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## GLOSSARY AND ABBREVIATIONS

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## 34 Glossary and Abbreviations

### 34.1 Glossary

Term	Definition
Abatement measure	Suppression or termination measure
Abstraction	Taking water from a resource, such as pumping groundwater from an aquifer
Acid rain	Rain containing acids that form in the atmosphere when industrial gas emissions (especially sulfur dioxide and nitrogen oxides) combine with water
Adsorption	Adsorption is the adhesion of atoms, ions, or molecules from a gas, liquid, or dissolved solid to a surface
Aesthetics	The science that deduces from nature and tastes the rules and principles of art; the theory of fine arts; the science of the beautiful; or that branch of philosophy that deals with its principles or effects; the doctrines of taste
Airshed	Volume of air confined to a distinct geographic region and within which pollutants are contained
Alkaline	Having the properties of any of various bases, the hydroxides of the alkali metals and of ammonium, which neutralise acids to form salts
Alluvial	Pertaining to alluvium
Alluvium	Unconsolidated deposits of inorganic materials (clay, silt, sand, gravel, boulders) deposited by flowing water
Ambient air quality	The state of quality and chemical characteristics of air as it exists in the environment
Anaerobic	Of or pertaining to biology and physiology (of organisms or tissues) requiring the absence of free oxygen or not destroyed by its absence; relating to or caused by the absence of oxygen, e.g., anaerobic decomposition
Annual average daily traffic (AADT)	The average traffic volume expected over a 24-hour period in a given year
Anthropogenic	Associated with human activities, as opposed to those occurring in biophysical environments without human influence
Aquaculture	Cultivation of the food resources of the sea or of inland waters
Aquifer	Rock or sediment in a formation, group of formations, or part of a formation that is saturated and sufficiently permeable to allow water to percolate through
Aquitard	Low-permeability aquifer
Arable	capable, without much modification, of producing crops by means of tillage (ploughing, etc)
Arboreal	Living in or among trees
Archaeological	Relating to the systematic study of any culture, especially a prehistoric one, by excavation and description of its remains
Area of disturbance	The area in which physical displacement of existing features occurs, leading to potential impacts
Arrow Bowen Pipeline	A proposed 600-km-long, high-pressure, gas transmission pipeline consisting of a main pipeline and several lateral pipelines to convey coal seam gas (CSG) from Arrow's gas fields in the Bowen Basin to Gladstone for eventual export as liquefied natural gas

## Section 34 Glossary and Abbreviations

Term	Definition
Arrow LNG Plant	A large-scale (up to 18 mtpa, nominally 16 mtpa) liquefied natural gas facility that Arrow CSG (Australia) Pty Ltd proposes to develop on Curtis Island near Gladstone, Queensland
Arrow Surat Pipeline	Proposed 470-km-long, high-pressure, gas transmission pipeline that will extend from the Kogan area of the Surat Basin to Fishermans Landing at Gladstone
Associated water	Underground water necessarily or unavoidably taken or interfered with during the drilling of a petroleum well (as defined by the <i>Petroleum and Gas (Production and Safety Act 2004 (P&amp;G Act))</i> )
AUSPLUME	Plume dispersion model
Authority to prospect	Tenure allowing the holder to undertake gas exploration activities and studies to evaluate the development potential of a defined resource
Avifauna	Birds of a given region
Background noise level	The noise level in the absence of intermittent noise sources
Balanced water	CSG water that has been treated by reverse osmosis and to which trace elements have been added so that it is technically substitutable with water drawn from other resources.
Basalt	The dark, fine-grained igneous rock of a lava flow, composed essentially of plagioclase and pyroxene, and sometimes displaying a columnar structure
Baseline	A basic standard or level, usually regarded as a reference point for comparison
Beneficial use	An alternative use for a material, such as CSG water or salt, which changes the status of the material from a waste to a resource that can be used for a beneficial purpose
Bio-condition	The degree to which the attributes of a patch of vegetation differ from the attributes of the same vegetation in its reference (undisturbed) state
Biodiversity	The variety of species of plants, animals and microorganisms, their genes, and the ecosystems they comprise, often considered in relation to a particular area
Biogenic	Produced by living organisms or biological processes
Biogeographic	Relating to the study of the distribution of species (biology), organisms, and ecosystems in space and through geological time
Bioregion	Relatively large land area characterised by broad, landscape-scale natural features and environmental processes that influence the functions of entire ecosystems and capture the large-scale geophysical pattern of the area. These patterns in the landscape are linked to fauna and flora assemblages and processes at the ecosystem scale, thus providing a useful means for simplifying and reporting on more complex patterns of biodiversity
Biosecurity	Security measures against the transmission of disease to the plants or animals of a particular region
Borrow pit	A pit created to provide soil, gravel or rocks that can be used as fill at another site
Brigalow Belt bioregion	A bioregion that spans inland and eastern Queensland from Townsville in the north to northern New South Wales in the south. It covers an area of about 6 million hectares
Brine	Water that contains more than 35,000 mg/L of dissolved solids; the waste product of reverse osmosis water treatment
Brine dam	An impoundment constructed at an IPF to store the brine produced by water treatment facilities prior to its disposal
Cadastral	Relating to the official register of property, with details of boundaries, ownership, etc.

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Term	Definition
Cainozoic	Relating to the geological era of rocks of most recent age (65.5 million years ago to present)
Carbon monoxide	Toxic, colourless, odourless gas produced by burning any fuel
Carbonaceous	Of, like, or containing carbon
Category A environmentally sensitive area	Any area designated as national park under the <i>Nature Conservation Act 1999</i> (Qld), as well as conservation parks, forest reserves, and the Wet Tropics World Heritage areas
Central gas processing facility (CGPF)	A production facility that receives gas from field compression facilities and production wells, and compresses it to export pipeline pressure
Chromosol	A soil type that is similar to a kurosol but lacking in the acidic upper B horizon
Cleat	A natural fracture within a coal bed; cleats account for most of the permeability and much of the porosity of coal-bed gas reservoirs
Coal	A black or brown carbon-based sedimentary rock formed by the accumulation and decomposition of plant material in layers and used as fuel; main types are hard coal (anthracite), soft coal (bituminous coal), and brown coal (lignite)
Coal seam gas (CSG)	A form of natural gas extracted from coal beds
Colluvium	Loose and incoherent deposits, usually at the foot of a slope or cliff line and transported there by gravity
Combustion	The act of processing or burning
CONCAWE	The oil companies' international study group for conservation of clean air and water – EUROPE
Conceptual project design	Proposed project design timeframes for gas field and facility development established for the purpose of environmental impact assessment
Confined aquifer	An aquifer bounded above and below by impervious layers' in a confined aquifer, the water is under sufficient pressure to cause it to rise above the top of the aquifer if given the opportunity
Conglomerate	Anything composed of heterogeneous materials or elements' geology' a rock consisting of rounded and waterworn pebbles etc. embedded in a finer cementing material; consolidated gravel
Constraints mapping	One of the items comprising the framework (see framework)
Contaminant	A contaminant is something that is normally absent in the local environment which, if released in sufficient concentration, can adversely affect living organisms through air, water, soils and/or food. A contaminant can be: (a) a gas, liquid or solid; (b) an odour; (c) an organism (whether alive or dead), including a virus; (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants.
Contamination	The release (whether by act or omission) of a contaminant into the environment
Contour plot	A graphical technique for representing a three-dimensional surface by plotting contours on a two-dimensional format
Cost benefit analysis	The study of a project's financial viability by comparing its cost to its actual or expected returns or benefits
Cover material	Soil, alluvium, weathered basalt or other suitable plant-growth medium, typically non-crusting and of low salinity, placed on reshaped spoil surfaces

## Section 34 Glossary and Abbreviations

Term	Definition
Critically endangered species or ecological community	Flora or fauna species or ecological community characterised as critically endangered in terms of the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) and that faces an extremely high risk of extinction in the wild in the immediate future
CSG Water	Underground water which is extracted through the process of exploring for or producing CSG under a petroleum authority
Cumulative effect	The combined impact to one or more environmental values delivered by multiple projects being undertaken within one physical area
Demography	The science of vital and social statistics, as of the births, deaths, diseases, marriages, etc. of populations; the range of different groups existing in a particular populace, as distinguished by factors such as age, ethnicity, social background, etc.
Depressurisation	The lowering of the groundwater elevations over an area
Dermosol	A soil type with a strongly structured B horizon
Desorption	Desorption is a phenomenon whereby a substance is released from or through a surface
Development region	One of 14 physical areas into which the Project area has been divided for the purposes of phasing the Project
Dewatering	The draining, permanently or temporarily, of water flowing over or groundwater underneath a wet area of land, for agriculture, construction, etc.
Directional drilling	The technique of drilling non-vertical or horizontal wells by intentionally deviating a wellbore from the path it would naturally take
Disturbance	A physical displacement of existing features that leads to impacts
Diversion channel	A constructed waterway used to redirect drainage lines and watercourses around infrastructure areas
Draw down	To lower the groundwater level in a bore or within the waterhole
Drawdown	The distance that the groundwater level in a bore or within a water table is lowered from the standing water level when influenced by pumping; the act of lowering the groundwater level
Drilling rig	A machine that created holes (usually called boreholes) or shafts in the ground
Easement	A legal term used to describe land over which a third-party has rights to locate infrastructure and undertake certain activities
Ecologically sustainable	Designed or developed to have the capacity to continue operating perpetually, by avoiding adverse effects on ecology
Ecology	The branch of biology that deals with the relations between organisms and their environment
Ecosystem	A community of organisms interacting with one another and with the environment in which they live (i.e., a pond or forest, etc.)
Edge effect	The degree to which adjacent habitats influence each other or interact, Commonly used in conjunction with the boundary between natural habitats, especially forests, and disturbed or developed land. Edge effects are especially pronounced in small habitat fragments where they may extend throughout the patch
Encroachment	The act of advancing beyond proper limits; making gradual inroads
Endangered	Of or relating to a plant, animal or ecosystem the population size of which has declined or is likely to decline to the extent that the wildlife may be threatened by extinction
Endemic	(Of a plant or animal) native to a country or locality, although also found elsewhere

## Section 34 Glossary and Abbreviations

Term	Definition
Environmental authority	The primary statutory document, issued in accordance with the <i>Environmental Protection Act 1994</i> (EP Act) that sets conditions on authorised petroleum activities that will be used by the Department of Environment and Heritage Protection (EHP) to assess and administer regulatory environmental compliance
Environmental impact statement	A structured document that is prepared to identify and assess the environmental impacts of a proposed activity and to outline safeguards to mitigate or control such impacts
Environmental management plan	A document that provides operational detail of how environmental management measures identified in the EIS will be implemented
Environmental offsetting	The replacement of a destroyed habitat or ecosystem with an ecological equivalent
Environmental values	Desirable characteristics, properties or ecosystem with an ecological equivalent
Environmentally relevant Activity	A mining activity or another activity defined under section 19 of the EP Act
Environmentally sensitive area	A location, however large or small, that has environmental values that contribute to maintaining biological diversity and integrity, has intrinsic or attributed scientific, historical or cultural heritage value; or is important in providing amenity, harmony or sense of community
EPBC threshold criteria	The rules or principles used to measure the significance of a plant, animal or ecosystem against the requirements of the EPBC Act
Ephemeral	Of or pertaining to a water body that exists for a limited period following precipitation
Erosion	The wearing away of rock or soil caused by physical or chemical processes
Essential habitat	For species of wildlife listed as endangered, vulnerable, rare, or near threatened under the <i>Nature Conservation Act 1992</i> , and area of vegetation shown on the regional ecosystem map or remnant map as remnant vegetation a) that has at least three essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or b) in which the protected wildlife, at any stage of its life cycle, is located. Essential habitat areas are identified on a map certified by the chief executive of EHP for the purposes of the <i>Vegetation Management Act 1999</i> (Qld)
Ethnohistorical	Relating to the study of ethnographic cultures and indigenous customs by examining historical records
Eutrophication	A process by which pollution from such sources as sewage effluent or leachate from fertilised fields causes a lake, pond or marsh to become over-rich in organic and mineral nutrients, so that algae and cyanobacteria grow rapidly and deplete the oxygen supply
Exploration	The activities conducted across the Project area to identify and define the gas resource
Exploration track	A temporary vehicular traffic route used for exploration or infrequent access from which topsoil has not been removed
Extractive resources	Materials such as sand, gravel, soil, rock and other similar materials that are quarried or extracted from the earth
Faulting	A fracture in the Earth's crust that occurs when shear stress on a rock overcomes the forces which hold it together. The fracture itself is called a fault plane
Fauna	The animals of a given region or period, taken collectively
Feral	Having reverted to the wild state, as from domestication

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Term	Definition
Field compression facility	A remotely operated installation comprising one or more first-stage compression trains and a power source sited between wells and a central gas processing facility in an area where wellhead pressure is insufficient to transport the gas from the field to the processing facility
Financial assurance	A security deposit, either cash or a bank guarantee, held by the administering authority to cover the potential cost of rehabilitating areas significantly disturbed by petroleum activities
Flare	To burn excess gas from a petroleum activity
Flora	The plants of a given region or period, taken collectively
Fluvial geomorphology	The study of river-related landforms and the processes that shape them
Footprint	See area of disturbance
Formation	In geology, a sequence of rock layers that have similar properties
Fossil fuel	A hydrocarbon deposit, such as petroleum, coal or natural gas, derived from living matter of a previous geologic time and used for fuel
Fracking	See hydraulic stimulation
Framework	A tool used by Arrow to inform site selection and manage the potential impacts of development, wherever the infrastructure is ultimately located, comprised of constraints maps and environmental controls
Fugitive emission	An emission of gases or vapours from pressurised equipment due to leaks and various other unintended or irregular releases of gases, mostly from industrial activities
Gathering infrastructure	Small-diameter pipelines through which either CSG or water moves on a petroleum lease from the wellhead to the production facility
Geographical information system	A computer system that can capture, store, analyse, and present in various ways data that located places on the earth's surface
Geomorphology	The branch of geology dealing with the characteristics, origin, and development of land forms.
Gilgai	A patterned or hummocky microrelief formed by the shrinking and swelling of vertosols
Global warming	An increase in the Earth's average surface temperature that causes corresponding changes in climate and may result from the greenhouse effect
Goaf	That part of a mine from which the mineral has been partially or wholly removed; the waste left in old workings
Good quality agricultural land	Agricultural land of high quality, as defined under State Planning Policy 1/92
Greenfield	Of or relating to land that has not previously been developed or polluted
Greenhouse gas protocol	A set of corporate accounting and reporting standards for greenhouse gas emissions developed by the World Business Council
Ground truthing	The process of sending technicians to gather data in the field that either complements or disputes remote sensing data collected by aerial photography, satellite images, or infrared images
Groundwater	Subsurface water, generally saturating the soil or rock in which it occurs
Habitat Fragmentation	The alteration of an organisms habitat resulting in spatial separation of habitat units from a previous state of greater continuity.

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Term	Definition
Hazardous material	A substance that, if improperly treated, stored, disposed of, or otherwise managed, is likely to cause serious or material environmental harm because of (a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity, or flammability; or (b) its physical, chemical or infectious characteristics
Heavy vehicle	Any vehicle with three or more axles or with dual tyres on the rear axle
Herbarium	A collection of dried plants systematically arranged
High bank	The terrace or bank or point on the active floodplain that confines the average annual peak flow
Highway	A high-order road of a high standard, facilitating connectivity between regional centres
Horizon	See soil horizon
Hydraulic conductivity	The rate at which water can move through a permeable medium
Hydraulic stimulation	The propagation of fractures in a rock layer caused by the presence of a pressurised fluid
Hydraulic head	A measure of the pressure of water in an aquifer, commonly measured as the elevation to which groundwater will rise in a constructed well. Differences in these elevations determine the hydraulic gradient and therefore the direction of groundwater flow
Hydrogen sulfide	A toxic gas, potentially contributing to annoyance due to odour
Hydrograph	A graph that shows groundwater or surface water flow as a function of time
Hydrostatic testing	The process in which a pipeline is filled with water and subjected to higher than normal operational pressures to test its physical integrity (also referred to as hydro-testing)
Hydrotest water	Water used for hydrostatic testing
Igneous rock	Rock formed from magma or lava that has cooled and solidified either at the earth's surface (volcanic rock) or deep within the earth's crust (plutonic rock)
Impact	An event that disrupts ecosystem, community, or population structure and alters the physical environment, directly or indirectly
Incident register	A database of environmental incidents, their causes, and remedial actions undertaken
Infiltration	The downward movement of water from the atmosphere into the ground
Integrated processing facility (IPF)	A production facility that receives gas from field compression facilities and production wells, and compresses it to export pipeline pressure
Intensively farmed land	An Arrow term to indicate agricultural areas on sensitive soils (i.e., black soils and similar high-value soils) that are currently intensively farmed (i.e., irrigated, cropped or other intensive agricultural enterprise), where relatively minor changes to the landform can have a disproportionate impact on the productivity of the land. This term is primarily used by Arrow in its consultation and liaison processes
Invertebrate	An animal without a backbone
Kandosol	Non-texture contrast soils (with little or gradual increase in clay content with depth) that have weakly to non-structured subsoils (B horizons)
Kurosol	A soil type in which the B horizon is significantly more clayey in texture than the A horizon, the upper part of the B horizon being strongly acidic
Lacustrine	Of or relating to a lake
Lake	A permanent or ephemeral natural or artificial body of water of considerable size surrounded by land

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Term	Definition
Land degradation	An adverse change in the characteristics of the earth's surface that results in one or more of the following: soil erosion, rising water table, the expression of salinity, mass movement by gravity of soil or rock, stream-bank instability, or a process that results in declining water quality
Landholder	The owner, occupier, manager, or controller of land or water, including anyone acting on their behalf
Landowner	The registered proprietor or person having a registrable interest in land
Lateritic duricrust	A hardener, surface caprock
Licensed waste disposal facility	A facility approved under a development approval and operated by a holder of a registered certificate for environmentally relevant activity 75 under Schedule 1 of the Environmental Protection Regulation 1998
Light vehicle	A car or four wheel drive, motorcycle or car towing a caravan
Liquefied natural gas	A gas consisting primarily of methane, liquefied to facilitate transport and storage
Loam	Loose soil of clay and sand with organic matter, often very fertile
Macroinvertebrate	An animal that has no backbone and is visible without magnification
Macrophyte	An aquatic plant that grows in or near water and is either emergent, submergent or floating
Matters of national environmental significance	Listed under the EPBC Act; MNES are listed threatened species and ecological communities, migratory species protected under international agreements, Ramsar wetlands of international importance, the Commonwealth marine environment, World Heritage properties, National Heritage places, the Great Barrier Reef Marine Park, and nuclear actions
Meteorological	Relating to meteorology or to phenomena of the atmosphere or weather
Micro-relief	Surface features of the earth that generally have variations in elevation of less than 15 m
Migratory species	A species that passes periodically from one region to another
Mitigation	To lessen in force or intensity; to moderate the severity of (anything distressing)
Modelling	The creation of a computerised model of what might happen in the future
Mudstone	A clayey rock of nearly uniform texture throughout, with little or no lamination
Multivariate statistical analysis	Statistical analysis encompassing the simultaneous observation of more than one outcome variables
Municipal	Relating to the internal affairs of a single nation rather than to international affairs
Native title	In Australia, the right to land or water enjoyed by indigenous people who have maintained their connection to said land or water and whose possession under traditional law or customs is recognised by Australian law; established by the <i>Native Title Act 1993</i> , which followed the Mabo decision of 1992
Natural recruitment	The regeneration of a flora or fauna species in a natural manner
Natural resource	A resource that occurs naturally, such as sunlight, wind, soil or water
Nitrogen dioxide	An air pollutant; high concentrations of which can contribute to acid rain, eutrophication of watercourses and formation of photochemical smog
Notifiable activity	An activity that could result in land contamination
Oxidation	The addition of oxygen to a compound
Oxides of nitrogen	Nitric oxide and nitrogen dioxide
Palaeo	Of or pertaining to great age or remoteness in time; ancient conditions
Palustrine	Of, or relating to, or lining in a wetland or swampy area

## Section 34 Glossary and Abbreviations

Term	Definition
Particulate matter	Dust particles that are introduced or resuspended into the air through certain activities, such as soil cultivation or vehicles operating on open fields or dirt roadways
Permanent infrastructure	Any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads, pipelines, etc.) that is to be left in place following project decommissioning by agreement with the landowner
Permeability	The ease with which a fluid can pass through a porous medium, such as an aquifer. It is expressed in metres per day
Pest	An organism considered harmful
Petroleum activity	As defined in the EP Act: a) activities that, under the <i>Petroleum Act 1923</i> , are authorised activities for a petroleum tenure under that act; b) activities that, under the P&G Act, are authorised activities for a petroleum authority under that act; c) exploring for, exploiting or conveying petroleum resources under a licence, permit, pipeline licence, primary licence, secondary licence or special prospecting authority granted under the <i>Petroleum (Submerged Lands) Act 1982</i> ; d) rehabilitating or remediating environmental harm because of activities mentioned in paragraphs (a) to (c); e) actions taken to prevent environmental harm because of activities mentioned in paragraphs (a) to (d); f) activities required under a condition of an environmental authority for activities mentioned in paragraphs (a) to (e); or g) activities required under a condition of an environmental authority mentioned in paragraphs (a) to (e) that has ended or ceases to have effect, if the condition (i) continues to apply after the authority has ended or ceases to have effect, and (ii) has not been complied with
Petroleum authority	A right granted under the <i>Petroleum Act 1923</i> or P&G Act to allow a proponent to explore for or develop the state's petroleum resources; the types of authorities that may be granted under these acts include authority to prospect, petroleum lease, data acquisition authority, water monitoring authority, petroleum facility licence, survey licence, and pipeline licence
Petroleum lease	See petroleum authority
Petroleum pipeline licence	Authorises the construction and operation of a pipeline
Petroleum project	All petroleum activities conducted on one or more petroleum authorities as a single integrated operation; to be a single integrated operation, (a) the activities must be carried out under the day-to-day management of a single responsible person (of example, a site or operations manager), must be operationally interrelated, must be operated in a way that leads to a lower risk of environmental harm being caused by the activities, and must be carried out in two or more places at about the same time; and (b) the places where the activities are carried out must be separated by a distance short enough to make integrated day-to-day management of activities feasible
Petroleum tenure	A right granted under the <i>Petroleum Act 1923</i> or P&G Act to allow a proponent to explore for or develop the state's petroleum resources; the types of authorities that may be granted under these acts include authority to prospect, petroleum lease, data acquisition authority, water monitoring authority, petroleum facility licence, survey licence and pipeline licence
pH	The absolute value of the decimal logarithm of the hydrogen-ion concentration (activity), used as an indicator of acidity (pH less than 7) or alkalinity (pH greater than 7) or neutrality (pH 7)

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Term	Definition
Photochemical	Of, or relating to, or produced by the action of light triggering chemical process
Photochemical smog	Air pollution formed by chemical reactions that take place in the presence of sunlight between NO <sub>x</sub> and VOC and which form ground-level O <sub>3</sub>
Pilot well	A borehole drilled to rapidly assess the gas and water deliverability of the gas reserve being targeted
Plateau	An elevated area of relatively level land, surrounded by steeper slopes or cliffs and larger in extent than a mesa
Pneumatic pressure testing	The process in which a pipeline is filled with compressed inert gas or air and subjected to a higher than normal operational pressures to test its physical integrity
Pollution	The introduction into the environment of an substance or factor by the action of humans that is or results in harmful effects to humans or the environment
Porosity	The state or quality of being porous; determined by the proportion or openings or pores
Precautionary principle	A professed rule of action that states that, if an action or policy has a suspected risk of causing harm to the public or the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking the action
Preferential flow	The movement of groundwater through more permeable zones in the subsurface
Produced water	<i>See associated water</i>
Production facility	A field compression facility, IPF or CGPF
Production well	A well producing CSG
Project area	The area for which Arrow is seeking approval to develop through the EIS assessment process; it comprises an approximate 8000 km <sup>2</sup> area extending from Glenden in the north to Middlemount in the south
Project life	The total duration of the construction, operation and decommissioning phases of the Project used in this assessment
Project	A collaborative enterprise, often involving research or design, carefully planned to achieve a particular aim
Putrescible waste	Refuse or other discarded material that is liable to become putrid or rotten through decay or decomposition
Qualitative	Relating to or concerned with quality or qualities
Quantitative	Of or pertaining to an assessment based on the amount or number of something
Quaternary	Of or designating the time period beginning approximately 2 to 3 million years ago, extending to the present; this time period encompasses the Pleistocene and Holocene epochs
Ramp down	Decreasing gas production when the end user decommissions some or all of its facility.
Ramp up	Increasing gas production (through early stages of drilling) until overall required gas production rate for the end user is reached
Raw water	Untreated water from the environment
Recharge area or zone	A land area in which water reaches the zone of saturation via surface infiltration, e.g., a place where rainwater soaks through the earth to reach an aquifer
Recharge	The process by which water is added to the zone of saturation of an aquifer from the outside, either directly into a formation or indirectly by way of another formation

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Term	Definition
Recovery	A rise of the water level in a bore or an aquifer after the pumping rate has been reduced, the pump has been shut off, or petroleum activities have ceased
Regional connecting road	A high-order road of a high standard, facilitating connectivity between townships
Regional ecosystem	The relationships between major floral species and the environment at the regional scale; regional ecosystems are mostly derived by linking vegetation mapping units based on dominant canopy species (those recognisable at a scale of 1:100,000) to land zones that represent major environmental variables, in particular, geology, rainfall and landform; under the <i>Vegetation Management Act 1999</i> , each regional ecosystem is assigned a conservation status based on an assessment of the pre-clearing and remnant extent of that regional ecosystem
Regulated waste	Refuse or other discarded material listed in Schedule 7 of the Environment Protection (Waste Management) Regulation 1998 (whether treated or immobilised)
Regulatory framework	A system of regulations and the means to enforce them, usually established by a government to regulate a specific activity
Rehabilitation	The process of restoring an aspect of the environment to former condition
Release	To deposit, discharge, emit, or disturb a contaminant; to cause or allow a contaminant to be deposited, discharged, emitted, or disturbed; to fail to prevent a contaminant from being deposited, discharged, emitted, or disturbed; or to fail to prevent the contaminant from escaping
Remediation	The restoration of an environment to an improved condition, in keeping with its original state prior to impact, via the removal of pollutants and contaminants.
Remnant vegetation	Under the <i>Vegetation Management Act 1999</i> , an aggregation of native vegetation in which the predominant canopy of the vegetation covers more than 50% of the equivalent undisturbed canopy, averages more than 70% of the vegetation's undisturbed height, and is composed of species characteristic of the vegetation's undisturbed canopy
Representative	Exemplifying a class; typical
Reserve	The portion of an identified coal resource that can be economically mined at the time of determination
Residual impact	The effect remaining or left over following application of mitigation measures
Reverse osmosis	A water-purifying technique by which fluid moves under pressure through a semipermeable membrane from a high solute concentration to a lesser concentration
Right of way	The linear area within which a pipeline, road or railway is constructed
Rilling	A type of erosion that removes soil by water from very small but well-defined, visible channels
Riparian	Of, or relating to, or situated or dwelling on the bank of a river or other body of water
Riverine	Of or relating to a river
Riverine area	The land confined to the flood-flow channel of a watercourse
Rudosol	A soil type with rudimentary pedologic organisation apart from a minimal A horizon
Runoff	Water flow that occurs when the soil is infiltrated to full capacity and excess water from rain or irrigation flows over the land surface into watercourses or other surface waters, or land depressions
Rural access road	A low-order road predominately facilitating access to local uses
Saline water	Water that is generally considered unsuitable for human consumption or for irrigation because of its high content of dissolved solids

## Section 34 Glossary and Abbreviations

Term	Definition
Salinity	Salinity is the saltiness or dissolved salt content (such as sodium chloride, magnesium and calcium sulfates, and bicarbonates) of a body of water or in soil
Sandstone	A rock formed by the consolidation of sand, the grains being held together by a cement of silica, lime, gypsum or iron salts
Sanitation	The treatment and disposal of waste from the human body and of greywater generated through household activity
Saturated zone	Subsurface zone below the water table where interstices are filled with water under pressure greater than that of the atmosphere
Scope 1 greenhouse gas emission	Direct greenhouse gas emission, from turbines, vehicles or other equipment owned and operated by the company, including conducting a greenhouse gas inventory
Scope 2 greenhouse gas emission	A greenhouse gas emission resulting from the use of electricity or other utilities provided by a third party
Scope 3 greenhouse gas emission	An indirect greenhouse gas emission produced as a result of a company's activities but from sources not owned or operated by that company, e.g., emissions from transport, end use or raw material supply
Sediment mobilisation	The process of dislodgement and movement of sediment by rainfall, runoff and flowing water
Sedimentation	The deposition or accumulation of mineral or organic matter deposited by water, air or ice
Sensitive catalytic reduction	A means of converting nitrogen oxides, with the aid of a catalyst, into nitrogen and water
Sensitive receptor	An area or structure sensitive to a predicted environmental impact (usually from air emissions or noise), such as a dwelling (excluding dwellings owned by Arrow and that will be unoccupied at the time of operations); a library, childcare centre, kindergarten, school, college, university or other educational institution; a hospital, surgery or other medical institution; a protected area or an area identified under a conservation plan as a critical habitat or an area of major interest under the <i>Nature Conservation Act 1992</i> ; a marine park under the <i>Marine Parks Act 2004</i> ; or a park or garden that is open to the public
Siltstone	Consolidated silt; a fine-grained sandstone
Simultaneous	Existing, occurring or operating at the same time
Social impact management plan	A document that details how social impact management recommendations will be implemented
Soda ash	A compound of sodium, Sodium Carbonate ( $\text{NaCO}_3$ ) occurring in an anhydrous form as a white powder
Sodic	Of or relating to soils that have a high level of sodicity
Sodicity	The amount of sodium present
Sodium absorption ratio	A ratio of the sodium (detrimental element) to the combination of calcium and magnesium (beneficial elements) in relation to known effects on soil dispersability
Sodosol	A soil type in which the B horizon is more clayey than the A horizon, and in which the upper part of the B horizon is sodic
Soil horizon	One of the series of distinct soil layers
Soil profile	A vertical section through all the constituent soil horizons.
Spoil	The waste material (such as rock or earth) removed during such activities as mining, excavation and dredging

## Section 34 Glossary and Abbreviations

Term	Definition
Stable	Of or pertaining to the geotechnical steadiness of a rehabilitated landform where unsteadiness related to the excessive settlement and subsidence caused by consolidation or settlement of the waste deposited, as well as sliding or slumping unsteadiness, has ceased
Stakeholder	A person or group affected by or concerned with an issue or enterprise
Standard operating procedure	A written document that describes in detail (and frequently step by step) how a particular activity or process should be accomplished
State wildlife corridor	An area identified as a state wildlife corridor on a map certified by the chief executive of EHP for the purposes of the <i>Vegetation Management Act 1999</i> .
State-controlled road	A road declared to be a controlled road by the Department of Transport and Main Roads, including all AusLink national roads in Queensland
Stationary energy sector	The portion of emissions that arise from fuel consumed for electricity generation and fuel consumed in the manufacturing, construction and commercial sectors, and other sources
Statutory guideline	A written document under a legislative authority that commands or prohibits something or declares policy
Stock route network	The network of facilities established to facilitate the movement of livestock on foot between grazing areas and markets consisting of areas for stock to travel along (often within existing road corridors, adjacent to roadways) and areas for livestock to rest overnight, as well as watering facilities and holidaying yards
Stockpile	A large supply of essential materials, held in reserve for later use
Strata	A single bed of sedimentary rock, generally consisting of one kind of matter representing continuous deposition
Strategic cropping land (SCL)	Strategic cropping land (SCL) is an important, finite resource that is subject to competing land uses from the agriculture, mining and urban development sectors
Stratigraphy	A branch of geology dealing with the classification, nomenclature, correlation and interpretation of stratified rocks
Stream order	A number that designates the relative position of a stream in a drainage basin network, ranked from headwaters to river terminus
Subsoil	The B horizon within the soil profile, which lies immediately below the topsoil, or A horizon; it is not enriched or is less enriched with organic material than the topsoil and may be subject to clay or salt accumulation
Sulfur dioxide	A toxic gas found in the emissions of volcanoes and those burning coal or petroleum; it dissolves in water to form sulfurous acid and, in the presence of oxygen, sulfuric acid
Technical specialists	Persons qualified in a particular area of expertise and engaged to undertake assessments as part of the EIS
Temporal scale	Of, or relating to a time scale
Tenosol	A soil type that is a little more structurally developed than a rudisol
Terms of reference	A written document developed by the regulatory authority (i.e. EHP) that provides the minimum expectations for the scope of an EIS
Terrestrial	<ol style="list-style-type: none"> <li>1. Relating to, consisting of, or representing the Earth</li> <li>2. Of or relating to the land as distinct from the water</li> </ol>
Tertiary	Relating to a geological period or a system of rocks that precedes the Quaternary and constitutes the earlier principal division of the Cainozoic era.
The air pollution model	A three-dimensional prognostic meteorological model developed by CSIRO and used for air pollution modelling

## Section 34 Glossary and Abbreviations

Term	Definition
Thematic category	Information designed to show a particular topic connected with a specific geographic area
Thermal	Heat, generated by the internal motion of charged particles in matter
Threatened	Said of flora and fauna species – having uncertain chance of continued survival owing to habitat disturbance or modification
Tillage	Ploughing, harrowing, or other land cultivation methods for the raising of crops
Tonal (noise)	Sound with a discrete or dominant frequency
Topography	The detailed description and analysis of the features of a defined area, district or locality
Topsoil	The A horizon, or top layer of soil, alluvium, or weathered rock that may form a suitable plant-growth medium; it varies in depth depending on soil-forming factors, including parent material, location and slope, but generally is not greater than about 30 mm in depth from the natural surface
Transmission pipeline	A pipeline that transports gas (particularly from an integrated processing facility or central gas processing facility to an export pipeline or another integrated processing facility)
Transmissivity	The rate at which water of a prevailing density and viscosity is transmitted through a unit width of an aquifer or confining bed under a unit hydraulic gradient
Treated water dam	An impoundment constructed at an IPF to store treated CSG water received from a water treatment facility prior to distribution for beneficial use
Triassic	Of, or relating to, or denoting the earliest period of the Mesozoic era, between the Permian and Jurassic periods
Trigger level	The point at which some form of action is begun, such as exceedence of guidelines
Turbid	(of liquids) opaque or muddy with particles of extraneous matter
Turbulence	A state or condition of confusion, movement, or agitation
Unconfined aquifer	Saturated rock or sediment with no confining layer between the water table and the ground surface where the water table is free to fluctuate
Unmitigated	Without mitigation measures in place
Unsaturated zone	The part of the geological stratum above the water table where interstices and voids contain a combination of air and water
Upset conditions (flaring)	Unexpected circumstances, such as an emergency plant shutdown for equipment maintenance, that requires gas to be flared
Venting (gas)	The direct release of gas from a pipeline or from equipment
Vertosol	A soil type that is clayey and cracks when dry; its alternate shrinking and swelling produces gilgais
Viewshed	An area, frequently bounded by a ridge of land, that defines the extent of a project that is visible within the human field of view from a fixed vantage point
Volatile organic compound	Any organic compound that participates in atmospheric photochemical reactions
Water storage dam	Any of the impoundments used to store CSG water prior to treatment, distribution for beneficial use, or disposal
Water transfer dam	An impoundment constructed at a CGPF to allow the storage of water that is in process between storage and treatment facilities or between facilities and end users

## Section 34 Glossary and Abbreviations

Term	Definition
Water transfer station	A facility located at a production facility and comprising a water transfer dam and pumping station used to manage the water received from pipelines and directly from wells
Water treatment facility	An installation that typically employs filtration and reverse osmosis techniques to purify water with a high solute concentration to a lesser concentration; may also include balancing to ensure that the water is suitable for beneficial end uses
Watercourse	A watercourse is a river, creek or stream in which water flows permanently or intermittently: a) in a natural channel, whether artificially improved or not; or b) in an artificial channel that has changed the course of the watercourse. A watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.
Waterlogging	The saturation of soil by soil water
Watertable	The surface in an unconfined aquifer or confining bed at which the pore water pressure is atmospheric; it can be measured by installing shallow wells extending a few feet into the zone of saturation and then measuring the water level in those wells
Well completion	The activities and methods for preparing a well for the production of gas, including the method by which one or more flow paths for hydrocarbons are established between the coal and the surface
Wellhead	The component at the surface of an oil or gas well that provides the interface for drilling and production equipment
Wellpad	The base upon which a well is constructed
Wild river area	A part of the state of Queensland declared as a wild river area under the Wild Rivers Act 2005. Wild river areas may include high preservation areas, preservation areas, floodplain management areas, and sub-artesian management areas
Wildlife corridor	A habitat linked to other habitats (often remnant patches) to allow natural migration or movement of wildlife
Workover	Re-entry into a completed field well for modification or repair. Restoring well productivity by cleaning out accumulations of sand, silt or other substances that clog production tubing, or other maintenance activities
[B001]	Each mitigation and management measure has been identified consistently throughout the EIS with a unique identifier (e.g. [B001]) to facilitate cross referencing

## Section 34 Glossary and Abbreviations

### 34.2 Abbreviations

Abbreviation	Definition
1P	proven (gas reserves)
2P	proven and probable (gas reserves)
3P	proven, probable and possible (gas reserves)
AADT	annual average daily traffic
ABS	Australian Bureau of Statistics
ACA	Aquatic Conservation Assessment
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i> (Queensland)
AHD	Australian Height Datum
ALC	Agricultural Land Class
ALS	Australian Laboratory Specialists
ALOS	Advanced Land Observation Satellite
ANZECC	Australian and New Zealand Environment Conservation Council
APPEA	Australian Petroleum Production & Exploration Association
AquaBAMM	Aquatic Biodiversity Assessment and Mapping
ARI	average recurrence interval
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
Arrow	Arrow Energy Pty Ltd
AS	Australian Standard
ASC	Australian Soil Classification
ASS	acid sulfate soils
ATP	Authority to Prospect
ATPA	Authority to Prospect Applications
AusRivAS	Australian Rivers Assessment System
BLI Guidelines	British Landscape Institute Guidelines for Landscape and Visual Impact Assessment
BNL	background noise level
BOM	Bureau of Meteorology
BPA	Biodiversity Planning Assessment
BS	British Standard
BTEX	benzene, toluene, ethylbenzene and xylene
Burdekin Basin WRP	Water Resource (Burdekin Basin) Plan 2007
C <sub>2</sub> H <sub>8</sub>	propane
Ca	calcium
CAMBA	China-Australia Migratory Bird Agreement
CBA	cost benefit analysis
CBM	coal bed methane
CCS	carbon capture and storage
CCTV	closed-circuit television

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
CDO	Climate Data Online
CEP	Clean Energy Plan
CGPF	central gas processing facility
CH <sub>4</sub>	methane
CHIMS	Cultural Heritage Information Management System
CHMP	cultural heritage management plan
CHRC	Central highlands Regional Council
Cl	chlorine
Cl <sup>-</sup>	chloride
CMA	cumulative management area
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> -e	carbon dioxide equivalent
CoP	Code of Practice
COP	Conference of Parties
CPM	Carbon Pricing Mechanism
CQRP	Central Queensland Regional Plan
CSG	coal seam gas
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cwlth	Commonwealth
DAFF	Department of Agriculture, Fisheries and Forestry (Commonwealth)
DATSIMA	Department of Aboriginal and Torres Strait Islander and Multicultural Affairs (Queensland)
dB	decibel ratio
dB(A)	decibels – A – weighted
DCCEE	Department of Climate Change and Energy Efficiency (Commonwealth)
DEEDI	Department of Employment, Economic Development and Innovation (Queensland) (obsolete: now Department of State Development, Infrastructure and Planning)
DEM	digital elevation model
DERM	Department of Environment and Resource Management (Queensland) (obsolete: now Department of Environment and Heritage Protection)
DEWHA	Department of Environment, Water, Heritage and the Arts (Commonwealth) (obsolete: now Department of Sustainability, Environment, Water, Population and Communities)
DIDO	drive in/ drive out
DIP	Department of Infrastructure and Planning (Queensland)
DNRM&W	Department of Natural Resources, Mines and Water (Queensland) (obsolete: now Department of Natural Resources and Water)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
EA	environmental authority
EC	electrical conductivity

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
EDR	economic demonstrated resources
EEO Act	<i>The Energy Efficiency Opportunities Act 2006</i> (Queensland)
EFO	environmental flow objectives
EHP	Department of Environment and Heritage Protection (Qld)
EIS	environmental impact statement
EM Plan	environmental management plan
EM SOP	environmental management standard operating procedure
EMS	environmental management system
EP (Waste Management) Regulation	<i>Environmental Protection (Waste Management) Regulation 2000</i> (Queensland)
EP Act	<i>Environmental Protection Act 1994</i> (Queensland)
EP Regulation	Environment Protection Regulation 1998 (Queensland)
EPA	Environmental Protection Agency (Queensland) (obsolete: now Department of Environment and Heritage Protection)
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPM	exploratory permits for minerals
EPP (Air)	<i>Environment Protection (Air) Policy 2008</i> (Queensland)
EPP (Noise)	<i>Environment Protection (Noise) Policy 2008</i> (Queensland)
EPP (Water)	<i>Environmental Protection (Water) Policy 2009</i> (Queensland)
ERA	environmentally relevant activity
ERE	Endangered Regional Ecosystem
ESA	environmentally sensitive area
ESCP	Erosion and Sediment Control Plan
ESD	ecologically sustainable development
ETS	emissions trading scheme
EVNT	A species of wildlife listed as endangered, vulnerable or near threatened under the <i>Nature Conservation Act 1992</i> , and/or under the EPBC Act, as 'extinct in the wild', 'critically endangered', 'endangered' or 'vulnerable'.
FCCM	Fort Cooper Coal Measures
FCF	field compression facility
FEED	front end engineering design
FIFO	fly-in / fly-out
Fitzroy Basin WRP	Fitzroy Basin Water Resource Plan 2011
FR	forest reserve
FTE	full time equivalent
GAB	Great Artesian Basin
GBR	Great Barrier Reef
GBRMP	Great Barrier Reef Marine Park
GDE	groundwater dependent ecosystem

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
GDP	gross domestic product
GES	general ecological significance
GGP	Greenhouse Gas Protocol
GHG	Greenhouse Gas
GIS	Geographical Information System
GM	Goonyella Middle
GMA	Groundwater Management Area
GML	Goonyella Middle Lower
GPR	ground penetrating radar
GPS	global positioning system
GQAL	Good Quality Agricultural Land
GRE	glass-fibre reinforced epoxy
GRP	Gross Regional Product
GSOO	Gas Statement of Opportunities
GSP	Gross State Product
GU	Goonyella Upper
GVA	Gross Value Added
H <sub>2</sub> SO <sub>3</sub>	Sulfurous Acid
H <sub>2</sub> SO <sub>4</sub>	Sulfuric Acid
HCO <sub>3</sub>	bicarbonate
HDPE	high density polyethylene
HERBRECS	Queensland Herbarium's record system
HES	high ecological significance
HIPAP	Hazardous Industry Planning Advisory Papers
HSBN	High Speed Backbone Network
HSE	health, safety and environment
HSEMS	Health, Safety and Environment Management System (Arrow's system)
HV	heavy vehicle
HVR	high value regrowth
IAS	Initial Advice Statement
ICHRaD	Indigenous Cultural Heritage Register and Database
ICHS	Indigenous cultural heritage study
ICOMOS	International Council on Monuments and Sites
IDAS	Integrated Development Assessment System
IECA	International Erosion Control Association
ILUA	indigenous land use agreement
InSAR	interferometric synthetic aperture radar
IPCC	International Panel on Climate Change
IDP	Initial Development Plan
IPF	Integrated Production Facility

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
IRC	Isaac Regional Council
ISO	International Organisation for Standardisation
JAMBA	Japan-Australia Migratory Bird Agreement
JTA	Jan Taylor and Associates Australia Pty Ltd
LCA	landscape character areas
LFN	low frequency noise
LGA	local government area
LIPP	Local industry Participation Plan
LNG	liquefied natural gas
LOS	Level of Service
LP Act	<i>Land Protection (Pest and Stock Route Management) Act 2002 (Queensland)</i>
LUC	land unit codes
LULUCF	Land Use, Land Use Change and Forestry
LVIA	landscape and visual impact assessment
MCM	Moranbah Coal Measures
Mg	magnesium
MGP	Moranbah Gas Project
MIWRP	Mackay, Isaac and Whitsunday Regional Plan
ML	Richter Magnitude
MMI	Modified Mercalli Intensity
MNES	Matters of National Environmental Significance
MR Act	<i>Mineral Resources Act 1989 (Queensland)</i>
MRRT	Mineral Resource Rent Tax
MSDS	material safety data sheet
N <sub>2</sub>	nitrogen
N <sub>2</sub> O	nitrous oxide
Na	sodium
NATA	National Association of Testing Authorities
NC Act	<i>Nature Conservation Act 1992 (Queensland)</i>
NEM	National electricity market
NEPC	National Environment Protection Council
NEPC Act	<i>National Environment Protection Council Act 1994 (Commonwealth)</i>
NEPM	National Environment Protection Measure
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007 (Commonwealth)</i>
NGA	National Greenhouse Accounts
NHMMC	National Health and Medical Research Council
NO	nitrogen monoxide
NO <sub>2</sub>	nitrous oxide
NO <sub>x</sub>	oxides of nitrogen
NPI	National Pollution Inventory

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
NRAS	National Rental Affordability Scheme
NRM	Department of Natural Resources and Mines
NRMRC	Natural Resource Management Ministerial Council
NSP	Network Service Providers
NT Act	<i>Native Title Act 1993</i> (Queensland)
NZS	New Zealand Standard
O <sub>3</sub>	Ozone
OCC	Queensland Office of Climate Change
OH&S	Occupational Health and Safety
OWSR	office of the water supply regulator
P&G Act	<i>Petroleum and Gas (Production and Safety) Act 2004</i> (Queensland)
PetroChina	PetroChina Company Limited
PGA Noise Guideline	Prescribing Noise Conditions for Environmental Authorities for Petroleum and Gas Activities
PHA	Preliminary Hazard Analysis
PIN	Penalty infringement notice
PL	petroleum lease
PLA	petroleum lease application
PM <sub>2.5</sub>	Particulates with aerodynamic diameter less than 2.5 micrometres
PM <sub>10</sub>	Particulates with aerodynamic diameter less than 10 micrometres
PCCP	Nature Conservation (Protected Plants) Conservation Plan 2000
PPE	personal protective equipment
PPL	petroleum pipeline license
PRRT	Petroleum Resource Rent Tax
PSL	petroleum survey license
QFRS	Queensland Fire and Rescue Service
QGEO	Queensland Government Environmental Offset Policy
QGS	Queensland Gas Scheme
Qld	Queensland
QR	Queensland Rail
QRA	qualitative risk assessment
QWC	Queensland Water Commission
QWQG	Queensland Water Quality Guidelines 2009
RCM	Rangal Coal Measures
RE	Regional Ecosystems
RIA	Road Impact Assessment
ROKAMBA	Republic of Korea – Australia Migratory Bird Agreement
ROM	run of mine
ROP	Resource Operations Plan
ROW	right of way

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
RRMC	Rainfall residual mass curve
RUMP	Road Use Management Plan
SAR	sodium absorption ratio
SCADA	Supervisory Control and Data Acquisition
SCL	strategic cropping land
SCL Act	<i>Strategic Cropping Land Act 2011 (Queensland)</i>
SCR	State Controlled Road
SDPWO Act	<i>State Development and Public Works Organisation Act 1971 (Queensland)</i>
SEC	Securities and Exchange Commission
SF	state forest
Shell	Royal Dutch Shell plc
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
SIS	surface-in-seam
SMP	Safety Management Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>4</sub>	sulfate
SP Act	<i>Sustainable Planning Act 2009 (Queensland)</i>
SPP	state planning policy
TAPM	The Air Pollution Model
TAPM-GRS	TAPM Generic Reaction Scheme
TDS	total dissolved solids
TEC	threatened ecological community
TMR	Department of Transport and Main Roads (Queensland)
ToR	Terms of Reference
TR	timber reserve
TSP	total suspended particulates
TWAF	temporary workforce accommodation facility
UDA	urban development area
ULDA	Urban Land Development Authority
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USL	Unallocated State Land
USLE	Universal soil loss equation
UWIR	Underground Water Impact Report
VAC	Visual Absorption Capacity
VET	vocational education and training
VM Act	<i>Vegetation Management Act 1999 (Queensland)</i>
VOC	volatile organic compound
VWP	vibrating wire piezometre

## Section 34 Glossary and Abbreviations

Abbreviation	Definition
Water Act	<i>Water Act 2000</i> (Queensland)
WERD	Water Entitlements Registration Database
WMA	wetland management area
WONS	Weeds of National Significance
WPA	wetland protection areas
WTF	water treatment facility
WTS	water transfer station

## Section 34 Glossary and Abbreviations

### 34.3 Units

Term	Definition
%	per cent
<	less than
>	greater than
°C	degrees Celsius
µg/m <sup>3</sup>	micrograms per cubic metre
µS/cm	microSiemens per centimetre
bcm	billion cubic metres
Cfu	thermotolerant coliforms
cm/s	centimetres per second
CO <sub>2</sub> -e/year	carbon dioxide equivalents per year
GJ	gigajoules
GL	gigalitres
ha	hectare
Hz	hertz
K	kelvin
kg	kilogram
kg/a	kilograms per annum
kg/Sm	kilograms per Siemen metres
km	kilometre
km <sup>2</sup>	square kilometre
km/h	kilometre per hour
kPag	kilopascal gauge
kt	kilotonne
kV	kilovolt
kVA	kilovolt ampere
kW/ML/d	kilowatts per megalitre per day
L/s	litre per second
LA <sub>10</sub>	A weighted typical noise level exceeded 10% of the time, representing the typical upper noise level
LA <sub>10, adj, 1 hour</sub>	A weighted typical noise level exceeded 10% of the time over a period of 1 hour and adjusted for tonality
LA <sub>10, adj, 15 min</sub>	A weighted typical noise level exceeded 10% of the time over a period of 15 minutes and adjusted for tonality
LA <sub>eq</sub>	A weighted equivalent noise level measure in decibels
m	metre
m <sup>2</sup>	square metre
m <sup>3</sup>	cubic metre
m/s	metres per second
mbgl	metres below ground level

## Section 34 Glossary and Abbreviations

Term	Definition
mg	milligram
mg/L	milligrams per litre
MJ/m <sup>2</sup>	megajoules per square metre
ML	megalitre
ML/d	megalitres per day
ML/yr	megalitres per year
mm	millimetre
mm/s	millimetres per second
Mt	million tonnes
mtpa	million tonnes per annum
MW	megawatt = one million (10 <sup>6</sup> ) watts
MW/TJ	megawatts per terajoule
Nm <sup>3</sup> /s	Normalised cubic metres per second
NMHC	Non-methane hydro-carbons
pH	The absolute value of the decimal logarithm of the hydrogen-ion concentration (activity), used as an indicator of acidity (pH less than 7) or alkalinity (pH greater than 7) or neutrality (pH 7)
PJ	petajoule; equivalent to 10 <sup>15</sup> joules of energy
PM <sub>10</sub>	particulates with aerodynamic diameter less than 10 micrometres
PM <sub>2.5</sub>	particulates with aerodynamic diameter less than 2.5 micrometres
ppm	parts per million
t	tonne
t/ha/yr	tonnes per hectare per year
TJ	terajoule (10 <sup>12</sup> joules)
TJ/d	terajoules per day