Australian Government
Department of the Environment and Energy

Title of Proposal - Surat Basin Acreage Development

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Energy Generation and Supply (non-renewable)

1.2 Provide a detailed description of the proposed action, including all proposed activities.

QGC Pty Ltd (QGC) proposes to increase natural gas production from within its existing Surat Basin Acreage Development (the Project area). The Project area is defined by ten existing Petroleum Leases (PLs) occupying approximately 123,500 ha, near Wandoan in Queensland.

The Project area was previously approved under the EPBC Act, specifically EPBC No. 2013/7047 (the EPBC Permit), on 16 December 2014. Production has now commenced, and has included the development of: approximately 400 natural gas wells; gathering lines and trunk lines for gas and water; a field compressor station; in-field water storage; and supporting infrastructure - i.e. access tracks, electrical and communications infrastructure, borrow pits, laydown areas and drilling camps.

QGC is approaching completion of the first phase of development within the Project area. Upcoming phases look to compliment and expand upon the initial phase, predominantly utilising infill development wherever possible. This concept allows proposed new wells to be connected into existing infrastructure networks (both inside the Project area developed under EPBC 2013/7047 and within the Woleebee Creek Project Area, immediately adjacent and developed under EPBC 2008/4398) while not expanding outside of the existing Project area’s authorised boundaries. The next phases of development of the Project will occur within the same referral Project area of EPBC 2013/7047.

While QGC has previously applied for, and had approved, a variation for an additional 60 production wells and associated infrastructure, there is no mechanism under the EPBC Act to vary the existing EPBC Permit in order to account for all of the the next phases of development. As such, the upcoming phases of development must undergo a new and separate assessment process under the EPBC Act.

As initially contemplated in the referral for EPBC 2013/7047, the Project area can accommodate full-field development of up to approximately 1,200 wells. With the first 400 wells initially developed in the first phase now online and producing gas, QGC is looking to develop the remaining phases, subject to sanction from the Shell Group. To reach full-field development, QGC is seeking approval to develop 740 additional production wells and associated infrastructure in phases to align with project sanctioning, which includes:

- “Sustaining Wells 2019” – involving the development of approximately 100 additional production wells within the Project area; and
- “Sustaining Wells 2020+” – consisting of the remaining 640 production wells, which is subject to Project sanctioning and Final Investment Decision.

The next phases of development will only require the construction, operation and decommissioning of additional wells and the associated access, gathering and incidental infrastructure required to support them. No additional compression facilities or water storage infrastructure is required as part of this referral. Works are proposed entirely within the boundaries of the existing approved Project area and will make use of existing and authorised QGC infrastructure, associated approvals and management plans.

An assessment of impacts against all relevant Matters of National Environmental Significance (MNES) has been undertaken to determine likely impacts resulting from the development of the next phases and propose appropriate management practices. The assessment determined that the proposed development will impact on MNES resulting from the activities associated with the construction and operation of the additional wells, access and gathering. This includes potential cumulative impacts of the proposed and existing operations. This referral may trigger the relevant controlling provisions being:

- Listed Threatened Species and Communities; and
- Water Resources.

Details regarding the proposed activities associated with development of the additional infrastructure is set out below.

Construction:
Activities undertaken by QGC throughout construction will include:
- the development of additional natural gas wells, including the construction of well pads and access tracks, drilling and completion of wells, installation of down-hole and surface facilities and potential flare or vent;
- installation of gas and water gathering pipelines; and
- installation of incidental, ancillary and support infrastructure including, but not limited to, access tracks, electrical and communications infrastructure, laydown areas, borrow pits, temporary and mobile drilling camps.

As is the nature of gas field development, final well locations and route selection for gathering pipelines and access tracks within the Project area are not yet known. These will be determined in accordance with QGC’s approved Constraints Planning and Field Development Protocol, which is to be implemented for the proposed activities. This will result in on-the-ground environmental assessment and survey; consideration of landholder requirements; and prioritising the avoidance of identified environmental values wherever practical. This approach has worked successfully as part of QGC's existing operations to date, and will continue to be implemented as part of the next phases of development.

Operations:
Activities undertaken by QGC throughout operations will include:
- well operation and maintenance, stimulation, workovers, flaring and venting (where required);

- gathering system operation and maintenance;
- maintenance of ancillary infrastructure; and
- undertaking all necessary and incidental activities to facilitate operations.

Natural gas and produced water extracted from within the Project area will be transported to the existing Woleebee Creek facilities (authorised under EPBC 2008/4398) for further processing and distribution. As noted above, these activities are authorised under related approvals and not included within the scope of this referral. No new gas or water storage/processing infrastructure is required as part of the referral.

Decommissioning/Rehabilitation:
QGC currently implements both its Surat Basin Acreage Remediation Rehabilitation Recovery and Monitoring Plan (RRRMP) and its Rehabilitation Framework throughout the Project area. The RRRMP (approved under EPBC 2013/7047) establishes the standards and methods for managing disturbance resulting from all development within the Project area. It currently provides measures for the rehabilitation of infrastructure within the Project area. These measures will be extended to include rehabilitation of the additional development sought by this referral if required. Rehabilitation objectives for the Project area are to rehabilitate significantly disturbed land resulting from its activities, as far as reasonably practicable, to its predominant pre-clearance land use and condition.

Together, the Framework and the RRRMP provide a schedule and standard method for each type of structure to be decommissioned. The general decommissioning principles for the specific infrastructure are as follows:
- all above-ground equipment and infrastructure will be decommissioned and removed from the site as appropriate in accordance with the Australian Standard applicable at the time; and
- infrastructure will be rehabilitated to the pre-existing land use, unless required for use by the landholder or overlapping tenure holder and subject to assessment requirements.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Surat Basin Acreage Development area	1	-25.832027255587	149.41680905741
Surat Basin Acreage Development area	2	-25.832048237188	149.41683367969
Surat Basin Acreage Development area	3	-25.832036917686	149.83428693337
Surat Basin Acreage Development area	4	-25.839455739097	149.83428769765
Surat Basin Acreage Development area	5	-25.916057322989	149.83429306206
Surat Basin Acreage Development area	6	-25.916045259958	149.74914365468

Area	Point	Latitude	Longitude
Surat Basin Acreage Development area	7	-26.165298967007	149.75189712591
Surat Basin Acreage Development area	8	-26.165304724303	149.50195032612
Surat Basin Acreage Development area	9	-26.086442160865	149.50196105496
Surat Basin Acreage Development area	10	-26.08640361723	149.41402751461
Surat Basin Acreage Development area	11	-25.832027255587	149.41680905741

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The Project area is located in the northern Surat Basin, QLD. To the north-east, Wandoan is located approximately 20 km away and Taroom approximately 35 km. Miles is approximately 70 km to the south-east and Dulacca approximately 50 km to the south.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The development footprint is anticipated to impact on up to 2% of the entire Project area, which includes approx. 71 ha of MNES.

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Project area includes 106 lots. Details are provided in Section 2.5 of the Impact Assessment Report.

1.8 Primary Jurisdiction.

Queensland

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 01/2019

End date 02/2060

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

Activities that are the subject of this referral will require an amendment to the existing Environmental Authority (EA) EPPG00700113 under the *Environmental Protection Act 1994* (Qld). The EA regulates environmentally relevant activities, including petroleum production, within the existing PLs. The EA amendment process is taking place separately but in parallel with this referral. All necessary approvals will be in place prior to commencement of the upcoming phases of development.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

QGC has regular engagement with government, community and Traditional Owner stakeholders. These stakeholders have been briefed on QGC's next phase of proposed infill development and associated EPBC referral. QGC will continue to keep our stakeholders informed on the progress of our proposed development, including any decisions and milestones, as they occur. Proposed engagement is detailed in a Stakeholder Engagement Plan.

Discussions with potentially affected landholders are also underway. Many are existing landholders with whom we have existing access agreements.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

Environmental impact assessments for the first phase of the Surat Basin Acreage Development have been carried out under Commonwealth (EPBC Act) and State (EP Act) legislation. These assessments were used to support the grant of existing and approved permits under each jurisdiction - i.e. EPBC Permit 2013/7047 and EA EPPG00700113.

Under the EPBC Act, the first phase of development was assessed based on preliminary documentation. It was approved by DoEE (then the Department of the Environment) on 16 December 2014. EPBC Permit 2013/7047 was issued to enable the first phase. QGC has

complied with all requirements of EPBC Permit 2013/7047, as demonstrated through its Annual Returns submitted to DoEE.

With respect to QLD approvals, the first phase of the Project was assessed under the EP Act via an amendment of the exploration Environmental Authority (EA) to a production EA. The amended EA was granted on 23 August 2016. QGC has complied with all requirements of the EA.

For the next phases of the Project, approvals are being sought under the EPBC Act, with a referral (this submission) and an EA ammendment application under the EP Act being lodged respectively. These applications will assess the environmental impacts, as required under the relevant Commonwealth and State legislation.

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

This action includes works required to develop all future phases of QGC's Surat Basin Acreage Development.

While the next phases of the Project are new and separate development for QGC, the proposed elements will utilise existing QGC infrastructure within the Project area where possible. Specifically, the complementary relationship between the existing and new infrastructure means that natural gas produced from the development area will be transported via QGC’s existing Field Compressor Station (FCS) within the Project area, before being transported to the existing Woleebee Creek Central Processing Plant (CPP) located to the south of the Project area. From there, gas will be distributed to QGC’s domestic and international portfolios.

Similarly, produced water from the additional wells will be processed at the existing Woleebee Creek Water Treatment Plant (WTP), also located south of the Project area, with treated water being supplied for beneficial use through existing authorised arrangements (SunWater BUA ENBU04254412 and EPBC 2011/6181). All existing infrastructure has been approved and no upgrades are required as a result of the next phases of the development. The additional development therefore comprises of additional wells, access, gathering and incidental infrastructure only.

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

As mentioned above, natural gas and water from the proposed development will be supplied to existing facilities to avoid further ground disturbance and captial and operational expenditure. From there, gas is supplied into a pipeline network which provides an interconnection with other QGC gas facilities in the Surat Basin and allows QGC to supply gas from the development to its portfolio of gas sales arrangements. This includes sales of gas to the Eastern Australia gas market, power generation and supply to the existing two LNG trains at the QCLNG facility on Curtis Island near Gladstone. Water is supplied to the SunWater Glebe Weir pipeline project for agricultural (including stock watering), industry and urban water supply.

Details of related actions are as follows:

EPBC 2013/7047 - Development of new natural gas acreage in Surat Basin;

EPBC 2011/6181 – Woleebee Creek to Glebe Weir Pipeline Project;

EPBC 2008/4398 – QCLNG Gas Field development;

EPBC 2008/4399 – QCLNG Export Pipeline (including the Narrows Crossing) development;

EPBC 2008/4401 – QCLNG Marine Facilities development;

EPBC 2008/4402 – QCLNG LNG Plant development; and

EPBC 2008/4405 – QCLNG Shipping activities.

The proposed action does not result in any of these related actions having an additional or consequential environmental impact.

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Brigalow (Acacia harpophylla dominant and co-	Works associated with the Project will have the

Species	Impact
dominant)	potential to impact on approximately 9 ha of this TEC through clearing activities, resulting in habitat loss, degradation or modification. Clearing associated with the proposed development will be avoided as far as practicable by either utilising, or co-locating proposed infrastructure next to, existing infrastructure (such as access tracks) and by tying-in to existing gathering lines, reducing the overall need for clearing associated with the proposed action. Further information detailing the assessment of potential impacts resulting from the proposed action is provided in Section 5 of the accompanying MNES Impact Assessment Report.
Koala (Phascolarctos cinereus - combined populations of Qld, NSW and the ACT)	Works associated with the Project will have the potential to impact on approximately 62 ha of this Threatened Species through habitat loss and/or modification, entrapment or vehicle strikes. Clearing activities associated with the proposed action will be avoided as far as practicable by either utilising, or co-locating proposed infrastructure next to, existing infrastructure (such as access tracks) and by tying-in to existing gathering lines. Where practicable, the timing of clearing activities is selected to minimise impacts on breeding seasons. Where vegetation is required to be cleared, large trees that provide habitat for fauna will be avoided or retained wherever reasonably practicable. Hollow-bearing trees will be felled in a manner that reduces the potential for fauna death. In order to prevent entrapment in pipes and trenches, night caps and fauna ladders/ramps will be utilised where practicable and trenches will be checked for trapped fauna prior to backfilling. Access tracks constructed as part of the proposed action will not support high volumes of traffic, and Project vehicles are restricted to low speeds, significantly reducing the risk of vehicle strike to this Threatened Species. Further information detailing the assessment of potential impacts resulting from the proposed action is provided in Chapter 5 of the accompanying MNES Impact Assessment Report.

Species	Impact
South-eastern long-eared bat (Nyctophilus corbeni)	Works associated with the Project will have the potential to impact on approximately 80 ha of this Threatened Species through habitat fragmentation, loss and degradation. Clearing activities associated with the proposed action will be avoided as far as practicable by either utilising, or co-locating proposed infrastructure next to, existing infrastructure (such as access tracks) and by tying-in to existing gathering lines. Where vegetation is required to be cleared, large trees that provide habitat for fauna will be avoided or retained wherever reasonably practicable. Hollow-bearing trees will be felled in a manner that reduces the potential for fauna death. Further information detailing the assessment of potential impacts resulting from the proposed action is provided in Chapter 5 of the accompanying MNES Impact Assessment Report. However, QGC has determined that the impact is not considered to be significant.
Belson's Panic Grass (Homopholis belsonii)	Works associated with the Project will have the potential to impact this Threatened Species through clearing activities, resulting in habitat loss and/or modification. Clearing associated with the proposed development will be avoided as far as practicable by either utilising, or co-locating proposed infrastructure next to, existing infrastructure (such as access tracks) and by tying-in to existing gathering lines, reducing the overall need for clearing associated with the proposed action. Further information detailing the assessment of potential impacts resulting from the proposed action is provided in Chapter 5 of the accompanying MNES Impact Assessment Report. However, QGC has determined that the impact is not considered to be significant.

2.4.2 Do you consider this impact to be significant?

Yes

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

Yes

2.9.1 Impact table

Water Resource	Impact
Groundwater	Subsurface depressurisation and dewatering: Water level decline in shallow aquifers, causing impacts to: - shallow aquifers (specifically impacts to terrestrial GDEs and aquatic ecosystems); and - flow in watercourses. The Surat North WMMP was focused around the main element of the Surat Basin Acreage Development (SBAD) at the time of the plan which was the 400 wells centered around Horse Creek. Therefore, the approved GDE management actions contained in that plan focused primarily on potential GDEs associated with the alluvium, channel and flood plain of Horse Creek. Future phases of the SBAD include development to the south, west and north of the focus area. Therefore, this referral is targeted at the assessment of any other GDEs, watercourses and relevant aquatic ecological systems which come within this footprint. Additional information associated with the Horse Creek area, collected since the

Water Resource	Impact
	WMMP, is also included. Potential impacts to GDEs and shallow groundwater will continue to be managed through the Surat North WMMP management plans (to be updated and approved by the Department in 2019) and the Queensland Government framework for groundwater impacts (which now includes GDEs).

2.9.2 Do you consider this impact to be significant?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

A comprehensive ecological assessment was undertaken to map terrestrial ecology values within the Project area. This involved a detailed desktop assessment, targeted field surveys and mapping of ecological values. The report has been included in the referral. The report has been used as a baseline to inform the referral. The information in the report has been reviewed to ensure the currency and validity of the data used. The field survey was targeted towards confirming regional ecosystem mapping and locating significant flora and fauna species. It was undertaken at the end of the wet season, a time that was considered appropriate to capture an optimal representation of the biodiversity of the Project area, while ensuring ground conditions allowed as many sites as possible to be accessed.

The assessments found that approximately 4% (5,038 ha) of the Project area is mapped as remnant vegetation with the remaining 96% of the Project area being either cleared land, regrowth vegetation, or areas not currently mapped as remnant vegetation. Ecosystems (REs) within the Project area includes four Endangered, five Of Concern and five No Concern REs. Vegetation is restricted to small fragmented areas and riparian areas. Despite the heavily cleared nature of the area, a number of protected matters were identified as known or potentially occurring within the Project area. This includes a range of threatened ecosystems, flora and fauna which are further discussed in the supporting documentation.

3.2 Describe the hydrology relevant to the project area (including water flows).

The Project area lies within the Dawson River Catchment, within the Fitzroy Basin, Australia’s second largest coastal-draining catchment. The highest order watercourses that occur within the Project area include Eurombah Creek, Horse Creek and Juandah Creek. These are intermittent, ephemeral watercourses that have limited or no flow for parts of the year and may be reduced to a few small pools. These streams flow into the Dawson River, that occurs to the north outside of the Project area. Downstream, the Dawson River joins the Mackenzie River to become the Fitzroy River, which flows to the Coral Sea south of Rockhampton (360 km to the east).

No Nationally Important Wetlands are located within the Project area.

No springs supporting species or communities protected by the EPBC Act (EPBC springs) are found within the Project area. EPBC springs have been identified in the region surrounding the Project area. Potential impacts to those springs are managed under the Joint industry Plan for Springs Monitoring and Management (JIP), and Queensland Government Spring Impact

Management System (SIMS).

Other known GDEs, and ecosystems which are potentially groundwater dependent, exist within the Project area and the surrounding region. These include ecosystems that may rely on the surface expression of groundwater, including wetland-type communities and Horse Creek, which is considered a 'watercourse spring', and ecosystems that may rely on the subsurface presence of groundwater. The latter includes all vegetation ecosystems, which are present mostly to the south and southwest of the Project area, and to a lesser extent to the north.

Permanent flow in the Dawson River is sustained by alluvial aquifers, which maintains baseflow during dry periods.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Three major soil units are present within the Project area: Vertosols, Dermosols and Sodosols. Most soil units are sodic and have saline subsoils. The majority of topsoils from the dominant soil units have a moderate erosion hazard, with one Dermosol soil unit exhibiting a high topsoil erosion hazard. The presence of acid sulphate soils is highly unlikely.

Within the Project area, approximately 4% is mapped as remnant vegetation and 2% is mapped as regrowth. The remaining 94% of the Project area is either cleared or not currently mapped as remnant or regrowth vegetation.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

Not applicable.

3.5 Describe the status of native vegetation relevant to the project area.

Native vegetation within the Project area has been largely cleared for grazing purposes. Within the Project area, approximately 4% is mapped as remnant vegetation and 2% is mapped as regrowth. The remaining 94% of the Project area is either cleared or not currently mapped as remnant or regrowth vegetation.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

Topographically, the Project area is 195 m to 390 m above sea level, dissected by three north-east to south-west low-rise ridge systems and has two similarly oriented sub-basins. These basins drain in a general north-easterly direction. The central and southern ridges are marked by unique table landform features (also called 'mesas'), where fresh sandstone outcrop exposures are typically observed. Slightly tilted table landforms (also called 'hogbacks') occur

in undulating terrain.

The northernmost ridge is located at the north-west corner of the Project area and is northwardly connected to the adjacent Sutherland Park. The ridge has an average slope of 2 to 5%, a maximum elevation of 270 m and a minimum elevation of 210 m within the Project area.

The central ridge, which traverses the Project area, is southwardly connected towards the general area of the Dinoun, Emu and Combabula State Forests. The average slope is 3 to 10%, with sharp peaks and ridges (up to 32%) at the midsection and towards the general area of the State Forests. Within the Project area, the maximum elevation is 320 m and the minimum is 210 m.

The southern ridge is bounded to the west by the north-east-flowing Horse Creek and to the east by the north-flowing Mud and Juandah Creeks. Mud Creek joins Juandah Creek, which in turn joins Horse Creek, terminating the northern end of this low ridge. Towards the south, this ridge is contiguous towards the area of Mount Organ and Hinchley State Forests. The average slope within this area is 5 to 10%, marked by sharp highs towards the Project area's southern boundary. The maximum elevation is 390 m and the minimum is 200 m.

The action is not proposed to be taken in a marine area.

3.7 Describe the current condition of the environment relevant to the project area.

The natural environment within the Project area is highly modified.

Approximately 94% of the Project area has either been cleared for grazing purposes or is not currently mapped as remnant or regrowth vegetation. Certified mapping of Regional Ecosystems (REs) within the Project area includes four Endangered, five Of Concern and five No Concern REs. Vegetation is restricted to small fragmented areas and riparian areas. Mt Organ State Forest is heavily subjected to forestry and logging practices as well as cattle grazing which has seen the removal of mature trees and significant disturbance to the understorey to where it would be a highly modified environment.

Pest flora and fauna species have been recorded within the Project area, in general, weed infestation levels across the Project area are low.

In terms of surface water resources, *The State of the Rivers: Dawson River and Major Tributaries Report* found the Dawson catchment's overall condition to be moderate to poor. This was confirmed by the field survey, with animal grazing the most common detrimental influence on stream and riparian attributes.

Cropping, mining and stock water extraction activities, as well as road structures (bridges,

culverts, fords, and ramps) were the other major disturbance factors.

Collectively, these activities have contributed to widespread degradation of the riparian zone with clearing of natural vegetation and the invasion of exotic species observed adjacent to watercourses.

Key observations of the overall surface water environment with respect to existing activities, are that:

- erosion and sedimentation due to agricultural activities (in particular, grazing) is impacting on stream flow and water quality; and

- aquatic habitats are generally in poor condition.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

Not applicable.

There are no Commonwealth Heritage Places or other places recognised as having heritage values located within the Project area.

3.9 Describe any Indigenous heritage values relevant to the project area.

There are currently two Native Title claims over the proposed Project area, QI2010/003 and QI2010/034, which have separate Indigenous Land Use Agreements (ILUAs) between QGC Pty Ltd and the Iman People and Mandandanji People, respectively. Both ILUAs were signed in 2011 and comprise an Area Agreement with the Indigenous Persons extending over a significant area of the QCLNG Project pipeline and gas field areas (and do not overlap other Native Title claims). In the Surat Basin locality, the Iman People are the predominant Native Title claimant, with the Native Title area covering the vast majority of the defined area.

QGC has successfully negotiated CHMPs with the Iman People and the Mandandanji People. These CHMPs are whole of claim agreements and are designed to address the cultural heritage management requirements of the Project. These CHMPs are already in place and fulfil QGC’s obligations under the ACH Act.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The Project area comprises 106 land parcels owned by 50 landholders. Tenure within the Project area includes freehold, leasehold and State-owned land. The average land parcel size is approximately 1,400 ha. QGC has existing Conduct and Compensation Agreements (CCAs) with the majority of these landholders.

3.11 Describe any existing or any proposed uses relevant to the project area.

The region is predominantly rural, with the majority of the Project area being freehold land that has been historically cleared and primarily used for cattle grazing. Some small-scale dry land cropping also occurs, generally adjacent to rivers and creeks. The Mount Organ State Forest is located in the south of the Project area and is used for forestry and timber production as well as cattle grazing.

Significant natural gas extraction is currently occurring in the region. Immediately to the south and east, QGC operates part of the QCLNG Project. To the southwest, Australia Pacific LNG has a number of PLs and PL applications. There are also petroleum exploration (ATP) and evaluation (Potential Commercial Area) tenures to the north and west. Immediately adjacent and southeast of the Project area is PL 1037, which is Senex's Atlas Gas Project area also currently in development. A number of Petroleum Pipeline Licences (PPLs) are located within and adjacent to the Project area.

Mining lease (ML) 50229 overlaps part of the Project area. This ML was granted to a subsidiary of Glencore on 8 August 2017 to enable open cut coal mining. This Project was assessed under the EPBC Act and approved under the EPBC Act (EPBC Ref 2008/4284). It overlaps with parts of PLs 401 and 506 in the east of the Project area. Construction of the mine has not yet commenced at the time of writing. The development of these coal tenements has been undertaken through a co-development plan agreed between QGC and Glencore, which provided the coordination arrangement between overlapping tenures required under petroleum legislation.

Three ML applications (MLAs) 50254, 50270 and 50271 by Taroom Coal, a subsidiary of New Hope Group, overlap PLs 299 and 397 in the centre of the site. MLA 50254 is an application for open cut coal mining whilst 50270 and 50271 are for surface infrastructure. This project has been determined 'not a controlled action' under the EPBC Act (EPBC Ref: 2008/4130). It is understood that the MLAs have progressed through the Queensland Land Court and grant of these MLAs is contingent on the applicant securing compensation agreements with affected landholders, prior to final assessment by the Department of Natural Resources, Mines and Energy (DNRME). At present, no coal mining operations have commenced in the North Surat and development of any new mines is unlikely to occur until the approved Surat Basin Rail corridor is constructed. QGC has a co-development agreement with the overlapping coal tenure holder, in which the upcoming phases of development within this Project area have been included.

There are a number of other mineral exploration permits, mineral development licences and applications for these tenures across the region, owned by a number of companies.

Existing and approved operations within the Project area include the development of:

- natural gas wells;

- gathering lines and trunklines for gas and water within the Project area;

- a field compressor station, where gas is received and compressed for transfer through trunklines off the Surat Basin Acreage tenure to an existing and already approved Central Processing Plant (CPP) located on the adjacent Woleebee Creek Project area (EPBC Ref: 2008/4398);

- regional storage ponds and in-field water storage, including ponds, tanks and pumping stations for transfer through trunklines to the existing and already approved Woleebee Creek Water Treatment Plant (WTP); and

- ancillary and support infrastructure including access roads, electrical supply infrastructure, communications, laydown areas, borrow pits and temporary drilling camps.

The next phases of development will only require the authorisation of additional wells, access, gathering and incidental infrastracture to support the ongoing supply of natural gas to existing gas processing facilities and on to the domestic and international markets. All works are proposed entirely within the boundaries of the existing approved Project area and will utilise existing authorised infrastructure, associated approvals and management plans to further develop the additional wells.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

To assist in avoiding or reducing impacts on MNES, QGC has an established adaptive management framework based on constraints planning to inform the siting of proposed infrastructure. It includes specific measures, controls and procedures that are applied to development activities at specific sites.

An example of one of these measures is the Constraints Planning and Field Development Protocol (the Protocol). The Protocol applies constraint rankings and classification to development proposed to be undertaken by QGC within the Project area. To ensure the most appropriate location of infrastructure, QGC maps constraints on a site and activity-specific basis to identify areas that are subject to environmental and social limitations. Constraints mapping is continually updated and refined to consider revised mapping and field validation. All proposed infrastructure locations are surveyed to confirm mapped constraints and to highlight additional constraints not previously identified. For further detail regarding how the Protocol is implemented, please refer to Section 3.4 of the submitted MNES Impact Assessment Report.

To demonstrate the effectiveness that implementing this framework has had in avoiding or reducing impacts to MNES, it is useful to re-examine data collected from Project activities undertaken to date within the Project area, in accordnace with EPBC No 2013/7047:

- Total maximum disturbance to threatened species and ecological communities authorised under the conditions of approval totalled **309.4 ha**.

- Actual impacts on threatened species and ecological communities equated to just **1.75 ha**. This is despite the Project area comprising approximately 123,500 ha.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

A significant impact assessment on MNES within the Project Area has determined that the proposed action would impact only on Koala. An assessment of those impacts against the DoEE environmental values to be achieved for the Koala is further detailed in the MNES Impact Assessment Report (Table E-6).

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

Listed threatened species and communities - Yes

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

No response required - Significant impacts identified above and in Section 2.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Yes, QGC has a strong record of responsible environmental management across its tenements in Queensland. QGC implements all reasonable and practical measures to ensure that environmental harm is not caused or threatened by its activities and that all of its activities are compliant with relevant permit and approval conditions. Appropriate resources are available to respond quickly to any potential environmental incidents and minimise any resulting impact to the environment and wider community.

To date, QGC has complied in full with the existing Surat North Acreage Development EPBC conditions of approval (EPBC No 2013/7047).

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

QGC notified the Qld State environmental regulator of a release of brine from its Water Treatment Plant brine pipeline which was not in accordance with its corresponding Environmental Authority. In response to this incident, the Qld environmental regulator continued with legal proceedings and found QGC to be in non-compliance with two conditions of its Environmental Authority. No conviction was recorded.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

Shell Australia maintains a commitment and policy on Health, Security, Safety, the Environment and Social Performance. Details can be found at: https://www.shell.com/sustainability/our-

approach/commitments-policies-and-standards/hsse-and-social-performance.html

QGC also operates under a certified IS014001 Environmental Management System. This system achieved recertification in 2017 against ISO14001:2015.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

EPBC Act No 2013/7047

EPBC Act No 2015/7463

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Refer to 'Section 9 - References" in MNES Impact Assessment Report.	High reliability for all reference sources. Developed and peer reviewed by technical specialists/committees.	Limited uncertainty (if any) for all reference sources. Developed and peer reviewed by technical specialists/committees

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

The development is proposed pursuant to QGC's development rights and obligations with respect to the relevant petroleum tenures. The timing of the development relates in part to its prospectivity for gas production, its proximity to existing gas and water management infrastructure and market demand. The project has been heavily integrated with existing infrastructure, including compression facilities, trunklines and water management infrastructure, minimising the surface disturbance and total infrastructure required.

Accordingly, the proposed action has no feasible alternatives.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

Yes

8.27.1 Describe the details of the proposed alternative proposal.

The option of not pursing the project has been considered, however, it is unfavourable due to current demand, in light of the unique opportunity to develop in co-location with existing projects.

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Manager, Access

9.2.2 First Name

Kelli

9.2.3 Last Name

How

9.2.4 E-mail

kelli.how@shell.com

9.2.5 Postal Address

GPO Box 3107
Brisbane QLD 4001
Australia

9.2.6 ABN/ACN

ACN

089642553 - QGC PTY LIMITED

9.2.7 Organisation Telephone

(07) 3027 8654

Australian Government
Department of the Environment and Energy

9.2.8 Organisation E-mail

nick.fullerton2@shell.com

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, KELLI JANE HOWE, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:..... Date: 10.08.2018

I, KELLI HOWE, the person proposing the action, consent to the designation of QGC PTY LTD as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 10.08.2018

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Manager, Access

9.5.2 First Name

Kelli

9.5.3 Last Name

How

9.5.4 E-mail

kelli.how@shell.com

9.5.5 Postal Address

GPO Box 3107
Brisbane QLD 4001
Australia

9.5.6 ABN/ACN

ACN

089642553 - QGC PTY LIMITED

9.5.7 Organisation Telephone

(07) 3024 8654

9.5.8 Organisation E-mail

nick.fullerton2@shell.com

Proposed designated proponent - Declaration

KELLI HOW FOR

I, QGC PTY LTD, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Australian Government
Department of the Environment and Energy

Signature:..... Date: 10.08.2018

KELLI JANE HOW ACCESS MANAGER, QGC PTY LTD.

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Manager, Access

9.8.2 First Name

Kelli

9.8.3 Last Name

How

9.8.4 E-mail

kelli.how@shell.com

9.8.5 Postal Address

GPO Box 3107
Brisbane QLD 4001
Australia

9.8.6 ABN/ACN

ACN

089642553 - QGC PTY LIMITED

9.8.7 Organisation Telephone

(07) 3024 8654

9.8.8 Organisation E-mail

nick.fullerton2@shell.com

Referring Party - Declaration

Australian Government
Department of the Environment and Energy

I, KOZLI JANE HORN, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: ..... Date: 10.08.2018

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. a_baam_terrestrial_ecology_part_1.pdf
2. a_baam_terrestrial_ecology_part_2.pdf
3. b_pmst.pdf
4. c_likelihood_of_occurence_assessment.pdf
5. d_aquatic_ecology_part_1.pdf
6. d_aquatic_ecology_part_2.pdf
7. d_aquatic_ecology_part_3.pdf
8. e_impact_significance_assessment.pdf
9. f_ssmps.pdf
10. mnes_impact_assessment_report_rev_0.pdf
11. sbad_figures_part_1.pdf
12. sbad_figures_part_2.pdf
13. section_9_signed.pdf