SE Qld Coal Pty Ltd	813	KP009CL - KP011CL; KP012CL - KP016CL; KP025CL - KP031CL; KP015 - KP021
Exploration permit minerals (EPM)		
Activex Limited	14121	KP207 - KP214
Kelaray Pty Limited	15734	KP179 - KP183
Krackow Resources Pty Ltd	16325	KP133 - KP139
Dawsonvale Metals Pty Ltd	16603	KP52 - KP64
Volclay International Pty Ltd	16950	KP011WL - KP021WL
Ausgold Exploration Pty Ltd	17055	KP167 - KP179
Ausgold Exploration Pty Ltd	17057	KP141 - KP161
Central Minerals Pty Ltd	17130	KP206-KP207; KP221 - KP225
Iron Duyfken Pty Ltd	17183(A)	KP88 - KP98
Iron Duyfken Pty Ltd	17196(A)	KP78 - KP88
Iron Duyfken Pty Ltd	17200	KP67 - KP71
Gilbert Michael Andrew	18190	KP359

Tenement holder	Tenement number	Pipeline intersection points (KP)
Queensland Energy Resources Limited	3215	KP346 - KP351
Esso Australia Resources Pty Ltd	4612	KP337 - KP 341
Mining lease (ML)		
Queensland Energy Resources Limited	80081(A)	KP348 – KP352
Cement Australia (Queensland) Pty Ltd	7629	KP328
Mineral development licence (MDL)		
Cougar Energy Limited	420(A)	KP15WL - KP24WL
The Shell Company Of Australia Limited	203(A)	KP250 - KP257
Queensland Energy Resources Limited	225	KP346 - KP347; KP351 - 352
Queensland Energy Resources Limited	177	KP347 - KP351

Key: KP = Kilometre point; WL = Woleebee lateral; CL = Condabri lateral; (A) = Application

6.3.5 Petroleum resources

The petroleum tenures traversed by the gas pipeline corridor and right of way are depicted in Figure 6.47 to Figure 6.50 and are listed in Table 6.8. The holders of these tenements will be consulted by Australia Pacific LNG to determine appropriate tenure crossing arrangements. Authorities to prospect (ATP) tenements affect some 28% of the gas pipeline corridor.

Table 6.8 Petroleum tenements – gas pipeline

Tenement holder	Tenement number	Pipeline intersection points (KP)
Authority to prospect (ATP)		
Victoria Petroleum NL	574	KP006WL - KP015WL
Arrow Energy Ltd	810	KP009CL - KP023CL; KP024WL - KP027WL
Australia Pacific LNG Pty Limited	702	KP000CL - KP009CL
Arrow Energy Ltd	747(A)	KP023CL - KP044CL;KP027WL - KP37WL; KP000 - KP061
Petroleum pipeline licence (PPL)		
Central Queensland Pipeline Pty Ltd	121	KP331 - KP334
APT Petroleum Pipelines Pty Limited	74	KP33WL

Tenement holder	Tenement number	Pipeline intersection points (KP)
Surat Gladstone Pipeline Pty Ltd	144(A)	*Parallel to right of way:* KP273 - KP327; KP150 - KP152; KP027 - KP142 *Crosses right of way at:* KP70, KP83, KP104, KP125
AGL Pipelines Investments (Qld) Pty Limited	56(non-current)	*Parallel to right of way:* KP325 - KP328 *Crosses right of way at*:KP328
Jemena Queensland Gas Pipeline (1) Pty Ltd	30	*Parallel to right of way:* KP246 - KP257; KP311 – 328 *Crosses right of way at*: KP311, KP285
Petroleum lease (PL)		
Arrow Energy Ltd	304(A)	KP024WL – KP027WL
Arrow Energy Ltd	305(A)	KP009CL – KP0023CL
Australia Pacific LNG Pty Limited	209	KP000WL – KP006WL
Australia Pacific LNG Pty Limited	267(A)	KP000CL – KP0009CL

Key: KP = Kilometre point; WL = Woleebee lateral; CL = Condabri lateral; (A) = Application

6.3.6 Extractive industry resources

There is no key resource area (listed under SPP 2/07) located within the gas pipeline corridor. The Yarwun Key Resource Area at Yarwun is the main hard rock resource nearest to the corridor. A second key resource area is located at Taragoola to the south west of Gladstone. A third resource, the Warrian deposit (KRA 85), is located on the Roma Taroom Road to the west of the Woleebee lateral of the gas pipeline.

The construction of gas pipeline will require extractive materials such as rock, sand and gravel for use as bedding, creation of hardstand areas, access tracks, fill, erosion and sediment control and rehabilitation (that is rock armouring for waterways). Furthermore, a source of cement for concrete and bentonite for grouting will likely also be required.

A number of quarries are located in the areas surrounding the gas pipeline corridor. It is anticipated that the existing quarries may be used together with new quarries to meet the demand created by the Project, together with the demand created by other CSG/LNG projects.

Existing quarries of relevance to the gas pipeline's construction are listed in Table 6.9 and are located in Figure 6.58 to Figure 6.64. The majority of the identified quarries provide material to local government authorities and the general public for road construction and maintenance and building construction.

Table 6.9 Existing extractive resources – gas pipeline corridor

Quarry name	Operator	Production rate	Local government authority	Operation type	Location
Avondale	R C Lawrie	-	BSC	Hardrock	N/A
Callide Creek (Barnes)	G M & H J Barnes	low	BSC	Sand & gravel	Callide Creek 73.8 - 74.5km 6km NE of Biloela
Fairview Road	Moura Sand & Gravel Pty Ltd	med	BSC	Hardrock	Fairview Road, Banana
Kianga	Kianga Quarries Pty Ltd	-	BSC	Hardrock	20km south of Banana on Leichhardt H'way; 18km SE of Moura
Warrians	Boral Resources (Qld) Pty Ltd - Country	low	MRC	Hardrock	35km up Roma - Taroom Rd
Boyne River	Blomfield Excavations	med	GRC	Sand & gravel	Boyne River (at upper limit of tidal reaches)
Boyneglade	Grahame Allen & Sons Pty Ltd	-	GRC	Sand & gravel	1km west of intersection of Bruce Highway and Tannum Sands Road
Calliope River (Bruce)	Blomfield Excavations	low	GRC	Sand & gravel	North bank of Calliope R. 3-4km upstream of Bruce H'way
H & R Quarry	H & R Quarrying Pty Ltd	med	GRC	Hardrock	Quarry Rd, 1.5km W of Yarwun
Hurcom	Rayment Excavations	-	GRC	Hardrock	Hurcom Rd, Calliope
Tannum Sands	Grahame Allen & Sons Pty Ltd	-	GRC	Sand	1km north on Tannum

Quarry name	Operator	Production rate	Local government authority	Operation type	Location
					Sands Rd of Bruce H'way
Taragoola	Unimin Australia Limited	high	GRC	Hardrock	2km east of Taragoola railway siding 12km south of Calliope.
Yarwun (GPA)	Central Queensland Ports Authority	high	GRC	Hardrock	On Gladstone - Mt Larcom Rd
Mimosa Creek	Moura Sand & Gravel Pty Ltd	low	CHRC	Sand & gravel	Mimosa Creek 26.8 - 31.0km 25km NW of Moura
Gales	NBRC	low	NBRC	Hardrock	Kerwee Rd approx 40km NW of Eidsvold
Juandah Creek	Richards Concrete	-	BSC	Sand	Juandah Creek, Taroom locality

Note: Low production <80,000 tonnes per annum (tpa); medium production 80,000 – 200,000 tpa; high production >200,000 tpa
Key: WDRC = Western Downs Regional Council; MRC = Maranoa Regional Council; NBRC = North Burnett Regional Council; GRC = Gladstone Regional Council; CHRC = Central Highlands Regional Council.
Source: Mines and Energy Unit DEEDI, QRock database

6.3.7 Infrastructure

The locations of major infrastructure items which are located within the gas pipeline corridor and which intersect the right of way are shown in Figure 6.51 to Figure 6.57 and are listed in Table 6.10.

Table 6.10 Infrastructure – gas pipeline corridor

Element	Extent within gas pipeline corridor (km)	Pipeline intersection point (KP)
Major roads		
Gladstone - Mt Larcom Road	9.70	KP334
Bruce Highway	17.08	KP325
Warrego Highway	10.02	KP001CL
Dawson Highway	76.06	Parallel to right of way: KP254 – KP291

Element	Extent within gas pipeline corridor (km)	Pipeline intersection point (KP)
		Crosses right of way at: KP262, KP285
Burnett Highway	10.71	KP226, KP240
Eidsvold - Theodore Road	11.22	KP121
Leichhardt Highway	19.05	KP022WL
Landing grounds		
	KP059, KP069, KP155, KP315	KP069
Rail		
North Coast Line - Badjool to Aldoga	10.02	KP334
North Coast Line – Aldoga to Mt Miller	2.80	N/A
East End Mine branch line – East End to Aldoga	11.23	N/A
Mt Miller Comalco ballon loop	1.58	N/A
Moura Short Line - Annandale to Stirrat	43.07	KP292
Callide Valley branch South - Dakenba to Earlsfield	10.18	KP244
Wandoan branch - Miles to Wandoan	18.58	KP019WL
Western Line - Chinchilla to Miles	9.84	KP000WL
Pipelines (operational)		
APT Petroleum Pipelines Pty Limited (74)	35.74	KP33WL
Jemena Queensland Gas Pipeline (1) Pty Ltd (30)	105.98	Parallel to right of way: KP246 - KP257, KP311 – KP328. Crosses right of way at: KP311, KP285
Pipelines (proposed)		
AGL Pipelines Investments (Qld) Pty Limited (56)	16.35	Parallel to right of way: KP325 - KP328 Crosses right of way at: KP328.
QGC (Infrastructure) Pty Ltd (125)	2.69	N/A

Element	Extent within gas pipeline corridor (km)	Pipeline intersection point (KP)
AGL Pipelines Investments Pty Limited (123)	6.69	N/A
Central Queensland Pipeline Pty Ltd (121)	15.93	KP331 - KP334
Surat Gladstone Pipeline Pty Ltd(144)	233.89	Parallel to right of way: KP273 - KP327; KP150 - KP152; KP027 - KP142, Crosses right of way at: KP70, KP83, KP104, KP125.
Major power transmission lines		
	110.75	Crosses right of way at; KP003CL, KP229, KP240, KP253, KP287, KP319, KP337

6.3.8 Supporting gas pipeline infrastructure

The environmental characteristics of each gas pipeline infrastructure facility are summarised in Table 6.11. The location of each infrastructure item is shown in Volume 3 Chapter 3.

Table 6.11 Gas pipeline's supporting infrastructure

Facility type	Area (ha)	Tenure	Land use	Overlapping mineral and petroleum tenures	GQAL Class
Pipeline temporary accommodation facilities					
KP0 – Option 1	10	LL	Grazing natural vegetation	EPC 1015 EPP 747 application	B
KP0 – Option 2	10	LL	Grazing natural vegetation	EPC 1015 EPP 747 application	B
KP0 – Option 3	10	LL	Grazing natural vegetation	EPC 1015 EPP 747 application	B
Cockatoo Creek (KP068)	10	FH	Grazing natural vegetation	EPC 1412 application EMP 17200	B
Mount Mungungal (KP145	10	LL	Grazing natural vegetation	EPM 17057	B
Drumburle (KP199)	15	FH	Grazing natural vegetation	-	C2
Anglo Coal (KP253)	15	FH	Grazing natural	EPC 188	B

Facility type	Area (ha)	Tenure	Land use	Overlapping mineral and petroleum tenures	GQAL Class
			vegetation	MDL 203 application ML 80121 application	
GSDA (KP340)	10	FH	Grazing natural vegetation	EPM 4612	C1
Pipeline laydown areas					
Wandoan	15	FH	Grazing natural vegetation	EPC 787 EPP 868 *Unsuccessful EPM applications:* 870, 869, 897 MDL 221	A
Theodore – Option 1	15	FH	Dry-land cropping	EPC 1516	A
Theodore – Option 2	15	FH	Dry-land cropping	EPC 1516	A / B
Anglo Coal (KP253) - combined with camp	0	FH	Grazing natural vegetation	EPC 188 MDL 203 application ML 80121 application	B
CIC Dawson Highway (KP292)	15	FH	Grazing natural vegetation		C2
GSDA (KP340) - Combined with camp	0	FH	Grazing natural vegetation	EPM 4612	C1
Scraper Stations					
Callide Range – Option - preferred (KP203)	1	FH	Grazing natural vegetation		C2
Callide Range – Option - alternate (KP254)	1	TR	Production forestry	EPC 188 MDL 203 application	C2

Key: LL leasehold land; FH freehold land

6.4 Potential impacts

6.4.1 Regional planning frameworks

Consistency with the Central Queensland Regional Plan

The Central Queensland Regional Growth Management Framework (also known as the Central Queensland Regional Plan 2001) is the principal, long term, broad-based, integrated regional planning strategy to guide the management, growth and development in the Central Queensland region over the next 20 years. The framework identifies a number of policy outcomes, strategies and actions to guide development and activities within the region. This plan is a non-statutory regional plan.

Table 6.12 examines the consistency of the gas pipeline development with this plan.

Table 6.12 Central Queensland Regional Plan - consistency assessment

Policy objectives	Strategies and actions	Consistency assessment
Theme: Resource conservation and management		
Socio-economic and environmentally sustainable waste management practices are adopted within the region.	Facilitate the development of best practice approaches to waste management.	The gas pipeline development is designed to minimise process wastes. Any wastes produced will be managed in accordance with regulatory requirements. Refer Volume 3 Chapter 16 for details.
Air quality is maintained at levels which ensure sustainable regional communities, protection of the natural environment and opportunities for continuing economic growth.	Protect air quality in areas subject to industrial and urban growth through the use of appropriate air quality standards, air emission standards and emission control technologies.	The Project's emissions will not exceed air quality objectives. The main air emission associated with gas pipeline construction is dust. Refer to Volume 3 Chapter 13 for details.
Development takes place with a focus on efficiency to achieve economic progress with minimisation of greenhouse gas (GHG) emissions and with an understanding of the potential impact of climatic conditions.	Continue the development and implementation of practices and technology to minimise (on a per production basis) GHG emissions.	Pipeline construction is expected to generate GHG emissions through land clearing. Australia Pacific LNG is committed to mitigate GHG emissions. Refer to Volume 3 Chapter 14 for details on mitigation measures.
Fisheries resources and fish habitats are managed for sustainable economic and recreational use and conservation of biodiversity.	Encourage the implementation of planning and management measures to conserve fisheries habitats. Investigate the need for additional Fish Habitat Areas, including the Fitzroy Delta, Narrows and associated catchments.	Pipeline construction is not expected to interfere with the fisheries resources in The Narrows. Refer to Volume 3 Chapter 10 for details.

Policy objectives	Strategies and actions	Consistency assessment
Biodiversity in terrestrial, freshwater, marine and estuarine ecosystems is maintained, with native species and communities conserved and linked by viable networks of wildlife habitat across the landscape.	Biodiversity in terrestrial, freshwater, marine and estuarine ecosystems is maintained, with native species and communities conserved and linked by viable networks of wildlife habitat across the landscape.	Pipeline construction has the potential to affect the abundance and species richness of the benthic assemblage, with potential flow on effects to fisheries production. Refer to Volume 3 Chapter 10 and Volume 3 Chapter 23 for details.
Theme: economic development		
The region supports existing and emerging industries and encourages diversification ensuring growth and a viable and ecologically sustainable economy in the region.	Actively promote industry diversification to support economic stability and growth across the region.	The gas pipeline development indirectly supports this strategy. The gas pipeline forms part of the emerging coal seam gas industry in the region. During the construction phase, the gas pipeline contractors will consider procurement of materials and services locally and will source some employees locally if appropriate skills are available.
The presence of a culture of innovation in the region which encourages the development of versatile, creative individuals and organisations.	Stimulate continuous improvement of current technologies, the development and adoption of new technologies and practices to improve productivity and competitiveness and to take advantage of emerging opportunities including, but not limited to, electronic service delivery, biotechnology, greenhouse gas mitigation and dry land farming.	The gas pipeline's operation may in a minor way contribute to this policy outcome through engagement of the technicians operating and maintaining the gas pipeline's data monitoring systems.
The provision of a flexible and skilled workforce meeting industry requirements which is capable of responding to both industry and personal changes.	Through labour force planning, identify current and future labour market supply and demand characteristics of the region and its communities and encourage the sourcing of labour and skills within the region.	Australia Pacific LNG intends to source part of its workforce locally for construction and operational phases. The social impact management plan in Volume 3 Chapter 24 provides details of the measures proposed to foster local employment.
	Maximise employment opportunities for the Aboriginal and Torres Strait Islander workforce through appropriate skills development /	Australia Pacific LNG's employment policy treats all persons equally. Any training/skills development programs would apply to all

Policy objectives	Strategies and actions	Consistency assessment
	training / management strategies.	personnel.
It is recognised there is an increased capacity of the region to engage directly with international markets which increases our global perspective and enhances the viability of organisations based in the region.	Identify and develop international, interstate and inter-regional markets for Central Queensland's current and potential goods and services.	Australia Pacific LNG has a gas marketing team who have considerable expertise in the Asian and North Pacific LNG markets. This expertise could assist other local entrepreneurs who wish to enter such markets.
Theme: Infrastructure		
Air transport infrastructure and services that meet the needs of industry and the community and facilitate improved connectivity beyond the region.	Protect existing infrastructure from encroachment by development.	The gas pipeline will not affect the operational airspace of the region's airports.
Provision of safe, effective and sustainable domestic, industrial and regulated waste management infrastructure for the region.	Promote effective and coordinated planning of waste management infrastructures.	The gas pipeline development is designed to minimise process wastes. Any wastes produced will be managed in accordance with regulatory requirements. Refer to Volume 3 Chapter 16 for details.
Theme: Social and cultural development		
Safe, secure housing that is affordable, appropriate, and designed efficiently, reflecting the climate, culture and character of the area, is located throughout the region in relation to services, open space, recreation and employment.	Encourage a range of residential development options that meet the demographic and socio-economic needs of the area, and are appropriate to the climate and lifestyle attributes.	The gas pipeline development will provide temporary accommodation facilities to house its construction workforce. The social impact management plan in Volume 3 Chapter 24 provides details of the measures proposed for the provision of this accommodation.
The region has implemented a plan that encourages individuals and families to relocate into the region in order to build and/or replace the community skills base.	Create employment opportunities that attract and retain young people and families.	The gas pipeline development will provide a range of employment opportunities which will assist in the creation of a stable employment base in the region for the life of the Project.

In summary, the development of the proposed gas pipeline, on balance supports the policy outcomes of the Central Queensland Regional Plan.

Consistency with the Central Queensland Strategy for Sustainability – 2004 and beyond (Fitzroy Basin Association)

The Central Queensland Strategy for Sustainability – 2004 and beyond is directed at the management of the resources and environments of the river catchments of the Central Queensland region. This strategy is a non-statutory, voluntary plan. Table 6.13 examines components of the strategy of relevance to this element of the Project.

Table 6.13 Central Queensland strategy for sustainability - consistency assessment

Issue	Targets	Consistency assessment
Weeds and pest animals		
Certain plants and animals are declared as pests, and as such must be controlled. Targets compliment the *Land Protection (Pest and Stock Route Management) Act 2002*.	100% control of outbreaks of new agricultural and environmental pest plants and animals, including pests of aquatic environmental significance (ongoing target). Impact of agricultural and environmental pest plants and animals (Class 2 and 3) is contained within five years and trend reversed within ten years.	The project will develop a biosecurity management plan that addresses animal and plant pests. An integral part of the plan is to reduce the risk of the introduction or spread of invasive species. Volume 3 Chapter 8 outlines the proposed weed management measures.
Climate change		
	Practices and technology developed and implemented to minimise net greenhouse gas emissions within ten years. Uptake of energy efficient practices and technology by consumers.	Pipeline construction is expected to generate GHG emissions through land clearing. Australia Pacific LNG is committed to mitigate GHG emissions The revegetation of land disturbed by gas pipeline construction activities will restore part of the carbon storage removed by construction land clearance. Volume 3 Chapter 14 outlines further GHG mitigation measures designed to minimise CO_2 emissions.
Air quality		
There are atmospheric discharge limits beyond which human health effects occur. Development to undertake measures to limit discharges.	Air pollutant emissions maintained at 2004 levels or reduced to improve air quality. Introduce alternative technologies and systems, where possible, to reduce pollution and emissions, in	The Project's emissions will not exceed air quality objectives. Construction of the gas pipeline will result in short-term dust and vehicle emissions. Air emissions during operations will

Issue	Targets	Consistency assessment
	existing and new developments. Develop site-by-site plans to reduce fugitive emissions.	be limited to those associated with infrequent maintenance vehicle travel and very limited emergency releases of CSG through mainline valve stations. Refer to Volume 3 Chapter 13 for details.
Cultural heritage		
European and Indigenous cultural heritage (landscape values, artefacts, historical sites etc) may easily be damaged or lost through insensitive planning, resource use, or development in ignorance of their existence.	No land and sea management, planning or development impacts in culturally (Indigenous and non-indigenous) sensitive areas unless under an approved cultural heritage management plans. Development and implementation of cultural heritage protection program to protect all cultural heritage (material and non-material) within 5 years.	The Project will be subject to approved cultural heritage management plans negotiated with the relevant Aboriginal parties (or otherwise approved), and hence will support this aspect of the plan.
Native Title		
While Native Title rights do not supersede other property rights, there is a widespread lack of understanding of how resource management activities impinge on Native Title.	Land management and planning activities allow for full expression of Native Title rights. Native Title rights, and/or access, and any necessary compensation agreed and implemented.	Native Title agreements with relevant native title parties will be put in place to manage the interaction between the Project interests and native title rights in respect of those lands where native title may continue to exist. Negotiations are in progress.
Soil salinity		
Dry-land salinity is an emerging problem in the Fitzroy Basin as vegetation clearance changes the water balance in the soils.	Reduction of deep drainage and runoff Maximising water transpiration by plants Revegetation of cleared recharge areas to restore natural water balances.	Australia Pacific LNG intends to keep vegetation clearance to the minimum necessary to construct the gas pipeline. The gas pipeline right of way will be sited to avoid the need to clear remnant vegetation where possible. Disturbed lands will be revegetated with appropriate species.
Integrity of remnant vegetation		
Less than 40% of the remnant vegetation in the Dawson River	Voluntary protection of remnant vegetation on freehold lands.	The location for the gas pipeline right of way will avoid important

Issue	Targets	Consistency assessment
catchment remains. Need exists to manage the clearing of this remnant vegetation in the future.	Regeneration of non-remnant native vegetation on private lands to re-establish wildlife corridors particularly in riparian areas.	remnant vegetation. Where clearance is unavoidable, it is intended that areas are allowed to revegetated naturally, and/or vegetation offset areas established to compensate for the loss.
Aquatic habitats		
Modification of in-stream, near stream, and wetland habitats can disrupt the functioning of aquatic ecosystems and lead to deterioration in water quality.	Increase the length of functional riparian areas by 20% in 10 years. Maintenance of existing areas of high ecological value. Protection and restoration of significant wetlands. Removal of in-stream barriers to species movement in the waterways.	Increased total suspended solids and turbidity from vegetation removal and gas pipeline and road construction will potentially affect water quality in streams. Erosion and sediment controls will be established to regulatory requirements to manage water quality. Pipeline watercourse crossing methods will be selected to minimise stream disturbance. Horizontal directional drilling techniques will be considered in key sensitive locations. Disturbance of riparian vegetation will be avoided wherever possible, and prompt revegetation of disturbed riparian areas undertaken Water quality, prior, during and post construction will be monitored. Refer to Volume 3 Chapter 9 for details.
Water quality		
Water resources valued by the community for a variety of purposes. Need to ensure that water quality is improved for river health and human activities.	A measurable improvement in water quality over 15 years. Maintenance of EC levels consistent with ANZECC guidelines while region-specific standards are developed.	As above.
Water availability		
Water resources plans have been developed under the *Water Act 2000* to ensure the health of flow-dependant ecosystems and to	Achievement of environmental flow objectives for the area's waterways.	It is expected that the hydrostatic testing of the gas pipeline will require a total of 100 megalitres of water. This water may be sourced

Issue	Targets	Consistency assessment
provide adequate water for human uses.	Achieve high efficiency water use in ten years.	locally from watercourses along the route. The one-off extraction of this volume of water from the area's waterways is not expected to affect the long term flow objectives for the Fitzroy river system. The water storage ponds created for this water could be available for landholder use following construction and hence could assist landholders to use water more efficiently.
Economy		
By 2050 the region has a robust and well-balanced economy which is economically, socially and ecologically sustainable, and able to withstand external pressures.	All industries in the region to have a clear natural resource management policy incorporating commitment to continuous improvement and / or best management practices for local conditions within 5 years. Identify and implement appropriate and cost-effective sustainable technologies and practices within 10 years.	The gas pipeline operation will incorporate energy efficient technologies in the pipeline monitoring system and scraper stations.
Social		
By 2050, the region supports a range of viable, resilient and cohesive rural and urban communities. By 2050, all regional stakeholders are participating in effective natural resource allocation, decision-making and management.	Levels of Indigenous and youth employment increased by 20% within 10 years.	The gas pipeline will have an operational workforce which will possess the technical skills necessary to competently run the facility. Given the small size of this operational workforce, opportunities for long-term employment will be minimal.

Consistency with the Marine Parks (Great Barrier Reef Coast) Zoning Plan

This zoning plan applies to the gas pipeline alignment as it is currently proposed to be located in part within this marine park on its southern boundary. The Narrows section of this marine park is located in the 'habitat protection' zone of this plan. The objectives of the habitat protection zone are:

- To provide for the conservation of the areas of the marine park within the zone through the protection and management of sensitive habitats that are generally free from potentially damaging activities
- To provide opportunities for reasonable use of the areas.

The zoning plan requires the issuance of a marine park permit to undertake activities within the park which are not consistent with the intent of the zoning plan. The gas pipeline crossing of The Narrows may trigger the need for such a permit should pipeline construction activities occur within the marine park boundaries.

Consistency with the Gladstone Harbour Protection and Enhancement Strategy

The Gladstone Harbour Protection and Enhancement Strategy (EPA 2003) is a strategy document prepared to guide local actions by industry, government and community with a view to maintaining a healthy and functioning harbour. The gas pipeline corridor intersects the Graham Creek and Kangaroo Island strategy areas as defined by this document.

A key issue identified by the strategy is the management of stormwater runoff and its impact on the water quality of the harbour. It suggests that industry should prepare a stormwater management plan detailing measures to prevent stormwater pollution and /or stormwater capture and treatment devices.

A second issue involves the protection and enhancement of key coastal and marine habitats within Gladstone Harbour. The strategy seeks the following outcomes:

- Key habitats are identified, protected and enhanced where appropriate
- Wildlife corridors are provided to connect strategic areas of viable coastal habitat to assist in maintaining biodiversity
- Key habitats impacted by urban, agricultural and industrial activities are enhanced through collaborative action
- Improvement of the natural landscape amenity of the harbour through the maintenance and enhancement of the mangrove fringe and coastal salt flats
- A reduction in impacts caused by changes to hydrology and ecosystem function as a result of urban, rural and industrial development.

The gas pipeline construction process has the potential to generate stormwater with suspended solids which may find its way into the harbour. Australia Pacific LNG will develop a stormwater management plan to address the issue.

The construction of the gas pipeline will impact upon key coastal and marine habitats identified in this strategy. Key coastal habitats identified as requiring protection in the vicinity of the gas pipeline right of way are mangroves, salt marsh, salt flats, and tidal mud flats. Whilst this short-term impact of construction is unavoidable, the right of way rehabilitation measures will generally aim to reinstate the disturbed habitat. Where rehabilitation is not practicable, it is intended that such loss would be offset by a variety of measures as agreed with the responsible agencies.

The gas pipeline element of the Project, through the implementation of the above measures, should be generally consistent with the intent of this strategy document.

Consistency with the Port of Gladstone Land Use Plan

The Gladstone Ports Corporation is in the process of revising the 2004 land use plan for the Port of Gladstone. A Statement of Proposals has been prepared which outlines the corporation's vision for the future development of the port. Under this vision, it is intended that the established operations at the Auckland Point wharves will continue, and that vacant land to the north of the railway will provide for

the expansion of the Port's activities including container handling. This area is also intended to be a storage area particularly for the resources coming to/ and from the GSDA.

The proposed use of Auckland Point for gas pipe importation is consistent with Gladstone Ports Corporation's vision for the future development of this port facility.

Consistency with the Gladstone Port Authority Strategic Plan, 1997 – 2047

The unloading of pipe from ships at Auckland Point is consistent with the intent of the Gladstone Port Authority Strategic Plan. The 2008 update of the plan states that Auckland Point is to continue its present role as general purpose wharves.

6.4.2 Consistency with state planning policies

The Project's compliance with these policies is discussed below.

SPP 1/92 – Development and the Conservation of Agricultural Land

GQAL resources in the gas pipeline corridor are outlined in

Table 6.14. GQAL is defined as Class A, Class B and Class C1 lands for the purpose of this assessment. For further details on the classification of GQAL refer to Volume 3 Chapter 5.

Table 6.14 GQAL distribution – gas pipeline corridor

Item	Area (ha)	Class A		Class B		Class C1	
		Area (ha)	%	Area (ha)	%	Area (ha)	%
Investigation corridor	438,600	44,911	10.23	122,988	28.04	24,437	5.57
Right of way	1,766	100	5.67	581	32.88	92	5.22

Data source: DERM Good Quality Agricultural Lands Database-2009

As this table indicates, approximately 43.8% of the land within the gas pipeline corridor, and 43.8% of land within the right of way, is classified as GQAL.

It is estimated that the construction of the gas pipeline will disturb approximately 874ha of GQAL. Following the completion of construction and associated rehabilitation activities, it is estimated that the development of the gas pipeline will remove from potential agricultural production in the order of 31ha of GQAL for the operational life of the gas pipeline. A list of project components and their estimated potential impact on GQAL land is presented in Table 6.15.

Table 6.15 GQAL potential impact

Project component	Disturbed GQAL land (ha)	GQAL land removed from potential production during project operational phase (ha)
Gas pipeline right of way	773	30*
Scraper station	1	1
Temporary accommodation facilities	55	0
Pipeline laydown areas	45	0
Total	874	31

*Note: Assumes a 6m wide access track is retained in timbered areas within the right of way for operational purposes.

In addition to the short term disruption of land uses outlined above, GQAL may be subject to a reduction in agricultural production due to:

- Interference with overland flow through the modification of runoff controls
- An increase in soil compaction through heavy trafficking, reducing water infiltration pending correction during rehabilitation
- Decreased fertility
- Increased erosion.

These effects are discussed in Volume 3 Chapter 5.

State Planning Policy 1/92 states that the best and most versatile farming land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose. This land is a valuable resource that should, in general, be protected from irreversible development. As indicated above, the development of the gas pipeline could subject approximately 31ha of GQAL to irreversible development for the life of the Project.

In this case, however, it is considered that the proposed use of a comparatively small area of potentially productive land for the transmission of CSG constitutes an 'overriding need' given the benefits that will accrue to the region and State as a result of the project. The project's investment will generate considerable long-term economic benefits for the region, State and nation. The key benefits of the Project are described in Volume 1 Chapter 1. Locally, the gas pipeline element will involve the:

- Immediate and future employment of some:
  - 800 people during construction
  - 20 permanent employees
- Expenditure in the local economy through the purchase and use of local resources, wherever practicable, for the construction and operation of the gas pipeline.

SPP 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

Flooding

The construction of the gas pipeline will involve creek crossings. Such crossings are to be constructed during the 'dry' season where practicable to avoid damage to plant and machinery and construction delays. Construction will involve excavating a trench across the dry creek bed and the covering of the pipeline with the excavated bed material. The creek beds will be reinstated to a condition consistent with the surrounding creek beds so the pipeline will not have an impact on post-construction flood behaviour in the watercourses.

Bushfire

The risk of bushfire is a major concern of all landholders as a bushfire can severely impact upon all land uses. The damage to crops, fodder, buildings and other farm infrastructure from fire can be devastating to landholder livelihoods. Volume 3 Chapter 22 identifies the potential risk of fire being generated by project operations.

SPP 1/03 requires that development maintains the safety of people and property by either avoiding areas of high or medium bushfire hazard; or by mitigating the risk through the:

- Design and the siting of buildings
- Inclusion of adequate firebreaks
- Provision of access for fire-fighting/other emergency vehicles
- Provision an adequate and accessible water supply for fire-fighting purposes.

Given the nature of the project and its rural setting, it is impractical to locate all project components to avoid medium and high bushfire hazard areas. Hence bushfire risk will be managed by implementing a range of appropriate measures. These measures are described in Volume 3 Chapter 22.

Landslide

The gas pipeline study area contains areas with slopes in excess of 15% and consequently these lands may constitute a landslide natural hazard management area under this SPP. The selection process which determines the location for the gas pipeline right of way considers a range of terrain, seismic and geological constraints and hazards. A key constraint is an area which has significant side slopes given the construction difficulties associated with laying a pipeline in such areas. The pipeline right of way being considered for the Project avoids potential landslide areas.

SPP 2/07 – Protection of Extractive Resources

The gas pipeline corridor does not incorporate any key resource areas identified under SPP 2/07. The Yarwun Key Resource Area at Yarwun is the main hard rock resource nearest to the corridor. A second key resource area is located at Taragoola to the south west of Gladstone. A third resource, the Warrian deposit (KRA 85), is located on the Roma Taroom Road to the west of the Woleebee lateral of the gas pipeline.

Curtis Coast Regional Coastal Management Plan

The Curtis Coast Regional Coastal Management Plan will have the effect of a state planning policy under the SPA. This plan sets out a series of desired outcomes for key coastal sites (and localities)

within the plan area. The proposed gas pipeline has the potential to impact on three of these coastal sites – Curtis Island, Gladstone Harbour and The Narrows.

Since the establishment of this coastal management plan, part of the south-western locality of Curtis Island has been included within the GSDA as an industrial precinct for several LNG projects. The Project's LNG facility is located within this industrial precinct.

The plan sets out policies for the management of estuarine and marine water quality values and on habitats for significant species. The gas pipeline right of way will traverse:

- A regionally important and State-significant coastal wetland
- A regionally important, dry tall mature eucalypt coastal habitat
- A dugong protection area
- A State-significant, scenic coastal landscape.

Table 6.16 examines the gas pipeline's consistency with the desired coastal outcomes for the key coastal sites.

Table 6.16 Consistency with Curtis Coast Regional Coastal Management Plan's desired environmental outcomes

Desired coastal outcome	Consistency assessment
Curtis Island – coastal locality – south west	
Planning for future development appropriately identifies and takes into consideration the values of areas of high conservation significance including the cumulative impacts of associated development on these values.	The gas pipeline right of way clearing will disturb important marine vegetation communities. Volume 3 Chapter 10 outlines the mitigation measures that apply to gas pipeline construction.
Planning for future development considers the design and location of development ensuring any impacts on the scenic coastal landscape values associated with the island are minimised.	The coastal ranges in this locality are a significant scenic coastal landscape feature. They are able to be viewed from the mainland and form part of the coastal landscape. The gas pipeline right of way will not disturb the main strike ridge system that runs along the western side of Curtis Island in this location. The vegetated hills in the right of way will be disturbed by pipeline construction activities. Pipeline construction will result in disturbance of the marine foreshore and will reduce the length of continuous mangrove vegetation. Efforts will be made to minimise the visual break created by such works and to rehabilitate disturbed areas.
The Narrows	
Protection of the area's integrity and ecological functioning from incompatible development, land uses and activities.	The Narrows is a near pristine area which exhibits high ecological and scenic values. Construction of the gas pipeline has the potential to adversely impact on the relatively pristine water quality of The Narrows with subsequent impacts on marine biodiversity.

Desired coastal outcome	Consistency assessment
	Volume 3 Chapter 12 outlines the mitigation measures proposed to manage gas pipeline construction in this locality.
Monitoring of water quality to detect any adverse impacts on marine and estuarine biodiversity from contaminants including suspended solids.	The gas pipeline's construction environmental management plan includes monitoring of marine and terrestrial water quality on a regular basis. This monitoring will be undertaken to demonstrate compliance with water discharge requirements set for the Project. Refer to Volume 3 Chapter 10, Volume 3 Chapter 12, and Volume 3 Chapter 24 for details.
Gladstone Harbour	
Management of the harbour providing for a range of uses, while ensuring conflicts between these uses are managed and adverse impacts on coastal resources and their values are minimised.	The gas pipeline is proposed to be located within a State Development Area common infrastructure corridor where it crosses the harbour. This approach by government will assist in reducing the areas disturbed by the various pipeline proposals in this locality. Volume 3 Chapter 12 and Volume 3 Chapter 10 outline the mitigation measures proposed to manage gas pipeline construction in the harbour.
Continued development of the Port of Gladstone in an ecologically sustainable manner avoiding the location of port infrastructure in areas of high conservation significance, where possible.	The wetlands within the harbour are of conservation importance. There will be unavoidable disturbance to these wetlands as a result of gas pipeline construction. The use of horizontal directional drilling should reduce disturbance to the ecosystems in and near to the pipeline crossing between Laird and Friend Points. The gas pipeline will directly affect the tidal lands in this area during construction. Volume 3 Chapter 10 outline the mitigation measures applying to gas pipeline construction.
Recognition of the importance of the undeveloped inner-harbour islands in providing public access, recreation, biodiversity and scenic amenity to the regional community and avoidance of development with the potential to compromise these values.	The gas pipeline right of way does not cross any of the inner harbour islands.
Inclusion of inner-harbour islands within open space areas where appropriate.	The gas pipeline right of way does not cross any of the inner harbour islands.
Coordination of management approaches among land and marine resource managers in relation to monitoring the health of the harbour in regards to water quality, managing increasing vessel use and minimising impacts to shorebirds, turtles and dugong.	Australia Pacific LNG intends to participate in relevant regional water quality, and marine flora and fauna monitoring programs to assist in the management of the harbour resource.

6.4.3 Existing land uses

The impact of the construction and operation of the gas pipeline on existing land uses is expected to be minimal.

The initial planning for the development of the gas pipeline involved a number of site selection studies. As a result, the preferred gas pipeline route generally avoids conflict with other uses and is sited on the less constrained lands. The gas pipeline route between Callide and the LNG plant site on Curtis Island will be sited within the Callide Infrastructure Corridor State Development Area and the proposed GSDA Corridor.

During the Project's detailed design phase, further environmental, geotechnical and landholder investigations will be undertaken to confirm an acceptable right of way. The expected impacts on the locality's land uses are examined below.

Agriculture

The gas pipeline development will result in the temporary disturbance of some cropping and grazing lands and the permanent removal of some land from agricultural use. It is estimated that approximately 1,766ha of land used for various agricultural purposes will be temporarily disturbed by construction activities, and that 31ha may be permanently removed if an operational-phase access road is maintained within the right of way through timbered areas. This level of change of use is not expected to materially alter the land use balance in the gas pipeline area.

In terms of individual properties, the level of disruption to agricultural land uses will depend on the siting of the gas pipeline right of way, the temporary accommodation facilities and pipe laydown areas. It is Australia Pacific LNG's intention to discuss the location of these facilities with landholders to reduce the level of potential disruption where ever possible.

The gas pipeline may also potentially disrupt agricultural operations through increases in vehicle movements, the transport of weeds from property to property, increases in the volume and intensity of noise, dislocation of existing farming practices, and stock injury or loss.

Conservation and recreation uses

The gas pipeline has been sited to avoid recreation and conservation areas where possible. The gas pipeline is to be sited within the Callide Infrastructure Corridor State Development Area and the proposed GSDA corridor. The Callide corridor traverses the Callide Timber Reserve for 4.15km, and the GSDA corridor traverses a small portion of the Targinie State Forest.

The Project is not expected to directly impact on recreational activities associated with the informal camping area at Laird Point, as it is not located on the proposed right of way. However, the camping area may be affected by construction noise and dust.

The GSDA corridor between Friend and Laird Points traverses four conservation areas. It is intended that the gas pipeline will be placed under the sea floor using horizontal directional drilling techniques in preference to the laying of the pipe in a trench on the sea floor. It is therefore expected that boat access to the waters in The Narrows will not be totally restricted during construction. Details of the gas pipeline's potential impacts on the marine environment are provided in Volume 3 Chapter 10 and Volume 3 Chapter 12.

The gas pipeline's construction may also alter the quality and integrity of items of the protected areas estate in the locality. These items are identified below:

- The Great Barrier Reef World Heritage Area (water quality)

- The Great Barrier Reef Coast Marine Park (water quality)
- The Port Curtis wetland (water quality, habitat removal)
- The Rodds Bay Dugong Protection Area in Port Curtis (seagrass bed disturbance, boat strike, noise disturbance).

Further discussion on these potential impacts on conservation and recreational values is provided in Volume 3 Chapter 10, Volume 3 Chapter 12, and Volume 3 Chapter 23.

Elsewhere, the gas pipeline right of way avoids the other conservation resources located in the terrestrial portion of the gas pipeline corridor.

Forestry operations and millable timber

The location of the gas pipeline right of way in the Callide and GSDA corridors is in accordance with Queensland Government policy. The alignment of the corridors will result in potential disturbance of the Callide Timber Reserve and the Targinie State Forest.

The gas pipeline right of way will potentially impact upon forest resources by reducing the amount of land available for growing timber, and could sterilise any extractive industry resources. The Project will reduce the amount of timber trees for bee foraging and may disturb or alter the grazing practices of any lessees.

The 'Code of Practice for Native Forest Timber Production on State Lands, 2007' establishes procedures for the harvesting of timber products. These procedures address such matters as the protection of streams, drainage lines, wetlands, lakes, springs, and wildlife habitat, and the management of steep and unstable lands. The relevant state forest and timber reserve managers will be consulted to determine appropriate forest clearing techniques, tree harvesting and track construction and maintenance procedures for the impacted parts of the forests.

The clearing of site vegetation on private properties during the gas pipeline construction phase may involve some usable timber. Prior to the commencement of clearing operations, Australia Pacific LNG intend to carry out an assessment of the timber on the site, and to determine the least intrusive way to harvest this timber resource. Vegetation, which is not suitable for timber production, will be mulched and stockpiled for use in site rehabilitation and revegetation activities.

Stock routes

Impacts on stock routes will generally arise from the clearing of vegetation and ground disturbance associated with the laying of the gas pipeline. It is expected disturbed areas will be progressively rehabilitated.

Tourism

The Project is not expected to directly impact on existing tourist attractions in the vicinity of the gas pipeline corridor. However, the Project's need for temporary accommodation facilities could occasionally limit the availability of these tourist attractions. Given the Project's intention to establish its own accommodation facilities as soon as possible during the initial construction stage, such shortages should be infrequent.

Rural homesteads

The Project has the potential to impact on the lifestyles enjoyed by rural residences through the disruption of activities, exposure to noise and dust associated with construction, and the increase in

people on the land holding. Volume 3 Chapter 13 and Volume 3 Chapter 15 discuss the nature and magnitude of these impacts and put forward measures for their management.

Urban uses

The gas pipeline will be located away from urban areas and will not physically impact on urban uses. The increase in business activity and the expected population influx into the gas pipeline corridor area generated by the Project could increase the demand for short term accommodation and community services. These impacts are discussed in Volume 3 Chapter 20 and Volume 3 Chapter 21.

6.4.4 Mineral resources

The establishment of the gas pipeline right of way has the potential to restrict the future mining of some mineral resources in the region. The gas pipeline corridor traverses a number of tenements that have overlapping tenure.

Should the holders of the affected coal tenures wish to access coal under the gas pipeline right of way, they may be required to either accept the costs of relocating the gas pipeline or forego coal extraction and/or gasification.

As identified above, the gas pipeline right of way traverses two mining leases and four mineral development license areas as shown in Table 6.17.

Table 6.17 Affected mining tenures

Tenement holder	Tenement number	Right of way intersection points (KP)
Mining lease		
Queensland Energy Resources Limited	80081(A)	KP348 – KP352
Cement Australia (Queensland) Pty Ltd	7629	KP328
Mineral development license		
Cougar Energy Limited	420(A)	KP15WL - KP24WL
The Shell Company Of Australia Limited	203(A)	KP250 - KP257
Queensland Energy Resources Limited	225	KP346 - KP347; KP351 - 352
Queensland Energy Resources Limited	177	KP347 - KP351

The crossing of these tenements may limit the tenement holders' access to the resource under and adjoining the gas pipeline right of way and may result in either relocation costs or sterilisation of the resource.

6.4.5 Petroleum resources

The gas pipeline's impact on other petroleum resources and tenements is expected to be minimal given the flexibility available to site gas field infrastructure in locations that do not compromise the proposed gas pipeline's construction or operation.

It is expected that the conditions for the gas pipeline crossing of the tenement will be determined by mutual agreement with the affected petroleum tenement holders. The proposed gas pipeline right of way location should not affect the tenement holders' ability to carry out resource exploration or production activities.

6.4.6 Extractive industry resources

There is no key resource area (listed under SPP 2/07) located within the gas pipeline corridor and no existing quarry is directly affected by the proposed gas pipeline right of way.

The construction of gas pipeline will create an increased demand for sand, gravel and road base products. The quantities of these materials required are unknown at this stage of the Project. As most existing commercial quarries in the region have low production rates, an increase in production may be generated assuming individual existing operations have sufficient resources. It is possible that new quarries may be established in response to increased demand created by this, and other CSG pipeline projects. New quarries and expansions to existing quarries will generate changes to land use and increase in traffic on local roads.

6.4.7 Infrastructure

Roads

The gas pipeline development will not result in the construction of new public roads. However, it will result in the upgrading and ongoing maintenance of existing roads to enable heavy vehicle access to temporary accommodation facilities, pipeline laydown areas, and the gas pipeline right of way. The increased amount of traffic on local roads generated by the Project could result in the deterioration of road surfaces if these are not adequately maintained.

Pipeline construction will involve the crossing of existing local government authority roads and may involve some disruption to the operation of these roads for short periods of time. Australia Pacific LNG will contact the relevant councils to determine appropriate scheduling of construction activities to minimise disruption.

The gas pipeline right of way traverses the Gladstone to Mt Larcom Road, Bruce Highway, Warrego Highway, Dawson Highway, Burnett Highway, Eidsvold to Theodore Road, and Leichhardt Highway. It also runs parallel to the Dawson Highway for a distance of some 37km.

Construction planning at points where the gas pipeline crosses declared main roads will be undertaken in consultation with the Department of Transport and Main Roads. It is expected that road crossing traffic arrangements will be documented in a traffic management plan. This plan will be agreed with the Department and the relevant local government authorities prior to the commencement of crossing works.

Further details on the management of these potential impacts are presented in Volume 3 Chapter 17.

Railways

The gas pipeline crosses eight railway lines along its length. Gas pipeline installation at these crossing points will be undertaken using techniques to bore under the railway line to avoid the disruption of rail services on these lines. For each crossing, discussions will be held with the facility owners to confirm crossing points and methods to restrict impacts upon railway activities.

Should these railways be electrified, the potential for electrical interference between the railway and any steel pipeline would exist. If this situation were to occur, measures will be implemented to prevent this interference from creating operational problems for the gas pipeline.

Aerodromes

The proposed gas pipeline alignment crosses one local rural airstrip. The gas pipeline's construction could restrict the use of the airstrip for a short period of time. Appropriate compensation would be negotiated with the owner of the airstrip for this disruption and the airstrip surface will be reinstated following construction.

Pipelines

The gas pipeline will cross a number of existing pipelines. These crossings will be undertaken in accordance with agreements reached with the various pipeline owners/operators.

Part of the gas pipeline is expected to be located within the Callide Infrastructure Corridor State Development Area and the GSDA corridor. This will involve the co-location of the gas pipeline with other pipelines in a common services corridor. This will limit the amount of disturbance of new ground and have the further benefit of locating facilities together in a common location. The design and construction of co-located pipelines will be in accordance with the relevant standards, particularly Australian Standard AS 2885: Gas and liquid petroleum pipelines.

High voltage power transmission lines

The gas pipeline involves seven crossings of high voltage power line easements. The height of pipeline laying equipment could be a safety concern with respect to these power lines. The operators of the power lines will be consulted to develop safe crossing procedures.

Telecommunications cables

The gas pipeline crosses major telecommunications cables on the Leichhardt Highway south of Gulugaba, the Warrego Highway east of Miles, the Dawson and Burnett highways near Biloela, and the Bruce Highway and the Gladstone-Mt Larcom Road east of Mt Larcom. The potential exists for unintentional damage to be caused to existing telecommunication infrastructure during the gas pipeline construction phase. This would disrupt the supply of services, and therefore owners of such infrastructure will be consulted during construction planning to avoid such outcomes.

6.5 Mitigation and management

6.5.1 Good quality agricultural land

The gas pipeline will have some unavoidable impact on good quality agricultural land (GQAL). The gas pipeline alignment has been determined having regard to the need to avoid GQAL where this can be achieved without adding significant length and cost to the project.

As indicated above, a substantial proportion of GQAL land will be subject to short term disturbance as a consequence of gas pipeline construction activities. It is intended to progressively rehabilitate these lands in a timely manner to a condition consistent with the surrounding environment.

In class A and class B GQAL (i.e. areas used for cropping or potentially used for cropping) consisting of heavy clay soils, the pipeline will be buried at a depth which will enable deep ripping land preparation practices to be undertaken without damaging the gas pipeline. In other GQAL areas the pipelines will be buried so as to enable standard agricultural practices to be undertaken by the landholder.

Pipeline construction allows for the progressive rehabilitation of disturbed land.

Landholder compensation agreements will be negotiated under the provisions of Part 5, Chapter 5 of the *Petroleum and Gas (Production and Safety) Act, 2004* in relation to such land or compensation will be determined by the Land Court.

6.5.2 Farming practices

Grazing and cropping activities

Australia Pacific LNG will seek to limit any disruption to a landholder's ability to use their land for agricultural purposes. The Project's land access team will work with landholders to develop and agree operational practices that will assist the achievement of this outcome. It is expected mitigation measures could include:

- Australia Pacific LNG will participate in proactive weed management and will work with regional councils to construct weed wash-down facilities to support gas pipeline construction and operations
- Establishment of right of way crossings to enable the landholder to move stock and equipment from one part of the property to the other where a property is bisected by the pipeline right of way during construction. Following rehabilitation, the land would be returned to normal use
- Establishment of fences, cattle grids, gates and access points to ensure stock cannot stray from paddocks during construction in consultation with the relevant landowners
- Implementation of right of way and property access protocols regarding the limitation of vehicle and machinery speeds and movements, the opening and closure of gates, the use of water, and so on
- Secure fencing of Australia Pacific LNG facilities areas to prevent unwanted access by stock and unauthorised persons
- Rehabilitation of disturbed land as soon as practicable following cessation of construction activities
- Development of special management measures with landholders who are undertaking specialised and/or certified production practices, to assist them to maintain current certifications, which could involve the restriction or prohibition of the use by Australian Pacific LNG of certain chemicals, fertilisers and herbicides in gas pipeline construction and operations.

Compensation agreements will be negotiated in accordance with Part 5, Chapter 5 of the *Petroleum and Gas (Production and Safety) Act, 2004* to deal with impacts on farming activities or compensation will be determined by the Land Court.

6.5.3 Stock routes

Where the gas pipeline crosses a stock route, steps will be undertaken to minimise disturbance to the stock route's vegetation, waterways and watering points. Ground disturbance to stock routes will be rehabilitated as soon as practicable following cessation of construction activities. Volume 3 Chapter 5 details the mitigation measures proposed to achieve successful rehabilitation. Volume 3 Chapter 8 addresses mitigation measures to reduce impacts on areas important for the maintenance of biodiversity values.

6.5.4 Mineral and extractive industry resources

As discussed above, the Project has the potential to sterilise resources held under existing mining lease and mineral development licence tenures. Australia Pacific LNG will negotiate the pipeline crossing of these tenures with the holders of these tenures.

Land tenure modifications

The conversion of an authority to prospect to other forms of petroleum tenure such as a petroleum pipeline licence under the *Petroleum and Gas (Production and Safety) Act 2004*, to enable the Project to proceed, will be undertaken in consultation with the relevant Queensland Government agencies (DERM and DEEDI).

The creation of easements and access rights to land will be determined by negotiation with the affected landholders and other relevant stakeholders as necessary, following established practices and in accordance with the requirements of current regulations and legislation.

6.5.5 State forestry operations

The managers of the Callide Timber Reserve and the Targinie State Forest will be consulted to determine the terms of access to their forest tenures and to negotiate appropriate arrangements where project activities would negatively affect current forest operations.

Australia Pacific LNG proposes that the following mitigation measures will be implemented wherever practicable:

- Development of a biosecurity management plan that addresses animal and plant pests. An integral part of the plan will be to reduce the risk of the introduction or spread of invasive species
- Establishment of forest access points and roads in locations agreed with the forest manager and adjoining landholders
- Location of access roads in the forest to generally avoid constrained areas such as important vegetation and sensitive ecosystems, steep slopes, unstable areas, and erosion prone soils
- Establishment of watercourse crossings in accordance with standard forestry practice
- Maintenance of access tracks and pipeline right of ways to control erosion
- Harvesting of timber prior to land clearance in accordance with standard forest practice.

6.5.6 Infrastructure and services

Australia Pacific LNG will consult with all infrastructure owners and operators to establish the precise location of services and to develop a management plan for the crossing of, or co-location with, such infrastructure prior to undertaking land clearing, excavation and other construction activities.

6.5.7 Natural hazards

Flooding

Creek crossings will be constructed during the 'dry' season where practicable to avoid damage from flooding during gas pipeline construction. Creek beds will be reinstated to their original form so that there will be no change to the natural flood behaviour in the watercourses.

Bushfire

Australia Pacific LNG will manage bushfire risk during construction and operations by utilising a variety of measures as follows:

- Monitoring of a bushfire weather forecasting and forewarning system
- Observation of fire bans for high risk days/seasons
- Implement fire prevention measures during construction
- Staff and contractor bushfire education and training
- Preparation and implementation of emergency response plans tailored to individual gas pipeline component situations
- Implementation of fire prevention, fire watch, and fire response procedures during construction and operation, particularly within forested areas.
- Provision of fire breaks around facilities, plant and equipment
- Cooperate with the Rural Fire Service in respect to any controlled burning
- Regular consultation with the Rural Fire Service and landowners on matters of mutual interest (e.g. which dams can be used for fire water)
- Implementation of fire prevention and response procedures at the temporary accommodation facilities
- Design, siting and construction of facilities using fire resistant materials and in accordance with the Australian Standard 3959 – 1999 Construction of buildings in bushfire-prone areas.

Landslide

The gas pipeline right of way will generally avoid areas subject to landslide risk. Where land that is vulnerable to landslip is unavoidable, construction of the gas pipeline and subsequent rehabilitation measures will be designed to minimise the risk to the gas pipeline's integrity should a landslip occur.

6.6 Conclusion

6.6.1 Assessment of outcomes

The management of land and natural resources seeks to ensure that the health of our land, water and vegetation is improved, long term productivity is enhanced, and that regional communities are resilient and prosperous. The stewardship of both natural and human resources is of prime importance for sustainable agriculture, forest management and marine and coastal environmental protection.

Table 6.18 lists land use sustainability objectives and project mitigation measures that support these objectives. The objectives and mitigation measures relevant to the marine environment and matters of national environmental significance are reported in Volume 3 Chapter 10, Volume 3 Chapter 12 and Volume 3 Chapter 23.

The table also includes the residual risk levels for land use and infrastructure. A risk assessment has been undertaken to identify potential risks, causes and consequences from gas pipeline activities. Mitigation measures to reduce the risk have been nominated and the residual risk has been assessed. Further details on the risk assessment methodology are provided in Volume 1 Chapter 4.

Table 6.18 Summary of environmental values, sustainability principles, potential impacts and mitigation measures

Environmental values	Sustainability principles	Potential impacts	Possible causes	Mitigation and management measures	Residual risk level
Diversity of ecological processes and associated ecosystems.	Minimising adverse environmental impacts and enhancing environmental benefits associated with Australia Pacific LNG's activities, products or services; conserving, protecting, and enhancing where the opportunity exists, the biodiversity values and water resources in its operational areas	Loss of or disturbance to lands with important conservation values. Disturbance to forestry operations.	Inappropriate siting of gas pipeline and construction support facilities.	Site project facilities and infrastructure to reduce impact on ecologically sensitive areas. Progressively rehabilitate disturbed land to produce stable landforms as soon as practicable after pipeline installation. Consult with forest managers to determine forest access conditions in accordance with standard forest practices.	Low
Life, health and wellbeing of people.	Respecting the rights, interests and diverse cultures of the communities in which it operates	Disruption to existing lifestyles and businesses. Temporary disturbance to infrastructure services.	Project construction activities and operation	Implement and monitor land access arrangements to minimise impacts on communities, including land access procedures that foster the partnership approach to landowner negotiations – to be introduced to the workforce through inductions and training. Consult with infrastructure owners and operators to develop measures for the	Negligible

Environmental values	Sustainability principles	Potential impacts	Possible causes	Mitigation and management measures	Residual risk level
				crossing of, or co-location with, such infrastructure prior to undertaking land clearing, excavation and other construction activities. Negotiate landholder compensation agreements under the provisions of Part 5, Chapter 5 of the *Petroleum and Gas (Production and Safety) Act, 2004* or compensation will be determined by the Land Court.	
		Improved infrastructure (such as roads), and improved access to water.	Upgraded roads	Engage with the community to develop sustainable regional infrastructure strategies that address the interests of affected communities, landholders and government.	Low
Management of finite resources –land resource. Land use capability, having regard to economic considerations.	Identifying, assessing, managing, monitoring and reviewing risks to Australia Pacific LNG's workforce, its property, the environment and the communities affected by its activities.	Reduction of productivity of GQAL through temporary disturbance to land or the temporary removal of land from agricultural production. Sterilisation of mineral resources.	Location of project components	Site infrastructure to minimise impacts to good quality agricultural land. Bury pipelines at appropriate depths to allow agricultural uses to continue. Integrate and manage	Low

Environmental values	Sustainability principles	Potential impacts	Possible causes	Mitigation and management measures	Residual risk level
		Reduction in land available for timber production in state forests.		project activities in consultation with the landholder to minimise impact on the landholder's business. Develop a biosecurity management plan in association with regional councils that addresses animal and plant pests, including a plan to reduce the risk of the introduction or spread of invasive species. Negotiate with owners of mineral or timber resources impacted by the gas pipeline development.	

6.6.2 Commitments

To minimise adverse impacts to existing or future land uses from its activities related to the gas pipeline, Australia Pacific LNG will:

- Work with affected landholders to limit disruption to the landholder's use of the land for agricultural and other purposes
- Participate in proactive weed management and will work with regional councils to construct weed wash down facilities at a location in the Banana Shire to support gas pipeline construction and operations
- Consult with the operators and owners of infrastructure such as roads, railways, marine facilities, other pipelines and telecommunication cables to develop management measures for the crossing of, or co-location with, such infrastructure.

Figures

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LEICHHARDT HIGHWAY

KP020

Dogwood Creek

KP010

KP000

Jackson WARREGO HIGHWAY Dulacca Drillham Miles WARREGO HIGHWAY

Dulacca Creek

Roma Condamine Road

Condamine

Kogan Condamine Road

LEICHHARDT HIGHWAY

Condamine River

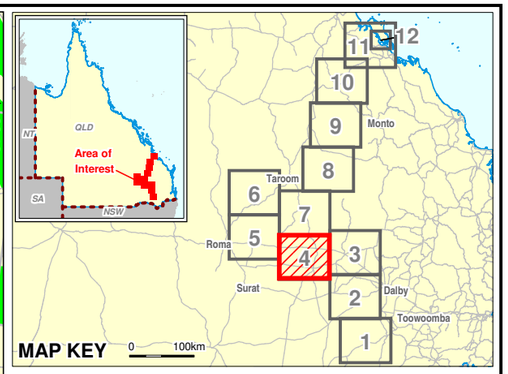
Dogwood Creek

Meandarra Road

Condamine River

Dogwood Creek

Condamine River



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

Good quality agricultural land (classes A, B, C1)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

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SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.1 - Good Quality Agricultural Land (Map 4)

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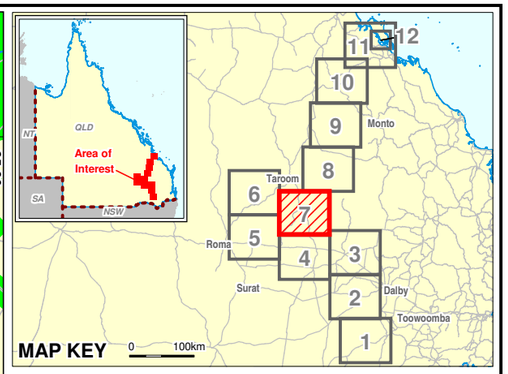
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Horse Creek
Juandah Creek
Horse Creek
Horse Creek
Horse Creek (east Branch)
Wolebee Creek
Juandah Creek
Bungaban North Creek
Doolwood Creek
Tchanning Creek
Jackson Road
Wandoan Road

LEICHHARDT HIGHWAY

Wandoan
Guluguba

KP050
KP040
KP030
KP020
KP010
KP000



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

Good quality agricultural land (classes A, B, C1)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

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SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

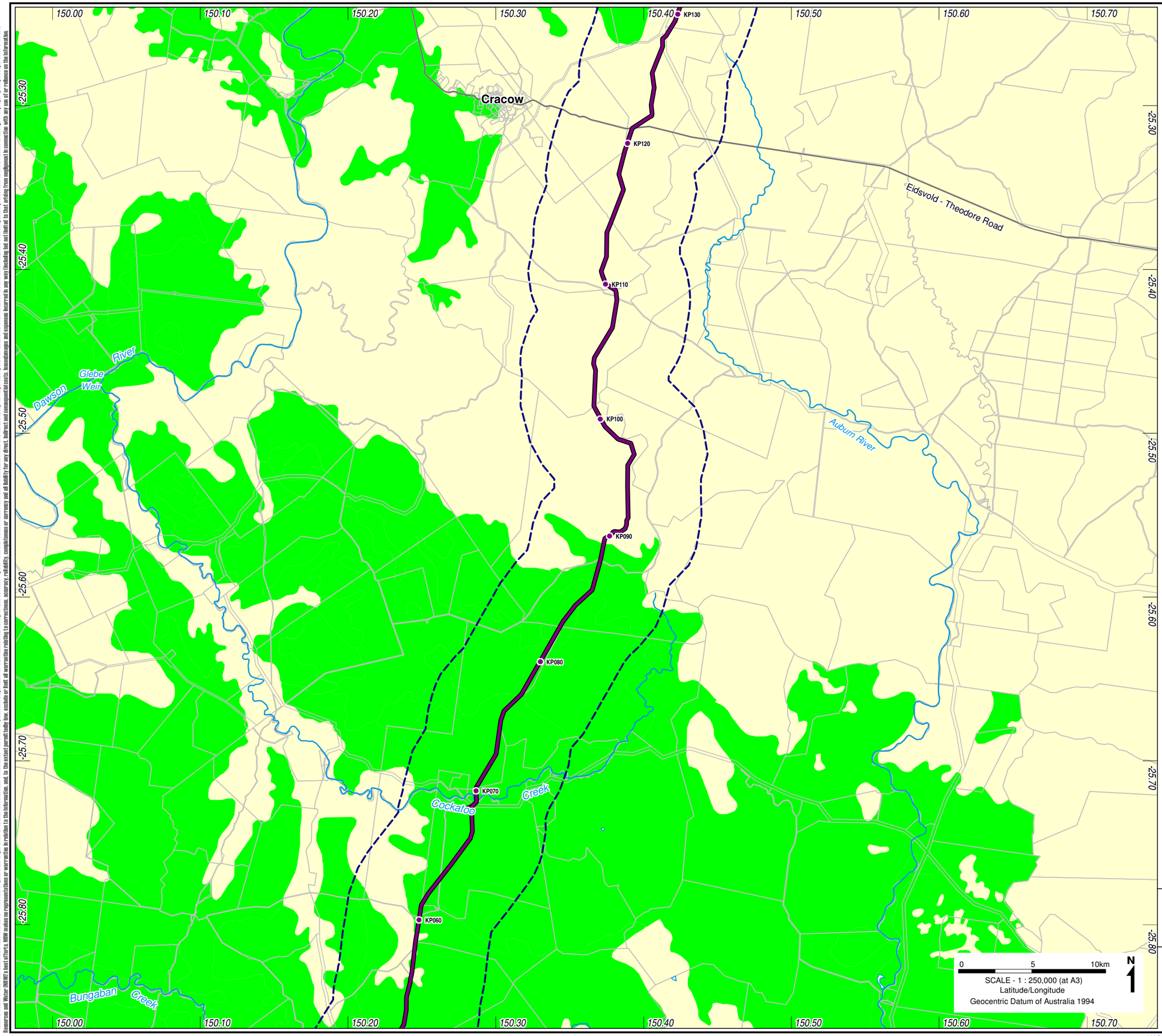
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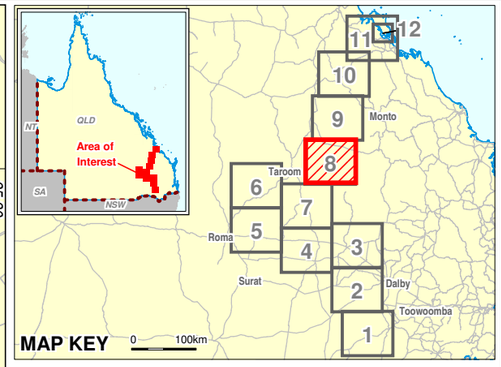
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.2 - Good Quality Agricultural Land (Map 7)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

Good quality agricultural land (classes A, B, C1)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.3 - Good Quality Agricultural Land (Map 8)

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LEICHHARDT HIGHWAY

Lonesome Creek

Castle Creek

Three Moon Creek 2

Three Moon Creek 1

Theodore

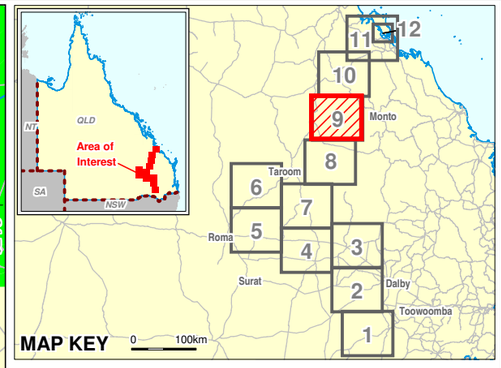
Eidsvold - Theodore Road

Dawson River

Camboon

Nago River

KP200 KP190 KP180 KP170 KP160 KP150 KP140 KP130



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

Good quality agricultural land (classes A, B, C1)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

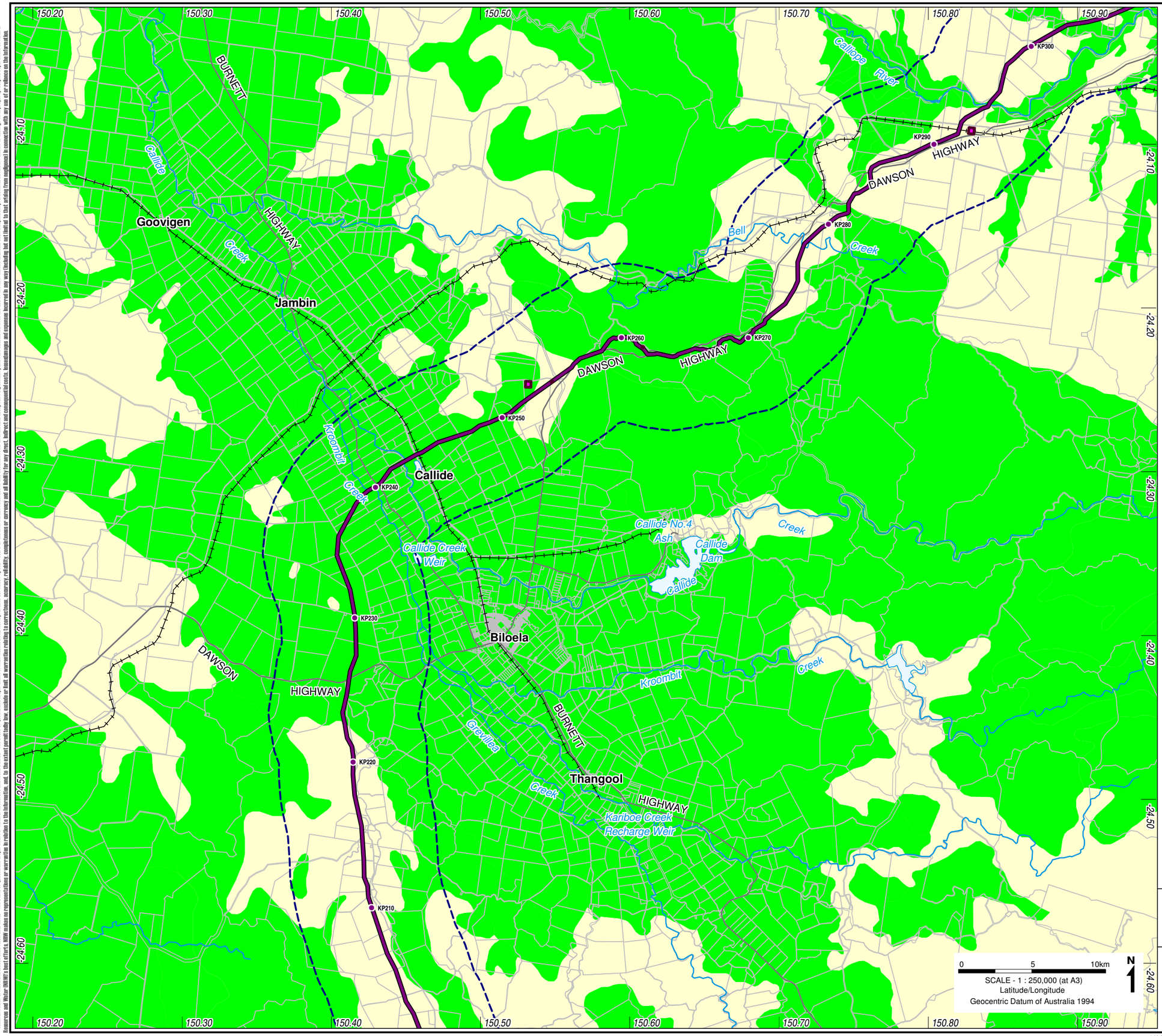
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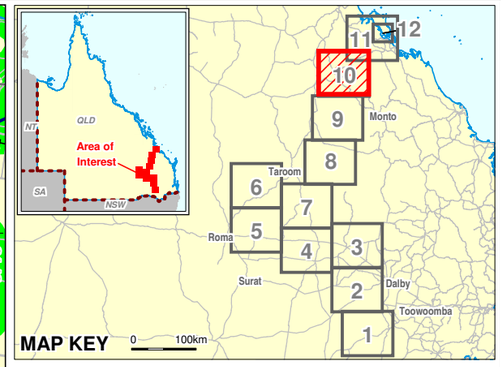
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.4 - Good Quality Agricultural Land (Map 9)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

Good quality agricultural land (classes A, B, C1)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

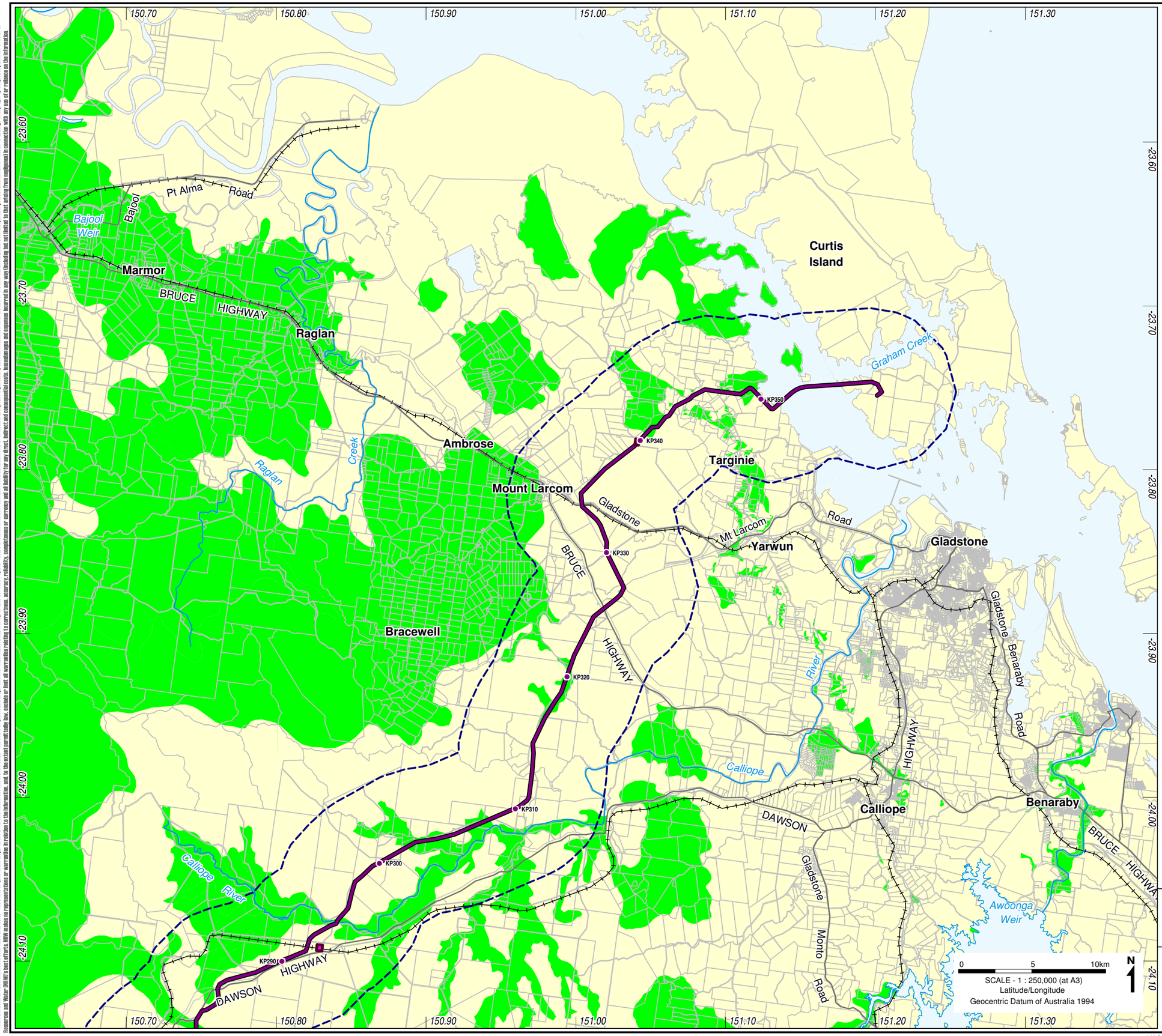
Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

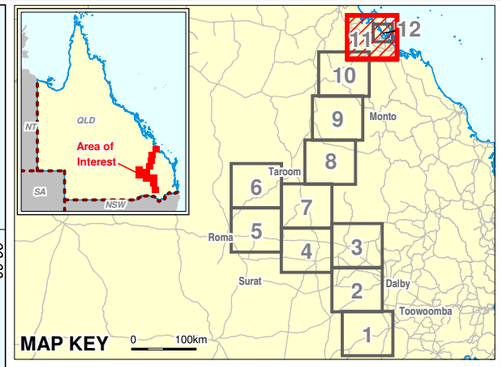
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.5 - Good Quality Agricultural Land (Map 10)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

- **Good quality agricultural land (classes A, B, C1)**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

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SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

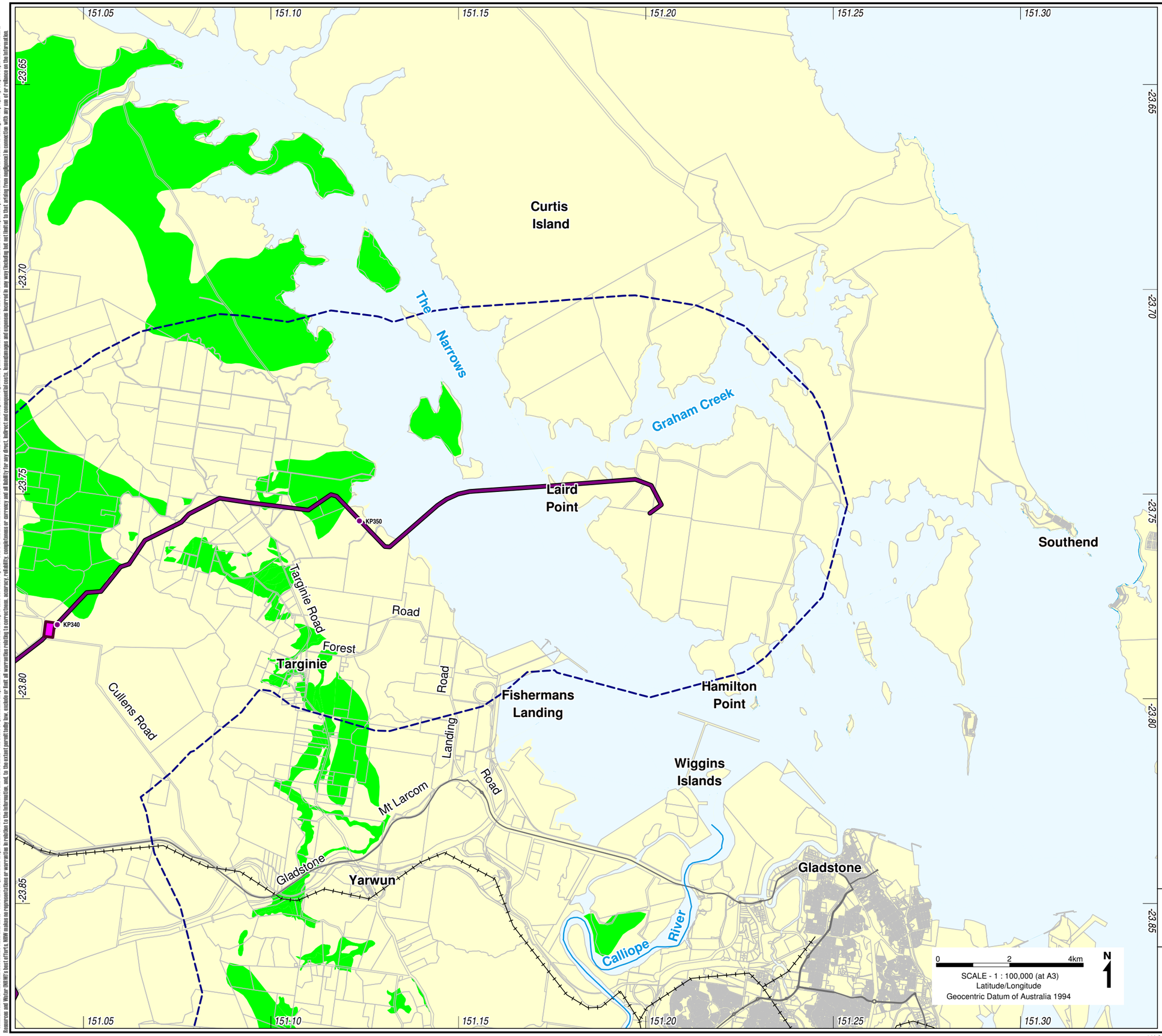
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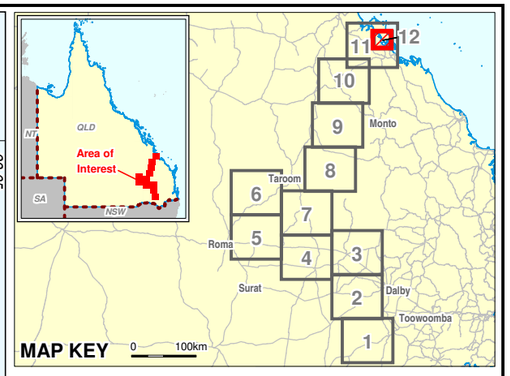
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6 Figure 6.6 - Good Quality Agricultural Land (Map 11)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Agricultural land classes

- **Good quality agricultural land (classes A, B, C1)**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Good Quality Agricultural Lands
Department of Natural Resources and Water, Queensland 2009

Land Resource data reports and maps
Department of Natural Resources and Water, Queensland 2008

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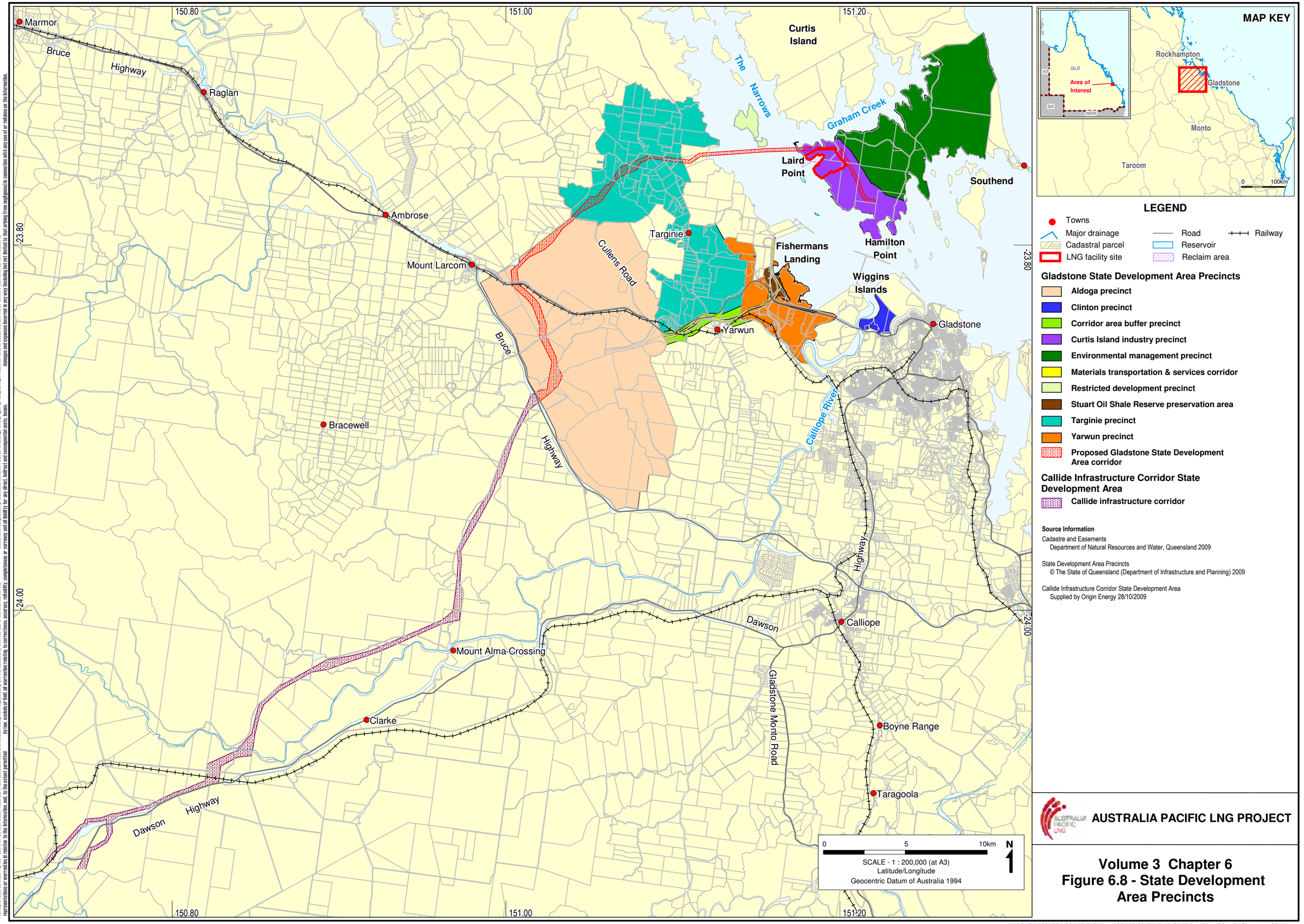
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Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.7 - Good Quality Agricultural Land (Map 12)

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LEGEND

- Towns
- Major drainage
- Cadastral parcel
- LNG facility site
- Road
- Reservoir
- Reclaim area
- Railway

Gladstone State Development Area Precincts

- Aldoga precinct
- Clinton precinct
- Corridor area buffer precinct
- Curtis Island industry precinct
- Environmental management precinct
- Materials transportation & services corridor
- Restricted development precinct
- Stuart Oil Shale Reserve preservation area
- Targinie precinct
- Yarwun precinct
- Proposed Gladstone State Development Area corridor

Callide Infrastructure Corridor State Development Area

- Callide infrastructure corridor

Source Information

Cadastre and Easements
Department of Natural Resources and Water, Queensland 2009

State Development Area Precincts
© The State of Queensland (Department of Infrastructure and Planning) 2009

Callide Infrastructure Corridor State Development Area
Supplied by Origin Energy 28/10/2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.8 - State Development Area Precincts

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LEICHHARDT HIGHWAY

KP020 KP010 KP000

Dogwood Creek

Jackson WARREGO HIGHWAY Dulacca Drillham Miles WARREGO HIGHWAY

Dulacca Creek

Roma Condamine Road Condamine

Dogwood Creek

LEICHHARDT HIGHWAY

Condamine River

Kogan Condamine Road

Meandarra Road

Dogwood Creek

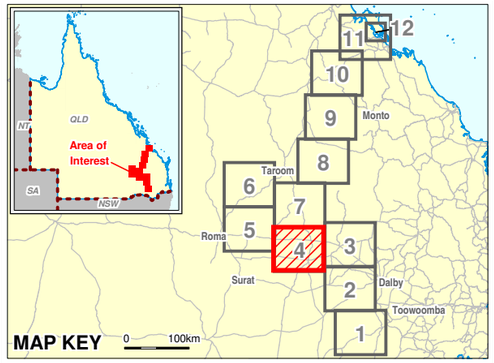
Condamine River

Condamine

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SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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LEGEND

- Major drainage
- Road
- Railway
- Cadastral parcel
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.9 - Land Use
(Map 4)

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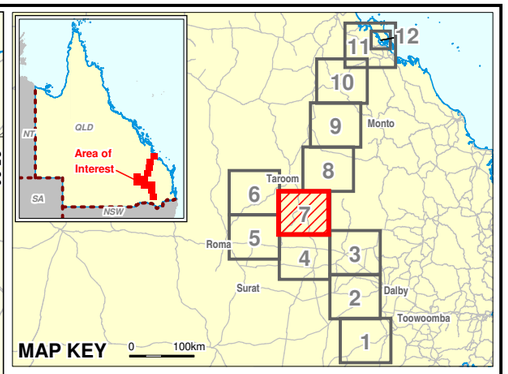
-25.90 -26.00 -26.10 -26.20 -26.30 -26.40

Horse Creek
Juandah Creek
Creek
Horse Creek
Creek
Woleebee Creek
Horse Creek (east Branch)
Tchanning Creek
Jackson
Wandoan Road
Bungaban Creek
North
Dogwood Creek

LEICHHARDT HIGHWAY

Wandoan
Guluguba

KP050
KP040
KP030
KP020
KP010
KP000



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.10 - Land Use
(Map 7)

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150.00 150.10 150.20 150.30 150.40 150.50 150.60 150.70

-25.30 -25.40 -25.50 -25.60 -25.70 -25.80

Cracow

KP120 KP110 KP100 KP090 KP080 KP070 KP060

Eidsvold - Theodore Road

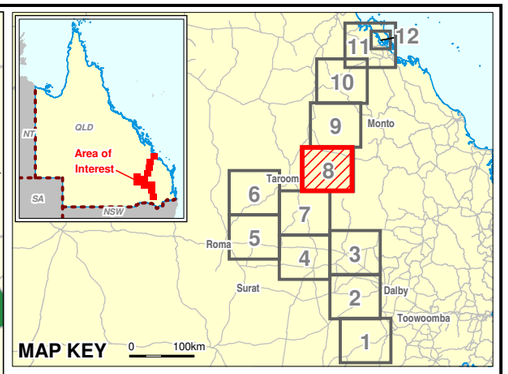
Dawson River

Glebe Weir

Auburn River

Cockatoo Creek

Bungaban Creek



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

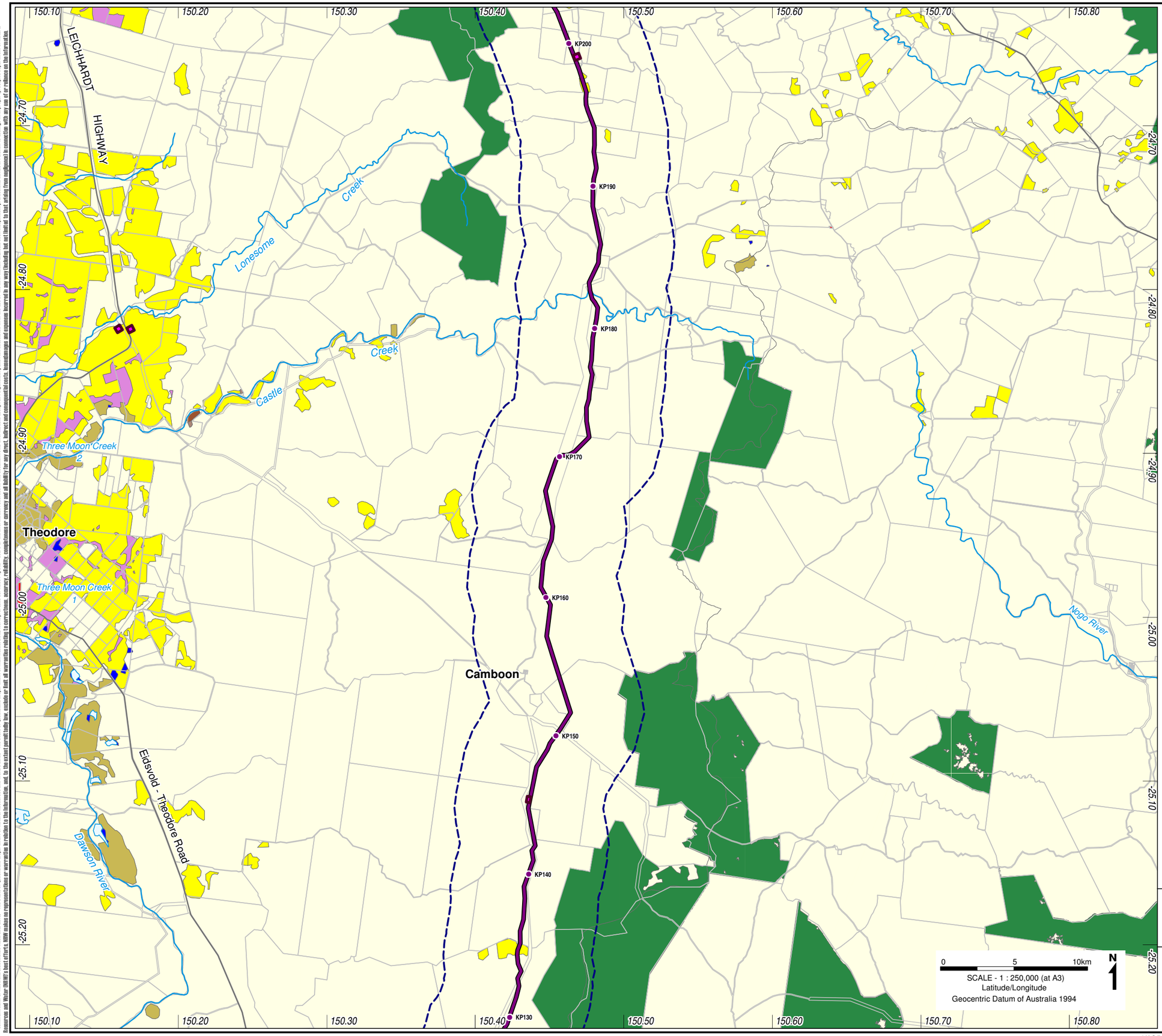
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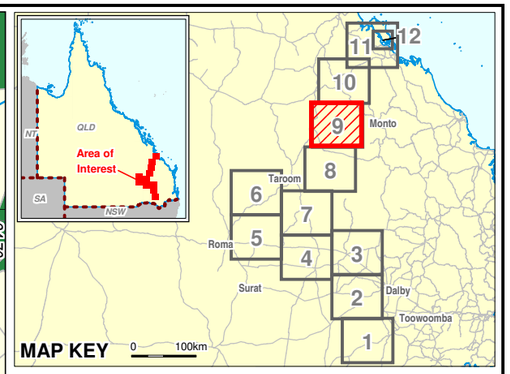
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.11 - Land Use
(Map 8)

K:\ORIGIN\301001-00448\GIS\Maps\00448-00-EN-DAL-2020-Rev0(Vol3Chp6_LandUse_08).wor

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

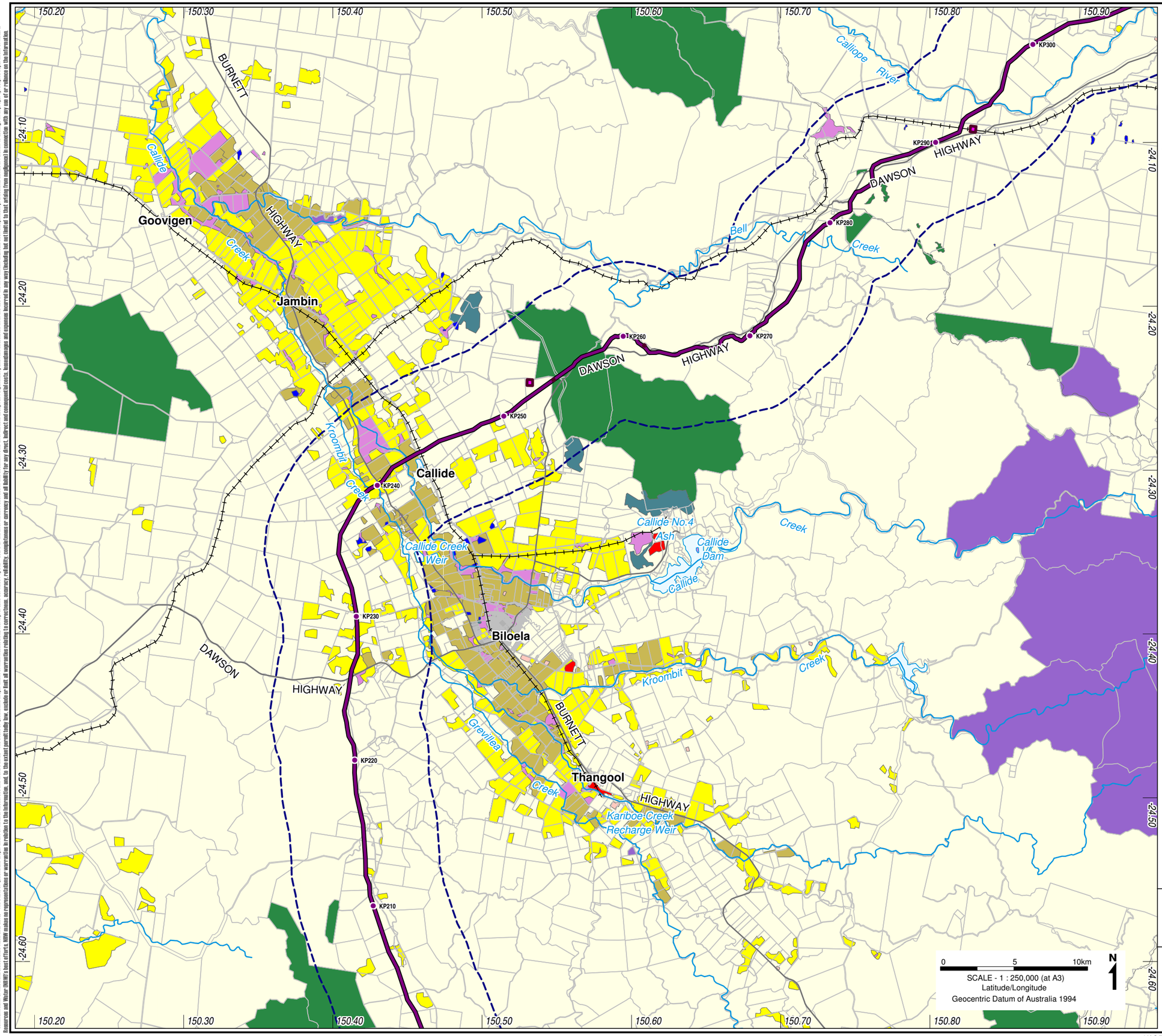
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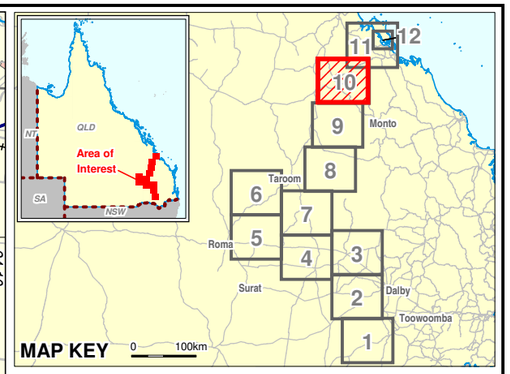
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.12 - Land Use
(Map 9)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

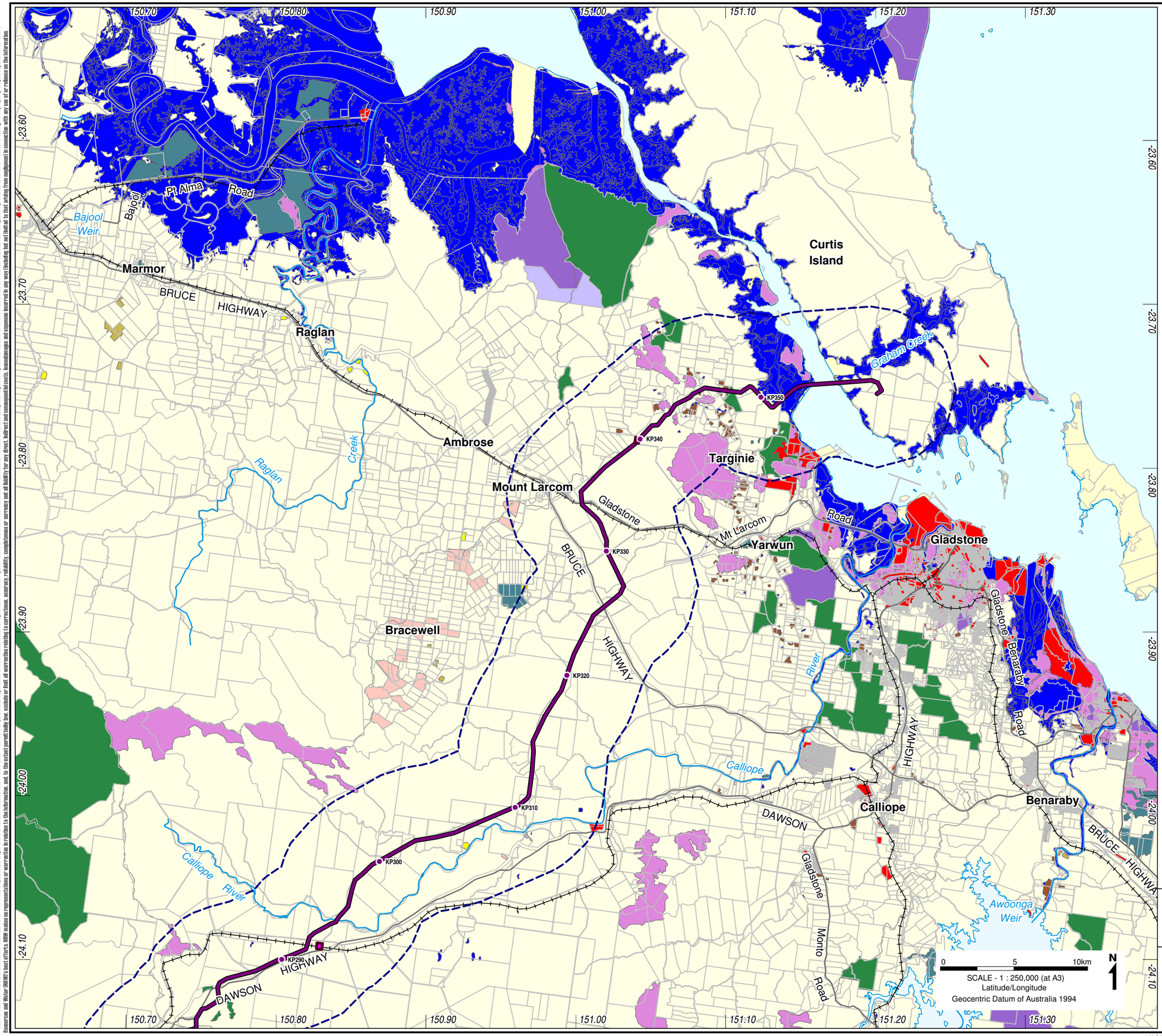
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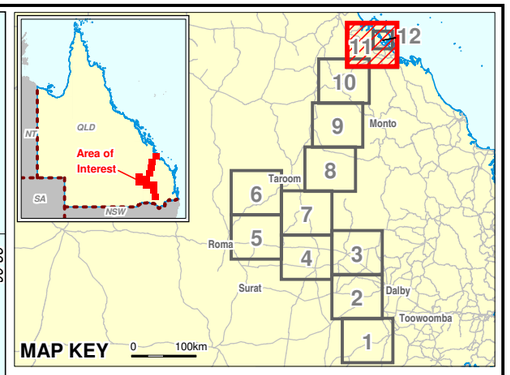
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.13 - Land Use
(Map 10)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 - Chapter 6
Figure 6.14 - Land Use (Map 11)

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Curtis Island

The Narrows

Graham Creek

Laird Point

Southend

Hamilton Point

Fishermans Landing

Wiggins Islands

Gladstone

Yarwun

Targinie

Targinie Road

Forest Road

Cullens Road

Mt Larcom Road

Landing Road

Gladstone

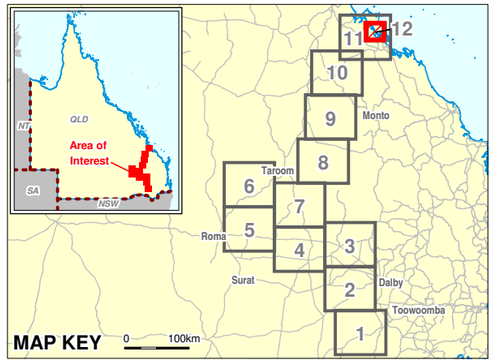
Calliope River

KP340

KP350

151.05 151.10 151.15 151.20 151.25 151.30

-23.65 -23.70 -23.75 -23.80 -23.85



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Use Classes

- Nature Conservation
- Other protected areas including indigenous uses
- Minimal Use
- Grazing natural vegetation
- Production forestry
- Plantation forestry
- Grazing modified pastures
- Dryland cropping
- Dryland horticulture
- Irrigated pastures and cropping
- Irrigated horticulture
- Intensive animal and plant production
- Rural residential
- Urban intensive uses
- Mining and waste
- Water

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Land Use Mapping Program (QLUMP)
Department of Natural Resources, Mines and Water, Queensland Government 1999

0 2 4km

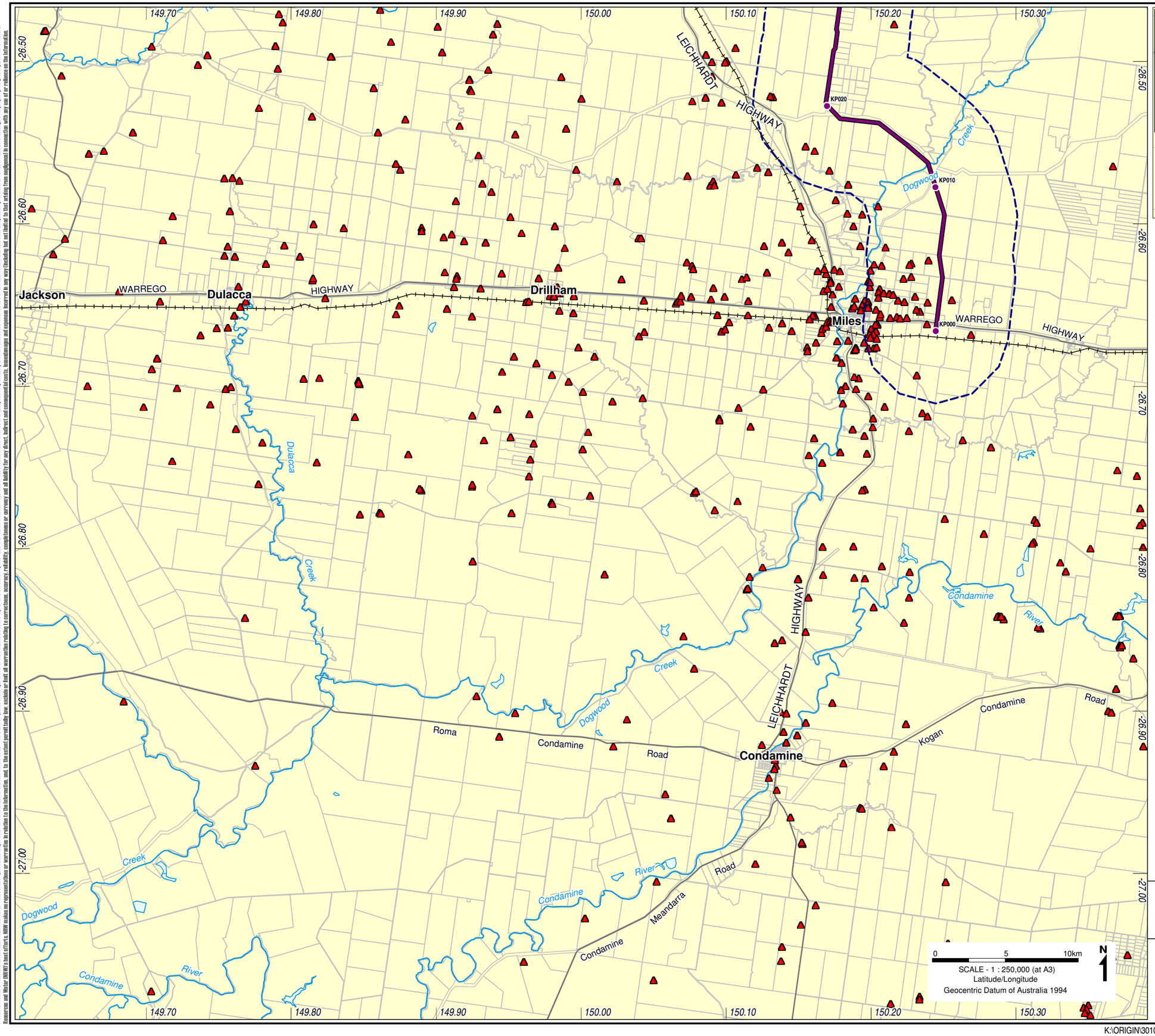
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Latitude/Longitude
Geocentric Datum of Australia 1994

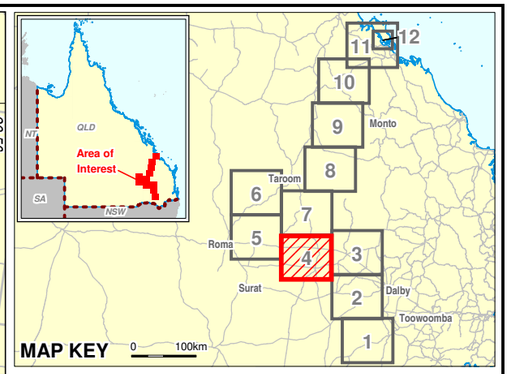
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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.15 - Land Use (Map 12)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- **Rural homestead**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

Homesteads
Queensland Geographics 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.16 - Rural Homesteads (Map 4)

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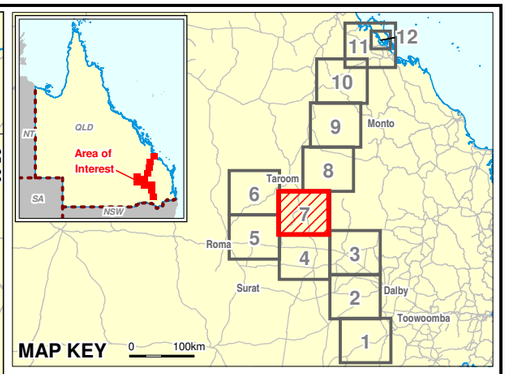
-25.90 -26.00 -26.10 -26.20 -26.30 -26.40

Horse Creek
Juandah Creek
Horse Creek
Horse Creek (east Branch)
Woleebee Creek
Tcharming Creek
Bungaban North Creek
Dogwood Creek
Juandah Creek

LEICHHARDT HIGHWAY

Wandoan
Guluguba
Wandoan Road
Jackson

KP050
KP040
KP030
KP020
KP010
KP000



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- **Rural homestead**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

Homesteads
Queensland Geographics 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.17 - Rural Homesteads (Map 7)

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150.00 150.10 150.20 150.30 150.40 150.50 150.60 150.70

-25.30 -25.40 -25.50 -25.60 -25.70 -25.80

Cracow

KP120

KP110

KP100

KP090

KP080

KP070

KP060

Eidsvold - Theodore Road

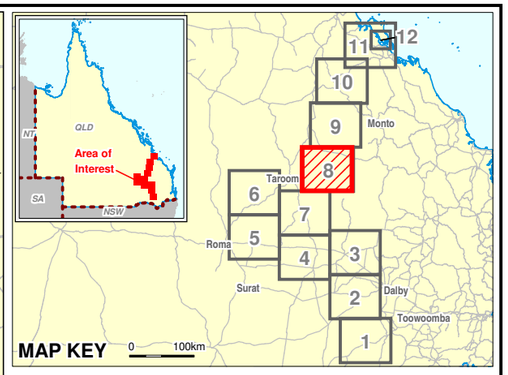
Dawson River

Glebe Weir

Auburn River

Cockatoo Creek

Bungaban Creek



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- **Rural homestead**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

Homesteads
Queensland Geographics 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

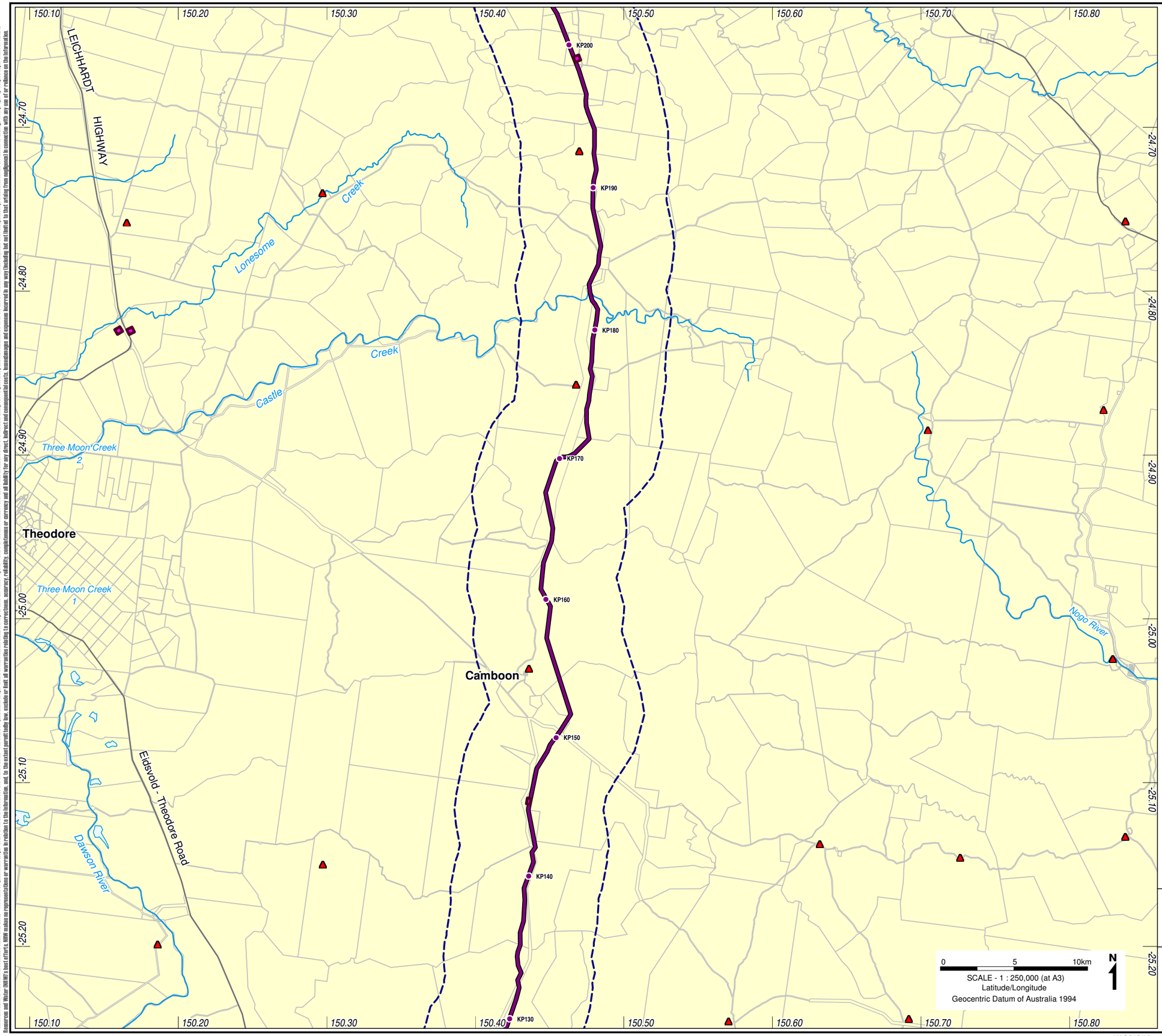
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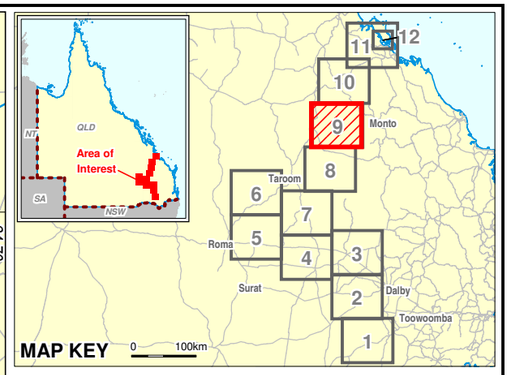
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.18 - Rural Homesteads (Map 8)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- **Rural homestead**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

Homesteads
Queensland Geographics 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.19 - Rural Homesteads (Map 9)

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150.20 150.30 150.40 150.50 150.60 150.70 150.80 150.90

-24.10 -24.20 -24.30 -24.40 -24.50 -24.60

BURNETT HIGHWAY

DAWSON HIGHWAY

Callide Creek

Kroombit Creek

Bell Creek

Callide River

Callide No.4 Ash Dam

Callide Creek Weir

Grevillea Creek

Kariboe Creek Recharge Weir

Goovigen

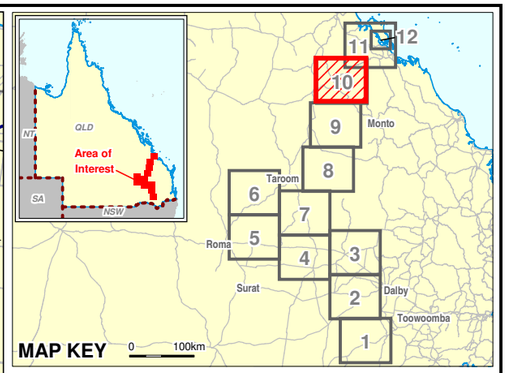
Jambin

Callide

Biloela

Thangool

KP210 KP220 KP230 KP240 KP250 KP260 KP270 KP280 KP290 KP300



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- Rural homestead

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

Homesteads
Queensland Geographics 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.20 - Rural Homesteads (Map 10)

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150.70 150.80 150.90 151.00 151.10 151.20 151.30

-23.60 -23.70 -23.80 -23.90 -24.00 -24.10

Curtis Island

Graham Creek

Bajool Weir

Bajool Pt Alma Road

Marmor

BRUCE HIGHWAY

Raglan

Raglan Creek

Ambrose

Mount Larcom

Gladstone Mt Larcom Road

Yarwun

Targinie

Gladstone

Bracewell

BRUCE HIGHWAY

Gladstone Benaraby Road

Benaraby

Calliope River

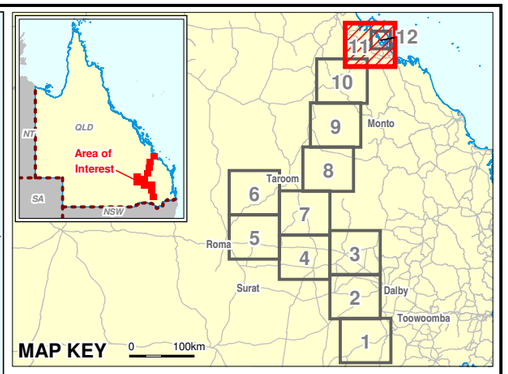
Calliope

DAWSON HIGHWAY

Gladstone Monto Road

Awoonga Weir

KP290 KP300 KP310 KP320 KP330 KP340 KP350



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- Rural homestead

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

Homesteads
Queensland Geographics 2009

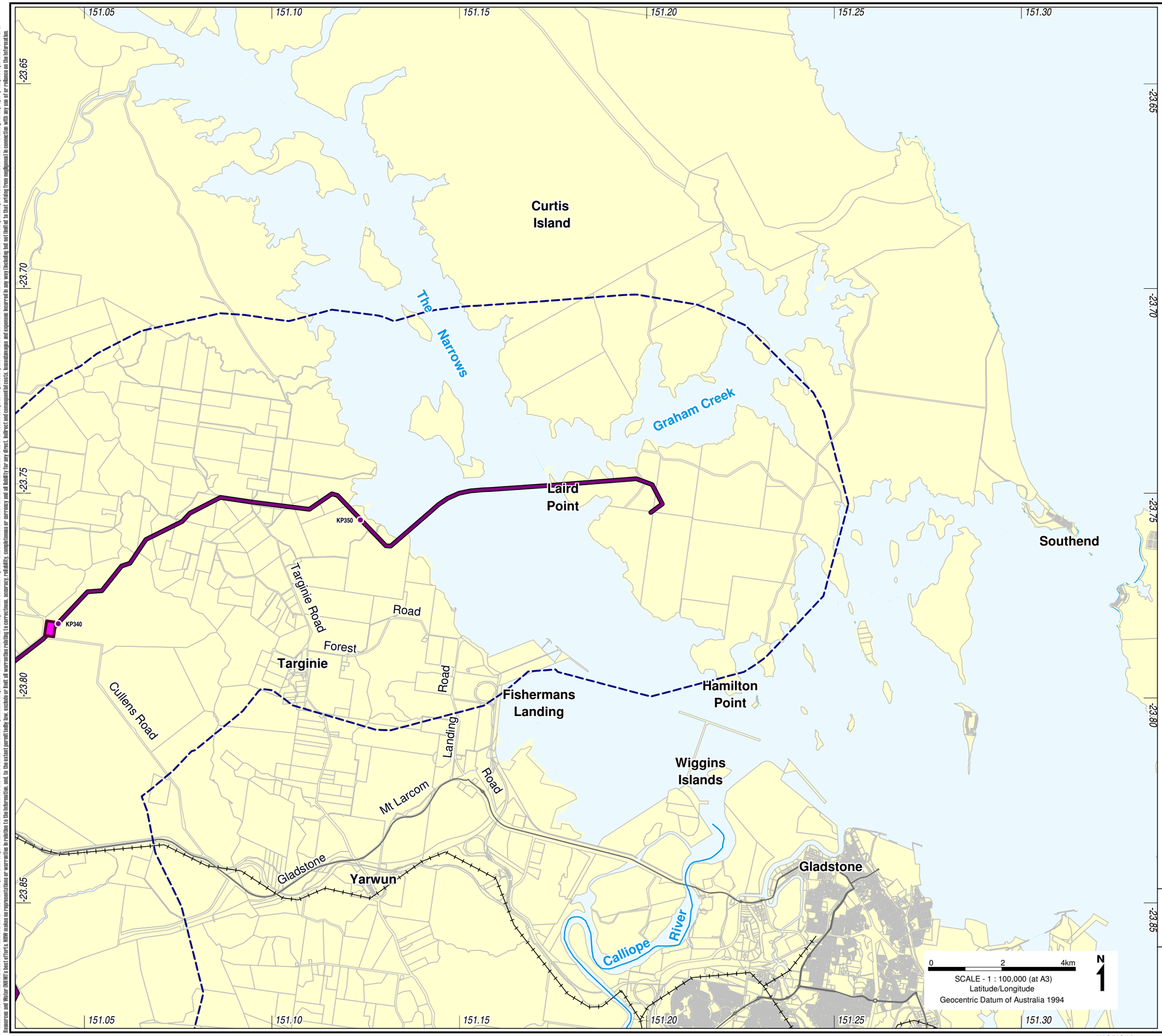
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SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994
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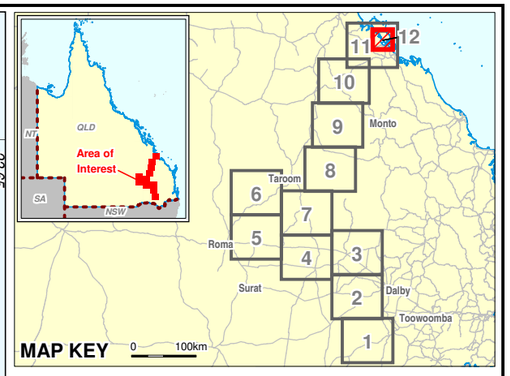
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.21 - Rural Homesteads (Map 11)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Homestead

- **Rural homestead**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Homesteads
Commonwealth of Australia (Geoscience Australia) 2009

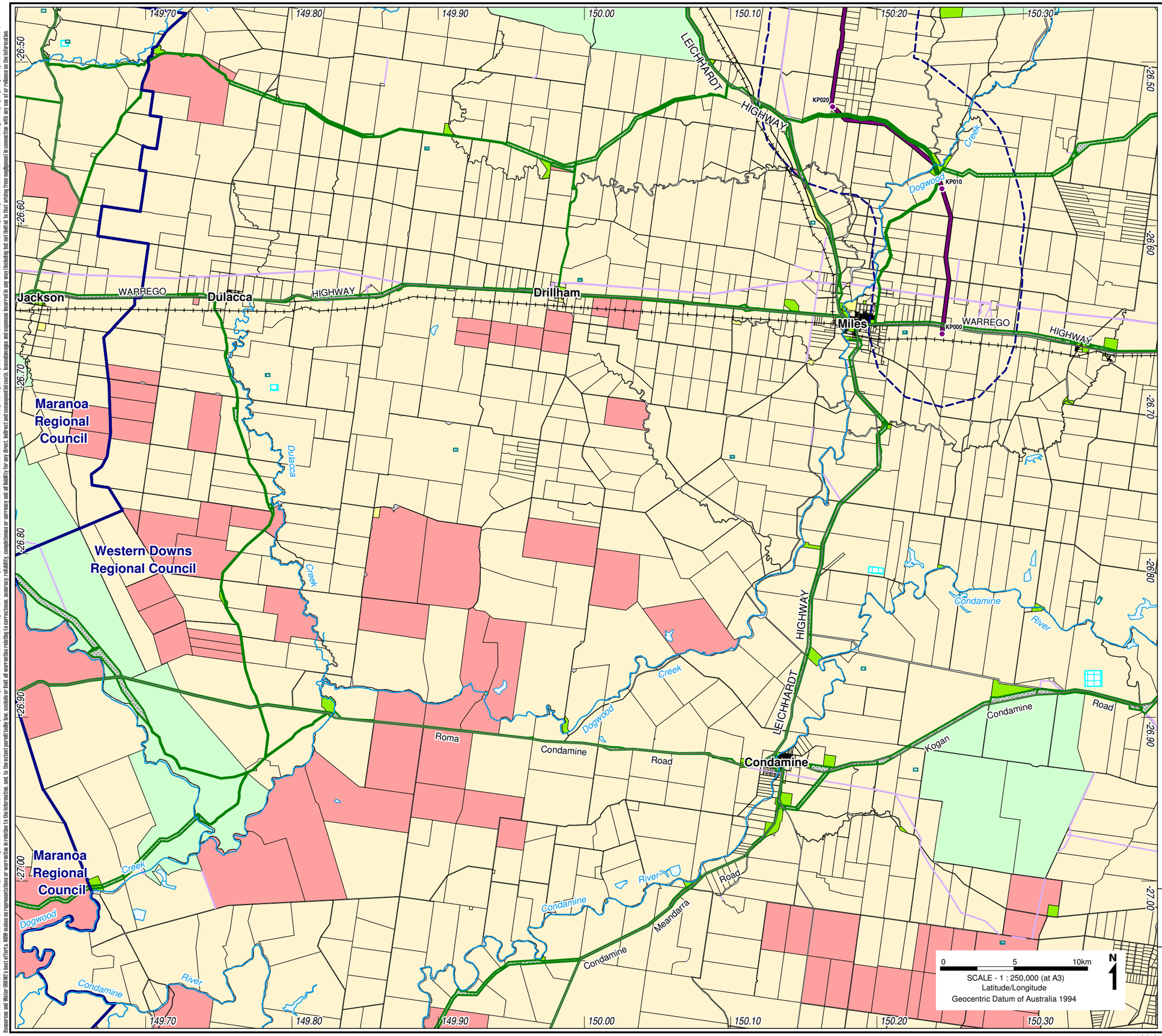
Homesteads
Queensland Geographics 2009

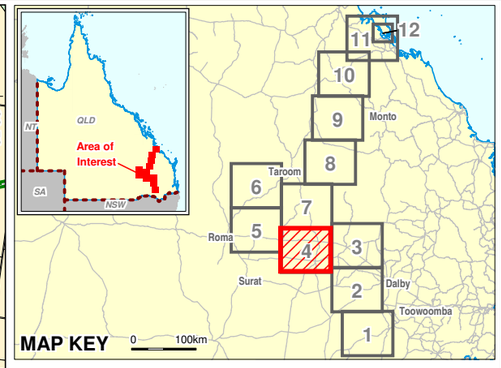
AUSTRALIA PACIFIC LNG PROJECT

Volume3 Chapter 6
Figure 6.22 - Rural Homesteads (Map 12)

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LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.23 - Land Tenure (Map 4)

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Banana Shire Council

Western Downs Regional Council

Maranoa Regional Council

Wandoan

Guluguba

Horse Creek

Juandah Creek

Creek

Horse Creek (east Branch)

LEICHHARDT HIGHWAY

Wolleebee Creek

Bungaban North Creek

Dogwood Creek

Wandoan Road

Jackson Tchanning Creek

KP050

KP040

KP030

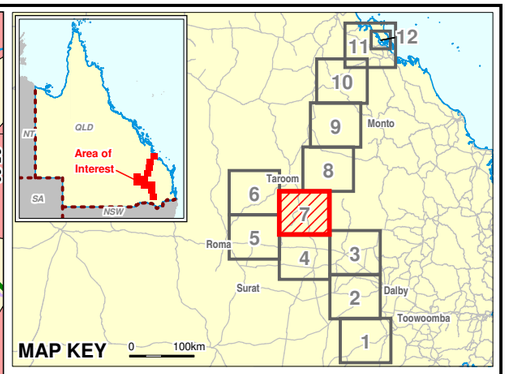
KP020

KP010

KP000

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-25.90 -26.00 -26.10 -26.20 -26.30 -26.40



LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

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Latitude/Longitude
Geocentric Datum of Australia 1994

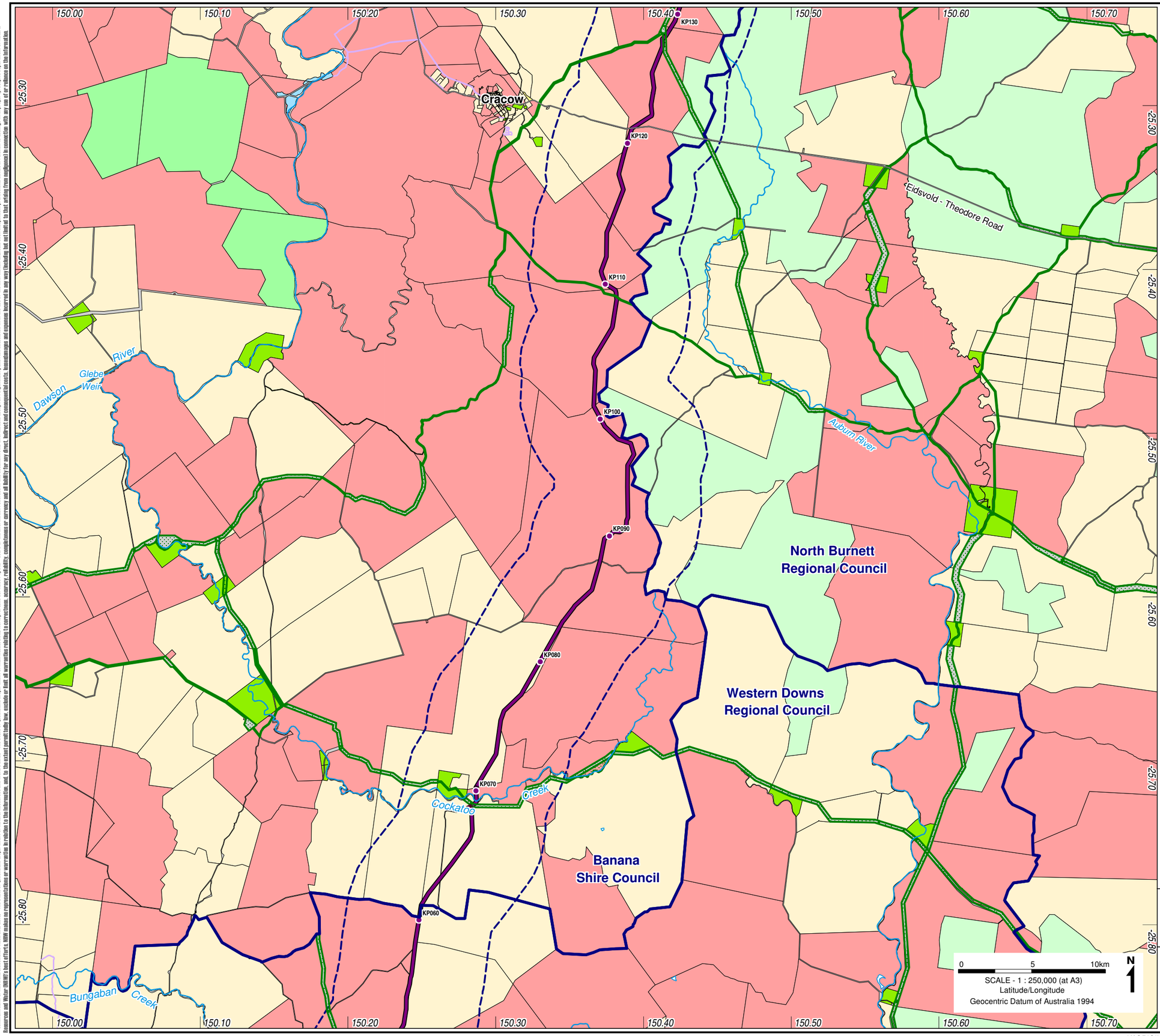
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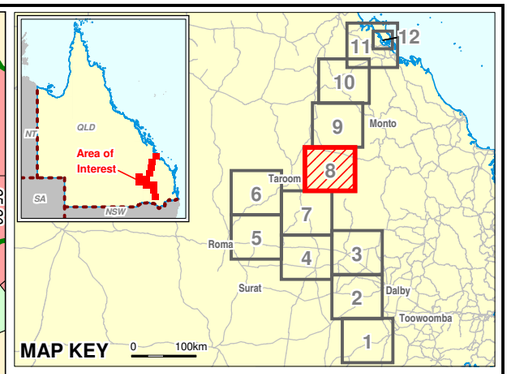
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.24 - Land Tenure (Map 7)

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LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

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Latitude/Longitude
Geocentric Datum of Australia 1994

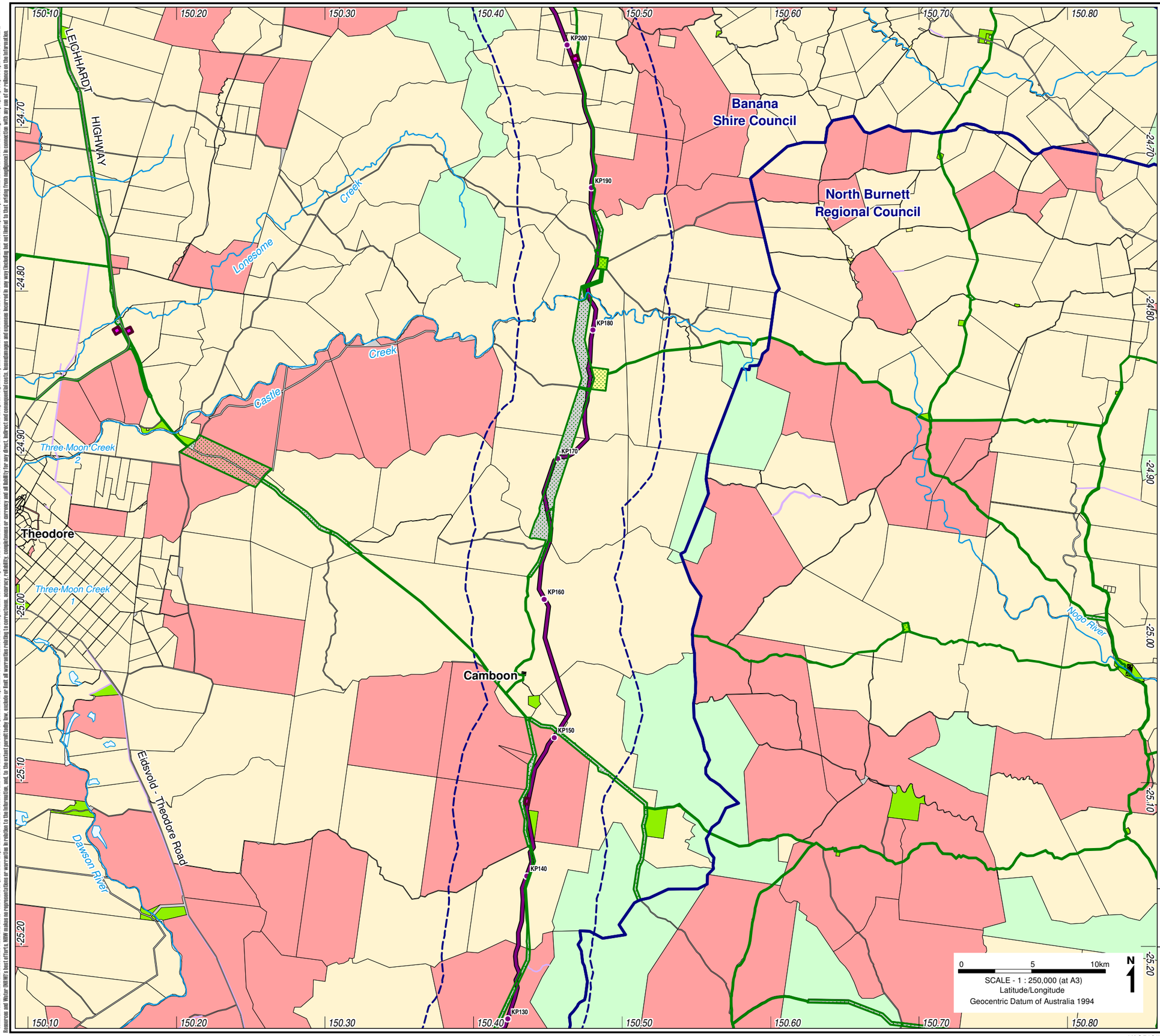
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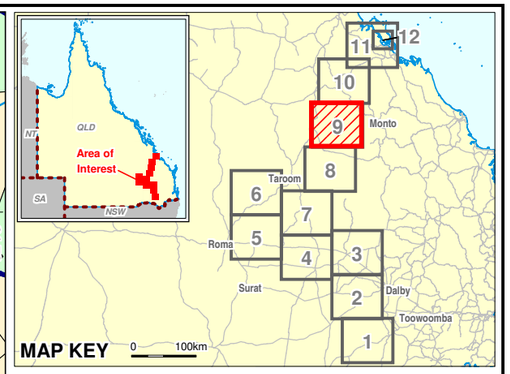
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.25 - Land Tenure
(Map 8)

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LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

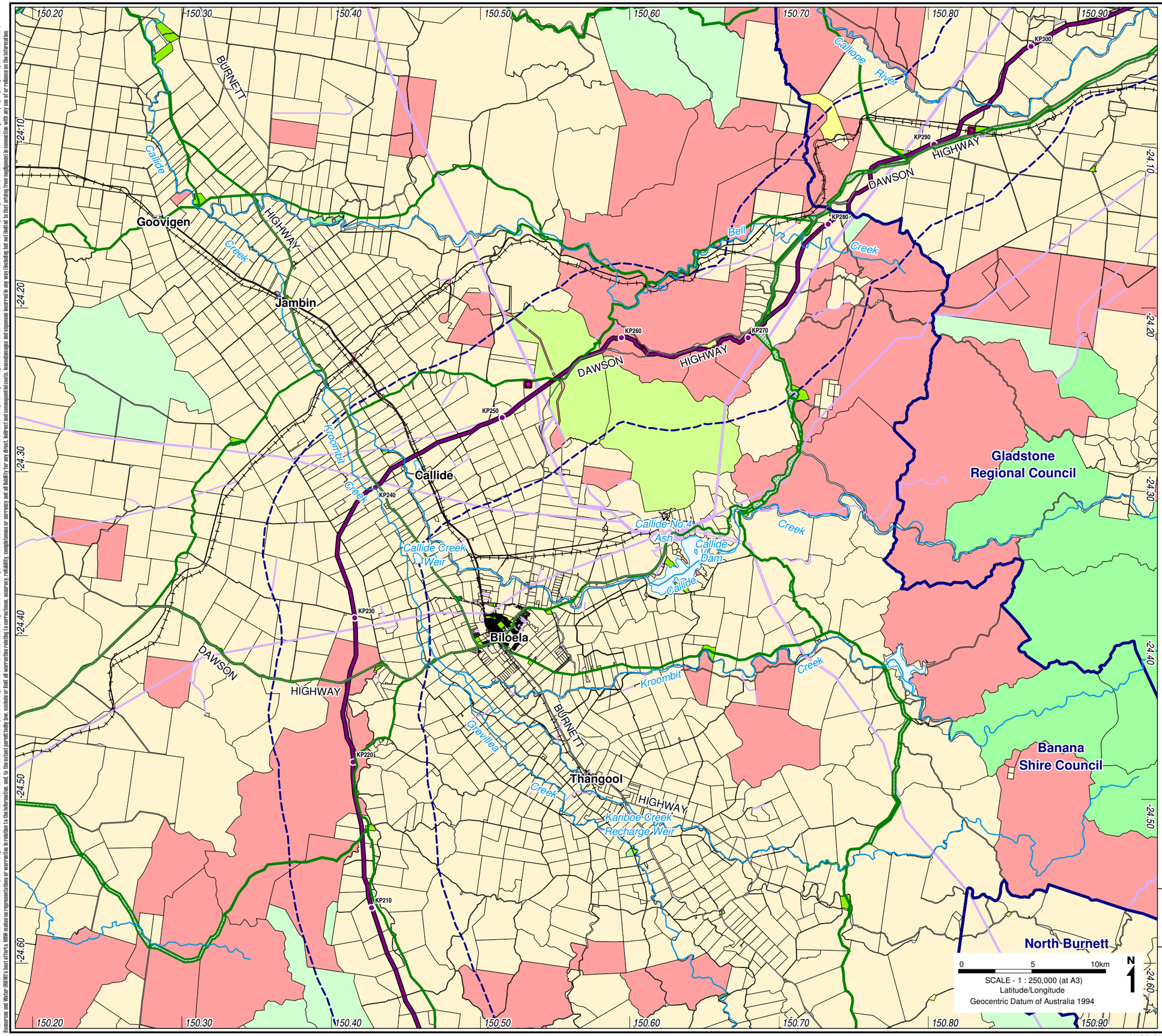
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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.26 - Land Tenure (Map 9)

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LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

0 5 10km

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Latitude/Longitude
Geocentric Datum of Australia 1994

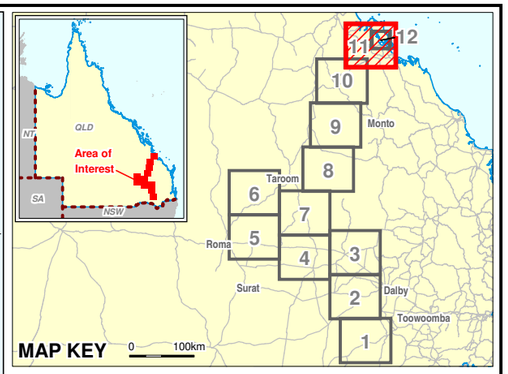
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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.27 - Land Tenure (Map 10)

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LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

0 5 10km

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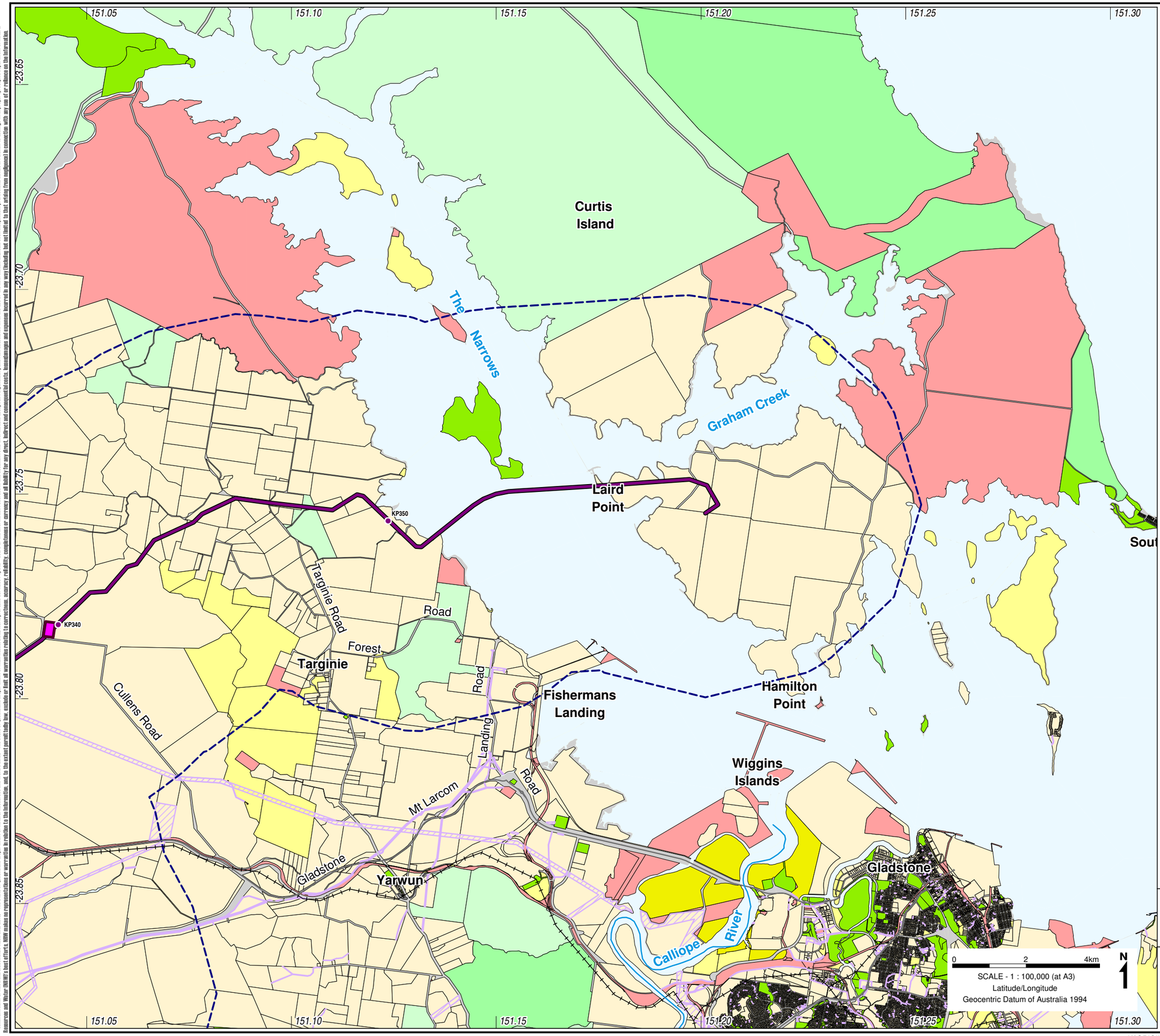
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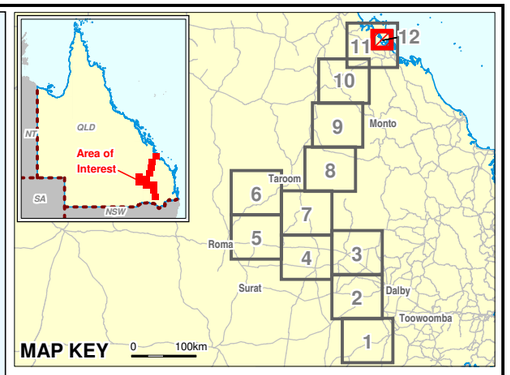
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.28 - Land Tenure
(Map 11)

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LEGEND

- Major drainage
- Local government area
- Road
- Cadastral parcel
- Railway
- Reservoir

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Land Tenure

- Freehold (FH)
- Port and Harbour Boards (PH)
- Housing Lease (HL)
- Industrial Estates (ID)
- Lands Lease (LL)
- State Land (SL)
- State Forest (SF)
- Reserve (RE) and Forest Reserve (FR)
- Railway (RY)
- Road (R)
- Easement
- Stock route

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Stock Routes (July 2004)
Department of Natural Resources, Mines and Energy 2009

Local Government Area (LGA) boundaries (2008)
Department of Natural Resources and Water, Queensland 2009

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Latitude/Longitude
Geocentric Datum of Australia 1994

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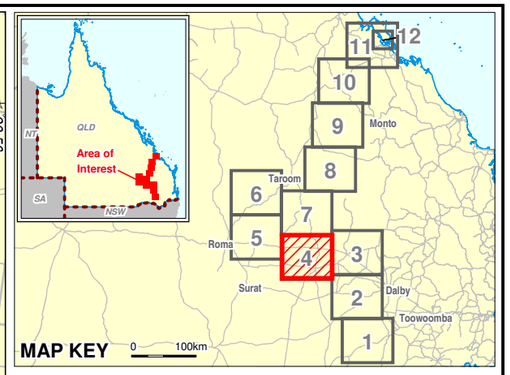
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.29 - Land Tenure
(Map 12)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Communication tower
- Pipeline laydown areas and temporary accommodation facilities

Protected Area

- Nature refuge & coordinated conservation area
- Queensland heritage registered place
- Endangered regional ecosystems
- Endangered high value regrowth vegetation
- Restricted land
- Declared catchment area
- Declared sub-artesian area

Estate Type

- Conservation Park (CP)
- Forest Reserve (FR)
- National Park Recovery (NC), National Park (NP) and National Park Scientific (NS)
- State Forest (SF)
- Timber Reserve (TR)
- Resources Reserve (RR)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Protected Areas Of Queensland (estate), Queensland Heritage Register Boundaries, Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

Nature Refuges and Coordinated Conservation Areas
Environmental Protection Agency (EPA) 2009

Packaged digital data - Land, Vegetation and Water 2006
Department of Natural Resources, Mines and Water 2009

Restricted Land
Department of Mines and Energy 2009

Queensland Declared Sub-Artesian Areas
Department of Natural Resources, Mines and Water 2006

Wildflower Area
Murilla Shire Council - planning scheme sheet 4 of 6

Endangered Regional Ecosystems
Regional ecosystems mapping (version 6) and RE descriptions (version 6.0b)
Department of Environment and Resource Management 2009

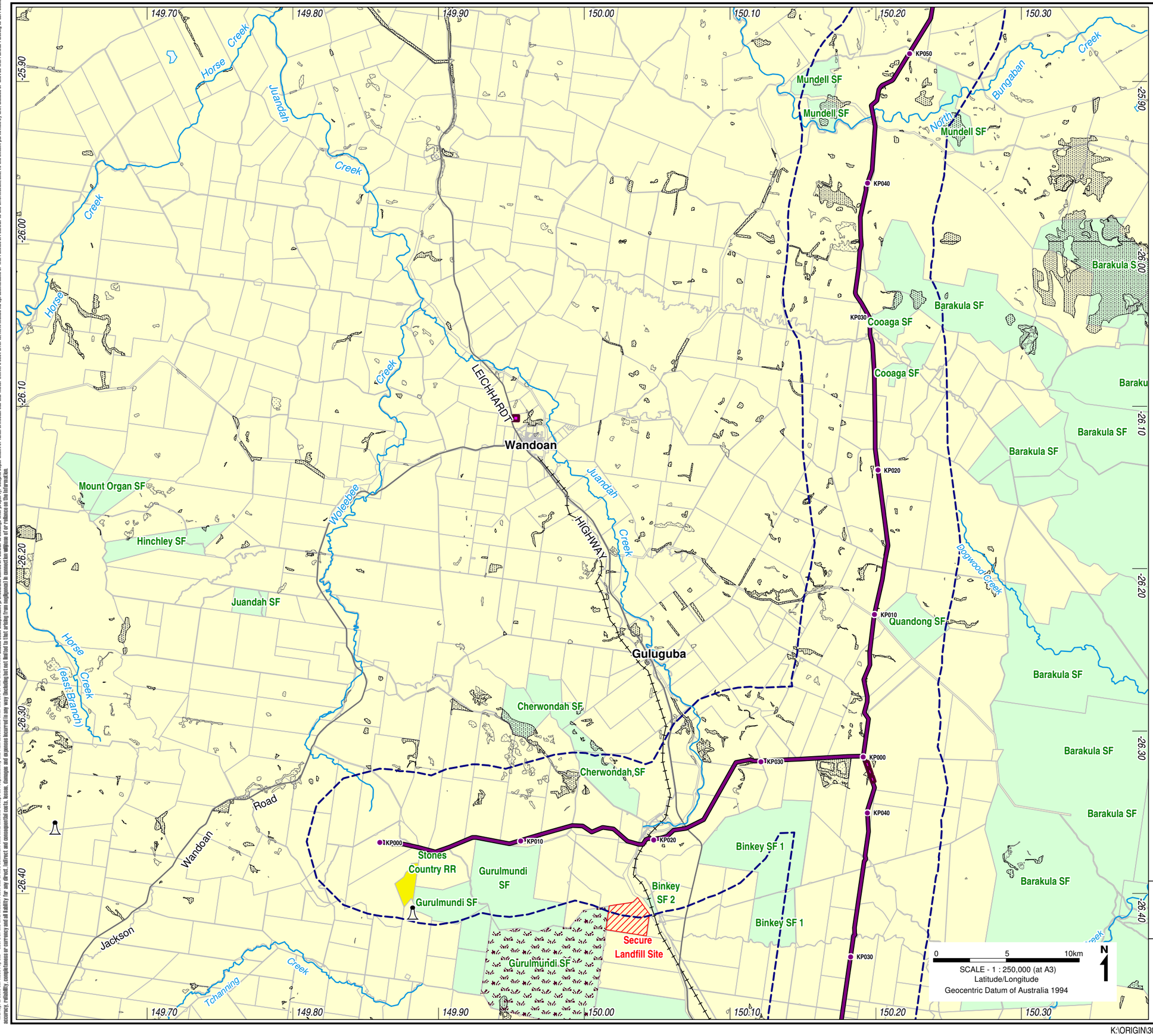
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High value regrowth vegetation (version 2)
Department of Environment and Resource Management 2009

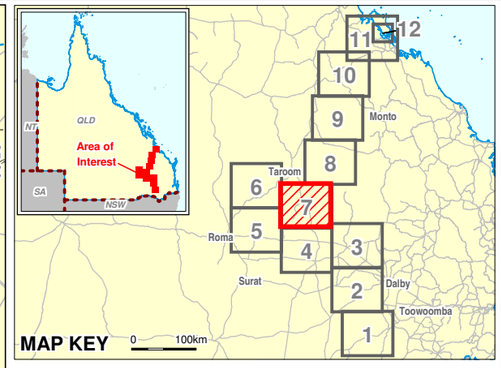
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Volume 3 Chapter 6
Figure 6.30 - Protected Areas (Map 4)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Railway
- Reservoir

Proposed Infrastructure

- Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Communication tower
- Pipeline laydown areas and temporary accommodation facilities

Protected Area

- Nature refuge & coordinated conservation area
- Queensland heritage registered place
- Endangered regional ecosystems
- Endangered high value regrowth vegetation
- Restricted land
- Declared catchment area
- Declared sub-artesian area

Estate Type

- Conservation Park (CP)
- Forest Reserve (FR)
- National Park Recovery (NC), National Park (NP) and National Park Scientific (NS)
- State Forest (SF)
- Timber Reserve (TR)
- Resources Reserve (RR)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Protected Areas Of Queensland (estate), Queensland Heritage Register Boundaries, Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

Nature Refuges and Coordinated Conservation Areas
Environmental Protection Agency (EPA) 2009

Packaged digital data - Land, Vegetation and Water 2006
Department of Natural Resources, Mines and Water 2009

Restricted Land
Department of Mines and Energy 2009

Queensland Declared Sub-Artesian Areas
Department of Natural Resources, Mines and Water 2006

Wildflower Area
Murilla Shire Council - planning scheme sheet 4 of 6

Endangered Regional Ecosystems
Regional ecosystems mapping (version 6) and RE descriptions (version 6.0b)
Department of Environment and Resource Management 2009

Endangered High Value Regrowth Vegetation
High value regrowth vegetation (version 2)
Department of Environment and Resource Management 2009

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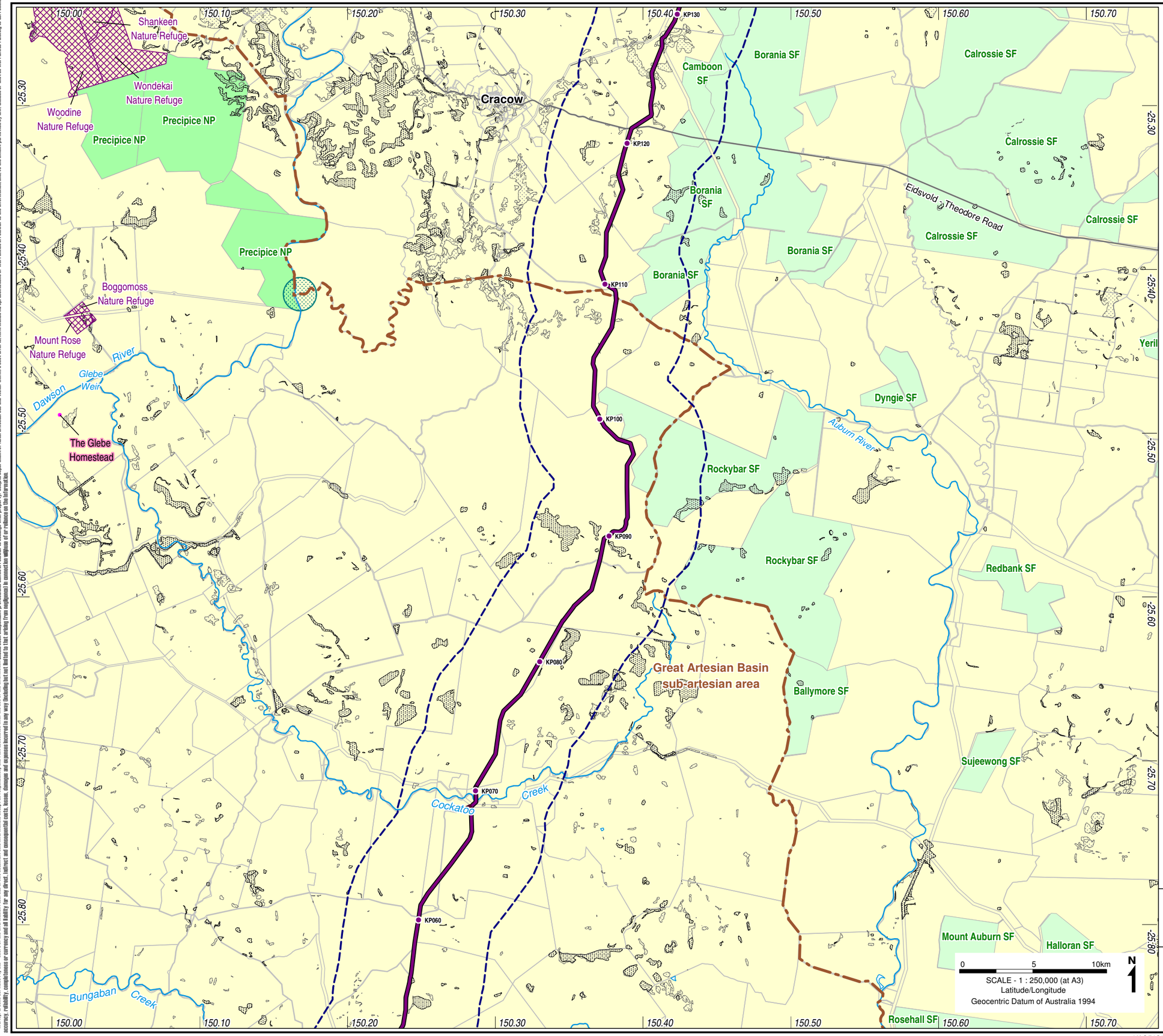
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Latitude/Longitude
Geocentric Datum of Australia 1994

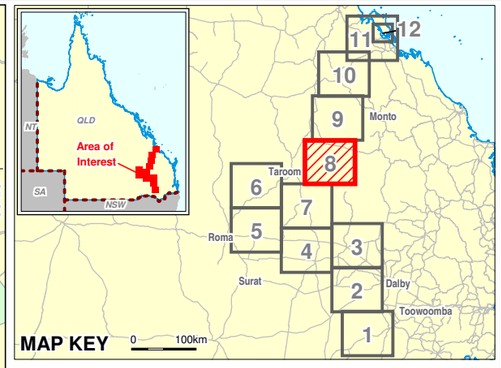
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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.31 - Protected Areas (Map 7)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Railway
- Reservoir

Proposed Infrastructure

- Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Communication tower
- Pipeline laydown areas and temporary accommodation facilities

Protected Area

- Nature refuge & coordinated conservation area
- Queensland heritage registered place
- Endangered regional ecosystems
- Endangered high value regrowth vegetation
- Restricted land
- Declared catchment area
- Declared sub-artesian area

Estate Type

- Conservation Park (CP)
- Forest Reserve (FR)
- National Park Recovery (NC), National Park (NP) and National Park Scientific (NS)
- State Forest (SF)
- Timber Reserve (TR)
- Resources Reserve (RR)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Protected Areas Of Queensland (estate), Queensland Heritage Register Boundaries, Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

Nature Refuges and Coordinated Conservation Areas
Environmental Protection Agency (EPA) 2009

Packaged digital data - Land, Vegetation and Water 2006
Department of Natural Resources, Mines and Water 2009

Restricted Land
Department of Mines and Energy 2009

Queensland Declared Sub-Artesian Areas
Department of Natural Resources, Mines and Water 2006

Wildflower Area
Murilla Shire Council - planning scheme sheet 4 of 6

Endangered Regional Ecosystems
Regional ecosystems mapping (version 6) and RE descriptions (version 6.0b)
Department of Environment and Resource Management 2009

Endangered High Value Regrowth Vegetation
High value regrowth vegetation (version 2)
Department of Environment and Resource Management 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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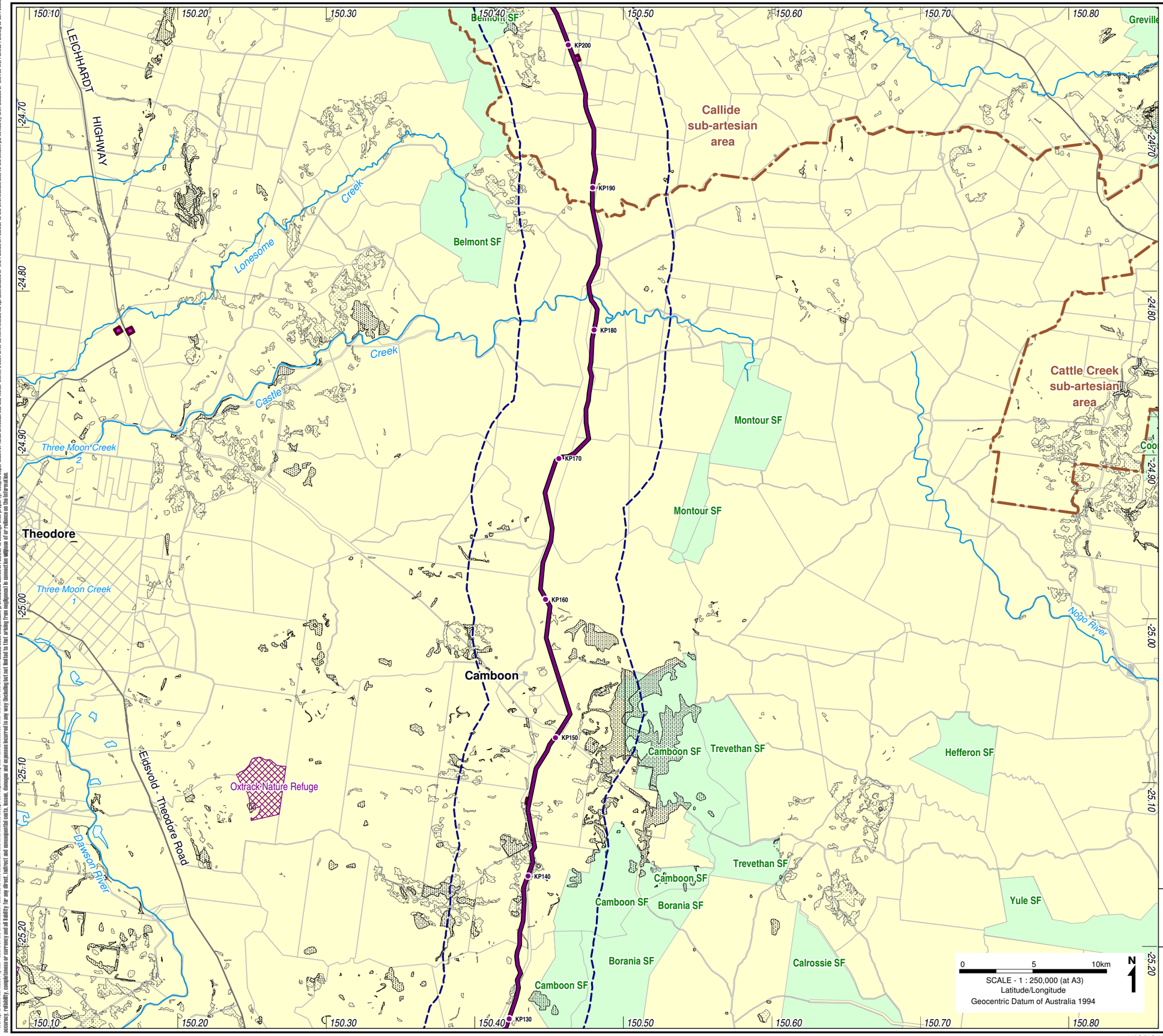
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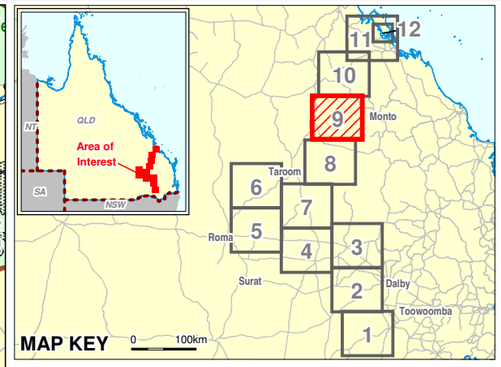
Volume 3 Chapter 6
Figure 6.32 - Protected Areas (Map 8)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Communication tower
- Pipeline laydown areas and temporary accommodation facilities

Protected Area

- Nature refuge & coordinated conservation area
- Queensland heritage registered place
- Endangered regional ecosystems
- Endangered high value regrowth vegetation
- Restricted land
- Declared catchment area
- Declared sub-artesian area

Estate Type

- Conservation Park (CP)
- Forest Reserve (FR)
- National Park Recovery (NC), National Park (NP) and National Park Scientific (NS)
- State Forest (SF)
- Timber Reserve (TR)
- Resources Reserve (RR)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Protected Areas Of Queensland (estate), Queensland Heritage Register Boundaries, Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

Nature Refuges and Coordinated Conservation Areas
Environmental Protection Agency (EPA) 2009

Packaged digital data - Land, Vegetation and Water 2006
Department of Natural Resources, Mines and Water 2009

Restricted Land
Department of Mines and Energy 2009

Queensland Declared Sub-Artesian Areas
Department of Natural Resources, Mines and Water 2006

Wildflower Area
Murilla Shire Council - planning scheme sheet 4 of 6

Endangered Regional Ecosystems
Regional ecosystems mapping (version 6) and RE descriptions (version 6.0b)
Department of Environment and Resource Management 2009

Endangered High Value Regrowth Vegetation
High value regrowth vegetation (version 2)
Department of Environment and Resource Management 2009

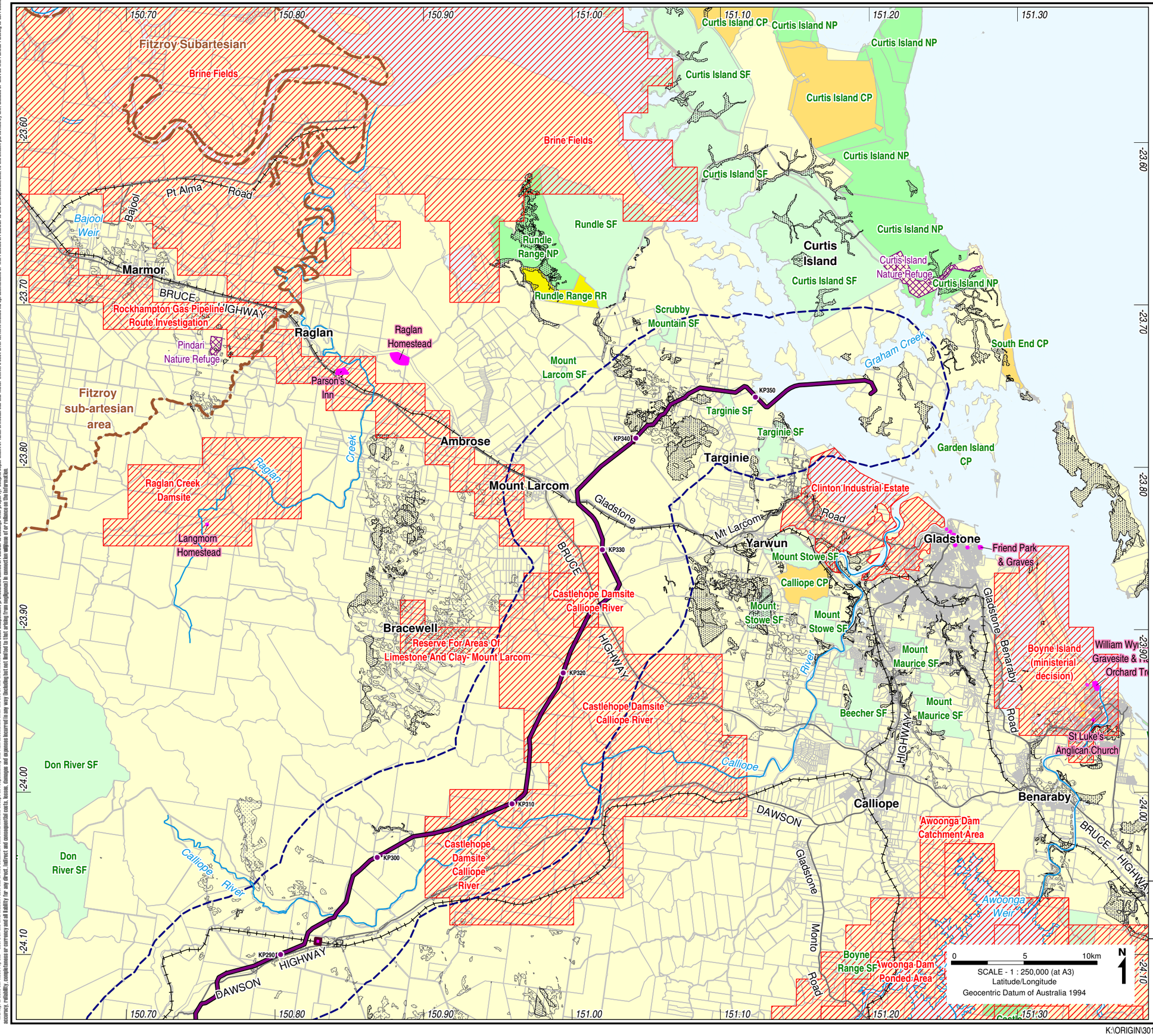
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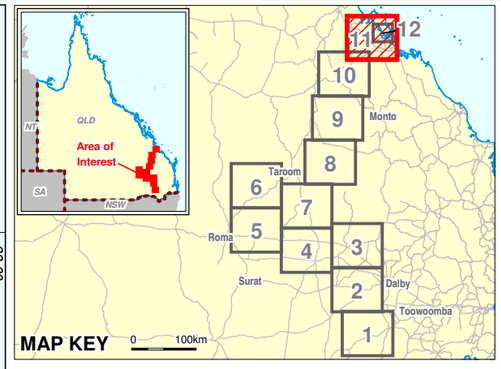
Volume 3 Chapter 6
Figure 6.33 Protected Areas (Map 9)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Protected Area

- Nature refuge & coordinated conservation area
- Queensland heritage registered place
- Endangered regional ecosystems
- Endangered high value regrowth vegetation
- Restricted land
- Declared catchment area
- Declared sub-artesian area

Estate Type

- Conservation Park (CP)
- Forest Reserve (FR)
- National Park Recovery (NC), National Park (NP) and National Park Scientific (NS)
- State Forest (SF)
- Timber Reserve (TR)
- Resources Reserve (RR)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Protected Areas Of Queensland (estate), Queensland Heritage Register Boundaries, Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

Nature Refuges and Coordinated Conservation Areas
Environmental Protection Agency (EPA) 2009

Packaged digital data - Land, Vegetation and Water 2006
Department of Natural Resources, Mines and Water 2009

Restricted Land
Department of Mines and Energy 2009

Queensland Declared Sub-Artesian Areas
Department of Natural Resources, Mines and Water 2006

Wildflower Area
Murilla Shire Council - planning scheme sheet 4 of 6

Endangered Regional Ecosystems
Regional ecosystems mapping (version 6) and RE descriptions (version 6.0b)
Department of Environment and Resource Management 2009

Endangered High Value Regrowth Vegetation
High value regrowth vegetation (version 2)
Department of Environment and Resource Management 2009

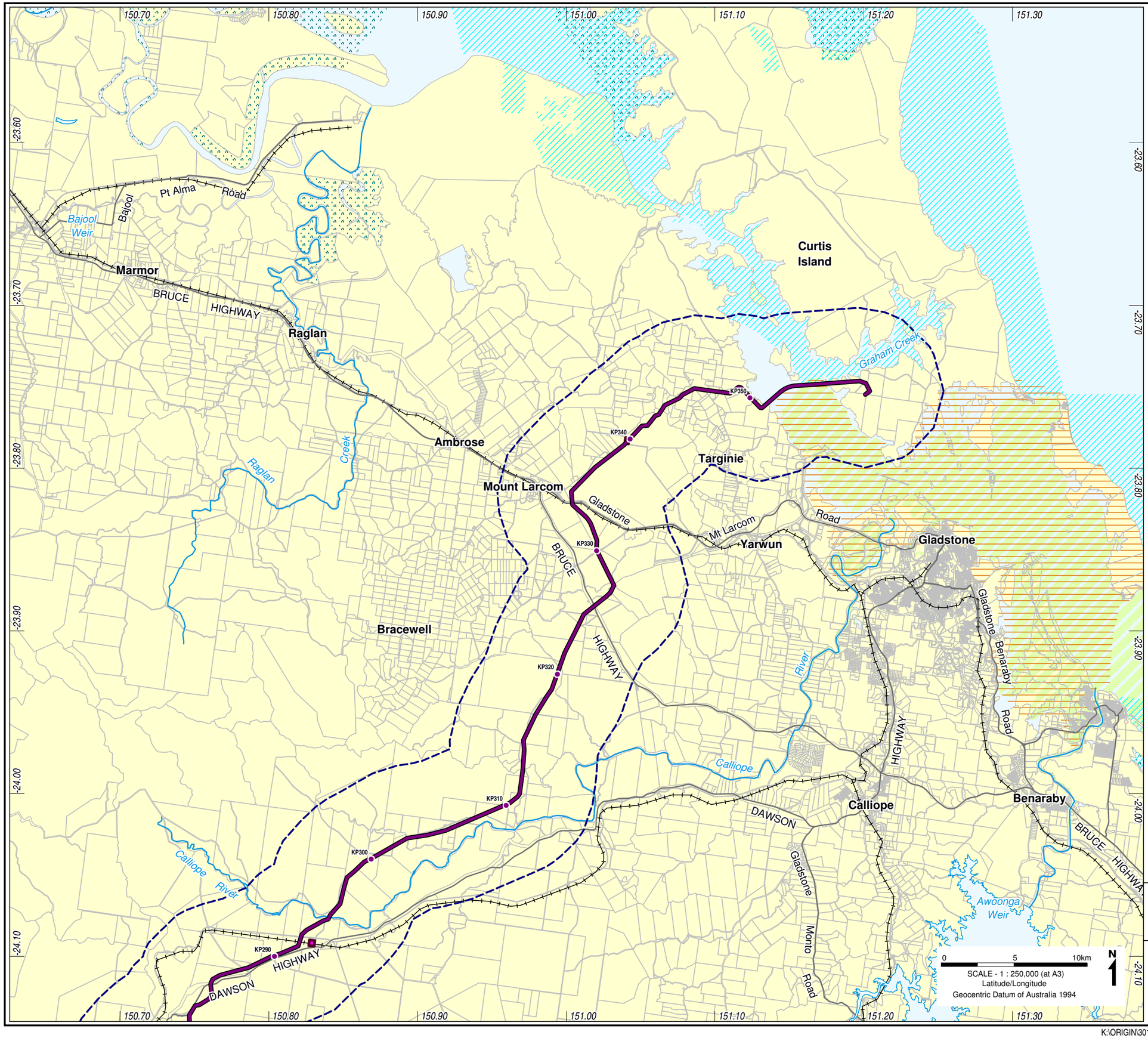
AUSTRALIA PACIFIC LNG PROJECT

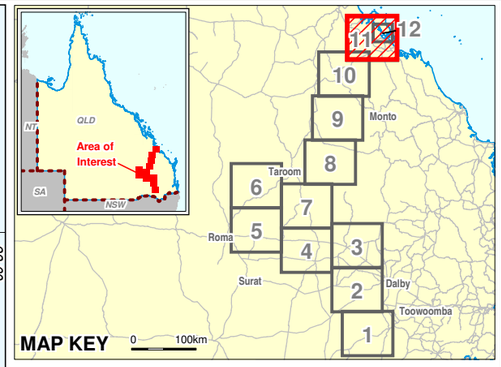
Volume 3 Chapter 6
Figure 6.35 - Protected Areas (Map 11a)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilites

Protected Area

- **Fish habitat area**
- **Dugong protection area**
- **Directory of Important Wetlands - Port Curtis**
- **Great Barrier Reef Coast Marine Park**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Fish Habitat Areas (DPIF) and Dugong Protection Areas (DPIF)
Department of Primary Industries and Fisheries 2009

World Heritage Areas (Australia)
Australian Government Department of the Environment, Water, Heritage and the Arts 2009

State Marine Parks (QLD)
Environmental Protection Agency 2009

Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

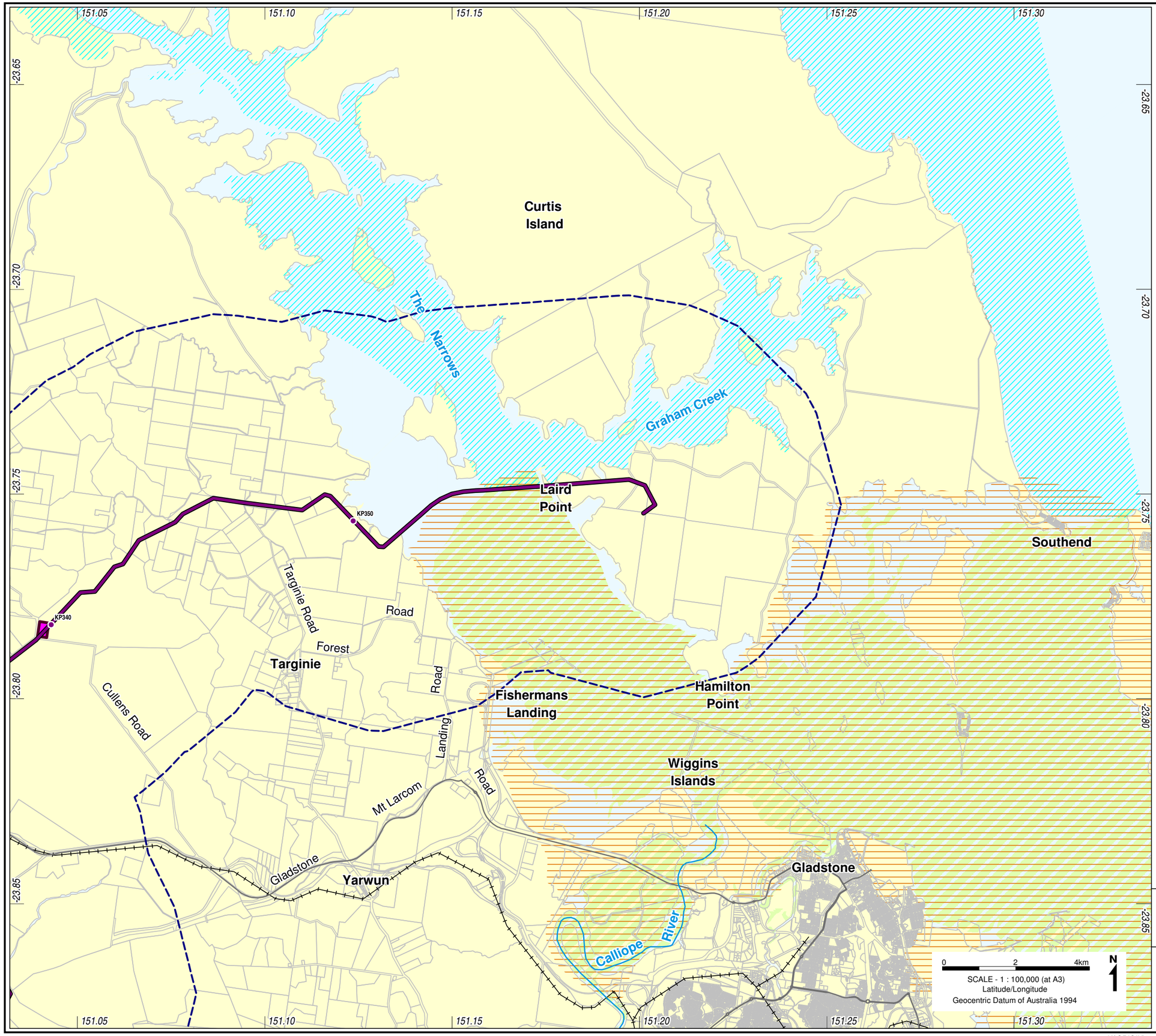
AUSTRALIA PACIFIC LNG PROJECT

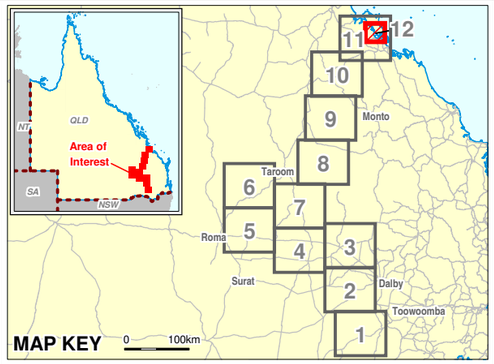
Volume 3 Chapter 6
Figure 6.36 - Protected Areas (Map 11b)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilites

Protected Area

- Fish habitat area
- Dugong protection area
- Directory of Important Wetlands - Port Curtis
- Great Barrier Reef Coast Marine Park

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Queensland Fish Habitat Areas (DPIF) and Dugong Protection Areas (DPIF)
Department of Primary Industries and Fisheries 2009

World Heritage Areas (Australia)
Australian Government Department of the Environment, Water, Heritage and the Arts 2009

State Marine Parks (QLD)
Environmental Protection Agency 2009

Wetlands - Directory of Important
Department of Environment and Resource Management (DERM) 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.38 - Protected Areas (Map 12b)

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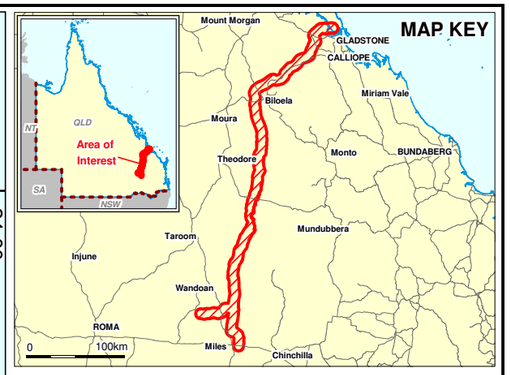
GLADSTONE CALLIOPE Miriam Vale Biloela Moura Theodore Monto Bargara BUNDABERG Biggenden Mundubbera Gayndah Taroom Wandoan Goomeri Murgon Wondai KINGAROY Nanango Miles Chinchilla

0 25 50km

SCALE - 1 : 1,250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

N 1

MAP KEY



LEGEND

Major watercourses — Railway — Road

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor

Native Title Claim Areas

- Port Curtis Coral Coast (QC01/29)
- Iman People 2 (QC97/55)
- Wulli Wulli People (QC00/7)
- Gangulu People (QC97/36) (de-registered)
- Barunggam People (QC99/5) (dismissed)
- Western Wakka Wakka (QC99/004) (de-registered)

Source Information

Native Title Claims
National Native Title Tribunal (2009) extracted in November 2009

Historical Native Title Claims
Supplied by Origin Energy 10 /09/2009

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Volume 3 Chapter 6
Figure 6.39 - Native Title Claims

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EPC1838 EPC1698 EPC1838 EPC1838 EPM18163 EPM18163 EPC1165 EPC1041 EPC813 EPC1134 EPC813 EPC104 EPC732 EPC1737 EPC1833 EPC1370 EPC1165 EPC1594 EPC1833 EPC1370 EPC1376 EPC1376 EPC1832 EPC1376 EPC1367 EPC1376 EPC1736 EPC1829

LEICHHARDT HIGHWAY

KP020 KP010 KP000

Dogwood Creek

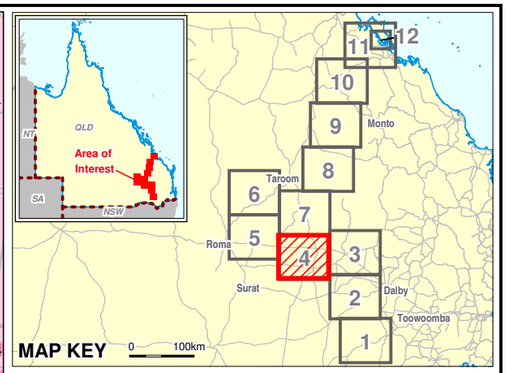
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ML6960 ML5910 ML5911

Jackson WARREGO Dulacca HIGHWAY Drillham Miles WARREGO HIGHWAY

Roma Condamine Road Condamine Kogan Condamine Road

Dulacca Creek Dogwood Creek Condamine River Meandarra Road Condamine River Condamine River



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Mining Resources

- Exploration Permits for Minerals (EPM)
- Exploration Permits for Coal (EPC)
- Mineral Development Licenses (MDL)
- Mining Leases (ML)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Mining Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.40 - Mining Resources (Map 4)

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149.70 149.80 149.90 150.00 150.10 150.20 150.30

-25.90 -26.00 -26.10 -26.20 -26.30 -26.40

EPC1276 EPC1558 EPC790 EPC788 EPC1556 EPC788 MDL413 EPC838 EPC787 EPC1205 EPC1276 EPC1699 EPC1171 EPC787 EPC1143 EPC1143 MDL222 ML50229 ML50254 EPC859 EPC1143 EPC640 EPC787 EPC787 EPC1322 EPC838 EPC1609 EPC792 ML50231 MDL221 EPC1251 EPC1164 MDL406 EPC792 EPC1251 EPC1251 EPC1251 EPC1251 EPC1251 EPC1251 EPC1386 EPC1164 EPC1838 EPC1838 EPC1698 EPM18163 EPC1118 EPM18163 EPC1838 ML50179 EPC1134 EPC1838 ML50058 EPM16950 EPC813 EPC1112 EPC1322 EPC1143 EPC1015 EPC787 EPC813 EPC1278 EPC1278 EPC1015 EPC1297 EPC1015 EPC1464 EPM16859 EPM16950

Horse Creek; Juandah Creek; Creek; Horse Creek; Creek; Creek; Creek; Creek; Creek; Creek; Horse (east branch) Creek; Wolseese Creek; Creek; Tchanning Creek; Bungaban Creek North; Dogwood Creek; Dogwood Creek

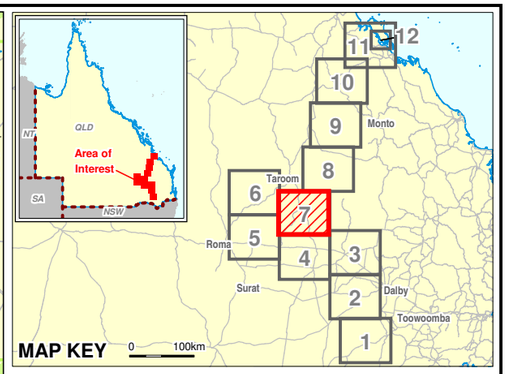
LEICHHARDT HIGHWAY; Road; Wandoan; Jackson; Wandoan

Wandoan; Guluguba

ML5901 ML5900 ML50248 ML50247 MDL187 MDL224 ML5902 ML5898 ML5906 ML5909 ML5907

MDL223

KP050 KP040 KP030 KP020 KP010 KP000



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Mining Resources

- **Exploration Permits for Minerals (EPM)**
- **Exploration Permits for Coal (EPC)**
- **Mineral Development Licenses (MDL)**
- **Mining Leases (ML)**

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Mining Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.41 - Mining Resources (Map 7)

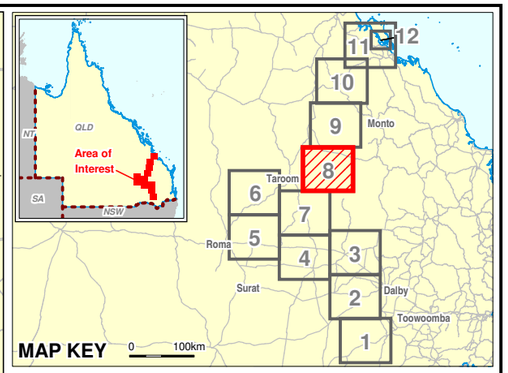
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150.00 150.10 150.20 150.30 150.40 150.50 150.60 150.70

-25.30 -25.40 -25.50 -25.60 -25.70 -25.80

EPC1487
EPC1024
EPC631
EPC1516
ML3229
ML3230
ML80089
ML3227
ML3228
ML80144
ML3232
Cracow
ML80120
ML80088
ML3231
EPM18032
EPM15981
KP130
KP120
EPC995
Eidsvold - Theodore Road
EPM16854
KP110
EPM17179
Glebe Weir
Dawson River
KP100
EPM17183
EPC965
Auburn River
KP090
EPM16704
EPC995
EPM17196
EPC1735
KP080
EPM17700
EPC1412
EPM17200
KP070
Cockatoo Creek
EPM17099
EPM17186
EPM14206
KP060
EPM16603
Bungaban Creek



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Mining Resources

Exploration Permits for Minerals (EPM)
Exploration Permits for Coal (EPC)
Mineral Development Licenses (MDL)
Mining Leases (ML)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Mining Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.42 - Mining Resources (Map 8)

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150.10 150.20 150.30 150.40 150.50 150.60 150.70 150.80

-24.70 -24.80 -24.90 -25.00 -25.10 -25.20

LEICHHARDT HIGHWAY

EPC1620 EPC1516 EPC1024 EPC631 EPC1133

EPM15734 EPM17734 EPM15921 EPM17002 EPM17001 EPM16416 EPM17054 EPM17055 EPM17139 EPM17059 EPM18035 EPM18032 EPM16325 EPM15981 EPM16051 EPM16906 EPM14627 EPM15919 EPM15542

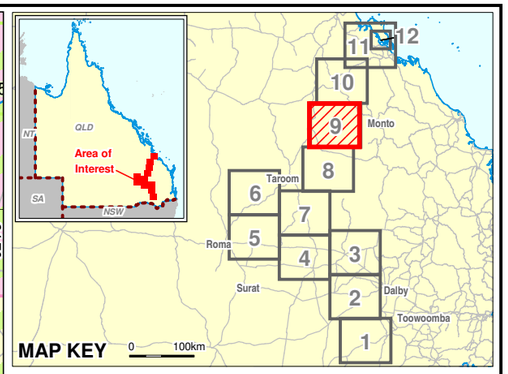
ML5657 MDL216

KP200 KP190 KP180 KP170 KP160 KP150 KP140 KP130

Lonesome Creek Castle Creek Three Moon Creek 2 Three Moon Creek 1 Dawson River Nogo River

Eidsvold - Theodore Road

Theodore Camboon



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Mining Resources

Exploration Permits for Minerals (EPM)
Exploration Permits for Coal (EPC)
Mineral Development Licenses (MDL)
Mining Leases (ML)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Mining Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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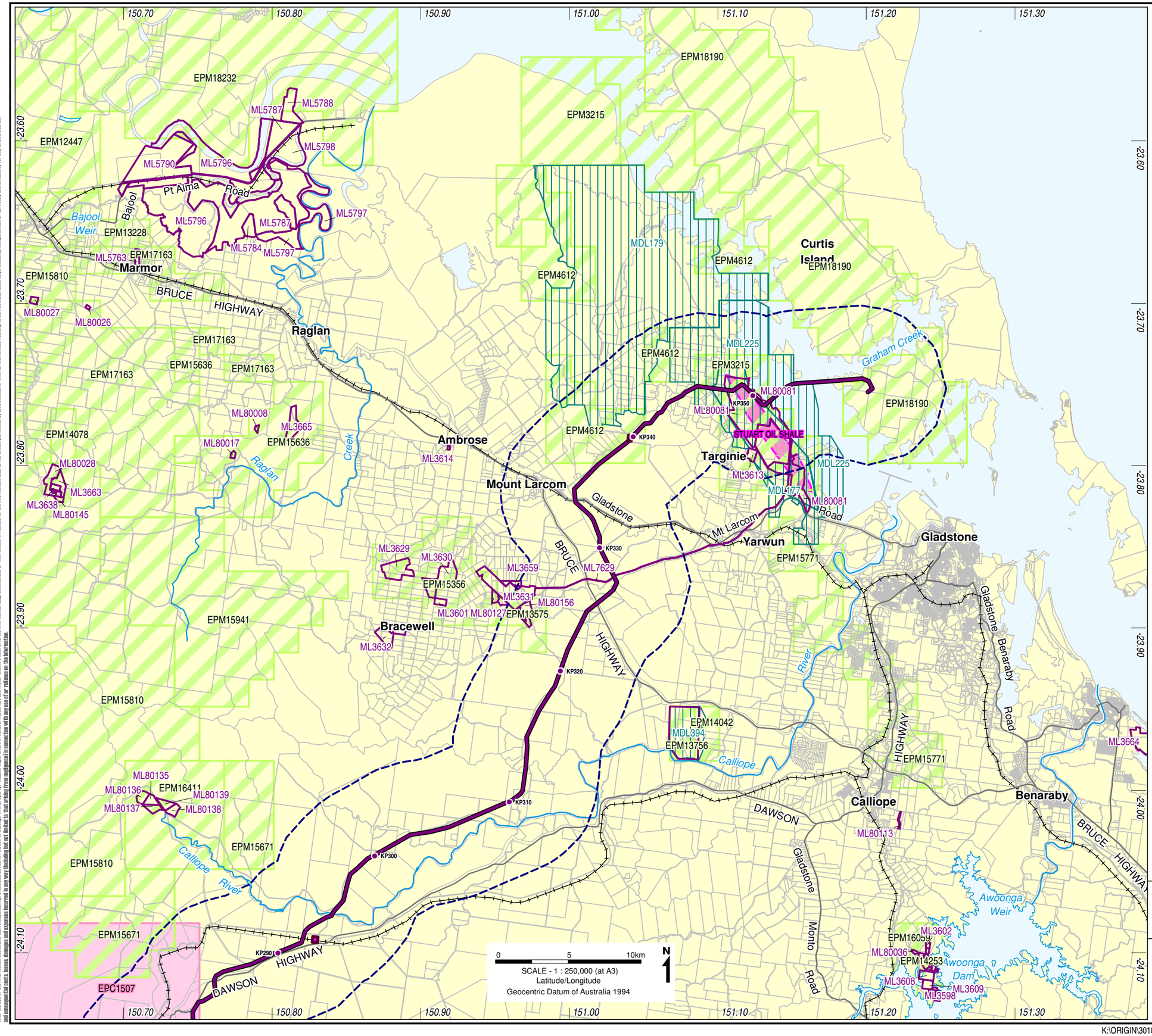
AUSTRALIA PACIFIC LNG PROJECT

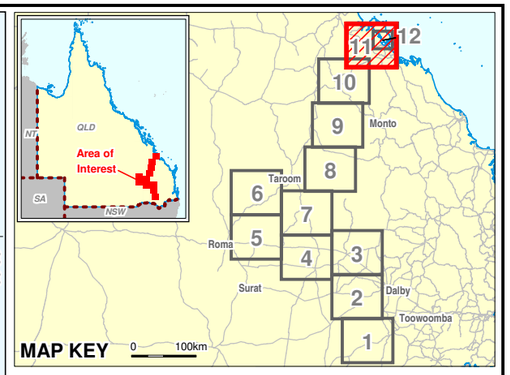
Volume 3 Chapter 6
Figure 6.43 - Mining Resources (Map 9)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Mining Resources

- Exploration Permits for Minerals (EPM)
- Exploration Permits for Coal (EPC)
- Mineral Development Licenses (MDL)
- Mining Leases (ML)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Mining Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.45 - Mining Resources (Map 11)

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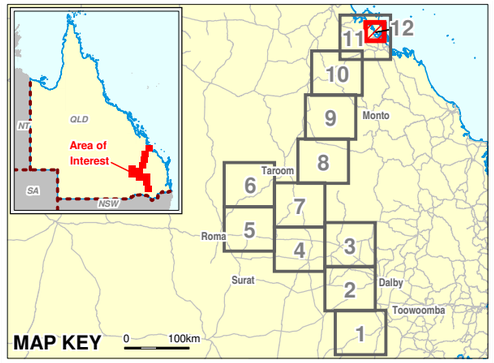
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-23.65 | -23.70 | -23.75 | -23.80 | -23.85

EPM4612
EPM18190
Curtis Island
MDL179
The Narrows
MDL225
Graham Creek
EPM4612
EPM3215
Laird Point
KP350
ML80081
ML80081
Targinie Road
Road
STUART OIL SHALE
Road
Forest
Targinie
KP340
EPM4612
MDL225
EPM18190
Southend
Hamilton Point
Fishermans Landing
ML3613
Landing
Road
MDL177
ML80081
Wiggins Islands
Cullens Road
Mt Larcom
Gladstone
Yarwun
Gladstone
EPM15771
Calliope River

0 2 4km
SCALE - 1 : 100,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

N



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Mining Resources

Exploration Permits for Minerals (EPM)
Exploration Permits for Coal (EPC)
Mineral Development Licenses (MDL)
Mining Leases (ML)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Mining Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.46 - Mining Resources (Map 12)

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149.70 149.80 149.90 150.00 150.10 150.20 150.30

-26.50 -26.60 -26.70 -26.80 -26.90 -27.00

EPP847 EPP574 EPP676 EPP631 EPP632 EPP747 EPP810 EPP692 EPP610 EPP785 EPP647 EPP893 EPP645

PL216 PL267 PL247 PL211 PL226 PL201 PL265 PL212 PL180 PL263 PL228

LEICHHARDT HIGHWAY

WARREGO HIGHWAY

Jackson Dulacca Drillham Miles Condamine

Roma Condamine Road

Kogan Road

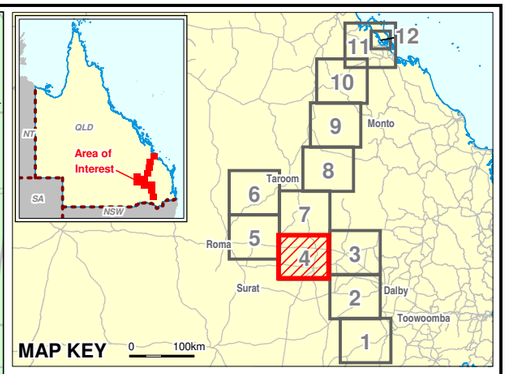
Meandarra Road

KP020 KP010 KP000

Dogwood Creek

Condamine River

Dulacca Creek



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Petroleum Resources

- Exploration Permit for Petroleum (EPP)
- Petroleum Lease (PL)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Petroleum Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.47 - Petroleum Resources (Map 4)

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-25.90 -26.00 -26.10 -26.20 -26.30 -26.40

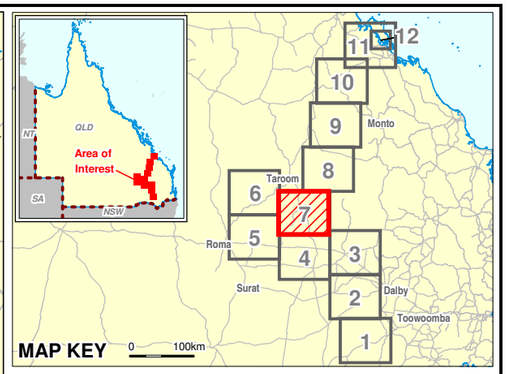
Horse Creek
Juandah Creek
Creek
Horse Creek
Creek
Creek
Wolleebee Creek
Horse Creek (east Branch)
Jackson Creek
Tchanning Creek
Juandah Creek
Bungaban North Creek
Dogwood Creek

EPP868
EPP768
EPP852
EPP606
EPP747
EPP692
EPP810
EPP277
EPP651
EPP276
EPP847
EPP574

PL176
PL101
PL299
PL171
PL209

LEICHHARDT HIGHWAY
Road
Wandoan
Guluguba
Wandoan

KP050
KP040
KP030
KP020
KP010
KP000



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Petroleum Resources

Exploration Permit for Petroleum (EPP)
Petroleum Lease (PL)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Petroleum Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

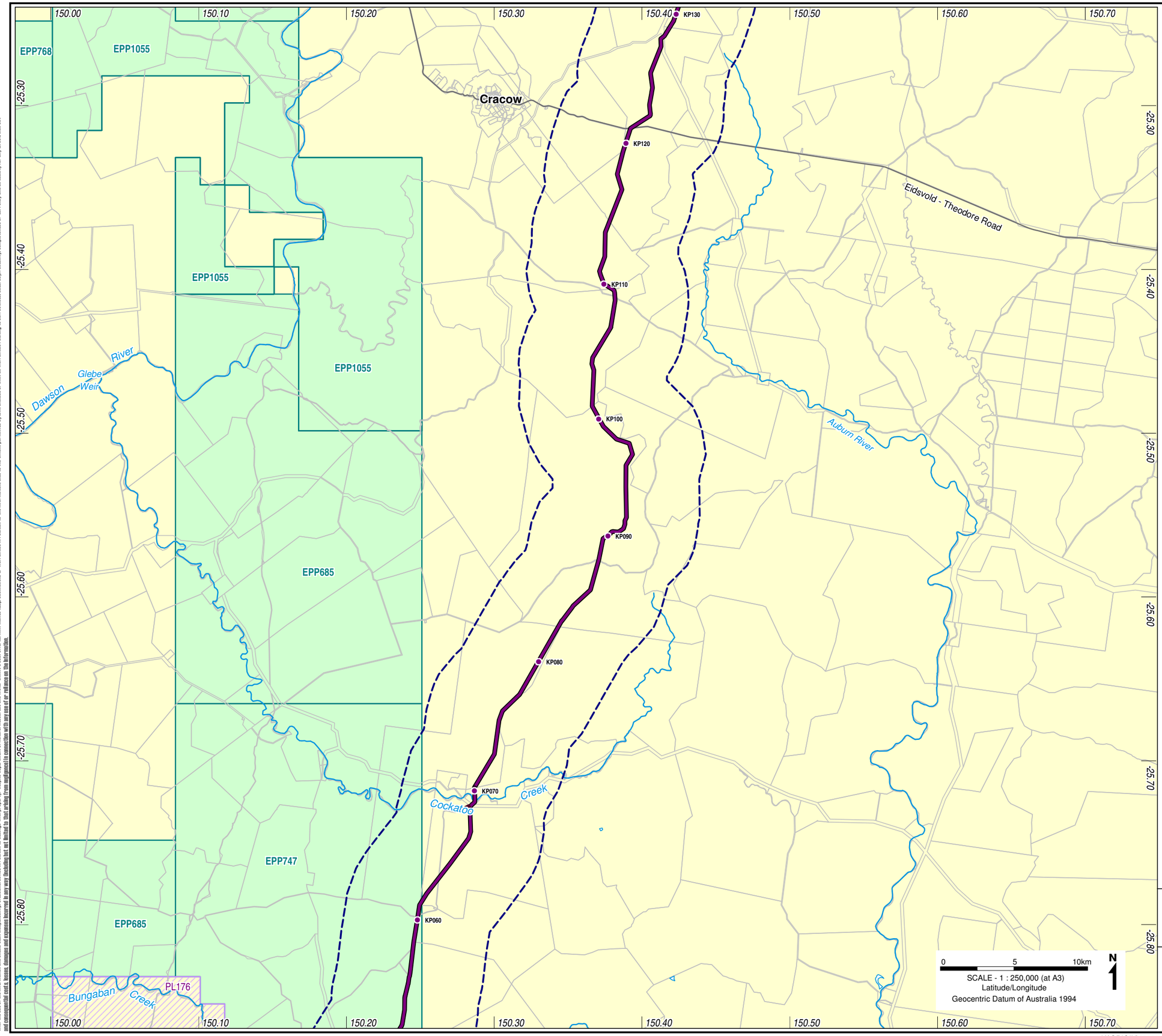
N

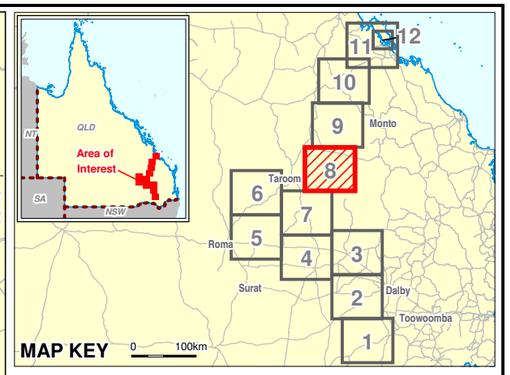
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.48 - Petroleum Resources (Map 7)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Petroleum Resources

- Exploration Permit for Petroleum (EPP)
- Petroleum Lease (PL)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Petroleum Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.49 - Petroleum Resources (Map 8)

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150.10 150.20 150.30 150.40 150.50 150.60 150.70 150.80

-24.70 -24.80 -24.90 -25.00 -25.10 -25.20

LEICHHARDT HIGHWAY

Lonesome Creek

Castle Creek

Three Moon Creek 2

Three Moon Creek 1

Theodore

Eidsvold - Theodore Road

Dawson River

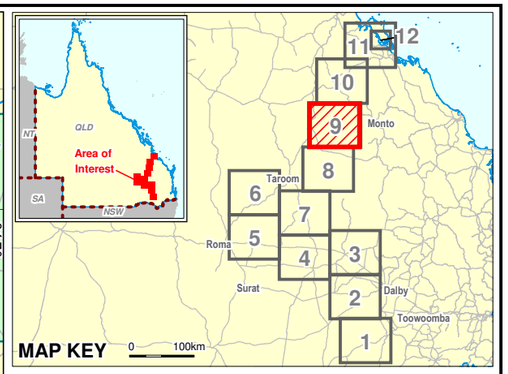
EPP602

EPP687

Camboon

Nogo River

KP200 KP190 KP180 KP170 KP160 KP150 KP140 KP130



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Petroleum Resources

- Exploration Permit for Petroleum (EPP)
- Petroleum Lease (PL)

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Petroleum Resources
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

N

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.50 - Petroleum Resources (Map 9)

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149.70 149.80 149.90 150.00 150.10 150.20 150.30

-26.50 -26.60 -26.70 -26.80 -26.90 -27.00

LEICHHARDT HIGHWAY

KP020

KP010

KP000

Dogwood Creek

Jackson

WARREGO HIGHWAY

Dulacca

Drillham

Miles

WARREGO HIGHWAY

Dulacca Creek

Roma Condamine Road

Condamine

LEICHHARDT HIGHWAY

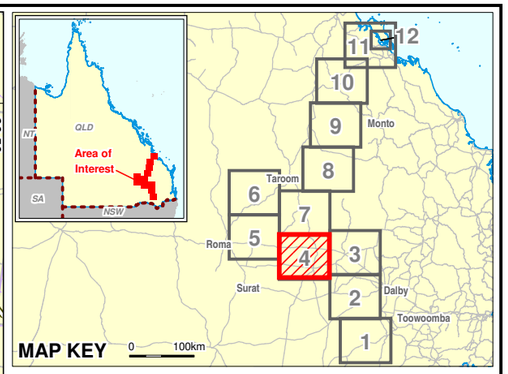
Condamine River

Kogan Condamine Road

Meandarra Condamine Road

Dogwood Creek

Condamine River



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Existing Infrastructure

- Aircraft landing ground
- Railway stop
- High voltage power line
- Telecommunication cable

Pipeline Type

- Gas
- Oil
- Water
- Petroleum pipeline
- Proposed Surat to Gladstone pipeline

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Aircraft Facility Point, Powerline and Railway Stop Point (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

Pipeline
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009
Commonwealth of Australia (Geoscience Australia) 2009

Telecommunication cables
Telstra Corporation Limited 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

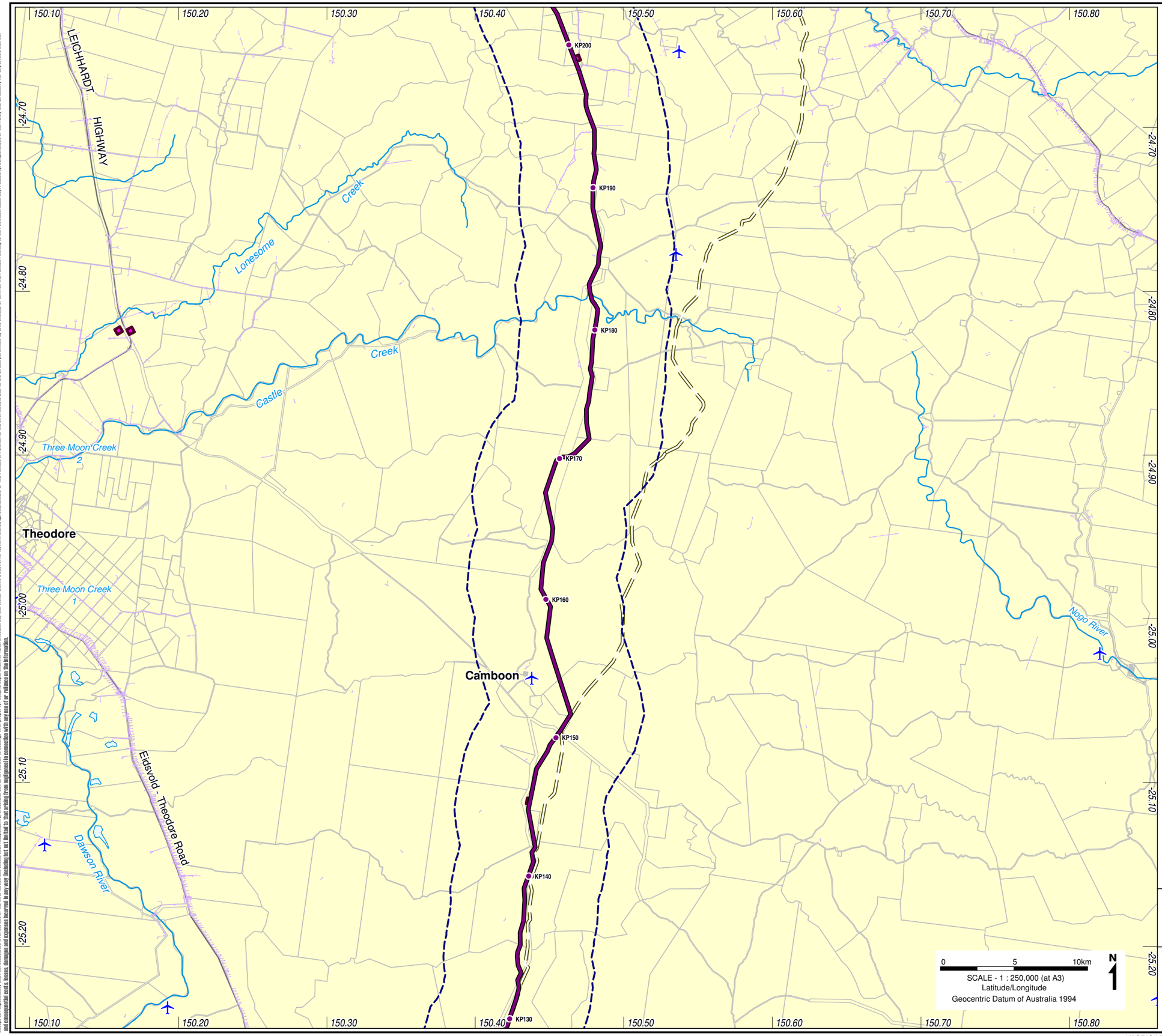
Volume 3 Chapter 6
Figure 6.51 - Existing Infrastructure (Map 4)

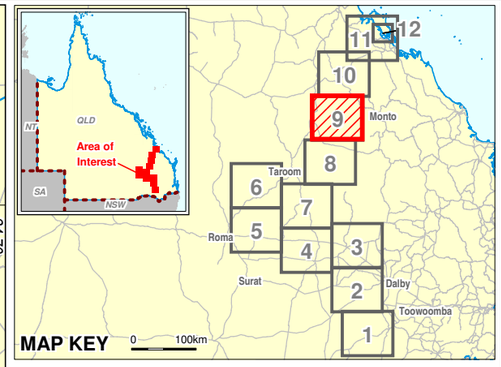
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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Existing Infrastructure

- Aircraft landing ground
- Railway stop
- High voltage power line
- Telecommunication cable

Pipeline Type

- Gas
- Oil
- Water
- Petroleum pipeline
- Proposed Surat to Gladstone pipeline

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Aircraft Facility Point, Powerline and Railway Stop Point (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

Pipeline
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009
Commonwealth of Australia (Geoscience Australia) 2009

Telecommunication cables
Telstra Corporation Limited 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

N

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.54 - Existing Infrastructure (Map 9)

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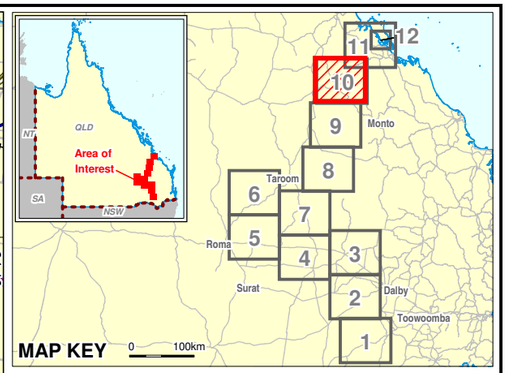
-24.10 -24.20 -24.30 -24.40 -24.50 -24.60

Goovigen
Jambin
Callide
Biloela
Thangool

BURNETT HIGHWAY
DAWSON HIGHWAY

KP210 KP220 KP230 KP240 KP250 KP260 KP270 KP280 KP290 KP300

Callide Creek
Kroombit Creek
Grevillea Creek
Bell Creek
Callide No.4 Ash Dam
Callide Weir
Kariboe Creek Recharge Weir
Callide River



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Existing Infrastructure

Aircraft landing ground
Railway stop
High voltage power line
Telecommunication cable

Pipeline Type

Gas
Oil
Water
Petroleum pipeline
Proposed Surat to Gladstone pipeline

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Aircraft Facility Point, Powerline and Railway Stop Point (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

Pipeline
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009
Commonwealth of Australia (Geoscience Australia) 2009

Telecommunication cables
Telstra Corporation Limited 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

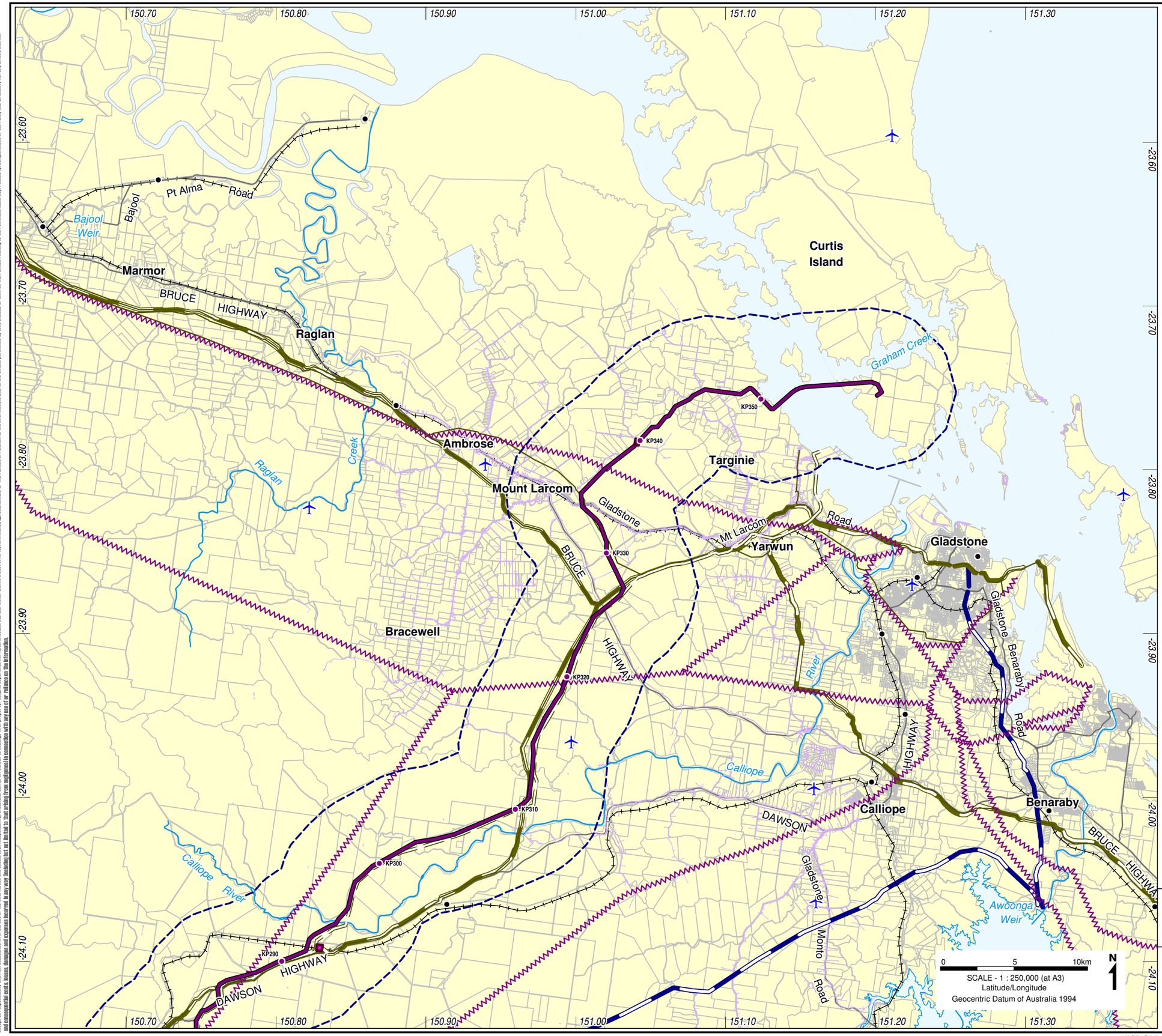
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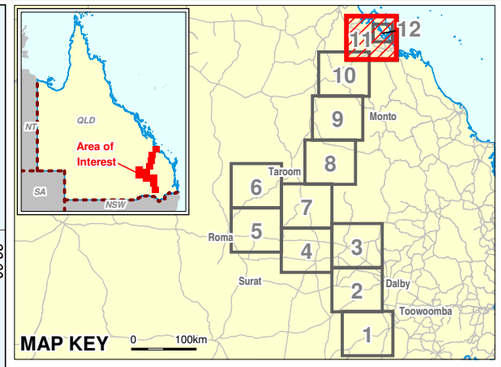
AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.55 - Existing Infrastructure (Map 10)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Existing Infrastructure

- Aircraft landing ground
- Railway stop
- High voltage power line
- Telecommunication cable

Pipeline Type

- Gas
- Oil
- Water
- Petroleum pipeline
- Proposed Surat to Gladstone pipeline

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Aircraft Facility Point, Powerline and Railway Stop Point (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

Pipeline
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009
Commonwealth of Australia (Geoscience Australia) 2009

Telecommunication cables
Telstra Corporation Limited 2009

0 5 10km

SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.56 - Existing Infrastructure (Map 11)

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151.05 151.10 151.15 151.20 151.25 151.30

-23.65 -23.70 -23.75 -23.80 -23.85

Curtis Island

The Narrows

Graham Creek

Laird Point

KP350

KP340

Targinie Road

Forest Road

Targinie

Cullens Road

Fishermans Landing Road

Fishermans Landing

Hamilton Point

Wiggins Islands

Mt Larcom Gladstone Road

Gladstone

Yarwun

Calliope River

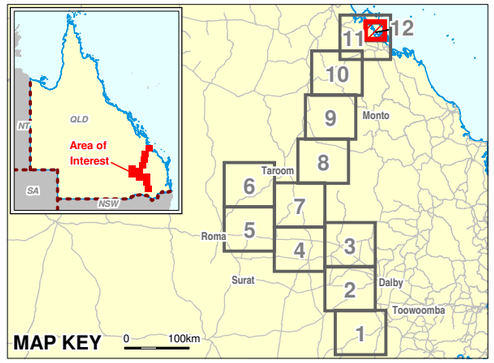
Southend

Gladstone

0 2 4km

SCALE - 1 : 100,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994

N



LEGEND

Major drainage
Cadastral parcel
Road
Reservoir
Railway

Proposed Infrastructure

KP010 Kilometre point
Gas pipeline route
Gas pipeline corridor
Pipeline laydown areas and temporary accommodation facilities

Existing Infrastructure

Aircraft landing ground
Railway stop
High voltage power line
Telecommunication cable

Pipeline Type

Gas
Oil
Water
Petroleum pipeline
Proposed Surat to Gladstone pipeline

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Aircraft Facility Point, Powerline and Railway Stop Point (based on 250k topography)
Commonwealth of Australia (Geoscience Australia) 2009

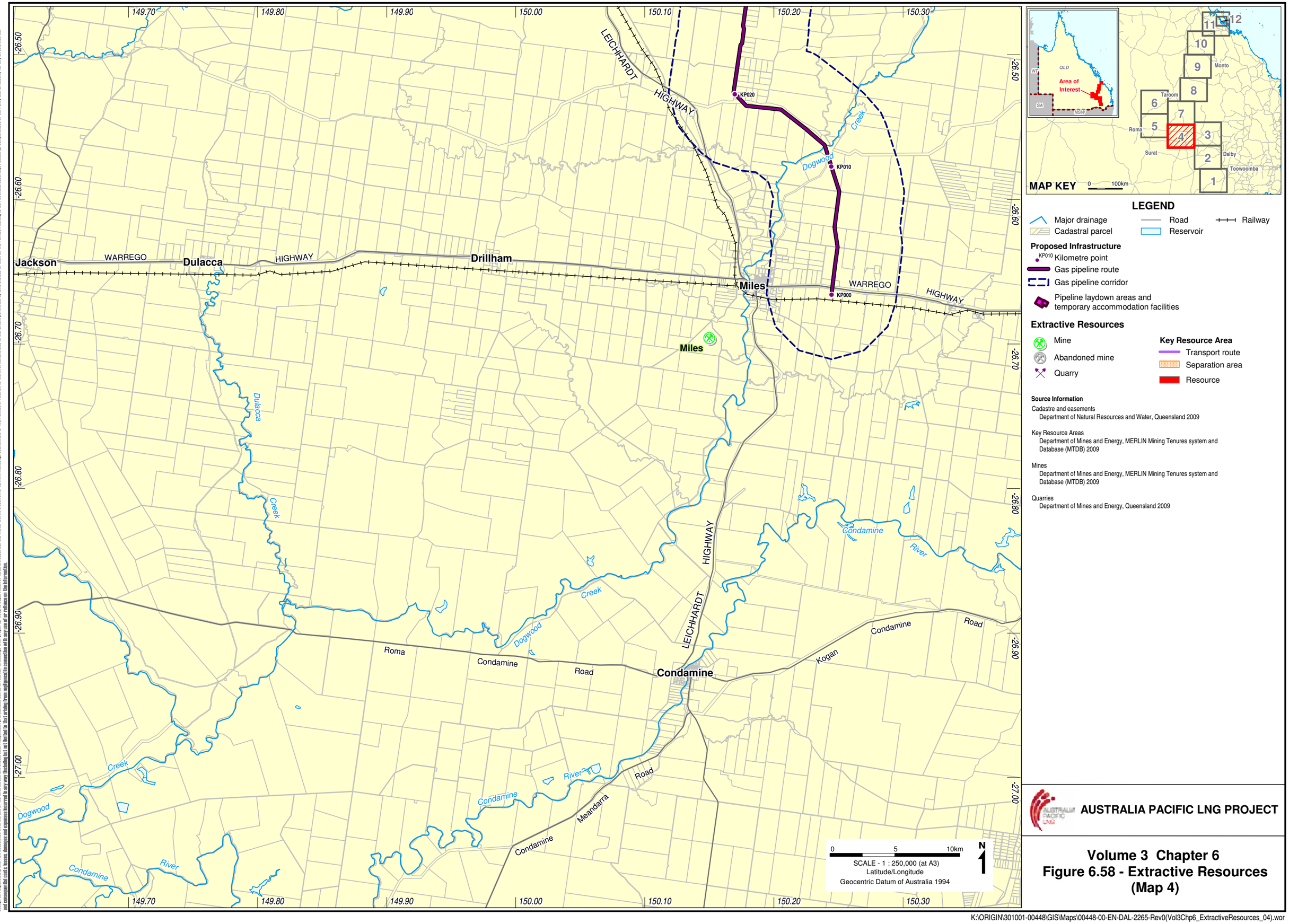
Pipeline
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009
Commonwealth of Australia (Geoscience Australia) 2009

Telecommunication cables
Telstra Corporation Limited 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.57 - Existing Infrastructure (Map 12)

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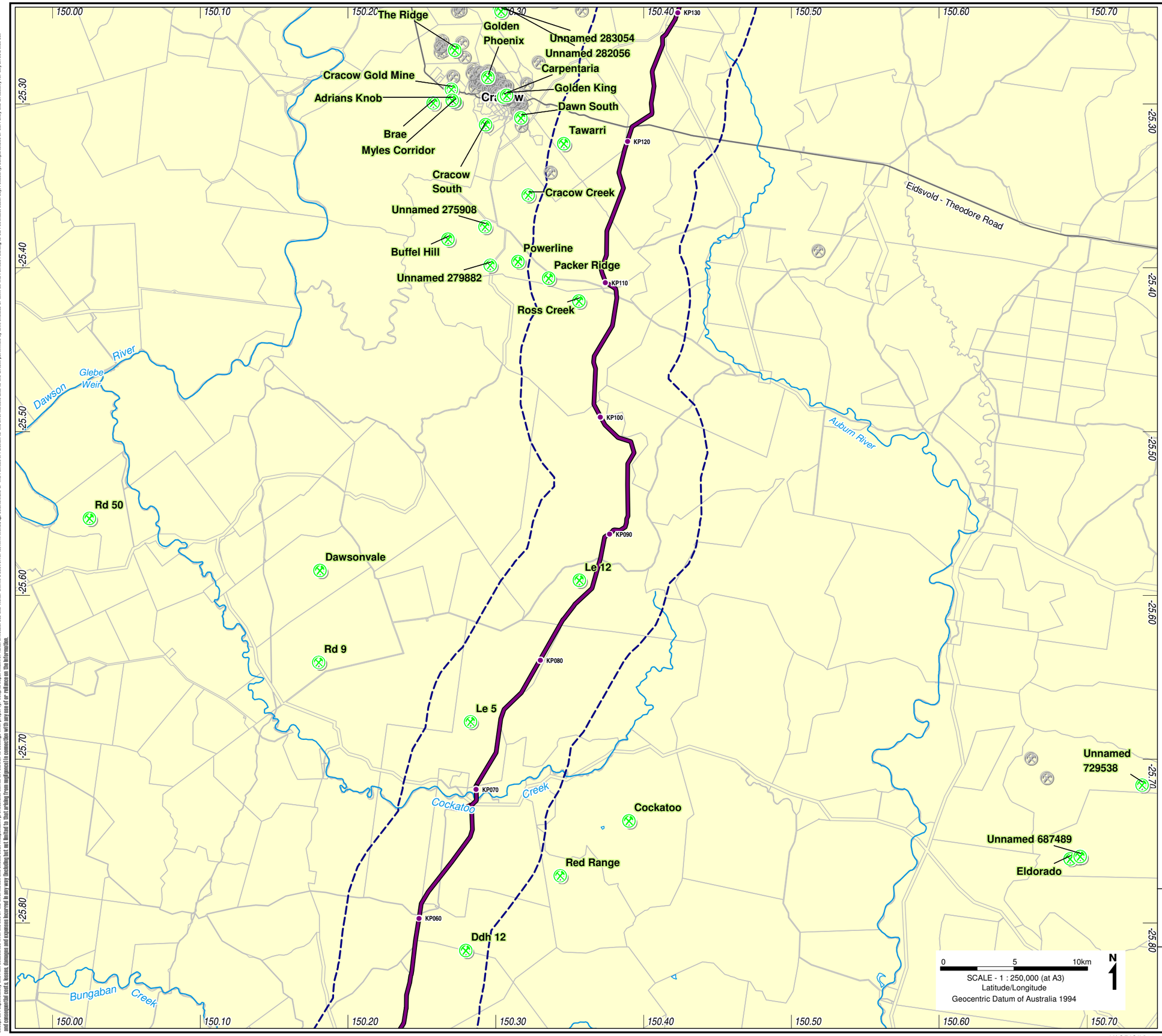
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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.58 - Extractive Resources (Map 4)

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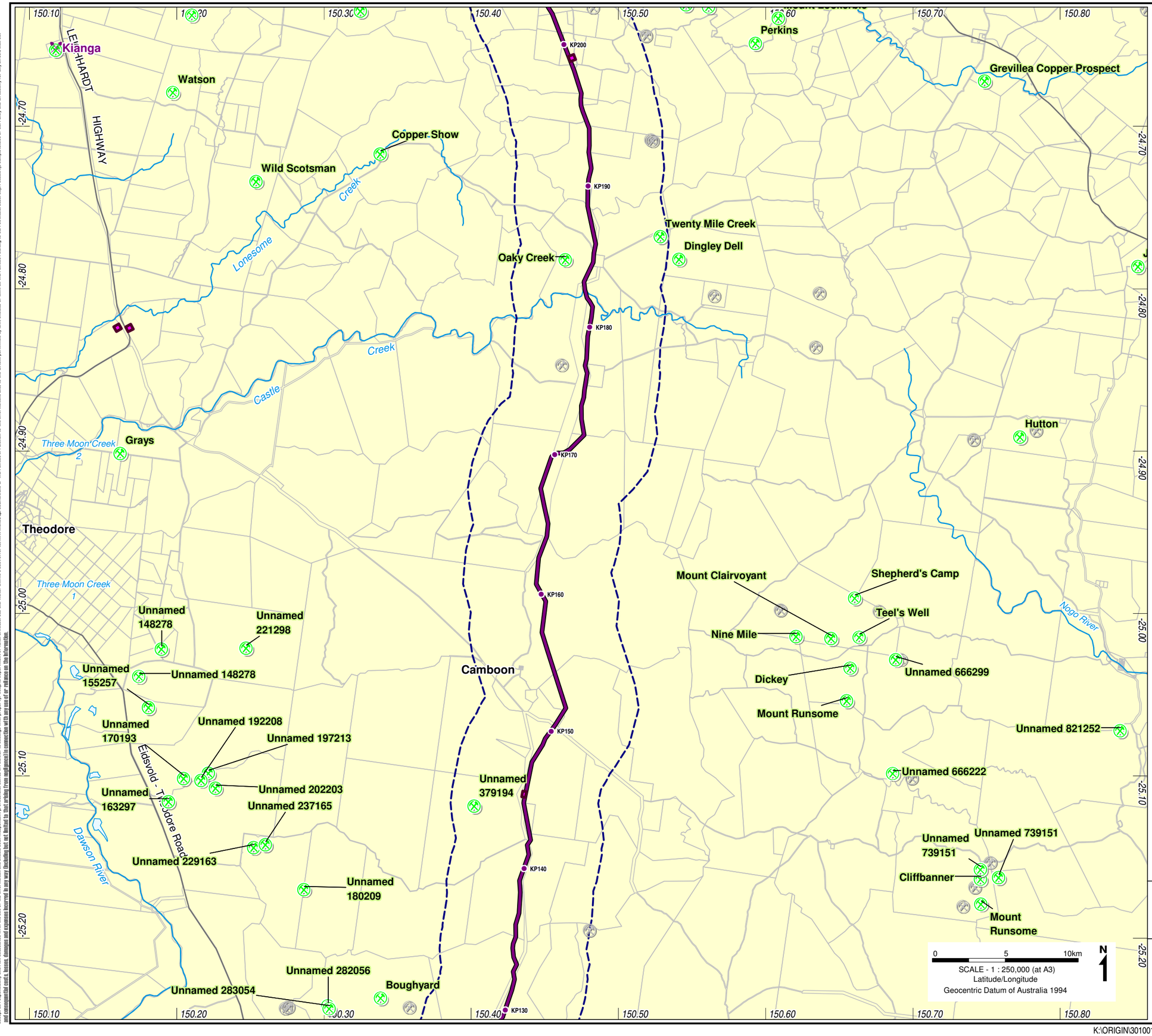
AUSTRALIA PACIFIC LNG PROJECT

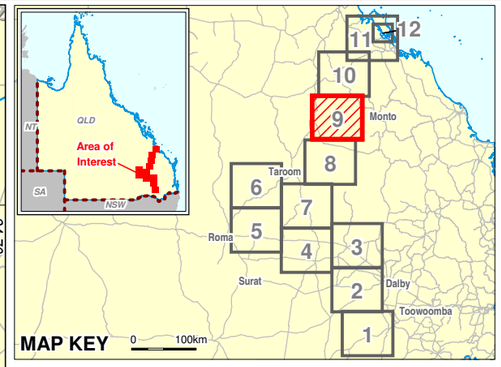
Volume 3 Chapter 6
Figure 6.60 - Extractive Resources (Map 8)

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LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Extractive Resources

- Mine
- Abandoned mine
- Quarry

Key Resource Area

- Transport route
- Separation area
- Resource

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Key Resource Areas
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

Mines
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

Quarries
Department of Mines and Energy, Queensland 2009

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.61 - Extractive Resources (Map 9)

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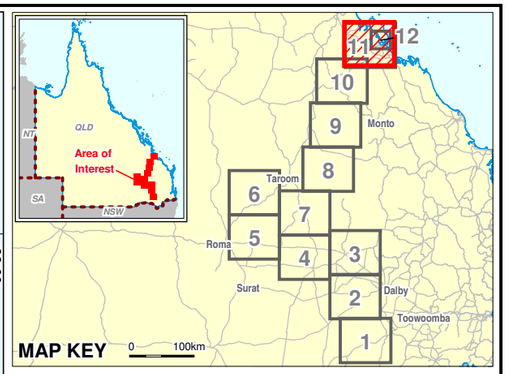
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Cheetham Salt
Pt Alma Road
Bajool
Bajool Weir
Unnamed 596532
Limonite Hill
BRUCE HIGHWAY
Raglan
Mount Morrissey
Kraatz
Unnamed 687723
Martin's Prospect
Ambrose
Raglan Creek
Unnamed 714645
Ulam Marble
Unnamed 827655
Martin's Prospect
Unnamed 596532
Bracewell Marble
Bracewell
Unnamed 817531
Unnamed 824532
Unnamed 825530
Unnamed 603492
Riverhead
Unnamed 669172
Unnamed 653433
Unnamed 088679
Mount Allison
Calliope River
Andrews Gully Prospect
Mannersley
KP290
KP300
KP310
KP320
KP330
KP340
KP350
HIGHWAY
DAWSON
BRUCE
East End
Mount Larcom
Gladstone
Road
Curtis Island
White Rock
Rundle
Graham Creek
Unnamed 088679
Targinie
Unnamed 026690
Stuart Oil Shale
Unnamed 226678
Turtle Island
Unnamed 226678
Unnamed 252648
Hurcom
Yarwun
Yarwun (GPA)
H & R Quarry
H & R Quarrying Pty Ltd
Gladstone
Gladstone Benaraby Road
River
Unnamed 155479
HIGHWAY
Fairview Limestone
Calliope
Calliope River (Bruce)
Calliope
DAWSON
Benaraby
Tannum Sands
Boyne River
Boyneglade
BRUCE HIGHWAY
Awoonga Weir
Gladstone Monto Road
Taragoola
Taragoola
Unnamed 238303



LEGEND

- Major drainage
- Cadastral parcel
- Road
- Reservoir
- Railway

Proposed Infrastructure

- KP010 Kilometre point
- Gas pipeline route
- Gas pipeline corridor
- Pipeline laydown areas and temporary accommodation facilities

Extractive Resources

- Mine
- Abandoned mine
- Quarry

Key Resource Area

- Transport route
- Separation area
- Resource

Source Information

Cadastre and easements
Department of Natural Resources and Water, Queensland 2009

Key Resource Areas
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

Mines
Department of Mines and Energy, MERLIN Mining Tenures system and Database (MTDB) 2009

Quarries
Department of Mines and Energy, Queensland 2009

0 5 10km
SCALE - 1 : 250,000 (at A3)
Latitude/Longitude
Geocentric Datum of Australia 1994
N

AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.63 - Extractive Resources (Map 11)

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AUSTRALIA PACIFIC LNG PROJECT

Volume 3 Chapter 6
Figure 6.64 - Extractive Resources (Map 12)

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