

Draft environmental management plan
GFD Project environmental protocol for
constraints planning and field development

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Go back to contents ▶

Santos GLNG Upstream Environmental Protocol for Constraints Planning and Field Development

Table of Contents

1.0	Introduction.....	1
1.1	Santos GLNG's Land Disturbance Approach	3
1.2	Purpose and Scope of the Protocol	3
1.2.1	Purpose	3
1.2.2	Scope	3
2.0	Roles and Responsibilities.....	6
3.0	Legal and Other Requirements	7
3.1	Legal Requirements	7
3.2	Santos Environment, Health and Safety Management System	8
3.2.1	Rehabilitation Management Plan	8
3.2.2	Significant Species Management Plan.....	9
3.2.3	Plan of Operations.....	9
4.0	Application of the GFDP Protocol throughout the Project Lifecycle.....	10
5.0	Constraints Planning	12
5.1	Constraints Categories.....	12
5.1.1	Buffer Zones.....	13
5.2	Additional Constraints	16
5.2.1	Cultural Heritage (Indigenous and non-indigenous) constraints.....	16
5.2.2	Land Use and Tenure.....	16
5.2.3	Regional Planning Interests Act 2014.....	16
5.2.4	EPBC Fauna Habitat.....	18
5.2.5	Additional Development Conditions for (Limited Depth) National Parks.....	18
5.2.6	Koala Habitat.....	19
5.2.7	Bioregional Corridors.....	19
5.2.8	Flood Levels	19
5.2.9	Noise	19
6.0	Pre-Disturbance Requirements.....	20
6.1	Internal Approval Process	20
6.1.1	Step 1: Disturbance Request and Initiation.....	20
6.1.2	Step 2: Desktop Assessment	20
6.1.3	Step 3: Field Scout.....	20
6.1.4	Step 4: Pre-clearance survey	21
6.1.5	Step 5: Data Management, Verification and Consolidation	21
6.1.6	Step 6 Issue and Acceptance of Internal Environmental Approval Conditions....	22
7.0	Post-Disturbance Requirements.....	23

Santos

GLNG Project

7.1	Recording and Tracking Disturbances	23
7.2	Data Collection and Storage	23
7.3	Reporting.....	23
8.0	Approval and Review of the Protocol	24
9.0	Definitions	25
10.0	References	29
Appendix A	30

Tables

Table 1:	Summary of Major Applicable Legislation and Associated Documents	7
Table 2:	GFD Project EIS Constraint Categories	14
Table 3:	Summary of Activities Permitted in each Constraint Category for the GFD Project	15
Table 4:	Current Environmental Constraints Classes for the GLNG Project.....	30

Figures

Figure 1-1:	The Santos GLNG Upstream Project Area	2
Figure 1-2:	An Example of Santos GLNG’s Landholder Consultation Process	5
Figure 3-1:	The Santos Approach to Environmental Management	8
Figure 4-1:	Application of the GFDP Protocol within each of the Project Development Phases	11
Figure 5-1:	Constraints Planning and Field Development Protocol Buffer Zones.....	13

Abbreviations and Units

Acronym	Description
CG	Coordinator-General
CSG	Coal Seam Gas
DNPRSR	Department of National Parks, Recreation, Sport and Racing
EA	Environmental Authority
EHSMS	Environment, Health and Safety Management System
EIS	Environmental Impact Statement
EP Act	Environmental Protection Act 1994
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESA	Environmentally Sensitive Area
GFD Project	Gas Field Development Project
GIS	Geographic Information System
GLNG	Gladstone Liquefied Natural Gas
GQAL	Good Quality Agricultural Land
IA	Indigenous Affairs
LNG	Liquefied Natural Gas
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance (including ESAs)
NC Act	Nature Conservation Act 1992
PAA	Priority Agricultural Area
PALU	Priority Agricultural Land Use
PLA	Priority Living Area
PM	Project Manager
PoO	Plan of Operations
RE	Regional Ecosystem
RMP	Rehabilitation Monitoring Plan
SCL	Strategic Cropping Land
SSMP	Significant Species Management Plan
TEC	Threatened Ecological Community
The GFDP Protocol	The GLNG Gas Field Development Project Environmental Protocol for Constraints Planning and Field Development
US	Upstream

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1.0 Introduction

Santos GLNG is developing Coal Seam Gas (CSG) resources in the Surat and Bowen Basins in Queensland. Santos GLNG currently has approval to develop 2,650 production wells and associated infrastructure within the Santos GLNG gas fields of Roma, Fairview and Arcadia. The Santos GLNG Gas Field Development Project (the GFD Project) is an expansion of the existing approved Santos GLNG Project and will involve the construction, operation, decommissioning and rehabilitation of production wells, and associated supporting infrastructure needed to provide additional gas over a project life exceeding 30 years.

The GFD Project seeks approval to expand the Santos GLNG Project's gas fields from 6,887 km² to 10,676 km² to develop up to 6,100 production wells beyond the currently authorised 2,650 production wells; resulting in a maximum of up to 8,750 wells. Starting in 2016, the GFD Project will progressively develop wells and associated supporting infrastructure across 35 Santos GLNG petroleum tenures, which includes the current existing project area and surrounding tenures located in the Arcadia, Fairview, Roma and Scotia gas fields. These areas combined will be referred to as the Santos GLNG Upstream Project Area. A map of the Santos GLNG Upstream Project Area is shown in Figure 1-1.

The planning and development of gas field infrastructure is an iterative process. The Santos GLNG Upstream Project Area will be progressively developed as the gas resource is realised. The *GFD Project Gas Field Development Project Environmental Protocol for Constraints Planning and Field Development* (the GFDP Protocol) enables Santos GLNG to systematically identify and assess environmental values and then avoid and manage potential environmental impacts in accordance with the conditions of the approvals for the Santos GLNG Upstream Project Area and Santos' environmental policies.

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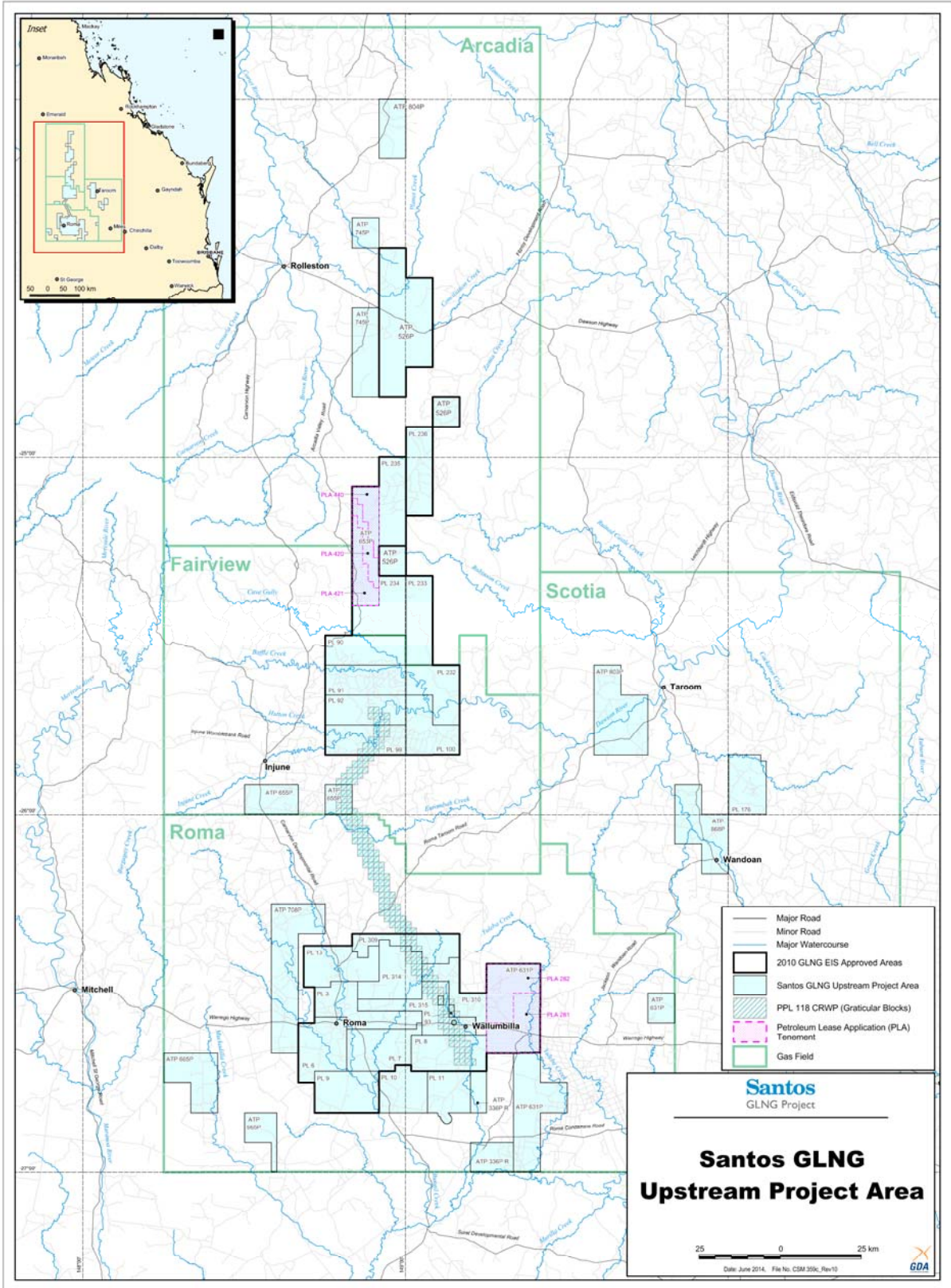


Figure 1-1: The Santos GLNG Upstream Project Area

1.1 Santos GLNG's Land Disturbance Approach

Santos GLNG will adopt a hierarchy of management principles when planning for and implementing new petroleum activities that may result in land disturbance within the Santos GLNG Upstream Project Area. These management principles are:

1. Avoidance – Avoiding direct and indirect adverse environmental impacts where reasonable and practicably possible;
2. Minimise – Minimise direct and indirect adverse environmental impacts where impacts cannot be avoided;
3. Mitigate – Implement mitigation and management measures to minimise direct, indirect and cumulative adverse environmental impacts;
4. Remediation and Rehabilitation – Actively remediate and rehabilitate impacted areas to promote and maintain long-term recovery; and
5. Provide Offsets – Where required, Santos GLNG will provide suitable offsets for activities that result in an unavoidable significant residual adverse impact to MNES and MSES. The offsets will be submitted for approval in accordance with both Queensland and Australian Government requirements.

Santos GLNG will ensure that all Santos GLNG Project personnel carrying out petroleum activities are aware of the location of the environmental constraints, and the requirements of the relevant environmental approvals.

1.2 Purpose and Scope of the Protocol

1.2.1 Purpose

The GFDP Protocol provides a method for assessing environmental constraints during the planning and field development process. The purpose of the GFDP Protocol is to set out the framework for identifying and assessing environmental values and avoiding or minimising potential environmental impacts associated with development of the Santos GLNG Upstream Project Area. The GFDP Protocol establishes the requirements for:

- Obtaining internal Santos GLNG approval for new petroleum activities that may cause significant disturbance to land;
- Ensuring that appropriate planning is undertaken to avoid, minimise and mitigate impacts to the environment prior to conducting any new petroleum activity;
- Conducting activities in a way that avoids or minimises land disturbance and potential environmental impacts, particularly impacts to Matters of National Environmental Significance (MNES) and Matters of State Environmental Significance (MSES); and
- Compliance monitoring and reporting to the relevant State and Federal Governments.

1.2.2 Scope

The GFDP Protocol applies to all gas field related activities within the Santos GLNG Upstream Project Area including modifications to existing operations and infrastructure. The GFDP Protocol will:

- Enable Santos GLNG to comply with all relevant State and Federal statutory approvals and legislation;
- Support Santos' environmental policies;

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- Promote the avoidance, minimisation, mitigation and management of direct and indirect adverse environmental impacts associated with land disturbances; and
- Minimise cumulative impacts on environmental values.

The GFDP Protocol aims to the extent possible, manage environmental issues relevant to the State and Federal Governments under a single framework. The GFDP Protocol may be implemented by Santos GLNG if the GFD Project EIS is approved, however, it will be updated to reflect conditions of the EIS approval and will apply to the life of project activities, including the various stages of development (i.e. planning and design construction, operation, decommissioning and rehabilitation) (see Section 4.0). Santos GLNG already implements a GLNG Project specific version of the Protocol, which is consistent with existing State and Federal environmental approvals and associated conditions for the Santos GLNG Project. This version, which differs only slightly with the GFDP Protocol, may be rescinded should the GFDP EIS be approved.

A map of the Santos GLNG Upstream Project Area is included in Figure 1-1.

Although the GFDP Protocol addresses both State and Federal Governments' environmental considerations, it does not supersede the management requirements or legal obligations provided by government approvals. In addition, the GFDP Protocol does not seek to extend the Queensland or Australian Governments' ordinary jurisdiction. Any changes to the GFDP Protocol and/or any relevant approval conditions will be directed to the appropriate governmental source only.

Landholder engagement and consultation is an important component of all stages of planning and field development. Due to the specific nature of the activities proposed on each Landholder's property and the specific constraints that may be identified during the Landholder consultation process, Landholder consultation does not form part of the scope of this Protocol. For a high-level overview on the process of Landholder, engagement / consultation during various project phases refer to Figure 1-2.

Early engagement process with new landholders for future gas production activities

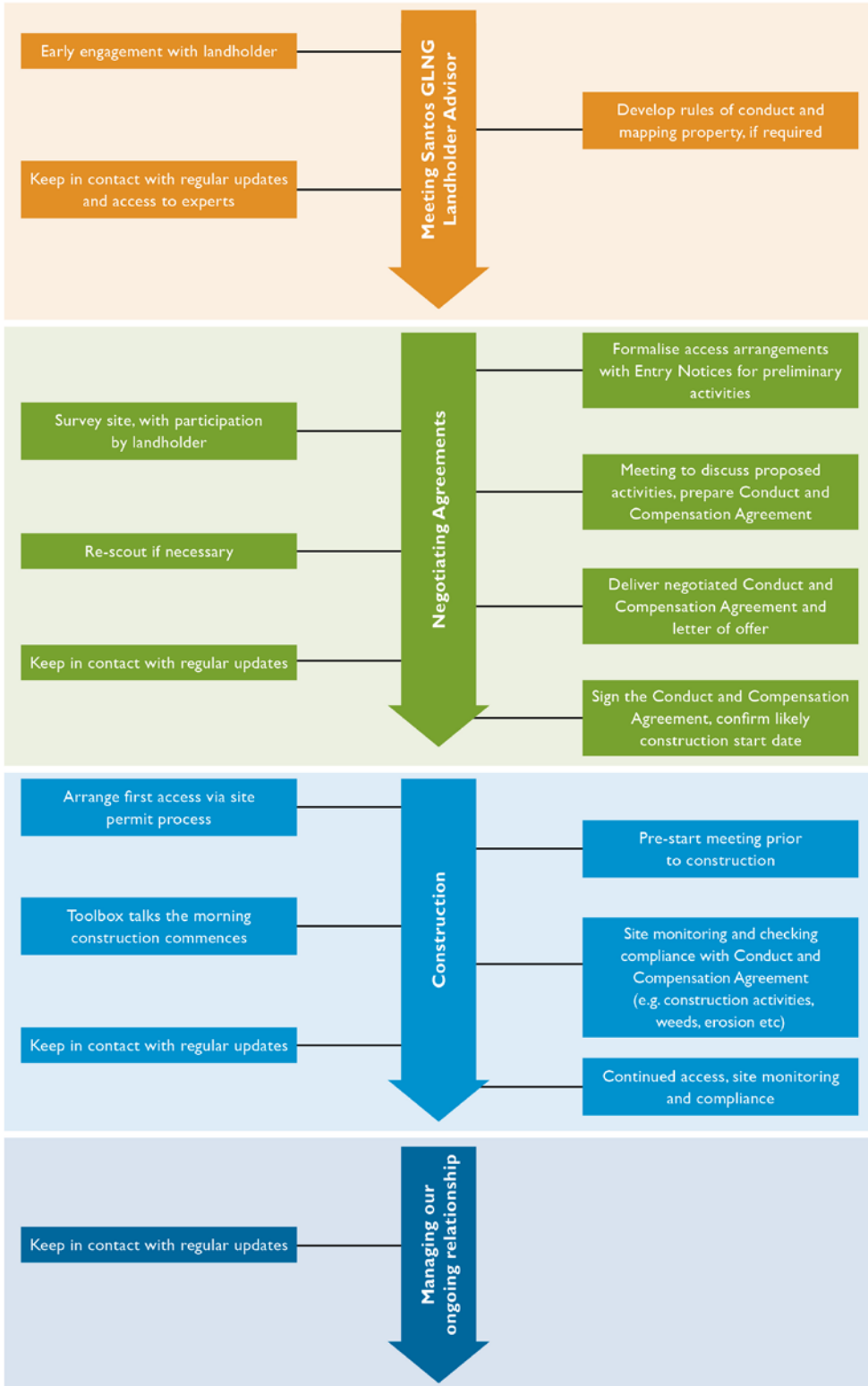


Figure 1-2: An Example of Santos GLNG's Landholder Consultation Process

2.0 Roles and Responsibilities

Santos GLNG Project personnel are responsible for the environmental performance of their activities, for complying with relevant approval / permit requirements and for ensuring that all environmental objectives associated with the work are achieved. Santos GLNG Project personnel must also be mindful of the General Environmental Duty (GED) as outlined in the *Environmental Protection Act 1994* (Qld) (EP Act). Section 319(1) of the EP Act states that “*a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practical measures to prevent or minimise the harm.*”

Roles, responsibilities and accountability under the Protocol will be assigned in accordance with the *Santos EHSMS05 – Responsibility and Accountability*.

3.0 Legal and Other Requirements

3.1 Legal Requirements

Santos GLNG must comply with all relevant Australian and Queensland legislation and approvals. A list of major approvals and the relevant associated documents is shown in Table 1.

Table 1: Summary of Major Applicable Legislation and Associated Documents

Act / Regulation / Code	Summary of Act
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	The EPBC Act is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora and fauna species and ecological communities. The EPBC Act focuses Australian Government interests on the protection of MNES, with the states and territories having responsibility for matters of state and local significance. MNES includes listed threatened species and communities.
<i>Environmental Protection Act 1994 (EP Act)</i> <i>Environmental Protection Regulation 2008 (EP Reg)</i>	The EP Act provides for environmental management practices and environmental safeguards. The EP Act is applicable to the GFD Project in regards to EAs. Each stage of the development of a natural gas lease requires an EA before the issue of a license. The EP Act details the process of environmental assessment for the granting of EAs.
<i>State Development and Public Works Organisation Act 1971(SDPWOA)</i>	Under Section 35 of SDPWOA the Coordinator-General must prepare the Coordinator-General's report for an EIS. In evaluating the EIS, the Coordinator-General may state conditions and make recommendations. The conditions relevant to the constraints planning and field development of the Santos GLNG gas fields will be provided in the Coordinator-General's evaluation report for the GFD Project EIS.
<i>Nature Conservation Act 1992 (NC Act)</i> <i>Nature Conservation (Wildlife Management) Regulation 2006 (Qld).</i>	The primary purpose of the NC Act is to conserve biodiversity by protecting wildlife and its habitat. Permits are required for the taking and/or relocation of protected flora and fauna under this act. Santos GLNG is also exempt for the taking of protected plants on tenures granted under the <i>Petroleum Act 1923</i> .

3.2 Santos Environment, Health and Safety Management System

The Santos EHSMS provides a framework for environmental and safety practices across Santos operations worldwide. The framework is consistent with *AS 4801:2000 Occupational Health and Safety Management Systems* and *AS/NZS ISO 14001:2004 Environmental Management Systems*.

This GFDP Protocol complements the requirements of the EHSMS, in particular, the Santos Environmental Hazard Standard *EHS01 Biodiversity and Land Disturbance*. This standard defines the requirements to minimise environmental impacts associated with disturbance to biodiversity and/or land during oil and gas exploration, production, processing and rehabilitation activities. An additional relevant EHSMS standard is, *EHS06 – Environmental Impact Assessment and Approvals*. This standard discusses both external and internal approval requirements necessary prior to conducting disturbances to land.

This GFDP Protocol specifically addresses unique features and requirements relating to the Santos GLNG Project. GLNG specific documentation is based on identified environmental and reputational risks and accounts for Santos GLNG’s legal and other obligations, commitments made by the Santos GLNG Project and Santos GLNG’s Social Licence to Operate.

In this context, the GFDP Protocol also provides additional guidance for the management of environmental issues and support the development of asset / activity / department-based guidelines and work instructions, in order to secure compliance with legal requirements as well as deliver on company environmental standards.

The Santos approach to environmental management is illustrated in Figure 3-1.



Figure 3-1: The Santos Approach to Environmental Management

Additional documents relevant to constraints planning and field development within the Santos GLNG Upstream Project Area are discussed in the following sections.

3.2.1 Rehabilitation Management Plan

The Santos GLNG Upstream Rehabilitation Management Plan provides the framework for rehabilitating land that has been disturbed as part of gas field activities. The plan proposes the return of disturbed areas to a pre-clearance state or another stable landform consistent with the surrounding undisturbed areas or to final acceptance criteria specified in project approvals and in consultation with the landholder.

3.2.2 Significant Species Management Plan

The Significant Species Management Plan (SSMP) has been prepared to manage the legal and social responsibility to minimise GFD Project related impacts to significant species and Threatened Ecological Communities (TEC) listed under the EPBC Act. The SSMP is designed to manage impacts from activities that have been planned (in consideration of ecological constraints) and approved for construction and will have an identified impact on a significant species (EPBC listed) or its habitat or a TEC.

3.2.3 Plan of Operations

Sections 287 and 288 of the EP Act requires a Plan of Operations (PoO) to be submitted for each relevant lease under the Environmental Authority (EA). The purpose of a PoO is to provide site and asset specific information regarding the actual and near term foreseeable gas field development. It also documents the nature and extent of activities and disturbances relative to existing landforms, land uses and sensitive environmental settings during the period of the plan. Updates to the GFDP Protocol will be incorporated into the relevant PoO. The GFDP Protocol will be reviewed and updated to reflect inclusions to the PoO, as required.

4.0 Application of the GFDP Protocol throughout the Project Lifecycle

The GFDP Protocol applies to the life of the GFD Project, including each phase of development - infrastructure planning and design, construction, operation, decommissioning and rehabilitation.

As the project progresses through the various stages of development, the extent of land disturbance required by the project will vary. The GFDP Protocol will be predominantly applied during the project phases that will result in the most significant land disturbance (i.e. infrastructure planning and design and construction phases). However, all disturbances to land must comply with the GFDP Protocol. Figure 4-1 shows the application of the GFDP Protocol within each of the project development phases.

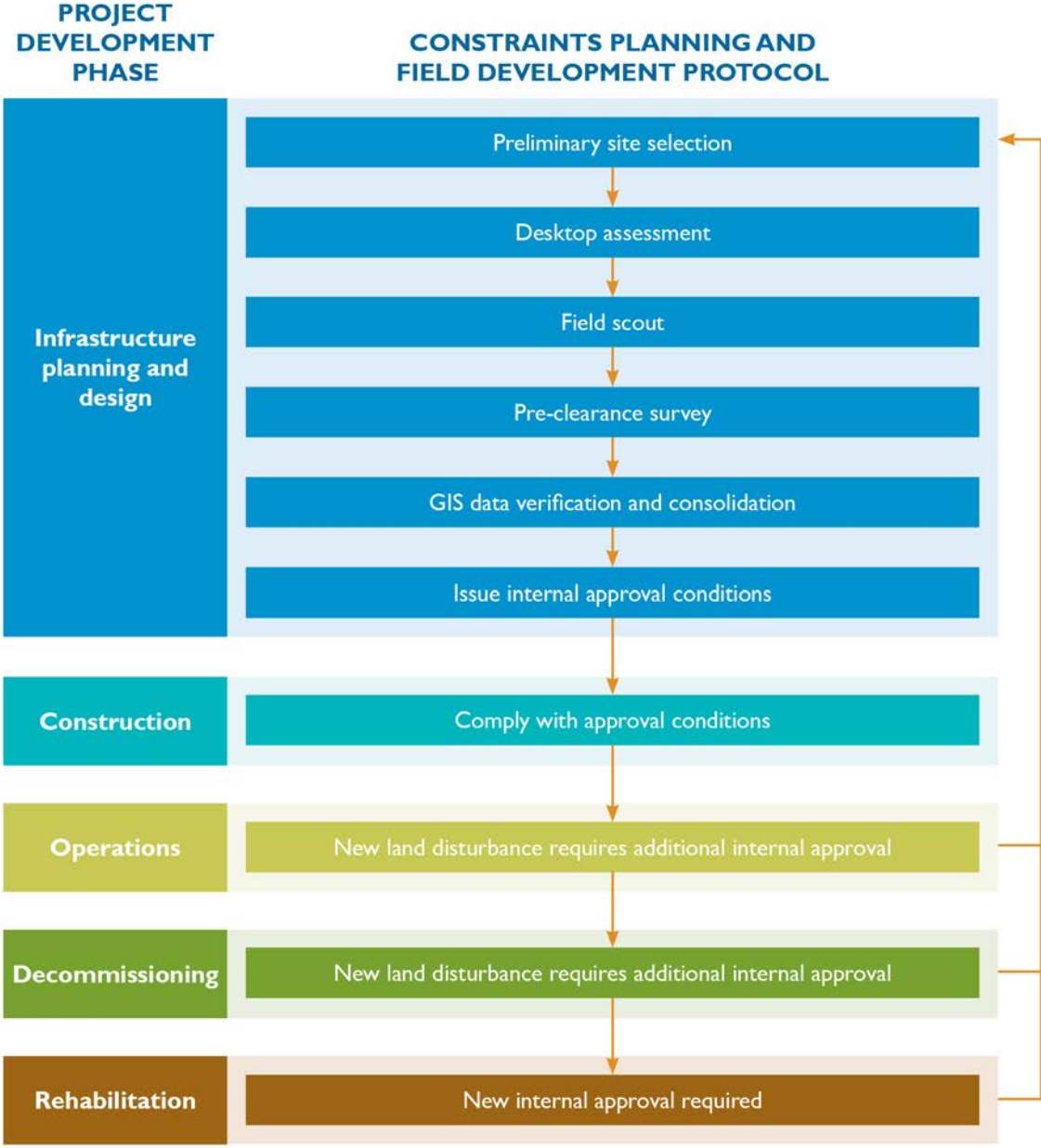


Figure 4-1: Application of the GFDP Protocol within each of the Project Development Phases

5.0 Constraints Planning

Santos GLNG utilises the Santos *Geographic Information System* (GIS) for constraints planning and field development. The Santos GIS contains a number of mapping layers including environmental and social constraints as well as multiple infrastructure types. The GIS is used to identify mapped constraints and locate infrastructure to avoid particular environmental values.

The development of the constraints layers is an iterative process. As new data becomes available, it is updated in the Santos GIS through a process of data acquisition, cleansing and verification.

5.1 Constraints Categories

The broader environmental constraints for the GFD Project are derived from a range of sources depending on the constraint type, however not all constraints have associated supporting spatial data. The constraints GIS datasets considered for the GFD Project EIS have been sourced from Government datasets and Santos GIS datasets. Some of the data sourced from the Santos GIS datasets also incorporates the relevant environmental State and Federal Government approval conditions placed on the Santos GLNG Project when it was approved. The constraints considered during the GFD Project EIS and the development restriction for each constraint is detailed below in Table 2.

In addition to the constraints datasets, all current survey data, aerial photography, maps and other information relevant to the Santos GLNG Upstream Project Area will be utilised during the constraints planning and field development process.

The constraints categories as detailed in the Santos GIS layers represent the current requirements for constraints planning and field development for the Santos GLNG Upstream project area. However, the groups of constraints that make up the GIS layers will be altered when a new constraint is identified, when existing Santos GLNG approval conditions are amended or as a result of the GFD Project EIS approval. A full list of current constraints that have been considered for the GFD Project and the relevant development restrictions that apply are detailed in Table 2. A high level summary of what activities are permitted in each of the constraint categories is detailed in Table 3.

The GFDP Protocol will be updated to reflect the State and Federal Governments' environmental approvals and associated conditions following the assessment of the EIS. The updated protocol will assign constraints classes in accordance with the approval conditions and Santos policies.

The constraints classes and the relevant management measure developed to address the existing approvals are provided in Table 4, Appendix A.

5.1.1 Buffer Zones

Many of the constraints data classes in the Santos GIS contain buffer zones that restrict certain activities within the vicinity of known environmental constraints. The EPBC Act and EA approvals create two distinct buffer zones:

1. A 200m buffer defined as the Impact Risk Zone (as per the EPBC approval) and the Primary Protection Zone (as per the EA).
2. A 300 m buffer defined as the No Impact Zone (as per the EPBC approval) and the Secondary Protection Zone (as per the EA). This buffer effectively extends 100 m from the 200 m buffer defined as the Impact Risk Zone / Primary Protection Zone.

The application of the buffer zones to the identified environmental constraints is illustrated in Figure 5-1.

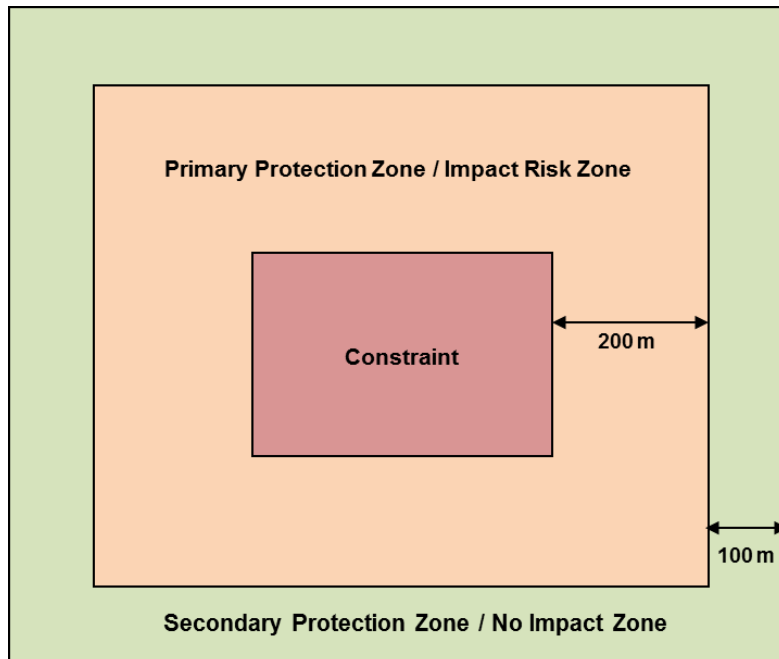


Figure 5-1: Constraints Planning and Field Development Protocol Buffer Zones

Table 2: GFD Project EIS Constraint Categories

Constraint Categories	Development Permitted	Type of Constraint	Dataset in GIS	Constraint
No-go area	No petroleum activities permitted	Ecology / Natural Environment	✓	Category A Environmentally Sensitive Areas (ESA's) (as listed in section 25 on the <i>Environmental Protection Regulation 2008</i> (EP Reg.)) (that are located within Santos GLNG tenures) <ul style="list-style-type: none"> National parks ¹ (<i>Nature Conservation Act 1992</i> (NC Act)) Conservation parks (NC Act) Forest reserves (NC Act)
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> Spring vents and/or spring complexes that are protected under the EPBC Act (i.e. spring where the listed TEC <i>The community of native species dependent on natural discharge of groundwater from the Great Artisan Basin</i> has been identified and/ or springs that support other EPBC listed threatened species) plus 200 m buffer zone
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> 'Wetlands of High Ecological significance' also known as 'High conservation value wetlands' as detailed in the Map of Referrable Wetlands dataset (QLD)
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> Wetlands of national importance (+ 200 m buffer)
Surface development exclusion area	Low impact petroleum activities ⁴ permitted.	Ecology / Natural Environment	✓	200m Primary Protection Zone buffers around Category A ESA's (that are located within Santos GLNG tenures) <ul style="list-style-type: none"> National parks (NC Act) Conservation parks (NC Act) Forest reserves (NC Act)
		Ecology / Natural Environment	✓	The following Category C ESAs ² (that are located within GLNG tenures): <ul style="list-style-type: none"> Nature Refuges (defined under NC Act) Koala Habitat Areas (as per the <i>Nature Conservation (Koala Conservation Plan 2006)</i>. (NC Koala Conservation Plan)) Declared Catchment Areas (defined under <i>Water Act 2000</i>)
		Ecology / Natural Environment	✓	The following Category B ESAs (as listed in section 25 on the EP Reg.) (that are located within Santos GLNG tenures): <ul style="list-style-type: none"> Coordinated conservation areas (as defined under the NC Act) Ramsar Sites (International Convention) State Forest Park / Special Forestry Areas (as defined under <i>Forestry Act 1959</i>)
High constraint area	Linear infrastructure ⁵ permitted with site-specific mitigation measures including pre-clearance survey, stakeholder consultation, restrictive conditions, and potential offsets). Low impact petroleum activities ⁴ permitted	Surface Water	✓	<ul style="list-style-type: none"> Watercourses (Stream orders) + 100 m buffer
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> 'General ecologically significant wetlands' or 'Wetlands of other environmental value' as detailed in the Map of Referrable Wetlands dataset
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> All other Spring vents / spring complexes (not protected under the EPBC Act) located within Santos GLNG tenures and a 200 m primary protection buffer
Moderate constraint area	Linear infrastructure ⁵ and all limited petroleum activities (both linear and Non-linear infrastructure ⁶), with specific mitigation measures applied, which may include pre clearance surveys, stakeholder consultation, site-specific controls, and potential offsets. Low impact petroleum activities permitted ³ .	Ecology / Natural Environment	✓	<ul style="list-style-type: none"> 100m Secondary buffer zone around Spring vents and/or spring complexes protected under the EPBC Act (including their 200 m primary buffer zone)
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> Matters of National Environmental Significance (MNES) identified under the EPBC Act, including: <ul style="list-style-type: none"> <u>MNES Habitat</u> – threatened species habitat and migratory species habitat <u>MNES Threatened Ecological Communities</u> (TEC's) derived from State Regional Ecosystem (RE) mapping <u>MNES Flora species</u> <u>MNES Threatened TEC's</u> verified during field surveys
		Ecology / Natural Environment	✓	

Constraint Categories	Development Permitted	Type of Constraint	Dataset in GIS	Constraint
				100m Secondary Protection Zone buffer area around Category A ESA's + the 200m buffer (located within Santos GLNG tenure) <ul style="list-style-type: none"> National parks (NC Act) Conservation parks (NC Act) Forest reserves (NC Act)
		Ecology / Natural Environment	✓	The following Category B ESAs (as listed in section 25 on the EP Reg.) + 200m Primary Protection buffer (that are located within Santos GLNG tenure): <ul style="list-style-type: none"> 'Endangered' Regional Ecosystems (ERE's)
		Ecology / Natural Environment	✓	The following Category C ESAs ² + 200m Primary Protection buffer (that are located within Santos GLNG tenure): <ul style="list-style-type: none"> Essential habitat (NC Act) Essential regrowth habitat (NC Act) 'Of Concern' Regional Ecosystems Resource reserves (NC Act)
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> EVNT Species (NC Act)
		Ecology / Natural Environment	✓	The following Category C ESAs ² (that are located within Santos GLNG tenure): <ul style="list-style-type: none"> State forests / Timber reserves (<i>Forestry Act 1959</i>)
Low constraint area	Wider range of project activities, including all Petroleum activities ⁷ are permitted in these areas with standard mitigation and management conditions. Offsets are unlikely.	Ecology / Natural Environment	✓	<ul style="list-style-type: none"> High value regrowth (Endangered RE) High value regrowth (Of Concern RE)
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> 'No Concern at Present' REs
		Ecology / Natural Environment	✓	<ul style="list-style-type: none"> Non-remnant vegetation
		Land Use	✓	<ul style="list-style-type: none"> Existing Santos infrastructure
		Land Use	✓	<ul style="list-style-type: none"> Existing roads, rail, pipeline and other infrastructure that would have to be considered during field development

✓* These GIS datasets have restricted access due to their sensitivity.

¹ Specific and mutually beneficial activities in a (Limited Depth) National Park may be allowed with express written permission from DNPRSR. Santos will only seek permission to enter a (Limited Depth) National Park on limited occasions where no other feasible option exists.

² Category C ESA as defined in the Environmental Authority PEN103814911

³ **Low impact petroleum activities** means petroleum activities which do not result in the clearing of native vegetation, earthworks or excavation work that cause either, a significant disruption to the soil profile or permanent damage to vegetation that cannot be easily rehabilitated immediately after the activity is completed. Examples of such activities include (but are not necessarily limited to) chipholes, coreholes, geophysical surveys, seismic surveys, soil surveys, topographic surveys, cadastral surveys, ecological surveys, installation of environmental monitoring equipment (including surface water).

⁴ **Limited petroleum activities** means any low impact petroleum activity and single well sites (includes observation, pilot, injection and production wells) and associated infrastructure (water pumps and generators, sumps, flare pits or dams) located on the well site, multi-well sites and associated infrastructure (water pumps and generators, sumps, flare pits, dams or tanks) located on the well sites, construction of new access tracks that are required as part of the construction or servicing a petroleum activity, upgrading or maintenance of existing roads or tracks, power and communication lines, gas gathering lines from a well site to the initial compression facility, water gathering lines from a well site to the initial water storage or dam, and camps within well site that may involve sewage treatment works that are a no release works.

⁵ **Linear infrastructure** means linear infrastructure including (but not limited to) gas and water gathering lines, low and high pressure gas and water pipelines, powerlines, communication, roads and access tracks (associated with limited petroleum activities and petroleum activities)

⁶ **Non-linear infrastructure** means infrastructure including (but not limited to) exploration and production wells, compressor stations, regulated dams, reverse osmosis plants, brine encapsulation facilities, workers camps, and maintenance facilities

⁷ **Petroleum activities** include low impact petroleum activities or limited petroleum activities and all other GFD Project activities including major facilities such as permanent accommodation camps, gas treatment facilities, air strips, water facilities including dams, water storage infrastructure, water treatment and amendment facilities, gas hubs, and nodal compressors.

Table 3: Summary of Activities Permitted in each Constraint Category for the GFD Project

Constraint Category	Low impact petroleum activities	Linear Infrastructure	Limited petroleum activities	Petroleum activities
No Go area	No	No	No	No
Surface development exclusion area	Yes	No	No	No
High constraint area	Yes	Yes	No	No
Moderate constraint area	Yes	Yes	Yes	No
Low constraint area	Yes	Yes	Yes	Yes

5.2 Additional Constraints

All activities will be compliant with relevant government approvals, which may change over time. Additional constraints to be considered during the constraints planning and field development process are detailed below.

5.2.1 Cultural Heritage (Indigenous and non-indigenous) constraints

Indigenous and non-Indigenous Cultural Heritage is protected by legislation in all Australian states and territories. There are specific obligations to report identified Cultural Heritage sites to statutory authorities, and where required, to Aboriginal stakeholder representatives.

Santos has an established process for protecting and managing cultural heritage across all its projects. Cultural heritage (both indigenous and non-indigenous) is managed (in consultation with the relevant stakeholders) primarily through the Santos EHSMS - Environmental Hazard Standard EHS11 Cultural Heritage. This standard establishes a Cultural Heritage management system that manages risk, and ensures compliance with all legislative requirements related to Santos' Australian operations, and compliance with agreements with Aboriginal stakeholders, in a manner that is comprehensive, documented and auditable.

Cultural heritage desktop and field assessments and approval process are the primary tools to prevent damage to cultural heritage. The cultural heritage clearance process serves multiple purposes including:

- managing risk of damage to cultural heritage;
- providing a procedural framework to meet the requirements of Indigenous and non-Indigenous cultural heritage legislation, Cultural Heritage Management Plans (CHMPs/CHMAs) and agreements across all Australian operations;
- maintaining a central electronic register of procedural and compliance information for each clearance; and
- ensuring all follow-up compliance actions are tracked and completed.

For the Santos GLNG Project, an approved Request for Cultural Heritage Clearance (RFCHC) form is required for all ground-disturbance and excavation activities regardless of previous land use. The requirement for an approved RFCHC form before any activity includes new activity and also variation / modification or expansion of existing project works, as well as work in areas where there has been prior impact such as in areas used for mining, pastoral or agricultural purpose.

All Santos GLNG personnel and contractors are responsible for understanding what they must do to comply with cultural heritage obligations.

5.2.2 Land Use and Tenure

5.2.3 Regional Planning Interests Act 2014

The *Regional Planning Interests Act 2014* (Qld) (RPI Act) and *Regional Planning Interests Regulation 2014* (RPI Regulation) commenced on 13 June 2014.

The RPI Act identifies and protects areas of Queensland that are of regional interest. In doing this, the RPI Act seeks to manage the impact and support coexistence of resource activities and other regulated activities in areas of regional interest. The Act aims to ensure that land use planning protects:

- Living areas (termed Priority Living Areas)
- High quality agricultural areas (termed Priority Agricultural Areas)
- Strategic cropping land (termed Strategic Cropping Areas)
- Important environmental areas (termed Strategic Environmental Areas).

The RPI Act repealed the *Strategic Cropping Land Act 2011* (SCL Act) but integrates the SCL Act policy framework for 'on-tenure' resource activities. The RPI Act has various implications for resource projects proposed within an area of regional interest and is dependent on the status of tenure and environmental approvals at various prescribed dates, the location and the type of proposed development. If a resource activity is proposed within an area of regional interest and an exemption under the RPI Act does not apply to the project, a Regional Interests Development Approval will be required.

5.2.3.1 Darling Downs and Central Queensland Regional Plans

On 18 October 2013, the Queensland government made the Central Queensland Regional Plan and Darling Downs Regional Plan statutory planning documents. These plans seek to address the potential land conflicts between the agricultural and resources activities and resolve the competing state interests affecting these sectors. The Santos GLNG Upstream Project Area falls within the boundaries both these regional plans.

At a very high level, these regional plans aim to:

- Protect Priority Agricultural Land Uses (PALUs) while supporting co-existence opportunities for the resources sector; and
- Provide certainty for the future of towns.

To facilitate the protection of the specific PALUs as stated in these regional plans, strategic areas that contain significant clusters of the high value, intensive agricultural areas have been identified; these areas are termed Priority Agricultural Areas (PAAs).

PALUs exist both within and outside the PAAs, however only those PALUs located within a PAA will require the PAA co-existence criteria to be met. The PAA co-existence criteria is still being developed, however once finalised it will be the assessment tool that will be used when a resource activity is proposed within a PAA on land this is being (or has recently been) used for a PALU.

Priority Living Areas (PLAs) have been defined in the regional plans with the aim to set aside an area for town expansion, for those towns with a population of 200 people or more.

A PLA is defined as the settlement area, the rural residential areas associated with the settlement area and a two-kilometre buffer around the settlement area. The initial two-kilometre buffer proposed is a starting point however, councils and communities need to show that a buffer is required and the required size of the buffer. PLA's are still to be implemented and the definition of what resource activities are considered appropriate to occur in the PLA's is still to be determined.

5.2.3.2 Disturbance to Existing Contaminated Land

A number of activities carried out as part of the GFD Project could potentially disturb existing contaminated land, leading to exposure of human health or environmental receptors to contaminants. These activities include:

- Siting of temporary and permanent infrastructure on or directly adjacent to contaminated land;

- Drilling of wells through contaminated soil or groundwater, potentially causing or exacerbating transport / movement of contaminants; and
- Remediation and rehabilitation in areas where there is a risk of contaminated land occurring, such as brine ponds, dams and storage facilities, or other areas where significant hydrocarbons have been stored.

The type of activities being undertaken will determine the extent of land disturbance. For example, the footprint of disturbance will be less for a well installation compared to that associated with construction of a production facility.

The contaminated land assessments will be developed in accordance with the *Santos EHS 08 – Contaminated Sites* and the *Queensland Guideline for Contaminated Land Professionals (EHP 2012)*. *EHS 08: Contaminated Sites* is a Santos EHSMS standard that specifies the minimum acceptable requirements for the protection of human health and the environment where site contamination has occurred. *EHS08* outlines a process for identifying, documenting and managing a contaminated site.

5.2.4 EPBC Fauna Habitat

Santos GLNG actively maintains fauna habitat mapping for all EPBC Act significant species located within the Santos GLNG Upstream Project Area. For all EPBC Act significant species with potential to occur within the Santos GLNG Upstream Project Area, fauna habitat has been modelled using species-based assumptions. This predictive model utilises a suite of GIS base maps and their interactions in relation to the specific requirements of each fauna species identified. These assumptions, as well as existing fauna records, allow the fauna habitat mapping to be split into four distinct categories:

- Core habitat - consists of 'essential habitat' in which the species is known and the habitat is recognised under relevant recovery plans or other relevant plans / policies / regulations. Also included within this category are populations that are limited geographically within the region.
- Essential habitat - is an area containing resources that are considered essential for the maintenance of populations of the species (e.g. potential habitat for breeding, roosting, foraging, shelter, for either migratory or non-migratory species). 'Essential habitat' is defined from known records and/or expert advice (including the findings of pre-clearance surveys).
- General habitat - consists of areas or locations that are used by transient individuals or where species have been recorded but there is insufficient information to assess the area as 'essential or core habitat'. 'General habitat' may be defined from known records or habitat that is considered to potentially support a species according to expert knowledge of habitat relationships, despite the absence of specimen backed records. 'General habitat' may include areas of suboptimal habitat for species.
- Unlikely habitat - areas are those areas that do not contain records of the particular species and contain no habitat values to support the presence or existence of resident or migratory individuals or populations of the species.

Managing the risk of adverse impact to significant species habitat will utilise (amongst other things) this predictive habitat modelling and preferentially avoid habitat in accordance with the above hierarchy where practicable.

5.2.5 Additional Development Conditions for (Limited Depth) National Parks

Some development activities operate in addition to the restrictions imposed for (Limited Depth) National Parks. As National Parks are classed as a Category A ESA and regulatory framework places

restrictions on development activities, these areas have been classed as 'No-go Areas'. Ordinarily no project activities are permitted in these areas (refer to Table 2).

However, specific and mutually beneficial activities in a (Limited Depth) National Park may be allowed on a "case by case" basis with express written permission from the respective Queensland Government agencies. Santos GLNG will only seek permission to enter a (Limited Depth) National Park where no other feasible option exists. All work will be conducted in accordance with Santos GLNG's specific management principles: Avoid, Minimise, Mitigate and Rehabilitate (refer Section 1.1).

The granting of express written permission to conduct mutually beneficial activities in a (Limited Depth) National Park does not in any way remove or limit the field management requirements imposed by other constraints mentioned in the GFDP Protocol. That is, where an activity is allowed within a (Limited Depth) National Park the conditions imposed by all other constraints and their management conditions apply.

5.2.6 Koala Habitat

Pre-clearance assessments of the activities in gas fields must identify koala habitat as defined under the *Nature Conservation (Koala) Conservation Plan 2006*. Information regarding specific mitigation measures and habitat offsets is included in the SSMP.

5.2.7 Bioregional Corridors

The Bioregional Corridors data is derived from Brigalow Belt Biodiversity Planning Assessment. The regional and state corridor data has been merged to form a single corridor layer. This has been applied over the Santos GLNG Upstream Project Area to indicate vegetation that is considered as significant for the movement of fauna and flora. It has been included as a guide to decision making where infrastructure may impact on the functionality of corridors. Bioregional corridors are to be maintained to the greatest extent practicable.

5.2.8 Flood Levels

The siting of camps or permanent infrastructure (that are not pipelines or roads) is subject to flood impact assessments for the 1:50 and/or 1:100 Average Recurrence Interval (ARI) floods.

5.2.9 Noise

The Santos GLNG *Noise Management Plan (NMP)* is designed to assist compliance with Santos GLNG's licences, approvals and legislative requirements as well as maintain Santos GLNG's Social Licence to Operate. Noise constraints will be identified and managed in accordance with the NMP.

6.0 Pre-Disturbance Requirements

6.1 Internal Approval Process

Santos GLNG will implement an internal assessment and approval process to ensure new land disturbance accounts for existing constraints. The process is applied as early as possible in the planning, design and decision making processes for all new field development and land disturbance activities, and consists of the six steps outlined below.

6.1.1 Step 1: Disturbance Request and Initiation

Santos GLNG's disturbance initiation process starts with the registration of project related details such as the type and name of the project, the proposed infrastructure and the proposed geographic location of the infrastructure requiring the disturbance (GIS location data and tolerances).

Once the disturbance initiation information is supplied to the relevant environmental representative, the desktop environmental assessment (Step 2) can proceed. In addition, site access approval is required for all new petroleum activities. The Project Manager will initiate this process in accordance with the relevant site access procedures.

6.1.2 Step 2: Desktop Assessment

The desktop assessment is undertaken by a multi-disciplinary assessment team representing the key elements of the business required for constraints planning and infrastructure layouts. The desktop assessment consists of the following:

- Assessment of the location of proposed infrastructure against the mapped constraints using Santos' GIS constraints data. This is undertaken by representatives from Environment, Cultural Heritage, Landholder relations teams as well as construction/infrastructure specialists;
- Documenting all constraints assessments and infrastructure planning decisions;
- Identifying areas that require a pre-clearance survey (Section 6.4);
- Identify alternative infrastructure locations in consultation with the design team, to meet the requirements of the relevant constraints data when and as required;
- Identify and apply for external environmental and regulatory permits and approvals required to be in place prior to the commencement of disturbance; and
- Identifying total disturbance areas required throughout the project lifecycle considering requirements of construction, operation and decommissioning.

Where feasible, measures to reduce total disturbance will be implemented. An example of this is co-locating linear infrastructure to reduce total disturbance in accordance with the management principles above.

The results are finalised by the assessment team and the proposed infrastructure layout is to undergo a field scout (Step 3).

6.1.3 Step 3: Field Scout

The field scout process is a multidisciplinary and cross-functional field risk assessment. The field scout stage identifies and assesses the potential adverse impacts on constraints relating to a proposed gas field development and provides recommendations to inform Santos GLNG's decision to develop the project area and site infrastructure. The field scout is conducted to reduce the risk of impacts to the

business and the environment from any inaccuracy of desktop information. The field scout provides an additional level of data that informs the avoidance and mitigation measures.

During this process, environmental constraints are discussed and resolved to ensure that infrastructure layouts are optimised in accordance with this protocol. Where significant changes to the desktop infrastructure locations are needed, a suitably qualified representative from the initial request will be contacted to facilitate prompt resolution for all parties during scouting.

Decisions surrounding the potential development areas and the impacts on the relevant constraint classes will be documented during the field scout. The results of the scout are used to create GIS data showing the proposed construction disturbance zones. Recommendations regarding the type and scope of pre-clearance survey (Step 4) will be developed at the field scout stage.

The proposed construction disturbance zones will be reviewed and approved by the request initiator. Once confirmation of the approval has been received, the field scout step is complete.

6.1.4 Step 4: Pre-clearance survey

The pre-clearance survey will be completed in accordance with the approval requirements and the SSMP. The scope of the pre-clearance survey will vary depending on the environmental constraints being assessed and the infrastructure proposed.

The pre-clearance survey will be conducted by suitably qualified and/or approved person as defined in the relevant government approvals (e.g. Australian Government approved ecologist).

The objective of the pre-clearance survey is to:

- Verify the accuracy of the constraints mapping;
- Determine the presence or absence of environmental constraints such as MNES and state listed threatened species or ecological communities;
- Identify and target specific constraints and assess them in accordance with the appropriate Santos GLNG procedures. Targeted specific constraints include but are not limited to the following:
 - Threatened fauna species habitats;
 - Wetlands;
 - Watercourses ;
 - Springs;
 - Vegetation Communities specifically REs and TECs;
 - Threatened flora and fauna; and
 - SCL
 - Pests and weeds
 - Fossils
- Determine whether the area requires re-classification in accordance with the constraints.

Pre-clearance surveys will identify and assess options relating to potential field development impacts on environmental constraints including MNES and provide recommendations to inform Santos GLNG's decision to manage the risk of adverse impact to such values.

6.1.5 Step 5: Data Management, Verification and Consolidation

Data collected during the field scout and pre-clearance surveys will be captured where practicable using portable Global Positioning System (GPS) and GIS enabled devices. Each device will contain

appropriate GIS data forms to capture the results of the corresponding survey. All data collected from field assessments will be synchronised with the Santos GIS system. Field collected data will be stored and managed in accordance with Santos GIS data management procedures.

Santos GLNG will maintain for the life of the project all documentation, survey information, photographs, field data or any material associated with the field validation requirements to demonstrate that surveys and environmental assessments were conducted in a manner consistent with this protocol.

If the field scout or pre-clearance survey indicates that a constraints category is incorrectly identified in the GIS, or is present on the ground and not identified in the GIS, the proposed activities will proceed in accordance with the relevant approval conditions with respect to the ground-truthed constraint.

Field validated values and alterations to mapping will be uploaded to Santos' GIS and made available to the business for further optimisation of future developments within the gas fields. The iterative process of frequent and constant data updates following the field scout and pre-clearance survey increases the accuracy of the Santos GLNG Desktop Environmental Assessment (Step 2) over time.

6.1.6 Step 6 Issue and Acceptance of Internal Environmental Approval Conditions

The assessment of the actual extent of disturbance to environmentally sensitive areas, including MNES, will also be considered at this stage, along with the cumulative extent of disturbance relative to the disturbance limits.

Subject to the environmental constraints present and the activity proposed, an internal approval will be issued with conditions, authorising the disturbance to proceed. The internal approval will include the following:

- The geographic area to be disturbed, including relevant no go zones;
- The prescribed environmental requirements, conditions and remedial actions for the disturbance activity (e.g. fauna spotter, erosion and sediment requirements);
- Additional external environmental and regulatory permits required to be in place prior to the commencement of disturbance; and
- The nominated period for which the approval remains valid.

Once the new development has been given internal approval, the relevant requestor (Project Manager or Project Director) will acknowledge the receipt and acceptance of an internal environmental approval and attached environmental conditions, after which the activity can proceed subject to other Santos GLNG internal processes.

7.0 Post-Disturbance Requirements

7.1 Recording and Tracking Disturbances

Where disturbance to constraints is permitted, the following details will be recorded:

- The location and extent of the disturbance and the type of infrastructure or activity responsible for the disturbance;
- The documents identifying the environmental constraint;
- The reasons for the decision including justification for the action taken, description of the efforts taken to avoid impact, and an explanation why, given the coexisting constraints, the decision was justified;
- The environmental constraints disturbed; and
- The extent of the disturbance and the relevant effect on the disturbance limits set out in the approval documents.

The information will be recorded and maintained so that it can be audited. Disturbances will be frequently updated in Santos GIS so that predicted disturbances can be analysed with actual disturbances and records updated to accurately reflect cumulative disturbances levels.

7.2 Data Collection and Storage

GIS data and field assessment reports will be provided to the Santos GLNG Project Manager. The associated attribute data must be supplied in the format prescribed in the 'in the Santos GIS document 'Environment Field Capture Data'. Disturbances are then entered into the Santos GIS and disturbance areas and reconciled against statutory disturbance limits.

The results of field scout and pre-clearance survey are to be documented and records maintained. A record of all documents required by the Protocol must be kept for the life of the Project. Documents must be maintained in a manner consistent with the requirements of State and Commonwealth authorities. If requested, Santos GLNG will provide the Federal and State Governments relevant ecological survey data and related survey information undertaken as part of the Santos GLNG activities.

7.3 Reporting

Santos GLNG will report on gas field activities as required under the relevant Federal and State Government approvals. Details of impacts, along with a record of assessments required will be kept and submitted to the administering authority as required.

For each constraint containing a disturbance limit, the total disturbance levels will be reported annually. Where the approval document for each constraint contains a disturbance limit the total actual disturbance data will be reported against the approved disturbance limits.

8.0 Approval and Review of the Protocol

As outlined in Section 1.1.2, this GFDP Protocol has been written for the GFD Project EIS to outline the broader range of constraints that were considered as part of the assessment process. If the GFD Project EIS is approved, relevant approval conditions will be incorporated into the existing Santos GLNG Protocol that will then apply to the entire Santos *GLNG Upstream Project Area*.

Following the granting of the EPBC Act approval, the protocol may need to be revised to reflect the relevant approval conditions. Changes to the Protocol and or relevant approval conditions will be directed to the appropriate governmental source. Therefore, the Protocol will only be submitted to the Federal Minister where a proposed action is considered a new action or where there are potential for impacts, including indirect impacts, on MNES that are not currently addressed in the relevant EPBC Act approval.

Examples of changes that may require review and amendment of the Protocol include:

- Changes to the geographic extent of the project;
- Changes in listed flora and fauna species relevant to the project;
- Changes in Threatened Ecological Communities relevant to the project;
- Revisions to databases and datasets;
- Amendments to EAs;
- Amendments to legislation;
- At the request of the State or Federal Governments; and
- Following periodic review of the Protocol.

Once the Protocol is finalised and accepted, Santos GLNG management procedures, operational plans and other relevant documentation will be amended to reflect the Protocol's requirements.

9.0 Definitions

Term	Definition
Associated infrastructure	Permanent and temporary camps, access roads, waste management areas, borrow pits, quarries, laydown and storage areas, etc
Brigalow Threatened Ecological Community	For the purposes of the application of the Constraints Planning and Field Development Protocol the presence of the Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) ecological community includes Brigalow regrowth that retains the species composition and structural elements typical of that found in the undisturbed listed regional ecosystems but does not include: <ul style="list-style-type: none"> (a) vegetation that has been comprehensively cleared (not just thinned) within the last 15 years (b) vegetation in which exotic perennial plants have more than 50% cover, assessed in a minimum area of 0.5 ha (100 m by 50 m) (c) individual patches of Brigalow that are smaller than 0.5 ha. (EPBC Act approval 2008/4059 conditions)
Clearance of native vegetation	The cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation
Commencement	Any physical disturbance including clearance of native vegetation, new road work, and the establishment of well sites to develop the gas field project area. Commencement does not include minor physical disturbance necessary to undertake preclearance surveys or to establish monitoring programs
Conditions	The conditions attached to the approval of the action
Environment	Includes: <ul style="list-style-type: none"> • land, air, water (including both surface and underground water) • buildings, structures and cultural artefacts • productive capacity or potential • the social and economic structure • the amenity value of areas
Environmental authorisation	A works approval, licence or exemption to undertake a prescribed activity of environmental significance obtained in accordance with the relevant state environmental legislation
Environmental Impact Statement (EIS)	A formal process used to predict the environmental, social and health effects of development activities and to address the mitigation of identified potential impacts.
Environmentally Sensitive Area (ESA)	An Area identified in the <i>Environmental Protection Regulation 2008</i> or the Environmental Authority as a Category A, B or C Environmentally Sensitive Area
Gas field development	All activities associated with the development of the gas fields including (but not limited to) site clearance and site preparation; development of exploration and production wells; development of water and gas transmission pipelines; infrastructure access road construction; construction of workers accommodation and office facilities; construction of gas compression stations; construction of pumping stations; construction of water treatment facilities; and construction of water storage dams.

Term	Definition
General ecologically significant wetland	Otherwise known as “wetlands of other environmental value”, is a wetland that meets the definition of a wetland and that is shown as a general ecologically significant wetland.
GLNG	Gladstone Liquefied Natural Gas - Together, Santos, PETRONAS, KOGAS and Total, being the joint proponents of the Santos GLNG Project.
Impact risk zone	The area within 200 metres from the perimeter of an Matter of National Environmental Significance (EPBC Act approval 2008/4059 conditions).
Key Stakeholders	Typically the owner, holder or occupier of the land; the relevant land council/Aboriginal party; or the local authorities.
Legal Requirements	All laws, regulations, conditions of permits, licences, approvals and rules of conduct established by national, state or local government authorities.
Limited petroleum activities	mean any low impact petroleum activity, and: <ul style="list-style-type: none"> • single well sites (includes observation, pilot, injection and production wells) up to 1 ha and associated infrastructure (water pumps and generators, sumps, flare pits or dams) located on the well site or up to 1.25 ha if the well pad includes the use of a tank (minimum 1ML) for above ground fluid storage, • multi-well sites up to an additional (in addition to single well site above) 0.25 ha per additional well and associated infrastructure (water pumps and generators, sumps, flare pits, dams or tanks) located on the well site to a maximum of 3 ha, • construction of new access tracks that are required as part of the construction or servicing a petroleum activity that can be lawfully carried out within an ESA or its protection zone, • upgrading or maintenance of existing roads or tracks, • power and communication lines, • gas gathering lines from a well site to the initial compression facility, • water gathering lines from a well site to the initial water storage or dam, • camps within well site that may involve sewage treatment works that are a no release works.
Linear infrastructure	Infrastructure including (but not limited to) gas and water gathering lines, low and high pressure gas and water pipelines, roads and tracks, power lines and other service lines.
Listed	Those species, ecological communities or other identified matters of environmental significance listed for protection under Queensland and Australian legislation.
Low impact petroleum activities	Low impact petroleum activities means petroleum activities which do not result in the clearing of native vegetation, earthworks or excavation work that cause either, a significant disruption to the soil profile or permanent damage to vegetation that cannot be easily rehabilitated immediately after the activity is completed. Examples of such activities include but are not necessarily limited to: <ul style="list-style-type: none"> • chipholes • coreholes • geophysical surveys • seismic surveys • soil surveys • topographic surveys

Term	Definition
	<ul style="list-style-type: none"> • cadastral surveys • ecological surveys • installation of environmental monitoring equipment (including surface water).
Minister	The Minister responsible for Part 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act.
MNES	Matters of national environmental significance, being the relevant matters protected under Part 3 of the EPBC Act.
MSES	Matters of state environmental significance (including ESAs).
New Petroleum Activity	New petroleum activities that may cause land disturbance e.g. disturbing soils and/or vegetation, land clearing.
No impact zone	The area within 300 metres from the perimeter of a Matter of National Environmental Significance (EPBC Act approval 2008/4059 conditions).
Non-linear infrastructure	Infrastructure including (but not limited to) exploration and production wells, compressor stations, regulated dams, reverse osmosis plants, brine encapsulation facilities, workers camps, and maintenance facilities.
Plan	Includes a report, study, protocol or strategy (however described).
Primary Protection Zone	An area within a 200 m buffer from the boundary of any Category A, B or C Environmentally Sensitive Area (Environmental Authority conditions).
Proponent	The holder of the approval to which these conditions relate, and includes any person acting on behalf of the proponent.
Regulatory agency	Agencies administering the EPBC Act and the EP Act (Qld).
Release	Includes water discharge, compressor emission and other releases of pollutants beyond the boundary of the activity or project.
Relevant Authority	A person or body authorised in writing to exercise powers under government environmental Regulations or Acts.
Santos GLNG Upstream Project Area	CSG fields operated by Santos on behalf of the Santos GLNG joint venture (Santos, PETRONAS, KOGAS and Total) and proposed to supply CSG to the LNG facility on Curtis Island for export as part of the Santos GLNG Project, being the tenures comprising the Reasonable Field Development Area (RFDA).
Secondary Protection Zone	In relation to a Environmental Sensitive Area means as are within an 300 m buffer distance from the boundary of a primary protection zone. (Environmental Authority conditions).
Significantly disturbed land or significant disturbance to land or significant disturbance	<p>As defined in section 28 of the <i>Environmental Protection Regulation 2008</i>.</p> <p>28 What is <i>significantly disturbed</i> land</p> <p>(1) Land is <i>significantly disturbed</i> if—</p> <p>(a) it is contaminated land; or</p> <p>(b) it has been disturbed and human intervention is needed to rehabilitate it—</p> <p>(i) to a condition required under the relevant environmental authority; or</p> <p>(ii) if the environmental authority does not require the land to be rehabilitated to a particular condition—to the condition it was in immediately before the disturbance.</p> <p><i>Examples of a disturbance to land -</i></p>

Term	Definition
	<ul style="list-style-type: none"> • The covering, compaction, exposure, removal or stockpiling of soil or other material • The destruction or removal of vegetation • The carrying out of a mining activity in a watercourse or wetland • The submergence of an area with a hazardous contaminant, tailings, or water <p>(2) Without limiting subsection (1)(b), land requires human intervention to rehabilitate it if -</p> <p style="margin-left: 40px;">(a) the disturbance has made the land more susceptible to erosion; or</p> <p style="margin-left: 40px;">(b) the land use capability or suitability of the land is diminished; or</p> <p style="margin-left: 40px;">(c) the quality of water in a watercourse downstream of the land has been significantly reduced.</p> <p>(3) If land is significantly disturbed land because it is contaminated land, it ceases to be significantly disturbed land if a suitability statement is issued for the land.</p> <p>(4) If land is significantly disturbed land under subsection (1)(b), it ceases to be significantly disturbed land if the administering authority is satisfied the land has been rehabilitated -</p> <p style="margin-left: 40px;">(a) to the condition it was in immediately before the disturbance; or</p> <p style="margin-left: 40px;">(b) to another condition decided by the administering authority.</p>
Stakeholders	Individuals and organisations with an interest in or adversely effected by proposed projects and activities (proposed development activities) including relevant governments (local, state and national), NGOs (conservation, catchment management groups) Aboriginal peoples and representative groups, landholders and other interested parties.
Suitably Qualified Person	A person who has professional qualifications, training, skills and experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature (2010 Model Conditions).
Third Party Auditor	A suitable qualified person who is either a certified third party auditor or an internal auditor employed by the holder of the environmental authority and the person is independent of the day to day management and operation of activities covered by the environmental authority.
Wetland of high ecological significance	Otherwise known as “high conservation value wetland” is a wetland that meets the definition of a wetland and that is shown as a wetland of high ecological significance or high conservation value wetland on the map of referable wetlands.

10.0 References

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- Environmental Protection Act 1994 (Qld).*
- Environmental Protection Regulation 2008 (Qld).*
- Nature Conservation Act 1992 (Qld).*
- Nature Conservation (Wildlife Management) Regulation 2006 (Qld).*
- State Development and Public Works Organisation Act 1971 (Qld).*

Appendix A

Table 4: Current Environmental Constraints Classes for the GLNG Project

Class	Constraint Layers ¹	Trigger	Development Constraints		
			Within the Constraint	Within the Primary Protection Zone / Impact Risk Zone (200m Buffer)	Within the Secondary Protection Zone / No Impact Zone (300m Buffer)
A	Threatened Ecological Community (TEC) of community of native species dependent on natural discharge of groundwater from the Great Artesian Basin	EPBC	No petroleum activities permitted.	No petroleum activities permitted.	Exclude non-linear infrastructure or where the location of the non-linear infrastructure is justified given other constraints and cannot be avoided, only authorise the siting of that infrastructure in that zone where field ecologists demonstrates that there will be minimal, short term, and recoverable, or no adverse impact on the constraint.
B	National Parks Conservation Parks Forest Reserves	EA ⁴	No petroleum activities permitted.²	Only low impact petroleum activities permitted.	Only limited petroleum activities permitted. Activities must not negatively affect the adjacent constraint.
C	Wetlands of High Ecological Significance (HES)	EA ⁴	No petroleum activities permitted	Petroleum activities must not negatively impact on a wetland of high ecological significance.	Petroleum activities must not negatively impact on a wetland of high ecological significance.
D	Queensland Heritage Registered Places Ramsar Sites Cultural Heritage Register Areas Special Forestry Areas Nature Refuges Coordinated Conservation Areas Declared Catchment Areas	EA ⁴	Only low impact petroleum activities permitted.	Only limited petroleum activities permitted. Activities must not negatively affect the adjacent constraint.	No Development Constraint
E	Matters of National Environmental Significance (MNES) Threatened Ecological Communities such as: - Semi-evergreen vine thickets (SEVT) - Brigalow - Natural Grasslands Threatened Species Habitat Migratory Species Habitat Listed flora species	EPBC	Preferentially avoid native vegetation that constitutes a TEC or habitat for a listed species and utilise cleared areas. Exclude non-linear infrastructure including wells, unless their location in the constraint is justified as an exception given the other constraints and the impact on the MNES will be minimal, short term and recoverable. <u>All linear disturbances within a MNES must be conducted in accordance with the linear infrastructure widths contained within the EPBC act approval or other relevant Australian Government approvals.</u> <u>Total MNES specific clearance limits may apply</u> and are contained within the EPBC act approval.	Exclude linear infrastructure or where the location of the linear infrastructure is justified given other constraints and cannot be avoided, only authorise the siting of that infrastructure in that zone if field ecologists determines that there will be minimal, short term, and recoverable, or no adverse impact on the constraint	Exclude non-linear infrastructure or where the location of the non-linear infrastructure is justified given other constraints and cannot be avoided, only authorise the siting of that infrastructure in that zone where field ecologists demonstrates that there will be minimal, short term, and recoverable, or no adverse impact on the constraint.
F	Endangered Regional Ecosystems Essential Habitat Essential Regrowth Habitat Of Concern Regional Ecosystems Resources Reserves	EA ⁴	Only limited petroleum activities permitted. Prior to carrying out <u>limited petroleum</u> activities it must be <u>demonstrated</u> , in the following order of preference: 1. no reasonable or practicable alternative exists 2. the activities are preferentially located in pre-existing areas of clearing or significant disturbance; 3. vegetation clearing for must not exceed any infrastructure specific clearing limits contained in the relevant EA.	Only limited petroleum activities permitted. Activities must not negatively affect the adjacent constraint.	No Development Constraint
G	Watercourses and Springs	EA ⁴	Unless otherwise authorised under the EA, petroleum activity(ies) that require earthworks, vegetation clearing, placing fill and/or that will result in significant disturbance other than that associated with the construction and/or maintenance of linear infrastructure, is not permitted.	Unless otherwise authorised under the EA, petroleum activity(ies) that require earthworks, vegetation clearing, placing fill and/or that will result in significant disturbance other than that associated with the construction and/or maintenance of linear infrastructure, is not permitted within <u>200 metres of any lake or spring or</u>	No Development Constraint

Class	Constraint Layers ¹	Trigger	Development Constraints		
			Within the Constraint	Within the Primary Protection Zone / Impact Risk Zone (200m Buffer)	Within the Secondary Protection Zone / No Impact Zone (300m Buffer)
				<100 metres of the high bank of a watercourse	> 100m from the high bank of a watercourse. No Development Constraint
H	General Ecological Significance (GES) wetlands	EA ⁴	Only linear infrastructure permitted. Linear infrastructure activities, other than linear infrastructure construction and/or maintenance activities must not change the surface water hydrological regime of any GES wetland. The construction and/or maintenance of linear infrastructure in GES wetlands must be done in accordance with the EA.	No Development Constraint	No Development Constraint
I	State Forests and/or Timber Reserves ³	EA ⁴	Only limited petroleum activities permitted. Prior to carrying out limited petroleum activities it must be demonstrated , in the following order of preference: 1. no reasonable or practicable alternative exists 2. the activities are preferentially located in pre-existing areas of clearing or significant disturbance; 3. vegetation clearing for must not exceed any infrastructure specific clearing limits contained in the relevant EA. Approvals may be required under the <i>Forestry Act 1959</i> where the petroleum activities are is proposed to be carried out in State Forests or Timber Reserves.	No Development Constraint	No Development Constraint
J	Least Concern Regional Ecosystems Significant Habitat features Nature Conservation Act • EVNT Species • Type A Species	Santos	Preferentially avoid, then minimise disturbance footprint where possible.	No Development Constraint	No Development Constraint

low impact petroleum activities means petroleum activities which do not result in the clearing of native vegetation, earthworks or excavation work that cause either, a significant disruption to the soil profile or permanent damage to vegetation that cannot be easily rehabilitated immediately after the activity is completed. Examples of such activities include but are not necessarily limited to:

- chipholes
- coreholes
- geophysical surveys
- seismic surveys
- soil surveys
- topographic surveys
- cadastral surveys
- ecological surveys
- installation of environmental monitoring equipment (including surface water)

Linear infrastructure means linear infrastructure including (but not limited to) gas and water gathering lines, low and high pressure gas and water pipelines, powerlines, communication, roads and access tracks

limited petroleum activities mean any low impact petroleum activity, and:

- single well sites (includes observation, pilot, injection and production wells) up to 1 ha and associated infrastructure (water pumps and generators, sumps, flare pits or dams) located on the well site or up to 1.25 ha if the well pad includes the use of a tank (minimum 1ML) for above ground fluid storage,
- multi-well sites up to an additional (in addition to single well site above) 0.25 ha per additional well and associated infrastructure (water pumps and generators, sumps, flare pits, dams or tanks) located on the well site to a maximum of 3 ha,
- construction of new access tracks that are required as part of the construction or servicing a petroleum activity that can be lawfully carried out within an ESA or its protection zone
- upgrading or maintenance of existing roads or tracks,
- power and communication lines,
- gas gathering lines from a well site to the initial compression facility,
- water gathering lines from a well site to the initial water storage or dam,
- camps within well site that may involve sewage treatment works that are a no release works.

Non-linear infrastructure means infrastructure including (but not limited to) exploration and production wells, compressor stations, regulated dams, reverse osmosis plants, brine encapsulation facilities, workers camps, and maintenance facilities

1. What constitutes each constraint class may be altered where a new constraint is identified on tenure or approval conditions have been amended.
2. Specific and mutually beneficial activities in a (Limited Depth) National Park may be allowed on a "case by case" basis with express written permission from the respective Queensland Government agencies administering National Parks. The granting of express written permission to conduct mutually beneficial activities in a National Park does not in any way remove or limit the management procedures imposed by other constraints mentioned in this Protocol.
3. Two existing quarries are located within Hallett State Forest. These quarries are permitted under the relevant EA and approvals under the *Forestry Act 1959*.
4. The conditions imposed by the EA apply unless an activity has otherwise been specifically authorised by the administering authority.