



# Australia Pacific LNG Environmental Constraints Planning and Field Development Protocol

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## **1. Purpose**

This procedure describes the process for obtaining internal environmental approval for disturbance activities for the Upstream APLNG project consisting of gas field facilities sites, the gathering network and high pressure pipeline, where it lies within the gas fields only. The purpose of this procedure is to ensure compliance with all relevant environmental approval requirements, EIS commitments and obligations prior to clearing.

This procedure sets out the method of environmental constraints assessment and environmental construction planning including:

- Desktop assessment;
- Pre-clearance field ecological assessment;
- Pre-construction field environmental scout;
- Targeted ecological survey;
- Application of environmental constraints to infrastructure planning;
- Data collection and storage; and
- Documentation and reporting requirements.

## **2. Scope**

This procedure applies to all APLNG Upstream activities within the gas fields area that may disturb land or aquatic environments including habitat for listed species and ecological communities and wetlands of international importance (refer to map shown in Appendix A).

### **2.1 APLNG Project Phase 1**

Phase 1 of the APLNG Project comprises the activities proposed to be undertaken in the first five years of project implementation. Details of proposed infrastructure, development timing and locations are set out in the Environmental Management Plans for each gas field. These documents are available on the APLNG website <http://www.aplng.com.au/process>.

Further detail on implementation works for the gas fields is also contained in the Operational Plans developed for each gas field. The Operational Plan describes the proposed activities for a five year period. Throughout the life of the project development activities are set out via rolling five year Operational Plans. It is proposed to align major revision timeframes for critical project documents, including this Protocol, with the five year project planning cycle required by the Operational Plans.

### **2.2 Relationship with other management documents**

This Protocol is one of a suite of documents developed to satisfy APLNG project and approval requirements to ensure and demonstrate compliance. Figure 1 below shows interrelationships between key project documents and sets out how APLNG management plans have been developed and structured to satisfy key project approval requirements. Note however that this is not a comprehensive listing of all management measures but instead is indicative of the key elements of the system of management plans which the project must comply with.



Figure 1. Document relationship map

### 3. Principles

Environmental constraints assessment in infrastructure planning for the APLNG project is based on the following key principles that will be implemented throughout the life of the project using best practice methods:

- Minimising adverse environmental impacts and enhancing environmental benefits associated with project activities, products or services; conserving, protecting, and enhancing where the opportunity exists, the biodiversity values and water resources in its operational areas (EIS Volume 1 Chapter 3);
- Avoiding direct and indirect adverse impacts on environmental values including MNES (EPBC condition 4a);
- Mitigating and managing direct and indirect adverse impacts to minimise cumulative adverse impacts on environmental values including MNES (EPBC condition 4b); and
- Active site remediation and rehabilitation of impacted areas to promote and maintain long term recovery of affected environments including MNES (EPBC condition 4c).

## 4. Responsibilities

**Table 1 Roles and Responsibilities**

Position Title	Project Team	Responsibility
<b>Environment Manager</b>	Origin	<p>Ensure all requirements of this Environmental Constraints and Field Development Protocol is established, maintained and implemented throughout the life of the project.</p> <p>Ensure preclearance field ecological surveys are conducted in accordance with the requirements of this Protocol, records are maintained and communicated.</p> <p>Ensure actual disturbance is accurately recorded, track areas of disturbance and ensure that APLNG does not exceed disturbance limits in conditions of approval.</p> <p>Notify DSEWPaC within 10 business days of any additional MNES found in the project area which have not previously been assessed.</p> <p>Ensure species and ecological community management plans are prepared consistent with the requirements of EPBC approval 2009/4974</p>
<b>Environmental Advisors</b>	Origin HSSE	<p>Conduct desktop assessment and provide information packages for field ecological surveys and brief field teams</p> <p>Review findings of field assessments.</p> <p>Apply environmental constraints to infrastructure planning and propose changes, in collaboration with design teams, to infrastructure design to minimise environmental impact.</p> <p>Document environmental constraints assessment of infrastructure layouts.</p>
<b>GIS Analyst</b>	Origin	<p>Create maps for desktop and field assessments</p> <p>Maintain and update datasets including ground truthed data from field assessments</p>
<b>Field Environmental Advisor</b>	Origin and Contractors	<p>Conduct pre-clearance field ecological surveys and assessment of areas mapped as Ecological Sensitivity Categories 5-7</p> <p>Conduct pre-construction field environmental scout, recommend environmental controls and propose changes to infrastructure design to minimise environmental impact.</p>

Position Title	Project Team	Responsibility
<b>Specialist Ecologists</b>	External	Conduct pre-clearance field ecological assessment of areas mapped as Ecological Sensitivity Categories 1-4 Provide recommendations to minimise impact on flora and fauna including EPBC listed threatened species and ecological communities and wetlands of international importance.
<b>Design Team</b>	Origin and Contractors	Provide infrastructure layouts and advise of field development priorities. Collaborate with Environmental Advisor to identify improvements to infrastructure design to minimise environmental impact .

## 5. Environmental Constraints on Infrastructure Siting

This procedure incorporates the requirements for development planning and land disturbance constraints as required by the following key project approvals documents:

- APLNG EIS (March 2010)
- Coordinator General's Report on the EIS (November 2010)
- Environmental Authorities for gas fields
  - Condabri Environmental Authority PEN101674310 (June 2011)
- Draft Environmental Authority Conditions for pipelines (as contained in Coordinator General's Report on the EIS (November 2010)
- EPBC controlled action approval (22 February 2011)

A summary of relevant commitments and conditions are contained in Appendix B. This summary should be read in conjunction with the full set of conditions.

This procedure will be updated as required to reflect new or altered conditions of approval relevant to development planning and environmental constraints assessments.

### 5.1 Constraints Mapping

Ecological constraints mapping consists of the ecological sensitivity mapping based on terrestrial ecology sensitivity categories 1-7 as presented in the APLNG EIS and supplemented by GIS mapping of the findings of field ecological assessment conducted progressively throughout the project (referred to as the "ground truthed ecological data"). Mapping based on field ecological assessments will be continually updated as site surveys are conducted for each property. This ensures that constraints mapping is continually updated to include the best available information based on both broad scale terrestrial values assessment and detailed site survey.

Infrastructure planning and design in accordance with this protocol will be based on both sources of information, with field assessments and the site specific advice of approved ecologists taking precedence in decision making.

#### 5.1.1 Ecological Sensitivity Mapping (BAAM)

Ecological Sensitivity Mapping (completed by BAAM consultants for the APLNG EIS) provides a summary visual representation of the results of the relative terrestrial ecological



importance assessment for the gas fields study area (i.e. a heat map). The sensitivity categories are described in Table 2 below (see also EIS Volume 2 Chapters 8 & 23).

**Table 2 Terrestrial Ecology Sensitivity Categories**

Category	Sensitivity
1	<p>Extremely sensitive</p> <p>Habitat patches within this category possess biodiversity characteristics that are unique and threatened at a National and a State level. These patches contain very high habitat values for threatened flora and fauna of the region and are likely to be in good condition due to minimal impacts of edge effects and located where they enhance ecological functions at a landscape level.</p>
2	<p>Highly Sensitive</p> <p>The majority of habitat patches within this category possess biodiversity characteristics that are unique and threatened at a National and a State level. These patches contain very high habitat values for threatened flora and fauna of the region.</p> <p>In comparison to those patches in Category 1, these patches have a reduced chance of being in good condition due to increased impacts of edge effects and are less likely to be located where they enhance ecological functions at a landscape level.</p> <p>Those patches that are of less importance at a National and State level or that possess lower habitat values are more likely to be in good condition and located where they enhance ecological functions at a landscape level.</p>
3	<p>Sensitive</p> <p>Biodiversity characteristics of these habitat patches are mostly unique at a sub-regional level. These patches are more likely to be in good condition due to their size and located where they enhance ecological functions at a landscape level.</p>
4	<p>Neutral</p> <p>Habitat patches within this category have a low chance of possessing biodiversity characteristics unique and threatened at a National or State level. These patches contribute little to ecological functions at a landscape scale and are likely to be in poor condition due to edge effects.</p> <p>Also includes patches that are either large in size or within recognised corridors and possess biodiversity values that are common within the bioregion.</p>
5	<p>Robust</p> <p>Biodiversity values within this category are generally common within the bioregion, patches are isolated from other remnant vegetation or likely to be in poor condition due to edge effects.</p> <p>Most species within these patches are either increaser species that proliferate in agro-ecosystems or unable to persist in the long-term as resources in the patch degrade.</p>
6 and 7	<p>Cleared</p> <p>These areas are currently devoid of vegetation or other habitat features and do not provide important habitat for many native species.</p> <p>Where such areas occur within a recognised corridor, they are afforded a higher category (6) due to the opportunity for enhancing landscape connectivity through rehabilitation of the pre-clearing vegetation community.</p>

Areas classified as ecological sensitivity categories 1-4 have higher ecological value. Specific management measures applicable to these categories are set out in section 7.6.1.



### *5.1.1.2 Sensitivity Mapping Methodology*

The terrestrial ecology sensitivity categories and related mapping described above was developed in the APLNG Environmental Impact Assessment to take into account the landscape level values of the project area including conservation status of flora, fauna and ecological communities. The methodology is described in the APLNG EIS (see EIS Volume 2 Chapters 8 & 23) and is summarised here.

The sensitivity mapping depicts the evaluated ecological importance of patches of vegetation based on the habitat values to conservation significant flora and fauna of relevant regional ecosystems (RE). Ecological importance was determined by assigning weightings to each RE to reflect conservation status of RE, flora and fauna under State and Commonwealth legislation (that is the EPBC Act, Vegetation Management Act and Nature Conservation Act 1992). The likelihood that an RE would provide suitable habitat for a particular conservation significant flora or fauna species was determined through literature review and on the advice of an expert panel. An additional weighting was applied to reflect the importance of the project area to each species, tract size and environmentally sensitive areas. These factors and weightings were applied to RE in the project area and scores calculated to determine the sensitivity categories shown in Table 2. This methodology is depicted in the Ecological importance “heat mapping” and sensitivity mapping methodology process diagram included in Appendix C.

Terrestrial ecological sensitivity mapping will be updated every five years with data from field ecological assessments conducted within the project area (EPBC condition 5f & 6). The following MNES will be classified as ecological sensitivity categories 1-4 where identified in field assessment (EPBC condition 5a):

- All EPBC listed threatened ecological communities;
- All EPBC listed flora species; and
- Those EPBC listed threatened and migratory fauna species habitats as identified in APLNG terrestrial ecology and threatened species management plans, which may be described in terms of specific niche habitat types.

### **5.1.2 Field Ecological Assessment Mapping: Ground Truthed Ecological data**

In addition to the terrestrial ecological sensitivity mapping described above, site level field ecology assessment data captured in accordance with this Protocol will be used to create and continually update a data layer displayed in the Origin GIS. This “ground truthed” ecology data will represent the most up to date and accurate ecology information describing the project area. This data will include site level confirmation of vegetation communities’ type (that is RE and TEC) and extent, habitat values and key habitat features, and field observations of significant flora and fauna. Over time as each property is assessed this dataset will be developed for the project area and incorporated into project planning and infrastructure design. The data layer will be progressively updated with new site data following every site ecological assessment.

Infrastructure design, construction, operation and decommissioning will take into account the findings and recommendations from field ecological assessment.

## **6. Managing Disturbance Throughout the Project Lifecycle**

This protocol applies throughout the project lifecycle include design, construction, operation, decommissioning and rehabilitation. All disturbance to land must comply with the requirements of this Protocol.

### **6.1 Infrastructure Planning and Design**

In the design phase this protocol sets out the requirements to ensure that project infrastructure layouts and associated disturbance to land comply will the conditions of project approvals. This is achieved through the desktop assessment of preliminary infrastructure designs, site ecological assessment and field environmental scout.

All proposed infrastructure must be assessed and that assessment documented in accordance with the requirements described within this protocol.

### **6.2 Construction**

An Origin internal disturbance approval is required to be granted before construction is permitted to commence. This disturbance approval must be approved by the Environment Manager (or delegate). The disturbance approval can only be granted where infrastructure designs are demonstrated via the environmental constraints checklist to be compliant with all applicable regulatory requirements and the requirements of this protocol.

Following granting of the internal disturbance approval a work pack which sets out site specific environmental requirements, and includes the approved infrastructure design and disturbance footprint is prepared. A work pack will be prepared for each property (lot/plan) comprising:

- Approved construction disturbance zone (go/no go zones)
- Mapping showing environmental features of the site including watercourses, vegetation communities, environmentally sensitive areas and MNES
- Site specific erosion and sediment control plan (gathering network only)
- Relevant threatened species plans and threatened ecological community plans
- Pre commencement hold point list

Throughout construction work APLNG will audit compliance with the requirements of this protocol.

### **6.3 Operation, Decommissioning and Rehabilitation**

Constraints requirements will be incorporated into operational plans for the life of the project. Any proposed works or activities proposed during operation, decommissioning and rehabilitation that require disturbance to land require an Origin internal disturbance approval. As described above, the disturbance approval can only be granted where the works are demonstrated to be compliant with all applicable regulatory requirements and the requirements of this protocol.

## **7. Requirements**

The following section details the steps required to complete the environmental constraints assessment for any disturbance.

### **7.1 Desktop Environmental Assessment**

The Environmental Advisor will conduct an initial evaluation of proposed infrastructure layouts and locations via a desktop assessment, which will include:

- Documentation of environmental constraints assessments and infrastructure planning decisions (EPBC condition 5g) including initial completion of the environmental constraints checklist, which will be updated with ecological and field assessment data
- Identification of areas that require field assessment by an ecologist and by the field environmental team
- Identification of alternative infrastructure locations, in consultation with the design team, to meet environmental requirements
- Identification of total disturbance areas required throughout the project lifecycle considering requirements of construction, operation and decommissioning

The desktop assessment should, as a minimum consider the following matters:

- Watercourses, wetlands and flood plain areas likely to be flooded by a ARI 1:100 year event (CGR A2P2 condition 2d, Condabri EA A15d)
- Terrestrial ecology values as shown on Ecological Sensitivity Mapping (BAAM)
- Potential visual and social amenity impacts
- Soils and landscape constraints including good quality agricultural land and potential erosion, salinity and sodicity risk areas (CGR A2P2 condition 2c, Condabri EA A15c)
- Existing field ecological survey reports, where available
- Potential impacts on MNES including data from EPBC Protected Matters search results, previous ecological surveys undertaken in the area and relevant new information on likely presence or absence of MNES (EPBC condition 5j, 5oii & 6)
- Requirements of Threatened Species Plans and Threatened Ecological Community Plans (EPBC condition 5h)
- Category A, B and C Environmentally Sensitive Areas as mapped by DERM (CGR A2P2 condition 2a, Condabri EA A15a)
- Bioregional corridors (Condabri EA A15f)
- Potentially contaminated land (refer to Australia Pacific LNG EIS Volume 5 Chapter 8 Preliminary Site Investigation Gas Fields, Chapter 9 Contamination Land Preliminary Site Investigation Pipeline and Chapter 10 Preliminary Site Investigation LNG facility)
- Potential presence of unexploded ordinance
- Potential noise impacts (EIS Volume 2 Ch 15)
- Potential air quality impacts (EIS Volume 2 Ch 13) (CGR A2P2 condition 2b, Condabri EA A15b)
- Consistency with management plans of relevant NRM bodies (EIS Volume 2 Ch 6) relevant landowners (CGR A2P2 condition 3a & 3b, Condabri EA A16a&b)

- Riverine Improvement Trust asset areas (Condabri EA A15e)
- Any other constraints relevant to the site identified in the APLNG EIS (CGR A2P2 condition 2f)

The findings of the desktop review for gas field facility sites and gathering network will be documented in the relevant environmental constraints checklist (refer to sample checklists in Appendix 3). Findings of the desktop review for the high pressure gas transmission pipeline within the gas fields are reviewed prior to the route alignment walk or similar, and will be used to design the pipeline route and outline the requirements in the pre-clearance walk.

### 7.1.1 Environmental Mapping Requirements

For petroleum activities in the gas fields proposed infrastructure layouts should be mapped in the GIS to enable creation of mapping required for the environmental constraints review. Required GIS information is listed in Table 2 below; note that the buffer zones indicated are for management purposes and do not apply to the high pressure gas transmission pipeline. GIS information may be reviewed via generation of maps or direct viewing of the GIS system.

**Table 3 GIS Map Suite**

Map name	Information required	Buffer Zones	
		Petroleum Activities	Limited Petroleum Activities
<b>Water</b>	Q100 flood extents	NA	NA
	Watercourses	100m	100m
	Wetlands, lakes and springs	200m	200m
<b>Environmentally Sensitive Areas (ESA)</b>	Category A	1km	200m
	Category B	500m	200m
	Category C	500m	200m
<b>Ecological Sensitivity Mapping (BAAM)</b>	Sensitivity Category 1	200m	NA
	Sensitivity Category 2	100m	NA
	Sensitivity Category 3	100m	NA
	Sensitivity Category 4	100m	NA
	Sensitivity Category 5	100m	NA
	Sensitivity Category 6	NA	NA
	Sensitivity Category 7	NA	NA
	Hatched areas of concern	NA	NA
<b>Imagery</b>	Aerial photography	NA	NA
<b>Amenity</b>	Aerial photography showing Sensitive receptors (residents, commercial places, heritage listed sites etc)	1000m	500m
<b>Soils</b>	Soil types type by Group	NA	NA

Map name	Information required	Buffer Zones	
		Petroleum Activities	Limited Petroleum Activities
<b>Erosion</b>	Erosion Hazard categories	NA	NA
<b>Biodiversity</b>	Special Biodiversity Values Bioregional Corridors	NA	NA
<b>Wildlife corridor</b>	State and Regional wildlife corridors	NA	NA
<b>Pre-Cleared Regional Ecosystems</b>	Pre-clearing 2003 categories: <ul style="list-style-type: none"> <li>▪ Endangered</li> <li>▪ Of concern</li> <li>▪ Not of concern</li> </ul>	NA	NA
<b>Regional Ecosystems (Biodiversity Status)</b>	Endangered Regional Ecosystems	500m	200m
	Of Concern Regional Ecosystems	500m	200m
	Not of Concern Regional Ecosystems	NA	NA
<b>Agriculture</b>	Good Quality Agricultural Land Strategic Cropping Land Stock routes	NA	NA
<b>Site Access</b>	Cadastre Petroleum tenements Roads Local government boundaries	NA	NA
<b>Landholder</b>	Imagery Cadastre Owner, Lot and plan	NA	NA
<b>Landholder overview</b>	Imagery Cadastre Owner, Lot and plan	NA	NA
<b>Cultural Heritage &amp; Native title</b>	Cultural Heritage places Native Title status	NA	NA
<b>Slope</b>	Slope (%) Areas >10% slope	NA	NA
<b>Elevation</b>	Contour Elevation	NA	NA

## 7.2 Pre-Clearance Field Ecological Assessment

Prior to conducting petroleum activities that involve significance disturbance to land, an assessment will be undertaken of the condition, type and ecological value of vegetation in the area (Condabri EA D2; CGR A3P4E16; EPBC approval 5c & 5d). This is referred to herein as the pre-clearance field ecological assessment.

The scope of the pre-clearance field ecological assessment shall include the following:

- Ground truth and map any Category A, B or C Environmentally Sensitive Areas and the presence of species classed as endangered, vulnerable, rare or near threatened under the Nature Conservation Act 1992 (Condabri EA D2-3/CGR A3P4E17)
- Ground truth and map any areas of Regional Ecosystem that differ in extent or type from DERM mapping database (Condabri EA D2-3)
- Ground truth and map any pre-existing areas of significant disturbance within Category B or C Environmentally Sensitive Areas
- Ground truth vegetation communities in all areas of Ecological Sensitivity Category (BAAM) 1-4 where MNES is mapped, likely or found (EPBC conditions 5c)
- Identify and map areas of EPBC listed ecological communities or that may provide habitat for EPBC listed species (EPBC condition 5c)
- Evaluate habitat quality indicate likelihood of occurrence of threatened species
- Identify and evaluate any exceptional environmental features, including for example high risk watercourse crossings
- Map and report any unidentified specimens or unconfirmed findings
- Map and report any significant weed or pest infestations
- Consider constraints on infrastructure layout relevant to bioregional corridors including for EPBC listed threatened species, migratory species and connectivity for EPBC listed threatened ecological communities (Condabri EA D15; EPBC condition 5n)
- Consider constraints on infrastructure layout relevant to ecological sensitivity categories, as shown in Table 3 (EPBC condition 5ovii)
- Provide site specific management recommendations to minimise impact on MNES, significant flora and fauna including identification of previously cleared or disturbed areas or lower value vegetation (EPBC condition 5k)
- Provide site specific advice on potential for development to cause impacts on MNES within the no impact zone (300m) and impact risk zone (200m) and make recommendations to avoid and minimise harm to MNES (EPBC condition 5ovii)

A pre-clearance field ecological assessment must be conducted by qualified persons (Condabri EA A16e) approved by DSEWPaC if the areas proposed to be disturbed by project activities are identified in the desktop assessment to contain any of the following:

- Ecological Sensitivity Mapping Categories 1-3 (EPBC conditions 5c & 5oiii);
- Ecological Sensitivity Mapping Category 4 where MNES are confirmed, likely or presumed to be found (EPBC conditions 5c & 5oiii);
- Category A, B or C Environmentally Sensitive Areas including Endangered and Of Concern Regional Ecosystems;
- Habitat for species classed as endangered, vulnerable, rare or near threatened under the Nature Conservation Act 1992; and
- All Gas Field Facility sites.

Pre-clearance field ecological assessment of all other areas will be conducted by a suitably qualified environmental officer (Condabri EA A16e, EPBC conditions 5d & 5oiv).

Field ecology assessments of MNES must comply with SEWPAC survey guidelines and best practice survey methodology (EPBC conditions 5oi, 5ovi).



### **7.2.1 Briefing and Map Suites**

The Environmental Advisor will brief the Ecologist or Field Environmental Advisor conducting the field ecological assessment on the proposed infrastructure layout and findings of the desktop assessment of the property. The brief shall highlight:

- Priority areas including areas of particular ecological value;
- Particular requirements of specific infrastructure locations; and
- Specific requests such location and mapping of gaps in vegetation for pipelines.

For petroleum activities, excluding the high pressure transmission pipeline, the Environmental Advisor will provide the Ecologist or Field Environmental Advisor conducting the field ecological assessment with the following information for the properties to be scouted:

- Regional Ecosystems map;
- Water map;
- Biodiversity map showing bioregional corridors;
- Ecological Sensitivity (BAAM) map showing hatching;
- Environmentally Sensitive Areas map;
- Imagery map without development plan overlay;
- EPBC Protected Matters search results, previous ecological surveys undertaken in the area and relevant new information on likely presence or absence of MNES (EPBC condition 5j, 5oii & 6); and
- GPX file with the development plan coordinates.

### **7.2.2 Pre-clearance Ecology Assessment Data and Reports**

Field ecology assessment data will be captured in-field using tailored ecology data forms on portable GIS devices (known as Trimble) and uploaded to the Origin GIS system or similar form.

Site level field ecology assessment data captured in accordance with this Protocol will be used to create and continually update a data layer displayed in the Origin GIS. This “ground truthed” ecology data will represent the most up to date and accurate ecology information describing the project area. This data will include site level confirmation of vegetation communities’ type (that is RE and TEC) and extent, habitat values and key habitat features, and field observations of significant flora and fauna. Over time as each property is assessed this dataset will be developed for the project area.

Preliminary Field Ecology Assessment Reports will be submitted to the Environmental Advisor as soon as possible after the field assessment of an area has been completed. The Preliminary report should include:

- Description of identified habitat for State or Commonwealth listed species or communities (EPBC condition 5ov), including assessment of the quality of the habitat and its likelihood of supporting listed species;
- Notation of any unconfirmed or unknown findings that require further confirmation (such as from the Queensland Herbarium or other specialists); and



- Notation of and other significant findings in relation to MNES (EPBC condition 5ov) or other findings of critical importance.

Final Field Ecological Assessment reports including findings of the field survey will be completed (CGR A2P2 condition 3c; EPBC condition 5g) and submitted to Origin for detailed records, and where required, submission to Government.

If in the course of pre-clearance field ecological assessment of areas of ecological sensitivity category 5-7 MNES is identified, these reports will be reviewed by an approved ecologist (EPBC condition 5e).

Where MNES is present, reports will be published on the APLNG website 20 business days prior to clearance of native vegetation and provide to DSEWPaC on request (EPBC condition 5oviii).

### **7.3 Pre-construction Field Environment Scout**

The scope of the pre-construction field environmental scout includes:

- Specifying key site specific environmental management requirements in accordance with APLNG requirements, including but not limited to:
  - Evaluation of waterway crossings
  - erosion and sediment control measures
  - weed and pest control and
  - measures to protection of environmentally sensitive areas; and
- Confirmation of the suitability of infrastructure layout in accordance with this Protocol (EPBC condition 5q) and relevant species and threatened ecological community plans.

#### **7.3.1 Briefing and Map Suites**

The Environmental Advisor will brief the Field Environmental Advisor conducting the pre-construction environmental scout on the proposed infrastructure layout and findings of the desktop and pre-clearance ecological assessment of the property. The brief shall highlight:

- Priority areas including areas of particular ecological value
- Particular requirements of specific infrastructure locations and
- Specific requests relevant to the site

The Environmental Advisor will provide the Field Environmental Advisor conducting the pre-construction environmental scout with the following information for the properties to be scouted:

- Map suite;
- Updated ecology mapping showing findings of pre-clearance field ecology assessment;
- Pre-clearance field ecology assessment reports; and
- GPX file with the development plan coordinates.

#### **7.4 Species and Ecological Community Management Plans**

Species and Ecological Community Management Plans will be developed for MNES which include (EPBC condition 5p):

- Relevant avoidance and mitigation measures to be applied and
- Measures for protecting each EPBC listed threatened species and migratory species and their habitat, and each EPBC listed threatened ecological community not previously assessed by the proponent, should one or more be found in the project area at any time over the life of the project

DSEWPaC must be notified of any MNES not previously assessed found in the project area within ten (10) business days. A management plan complying with the requirements of this section and the EPBC approval (2009/4974) must be developed in the timeframe approved by DSEWPaC.

Species and Ecological Community Management Plans will be developed by a qualified ecologist and will include at least the following information for included species:

- Current legal status
- Known distribution
- Known species populations and their relationships within the region
- The extent of ecological community fragmentation within the region and if appropriate minimum patch size for that community
- Description of the relevant characteristics of the ecological community
- Species biology, reproduction and description of general habitat
- Description of species habitat, which may be described in terms of essential habitat and micro habitat, associations with geology, soils, landscape features, associations with other native fauna and/or flora or ecological communities and specific niche habitat descriptions
- Threats to MNES relating to the development and management of land within the gas fields including from the development, operation and decommissioning of infrastructure within the gas fields; and from groundwater extraction and aquifer depressurisation, CSG water use and disposal, whether the threat is within or outside the gas field development area
- Relevant management practices and methods to minimise impact and recover from impact that should include:
  - site rehabilitation timeframes, standards and methods
  - use of sequential clearing to direct fauna away from an impact zone
  - re-establishment of native vegetation in linear infrastructure corridors
  - welfare and safe handling of fauna specimens requiring relocation from impact sites
  - handling practices for flora specimens
  - translocation practices and monitoring for translocation success and
  - monitoring methods including for rehabilitation success and recovery
- Surface and ground water quality and quantity requirements, including relevant downstream environmental quality parameters and

- Reference relevant conservation advice, recovery plans, or other policies, practices, standards or guidelines relevant to MNES published or approved from time to time by the DSEWPAC

Requirements relevant to infrastructure siting set out in Species and Ecological Community Management Plans to avoid and minimise impacts on MNES must be complied with and documented in the Environmental Constraints assessment checklist.

Requirements relevant to construction management set out in Species and Ecological Community Management Plans to avoid and minimise impacts on MNES must be complied with. These requirements are included in the APLNG Construction Environmental Management Plan for the gas fields, and relevant plans will be included in site specific environmental work packs, where appropriate. Compliance with these requirements will be audited through construction implementation.

Species and Ecological Community Management Plans will be reviewed every 5 years or as requested by DSEWPAC.

## **7.5 Targeted Threatened Species Ecological Survey**

During the infrastructure planning phase, targeted threatened species surveys may be required to confirm the absence or presence of threatened species in areas proposed to be disturbed. This will occur in accordance with the following procedure:

- On the advice of an approved ecologist, identify high risk areas requiring targeted threatened species survey; and
- Conduct targeted survey in accordance with DSEWPAC survey guidelines and best practice survey methodology.

Targeted threatened species and vegetation survey will also be undertaken to monitor the condition of areas adjacent to project activities.

Monitoring the condition of EPBC and State listed species and communities and endangered regional ecosystems will be undertaken through assessment of representative monitoring sites located within 200m of major project disturbance activities. This will occur in accordance with the following procedure:

- On the advice of an approved ecologist, select representative monitoring sites in potentially affected EPBC and State listed threatened species habitat areas across the project area that are within 200m of disturbance activity;
- Where possible, locate and monitor a control population of the same species within the vicinity but greater than 100m away from project disturbance (control population);
- Monitoring of baseline conditions to be undertaken prior to disturbance activity;
- Assess site condition in accordance with the State environment agency's condition assessment methodology;
- Where reference sites are not provided by the State environmental agency, reference sites will be developed using an appropriate methodology;
- Where populations are large and/or very dense, monitoring can be adapted to permanently marked plots that sub-sample the entire population;

- All parameters monitored for the impact population to be repeated on the control population at the same time for statistical comparison; and
- This monitoring zone will be clearly marked in order to inform repeat active searches.

Field ecology assessments of MNES must comply with DSEWPaC survey guidelines and best practice survey methodology (EPBC conditions 5oi, 5ovi).

## 7.6 Application of Environmental Constraints to Infrastructure Planning

The findings of the desktop assessment and pre-clearance field ecological survey will inform infrastructure planning and decision making. The constraints assessment and infrastructure planning decisions will be documented to demonstrate conformance with this Protocol.

### 7.6.1 Application of Terrestrial Ecology Sensitivity Categories

Terrestrial ecology sensitivity category as identified and mapped in the EIS, and as updated, will be applied to siting of all infrastructure types in accordance with the requirements set out in Table 4. Siting of infrastructure within Category 1 Extremely Sensitive will be avoided.

Where required management areas, exclusion zones, and/or no impact zones surrounding areas of defined sensitivity categories will be determined on a site basis taking into account the written ecological advice of an approved ecologist (EPBC conditions 5I).

**Table 4 Terrestrial Ecology Sensitivity Categories Management Measures**

Category	Sensitivity
1	Extremely sensitive Siting infrastructure within these areas will be avoided
2	Highly Sensitive Infrastructure will only be located within or in proximity to existing cleared and disturbed areas to reduce fragmentation. Limited clearing for construction (if necessary for incremental expansion of existing disturbance) to be rehabilitated prior to operation
3	Sensitive Clearing only for linear infrastructure and well leases. Non-linear infrastructure to be located within or in proximity to existing cleared and disturbed areas. Disturbed areas not required for ongoing operation to be rehabilitated prior to operation
4	Neutral Clearing for linear and non-linear infrastructure is to minimise edge effects where possible
5	Robust Clearing for infrastructure, although hollow-bearing trees and habitat connectivity, particularly along watercourses, to be retained
6 and 7	Cleared Siting of infrastructure >100m from edges of categories 2 to 5 and >200m from category 1.

## 7.6.2 Gas Field Facilities and Gathering Network

### 7.6.2.1 Water

When making decisions regarding the siting of infrastructure the following requirements must be satisfied:

- Do not clear vegetation or place fill in or within:
  - 200 metres from any wetland, lake or spring; or
  - 100 metres of the high bank of any other watercourse. (Condabri EA B8)
- Do not excavate or place fill within 200m of, or in a wetland, lake or spring, or within 100 metres of or in a watercourse *unless* for pipeline, powerline, track and road construction works where there is no practicable alternative (such as the use of trenchless methods), works can be completed within a maximum period of ten (10) days, and provided that the works are conducted in accordance with the following order of preference:
  - conducting work in times of no flow;
  - conducting work in times of flow but in a way that does not:
    - adversely impact the flow of water within the watercourse; or
    - permanently impound the water; or
    - permanently diver the course of flow of the water (Condabri EA B9)
- Activities or works resulting in significant disturbance to the bed or banks of a watercourse, lake, wetland, or a spring must:
  - be no greater than the minimum area necessary for the purpose of the significant disturbance;
  - be designed and undertaken by a suitably qualified person taking into account the matters listed in the “Planning Activities” and “Impact Management” sections of the Department of Environment and Resource Management’s “Guideline – Activities in a watercourse, lake or spring associated with mining operations” December 2010, as amended from time to time; and
  - upon cessation of the petroleum activity(ies) or works, commence rehabilitation immediately (Condabri EA B10)
- All measures must be taken to minimise adverse impacts to, or reversal of any river improvement works carried out in River Improvement by Queensland’s River Improvement Trusts. (Condabri EA B14)
- Ensure that infrastructure, excluding stormwater management infrastructure, does not:
  - concentrate flood flows in a way that will or may cause or threaten an adverse environmental impact; or
  - divert flood flows from natural drainage paths and alter flow distribution; or
  - increase the local duration of floods; or
  - increase the risk of detaining flood flows; or
  - pose an unacceptable risk to the safety of persons from flooding; or
  - pose an unacceptable risk of damage to property from flooding. (Condabri EA B16)

### 7.6.2.2 Land

When making decisions regarding the siting of infrastructure the following requirements must be satisfied:

- Avoid, minimise or mitigate (in order of preference) any impacts on areas of vegetation or other areas of ecological value
- Minimise disturbance to land that may otherwise result in land degradation
- Avoid clearing mature trees
- Clearing of remnant vegetation shall not exceed ten (10) metres in width for the purpose of establishing tracks and 20 metres in width for dual carriageway roads unless otherwise approved by the administering authority in writing (Condabri EA D8)
- Ensure that placement of infrastructure and significant disturbance to land does not significantly isolate, fragment or dissect tracts of vegetation resulting in a reduction in the current level of ecosystem functioning, ecological connectivity (i.e. stepping stone or contiguous bioregional/local corridor networks) and/or results in an increase in threatening processes (e.g. potential impacts associated with edge effects or introduced species) (Condabri EA D7)
- Do not clear vegetation or place fill on slopes greater than 10 per cent for activities other than pipelines, roads, access tracks, powerlines and wells (Condabri EA D7)
- Do not clear vegetation or place fill in discharge areas (Condabri EA D7)

When making decisions regarding the siting of infrastructure near Environmentally Sensitive Areas the following requirements must be satisfied (refer to Condabri EA D10):

ESA Category	Within the ESA	Primary protection zone of the ESA	Secondary protection zone of the ESA
<b>All Category A ESAs</b>	No petroleum activities permitted.	No petroleum activities permitted.	Limited petroleum activities permitted subject to D11 and D12.
<b>Category B ESAs excluding 'Endangered' regional ecosystems</b>	No petroleum activities permitted.	No petroleum activities permitted.	Limited petroleum activities permitted subject to D11 and D12.
<b>Category B ESAs: 'Endangered' regional ecosystems</b>	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D11 and D12.
<b>Category C ESAs excluding 'Of Concern' regional ecosystems, State Forests and Timber Reserves</b>	No petroleum activities permitted.	No petroleum activities permitted.	Limited petroleum activities permitted subject to D11 and D12.
<b>Category C ESAs: State Forests, Timber Reserves and 'Of Concern' regional ecosystems</b>	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D11 and D12.

- New access tracks are not permitted within Category B or C Environmentally Sensitive Areas unless they are co-located with gas collection or CSG associated water pipelines, unless otherwise authorised by the administering authority (CGR A2P2C16, Condabri EA D44)



- Avoid locating activities in or within 200 metres of any listed category A, B or C ESA's;
- Avoid locating activities other than limited petroleum activities within 1km of a listed category A ESA, or within 500m of a listed category B or C ESA. (Condabri EA D10)
- Limited petroleum activities carried out in the secondary protection zone of an ESA must be preferentially located in pre-existing areas of clearing or significant disturbance to the greatest practicable extent and avoid the clearing of mature trees (Condabri EA D12)
- Limited petroleum activities carried out within an environmentally sensitive area, primary protection zone or secondary protection zone as authorised under condition D10 must not be conducted where there is overlap with another environmentally sensitive area or primary protection zone where limited petroleum activities are not authorised (Condabri EA D13)
- The limited petroleum activity is located and carried out in areas according to the following order of preference:
  - pre-existing cleared areas or significantly disturbed land within the primary protection zone of a Category C Environmentally Sensitive Area;
  - pre-existing cleared areas or significantly disturbed land within the primary protection zone of a Category B Environmentally Sensitive Area;
  - undisturbed areas within the primary protection zone of a Category C Environmentally Sensitive Area;
  - undisturbed areas within the primary protection zone of a Category B Environmentally Sensitive Area;
  - pre-existing areas of significant disturbance within a Category C Environmentally Sensitive Area (e.g. areas where significant clearing or thinning has been undertaken within a Regional Ecosystem, and / or areas containing high densities of weed or pest species which has inhibited re-colonisation of native regrowth);
  - pre-existing areas of significant disturbance within a Category B Environmentally Sensitive Area (e.g. areas where significant clearing or thinning has been undertaken within a Regional Ecosystem and / or areas containing high densities of weed or pest species which has inhibited re-colonisation of native regrowth);
  - areas where clearing of a Category C Environmentally Sensitive Area is unavoidable; and
  - areas where clearing of a Category B Environmentally Sensitive Area is unavoidable.
- Where limited petroleum activities are proposed to be undertaken within the primary protection zone of, or within 'Endangered' or 'Of Concern' Regional Ecosystems, State Forests or Timber Reserves, any vegetation clearing must not exceed any of the following areas:
  - for the life of the project and before any activity commences, if the disturbance relates to an Endangered or Of Concern Regional Ecosystem, 10% of the remnant unit of Endangered or Of Concern Regional Ecosystem as ground truthed and mapped as per conditions (D2) and (D3) of this environmental authority ; and
  - more than six (6) metres in width for tracks not associated with a water or gas line; or
  - for lineal infrastructure, including provision for a utility corridor or access track:
    - 12 metres width for a single flow line; or
    - 18 metres width for a trench with one (1) water gathering line and one (1) parallel gas gathering pipeline; or
    - 25 metres width for multiple trenches where there are three (3) parallel gas or water gathering lines; and
    - Seven (7) metres width for any additional trench for water or gas line. (Condabri EA D15)



- All reasonable and practical measures are taken to minimize the area cleared and to avoid the clearing of mature trees, which must include but not be limited to, for each well site, ranked constraints mapping and a risk assessment which considers safety and environmental impacts (Condabri EA D16)
- Pipelines must be preferentially located alongside existing linear infrastructure such as roads, tracks and powerlines (Condabri EA D40)
- Prior to the construction of borrow pits the environmental authority holder must undertake an assessment of the environmental values, potential impacts, mitigation measures for the siting, construction, operation, decommissioning and rehabilitation of borrow pits required for petroleum activities and will provide this assessment to the administering authority (Condabri EA D43)
- The construction of co-located trunklines must be undertaken in a manner to minimise width and total disturbance required for the right of way (Condabri EA D47)
- Assess the use of pad drilling wherever medium or high environmental values, including strategic cropping lands that maybe impacted by the petroleum activities. Where pad drilling is shown not to be feasible, alternative ways of siting drilling rigs and other petroleum facilities to protect environmental values must be demonstrated (Condabri EA D45)

### **7.6.3 High Pressure Gas Transmission Pipeline**

#### *7.6.3.1 Water*

When making decisions regarding the siting of infrastructure the following requirements must be satisfied, or justification based on field studies provided where this cannot be satisfied:

- The construction of the pipeline must not be in or within 100 metres of any natural wetland, lake or spring (CGR A3P4E27).
- The design and construction of the pipeline, including all creek crossings and waterway barriers must:
  - a) minimise impacts on riparian, aquatic and water dependent flora and fauna;
  - b) protect flora and fauna during construction and operation, including reduction or disruption to habitat, particularly any potential disruption of endangered species habitat; and
  - c) rehabilitate disturbed riparian areas including use of locally sourced species and intensive planting. (CGR A3P4E28)
- Pipeline and road construction works may be undertaken in watercourses, where there is no practicable alternative such as the use of horizontal directional drilling methods, for a maximum period of ten (10) days, provided that the works are conducted in accordance with the following order of preference:
  - a) conducting work in times of no flow;
  - b) using all reasonable and practical measures to reduce impacts in times of flow; and
  - c) horizontal directional drilling may be used for the construction of the pipeline unless the construction occurs in times of no flow or an alternative construction methodology is agreed with the administering authority in writing. (CGR A3P4E29)

- The holder of this environmental authority must not excavate or place fill in a way that interferes with the flow of water in a watercourse including works that divert the course of flow of the water or works that impound the water. (CGR A3P4E31)
- Petroleum activities must not be carried out in River Improvement Trust Asset Areas without the approval of the relevant River Improvement Trust. (CGR A3P4E34)

#### *7.6.3.2 Land*

When making decisions regarding the siting of infrastructure the following requirements must be satisfied:

- limit the pipeline right of way width to a maximum of 40 metres except as otherwise authorised by the administering authority in writing; (CGR A3P4E1)
- minimise disturbance to land in order to prevent land degradation;
- ensure that for land that is to be significantly disturbed by petroleum activities (except in areas of highly erosive soils), the top layer of the soil profile is removed; (CGR A3P4E1) and
  - i. stockpiled in a manner that will preserve its biological and chemical properties, and
  - ii. used for rehabilitation purposes in accordance with condition (E39). (CGR A3P4E1)
- avoid, minimise or mitigate (in order of preference) any impacts on areas of vegetation or other areas of ecological value (CGR A3P4E18);
- minimise disturbance to land that may otherwise result in land degradation (CGR A3P4E18);
- Remnant vegetation must not be cleared for the purposes of camps, borrow pits, vehicle access tracks or additional work areas associated with the construction of the pipeline (CGR A3P4E20).

When making decisions regarding the siting of infrastructure near Environmentally Sensitive Areas the following requirements must be satisfied:

- petroleum activities are not located in or within 200 metres of any listed category A ESA; and
- all camps, borrow pits, vehicle access tracks or additional work areas associated with the construction of the pipeline right of way and turnaround bays are not located in or within 200 metres of any listed category B or C ESA (CGR A3P4E23).
- Activities may only be undertaken within State Forests or Timber Reserves provided the holder of the environmental authority has written approval from the authority responsible for the administration of the Forestry Act 1959, the Queensland Parks and Wildlife Service (CGR A3P4E24).

#### **7.6.4 Incorporating MNES Constraints in Infrastructure Planning**

When making decisions regarding the siting of infrastructure including exploration and production wells, linear infrastructure and non linear infrastructure the following requirements must be satisfied (EPBC condition 5I):

- Avoid development within areas mapped as ecological sensitivity category 1<sup>1</sup>;
- Avoid development within ecological sensitivity category 2-4 unless the location within any of these sensitivity categories is justified given other constraints, and the impact on MNES will be minimal, short term and recoverable;
- Where development cannot avoid areas of MNES within sensitivity categories 2-4, preferentially avoid areas of MNES that constitutes an EPBC listed ecological community and/or may provide habitat for EPBC listed species, and site infrastructure in/or in proximity to cleared areas, or areas of lower ecological condition such as previously disturbed or degraded areas; and
- Where the above requirements cannot be practically achieved, take into account the written advice of an approved ecologist when siting infrastructure.

<sup>1</sup> unless authorised in writing by DSEWPaC

#### *7.6.4.1 Limits on Linear Infrastructure Development in Areas of MNES*

Linear infrastructure within and 200m surrounding ecological sensitivity categories 1-4 where MNES may be confirmed or presumed to be found must comply with the following limits on development (EPBC condition 5m)<sup>1</sup>:

- limited to 12 metres in width for a single flowline
- limited to 18 metres in width for a trunkline with one water gathering line and one parallel gas gathering line
- limited to 25 metres in width for multiple trenches where there are three parallel gas or water gathering lines or a single large diameter water pipeline (500 mm or above)
- limited to 30m for any single high pressure gas pipeline less than 750 mm in diameter
- limited to 40m for any single high pressure gas pipeline of diameter equal to or greater than 750mm diameter
- limited to an additional 7 metres for each additional trench for water or gas lines
- limited to an additional 10 metres for each additional high pressure gas pipeline or large diameter water pipeline (500mm or above)
- limited to disturbance within identified infrastructure corridors
- where feasible, trenches, pipelines for associated water and other transmissions lines must be co-located to reduce total disturbance on MNES and
- co-location will not be implemented where an assessment has determined it is likely to increase impacts to MNES

<sup>1</sup> These widths include provision for a utility corridor and access track.

In limited circumstances only (e.g. river crossings, where there are abnormal access constraints into a gas processing facility and when within close proximity to other proponent's linear infrastructure), increased corridor widths within areas of MNES may be required. In those circumstances a risk based site assessment will be completed to determine disturbance to MNES, identify management measures to minimise impacts to MNES and to justify the additional disturbance to MNES. The assessment will be available to the DSEWPaC prior to any disturbance.

Infrastructure planning and design must take into account current planned and actual disturbance and limits to disturbance set out in project approvals. New infrastructure must be approved for development where this would cause disturbance limits to be exceeded.

### **7.6.5 Environmental Constraints Assessment**

Environmental constraints on infrastructure siting are listed in the following checklists:

- Gas Field Facilities Environmental Constraints Checklist; and
- Gathering Network Environmental Constraints Checklist.

These checklists summarise the requirements of project commitments and approvals relevant to infrastructure siting, as described above. The checklists are populated with information from desktop and field assessments to document:

- Conformance with the requirements of this Protocol, the EIS and relevant environmental approvals;
- Evaluation of alternatives considered; and
- Justification for the selection of preferred options.

## **7.7 Calculating and Tracking Disturbance**

### **7.7.1 Planned Disturbance**

Total planned disturbance will be calculated using the Origin GIS by overlaying the approved infrastructure layouts over the field ecological assessment mapping, vegetation and land use datasets. Planned disturbance will be calculated on the basis of approved infrastructure designs and issued for construction work packs. Field ecological assessment will be conducted as described above by an ecologist approved by DSEWPaC.

Planned disturbance for each specified petroleum activity will be calculated individually according to type, including:

- Seismic
- Exploration wells
- Appraisal wells
- Development wells
- Water transfer stations
- Gas and gathering network right of way
- Water pipeline
- Regulated Dams >401ML
- Regulated Dams <400ML
- Low hazard dams
- Water treatment facilities
- Brine encapsulation facilities
- Gas processing facilities
- Sewage effluent irrigation area

Planned disturbance for each land use and vegetation community will be calculated individually according to type including:

- Vegetation community by Regional Ecosystem (according the Queensland Regional Ecosystem Description Database biodiversity status)
- Category A, B and C Environmentally Sensitive Areas
- Primary and secondary protection zones of Category A, B and C Environmentally Sensitive Areas
- Land use
- EPBC listed threatened ecological communities (by community)
- EPBC listed threatened flora (by species)
- EPBC listed threatened fauna habitat (by species)

Planned disturbance will be calculated for each property (lot/plan).

### **7.7.2 Actual Disturbance**

Total actual disturbance will be measured in the field via survey of the total disturbance footprint following land clearing. The surveyed disturbance area will be calculated using the Origin GIS by overlaying actual surveyed disturbance over the field ecological assessment mapping, vegetation and land use datasets. Field ecological assessment will be conducted as described above by an ecologist approved by DSEWPaC.

Actual disturbance for each specified petroleum activity will be calculated individually according to type, including:

- Seismic
- Exploration wells
- Appraisal wells
- Development wells
- Water transfer stations
- Gas and gathering network right of way
- Water pipeline
- Regulated Dams >401ML
- Regulated Dams <400ML
- Low hazard dams
- Water treatment facilities
- Brine encapsulation facilities
- Gas processing facilities
- Sewage effluent irrigation area

Actual disturbance for each land use and vegetation community will be calculated individually according to type including:

- Vegetation community by Regional Ecosystem (according the Queensland Regional Ecosystem Description Database biodiversity status)
- Category A, B and C Environmentally Sensitive Areas

- Primary and secondary protection zones of Category A, B and C Environmentally Sensitive Areas
- Land use
- EPBC listed threatened ecological communities (by community)
- EPBC listed threatened flora (by species)
- EPBC listed threatened fauna habitat (by species)

Actual disturbance will be calculated for each property (lot/plan).

#### *7.7.2.1 Recording Disturbance to MNES*

For actual disturbance to (which may include a presumed impact where the species is presumed to be present) to a MNES during gas field development, operation, or decommissioning the following data must be recorded to a standard which can be independently audited:

- the location, specific site and type of infrastructure or activity
- each MNES subject to disturbance
- the related site assessment or field ecological survey documentation and recommendations, or the decision that the particular MNES was presumed to be present
- the disturbance limit set under EPBC approval 2009/4974 condition 25;
- the total area of actual disturbance to MNES
- the remaining disturbance limit for each affected MNES
- the reasons for the decision including justification for the action taken, description of the efforts taken to avoid impact, and explanation why other constraints might justify the impact on MNES
- actions and commitments by the proponent to remediate, rehabilitate, or make good any unauthorised disturbance

This requirement applies to any adverse impact on MNES whether or not a disturbance limit has been set and whether or not the Impact has been decided by the proponent under the Protocol based on other physical constraints.

#### **7.7.3 Tracking Disturbance**

Planned disturbance data will be calculated as described above for each property (lot/plan) where land disturbance activities are proposed to take place. This will be conducted in the project planning phase and represent approved for construction land disturbance. Within the gas fields planned disturbance will be calculated progressively for all properties. Calculated planned disturbance data will be stored in a spreadsheet or database and show the status of all approved land disturbance. This will include a cumulative total planned disturbance, enabling comparison of proposed disturbance works against disturbance limits specified in project conditions of approval.

Actual disturbance data will be calculated as described above for each property (lot/plan) where land disturbance activities have occurred. This will be conducted in the project construction phase and represent the actual disturbance caused by the approved construction works. Within the gas fields actual disturbance will be measured and calculated progressively for all properties as works progress. Calculated actual disturbance data will be



stored in a spreadsheet or database and show the status of all completed land disturbance. This will include a cumulative total actual disturbance, enabling comparison of completed disturbance works against disturbance limits specified in project conditions of approval.

Cumulative total planned and actual land disturbance and disaggregated cumulative disturbance by activity and disturbance type (including to areas of MNES) will be continually updated and monitored monthly to ensure compliance with approval disturbance limits. Projected, cumulative planned and cumulative actual disturbance data will be communicated to design and utilised in infrastructure planning to ensure ongoing compliance with disturbance limits in future works.

#### **7.7.4 Reporting Disturbance**

Total and disaggregated actual disturbance data will be reported annually against approved disturbance limits.

Details of any significant disturbance to land in or within 200m of Endangered or Of Concern regional ecosystems, along with a record of the assessment must be kept and submitted to the administering authority with each annual return (Condabri EA D17).

## **8. Data Collection and Storage**

The results of pre-clearance ecological survey and pre-construction environmental scout will be recorded using portable GPS and GIS devices enabled with appropriate data collection forms, or manually. All data collected from field assessment will be uploaded to the Origin GIS system as soon as possible following field assessment. Field collected data will be stored and managed in accordance with Origin GIS data management procedures.

The results of environmental constraints assessment in accordance with this protocol are to be documented and records maintained in accordance with Origin document management system requirements.

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.

## **9. Review**

The Protocol and related plans will be reviewed and updated to take into account the findings of Cumulative Impact Assessment Reports required by the Queensland Government before each major stage of the proponent's gas field development, that is every five years; or following a written request from the DSEWPaC. Reviewed and updated Protocols and plans will be submitted for the Minister's written approval. Once approved, updated Protocols and plans will be implemented.

The review of the Protocol will take into account all relevant studies, policies, standards, guidelines and advice relating to CSG activity published or provided to the proponent by the Commonwealth or Queensland governments, or published or provided by other proponents undertaking similar activities, or published or provided by other parties, including any findings of an audit against conditions, or plans or other documentation required under the conditions of approval.





The approved Protocol will be incorporated into management procedures, operational plans and documentation and kept current for the life of the project



## **10. Appendices**



## **Appendix A - Map of Gas Fields Project Area**





## **Appendix B - Summary of Commitments and Conditions**

## **Appendix B.1 APLNG Environmental Impact Statement (EIS) Summary of Commitments**

### **GAS FIELDS**

#### **Geology and soils**

Australia Pacific LNG commits to the following for the construction, operation, and decommissioning of the Project within the gas fields:

- Avoid areas of severe erosion potential where practicable

#### **Land use and planning**

To minimise adverse impacts to existing or future land uses from its activities in the gas fields' development areas, Australia Pacific LNG will:

- Minimise the loss of good quality agricultural land

#### **Landscape and visual amenity**

To manage the potential visual impacts associated with the construction and operation of the gas fields, Australia Pacific LNG will, where practicable:

- Complete a detailed analysis of the visual catchment of each gas processing facility located within 1,000m, each water treatment facility within 400m, and each gas well within 300m from the nearest sensitive receptors, and where required, implement (in consultation with the land holder) strategies to screen or integrate the gas processing facility, water treatment facility or gas well into the landscape
- Undertake a detailed analysis of the visual catchment of each accommodation facility to establish if there are any sensitive receptors within 800m of the facility. Where needed, establish and implement vegetation planting strategies to screen or integrate the accommodation facility into the landscape

#### **Terrestrial ecology**

Australia Pacific LNG commits to utilising sensitivity mapping and landscape management guidelines to plan the location of infrastructure, taking into account the landscape biodiversity values with the aim of minimising habitat fragmentation.

Australia Pacific LNG will limit clearing in areas of high biodiversity value, particularly for:

- Category 1 areas – these areas will be avoided and protected with 'no go' zones and a buffer area established in accordance with the approved habitat management guidelines
- Categories 2 and 3 areas – unless otherwise approved, all activity on undisturbed land in these areas will follow the approved habitat management guidelines, infrastructure will be positioned along existing disturbed areas, and active rehabilitation will be implemented.

**Table B.1 Terrestrial Ecology Sensitivity Categories: Management Guidelines**

Category	Management Measures
1	Extremely sensitive Siting of infrastructure within these areas will be avoided.
2	Highly Sensitive Infrastructure will only be located within or in proximity to existing cleared and disturbed areas to reduce fragmentation. Limited clearing (if necessary for incremental expansion of existing disturbance) for construction to be rehabilitated prior to operation.
3	Sensitive Clearing only for linear infrastructure and well leases. Non-linear infrastructure to be located within or in proximity to existing cleared and disturbed areas. Disturbed areas not required for ongoing operation to be rehabilitated prior to operation.
4	Neutral Clearing for linear and non-linear infrastructure is to minimise edge effects where possible.
5	Robust Clearing for infrastructure, although hollow-bearing trees and habitat connectivity, particularly along watercourses, to be retained.
6 and 7	Cleared Siting of infrastructure >100m from edges of categories 2-5 and >200m from category 1.

### Surface water

To manage potential impacts of tenement flooding, Australia Pacific LNG will:

- Avoid placement of major infrastructure in existing flood extents where practicable
- Avoid placement of project infrastructure over tributaries and flow paths where practicable

### Noise and vibration

In order to manage potential impacts of airborne noise and ground vibration during gas well-development and plant and other infrastructure construction, Australia Pacific LNG will:

- Locate gas and water pipelines at appropriate distances from sensitive dwellings, commercial premises or cultural heritage listed structures to minimise the risk of harm from ground vibration associated with construction activities
- Locate accommodation facilities at appropriate distances from sensitive receptors.

Australia Pacific LNG will address the planning noise level for residences or otherwise reach agreements with affected landowners to manage potential impacts of airborne noise during normal operations by:



- Planning gas well and gas processing facility locations and designing noise mitigation treatments for all plant to achieve compliance with the planning noise level for all operating equipment at noise sensitive receptors

## **GAS PIPELINE**

### **Landscape and visual amenity**

To manage the potential visual impacts associated with the construction and operation of the gas pipeline, Australia Pacific LNG will, where practicable:

- Minimise clearing of forest and woodland cover particularly in the vicinity of sensitive receptors
- Undertake detailed analysis of the visual catchment of each accommodation facility to establish if there are any sensitive receptors within 800m of the facility. Where required, strategies will be implemented to minimise impacts, in consultation with the landholder.

### **Terrestrial ecology**

To manage potential impacts on terrestrial ecology associated with the construction, operation and decommissioning of the gas pipeline, Australia Pacific LNG will:

- Undertake pre-clearing surveys to identify the presence of endangered, vulnerable or rare and other significant flora and fauna species where they are likely to occur. Where populations are identified, the gas pipeline route will be realigned or the right of way narrowed for short distances, where safe, to reduce damage or loss of these populations

## Appendix B.2 Condabri Gas Field Environmental Authority (PEN101674310): Summary of Conditions

### SCHEDULE A – GENERAL CONDITIONS

#### Constraints Plan and Field Development Protocol

(A14) The holder of this environmental authority must develop and implement the Constraints Plan and Field Development Protocol for the activities to be carried out under the environmental authority.

(A15) The Constraints Plan and Field Development Protocol must address, but not be limited to:

- (a) all category A, B and C environmentally sensitive areas within the project area;
- (b) air emissions;
- (c) soils and landscape constraints, including Good Quality Agricultural Land and potential erosion, salinity and sodicity risk areas;
- (d) the exclusion of permanent infrastructure that may concentrate or divert flood flows or increase the risk of environmental damage including risks of overflow of brine ponds or other storages from floodplain areas that are likely to be flooded by runoff events of less than 1:100 year average recurrence interval (ARI);
- (e) notification of petroleum activities in Riverine Improvement Trust asset areas; and
- (f) bioregional corridors.

(A16) The Constraints Plan and Field Development Protocol must include the following commitments:

- (a) consistency with the management plans of the relevant Regional NRM bodies;
- (b) address the property management plans of the relevant landholders;
- (c) to undertake and document field surveys for all classes of constraint prior to commencing petroleum activities;
- (d) that the field surveys inform the Field Management Protocol;
- (e) that the field surveys are undertaken at all times by a qualified person/s; and
- (f) that the constraint commitments are incorporated into all Operational Plans for the life of the project.

(A17) The Constraints and Field Development Plan must be reviewed, updated and submitted to the administering authority as part of the subsequent Operational Plan required by Condition (A13).

(A18) Notwithstanding Condition (A14), where there is conflict between the constraints contained in the Constraints Planning and Field Development Protocol document and the conditions of this environmental authority, the conditions of this environmental authority prevail.

#### Documentation and Records Management

(A33) A record of all documents required by this environmental authority must be:

- (a) kept for a minimum of five (5) years; and
- (b) be made available to an authorised person upon request.

(A34) The holder of this environmental authority must develop all documents in a way this is consistent with the requirements of this environmental authority.

## SCHEDULE B—WATER

### Watercourses, Wetlands and Springs

(B8) In the carrying out of the petroleum activity(ies) the holder of this environmental authority must not clear vegetation or place fill, in or within:

- (a) 200 metres from any wetland, lake or spring; or
- (b) 100 metres of the high bank of any other watercourse.

(B9) Despite conditions (B8) pipeline, powerline, track and road construction works may be undertaken within 200m of, and in a wetland, lake or spring and within 100 metres of and in a watercourse where there is no reasonable and practicable alternative (i.e trenchless methods) for a maximum period of 10 business days, provided that the works are conducted in accordance with the following order of preference:

- (a) conducting work in times of no flow;
- (b) conducting work in times of flow but in a way that does not:
  - (a) adversely impact the flow of water within the watercourse; or
  - (b) permanently impound the water; or
  - (c) permanently diver the course of flow of the water

(B10) The petroleum activity(ies) or works resulting in significant disturbance to the bed and banks of a watercourse, lake, wetland or spring must:

- (a) be no greater than the minimum area necessary for the purpose of the significant disturbance;
- (b) be designed and undertaken by a suitably qualified person taking into account the matters listed in the “Planning Activities” and “Impact Management” sections of the Department of Environment and Resource Management’s “Guideline – Activities in a watercourse, lake or spring associated with mining operations” December 2010, as amended from time to time; and
- (c) upon cessation of the petroleum activity(ies) or works, commence rehabilitation immediately

(B14) All measures must be taken to minimise adverse impacts to, or reversal of any river improvement works carried out in River Improvement by Queensland’s River Improvement Trusts.

### Floodplains

(B16) Where the petroleum activity(ies) is carried out on floodplain areas, the holder of this environmental authority must ensure that the petroleum activity(ies), excluding stormwater management infrastructure, does not:

- a) concentrate flood flows in a way that will or may cause or threaten an adverse environmental impact; or
- b) divert flood flows from natural drainage paths and alter flow distribution; or
- c) increase the local duration of floods; or
- d) increase the risk of detaining flood flows; or
- e) pose an unacceptable risk to the safety of persons from flooding; or
- f) pose an unacceptable risk of damage to property from flooding.

## SCHEDULE D—Land

### Disturbance to Land—General

(D2) Prior to conducting petroleum activities that involve significant disturbance to land, an assessment must be undertaken of the condition, type and ecological value of any vegetation in such areas where the activity is proposed to take place.

(D3) The assessment required by condition (D2) must be undertaken by a suitably qualified person and include the carrying out of field validation surveys, observations and mapping of any Category A, B or C Environmentally Sensitive Areas and the presence of species classed as endangered, vulnerable or near threatened under the *Nature Conservation Act 1992*.

(D4) If the assessment required by conditions (D2) and (D3) indicates that a Regional Ecosystem mapped as Endangered or Of Concern by the Queensland Herbarium should be in a different conservation value classification, the holder of this environmental authority must advise the administering authority in writing before any significant disturbance to land takes place.

(D5) If, within the 20 business days following the lodgement of the notification under condition (D4) the administering authority notifies the holder of this environmental authority, in writing, that the Regional Ecosystem mapping requires further validation, then significant disturbance to land in the mapped Regional Ecosystem is prohibited until the administering authority provides written advice that significant disturbance to land may proceed.

(D6) The holder of this environmental authority, when carrying out the petroleum activity(ies) must:

- (a) avoid, minimise or mitigate (in order of preference) any impacts on areas of vegetation or other areas of ecological value;
- (b) minimise disturbance to land that may otherwise result in land degradation;
- (c) ensure that for land that is to be significantly disturbed by the petroleum activity(ies):
  - (i) the top layer of the soil profile is removed;
  - (ii) soils is stockpiled in a manner that will preserve its biological and chemical properties; and
  - (iii) soils are used for rehabilitation purposes;
- (d) avoid clearing mature trees; and
- (e) prior to carrying out field based petroleum activities, make all relevant staff, contractors or agents carrying out those petroleum activities, aware of the location of any Category A, B or C Environmentally Sensitive Areas and the requirements of this environmental authority.

*Note: This environmental authority does not authorise the taking of protected plants, protected animals or the tampering with animal breeding places as defined under the Nature Conservation Act 1992 and Regulations and relevant approvals will need to be obtained.*

(D7) Despite condition (D6), significant disturbance to land caused by the carrying out of the petroleum activities must not involve clearing vegetation or placing fill:

- (a) in a way which significantly isolates, fragments or dissects tracts of vegetation resulting in a reduction in the current level of ecosystem functioning, ecological connectivity (i.e. stepping stone or contiguous bioregional / local corridor networks) and / or results in an increase in threatening processes (e.g. potential impacts associated with edge effects or introduced species);
- (b) on slopes greater than 10% for the petroleum activity(ies) other than for pipelines, roads, access tracks, powerlines and wells; or

(c) in discharge areas.

(D8) Clearing of remnant vegetation shall not exceed 10 metres in width for the purpose of establishing tracks or 20 metres in width for dual carriageway roads.

(D9) Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

### Disturbance to Land – Environmentally Sensitive Areas

(D10) The holder of this environmental authority must ensure that the petroleum activity(ies) is only conducted in accordance with *Schedule D, Table 1 – Environmentally Sensitive Areas (ESAs)* below for each of the ESA categories and associated primary and secondary protection zones

**Schedule D: Table 1 – Environmentally Sensitive Areas (ESAs)**

ESA Category	Within the ESA	Primary protection zone of the ESA	Secondary protection zone of the ESA
All Category A ESAs	No petroleum activities permitted.	No petroleum activities permitted.	Limited petroleum activities permitted subject to D11 and D12.
Category B ESAs excluding 'Endangered' regional ecosystems	No petroleum activities permitted.	No petroleum activities permitted.	Limited petroleum activities permitted subject to D11 and D12.
Category B ESAs: 'Endangered' regional ecosystems	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D11 and D12.
Category C ESAs excluding 'Of Concern' regional ecosystems, State Forests and Timber Reserves	No petroleum activities permitted.	No petroleum activities permitted.	Limited petroleum activities permitted subject to D11 and D12.
Category C ESAs: State Forests, Timber Reserves and 'Of Concern' regional ecosystems	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D12, D13 D14, D15 and D16.	Limited petroleum activities permitted subject to D11 and D12.

(D11) Despite Condition (D10) of this environmental authority, the infrastructure (and associated activities necessary for construction, operational and maintenance purposes) specified in *Schedule D: Table 2 – Authorised Petroleum Activity(ies) Disturbance* and depicted in *Schedule M – Figure 1 – Condabri South Infrastructure within ESA buffers* and *Figure 2 – Condabri Central Infrastructure within ESA buffers* is permitted in the location specified in *Schedule D: Table 2 – Authorised Petroleum Activities Disturbance*.<sup>1</sup>

(D12) Limited petroleum activities carried out in the secondary protection zone in accordance with condition (D10) must be preferentially located in pre-existing areas of clearing or significant disturbance to the greatest practicable extent and avoid the clearing of mature trees.

(D13) Limited petroleum activities carried out within an environmentally sensitive area, primary protection zone or secondary protection zone as authorised under condition D10

<sup>1</sup> Refer to Condabri Environmental Authority No. PEN101674310



must not be conducted where there is overlap with another environmentally sensitive area or primary protection zone where limited petroleum activities are not authorised.

(D13) Where limited petroleum activities are proposed to be undertaken within the primary protection zone of, or in the Category B and C Environmentally Sensitive Area as authorised in condition (D10), the holder of this environmental authority must be able to demonstrate that no reasonable or practicable alternative exists and that disturbance to land only be located and carried out in areas according to the following order of preference:

- (a) pre-existing cleared areas or significantly disturbed land within the primary protection zone of a Category C Environmentally Sensitive Area;
- (b) pre-existing cleared areas or significantly disturbed land within the primary protection zone of a Category B Environmentally Sensitive Area;
- (c) undisturbed areas within the primary protection zone of a Category C Environmentally Sensitive Area;
- (d) undisturbed areas within the primary protection zone of a Category B Environmentally Sensitive Area;
- (e) pre-existing areas of significant disturbance within a Category C Environmentally Sensitive Area (e.g. areas where significant clearing or thinning has been undertaken within a Regional Ecosystem, and / or areas containing high densities of weed or pest species which has inhibited re-colonisation of native regrowth);
- (f) pre-existing areas of significant disturbance within a Category B Environmentally Sensitive Area (e.g. areas where significant clearing or thinning has been undertaken within a Regional Ecosystem and / or areas containing high densities of weed or pest species which has inhibited re-colonisation of native regrowth);
- (g) areas where clearing of a Category C Environmentally Sensitive Area is unavoidable; and
- (h) areas where clearing of a Category B Environmentally Sensitive Area is unavoidable.

(D15) Notwithstanding conditions (D10) and (D14), where limited petroleum activities are proposed to be undertaken within the primary protection zone of, or within 'Endangered' or 'Of Concern' Regional Ecosystems, State Forests or Timber Reserves, any vegetation clearing must not exceed any of the following areas:

- (a) for the life of the project and before any activity commences, if the disturbance relates to an Endangered or Of Concern Regional Ecosystem, 10% of the remnant unit of Endangered or Of Concern Regional Ecosystem as ground truthed and mapped as per conditions (D2) and (D3) of this environmental authority ; and
- (b) more than six (6) metres in width for tracks not associated with a water or gas line; or
- (c) for lineal infrastructure, including provision for a utility corridor or access track:
  - i. 12 metres width for a single flow line; or
  - ii. 18 metres width for a trench with one (1) water gathering line and one (1) parallel gas gathering pipeline; or
  - iii. 25 metres width for multiple trenches where there are three (3) parallel gas or water gathering lines; and
  - iv. Seven (7) metres width for any additional trench for water or gas line.

(D16) For each well site within the primary protection zone of, or in a Category B or C Environmentally Sensitive Area specified in condition (D10), all reasonable and practical measures must be taken to minimize the area cleared which must include but not be limited to, for each well site, ranked constraints mapping and a risk assessment which considers safety and environmental impacts.



(D17) Details of any significant disturbance to land undertaken within the primary protection zone of, or in a Category B or C Environmentally Sensitive Area, along with a record of the assessment required by conditions (D2) and (D3) must be kept and submitted to the administering authority with each annual return.

### **Pipelines**

(D40) Pipelines must be preferentially located alongside existing linear infrastructure such as roads, tracks and powerlines.

### **Borrow Pits**

(D43) Prior to the construction of borrow pits the environmental authority holder must undertake an assessment of the environmental values, potential impacts, mitigation measures for the siting, construction, operation, decommissioning and rehabilitation of borrow pits required for petroleum activities and will provide this assessment to the administering authority.

### **Access Tracks in Environmentally Sensitive Areas**

(D44) New access tracks are not permitted within Category B or C Environmentally Sensitive Areas unless they are co-located with gas collection or CSG associated water pipelines, unless otherwise authorised by the administering authority.

### **Pad Drilling**

(D45) The environmental authority holder must assess the use of pad drilling wherever medium or high environmental values, including strategic cropping lands that maybe impacted by the petroleum activities. The environmental authority holder must demonstrate that where pad drilling is shown not to be feasible, alternative ways of siting drilling rigs and other petroleum facilities to protect environmental values.

### **Gas Trunkline Easements**

(D47) The construction of co-located trunklines must be undertaken in a manner to minimise width and total disturbance required for the right of way.

## Appendix B.3 Gas Transmissions Pipeline Environmental Authority (Model Conditions as in CGR): Summary of Conditions

### SCHEDULE E—LAND AND WATERWAY MANAGEMENT

#### Minimising disturbance to land and soil management

(E1) The holder of this authority must:

- b) limit the pipeline right of way width to a maximum of 40 metres except as otherwise authorised by the administering authority in writing;
- c) minimise disturbance to land in order to prevent land degradation;
- d) ensure that for land that is to be significantly disturbed by petroleum activities (except in areas of highly erosive soils), the top layer of the soil profile is removed; and
  - i. stockpiled in a manner that will preserve its biological and chemical properties, and
  - ii. used for rehabilitation purposes in accordance with condition (E39).

#### Minimising disturbance to areas of ecological value

(E16) Prior to conducting petroleum activities that involve significant disturbance to vegetation, an assessment must be undertaken of the condition, type and ecological value of any vegetation in such areas where the activity is proposed to take place.

(E17) The assessment required by Condition (E16) must be undertaken by a suitably qualified person and include the carrying out of field validation surveys, observations and mapping of any category A, B or C Environmentally Sensitive Areas (ESA's) and the presence of species classed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*.

(E18) The holder of this environmental authority, when carrying out petroleum activities must:

- a) avoid, minimise or mitigate (in order of preference) any impacts on areas of vegetation or other areas of ecological value;
- b) minimise the risk of injury, harm, or entrapment to wildlife and stock;
- c) minimise disturbance to land that may otherwise result in land degradation;
- d) ensure that for land that is to be significantly disturbed by petroleum activities:
  - i. the top layer of the soil profile is removed;
  - ii. stockpiled in a manner that will preserve its biological and chemical properties; and
  - iii. used for rehabilitation purposes (in accordance with Condition H4).
- e) prior to carrying out field based activities, make all relevant staff, contractors or agents carrying out those activities, aware of the location of any category A, B or C ESA's and the requirements of this environmental authority.

(E19) Any vegetation clearing authorised under this authority must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

(E20) Remnant vegetation must not be cleared for the purposes of camps, borrow pits, vehicle access tracks or additional work areas associated with the construction of the pipeline.

(E23) The holder of this authority must ensure that:

- a) petroleum activities are not located in or within 200 metres of any listed category A ESA; and
- b) all camps, borrow pits, vehicle access tracks or additional work areas associated with the construction of the pipeline right of way and turnaround bays are not located in or within 200 metres of any listed category B or C ESA.

(E24) Activities may only be undertaken within State Forests or Timber Reserves provided the holder of the environmental authority has written approval from the authority responsible for the administration of the *Forestry Act 1959*, the Queensland Parks and Wildlife Service.

(E27) The construction of the pipeline must not be in or within 100 metres of any natural wetland, lake or spring.

(E28) The design and construction of the pipeline, including all creek crossings and waterway barriers must:

- d) minimise impacts on riparian, aquatic and water dependent flora and fauna;
- e) protect flora and fauna during construction and operation, including reduction or disruption to habitat, particularly any potential disruption of endangered species habitat; and
- f) rehabilitate disturbed riparian areas including use of locally sourced species and intensive planting.

(E29) Pipeline and road construction works may be undertaken in watercourses, where there is no practicable alternative such as the use of horizontal directional drilling methods, for a maximum period of ten (10) days, provided that the works are conducted in accordance with the following order of preference:

- d) conducting work in times of no flow;
- e) using all reasonable and practical measures to reduce impacts in times of flow; and
- f) horizontal directional drilling may be used for the construction of the pipeline unless the construction occurs in times of no flow or an alternative construction methodology is agreed with the administering authority in writing.

(E31) The holder of this environmental authority must not excavate or place fill in a way that interferes with the flow of water in a watercourse including works that divert the course of flow of the water or works that impound the water.

(E34) Petroleum activities must not be carried out in River Improvement Trust Asset Areas without the approval of the relevant River Improvement Trust.

#### **SCHEDULE H—PROJECT INFRASTRUCTURE**

(H1) The pipeline corridor must be built within the locations outlined in Schedule H, Table 1— Location of the PPL <INSERT PPL no.> pipeline corridor.

#### **Schedule H, Table 1—Location of the PPL <INSERT PPL no.> pipeline corridor**

*To be confirmed*

## Appendix B.4 Coordinator General's Report on the EIS: Summary of Conditions

### Appendix 1 Part 1 Condition 14 Protection of Good Quality Agricultural Land

The EM Plan developed in accordance with section 310D of the *Environmental Protection Act 1994* to support the application for each EA for a gas field development area, must provide to the administering authority an Operations Environmental Management Plan that describes how the positioning, design and operation of petroleum activities will avoid or minimise impacts on land identified as Good Quality Agricultural Land using the assessment methodology that supports the State Planning Policy 1/92 The Protection of Good Quality Agricultural Land Policy particularly the land identified as Class A and B using this methodology.

### Appendix 1 Part 1 Recommendation Strategic cropping land

It is recommended that the proponent should have regard to the Strategic Cropping Land policy framework published in August 2010 by DERM when determining gas field development locations.

### Appendix 2 Part 1 Condition 1 Temporary workers accommodation—location

TWAFs must not be constructed on land identified as good Quality Agricultural Land Categories A and B, as described in State Planning Policy 1/92. In no case are they to remain in position for in excess of 5 years unless approved by the relevant local government authority.

### Appendix 2 Part 1 Condition 3 Temporary workers accommodation—sewerage systems

All sewage treatment systems associated with TWAFs must be located above Q50 flood levels for shorter term TWAFs and Q100 levels for longer term TWAFs. Longer term TWAFs are those facilities which are to be located in the one place for more than 5 years.

### Appendix 2 Part 1 Condition 4 Temporary workers accommodation—flood levels

All TWAFs must be located above Q50 flood levels for shorter term TWAFs and Q100 levels for longer term TWAFs. Longer term TWAFs are those facilities which are to be located in the one place for more than 5 years.

### Appendix 2 Part 2 Condition 1 Constraints Planning

1. The EM Plan developed in accordance with section 310D of the *Environmental Protection Act 1994* to support the application for each EA for a gas field development area, must include a constraints plan and field development protocol for the development of petroleum activities that shows how the following constraints have been identified and avoided.
2. The plan must include:
  - a) all category A, B and C environmentally sensitive areas. It should be noted that Category C Environmentally Sensitive Areas must include:

- i. Nature Refuges as defined under the *Nature Conservation Act 1992*
  - ii. Koala Habitat Areas as defined under the *Nature Conservation Act 1992*
  - iii. State Forests or Timber Reserves as defined under the *Forestry Act 1959*
  - iv. Declared catchment areas under the *Water Act 2000*
  - v. Resources reserves under the *Nature Conservation Act 1992*
  - vi. An area identified as “Essential Habitat” for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the *Nature Conservation Act 1992*
  - vii. Any wetland shown on the Map of Referable Wetlands available from DERM’s website
  - viii. “Of concern” regional ecosystems identified in the database maintained by DERM called ‘Regional ecosystem description database’ containing regional ecosystem numbers and descriptions
- b) air emissions
  - c) soils and landscape constraints — including Good Quality Agricultural Land and potential erosion, salinity and sodicity risk areas
  - d) floodplain areas that are likely to be flooded by runoff events of less than 1:100 yr average recurrence interval (ARI). Permanent infrastructure that may concentrate or divert flood flows, or increase the risk of environmental damage (e.g. risks overflow of brine ponds or other storages) should be precluded from such areas. Includes the notification of petroleum activities in Riverine Improvement Trust asset areas
  - e) bioregional corridors
  - f) other constraints identified in the EIS and supplemental information.
3. The constraints plan and field development protocol must:
- a) be consistent with the management plans of the relevant Regional NRM Bodies
  - b) address the property management plans of the relevant landholders
  - c) commit to undertaking and documenting field surveys for all classes of constraint prior to commencing petroleum activities
  - d) commit that field surveys inform the Field Management Protocols and will be undertaken at all times by a qualified person
  - e) commit to incorporating constraint commitments into operational plans for the life of the project.

### **Appendix 2 Part 2 Condition 16 Access tracks in ESA’s**

New access tracks are not permitted within Category B or C Environmentally Sensitive Areas unless they are co-located with gas collection or CSG associated water pipelines, unless otherwise authorised by the administering authority.

### **Appendix 2 Part 3 Condition 1 Temporary workers accommodation—location**

TWAFs shall not be constructed on land identified as Good Quality Agricultural Land Categories A and B, as described in State Planning Policy 1/92 where they are to remain in position for in excess of 5 years.

### **Appendix 2 Part 3 Condition 3 Temporary workers accommodation—sewerage systems**

All sewage treatment systems associated with TWAFs must be located above Q50 flood levels for shorter term TWAFs and Q100 levels for longer term TWAFs. Longer term TWAFs are those facilities which are to be located in the one place for more than 5 years.

### **Appendix 2 Part 3 Condition 4 Temporary workers accommodation—flood levels**

All TWAFs must be located above Q50 flood levels for shorter term TWAFs and Q100 levels for longer term TWAFs. Longer term TWAFs are those facilities which are to be located in the one place for more than 5 years.

### **Appendix 2 Part 3 Condition 9 Good quality agricultural land**

The proponent must include provisions in the EM Plan for the gas pipeline, ensuring that, on land identified as being good quality agricultural land (GQAL), the pipeline contractor must:

- a) on completion of construction, remove temporary access tracks;
- b) on completion of construction, lightly rip disturbed areas, replace topsoil and return the surface to a land use condition that serves the preconstruction use
- c) on completion of construction, implement land management and erosion control measures
- d) on land with GQAL class A, B or C1, bury the pipeline to at least 0.9m below finished land surface, or greater if deep ripping is a normal practice.

### **Appendix 2 Part 3 Recommendation Strategic Cropping Land**

It is recommended that the proponent should have regard to the Strategic Cropping Land policy framework published in August 2010 by DERM when determining pipe line development locations.



## **Appendix B.5 EPBC Controlled Action Approval Summary of Conditions**

### *Protocol for Constraints Planning and Field Development*

3. Before the commencement of gas field development, the proponent must develop a Constraints Planning and Field Development Protocol (the Protocol).
4. The Protocol must apply for the life of the project and include the principles of:
  - a) avoiding direct and indirect adverse impacts on MNES;
  - b) mitigating and managing direct and indirect impacts to minimise cumulative adverse impacts on MNES;
  - c) active site remediation and rehabilitation of impacted areas to promote and maintain long-term recovery of MNES.
5. The Protocol must:
  - a) classify the following as being within the proponent's sensitivity categories 1 to 4 (or should the proponent's classification be revised, equivalent high environmental constraints classes):
    - i. all listed threatened ecological communities;
    - ii. all listed flora species; and
    - iii. those listed threatened and migratory fauna species habitats as identified in management plans required under these conditions, which where relevant may be described in terms of specific niche habitat types;
  - b) include constraints mapping for sensitivity category 1-7 as described in the proponent's Environmental Impact Statement;
  - c) require pre-clearance site assessments of sensitivity category 1-4 by an approved, suitably qualified ecologist;
  - d) require pre-clearance site assessments of sensitivity category 5-7 by a suitably qualified environment officer;
  - e) for any MNES identified following an assessment under 5d, require review of those pre-clearance site assessments by a suitably qualified ecologist;
  - f) update constraints mapping with results of any pre-clearance site assessments which confirm presence of MNES;
  - g) require the documentation of all planning decisions and pre-clearance site assessments and field ecological surveys in proposed gas field development areas where sensitivity category 1-4 is mapped, likely, or found;
  - h) implement species management plans (as required in condition 7):
  - i) calculate disturbance as required in condition 13;
  - j) take into account all current survey data and available information and maps of all MNES relevant to the project area as described within environmental sensitivity category 1-4; and
  - k) require pre-clearance site assessments and field ecological surveys to identify and assess options relating to development impacts on MNES and provide recommendations to inform the development of the project area;

Note: The proponent's approach to sensitivity mapping relates to impact avoidance and mitigation as described in volume 2, chapter 23 of the proponent's Environmental Impact Statement (publicly released 20 March 2010). The indicative sensitivity categories described in the EIS are:

Category 1: Extremely sensitive: Siting of infrastructure within these areas will be avoided.

Category 2: Highly Sensitive: Infrastructure will only be located within or in proximity to existing cleared and disturbed areas to reduce fragmentation. Limited clearing (if necessary for incremental expansion of existing disturbance) for construction to be rehabilitated prior to operation.

Category 3: Sensitive: Clearing only for linear infrastructure and well leases. Nonlinear infrastructure to be located within or in proximity to existing cleared and disturbed areas. Disturbed areas not required for ongoing operation to be rehabilitated prior 10 operation.

Category 4: Neutral: Clearing for linear and non-linear infrastructure is to minimise edge effects where possible.

Category 5: Robust: Clearing for infrastructure, although hollow-bearing trees and habitat connectivity, particularly along watercourses, to be retained.

Category 6 and 7: Cleared: Siting of infrastructure >100m from edges of categories 2-5 and >200m from category 1.

- I) To avoid direct and indirect adverse impacts on MNES, including fragmentation and edge effects, provide that proposed infrastructure is located in accordance with the following:

When siting exploration and production wells:

- i. avoid development within sensitivity category 1 unless authorised in writing by the Department;
- ii. avoid development within sensitivity category 2-4, unless the location within any of these sensitivity categories is justified given other constraints, and the impact on any MNES will be minimal, short term and recoverable;
- iii. where development cannot avoid areas of MNES within sensitivity category 2-4, preferentially avoid native vegetation that constitutes a listed ecological community and/or may provide habitat for listed species, and site the wells in proximity to cleared areas, or in areas of lower ecological condition such as previously disturbed or degraded areas; and
- iv. where ii-iii above cannot practicably be achieved, the proponent will site infrastructure that takes into account the written ecological advice of an approved ecologist.

Note: Directional drilling and multiple drill holes from one well pad are options to avoid well site and related Infrastructure disturbance to sensitivity category 1-4.

When siting non-linear infrastructure:

- i. avoid development within sensitivity category 1 unless authorised in writing by the Department;
- ii. avoid development within sensitivity category 2-4, unless the location within any of these sensitivity categories is justified given other constraints, and the impact on any MNES will be minimal, short term and recoverable;
- iii. where development cannot avoid areas of MNES within sensitivity category 2-4, preferentially avoid native vegetation that constitutes a listed ecological community and/or may provide habitat for listed species, and site

- infrastructure in or approximate to cleared areas, or areas of lower ecological condition such as previously disturbed or degraded areas, and;
- iv. where ii-iii above cannot practicably be achieved, the proponent will site infrastructure that takes into account the written ecological advice of an approved ecologist.

When siting linear infrastructure:

- i. avoid development within sensitivity category 1 unless authorised in writing by the Department;
- ii. avoid development within sensitivity category 2-4, unless the location within any of these sensitivity categories is justified given other constraints, and the impact on any MNES will be minimal, short term and recoverable;
- iii. where development cannot avoid areas of MNES within sensitivity category 2-4, preferentially avoid native vegetation that constitutes a listed ecological community and/or may provide habitat for listed species, and site infrastructure in or approximate to cleared areas, or areas of lower ecological condition such as previously disturbed or degraded areas, and;
- iv. where ii-iii above cannot practicably be achieved, the proponent will site infrastructure that takes into account the written ecological advice of an approved ecologist.

Note: Justification is reportable in accordance with condition 13 a) vii). The management plan requirements under condition 8 h) may also indicate that a species or its habitat can co-exist with specific types of gas field infrastructure and operations.

- m) require the proponent to plan for and decide the extent that proposed linear infrastructure may have adverse impacts on MNES in accordance with the following:
- i. all linear disturbance within sensitivity category 1-4 for MNES and the impact risk zone must be:
    - I. limited to 12 metres in width for a single flow line;
    - II. limited to 18 metres in width for trenches with one water gathering line and one parallel gas gathering line;
    - III. limited to 25 metres in width for multiple trenches where there are three parallel gas or water gathering lines or a single large diameter water pipeline (500 mm or above);
    - IV. limited to 30m for any single high pressure gas pipeline less than 750 mm in diameter;
    - V. limited to 40m for any single high pressure gas pipeline of diameter equal to or greater than 750mm diameter;
    - VI. limited to an additional 7 metres for each additional trench for water or gas lines;
    - VII. limited to an additional 10 metres for each additional high pressure gas pipeline or large diameter water pipeline (500mm or above);
    - VIII. limited to disturbance within identified infrastructure corridors;

- IX. where feasible, trenches, pipelines for associated water and other transmissions lines must be co-located to reduce total disturbance on MNES; and
- X. co-location will not be implemented where an assessment has determined it is likely to increase impacts to MNES.

<sup>1</sup> These widths include provision for a utility corridor and access track.

- ii. In limited circumstances only (e.g. river crossings, where there are abnormal access constraints into a gas processing facility and when within close proximity to other proponent's linear infrastructure), increased corridor widths within areas of MNES may be required. In those circumstances a risk based site assessment will be completed to determine disturbance to MNES, identify management measures to minimise impacts to MNES and to justify the additional disturbance to MNES. The assessment will be available to the Department prior to any disturbance.

Note: Any area of a disturbance referred to in this condition would be subtracted from the disturbance limits specified elsewhere in these conditions.

- n) Support bioregional corridors for listed threatened species and migratory species, and connectivity for listed threatened ecological communities;
- o) ensure site assessments and field ecological surveys:
  - i. are undertaken in accordance with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from <http://www.environment.gov.au/epbc/guidelines/policies.html#threatened>;
  - ii. take into account and reference previous ecological surveys undertaken in the area and relevant new information on likely presence or absence of MNES;
  - iii. are undertaken by a suitably qualified ecologist approved by the Department for sensitivity categories 1-4;
  - iv. are undertaken by a suitably qualified environment officer for sensitivity categories 5-7;
  - v. document the survey methodology, results and significant findings in relation to MNES.
  - vi. apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities as detailed in the Protocol;

Note: Best practice includes applying the optimum timing and frequency of site assessments and surveys to determine presence of listed threatened species or migratory species or their habitat, or a listed threatened ecological community.

- vii. apply the mapping of environmental constraints class sensitivity category 1-4; the infrastructure location requirements; minimum no impact zones; impact risk zones; and the width requirements for linear infrastructure corridors described in (m);
- viii. reports are published by the proponent on the internet 20 business days before clearance of native vegetation in an infrastructure impact area and provided to the Department on request;

- p) require species and ecological community management plans which include:
  - i. relevant avoidance and mitigation measures to be applied;
  - ii. measures for protecting each listed threatened species and migratory species and their habitat, and each listed threatened ecological community not previously assessed by the proponent, should one or more be found in the project area at any time over the life of the project. Any such management plans must be developed in a timeframe to be approved by the Department. Notification of additional MNES found must be provided to the Department in writing within 10 business days. Measures must include the development of a management plan consistent with requirements under condition 8;
- q) ensure constraints planning and field development decisions are made in accordance with the Protocol (including any relevant species and ecological community management plans) before final selection of specific sites for gas field development within the project area.

6. The Protocol must ensure relevant information on MNES is available and used by the proponent to support field development and management decisions throughout the life of the project.

*Record of impacts*

13. If an impact occurs (which may include a presumed impact where the species is presumed to be present) to a MNES during gas field development, operation, or decommissioning the proponent must:

- a) record the impact by reference to:
  - i. the location, specific site and type of infrastructure or activity;
  - ii. each MNES subject to disturbance;
  - iii. the related site assessment or field ecological survey documentation and recommendations, or the decision that the particular MNES was presumed to be present;
  - iv. the disturbance limit set under condition 25;
  - v. the total area of actual disturbance;
  - vi. the remaining disturbance limit for each affected MNES;
  - vii. the reasons for the decision including justification for the action taken, description of the efforts taken to avoid impact, and explanation why other constraints might justify the impact on MNES;
  - viii. actions and commitments by the proponent to remediate, rehabilitate, or make good any unauthorised disturbance; and

Note: This condition applies to any adverse impact on MNES whether or not a disturbance limit has been set and whether or not the impact has been decided by the proponent under the Protocol based on other physical constraints.

- b) record the information to a standard which can be independently audited.

*Approval and Review of Protocol*

20. The Protocol must be submitted for the approval of the Minister. Commencement of gas field development must not occur without written approval of the Protocol. The approved Protocol must be implemented.

21. The Protocol and related plans must be reviewed and updated by the proponent to take into account the findings of Cumulative Impact Assessment Reports required by the Queensland Government before each major stage of the proponent's gas field development; or following a written request from the Department. Reviewed and updated Protocols and plans must be submitted for the Minister's written approval. Once approved, updated Protocols and plans must be implemented.

Note 1: relevant studies include the Queensland Water Commission *Cumulative Groundwater Model for the Surat and South Bowen Basin* and findings of the CSG Industry Monitoring Group (CIMG).

Note 2: The review required following completion of the *Cumulative Impact Assessment Report* required by the Queensland Government may be done after approval of the Protocol. The Department may seek review of the Protocol to align with Queensland Government requirements to support efficiency and avoid duplication.

22. The proponent's review of the Protocol must take into account all relevant studies, policies, standards, guidelines and advice relating to CSG activity published or provided to the proponent by the Commonwealth or Queensland governments, or published or provided by other proponents undertaking similar activities, or published or provided by other parties, including any findings of an audit against conditions, or plans or other documentation required under the conditions of this approval.

23. The Department may require, by a request in writing, that the Protocol and related plans be revised or amended before approval. Any such request must be acted on within the time frame specified.

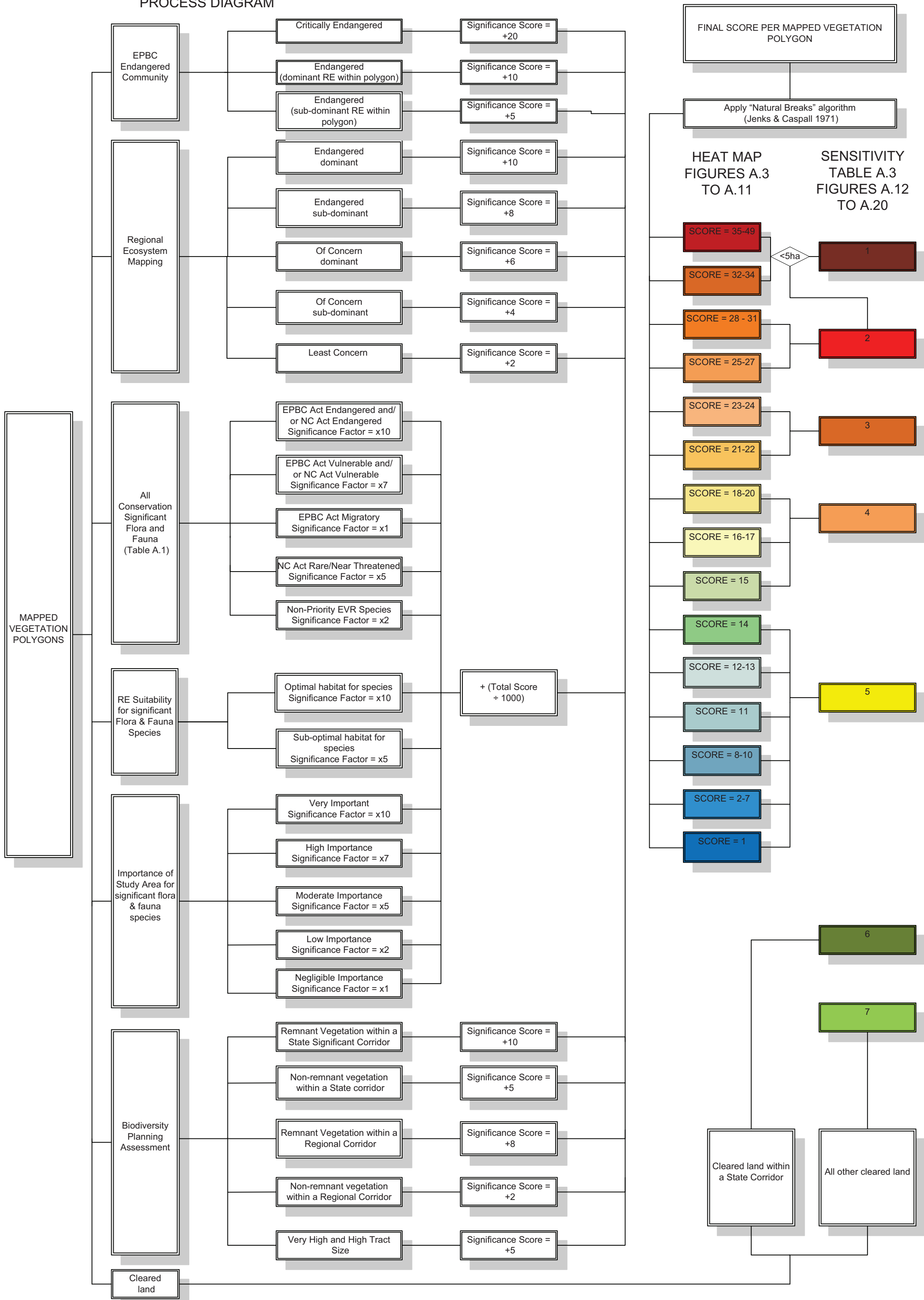
24. The approved Protocol must be incorporated into management procedures, operational plans and documentation and kept current for the life of the project.





## **Appendix C - Ecological importance “heat mapping” and sensitivity mapping methodology process diagram**

FIGURE A.2. ECOLOGICAL IMPORTANCE “HEAT MAPPING” AND SENSITIVITY MAPPING METHODOLOGY PROCESS DIAGRAM





## **Appendix D - Sample Constraints Checklist**

# Environmental Constraints Checklist

<Insert Gas field name>  
< Insert site name>

Property:		Date of Revision:	
lot/plan:		Revision No.	
Revised by:			

Approval For	Approved By	Signature	Date
Environmental	Environment Team Leader or delegate	   _____ Signature of Environment Authorised Person	   __/__/____
Project	Project Manager	   _____ Signature of Project Manager	   __/__/____

<b>Notes</b>
Environmental Constraints Assessment - Recommendation

## PART 1 - Constraints Checklist

NOTE: This checklist includes key environmental constraints in the Coordinator General's Report on the Environmental Impact statement (November 2010) including latest CSG Model Conditions and APLNG EIS commitment excel spreadsheet maintained by HSSE team. Note that this checklist is advisory to assist with review of environmental aspects facility sites only and is not a comprehensive listing of EIS, approval and other environmental requirements.

Environmental Value	Constraint	Reference	Check
<b>Environmentally Sensitive Areas (ESA)</b> - Category A - Category B - Category C  Access tracks in ESA's - Category B - Category C	No facility sites permitted within ESAs  1km buffer 500m buffer 500m buffer  Require approval unless they are co-located with CSG gas/water pipelines	CSG model conditions D8 (refer also to D10)  CSG A2 P2 cond 16	
<b>BAAM Categories</b> - Category 1 - Category 2 - Category 3 - Category 4 - Category 5 - Category 6 - Category 7	No facility sites permitted AND 200m buffer No facility sites permitted AND management buffer No facility sites permitted AND management buffer Avoid where possible AND establish management buffer Avoid where possible AND establish management buffer Facility sites permitted Facility sites permitted	EIS V2 8.5.1	

# Environmental Constraints Checklist

Environmental Value	Constraint	Reference	Check
<b>Threatened species</b> - Brigalow scaly-foot - Dunmall's snake - Yakka skink - Grey snake - Glossy black-cockatoo <b>Threatened species</b> - Golden-tailed gecko - Little pied bat - Rough frog - Square-tailed kite - Woma <b>Bioregional Corridors</b>	Implement individual threatened species management guidelines (consider habitat management guidelines) for:  Works both within identified habitat areas AND 200m buffer  Works both within identified habitat areas AND 100m buffer  Consider	EIS Terrestrial ecology 15 TE 16 TE 17 TE 18 TE 20  EIS Terrestrial ecology 21 TE 22 TE 23 TE 24 TE 25 CSG A2 P2 cond 1	
<b>Wetlands and Watercourses</b> - Wetlands, lakes or springs - Waterway  - River Improvement Trust Asset Areas - Wild River Area	Must not clear or place fill within 200m buffer 100m buffer from high bank level  Works not permitted without approval  Must comply with Wild River declaration	CSG model conditions B8  CSG model conditions B12 CSG model conditions B14	
<b>Flood Levels</b> - TWAFs (inc STP) >5yrs - TWAFs (inc STP) <5yrs  <b>Permanent infrastructure that may concentrate or divert flood flows, or increase the risk of environmental damage (e.g. risks overflow of brine ponds or other storages)</b>	Must be above: ARI 1:100 year flood level ARI 1:50 year flood level  ARI 1:100 year flood level	CSG A2 cond 3 & 4  A2 P2 CGR condition 1	
<b>Groundwater</b> - Groundwater recharge areas - Artesian spring communities	<i>Consider potential groundwater impacts</i>  Roads and pipelines not permitted	<i>Refer to Water Solutions</i>  EIS Aquatic ecology 16	
<b>Land Clearing</b> - Fragmentation of vegetation tract - Slopes >10% - Discharge areas	Must not clear or place fill in these areas	CSG model conditions D5	
<b>Access Tracks/Roads</b> - Establishing tracks - Dual carriageway roads	Remnant vegetation clearing less than: 10m 20m	CSG model conditions D6	
<b>Agriculture</b> - Strategic Cropping Land - Good Quality Agricultural Land (GOAL) Class A and B  - Stock routes	No facility sites permitted Avoid or minimise loss No TWAFs  Avoid as far as practicable - consult / divert / restore	A1 P1 CGR recom. P198 A1 P1 CGR condition 14 CGR A2 cond 1  A1 P1 CGR condition 6	
<b>Soils</b> - Soil Erosion Risk	Avoid areas of severe erosion potential where practicable  Avoid, where practicable, disturbance to soil structure of low-lying areas of cracking clays.	EIS / A6 PC p327  EIS Terrestrial ecology 19	
<b>Visual Amenity</b> - GPF - WTF - TWAFs	Visual impact assessment required if within 1,000m buffer 400m buffer (EIS 500m) 800m buffer	CGR p328 Appendix 6 Proponent commitments	
<b>Noise</b> - GPF - WTF - TWAFs	1,000m buffer to sensitive receptor WTF 400m buffer to sensitive receptor 500 m buffer to sensitive receptor	CGR p101 General conditions EIS N&V 15	
<b>Vibration</b> - Sensitive receptor - Heritage listed structure	100m buffer 100m buffer (Blasting)	CGR p100 EIS N&V 31	
<b>TWAF</b> - location	Within 1km of GPF	EIS table row 627	
<b>Sewage Treatment</b> - Absorption/irrigation areas	Avoid sensitive areas	EIS waste 45	

# Environmental Constraints Checklist

## Environmentally Sensitive Areas

ESA	Source	Check
<b>Category C - No facility sites permitted PLUS 500m buffer</b>		
Nature Refuges	Nature Conservation Act 1992	
Koala Habitat	Nature Conservation Act 1992	
State Forests	Forestry Act 1959	
Declared catchment areas	Water Act 2000	
Resources reserves	Nature Conservation Act 1992	
Essential Habitat	Nature Conservation Act 1992	
Referable Wetlands	DERM	
Of Concern RE	DERM (REDD)	
<b>Category B - No facility sites permitted PLUS 500m buffer</b>		
Coordinated conservation area	Nature Conservation Act 1992	
Wilderness area	Nature Conservation Act 1992	
World Heritage Management Area	Nature Conservation Act 1992	
International agreement area	Nature Conservation Act 1992	
Area of critical habitat or major interest in a conservation plan	Nature Conservation Act 1992	
A place of cultural heritage significance	QLD Heritage Act 1992	
A registered place	QLD Heritage Act 1992	
An area recorded in the Aboriginal Cultural Heritage Register other than the "Stanbroke Pastoral Development Holding"	Aboriginal Cultural Heritage Act 2003	
State forest park, feature protection area, scientific area	Forestry Act 1959	
Declared fish habitat area	Fisheries Act 1994	
Endangered RE	DERM (REDD)	
<b>Category A - No facility sites permitted PLUS 1km buffer</b>		
National Park, Conservation Park, Forest Reserve	Nature Conservation Act 1992	

Note: The viability conditions do not apply to ERE/OC areas which also fall under an ESA (other than State Forest)



# Environmental Constraints Checklist

## PART 2 - Environmental Constraints Assessment

### Environmental Constraints Summary - Option 1

<Insert Figure of site layout>

Figure 1 <site name>Gas Plant Facility layout Option 1

Environmental Value and Constraint	Discussion
Environmentally Sensitive Areas (ESA)	
BAAM Sensitivity Mapping	
Threatened species	
Wetlands /watercourses	
Land clearing	
Access Tracks and Roads	
Agriculture	
Soils	
Visual amenity	
Noise	
Vibration	
TWAF	
Sewage treatment	
Other	

SAMPLE

# Environmental Constraints Checklist

## Environmental Constraints Summary - Option 2

*Insert figure*

Figure 2. < site name> Facility layout Option 2

Environmental Value and Constraint	Discussion
Environmentally Sensitive Areas (ESA)	
BAAM Sensitivity Mapping	
Threatened species	
Wetlands /watercourses	
Land clearing	
Access Tracks and Roads	
Agriculture	
Soils	
Visual amenity	
Noise	
Vibration	
TWAF	
Sewage treatment	
Other	

Environmental Constraints Assessment - Discussion

Environmental Constraints Assessment - Recommendation