

## 4. GLOSSARY AND ABBREVIATIONS

The following glossary technical terms, acronyms and abbreviations are defined in the context of their use in this environmental impact statement. Some definitions have been adapted from the relevant supporting studies, the Macquarie Dictionary and online dictionaries and encyclopaedias.

### Numbers

- 1P gas reserves** *abbr.* proven gas reserves.  
**2P gas reserves** *abbr.* proven and probable gas reserves.  
**3P gas reserves** *abbr.* proven, probable and possible gas reserves.

### Symbols

- L<sub>pA,LF</sub>** *abbr.* indoor low frequency. A weighted noise level.  
**µg/m<sup>3</sup>** *abbr.* micrograms per cubic metre.  
**µPa** *abbr.* micropascal. measurement of sound pressure level.

### A

- A weighting** *n.* frequency adjustment representing the response of the human ear.  
**AASS** *abbr.* actual acid sulfate soil.  
**ABS** *abbr.* Australian Bureau of Statistics.  
**access track** *n.* a cleared and graded track to a project site constructed where existing tracks are not available.  
**accretion** *n.* deposition of material (e.g., sand, sediments) as a result of coastal or fluvial process.  
**acid generating potential** *n.* the natural capacity of soils or sediments to generate any acids (often measured as sulfide concentration).  
**acid neutralising capacity** *n.* the natural capacity of sediment or water to buffer against acidification, i.e., to keep pH stable as acid is added (often measured as calcium carbonate concentration).  
**acid sulfate soil** *n.* soil or sediment containing actual or potential acidic soil layers.  
**actual acid sulfate soil** *n.* soils containing highly acidic soil layers from the exposure to air of sulfide rich material.  
**AEP** *abbr.* annual exceedance probability.  
**aggregate** *adj.* a mixture of different mineral substances separable by mechanical means.  
**AHD** *abbr.* Australian height datum.  
**AL** *abbr.* assessment location.  
**ALARP** *abbr.* as low as reasonably practicable.  
**alignment** *n.* the line or lines that describe a linear-infrastructure route; it defines accurately how the linear infrastructure (such as a road, railroad or pipeline) will be located in relation to the features encountered along the route.  
**allotment** *n.* a plot of land let to an individual or organisation.  
**alluvial** *adj.* referring to unconsolidated deposits of sediment (clay, silt, sand, gravel, boulders) deposited by flowing water .  
**alluvium** *n.* unconsolidated deposits of sediment (clay, silt, sand, gravel, boulders) deposited by flowing water.  
**aluminosilicate** *n.* a mineral composed of aluminium, silicon, and oxygen.  
**analyte** *n.* a chemical component that is the subject of chemical analysis.  
**ANC** *abbr.* acid neutralising capacity.  
**ancillary infrastructure** *n.* infrastructure providing necessary support to the primary activities or operation of the project.  
**annual exceedance probability** *n.* the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.  
**anthropogenic** *adj.* associated with human activities, as opposed to those occurring in biophysical environments without human influence.  
**ANZECC** *abbr.* Australian and New Zealand Environment Conservation Council.  
**APIA** *abbr.* Australian Pipeline Industry Association.  
**APLNG** *abbr.* Australia Pacific Liquid Natural Gas Project.  
**AQIS** *abbr.* Australian Quarantine and Inspection Service.  
**aquifer** *n.* 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 it.  
**aquitard** *n.* a low-permeability geological formation

**arboreal** *adj.* living in or among trees.

**archaeological** *adj.* relating to the systematic study of any culture, especially a prehistoric one, by excavation and description of its remains.

**ARI** *abbr.* annual recurrence interval.

**ARMCANZ** *abbr.* Agriculture and Resource Management Council of Australia and New Zealand.

**Arrow** *abbr.* Arrow Energy Holdings Pty Ltd.

**Arrow Energy** *abbr.* Arrow (CSG) Australia Pty Ltd.

**AS** *abbr.* Australian standard.

**ascidian** *n.* a sea squirt.

**ASL** *abbr.* above sea level.

**ASS** *abbr.* acid sulfate soils.

**ATP** *abbr.* authority to prospect.

## B

**background noise level** *n.* the noise level in the absence of intermittent noise sources.

**backhoe dredger** *n.* a hydraulic excavator equipped with a half open shell, which moves along the sea floor collecting sediment.

**baseline** *n.* basic standard or level, usually regarded as a reference point for comparison: baseline data.

**baseload power** *n.* the minimum amount of power that a power supply system is required to deliver.

**bathymetry** *n.* the measurement of depth of water in oceans, seas, or lakes.

**benthic** *adj.* relating to the animals and plants that live on the floor of the sea or lakes.

**benthos** *n.* the animals and plants living on the floor of the sea or lakes.

**bentonite** *n.* a clay formed by the decomposition of volcanic ash, used as a drilling mud in oil exploration.

**berth pocket** *n.* a space for a ship to dock or anchor.

**berths** *n.* room allowed for a vessel to moor at a dock or ride at anchor.

**bioavailable** *adj.* of or relating to a chemical, especially a toxin, which can be absorbed by an organism.

**biocide** *n.* a substance that is capable of killing living organisms.

**biodiversity** *n.* the variety of species of plants, animals and microorganisms, their genes, and the ecosystems they comprise, often considered in relation to a particular area.

**bioregion** *n.* a 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** *n.* security measures against the transmission of disease to the plants or animals of a particular region.

**biota** *n.* the total animal and plant life of a region.

**BOM** *abbr.* Bureau of Meteorology.

**boundary layer** *n.* the lowest part of the atmosphere; its behaviour is directly influenced by its contact with the surface of the earth.

**brine** *n.* water that contains more than 35,000 mg/L of dissolved solids; the waste product of reverse osmosis water treatment.

**bryozoan** *adj.* a phylum of marine and freshwater animals which form colonies of many small polyps. Each has a circular or horseshoe-shaped ridge bearing tentacles.

**BTEX** *abbr.* benzene, toluene, ethyl benzene and xylene.

## C

**CAMBA** *abbr.* China-Australia Migratory Bird Agreement.

**capsize vessel** *n.* a vessel typically greater than 150,000 long tons deadweight.

**capital dredging** *n.* dredging for navigation, to enlarge or deepen existing channel and port areas or to create new ones. Dredging for engineering purposes, to create trenches for pipes, cables, immersed tube tunnels, to remove material unsuitable for foundations and to remove overburden for aggregate extraction, etc.

**CASA** *abbr.* Civil Aviation Safety Authority.

**catchment** *n.* a drainage area, especially of a reservoir or river.

**CBD** *abbr.* central business district.

**cetacean** *n.* an order of aquatic, chiefly marine, mammals, including the whales, dolphins and porpoises.

**CFC** *abbr.* chlorofluorocarbons.

**CH<sub>4</sub>** *abbr.* methane.

**CHMP** *abbr.* cultural heritage management plan.

- chromium reducible sulfur** *n.* an equivalent measure of the sulfuric acid generating capacity of soils.
- climate change** *n.* a significant change in the usual climatic conditions persisting for an extended period, especially those thought to be caused by global warming.
- CLR** *abbr.* Contaminated Land Register
- CO** *abbr.* carbon monoxide.
- CO<sub>2</sub>** *abbr.* carbon dioxide.
- CO<sub>2-e</sub>** *abbr.* carbon dioxide equivalent.
- COAG** *abbr.* Council of Australian Governments.
- coal seam gas** *n.* form of natural gas extracted from coal beds.
- Coffey Environments** *abbr.* Coffey Environments Australia Pty Ltd.
- colluvial** *adj.* of or relating to colluvium.  
Colluvium is loose deposits, usually at the foot of a slope or cliff line and brought by gravity.
- CONCAWE** *abbr.* Conservation of Clean Air and Water in Europe.
- confined aquifers** *n.* 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, for example, if penetrated by a bore.
- constraints mapping** *n.* one of the items comprising the environmental framework (see environmental framework) undertaken to graphically depict areas of environmental sensitivity that could constrain development.
- contaminant** *n.* a substance, either inorganic or organic, present in the sediment at or near levels that could be toxic to some organisms.
- contaminants list** *n.* this is the list of contaminants which could be present at elevated levels in the sediments of the dredge area, and therefore require analysis. The list includes those chemical substances for which sources are known or suspected in the dredge area or its catchment, based on the historical survey. Where good chemical data are available on the sediments, the list includes those toxic substances known, from previous investigations, to occur at levels greater than background concentrations or one tenth of the screening levels when the background data is below detection or, for substances which do not have screening levels, present at elevated levels.
- Coordinator-General** *abbr.* Coordinator-General of the State of Queensland.
- critical plume height** *n.* the height at which the average in-plume vertical velocity is less than 4.3 m/s or 10.6 m/s.
- cryogenic pipelines** *n.* cooled pipelines for loading LNG from storage facilities (tanks) to LNG carriers at a jetty.
- CSG** *abbr.* coal seam gas.
- cultural heritage** *n.* is the legacy of physical artefacts (cultural property) and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. Cultural heritage includes tangible culture (such as buildings, monuments, landscapes, books, works of art, and artefacts), intangible culture (such as folklore, traditions, language, and knowledge), and natural heritage (including culturally-significant landscapes, and biodiversity).
- Cultural Heritage Management Plan** *n.* the *Aboriginal Cultural Heritage Act 2003* (Qld) requires an approved cultural heritage management plan, or an agreement with Aboriginal parties that does not preclude cultural heritage management, for any project that also requires completion of an EIS process. The cultural heritage management plan must address the management of Aboriginal cultural heritage present in the project area.
- cumulative impacts** *n.* the effect experienced by increasing or growing by accumulation or successive additions.
- cutter suction dredger** *n.* a dredger which uses a rotating cutter head to disaggregate the material to be dredged.
- Cwlth** *abbr.* Commonwealth.
- D**
- DAFF** *abbr.* Department of Agriculture, Fisheries and Forestry (Queensland)
- dB(A)** *abbr.* a weighted noise or sound power level in decibels.
- DCCEE** *abbr.* Department of Climate Change and Energy Efficiency (Cwlth).
- DDT** *abbr.* total dichlorodiphenyltrichloroethane (an insecticide).
- declared pest** *n.* a species (plant or animal) declared under the *Land Protection (Pest and Stock Route Management) Act 2002* (Qld). These species are targeted for control under state legislation and are species that have, or may have, a serious impact on Queensland's economy, environment or society. Landholders must control declared species.

**decommissioning phase** *n.* project phase during which decommissioning occurs.

**DEEDI** *abbr.* Department of Employment, Economic Development and Innovation (Queensland).

**degree of saturation** *n.* the ratio of arrival (demand) flow rate to capacity during a given flow period.

**DEHP** *abbr.* Department of Environment and Heritage Protection (Queensland).

**demarcate** *v.* to mark off the boundaries of.

**DERM** *abbr.* Department of Environment and Resource Management.

**desalination** *n.* The process of removing the dissolved salts from sea water so that it becomes suitable for drinking water or for agricultural irrigation.

**desktop study** *n.* an examination and analysis of a particular subject using secondary sources.

**DETE** *abbr.* Department of Education, Training and Employment.

**dewatering** *n.* the act of draining water for the purposes of construction.

**DEWHA** *abbr.* Department of Environment, Water, Heritage and the Arts (functions now performed by DSEWPaC) (Commonwealth).

**diadromous** *n.* organisms that migrate between fresh and marine water.

**diagenesis** *n.* the process of change undergone by a sediment during and after its initial deposition while still at low temperature and pressure.

**DIDO** *abbr.* drive-in, drive-out.

**diffuse recharge** *n.* groundwater recharge that occurs from precipitation distributed over large areas and subsequent infiltration through the soil.

**disposal areas** *n.* areas used to dispose of dredged material.

**diversion channel** *n.* a constructed waterway used to divert drainage lines and watercourses around infrastructure areas.

**DNRM** *abbr.* Department of Natural Resources and Mines (Queensland).

**DOS** *abbr.* degree of saturation.

**dredge spoil** *n.* dredged material.

**dredging** *adj.* to clear out with a dredge; remove sand, silt, mud, from the bottom of a river, port or harbour.

**DSDIP** *abbr.* Department of State Development, Infrastructure and Planning (Queensland)

**DSEWPaC** *abbr.* Department of Sustainability, Environment, Water, Population and Communities (Commonwealth).

**DTMR** *abbr.* Department of Transport and Main Roads (Queensland).

## E

**easement** *n.* a legal term used to describe land over which a third party has rights to locate infrastructure and undertake certain activities

**ecological** *n.* relating to the branch of biology that deals with the relations between organisms and their environment.

**ecologically sustainable development** *n.* using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

**ecosystem** *n.* a community of organisms interacting with one another and with the environment in which they live, as in a pond, a forest, etc.

**Eh** *n.* measurement of redox potential.

**EIA** *abbr.* environmental impact assessment.

**EIS** *abbr.* environmental impact statement.

**embayment** *n.* an indentation in a shoreline forming an open bay.

**EMP** *abbr.* environmental management plan.

**EMR** *abbr.* environmental management register.

**EMS** *abbr.* environmental management system.

**endemic** *adj.* (of a plant or animal) native to a country or a locality, though also found elsewhere.

**environmental authority** *n.* the environmental authority issued in accordance with the *Environmental Protection Act 1994* (Qld) (EP Act). It is the primary statutory document that sets conditions on authorised petroleum activities that will be used by the Department of Environment and Heritage Protection (DEHP) to assess and administer regulatory environmental compliance of the project.

**environmental impact statement** *n.* a document that describes potential positive and adverse environmental impacts of a proposed development. It proposes mitigation measures to avoid, minimise, manage and offset potential adverse impacts.

**environmental management plan** *n.* provides operational detail of how environmental management measures identified in the EIS will be implemented.

**environmental offsetting** *n.* the replacement of a destroyed habitat or ecosystem with an ecological equivalent.

**environmental values** *n.* the *Environmental Protection Act 1994* (Qld) states that an environmental value is: a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

**environmentally relevant activity** *n.* defined by the EP Act, are usually industrial activities with the potential to release contaminants to the environment, for example chemical processing, waste treatment, spray painting. ERAs (excluding mining and petroleum activities) are required to have a development approval. Petroleum related ERAs form part of environmental authorities that are used by the Department of Environment and Heritage Protection to assess the environmental compliance of a given project.

**environmentally sensitive area** *n.* 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.

**EP Act** *abbr.* *Environmental Protection Act 1994* (Qld).

**EPBC Act** *abbr.* *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).

**EPC** *abbr.* engineering, procurement and construction.

**ephemeral** *n.* a water body that exists for a limited period following precipitation.

**EPP** *abbr.* Environmental Protection Policy.

**ERA** *abbr.* environmentally relevant activity.

**ESA** *abbr.* environmentally sensitive area.

**ESD** *abbr.* ecologically sustainable development.

**essential habitat** *n.* for species of wildlife listed as endangered, vulnerable, rare, or near threatened under the *Nature Conservation Act 1992* (Qld), an 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 DNRM for the purposes of the *Vegetation Management Act 1999* (Qld).

**EVNT** *abbr.* endangered, vulnerable and near-threatened.

**endangered, vulnerable and near-threatened** *adj.* flora and fauna as listed under the *Nature Conservation Act*.

**EVR** *abbr.* endangered, vulnerable and rare.

**endangered, vulnerable and rare** *adj.* flora and fauna as listed under the *Environmental Protection and Biodiversity Conservation Act*.

**exotic** *n.* an introduced species.

## F

**fauna** *n.* the animals of a given region or period, taken collectively.

**FEED** *abbr.* front end engineering and design.

**feed gas pipeline** *n.* a high pressure gas pipeline used to deliver gas to the LNG plant.

**feral** *adj.* having reverted to the wild state, as from domestication.

**FHA** *abbr.* fish habitat areas.

**FID** *abbr.* final investment decision.

**FIFO** *abbr.* fly-in, fly-out.

**flora** *n.* the plants of a given region or period, taken collectively.

**fly ash** *n.* fine particle residue generated during the combustion of coal, such as in a coal-fired power station..

**fossil fuel** *n.* a hydrocarbon-based energy source derived from the remains of living organisms (or their products) and formed deep within the earth, such as coal, petroleum, or natural gas.

**fragmentation** *n.* the emergence of discontinuities (fragmentation) in an organism's preferred environment (habitat).

**FRP** *abbr.* filtered reactive phosphorus.

**fugitive emission** *n.* 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.

## G

**g/L** *abbr.* grams per litre.

**GAHC** *abbr.* Gladstone Affordable Housing Company.

**GAMS** *abbr.* Gladstone Airshed Modelling System .

**Gas reserve** *n.* quantity of gas in a natural gas field.

**GAWB** *abbr.* Gladstone Area Water Board.

**GBRMP** *abbr.* Great Barrier Reef Marine Park.

**GBRMPA** *abbr.* Great Barrier Reef Marine Park Authority.

**GBRWHA** *abbr.* Great Barrier Reef World Heritage Area.

**geomorphology** *n.* the branch of geology dealing with the characteristics, origin, and development of landforms.

**gigajoule** *n.* a metric unit of energy equal to 10<sup>9</sup> joules.

**GIS** *abbr.* geographic information system.

**GJ** *abbr.* gigajoule

**GLNG** *abbr.* Gladstone Liquid Natural Gas Project.

**GPC** *abbr.* Gladstone Ports Corporation.

**GPS** *abbr.* global positioning system.

**GRC** *abbr.* Gladstone Regional Council.

**greenhouse gas** *n.* one of a number of gases found in the atmosphere that contribute to the greenhouse effect.

**groundcover** *n.* low spreading plants which cover the earth and retard the growth of weeds.

**groundtruthing** *adj.* 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.

**GSDA** *abbr.* Gladstone State Development Area.

**GSON** *abbr.* Gladstone Senior Officers Network.

## H

**H<sub>2</sub>S** *abbr.* hydrogen sulfide.

**ha** *abbr.* hectare.

**HAT** *abbr.* highest astronomical tide.

**HDD** *abbr.* horizontal directional drilling.

**hertz** *n.* the derived SI unit of frequency, defined as the frequency of a periodic phenomenon of which the periodic time is one second

**highway** *n.* high-order road of a high standard, facilitating connectivity between regional centres.

**hopper barges** *n.* vessels used for transportation of dredged material to disposal sites.

**HSE** *abbr.* health, safety and environment.

**HSEMS** *abbr.* health, safety and environmental management system.

**HSSE** *abbr.* health, safety, security and environment.

**hydrogeology** *n* the study of underground water or groundwater.

**hydrology** *n.* the science dealing with water on the land, or under the earth's surface, its properties, laws, geographical distribution, etc.

**hydrodynamics** *n.* the science of the mechanics of fluids, generally liquids, including hydrostatics and hydrokinetics.

**hydrography** *n.* the science of the measurement, description and mapping of surface waters

**Hz** *abbr.* hertz.

## I

**IAS** *abbr.* initial advice statement.

**impact** *n.* an event that disrupts ecosystem, community, or population structure and alters the physical environment, directly or indirectly.

**in-situ** *adj.* in the original or natural place or site.

**Indigenous cultural heritage** *n.* Indigenous heritage value of a place means a heritage value of the place that is of significance to Indigenous persons in accordance with their practices, observances, customs, traditions, beliefs or history.

**Indigenous Land Use Agreement** *n.* an Indigenous land use agreement (ILUA), registered in accordance with the *Native Title Act 1993* (Cwlth) that addresses cultural heritage management and satisfies the requirement of a CHMP. When a CHMP is approved (or an ILUA registered), compliance with the CHMP (or ILUA) ensures compliance with the Aboriginal cultural heritage duty of care as specified in the Aboriginal Cultural Heritage Act.

**initial advice statement** *n.* prepared to provide preliminary information about the physical, ecological and socio-economic environment in relation to a project.

**inter-tidal zones** *n.* the area of seashore above water during low tide and under water during high tide.

**invertebrate** *n.* of or relating to animals without backbones.

**ISO** *abbr.* International Standards Organisation.

**isophote** *n.* a curve on a chart joining points of equal light intensity from a given source.

**IUCN** *abbr.* International Union for Conservation of Nature.

**IUCN Red List of Threatened Species** *n.* a listing of biological species ranking their conservation status, developed by the IUCN.

## J

**JAMBA** *abbr.* Japan-Australia Migratory Bird Agreement.

## K

**kg** *abbr.* kilogram.

**kg/m<sup>3</sup>** *abbr.* kilograms per cubic metre.

**kg/s** *abbr.* kilograms per second.

**king tide** *n.* a high tide above average height.

**km** *abbr.* kilometre.

**km/h** *abbr.* kilometres per hour.

**km<sup>2</sup>** *abbr.* square kilometre.

**kPa** *abbr.* kilo pascal.

**kt** *abbr.* kilotons.

**kV** *abbr.* kilovolt.

## L

**L/s** *abbr.* litres per second.

**LAT** *abbr.* lowest astronomical tide.

**LCT** *abbr.* landing craft type vessels.

**LCT** *abbr.* landscape character type.

**LED** *abbr.* light emitting diode.

**level of service** *n.* an index of the operational performance of traffic on a given traffic lane, carriageway, road or intersection, based on service measures such as delay, degree of saturation, density and speed during a given flow period.

**licensed waste disposal facility** *n.* 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 (Qld).

**littoral zone** *n.* the region of the shore of a lake, sea or ocean.

**liquefaction** *n.* a process which results in something with characteristics of a liquid, as in soil liquefaction.

**LNG** *abbr.* liquefied natural gas.

**LNG train** *n.* one continuous processing unit containing the liquefaction and purification facilities required to condense natural gas from a gaseous state to a liquid state.

**LOLO** *abbr.* lift-on, lift-off.

**LPG** *abbr.* liquefied petroleum gas.

**LVIA** *abbr.* landscape and visual impact assessment.

## M

**m** *abbr.* metre.

**m/yr** *abbr.* metres per year.

**m<sup>3</sup>** *abbr.* cubic metres.

**m/d** *abbr.* metres per day.

**m<sup>3</sup>/hr** *abbr.* cubic metres per hour.

**mm/d** *abbr.* millimetres per day.

**m/s** *abbr.* metres per second.

**m<sup>3</sup>/s** *abbr.* cubic metres per second.

**mS/cm** *abbr.* milli siemens per centimetre.

**macrobenthic infauna** *n.* defined as benthic fauna greater in size than 1 mm.

**macroinvertebrate** *n.* animals that have no backbone and are visible without magnification.

**macrophyte** *n.* an aquatic plant that grows in or near water and is either emergent, submergent, or floating.

**magnitude** *n.* size; extent.

**maintenance dredging** *adj.* dredging to ensure that channels, berths or other port areas are maintained at their designed dimensions.

**MARPOL** *abbr.* International Convention of Prevention Pollution from Ships.

**material change of use** *n.* the start of a new use of the premises, the re-establishment on the premises of a use that has been abandoned, or a material change in the intensity or scale of the use of the premises.

## Matters of National Environmental

**Significance** *n.* designation given under the EPBC Act to nationally significant environmental assets including world heritage properties, national heritage places, RAMSAR wetlands, listed threatened species and ecological communities, listed migratory species, activities related to nuclear energy and the Commonwealth marine environment including the Great Barrier Reef Marine Park.

**mbgl** *abbr.* metres below ground level.

**metamorphic** *adj.* relating to or exhibiting structural change, or metamorphism.

**mg/L** *abbr.* milligrams per litre.

**migratory species** *n.* species that pass periodically from one region to another.

**mitigation** *n.* to lessen in force or intensity; to moderate the severity of (anything distressing).

**ML** *abbr.* megalitre.

**ML** *abbr.* measurement location.

**ML/yr** *abbr.* megalitres per year.

**mm** *abbr.* millimetre.

**MNES** *abbr.* matters of national environmental significance.

**MPa** *abbr.* mega pascal.

**MOF** *abbr.* materials offloading facility.

**motile** *adj.* able to move spontaneously and actively.

**MSL** *abbr.* mean sea level.

**MSQ** *abbr.* Maritime Safety Queensland.

**Mt** *abbr.* megatons.

**Mtpa** *abbr.* million tonnes per annum.

**MVA** *abbr.* mega volt-ampere.

**MW** *abbr.* megawatt.

## N

**N<sub>2</sub>** *abbr.* nitrogen.

**N<sub>2</sub>O** *abbr.* nitrous oxide.

**NAGD** *abbr.* National Assessment Guidelines for Dredging.

**NATA** *abbr.* National Association of Testing Authorities.

**native title** *n.* 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 their traditional law or customs is recognised by Australian law; established by the *Native Title Act 1993* (Cwlth), which followed the Mabo decision of the High Court of Australia in 1992.

**NC Act** *abbr.* *Nature Conservation Act 1992* (Qld).

**neap tide** *n.* tide of minimum amplitude occurring at the time of first and last quarter of the moon, when the difference between high and low water is less than at any other part of the month.

**nekton** *n.* the aggregate of actively swimming organisms at the surface of the sea.

**nemerteans** *n.* a group of unsegmented marine worms.

**NGA** *abbr.* The National Greenhouse Account Factors.

**NGER Act** *abbr.* *National Greenhouse and Energy Reporting Act 2007* (Cwlth).

**NO<sub>2</sub>** *abbr.* nitrogen dioxide.

**NO<sub>x</sub>** *abbr.* nitrogen oxide.

**NO<sub>3</sub>** *abbr.* nitrate.

**nocturnal** *adj.* active by night.

**non-Indigenous cultural heritage** *n.* refers to cultural heritage sites and archaeological places that were established post European contact by persons of non-Indigenous lineage.

**northern infrastructure corridor** *n.* linear infrastructure corridor within the GSDA on the mainland to house materials transportation and service corridors for other LNG proponents on Curtis Island.

**nephelometric turbidity units** *n.* a measurement of turbidity.

**NSW** *abbr.* New South Wales.

**NTU** *abbr.* nephelometric turbidity units.

**NZS** *abbr.* New Zealand Standard.

## O

**O<sub>3</sub>** *abbr.* ozone.

**OC** *abbr.* organochloride.

**OCP** *abbr.* organochlorine pesticides.

**OESR** *abbr.* Office of Economic and Statistical Research.

**OP** *abbr.* organophosphate.

**OPP** *abbr.* organophosphate pesticides.

**overdredging** *n.* the amount of material that is excavated during operations that is over and above the contracted cubic yards.

## P

**P&G Act** *n.* *Petroleum and Gas (Production and Safety) Act 2004* (Qld).

**pa** *abbr.* per annum.

**PAH** *abbr.* polycyclic aromatic hydrocarbons.

**PANS-OPS** *abbr.* procedures for air navigation services - aircraft operational surfaces.

**PASS** *abbr.* potential acid sulfate soil.

**pathogen** *n.* a disease producing organism.

**PCB** *abbr.* polychlorinated biphenyl.

**PCIMP** *abbr.* Port Curtis Integrated Monitoring Program.



- pelagic** *adj.* living at or near the surface of the ocean, far from land, as certain animals or plants.
- perennial** *adj.* lasting for an indefinitely long time; enduring.
- permeability** *n.* the ease with which a fluid can pass through a porous medium, such as an aquifer; it is expressed in metres per day (m/d).
- pest** *n.* an organism considered harmful.
- petroleum activity** *n.* as defined in the Environmental Protection Act 1994 (Qld)
- petroleum authority** *n.* a right granted under the *Petroleum Act 1923* (Qld) or *Petroleum and Gas (Production and Safety) Act 2004* (Qld) 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 license, and pipeline licence.
- petroleum facility licence** *n.* allows for the construction and operation of the LNG plant, as well as for 'incidental activities' which include but are not limited to the construction of plant works such as trenches, roads and tunnels.
- petroleum pipeline licence** *n.* authorises the construction and operation of a pipeline.
- petroleum survey licence** *n.* provides for access to land to investigate, survey and identify a pipeline route associated with a petroleum pipeline licence or the likely site of a petroleum facility associated with a petroleum facility licence.
- petroleum tenure** *n.* a right granted under the *Petroleum Act 1923* (Qld) or *Petroleum and Gas (Production and Safety) Act 2004* (Qld) to allow a proponent to explore for or develop the state's petroleum resources.
- PFL** *abbr.* petroleum facility license.
- pH** *n.* 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).
- PHA** *abbr.* preliminary hazard and risk assessment.
- pH<sub>F</sub>** *n.* field pH.
- pH<sub>FOX</sub>** *n.* field peroxide pH.
- phreatophyte** *n.* a plant with a long root, adapted for survival in desert or arid environments, so that it can source water at deep levels underground.
- piezometer** *n.* a monitoring borehole used to measure groundwater movement and access groundwater for sampling.
- pinniped** *n.* any of an order or suborder of aquatic carnivorous mammals (as a seal or walrus) with all four limbs modified into flippers.
- pipe bundle** *n.* an assembly of parallel pipes.
- PJ** *abbr.* petajoule.
- PJ/a** *abbr.* petajoules per annum.
- PL** *abbr.* petroleum lease.
- PLA** *abbr.* petroleum lease application.
- PM** *abbr.* particulate matter.
- pollution** *n.* the introduction into the environment of any substance or factor by the action of humans that is or results in harmful effects to humans or the environment.
- polychaete worms** *n.* a division of annelids having unsegmented swimming appendages, includes most of the common marine worms.
- potential acid sulfate soil** *n.* soils which contain sulfidic material which have not been exposed to air, and have the potential to become highly acidic when oxidised.
- potentially contaminated sediment** *n.* sediment that is contiguous with an area of known sediment contamination, or sediment exposed to known contamination sources.
- ppb** *abbr.* parts per billion.
- PPL** *abbr.* petroleum pipeline licence.
- ppm** *abbr.* parts per million.
- ppt** *abbr.* parts per thousand.
- PQL** *abbr.* practical quantitation limit.
- practical quantification limit** *n.* the lowest chemical analysis level that can be reliably achieved within specified limits of precision and accuracy during routine operation conditions.
- precautionary principle** *n.* 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.
- project area** *n.* the area of potential disturbance by project activities within the study area.
- PRST** *abbr.* plume rise screening tool.
- PSI** *abbr.* preliminary site investigation.

## Q

- QASSIT** *abbr.* Queensland Acid Sulfate Soils Investigation Team.
- QCLNG** *abbr.* Queensland Curtis Liquid Natural Gas Project.
- QFRS** *abbr.* Queensland Fire and Rescue Service.
- QH** *abbr.* Queensland Health.
- Qld** *abbr.* Queensland.
- QPS** *abbr.* Queensland Police Service.
- Quaternary** *adj.* relating to the most recent geological period or succession of strata.
- QWQG** *abbr.* Queensland Water Quality Guidelines.

## R

- RA** *abbr.* restricted area.
- Ramsar wetlands** *n.* the convention on Wetlands of International Importance. Intergovernmental treaty that provides for the conservation and sustainable use of wetlands around the world.
- RBL** *abbr.* rating background level.
- RE** *abbr.* regional ecosystem.
- reach** *n.* a portion of a river between bends.
- REDD** *abbr.* regional ecosystem description database.
- refugia** *n.* an area where an organism can survive during a period of unfavourable conditions.
- regional ecosystem** *n.* 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 *Vegetation Management Act 1999* (Qld), each regional ecosystem is assigned a conservation status based on an assessment of the preclearing and remnant extent of that regional ecosystem.
- regulatory framework** *n.* administrative procedure according to regulation.
- rehabilitation** *n.* the process of restoring an aspect of the environment to former condition.
- relief** *n.* the departure of the land surface in any area from that of a level surface.

**remnant vegetation** *n.* under the *Vegetation Management Act 1999* (Qld), 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 predominant canopy.

**remote sensing** *n.* the identification of data, usually about features of the earth or other bodies in space, from a satellite, aeroplane, etc.

**REMP** *abbr.* receiving environment monitoring plan.

**renewable** *n.* a contraction of renewable resource. A natural resource which is not finite but can be renewed, such as the sun, wind or biomass.

**residual impact** *n.* impact remaining; left over (following application of mitigation measures).

**RGCT** *abbr.* RG Tanna Coal Terminal.

**right of way** *n.* the area required to construct a pipeline, road or railway.

**riparian** *adj.* of, relating to, or situated or dwelling on the bank of a river or other body of water.

**riprap** *n.* broken stone deposited loose in revetments, embankments, breakwaters, etc., to prevent erosion of the soft soil.

**riverine** *adj.* of or relating to a river.

**ROKAMBA** *abbr.* Republic of Korea-Australia Migratory Bird Agreement.

**RoPax** *abbr.* roll-on roll-off passenger ferry.

**RORO** *abbr.* roll-on, roll-off.

**ROW** *abbr.* right of way.

**runoff** *n.* the water from rain or irrigation that flows over the land surface and is not absorbed into the ground, instead flowing into watercourses or other surface waters or land depressions.

## S

**salt marsh** *n.* a marshy community of plants and low shrubs that can tolerate high soil salinity and the occasional inundation of salt water; often located at the upper levels of the intertidal zone.

**salt pan** *n.* a flat expanse of land covered by natural deposits of salt on its surface, left by evaporation.

**SCADA** *abbr.* supervisory control and data acquisition systems.

- scarred trees** *n.* trees which have had bark removed by Indigenous Australians for the creation of canoes, shelters, shields and containers.
- scope 1 greenhouse gas emission** *n.* a direct greenhouse gas emission, from turbines, vehicles or other equipment owned and operated by the company conducting a greenhouse gas inventory.
- scope 2 greenhouse gas emission** *n.* a greenhouse gas emission resulting from the use of electricity or other utilities provided by a third party.
- scope 3 greenhouse gas emission** *n.* 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.
- sclerophyllous** *adj.* relating to vegetation often with small tough leaves.
- S<sub>CR</sub>** *abbr.* chromium reducible sulfur.
- screening level** *n.* level of a substance in the sediment below which toxic effects on organisms are not expected.
- SDPWO Act** *abbr.* *State Development and Public Works Organization Act 1971* (Qld).
- sedimentary** *adj.* formed by deposition of sediment, as rock.
- sedimentary sequence** *n.* a grouping of sedimentary units.
- sedimentation** *n.* the deposition or accumulation of sediment.
- semi-confined aquifer** *n.* an aquifer confined by a low-permeability layer that permits water to slowly flow through it. Also known as a leaky artesian or leaky confined aquifer.
- sensitive receptor** *n.* sensitive place or sensitive receptor *n.* 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 Energy 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 *Nature Conservation Act 1992* (Qld); a marine park under the *Marine Parks Act 2004* (Qld); or a park or garden that is open to the public.
- sensitivity** *n.* the ability of an organism or part of an organism to react to stimuli; irritability. Degree of susceptibility to stimulation.
- SIA** *abbr.* social impact assessment.
- significance** *n.* the quality of being significant or having a meaning.
- SIMP** *abbr.* social impact management plan.
- sinuosity** *n.* a curve, bend, or turn.
- SMS** *abbr.* Safety Management Study.
- SO<sub>2</sub>** *abbr.* sulfur dioxide.
- soak time** *n.* time gill net spent in water.
- social impact management plan** *n.* a plan which details how social impact management recommendations will be implemented.
- sodic** *adj.* of or relating to soils which have a high level of sodium.
- sound power level** *n.* a measure of the sound energy emitted from a source of noise.
- SP Act** *abbr.* *Sustainable Planning Act 2009* (Qld).
- SPP** *abbr.* State Planning Policy.
- SREIS** *abbr.* supplementary report to the environmental impact statement.
- stakeholder** *n.* individuals or representatives of a group who have an interest in the proposed project.
- standard operating procedure** *n.* a written document that describes in detail (and frequently step by step) how a particular activity or process should be accomplished.
- stockpile** *n.* a large supply of essential materials, held in reserve for later use.
- storm surge** *n.* a rush of water onshore associated with a low pressure system and caused by strong winds pushing on the ocean's surface.
- storm tide** *n.* the combined effect of normal tides and storm surges acting together to increase water levels.
- stratification (water)** *n.* barriers that don't allow mixing.
- study area** *n.* the area that was studied in relation to the project area.
- subtidal** *n.* the zone of the shoreline that is submerged most of the time, and is exposed only briefly during extreme low tides.
- superlative** *adj.* of the highest kind or order; surpassing all others; supreme; extreme.
- supralittoral** *adj.* of or relating to the area of the shoreline that is above the high-tide mark.
- sustainable yield** *n.* the rate of water extraction from a groundwater system that, if exceeded, could reduce the water table.

## T

**t** *abbr.* ton.

**TAA** *abbr.* titratable actual acidity.

**TBT** *abbr.* tributyltin.

**TAFE** *abbr.* training and further education college.

**TBM** *abbr.* tunnel boring machine.

**TDS** *abbr.* total dissolved solids.

**terms of reference** *n.* a written document developed by the regulatory authority that provides the minimum expectations for the scope of an EIS.

**terrestrial** *adj.* 1. relating to, consisting of, or representing the earth. 2. of or relating to the land as distinct from the water.

**threatened** *adj.* species term used where habitat or a species is being pressured by habitat disturbance or modification, recreational or commercial pressures, etc.

**tidal flow** *n.* water currents caused by tides.

**tidal prism** *n.* the volume of water in an estuary between mean high tide and mean low tide i.e., the volume of water leaving and estuary during ebb tide.

**titratable actual acidity** *n.* the existing acidity of the soils.

**TKN** *abbr.* total Kjeldahl nitrogen.

**topography** *n.* the relief features or surface configuration of an area.

**TOR** *abbr.* terms of reference.

**total actual acidity** *n.* this is a measure of the soil's existing acidity prior to oxidation of sulfidic material.

**total potential acidity** *n.* calculation of lime required to counteract acidity due to past oxidation and acidity likely to be generated.

**toxicant** *n.* poisonous substance.

**tpa** *abbr.* tonnes per annum.

**TPA** *abbr.* total potential acidity.

**TPH** *abbr.* total petroleum hydrocarbons.

**trailing suction hopper dredge** *n.* a machine used for dredging wherein suction pipes are lowered on both sides of a ship to the seabed. Dredge material is then transferred up by the suction head into a hold or hopper. The excess water is drained via overflow pipes.

**transpiration** *n.* the process of absorption, movement and loss of water through plants.

**trigger level** *n.* the point at which some form of action is begun, such as exceedence of guidelines

**TSS** *abbr.* total suspended solids.

**TUFLOW-FV** *n.* a flexible mesh finite volume numerical model that simulates hydrodynamic, sediment transport and water quality processes in oceans, coastal waters, estuaries and rivers.

**turbid plume** *n.* sediment laden flow of water through a main body of water which has a higher density and turbidity than the liquid through which it flows.

**turbidity** *n.* (of liquids) opaque or muddy with particles of extraneous matter.

**TWAF** *abbr.* temporary workers accommodation facility.

## U

**µg/L** *abbr.* micrograms per litre.

**ULDA** *abbr.* Urban Land Development Authority.

**unconfined aquifer** *n.* an aquifer with no confining layer between the watertable and the ground surface where the watertable is free to fluctuate.

**uncontaminated** *n.* spoil is defined as being uncontaminated for the purposes of sea disposal if it comes from a pristine environment, or if, after assessment, it contains no contaminants of concern.

**UNESCO** *abbr.* United Nations Educational, Scientific and Cultural Organisation.

**UV** *abbr.* ultraviolet.

## V

**vibracore** *n.* a coring technique which involves pushing a vibrating pipe into sediment and removing it with a core sample intact inside the pipe.

**VMA** *abbr.* *Vegetation Management Act 1999* (Qld).

**VOC** *abbr.* volatile organic compound.

## W

**Wandilla formation** *n.* a geological unit within the Gladstone and Curtis Island region forming a broad northwest trending belt approximately 10 km wide. The unit comprises mudstone, lithic sandstone, siltstone, jasper, chert, slate and local schist.

**WBDD Project** *abbr.* Western Basin Dredging and Disposal Project.

**WHA** *abbr.* World Heritage Area.

**WHO** *abbr.* World Health Organisation.

**WICET** *abbr.* Wiggins Island Coal Export Terminal.

**wildlife corridor** *n.* habitats linked to allow natural migration or movement of wildlife.

## **Z**

**zeolite** *n.* any of a group of hydrated silicates of aluminium with alkali metals, commonly occurring as secondary minerals in cavities in igneous rocks.

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