

**APPENDIX A      Landscape Rehabilitation Management Plan**

# GLNG Project

## Landscape Rehabilitation Management Plan for the GLNG Gas Transmission Pipeline Corridor

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## Table of Contents

<b>1.</b>	<b>Introduction</b>	<b>4</b>
1.1	Background and context	4
1.2	Purpose of this plan	4
1.2.1	Relationship between this plan and other GTP Corridor Management Plans	5
<b>2.</b>	<b>Legislative and Regulatory Framework</b>	<b>6</b>
2.1	Applicable Legislation	6
2.1.1	Policies, Standards and Guidelines	6
2.2	EIS Commitments and Approval Conditions	7
2.2.1	Approvals, Licenses and Permits	7
2.3	Offsets Package	7
<b>3.</b>	<b>Environmental Management Framework</b>	<b>7</b>
3.1	Santos Environment Health, Safety and Management System (EHSMS)	7
3.2	Overall EHSMS Structure	7
3.3	EHSMS Management Standards	7
3.4	EHSMS Hazard Standards	8
<b>4.</b>	<b>Existing Environment</b>	<b>8</b>
4.1	Flora	8
4.1.1	Species	8
4.1.2	Regional Ecosystems	8
4.2	Fauna	10
4.3	Watercourse and wetlands	11
4.3.1	Environmentally sensitive areas	11
4.3.2	Agricultural Land Use	11
<b>5.</b>	<b>Impacts</b>	<b>12</b>
<b>6.</b>	<b>Pipeline operational and decommissioning phase rehabilitation objectives</b>	<b>13</b>
<b>7.</b>	<b>Implementation and Management Strategy</b>	<b>13</b>
7.1	Pre-clearance Survey	13
7.2	Benchmark Guidelines	13
7.3	Operational Safety requirements	13
7.4	Landholder Rehabilitation requirements	14
7.5	Rehabilitation Schedules	14
7.5.1	Performance criteria	14
<b>8.</b>	<b>Management Requirements</b>	<b>15</b>
<b>9.</b>	<b>Constraints</b>	<b>20</b>
<b>10.</b>	<b>Rehabilitation completion criteria</b>	<b>21</b>
<b>11.</b>	<b>Training and awareness</b>	<b>22</b>
11.1	Project Personnel induction	22
<b>12.</b>	<b>Monitoring and Maintenance</b>	<b>23</b>
<b>13.</b>	<b>Reporting and Record Keeping</b>	<b>24</b>

<b>14.</b>	<b>Correction and Prevention</b>	<b>26</b>
14.1	Preventative Actions	26
14.2	Non-conformance	26
14.3	Contingency measures	27
14.4	Environmental incidents and Corrective Actions	27
14.4.1	Flora	27
14.4.2	Fauna	27
14.5	Emergency preparedness and response	28
<b>15.</b>	<b>Compliance and Evaluation</b>	<b>28</b>
15.1	Monitoring (Landscape and Rehabilitation)	28
15.1.1	Inspection and surveillance	28
15.2	Ecological performance auditing	29
15.2.1	External audits	29
15.3	Non-compliance	29
15.4	Variations to the LRMP	30
<b>16.</b>	<b>References</b>	<b>31</b>

# 1. Introduction

## 1.1 Background and context

The GLNG project involves the development of coal seam gas resources in the Bowen and Surat Basins around Roma, construction of a pipeline from the gas fields to the coast, and construction of up to three processing trains at a liquefied natural gas (LNG) plant and export facility on Curtis Island, off Gladstone.

On 16 July 2007, the Coordinator-General declared the Project to be a 'significant project' for which an environmental impact statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld).

Following the preparation of the EIS and the SEIS, the CG Report for the GLNG Project was issued in May 2010, and the approvals of the four relevant referred components were granted under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cth) in October 2010.

This Landscape Rehabilitation Management Plan (LRMP) has been prepared in accordance with the following conditions outlined in the CG Report, the EPBC Act approval and the DERM Environmental Authority.

### CG Report conditions

- Appendix 3 - Gas Pipeline, Part 2 – General Conditions
  - Condition 3
  - Condition 17
- Appendix 3 – Gas Pipeline, Part 3 & 4 – Environmental Conditions
  - Condition 1(d)
  - Condition 3(d)
  - Condition 4(f-g)
  - Condition 5(a & e)
  - Schedule E14.7, E30-E36
  - Schedule J

### EPBC Act approval conditions

- Condition 3a
- Condition 3d
- Condition 8(e)i

### DERM Environmental Authority No.: PEN102664411

- Schedule E30 – E36
- Schedule H
- Schedule J22-J24

## 1.2 Purpose of this plan

This LRMP is applicable to the Gas Transmission Pipeline (GTP) component of the Project which commences approximately 40km east of Injune, then travels north along the eastern side of Arcadia Valley. The GTP will approach Gladstone from the south-west through the Callide Infrastructure Corridor State Development Area (CICSDA) and the Gladstone State Development Area (GSDA) before crossing Port Curtis between Friend Point and Laird Point to Curtis Island and the proposed LNG Facility. A number of associated ancillary sites comprising accommodation camps and stockpile facilities, in addition to access tracks and roads will be constructed and are also addressed within this LRMP.

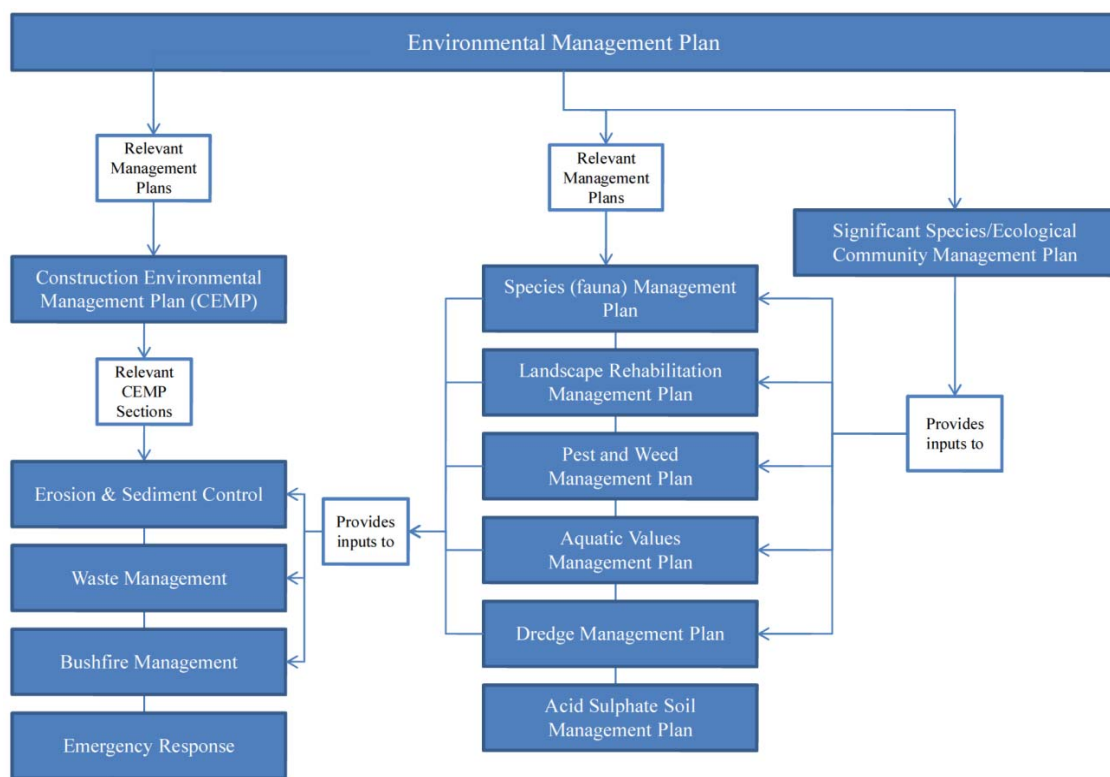
The purpose of this LRMP is to provide management measures to be implemented during and post construction of the GTP Corridor to rehabilitate the GTP Right of Way (ROW) to meet relevant approval conditions.

The LRMP will act as a tool to assist both the proponent and the Principal Contractor in determining the extent of compliance required by Principal Contractor's staff and sub-contractors with regards to the regulations and guidelines applicable to the GLNG pipeline project.

The LRMP is a live document and will be updated as required during construction of the Project. It is designed to:

- Minimise area of overall disturbance;
- Create a safe, stable and non-polluting landform;
- Undertake a comprehensive revegetation and rehabilitation program of all disturbed areas;
- Revegetation and rehabilitation undertaken in a timely manner;
- Preservation of downstream receiving environments;
- Ensure compliance with relevant approval conditions specified by the Coordinator-General, the Department of Environment and Resource Management (DERM), Queensland Primary Industries and Fisheries (QPIF) and DSEWPC; and
- Ensure compliance with commitments under the EIS and SEIS.

### 1.2.1 Relationship between this plan and other GTP Corridor Management Plans



## 2. Legislative and Regulatory Framework

It should be noted that the information provided in this plan regarding relevant legislation, policies, regulations, standards and guidelines might not be a complete representation of all statutory requirements relevant to landscaping and rehabilitation practices. It is the responsibility of Contractors to determine all statutory and other requirements relevant to their package of works.

### 2.1 Applicable Legislation

The rehabilitation and landscaping of disturbed areas are not legislated under any one specific Act. However, it is enforced by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC)<sup>1</sup>, Department of Environment and Resource Management (DERM)<sup>2</sup> and the Department of Employment, Economic Development and Innovation (DEEDI)<sup>3</sup>, often as a condition outlined in approvals for the disturbance and/or clearing of native vegetation.

Key environmental legislation relating to the LRMP includes the following:

- *Environment Protection and Biodiversity Conservation Act 1999*
- *Nature Conservation Act 1992*
- *Nature Conservation (Wildlife) Regulation 2006*
- *Nature Conservation (Protected Plants) Conservation Plan 2000*
- *Nature Conservation (Protected Areas) Regulation 1994*
- *Nature Conservation (Koala) Conservation Plan 2005*
- *Nature Conservation (Forest Reserves) Regulation 2000*
- *Fisheries Act 1994*
- *Fisheries Regulation 2008*
- *Land Protection (Pest and Stock Route Management) Regulation 2003*
- *Great Barrier Reef Marine Park Act 1975*
- *Great Barrier Reef Marine Park Amendment Act 2007*
- *Animal Care and Protection Act 2001*
- *Coastal Protection and Management Act 1995*
- *Environmental Protection Act 1994*
- *Marine Parks Act 1982*
- *Water Act 2000*
- *Vegetation Management Act 1999*
- *Petroleum and Gas (Production and Safety) Act 2004*
- *Land Protection (Pest and Stock Route Management) Act 2002*

#### 2.1.1 Policies, Standards and Guidelines

Activities will be undertaken in consideration of the relevant components of the following industry Codes of Practice:

- Australian Petroleum Production and Exploration Association's (APPEA) Code of Environmental Practice (2008); and
- Australian Pipeline Industry Association's (APIA) Code of Environmental Practice (Operations) (2005).

Relevant standards include:

- Australian Standard 4801:2000 Occupational Health and Safety Management Systems – Specification with guidance for use, and AS/NZS ISO 14001:1996 Environmental Management Systems;
- AS2885.1-1997 Gas and Liquid Petroleum - Design and Construction;
- Road Landscape Manual (Department of Main Roads (DMR), 2004) available for download from <http://www.mainroads.qld.gov.au/>. Consultation with the Project civil engineers and landscape architects is recommended when referring to this document;
- Ergon Energy has requirements pertaining to the amount of clearance required both under and directly adjacent to existing powerlines. This information is available for download at <http://www.ergon.com.au/>;
- These guidelines will be followed as a minimum around all powerlines regardless of ownership;
- Riparian Land Management Technical Guidelines Volumes 1 and 2 (Lovett & Price 2002);
- A Rehabilitation Manual for Australian Streams Volumes 1 And 2 (Rutherford *et al.* 2000);
- Guidelines for Protecting Australian Waterways (Bennett *et al.* 2002);
- Principles of Riparian lands Management (Lovett & Price 2007); and
- Code of Environmental Practice – Onshore Pipelines (APIA 2005).

<sup>1</sup> Formerly the Department of Environment, Water, Heritage and the Arts.

<sup>2</sup> Formerly the Environmental Protection Agency and the Department of Natural Resources and Water.

<sup>3</sup> Formerly the Department of Primary Industries and Fisheries.

- Soil Erosion and Sediment Control - Engineering Guidelines for Queensland Construction Sites (Institution of Engineers Australia 1996)
- Saltwater Wetland Rehabilitation Manual (Department of Environment and Climate Change 2008)
- Wetland Rehabilitation Guidelines for the Great Barrier Reef catchment (WetlandCare Australia 2008)
- Santos EHSMS Standards as per the CEMP.

## **2.2 EIS Commitments and Approval Conditions**

In addition to the commitments outlined within the EIS and SEIS, this Plan will need to adopt any relevant statutory approval conditions. As of November 2010, this Plan has addressed all commitments within the EIS/SEIS and all relevant approval conditions determined by the Co-ordinator General.

### **2.2.1 Approvals, Licenses and Permits**

A Coordinator-General's Report was provided for the Project in May 2010. Additional approvals/permits applicable to LRMP are as follows:

- Permit to collect seed / cuttings from a threatened species outside the corridor (NC Act);
- Permit to clear native vegetation (NC Act);
- Permit to clear marine plants (Fisheries Act);
- Licence to construct a waterway barrier within a defined watercourse;
- Environment Authority for the Pipeline Licence; and
- EPBC Act Approval.

## **2.3 Offsets Package**

An Environmental Offset proposal for the GLNG Project has been developed by Ecofund Queensland on behalf of the Proponent. The proposal outlines the environmental offset requirements for each component of the Project under both Queensland and Australian Government offset policies. The extent of offsets was based on information contained in the EIS and SEIS. The Package also included options for offset delivery and examples of properties that may be suitable to meet the identified offset requirements.

# **3. Environmental Management Framework**

## **3.1 Santos Environment Health, Safety and Management System (EHSMS)**

This section provides an introduction to the EHSMS for operations. An overview of the Santos EHSMS is provided together with further information on key components of the system considered to be specifically relevant to the construction of the pipeline.

The framework has been developed to ensure compliance with Australian Standard 4801:2000 Occupational Health and Safety Management Systems – Specification with guidance for use, and AS/NZS ISO 14001:1996 Environmental Management Systems – Specification with guidance for use. The Santos EHSMS applies to all Santos operations.

## **3.2 Overall EHSMS Structure**

The EHSMS framework consists of multiple layers, the key components being management and hazard standards.

The documents that make up each level of the EHSMS are maintained in electronic form on a central server (The Well) that is accessible to all GLNG employees.

## **3.3 EHSMS Management Standards**



Management Standards are documents which define the requirements necessary to ensure that environmental, health and safety risk is systematically managed. Management standards have been developed as part of the EHSMS.

### 3.4 EHSMS Hazard Standards

Hazard Standards detail the controls required to manage the risks of specific hazards to acceptable levels. These apply to all Santos operations. They contain specific requirements for planning and undertaking activities and include checklists and references to internal and external approvals and controls.

## 4. Existing Environment

### 4.1 Flora

The design of the GTP RoW has considered the ecological values of the vegetation communities and habitat within and adjacent to the footprint. This has been achieved by positioning the GTP in areas which have already been historically cleared for agricultural activities or, where possible, co-positioning the GTP adjacent to existing linear infrastructure, such as the existing Jemena Gas Pipeline where it traverses remnant vegetation communities.

State Forests and Timber Reserves directly impacted by the GTP include the Expedition State Forest, Callide Timber Reserve and Targinie State Forest (refer to mapping provided within the SSMP for specific locations).

#### 4.1.1 Species

As part of the GLNG EIS process, flora assessments of the mainland component of the GTP RoW were undertaken in 2008. The surveys identified the presence of approximately 320 flora species within the GTP RoW.

Additional surveys undertaken in 2010 targeted significant flora species (EPBC Act and *Nature Conservation Act 1992* [NC Act] listed Endangered, Vulnerable, Near Threatened [EVNT]; and NC Act Type A Restricted Plants) and ecological communities (including *Vegetation Management Act 1999* [VM Act] listed Endangered and Of Concern Regional Ecosystems [REs] and EPBC listed Threatened Ecological Communities [TECs]). These surveys resulted in the detection of an additional 14 significant plant species.

The majority of the species identified from the GTP RoW during the 2008/2010 survey periods are listed as Least Concern under the provisions of the NC Act and are not listed under the provisions of the EPBC Act. However, a number of conservation significant flora (ie Type A restricted plants and EVNT species), including *Cycas megacarpa* (Cycad), *Gonocarpus urceolatus* (Raspweed), *Acacia gittinsii* (Gittin's wattle) and *Solanum johnsonianum* (NCN) are known to occur within the Project footprint.

The EIS and SEIS surveys also noted a number of introduced weed species, of which 10 are declared species under the *Queensland Land Protection (Pest and Stock Route Management) Act 2002* (LP Act). Three of the species observed (*Cryptostegia grandiflora* [Rubber vine], *Lantana camara* [Lantana] and *Parthenium hysterophorus* [Parthenium weed]) are also listed as Weeds of National Significance (WONS) under the provisions of the EPBC Act.

A summary of the vegetation communities, associated habitats and identified flora present within the GTP RoW is available in the EIS, SEIS, SSMP and the Weed Management Plan (WMP).

#### 4.1.2 Regional Ecosystems

The majority of the Project area (approximately 80%) has been historically cleared for agriculture, and as such, a large portion of the GTP is considered pastoral grazing land (Fairview, Arcadia Valley and Calliope) or irrigated cropping (Zamia, Mimosa and Dawson catchments).

However, the GTP RoW also intercepts areas mapped as remnant vegetation under DERM's RE Mapping (approximately 60 RE communities). This includes REs which are also listed as TECs under the provisions of the EPBC Act. Table 1 outlines RE communities present within the GTP RoW.

**Table 4.1 Regional Ecosystems within the GTP ROW**

RE Code	RE Description
11.1.2	Very sparse samphire forbland on marine clay plains.
11.1.4	Mid-dense mangrove forest/woodland on marine clay plains.
11.3.1/11.3.2	Mid-dense <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on alluvial plains and sparse <i>Eucalyptus populnea</i> woodland on alluvial plains.
11.3.2	Sparse <i>Eucalyptus populnea</i> woodland on alluvial plains.
11.3.2/11.3.4/11.3.25	Sparse <i>Eucalyptus populnea</i> woodland on alluvial plains, sparse <i>E.tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains and mid-dense <i>E. tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines.
11.3.2/11.3.25	Sparse <i>Eucalyptus populnea</i> woodland on alluvial plains and mid-dense <i>E. tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines.
11.3.2/11.3.39	Sparse <i>Eucalyptus populnea</i> woodland on alluvial plains and sparse <i>E.melanophloia</i> +/- <i>E. chloroclada</i> open-woodland on undulating plains and valleys with sandy soils.
11.3.3/11.3.4	Sparse <i>E.coolabah</i> woodland on alluvial plains and sparse <i>E.tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains.
11.3.4/11.3.25	Sparse <i>E.tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains and mid-dense <i>E. tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines.
11.3.4/11.3.26	Sparse <i>E.tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains and mid-dense <i>E.moluccana</i> or <i>E.microcarpa</i> woodland to open forest on margins of alluvial plains.
11.3.4/11.3.26/11.11.15	Sparse <i>E.tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains, mid-dense <i>E.moluccana</i> or <i>E.microcarpa</i> woodland to open forest on margins of alluvial plains and sparse <i>E.crebra</i> woodland on deformed and metamorphosed sediments and interbedded volcanics.
11.3.4/11.8.4	Sparse <i>E.tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains and sparse <i>E.melanophloia</i> woodland on Cainozoic igneous rocks (hillsides).
11.3.17	Sparse <i>E.populnea</i> woodland with <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> on alluvial plains.
11.3.25	Mid-dense <i>E. tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines.
11.3.25/11.11.4/11.11.15	Mid-dense <i>E. tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines, sparse <i>E.crebra</i> woodland on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges and sparse <i>E.crebra</i> woodland on deformed and metamorphosed sediments and interbedded volcanics.
11.3.26	Mid-dense <i>E.moluccana</i> or <i>E.microcarpa</i> woodland to open forest on margins of alluvial plains.
11.4.8	Mid-dense <i>E.cambageana</i> woodland to open forest with <i>Acacia harpophylla</i> or <i>Acacia argyrodendron</i> on Cainozoic clay plains.
11.4.9	Mid-dense <i>Acacia harpophylla</i> shrubby open forest to woodland with <i>Terminalia oblongata</i> on Cainozoic clay plains.
11.5.2	Sparse <i>E.crebra</i> , <i>Corymbia</i> spp., with <i>E. moluccana</i> on lower slopes of Cainozoic sand plains/remnant surfaces.
11.5.2/11.9.1	Sparse <i>E.crebra</i> , <i>Corymbia</i> spp., with <i>E. moluccana</i> on lower slopes of Cainozoic sand plains/remnant surfaces and mid-dense <i>Acacia harpophylla</i> - <i>E.cambageana</i> open forest to woodland on fine-grained sedimentary rocks.
11.5.5	Sparse <i>E.melanophloia</i> , <i>Callitris glaucophylla</i> woodland on Cainozoic sand plains/remnant surfaces (deep red sands).
11.8.4	Sparse <i>E.melanophloia</i> woodland on Cainozoic igneous rocks (hillsides).
11.8.4/11.10.1	Sparse <i>E.melanophloia</i> woodland on Cainozoic igneous rocks (hillsides) and mid-dense <i>Corymbia citriodora</i> open forest on coarse-grained sedimentary

RE Code	RE Description
	rocks.
11.9.1/11.9.5	Mid-dense <i>Acacia harpophylla</i> - <i>E.cambageana</i> open forest to woodland on fine-grained sedimentary rocks and mid-dense <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks.
11.9.5/11.10.1	Mid-dense <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks and mid-dense <i>Corymbia citriodora</i> open forest on coarse-grained sedimentary rocks.
11.9.5	Mid-dense <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks.
11.10.1	Mid-dense <i>Corymbia citriodora</i> open forest on coarse-grained sedimentary rocks.
11.10.1/11.10.13	Mid-dense <i>Corymbia citriodora</i> open forest on coarse-grained sedimentary rocks and mid-dense <i>Eucalyptus</i> spp. and/or <i>Corymbia</i> spp. open forest on scarps and sandstone tablelands.
11.10.13	Mid-dense <i>Eucalyptus</i> spp. and/or <i>Corymbia</i> spp. open forest on scarps and sandstone tablelands.
11.11.3/11.11.15/11.11.18	Mid-dense <i>Corymbia citriodora</i> , <i>E.crebra</i> , <i>E.acmenoides</i> open forest on old sedimentary rocks with varying degrees of metamorphism and folding (coastal ranges), sparse <i>E.crebra</i> woodland on deformed and metamorphosed sediments and interbedded volcanics and dense semi-evergreen vine thicket on old sedimentary rocks with varying degrees of metamorphism and folding.
11.11.4/11.11.15	Sparse <i>E.crebra</i> woodland on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges and sparse <i>E.crebra</i> woodland on deformed and metamorphosed sediments and interbedded volcanics.
11.11.15/11.11.18	Sparse <i>E.crebra</i> woodland on deformed and metamorphosed sediments and interbedded volcanics and dense semi-evergreen vine thicket on old sedimentary rocks with varying degrees of metamorphism and folding.
11.12.1/11.12.6	Sparse <i>E.crebra</i> woodland on igneous rocks and mid-dense <i>Corymbia citriodora</i> open forest on igneous rocks (granite).
12.1.3	Dense mangrove shrubland to low closed forest on marine clay plains and estuaries.
12.3.3/12.3.7	Mid-dense <i>E.tereticornis</i> woodland to open forest on alluvial plains and mid-dense <i>E.tereticornis</i> , <i>Melaleuca viminalis</i> , <i>Casuarina cunninghamiana</i> fringing forest.
12.3.7/12.3.11	Mid-dense <i>E.tereticornis</i> , <i>Melaleuca viminalis</i> , <i>Casuarina cunninghamiana</i> fringing forest and mid-dense <i>E. tereticornis</i> , <i>E.siderophloia</i> , <i>Corymbia intermedia</i> open forest on alluvial plains near coast.
12.11.6	Mid-dense <i>Corymbia citriodora</i> , <i>E.crebra</i> open forest on metamorphics +/- interbedded volcanics.
12.11.6/12.11.14	Mid-dense <i>Corymbia citriodora</i> , <i>E.crebra</i> open forest on metamorphics +/- interbedded volcanics and sparse <i>E.crebra</i> , <i>E. tereticornis</i> woodland on metamorphics +/- interbedded volcanics.

Refer to the SSMP for detailed information on significant ecological communities present within the GTP ROW as well as mapping highlighting the location of each RE and its status within the GTP ROW.

## 4.2 Fauna

As part of the EIS process, fauna assessments of the mainland component of the GTP RoW were undertaken in 2008. During the survey periods, a total of 98 native and 8 introduced fauna species were identified from the GTP RoW. Additional surveys undertaken in 2010 detected an additional 220 native and 4 introduced fauna species within, and adjacent to, the GTP RoW.

The majority of the fauna species identified from the GTP RoW are listed as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act. However, there are a number of EVNT fauna species known within the Project footprint, including the Powerful owl (*Ninox strenua*), Squatter pigeon

(*Geophaps scripta scripta*), Golden-tailed gecko (*Strophurus taenicauda*) and Brigalow scaly-foot (*Paradelma orientalis*).

Further detail regarding the EVNT species known or likely to occur within the GTP RoW is provided in the EIS, SEIS, SMP and SSMP.

### 4.3 Watercourse and wetlands

The project area encompasses the catchment areas of Dawson, Comet and Calliope Rivers, and extends into tidal creeks and wetlands of Port Curtis.

Within these three catchments, the proposed corridor traverses 183 watercourses. DERM has assigned each watercourse a Stream Order (SO) number from 1 to 8, based on its position within the catchment. The major watercourses intersected include the Dawson River (SO 8 and 5) and Calliope River (SO 5) and Hutton (SO 6), Clematis (SO 5), Callide (SO 5), Baffle (SO 4) and Larcom (SO 3 and 4) Creeks.

The GTP RoW also intersects the estuarine environs of Targinie and Humpy Creek and the intertidal wetlands (including seagrass, mangrove and saltmarsh communities) of Port Curtis (e.g. Kangaroo Island and Curtis Island).

#### 4.3.1 Environmentally sensitive areas

To assist in minimising the impacts on the existing environmental values of the area, the Environmentally Sensitive Areas (ESAs) have been mapped. The ESAs within and adjacent to the GTP RoW include:

- TECs under the EPBC Act;
- Areas known to support EVNT species under the provisions of the EPBC Act and/or NC Act;
- Areas mapped as Endangered or Of concern REs under the provisions of the VM Act;
- Areas mapped as Essential Habitat under the provisions of the VM Act;
- Areas protected under the provisions of the NC Act and/or Forestry Act; and
- Riparian zones of watercourses with a Stream Order equal to or greater than 3.

Where possible, these areas will be avoided, or measures will be implemented, prior to and during construction, to minimise potential impacts (e.g. a maximum clearing footprint of 30 m).

Specific management measures for ESAs are outlined in the SSMP.

#### 4.3.2 Agricultural Land Use

An assessment of the agricultural land capability of the area was conducted during the EIS (URS, 2009) to provide a benchmark of existing/potential agricultural land use. Land within the study area was identified in accordance with State Planning Policy 1/92: Development and the Conservation of Agricultural Land. The assessment was based on the four class system for defining Good Quality Agricultural Land (GQAL) as detailed in the Planning Guidelines - Department of Primary Industries (DPI) and the Department of Housing Local Government and Planning (DPI/DHLGP - 1993).

All Class A land is considered to be GQAL. In some areas, Class B land (where agricultural land is scarce) and better quality Class C land (C1) (where pastoral industries predominate), are also considered to be GQAL. For the Mainland GTP RoW, Classes A, B and C1 are considered to be GQAL.

The Mainland GTP RoW traverses GQAL land classes A through to D. Significant lengths of Class A and B land is traversed in the Arcadia Valley and East of the Dawson Highway to North of Burnett Highway. The majority of land intercepted by the Mainland GTP RoW is classified as Class C.

It has been calculated that approximately 7.4% of the GTP RoW will pass through Class A land; approximately 9.6% will pass through Class B land; and approximately 77.6% will pass through Class C land (with 34.9% of that being Class C1). The remaining mainland GTP RoW will pass through Class D non-agricultural land.

## 5. Impacts

The construction of the GTP ROW will create a linear disturbance across several landscape types. The GLNG EIS and SEIS identify the adverse and beneficial impacts associated with the construction and operation of the GTP ROW. Key examples of the short and long term impacts pertaining to landscaping and rehabilitation within and adjacent the GTP ROW are summarised in table 2 below.

**Table 5.1 Impacts**

Aspect	Impacts
<b>Negative Impacts</b>	
Vegetation clearing as a result of bulk earthworks (e.g. excavation, clearing quarrying etc.).	<ul style="list-style-type: none"> <li>• Potential to alter the biodiversity, distribution and dynamics of the existing environment through:               <ul style="list-style-type: none"> <li>- Fragmentation of vegetation communities</li> <li>- Loss of habitat and microhabitats (flora and fauna)</li> <li>- Loss of local faunal and floral populations, including threatened and significant species</li> <li>- Loss of riparian vegetation</li> <li>- Establishment of pest and weed species in sensitive environs (increase in weed proliferation)</li> <li>- Loss of topsoil and increased erosion</li> <li>- Sedimentation into waterways resulting in a decrease in water quality</li> <li>- Subsequent salinity issues or a rise in the watertable</li> <li>- Increase in likelihood of disturbing acid sulphate soils</li> <li>- Reduction in buffering capacity particularly in or adjacent sensitive areas.</li> </ul> </li> </ul>
Topsoil removal and/or loss as a result of bulk earthworks (e.g. excavation, clearing etc.).	<ul style="list-style-type: none"> <li>• Loss of soil seed bank.</li> <li>• Sedimentation into waterways resulting in a decrease in water quality.</li> <li>• Increase in likelihood of disturbing acid sulphate soils.</li> </ul>
Chemical use	<ul style="list-style-type: none"> <li>• An increase in chemical use (i.e. pesticides) may reduce food sources for some fauna species (i.e. moth/insects and other invertebrates).</li> <li>• Potential for bioaccumulation within the food chain.</li> <li>• Impact on local pollinators which are required to help maintain ecosystem function.</li> </ul>
<b>Positive Impacts</b>	
Propagation of endemic species for rehabilitation activities (e.g. revegetation, seeding, weeding etc.)	<ul style="list-style-type: none"> <li>• Potential to enhance the local biodiversity of the area through:               <ul style="list-style-type: none"> <li>- Strategic revegetation of and provision of artificial fauna furniture, such as glider poles, bat boxes and nests in potential corridors (to re-create linkages)</li> <li>- Recreating vegetation communities lost as a result of construction clearing</li> <li>- The enhancement of habitat and associated foraging resources for native fauna.</li> </ul> </li> </ul>
General landscape works (revegetation, seeding, weeding etc.)	<ul style="list-style-type: none"> <li>• The use of locally native plant species to minimise the risk of introducing 'problem' species.               <ul style="list-style-type: none"> <li>- Enhance soil stability and structure</li> <li>- Enhance water retention in soils to encourage water table stability</li> <li>- Improve aesthetic/visual value to the area</li> <li>- Improve air quality.</li> </ul> </li> </ul>

## 6. Pipeline operational and decommissioning phase rehabilitation objectives

Australian Standard AS2885, Part 3: Vegetation on or near the pipeline states:

*Unless approved, vegetation shall be restricted to allow free passage along the pipeline route. Vegetation, whose roots may damage the anti-corrosion coating of the pipeline, shall not be permitted in the vicinity of the pipeline.*

The APIA Code of Environmental Practice – Onshore Pipelines states: *Vegetation management – Environmental management; Management Measures: Regrowth vegetation on the pipeline easement shall be maintained to ensure root systems do not create a safety risk to the pipeline. The width of vegetation removal (i.e. the distance cleared on either side of the pipeline centreline) should be the minimum extent reasonable necessary to ensure the safe operation of the pipeline.*

In line with the Australian Standard and APIA Code of Environmental Practice requirements stated above, rehabilitation following construction of the pipeline must allow for the protection of the pipeline integrity and ensure permanent access to the pipeline for monitoring and maintenance purposes whilst it is in operation. Subsequently rehabilitation objectives for the operational phase will restrict vegetation growth to allow for understorey species and mid-level species to return within 10m of the pipeline.

On decommissioning of the pipeline, rehabilitation to pre-clearance conditions will be undertaken within all previously restricted vegetation growth areas, in accordance with EPBC Act Approval Condition 3d.

## 7. Implementation and Management Strategy

A rehabilitation strategy has been developed and is detailed below. The strategy ensures that rehabilitation objectives are met for the range of land uses and disturbance levels for the lifespan of the pipeline.

### 7.1 Pre-clearance Survey

Prior to construction, a pre-clearance survey will be undertaken in accordance with EPBC Act Approval Condition 3(a). During the pre-clearance survey, information to document the condition and value of a site prior to disturbance, including habitat resources, species composition and level of disturbance will be collected.

### 7.2 Benchmark Guidelines

A range of benchmarks will be selected to guide rehabilitation for broad ecosystems, including pasture grasses, identified in the RoW. Benchmark guidelines provide a summary of the key condition indicators of a range of vegetation and grazing communities.

Benchmarks provide information on the best condition on offer for each broad ecosystem, and are considered to be the minimum target for rehabilitation. This information is designed to be supplemented by the pre-clearance survey, and provide a means to rehabilitate disturbance areas to better than pre-clearance condition.

The pre-clearance survey includes methods to select the appropriate benchmark guideline.

### 7.3 Operational Safety requirements

In accordance with Australian Standard AS25884, Part 3 and The APIA Code of Environmental Practice – Onshore Pipelines (Refer to Section 6) operation safety requirements must be considered when determining rehabilitation criteria. Trees with large root balls (such as *Ficus sp.*) pose a risk to the structural integrity of buried infrastructure. To ensure compliance with AS2885 (Part 3, Section 6.4.4), vegetation will be restricted to allow free passage along the pipeline route. Vegetation whose roots may damage the anti-corrosion coating of the pipeline shall not be permitted in the vicinity of the pipeline during the operational phase of the pipeline.



In order to ensure operational safety, vegetation species used to rehabilitate the RoW will be limited to species less than 10 to 12 m in height. In areas where RE communities are to be rehabilitated, understorey species and mid level species of pre-disturbance RE communities will be returned to the RoW.

To ensure compliance with EPBC Act Approval Condition 3d, pre-clearance conditions will be rehabilitated within these restricted areas on decommissioning of the pipeline.

## 7.4 Landholder Rehabilitation requirements

A Construction Line List (CLL) has been prepared detailing a number of commitments which GLNG has made to Landholders whose property is intersected by the GTP RoW (and/or ancillary sites). A number of the CLL commitments relate to specific site rehabilitation actions, which fall in to the following broad groups:

- Vegetation: Re-seeding (seed mix type); arrangements for relocation of cycads, grass trees and orchids, weed prevention;
- Disturbed soils: Restoration of land condition; prevention of soil erosion; soil compaction; soil inversion; soil subsidence; sink holes; surface disruption; provision of contour banks/whoo boys;
- Infrastructure: Fencing and gates; installation of Cathodic Protector posts; construction of water tank pad, relocation of dam) and
- Stockpiling of materials: Excess excavated materials and timber for reuse by landowner.

All CLL commitments must be actioned within the relevant land tenures prior to transferring decommissioned areas to Landholders. Where landholders have not specified additional rehabilitation requirements, land will be restored to its pre-disturbance land use.

## 7.5 Rehabilitation Schedules

Rehabilitation schedules will be developed based on benchmark guidelines for each disturbance type and broad land use (vegetation or agriculture), and include specific objectives and performance criteria to ensure disturbed sites are rehabilitated to a pre-disturbed condition.

The rehabilitation schedules will include performance measures and related monitoring actions to assess site rehabilitation, as well as provisions for reporting on the implementation of the LRMP including monitoring and performance to a standard which can be independently audited.

Rehabilitation schedules will include site remediation measures by stage of development (e.g. pre-construction, construction, post-construction, and decommissioning), as well as the inclusion of timeframes and standards for conducting rehabilitation activities.

The schedules will provide practical rehabilitation measures to support recovery of EVNT species habitat and recovery of TEC, in line with the SSMP, as well as recovery plans provided by SEWPaC and DERM.

### 7.5.1 Performance criteria

Performance criteria will be developed for each rehabilitation schedule in order to meet the overarching rehabilitation objectives of providing a safe, stable and non-polluting landform.

In order to comply with the EPBC Act Approval, CG Conditions and EA Conditions, standard performance criteria for vegetated sites (including TEC, RE and HVR vegetation) include the representativeness of species richness and diversity for the appropriate benchmark. Specific criteria to support the recovery of TEC, RE and significant species habitat will also be included within each rehabilitation schedule.

Standard performance criteria within agricultural sites across the Project area include:

- Plant survival, height, recruitment and richness;
- Stability of landform;
- No declared weeds occurring;
- Pasture species richness representative of pre-disturbed condition;

- The preservation of inherent GQAL agricultural land use classes; and
- Pasture diversity, quality and productivity rehabilitated to pre-disturbance benchmarks.

## 8. Management Requirements

While the rehabilitation schedules will determine the detailed management measures, the following general measures will be incorporated to the guidelines:

**Table 7.1 Mitigation and Management Measures relevant to Landscape and Rehabilitation Works**

Actions	Timing
• All landscaping and rehabilitation works will comply with relevant statutory conditions and guidelines (e.g. EPBC and NC Act approval).	At all times
• Where applicable, all landscaping and rehabilitation works will be consistent with measures outlined in the SSMP and SMP.	At all times
• Landscaping and rehabilitation personnel will be suitably qualified and experienced to undertake the works.	At all times
• Landscaping rehabilitation personnel will be educated on potential risks to native wildlife which may inhabit the area as per the SMP and SSMP.	Prior to and during works
• A pre-clearing survey of the GTP ROW will be undertaken to document the existing condition of the vegetation communities to be impacted as a result of clearing works. The survey will document (including photologging) all environments relevant to the landscape and rehabilitation works, including: <ul style="list-style-type: none"> <li>- Topsoil and landforms</li> <li>- Drainage</li> <li>- Vegetation</li> <li>- Environmentally Sensitive Areas</li> </ul> • The survey will also include undertaking cross sections to record existing surface level and contours.	Prior to works commencing
• Development of any Special Area plans will be undertaken in consultation with Councils, landowners, DERM, DTMR, DEEDI as necessary.	Prior to works commencing
• Consultation with the design civil engineers and landscape architects prior to finalising planting design will be undertaken where applicable.	Prior to works commencing
• Where applicable, compliance with the Road Landscaping Guidelines (DMR, 2004) will be undertaken within rehabilitation works within a road reserve.	At all times
• Where applicable, compliance with other stakeholder requirements including local government authorities (local government controlled roads), Energex and/or Powerlink and QR National (rail corridors) will be undertaken.	At all times
• The Principal shall organise for Type A flora pursuant to the NC Act to be translocated or salvaged. This may involve the relocation of specimens to an interim area (e.g. for orchids a bushhouse facility) until rehabilitation works are mature enough to accommodate translocated individuals.	Prior to works commencing
• The Principal Contractor will be responsible for organising the collection of any seeds and/or propagules from locally native flora (least concern) within the project area for use in the rehabilitation works. This includes flora associated with threatened ecological communities present within the GTP ROW. The Proponent will be responsible for the collection of any significant flora seeds and/or propagules for any translocation, offset and management works (those protected under the NC Act). Seed collection will be undertaken in accordance with seed collection guideline document: Model Code of Practice, Florabank Guideline 6: Native Seed Collection Methods.	Prior to works commencing
• All growing facilities must adhere to Australian phytosanitary standards and guidelines.	At all times
• Where enhancement plantings are required, a planting and/or seeding plan	Prior to works commencing

Uncontrolled if printed



Actions	Timing
will be developed based on the geology, soil description, pre-existing and existing floristic composition and vegetation characteristics and landholder preferences.	
<ul style="list-style-type: none"> <li>Monitoring points will be strategically located and set up prior to rehabilitation works commencing. This will include but not be limited to the establishment of permanent photologging points for monitoring purposes. Monitoring and photologging stations will be set up at locations that include the locations where photos and data were collected prior to disturbance.</li> </ul>	Prior to works commencing
<ul style="list-style-type: none"> <li>Clearing is a last resort. The retention of vegetation, selective clearing, trimming and fauna spotting is the first priority.</li> </ul>	Construction Phase
Stockpiling of topsoil for reuse during rehabilitation works is to be undertaken. Ensure that stockpiles are separated from subsoils and covered as appropriate, or that appropriate erosion and sediment controls are in place to avoid erosion and sediment runoff.	Construction Phase
<ul style="list-style-type: none"> <li>Topsoil stockpiles shall preferably be no more than 2 m high and 50 m wide. Variation to this standard is subject to approval by the Environment Manager.</li> </ul>	Construction Phase
<ul style="list-style-type: none"> <li>Topsoil that is stockpiled for greater than Six (6) months must be managed to minimise erosion.</li> </ul>	Construction Phase
<ul style="list-style-type: none"> <li>Topsoil stockpiles shall be seeded if left for more than 12 months.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Relocate tree hollows and other microhabitats (e.g. rocky outcrops) to suitable sites outside the clearing footprint. This is to be determined in consultation with an ecologist and where necessary, landholders.</li> </ul>	Prior to and during works
<ul style="list-style-type: none"> <li>Weather permitting, rehabilitation and reconsolidation of impacted watercourses shall commence immediately after the pipeline has been lowered in and backfilled. This will include early rehabilitation of riparian buffers will occur in order to restore natural stream functions and aquatic habitats</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Where appropriate, rehabilitation of the bed and bank structure such that original dimensions and shape of the creek or spring are achieved. Bank re-contouring should include stabilisation methods (crib walls or soil wraps).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Where possible, promote a heterogeneous substrate in watercourse crossings, including : <ul style="list-style-type: none"> <li>- Replace large woody debris to stabilise banks and also to provide in-stream complexity; and</li> <li>- Use a combination of rocks, gravel and/or cobbles, etc. in the stream bed.</li> </ul> </li> <li>The use of large rocks and logs to moderate flows.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Salvaging of existing bed material prior to the construction and placing it back into the creek or spring at completion of construction. If the existing bed material is unable to be salvaged, a comparable sediment sized material is recommended to cover the bed and should be approximately 10 cm thick. If the sediment is fine (mud/silt), it is recommended that the bed material be replaced with sand to prevent future erosion. If the sediment is coarser (gravel, cobble, pebbles), new material must be washed prior to placing in the creek (as usually, new coarse substrate is covered in a fine dust, which will become suspended in the water).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Soils will be graded away from the watercourses, not towards it. Graded soil shall not be stockpiled where it has the potential to result in sedimentation or acidification of land or surface water (e.g. on slopes which drain immediately to a watercourse).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Weather permitting, rehabilitation of the GTP ROW shall commence within 3 months from the completion of the pipeline construction. Revegetation shall be consistent with the plant density, floristic composition and distribution of the adjacent remnant communities and where possible, should encourage the</li> </ul>	Construction & Operational Phases

Actions	Timing
natural re-establishment of significant species and ecological communities into the disturbed areas.	
<ul style="list-style-type: none"> <li>The GTP ROW will be re-profiled to original or stable contours, including re-establishing watercourses, wetlands, overland flow paths and other topographic features, immediately after the pipeline has been lowered in and backfilled.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Erosion and sediment control measures will be implemented in accordance with the Erosion and Sediment Control Plan.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>Activities will be conducted in accordance with EHS04 (<i>Waste Management</i>) to ensure appropriate mitigation measures are implemented in the management of waste.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>Areas of the GTP ROW may be deep ripped prior to reapplying topsoil.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Subsoil will be respread over the GTP ROW and compacted over the trench, including contouring works, immediately after the pipeline has been lowered in and backfilled.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>After subsoil resreading and compaction, topsoil will be respread over the GTP ROW and left with a slightly rough surface.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Cleared native vegetation will be respread over the GTP ROW to assist in seed stock distribution. This action will be undertaken in a manner which does not promote erosion or subsidence.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Native woody debris, which is not to be used in habitat rehabilitation works, will be mulched and respread across the GTP ROW. The mulch material will be used to filter out sediments and also in planting works.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Where necessary imported topsoil, which is of appropriate quality and weed and fire ant free, will only be used with landholder approval.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Where necessary, fertilisers and soil supplements will be only be used with approval from local landholders and authorities.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>A maximum of 10 m will be maintained along the GTP ROW for access. No planting of deep-rooted trees within 3 m of the pipe will occur to maintain pipe integrity (Refer to Section 6 &amp; 7).</li> <li>Within 10m of the pipeline, rehabilitation objectives for the operational phase will allow vegetation growth of understorey species and mid-level species to return.</li> </ul>	Operational Phase
<ul style="list-style-type: none"> <li>Re-establish or enhance the habitat of a significant species known or likely to occur within the GTP ROW prior to clearing activities (especially where the construction clearing activities have affected such habitat (Refer SSMP)).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Preserve specific European and indigenous heritage that has been registered for the site (note that these values are managed under other legislation).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>The natural regeneration of native species will be encouraged (in particular, groundcover and shrub species). However, seeding will be utilised in areas where rapid restoration is required (e.g. watercourse crossings and areas of high erosion potential).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Reseeding will be undertaken using native species only for areas of high value regrowth and regional ecosystems. Reseeding using non-native species may be used on pastoral grasslands and cropping land only and within these areas reseeded will be undertaken as per the landholder's requirements.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Where natural regeneration is not successful, establish vegetation communities to a condition at least equivalent to the ROW condition prior to commencement (especially where native vegetation is the proposed land use), taking into consideration the constraints.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Maintain a mosaic vegetation structure, including planting of different aged plants.</li> </ul>	Operational Phase

Actions	Timing
<ul style="list-style-type: none"> <li>Any 'temporary'<sup>4</sup> vegetation is to be locally native. If this is not achievable, other native plants from the bioregion are to be used. Any proposed species substitutes are to be approved by the Principal prior to planting.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Vegetated buffers are to be established at sufficient height and width to provide a wind break and visual screening along the boundaries between stockpiles and sensitive receptors.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Use foraging and habitat tree species in planting works for fauna such as koalas, gliders and Glossy-black cockatoos.</li> </ul>	Operational Phase
<ul style="list-style-type: none"> <li>Place artificial nest and/or bat boxes in suitable sites outside the clearing footprint and within rehabilitated areas.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>In consultation with an ecologist, erect glider poles and other measures (e.g. timber poles to allow semi-arboreal and arboreal species to escape predators) in the GTP ROW (especially in areas of remnant vegetation adjoining the Jemena Pipeline) to facilitate fauna movement (e.g. Expedition Range).</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Re-establish large woody debris and rocky outcrops within rehabilitated areas to create stepping stones for fauna and also microhabitats.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Planting of frangible species, where required, to comply with safety requirements will be undertaken.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>Where applicable, maintain adjacent high tide banks with intertidal species.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>It is considered that the most appropriate method to regenerate large areas of intertidal wetlands is through natural regeneration. This should be achieved through regular weed control, maintaining existing tidal regimes, and mitigating issues with ASS.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>If natural re-colonisation of intertidal communities does not occur within 12 months, manual planting may be required. This will be subject to consultation from DEEDI.</li> </ul>	Operational Phase
<ul style="list-style-type: none"> <li>Watering of revegetated areas shall be carried out to maintain soil moisture content to no less than PAW<sup>5</sup> during the establishment period.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Weed species will be managed as per the Weed and Pest Management Plan. However, as a general rule, weed management should occur prior to and during the rehabilitation planting to encourage rehabilitation success.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>All waste materials and equipment will be removed from the GTP ROW and associated laydown areas once construction is completed. This includes disused sediment fences.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Rehabilitated areas shall be clearly marked with appropriate signage, "Revegetation Area No Unauthorised Access".</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Vehicles will be confined to designated maintenance access tracks within GTP ROW.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>Where appropriate, rehabilitation areas will be fenced to exclude cattle and other threatening processes. Fencing will only be undertaken with landholder approval.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Avoid the use of barb wire when erecting any Project related fencing. Where barb wire fencing is unavoidable the top strand will be high tensile steel (non-barbed wire) to avoid fauna getting caught and tangled in the barbs.</li> </ul>	At all times
<ul style="list-style-type: none"> <li>Driving vehicles on freshly topsoiled sections of the GTP ROW will be prohibited.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Temporary access tracks have been selected to minimise or eliminate the need for any clearing, and are all based on the route of existing</li> </ul>	Operational Phase

<sup>4</sup> 'Temporary' vegetation will be used to stabilise temporary banks/stockpiles and will be removed and re-established as native vegetation post construction.

<sup>5</sup> Plant available water. The portion of water in a soil that can be readily absorbed by plant roots. That soil moisture held in the soil between field capacity and permanent wilting point (DMR 2008).

Actions	Timing
<p>tracks. Where a previously cleared alternative feasible route to a portion of an access track was identified as representing a lesser impact (e.g. around a patch of significant vegetation), this was selected in preference to the original route. The selection process for temporary access tracks has minimised any requirement for clearing of remnant vegetation in particular, by utilising alternative existing tracks where practicable, or by selecting routes which have previously been cleared. Where clearing is required, this is likely to be minimal, in the order of 0.5 m to 1.0 m width of clearing.</p> <p>Where clearing is required for the construction or maintenance of temporary access tracks, reinstatement and rehabilitation to pre-clearance conditions will be undertaken or, for cropping and pastoral land, as agreed with the landholder.</p> <p>Rehabilitation actions will consist of stabilisation of soils and reseeded, ensuring that the track is left in a stable condition. Where minor clearing of remnant or high value regrowth is necessary, any cleared areas will be revegetated with equivalent vegetation using locally collected seed.</p>	Operational Phase
<ul style="list-style-type: none"> <li>Where non-public access routes are to be retained, the entrance will be disguised.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Monitoring the success of rehabilitation strategies will be undertaken as per the Principal Contractors LRMP with the findings reported to Principal. Monitoring and reporting should occur at the same time each month for the first 2 years.</li> </ul>	Construction & Operational Phases
<ul style="list-style-type: none"> <li>Ongoing monitoring of the fauna measures implemented during construction to facilitate fauna movement and colonisation. This includes checking the nest and bat boxes, the success of gliders poles and the colonisation of fauna in rehabilitation areas.</li> </ul>	Operational Phase
<ul style="list-style-type: none"> <li>Implement corrective actions where necessary if the performance objectives are not being achieved. This will include replanting of species which have not survived, installation of additional controls if erosion is occurring etc.</li> </ul>	Operational Phase
<ul style="list-style-type: none"> <li>In accordance with EA condition E36, rehabilitation can be considered successful when the site can be managed for its designated land-use without any greater management input and there is evidence that the rehabilitation has been successful for at least 3 years.</li> </ul>	Operational Phase
<ul style="list-style-type: none"> <li>A further review will be undertaken at the time of decommissioning to determine an appropriate rehabilitation policy in accordance with best practice at the time.</li> </ul>	Decommissioning Phase
<ul style="list-style-type: none"> <li>On decommissioning, land will be rehabilitated to a level consistent with the pre-clearance condition.</li> </ul>	Decommissioning Phase
<ul style="list-style-type: none"> <li>On decommissioning, the Pipeline will remain in situ and all above ground infrastructure will be removed by cutting at ground level. The decommissioned Pipeline will be inert and at atmospheric pressure, thus presenting negligible environmental impact and low environmental risk.</li> </ul>	Decommissioning Phase
<ul style="list-style-type: none"> <li>During decommissioning phase rehabilitation, vegetation with large root balls (i.e. trees greater than 10 m) will be re-established within the RoW. This type of vegetation will be restricted during the operational phase to protect the structural integrity of the pipeline. Revegetation of these species may be undertaken through passive (i.e. allow for the natural encroachment of the species) or active (i.e. planting/seeding) methods depending on best practice at the time of rehabilitation.</li> </ul>	Decommissioning Phase
<ul style="list-style-type: none"> <li>Risks and impacts during decommissioning of the pipeline will be limited to weed, vegetation and waste impacts.</li> <li>Impacts will be managed in accordance with the Project Pest and Weed Management Plan and Waste Management Plan.</li> <li>Should there be a requirement to clear vegetation to access the RoW to</li> </ul>	Decommissioning Phase

Actions	Timing
<p>remove above ground infrastructure, areas of impact will be rehabilitated to pre-clearance condition in accordance with the rehabilitation management plan.</p> <ul style="list-style-type: none"> <li>Management plans will be reviewed and amended at the time of decommissioning to adopt current best practice.</li> </ul>	

It should be noted that failure to comply with the mitigation measures outlined in this plan will result in the Principal Contractor being responsible for any and all mitigation costs associated with that non-conformance.

## 9. Constraints

Rehabilitation of the GTP ROW will vary between areas depending on the level of clearing, the vegetation and habitat complexity and composition within each area, landholder requirements as well as the ongoing operation and maintenance requirements.

In addition, there are several constraints that will influence the rehabilitation works along the GTP ROW. These constraints are outlined in Table 8.1 below.

**Table 8.1 Constraints and Actions**

Constraint	Action
Weather	The success of the rehabilitation strategy will be dependent on weather conditions during and post construction (e.g. recent flooding in the last year along sections of GTP ROW and prior to this the extended drought conditions).
Land Owner Negotiations/ Requirements.	<p>Interference to landholder activities will vary according to the level of impact caused by the construction of the pipeline, type of activities being undertaken and the duration of the work on a landholder's property.</p> <p>Each landholder will be consulted prior to the works being undertaken to identify specific requirements and outcomes. Temporary provisions, such as fencing, driveways or stock access to water, will be discussed with each landholder.</p> <p>Reinstatement of cropping and pastoral grasslands will be as required by landowners. However rehabilitation of all Regional Ecosystems, high value regrowth areas and native vegetation not classified as either of these categories will be restored to its pre-disturbance condition during the decommissioning phase, in accordance with 3d of the EPBC Act conditions.</p> <p>Every effort will be made to minimise the impacts to landholders by limiting the area of works, using existing tracks which avoid homesteads and minimising the amount of time the trench is left open.</p>
Off-set Distances from Pipeline (operational phase)	<p>The Operator of the pipeline will need to ensure that the structural integrity of the pipeline is maintained (Refer to Section 6.3). In this regard, planting in close proximity to the pipeline must consider the root system of the chosen plant species. While trees and deep-rooted vegetation cannot be re-established directly across the pipeline (due to potential damage to the corrosion protection systems), grassland re-establishment and return of native understory/ mid level species will be undertaken.</p> <p>Habitat will be re-established as much as practicable through installation of glider poles, nest boxes, woody debris, logs, hollows etc.,</p>
Other infrastructure	The GTP ROW intersects other linear infrastructure, including power lines, roads and rail lines. Rehabilitation in these areas will need to be in accordance with the relevant stakeholders requirements for operations and maintenance.

Fencing/ Property Boundaries	Dependent on the outcomes of discussion with relevant landholders. However, preference will be to use wire (non-barbed) fencing with a plain wire strand on the top.
Weed Infestation Areas	Some areas along and adjacent the GTP ROW are heavily infested with weeds. The level of rehabilitation will be assessed in site-specific rehabilitation plans to ensure no spread of infestation.
Maintenance Tracks	An access track will be required along the pipeline route within the ROW for ongoing operations and maintenance. Some additional works may be required to access the ROW - these will be determined as construction works progress.

## 10. Rehabilitation completion criteria

Rehabilitation completion criteria will be dependent on the vegetation communities and land uses prior to clearing, pre-existing health and integrity of the landscape and landholder requirements. Therefore specific completion criteria for determining when a site has been completely rehabilitated will be specified within specific rehabilitation schedules.

However, the overall aim of the rehabilitation works is to rehabilitate impacted environs to as a minimum, their pre-existing condition. This is a particular prerequisite for all significant ecological communities, protected areas and other sensitive areas identified within the GTP ROW.

General guidelines on heights, canopy cover and potential complexity have been briefly discussed below to provide direction for desired outcomes.

### **Barrier plantings**

The objective of the barrier plantings is to minimise weed infiltration into areas of considerable conservation value. The width of these plantings should be a minimum of 20m with a minimum density of 70% foliage cover.

### **Riparian zone**

The vegetation within the riparian zone of a watercourse should achieve high densities, particularly in the lower stratum in order to keep weed infiltration to a minimum. The upper stratum in some instances may take on the structure of an open or closed forest community.

### **Samphire and mangrove communities**

Optimum outcome for these communities is to be free of introduced weed species and to be further enhanced through natural regeneration. The structural formation of a closed samphire community would consist of approximately >80% foliage and surface cover (Attiwill and Wilson 2003).

### **Woodland**

The structural formation of woodland generally consists of approximately 10-30% foliage cover and 20-50% foliage cover in the canopy (Confinas and Creighton 2001). The species complexity of woodland communities is highly variable due to factors such as aspect, rainfall and soil type. However as a guide, sclerophyllus woodlands containing an acacia understorey are likely to achieve the 30% foliage cover if fire and other disturbance factors are maintained.

### **Open forest**

The structural formation of an open forest generally consists of approximately 30-70% foliage cover, 50-80% crown cover in the canopy and tree heights ranging between 10-30m (Confinas and Creighton 2001).

### **Closed forest**

The structural formation of a closed forest generally consists of approximately 70-100% foliage cover, 80-100% crown cover in the canopy and heights of <30m (Confinas and Creighton 2001).

### **Landforms**

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Pre-existing surface levels will be reinstated.

### **Open Areas and Agricultural Areas**

The level of rehabilitation within these areas will be determined in consultation with the individual landholders. It is likely that rehabilitation will involve normal agricultural seeding, hydro-seeding or basic hydromulching techniques to return the pre-existing ground cover (or an appropriate or preferred replacement) to the site.

### **Habitat Rehabilitation**

Habitat rehabilitation will be implemented along the GTP ROW to facilitate fauna movement and re-colonisation of the ROW. The following habitat features will be considered:

- Replacement of hollows, large woody debris in adjacent habitats and within the GTP ROW (subject to landholder permission);
- Placement of artificial structures, including bat and nest boxes and glider poles, at key locations to facilitate fauna movement and recolonisation;
- Bee hives for native bees dependent on the existing distribution and abundance; and
- Feeder and/or habitat trees for key species and migratory birds.

In determining whether the completion criterion is met, the following factors will be used:

- The similarity between the rehabilitated landforms and the natural landforms in adjacent areas;
- The stability of the landform and its resistance to erosion;
- Whether appropriate drainage patterns have been developed either naturally or through shaping activities during the rehabilitation programme;
- The degree to which the surface conditions are conducive to plant establishment;
- Whether the site conditions and existing habitat components provide resources, including for fauna movement, foraging habitat and/or shelter;
- Compliance with the relevant standards; and
- Public safety issues (e.g. signage, fencing etc.).

## **11. Training and awareness**

### **11.1 Project Personnel induction**

In accordance with Santos Management Standard EHSMS06, all personnel and visitors are required to undertake appropriate environmental training and induction programs.

As part of the training programme, all project personnel<sup>6</sup> are required to complete site specific environmental awareness training which is to be conducted by the EO. As a minimum, the training will consist of a presentation and an assessment questionnaire. The site induction will address the following.

- Fauna and flora likely to be present within the corridor, including significant species (awareness training);
- Location of sensitive areas (e.g. wetlands and habitat trees);
- Landholder constraints;
- Vegetation protection areas and no go zones;
- Procedures and actions associated with encountering fauna;
- Threatened species habitat areas;
- Weed identification and control; and
- Responses and reporting of environmental issues.

This training will be developed with the assistance of the project ecologist and delivered by the Environmental Construction Manager / Environmental Officer(s). This will be undertaken within the initial induction process, ongoing toolbox meetings and relevant Construction Method Statements.

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<sup>6</sup> Project personnel include all staff, contractors and consultants that may undertake onsite works.

Where possible, personnel will also be shown photographs and given general information on significant species and ecological communities identified within and adjacent the GTP ROW, this will enable them to identify these species should they be encountered.

## 12. Monitoring and Maintenance

A rehabilitation monitoring and maintenance plan will be developed to complement each rehabilitation schedule. Monitoring of the rehabilitated GTP RoW is required every 20 days for the first 120 days, and annually for the first five (5) years following completion of rehabilitation, in accordance with the EA, Schedule J22-J24. The monitoring and maintenance plan is designed to be flexible to allow adaptations for natural disasters such as fire, drought and flood.

All monitoring will be undertaken by a suitably qualified person (EA Schedule H12).

Monitoring periods may require extension in the case of ineffective rehabilitation or natural disasters impeding rehabilitation efforts. Where monitoring extensions are required, it will be recorded and implemented by GLNG.

Specific monitoring criteria will be outlined within each rehabilitation schedule, reflective of the performance criteria. Generally, the following indicators will be monitored:

- Indicators of growth and survival of all plantings;
- Plant height;
- Native species richness;
- Evidence of recruitment;
- Native species cover;
- Weed control – extent of declared and environmental weeds and adequacy of treatment, as well as any secondary weed responses to treatments;
- Indicators of the presence of EVNT species and / or key habitat features (as per SSMP);
- Adequacy of site preparation, mulching, tree (and plant) protection and maintenance; and
- Landform stability – evidence of soil erosion as per the Soil MP and ESCM.

Monitoring will consist of vegetation surveys and photologging, monitoring locations established within representative areas of the GTP RoW and for each ancillary site. Monitoring locations are to be determined by the suitably qualified ecologist using BioCondition assessment methods (Nelder et al. 2011). This will include but not be limited to the establishment of permanent photologging points for monitoring purposes. Monitoring and photologging stations will be set up at locations that include the locations where photos and data were collected prior to disturbance. Where possible, monitoring plots will be established within the core of rehabilitation areas to avoid edge effects. Monitoring will take the impacts from seasonal variation into consideration.

Performance criteria to monitor the progress of each rehabilitation site will comprise of a combination of pre-clearing data and benchmark guidelines. It is noted that while three (3) years is insufficient time for rehabilitation to meet the benchmark guidelines, it is sufficient to ensure that rehabilitation is well established and regenerating, and an improvement in BioCondition scoring should be clearly evident. The progression and improvement of key rehabilitation indicators such as species composition and diversity, weed cover, and plant densities will be evident over a three (3) year period.

All monitoring results and records will be compiled and stored for a minimum of five (5) years and made available for inspection upon request, in accordance with CG Condition, Appendix 3, Part 4, Schedule J3.



## 13. Reporting and Record Keeping

A monitoring and evaluation report will include details on species survival, natural recruitment, percentage coverage of the rehabilitation area and percentage and species of weeds in the rehabilitated areas. In addition the following will also be recorded:

- Planning and impact assessment details;
- Activity site location and site access details;
- Commencement and completion dates;
- The area of native vegetation removed, and the amounts of material excavated and fill placed;
- The disposal location/s and quantity of spoil material removed;
- The disposal location/s and quantity of native vegetation removed;
- Impact management and rehabilitation details;
- Before, during and post activity photographs of the site;
- Any incidents of unanticipated failure of management methods and subsequent remedial action; and
- Any notable fauna activity will also be recorded.

In accordance with EA condition E36, rehabilitation can be considered successful when the site can be managed for its designated land-use without any greater management input and there is evidence that the rehabilitation has been successful for at least 3 years.

The Coordinator General Conditions, Appendix 3, Part 3, Condition 4g, state that:

*For clearing impacts that result in permanent loss of least concern native plants (cannot be re-established within three (3) years of clearing or floristic modification), the permit holder must provide DERM with a written detailed report of permanent vegetation loss, including the area, species affected and mapping of affected areas, within twelve (12) months of completion of the pipeline construction (Note: this is in addition to the required Return of Operations).*

In addition to complying with the above requirement, GLNG shall undertake a review of unsuccessful vegetation areas and provide management measures and revised timeframes to rectify issues and allow pre-clearance conditions to be achieved.

### **Species of Conservation Interest (SOCI) logbook**

Species of conservation interest encountered during the landscape and rehabilitation works will be recorded in the Species of Conservation Interest (SOCI) logbook and mapped in the supporting ecological GIS database. The information collated in the SOCI will include:

- Location of the community or species;
- Person reporting the sighting;
- Habitat type the species was inhabiting or adjoining the area where;
- Total area cleared and time of the clearing works;
- Where necessary, where the species was relocated or translocated to;
- Incidents; and
- Remedial actions.

The records will also be made available to the DSEWPC and DERM upon request.

### **Annual Environmental Return**

This information will support the Annual Environmental Return, which will be submitted to DSEWPac electronically, within 20 business days of each anniversary date from the date of Commonwealth approval. The Annual Environmental Return will document the following information:

- Addresses compliance with these conditions;
- Detail any rehabilitation work undertaken in connection with any unavoidable impact on MNES;
- Detail all non-compliances with these conditions; and
- Detail any amendments needed to plans to achieve compliance with these conditions.

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Any other landscape and rehabilitation related reporting will be conducted in accordance with the relevant approval conditions.

**Incidents**

Any incident that results in the injury or fatality of an animal will be recorded on Accident, Injury and Incident Reports. Details of the incident including time and date of incident, cause of injury/ mortality and the species (if known) will be recorded and reported to DSEWPaC and DERM within 24 hours of its occurrence.

**Revision**

All environmental management plans, including the LRMP will be reviewed and updated as required during the life of the Project. When the LRMP is updated, the reviewed plans will be submitted to SEWPaC for approval (EPBC Act Condition 31). Updates to the LRMP may be required due to:

- Changes in EVNT flora and fauna species;
- Changes in TECs;
- Updates to related plans, including the SSMP, SMP, and ESCM;
- Revisions to databases and datasets, including data provided by DERM such as REs, High Value Regrowth (HVR), and Wildlife Online records;
- Amendments to EAs;
- Amendments to legislation;
- At the request of the State or Commonwealth Governments; and
- Following periodic internal review of the LRMP.

Data collected as part of rehabilitation monitoring will be used to satisfy the reporting requirements of the EPBC Act, EA and CG approval requirements. The information collected as part of monitoring will be assessed and summarised to provide an overview of rehabilitation progress within the GTP. Additionally, assessment of collected data will be used to identify any amendments required to the LRMP.

Table 12.1 outlines a review and reporting program for the LRMP document. The program includes provision for periodic review and revision as required. A revision register has been included at the beginning of this document to ensure all amendments are documented. Reporting timeframes will be tracked by GLNG.

**Table 13.1 LRMP Review and Reporting Program**

Timing	Requirement	Responsibility
<b>Review</b>		
Annual	Revision of LRMP framework, benchmark guidelines and schedules to ensure: <ul style="list-style-type: none"> <li>• additional requirements / amendments to conditions are updated</li> <li>• changes in ‘best practice’ methods are included</li> <li>• feedback from rehabilitation successes and failures are reflected in the LRMP to ensure effective methods are highlighted</li> </ul>	<ul style="list-style-type: none"> <li>• GLNG</li> <li>• Suitably Qualified Restoration Ecologist</li> </ul>
As requested by SEWPaC	<ul style="list-style-type: none"> <li>• SEWPaC may request in writing for revisions to made to the LRMP</li> </ul>	<ul style="list-style-type: none"> <li>• As per SEWPaC request</li> </ul>
<b>Reporting</b>		
Annual Environmental Return (AER) as per EPBC Act Approval (2008/4096) (Condition 62)	<ul style="list-style-type: none"> <li>• Address compliance with the conditions</li> <li>• Include record of any unavoidable adverse impacts on Matters of National Environmental Significance (MNES), mitigation measures applied to avoid adverse impacts on MNES, and any rehabilitation work undertaken in connection with unavoidable adverse impact on MNES</li> <li>• Identify all non-compliance with the conditions and provide details regarding complaints</li> <li>• Identify any amendments needed to plans to achieve compliance with the conditions</li> </ul>	<ul style="list-style-type: none"> <li>• GLNG</li> </ul>

Timing	Requirement	Responsibility
Annual Return for EA Conditions to DERM (Schedule J, Condition 8)	<ul style="list-style-type: none"> <li>Summary of rehabilitation actions, including monitoring and maintenance completed</li> </ul>	<ul style="list-style-type: none"> <li>GLNG</li> <li>Suitably Qualified Restoration Ecologist (or similar), that is either 'independent', or an 'other expert approved by SEWPaC</li> </ul>
DERM Permanent Vegetation Loss report (CG Conditions: Appendix 3, Part 3, Condition 4(g))	<ul style="list-style-type: none"> <li>Where pipeline construction will result in the permanent loss of vegetation, a detailed report must be provided to DERM within twelve (12) months of the completion of pipeline construction</li> </ul>	<ul style="list-style-type: none"> <li>GLNG</li> <li>Suitably Qualified Restoration Ecologist (or similar), that is either 'independent', or an 'other expert approved by SEWPaC</li> </ul>

## 14. Correction and Prevention

### 14.1 Preventative Actions

Preventative actions will be managed as follows.

- Environmental Incidents along with their corrective and preventative actions will be recorded in the Incident Management System. Corrective and preventative actions will be updated into the relevant EMP. Future audits will check for compliance with the EMP (s) and that the necessary preventative actions are in place;
- Reviews of environmental performance will be undertaken through consideration of key performance indicators, objectives and targets, and benchmark performance; and
- Where assessed by the relevant EO (as necessary), a preventative action will be raised and action undertaken as a Corrective Action. Preventative actions may include changes to specific procedures or training requirements, or other management areas.

### 14.2 Non-conformance

For clarity, environmental non-conformances will be referred to as environmental issues to differentiate them from Project non-conformances, which typically relate to quality defects in items of plant or materials. An environmental issue will be detected through verification processes such as monitoring, inspections, audits and receipt of complaints.

The process for managing environmental issues will be in accordance with GLNG's Internal and Project Policies and Procedures. When an environmental issue is detected, the following actions will occur.

- The incident will be recorded in the Incident Management System (IMS);
- The nature of the event will be investigated by the relevant EO;
- Advice may be sought from a specialist where the extent of the issue is beyond the expertise of the in-house resource;
- Monitoring will be undertaken where the issue is complaint driven and the impact may be outside the project parameters;
- The effectiveness or need for new/additional controls will be reviewed;
- An appropriate preventative and corrective action will be entered into the environmental IMS and implemented;
- Strategies will be identified to prevent reoccurrence;
- The IMS will be closed-out; and
- Environmental documentation (i.e. CEMP) will be reviewed and revised.

Where the issue impacts on a 3<sup>rd</sup> party (i.e. is outside the project area or in breach of regulatory conditions) the relevant EO will also issue an Incident Report. In addition to the above, where an issue of a more serious nature has been identified, the following will apply.

- Stop work;
- Implement an immediate action to rectify the incident and stop further damage;
- Report the incident;
- Identify corrective and preventative actions;

- If the incident impacts upon state or commonwealth interests, the incident report will also be forwarded to the relevant authority;
- The incident will be reported in monthly management reports; and
- Associated environmental issues and corrective actions will be tracked.

### 14.3 Contingency measures

The Proponent recognises that contingency measures and adjustments to the management strategies may need to be considered in the event that a detrimental impact is recorded, and/or performance measures or targets are not met. Where this occurs, DSEWPC, DERM and/or DEEDI will be consulted and contingency measures determined and implemented (where required).

### 14.4 Environmental incidents and Corrective Actions

All incidents in breach of state or commonwealth policy/regulations will be reported to the relevant regulatory authority within 5 business days.

Non-specific environmental incidents are discussed in detail in Section 9.5 of the relevant EMP. The incident reporting form will be located in the EMP.

Detailed below are actions that will be taken should an event relating to directly to flora and fauna occur.

#### 14.4.1 Flora

If vegetation outside the approved GTP ROW is incorrectly cleared the following actions must occur:

- The EO must be notified immediately and a stop work must occur until the situation has been assessed and is given approval to proceed by the proponent;
- The Spotter catcher(s) will conduct a search for any injured or orphaned wildlife; and
- If native vegetation was impacted a report will be provided to DERM and management measures agreed.

#### 14.4.2 Fauna

If a native animal is injured on site and where it is safe for staff and the animal, the animal will be bundled in a dry warm blanket or jacket and taken to a vet or approved wildlife carer (do not attempt to handle marine animals or platypus). If it is unsafe or not possible to bundle the animal then:

- The location of the injured animal will be identified/ marked so it can be found again. If the animal is moving, a note will be made of the direction in which it was headed;
- The species of animal will be identified if possible and its approximate size determined;
- The type of injury sustained will be identified if possible (without handling or causing the animal further stress); and
- The relevant EO will be contacted immediately to capture or organise the possible capture of the animal for transportation to a specialist veterinarian or wildlife carer.

The relevant EO shall immediately contact the following organisations listed in Table 7.1 and provide details of the last known location of the injured/dead animal.

**Table 14.1 Contact Details in the Event of an Injury to or Death of Native Wildlife (incl. marine)**

Organisation	Contact Details
The Proponent PEM	07 3838 3666
QPWS Gladstone Office or DERM	(07) 4971 6500 or 1300 130 372 (Option 3)

Following the capture/recovery of the animal, an investigation into the cause of the event will be undertaken within 72 hours including an assessment of the effectiveness of corrective and preventative actions currently in place.

Any corrective and preventative actions identified will be implemented. The risk register, relevant procedures and documentation (including this plan) will be reviewed and revised as is necessary.

In the event that a control measure appears to be ineffective, the measure will be adjusted in consultation with the DEWHA and/or DERM. This Plan will be updated if necessary to reflect any significant changes to control measures.

Prior to construction a list of suitably licensed and experienced wildlife carers, hospital and/or vets local to the project area will be developed and included within the SMP.

## **14.5 Emergency preparedness and response**

An Incident Response Plan will be prepared for the project and will be outlined in the CEMP. This plan will document suitable incident procedures to ensure effective response in the event of an emergency (including environmental emergencies such as fire, flood and large fuel spills).

The emergency procedures shall be tested on a six-monthly basis. Records of all site emergencies will be maintained (incl. results of emergency practice drills). The Emergency Response Controller for the project will be defined within the Incident Response Plan. This will also include the use contingency measures to check open trenches during and after rainfall events.

An up-to-date list of emergency response personnel and organisations will be maintained at each site office and compound.

## **15. Compliance and Evaluation**

The compliance component of this Plan will be developed in accordance with the CEMP and State and Commonwealth Approvals.

### **15.1 Monitoring (Landscape and Rehabilitation)**

Upon completion of the Management (monitoring) Strategy by the Principal Contractor, compliance and evaluation measures will be developed and incorporated into this Plan.

#### **15.1.1 Inspection and surveillance**

The monitoring of the landscaping and rehabilitation works will be ongoing from the first planting. Visual inspections will be undertaken regularly during construction and operational phases of the Project.

Following construction monitoring will be undertaken on a quarterly basis over the first 2 years of the Project and the monitoring will focus on key performance criteria developed for project and where necessary specific areas, including but not limited to:

- The physical stability of the rehabilitated areas;
- The biological structure of the vegetation community in rehabilitated areas (including the establishment of weed species);
- Water drainage from the site;
- Any public safety aspects;
- Non-conformances; and
- Monitoring of the rehabilitated areas shall ensure that any areas requiring remedial work are identified.

The rehabilitation programme shall be modified, as required, to address any conditions of approval and/or depending upon the findings of the monitoring programme results, including remedial works to action any non-conformances.

## 15.2 Ecological performance auditing

All monitoring required under this Plan will be compliant with relevant section of the CEMP and will be conducted by suitably qualified person, as per the Coordinator-General's Report.

The Proponent will conduct internal compliance audits of the implementation of Project environmental management commitments during the construction and operational phases, including.

- On-site audits of compliance with this management plan;
- Audits of contractors environmental management; and
- Work area inspections and monitoring.

Non-conformances identified during inspections will be documented, addressed with appropriate corrective and preventive actions and rectified within an agreed time frame.

The regulatory agencies associated with environmental matters may also conduct regular works inspections. The relevant EO shall attend these inspections.

### 15.2.1 External audits

External audits will be undertaken on an annual basis by an independent auditor approved by the minister. The audits will be conducted in accordance with AZ/NZ ISO9011.2003 *Guidelines for Quality and/or Environmental Systems Auditing* and/or section 458 of the EPBC Act and may be used to verify compliance with the Commonwealth conditions.

The external auditors report must document the following:

- The components of the project being audited;
- The conditions that were activated during the period covered by the audit;
- A compliance/non-compliance table;
- A description of the evidence to support audit findings of compliance or noncompliance;
- Recommendations on any non-compliance or other matter to improve compliance;
- A response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect); and
- Certification by the independent auditor of the findings of the audit report.

Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media.

If during the auditing process, any non-compliance with the Commonwealth conditions are identified, DSEWPC will be provided with written advice within 20 business days of the audit report. The written advice will outline:

- Actions taken by the proponent to ensure compliance with these conditions; and
- Actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

## 15.3 Non-compliance

Where non-compliance occurs with regard to the Commonwealth or any State conditions of approval, a report must be submitted to DSEWPC within 5 business days. The report will outline the type of non-compliance and the remedial actions taken to ensure that the matter is resolved within a reasonable time frame. The time frame will be specified in writing by DSEWPC.

Where non-compliance occurs with regard to the other relevant conditions of approval (e.g. NC Act), a report must be submitted to the relevant governing agency within the designated timeframe. The report will outline the type of non-compliance and the remedial actions taken to ensure that the matter is resolved within a reasonable time frame. The time frame will be specified in writing by the relevant agency.

## 15.4 Variations to the LRMP

Once the LRMP has been approved by the relevant state and commonwealth agencies, a revised plan will need to be submitted for approval, if the works are to be undertaken other than in accordance with the approved plans and governing conditions. This will include any changes to the LRMP requested by the Commonwealth and/or the State.

For any revision to the approved LRMP, ensure the relevant assessment agencies are provided at least 20 business days for review and consideration of the revised plan, unless otherwise agreed in writing between the proponent and the agencies.

- Until the revised LRMP is re-approved, works must continue in accordance with the original LRMP. Once the revised LRMP is approved, this plan will supersede the original LRMP.



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