



Constraints Planning and Field Development Protocol
QGC Upstream Project
Rev 7
July 2017

Revision Record

Issue	Date	Reason for Issue	Responsible	Accountable
0	23/03/2011	Issue for DSEWPaC Review	RO	MH
1	21/07/2011	Reissued with comments from DSEWPaC and CROME v1.2 updates	RO	PJ
2	12/10/2011	Reissued with comments from DSEWPaC	FM	FM
3	19/10/2011	Issued for Use	FM	FM
4	25/02/2015	Revised to submit to DEHP and DoE	FM	BP
5	06/11/2015	Reissued with comments from DoE	FM	BP
6	02/06/2017	Reissued to include Anya PL1025	JW	FM
7	11/07/2017	Reissued to include DEE comments on Rev 6	JW	FM

ACRONYMS / ABBREVIATIONS

In this document, the following acronyms and abbreviations apply:

Acronyms / Abbreviations	Meaning
AFLR	Agreement of Final Layout Request
ATP	Authority to Prospect
ATW	Access to Work
CG	Coordinator General
DEHP	Department of Environment and Heritage Protection (formerly DERM)
DEE	Department of the Environment and Energy (formerly DSEWPaC/DoE)
EA	Environmental Authority
EIS	Environmental Impact Statement
Impact Risk Zone	Means the area within 200 metres from the perimeter of class Zone 4A
No Impact Zone	Means the area within 300 metres from the perimeter of class Zone 4A
PACR	Project Access and Clearance Request
PL	Petroleum Licence
QCLNG	Queensland Curtis Liquefied Natural Gas
RFL	Release from Land
RFS	Release from Survey
SIA	Social Impact Assessment
RTS	Release to Survey
UDP	Upstream Delivery Process

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1 INTRODUCTION

1.0 Scope of Document

The purpose of this document is to describe the objectives, purpose and application of the Constraints Planning and Field Development Protocol (the Protocol).

The Protocol details how QGC will assess and approve locations for infrastructure within the Gas Fields Project Area through implementation of the specific requirements of the Department of Environment and Energy (DEE, formerly DoE) approval conditions EPBC 2008/4398 and 2015/7463, Coordinator General (CG) Conditions for the Queensland Curtis Liquefied Natural Gas (QCLNG) project and the Department of Environment and Heritage Protection (DEHP) Environmental Authority (EA) conditions.

It outlines various constraints and informs the planning and approval process for determining final infrastructure locations, thereby minimising the environmental impacts of the Project. The Protocol includes the principles of:

- Avoiding or reducing adverse impacts on identified constraints;
- Mitigating and managing impacts to minimise cumulative adverse impacts on identified constraints.

1.1 Document Revisions and Approval

This document bears a revision status identifier which will change with each revision. The protocol will be reviewed at least once every five years or following written request from the DEE.

QGC will review the Protocol considering all relevant studies, policies, standards, guidelines and advice relating to relevant activities published or provided to QGC 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.

If the protocol requires updating to reflect new information then the updated protocol will be submitted to the Minister within two months of the revision, requesting written approval.

The approved Protocol will be incorporated into the proponent's management procedures, operational plans and other relevant documentation and kept current for the life of the project.

1.2 Distribution and Intended Audience

This document is intended for all QGC personnel and contractors involved in selecting locations for QGC's gas field infrastructure.

This document will be supplied to the Coordinator General, DEHP and the DEE in accordance with relevant conditions of approval for the Project.

2 CONSTRAINTS PLANNING AND FIELD DEVELOPMENT PROTOCOL

2.0 Scope

The Protocol was a required document of DEE's conditions of approval for the Project (EPBC 2008/4398, Conditions 3, 4, 5 and 6) and a requirement of the CG's Conditions on the Project (Appendix 2, Part 2, Condition 2). EPBC 2015/7463. Condition 3 of EPBC 2015/7463 required the Protocol be updated to include PL1025 Anya development area. As required by Condition 4 (2008/4398), the Protocol includes the principles of:

1. avoiding direct and indirect adverse impacts on MNES;
2. mitigating and managing direct and indirect impacts to minimise cumulative adverse impacts on MNES. The Protocol is applied in conjunction with the SSMP and RRRMP which address minimisation of adverse impacts on MNES;
3. active site remediation and rehabilitation of impacted areas to promote and maintain long-term recovery of MNES.

2.1 Area Covered by the Protocol

The Protocol will apply to gas field project activities over the life of the project. The gas field tenements included are shown in Figure 1.

Approvals EPBC 2008/4398 and EPBC 2015/7463 authorise the project area which includes the EA Areas in Table 1.

TABLE 1: PROJECT AREA ENVIRONMENTAL AUTHORITIES

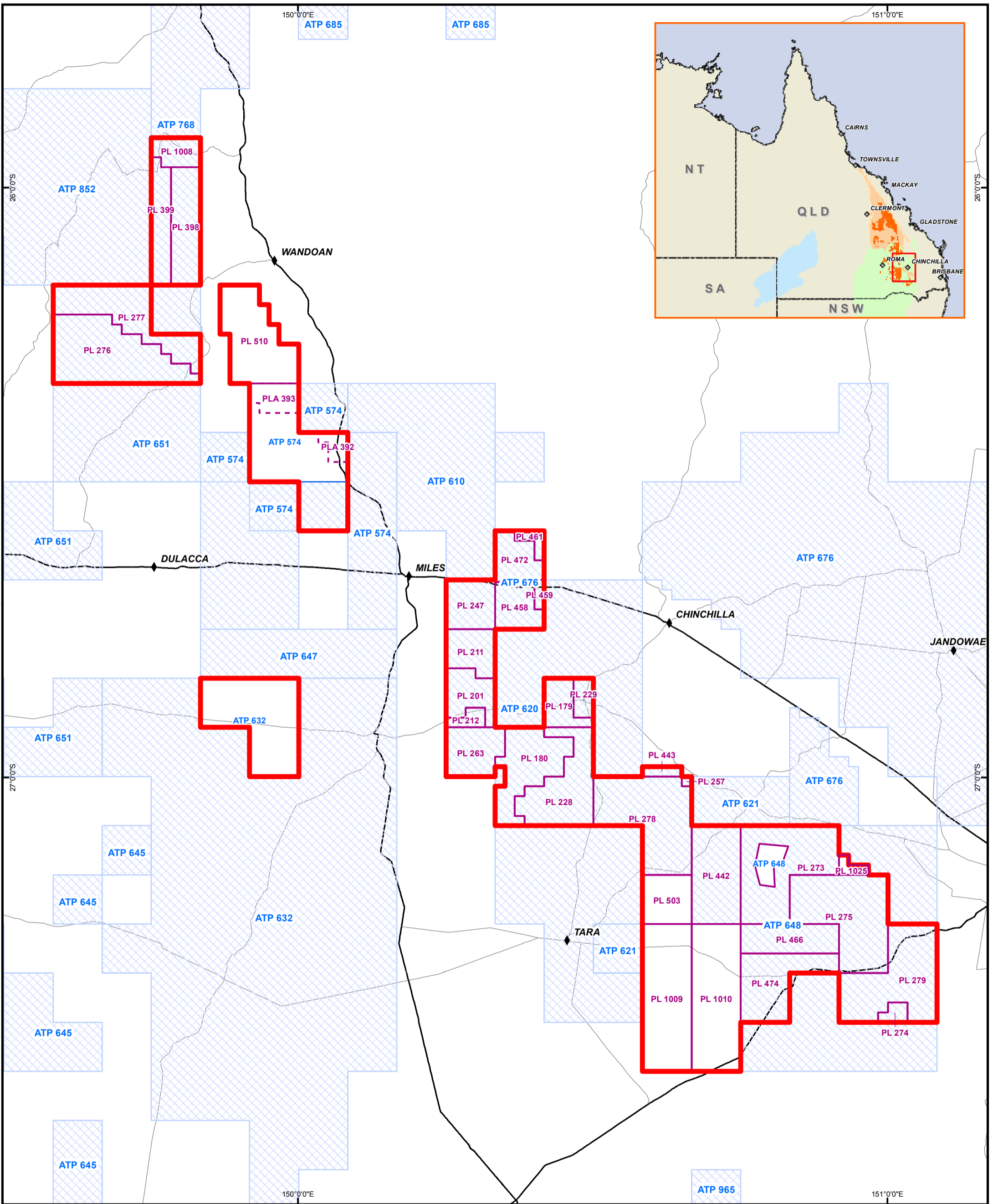
Project Area	QGC Block
Ruby EPPG00797813	David, Sean, Poppy, Ruby Jo, Isabella, Jen, Broadwater, Harry, Glendower, Barney, Clunie, Cougals, Anya
Jordan EPPG00889613	Kenya East, Owen, Jammatt, Margaret, Jordan, Michelle, Celeste, Will, Ridgewood, Myrtle, Aberdeen, Teviot, Maire Rae
Kenya EPPG00878413	Berwyndale, Berwyndale South, Matilda-John, Argyle, Lauren, Codie, Kate, Kenya, Fantome, Copper, Havannah
Avon Downs & McNulty EPPG00932613	Avon Downs, McNulty
Berwyndale South EPPG00652513	Berwyndale, Berwyndale South
Bellevue EPPG00611313	Bellevue
Woleebee Creek EPPG00903513	Cassio, Acrux, Polaris, Cam, Kathleen, Ross, Woleebee Creek, Mamdal, Paradise Downs, Alex, Lawton, Carla, Peebs, Marcus, Pinelands, Connor

Gas field development includes construction, commissioning and operational phases. Development of tenements may involve the following activities, although not all activities listed will be undertaken:

- seismic and geotechnical investigations;
- drilling of wells, including establishment of a well pad and access tracks where required;

- installation and operation of well pad infrastructure, including wellhead, gas and water separator, flare, well lift pump, well lift pump engine and potentially wellhead compressor;
- installation and operation of gas gathering lines to connect wells to field compressor stations (FCSs);
- construction and operation of FCSs to compress gas, including screw compressors, electric drive motors, coolers, flare, substation and pipework;
- installation and operation of gas trunklines to pipe gas from FCSs to central processing plants (CPPs);
- construction and operation of CPPs to compress gas, including centrifugal compressors, electric drive motors, coolers, flare, tri-ethylene glycol (TEG) dehydration units, substation and transformers and pipework;
- installation of above ground 132 kV power lines to connect third party substations to CPPs and underground and above ground 33 kV power lines to connect CPP substations to FCS and WTP substations;
- installation of water gathering lines and pumps to transfer water from the wellhead separator to infield storages and regional storage ponds;
- construction of infield buffer storages (tanks or ponds) and regional storage ponds;
- installation and operation of water trunklines and pumps to transfer water from regional storage ponds to collection header ponds and raw water ponds located adjacent to water treatment plants (WTPs);
- construction of collection header ponds and raw water ponds;
- construction and operation of WTPs, including desalination facilities, water pumps, brine concentrators, treated water storages and gas or electric drive engines;
- construction of water pipelines for transfer and supply of treated water, coal seam gas concentrate or brine;
- construction and operation of brine storages and brine crystallisation basins;
- the construction and operation of salt landfills;
- development of access tracks where required;
- extraction of quarry material from borrow pits, if and where required;
- accommodation camps for construction and operations personnel;
- construction and operation of warehouses and laydown areas; and
- communication towers and fibre optic cable.

FIGURE 1 QGC ENVIRONMENTAL AUTHORITY AREAS



QGC Tenements

Spatial Services

Map Projection: GDA 94 SCALE: 1:650,000(A3)

DATA SOURCE: Towns - GA, Roads - DERM
 Tenements - DME, Infrastructure - QGC

- Town/City
- Major Roads
- Minor Roads
- Project Area
- QGC PLA
- QGC PL
- QGC Relinquished ATP
- QGC ATP



DATE: 31/05/2017 **CREATED BY:** Rollmanc
MAP NO: M_40228_01_C

NOTE: Whilst care has been taken to prepare this map, QGC (and associated data custodians) make no guarantees about its accuracy, reliability or completeness and cannot accept responsibility of any kind for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are incurred by any party as a result of this product.
 Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2017. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

2.2 Objective of the Protocol and Constraints Mapping

When confirming locations for gas-field infrastructure or petroleum activities, QGC will have regard to the environmental and social constraints at any proposed site. These constraints will be balanced against other drivers (including local geological characteristics, engineering requirements or landholder requirements for example).

QGC's priorities regarding constraints are (in order):

- Avoid
- Minimise
- Mitigate & rehabilitate
- Offset (In the case of ecological constraints)

To ensure infrastructure locations will be chosen recognising local constraints, QGC will map environmental and social constraints on a site- and activity-specific basis to identify areas that will be subject to varying levels of environmental and social limitation. This mapping will be used to identify areas of land that will be suitable or unsuitable for the development of gas-field infrastructure.

Areas with significant constraints will be considered higher risk for gas field development because of their environmental and social sensitivity. The refinement of constraints mapping is an on-going process. All proposed infrastructure locations will be surveyed to confirm mapped constraints are accurate and to identify any additional constraints not previously identified in constraints mapping.

Examples of the environmental and social factors considered in constraints mapping include:

- Commonwealth matters of national environmental significance (MNES);
- Environmentally Sensitive Areas (ESAs);
- Watercourses and wetlands;
- Topography, slope and soil composition and erosion potential;
- Land Use and Infrastructure; and
- Social & Sensitive receptors (e.g. dwellings).

Environmental and social data gathered for the development will be collated in a geographic information system (GIS) for use in site selection of gas field infrastructure. Mapping will be built and maintained from internal and external data sources, including government and non-government data bases. It will be updated for relevant results of field-survey. QGC will use the most up-to-date data to inform site selection decisions that will be confirmed through its internal planning and delivery process. A ranking will be assigned to each constraint consistent with this Protocol.

Where adverse impacts on constraints will be unavoidable (typically arising from project engineering or land access issues), impacts will be minimised or mitigated for ecological constraints such as MNES and ESAs. Site remediation and rehabilitation of impacted areas will take place as per the relevant project environmental authority (EA) conditions to promote and maintain the long-term recovery of disturbed areas.

3 INCORPORATION OF THE PROTOCOL INTO MANAGEMENT PROCEDURES

3.0 Upstream Delivery Process

The Upstream Delivery Process (UDP) specifies the internal workflow and decisions followed to progress upstream scope through planning to execution and operations. All development infrastructure must be approved through this process and receive a series of functional endorsements culminating in a key approval authorising final planning and construction. The way in which the constraints protocol is applied through this process is shown in Figure 2.

The first stage of the process delivers integrated approvals of work scope. This is a strict internal process to select and approve location of wells, infrastructure and field activities. Proposed infrastructure locations will be reviewed against the relevant constraints mapping held in the QGC GIS.

Specific instructions to the survey team to further investigate identified or potential constraints will be included at this stage. It may also include requirements that there be on-site investigation by an appropriately qualified specialist with skills relevant to a potential constraint (e.g. an ecologist with hydrogeological training).

Once conceptual locations are approved, a multidisciplinary survey is undertaken to verify mapped constraints and identify any un-mapped constraints.

A survey team will always include a surveyor, a relevant construction representative, an appropriately approved/qualified ecologist, a cultural heritage representative and a land access representative. Surveys may also be attended by landholders.

All site assessments and field ecological surveys will:

- Take into account and reference previous ecological surveys undertaken in the area and relevant new information on likely presence or absence of constraints;
- Document the survey methodology, results and significant findings in relation to constraints; and
- Apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities.

Objectives of the survey include confirmation of constraints to infrastructure locations.

Field surveys will record any potential disturbances to any level 3 or 4 constraints. Where a confirmed constraint is very high (e.g. 4), QGC will not conduct activities in the area, unless:

- Ground truthing and field ecological surveys demonstrate that siting infrastructure in that location will cause minimal adverse impact; and
- Other constraints preclude any alternative location.

In addition, QGC may seek alternative locations for proposed infrastructure. Alternative locations will be recommended by an appropriately qualified ecologist conducting pre-clearance surveys or by the QGC's environmental officers based on desktop analysis of environmental and other constraints.

If no viable alternative location is available (recognising that locations will be subject to multiple and overlapping constraints), it will be necessary to locate infrastructure within a very high/no-go constraint. This must be approved through the UDP as described below in subsequent steps.

Where a potential impact to a very high/no-go constraint is expected prior to the disturbance occurring, QGC will record the expected disturbance by reference to:

- The proposed location, specific site and type of infrastructure or activity;
- Each very high constraint subject to disturbance;
- The related site assessment or field ecological survey documentation and recommendations, or the decision that the very high constraint was presumed to be present;
- The total area of predicted disturbance;
- The remaining disturbance limit for each affected very high constraint (if applicable);
- 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 very high constraints; and

- Actions and commitments by QGC to avoid, prevent, remediate, rehabilitate, or make good any unauthorised disturbance.

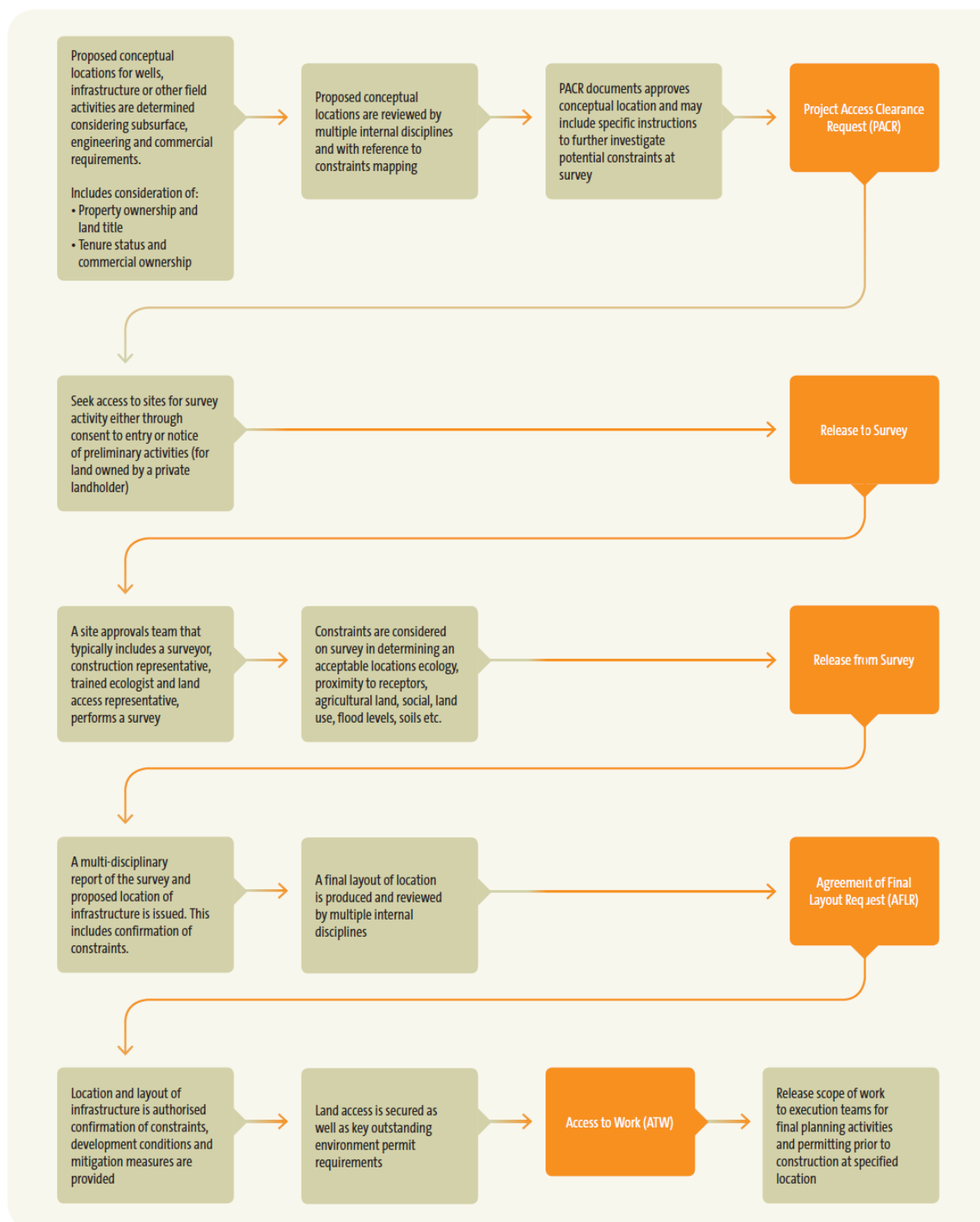
Following the disturbance activities, QGC will reconcile the proposed disturbances to very high/no go constraints to actual disturbances.

All information recorded during surveys will be recorded to a standard that can be independently audited.

On completion of the field surveys the site data and reporting the packages of information is collated and loaded into a second phase approvals packages. This phase of the approval seeks to gain acceptance of the proposed alignment/siting from each of the internal disciplines prior to approaching the landholder for negotiations and agreements. This stage confirms relevant constraints and includes any mitigation measures required.

Following the selection of infrastructure locations, QGC will seek to secure land access and any outstanding permit requirements, prior to authorising final planning activities and construction. This final stage confirms that land access has been secured and that key outstanding environment permitting requirements will be satisfied such as infrastructure can pass into execution phase for final planning and construction.

FIGURE 2 - UPSTREAM DELIVERY PROCESS FLOW DIAGRAM



4 CONSTRAINTS SYSTEM

QGC has developed a custom GIS model to map constraints. The system overlays multiple constraint layers (datasets) for each proposed development-related infrastructure types (new layers will be developed as infrastructure type is proposed designed and engineered).

4.0 Infrastructure Types and Constraints

QGC utilises the following infrastructure types for the application of constraint levels for each constraint:

- Utility Network, including power lines, communication lines;
- Pond – Other, including all ponds involved in the storage and transfer of associated water;
- Building, including administration buildings, camps, offices and storage facilities;
- Earth Work, including facility construction areas, laydowns and borrow pits;
- Plant, including FCSs;
- Well – All types;
- Pipeline, including all water and gas gathering lines and trunklines to transfer gas and water, on plot access tracks and roads; and
- Geology, including seismic surveys

4.1 Identifying and Ranking Constraints

All constraints will be assigned rankings as detailed in Table 1:

Constraint Ranking	Description
Low	Development permitted with application of standard environmental management measures.
Medium	Development permitted with application of additional non-standard environmental management measures as required.
High	Environmental and/or social feasibility must be assessed prior to development and/or landholder agreement and compensation or offsets will be required.
Very High / No Go	Development may not be environmentally and/or socially feasible for the proposed infrastructure. Other location options must be considered and assessed for viability.
<p>Infrastructure will not be located within no-go constraint areas unless:</p> <ul style="list-style-type: none"> • ground truthing and field ecological surveys demonstrate that siting infrastructure in that location will cause minimal adverse impact on MNES (if any), including habitat for listed species and/or MNES/habitat is recoverable or a suitable offset is agreed if required; • other constraints preclude the selection of an alternative location • it would be within disturbance limits; • QGC obtains the relevant permits and/or approvals for the activity to commence e.g. EA Amendments or Clearing Permits. 	

Condition 5 (d) (iv) of the DEE approval EPBC 2008/4398 recognises that in relation to linear infrastructure (e.g. pipelines), constraints will not generally assigned a “no go ranking” as it is not always possible to avoid these constraint areas, especially where they are also linear in nature, such as watercourses. Further to this, conditions relating to linear infrastructure are generally less stringent and linear infrastructure is often allowed in areas where static infrastructure is not, subject to width restrictions such as those specified in Condition 5 (e) of EPBC 2008/4398 or the relevant EA. However, disturbance of any MNES will only be authorised, where

necessary, up to the widths identified in Condition 5 (e) and the disturbance limits set out in Condition 25 of the DEE approval EPBC 2008/4398, and EPBC 2015/7463, Condition 2. Placing of infrastructure in the impact risk zone and no impact zone will be in accordance with Condition 5 (d) of that approval. Management methods to mitigate impacts will be described in the RRRMP and SSMP. Biodiversity offsets for MNES will be in accordance with DEE approval EPBC 2008/4398 Conditions 26-42 and EPBC 2015/7463 Conditions 5-7. QGC must also ensure compliance with all other conditions within the EPBC approvals and the relevant EA

4.2 Constraints Classification

The following classification has been applied to constraints.

TABLE 2: CONSTRAINTS CLASSIFICATION

Zone	Ranking	Value
1	Low – Minimal Ecological Constraints	Altered landscapes, grazing, agricultural land,
2	Medium	Remnant vegetation – Not of Concern Cat C ESA – comprised of State Forests and Of Concern Regional Ecosystem (RE)
3	High	BPA corridors Cat C ESA – Essential Habitat, Nature refuges, Koala Habitat Areas and resource reserves Cat B ESAs
4a/4b	Very high / no go	EPBC Listed Threatened Ecological Communities EPBC Listed Flora Listed threatened and migratory fauna species habitats as identified in the SSMP HES & GES Referable Wetlands (incl. RE 11.3.27) Watercourses (excluding linear infrastructure) and buffer zones Cat A ESAs Gurulmundi State Forest and the ESA immediately to the north west

Zone 4a and 4b include areas with the highest ecological values. These values could potentially be significantly impacted by the CSG activities.

Zone 4a areas will be considered to have higher conservation values than Zone 4b. They will be distinguished from each other only for enabling planning of linear infrastructure to avoid Zone 4a areas in preference to Zone 4b areas in locations where such areas will be unavoidable.

All Zone 4a and 4b ecological constraints including all MNES will be classified in QGC's highest environmental constraints classes – no go or very high – in accordance with Condition 5(d). Note that condition 5 (d) treats linear and non-linear infrastructure differently.

4.3 DEE Buffer Zones

The approval for the Project by DEE contains conditions which relate to MNES as Zone 4a and buffer zones around Zone 4a defined as the 200m 'impact risk zone' and 300m 'no impact zone' for linear and non-linear infrastructure respectively. These have been built into the constraints database and have been given the same constraints ranking as Zone 4a.

Gurulmundi State Forest, Cherwondah State Forest and the ESA directly northwest of Gurulmundi State Forest have been classified as Zone 4a by QGC. However, the DEE conditions require only those constraints related to MNES to be included in Zone 4a¹. Thus, for the purposes of applying DEE conditions, Gurulmundi State Forest and Cherwondah State Forest do not have Zone 4a buffer zones around them.

¹ Condition 5 of DEEs approval states "The proponent's approach to environmental constraint class Zone 4a and related impact avoidance and mitigation is described in volume 3, chapter 7 (7.6.2.4) of the proponent's Environmental Impact Statement (dated July

4.4 DEHP Buffer Zones

The Environmental Authority (EA) conditions contain restrictions on certain activities within the Primary Protection Zone and Secondary Protection Zone around Category A, B and C Environmentally Sensitive Areas (ESAs).

Some activities categorised as “limited petroleum activities” or “essential petroleum activities” will be authorised to occur within buffer zones. Under the conditions of the EA, activities will be allowable within some ESAs and the protection zones subject to certain restrictions such as preferentially locating infrastructure in pre-existing areas of clearing or significant disturbance.

Each type of category A, B and C ESA found within QGC's gas field has been assigned constraints ranking based on the infrastructure type that may be located within the ESA. Primary and secondary protection zones have been assigned a constraint ranking one level lower than the primary ranking given to the ESA which they buffer. This will assist in achieving compliance with all relevant EA conditions describing activities authorised to occur within ESAs and buffer zones around ESAs.

4.5 Ecological Constraints

QGC has considered a comprehensive list of potential ecological constraints including Environmentally Sensitive Areas (ESAs) (as defined under the EP Act and in EAs for the gas field), MNES and other areas which will be considered ecological constraints. There are no Category A ESAs within the gas field tenements; although Lake Broadwater Conservation Area occurs just east of Harry and Broadwater Blocks and the associated SPZ projects into Harry Block. There are a limited number of Category B ESAs in the gas field which include Endangered Regional Ecosystems (EREs). Category C ESAs will be defined in EAs but are likely to include State Forests and 'Of Concern' regional ecosystems, which are found in the gas fields.

Numerous databases of information from government, non-government, third party and QGC sources, including all available information and maps of MNES, have been utilised to create the ecological constraints layers. QGC will regularly update the constraints layer as databases will be changed or refined in the future and to include preclearance and post clearance survey data.

4.6 MNES

QGC has reclassified “Zone 4a” where it relates to MNES as “very high” or “no go” constraints. MNES constraints include EPBC listed threatened ecological communities, EPBC listed flora species and EPBC listed threatened and migratory fauna species habitat as identified in the SSMP which where relevant may be described in terms of specific niche habitat types.

4.7 Topography and Soil Constraints

Topography and soil constraints include topography, erosion potential and subsoil salinity.

Topography and soils are generally a constraint for construction activities and impacts will be managed or mitigated per the identified constraint ranking during the construction process and through appropriate engineering, detail design and reinforced on-site through the implementation of Construction Environmental Management Plans for specific activities.

4.8 Sensitive Receptors Constraints

Sensitive receptors are principally residential dwellings in the gas fields, but may include community facilities and social uses. Proximity of development to sensitive receptors is constrained by drilling noise, construction noise, and operational noise, use of private property (e.g. farming), visual amenity and localised air emissions.

Noise

The separation distance between sensitive receptors and noise sources for various infrastructure types determines the constraint ranking applied to the separation distance. These constraints rankings applied to each separation distance will be estimates based on noise modelling and monitoring of some operational infrastructure, which assumes some acoustic mitigation at infrastructure types. Actual separation distances may vary depending on sound power levels of actual equipment proposed for use, acoustic mitigation measures applied to infrastructure and any agreements reached with potential receptors. Detailed noise

2009). The protocol conditions do not apply to the other constraints that the proponent has included in environmental constraint class - Zone 4a unless these will be relevant to MNES.”

modelling of each site will be conducted where there is an increased risk of noise impact to landholders based on desktop review that incorporates site specific topography, receptors, engineering design and acoustic mitigation measures.

QGC has developed a Noise Management Plan to manage noise from fixed plant (e.g. CPPs, FCSs, and WTPs) and from drilling activities, which was submitted to DEHP as part of environmental authority applications for QCLNG project gas field activities. QGC's intention is to design major infrastructure so that noise levels experienced by receptors do not exceed noise objectives set in relevant conditions of approval under modelled conditions.

Construction of CPPs, FCSs and WTPs is likely to result in lower noise levels than that from the operation of major infrastructure and be subject to less stringent noise objectives. Therefore, if noise from operations is compliant with noise objectives then it is highly likely that noise from construction will be compliant with noise objectives. Management of noise on MNES is addressed in the SSMP. If noise is modelled to be non-compliant, mitigation measures will be taken to reduce noise impacts.

Drilling is a short-term activity (less than 4 weeks per well) and will be subject to less stringent noise limits than operation of fixed plant. Where noise levels from drilling exceed noise objectives for drilling at sensitive receptors, QGC will follow the procedures in the Noise Constraints Plan.

Visual Amenity

Visual amenity of CPPs and FCSs is considered a low constraint at distances greater than 1 km. As required from a noise perspective CPPs and FCSs will be located at an acceptable distance from receptors, and with consideration to topographical and vegetative screening, impacts on visual amenity are expected to be low.

Visual amenity of pipeline rights of way and wells are considered to have low constraints at distances greater than 500m and 600m respectively.

Visual amenity has not been incorporated into the constraints model as separation distances for noise purposes are expected to effectively reduce the visual amenity constraint to low.

Air Quality

Modelling conducted for the Project EIS demonstrated that there are not expected to be a localized exceedance of air emissions that would result in constraints on the separation distance to sensitive receptors.

4.9 Agricultural Constraints

Agricultural constraints consider existing and potential land use for agricultural purposes, including Strategic Cropping Land (SCL).

The Regional Planning Interests Act 2014 (RPI Act) and Regional Planning Interests Regulation 2014 (RPI Regulation) commenced on 13 June 2014. The RPI Act identifies and protects areas of Queensland that are of regional interest through management of impacts to land and support of coexistence of activities associated with resource activities and other regulated activities in areas of regional interest. There are four areas of regional interest under the RPI Act:

- A priority agricultural area (PAA)
- A priority living area (PLA)
- The strategic cropping area (SCA)
- A strategic environmental area (SEA)

Land under cropping may be situated on SCL.

4.10 Flood Level Constraints

Flood modelling of all watercourses in the gas field has not been conducted. QGC will, on a case by case basis, conduct flood modelling for CPPs, FCSs, WTPs and ponds. QGC intends to construct FCSs, CPPs, WTPs one metre above the 100 year ARI flood levels. This may require the raising of the foundation levels of CPPs, FCS and WTPs.

Ponds will be designed so that embankments will be above the 100 year ARI flood level except for the regional pond at Broadwater which is located on the Condamine River alluvial plain as detailed in the State 3 CSG Water Monitoring and Management Plan.

There will be instances where wells are below the 50 or 100 year ARI flood levels. QGC will conduct risk assessments to determine whether the risk of locating wells in a flood prone area will be as low as reasonably practicable. Where it is decided to construct wells in a flood zone, these wells may, depending on flood heights, be shut down in a flood event.

Pipelines will be installed across watercourses and in areas subject to flooding at depths prescribed by AS2885.

Temporary worker's accommodation and associated on-site sewage treatment plants will be located above the 50 year ARI flood level. Longer-term worker's accommodation (greater than four years) and associated on-site sewage treatment plants will be located above the 100 year ARI flood level.

4.11 Social Constraints

Social constraints considered in the constraints model include:

- townships and localities;
- dwellings;
- community facilities;
- emergency service facilities (with access/egress constraints also relevant);
- non-Indigenous cultural heritage places (NICHs), with Indigenous cultural heritage places addressed in detail in the respective Cultural Heritage Management Plans;
- social infrastructure:
- community centres;
- schools;
- churches and community halls; and
- recreational facilities.

4.12 Other Constraints

This Protocol considers environmental and social constraints. In addition, there will be constraints on the location of infrastructure due to:

- engineering factors;
- indigenous cultural heritage values or sites;
- overlapping petroleum and mining tenures;
- commercial arrangements with joint venture parties;
- health, safety and security; and
- landholder constraints.

QGC considers these and other non-environmental and non-social constraints through its business processes as it plans and locates gas-field infrastructure.

4.13 Updating Constraints

Information on constraints is held within QGC's GIS system. Constraints information will be updated when:

- additional relevant information becomes available from time to time; or
- QGC assigns an alternative constraints ranking to an existing constraint based on relevant technical advice.

Examples of additional relevant information include:

- Changes to government databases that form the basis of constraint layers;
- Survey data collected in the field which may indicate the presence of constraints not previously identified or the absence of constraints identified through desktop mapping.

QGC will not assign an alternative constraint ranking to a constraint that will result in a conflict with any conditions of approval from State or Federal governments. Before a constraint ranking is reassigned, QGC will follow a rigorous process to ensure all relevant business groups authorise the change before the change is approved by the General Manager Environment or their delegate.

5 MITIGATION MEASURES

Conditions of approval for the Project, prescribe mitigation measures to be implemented where infrastructure is proposed in certain constraint zones. QGC will implement these mitigation measures where relevant.

5.0 SPECIES AND ECOLOGICAL COMMUNITY MANAGEMENT PLANS

QGC has prepared species and ecological community management plans for all species and ecological communities listed as MNES in accordance with DEE Approvals. Plans describe:

- relevant avoidance and mitigation measures
- measures for protecting each listed threatened species and migratory species and their habitat

Plans will be prepared for each listed threatened ecological community not previously assessed by QGC, should one or more be found in the project area at any time over the life of the project. Any such management plans will be developed in a timeframe to be approved by the DEE. Notification of additional MNES found will be provided to DEE in writing within 10 business days.

6 CONCLUSION

This Constraints Planning and Field Development Protocol provides a framework for the identification and ranking of known ecological and social constraints to inform selection of proposed infrastructure locations.

QGC's management procedures for infrastructure design and site selection incorporate a thorough review of all constraints. Proposed infrastructure locations will be overlaid on maps of known constraints to rapidly shortlist potential locations. Once potential locations have been selected, pre-clearance surveys will be undertaken to verify known constraints and identify previously unidentified constraints prior to construction.

The constraints protocol is viewed in GIS format that interprets high risk areas for planning and placement of infrastructure. The methodology of the constraints weighting is reviewed throughout each stage of review in the internal planning and delivery process.

Where a site is rejected the process starts again and other options will be assessed.