



APPENDIX 3

ARROW LNG PLANT

Preliminary Site Investigation

**PRELIMINARY SITE INVESTIGATION
CONTAMINATED LAND REPORT
ARROW ENERGY LNG PLANT
GLADSTONE**

Prepared for:

Arrow CSG (Australia) Pty Ltd

Coffey Environments Australia Pty Ltd

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Project Ref: ENAUBRIS107033CA

Written/Submitted by:

Kristen Wicks
Project Scientist

Written/Submitted by:

Sarah Richards
Principal Risk Assessor

Reviewed/Approved by:

Matthew Chenery
Principal Scientist

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ABBREVIATIONS

AHD	Australian Height Datum
APLNG	Australia Pacific Liquefied Natural Gas
ASS	Acid Sulfate Soils
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CLR	Contaminated Land Register
DEEDI	Department of Employment, Economic Development and Innovation
DERM	Queensland Department of Environment and Resource Management
DoE	Queensland Department of Environment
EMR	Environmental Management Register
GIS	Geographic Information System
GLNG	Gladstone Liquefied Natural Gas
LNG	Liquefied Natural Gas
MOF	Materials Offloading Facility
OCP	Organochlorine Pesticide
OPP	Organophosphorous Pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
PSI	Preliminary Site Investigation
QCLNG	Queensland Curtis Liquefied Natural Gas
SEWPC	Department for Sustainability, Environment, Water, Population and Communities
TWAF	Temporary Workers Accommodation Facility

EXECUTIVE SUMMARY

Arrow CSG (Australia) Pty Ltd (Arrow Energy) commissioned Coffey Environments Australia Pty Ltd (Coffey) to undertake a Stage 1 Preliminary Site Investigation (PSI) of key properties within the Arrow LNG Project. The study area for this project encompasses the proposed LNG plant and associated infrastructure on Curtis Island, the mainland tunnel entry shaft and tunnel spoil disposal area, temporary workforce accommodation facilities (TWAF) TWAF 7 and TWAF 8, Launch Site 4N and Launch Site 1.

Arrow Energy is proposing the development of a LNG export facility on Curtis Island on the central Queensland coast, adjacent to Gladstone. An associated feed gas pipeline is also being proposed between the LNG plant on Curtis Island and the mud flat area of mainland Gladstone, south of Boat Creek.

To facilitate construction of the project facilities, two workforce accommodation facilities and one launch site, for ferry docking and loading of personnel and/or light vehicles, are to be constructed. Two options are being considered as potential sites for the construction of the mainland temporary workforce accommodation facilities, TWAF 7 and TWAF 8. A construction camp will also be located on Boatshed Point on Curtis Island. Two launch site options, Launch Sites 1 and 4N are being considered as potential sites for the construction of the proposed launch sites. The Launch Site 4N is proposed to be located on the northern expansion area, north of Fishermans Landing, comprising reclaimed land through the Western Basin Dredging and Disposal Project. Launch Site 1 is proposed to be located north of Gladstone city near the mouth of the Calliope River, adjacent to the existing RG Tanna coal export terminal. Together these project activities are known as the project area of disturbance.

A potential risk for the project is to knowingly disturb pre-existing areas of contamination during construction and operational activities, which may result in harm to human health or the environment. This investigation ranks this risk, in addition to possible contamination of land, resulting from the construction, commissioning, operation and decommissioning of the LNG plant, tunnel entry shaft and tunnel spoil disposal area, TWAFs and Launch Sites.

The objectives of this PSI were to:

- Prepare a baseline assessment for the project area of disturbance;
- Identify potentially contaminated areas within the project area of disturbance;
- Assess aspects of the project that have the potential to cause land contamination; and
- Recommend mitigation plans to minimise or prevent potential land contamination and damage to the surrounding environment as a result of construction and operation of the project.

Following a desktop review of historical aerial photographs, Environmental Management Register/Contaminated Land Register, groundwater database, publicly available topographic, geological and hydrogeological maps, and a site walkover, the following potential sources of contamination were identified:

- Former cattle dip (LNG plant).
- Onsite waste disposal (including lead batteries) (LNG plant).
- Corroded storage drums (LNG plant).
- Ash from settling ponds (TWAF 7 and Launch Site 1).
- Waste disposal/car bodies (Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area).

The potential contaminated land risks to human health and the environment identified within the study area were classified between low and moderate. Moderate risks were associated with an existing cattle dip, existing battery stockpiles, future storage of hazardous materials, future emergency responses and historic ash disposal areas. Further investigation/remediation work in the areas of existing contamination will allow the development of more detailed mitigation measures and reduce the potential risks further. Potential risks associated with future construction and operation of the project will be managed through the implementation of management and mitigation controls required by legislation and recommended by relevant Australian Standards/guidelines including hazardous materials storage and use, sediment and erosion control, and environmental licensing conditions associated with discharges to land, water and air.

If areas of identified potential contamination are to be disturbed during construction works, additional intrusive detailed site investigations should be undertaken prior to disturbance. Management and/or remedial strategies will be required if construction activities are likely to disturb contaminated areas. These strategies will depend upon the nature and extent of contamination identified, and may include, remediation of contaminated soil, qualitative risk assessment and validation assessment to minimise potential impacts to human health and the environment.

A notifiable activity in 'Livestock Dip or Spray Race Operations' has been identified within Lot 5 on SP235936 and preliminary assessment by URS identified the presence of a hazardous contaminant. A notification of land is required to be made to the administering authority by the site operator/owner in accordance with the requirements of the Environmental Protection Act (1994).

This report must not be reproduced except in full and must be read in conjunction with the 'Important Information about your Coffey Environmental Report'.

1 INTRODUCTION

Arrow CSG (Australia) Pty Ltd (Arrow Energy) commissioned Coffey Environments Australia Pty Ltd (Coffey) to undertake a Stage 1 Preliminary Site Investigation (PSI) for selected properties to be utilised by the Arrow LNG Plant. This investigation has been prepared in support of the Arrow LNG Plant Environmental Impact Statement by assisting to address relevant sections of the Queensland Government (2010) Terms of reference for an Environmental Impact Statement, Shell Australia LNG Project (ToR).

1.1 Background

1.1.1 Preliminary Site Investigation Study Area

For the purpose of this investigation the study area for the project has been broken down into the following sub areas (see Figure 1): the proposed LNG plant and associated infrastructure on Curtis Island; the mainland tunnel entry shaft and tunnel spoil disposal area; temporary workforce accommodation facilities (TWAF) 7 and TWAF 8; Launch Site 4N; and Launch Site 1.

Table 1.1: Site details for study area infrastructure

Site Identification	Legal Identification Register	Approximate Size of Total Area of Disturbance (Ha)
LNG plant (Curtis Island) (See Figure 2)	Lot 3 on Plan SP235936* Lot 4 on Plan SP235936* Lot 5 on Plan SP235936* Lot 6 on Plan DS220 Lot 1 on Plan RP602284 Lot 7 on Plan SP239683 [#]	240.5
Mainland tunnel entry shaft and tunnel spoil disposal area (See Figure 3)	Lot 1 on Plan SP235026 Lot 3 on Plan SP235026 Lot 2 on Plan SP147871	67.4
TWAF 7 (See Figure 4)	Lot 200 on Plan CTN2173 Lot 32 on Plan USL15325	26.5
TWAF 8 (See Figure 5)	Lot 46 on Plan SP235946	31.6
Launch Site 1	Part of Lot 69 on Plan P4247	30.2

(See Figure 6)		
Launch Site 4N	Area yet to be reclaimed. No property descriptions available.	

* Lots 3, 4 and 5 on SP235936 have been subdivided from Lot 2 on SP207281 since the time of Environmental Management Register/Contaminated Land Register search and fall within the project boundaries. As any subdivision of properties listed on the EMR require each of the resulting subdivided properties to be listed on the EMR, the EMR search of Lot 2 on SP207281 is applicable to Lots 3, 4 and 5 on SP235936.

Lot 7 on SP239683 is located below the high tide mark and no some searches were not available at the time of investigation.

The Launch Site 4N (Figure 7) site option is to be located on the Fishermans Landing Northern Expansion Project area of land reclamation, which is currently in development. Therefore, the property at the time of this investigation did not have a legal property description/current title and current and historical searches were not available for this area.

1.2 Objectives

The objectives of this assessment are to:

- prepare a baseline assessment of the project area of disturbance;
- identify potentially contaminated areas within the project area of disturbance;
- assess aspects of the project that have the potential to cause land contamination; and
- recommend mitigation plans to minimise or prevent potential land contamination and damage to the surrounding environment as a result of construction and operation of the project.

It should be noted that any areas identified as containing an existing moderate or high risk during the Stage 1 PSI, have been recommended for further investigation prior to construction, which may include Stage 2 investigations (i.e., intrusive soil, groundwater and/or soil vapour sampling works), to determine the nature and extent of any contaminated areas. Any Stage 2 investigations would be undertaken, under separate cover and provide more refined remedial options and/or contamination management measures.

1.3 Scope of Work

To fulfil the abovementioned objectives and assist with addressing the Queensland Government, 2010 ToR that relate to contaminated land, the following scope of works was undertaken.

1.3.1 Desktop Review

Coffey conducted a desktop review of existing and historical information for the study area, including:

- historical aerial photographs and satellite imagery;
- current and historical title records;
- relevant environmental reports, where available;

- search of the Queensland Department of Environment and Resource Management (DERM) Environmental Management Register (EMR) and the Contaminated Land Register (CLR);
- groundwater database search; and
- publicly available topographic, geological and hydrogeological maps.

Review of public heritage and historical records was undertaken by Heritage Consulting Australia (2011), the outcome of these searches were reviewed for information relating to contaminating activities in the study area.

1.3.2 Site Walkover

Coffey undertook a site walkover of the LNG plant, TWAF 7, TWAF 8, Launch Site 1 and Mainland tunnel entry shaft/tunnel spoil disposal area. The proposed site location for Launch Site 4N had yet to be reclaimed, therefore the existing environment of Launch Site 4N has not been assessed. Boatshed Point was not inspected as part of this PSI. It is noted that further site inspections will be required prior to construction activities occurring on Boatshed Point.

The objectives of the site walkover were to assess the following:

- site layout;
- current and previous site operations;
- current uses of adjoining properties;
- confirm validity of publicly available information;
- onsite structures, storage facilities, disposal areas, etc;
- evidence of ground contamination (where visible);
- details and locations of current and former underground services;
- discharges to land and water; and
- local site knowledge of current and former owners or occupiers and history of adjacent land (where possible).

2 PROJECT DESCRIPTION

2.1 Proponent

Arrow Energy proposes to develop a LNG facility on Curtis Island off the central Queensland coast near Gladstone. The project, known as the Arrow LNG Plant, is a component of the larger Arrow LNG Project.

The proponent is a subsidiary of Arrow Energy Holdings Pty Ltd, which wholly owned by a joint venture between subsidiaries of by Royal Dutch Shell plc and PetroChina Company Limited.

2.2 Arrow LNG Plant

Arrow Energy proposes to construct the Arrow LNG Plant in the Curtis Island Industry Precinct at the southwestern end of Curtis Island, approximately 6 km north of Gladstone and 85 km southeast of Rockhampton, off Queensland's central coast. In 2008, approximately 10% of the southern part of the island was added to the Gladstone State Development Area to be administered by the Queensland Department of Local Government and Planning. Of that area, approximately 1,500 ha (25%) has been designated as the Curtis Island Industry Precinct and is set aside for LNG development. The balance of the Gladstone State Development Area on Curtis Island has been allocated to the Curtis Island Environmental Management Precinct, a flora and fauna conservation area.

The Arrow LNG Plant will be supplied with coal seam gas from gas fields in the Surat and Bowen basins via high-pressure gas pipelines to Gladstone, from which a feed gas pipeline will provide gas to the LNG plant on Curtis Island. A tunnel is proposed for the feed gas pipeline crossing of Port Curtis.

The project is described below in terms of key infrastructure components: LNG plant, feed gas pipeline and dredging.

2.2.1 LNG Plant

Overview. The LNG plant will have a base-case capacity of 16 Mtpa, with a total plant capacity of up to 18 Mtpa. The plant will consist of four LNG trains, each with a nominal capacity of 4 Mtpa. The project will be undertaken in two phases of two trains (nominally 8 Mtpa), with a financial investment decision undertaken for each phase.

Operations infrastructure associated with the LNG plant includes the LNG trains (where liquefaction occurs; see 'Liquefaction Process' below), LNG storage tanks, cryogenic pipelines, seawater inlet for desalination and stormwater outlet pipelines, water and wastewater treatment, a 110 m high flare stack, power generators (see 'LNG Plant Power' below), administrative buildings and workshops.

Construction infrastructure associated with the LNG plant includes construction camps (see 'Workforce Accommodation' below), a concrete batching plant and laydown areas.

The plant will also require marine infrastructure for the transport of materials, personnel and product (LNG) during construction and operations (see 'Marine Infrastructure' below).

Construction Schedule. The plant will be constructed in two phases. Phase 1 will involve the construction of LNG trains 1 and 2, two LNG storage tanks (each with a capacity of between 120,000 m³ and 180,000 m³), Curtis Island construction camp and, if additional capacity is required, a mainland workforce accommodation camp. Associated marine infrastructure will also be required as

part of Phase 1. Phase 2 will involve the construction of LNG trains 3 and 4 and potentially a third LNG storage tank. Construction of Phase 1 is scheduled to commence in 2014 with train 1 producing the first LNG cargo in 2017. Construction of Phase 2 is anticipated to commence approximately five years after the completion of Phase 1 but will be guided by market conditions and a financial investment decision at that time.

Construction Method. The LNG plant will generally be constructed using a modular construction method, with preassembled modules being transported to Curtis Island from a fabrication facility. There will also be a substantial stick-built component of construction for associated infrastructure such as LNG storage tanks, buildings, underground cabling, piping and foundations. Where possible, aggregate for civil works will be sourced from suitable material excavated and crushed on site as part of the bulk earthworks. Aggregate will also be sourced from mainland quarries and transported from the mainland Launch Site to the plant site by roll-on, roll-off vessels. A concrete batching plant will be established on the plant site. Bulk cement requirements will be sourced outside of the batching plant and will be delivered to the site by roll-on roll-off ferries or barges from the mainland Launch Site.

2.2.2 LNG Plant Power

Power for the LNG plant and associated site utilities may be supplied from the electricity grid (mains power), gas turbine generators, or a combination of both, leading to four configuration options that will be assessed:

- Base case (mechanical drive): The mechanical drive configuration uses gas turbines to drive the LNG train refrigerant compressors, which is the traditional powering option for LNG facilities. This configuration would use coal seam gas and end flash gas (produced in the liquefaction process) to fuel the gas turbines that drive the LNG refrigerant compressors and the gas turbine generators that supply electricity to power the site utilities. Construction power for this option would be provided by diesel generators.
- Option 1 (mechanical/electrical – construction and site utilities only): This configuration uses gas turbines to drive the refrigerant compressors in the LNG trains. During construction, mains power would provide power to the site via a cable (30-MW capacity) from the mainland. The proposed capacity of the cable is equivalent to the output of one gas turbine generator. The mains power cable would be retained to power the site utilities during operations, resulting in one less gas turbine generator being required than the proposed base case.
- Option 2 (mechanical/electrical): This configuration uses gas turbines to drive the refrigerant compressors in the LNG trains and mains power to power site utilities. Under this option, construction power would be supplied by mains power or diesel generators.
- Option 3 (all electrical): Under this configuration mains power would be used to supply electricity for operation of the LNG train refrigerant compressors and the site utilities. A switchyard would be required. High-speed electric motors would be used to drive the LNG train refrigerant compressors. Construction power would be supplied by mains power or diesel generators.

2.2.3 Liquefaction Process

The coal seam gas enters the LNG plant where it is metered and split into two pipe headers which feed the two LNG trains. With the expansion to four trains the gas will be split into four LNG trains.

For each LNG train, the coal seam gas is first treated in the acid gas removal unit where the carbon dioxide and any other acid gases are removed. The gas is then routed to the dehydration unit where any water is removed and then passed through a mercury guard bed to remove mercury. The coal seam gas is then ready for further cooling and liquefaction.

A propane, precooled, mixed refrigerant process will be used by each LNG train to liquefy the predominantly methane coal seam gas. The liquefaction process begins with the propane cycle. The propane cycle involves three pressure stages of chilling to pre-cool the coal seam gas to -33°C and to compress and condense the mixed refrigerant, which is a mixture of nitrogen, methane, ethylene and propane. The condensed mixed refrigerant and precooled coal seam gas are then separately routed to the main cryogenic heat exchanger, where the coal seam gas is further cooled and liquefied by the mixed refrigerant. Expansion of the mixed refrigerant gases within the heat exchanger removes heat from the coal seam gas. This process cools the coal seam gas from -33°C to approximately -157°C. At this temperature the coal seam gas is liquefied (LNG) and becomes 1/600th of its original volume. The expanded mixed refrigerant is continually cycled to the propane pre-cooler and reused.

LNG is then routed from the end flash gas system to a nitrogen stripper column which is used to separate nitrogen from the methane, reducing the nitrogen content of the LNG to less than 1 mole per cent (mol%). LNG separated in the nitrogen stripper column is pumped for storage on site in full containment storage tanks where it is maintained at a temperature of -163°C.

A small amount of off-gas is generated from the LNG during the process. This regasified coal seam gas is routed to an end flash gas compressor where it is prepared for use as fuel gas.

Finally, the LNG is transferred from the storage tanks onto LNG carriers via cryogenic pipelines and loading arms for transportation to export markets. The LNG will be regasified back into sales specification gas on shore at its destination location.

Workforce Accommodation

The LNG plant (Phase 1), tunnel, feed gas pipeline, and dredging components of the project each have their own workforces with peaks occurring at different stages during construction. The following peak workforces are estimated for the project:

- LNG plant Phase 1 peak workforce of 3,500, comprising 3,000 construction workers: 350 engineering, procurement and construction (EPC) management workers and 150 Arrow Energy employees.
- Tunnel peak workforce of up to 100.
- Feed gas pipeline (from the mainland to Curtis Island) peak workforce of up to 75.
- A dredging peak workforce of between 20 and 40.

Two workforce construction camp locations are proposed: the main construction camp at Boatshed Point on Curtis Island, and a possible mainland overflow construction camp, referred to as a temporary workers accommodation facility (TWAF). Two potential locations are currently being considered for the mainland TWAF; in the vicinity of Gladstone city on the former Gladstone Power Station ash pond No.7 (TWAF 7) or in the vicinity of Targinnie on a primarily cleared pastoral grazing lot (TWAF 8). Both potential TWAF sites include sufficient space to accommodate camp infrastructure and construction laydown areas. The TWAF and its associated construction laydown areas will be decommissioned on completion of the Phase 1 works.

Of the 3,000 construction workers for the LNG plant, it is estimated that between 5% and 20% will be from the local community (and thus will not require accommodation) and that the remaining fly-in, fly-out workers will be accommodated in construction camps. The 350 EPC management and 150 Arrow Energy employees are expected to relocate to Gladstone with the majority housed in company facilitated accommodation.

The tunnel workforce of 100 people and gas pipeline workforce of 75 people are anticipated to be accommodated in the mainland in company facilitated accommodation. The dredging workforce of 20 to 40 workers will be housed onboard the dredge vessel.

Up to 2,500 people will be housed at Boatshed Point construction camp. Its establishment will be preceded by a pioneer camp at the same locality which will evolve into the completed construction camp.

2.2.4 Marine Infrastructure

Marine facilities include the LNG jetty, materials offloading facility (MOF), personnel jetty and mainland Launch Site.

LNG Jetty. LNG will be transferred from the storage tanks on the site to the LNG jetty via above ground cryogenic pipelines. Loading arms on the LNG jetty will deliver the product to an LNG carrier. The LNG jetty will be located in North China Bay, adjacent to the northwest corner of Hamilton Point.

MOF. Delivery of materials to the site on Curtis Island during the construction and operations phases will be facilitated by a MOF where roll-on, roll-off or lift-on, lift-off vessels will dock to unload preassembled modules, equipment, supplies and construction aggregate. The MOF will be connected to the LNG plant site via a heavy-haul road.

Boatshed Point (MOF 1) is the base-case MOF option and would be located at the southern tip of Boatshed Point. The haul road would be routed along the western coastline of Boatshed Point (abutting the construction camp to the east) and enters the LNG Plant site at the southern boundary. A quarantine area will be located south of the LNG plant and will be accessed via the northern end of the haul road.

Two alternative options are being assessed, should the Boatshed Point option be determined to be not technically feasible:

- South Hamilton Point (MOF 2): This MOF option would be located at the southern tip of Hamilton Point. The haul road from this site would traverse the saddle between the hills of Hamilton Point to the southwest boundary of the LNG plant site. The quarantine area for this option will be located southwest of the LNG plant near the LNG storage tanks.
- North Hamilton Point (MOF 3): This option involves shared use of the MOF being constructed for the Santos Gladstone LNG Project (GLNG Project) on the northwest side of Hamilton Point (south of Arrow Energy's proposed LNG jetty). The GLNG Project is also constructing a passenger terminal at this site, but it will not be available to Arrow Energy contractors and staff. The quarantine area for this option would be located to the north of the MOF. The impacts of construction and operation of this MOF option and its associated haul road were assessed as part of the GLNG Project and will not be assessed in this EIS.

Personnel Jetty. During the peak of construction, base case of up to 1,100 people may require transport to Curtis Island from the mainland on a daily basis. A personnel jetty will be constructed at the

southern tip of Boatshed Point to enable the transfer of workers from the mainland Launch Site to Curtis Island by high-speed vehicle catamarans (Fastcats) and vehicle or passenger ferries (ROPAX). This facility will be adjacent to the MOF constructed at Boatshed Point. The haul road will be used to transport workers to and from the personnel jetty to the construction camp and LNG plant site. A secondary access for pedestrians will be provided between the personnel jetty and the construction camp.

Mainland Launch Site. Materials and workers will be transported to Curtis Island via the mainland Launch Site. The mainland Launch Site will contain both a passenger terminal and a roll-on, roll-off facility. The passenger terminal will include a jetty and transit infrastructure, such as amenities, waiting areas and car parking. The barge or roll-on, roll-off facility will have a jetty, associated laydown areas, workshops and storage sheds.

The two location options for the mainland Launch Site are:

- Launch Site 1: This site is located north of Gladstone city near the mouth of the Calliope River, adjacent to the existing RG Tanna coal export terminal.
- Launch Site 4N: This site is located at the northern end of the proposed reclamation area for the Fishermans Landing Northern Expansion Project, which is part of the Port of Gladstone Western Basin Master Plan. The availability of this site will depend on how far progressed the Western Basin Dredging and Disposal Project is at the time of construction.

2.3 Feed Gas Pipeline

An approximately 8-km long feed gas pipeline will supply gas to the LNG plant from its connection to the Arrow Surat Pipeline (formerly the Surat Gladstone Pipeline) on the mainland adjacent to Rio Tinto's Yarwun alumina refinery. The feed gas pipeline will be constructed in three sections:

- A short length of feed gas pipeline will run from the proposed Arrow Surat Pipeline to the tunnel launch shaft, which will be located on a mudflat south of Fishermans Landing, just south of Boat Creek. This section of pipeline will be constructed using conventional open-cut trenching methods within a 40-m wide construction right of way.
- The next section of the feed gas pipeline will traverse Port Curtis harbour in a tunnel to be bored under the harbour from the mainland tunnel launch shaft to a receival shaft on Hamilton Point. The tunnel under Port Curtis will have an excavated diameter of up to approximately 6 m and will be constructed by a tunnel boring machine that will begin work at the mainland launch shaft. Tunnel spoil material will be processed through a de-sanding plant to remove the bentonite and water and will comprise mainly a finely graded fill material, which will be deposited in a spoil placement area established within bund walls constructed adjacent to the launch shaft. Based on the excavated diameter, approximately 223,000 m³ of spoil will be treated as required for acid sulfate soil and disposed of at this location.
- From the tunnel receival shaft on Hamilton Point, the remaining section of the feed gas pipeline will run underground to the LNG plant, parallel to the above ground cryogenic pipelines. This section will be constructed using conventional open-cut trenching methods within a 30-m wide construction right of way.

Should one of the electrical plant power options be chosen, it is intended that a power connection will be provided by a third party to the tunnel launch shaft, whereby Arrow Energy would construct a power cable within the tunnel to the LNG plant.

Other infrastructure, such as communication cables, water and wastewater pipelines, may also be accommodated within the tunnel.

2.4 Dredging

Dredging required for LNG shipping access and swing basins has been assessed under the Gladstone Ports Corporation's Port of Gladstone Western Basin Dredging and Disposal Project. Additional dredging within the marine environment of Port Curtis may be required to accommodate the construction and operation of the marine facilities. Up to five sites may require dredging:

- Dredge site 1 (dredge footprint for Launch Site 1): The dredging of this site would facilitate the construction and operation of Launch Site 1. This dredge site is located in the Calliope River and extends from the intertidal area abutting Launch Site 1, past Mud Island to the main shipping channel. The worst-case dredge volume estimated at this site is approximately 900,000 m³.
- Dredge site 2 (dredge footprint for Launch Site 4N): The dredging of this site would facilitate the construction and operation of Launch Site 4N. This dredge site would abut Launch Site 4N and extend east from the Launch Site to the shipping channel. The worst-case dredge volume identified at this site is approximately 2,500 m³.
- Dredge site 3 (dredge footprint for Boatshed Point MOF 1): The dredging of this site would facilitate the construction and operation of the personnel jetty and MOF at Boatshed Point. This dredge site would encompass the area around the marine facilities, providing adequate depth for docking and navigation. The worst-case dredge volume identified at this site is approximately 50,000 m³.
- Dredge site 4 (dredge footprint for Hamilton Point South MOF 2): The dredging of this site would facilitate the construction and operation of the MOF at Hamilton Point South. This dredge site would encompass the area around the marine facilities, providing adequate depth for docking and navigation. The worst-case dredge volume identified at this site is approximately 50,000 m³.
- Dredge site 5 (dredge footprint for LNG jetty): The dredging of this site will facilitate the construction of the LNG jetty at Hamilton Point. This dredge site extends from the berth pocket to be dredged as part of the Western Basin Strategic Dredging and Disposal Project to the shoreline and is required to enable a work barge to assist with construction of the jetty. The worst-case dredge volume identified is approximately 120,000 m³.

The spoil generated by dredging activities will be placed and treated for acid sulfate soils (as required) in the Port of Gladstone Western Basin Dredging and Disposal Project reclamation area.

3 LEGISLATIVE CONTEXT

Legislative requirements covering contaminated land in Queensland are contained in the *Environmental Protection Act (1994)* and subordinate policies and regulations. The Environmental Protection Act (1994) Chapter 7, Part 8 Contaminated Land provides for the following contaminated land aspects that may be relevant to the project.

Inclusion of Land on the Environmental Management Register – The owner or occupier of land, upon becoming aware of a 'notifiable activity' or the land has been, or is being, contaminated is required to give notice to administering authority within 22 business days. 'Notifiable activities' are listed within Schedule 3 of the Act. Project relevant 'notifiable activities' may include the following:

- Chemical storage (other than petroleum products) - storing more than 10t of chemicals (other than compressed or liquefied gases) that are dangerous goods under the dangerous goods code.
- Engine reconditioning works - carrying out engine reconditioning work at a place where more than 500L of any of the following are stored: halogenated and non-halogenated hydrocarbon solvents; (b) dangerous goods in class 6.1 under the dangerous goods code; and industrial degreasing solutions.
- Livestock dip or spray race operations - operating a livestock dip or spray race facility.
- Petroleum product or oil storage (depending on type of storage, petroleum product and packaging group).

It should also be noted that in addition to 'notifiable activities' the Environmental Protection Act (1994) Chapter 7, Part 1 General Environmental Duties, requires the administering authority to be notified of material or serious environmental harm (as defined by the Act).

Investigation of Land on Environmental Management Register – The Act allows for contaminated land investigations to be completed either on a voluntary basis or under the direction of the administering authority. The Act specifies who must conduct site investigations and declarations that must accompany the report.

Remediation of Land – The Act allows for remediation and validation works to be completed either on a voluntary basis or under the direction of the administering authority. The Act specifies who must conduct remediation and validation works and declarations that must accompany the report.

Site Management Plans - Site management plan is used to manage land for which particulars are recorded in the environmental management register because the land is contaminated or to manage environmental harm by applying conditions to the use or development of the land. The Act provides details on required contents and on approval process for Site Management Plans.

Removal and Treatment or Disposal of Contaminated Soil – The Act prohibits the removal of contaminated soil from land that is listed on the Environmental Management Register without a permit from the administering authority.

The methodology used in this assessment is generally based on the following Australian guidelines and Standards:

- National Environment Protection (Assessment of Site Contamination) Measure (National Environmental Protection Council, 1999). The National Environment Protection Measure (1999) outlines national objectives for the assessment of site contamination. The stages of investigation of contaminated or potentially contaminated sites outlined in the measure indicate that a preliminary site investigation should involve a review of site history and a site inspection to determine potential contaminants of concern and areas of potential contamination. Subsequent detailed site investigations are required where results of the preliminary site investigation are insufficient to devise appropriate site management strategies.
- Australian Standard AS4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds (Standards Australia, 2005). The AS4482.1-2005 standard provides guidance on the collection of information for the assessment of sites potentially contaminated by non-volatile and semi-volatile compounds. The standard also defines the objectives, information requirements and general procedures on the preliminary site investigations process.
- Queensland Department of Environment (DoE) Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, May 1998. The DoE (1998) draft guidelines outline the approach and requirements for contaminated land investigations and notifications/registration procedures in Queensland. The guidelines provides for a stage approach to investigations and technical guidelines for site assessment, remediation and report preparation.

This investigation also takes into account relevant aspects of the Queensland Government (2010) Terms of reference for an Environmental Impact Statement, Shell Australia LNG Project. A cross reference table identifying the sections of this report that address the Terms of Reference for the Environmental Impact Statement (Queensland Government, 2010) is presented in Appendix A.

4 PSI METHODOLOGY

The methodology employed for the PSI included the following:

- establishment of site history and identification of past and present contaminating activities, and locations of these activities;
- identification of potential impacts based on the proposed project activities;
- preliminary risk ranking of identified potential sources of contamination; and
- recommendation of appropriate measures of avoidance, mitigation and management for the construction, operation and decommissioning at the abovementioned sites and for the general project construction and operational activities.

4.1 Review of Site History and Identification of Potentially Contaminating Activities

A site history review was undertaken in general accordance with the DoE (1998) Draft Guidelines for the Assessment and Management of Contaminated Land. The site history review included searching of relevant Queensland publically accessible databases including:

- historical aerial photographs and satellite imagery;
- current and historical title records;
- search of the Queensland Department of Environment and Resource Management (DERM) Environmental Management Register (EMR) and the Contaminated Land Register (CLR);
- street maps
- groundwater database search; and
- publicly available topographic, geological and hydrogeological maps.

Review of public heritage and historical records was undertaken by Heritage Consulting Australia (2011), the outcome of these searches were reviewed for information relating to contaminating activities in the study area.

The search results were reviewed for evidence of potentially contaminating activities and site inspection conducted to ground truth the findings of the searches and to assess the investigation areas for signs activities or areas of contamination.

4.2 Identification of Potentially Contaminating Activities Related to project Activities

A review of the proposed construction and operations was conducted with particular attention to activities that may disturb existing contaminated materials or introduce hazardous contaminants to the environment.

4.3 Risk Summary and Risk Ranking

A qualitative risk summary and ranking process was applied to provide context to various potential contamination sources and identify potential contamination with significant risks to guide nomination of mitigation measures. The risk summary and ranking was consistent with the DoE (1998) Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, as it reviewed the source-pathway-receptor relationships to establish the potential for adverse impacts to human health or the environment. The outcomes of this assessment were then used to establish potential mitigation measures to minimise the impact of these risks during construction, operation and decommissioning of the Arrow LNG Plant.

A model for the assessment of potential risks and impacts of potential sources of contamination for the study area was adapted from the Australian/New Zealand Standard for risk management (AS/NZS 31000:2009 and explained in the associated handbook HB 327:2010).

4.3.1 Source-Pathway-Receptor Review

For contaminants of concern to present a risk, there must be a source of contamination, an exposure pathway and receptors that may be adversely affected by exposure to the contaminants. A summary of the potential sources of contamination, potential contaminants of concern, pathways and receptors relating to the study area are presented below.

Common exposure pathways by which potential contaminants of concern can reach potential sensitive human or ecological receptors are outlined below:

- **Direct contact** – dermal contact, inhalation or ingestion of contaminants may occur during construction activities and site operations, if contaminated soils or water are present at the surface or are exposed by site activities. Direct contact may be relevant to human and ecological receptors.
- **Exposure via surface runoff** – runoff from areas with contaminated surface soils may contain contaminants in dissolved or suspended states.
- **Exposure via groundwater** – contaminants may potentially leach into groundwater resources. There is then potential for exposure to contaminants if groundwater is extracted for use, or if groundwater migrates and discharges into a surface water body, which is used.
- **Exposure via airborne dust** – disturbance of contaminated material by site activities has the potential to generate dust which may contain elevated levels of contaminants and result in transport of contaminants off site.
- **Volatilisation** – volatilisation may result in volatile contaminant migration to off-site receptors or accumulation of vapours within enclosed spaces.

Potential current and future receptors which may be exposed to sources of potential contamination through the abovementioned exposure pathways include the following:

- **Sensitive receptor** – property occupiers of the land in the vicinity of the sites.
- **Onsite construction, maintenance and operations workers** – workers involved in the construction and operation of the sites

- **Environmental receptors** – surrounding environments including terrestrial fauna and flora present at the sites and the freshwater and marine aquatic ecosystems.

The following definitions are applied:

- **Event** - an occurrence of a particular set of circumstances through which a hazard may have an impact on the environment.
- **Environment** - surroundings in which the sites are located, including air, water (surface and subsurface), land, flora, fauna and their interrelation.
- **Consequence** - outcome or impact of an event.

The impact of the potential risks associated with potential sources of contamination was assessed by considering the consequence and likelihood of the risk occurring during construction, operation and decommissioning of the Arrow LNG Plant.

4.3.2 Consequence

Consequence is defined by:

- Nature and potential severity of the contamination;
- Geographical extent (considers if the effect is regional, local or limited); and
- Duration (considers the timescale of the effect – temporary, short or long term).

Potential consequences can be divided into four levels, which are listed and described in Table 3.1 below.

Table 3.1: Levels of Consequences

Level	Descriptor
Significant (S)	Irreversible human health impact to multiple receptors and/or persistent environmental impact over a large area. Impact is evident both onsite and offsite.
Moderate (M)	Non-debilitating human health impacts to multiple receptors and/or onsite environmental impact. May include minor off-site impact. Environmental rehabilitation is medium-term (up to 10 years).
Low (L)	Low impact acute human health effects onsite and/or minor localised environmental impact. All impacts are reversible.
Negligible (N)	No evidence of human health impact and/or environmental harm.

4.3.3 Likelihood

In the context of this assessment, the likelihood is defined as a measure of the probability that the identified consequence will occur, given a certain event.

Likelihood is divided into four levels, which are listed and described in Table 3.2 below.

Table 3.2: Levels of Likelihood

Level	Descriptor
Almost Certain (AC)	Expected to occur during site construction and operation
Likely (LI)	Likely to occur during site construction and operation
Possible (PO)	May occur during site construction and operation
Unlikely (UN)	Not expected to occur during site construction and operation

4.3.4 Risk Level Ranking

Following the categorisation of likelihood and consequence of identified potential risks, a risk ranking can be assigned. Three levels of risk, Low, Moderate and High, are defined in Table 3.3 below.

Table 3.3: Potential Risk Levels

Consequence Likelihood	Significant (S)	Moderate (M)	Low (L)	Negligible (N)
Almost Certain (AC)	High	High	High	Moderate
Likely (LI)	High	High	Moderate	Low
Possible (PO)	High	Moderate	Moderate	Low
Unlikely (UN)	Moderate	Low	Low	Low

4.4 Nomination of Risk Mitigation Measures

Where a Moderate or High risk was identified, mitigation measures were nominated to reduce the risk associated with that hazard. The selection of mitigation measures follows the hierarchy of controls, described below:

1. Remove the hazard (Elimination);
2. Modify the activity that realises the risk (Substitution);
3. Apply engineering controls to reduce the severity or likelihood of an adverse consequence (Engineering Control);
4. Apply procedures to reduce the severity or likelihood of an adverse consequence (Administrative or Behavioural Control).

The measures described are technically and economically feasible within the context of the project and reflect the commitment to sound environmental management techniques.

5 EXISTING ENVIRONMENT

5.1 Desktop Study

5.1.1 Satellite Imagery/Aerial Photography Review

A review of historical aerial photography and satellite imagery was undertaken for the study area to identify features and activities within the investigation areas and surrounding properties that were considered to be potential sources of contamination. The findings of the satellite imagery/aerial photograph review are presented in Tables 5.1 to 5.5. Aerial photographs and satellite imagery are presented in Appendix B.

Table 5.1: LNG Plant and Associated Island Infrastructure Imagery Review

Year of Photo	Site Description	Surrounding Area Description
1959 (black and white)	The Curtis Island site comprises primarily bush land, mudflats and grassland. Possibly farmland/rural residential use.	Surrounding area comprises primarily bushland, mud flats, open water and grassland. Possibly farmland/rural residential.
1965 (black and white)	No apparent change.	No apparent change.
1970 (black and white)	No apparent change.	No apparent change.
1973 (black and white)	No apparent change.	No apparent change.
1989 (colour)	Path/access road visible stretching from Boatshed Point to the south to the centre of Lot 6 on DS220 in the north.	No apparent change.
1999 (colour)	Construction of small dam in eastern portion of site (north of Boatshed Point and west of path/access road) and some land clearing central portion of the site.	No apparent change.
2003 (Google Earth)	No apparent change.	No apparent change.

Year of Photo	Site Description	Surrounding Area Description
2007 (Google Earth)	No apparent change.	No apparent change.

Onsite and offsite features identified from the satellite imagery/aerial photograph review at the LNG plant are generally associated with agricultural land use. Potential sources of contamination from historical agricultural use of the area potentially include, stock dips, pesticides, waste disposal, and other supporting activities such as workshops, fuel storage, etc.

Table 5.2: Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area Imagery Review

Year of Photo	Site Description	Surrounding Area Description
1959 (black and white)	The mainland tunnel entry shaft and spoil disposal area comprises mud flats and mangroves/marshland.	Project area is surrounded by mud flats/mangroves/marshland to the north, water to the east, sand flats and mangroves/marshland to the south and bushland to the west. Plantations and farming areas visible approximately 300m west of the site.
1965 (black and white)	No apparent change.	No apparent change.
1973 (black and white)	No apparent change.	Some land clearing west of the site.
1989 (colour)	No apparent change.	Dam and dirt access roads constructed in bushland west of the site. Industrial facility constructed south of site.
1999 (colour)	No apparent change.	Rail track and access road constructed west of the site.
2003 (Google Earth)	No apparent change.	Construction of industrial facilities west and south of the site, opposite Gladstone Mount Larcom Road.
2007 (Google Earth)	No apparent change.	No apparent change.

Potential sources of contamination identified from the satellite imagery/aerial photograph review are limited to discharges of contaminants to the mudflats, mangroves and marshland from surrounding industrial and agricultural land uses.

Table 5.3: TWAF 7 Imagery Review

Year of Photo	Site Description	Surrounding Area Description
1959 (black and white)	TWAF 7 comprises mangrove/marshland with some exposed soil in the centre of the site.	<p>The TWAF 7 site is surrounded by mangroves/marshland and sands to the north, south and west. An oval track, likely used for horse racing, is also present south of the site.</p> <p>Residential properties are present to the east and three above-ground storage tanks are located north-east of TWAF 7. A pipeline appears to be present between the above ground storage tanks and residential areas further north-east, suggesting the above ground storage tanks were likely used for water storage.</p>
1965 (black and white)	No apparent changes.	No apparent changes.
1973 (black and white)	No apparent changes.	Increase in residential properties to the east. Power station being constructed to the west of the TWAF 7.
1989 (colour)	Ash settling areas and access roads visible on site, in addition to some vegetation and zones of inundation.	<p>Development of industrial/commercial properties to the north and increase in residential properties to the east. Lake Callemondah has been constructed to the south, in addition to reforming of land. Extension of Auckland Creek south of Blain Drive has commenced.</p> <p>Construction of power plant and Intake Canal complete to the west. Minor industrial/commercial structures also visible to the west. Ash settling ponds are also present north-east of the site, opposite Hanson Road.</p>

Year of Photo	Site Description	Surrounding Area Description
1999 (colour)	Ash settling areas and access roads are visible on the site.	Increase in industrial/commercial properties to the north. Additional minor land forming visible to the south. Extension of Auckland Creek south of Blain Drive has been completed. Minor increase in industrial/commercial structures to the west.
2003 (Google Earth)	Northern portion of the TWAF 7 comprises areas of ash settling. The southern portion of the site comprises a soil surface.	Increase in commercial/industrial properties to the north and west.
2007 (Google Earth)	TWAF 7 comprises a soil surface with some tree planting areas along the boundary. Appears to have ash settling in a small portion at the north.	No apparent change.

Features identified from the satellite imagery/aerial photograph review as sources of potential hazardous contaminants for TWAF 7 include the ash settling ponds.

Table 5.4: TWAF 8 Imagery Review

Year of Photo	Site Description	Surrounding Area Description
1959 (black and white)	TWAF 8 comprises vacant bush land.	Areas of cleared land, likely rural residential properties/farming areas are visible to the north-west, south-east, south-west and west.
1965 (black and white)	A strip of cleared land is visible along the western boundary.	No apparent change.
1973 (black and white)	No apparent change.	Minor land clearing in vicinity of rural residential properties/farming areas to the west.
1989 (colour)	No apparent change.	Decrease in vegetation opposite northern boundary.
1999 (colour)	Decrease in vegetation along southern boundary.	Land clearing activities to the east.
2003 (Google Earth)	Decrease in vegetation along north-eastern boundary.	No apparent change.

Year of Photo	Site Description	Surrounding Area Description
2007 (Google Earth)	No apparent change.	No apparent change.

No onsite or offsite features were identified from the satellite imagery/aerial photograph review as sources of potential hazardous contaminants for TWAF 8.

Table 5.5: Launch Site 1 Imagery Review

Year of Photo	Site Description	Surrounding Area Description
1959 (black and white)	Launch Site 1 comprises vegetation, mangroves/marshland and sand flats.	The Launch Site 1 is bound to the west by Auckland Inlet and is surrounded by vegetation, mangroves/marshland and sand flats.
1965 (black and white)	No apparent change.	No apparent change.
1973 (black and white)	Road constructed along western boundary.	Roads constructed to the north, east and south.
1989 (colour)	Southern portion of Launch Site 1 comprises ash settling areas and access roads.	RG Tanna Export Coal Terminal present to the north-east. Ash settling ponds visible to the east and south.
1999 (colour)	Ash settling areas and access roads extended to northern portion of Launch Site 1.	Increase in area of ash settling areas to the south.
2003 (Google Earth)	Launch Site 1 appears to comprise ash settling ponds and raised access roads.	No apparent change.
2007 (Google Earth)	No apparent change.	Some filling of settling ponds to the south. Some reforming of land east of the site.

Features identified from the satellite imagery/aerial photograph review as sources of potential hazardous contaminants for Launch Site 1 were ash settling ponds. Offsite features identified that may be considered as a potential contamination source to the Launch Site 1 site include the RG Tanna Export Coal Terminal to the north-east.

5.1.2 Queensland Environmental Management Register (EMR) and Contaminated Land Register (CLR) Notices

A search of the DERM EMR and CLR was conducted for each of the properties listed in Table 1.1. A copy of the EMR/CLR search results is presented in Appendix C. The EMR/CLR search results indicate that none of the investigation properties are listed on the EMR/CLR.

It should be noted the coal terminal property (Lot 210 on Plan SP120888) located immediately to the east of Launch Site 1 is contained on the EMR for the 'notifiable activity' of Petroleum Product or Oil Storage.

It should also be noted that 'Livestock Dip or Spray Race Operations' are listed in the Environmental Protection Act (1994) as a 'notifiable activity' (see Section 3). A historic cattle dip has been identified within Lot 5 on SP235936 and preliminary assessment by URS (URS, 2009) identified the presence of a hazardous contaminant. A notification of the cattle dip to DERM is required under the Environmental Protection Act (1994). This notification would result in the property being listed on the EMR.

5.1.3 Non-Indigenous Cultural Heritage

Heritage Consulting Australia (2011) did not identify any site listed on any national, state or local council heritage register on the properties investigated as part of the contaminated land assessment. Historical activities identified as part of the heritage assessment predominantly consisted items associated with of residential and pastoral type activities. Other sites of potential local historical interest within the investigation properties included:

- Birkenhead outstation;
- Grave at Birkenhead outstation;
- Old yards;
- Stock enclosure;
- Historic fence line;
- Pre-1870 track alignment;
- Ruins of rendered brick building;
- China Bay Yards; and
- Former dairy site/fisherman's hut.

Therefore, items identified as part of the non-indigenous heritage investigation that have reasonable potential for causing contamination of the investigation properties, included the former pastoral use (cattle dip/stock yards/waste disposal), and residential areas (waste disposal).

5.1.4 Sensitive Receptors

The types and locations of sensitive receptors have been assessed as part of other technical studies. Ecological receptors have been assessed in the Arrow LNG Plant Terrestrial Ecology Impact Assessment (Ecosure, 2011) and human land use sensitivities have been mapped by in the Arrow LNG Plant Land Use and Planning Impact Assessment (Coffey Environments, 2011).

Ecosystems identified within the study areas include:

- Remnant Vegetation – endangered dominant (Curtis Island);
- Remnant Vegetation – of concern dominant (Curtis Island and main land sites);
- Remnant Vegetation – of concern sub dominant (Curtis Island and main land sites);

- Remnant Vegetation – least concern (Curtis Island and main land sites);
- High Value Regrowth - of concern dominant (main land sites); and
- High Value Regrowth – least concern (Curtis Island).

In addition to the above those sites that boarder marine environments contain tidal areas and mangrove ecosystems. The western boundary of the Great Barrier Reef Marine Park is located on the eastern shore of Curtis Island and the Great Barrier Reef World Heritage Areas includes Curtis Island, Mainland Tunnel Entry Shaft, Launch Site 1 and Launch Site 4N.

Identified human land use sensitive receptors within proximity of the project areas include:

- City of Gladstone – north and east of TWAF 7; and
- Residential land uses – west of TWAF 8.

5.1.5 Local Council Records

Local council records for the properties covered by this PSI were accessed by a representative from Gladstone Regional Council to identify dangerous goods licences within the study area. The council representative advised that no dangerous goods records were available for the investigation properties.

5.1.6 Land Title Searches

Available current and historical land titles and registered plans were obtained for the investigation properties and are presented in Appendix D. The results of the historical title review are summarised in Table 5.6.

Table 5.6: Summary of Registered Owners

Year	Registered Owner(s)	Comments
Lot 1 on RP602284		
1869	Robert Laidlaw Paterson	QLD Land Purchase
1887	Joseph Dougall	
1891	Archibald Menzies	Transmission by death to Margaret Hill Menzies and Archibald Douglas Menzies
1906	Montague Beak	
1914	The Beak Pastoral Company Limited	
1915	Andrew Harper Stirrat	
1916	William Henry Renton	
1919	His Sovereign Majesty King George V	Government Acquisition
2010	Arrow CSG (Australia) Pty Ltd	
Lot 7 on SP239683		
2010	Queensland Government Registered Lessee	The Coordinator General
Lot 3 on SP235026		
2003	The State of QLD (represented by the	Deed of Grant

Year	Registered Owner(s)	Comments
	Department of State Development –GLR24332)	
2010	Gladstone Ports Corporation Limited	
Lot 1 on SP235026		
2003	The State of QLD (represented by the Department of State Development)	Deed of Grant
2010	The Minister for Industrial Development of QLD	
Lot 3, Lot 4 and Lot 5 of SP235936		
1869	Robert Laidlaw Paterson	QLD Land Purchase
1887	Joseph Dougall	
1891	Archibald Menzies	Transmission by death to Margaret Hill Menzies and Archibald Douglas Menzies
1906	Montague Beak	
1914	The Beak Pastoral Company Limited	
1915	Andrew Harper Stirrat	
1916	William Henry Renton	
1919	His Sovereign Majesty King George V	
1919	William Henry Renton	
1939	Ernest Fredrick Bryne	
1946	Kenneth John Davidson	
1948	Mabel Irene Auston	
1954	Agnes Taylor	
1954	Adam Blake Forsyth and Edith Hudson Arundell Forsyth	
1959	Jack Fredrick Keen and William Edward Keen	
1959	Shirley May Howard	
1959	Richard Nobel Hawes and Lucy Heather Hawes	
1962	Richard Nobel Hawes and John Patrick Baird	
1969	Curtis Holdings Pty Ltd	
1972	Tweed Valley Pastrol Company Pty Ltd	
1978	Jack Richey	
1989	Giuseppe Emanuele	
1993	Ross William Graving, Colin Grant Graving and Mark Jon Graving	
1993	ELFIC Limited	
2010	Central Queensland Ports Authority	Lot 5
2010	The Coordinator-General	Lot 3 and Lot 4
Lot 46 on SP235946		

Year	Registered Owner(s)	Comments
1960	Ruth Slingsby Butler	Deed of Grant. Transmission by death to Richard Wells Butler and Frank Williams Wells Butler
1972	Frank Williams Wells Butler	
2011	Arrow Energy Pty Ltd	
Lot 6 on DS220		
1939	Stuart Renton	Deed of Grant. Transmission by death to Catherine Muriel Renton 1953. Transmission by death to Elwyn Stuart Renton 1981
1986	Kemsip Pty Ltd	
2010	Arrow Energy (Australia) Pty Ltd	
Lot 69 on P4247		
2007	The State of Queensland (Represented by the Minister for Industrial Development of QLD)	State Tenure
Lot 2 SP 147871		
2003	The State of Queensland (Represented by the Depart of State Development)	Deed of Grant
2004	The Minister for Industrial Development of Queensland	
Lot 200 on CTN2173		
1985	Gladstone Regional Council	Reserve

The review of historical titles identified the properties on Curtis Island were owned by private land holders and pastoral type companies since 1869. Some government land acquisition occurred in 1919, which may have been related to wartime activities.

The main land project areas were identified as having private land holders, ports and Queensland Government registered owners.

5.1.7 Review of Previous Reports

A review of the Preliminary Site Assessment for the Santos Gladstone Liquefied Natural Gas (GLNG) Project (URS, 2009) was undertaken to assess the potential for possible sources of contamination within the GLNG study area that may impact on the neighbouring property.

Areas of potential concern within the Arrow LNG Plant area of disturbance were identified by URS (2009) at Lot 2 on Plan SP207281 (currently Lot 5 on SP 235936) at the LNG plant site. These areas included stockyards, a former cattle dip, above-ground storage tanks (likely used for water storage) and stockpiles of discarded batteries. The areas of potential concern identified are located within the proposed LNG Plant site and are shown in Figure 2.

Limited soil sampling (surface and 0.5m) in the vicinity of the cattle dip was undertaken by URS in October 2008. Samples were submitted for laboratory analysis for metals and pesticides. Seven soil

samples were collected in total. Arsenic concentrations ranged from 707mg/kg to 1,160mg/kg across all seven samples analysed, which is in excess of the National Environment Protection (Assessment of Site Contamination) Measure (National Environmental Protection Council, 1999) health based investigation levels for industrial/commercial land use (URS, 2009).

5.1.8 Geology and Soils

A detailed study of the geology and soils within the study area is presented in the technical report "Arrow LNG Plant EIS project, Geology, Landform and Soils Study" (Coffey Geotechnics, 2011). In general, the study characterises the contemporary near-surface geology of the study area as being consistently variable, with folded, steeply-dipping, well-jointed, low-strength, variably weathered mudstone and siltstone outcrops predominate across the area, with the following variations.

- Sandstone (including highly resistant greywacke), conglomerate and breccia layers, particularly on Curtis Island. Sandstone forms the higher elevation areas of Curtis Island, with surface cobbles and boulders found overlying mudstone on the lower slopes.
- Occasional limestone layers and conglomerate clasts, on Curtis Island, although limestone was not specifically observed during the field visit.
- Contact metamorphic rocks and weakly metamorphosed quartzose mudstone and sandstone, particularly close to igneous intrusions.
- Igneous intrusions or unconformable flows, particularly associated with Berkserker outcrops, ranging from:
 - Mafic, e.g., a basalt plug just to the northeast of the Larcom Range;
 - Intermediate, e.g., andesite along the eastern flanks of the Mount Larcom Range; and
 - Felsic e.g., a granitic pluton forming the eastern foothills of the Mount Larcom Range; trachyte forming the Mount Larcom peaks; rhyolite is common on the northwest flanks of the Mount Larcom Range and includes rhyolitic tuff. Felsic dykes are also found at Boatshed Point on Curtis Island and possibly associated with other higher elevation ridges.

The contemporary surface geology underlying the LNG plant and associated infrastructure located on Curtis Island comprises variably thick, cyclic sequences of clastic rocks (predominantly conglomerate, sandstone and siltstone), which dip steeply to the east. In general, more resistant, quartzose sandstones outcrop along ridgelines and hilltops, with weaker, thinly inter-bedded finer-grained rocks, including mudstones forming valleys.

The general soil types can be separated into five broad groups.

- Marine clays.
- Gradational soils (clays and/or loams).
- Texture contrast soils.
- Alluvial sands.
- Rocky skeletal soils.

A review of the 1:100,000 Gladstone Special Sheet 9150 & Part 9151 (Department of Natural Resources, Mines and Water, 2nd ed. 2006) and 1:250,000 Land Systems of the Capricornia Coast

Sheet (The State of Queensland, Department of Primary Industries, 1995) was undertaken for the area of disturbance and is presented below.

LNG Plant

The LNG plant and associated infrastructure is underlain by the following near-surface geological formations.

- Wandilla Formation comprising Late Devonian age mudstone, lithic sandstone, jasper, chert, slate; local schist.
- Holocene age estuarine channels and banks, supratidal flats and coastal grasslands comprising mud, sandy mud, muddy sand and minor gravel.

Land systems for Curtis Island are not defined.

Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area

The mainland tunnel entry shaft and tunnel spoil disposal area is underlain by the following near-surface geology.

- Quaternary age sand, silt, mud, gravel: residual soil.
- Holocene age estuarine channels and banks, supratidal flats and coastal grasslands comprising mud, sandy mud, muddy sand and minor gravel.

The mainland tunnel entry shaft and tunnel spoil disposal area is located on the following land systems.

- Carpentaria land system, comprising crusting surface, grey mottled saline cracking clays; saline muds and sands.
- Fanside land system, comprising red, structured gradational clay loams and uniform clays; shallow, bleached sandy and loamy surface, red duplex soil.

TWAF 7

TWAF 7 is underlain by Holocene age estuarine channels and banks, supratidal flats and coastal grasslands comprising mud, sandy mud, muddy sand and minor gravel.

TWAF 7 is located on urban (miscellaneous) soils.

TWAF 8

TWAF 8 is primarily underlain by Quaternary age floodplain alluvium soils comprising clay, silt, sand and gravel. Late Permian to Early Triassic age pink medium-grained hornblende-biotite quartz monzonite also underlies a small central portion of the site to the west.

TWAF 8 is located on The Narrows land system, comprising bleached silty surface, brown and grey, alkaline sodic duplex soils. Approximately 0.6Ha of the south-western portion TWAF 8 is located on the Mount Sugarloaf land system, comprising brown, red and yellow, massive gradational loams and clay loams.

Launch Site 1

Launch Site 1 is underlain by Holocene age estuarine channels and banks, supratidal flats and coastal grasslands comprising mud, sandy mud, muddy sand and minor gravel. The northern section of the site comprises reclaimed land.

Launch Site 1 is located on urban (miscellaneous) soils.

5.1.9 Acid Sulfate Soils

An Acid Sulfate Soil (ASS) study for the area of disturbance is presented in the technical report "Acid Sulfate Soil Impact Assessment" (Coffey Environments, 2011). A summary of the findings of the ASS technical study are outlined below.

- ASS requiring management are likely to be present in areas below 5m Australian Height Datum (AHD) at the LNG plant site, including the proposed Boatshed Point MOF site.
- ASS horizons requiring management are likely to be present at the LNG Jetty and future LNG Jetty sites.
- ASS requiring management are likely to be present offshore of the personnel jetty on Boatshed Point.
- ASS requiring management are likely to be present in natural soils below 5m AHD at TWAF 7.
- ASS requiring management may be present below 5m AHD, and very likely below 2m AHD, at Launch Site 1.

TWAF 8 does not require ASS investigation or assessment as the site is located above 20m AHD. Therefore, the disturbance of soil during the construction of TWAF 8 does not require specific ASS management.

As Launch Site 4N is to be located on reclaimed land, no soil data was available for ASS risk assessment for the site. However, as the site is situated below lowest astronomical tide, ASS are expected to be associated with the natural soils within the sites footprint.

5.1.10 Groundwater Bores

A search of registered groundwater bores for a 1km radius around TWAF 7, TWAF 8, mainland tunnel entry shaft and tunnel spoil disposal area, Launch Site 4N and Launch Site 1 was requested from DERM. Groundwater bores on Curtis Island are presented in the Arrow LNG Plant Groundwater Impact Assessment (Coffey Geotechnics, 2011). A summary of groundwater bores is presented below and a copy of the bore search results are included in Appendix E.

TWAF 7

One registered groundwater bore was located within a 1km radius of TWAF 7.

- The bore is located approximately 700m to the east and reported to be used for water supply.
- Groundwater was encountered at a depth of 9m below ground surface.
- Groundwater yield was reported at 0.75L per second.

TWAF 8

Five registered groundwater bores were located within a 1km radius of TWAF 8.

- The five bores were located approximately 800m to the south-west and were reported to be used for water supply.
- Groundwater was encountered at a depth of between approximately 10-15m below ground surface.
- Groundwater yield was reported between 0.07-0.35L per second.

Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area

One groundwater bore was located within a 1km radius of the Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area.

- The bore was located approximately 600m to the south and was reported to be used for water supply.
- No details regarding groundwater depth and yield was presented in the groundwater bore licence.

Launch Site 4N

No groundwater bores were identified within 1km.

Launch Site 1

No groundwater bores were identified within 1km.

LNG Plant

No registered groundwater bores were identified within 2km of the LNG Plant site (Coffey Geotechnics, 2011).

5.1.11 Regional Topography and Drainage of Surface Water

A review of the topographic contours and associated drainage features was undertaken for the area of disturbance. A detailed description of the study area topography is also presented in the technical report "Arrow LNG Plant EIS, Geology, Landform and Soils Study." (Coffey Geotechnics, 2011). A summary of relevant topographic descriptions from this study is included in the section below.

LNG Plant

The surface of the Arrow LNG Plant area on Curtis Island is characterised by gently sloping land rising to a rounded hill over 40mAH in height in the northern third of the site. Slopes are generally shallow, between 0° and 7°, but with hillside slopes of up to approximately 15°. It is expected that surface waters would either percolate into sub-surface soils (where permeability allows) or become run-off. A review of nearby water bodies and the surrounding topography indicates that run-off is likely to flow into Port Curtis to the east, south and west. In addition, water run-off is likely to flow into waterways in the vicinity of the LNG plant area requiring diversion as part of the construction of the facility. The "Arrow LNG Facility Surface Water Assessment – Fluvial Geomorphology and Hydrology" technical study (Alluvium Consulting, 2011) indicates that "runoff from upslope of the LNG facility will be intercepted and kept separate from onsite runoff and diverted around the LNG facility to be discharged via constructed waterway/s downslope of the facility."

Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area

The surface of the mainland tunnel entry shaft and tunnel spoil disposal area slopes slightly to the north-east.

It is expected that surface waters would either percolate into sub-surface soils (where permeability allows) or become run-off. A review of nearby water bodies and the surrounding topography indicates that run-off is likely to flow into Port Curtis to the north-east.

TWAF 7

Based on field observations made during the site walkover and topographic contours, the surface of TWAF 7 is generally flat, however the site is raised above the surrounding landscape and Auckland Creek.

A review of nearby water bodies and the surrounding topography indicates that run-off is likely to flow into the surrounding Auckland Creek which discharges into Port Curtis, approximately 4 km upstream of TWAF 7.

TWAF 8

Based on field observations made during the site walkover and topographic contours, the topography for TWAF 8 slopes slightly toward the north-east.

A review of nearby water bodies and the surrounding topography indicates that run-off is likely to flow into the small creek running south-west to north-east through the site or into Mosquito Creek to the north and north-east which discharge into The Narrows approximately 4.5km to the north-east. The Narrows discharges into Port Curtis.

Launch Site 1

The topography for Launch Site 1 indicates that the site surface is generally flat.

A review of nearby water bodies and the surrounding topography indicates that run-off is likely to flow into the Calliope River to the east of the site which discharges into Port Curtis to the north.

5.1.12 Street Maps

Street maps of the project area of disturbance are available in Appendix F.

5.2 Site Walkover

Site walkovers of the project areas were undertaken by Matthew Vanderheyden and Benedict Smith of Coffey Environments between 11 June 2010 and 21 February 2011. Lot 1 on RP602284 and Lot 6 on DS220 were also inspected in May 2010 as part of the Coffey Environments (2010) Environmental Due Diligence Report for the Kemsip Property. It should be noted that Boatshed Point was not accessed during this investigation and therefore, prior to the commencement of development works at Boatshed Point, additional contaminated land site inspections should be undertaken in this area.

Observations and findings recorded during the site walkover are presented below. Appendix G contains photographs of significant observations.

5.2.1 LNG Plant

Lots 3, 4 and 5 on SP235936

- **Site Layout.** Lots 3, 4 and 5 on SP235936 are irregular in shape and were vacant at the time of inspection and comprised primarily of bushland.
- **Surrounding Land Use.** Lots 3, 4 and 5 at the time of inspection was surrounded by bushland, mud flats and open water (Port Curtis).
- **Site Features.** The existing infrastructure includes an abandoned cottage, site sheds, and stockyards. Piles of scrap metal and other debris were noted in the vicinity of the cottage. A former cattle dip, approximately 12m long by 1.5m wide by 1.5m deep, was also observed. No year of construction or age markings were identified. At the time of the site inspection the former dip contained approximately 0.5m of water with a visible sheen and general rubbish including scrap metal and wire. Photographs of the cattle dip are included in Appendix G. No evidence of stressed vegetation in the vicinity of the cattle dip was identified.

Additional stockyards of timber and steel construction were also identified approximately 300m east north-east of the site buildings. Corroded 205L drums (observed drums were empty at the time of the site inspection) were identified in the vicinity of the stockyards, however no evidence of visibly stressed vegetation in the vicinity of the stockyards was observed. Photos of the cattle yards are shown in Appendix G.

- **Underground Services.** No evidence of underground services was noted during the site walkover.
- **Evidence of Contamination and/or Contaminating Activities.** Piles of scrap metal and other debris were noted in the vicinity of the cottage, in addition to two separate piles of used batteries. The first pile of batteries was located adjacent to the eastern wall of the cottage and was comprised of general purpose lead positive plate batteries. The second pile of batteries was located to the south of the cottage and appeared to be lead acid batteries. It is estimated that no more than twenty batteries were present in each pile. These batteries are a regulated waste under the Queensland Environmental Protection Act (1994). A photo of the battery stockpile is shown in Appendix G. No evidence of stressed vegetation in the vicinity of the stockpiles of waste batteries was identified.

Additional sources of potential contamination observed during the site walkover included the cattle dip and corroded empty drums observed in the vicinity of the stockyards, approximately 300m east north-east of the site buildings.

- **Discharges to Land and Water.** No visible evidence of ground contamination or points of discharge to the land were noted for the site walkover of Lot 2 on Plan SP207281 with the exception of a sheen on the water retained within the dip pit.

Lot 6 on Plan DS220

- **Site Layout.** Lot 6 on Plan DS220 is irregular in shape and was vacant at the time of inspection. The site comprises primarily bushland.

- **Surrounding Land Use.** Lot 6 at the time of site inspection was surrounded by bushland and mud flats.
- **Site Features.** An abandoned stockyard was identified near the southern boundary of Lot 6. No visible evidence of soil staining or stressed vegetation was noted during the site inspection. A photo of the cattle yards is shown in Appendix G.
- **Underground Services.** No evidence of underground services was noted during the site walkover.
- **Evidence of Contamination and/or Contaminating Activities.** An abandoned stockyard was identified near the southern boundary of Lot 6. No visible evidence of soil staining or stressed vegetation was noted during the site inspection. A photo of the cattle yards is shown in Appendix G.

Lot 1 on RP602284

- Although Lot 1 on RP602284 (Boatshed Point) was not inspected as part of this contaminated land investigation, other inspections of this property are known to have identified the remains of an old house site (~10m x ~6m) and the remains of two long drop toilets (Figure 2). The remainder of the Boatshed Point is vegetated and bordered by Port Curtis, mangroves and tidal mudflats.

5.2.2 TWAF 7

- **Site Layout.** TWAF 7 is irregular in shape, generally flat and comprised primarily clay topsoil, grasses, shrubs, small trees and access roads. The main central portion of the site was elevated and sloped downward along the boundary, levelling into two concentric, banded drainage ditches. The surface of the drainage ditches comprises soil and rock.
- **Current and Historical Use.** TWAF 7 was vacant at the time of inspection but was previously used for settling ponds for ash discarded from the NRG Gladstone Power Station, located approximately 1.4km to the west. Discussions with an NRG Gladstone Power Station representative indicated that TWAF 7 is underlain by approximately 8-9m of ash with a 100-200mm capping layer comprising clay topsoil. It is unknown if the ash settling ponds were lined. A photograph of the capping layer/surface material is included in Appendix G.
- **Surrounding Land Use.** TWAF 7 was surrounded by Auckland Creek with commercial/industrial properties to the north and west, residential properties to the east and parkland to the south.
- **Site Features.** No onsite structures, storage facilities, disposal areas (other than for NRG Gladstone Power Station ash) were identified during the site walkover. Discussions with an NRG Gladstone Power Station representative indicated that all runoff drains had been backfilled with rock, with the exception of one drain located to the north-east of TWAF 7, which had remained operational.
- **Underground Services.** No evidence of underground services was observed during the site walkover.
- **Evidence of Contamination and/or Contaminating Activities.** No visible evidence of ground contamination or contaminating activities was observed at TWAF 7 during the site walkover.

- **Discharges to Land and Water.** The TWAF 7 area was historically used for the disposal of ash from the Gladstone Power Station. No visible evidence of other ground contamination or points of discharge to the land were observed at TWAF 7 during the site walkover.

5.2.3 TWAF 8

- **Site Layout.** TWAF 8 is irregular in shape and was vacant at the time of site inspection. The site surface comprises moderately dense semi-mature scrub/bush, consisting primarily of gum trees and 1 to 1.5m tall grass and shrubs.
- **Current and Historical Use.** During the site walkover, no evidence of current or historical site uses was observed.
- **Surrounding Land Use.** TWAF 8 is surrounded by bushland to the north, east, south and west, with some rural residential/farming properties and plantations to the west.
- **Site Features.** No onsite structures were identified during the site walkover, with the exception of overhead power lines running north to south along Targinie Road. A photograph of the power lines is included in Appendix G. No additional structures, storage facilities, disposal areas, etc were observed during the site walkover.
- **Underground Services.** No evidence of underground services was observed at TWAF 8 during the site walkover.
- **Evidence of Contamination and/or Contaminating Activities.** No visible evidence of ground contamination or contaminating activities was observed at TWAF 8 during the site walkover.
- **Discharges to Land and Water.** No evidence of discharge to land or water were observed at TWAF 8 during the site walkover.

5.2.4 Launch Site 1

- **Site Layout.** Launch Site 1 is irregular in shape and generally flat, comprising scrub, grasses, shrubs, small trees and access roads amongst a system of dykes separating ash settling ponds. Some of the surface remains un-vegetated, exposing the crust of the ash.
- **Current and Historical Use.** Launch Site 1 was vacant at the time of inspection and has been used for ash settling ponds by the NRG Gladstone Power Station, located approximately 1km to the south.
- **Surrounding Land Use.** Launch Site 1 is bounded by the Calliope River west and south, with additional ash settling ponds/reclaimed land and coal terminal operated by Gladstone Ports to the north and east.
- **Site Features.** No onsite structures, storage facilities, active disposal areas were identified during the site walkover, with the exception of a piece of derelict earthmoving machinery in the centre of the site.
- **Underground Services.** No evidence of underground services was observed during the site walkover
- **Evidence of Contamination and/or Contaminating Activities.** Fly ash ponds are present across the site and at the time of inspection were uncapped. The adjacent land use included

the transport and handing of significant quantities of coal. Therefore, the potential exists for coal dust to be deposited on site.

- **Discharges to Land and Water.** The Launch Site 1 area was historically used for the disposal of ash from the Gladstone Power Station. No visible evidence of other ground contamination or points of discharge to the land were observed at Launch Site 1 during the site walkover.

5.2.5 Mainland Tunnel Entry Shaft and Spoil Disposal Area

- **Site Layout.** The site comprises mudflats to the north of the Gladstone Mt Larcom Road. It is known the mudflats are tidally influenced, flooding on periods of king tide.
- **Current and Historical Use.** The site comprises tidal mudflats.
- **Surrounding Land Use.** The mudflats open out into the narrows to the north with mangroves and bush to the east and west. The mudflats are bounded to the south by the Gladstone Mt Larcom Road with the aluminium plant beyond.
- **Site Features.** No significant onsite features were noted during the site walkover.
- **Underground Services.** No evidence of underground services was observed during the site walkover.
- **Evidence of Contamination and/or Contaminating Activities.** Six abandoned cars were counted across the mudflats.
- **Discharges to Land and Water.** No visible evidence of discharge to the land were observed on the mudflats during the site walkover. However, overland flow during stormwater runoff would enter the area and potentially contain contaminated sediments from adjacent land uses.

5.3 Summary of Potential Sources of Contamination and Potential Contaminants of Concern

A summary of the potential sources of contamination and potential contaminants of concern identified at the sites are presented in Table 5.7 below.

Table 5.7: Potential Sources of Contamination and Potential Contaminants of Concern

Site	Potential Source of Contamination	Potential Contaminants of Concern
LNG plant site	Leaking former cattle dip, splashing/spraying/spills of pesticides.	OCP/OPP, metals.
	Unauthorised onsite waste disposal – possible presence of lead, asbestos products, minor volumes of fuels, oils, paints, solvents, regulated wastes.	Metals (particularly lead), TPH, BTEX, OCP/OPP, PCB, PAH, asbestos.
	Corroded storage drums.	Volatile organic compound/volatile halogenated compound, TPH,

		BTEX, PAH, PCB, OCP/OPP.
	Potential former waste disposal, fuel storage and septic systems at rural/residential properties	Metals, TPH, BTEX, OCP/OPP, PCB, PAH, asbestos, microbiological contaminants.
Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area	Abandoned car bodies and other waste and contaminated sediment from adjacent industrial land uses.	Metals, TPH, BTEX, OCP/OPP, PCB, PAH, and asbestos.
TWAF 7, Launch Site 1	Ash from settling ponds.	TPH, PAH, metals, PCBs.
TWAF 8	None identified.	
Launch Site 1	Airborne coal dust from RG Tanna Export Coal Terminal.	TPH, PAH and metals.

TPH = Total Petroleum Hydrocarbons

BTEX = Benzene, Toluene, Ethylbenzene, Xylenes

PAH = Polycyclic Aromatic Hydrocarbons

OCP = Organochlorine Pesticides

OPP = Organophosphorous Pesticides

PCB = Polychlorinated Biphenyls

A summary of the most common potential contaminants of concern associated with the above activities is presented below.

5.3.1 Pesticides and Herbicides

Pesticides and herbicides may include organochlorine pesticides (OCP) and organophosphorous pesticides (OPP) which have toxic effects on hum. Pesticide properties vary, however they tend to be persistent in soils with OCP compounds remaining in soils for decades. Organochlorine pesticides are a probable human carcinogen and also have been linked to various acute and chronic effects including liver and kidney damage.

5.3.2 Metals

Metals include arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, barium, magnesium and manganese. They may be associated with a number of potential sources, including certain pesticides and herbicides, paints and burning of fossil fuels. It should be noted that metals are also present naturally in soils. Metals may be present in many forms in the environment, depending on the source of contamination. Mobility and the extent of human and environmental exposure will vary with the form of the metal and the pH of the environment.

5.3.3 Petroleum Hydrocarbons

Petroleum hydrocarbons, including total petroleum hydrocarbons (TPH) and benzene, toluene, ethyl benzene and xylene (BTEX) and some Polycyclic Aromatic Hydrocarbons (PAHs) are most commonly associated with fuels, lubricants and solvents. The hydrocarbons may biodegrade in water and soil or volatilize from water and moist soil surfaces, but adsorption may attenuate the rate of these processes. In water, adsorption to sediment may be significant. Bioconcentration may occur. Petroleum

hydrocarbons, such as BTEX, may cause central nervous system and neurological effects. Exposure to low to moderate levels can cause symptoms such as tiredness, confusion, weakness, lack of muscle coordination, throat and eye irritation, memory loss, nausea, loss of appetite and hearing and colour vision loss. These symptoms usually disappear when exposure ceases. Inhaling very high concentrations in a short time can cause unconsciousness, and even death

Other hydrocarbons may be sourced from other products such as pesticides, paints, wood preservatives, adhesives and cleaning agents and processes such as partial burning of carbon based materials. Hydrocarbons present in ash would be expected to be strongly adsorbed to the particles and would only mobilise with the particle through erosion, dust or soil transport.

5.3.4 Asbestos

Asbestos is a mineral which comprises a variety of amphibole forms including amosite, actinolite, anthophyllite, tremolite and crocidolite with overall scientific consensus that all types of asbestos fibres are carcinogenic. The risk to human health is based on inhalation exposure and it is considered that oral ingestion (e.g. in water) presents little or no risk of non-carcinogenic injury. The range of effects in humans following inhalation includes fibrosis of the lung (asbestosis), changes in surfaces of the pleura, bronchial carcinoma (lung cancer), mesothelioma (a type of cancer) of the pleura and peritoneum and possibly cancers of other sites.

6 POTENTIAL CONTAMINATION INTRODUCED BY PROJECT ACTIVITIES

6.1.1 Construction Impacts

There are a number of potential environmental impacts on land contamination that may be associated with the general construction and operation of the project, which are presented below:

- Unidentified contaminated soils may be encountered during earthworks, which could lead to contamination being spread across the site, impacting environmental receptors or being removed from site in an uncontrolled manner.
- Putrescible wastes will be generated at the plant site, launch sites and TWAF sites during construction. Poor waste storage or disposal would potentially result in uncontrolled release of leachate from construction waste, and general waste at construction camps, which has the potential to cause contamination of onsite and offsite soils and groundwater.
- Chemicals and fuel will be stored and used at the plant site, launch sites and TWAF sites during construction. Poor storage or handling of chemicals and fuel would have the potential to result in uncontrolled releases which may cause contamination of soil and groundwater.
- Fires involving chemicals and fuels, as well as other engineered materials and liquids, could result in significant land contamination.
- In the event that groundwater dewatering is required during construction, then discharge of the extracted water may affect soil and surface water chemistry.
- Hydrotest water may acquire contaminants from pipelines and soil contamination may result from leaking during hydrotesting. Hydrotest water will be obtained from the sea and discharged to the sea, or from freshwater generated through a reverse osmosis plant. If biocides and/or oxygen scavengers are used, the hydrotest water will be treated before discharge to the sea and therefore disposal of hydrotest will not be a potential source of contamination. Hydrotest water would only potentially affect areas adjacent to the pipelines being tested (Plant site, Tunnel entry site and pipeline between).
- Prior to construction, fill material will be imported for land reclamation at the Launch 4N site by Gladstone Ports Corporation as part of the Western Basin Dredging and Disposal Project. This imported fill could potentially contain contaminants of concern including: TPH, BTEX, PAH, metals, OCP/OPP, PCB and asbestos.

6.1.2 Operational Impacts

- Putrescible wastes will be generated at the plant site during operation. Uncontrolled releases of waste and leachate from waste have the potential to cause contamination of onsite and offsite soils, surface water and groundwater.
- Chemicals and fuel will be stored and used at the plant site during operation. Uncontrolled releases of chemicals and fuel have the potential to cause contamination of soil, surface water and groundwater.
- Fires and other emergency releases involving chemicals and fuels as well as other engineered materials and liquids, have the potential to cause contamination of soil, surface water and groundwater.

Given the proposed waste management, construction and operational controls to be established for the project, the risk of significant land contamination occurring is considered low and potential impacts are therefore low. A detailed description of waste management practices to be employed for the Arrow LNG Project is presented in the technical report Arrow LNG Plant Waste Impact Assessment (Coffey Environments, 2011).

7 IDENTIFIED ISSUES AND POTENTIAL IMPACTS

7.1 LNG Plant

Table 7.1 presents a summary of potential hazards and the associated risks for each of the exposure pathways that may be complete during the construction, operation and decommissioning of the LNG plant project for potential sources of contaminants identified in the study area.

The PSI identified the LNG plant site on Curtis Island has been historically used for pastoral activities. Within the LNG Plant project area identified potential sources of contamination include:

- a former cattle dip and stockyards (soil around which is known to be contaminated with arsenic above commercial and industrial health based investigation levels);
- two stockpiles of used lead based batteries;
- corroded drums and scrap steel;
- septic systems and waste disposal areas.

It is also noted a portion of the project area on Curtis Island was acquired by the by the Australian Government in 1919, which may have been a result of wartime activities.

The proposed future activities within the LNG plant area will include activities described within the Environmental Protection Act (1994) as 'notifiable activities' which will require the area to be listed on the Queensland EMR. 'Notifiable activities' are likely to include petroleum product or oil storage, hazardous chemical storage and engine reconditioning workshops. All wastes generated on the LNG plant site will be collected, segregated reused or removed from Curtis Island for appropriate recycling or disposal.

Table 7.1: Risk Assessment for LNG Plant Area

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Former cattle dips	Construction activities may disturb contaminated area resulting in a greater area of impact.	Onsite worker, environmental receptor (site and surrounding environment).	M	PO	Moderate
	Impact to surface water bodies.	Environmental receptor (site and surrounding environment).	M	PO	Moderate
	Assessment or remediation works causing impacts to human health or the surrounding environment as a result of spills and disturbance of contaminated material.	Onsite worker, environmental receptor (site and surrounding environment).	M	UN	Low
Unauthorised onsite waste disposal – possible presence of asbestos, products, minor volumes of fuels, oils, paints, solvents, regulated wastes	Exposure of workers to asbestos and other contaminants.	Onsite worker.	L	UN	Low
	Construction activities may disturb impacted area resulting in a greater area of impact.	Environmental receptor (site and surrounding environment).	M	UN	Low
	Assessment or remediation works causing impacts to human health or the surrounding environment as a result of spills and disturbance of contaminated material.	Onsite worker, environmental receptor (site and surrounding environment).	M	UN	Low
Corroded storage	Contact with contaminated soil.	Onsite worker.	L	UN	Low

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
drums	Construction activities may disturb contaminated area resulting in a greater area of impact.	Environmental receptor (site and surrounding environment).	M	UN	Low
	Assessment or remediation works causing impacts to human health or the surrounding environment as a result of spills and disturbance of contaminated material.	Onsite worker, environmental receptor (site and surrounding environment).	M	UN	Low
Waste Battery Stockpiles	Construction activities may disturb contaminated area resulting in a greater area of impact.	Onsite worker, environmental receptor (site and surrounding environment).	M	PO	Moderate
	Impact to surface water bodies.	Environmental receptor (site and surrounding environment).	M	PO	Moderate
	Assessment or remediation works causing impacts to human health or the surrounding environment as a result of spills and disturbance of contaminated material.	Onsite worker, environmental receptor (site and surrounding environment).	M	UN	Low
Potential former waste disposal, fuel storage and septic systems at rural/residential properties	Exposure of workers to asbestos and other contaminants.	Onsite worker.	L	UN	Low
	Construction activities may disturb impacted area resulting in a greater area of impact.	Environmental receptor (site and surrounding environment).	M	UN	Low

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
	Assessment or remediation works causing impacts to human health or the surrounding environment as a result of spills and disturbance of contaminated material.	Onsite worker, environmental receptor (site and surrounding environment).	M	UN	Low
Exposure of contaminants associated with unidentified existing livestock dip/spray race operations	Disturbance of impacted material	Onsite worker, environmental receptor (site and surrounding environment).	M	UL	Low
	Assessment or remediation works causing impacts to human health or the surrounding environment as a result of spills and disturbance of contaminated material.	Onsite worker, environmental receptor (site and surrounding environment).	M	UN	Low
Pre-existing contamination not previously identified	Contamination of soil and groundwater causing environmental impact.	Environmental receptor and onsite workers	M	UN	Low
Waste storage – putrescible waste (likely to become putrid) and leachate	Contamination of soil and groundwater causing environmental impact.	Environmental receptor.	L	UN	Low
Future Chemicals/fuels/oils from plant, tanks, compressors, storage areas, pipes, etc	Contamination of soil and groundwater causing environmental impact due to leaks, spills and/or pipe or tank failures.	Environmental receptor.	M	PO	Moderate

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Fires and emergency releases of hazardous materials.	Emergency event or failure of plant/equipment resulting in the release of a contaminant.	Onsite worker, environmental receptor (site and surrounding environment).	H	UN	Moderate
Groundwater disposal.	Release of groundwater to may affect soil and surface water chemistry.	Environmental Receptor	L	UN	Low
Hydrotest water	Contamination of soil, groundwater and/or surface waters due top leaking of hydrotest water.	Environmental receptor.	M	UN	Low
Disposal of treated effluent through irrigation	Contamination of soils from contaminated effluent when irrigating for effluent disposal.	Environmental receptor.	L	UN	Low

Boatshed Point was not inspected as part of this PSI. It is noted that a Stage 1 PSI will be required prior to construction activities occurring on Boatshed Point. Therefore, additional potential sources of contamination and associated risks that were not identified in the desktop study may be present on the site.

7.2 Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area

Table 7.2 presents a summary of potential hazards and the associated risks for each of the exposure pathways that may be complete during the construction, operation and decommissioning of the mainland tunnel entry shaft and tunnel spoil disposal area.

The mainland tunnel entry shaft and tunnel spoil disposal area primarily consists of tidal mudflats for which a deed of grant was issued in 2003 and has remained under Queensland Government ownership. Identified potential sources of contamination for this area include illegally dumped items such as car bodies and potentially sediments sourced from surrounding industrial land uses.

Table 7.2: Risk Assessment for Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Abandoned cars on mudflats	Disturbance of impacted material	Onsite worker, environmental receptor (site and surrounding environment).	L	UN	Low
Pre-existing contamination not previously identified	Contamination of soil and groundwater causing environmental impact.	Environmental receptor and onsite workers	M	UN	Low

7.3 TWAF 7

Table 7.3 presents a summary of potential hazards and the associated risks for each of the exposure pathways that may be complete during the construction, operation and decommissioning of the TWAF 7 area.

The PSI identified the TWAF 7 site has been historically used for disposal of ash from the local Gladstone power station. Identified sources of contamination are associated with the disposal of ash which potentially could contain metals and hydrocarbons.

The proposed use of the TWAF 7 area is for the temporary accommodation of construction workforces. It is not envisaged that this land use will result in significant contamination at the TWAF 7 site as all wastes will be collected, segregated and removed from site for recycling or disposal.

Table 7.3 Risk Assessment for TWAF 7

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Ash from settling ponds	Exposure of contaminated buried ash during construction.	Onsite worker.	L	PO	Moderate
	Migration of exposed ash with surface water runoff.	Environmental receptor (Auckland Creek).	L	PO	Moderate
	Airborne migration of exposed ash.	Environmental receptor (general	L	PO	Moderate

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
		environment surrounding site), onsite worker, general public.			
Pre-existing contamination not previously identified	Contamination of soil and groundwater causing environmental impact.	Environmental receptor and onsite workers	M	UN	Low
Waste storage – putrescible waste (likely to become putrid) and leachate	Contamination of soil and groundwater causing environmental impact.	Environmental receptor.	L	UN	Low

7.4 TWAF 8

Potential existing sources of contamination within the TWAF 8 area were not identified as part of this PSI. The proposed use of the TWAF 8 area is for the temporary accommodation of construction workforces. It is not envisaged that this land use or future decommissioning will result in significant contamination at the TWAF 8 site as all wastes will be collected, segregated and removed from site for recycling or disposal.

Table 7.4: Risk Assessment for TWAF 8

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Pre-existing contamination not previously identified	Contamination of soil and groundwater causing environmental impact.	Environmental receptor and onsite workers	M	UN	Low

7.5 Launch Site 4N

Table 7.5 presents a summary of potential hazards and the associated risks for each of the exposure pathways that may be complete during the construction, operation and decommissioning of the Launch Site 4N area.

Launch Site 4N was yet to be reclaimed at the time of investigation and therefore no existing sources of contamination were identified. However, the reclamation works will import soil to the area which is a potential source of contamination.

The proposed use of the Launch Site 4N includes facilities to allow transportation of goods and services to Curtis Island.

Table 7.5: Risk Assessment for Launch Site 4N

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Imported fill material for land reclamation	Contact with contaminated soil.	Onsite worker.	M	UN	Low
	Mobilisation of potentially contaminated fill material due to construction and operational activities.	Environmental receptor (surrounding environment, particularly water bodies).	M	UN	Low
Pre-existing contamination not previously identified	Contamination of soil and groundwater causing environmental impact.	Environmental receptor and onsite workers	M	UN	Low
Future Chemicals/fuels/oils from plant, tanks, compressors, storage areas, pipes, etc	Contamination of soil and groundwater causing environmental impact due to leaks, spills and/or pipe or tank failures.	Environmental receptor.	M	UN	Low

7.6 Launch Site 1

Table 7.6 presents a summary of potential hazards and the associated risks for each of the exposure pathways that may be complete during the construction, operation and decommissioning of the Launch Site 1 area.

Launch Site 1 has been historically used for the disposal of ash from the local Gladstone power station. There is also a requirement for some dredging and land reclamation works to be conducted within the Launch Site 1 area, and therefore a potential source of contamination in the imported fill material and mobilisation of contaminants through dredging. The proposed use of the Launch Site 1 includes facilities to allow transportation of goods and services to Curtis Island.

Table 7.6: Risk Assessment for Launch Site 1

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
Ash from settling ponds	Exposure to ash during construction.	Onsite worker.	L	PO	Moderate
	Mobilisation of ash with surface water runoff.	Environmental receptor (Calliope River, Port Curtis, Auckland Inlet).	L	PO	Moderate
	Mobilisation of ash via airborne dust.	Environmental receptor (general environment surrounding site), onsite worker, general public.	L	PO	Moderate
Contaminated dredge spoil	Dredging activities may disturb and mobilise impacted marine sediments	Environmental receptor (Gladstone Harbour and associated ecosystems).	M	UL	Low
Imported fill material for land reclamation	Contact with contaminated soil.	Onsite worker.	M	UN	Low
	Mobilisation of potentially contaminated fill material due to construction and operational activities.	Environmental receptor (surrounding environment, particularly water bodies).	M	UN	Low
Pre-existing	Contamination of soil and groundwater	Environmental receptor and onsite	M	UN	Low

Source	Potential Event	Receptor	Consequence	Likelihood	Potential Risk Level
contamination not previously identified	causing environmental impact.	workers			
Future Chemicals/fuels/oils from plant, tanks, compressors, storage areas, pipes, etc	Contamination of soil and groundwater causing environmental impact due to leaks, spills and/or pipe or tank failures.	Environmental receptor.	M	UN	Low

8 AVOIDANCE, MITIGATION AND MANAGEMENT MEASURES

Mitigation measures have been suggested where medium risks from contamination were identified based on the desktop study and preliminary field investigations. With the extent of known and potential contamination still to be defined at this stage only broad mitigation measures can be suggested. It is recommended that prior to construction the extent of contamination is further defined and the mitigation measures refined as appropriate. Mitigation measures presented below include measures that may be employed to minimise potential risks if disturbance of potentially contaminating areas of the sites cannot be avoided.

A summary of recommended mitigation measures for the potential risks identified and classified in Section 7 are presented in Table 8.1 and Table 8.2 below. The potential residual risk level is the ranking assigned to the potential risk of contamination following implementation of the presented mitigation measures.

In addition to the mitigation measures presented below, in order to manage human health impacts, appropriate safety procedures should be developed and implemented, including the use of appropriate personal protective equipment (PPE), for construction activities to be undertaken in areas of known contamination, particularly those that will disturb areas where contamination has been identified.

Table 8.1: Mitigation Measures for Risks Identified within LNG Plant Area

Source	Potential Event	Potential Risk Level	Potential Mitigation Measures
Leaking former cattle dip, splashing/spraying/spills of pesticides	Construction activities may disturb contaminated area resulting in a greater area of impact.	Moderate	Undertake additional assessment of the area of potential contamination and management/remediation via an appropriate DERM accepted method and validation of the impacted area as per DoE (1998) draft guidelines. Complete removal of livestock dip and spray race structure.
	Impact to soil and surface water bodies	Moderate	Management/remediation of impacted soil and groundwater in accordance with Queensland current guidelines.
Leaks and Spills from Waste Battery Stockpiles	Construction activities may disturb contaminated area resulting in a greater area of impact.	Moderate	Remove batteries from site for recycling. Undertake shallow surface soil validation sampling.
	Impact to soil and surface water bodies	Moderate	
Future Chemicals/fuels/oils from plant, tanks, compressors, storage areas, pipes, etc	Significant long term storage of hazardous materials envisaged. Potential of leaks and spills over time.	Moderate	Facilities to be constructed in accordance with the relevant Australian Standards and regularly audited through operational life. Any spills are to be cleaned up immediately and investigations conducted into any significant releases. Staff using hazardous materials are to be appropriately trained in their use.

Table 8.2: Mitigation Measures for Risks Identified at TWAF 7 and Launch Site 1

Source	Potential Event	Potential Risk Level	Potential Mitigation Measures
Fires and emergency releases of hazardous materials.	Emergency event or failure of plant/equipment resulting in the release of a contaminant.	Moderate	<p>Development of infrastructure in accordance with current standards and regulations.</p> <p>Training of site personnel in the handling of dangerous goods and emergency response.</p> <p>Spill containment to be incorporated into the design of infrastructure to be utilised for the storage or use of hazardous materials.</p> <p>Regular auditing, inspections and/or testing of infrastructure utilising or storing hazardous materials.</p>
Buried ash	Exposure of buried ash during construction	Moderate	<p>Undertake Stage 2 assessment of ash to determine contamination status.</p> <p>Where possible avoid disturbance of buried ash during construction.</p>
	Migration of exposed ash with surface water runoff	Moderate	<p>Manage disturbed ash (e.g., exhaust extraction during boring, personal protective equipment (PPE), erosion and sediment controls, appropriate storage and disposal, etc).</p>
	Airborne migration of exposed ash	Moderate	<p>Management of contaminated areas through the placement of a suitable capping material and development of a Site Management Plan if required.</p>

Management and remediation strategies will be required if construction activities disturb contaminated areas. As outlined above, the extent of the mitigation and management will depend upon the nature and extent of contamination identified, but may include removal of the source of contamination, treatment or removal of contaminated soil and collection of validation samples of the remaining soils to confirm that hazardous materials have been removed.

In addition to those discussed above, the following broad categories of mitigation measures may also be applicable where construction works and associated ground disturbance cannot be designed to avoid identified contaminated sites.

Risk Based Approach

The risk based approach to leave material in situ would only be applicable after an assessment of the site had determined through testing and/or modelling that there are no unacceptable risks or potential impacts on human health, water quality or terrestrial or aquatic organisms. Consideration would also be given to future liabilities associated with having contamination present at the sites (particularly in regard to unforeseen impacts on human health, and public perception).

Remediation

To ensure appropriate remediation works are undertaken, a site must first be fully assessed and the nature and extent of contamination fully characterised. Remediation methods commonly include the following:

- Excavation and disposal to lined or unlined landfills. Generally undertaken for inorganic contaminants (i.e., metals and metalloids such as arsenic), and recalcitrant organics (e.g., PCB and PAH)
- Landfarming, involving the dispersal of excavated contaminated material on the ground surface and using aeration and/or the addition of various nutrients and minerals to stimulate microbial activity resulting in degradation of contaminants. This method is generally applied to volatile contaminants such as hydrocarbons and some pesticides that readily and rapidly degrade under natural conditions.
- Biological treatment for contaminants that are readily biodegradable such as volatile and some semi-volatile hydrocarbons and pesticides other than organochlorine pesticides.

Following remediation works, the site should be validated to ensure that the contamination status of the site presents no unacceptable risks or potential impacts on human health, water quality or terrestrial or aquatic organisms.

9 DECOMMISSIONING AND REHABILITATION

Decommissioning and rehabilitation of disturbance areas should be undertaken to maintain the smallest practical footprint at all times. Decommissioning and rehabilitation works should include a contaminated land investigation undertaken in accordance with the relevant legislation and guidelines at the time. Areas of contamination that have resulted from the Arrow Energy project should be remediated to a level that protects human health and the environment.

10 CONCLUSIONS

Based on the results of the PSI, the following potential sources of contamination were identified.

- Former cattle dip (LNG plant).
- Onsite waste disposal (including lead batteries) (LNG plant).
- Corroded storage drums (LNG plant).
- Ash from settling ponds (TWAF 7 and Launch Site 1).
- Waste disposal/car bodies (Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area).

The potential contaminated land risks to human health and the environment identified within the study area were classified between low and moderate. Moderate risks were associated with an existing cattle dip, existing battery stockpiles, future storage of hazardous materials, future emergency responses and historic ash disposal areas. Further investigation/remediation work in the areas of existing contamination will allow the development of more detailed mitigation measures and reduce the potential risks further. Potential risks associated with future construction and operation of the project will be managed through the implementation of management and mitigation controls required by legislation and recommended by relevant Australian Standards/guidelines including hazardous materials storage and use, sediment and erosion control, and environmental licensing conditions associated with discharges to land, water and air.

If areas of identified potential contamination are to be disturbed during construction works, additional intrusive detailed site investigations should be undertaken prior to disturbance. Management and/or remedial strategies will be required if construction activities are likely to disturb contaminated areas. These strategies will depend upon the nature and extent of contamination identified, and may include, remediation of contaminated soil, qualitative risk assessment and validation assessment to minimise potential impacts to human health and the environment.

A notifiable activity in 'Livestock Dip or Spray Race Operations' has been identified within Lot 5 on SP235936 and preliminary assessment by URS identified the presence of a hazardous contaminant. A notification of land is required to be made to the administering authority by the site operator/owner in accordance with the requirements of the Environmental Protection Act (1994).

This report must not be reproduced except in full and must be read in conjunction with the 'Important Information about your Coffey Environmental Report'.

11 REFERENCES

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Queensland Government (2010) Terms of reference for an environmental impact statement, Shell Australia LNG Project.

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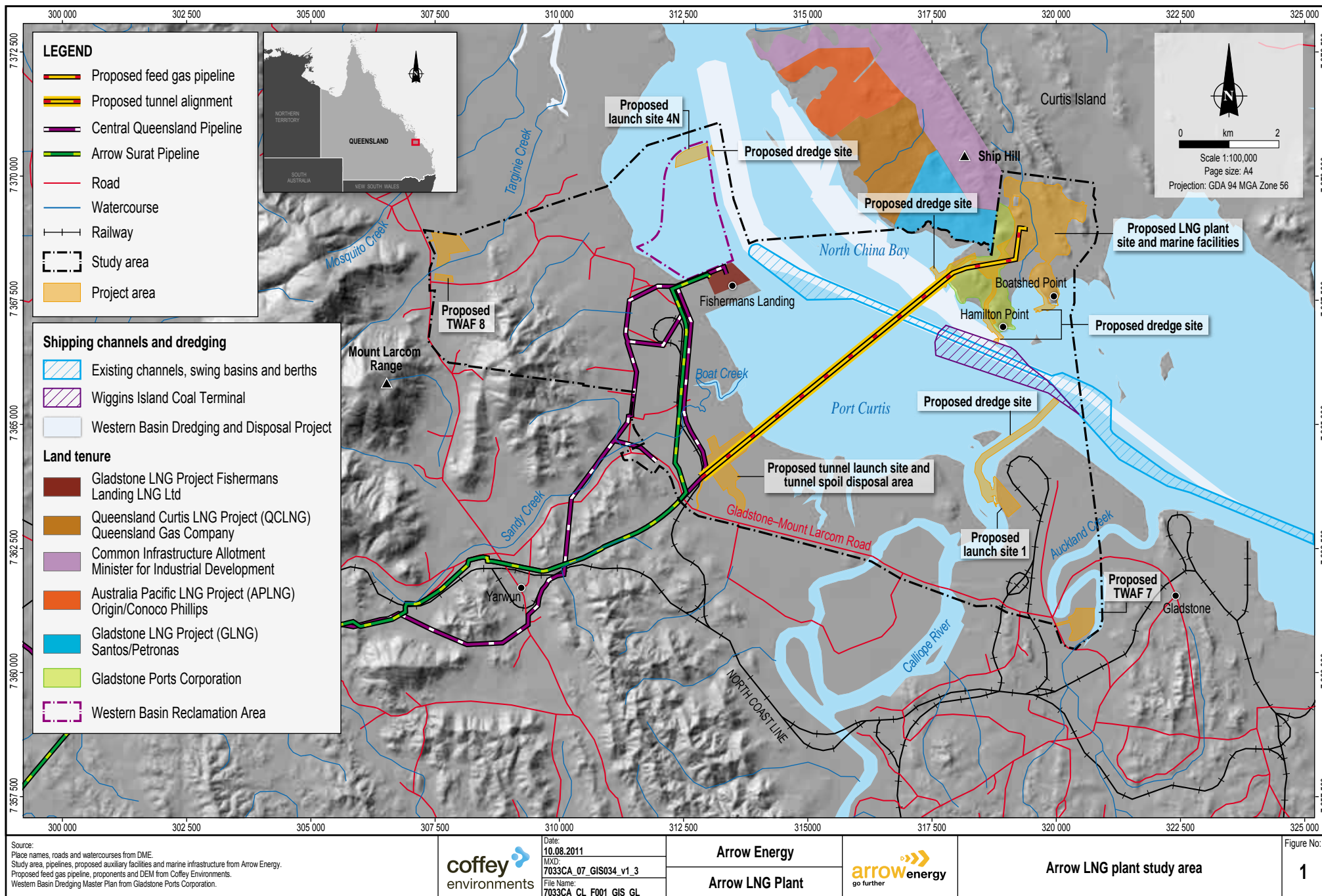
Standards Australia (2009) Australian Standard HB 327:2010 Communicating and consulting about risk.

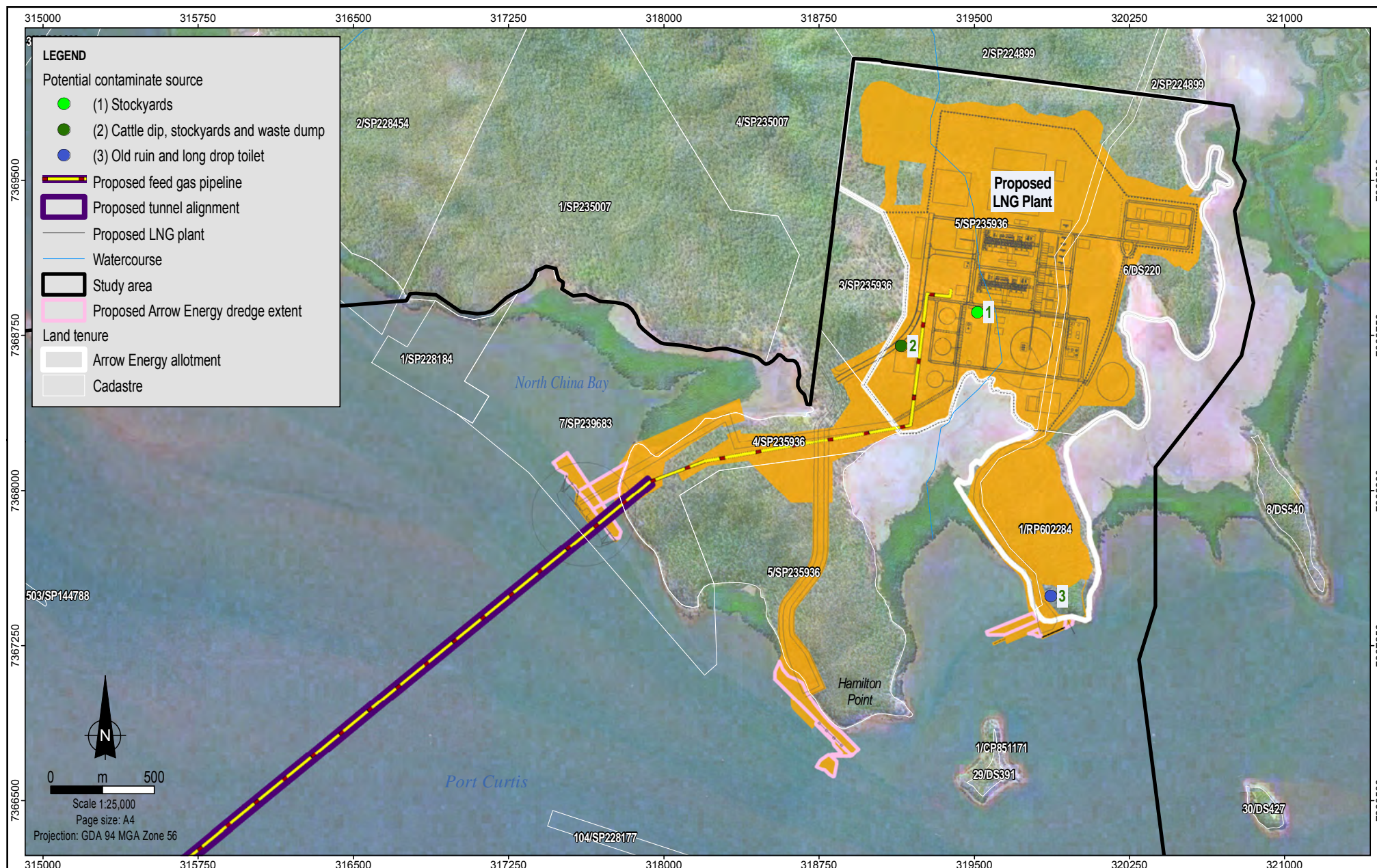
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The State of Queensland, Department of Primary Industries (1995) 1:250 000 Land Systems of the Capricornia Coast Sheet.

URS (2009) Preliminary Site Assessment – Santos Gladstone Liquefied Natural Gas (GLNG) Project.
Prepared for Santos Ltd, February 2009.

Figures





Source:
Place names, roads and watercourses from DME. Cadastre from DERM (May 2011).
Proposed auxiliary facilities and marine infrastructure,
proposed tunnel alignment, substation, area of disturbance and quarantine area from Arrow Energy.
Western Basin Dredging and Disposal Project from Gladstone Ports Corporation.
Study area and proposed feed gas pipeline from Coffey Environments. Imagery from SPOT (2004-2007).

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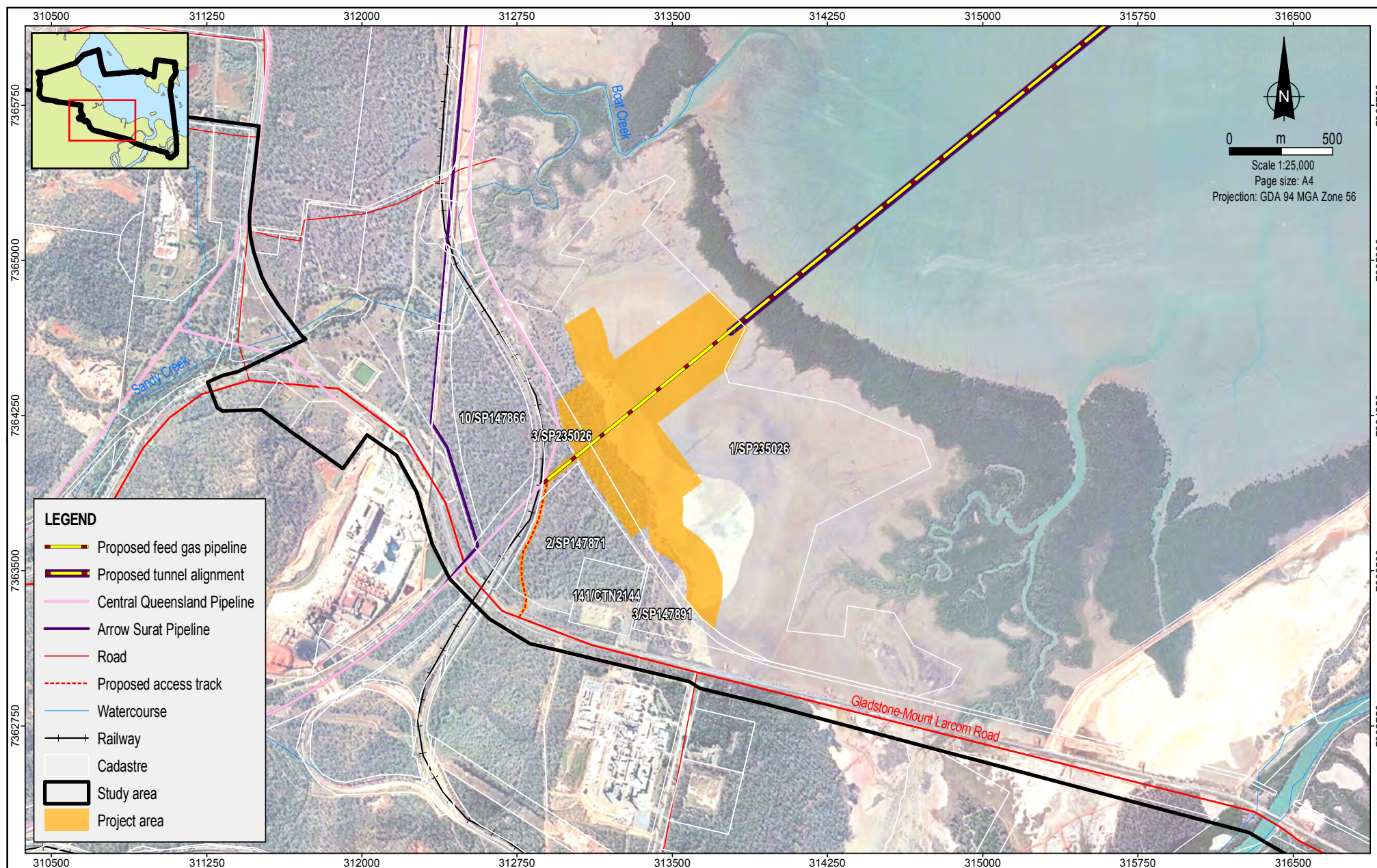
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File Name:
7033CA CL1_F002_GIS v3

Arrow Energy
Arrow LNG Plant

arrow
energy
go further

Arrow LNG Plant, Curtis Island

Figure No:
2



Source:
Roads and watercourses from DME. Cadastre from DERM (May 2011).
Proposed infrastructure and study area from Arrow Energy.
Proposed feed gas pipeline from Coffey Environments.
Imagery from SPOT (2004-2007).

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environments

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15.09.2011
MXD:
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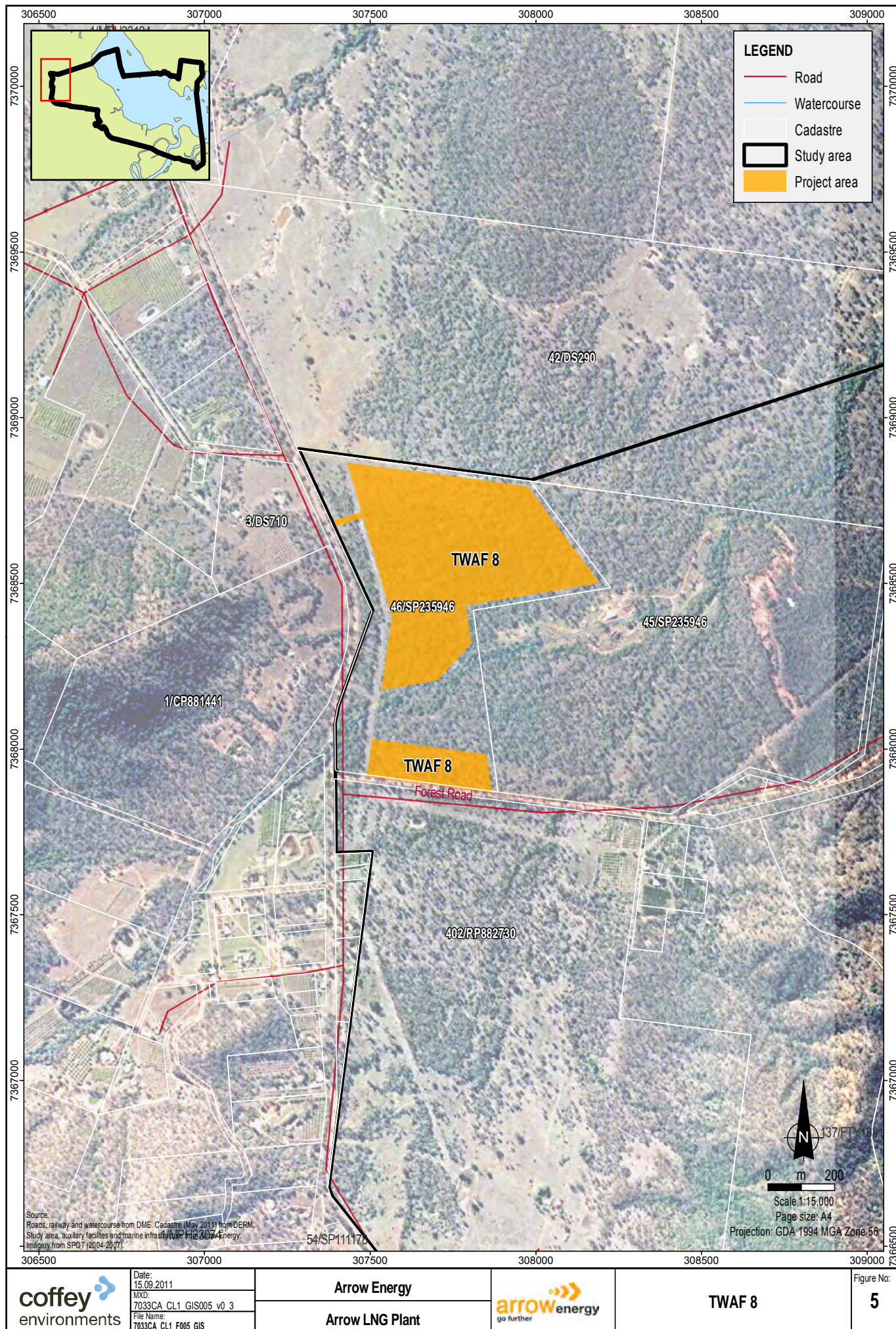
Arrow Energy
Arrow LNG Plant

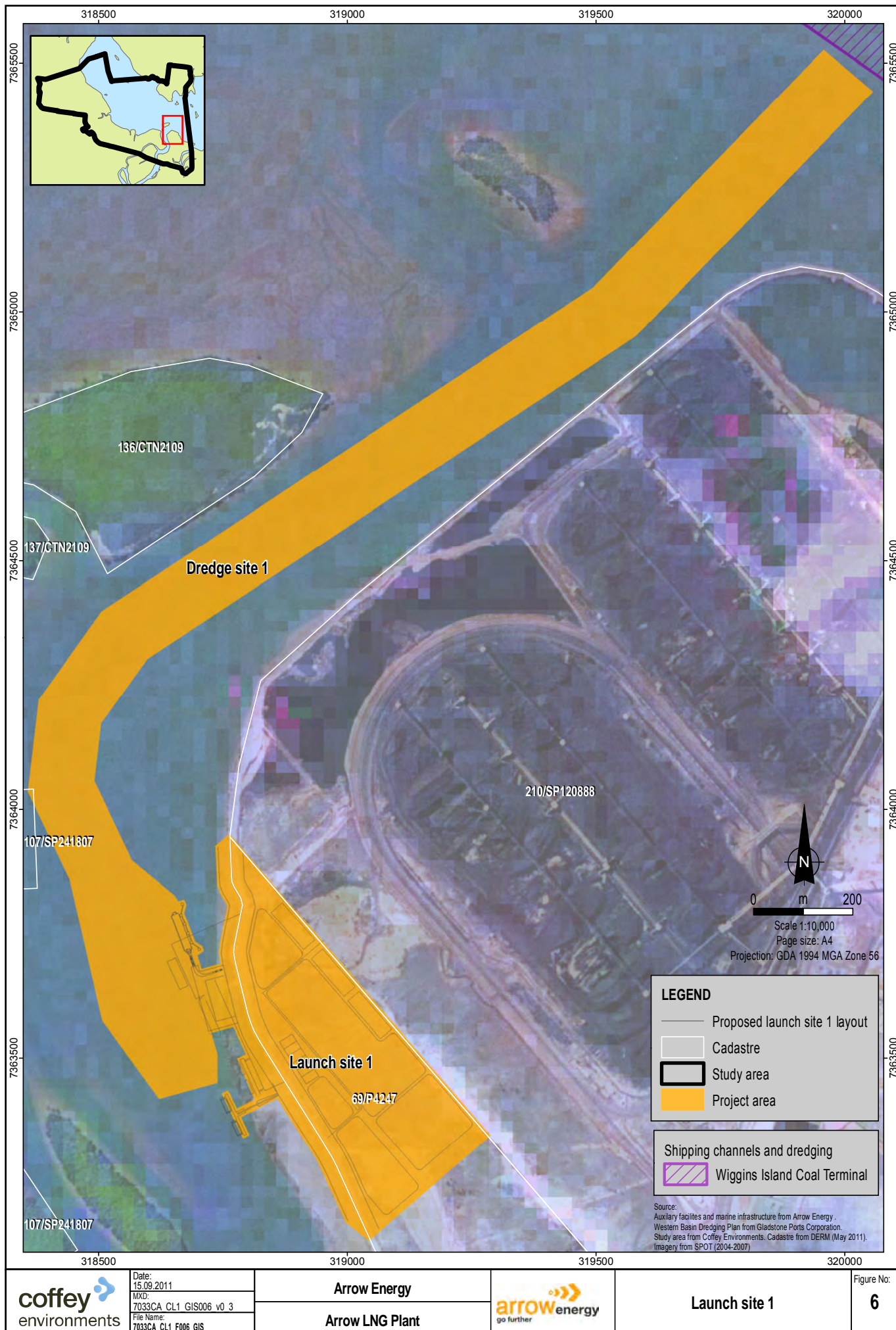
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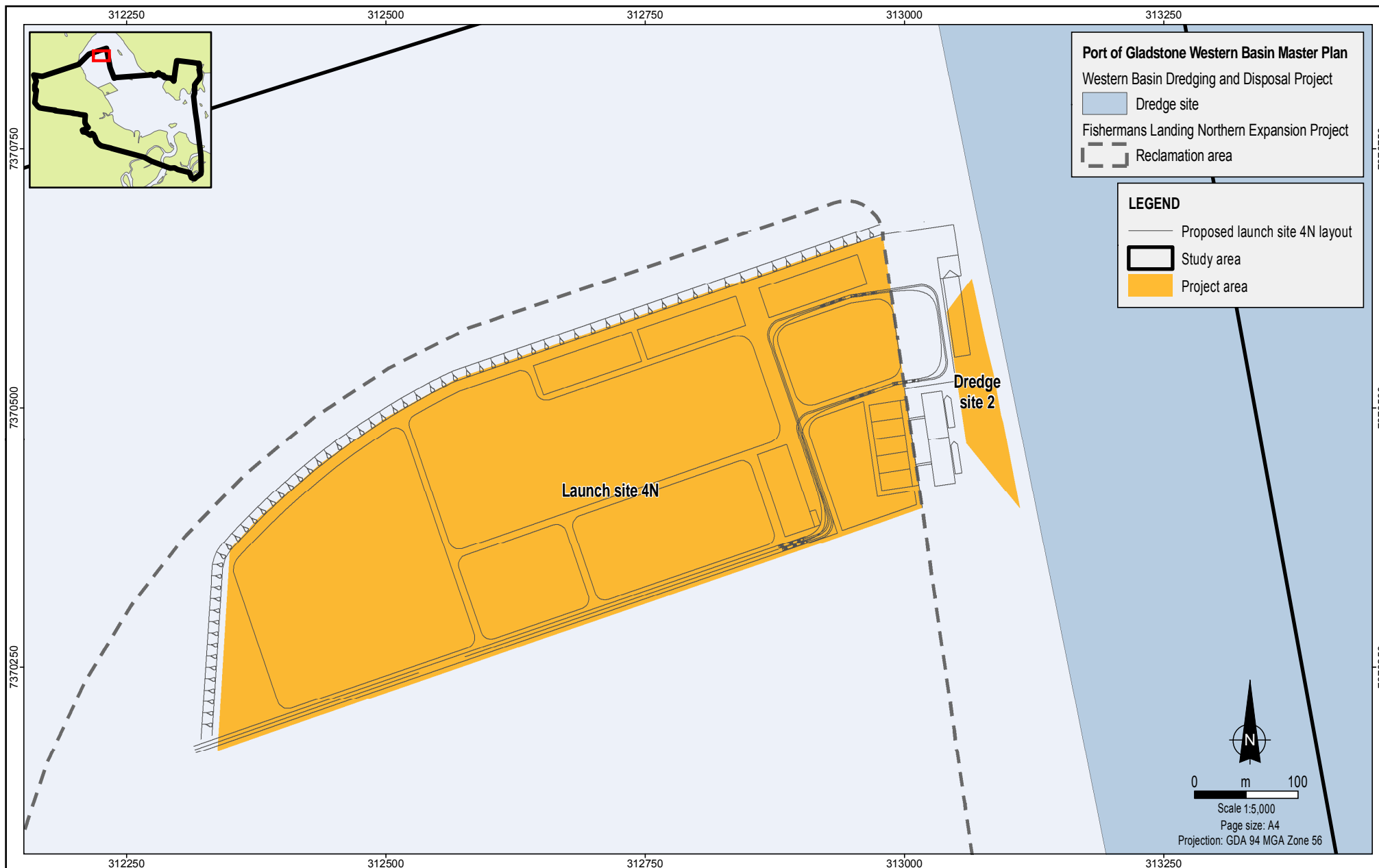
**Mainland tunnel entry shaft and
tunnel spoil disposal area**

Figure No:
3









Source:
 Auxiliary facilities and marine infrastructure from Arrow Energy .
 Western Basin Dredging Plan from Gladstone Ports Corporation.
 Study area from Coffey Environments.

coffey
 environments

Date:
 15.09.2011
 MXD:
 7033CA_CL1_GIS007_v0_3
 File Name:
 7033CA_CL1_F007_GIS

Arrow Energy
Arrow LNG Plant

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Launch site 4N

Figure No:
7

Appendix A
Terms of Reference Cross Reference
Table

Terms of Reference Section/Sub-sections	Terms of Reference Description	Relevant PSI Contaminated Land Report Section
2.6. Decommissioning and rehabilitation 2.6.2. LNG plant and terminal facilities	Final rehabilitation of the site should be discussed in terms of ongoing land use sustainability, management of any residual contaminated land and any other land management issues.	9. Decommissioning and Rehabilitation
3.2.5. Land contamination 3.2.5.1 Description of environmental values	This section should discuss known land contamination within the project areas by existing and past uses, and identify the nature and concentration of any contaminants.	5. Existing Environment
	This discussion should identify land used for a notifiable activity as listed in Schedule 2 of the EP Act, and land which is listed on the <i>Queensland Environmental Management Register</i> or the <i>Queensland Contaminated Land Register</i> .	5.1.2 Queensland Environmental Management Register (EMR) and Contaminated Land Register (CLR) Notices
	A preliminary site investigation (PSI) of the project sites consistent with the EPA's <i>Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland</i> should be undertaken to determine background contamination levels. The results of the PSI should be summarised in the EIS and provided in detail in an appendix.	5. Existing Environment
	If the results of the PSI indicate potential or actual contamination, a detailed site investigation progressively managed in accordance with the stages outlined in Appendix 5 of the <i>Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland</i> should be undertaken.	Recommendations for Stage 2 investigations (in accordance with <i>Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland</i>) made in 8. Avoidance, mitigation and management measures. Stage 2 investigations would be undertaken under separate cover. Based on these Stage 2 investigations, more refined remedial options and contamination management measures could then be assessed to determine the most appropriate mitigation measures.
	The following information should be provided in the EIS: - maps illustrating the extent and location of any areas listed on the <i>Environmental Management Register</i> or <i>Contaminated</i>	Not applicable.

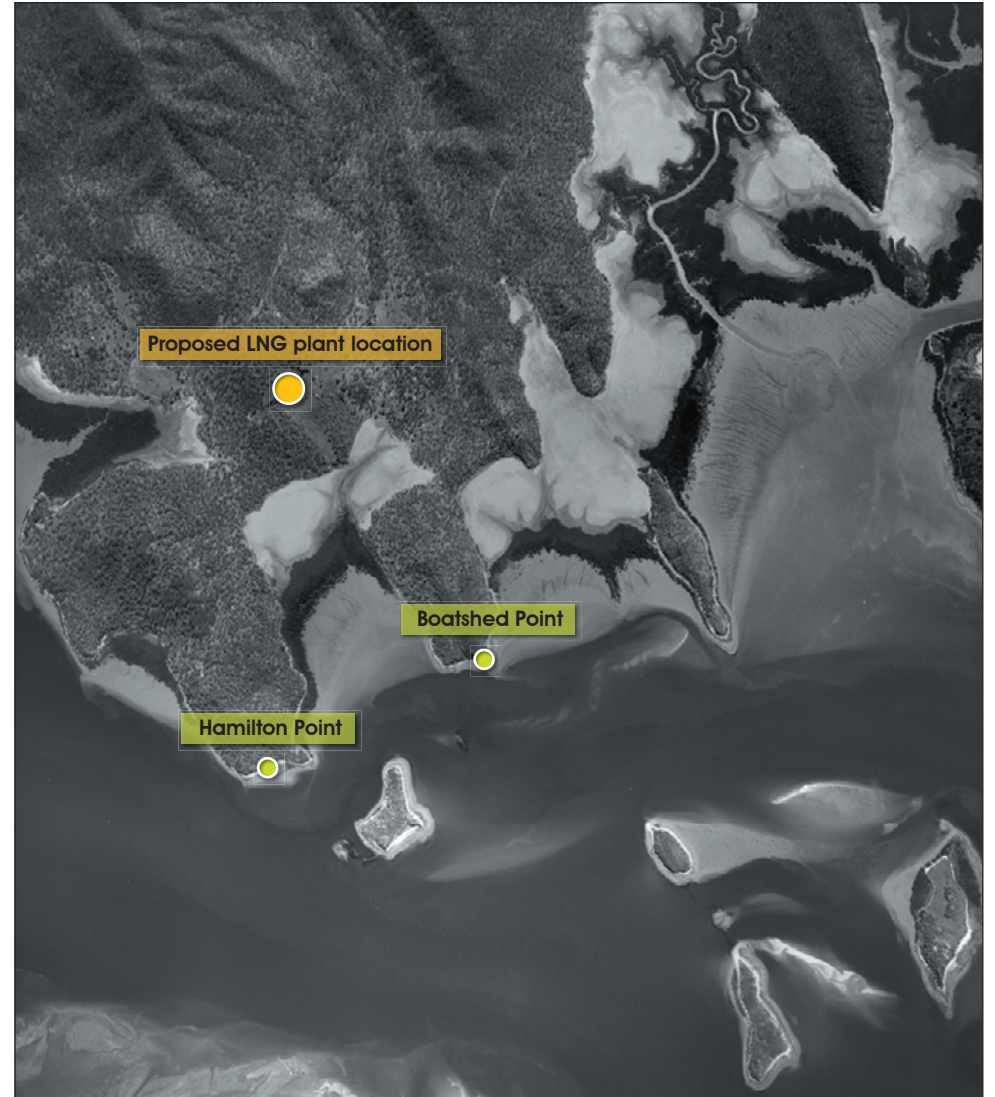
Terms of Reference Section/Sub-sections	Terms of Reference Description	Relevant PSI Contaminated Land Report Section
	<i>Land Register</i> under the EP Act	
	- any potentially contaminated sites not on the registers which may need remediation	5. Existing Environment
	- a description of the nature and extent of contamination at each site and a remediation plan and validation sampling.	5. Existing Environment 8. Avoidance, Mitigation and Management Measures
	The EIS should address management of any existing or potentially contaminated land in addition to preventing and managing land contamination resulting from project activities. Proponents should consult with the Contaminated Land Section of DERM regarding study proposals.	8. Avoidance, Mitigation and Management Measures
3.2.5. Land contamination 3.2.5.2 Potential impacts and mitigation measures	The EIS should describe the possible contamination of land resulting from project actions including spillage, waste, acid generation from exposed sulphuric material, spills at chemical and fuel storage areas, and storage/spillage of associated water or waste from treated water at the CSG fields.	6. Potential Contamination introduced by Project Activities
	The means of preventing land contamination (within the meaning of the EP Act) should be addressed and the strategies and methods proposed for preventing, recording, containing and remediating any contaminated land outlined.	8. Avoidance, Mitigation and Management Measures
	The EIS should discuss the management of any contaminated land and potential for contamination from construction, commissioning and operation, in accordance with EPA's 48 Terms of reference for an environmental impact statement—Shell Australia LNG Project <i>Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland (1998)</i> and the <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> .	8. Avoidance, Mitigation and Management Measures
3.4.2 Groundwater 3.4.2.2 Potential impacts and mitigation measures	An assessment of the potential to contaminate groundwater resources and measures to prevent, mitigate and remediate such contamination should be discussed.	6. Potential Contamination introduced by Project Activities 7. Identified Issues and Potential impacts

Appendix B

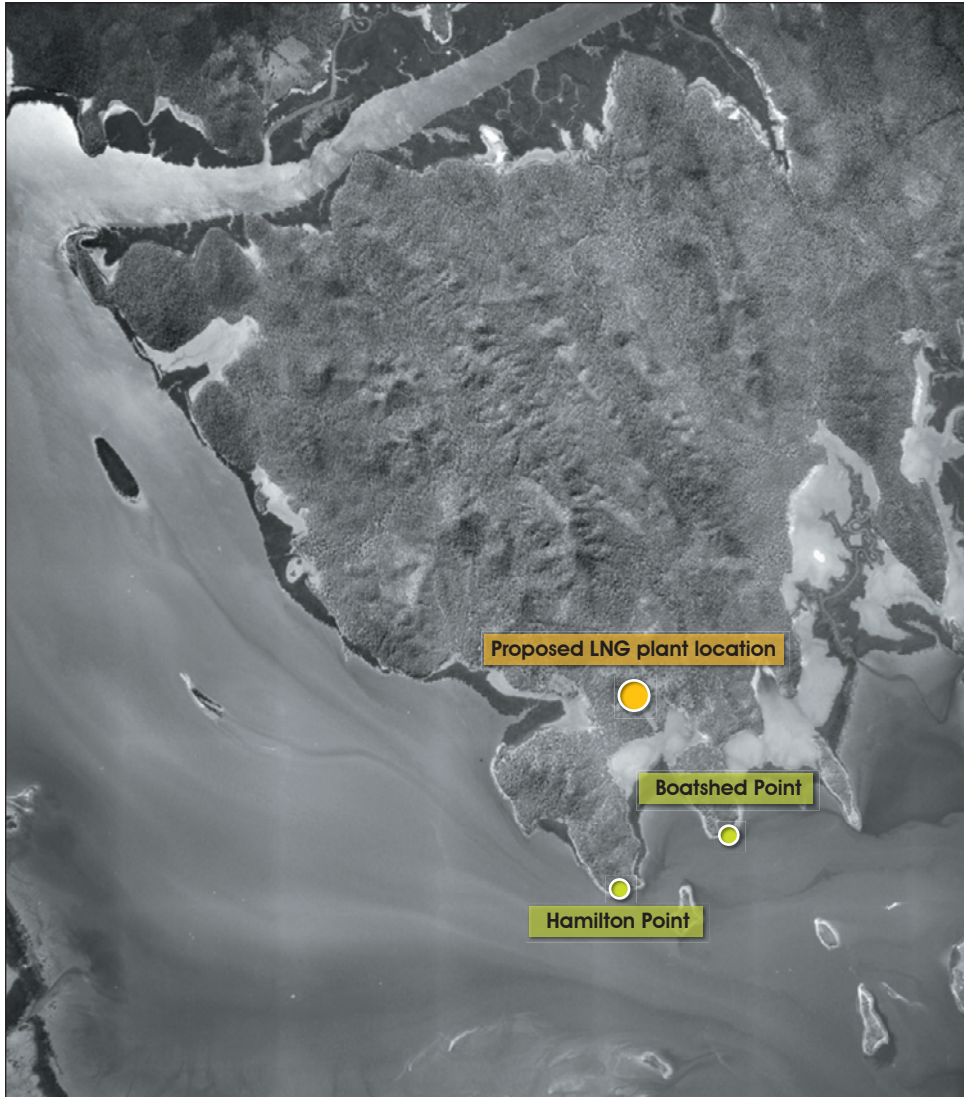
Aerial Photographs and Satellite Imagery



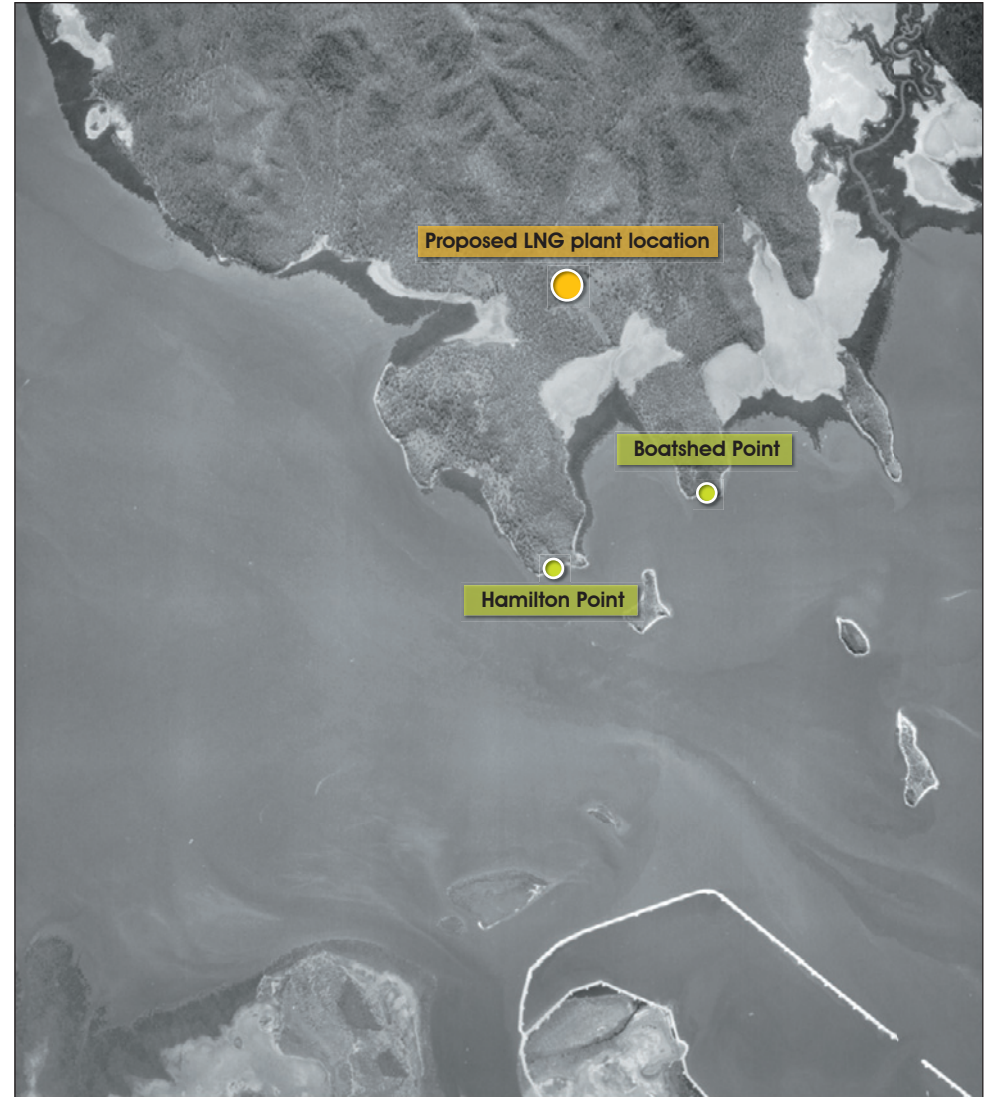
LNG Plant (1959)



LNG Plant (1965)



LNG Plant (1970)



LNG Plant (1973)



LNG Plant (1989)



LNG Plant (1999)




LNG Plant (1999)

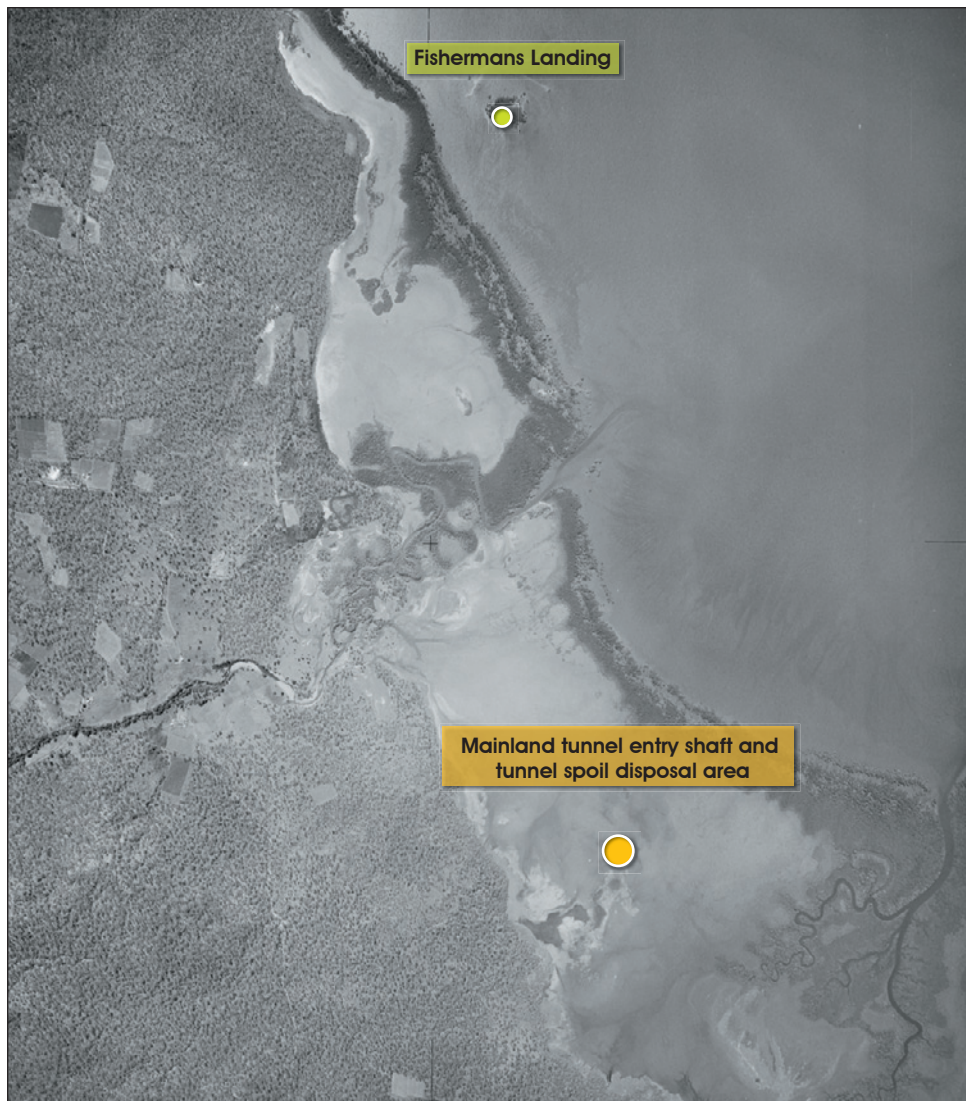


LNG Plant (2003)

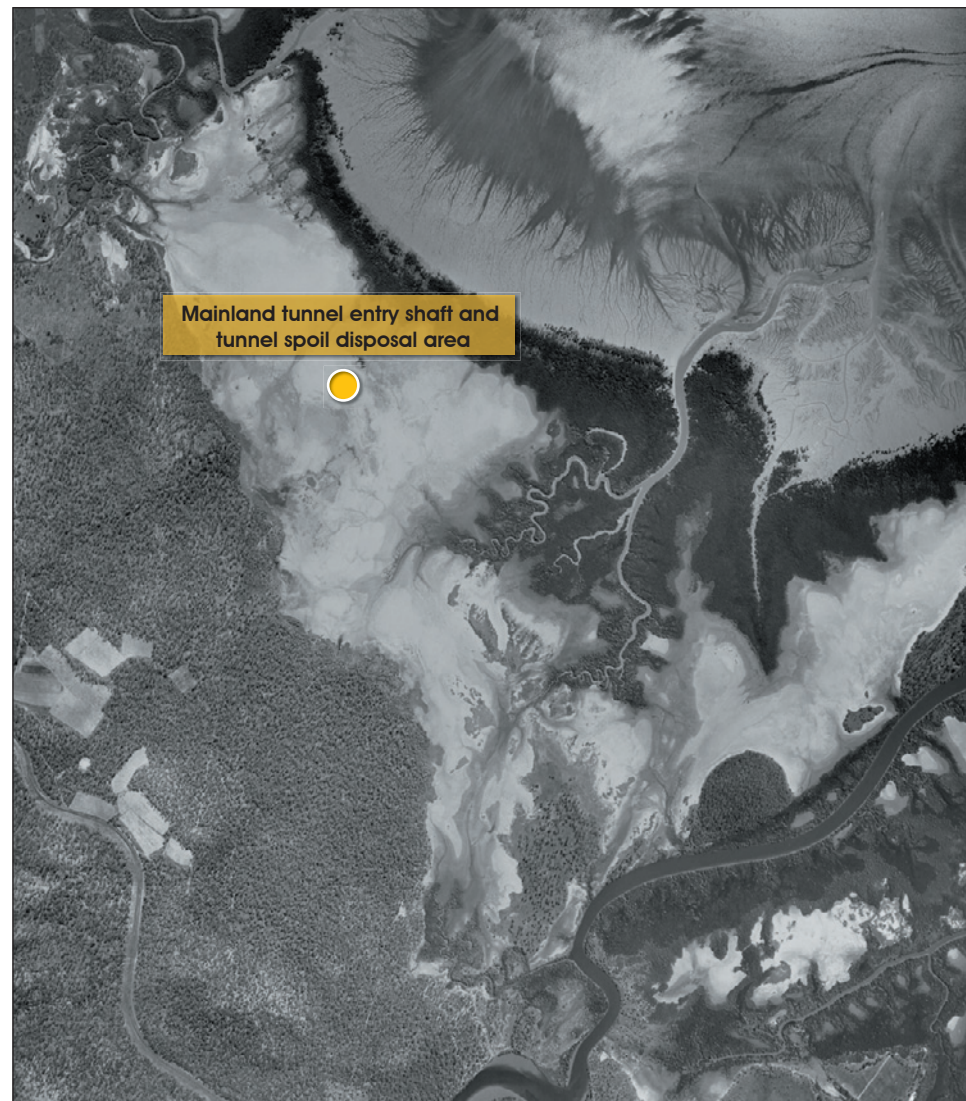


LNG Plant (2007)

		Date: 06.09.2011 File Name: 7033_HAP_F005_GL	Arrow Energy Arrow LNG Plant		Historical areal photography LNG Plant	Figure No: 5
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Mainland tunnel entry shaft and tunnel spoil disposal area (1959)



Mainland tunnel entry shaft and tunnel spoil disposal area (1965)



proposed mainland tunnel entry shaft
and tunnel spoil disposal area

Mainland tunnel entry shaft and tunnel spoil disposal area (1973)



Mainland tunnel entry shaft and tunnel spoil disposal area (1989)



Mainland tunnel entry shaft and tunnel spoil disposal area (1999)



Mainland tunnel entry shaft and tunnel spoil disposal area (2003)



Mainland tunnel entry shaft and tunnel spoil disposal area (2007)



TWAF 7 (1959)



TWAF 7 (1965)



TWAF 7 (1973)



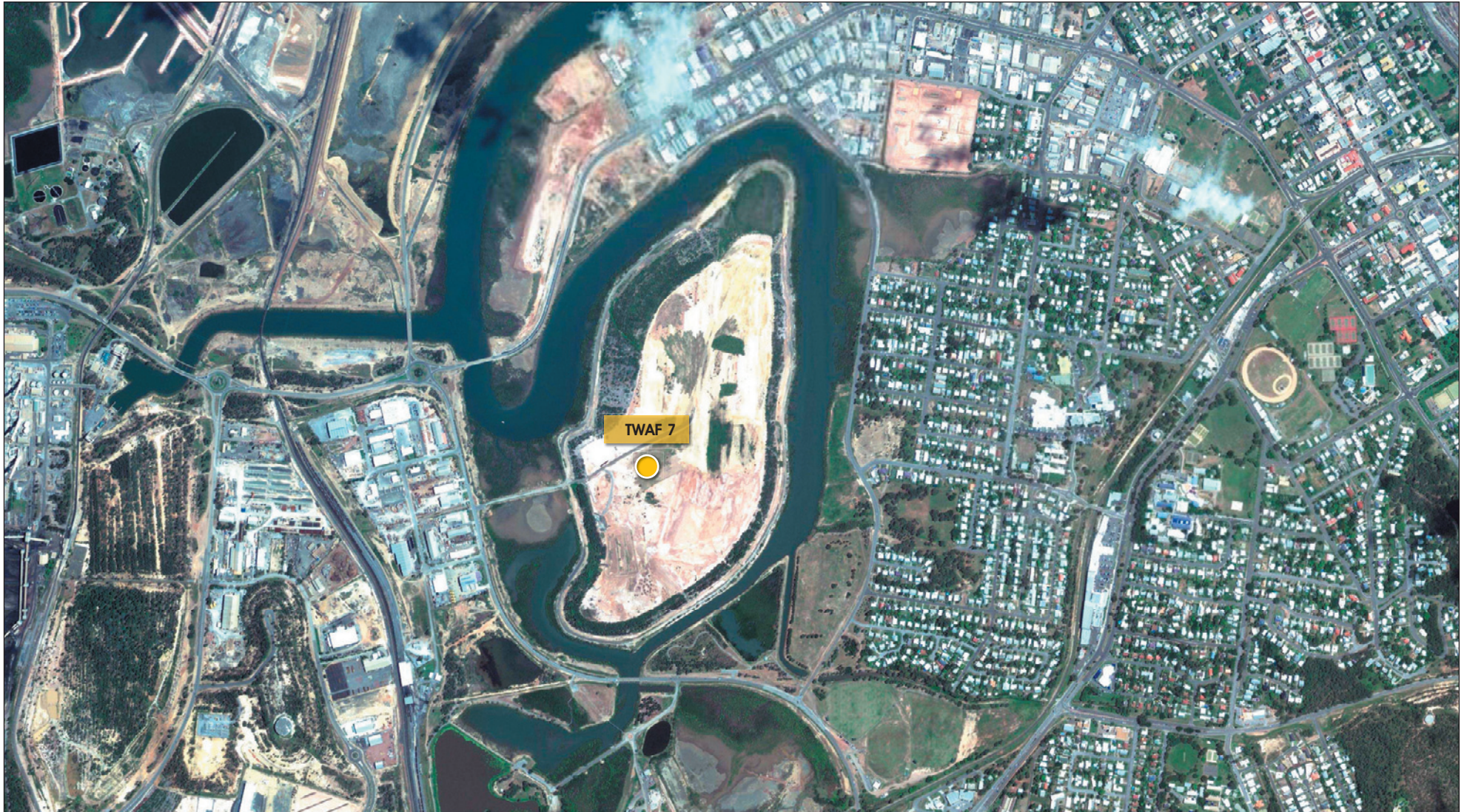
TWAF 7 (1989)



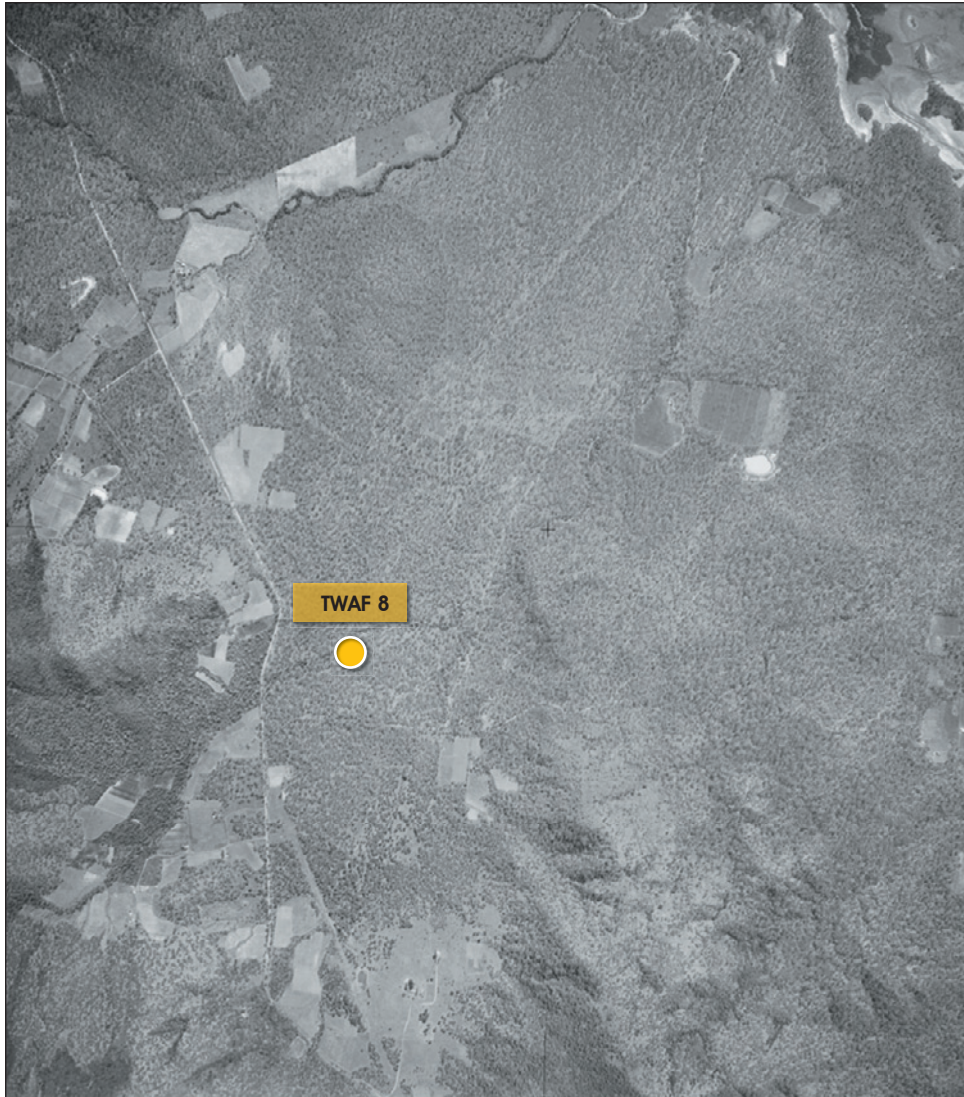
TWAF 7 (1999)



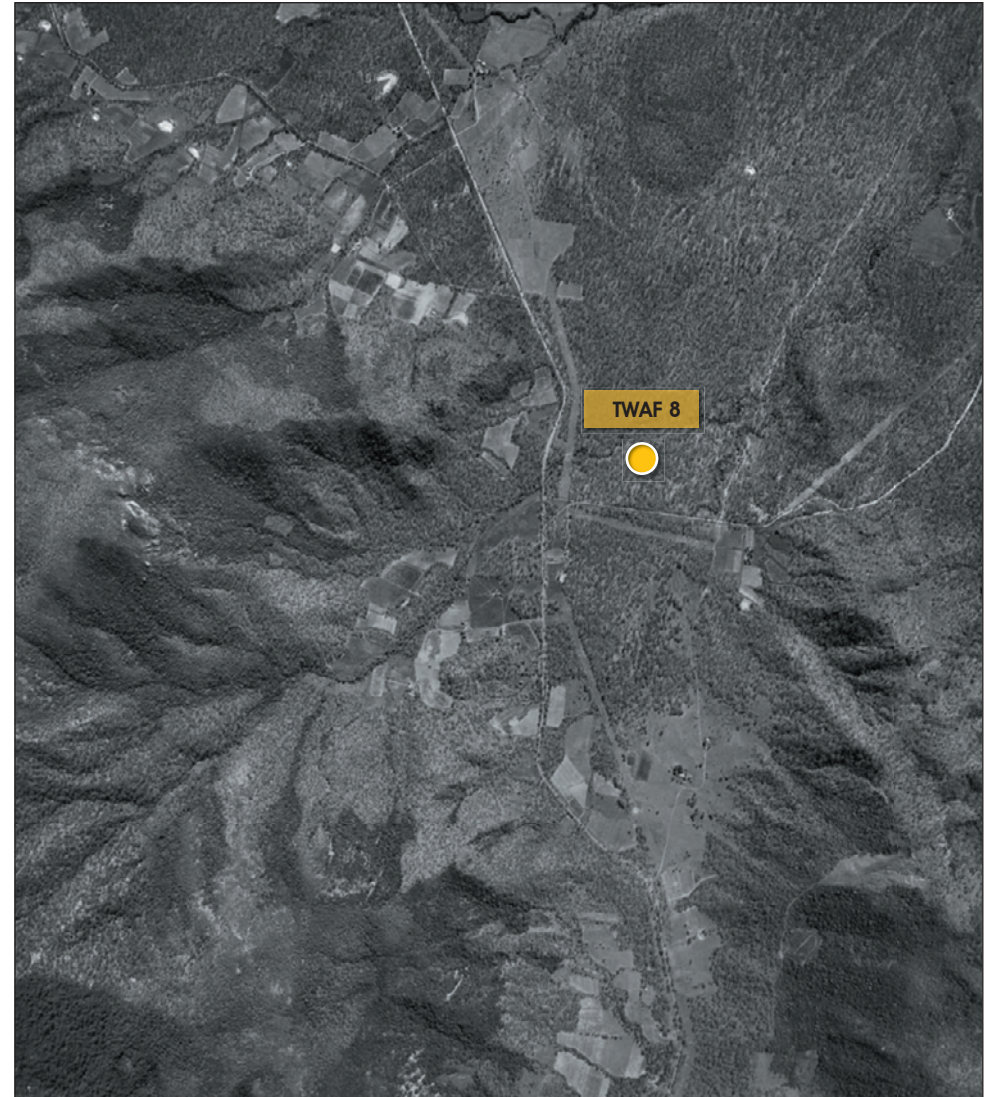
TWAF 7 (2003)



TWAF 7 (2007)



TWA 8 (1959)



TWA 8 (1965)



TWA 8 (1989)



TWA 8 (1999)



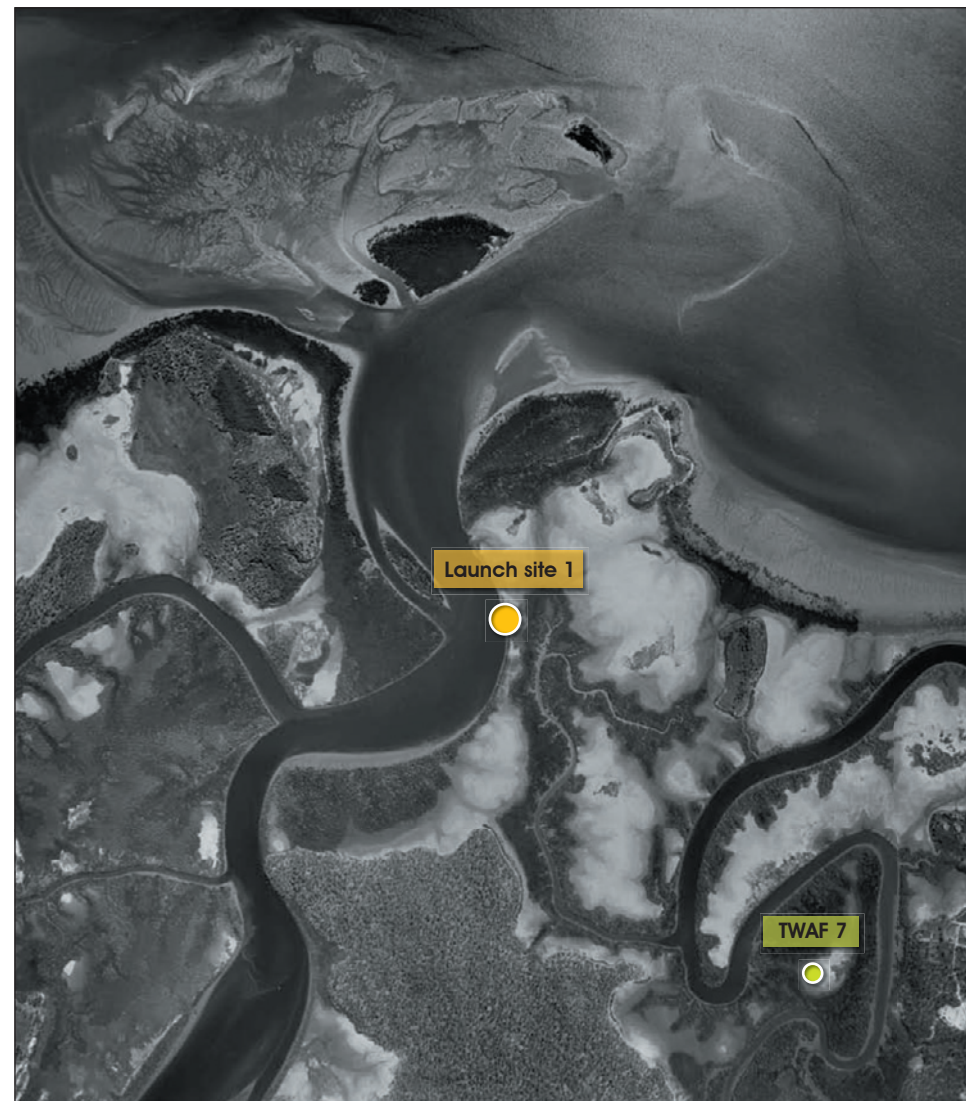
TWAF 8 (2003)



TWAF 8 (2007)



Launch site 1 (1959)



Launch site 1 (1965)



Launch site 1 (1973)



Launch site 1 (1989)



Launch site 1 (1999)



Launch site 1 (2003)



Launch site 1 (2007)

Appendix C

DERM EMR and CLR searches

QLD ENVIRONMENTAL PROTECTION AGENCY

**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1208373 EMR Site Id: 03 March 2010
This response relates to a search request received for the site:
Lot: 2 Plan: SP207281

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through the State Government Website
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5687.

Lindi Bowen
Registrar, Contaminated Land Unit

QLD ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 1208377 EMR Site Id: 03 March 2010
This response relates to a search request received for the site:
Lot: 6 Plan: DS220

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

EMR/CLR Searches may be conducted online through the State Government Website
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.

If you have any queries in relation to this search please phone (07) 3330 5687.

Lindi Bowen
Registrar, Contaminated Land Unit

QLD ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 1209068 EMR Site Id: 05 March 2010
This response relates to a search request received for the site:
Lot: 1 Plan: RP602284

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

EMR/CLR Searches may be conducted online through the State Government Website
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.

If you have any queries in relation to this search please phone (07) 3330 5687.

Lindi Bowen
Registrar, Contaminated Land Unit

QLD DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1310926 EMR Site Id: 05 May 2011
This response relates to a search request received for the site:
Lot: 1 Plan: SP235026

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

QLD DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1310927 EMR Site Id: 05 May 2011
This response relates to a search request received for the site:
Lot: 3 Plan: SP235026

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

QLD ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 1209047 EMR Site Id: 05 March 2010
This response relates to a search request received for the site:
Lot: 2 Plan: SP147871

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

EMR/CLR Searches may be conducted online through the State Government Website
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.

If you have any queries in relation to this search please phone (07) 3330 5687.

Lindi Bowen
Registrar, Contaminated Land Unit

QLD DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1295576 EMR Site Id: 07 March 2011
This response relates to a search request received for the site:
Lot: 200 Plan: CTN2173

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

QLD DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1310924 EMR Site Id: 05 May 2011
This response relates to a search request received for the site:
Lot: 32 Plan: USL15325

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

QLD DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1295579 EMR Site Id: 07 March 2011
This response relates to a search request received for the site:
Lot: 46 Plan: SP235946

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

QLD DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT**ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)**

Transaction ID: 1295580 EMR Site Id: 07 March 2011
This response relates to a search request received for the site:
Lot: 69 Plan: P4247

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**EMR/CLR Searches may be conducted online through
www.smartservice.qld.gov.au or Citec Confirm www.confirm.com.au.**

If you have any queries in relation to this search please phone (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

Appendix D
Current Titles, Historical Titles and
Registered Plans

Appendix D

Lot 3 on Plan SP235936

Lot 4 on Plan SP235936

Lot 5 on Plan SP235936

Formerly Lot 2 on Plan SP207281

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622783

Search Date: 31/05/2011 13:12

Title Reference: 50819829

Date Created: 06/08/2010

Previous Title: 50736935

REGISTERED OWNER

Dealing No: 713391002 04/08/2010

THE COORDINATOR-GENERAL

ESTATE AND LAND

Estate in Fee Simple

LOT 4 SURVEY PLAN 235936
County of DEAS THOMPSON Parish of CURTIS
Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10337113 (SEL 21)
2. COVENANT No 713746092 07/03/2011 at 13:00
restricts dealings over
LOT 4 ON SP235936 AND LOT 7 ON SP239683

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

COPYRIGHT THE STATE OF QUEENSLAND (ENVIRONMENT AND RESOURCE MANAGEMENT) [2011]
Requested By: D APPLICATIONS CITEC CONFIRM

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622776

Search Date: 31/05/2011 13:12

Title Reference: 50819828

Date Created: 06/08/2010

Previous Title: 50736935

REGISTERED OWNER

Dealing No: 713391002 04/08/2010

THE COORDINATOR-GENERAL

ESTATE AND LAND

Estate in Fee Simple

LOT 3 SURVEY PLAN 235936
County of DEAS THOMPSON Parish of CURTIS
Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10337113 (SEL 21)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

**** End of Current Title Search ****

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Requested By: D APPLICATIONS CITEC CONFIRM

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622782

Search Date: 31/05/2011 13:12

Title Reference: 50819830

Date Created: 06/08/2010

Previous Title: 50736935

REGISTERED OWNER

Dealing No: 713390999 04/08/2010

CENTRAL QUEENSLAND PORTS AUTHORITY

ESTATE AND LAND

Estate in Fee Simple

LOT 5 SURVEY PLAN 235936
County of DEAS THOMPSON Parish of CURTIS
Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10337113 (SEL 21)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: D APPLICATIONS CITEC CONFIRM

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316656

Search Date: 14/09/2011 14:06

Title Reference: 50736935

Date Created: 12/09/2008

Previous Title: 30350026

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

COPYRIGHT THE STATE OF QUEENSLAND (ENVIRONMENT AND RESOURCE MANAGEMENT) [2011]
Requested By: External Supervisor

(C)

QUEENSLAND

[CERTIFICATE OF TITLE]

VOL: C 350 FOLIO: 26

Dealing No. C 261872

Reference to previous

Volume Folio

292 62, 63

Register Book

Vol. C 350 Folio 26



CURTIS HOLDINGS PTY. LTD.

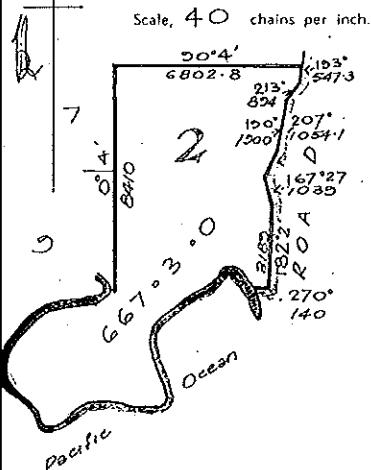
now seized _____ of an Estate in Fee-simple, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in All that piece of Land situated in the County of Deas Thompson Parish of Curtis City of _____

Containing six hundred and sixtyseven acres three rods

more or less, as shown on the Plan hereon, and therein edged red, Being Subdivision 2 of Selection 21 on Plan
Out. No. 2284

Saving Always to the Crown all the rights and interests reserved to it by Deed of Grant No. 37353

In Witness whereof, I have hereunto signed my name and affixed my seal, this Eleventh
day of July One thousand nine hundred and sixty nine

Signed, Sealed, and Delivered in presence of P. L. Loranway

DEPUTY REGISTRAR OF TITLES

Central District Registry

No. C. 325685 Bill of Mortgage Partnership
Partnership
LIMITED
Produced 11 Dec 1978
Registered 12 Dec 1978

Jackie Ridgway
now seized of an Estate in fee-simple in the within land
TRANSFER No. C. 374,614 PRODUCED 11 Dec 1978
at 12.18 m. REGD. 18 DEC 1978
DEP. REGISTRAR OF TITLES
(Central District)

THE DESCRIPTION OF THE WITHIN LAND IS CONVERTED
TO LOT 2
ON REGISTERED PLAN No. 602284
2 SEP 1985
DEPUTY REGISTRAR OF TITLES
(CENTRAL DISTRICT)

Giuseppe Lomamed
now registered proprietor in fee simple
TRANSFER No. 65,833
PRODUCED 31 Dec 1987
RECORDED 10 MAR 1989
DEPUTY REGISTRAR OF TITLES
(CENTRAL DISTRICT)

BILL OF MORTGAGE in Partnership
Partnership
No. 65823 PRODUCED 10 MAR 1989
REGISTERED 10 MAR 1989
DEPUTY REGISTRAR OF TITLES
(CENTRAL DISTRICT)

No. C. 276999 Bill of Mortgage Finance
Finance
Produced 27 Mar 1978
Registered 27 Mar 1978

Sweed Valley Pastoral Company
Phy. Ltd
now seized of an Estate in fee-simple in the within land
Transfer No. 284497 PRODUCED 19 Jan 1972
Registered 23 May 1972
P. J. Haynes
DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

No. C. 284498 Bill of Mortgage Walters Finance
Walters Finance
Produced 23 Jan 1972
Registered 23 Jan 1972

ROSS WILLIAM GRAYSON COLIN GRANT
 GRAYSON AND MARK JON GRAYSON
 AS TENANTS IN COMMON IN EQUAL SHARS
 TRANSFER NO. C68135X
 PRODUCED 22 Feb 1993
 RECORDED 25 FEB 1993
 DEPUTY REGISTRAR OF TITLES
 (CENTRAL DISTRICT)

BILL OF MORTGAGE to NATIONAL AUSTRALIA BANK LIMITED
 C68135B PRODUCED 22 Feb 1993
 REGISTERED 25 FEB 1993
 DEPUTY REGISTRAR OF TITLES
 (CENTRAL DISTRICT)

BILL OF MORTGAGE to GIUSEPPE EMANUELE
 C68137D PRODUCED 22 Feb 1993
 REGISTERED 25 FEB 1993
 DEPUTY REGISTRAR OF TITLES
 (CENTRAL DISTRICT)

ELFIC LIMITED
 as lessor under Mortgage No C68138E
 TRANSFER OF MORTGAGE NO C 68138E
 PRODUCED 22 Feb 1993
 REGISTERED 25 FEB 1993
 DEPUTY REGISTRAR OF TITLES
 (CENTRAL DISTRICT)

UNDIVIDED MOIETY

Certificate of Title.

VOL: C 292 FOLIO: 662



30292062

(C)

QUEENSLAND.



No. C. 49059

Reference to Previous

Volume	Folio
275	243

Register Book, Vol. 292 Folio 62

RICHARD NOBLE HAWES

of _____ pursuant to Memorandum of Conveyance No. C 213574 produced the tenth day of May 1962, registered the twenty-second day of May 1962, is now seized of an Estate in Fee-simple, as tenant in common with another in one undivided half part or share, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in All that piece of Land situated in the County of Deas Thompson Parish of Curtis containing Six hundred and sixty-seven acres three roods _____, more or less, as shown on the Plan hereon, and therein edged red, Being Subdivision 2 of Selection 21 _____

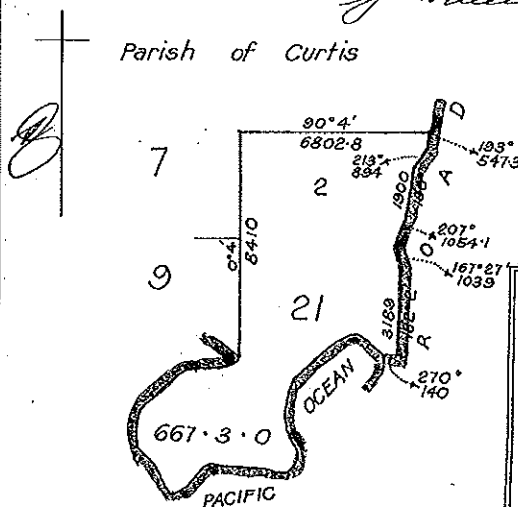
on Plan Cat. No. 2284 deposited in the Office of the Deputy Registrar of Titles, Rockhampton, which said piece of Land is part of the Selection marked 21 delineated in the Public Map of the said Parish _____ deposited in the Office of the Surveyor-General, originally granted by Deed of Grant No. 32353 _____

Saving Always to the Crown all the rights and interests reserved to It by the said Deed of Grant.

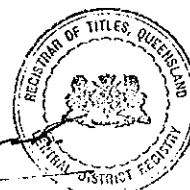
In Witness whereof, I have hereunto signed my name and affixed my seal, this thirtieth day of May One thousand nine hundred and sixtytwo

Signed, Sealed, and Witnessed, the 30th day of May 1962, in presence of _____

Parish of Curtis



Scale, 40 chains per inch.



DEPUTY REGISTRAR OF TITLES,
Central District Registry.

No. C 213575 Bill of Mortgage produced 10 May 1962 at 3.50 p.m., registered 20 May 1962 from John Patrick Bay and Richard Noble Hawes The English Scottish and Australian Bank Limited to secure the repayment of the monies and interest thereon referred to.

DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

Undivided Moieties

No. C.2.19930 Bill of Mortgage
Lucy Heather Jones of 30

Produced 5 Aug 1968
 Registered 9 Aug 1968

DEPT. OF LANDS
 REGISTRAR OF TITLES
 CENTRAL DISTRICT

No. C261872 Transfer of the whole of the land to
Curtis Holdings Pty Ltd

Produced 12 June 1968 at 10.45m Registered 22 June 1968

Cancelled vide 1
 Vol. 350
 Fol. 20

DEP. REGISTRAR OF TITLES
 (CENTRAL DISTRICT)

FULLY CANCELLED

heg
 C261870

heg
 C261871

heg
 C261872

13-6-69

UNDIVIDED MOIETY

Certificate of Title.

VOL: C 282 FOLIO: 663



30292063

(C)

QUEENSLAND



No. C. 49060

Reference to Previous Volume	Folio
275	243

Register Book, Vol. 292 Folio 63

JOHN PATRICK BAIRD

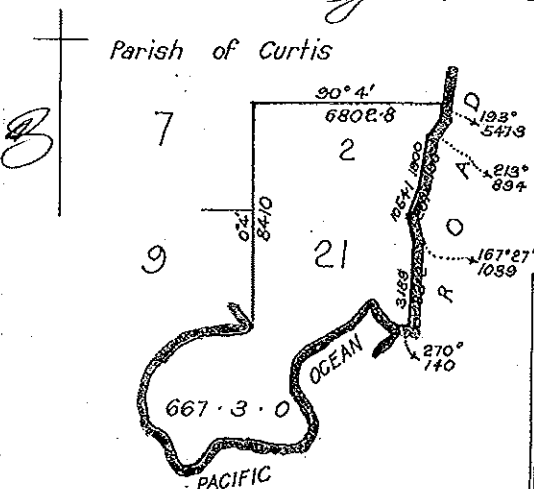
of _____ pursuant to Memorandum of Conveyance No. C 213574 produced the tenth day of May 1962, registered the twentysecond day of May 1962, is now seized of an Estate in Fee-simple, as tenant in common with another in one undivided half part or share, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in All that piece of Land situated in the County of Deas Thompson Parish of Curtis containing Six hundred and sixty-seven acres three roads more or less, as shown on the Plan hereon, and therein edged red, Being Subdivision 2 of Selection 21

on Plan Cat. No. 2284 deposited in the Office of the Deputy Registrar of Titles, Rockhampton, which said piece of Land is part of the Selection marked 21 delineated in the Public Map of the said Parish deposited in the Office of the Surveyor-General, originally granted by Deed of Grant No. 37353

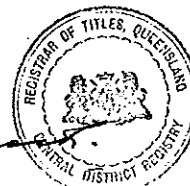
Saving Always to the Crown all the rights and interests reserved to it by the said Deed of Grant.

In Witness whereof, I have hereunto signed my name and affixed my seal, this thirtieth day of May One thousand nine hundred and sixtytwo

Signed, Sealed, and Delivered, the 30th day of May 1962, in presence of



Scale, 40 chains per Inch.




DEPUTY REGISTRAR OF TITLES

Central District Registry.

No. C 213575 Bill of Mortgage produced 10 May 1962 at 3.50 p.m., registered 30 May 1962 from John Patrick Baird and Richard Noel Bailey The English Scottish and Australian Bank Limited to secure the repayment of the monies and interest therein referred to

DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

No. 6261872 Transfer of the whole of the land to
Curtis Holdings Pty Ltd Produced
12 June 1962 at 2-45 m. Registered 22 June 1962
Cancelled vide el Jones
Vol. 35-6 DEP. REGISTRAR OF TITLES
Fol. 26 (CENTRAL DISTRICT)


hp
0261870
0261872

FULLY CANCELLED

Certificate of Title.

VOL 10 275 FOLIO 243



30275243

(C)

QUEENSLAND



No. C. 45740

Reference to Previous

Volume	Folio
131	50

Register Book, Vol. 275 Folio 243

RICHARD NOBLE HAWES

and

LUCY HEATHER HAWES

of wife of Richard John Hawes pursuant to Memorandum of Conveyance No. C. 198278 produced the thirtieth day of July 19 59 registered the thirteenth day of August 19 59 are now seized as joint tenants of an Estate in Fee-simple, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in All that piece of Land situated in the County of Deas Thompson Parish of Curtis containing six hundred and sixty-seven acres three roods.

more or less, as shown on the Plan hereon, and therein edged red, Being Subdivision 2 of Selection 21.

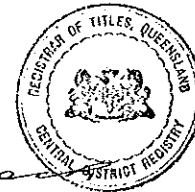
on Plan Cat. No. 2284 deposited in the Office of the Deputy Registrar of Titles, Rockhampton, which said piece of Land is part of the Selection marked 21 delineated in the Public Map of the said Parish deposited in the Office of the Surveyor-General, originally granted by Deed of Grant No. 37353

Saving Always to the Crown all the rights and interests reserved to it by the said Deed of Grant.

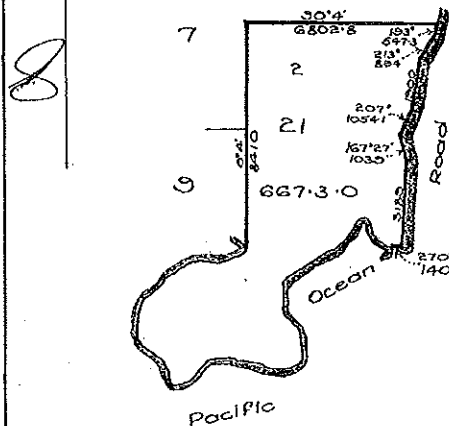
In Witness whereof, I have hereunto signed my name and affixed my seal, this twenty fourth day of August One thousand nine hundred and fifty-nine

Signed, Sealed, and Delivered, the 24th day of August 19 59 In presence of

Parish of Curtis



DEPUTY REGISTRAR OF TITLES,
Central District Registry.



Scale, 40 chains per inch.

No. 098277 BILL OF MORTGAGE produced 30 July 1959 at Rockhampton, in the presence of Richard Noble Hawes and Lucy Heather Hawes from Richard Noble Hawes and Lucy Heather Hawes Bank of Queensland to secure the payment of £10,000 and interest thereon referred to, RELEASE No. 18/11/59 of £10,000 endorsed on 18/11/59 by 18/11/59 DER. REGISTRAR OF TITLES (CENTRAL DISTRICT)

No. C213574 TRANSFER of the whole of the land to Richard
Noble Hawes and John Patrick
Baird produced 10 May 1962 at 3.57pm.
registered 22 May 1962
Cancelled in full
Vide Vol. 292 Folio 62, 63
DEPT. OF LAND & TITLES
CENTRAL DISTRICT

FULLY CANCELLED

Certificate of Title.

VOL. C 131 FOLIO 550



38131050

(C)

QUEENSLAND

No. C. 12704

REFERENCE TO PREVIOUS

VOL. 120 FOLIO 179



REGISTER BOOK, VOL. 131 FOLIO 50

William Henry Renton

of *Gladstone* pursuant to Memorandum of Request No. C 49257 received the *fifth* day of *February* 1919, is now seized of an Estate in Fee-simple, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in All that piece of Land situated in the County of *Deas Thompson* Parish of *Curtis* containing *six hundred and sixteen acres three rods* more or less, as shown on the Plan hereon, and therein edged red, Being *Subdivision two of selection twentyone on Plan bat. No. C 58-2284 deposited in the Office of the Deputy Registrar of Titles Rockhampton.*

which said piece of Land is *part* of the *selection* marked *21* delineated in the Public Map of the said *Parish* deposited in the Office of the Surveyor-General, originally granted by Deed of Grant No. 37353 to *Robert Laidlaw Paterson.*

Saving Allicays to the Crown all the rights and interests reserved to it by the said Deed of Grant.

IN WITNESS whereof, I have hereunto signed my name and affixed my seal this *twentieth* day of *October* One thousand nine hundred and *nineteen*

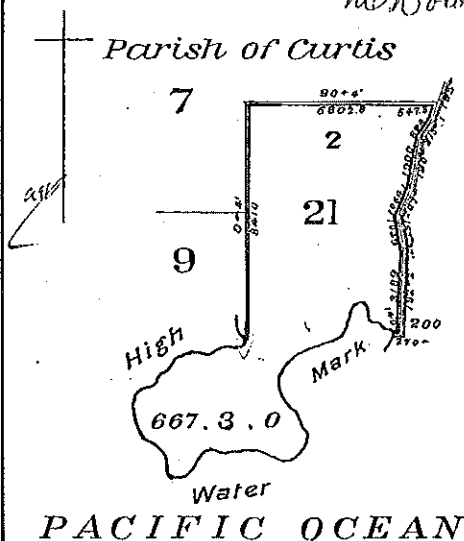
Signed, Sealed, and Delivered, the *27th* day of *October* 1919, in presence of

Not Public

A. L. French



DEPUTY REGISTRAR OF TITLES
CENTRAL DISTRICT.



Scale, 40 chains per inch.

No. C. 42442 Bill of Mortgage produced 2 Feb 1914
 10.6 a. m. registered 2 March 1914
 William Henry Renton
 to Andrew Harper Stewart
 principal sum secured *six hundred pounds*
 repayable 1 Feb. 1921
 interest at the rate of *5%* per centum per annum
 payable half yearly.
A. L. French
 Local Dep. Reg. of Titles.
 (Central District.)

PURSUANT to Memo. of TRANSFER No. C. 105500
produced 21 March 1939 at 12.15 p.m., registered 27 March 1939
Bernest Frederick Byrne
Mary James
of Woolston is now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land.



DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

PURSUANT to Memo. of TRANSFER No. P. 170617
produced 27 March 1957 at 11.0 a.m., registered 12 July 1957
Adam Blake Forsyth and
Edith Hudson Forsyth
his wife are now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land, as joint
tenants.



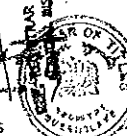
DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

No. C. 105501 Bill of Mortgage produced 21 March 1939 at 12.15 p.m., registered 27 March 1939
from Bernest Frederick Byrne to
the Secretary for Agriculture (Land) Block
to secure the payment of the monies and interest there referred to.



DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

No. P. 170615 BILL OF MORTGAGE produced 27 March 1957 at 11.0 a.m., registered 12 July 1957
from Adam Blake Forsyth and
Edith Hudson Forsyth
his wife to South Wales
as mortgagee and interest there referred to.



DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

PURSUANT to Memo. of TRANSFER No. C. 128350
produced 25 Sept 1939 at 11.0 a.m., registered 14 Nov 1939
Kenneth John Davidson
is now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land.
Subject to Bill of Mortgage No. C. 105501.



ACTING DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

PURSUANT to Memo. of TRANSFER No. C. 198276
produced 30 July 1959 at 10.25 a.m., registered 12 Aug 1959
Jack Frederick Keen and
William Edward Keen
are now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land, as joint
tenants.



DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

PURSUANT to Memo. of TRANSFER No. C. 136979
produced 10 Jan 1948 at 12.10 p.m., registered 4 Sept 1948
Abel Stene, Master
wife of Abel Stene
is now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land.
Subject to Bill of Mortgage No. C. 105501.



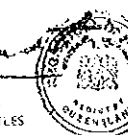
ACTING DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

PURSUANT to Memo. of TRANSFER No. C. 198277
produced 30 July 1959 at 10.25 a.m., registered 12 Aug 1959
Stanley May Howard
wife of Walter Grenier Howard
is now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land.



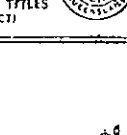
DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

PURSUANT to Memo. of TRANSFER No. P. 170615
produced 27 March 1957 at 11.0 a.m., registered 12 July 1957
Agnes Taylor wife of
George Taylor
is now SEISED of an Estate
IN FEE SIMPLE in the WHOLE of the within Land.



DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

No. C. 198278 TRANSFER of the whole of the land to Richard
Walter Taylor and Mary Taylor
Hawes produced 30 July 1959 at 10.25 a.m.,
registered 12 Aug 1959
Cancelled in full.
Vide Vol. 272. Folio 11.



DEP. REGISTRAR OF TITLES
(CENTRAL DISTRICT)

FULLY CANCELLED

Certificate of Title.

VOL. C 120 FOLIO 179
30120179

C.D. a No. 45

(C)

QUEENSLAND.

No. C. 10673

REFERENCE TO PREVIOUS

Vol. 19 FOLIO 56



REGISTER BOOK, VOL. 120 FOLIO 179

William Henry Penton
of *Widow* *Tanner* pursuant to Memorandum
of Conveyance No. C. 42441— produced the *second*— day of *February*— 1916,
registered the *ninth*— day of *February*— 1916; is now seized— of an Estate
in Fee-simple, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in all that piece
of Land situated in the County of *Deas Thompson*— Parish of *on Curtis Island*—
containing *nine hundred acres*—
more or less, as shown on the Plan hereon, and therein edged red. Being *Selection twentyone*—

which said piece of Land is *the whole*— of the *selection*— marked *21*— delineated in the Public Map
of the said *County*— deposited in the Office of the Surveyor-General, originally granted by Deed— of Grant
No. *37353*— *Mr Robert Laidlaw Paterson*—

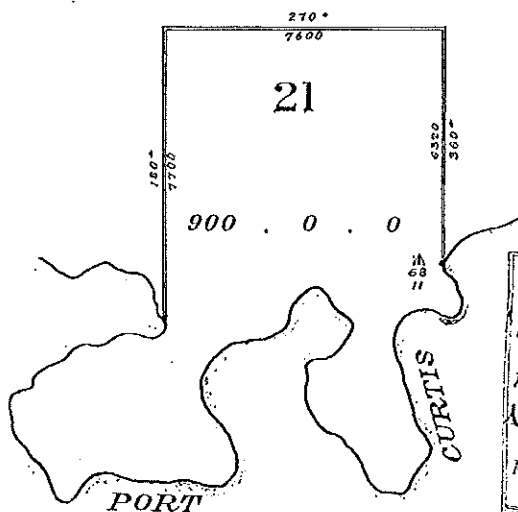
Saving Always to the Crown all the rights and interests reserved to it by the said Deed— of Grant.

IN WITNESS whereof, I have hereunto signed my name and affixed my seal this *eighth*
day of *March*— One thousand nine hundred and *sixteen*—

Signed, Sealed, and Delivered, the *8th*
day of *March*— 1916, in presence of

S. A. Gibroy
County of Deas Thompson

DEPUTY REGISTRAR OF TITLES,
CENTRAL DISTRICT REGISTRY.



Scale, 3 chains per inch.

No. C. 42442 Bill of Mortgage produced *2 Feb 1916*
at *10.60 a.m.* registered *8 March 1916*
from *William Henry Penton*
to *Andrew Harper Stuart*
principal sum secured *five hundred pounds*
repayable *1st Feb 1921*
interest at the rate of *5*— per centum *per annum*
payable *half yearly*— *Andrew Stuart*
Local Dep. Reg. of Titles.
(Central District)

NEW TITLE No. C 28811^a

PURSUANT to Memo. of TRANSFER No. 49256. Produced
5 Feb. 1919 at 11550 m., Regd. 27 Mar. 1919.

His Sovereign Majesty King George V.
is now ISSUED of an Estate, IN FEE SIMPLE in the WHOLE
of 25 aces. & 23 perch. Sub. 3.
of the within land, under

Free from Mortgage
Witnessed by *A. E. J. Junc*
Registrar of Titles

No. 49257 REQUEST to issue Certificate of Title for
16 aces. & 20 perch. Sub. 1. 667 aces. & 20 perch. Sub. 2.
produced 5 day of Feb. 1919, at 11540
Cancered as above
Vide Vol. 131 Folio 49, 50 Local Day. Reg. of Titles.
A. E. J. Junc
Registrar of Titles

Res. C. 44256
Pay. C 44257
14 Feb. 1919

This encasement is
incomplete as per Regd.
No. 42442
K



30019056

No. 37353

County Deas Thompson

Parish

Date of Purchase 19th October 1869Area 900 acres

QUEENSLAND.

A. LAND PURCHASE.

WE DO HEREBY, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and so forth:

TO ALL to whom these Presents shall come, Greeting:—

WHEREAS, in conformity with the Regulations now in force for the ^{sale} Alienation of Crown Lands in Our Territory of Queensland, Robert Laidlaw Paterson of _____ has become the Purchaser of the Land hereinafter described, for the Sum of Three hundred and forty pounds Sterling: We do hereby, That for and in consideration of the said Sum, for and on Our behalf well and truly paid into the Colonial Treasury of Our said Territory before these Presents are issued, And in further consideration of the Quit-Rent hereinafter reserved, We, with the advice of the Executive Council of Queensland have Granted, and for Us, Our Heirs and Successors, do hereby Grant unto the said Robert Laidlaw Paterson his Heirs and Assigns, subject to the several and respective Reservations hereinafter mentioned, All that

Pieces or Parcel of Land in our said Colony containing by Admeasurement Three hundred acres be the same more or less, situated in the County of Deas Thompson and Parish of Twins on Arthur's Island Selection Twenty one Gladstone District. Commencing on the shore of Port Curtis at an Ironbark tree marked 68 and bounded thence on the East by a line bearing North sixty three chains and twenty links on the North by a line bearing West seventy six chains on the West by a line bearing South seventy seven chains to Port Curtis and thence by the waters of that Port Easterly to the point of Commencement Being the land purchased under the 11th section of The Crown Lands Alienation Act of 1868

With all the Rights and appurtenances whatsoever thereto belonging To hold unto the said Robert Laidlaw Paterson his Heirs and Assigns

for ever, Yielding and Paying therefor Yearly unto Us, Our Heirs and Successors, the Quit-Rent of One Peppercorn for ever, if demanded: Provided nevertheless, and We do hereby Reserve unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for making Public Ways, Canals, or Railroads, in, over, and through the same, to be set out by Our Governor for the time being of Our said Colony, or some person by him authorised in that respect; And also all Sand, Clay, Stone, Gravel, and Indigenous Timber, and all other Materials, the natural produce of the said Land, which may be required at any time or times hereafter for the construction and repair of any Public Ways, Bridges, Canals, and Railroads, or any Fences, Embankments, Dams, Sovers, or Drains, necessary for the same, together with the right of taking and removing all such Materials; And we do hereby further Reserve unto Us, Our Heirs and Successors, the right of full and free ingress, egress, and regress, into, out of, and upon the said Land, for the several purposes aforesaid: In Witness Whereof We have caused this Our Grant to be Sealed with the Seal of Our said Colony, Territory

WITNESS Our Trusty and Well-beloved Sir Arthur Edward Kennedy Knight Commander of the most Distinguished Order of St Michael and St George Companion of the most Honourable Order of the Bath Governor and Commander in Chief of QUEENSLAND and its Dependencies, at Government House, Brisbane, in QUEENSLAND aforesaid, this 19th day of October in the Forty second year of Our Reign, and in the year of our Lord One thousand eight hundred and seventy eight (1878) A.E. Kennedy

ENTERED in the Register Book
day of October 1878

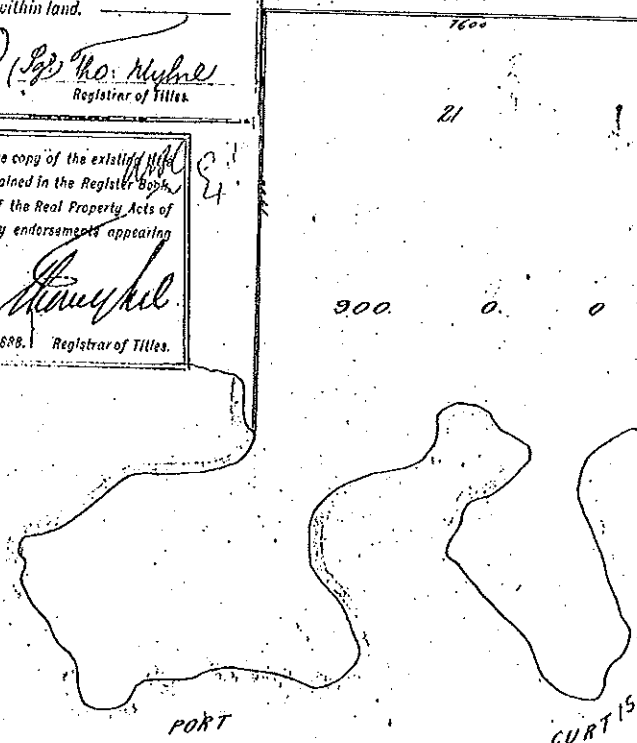
Vol. 337, Folio 113, this Twenty fourth

(sgd) The myler
Dep. Registrar General

NEW TITLE No. 36701^a
 PURSUANT to Memo of TRANSFER No. 100805 Produced
28 Feb 1887 at 3:49 pm Regd. 11 March 1887.
Joseph Dougall
 OF 2nd class SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness (25) John McIvor (23) W. H. Hynes
 Registrar of Titles

I certify the above to be a true copy of the existing title
 to the within land, as contained in the Register Book
 kept under the provisions of the Real Property Acts of
 1861 and 1877, and of any endorsements appearing
 thereon.
Henry Hill
 Registrar of Titles' Office,
 Brisbane, 31 day of December, 1888. Registrar of Titles.

county of Deas Thompson



NEW TITLE No. C.25610^a
 PURSUANT to Memo of TRANSFER No. C.40115 Produced
12 Feb 1915 at 2:52 pm Regd. 16 Feb 1915
Andrew H. H. Stewart
 of 2nd class SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness W. H. Hynes
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

0. C.25610^a TRANSFER of the within land
6 William Henry Stewart prod. 29 Feb
1916 at 10:5 pm registered 9 Feb 1916
 Cancelled 10 Feb 1916
 Title Vol. 120 folio 179
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

NEW TITLE No. C.1658
 PURSUANT to Memo of TRANSFER No. C.3179 Produced
24 Sept 1891 at 10:31 am Regd. 25 Sept 1891
Archibald Menzies of 1st class SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness W. H. Hynes W. H. Hynes
 Local Dep. Reg. of Titles.
 (Central Branch)

scale 10 chains to an inch
 Mac23085 TRANSMISSION BY DEATH. In consequence of the death
 of the above named Archibald Menzies in fee simple
 on the 5 day of September 1905 an estate in the within
 land became transmitted to Margaret Hill Menzies spinster and
Archibald Douglas Menzies as devisees in trust with power of sale
 as appears by Testate Copy of Will and Codicils
 and documentary evidence produced 29 May
1906 at 12:10 pm Entered 30 July 1906
 Subject to W. H. Hynes No. C.22385
W. H. Hynes
 Local Dep. Reg. of Titles.
 (Central Branch)

No. 116 W. H. Hynes 23 November 1893
at 10:5 am entered 24 November 1893
Henry Douglas for adding the within land of
and dealing in the within land
as Equitable Mortgage
W. H. Hynes
 Local Dep. Reg. of Titles.
 (Central Branch)

NEW TITLE No. C.13076^a
 PURSUANT to Memo of TRANSFER No. C.23274 Produced
2 August 1906 at 3:30 pm Regd. 10 August 1906
Montague Beak Maxwell
 OF 1st class SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness W. H. Hynes W. H. Hynes
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

Robert's Bill of Mortgage produced 25 Sept 1905
 at 2:55 am registered 2 Sept 1906
 from Archibald Menzies to
Archibald Menzies
 principal and secured by the within land
 payable per annum
 interest at the rate of 5 per centum per annum
 payable half yearly
W. H. Hynes
 Local Dep. Reg. of Titles.
 (Central Branch)

NEW TITLE No. C.22313
 PURSUANT to Memo of TRANSFER No. C.27434 Produced
11 May 1914 at 2:30 pm Regd. 2 April 1914
The Bears Pastoral Company Limited
 OF 1st class SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness W. H. Hynes
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

FULLY CANCELLED

W. H. Hynes
5/13/14
2/2/14

No. 37353

QUEENSLAND.

County Deas Thompson

Parish _____

A. LAND PURCHASE.

Date of Purchase 19th October 1869

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and so forth:—

Area 900 acres

TO ALL to whom these Presents shall come, Greeting:—

WHEREAS, in conformity with the Regulations now in force for the Sale of Crown Lands in Our Territory of Queensland, _____

Robert Laidlaw Paterson _____ of _____
 has become the Purchaser of the Land hereinafter described, for the Sum of Three hundred and forty pounds _____ Sterling:

Now Know Ye, That for and in consideration of the said Sum, for and on Our behalf well and truly paid into the Colonial Treasury of Our said Territory, before these Presents are issued, And in further consideration of the Quit-Rent hereinafter reserved, We, with the advice of Our Executive Council of Queensland, have granted, and for Us, Our Heirs and Successors, do hereby Grant unto the said _____

Robert Laidlaw Paterson _____ h. ss Heirs and Assigns, subject to the several and respective Reservations hereinafter mentioned, All that Piece or Parcel of Land in Our said Territory, containing by Admeasurement Nine hundred acres _____ be the same more or less, situated in the County of Deas Thompson _____ and Parish of _____ on Curtis Island _____

Selection Twenty one _____ Gladstone district _____ Commencing on the shore of Port Curtis at an Iron bark tree marked 68 and bounded thence on the East by a line bearing North sixty three chains and twenty links ... on the North by a line bearing West seventy six chains on the West by a line bearing South seventy seven chains to Port Curtis and thence by the Waters of that Port Easterly to the point of commencement. _____
 Being the land purchased under the 14th Section of 'The Crown Lands Alienation Act of 1868' _____

with all the Rights and Appurtenances whatsoever thereto belonging:
 To Hold unto the said Robert Laidlaw Paterson _____ h. ss Heirs and Assigns for ever,

Yielding and paying therefor Yearly unto Us, Our Heirs and Successors, the Quit-Rent of One Peppercorn for ever, if demanded: Provided Nevertheless, and We do hereby Reserve unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for making Public Ways, Canals, or Railroads, in, over, and through the same, to be set out by Our Governor for the time being of Our said Territory, or some person by him authorised in that respect; And also all Sand, Clay, Stone, Gravel, and Indigenous Timber, and all other Materials, the natural produce of the said Land, which may be required at any time or times hereafter for the construction and repair of any Public Ways, Bridges, Canals, and Railroads, or any Fences, Embankments, Dams, Sowers, or Drains, necessary for the same, together with the right of taking and removing all such Materials; And We do hereby further Reserve unto Us, Our Heirs and Successors, the right of full and free ingress, egress, and regress, into, out of, and upon the said Land, for the several purposes aforesaid: In Testimony Whereof We have caused this Our Grant to be Sealed with the Seal of Our said Territory.

WITNESS Our Trusty and well-beloved Sir ARTHUR EDWARD KENNEDY, Knight Commander of the Most Distinguished Order of St. Michael and St. George, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of the Colony of QUEENSLAND and its Dependencies, at Government House, Adelaide in QUEENSLAND aforesaid, this _____ day of October in the thirty second year of Our Reign, and in the year of our Lord One thousand eight hundred and seventy-eight

VOL. 5 337 FOL. 113



10337113

ENTERED in the Register Book
 day of October

Vol. 337, Folio 113, this Twenty fourth day of October 1869.

Thompson
Thompson
 Registrar General

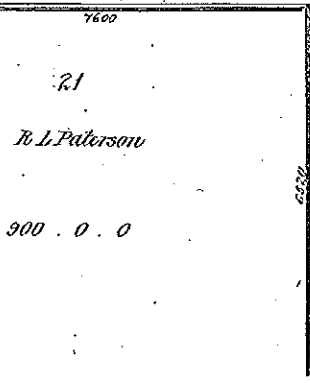
NEW TITLE No. 26701⁰⁰

COUNTY OF DEAR THOMPSON

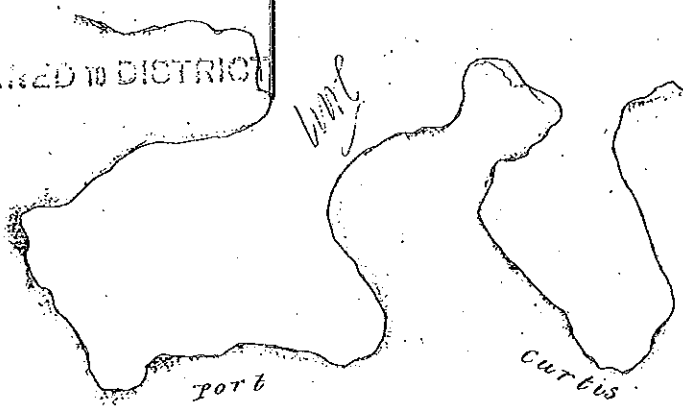
Returned to State of Kansas No. 156865, Prochred
28. July. 1887 of 2.19 p.m. Regd. 11. March 1887.
Joseph Dougall

OF ~~is now~~ SEISED of an Estate IN FEE
SIMPLE in the WHOLE of the within land

Wm. McElroy & Thacker
Attys at Law



TRANSFERRED TO DISTRICT



Scale 20 chains to 1 inch
JL

Appendix D

Lot 6 on Plan DS220

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492

Search Date: 14/09/2011 13:55

Title Reference: 30188070

Date Created: 03/01/1940

REGISTERED OWNER

Dealing No: 713435263 30/08/2010

ARROW CSG (AUSTRALIA) PTY LTD A.C.N. 054 260 650

ESTATE AND LAND

Estate in Fee Simple

LOT 6 CROWN PLAN DS220
County of DEAS THOMPSON Parish of CURTIS
Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 30188070 (POR 6)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713902857	DSI/OFFSET	14/06/2011 10:32	CURRENT

LAND VALUATION ACT 2010

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor



VOL. C 188 FOLIO 070



30188070

Form 1.

Deed of Grant of Land.

No. C9667 Acquired by AGRICULTURAL SELECTION.

George the Sixth, by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India:—

To All to whom these Presents shall come, Greeting:

Whereas, in conformity with the Laws and Regulations in force for the alienation of Crown Land in Our State of Queensland,
STUART RENTON

has become entitled to a Deed of Grant in Fee-simple of the Land hereinafter described: Now Know Ye that, in consideration of the premises and of the sum of Eighty-five pounds two shillings and seven pence

for Us, and on Our behalf, paid into the Treasury of Our said State, and in further consideration of the Quit-Rent hereinafter reserved, We, with the advice of The Executive Council of Our said State, have Granted, and for Us, Our Heirs and Successors, do hereby Grant unto the said

Stuart Renton

his Administrators

and Assigns, subject to the Reservations hereinafter mentioned, All that

Parcel of Land

In Our said State, containing by admeasurement two hundred and two acres two rods

be the same more or less, situated in the County of Deas Thompson—Parish of Curtis, Portion six

Being the land selected as Agricultural Farm No. 1715, Gladstone District:

Commencing at high-water mark of Port Curtis at the south-east corner of portion 7, and bounded thence by that

portion bearing 270 degrees 2 minutes 9 chains 77 $\frac{3}{10}$ links and 270 degrees 4 minutes 5 chains 23 $\frac{6}{10}$ links,

by a road bearing 193 degrees 6 chains 28 $\frac{3}{10}$ links, 213 degrees 8 chains 88 $\frac{1}{2}$ links, 190 degrees 18 chains

88 $\frac{7}{10}$ links, 207 degrees 10 chains 12 $\frac{2}{10}$ links, 167 degrees 27 minutes 9 chains 92 $\frac{6}{10}$ links, and 182 degrees

2 minutes 32 chains 7 $\frac{1}{10}$ links, by portion 21 bearing east 6 chains 90 links to high-water mark aforesaid, and

by that high-water mark north-easterly to the point of commencement.

as shown on Plan of Survey deposited in the Survey Office, with all the Rights and Appurtenances whatsoever thereto belonging, but not including any part of the soil of the said road;

To Hold unto the said Stuart Renton

his Administrators

and Assigns for ever, Yielding and Paying therefor Yearly unto Us, Our Heirs and Successors, the Quit-Rent of One Peppercorn for ever, if demanded: But Subject Nevertheless to the several Conditions and Reservations contained in and declared by "The Land Acts, 1910 to 1937," "The Mining on Private Land Acts, 1909 to 1929," and "The Petroleum Acts, 1923 to 1929": And We do hereby reserve unto Us, Our Heirs and Successors, all Gold and Minerals (the term "Minerals" to have the same meaning as in "The Mining on Private Land Acts, 1909 to 1929"), on and below the surface of the said Land, and all Mines of Gold and Minerals, on and below the surface of the said Land: And We do hereby also reserve unto Us, Our Heirs and Successors, and to such persons as shall from time to time be duly authorised by Us in that behalf, the free right and privilege of access, including ingress, egress, and regress, into, upon, over, and out of the said Land, for the purpose of searching for or working Gold and Minerals, or any of them, or Mines of Gold and Minerals, or any of them, in any part of the said Land: And We do hereby also reserve unto Us, Our Heirs and Successors, all Petroleum (the term "Petroleum" to have the same meaning as in "The Petroleum Acts, 1923 to 1929"), on or below the surface of the said Land: And also all rights of access for the purpose of searching for, and for the operations of obtaining Petroleum in any part of the said Land: And also all rights of way for access and for pipe lines and other purposes requisite for obtaining and conveying Petroleum in the event of Petroleum being obtained in any part of the said Land: And We do also further reserve unto Us, Our Heirs and Successors, all Helium found in association with Petroleum in any part of the said Land: In Testimony Whereof We have caused this Our Grant to be Sealed with the Seal of Our said State.

Witness Our Right Trusty and Well Beloved Counsellor, SIR LESLIE ORME WILSON, Colonel on the Retired List of Our Royal Marines, Knight Grand Commander of Our Most Exalted Order of the Star of India, Knight Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, Knight Grand Commander of Our Most Eminent Order of the Indian Empire, Companion of Our Distinguished Service Order, Governor of Our State of Queensland and its Dependencies, in the Commonwealth of Australia, at Government House, Brisbane, in Queensland aforesaid, this fourteenth day of December in the third year of Our Reign, and in the year of Our Lord One thousand nine hundred and thirty-nine.

ENTERED as—Country Land—in the Register Book, Vol. 259, Folio 265, in the Survey Office, Brisbane, this eighteenth day of December, 1939.

ENTERED in the Register Book, Vol. 188, Folio 70, this third day of January, 1940.

SURVEYOR-GENERAL.

REGISTRAR OF TITLES.

Appendix D

Lot 1 on Plan RP602284

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622780

Search Date: 31/05/2011 13:12

Title Reference: 30131049

Date Created: 27/10/1919

Previous Title: 30120179

REGISTERED OWNER

Dealing No: 713435263 30/08/2010

ARROW CSG (AUSTRALIA) PTY LTD A.C.N. 054 260 650

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 602284
County of DEAS THOMPSON Parish of CURTIS
Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10337113 (SEL 21)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: D APPLICATIONS CITEC CONFIRM

Certificate of Title.

VOL 10 128 FOLIO 178
30120179

C.D. a No. 45

(C)

QUEENSLAND

No. C. 10673

REFERENCE TO PREVIOUS

VOL. 19 FOLIO 56



REGISTER BOOK, VOL. 120 FOLIO 179

William Henry Penton
of *Widow* *Taxman* pursuant to Memorandum
of Conveyance No. C. 42441 produced the *second* day of *February* 1916,
registered the *third* day of *February* 1916, is now seized of an Estate
in Fee-simple, subject nevertheless to such encumbrances, liens, and interests as are by memorandum notified hereon, in *all* that piece
of Land situated in the County of *Deas Thompson* Parish of *on Pinta Island*
containing *nine hundred acres*
more or less, as shown on the Plan hereon, and therein edged red. Being *Selection twentyone*

which said piece of Land is *the whole* of the *selection* marked *21* delineated in the Public Map
of the said *County* deposited in the Office of the Surveyor-General, originally granted by Deed of Grant
No. *37353* *to Robert Sutherland Paterson*.

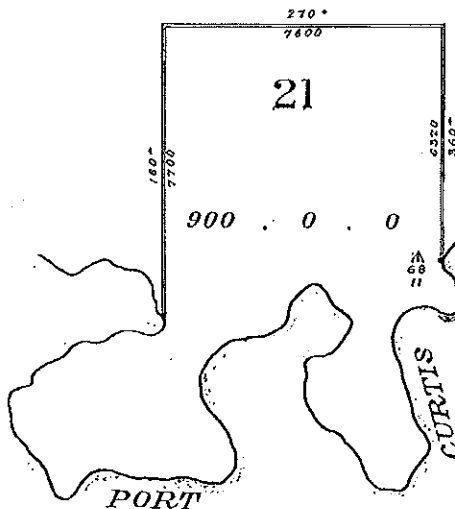
Saving Always to the Crown all the rights and interests reserved to it by the said Deed of Grant.

IN WITNESS whereof, I have hereunto signed my name and affixed my seal this *Eighth*
day of *March* One thousand nine hundred and *sixteen*

Signed, Sealed, and Delivered, the *8th*
day of *March* 1916, in presence of

S. A. Gibroy
County of Deas Thompson

DEPUTY REGISTRAR OF TITLES,
CENTRAL DISTRICT REGISTRY.



Scale, 3 chains per inch.


No. C. 42442 Bill of Mortgage produced *2 Feb 1916*
at *10.60 a.m.* registered *8 March 1916*
from *William Henry Penton*
to *Andrew Harper Pirie*
principal sum secured *five hundred pounds*
repayable *1st Feb 1921*
interest at the rate of *25* per centum per annum
payable *half yearly*
Local Dep. Reg. of Titles.
(Central District)

928
NEW TITLE NO. C 28811^a

PURSUANT to Memo. of TRANSFER No. C 49256. Produced
5 Feb. 1919 at 11580 m., Regd. 27th Mar 1919.

— His Sovereign Majesty King George V. —

is now ISSUED of an Estate IN FEE SIMPLE in the WHOLE
of 25 aces. & 23 pches. Sub. 3.
of the within land, under

Free from Mortgage
Witnessed by
 A. E. N. Punch
Registrar of Titles

No. C 49257 REQUEST to issue Certificate of Title for
76 aces. & 24 pches. Sub. 1. & 667 aces. & 24 pches. Sub. 2.
produced 5 day of Feb. 1919, at 11590
Cancelled as above
Witnessed by
A. E. N. Punch
Vide Vol. 131 Folio 49, 50 Local Day. Reg. of Titles.
(Dated 11th Mar 1919)

Res. C. 44256
Reg. C 49257
24 Feb 1919
[Signature]

This endorsement is
incomplete as Sup. 11th p.
11th C 42442
[Signature]



30819056

No. 37353

County Deas Thompson

Parish

Date of Purchase } 19th October 1869Area 900 acres

QUEENSLAND.

A. LAND PURCHASE.

WE, the Queen, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and so forth:

DO HEREBY to whom these Presents shall come, Greeting:—

WHEREAS, in conformity with the Regulations now in force for the Alienation of Crown Lands in Our Territory of Queensland, Robert Laidlaw Paterson of the Colony has become the Purchaser of the Land hereinafter described, for the Sum of Three hundred and forty pounds Sterling: And Now We, That for and in consideration of the said Sum, for and on Our behalf well and truly paid into the Colonial Treasury of Our said Territory before these Presents are issued, And in further consideration of the Quit-Rent hereinafter reserved, We, with the advice of the Executive Council of Queensland have Granted, and for Us, Our Heirs and Successors, do hereby Grant unto the said Robert Laidlaw Paterson his Heirs and Assigns, subject to the several and respective Reservations hereinafter mentioned, All that

Pieces or Parcel of Land in our said Colony containing by Admeasurement Three hundred acres be the same more or less, situated in the County of Deas Thompson and Parish of Twining or Carters Island Selection Twenty one Gladstone District Commencing on the shore of Port Curtis at an Ironbark tree marked 68 and bounded thence on the East by a line bearing North sixty three chains and twenty links on the North by a line bearing West seventy six chains on the West by a line bearing South seventy seven chains to Port Curtis and thence by the waters of that Port Easterly to the point of Commencement Being the land purchased under the 11th section of The Crown Lands Alienation Act of 1868

With all the Rights and appurtenances whatsoever thereto belonging To wit unto the said Robert Laidlaw Paterson his Heirs and Assigns

for ever, Yielding and Paying therefor Yearly unto Us, Our Heirs and Successors, the Quit-Rent of One Peppercorn for ever, if demanded: Provided Gibraltar, and We do hereby Reserve unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for: making Public Ways, Canals, or Railroads, in, over, and through the same, to be set out by Our Governor for the time being of Our said Colony, or some person by him authorised in that respect; And also all Sand, Clay, Stone, Gravel, and Indigenous Timber, and all other Materials, the natural produce of the said Land, which may be required at any time or times hereafter for the construction and repair of any Public Ways, Bridges, Canals, and Railroads, or any Fences, Embankments, Dams, Sowers, or Drains, necessary for the same, together with the right of taking and removing all such Materials; And we do hereby further Reserve unto Us, Our Heirs and Successors, the right of full and free ingress, egress, and regress, into, out of, and upon the said Land, for the several purposes aforesaid: In Testimony Whereof We have caused this Our Grant to be Sealed with the Seal of Our said Colony, Territory

WITNESS Our Truly and Well-beloved Sir Arthur Edward Kennedy Knight Commander of the most Distinguished Order of St Michael and St George Companion of the most Honourable Order of the Bath Governor and Commander in Chief of QUEENSLAND and its Dependencies, at Government House, Brisbane, in QUEENSLAND aforesaid, this 19th day of October in the forty second year of Our Reign, and in the year of our Lord One thousand eight hundred and seventy eight (1878) A.E. Kennedy

ENTERED in the Register Book
day of October

1878

Vol. 337

Folio 113

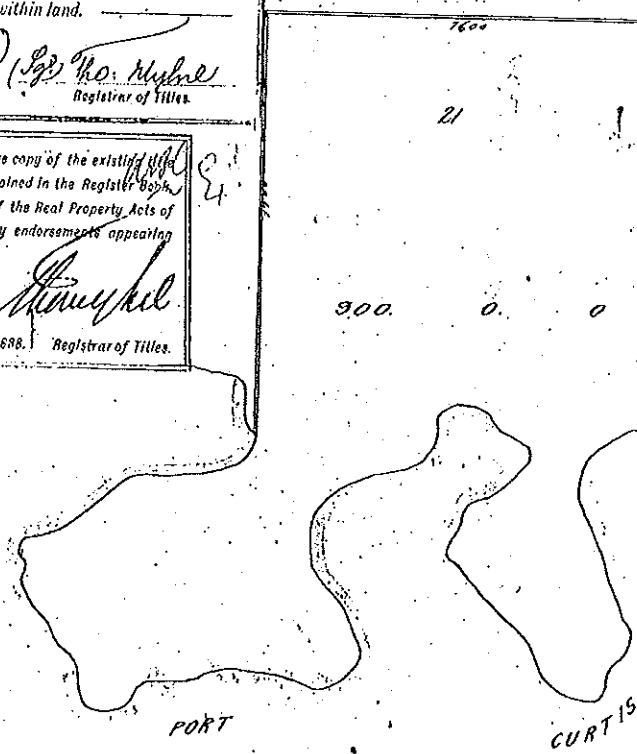
this twenty fourth

(sgd) Thos mylne
Dep. Registrar General

NEW TITLE No. 36701^a
 PURSUANT to Memo of TRANSFER No. 158805 Produced
28 Feb 1887 at 3:19 pm Regd. 11 March 1887
Joseph Dougall
 OF it now SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness (L.S.) (Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles

I certify the above to be a true copy of the existing title
 to the within land, as contained in the Register Book
 kept under the provisions of the Real Property Acts of
 1891 and 1877, and of any endorsements appearing
 thereon.
Henry Kel
 Registrar of Titles' Office,
 Brisbane, 31 day of December, 1888. Registrar of Titles.

county of Deas Thompson



NEW TITLE No. C.25610^a
 PURSUANT to Memo of TRANSFER No. C.44115 Produced
12 Feb 1915 at 2:52 pm Regd. 16 Feb 1915
Andrew H. H. Stewart
 of Robertson now SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness (Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

a. 042441 TRANSFER on the whole of the land
 of William Henry Porter and 29 Feb
1916 at 10:5 pm registered 7 Feb 1916
 Cancelled in full
 Title Vol. 120 1019-179
W. H. Porter
 Local Dep. Reg. of Titles
 CENTRAL BRANCH.

NEW TITLE No. C.1658
 PURSUANT to Memo of TRANSFER No. C.3179 Produced
24 Sept 1891 at 10:31 am Regd. 25 Sept 1891
Archibald Menzies of Torralde near
of Melbourne now SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness (Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

scale 20 chains to an inch
 Mac23065 TRANSMISSION BY DEATH. In consequence of the death
 of the above named Archibald Menzies In fee simple
 on the 5 day of September, 1905, an estate, in the within
 land became transmitted to Margaret M. Menzies, spinster and
Archibald Douglas Menzies as devisees in trust with power of sale
 as appears by Probate Copy of Will and Codicils
 and documentary evidence produced. 29 May
1906 at 12:10 pm Entered 30 July 1906
 Subject to Ch. No. 22385
(Sg) No. Mylne
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

No. C.116 WILL 23 November 1893
at 10:45 am Regd. 24 Nov 1893
Henry Douglas adding the collection of
 and dealing in within land
as Equitable Mortgage
(Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

Robert's Bill of Mortgage produced 25 Sept 1905
 at 2:55 am registered 2 June 1906
 from Archibald Menzies to
Archibald Menzies
 principal and secured by mortgage from Archibald Menzies
 payable per annum
 interest at the rate of 35 per centum per annum
 payable half yearly
(Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

NEW TITLE No. C.13076^a
 PURSUANT to Memo of TRANSFER No. C.23274 Produced
9 August 1906 at 3:30 pm Regd. 10 August 1906
Montague Beak Grazier
 OF Montague Beak now SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness (Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

NEW TITLE No. C.22313
 PURSUANT to Memo of TRANSFER No. C.37537 Produced
11 May 1914 at 2:30 pm Regd. 2 April 1914
The Beak & Co. Pastoral Company Limited
 OF Montague Beak now SEISED of an Estate IN FEE
 SIMPLE in the WHOLE of the within land.
 Witness (Sg) No. Mylne
(Sg) John McEneaney Registrar of Titles
 Local Dep. Reg. of Titles.
 CENTRAL BRANCH.

FULLY CANCELLED

3/11/14
5/3/14
9/2/14

No. 37353

QUEENSLAND.

County Deas Thompson

Parish _____

A. LAND PURCHASE.

Date of Purchase 29th October 1869

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and as forth:—

Area 900 acres

TO ALL to whom these Presents shall come, Greeting:—

WHEREAS, in conformity with the Regulations now in force for the Sale of Crown Lands in Our Territory of Queensland, _____

Robert Laidlaw Paterson _____ of _____
has become the Purchaser of the Land hereinafter described, for the Sum of three hundred and forty pounds _____ Sterling:

Now Know Ye, That for and in consideration of the said Sum, for and on Our behalf well and truly paid into the Colonial Treasury of Our said Territory, before these Presents are issued, And in further consideration of the Quit-Rent hereinafter reserved, We, with the advice of Our Executive Council of Queensland, have granted, and for Us, Our Heirs and Successors, do hereby Grant unto the said _____

Robert Laidlaw Paterson _____ h. as Heirs and Assigns, subject to the several and respective Reservations hereinafter mentioned, All that Piece or Parcel of Land in Our said Territory, containing by Admeasurement Nine hundred acres _____ be the same more or less, situated in the County of Deas Thompson _____ and Parish of _____ on Curtis Island _____Selection Twenty one _____ Gladstone district _____ Commencing on the shore of Port Curtis at an Iron bark tree marked 68 and bounded thence on the East by a line bearing North sixty three chains and twenty links on the North by a line bearing West seventy six chains on the West by a line bearing South seventy seven chains to Port Curtis and thence by the Waters of that Port Easterly to the point of commencement.
Being the land purchased under the 14th Section of 'The Crown Lands Alienation Act of 1868'_____ with all the Rights and Appurtenances whatsoever thereto belonging:
To Hold unto the said Robert Laidlaw Paterson _____ h. as Heirs and Assigns for ever,

Yielding and paying therefor Yearly unto Us, Our Heirs and Successors, the Quit-Rent of One Peppercorn for ever, if demanded: Provided Nevertheless, and We do hereby Reserve unto Us, Our Heirs and Successors, all such parts and so much of the said Land as may hereafter be required for making Public Ways, Canals, or Railroads, in, over, and through the same, to be set out by Our Governor for the time being of Our said Territory, or some person by him authorised in that respect; And also all Sand, Clay, Stone, Gravel, and Indigenous Timber, and all other Materials, the natural produce of the said Land, which may be required at any time or times hereafter for the construction and repair of any Public Ways, Bridges, Canals, and Railroads, or any Fences, Embankments, Dams, Sewers, or Drains, necessary for the same, together with the right of taking and removing all such Materials; And We do hereby further Reserve unto Us, Our Heirs and Successors, the right of full and free ingress, egress, and regress, into, out of, and upon the said Land, for the several purposes aforesaid: In Testimony Whereof We have caused this Our Grant to be Sealed with the Seal of Our said Territory.

WITNESS Our Trusty and well-beloved Sir ARTHUR EDWARD KENNEDY, Knight Commander of the Most Distinguished Order of St. Michael and St. George, Companion of the Most Honourable Order of the Bath, Governor and Commander-in-Chief of the Colony of QUEENSLAND and its Dependencies, at Government House, Brisbane, in QUEENSLAND aforesaid, this 29th October day of _____ in the Thirty second year of Our Reign, and in the year of our Lord One thousand eight hundred and sixty-eight.

VOL: S 337 FOL: 113



10337113

ENTERED in the Register Book
day of October, Vol. 337, Follo 113, this 29th

NEW TITLE No. 26701st

COUNTY OF DEAR THOMPSON

Granted to State of Texas No. 156865 Proved

25. July. 1887. of 2.19 per Regd. 11. March 1887.

Joseph Dargall

OF is now SCISED of an Estate IN FEE
SHEPLE in the WHOLE of the within land

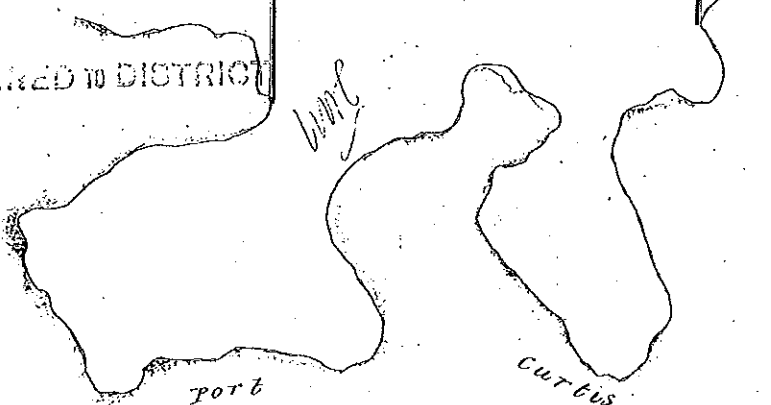
Witnessed by James C. Smith
And of the County of Dear Thompson

21

R. L. Paterson

300 . 0 . 0

TRANSFERRED TO DISTRICT



Scale 20 chains to 1 inch
J.L.

Appendix D

Part of Lot 7 on Plan SP239683

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492

Search Date: 14/09/2011 13:55

Title Reference: 40061197

Date Created: 12/11/2010

DESCRIPTION OF LAND

Tenure Reference: TL 0/234498

LOT 7 SURVEY PLAN 239683
 County of DEAS THOMPSON Parish of CURTIS
 Local Government: GLADSTONE

Area: 118.000000 Ha. (ABOUT)

No Land Description

No Forestry Entitlement Area

No Future Conservation Area

Purpose for which granted:
MARINE FACILITY

TERM OF LEASE

Term and day of beginning of lease

Term: 50 years commencing on 13/10/2010

Expiring on 12/10/2060

REGISTERED LESSEE

THE COORDINATOR-GENERAL

CONDITIONS

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492
Search Date: 14/09/2011 13:55

Title Reference: 40061197
Date Created: 12/11/2010

CONDITIONS

- A78
- (1) The lessee must use the leased land for marine facility purposes and purposes associated thereto..
 - (2) This lease may be forfeited if not used for the purpose stated above.
 - (3) The annual rent must be paid in accordance with the Land Act 1994.
 - (4) The Parties acknowledge that GST may be payable in respect of a supply made under this lease. Where GST becomes payable in respect of a supply made under this lease, the State (lessor) may recover the GST from the lessee by increasing the consideration payable by the lessee to the State by an amount equal to that which the State is obliged to remit to the Commonwealth as GST on the supply and that amount may be recovered from the lessee as part of the money payable to the State under this lease. The State will upon request by the lessee, issue to the lessee a valid GST tax invoice in respect of any taxable supply made under this lease. (NOTE: For the purposes of this condition "GST" means the goods and services tax which results from the enactment of A New Tax System (Goods and Services Tax) Act 1999 and the related Acts which constitute the Commonwealth taxation reform (as amended from time to time)).
 - (5) The lessee must pay the cost of any required survey or re-survey of the leased land.
 - (6) The lessee must control pest plants and animals, on the leased land, in accordance with the Land Protection (Pest and Stock Route Management) Act 2002 and the Local Laws and requirements of the Gladstone Regional Council.
 - (7) The lessee has the responsibility for a duty of care, to take all reasonable and practicable measures to sustainably manage the leased land by conserving the physical, biological, productive and cultural values, either on the leased land or in areas affected by the management of the leased land.
 - (8) The lessee must ensure that the use and development of the leased land conforms to the Planning Scheme, Local Laws and requirements of the Gladstone Regional Council, binding on the lessee.
 - (9) The lessee must give the Minister administering the Land Act 1994, information about the lease, when requested.
 - (10) The lessee must not clear any vegetation on the leased land, unless in accordance with the Sustainable Planning Act 2009.
 - (11) No compensation for improvements or developmental work is payable by the State at the forfeiture, surrender or expiry of the lease, but the lessee has the right to remove the lessee's moveable improvements within a period of six (6) months from the forfeiture, surrender or expiry of the lease, provided all money due by the lessee to the State on any account whatsoever has been paid, or be required to remove those improvements as specified in any further condition of lease.
 - (12) This lease is subject to the Land Act 1994 and all other relevant State and Commonwealth Acts.

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492

Search Date: 14/09/2011 13:55

Title Reference: 40061197

Date Created: 12/11/2010

CONDITIONS

- A90 Further to Condition A78(11), the lessee must remove improvements and rehabilitate the area to the satisfaction of the Minister administering the Land Act 1994 within six (6) months from the date of forfeiture, surrender, or expiry of the lease.
- A91 If the lessee fails to remove the improvements and rehabilitate the area as detailed in Condition A90 above, the Minister administering the Land Act 1994, can remove the improvements and rehabilitate the area and is hereby authorised to do whatever is necessary to effect the said removal and rehabilitation. The said Minister may recover from the lessee the total cost incurred in the said removal and rehabilitation.
- C342 The lessee must comply with any lawful requirements of The Department of Environment and Resource Management, Queensland Primary Industries and Fisheries, the Department of Transport (Maritime Services), Gladstone Ports Corporation Limited, and the Gladstone Regional Council..
- E17 The lessee must manage the leased land in a manner that will protect the natural vegetation, as far as is consistent with the purpose of this lease except to the extent the lessee is lawfully authorised to affect the natural vegetation.
- E23 The lessee must ensure that each and every activity undertaken on the leased land which has the potential to pollute and/or contaminate except to the extent the lessee is lawfully authorised to do so, is carried out in such a manner as to prevent this from occurring.
- G61 The lessee of this lease is not allowed to make an application for conversion in terms of the Land Act 1994.
- H123 The provision of access, further access or services to the leased land will not be the responsibility of the Gladstone Regional Council, nor the State.

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492

Search Date: 14/09/2011 13:55

Title Reference: 40061197

Date Created: 12/11/2010

CONDITIONS

- I66 The lessee indemnifies and agrees to keep indemnified the Minister administering the Land Act 1994, and the State of Queensland, (the "Indemnified parties") against all actions, suits, proceedings, claims, demands, costs, losses, damages and expenses ("Claim") arising out of or in any way connected to or resulting from the granting of this lease to the lessee or which is connected to or resulting from the lessees' use and occupation of the leased land (all of which are referred to as "the indemnified acts or omissions") save to the extent that the Claim arises as a result of any negligent act or omission of the Indemnified parties, however, any negligent act or omission of one of the Indemnified parties does not negate the indemnity to any of the other Indemnified party/ies. The lessee hereby releases and discharges the Indemnified parties from any Claim relating to the indemnified acts or omissions which may be made against the Indemnified parties.

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492

Search Date: 14/09/2011 13:55

Title Reference: 40061197

Date Created: 12/11/2010

CONDITIONS

- I69 (1) The lessee must effect a public liability insurance policy with an insurer authorised under the Insurance Act 1973 (Commonwealth) or, in any other case, to the satisfaction of the Minister administering the Land Act 1994, naming the lessee as the insured covering legal liability for any loss of, or damage to any property and for the injury (including death) to any person arising out of anything done or omitted on or about the leased land or any improvements thereon and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect thereof subject to the terms and conditions of the insurance policy. Such policy must:
- (a) be for an amount of not less than Twenty Million dollars (\$20,000,000.00) in respect of all claims arising out of a single event or such higher amounts as the Minister may reasonably require;
 - (b) be effected on a "claims occurring" basis so that any claim made by the lessee under the policy after expiration of the period of policy cover but relating to an event occurring during the currency of the policy will be covered by the policy subject to the claim meeting the policy's other terms and conditions;
 - (c) be effected on such other reasonable terms and conditions as may be required by the Minister; and
 - (d) be maintained at all times during the currency of the lease .
- (2) The lessee must, as soon as practicable, inform the Minister administering the Land Act 1994, in writing, of the occurrence of any event that the lessee considers is likely to give rise to a claim under the policy of insurance effected and must ensure that the Minister administering the Land Act 1994 kept fully informed of subsequent actions and developments concerning the claim.
- (3) The lessee must renew such policy, at the lessees' expense, each year during the currency of this lease and forward a certificate of currency to the Minister administering the Land Act 1994 within 14 days of the commencement of each respective renewal period.
- (4) Upon receipt of a Notice of Cancellation, the lessee must immediately effect another public liability policy in accordance with the provisions of this condition.
- (5) Clause (1) of this condition will be satisfied if the lessee is the State of Queensland or a statutory authority eligible for cover under the Queensland Government Insurance Fund and is insured and continues to be insured by the Queensland Government Insurance Fund.
- (6) Clause (1) of this condition will be satisfied if the lessee is the Commonwealth of Australia or a statutory authority eligible for cover under the Comcover Insurance Fund and is insured and continues to be insured by Comcover.

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316492

Search Date: 14/09/2011 13:55

Title Reference: 40061197

Date Created: 12/11/2010

CONDITIONS

L110 The lessee must , to the satisfaction of The Minister administering the Land Act 1994, and any other relevant authority, ensure disturbance to surrounding vegetation on the lease area is kept to a minimum as far as far as is consistent with the purposes of this lease, and that all improvements are maintained on the leased land in a good and substantial state of repair.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Lease No. 40061197
2. COVENANT No 713746092 07/03/2011 at 13:00
restricts dealings over
LOT 4 ON SP235936 AND LOT 7 ON SP239683

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: External Supervisor

Appendix D

Lot 1 on Plan SP235026

Lot 3 on Plan SP235026

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622777

Search Date: 31/05/2011 13:12

Title Reference: 50823111

Date Created: 09/09/2010

Previous Title: 50479454

50479455

REGISTERED OWNER

Dealing No: 713396223 06/08/2010

GLADSTONE PORTS CORPORATION LIMITED A.C.N. 131 965 896

ESTATE AND LAND

Estate in Fee Simple

LOT 3 SURVEY PLAN 235026

County of CLINTON

Parish of CALLIOPE

Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40036415 (Lot 3 on SP 144433)
Deed of Grant No. 40040295 (Lot 1 on SP 147891)
Deed of Grant No. 40040298 (Lot 4 on SP 147891)
2. EASEMENT No 712869587 17/11/2009 at 10:14
benefiting
PART OF THE LAND FORMERLY LOT 1 ON SP157699
OVER EASEMENT A ON SP225917

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Requested By: D APPLICATIONS CITEC CONFIRM

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316443
Search Date: 14/09/2011 13:51

Title Reference: 50479455
Date Created: 02/02/2004

Previous Title: 50434800
50475014
50475022

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316459

Search Date: 14/09/2011 13:52

Title Reference: 50475014

Date Created: 30/12/2003

Previous Title: 40040295

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316459

Search Date: 14/09/2011 13:52

Title Reference: 50434800

Date Created: 08/04/2003

Previous Title: 40036415

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316459

Search Date: 14/09/2011 13:52

Title Reference: 50475022

Date Created: 30/12/2003

Previous Title: 40040298

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor

[Form 1.1]

Title Reference: 40040298



QUEENSLAND

DEED OF GRANT OF LAND

Land Act 1994



Elizabeth the Second, by the Grace of God, Queen of Australia,
and Her other Realms and Territories, Head of the Commonwealth:-

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WE, with the advice of the Executive Council, under the Land Act 1994, grant in fee simple all that parcel of land described in Schedule 1 to the person described in Schedule 2,

SUBJECT TO the reservations and conditions specified, and such other reservations and conditions as may be contained in and declared by the laws of the State.

Specified Reservations -

- (a) All minerals (as defined by the Mineral Resources Act 1989) on and below the surface of the land
- (b) The right of access for the purpose of searching for and working any mines (as defined by the Mineral Resources Act 1989) in any part of the land
- (c) All petroleum (as defined by the Petroleum Act 1923) on and below the surface of the land
- (d) All rights of access for the purpose of searching for and for the operations of obtaining petroleum in any part of the land, and all rights of way for access and for pipelines and other purposes requisite for obtaining and conveying petroleum in the event of petroleum being obtained in any part of the said land
- (e) All quarry material (as defined by the Forestry Act 1959) on and below the surface of the land

Specified Conditions - Nil

IN TESTIMONY WHEREOF, WE have caused this OUR grant to be sealed with the Seal of the State of Queensland.

WITNESS our Trusty and Well-beloved Her Excellency Quentin Bryce, Companion of the Order of Australia, Governor in and over the State of Queensland and its Dependencies, in the Commonwealth of Australia, at Government House, Brisbane, in Queensland aforesaid, this 18th day of December, in the 52nd Year of Our Reign and in the year of Our Lord 2003.

SCHEDULE 1 - DESCRIPTION OF LAND

Lot/Plan County
4/SP147891 CLINTON

Parish
CALLIOPE

Area 8713 Sq m.

Note: For details of description, dimensions and marking of boundaries refer to plan mentioned above.

SCHEDULE 2 - GRANTEE

THE STATE OF QUEENSLAND (REPRESENTED BY THE DEPARTMENT OF STATE DEVELOPMENT)

[Form 1.1]



Title Reference: 40036415

QUEENSLAND

DEED OF GRANT OF LAND



40036415

Land Act 1994

Elizabeth the Second, by the Grace of God, Queen of Australia,
and Her other Realms and Territories, Head of the Commonwealth:-

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WE, with the advice of the Executive Council, under the Land Act 1994, grant in fee simple all that parcel of land described in Schedule 1 to the person described in Schedule 2.

SUBJECT TO the reservations and conditions specified, and such other reservations and conditions as may be contained in and declared by the laws of the State.

Specified Reservations -

- (a) All minerals (as defined by the Mineral Resources Act 1989) on and below the surface of the land
- (b) The right of access for the purpose of searching for and working any mines (as defined by the Mineral Resources Act 1989) in any part of the land
- (c) All petroleum (as defined by the Petroleum Act 1923) on and below the surface of the land
- (d) All rights of access for the purpose of searching for and for the operations of obtaining petroleum in any part of the land, and all rights of way for access and for pipelines and other purposes requisite for obtaining and conveying petroleum in the event of petroleum being obtained in any part of the said land

Specified Conditions - Nil

IN TESTIMONY WHEREOF, WE have caused this OUR grant to be sealed with the Seal of the State of Queensland.

WITNESS our Trusty and Well-beloved His Excellency Major General Peter Arnison, AC, CVO, Governor in and over the State of Queensland and its Dependencies, in the Commonwealth of Australia at Government House, Brisbane, in Queensland aforesaid, this 3rd day of April, in the 52nd Year of Our Reign and in the year of Our Lord 2003.

SCHEDULE 1 - DESCRIPTION OF LAND

Lot/Plan	County	Parish
3/SP144433	DEAS THOMPSON..	TARGINIE

Area 17.23 Ha.

Note: For details of description, dimensions and marking of boundaries refer to plan mentioned above.

SCHEDULE 2 - GRANTEE

THE STATE OF QUEENSLAND (REPRESENTED BY THE DEPARTMENT OF STATE DEVELOPMENT-GLR 24332)

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316374

Search Date: 14/09/2011 13:47

Title Reference: 50823110

Date Created: 09/09/2010

Previous Title: 50479454

REGISTERED OWNER

Dealing No: 713396222 06/08/2010

THE MINISTER FOR INDUSTRIAL DEVELOPMENT OF QUEENSLAND

ESTATE AND LAND

Estate in Fee Simple

LOT 1 SURVEY PLAN 235026
 County of CLINTON Parish of CALLIOPE
 Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40040295 (Lot 1 on SP 147891)
2. EASEMENT No 712869587 17/11/2009 at 10:14
benefiting the land over
EASEMENT A ON SP225917

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Requested By: External Supervisor

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316408

Search Date: 14/09/2011 13:49

Title Reference: 50479454

Date Created: 02/02/2004

Previous Title: 50475014

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316431

Search Date: 14/09/2011 13:50

Title Reference: 50475014

Date Created: 30/12/2003

Previous Title: 40040295

This Title Has Been Fully Cancelled.

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

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Requested By: External Supervisor

[Form 1.1]

Title Reference: 40040295



QUEENSLAND

DEED OF GRANT OF LAND



40040295

Land Act 1994

Elizabeth the Second, by the Grace of God, Queen of Australia,
and Her other Realms and Territories, Head of the Commonwealth:-

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WE, with the advice of the Executive Council, under the Land Act 1994, grant in fee simple all that parcel of land described in Schedule 1 to the person described in Schedule 2.

SUBJECT TO the reservations and conditions specified, and such other reservations and conditions as may be contained in and declared by the laws of the State.

Specified Reservations -

- (a) All minerals (as defined by the Mineral Resources Act 1989) on and below the surface of the land
- (b) The right of access for the purpose of searching for and working any mines (as defined by the Mineral Resources Act 1989) in any part of the land
- (c) All petroleum (as defined by the Petroleum Act 1923) on and below the surface of the land
- (d) All rights of access for the purpose of searching for and for the operations of obtaining petroleum in any part of the land, and all rights of way for access and for pipelines and other purposes requisite for obtaining and conveying petroleum in the event of petroleum being obtained in any part of the said land
- (e) All quarry material (as defined by the Forestry Act 1959) on and below the surface of the land

Specified Conditions - Nil

IN TESTIMONY WHEREOF, WE have caused this OUR grant to be sealed with the Seal of the State of Queensland.

WITNESS our Trusty and Well-beloved Her Excellency Quentin Bryce, Companion of the Order of Australia, Governor in and over the State of Queensland and its Dependencies, in the Commonwealth of Australia, at Government House, Brisbane, in Queensland aforesaid, this 18th day of December, in the 52nd Year of Our Reign and in the year of Our Lord 2003.

SCHEDULE 1 - DESCRIPTION OF LAND

Lot/Plan	County
1/SP147891	CUNTON

Parish
CALLIOPE

Area 214.6 Ha.

Note. For details of description, dimensions and marking of boundaries refer to plan mentioned above.

SCHEDULE 2 - GRANTEE

THE STATE OF QUEENSLAND (REPRESENTED BY THE DEPARTMENT OF STATE DEVELOPMENT)

Appendix D

Lot 2 on Plan SP147871

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622779

Search Date: 31/05/2011 13:12

Title Reference: 50471794

Date Created: 09/12/2003

Previous Title: 40038820

REGISTERED OWNER

Dealing No: 707391953 16/01/2004

THE MINISTER FOR INDUSTRIAL DEVELOPMENT OF QUEENSLAND

ESTATE AND LAND

Estate in Fee Simple

LOT 2 SURVEY PLAN 147871
 County of CLINTON Parish of CALLIOPE
 Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40038820 (Lot 2 on SP 147871)
2. EASEMENT IN GROSS No 707456448 09/02/2004 at 12:39
burdening the land
ERGON ENERGY CORPORATION LIMITED
over
EASEMENT B ON SP159092

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

**** End of Current Title Search ****

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Requested By: D APPLICATIONS CITEC CONFIRM

{Form 1.1}

Title Reference: 40038820



QUEENSLAND

DEED OF GRANT OF LAND



Land Act 1994

Elizabeth the Second, by the Grace of God, Queen of Australia,
and Her other Realms and Territories, Head of the Commonwealth:-

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WE, with the advice of the Executive Council, under the Land Act 1994, grant in fee simple all that parcel of land described in Schedule 1 to the person described in Schedule 2.

SUBJECT TO the reservations and conditions specified, and such other reservations and conditions as may be contained in and declared by the laws of the State.

Specified Reservations -

- (a) All minerals (as defined by the Mineral Resources Act 1989) on and below the surface of the land
- (b) The right of access for the purpose of searching for and working any mines (as defined by the Mineral Resources Act 1989) in any part of the land
- (c) All petroleum (as defined by the Petroleum Act 1923) on and below the surface of the land
- (d) All rights of access for the purpose of searching for and for the operations of obtaining petroleum in any part of the land, and all rights of way for access and for pipelines and other purposes requisite for obtaining and conveying petroleum in the event of petroleum being obtained in any part of the said land
- (e) All quarry material (as defined by the Forestry Act 1959) on and below the surface of the land

Specified Conditions - Nil

IN TESTIMONY WHEREOF, WE have caused this OUR grant to be sealed with the Seal of the State of Queensland.

WITNESS our Trusty and Well-beloved Her Excellency Quentin Bryce, Companion of the Order of Australia, Governor in and over the State of Queensland and its Dependencies, in the Commonwealth of Australia, at Government House, Brisbane, in Queensland aforesaid, this 4th day of December, in the 52nd Year of Our Reign and in the year of Our Lord 2003.

SCHEDULE 1 - DESCRIPTION OF LAND

Lot/Plan	County	Parish
2/SP147871	CLINTON	CALLIOPE
Area 23.28 Ha.		

Note: For details of description, dimensions and marking of boundaries refer to plan mentioned above.

SCHEDULE 2 - GRANTEE

THE STATE OF QUEENSLAND (REPRESENTED BY THE DEPARTMENT OF STATE DEVELOPMENT)

Appendix D

Lot 200 on Plan CTN 2173

CURRENT RESERVE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12315899

Search Date: 14/09/2011 13:08

Title Reference: 49016660

Date GAZETTED: 29/06/1985

PAGE: 1511

Opening Ref: B 2003 SUB O
Purpose: PARK AND RECREATION
Sub-Purpose:
Local Name: PARK, CLINTON
Address: CLINTON
County (R) No: R611 CLINTON
File Ref: RES 22066

TRUSTEES

GLADSTONE REGIONAL COUNCIL Gazetted on 29/06/1985 Page
1511

LAND DESCRIPTION

LOT 200 CROWN PLAN CTN2173 GAZETTED ON 16/06/1990 PAGE 884
County of CLINTON Parish of AUCKLAND
Local Government: GLADSTONE

Area: 71.560000 Ha. (ABOUT)

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Reserve Search **

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Requested By: External Supervisor

HISTORICAL RESERVE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12335623

Search Date: 16/09/2011 15:15

Title Reference: 49016660

Date GAZETTED: 29/06/1985

PAGE: 1511

Creating Dealing: 701416446

Opening Ref: B 2003 SUB O

Purpose: PARK AND RECREATION

Sub-Purpose:

Local Name: PARK, CLINTON

Address: CLINTON

County (R) No: R611 CLINTON

File Ref: RES 22066

TRUSTEES

GLADSTONE REGIONAL COUNCIL Gazetted on 29/06/1985 Page 1511

AMENDMENT TO RESERVE TRUSTEES No 707088049

FROM

GLADSTONE CITY COUNCIL GAZETTED ON 29/06/1985 PAGE 1511

ADDRESS:

TO

COUNCIL OF THE CITY OF GLADSTONE GAZETTED ON 29-JUN-1985

PAGE 1511

ADDRESS:

IN ACCORDANCE WITH LOCAL GOVERNMENT ACT 1993

Lodged at 14:20 on 15/10/2003

LAND DESCRIPTION

LOT 200 CROWN PLAN CTN2173 GAZETTED ON 16/06/1990 PAGE 884
County of CLINTON Parish of AUCKLAND
Local Government: GLADSTONE

Area: 71.560000 Ha. (ABOUT)

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Historical Reserve Search **

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Requested By: External Supervisor

Appendix D

Lot 32 on Plan USL 15325

HISTORICAL STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12335838

Search Date: 16/09/2011 15:31

Title Reference: 47014096

Date Created: 30/09/2006

OWNER

THE STATE OF QUEENSLAND

(REPRESENTED BY DEPARTMENT OF ENVIRONMENT AND RESOURCE
MANAGEMENT)

OWNERSHIP CORRECTION No 713813702

from

THE STATE OF QUEENSLAND (REPRESENTED BY THE DEPARTMENT OF
NATURAL RESOURCES AND WATER)

to

THE STATE OF QUEENSLAND

(REPRESENTED BY DEPARTMENT OF ENVIRONMENT AND RESOURCE
MANAGEMENT)

Lodged at 09:43 on 18/04/2011

ESTATE

Estate in Unallocated State Land

LOT 32 CROWN PLAN USL15325

Local Government: GLADSTONE

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

**** End of Historical State Tenure Search ****

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: External Supervisor

Appendix D

Lot 46 on Plan SP235946

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 11622778

Search Date: 31/05/2011 13:12

Title Reference: 50829109

Date Created: 04/11/2010

Previous Title: 30280186

REGISTERED OWNER

Dealing No: 713825656 27/04/2011

ARROW ENERGY PTY LTD A.C.N. 078 521 936

ESTATE AND LAND

Estate in Fee Simple

LOT 46 SURVEY PLAN 235946

County of DEAS THOMPSON Parish of TARGINIE

Local Government: GLADSTONE

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 30280186 (POR 44)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - Yes 03/05/2011 713825662 Certificate No. 1

** End of Current Title Search **

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Requested By: D APPLICATIONS CITEC CONFIRM

Form 1.



Deed of Grant of Land.

VOL: C 280 FOLIO: 186



30280186

C 12033

Acquired by: AGRICULTURAL SELECTION

Elizabeth the Second, by the Grace of God, of the United Kingdom, Australia, and Her other Realms and Territories, Queen,
Head of the Commonwealth, Defender of the Faith:—

To All in whose three Hereditary shall come, Whithin

Whereas

In conformity with the Laws and Regulations in force for the alienation of Crown Land in Our State of Queensland,
RUTH SLINGSBY BUTLER, wife of Frank Wally Butler,

has become entitled to a Deed of Grant in Fee-simple of the land hereinafter described: Now know Ye that, in consideration of the premises and of the sum of ONE HUNDRED AND SEVENTY-SIX POUNDS EIGHTEEN SHILLINGS AND NINE PENCE, for Us, and on Our behalf, paid into the Treasury of Our said State, and in further consideration of the Quit-Rent hereinafter reserved, We, with the advice of The Executive Council of Our said State, have granted, and for Us, Our Heirs and Successors, do hereby Grant unto the said RUTH SLINGSBY BUTLER,

her Administrators

and Assigns, subject to the Reservations hereinafter mentioned, All that

containing by admeasurement THREE HUNDRED AND FIFTY-THREE ACRES SEVEN ROODS TWENTY PERCHES, Parcel of Land in Our said State,
be the same more or less, situated in the County of DEAN STOMPNEY, Parish of TARGUIE, PERTHLY FORTY-FOUR,

Being the land enclosed as Agricultural Para No. 2190 Gladstone District.

Commencing at the south-east corner of portion 42, and bounded thence by that portion bearing 89 degrees 51 minutes 30 seconds 89 chains 32 7/10 links, by portion 43 and a road bearing 179 degrees 53 minutes 30 seconds 33 chains 71 4/10 links; and thence by roads bearing 228 degrees 12 minutes 8 chains 43 3/10 links, 277 degrees 14 minutes 30 seconds 9 chains 53 2/10 links, 231 degrees 51 minutes 13 chains 88 6/10 links, 269 degrees 44 minutes 30 seconds 50 chains 67 1/10 links, 351 degrees 52 minutes 7 chains 18 3/10 links, 2 degrees 3 minutes 2 chains 32 1/2 links, 12 degrees 1 minute 15 chains 31 4/10 links and 327 degrees 38 minutes 26 chains 62 1/2 links to the point of commencement;

as shown on plan of Survey deposited in the Survey Office, with all the Rights and Appurtenances whatsoever thereto belonging, but not including any part of the soil of the said roads or any of them.

To Hold unto the said RUTH SLINGSBY BUTLER,

her Administrators

and Assigns for ever, Yielding and Paying therefor Yearly unto Us, Our Heirs and Successors, the Quit-Rent of One Penny per acre for ever, if demanded; But Subject Nevertheless to the several Conditions and Reservations contained in and declared by "The Land Acts, 1910 to 1959," "The Mining on Private Land Acts, 1909 to 1960," and "The Petroleum Acts, 1923 to 1955"; And We do hereby reserve unto Us, Our Heirs and Successors, all Gold and Minerals (the term "Minerals" to have the same meaning as in "The Mining on Private Land Acts, 1909 to 1960"), on and below the surface of the said Land, and all Mines of Gold and Minerals, on and below the surface of the said Land; And We do hereby also reserve unto Us, Our Heirs and Successors, and to such persons as shall from time to time be duly authorised by Us in that behalf, the free right and privilege of access, including ingress, egress, and regress, into, upon, over, and out of the said Land, for the purpose of searching for or working Gold and Minerals, or any of them, or Mines of Gold and Minerals, or any of them, in any part of the said Land; And We do hereby also reserve unto Us, Our Heirs and Successors, all Petroleum (the term "Petroleum" to have the same meaning as in "The Petroleum Acts, 1923 to 1955"), on or below the surface of the said Land; And also all rights of access for the purpose of searching for, and for the operations of obtaining and conveying Petroleum in the event of Petroleum being obtained in any part of the said Land; And We do also further reserve unto Us, Our Heirs and Successors, all Helium found in association with Petroleum in any part of the said Land; In Testimony Whereof We have caused this Our Grant to be Sealed with the Seal of Our said State.

Witness Our Trusty and Well-beloved SIR HENRY ABEL SMITH, Colonel on the Retired List of the Corps of Household Cavalry, Knight Commander of Our Royal Victorian Order, Companion of Our Distinguished Service Order, Governor in and over Our State of Queensland and its Dependencies, in the Commonwealth of Australia, at Government House, Brisbane, in Queensland aforesaid, this eighth day of December in the ninth year of Our Reign, and in the year of Our Lord One thousand nine hundred and sixty.

Henry Abel Smith

ENTERED as Country Land in the Register Book, Vol. 313, Folio 33, in the Survey Office, Brisbane, this thirteenth day of December, 1960.

Deputy Surveyor-General.

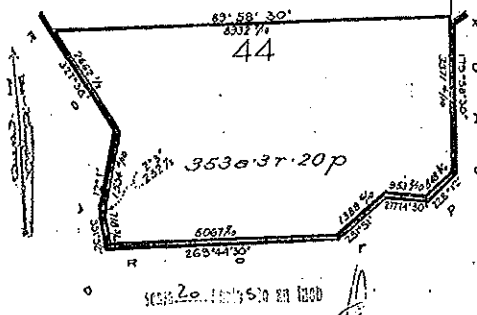
ENTERED in the Register Book, Vol. 280, Folio 186, this twenty-second day of December, 1960.

Deputy Registrar of Titles.

Parish of Targintie

42

43



Produced by D.S. 290

No. C. 257383 the registered proprietor having died on 3 Mar 1967, the within land is transmitted to Richard Wells Butler and Frank William Wells Butler as devisees in trust Under Will dated 11 Oct. 1961. Produced 27 Mar. 1968 at 11.30 am Entered 15 Jan. 1968. *[Signature]* DEP. REGISTRAR OF TITLES (CENTRAL DISTRICT)

Frank William Wells Butler now seized of an Estate in fee-simple in the within land. Transfer No. C88759 Produced 4 July 1972 at 12.20 pm Registered 16 July 1972. *[Signature]* DEP. REGISTRAR OF TITLES (CENTRAL DISTRICT)

HC491018 PRODUCED 20 Jan 1985 A PROVISIONAL Deed of Grant was issued on 27 MAR 1985. ACTING DEPUTY REGISTRAR OF TITLES (CENTRAL DISTRICT) THE DESCRIPTION OF THE WITHIN LAND IS CONVERTED TO LOT(s) 14. ON REGISTERED PLAN No. DS 290 26 NOV 1985 *[Signature]* ACTING DEPUTY REGISTRAR OF TITLES (CENTRAL DISTRICT)

[Handwritten signature]
C457385.

[Handwritten signature]
J. C. 209597

5.7.72

[Handwritten signature]
Reg. Prov.
C457385.

Appendix D

Part of Lot 69 on Plan P4247

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12316374

Search Date: 14/09/2011 13:47

Title Reference: 47023882

Date Created: 09/02/2007

OWNER

THE STATE OF QUEENSLAND

(REPRESENTED BY THE MINISTER FOR INDUSTRIAL DEVELOPMENT OF
QUEENSLAND)

ESTATE

Estate in Unallocated State Land

LOT 69 CROWN PLAN P4247

Local Government: GLADSTONE

Exclusive of PLANS AS SHOWN ON THE DCDB

EASEMENTS AND ENCUMBRANCES

1. EASEMENT IN GROSS No 702112051 23/07/1997 at 15:45
Burdening
LOT 69 ON P4247
TO
PGT AUSTRALIA PTY LIMITED A.C.N. 070 948 451
OVER LOT H ON CTN801351
2. CHANGE OF NAME No 712190912 29/01/2009 at 16:17
EASEMENT IN GROSS: 702112051
ALINTA DQP PTY LTD A.C.N. 083 050 284 TENANT IN COMMON 3/4
DEI QUEENSLAND PIPELINE PTY LIMITED A.C.N. 083 050 104
TENANT IN COMMON 1/4
3. CHANGE OF NAME No 712190915 29/01/2009 at 16:18
EASEMENT IN GROSS: 702112051
ALINTA DQP PTY LTD A.C.N. 083 050 284 TENANT IN COMMON 3/4
ALINTA DEQP PTY LTD A.C.N. 083 050 104 TENANT IN COMMON 1/4
4. TRANSFER No 703185672 23/02/1999 at 12:22
of
EASEMENT IN GROSS: 702112051
DUKE QUEENSLAND PIPELINE PTY LTD A.C.N. 083 050 284
TENANT IN COMMON 3/4
DEI QUEENSLAND PIPELINE PTY LIMITED A.C.N. 083 050 104
TENANT IN COMMON 1/4

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

**** End of Current State Tenure Search ****

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: External Supervisor

HISTORICAL STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12335602

Search Date: 16/09/2011 15:14

Title Reference: 47023882

Date Created: 09/02/2007

OWNER

THE STATE OF QUEENSLAND

(REPRESENTED BY THE MINISTER FOR INDUSTRIAL DEVELOPMENT OF
QUEENSLAND)

OWNERSHIP CORRECTION No 713898616

from

THE STATE OF QUEENSLAND

(REPRESENTED BY THE MINISTER FOR INDUSTRIAL DEVELOPMENT)

to

THE STATE OF QUEENSLAND

(REPRESENTED BY THE MINISTER FOR INDUSTRIAL DEVELOPMENT OF
QUEENSLAND)

Lodged at 13:08 on 09/06/2011

CORRECTION OF OWNER DETAILS No 710569367

THE STATE OF QUEENSLAND

(REPRESENTED BY THE MINISTER FOR INDUSTRIAL DEVELOPMENT)

Lodged at 15:56 on 09/05/2007

ESTATE

Estate in Unallocated State Land

LOT 69

CROWN PLAN P4247

Local Government: GLADSTONE

Exclusive of PLANS AS SHOWN ON THE DCDB

EASEMENTS AND ENCUMBRANCES

1. CHANGE OF NAME No 712190915

EASEMENT IN GROSS: 702112051

ALINTA DQP PTY LTD A.C.N. 083 050 284 TENANT IN COMMON 3/4

ALINTA DEQP PTY LTD A.C.N. 083 050 104 TENANT IN COMMON 1/4

Lodged at 16:18 on 29/01/2009

2. CHANGE OF NAME No 712190912

EASEMENT IN GROSS: 702112051

ALINTA DQP PTY LTD A.C.N. 083 050 284 TENANT IN COMMON 3/4

DEI QUEENSLAND PIPELINE PTY LIMITED A.C.N. 083 050 104

TENANT IN COMMON 1/4

Lodged at 16:17 on 29/01/2009

3. TRANSFER No 703185672

of

EASEMENT IN GROSS: 702112051

DUKE QUEENSLAND PIPELINE PTY LTD A.C.N. 083 050 284

TENANT IN COMMON 3/4

DEI QUEENSLAND PIPELINE PTY LIMITED A.C.N. 083 050 104

TENANT IN COMMON 1/4

Lodged at 12:22 on 23/02/1999

HISTORICAL STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12335602

Search Date: 16/09/2011 15:14

Title Reference: 47023882

Date Created: 09/02/2007

EASEMENTS AND ENCUMBRANCES

4. EASEMENT IN GROSS No 702112051
Burdening
LOT 69 ON P4247
TO
PGT AUSTRALIA PTY LIMITED A.C.N. 070 948 451
OVER LOT H ON CTN801351
Lodged at 15:45 on 23/07/1997

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Historical State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: External Supervisor

Appendix D

Registered Plans

Land Title Act 1994 ; Land Act 1994
Form 21 Version 2

SURVEY PLAN

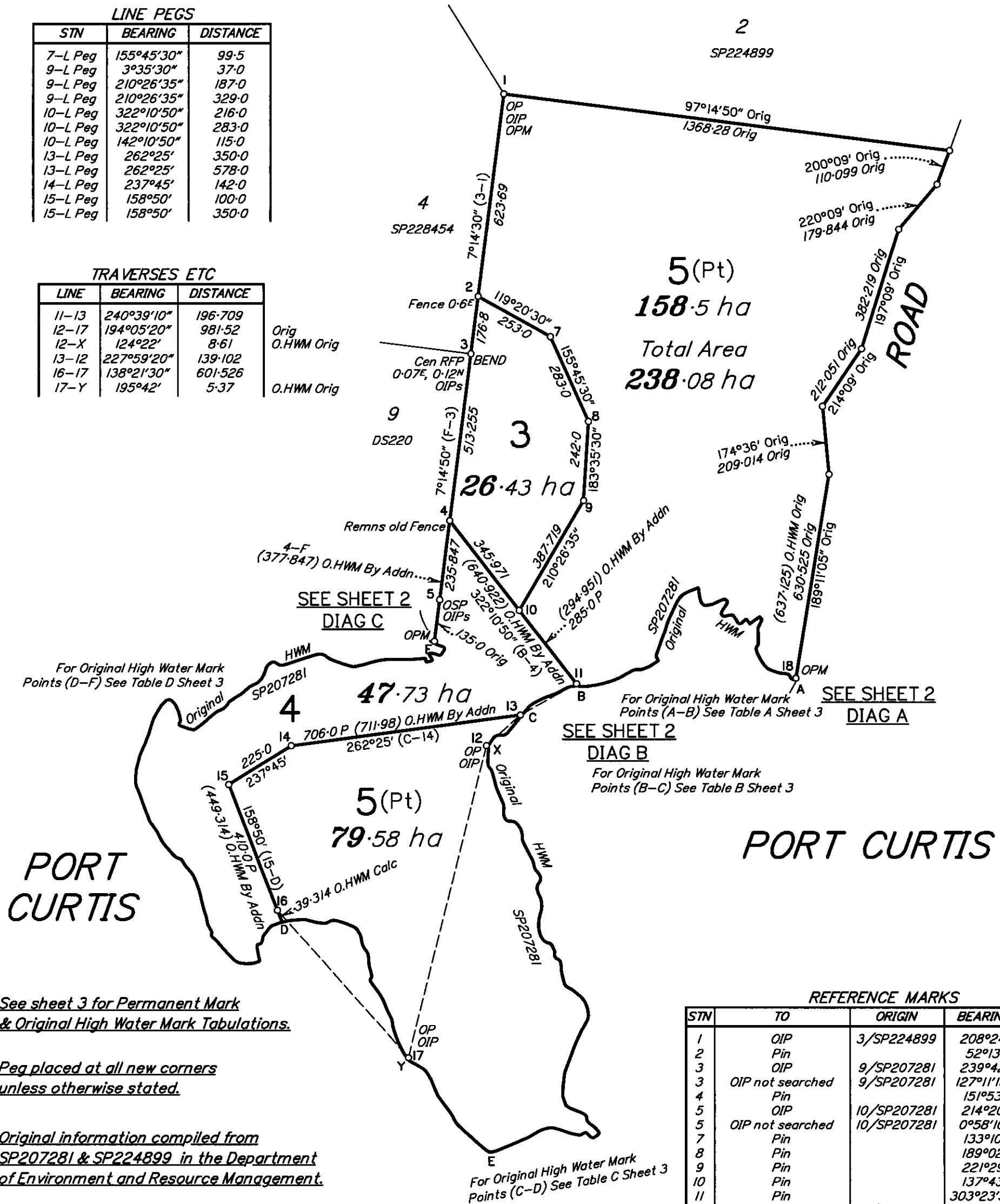
Sheet 1 of 3

LINE PEGS		
STN	BEARING	DISTANCE
7-L Peg	155°45'30"	99.5
9-L Peg	3°35'30"	37.0
9-L Peg	210°26'35"	187.0
9-L Peg	210°26'35"	329.0
10-L Peg	322°10'50"	216.0
10-L Peg	322°10'50"	283.0
10-L Peg	142°10'50"	115.0
13-L Peg	262°25'	350.0
13-L Peg	262°25'	578.0
14-L Peg	237°45'	142.0
15-L Peg	158°50'	100.0
15-L Peg	158°50'	350.0

TRAVERSES ETC		
LINE	BEARING	DISTANCE
11-13	240°39'10"	196.709
12-17	194°05'20"	981.52
12-X	124°22'	8.61
13-12	227°59'20"	139.102
16-17	138°21'30"	601.526
17-Y	195°42'	5.37

Orig
O.HWM Orig

O.HWM Orig



See sheet 3 for Permanent Mark
& Original High Water Mark Tabulations.

Peg placed at all new corners
unless otherwise stated.

Original information compiled from
SP207281 & SP224899 in the Department
of Environment and Resource Management.

Reserved plan of survey under section 65(4)(a)(i)
of the Survey and Mapping Infrastructure Act 2003.

REFERENCE MARKS				
STN	TO	ORIGIN	BEARING	DIST
1	OIP	3/SP224899	208°24'	4.478
2	Pin		52°13'	1.332
3	OIP	9/SP207281	239°42'	2.09
3	OIP not searched	9/SP207281	127°11'15"	107.317
4	Pin		151°53'	3.458
5	OIP	10/SP207281	214°20'	4.238
5	OIP not searched	10/SP207281	0°58'10"	79.02
7	Pin		133°10'	1.202
8	Pin		189°02'	3.771
9	Pin		221°29'	2.143
10	Pin		137°43'	2.811
11	Pin		303°23'30"	11.406
12	OIP	13/SP207281	215°41'	1.049
13	Pin		76°48'40"	5.782
14	Pin		250°44'	3.519
14	Pin		324°31'	1.663
15	Pin		338°23'	3.151
16	Pin		338°36'50"	8.495
17	OIP	14/SP207281	329°52'	1.105

JONES FLINT & PIKE PTY. LTD. (ACN 050 414 045) hereby certify
that the land comprised in this plan was surveyed by the
corporation, by William John Charles BURVILL, Cadastral Surveyor,
for whose work the corporation accepts responsibility, and that
the plan is accurate, that the said survey was performed in
accordance with the Survey and Mapping Infrastructure Act 2003
and Surveyors Act 2002 and associated Regulations and
Standards and that the said survey was completed on 13/05/2010.



Director
Date 21/06/2010

0 625m 1250m 1875m State copyright reserved.	
Plan of Lots 3-5	
Cancelling Lot 2 on SP207281	
PARISH: CURTIS	COUNTY: Deas Thompson
Meridian: MGA Zone 56 Vide SP207281	F/N's: No
Scale: 1:12500	
Format: STANDARD	
SP235936	
Plan Status:	

713390999

BE 400 NT

NO FEE
04/08/2010 12:21

WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.

Registered

5. Lodged by

THE COORDINATOR-GENERAL
PO Box 15009, CITY EAST QLD 4002
Phone: (07) 3405 8555
Acquisition@dip.qld.gov.au
Lodger Code 163A

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

I/We THE COORDINATOR-GENERAL

(Names in full)

*as Registered Owners of this land agree to this plan and dedicate the Public Use
Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.

*as Lessees of this land agree to this plan.

Signature of *Registered Owners *Lessees



Colin Leslie Bunker
Department of Infrastructure and Planning
As delegate of The Coordinator-General
under s.11 of the State Development and
Public Works Organisation Act 1971

* Rule out whichever is inapplicable

2. Local Government Approval.

*

hereby approves this plan in accordance with the :

%

Dated this day of

#

#

* Insert the name of the Local Government. % Insert Integrated Planning Act 1997 or
Insert designation of signatory or delegation Local Government (Planning & Environment) Act 1990

3. Plans with Community Management Statement :

CMS Number :

Name :

4. References :

Dept File :

Local Govt :

Surveyor : G3000-01

6. Existing

Title Reference	Description	New Lots	Road	Emts	Cov.	Profit a prendre
50736935	Lot 2 on SP207281	3-5				

NIR's 713041192 & 713041193 are satisfied by this plan.

3-5

SEL 21

Lots

Orig

7. Portion Allocation :

8. Map Reference :

9150-31124

9. Locality :

CURTIS ISLAND

10. Local Government :

GLADSTONE R.C.

11. Passed & Endorsed :

By : 
ACN 050 414 045
Date : 22/6/10

Signed : 
Designation : Cadastral Surveyor L.O.

12. Building Format Plans only.

I certify that :

* As far as it is practical to determine, no part
of the building shown on this plan encroaches
onto adjoining lots or road,
* Part of the building shown on this plan
encroaches onto adjoining * lots and road

Cadastral Surveyor/Director * Date
* delete words not required

13. Lodgement Fees :

Survey Deposit	\$
Lodgement	\$
..... New Titles	\$
Photocopy	\$
Postage	\$
TOTAL	\$

14. Insert
Plan
Number

SP235936

DIAGRAM A

SCALE 1:250

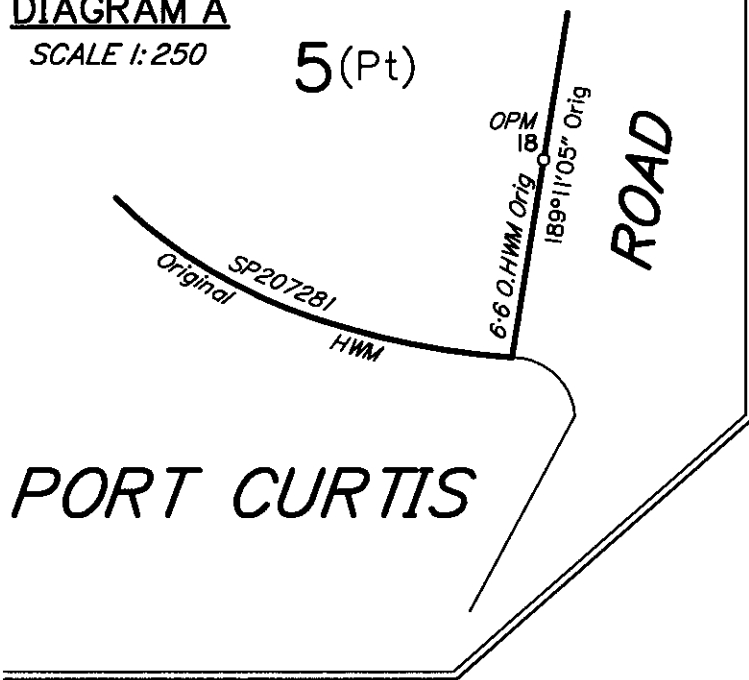


DIAGRAM B

SCALE 1:1000

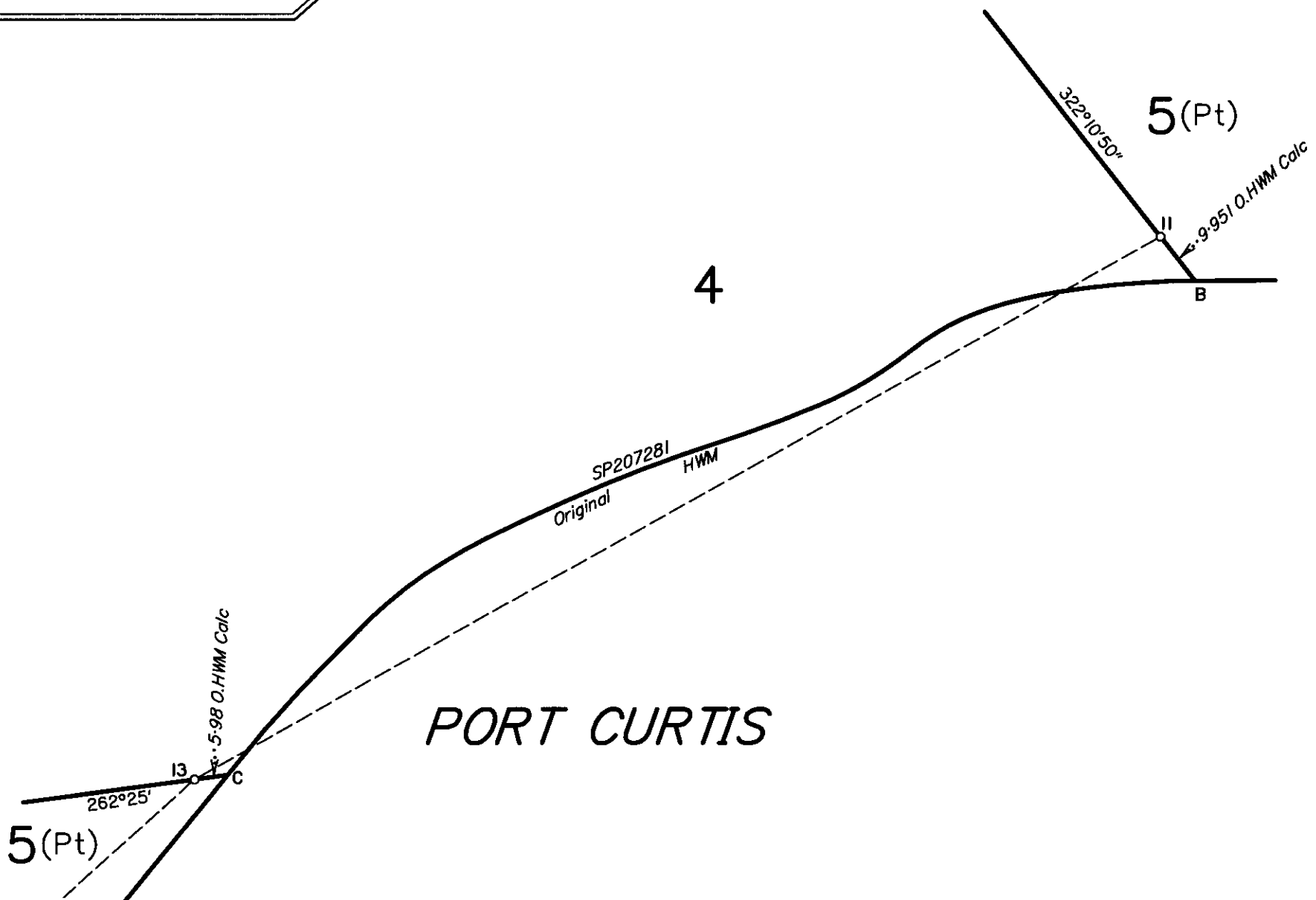
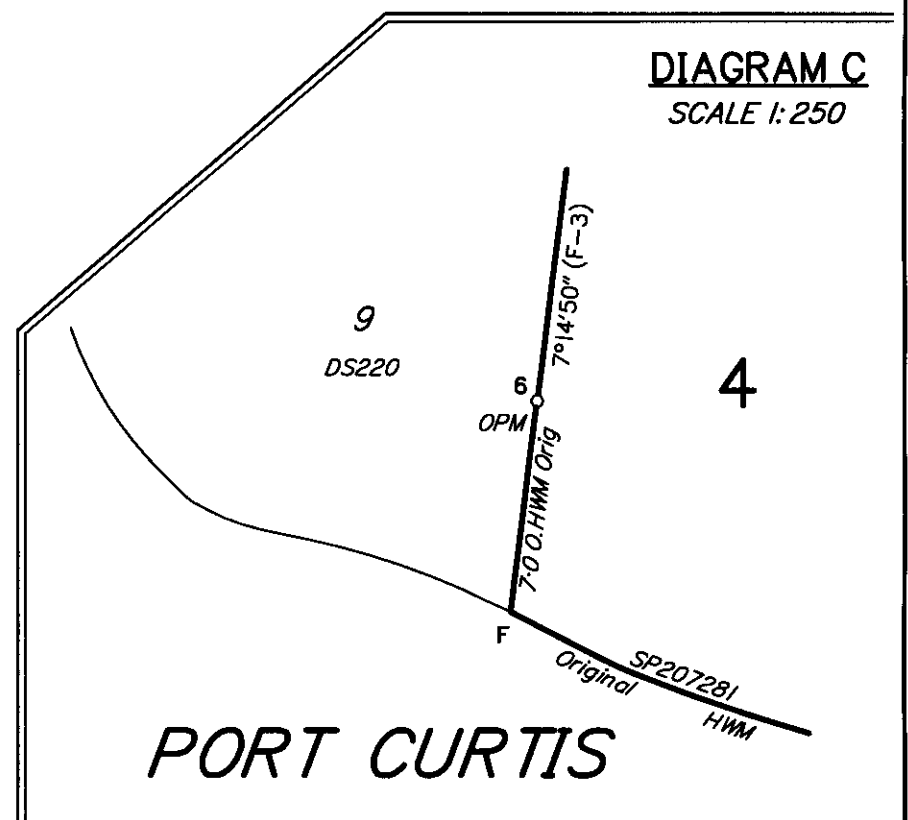


DIAGRAM C

SCALE 1:250



State copyright reserved.

Insert
Plan
Number
SP235936

TABLE A

ORIG. HWM POINTS		
BEARING	DISTANCE	
A 288°41'	12.089	Orig
324°07'	17.134	Orig
280°23'	34.687	Orig
290°56'	28.735	Orig
321°35'	42.011	Orig
341°01'	34.011	Orig
27°46'	13.087	Orig
359°42'	49.881	Orig
23°05'	27.324	Orig
318°02'	11.134	Orig
234°22'	35.585	Orig
321°28'	17.009	Orig
234°13'	21.161	Orig
287°56'	10.442	Orig
324°23'	28.266	Orig
261°44'	26.233	Orig
313°14'	9.544	Orig
26°25'	41.944	Orig
312°24'	10.679	Orig
250°05'	51.699	Orig
267°30'	13.364	Orig
317°42'	16.777	Orig
348°39'	31.901	Orig
349°40'	9.381	Orig
247°09'	45.42	Orig
229°31'	18.234	Orig
208°04'	55.68	Orig
203°23'	24.852	Orig
196°45'	30.515	Orig
201°31'	29.767	Orig
198°16'	52.102	Orig
161°29'	16.845	Orig
242°21'	55.966	Orig
265°11'	27.785	Orig
239°52'	43.073	Orig
248°03'	33.234	Orig
255°22'	44.597	Orig
261°28'	24.595	Orig
269°42'	30.211	B Calc

TABLE B

ORIG. HWM POINTS		
BEARING	DISTANCE	
B 269°42'	4.368	Calc
261°26'	32.465	Orig
240°31'	35.027	Orig
249°47'	39.474	Orig
243°29'	36.313	Orig
225°50'	39.92	Orig
219°09'	10.306	C Calc

TABLE C

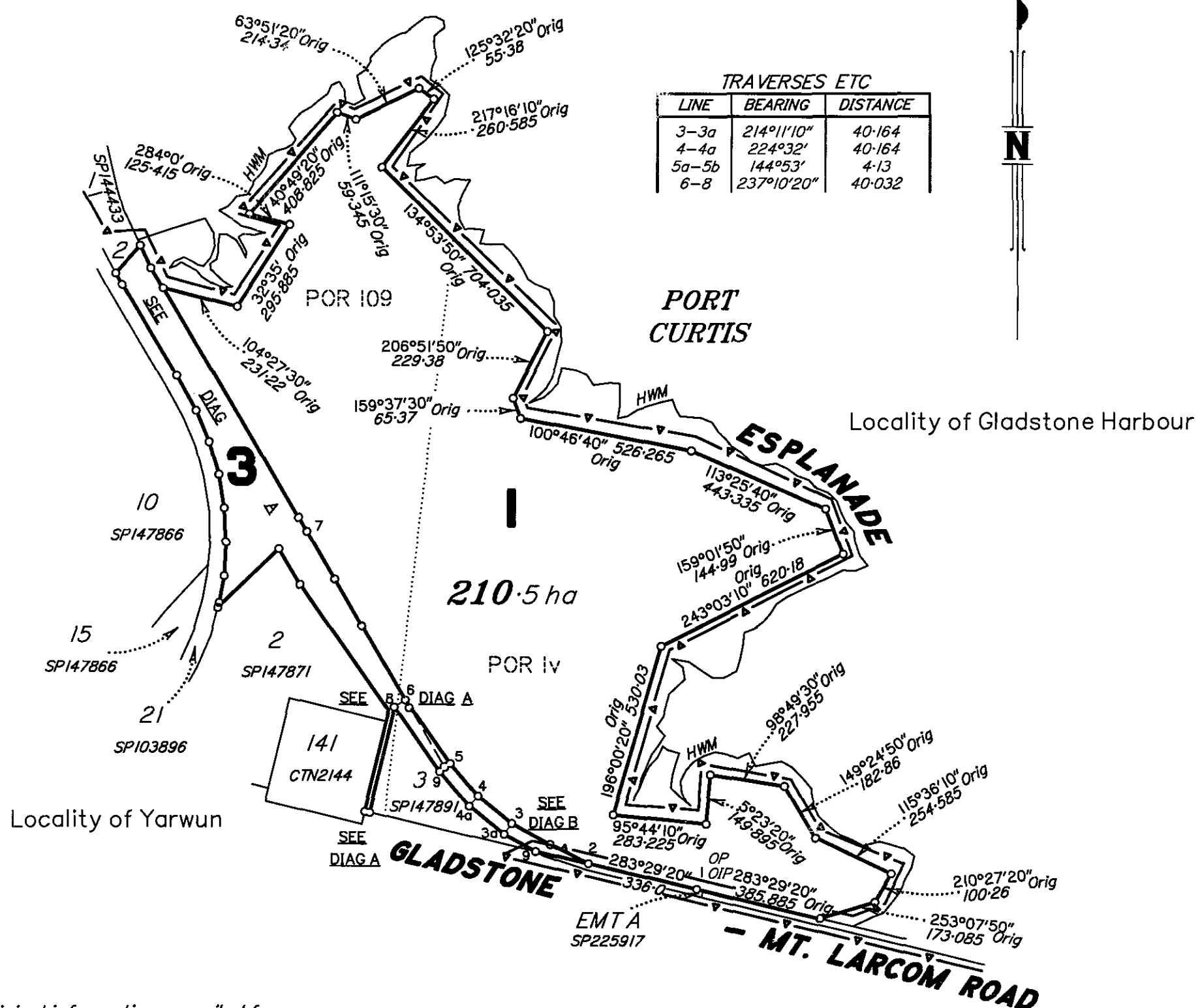
ORIG. HWM POINTS		
BEARING	DISTANCE	
C 219°09'	69.095	Calc
249°17'	47.627	Orig
206°19'	31.591	X Orig
186°48'	10.822	Orig
181°26'	43.627	Orig
150°55'	23.916	Orig
162°39'	14.554	Orig
164°57'	35.798	Orig
156°53'	51.801	Orig
173°35'	44.5	Orig
117°54'	45.332	Orig
149°46'	21.118	Orig
170°11'	36.914	Orig
153°05'	32.529	Orig
150°40'	27.062	Orig
164°24'	24.772	Orig
147°27'	30.996	Orig
192°12'	42.285	Orig
161°03'	39.293	Orig
176°16'	11.634	Orig
190°06'	53.948	Orig
174°35'	28.003	Orig
145°51'	38.764	Orig
105°18'	10.384	Orig
147°29'	25.174	Orig
173°37'	21.26	Orig
128°52'	20.004	Orig
172°12'	40.173	Orig
162°55'	34.831	Orig
122°31'	30.167	Orig
129°12'	20.695	Orig
137°49'	24.864	Orig
155°57'	16.877	Orig
176°27'	42.781	Orig
209°17'	38.391	Orig
204°59'	44.691	Orig
201°05'	45.587	Orig
199°39'	45.029	Orig
188°0'	32.461	Orig
183°50'	31.294	Orig
165°33'	39.749	Orig
116°34'	66.156	Orig
160°03'	21.119	Orig
131°16'	34.216	Orig
145°16'	15.778	Orig
232°36'	24.199	Orig
305°27'	27.23	Orig
247°20'	19.403	Orig
283°42'	93.601	Orig
253°38'	33.606	Orig
239°43'	38.921	Orig
245°59'	56.515	Orig
253°06'	72.122	E Orig
307°18'	34.096	Orig
311°27'	28.402	Orig
314°0'	69.058	Orig
330°18'	34.177	Orig
323°50'	69.845	Orig
337°23'	54.041	Orig
326°15'	34.351	Orig
302°41'	60.315	Y Orig
330°10'	58.932	Orig
339°23'	41.437	Orig
349°08'	34.38	Orig
333°06'	28.066	Orig
337°34'	38.25	Orig
327°26'	26.795	Orig
324°0'	38.6	Orig
14°49'	17.54	Orig
344°21'	29.358	Orig
354°14'	36.191	Orig
329°39'	31.518	Orig
346°24'	35.599	Orig
324°23'	25.777	Orig
294°12'	28.27	Orig
285°21'	40.277	Orig
253°13'	31.421	Orig
276°45'	26.254	Orig
285°07'	31.858	Orig
267°32'	38.493	Orig
258°26'	33.562	D Calc

TABLE D

ORIG. HWM POINTS		
BEARING	DISTANCE	
D 258°26'	8.234	Calc
244°45'	32.242	Orig
217°39'	30.195	Orig
197°20'	24.416	Orig
232°29'	16.761	Orig
172°21'	31.917	Orig
165°53'	12.891	Orig
246°50'	24.598	Orig
281°28'	57.117	Orig
315°35'	32.884	Orig
319°03'	47.932	Orig
312°39'	16.235	Orig
352°40'	18.934	Orig
330°34'	21.425	Orig
347°30'	25.949	Orig
343°10'	36.252	Orig
347°35'	33.886	Orig
342°28'	34.888	Orig
335°09'	30.145	Orig
320°45'	37.302	Orig
328°39'	16.295	Orig
299°26'	25.208	Orig
316°38'	28.937	Orig
320°12'	26.309	Orig
332°34'	36.335	Orig
326°28'	43.925	Orig
339°10'	34.684	Orig
340°12'	45.424	Orig
337°46'	32.146	Orig
356°55'	24.263	Orig
4°53'	24.678	Orig
13°03'	28.571	Orig
15°34'	18.775	Orig
23°13'	36.753	Orig
20°39'	31.659	Orig
17°24'	35.024	Orig
18°03'	12.933	Orig
27°22'	19.03	Orig
35°41'	46.306	Orig
77°25'	17.307	Orig
142°01'	31.021	Orig
157°33'	17.462	Orig
168°57'	21.295	Orig
193°24'	14.893	Orig
112°12'	30.663	Orig
102°34'	16.035	Orig
54°56'	35.542	Orig
49°05'	47.001	Orig
61°10'	35.832	Orig
38°36'	25.287	Orig
57°12'	41.456	Orig
49°27'	32.587	Orig
61°27'	28.881	Orig
36°10'	32.022	Orig
15°49'	18.651	Orig
43°56'	23.675	Orig
101°46'	37.266	Orig
73°44'	30.579	Orig
71°33'	66.109	Orig
81°39'	24.874	Orig
118°35'	38.107	Orig
109°49'	31.737	Orig
105°34'	33.146	Orig
79°44'	35.425	Orig
73°50'	34.178	Orig
80°52'	36.022	Orig
89°29'	75.91	Orig
86°42'	42.153	Orig
159°21'	11.485	Orig
74°51'	17.937	Orig
334°32'	23.064	Orig
95°59'	36.685	Orig
24°34'	24.577	Orig
291°47'	33.089	F Orig

PERMANENT MARKS

PM	ORIGIN	BEARING	DIST	NO	MARK TYPE	
1-OPM	3/SP224899	292°24'50"	511.709	43555	Standard	Orig
6-OPM	11/SP207281	9°17'30"	12.816	173102	Star Picket	Orig
18-OPM	6/SP207281	104°33'40"	10.017	173101	Star Picket	Orig



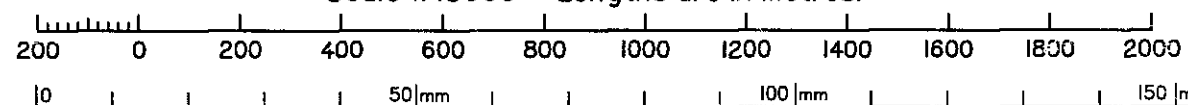
Original information compiled from
SP157699, SP114450 & DP147884 in the Department of
Environment and Resource Management

Branded peg placed at all new corners.

STN	TO	ORIGIN	BEARING	DIST	REMARKS
1	OIP	DP147884	13°18'	1-105	Orig
2	OIP	SP111745	16°04'	1-5	
4	Pin		234°23'	1-095	
5b	OIP	SP111745	52°18'	1-5	
6	Pin		101°34'	1-35	
8	OIP	SP114450	325°28'	1-29	

PERMANENT MARKS					
PM	ORIGIN	BEARING	DIST	NO	TYPE
1-OPM	SP224197	128°53'	319-03	148845	Star Pkt
9-OPM	SP159092	279°11'20"	983-63	129083	Star Pkt

Scale 1: 15000 – Lengths are in Metres.



I, Alan Scott Maclean hereby certify that the land comprised in this plan was surveyed by Leigh Robert James Tingle (Surveying Associate) for whose work I accept responsibility and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 17/02/2010

as Made Cadastral Surveyor

Date 12 / 3 / 10

Plan of Lots 1 & 3

Cancelling Lots 1 & 3 on plan SP157699

PARISH: **CALLIOPE**

COUNTY: *Clinton*

Meridian: *MGA Zone 56 vide plan SP157699*

F/N's: *No*

Scale: **1:15000**

Format: **STANDARD**



SP 235026

Plgr Status:

713396222

BE 400 NT

\$417.00
06/08/2010 13:57

WARNING : Folded or Mutilated Plans will not be accepted.

Plans may be rolled.

Information may not be placed in the outer margins.

Registered

5. Lodged by

PROPERTY SERVICES GROUP
PO BOX 15009, CITY EAST QLD 4002
PH: 32242065 REF: T643

LODGER CODE: 2068

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

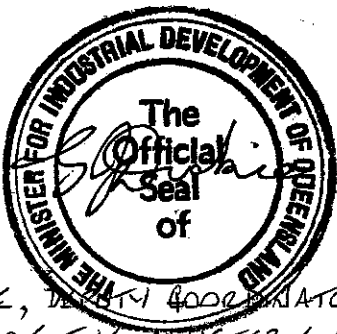
I/We THE MINISTER FOR INDUSTRIAL DEVELOPMENT
OF QUEENSLAND. andGLADSTONE PORTS CORPORATION LIMITED
A.C.N 131 965 896.

(Names in full)

* as Registered Owners of this land agree to this plan and dedicate the Public Use
Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.

* as Lessees of this land agree to this plan.

Signature of *Registered Owners *Lessees-

LEO MARIO ZUSSINO
Chief Executive Officer
Gladstone Ports Corporation LimitedPETER RHYS SHARPE
Company Secretary
Gladstone Ports
Corporation LimitedGEOFF DICKIE, Deputy Coordinator - General AS
DELEGATE OF THE MINISTER FOR INDUSTRIAL
DEVELOPMENT OF QUEENSLAND

* Rule out whichever is inapplicable

2. Local Government Approval.

* THE MINISTER FOR INDUSTRIAL DEVELOPMENT OF
hereby approves this plan in accordance with the: QUEENSLAND% Subject to Schedule 4, Table 3, item 2(f) of
the Sustainable Planning Act 2009.

Dated this day of

#

#

* Insert the name of the Local Government. % Insert Integrated Planning Act 1997 or
Insert designation of signatory or delegation Local Government (Planning & Environment) Act 1990

3. Plans with Community Management Statement :

CMS Number :

Name :

4. References :

Dept File :

Local Govt :

Surveyor : 3809

6. Existing

Title Reference	Lot	Plan	Lots	Emts	Road
50479454	1	SP157699	1 & 3		
50479455	3	SP157699	3		

Benefiting Easement Allocation

Dealing No	Lots Benefited	Lots Partially Benefited
712869587 712869587	1	3

1	Lot 1/SP147891
3	Lot 1/SP147891 Lot 4/SP147891 Lot 3/SP144433
Lots	Orig

7. Portion Allocation :

8. Map Reference :

9150-3131

9. Locality :

YARWUN

10. Local Government :

GLADSTONE REGIONAL COUNCIL

11. Passed & Endorsed :

By : A S MACLEAN
Date : 12/3/10
Signed : *AS Maclean*
Designation : Cadastral Surveyor

12. Building Format Plans only.

I certify that :

* As far as it is practical to determine, no part
of the building shown on this plan encroaches
onto adjoining lots or road;
* Part of the building shown on this plan
encroaches onto adjoining * lots and roadLicensed Surveyor/Director * Date
* delete words not required

13. Lodgement Fees :

Survey Deposit \$
Lodgement \$
..... New Titles \$
Photocopy \$
Postage \$
TOTAL \$14. Insert
Plan
Number

SP235026

Locality of Yarwun

ESPLANADE

DIAGRAM A

SCALE 1: 7500

22.13 ha

PCR 109

POR IV

SEE
DIAG B

9-20"
5-0 0-19

GLADSTONE - MT. LARCOM ROAD

DIAGRAM B

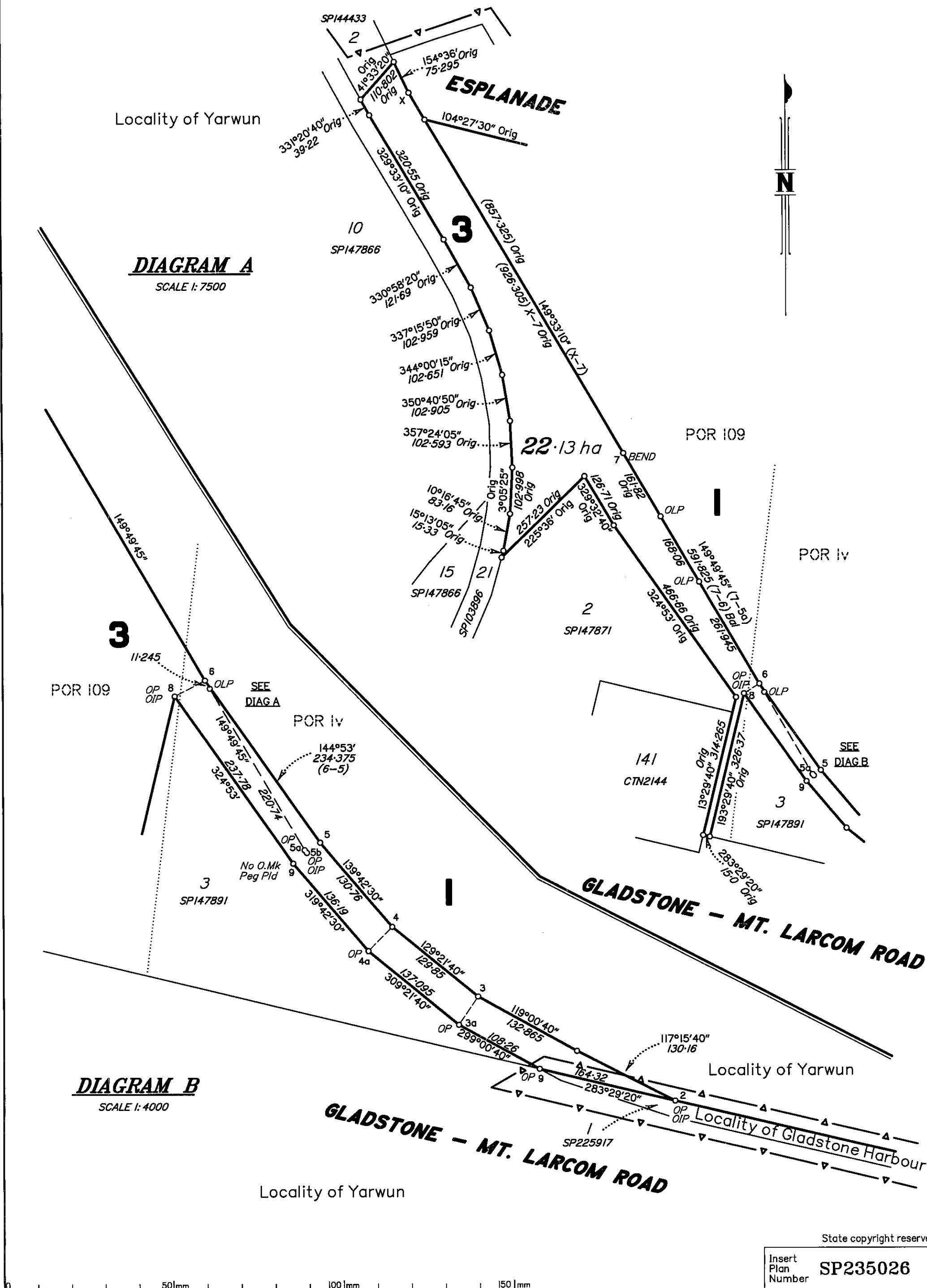
SCALE 1: 4000

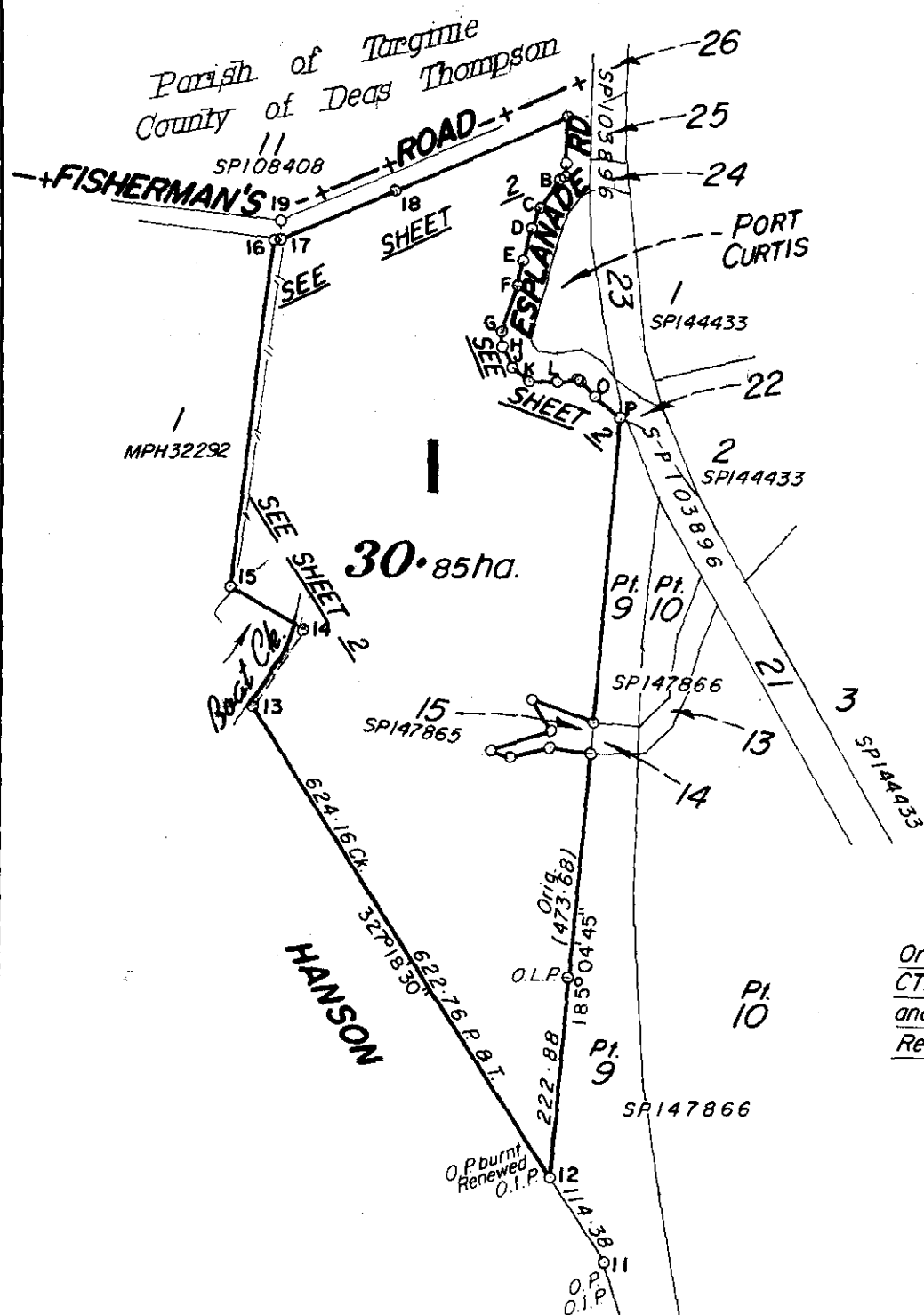
GLADSTONE - MT. LARCOM ROAD

Locality of Yarwun

State copyright reserved.

Insert
Plan
Number **SP235026**





REFERENCE MARKS				
STN.	TO	BEARING	DIST.	REMARKS
1	O.I.P	13°29'40"	2.025	
1	O.R.T.	106°53'40"	11.69	↖ 141
2	Pin	193°29'40"	1.03	
2a	O.I.P	193°29'40"	2.035	
2a	O. S. Picket.	13°29'50"	2.0	
2a	O.R.T.	45°55'40"	10.56	not conn.
3	Pin	112°23'	1.125	
4	Pin	121°09'	1.425	
5	Pin	39°04'	1.845	
6	O.I.P	168°48'	1.22	
7	O.I.P	114°15'30"	0.928	
7	O. Nail in M/H	8°28'30"	1.413	
8	O.I.P	146°04'30"	0.67	
8	O. Nail in M/H	66°16'30"	2.216	
9	O.I.P	33°46'30"	1.09	
10	O.I.P	307°08'	1.135	
11	O.I.P	188°41'	1.335	
12	O.I.P	135°34'	1.51	
13	Pin	321°47'	1.36	
14	Pin	13°03'	0.99	
14	O.R.T. gone	71°56'30"	12.171	
15	Pin	38°51'	7.04	
15	O.R.T. gone	273°51'30"	21.726	
16	Pin	104°22'	1.065	
16	O.R.T.	215°38'30"	10.55	burnt out
18	O.I.P	350°54'30"	2.0	
19	O.I.P	216°01'05"	1.208	

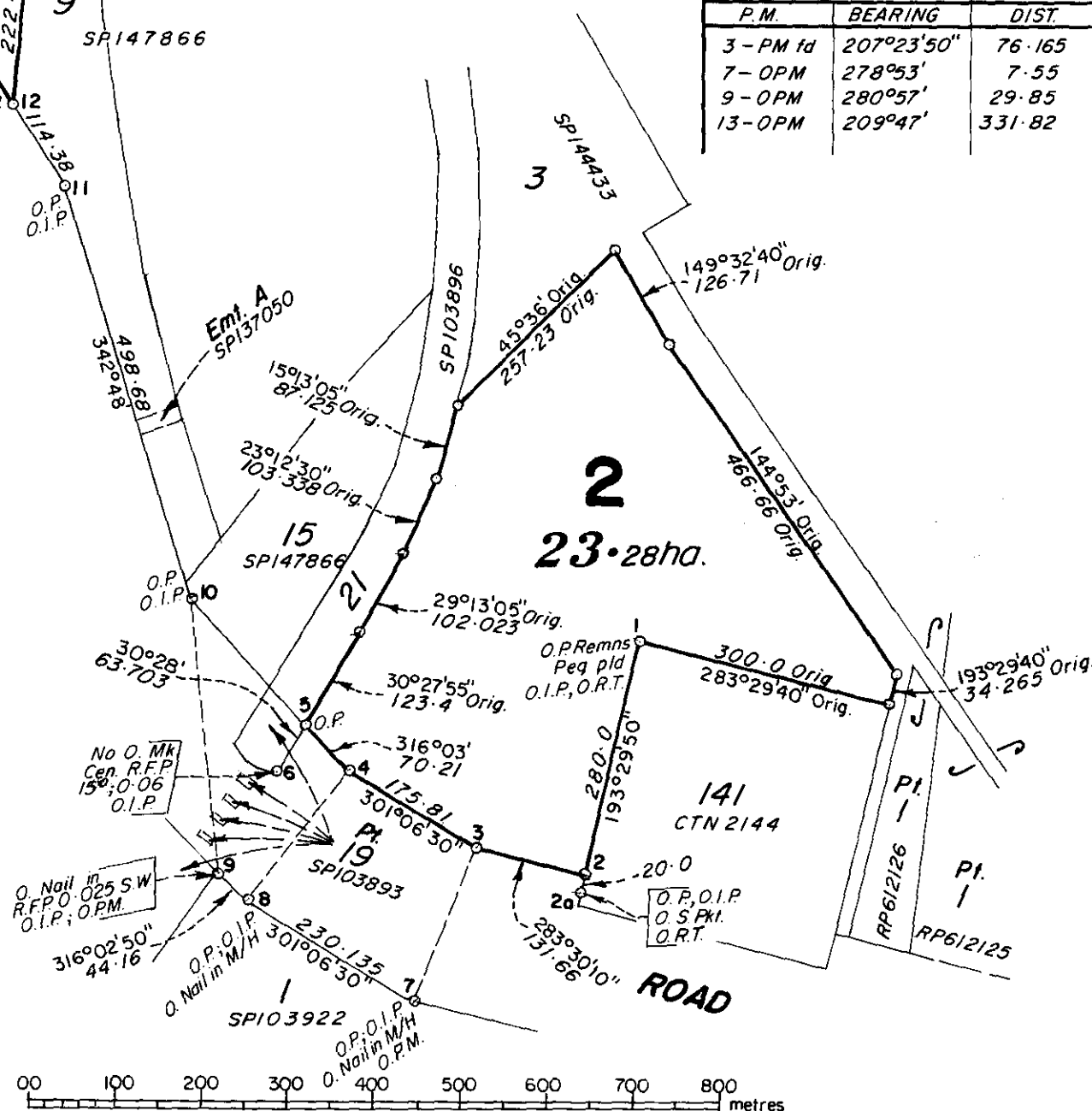
Original information compiled from plan
CTN2144, SPI03896, SPI14450, SPI37050
and SPI47865 in the Department of Natural
Resources and Mines.

TRAVERSES ETC.		
LINE	BEARING	DIST.
3 - 7	202°18'20"	192.265
4 - 8	218°34'30"	191.625
9 - 10	353°56'	319.54
13 - 14	33°43'10"	105.19
17 - 19	351°41'	20.859

LINE PEGS		
STN.	BEARING	DIST.
12	327°18'30"	306.36
"	"	509.85

Branded peg placed at all new corners.

PERMANENT		MARKS	
P.M.	BEARING	DIST.	N ^o
3-PM fd	207°23'50"	76.165	129083
7-OPM	278°53'	7.55	95230
9-OPM	280°57'	29.85	115907
13-OPM	209°47'	331.82	71484



YARWUN INDUSTRIAL EST.

I, Alan Scott MACLEAN hereby certify that I have surveyed the land comprised in this plan by Sergio Gerardo BURELLO, Licensed Surveyor, that the plan is accurate, that the said survey was performed in accordance with the Surveyors Act 1977 and the Surveyors Regulation 1992 and that the said survey was completed on 9.5.2002.

W. M. M. M.
Licensed Surveyor

12/6/02
Date

PLAN OF

LOTS **1** and **2**

*Cancelling part of USL (formerly
Lot 1 on RP6/2/26)*

PARISH: CALLIOPE

COUNTY: Clinton

Meridian: AMG Vide SPI37050

F/N's: YES

Scale: 1 : 7500

Format: STANDARD



SP 147871

Plan Status:

494

706806870

RN 494

NO FEE
18/07/2003 10:28WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.

Registered

5. Lodged by LODGER CODE 2068DEPARTMENT OF NATURAL RESOURCES & MINES
TONY LILL, SENIOR LAND OFFICER
(DELEGATE FOR THE MINISTER)
PO BOX 1762
ROCKHAMPTON Q 4700

GROUP

2.

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

I/We

(Names in full)

*as Registered Owners of this land agree to this plan and dedicate the Public Use
Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.

*as Lessees of this land agree to this plan.

Signature of *Registered Owners *Lessees

APPROVED PURSUANT TO SECTIONS 17(b) + 122 (3)
OF THE LAND ACT 1994

BRETT COLIN NICHOLLS

DELEGATE OF THE MINISTER FOR NATURAL
RESOURCES AND MINISTER FOR MINESAS DELEGATE FOR
THE MINISTERAS AUTHORISED UNDER LAND ACT
(MINISTERIAL) DELEGATION (No. 1) 2002

17 JULY 2003

* Rule out whichever is inapplicable

2. Local Government Approval.

*

hereby approves this plan in accordance with the :

%

Dated this day of

#

#

* Insert the name of the Local Government.
Insert designation of signatory or delegation% Insert Integrated Planning Act 1997 or
Local Government (Planning & Environment) Act 1990

3. Plans with Community Management Statement :

CMS Number :

Name :

4. References :

Dept File : 20703

Local Govt :

Surveyor : 2198

6. Existing

Title Reference

Lot

Plan

USL

1

RP612126

Created

Lots

Emts

Road

1, 2

Orig

Lots

7. Portion Allocation :

8. Map Reference :

9150-31342

9. Locality :

Yarwun Industrial Estate

10. Local Government :

Calliope Shire Council

11. Passed & Endorsed : 25/6/2003

By : A.S. Maclean

Date : 12/6/02Signed : A.S. Maclean

Designation : Licensed Surveyor

12. Building Format Plans only.

I certify that :

- * As far as it is practical to determine, no part of the building shown on this plan encroaches onto adjoining lots or road;
- * Part of the building shown on this plan encroaches onto adjoining * lots and road

Licensed Surveyor/Director * Date

* delete words not required

13. Lodgement Fees : Receipt # 272529Survey Deposit 30/6/2002 \$ 127.95Lodgement \$ 632.302 New Titles \$ 80.30

Photocopy \$

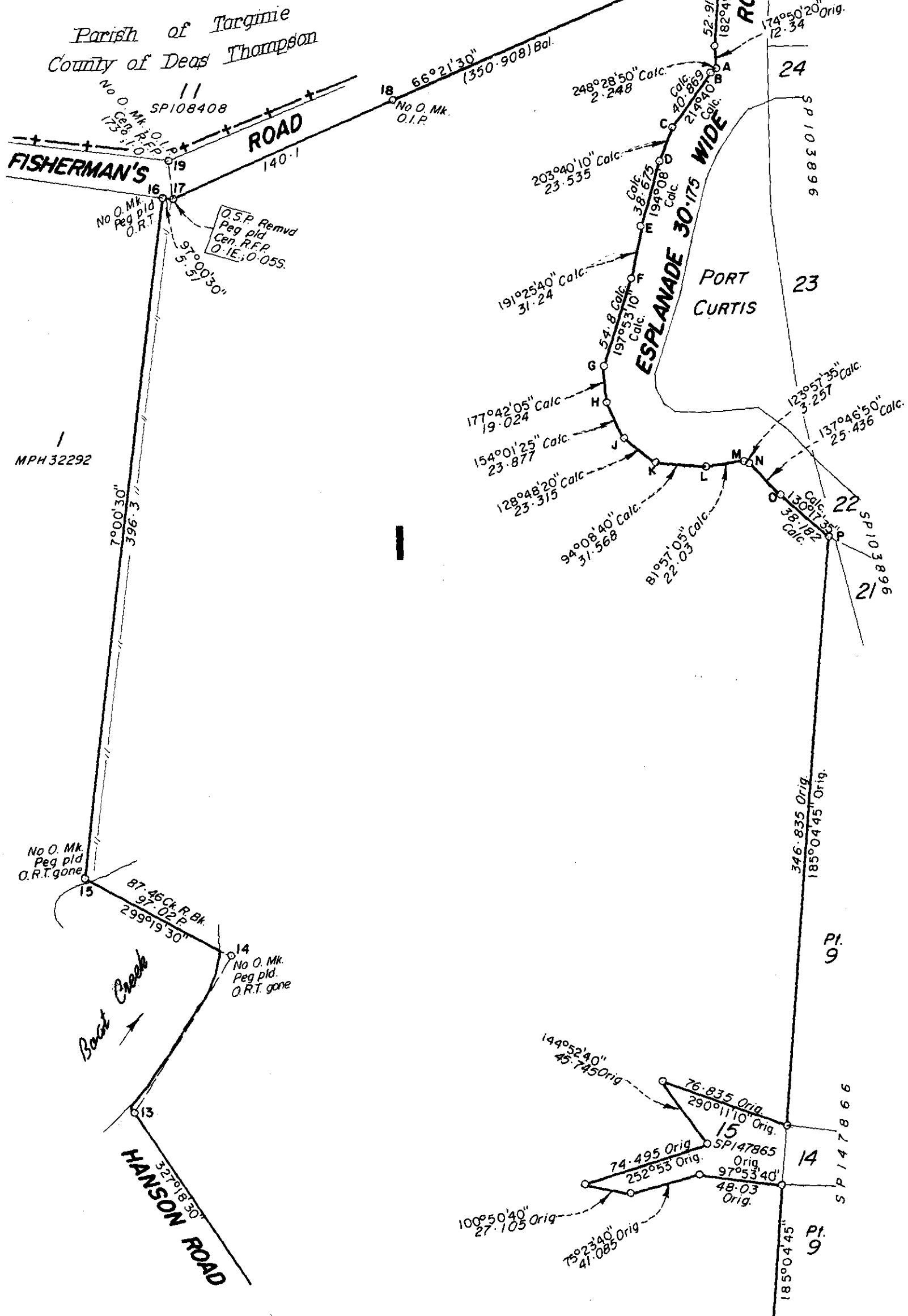
Postage \$

TOTAL \$ 226.5514. Insert
Plan
Number

SPI47871

CISP

NOTE: Esplanade boundary A to P
calculated by 30.175 offset
from original traverse lines
8-A-M-10 on SPI03896.



Land Title Act 1994; Land Act 1994
Form 21 Version 2

SURVEY PLAN

Sheet
1 of
1

TRAVERSES ETC

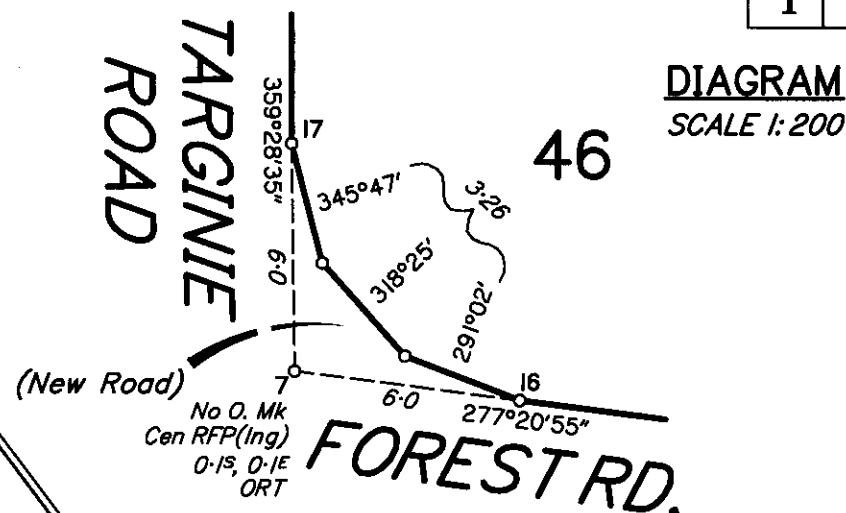
LINE	BEARING	DISTANCE
11-12	336°48'35"	23.367

LINE PEGS

STN	BEARING	DISTANCE
13-L Peg	142°55'	202.91
14-L Peg	260°31'10"	224.815
15-L Peg	172°13'35"	237.0

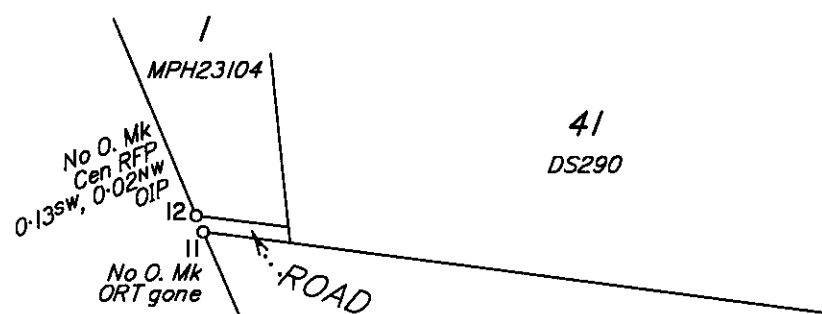
PERMANENT MARKS

PM	ORIGIN	BEARING	DIST	NO
2-OPM	MP36753	59°46'40"	377.31	57887
10-OPM	RP617399	271°19'	48.46	57878



Branded peg placed at all new corners.

Area of New Road

(7-17-16-7).....9m²

REFERENCE MARKS

STN	TO	ORIGIN	BEARING	DIST
1	OIP leaning	MP36753	235°50'20"	1.897
1	ORT gone	DS290	200°49'40"	20.077
1	Pin		211°18'	1.525
2	OIP	MP36753	180°00'20"	1.755
2	ORT	MP36753	44°13'20"	20.44
2	ORT Hole	DS290	295°39'40"	4.466
3	ORT Hole	DS290	334°03'25"	9.334
3	Pin		281°55'	4.595
4	ORT Hole	DS290	242°20'25"	8.53
4	Pin		260°26'	1.13
5	ORT gone	DS290	48°39'25"	7.886
5	Pin		57°26'	1.835
6	Pin		299°17'	1.39
7	ORT	DS290	95°11'25"	6.679
7	Pin		105°27'	2.025
8	Pin		214°32'	1.215
9	ORT	DS290	92°41'35"	11.547
9	Pin		195°42'	2.91
10	ORT gone	DS290	291°11'35"	8.65
10	Pin		115°36'	1.805
11	ORT gone	DS290	108°00'35"	13.539
12	OIP	IS156053	263°40'20"	0.99
13	Pin		137°11'	0.965
14	Pin		87°08'	1.08
15	Pin		322°32'	1.12

N & C

TARGINIE ROAD

46
50.99 ha45
92.23 haLocality
of
Yarwun43
DS290

FOREST ROAD

ROAD

AMENDMENTS BY JONES FLINT & PIKE PTY LTD
ACN 050 414 045
2/11/2010
DATE

JONES FLINT & PIKE PTY LTD ACN 050 414 045 hereby certify that the land comprised in this plan was surveyed by the corporation, by Andrew Peter MILLER, Surveying Graduate, for whose work the corporation accepts responsibility, under the supervision of William John Charles BURVILL, Cadastral Surveyor, and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Survey Regulations 2003 and associated Regulations and Standards and that the said survey was completed on 24/09/2010.



Director
Date 1/06/2010

0 500m 1000m 1500m State copyright reserved.

Plan of Lots 45 & 46

Cancelling Lot 44 on DS290

PARISH: TARGINIE

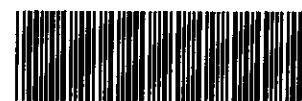
COUNTY: Deas Thompson

Meridian: MGA Zone 56 by GPS

F/N's: No

Scale: 1:10000

Format: STANDARD



SP235946

Plan Status:

713540812

\$417.00
28/10/2010 11:48

RN 400 NT

WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.

Registered

5. Lodged by **BRIAN WELLS BUTLER**
12 LAVER STREET
GLADSTONE QLD 4680
PH 07 49722100

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

I/We **CRAIG WELLS BUTLER**
BRIAN WELLS BUTLER *PERSONAL REPRESENTATIVE*
UNDER INSTRUMENT 711248125

(Names in full)

* as Registered Owners of this land agree to this plan and dedicate the Public Use
Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.

* as Lessees of this land agree to this plan.

Signature of *Registered Owners *Lessees

* Rule out whichever is inapplicable

2. Local Government Approval.

* **GLADSTONE REGIONAL COUNCIL**
hereby approves this plan in accordance with the :
% INTEGRATED PLANNING ACT 1997Dated this 28th day of June 2010

CHIEF EXECUTIVE OFFICER

#

* Insert the name of the Local Government. % Insert Integrated Planning Act 1997 or
Insert designation of signatory or delegation Local Government (Planning & Environment) Act 1990

3. Plans with Community Management Statement :

CMS Number :

Name :

4. References :

Dept File :

Local Govt :

Surveyor : G2657-07

6. Existing

Title
Reference

Description

New Lots

Created

Road

Emts

Cov.

Profit a
prendre

30280186

Lot 44 on DS290

45, 46

New Rd

45, 46

POR 44

Lots

Orig

7. Portion Allocation :

8. Map Reference :

9150-34121

9. Locality :

TARGINIE

10. Local Government :

GLADSTONE R.C.

11. Passed & Endorsed :

By : **Jones Flint & Pike Pty Ltd**
ACN 050 414 045Date : 11/6/10Signed : *[Signature]*

Designation : Cadastral Surveyor L.O.

12. Building Format Plans only.

I certify that :

* As far as it is practical to determine, no part
of the building shown on this plan encroaches
onto adjoining lots or road;
* Part of the building shown on this plan
encroaches onto adjoining * lots and roadCadastral Surveyor/Director * Date
* delete words not required

13. Lodgement Fees :

Survey Deposit \$

Lodgement \$

.....New Titles \$

Photocopy \$

Postage \$

TOTAL \$

14. Insert
Plan
Number

SP235946

Exchange 429

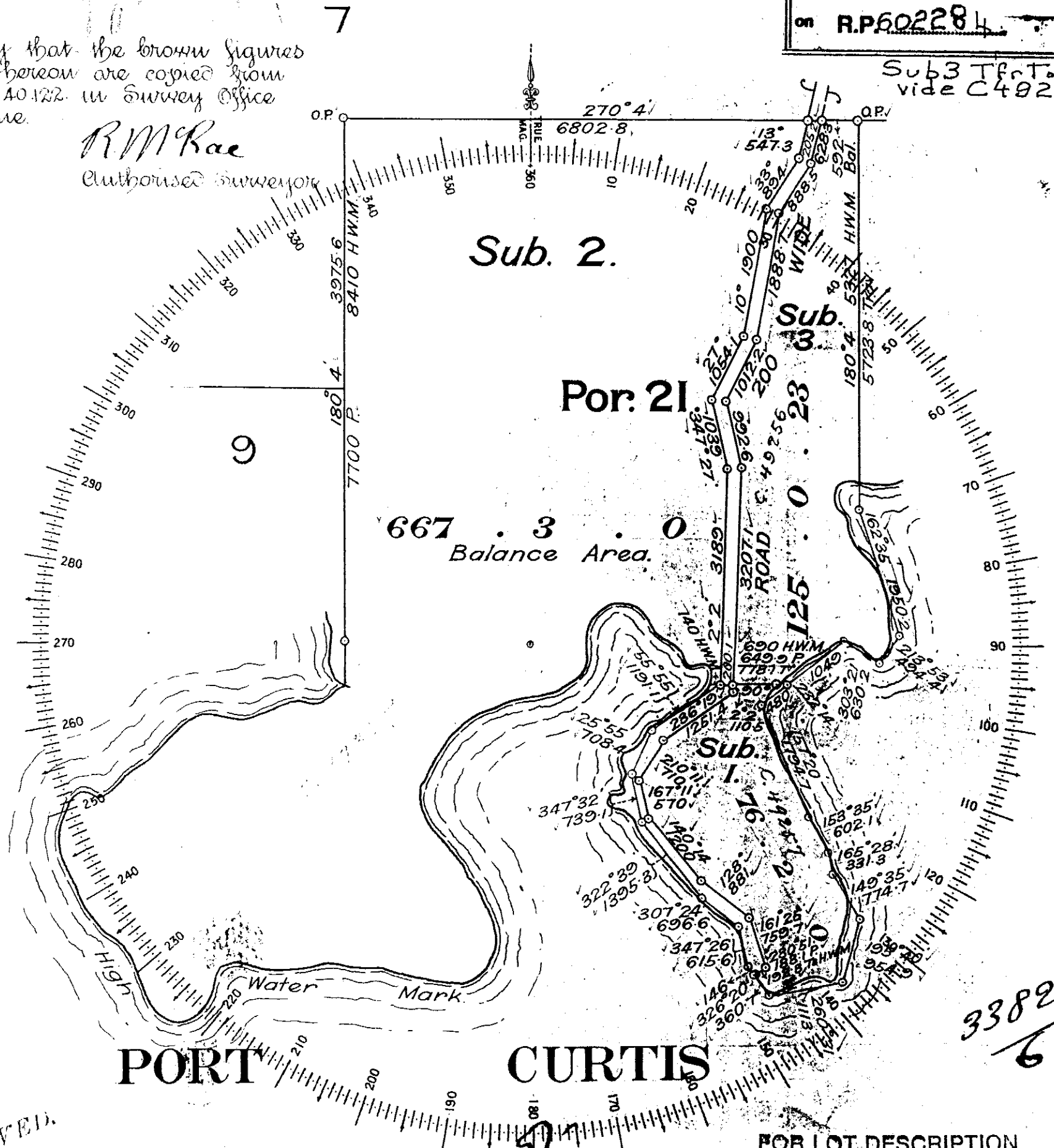
For Additional Plan & Document Notings Refer to CISP

AMENDED DESCRIPTION
 Note:- This description takes effect upon amendment of the current Title Deed which will be evidenced by a further notation.
 Survey of Lot (s) 1 + 3
 TITLES CONVERTED
 on R.P.602284

I certify that the brown figures shown hereon are copied from plan P.40122 in Survey Office Brisbane.

R.M. Rae
 Authorised Surveyor

Sub 3 Tr. to Crown vide C40256.



RECEIVED
 FEB 5 1919
 at 12.0 noon
 7

SCALE 20 chains to an inch.

FOR LOT DESCRIPTION SEE ABOVE

SURVEY

OF SUBDIVISIONS 1-3
 SELECTION
 OF ALLOTMENT OR PORTION NO. 21
 OF SECTION
 COUNTY OF Deas Thompson
 PARISH OF Curtis

As Proprietor of this land, I agree to this Plan of subdivision, and dedicate the new roads shown hereon to public use.

Signature of Proprietor } *W. J. O'Leary*

Crown Soil

Cal. No. 658-2284

2284-2888

CISP

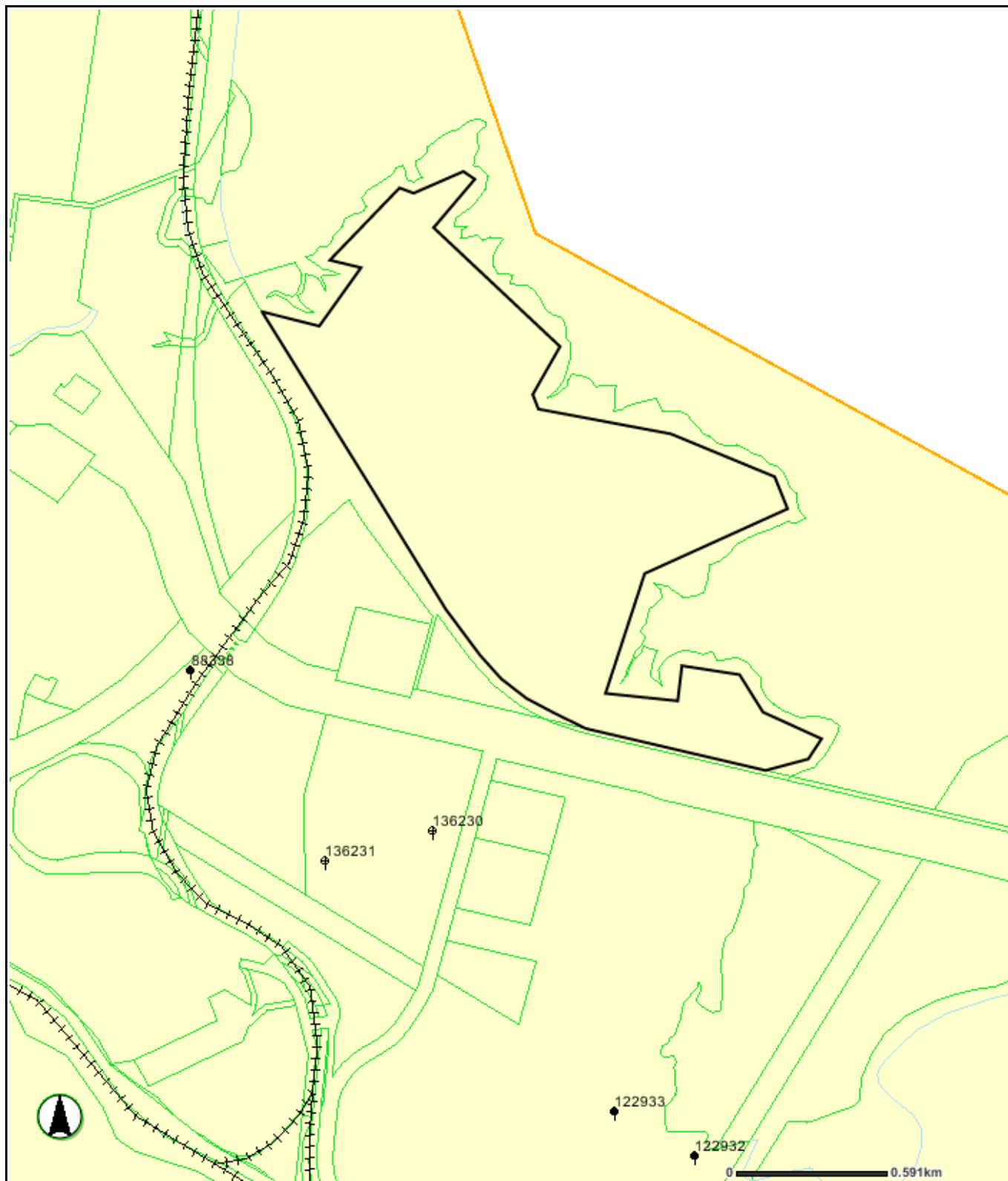
DATE

Appendix E

Groundwater Bore Search Results

Groundwater Bore Search Results

Mainland Tunnel Entry Shaft and Tunnel Spoil Disposal Area



**Department of Environment
and Resource Management**

Map Title: Lot 1/SP235026 and surrounding bores

Datum: GDA_1994



PLAN NUMBER: BLS495

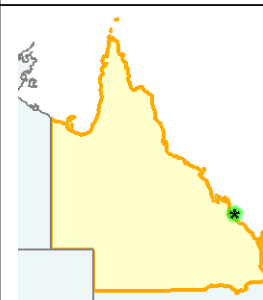
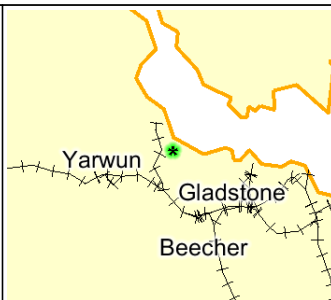
Digital Cadastral Database(DCDB) is current at June 2011.

Positional accuracy of cadastre is between +/- 0.1 metres and +/- 14.0 metres.

Bore locations are obtained from a variety of sources and vary in accuracy. Please refer to the accompanying information.

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GROUNDWATER DATABASE

Page 1

of 4

DATE 03/06/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 136230

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-50-13	MAP-SCALE
DATE LOG RECD	SUB-AREA	LONGITUDE 151-10-04	MAP-SERIES
D/O FILE NO. 520/001/7	SHIRE 3360-GLADSTONE REGIO	EASTING 313387	MAP-NO
R/O FILE NO.	LOT 138	NORTHING 7362610	MAP NAME
H/O FILE NO.	PLAN CTN2123	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY GPS	PRES EQUIPMENT
		GPS ACC 20	
GIS LAT -23.8370276	PARISH NAME 897-CALLIOPE		ORIGINAL BORE NO
GIS LNG 151.1677785	COUNTY CLINTON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 22/11/2002		DATA OWNER
STATUS AD	DRILLERS NAME CROWSON, MARK ANTHONY		CONFIDENTIAL N
ROLES WS	DRILL COMPANY GLADSTONE DRILLING		
	METHOD OF CONST. ROTARY AIR		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	22/11/2002	1	Cuttings or other fill betw een casing and h				0.00	59.00

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	1.00	RED CLAY, 12MM GRAIN
2	1.00	2.00	ORANGE CLAY, 3MM GRAIN
3	2.00	3.00	BROWN BROKEN ROCK, 20MM GRAIN
4	3.00	11.00	LIGHT BROWN CLAY/STONE, 3-4MM GRAIN
5	11.00	12.00	BROKEN BROWN ROCK
6	12.00	18.00	PINK/RED DAMP CLAY
7	18.00	25.00	CREAMY GREEN MUDSTONE
8	25.00	34.00	PINKY BROWN MUDSTONE

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

Page 2 of 4

DATE 03/06/2011

REG NUMBER 136230

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
9	34.00	35.00	CREAMY GREEN MUDSTONE
10	35.00	36.00	LIGHT BROWN MUDSTONE
11	36.00	37.00	RED MUDSTONE
12	37.00	48.00	BROWN/ORANGE MUDSTONE
13	48.00	59.00	LIGHT GREEN SHALE

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

Page 3 of 4

DATE 03/06/2011

REG NUMBER 136230

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
		Y 03/01/2008	Y 03/01/2008				

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
--------	--------	--------	--------	--------	--------	--------	--------

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 03/06/2011

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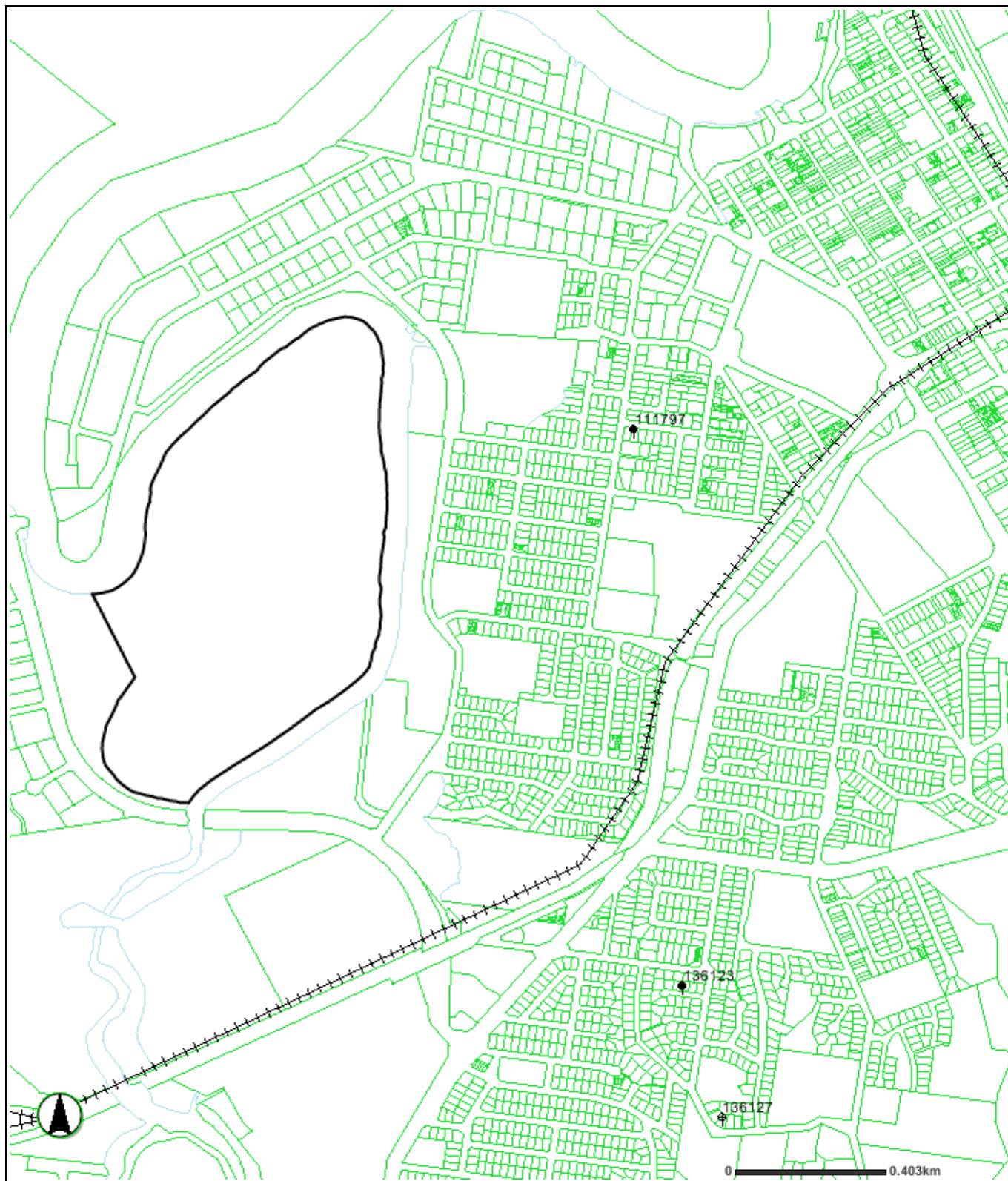
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**** End of Report ****

Groundwater Bore Search Results

TWAF 7



**Department of Environment
and Resource Management**

Map Title: Lot 200/CTN2173 and surrounding bores

Datum: GDA_1994



PLAN NUMBER: BLS434

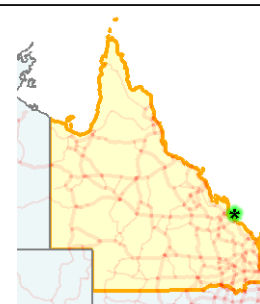
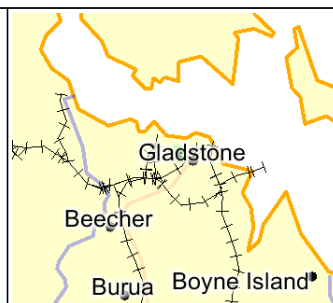
Digital Cadastral Database(DCDB) is current at March 2011.

Positional accuracy of cadastre is between +/- 0.1 metres and +/- 2.0 metres.

Bore locations are obtained from a variety of sources and vary in accuracy. Please refer to the accompanying information.

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DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111797

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-50-48	MAP-SCALE 253
DATE LOG RECD	SUB-AREA	LONGITUDE 151-14-52	MAP-SERIES M
D/O FILE NO. 520/001(66)	SHIRE 3360-GLADSTONE REGIO	EASTING 321535	MAP-NO 9150-31
R/O FILE NO.	LOT 2	NORTHING 7361621	MAP NAME
H/O FILE NO.	PLAN RP605789	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.846885151	PARISH NAME 2010-GLADSTONE		ORIGINAL BORE NO
GIS LNG 151.247623133	COUNTY CLINTON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 22/10/2002		DATA OWNER
STATUS EX	DRILLERS NAME MCROWSON		CONFIDENTIAL
ROLES WS	DRILL COMPANY GLADSTONE DRILLING		
	METHOD OF CONST. ROTARY		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	22/10/2002	1	Polyvinyl Chloride	5.900	WT	140	0.00	19.00
A	22/10/2002	2	Perforated or Slotted Casing	1.500	AP	140	16.00	19.00
A	22/10/2002	3	Grout			205	0.00	3.00

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	5.00	RED SOIL WITH SMALL ROCK
2	5.00	8.00	WHITE CLAY
3	8.00	16.00	CREAMY HARD MUDSTONE
4	16.00	17.00	BROKEN ROCK
5	17.00	19.00	REDISH BROWN ROCK

STRATIGRAPHY DETAILS

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

DATE 08/03/2011

REG NUMBER 111797

**** NO RECORDS FOUND ****

AQUIFER DETAILS

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD CTR (l/s)	CONDIT	FORMATION NAME
1	17.00	19.00	MDST	22/10/2002	-9.00	N	COND 2000	0.75 Y	FR	WANDILLA FORMATION

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK	METH	SOURCE
------	------	--------------	-----------------	----	-------------	---------------	--------------	------------	-----	------	--------

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

Page 3 of 4

DATE 08/03/2011

REG NUMBER 111797

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK	METH	SOURCE
A	22/10/2002	17.00	2000							Al	GB

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
Y 23/07/2003	Y 23/07/2003	Y 23/07/2003	Y 23/07/2003				

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
--------	--------	--------	--------	--------	--------	--------	--------

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

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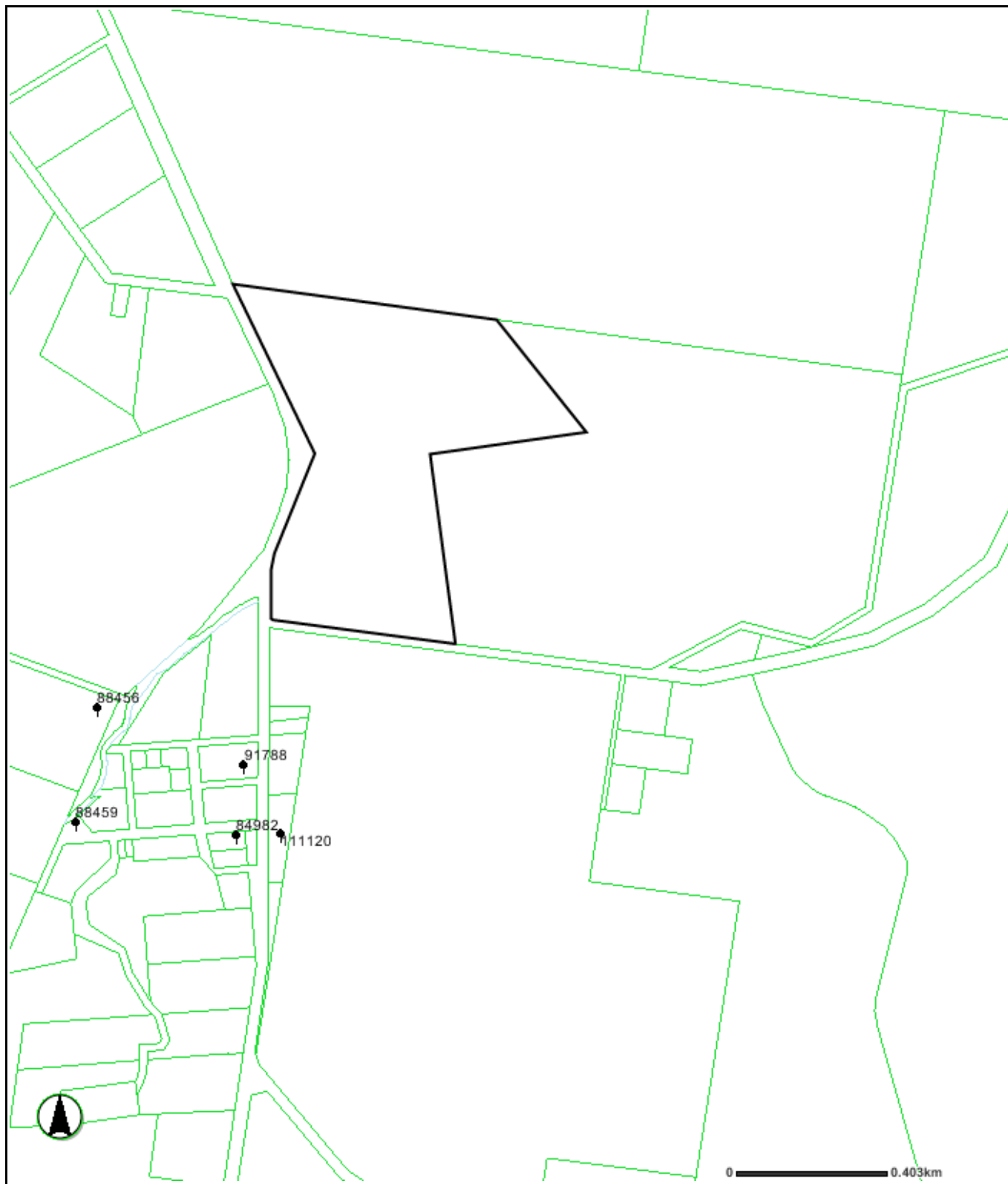
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Groundwater Bore Search Results

TWAF 8



**Department of Environment
and Resource Management**

Map Title: Lot 46/SP235946 and surrounding bores

Datum: GDA_1994



PLAN NUMBER: BLS435

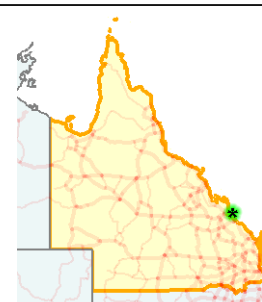
Digital Cadastral Database(DCDB) is current at March 2011.

Positional accuracy of cadastre is between +/- 1.5 metres and +/- 14.0 metres.

Bore locations are obtained from a variety of sources and vary in accuracy. Please refer to the accompanying information.

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DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 84982

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-47-38	MAP-SCALE 104
DATE LOG RECD	SUB-AREA	LONGITUDE 151-06-32	MAP-SERIES N
D/O FILE NO. 520/001(32)	SHIRE 3360-GLADSTONE REGIO	EASTING 307311	MAP-NO 9150
R/O FILE NO. 81-00058	LOT 5	NORTHING 7367306	MAP NAME GLADSTONE
H/O FILE NO.	PLAN MPH23069	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION MHPL 1666 & MHPL 1739	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.7939153	PARISH NAME 4441-TARGINIE		ORIGINAL BORE NO 2 TESTHOLES ONLY
GIS LNG 151.108764949	COUNTY DEAS THOMPSON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 16/02/1990		DATA OWNER
STATUS EX	DRILLERS NAME ROBERTS N		CONFIDENTIAL
ROLES WS	DRILL COMPANY DEPCO		
	METHOD OF CONST. ROTARY		

CASING DETAILS

**** NO RECORDS FOUND ****

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	3.00	LOAM & SMALL ROCKS
2	3.00	5.80	GRAVEL
3	5.80	22.50	WEATHERED GRANITE (21-22M SEEPAGE)
4	22.50	27.00	HARD GRANITE

STRATIGRAPHY DETAILS

SOURCE	RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
DNR	1	0.00		TARGINNIE GRANITE

AQUIFER DETAILS

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

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DATE 08/03/2011

REG NUMBER 84982

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD CTR (l/s)	CONDIT	FORMATION NAME
1	21.00	22.00	GNTE	16/02/1990	-99.99	N		0.07 Y	WZ	TARGINIE GRANITE

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

Page 3 of 16

DATE 08/03/2011

REG NUMBER 84982

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
Y 06/03/1998	Y 17/06/1991	Y 27/08/1998	Y 27/08/1998	Y 17/06/1991	Y 17/06/1991	Y 17/06/1991	Y 17/06/1991

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
Y 17/06/1991		Y 17/06/1991		Y 17/06/1991			

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 88456

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-47-26	MAP-SCALE 104
DATE LOG RECD	SUB-AREA	LONGITUDE 151-06-19	MAP-SERIES M
D/O FILE NO. 515/030/1451	SHIRE 3360-GLADSTONE REGIO	EASTING 306937	MAP-NO 9150
R/O FILE NO. 30-1451	LOT 1	NORTHING 7367668	MAP NAME GLADSTONE
H/O FILE NO.	PLAN MPH2884	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION MPHL 1497	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.790601694	PARISH NAME 4441-TARGINIE		ORIGINAL BORE NO OFFICE RECORD ONLY
GIS LNG 151.105142318	COUNTY DEAS THOMPSON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 13/08/1982		DATA OWNER
STATUS EX	DRILLERS NAME G TRONC		CONFIDENTIAL
ROLES WS	DRILL COMPANY BETADRILL		
	METHOD OF CONST. ROTARY		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	13/08/1982	1	Polyvinyl Chloride	5.900	WT	141	0.00	23.20
A	13/08/1982	2	Perforated or Slotted Casing			141	14.00	23.20
A	13/08/1982	3	Gravel Pack	5.000	GR		14.00	23.20

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	0.30	TOP SOIL
2	0.30	13.11	CLAY & STONES
3	13.11	22.56	WEATHERED GRANITE WATER
4	22.56	23.16	FRESH GRANITE

STRATIGRAPHY DETAILS

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 88456

SOURCE	RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
DNR	1	0.00		TARGINIE GRANITE

AQUIFER DETAILS

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD (l/s)	CTR	CONDIT	FORMATION NAME
1	14.00	22.60	GNTG	13/08/1982	-15.00	N	COND 1250	0.35	Y	WZ	TARGINIE GRANITE

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

PIPE	DATE	RD ANALYST	QAN	DEPTH (m)	RMK	SRC	COND (uS/cm)	pH	Si (mg/L)	TOTAL IONS	TOTAL SOLIDS	HARD	ALK	FIG. OF MERIT	SAR	RAH
A	17/06/1992	1 GCL	142544	23.00	PU	GB	1377	8.4	72	855.77	790.98	381	230	1.3	2.9	0.00

WATER ANALYSIS PART 2

PIPE	DATE	RD	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	17/06/1992	1	132.0	1.0	86.1	40.5	0.01	269.7	0.01	5.3	292.0	1.20	1.0	27.0				

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 88456

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
Y 31/07/2000	Y 24/06/1992	Y 31/07/2000	Y 31/07/2000	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
Y 24/06/1992		Y 24/06/1992		Y 24/06/1992			

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 88459

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-47-37	MAP-SCALE 104
DATE LOG RECD	SUB-AREA	LONGITUDE 151-06-17	MAP-SERIES M
D/O FILE NO. 515/030/1451	SHIRE 3360-GLADSTONE REGIO	EASTING 306884	MAP-NO 9150
R/O FILE NO. 30-1451	LOT	NORTHING 7367335	MAP NAME GLADSTONE
H/O FILE NO.	PLAN	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION RD RSV ADJ MHPL1500	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.793602103	PARISH NAME 4441-TARGINIE		ORIGINAL BORE NO TARGINNIE WELL OLO
GIS LNG 151.104572608	COUNTY DEAS THOMPSON		BORE LINE -
CHECKED Y	PROPERTY NAME		
	FIELD LOCATION		POLYGON
			RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 01/01/1900		DATA OWNER
STATUS EX	DRILLERS NAME		CONFIDENTIAL
ROLES WS	DRILL COMPANY		
	METHOD OF CONST. HAND DUG OLD TOWN WELL		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	01/01/1900	1	Timber Lining for Wells			2000	0.00	15.20

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	15.10	NO LOG PROBABLY IN DECOMPOSED GRANITE
902			SWL 5.9M 17/6/92
903			USED FOR IRRIGATION OF SMALL CROPS
910			WRC COND 24/6/92 1437 MICROS/CM

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 88459

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

PIPE	DATE	RD ANALYST	QAN	DEPTH (m)	RMK	SRC	COND (uS/cm)	pH	Si (mg/L)	TOTAL IONS	TOTAL SOLIDS	HARD	ALK	FIG. OF MERIT	SAR	RAH
A	24/06/1992	1 GCL	142550	6.00	BA	GB	1483	6.0	127	838.72	956.02	258	16	0.6	5.2	0.00

WATER ANALYSIS PART 2

PIPE	DATE	RD	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	24/06/1992	1	193.0	9.6	46.4	34.7	0.51	19.1	0.01	0.0	302.0	0.58	0.4	233.0				

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 88459

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
Y 06/03/1998	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992	Y 24/06/1992

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
Y 24/06/1992		Y 24/06/1992		Y 24/06/1992			

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 91788

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-47-31	MAP-SCALE 104
DATE LOG RECD	SUB-AREA	LONGITUDE 151-06-32	MAP-SERIES M
D/O FILE NO. 520/001(32)	SHIRE 3360-GLADSTONE REGIO	EASTING 307328	MAP-NO 9150
R/O FILE NO. 81-00058	LOT 1	NORTHING 7367509	MAP NAME GLADSTONE
H/O FILE NO.	PLAN MPH3003	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION MHL1742	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.792084295	PARISH NAME 4441-TARGINIE	ORIGINAL BORE NO SUTTON OLO	
GIS LNG 151.108954357	COUNTY DEAS THOMPSON	BORE LINE -	
CHECKED Y	PROPERTY NAME	POLYGON	
	FIELD LOCATION	RN OF BORE REPLACED	
FACILITY TYPE SF	DATE DRILLED 08/11/1992	DATA OWNER	
STATUS EX	DRILLERS NAME WEST K	CONFIDENTIAL	
ROLES WS	DRILL COMPANY DEPCO		
	METHOD OF CONST. ROTARY		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	08/11/1992	1	Polyvinyl Chloride	5.900	WT	140	0.00	19.00
A	08/11/1992	2	Perforated or Slotted Casing	3.000	AP	140	15.00	19.00
A	08/11/1992	3	Gravel Pack				0.00	19.00

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	2.00	TOP SOIL & CLAY
2	2.00	11.00	GRANITE & BOULDERS
3	11.00	19.00	DECOMPOSED GRANITE
902			SWL 8/11/92 10.0M
903			AIR TEST 0.26 L/S
910			POTABLE

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 91788

STRATIGRAPHY DETAILS

SOURCE	RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
DNR	1	0.00		TARGINIE GRANITE

AQUIFER DETAILS

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD (l/s)	CTR	CONDIT	FORMATION NAME
1	11.00	19.00	GNTE	08/11/1992	-10.00	N	POTABLE	0.26	Y	WZ	TARGINIE GRANITE

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 91788

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
Y 06/03/1998		Y 27/08/1998	Y 27/08/1998				

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
--------	--------	--------	--------	--------	--------	--------	--------

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111120

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-47-38	MAP-SCALE 503
DATE LOG RECD	SUB-AREA	LONGITUDE 151-06-36	MAP-SERIES M
D/O FILE NO. 520/001/32	SHIRE 3360-GLADSTONE REGIO	EASTING 307428	MAP-NO 9150-3
R/O FILE NO.	LOT 1	NORTHING 7367308	MAP NAME
H/O FILE NO.	PLAN RP616306	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY UNKN	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.793909899	PARISH NAME 4441-TARGINIE		ORIGINAL BORE NO OLIVER
GIS LNG 151.109913233	COUNTY DEAS THOMPSON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 23/11/1993		DATA OWNER
STATUS EX	DRILLERS NAME ROBERTS N		CONFIDENTIAL N
ROLES WS	DRILL COMPANY DEPCO		
	METHOD OF CONST. ROTARY		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	23/11/1993	1	Polyvinyl Chloride	5.900	WT	140	0.00	36.50

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	7.92	TOP SOIL, CLAY & SMALL ROCKS
2	7.92	16.46	DECOMPOSED GRANITE *
3	16.46	36.58	GRANITE *

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

CTR

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111120

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD (l/s)	CTR	CONDIT	FORMATION NAME
1	18.90		GNTE	23/11/1993	-15.24	N	COND 1600	0.08	Y	WZ	TARGINIE GRANITE

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

PIPE	DATE	MEASURE	N/R	RMK	LOG	PIPE	DATE	MEASURE	N/R	RMK	LOG	PIPE	DATE	MEASURE	N/R	RMK	LOG
														(m)			

A 23/11/1993 -15.24 R

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK	METH	SOURCE
A	23/11/1993	36.50	1600							AI	GB

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 111120

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK	METH	SOURCE
A	29/05/1999	36.50	1485							PU	GB

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDDET	FIELDQ
Y 09/06/1999	Y 09/06/1999	Y 09/06/1999	Y 09/06/1999			Y 09/06/1999	Y 09/06/1999

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
--------	--------	--------	--------	--------	--------	--------	--------

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

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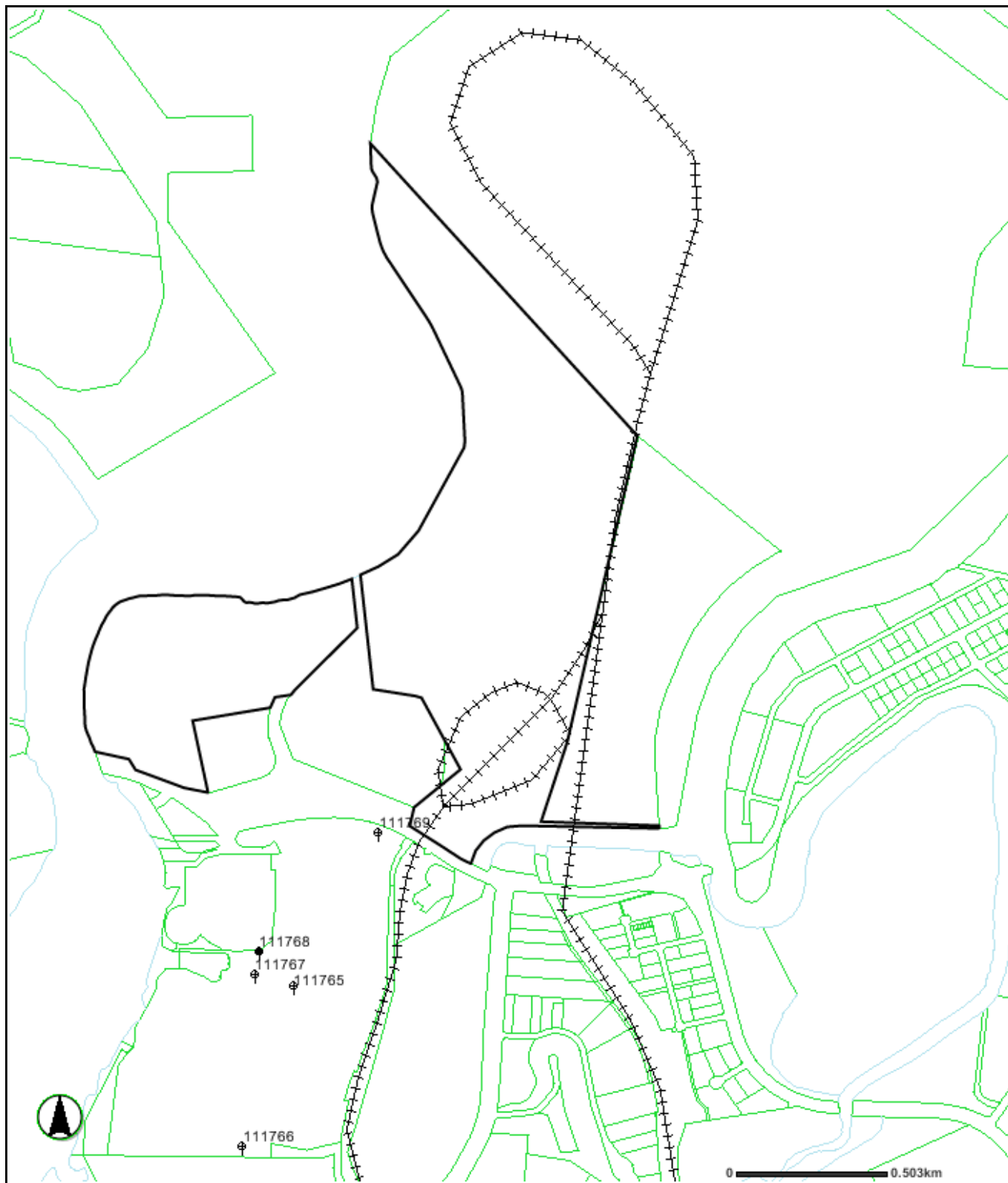
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**** End of Report ****

Groundwater Bore Search Results

Launch Site 1



**Department of Environment
and Resource Management**

Map Title: Lot 69/P4247 and surrounding bores

Datum: GDA_1994



PLAN NUMBER: BLS436

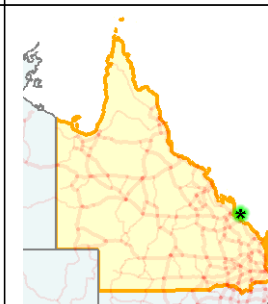
Digital Cadastral Database(DCDB) is current at March 2011.

Positional accuracy of cadastre is between +/- 0.1 metres and +/- 14.0 metres.

Bore locations are obtained from a variety of sources and vary in accuracy. Please refer to the accompanying information.

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GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 111765

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-51-11	MAP-SCALE 503
DATE LOG RECD	SUB-AREA	LONGITUDE 151-13-06	MAP-SERIES M
D/O FILE NO. 520/001/66	SHIRE 3360-GLADSTONE REGIO	EASTING 318547	MAP-NO 9150-3
R/O FILE NO.	LOT 1	NORTHING 7360897	MAP NAME
H/O FILE NO.	PLAN CP818823	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.853086328	PARISH NAME 202-AUCKLAND		ORIGINAL BORE NO GLADSTONE POWER STATION
GIS LNG 151.218212054	COUNTY CLINTON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 12/06/2002		DATA OWNER DNR
STATUS AD	DRILLERS NAME GOLDSWORTHY R		CONFIDENTIAL N
ROLES	DRILL COMPANY PIONEER DRILLING		
	METHOD OF CONST. ROTARY		

CASING DETAILS

**** NO RECORDS FOUND ****

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	1.00	CLAY ROCK
2	1.00	25.00	MUDSTONE
3	25.00	36.00	SHALE
4	36.00	45.00	SHALE & ROCK
5	45.00	50.00	SHALE DRY HOLE ABANDONED

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 111765

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDET	FIELDQ
Y		18/02/2003					

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111765

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
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GENERAL NOTES

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
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DATE 08/03/2011

REG NUMBER 111767

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-51-09	MAP-SCALE 503
DATE LOG RECD	SUB-AREA	LONGITUDE 151-13-01	MAP-SERIES M
D/O FILE NO. 520/001/66	SHIRE 3360-GLADSTONE REGIO	EASTING 318418	MAP-NO 9150-3
R/O FILE NO.	LOT 1	NORTHING 7360939	MAP NAME
H/O FILE NO.	PLAN CP818823	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.852697739	PARISH NAME 202-AUCKLAND		ORIGINAL BORE NO GLADSTONE POWER STATION
GIS LNG 151.216949172	COUNTY CLINTON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 13/06/2002		DATA OWNER DNR
STATUS AD	DRILLERS NAME GOLDSWORTHY R		CONFIDENTIAL N
ROLES	DRILL COMPANY PIONEER DRILLING		
	METHOD OF CONST. ROTARY		

CASING DETAILS

**** NO RECORDS FOUND ****

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	0.50	BACK FILL
2	0.50	1.00	CLAY ROCK
3	1.00	9.00	MUDSTONE
4	9.00	13.00	MUDSTONE & JOINTED ROCK DRY ABANDONED

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

**** NO RECORDS FOUND ****

GROUNDWATER DATABASE
BORE CARD REPORT - PUBLISHABLE

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DATE 08/03/2011

REG NUMBER 111767

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDET	FIELDQ
Y		18/02/2003					

GROUNDWATER DATABASE

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111767

			<u>VALIDATION LOG - PART 2</u>				
WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111768

REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-51-07	MAP-SCALE 503
DATE LOG RECD	SUB-AREA	LONGITUDE 151-13-02	MAP-SERIES M
D/O FILE NO. 520/001/66	SHIRE 3360-GLADSTONE REGIO	EASTING 318432	MAP-NO 9150-3
R/O FILE NO.	LOT 1	NORTHING 7361019	MAP NAME
H/O FILE NO.	PLAN CP818823	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.851969122	PARISH NAME 202-AUCKLAND		ORIGINAL BORE NO GLADSTONE POWER STATION
GIS LNG 151.217094869	COUNTY CLINTON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 07/06/2002		DATA OWNER DNR
STATUS EX	DRILLERS NAME GOLDSWORTHY R		CONFIDENTIAL N
ROLES WS	DRILL COMPANY PIONEER DRILLING		
	METHOD OF CONST. ROTARY		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM	TOP (m)	BOTTOM (m)
A	07/06/2002	1	Polyvinyl Chloride	5.900	WT	140	0.00	17.50
A	07/06/2002	2	Perforated or Slotted Casing				11.50	17.50
A	07/06/2002	3	Gravel Pack	5.000	GR	165	0.00	17.50

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	0.50	BLACK SOIL
2	0.50	4.00	MUDSTONE ORANGE *
3	4.00	5.00	MUDSTONE WHITE
4	5.00	10.00	MUDSTONE ORANGE
5	10.00	12.00	ORANGE BLACK ROCK
6	12.00	13.00	SAND *

GROUNDWATER DATABASE
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REG NUMBER 111768

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
7	13.00	17.50	BASALT

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD CTR (l/s)	CONDIT	FORMATION NAME
1	2.00	13.00	MDST	07/06/2002	-1.00	N	9750 US/CM	0.95	Y	FR WANDILLA FORMATION

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

PIPE	DATE	MEASURE	N/R	RMK	LOG	PIPE	DATE	MEASURE	N/R	RMK	LOG	PIPE	DATE	MEASURE	N/R	RMK	LOG
------	------	---------	-----	-----	-----	------	------	---------	-----	-----	-----	------	------	---------	-----	-----	-----

(m)

A	07/06/2002	-1.00		R	
---	------------	-------	--	---	--

GROUNDWATER DATABASE

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WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK	METH	SOURCE
A	07/06/2002	17.50	9750							Al	GB

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET	CASING	STRLOG	AQUIFR	PUMTES	ELVDET	WLVDet	FIELDQ
Y 18/02/2003	Y 18/02/2003	Y 18/02/2003	Y 18/02/2003			Y 18/02/2003	Y 18/02/2003

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
--------	--------	--------	--------	--------	--------	--------	--------

GENERAL NOTES

**** NO RECORDS FOUND ****

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REGISTRATION DETAILS

OFFICE Rockhampton	BASIN 1320	LATITUDE 23-50-53	MAP-SCALE 503
DATE LOG RECD	SUB-AREA	LONGITUDE 151-13-16	MAP-SERIES M
D/O FILE NO. 520/001/66	SHIRE 3360-GLADSTONE REGIO	EASTING 318822	MAP-NO 9150-3
R/O FILE NO.	LOT 1	NORTHING 7361455	MAP NAME
H/O FILE NO.	PLAN CP818823	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -23.848083189	PARISH NAME 202-AUCKLAND		ORIGINAL BORE NO GLADSTONE POWER STATION
GIS LNG 151.220980711	COUNTY CLINTON		BORE LINE -
CHECKED Y	PROPERTY NAME		POLYGON
	FIELD LOCATION		RN OF BORE REPLACED
FACILITY TYPE SF	DATE DRILLED 06/06/2002		DATA OWNER DNR
STATUS AD	DRILLERS NAME GOLDSWORTHY R		CONFIDENTIAL N
ROLES	DRILL COMPANY PIONEER DRILLING		
	METHOD OF CONST. ROTARY		

CASING DETAILS

**** NO RECORDS FOUND ****

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	0.50	TOP FILL
2	0.50	3.00	SANDY CLAY
3	3.00	4.00	MUDSTONE ORANGE
4	4.00	5.00	MUDSTONE & CLAY
5	5.00	11.00	MUDSTONE
6	11.00	25.00	DECOMPOSED MUDSTONE
7	25.00	40.00	MUDSTONE DRY HOLE ABANDONED

STRATIGRAPHY DETAILS

**** NO RECORDS FOUND ****

AQUIFER DETAILS

GROUNDWATER DATABASE
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DATE 08/03/2011

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**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 1

**** NO RECORDS FOUND ****

PUMP TEST DETAILS PART 2

**** NO RECORDS FOUND ****

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

**** NO RECORDS FOUND ****

WATER ANALYSIS PART 2

**** NO RECORDS FOUND ****

WATER LEVEL DETAILS

**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

**** NO RECORDS FOUND ****

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

VALIDATION LOG - PART 1

REGDET

CASING

STRLOG

AQUIFR

PUMTES

ELVDET

WLVDet

FIELDQ

DATE 08/03/2011

BORE CARD REPORT - PUBLISHABLE

REG NUMBER 111769

Y 18/02/2003

Y 18/02/2003

VALIDATION LOG - PART 2

WATANL	SAMPLE	STRTIG	WIRLOG	MULCND	BRCOND	FPREAD	GNOTES
--------	--------	--------	--------	--------	--------	--------	--------

GENERAL NOTES

**** NO RECORDS FOUND ****

DATE 08/03/2011

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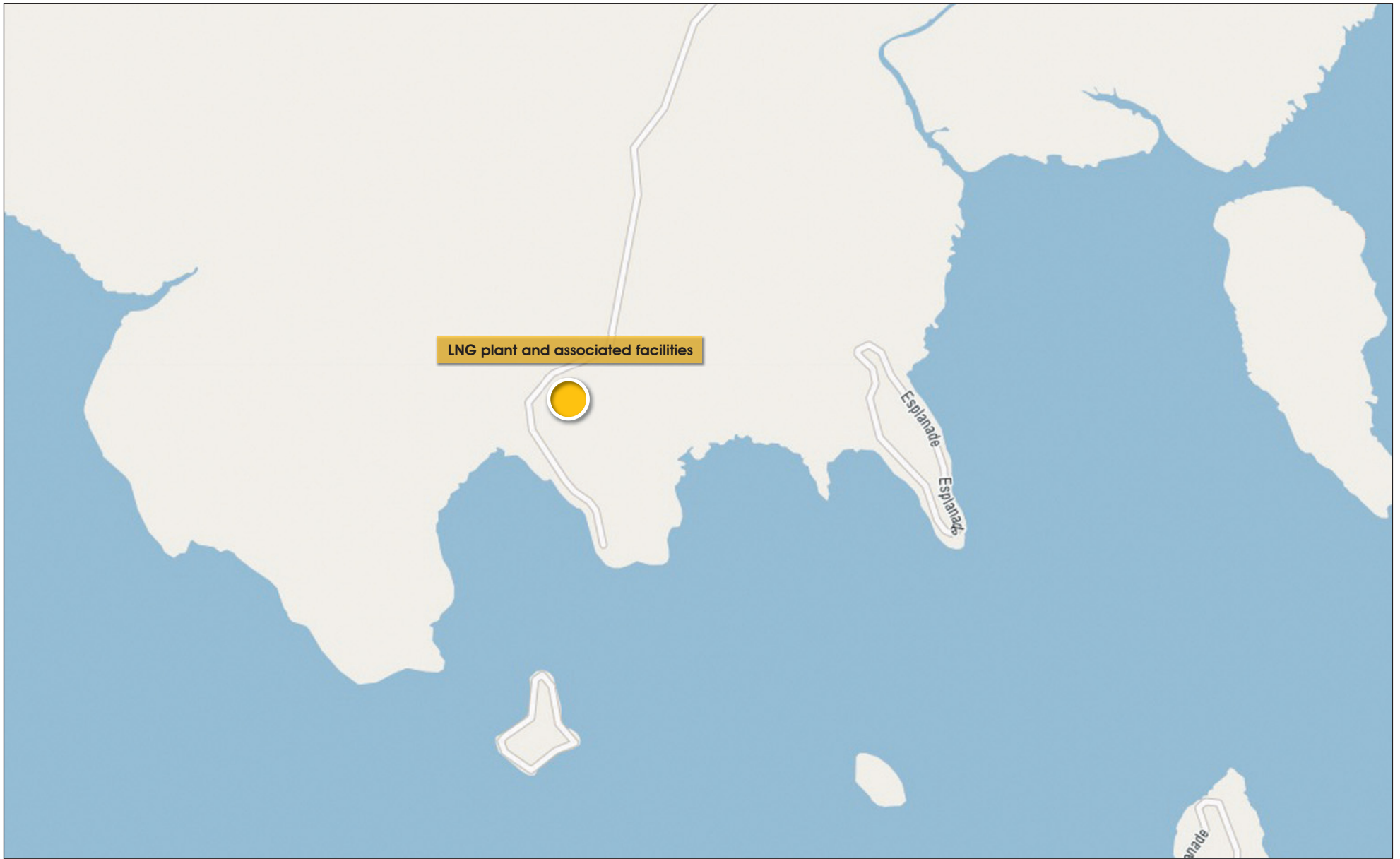
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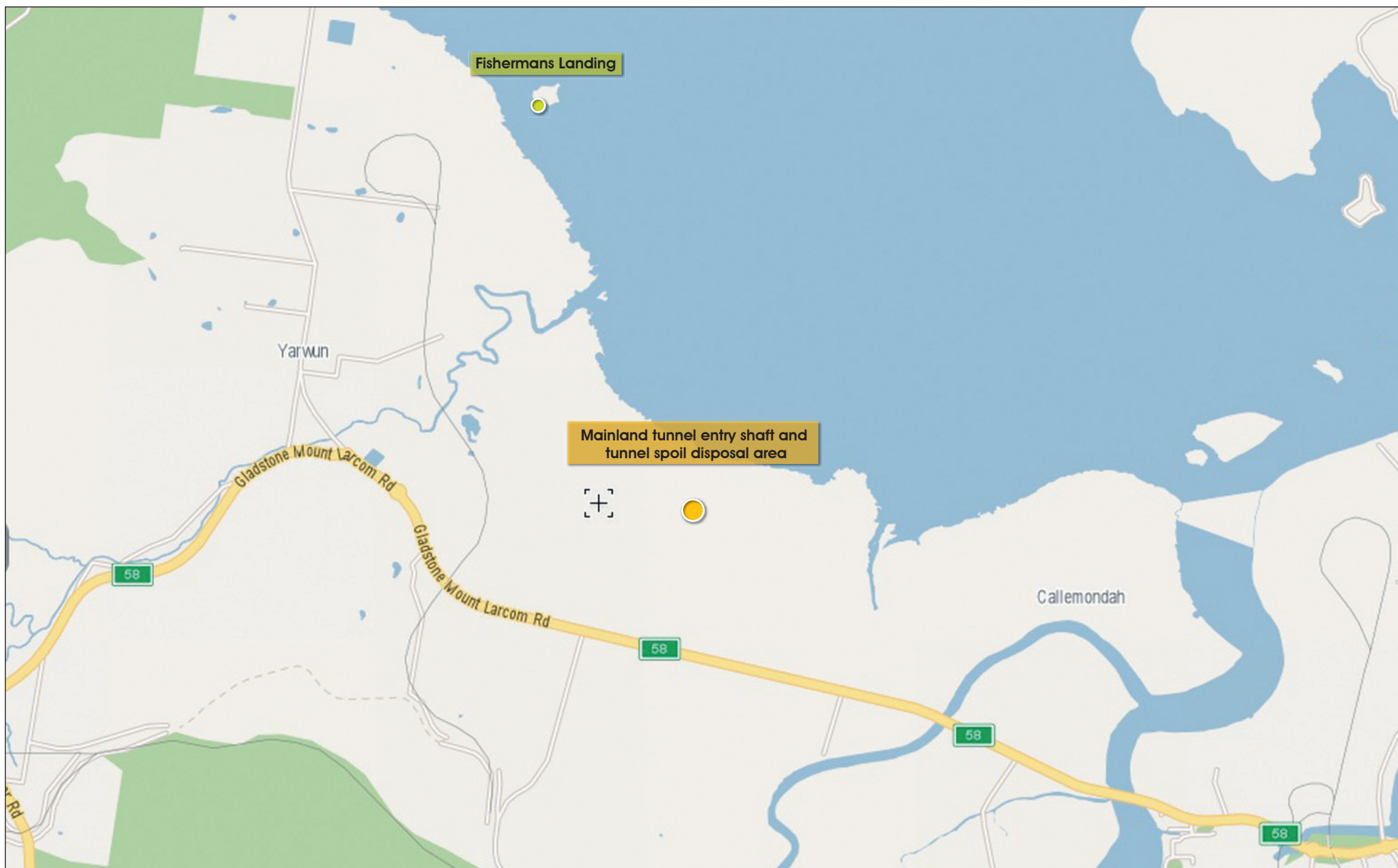
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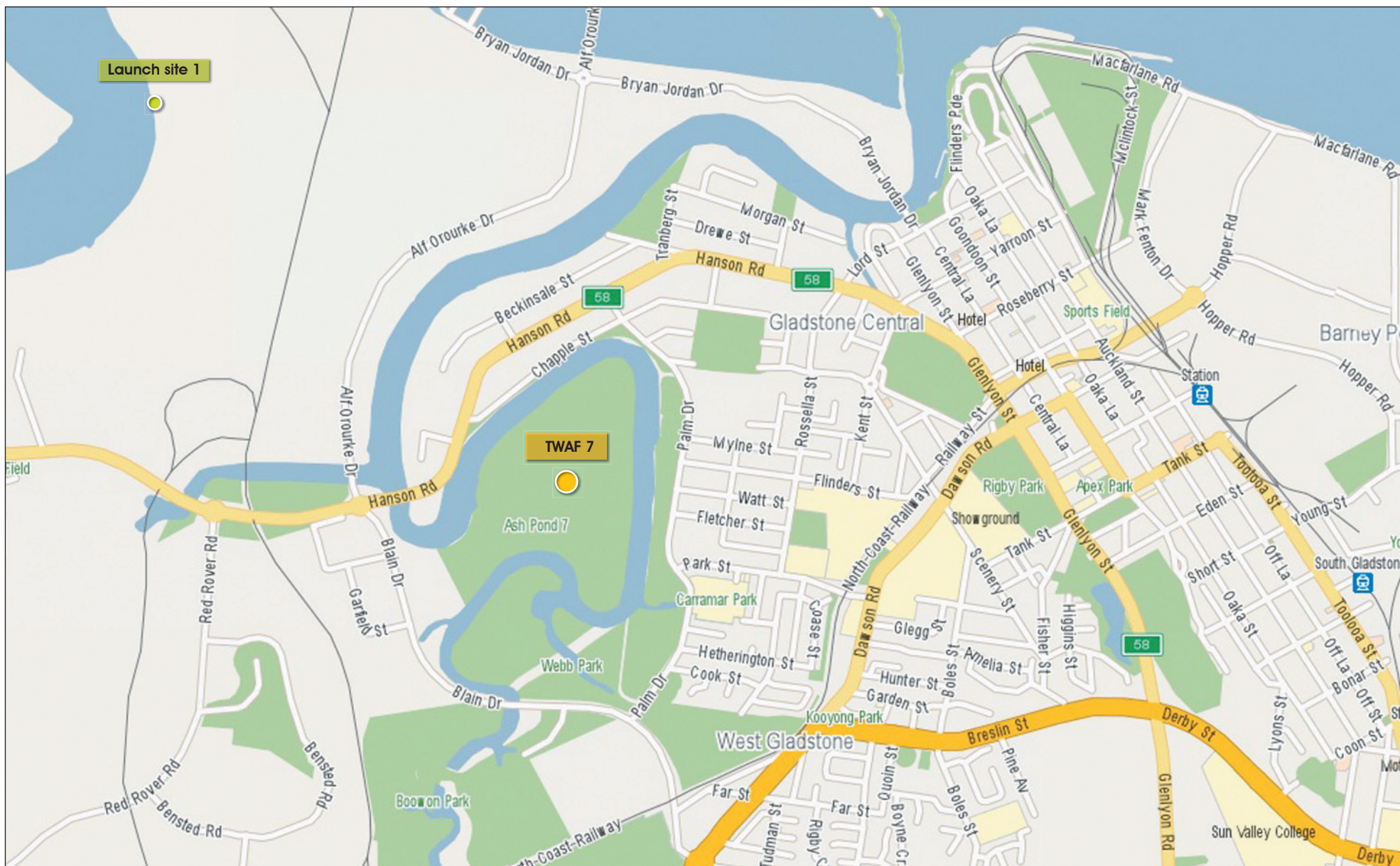
**** End of Report ****

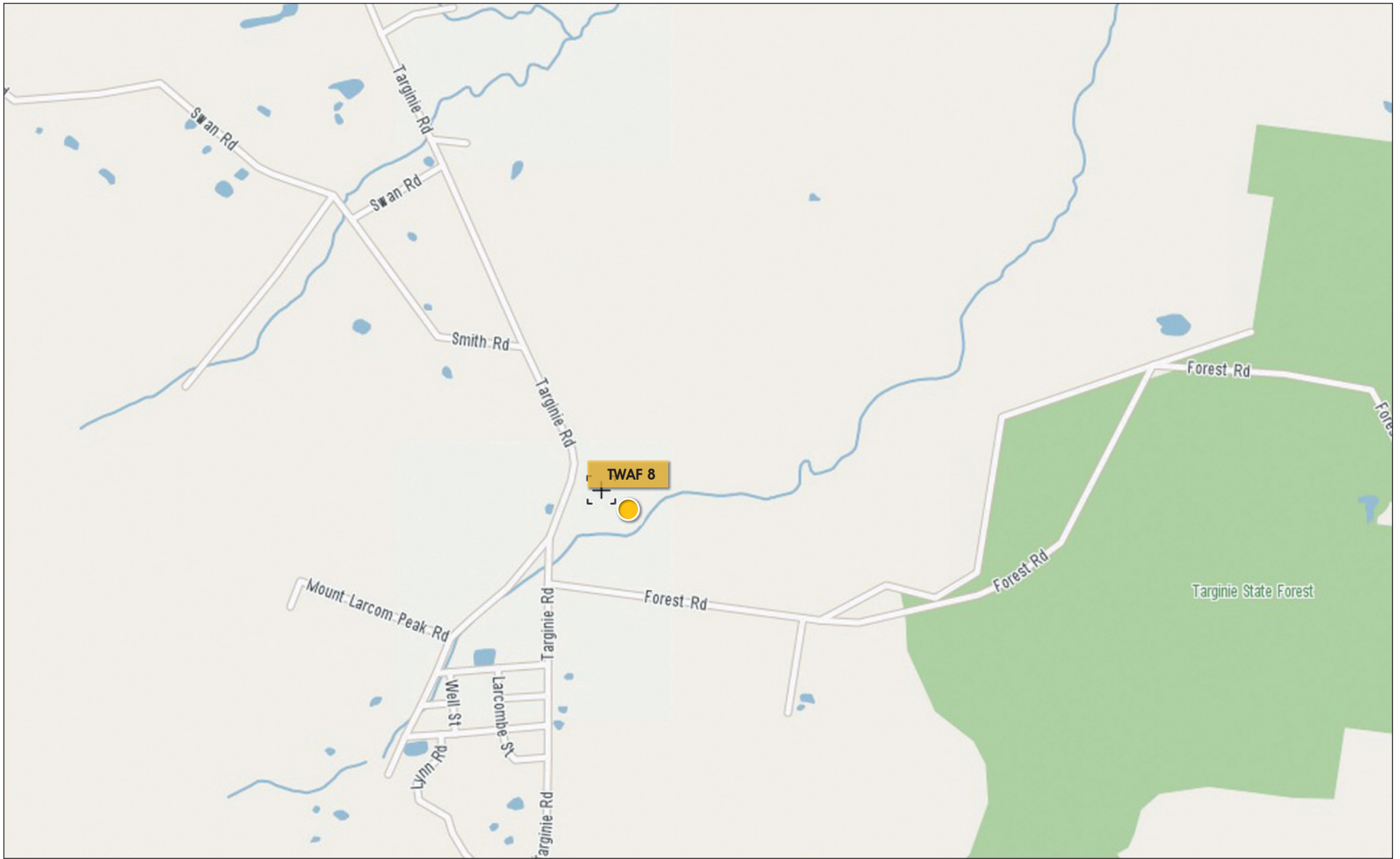
Appendix F

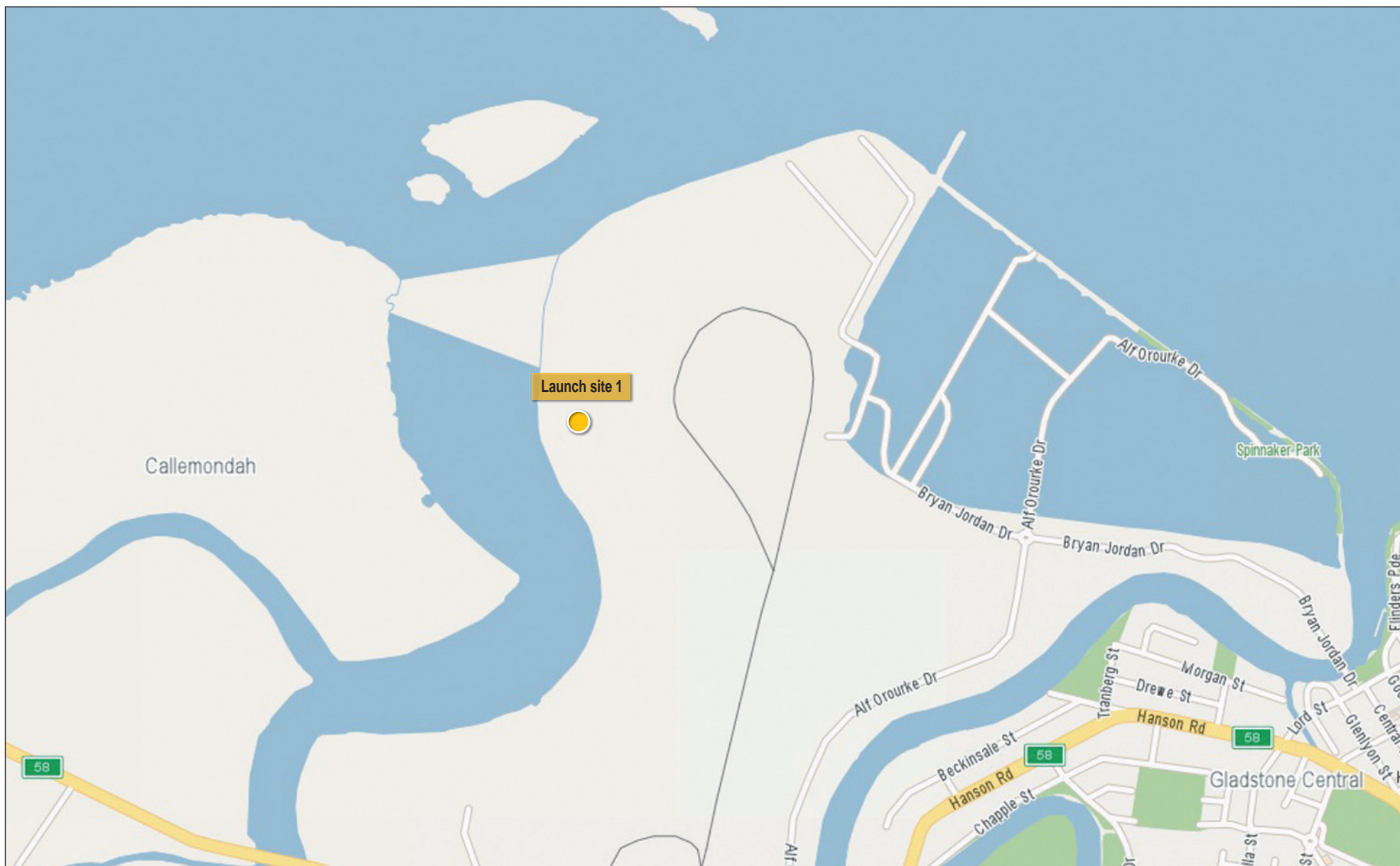
Street Maps











Appendix G

Site Walkover Photographs



Photograph 1: Battery stockpile of lead acid batteries on Lot 2 SP207281.



Photograph 2: Cattle Dip on Lot 2 SP207281



Photograph 3: General rubbish and water with visible sheen in cattle dip on Lot 2 SP207281.



Photograph 4: Main site shed on Lot 2 SP207281.



Photograph 5: Cattle yards located 300 east north east of cottage on Lot 2 SP207281.



Photograph 6: Photograph of cattle race in pens on Lot 2 SP207281, empty 205L drum visible on left hand side of photo.



Photograph 7: Waste dump of corrugated iron sheeting and other material on Lot 2 SP207281.



Photograph 8: Photo showing old stock yards on Lot 6 DS220.



Photograph 9: Photo of old stock yards on Lot 6 DS220.



Photograph 10: Photo of surface material on Lot 200 CTN2173.



Photograph 11: Photo of power lines on Lot 44 DS290.