

# 1. Abbreviations and Glossary of Terms

## 1.1 Abbreviations

Abbreviation	Meaning
\$2008 / 09	Monetary values given in 2008 / 09 Australian dollars
°C	degrees Celsius
µg	microgram
µg/m <sup>3</sup>	micrograms per cubic metre
µm	micrometre
µS/cm	microsiemens per centimetre
AADT	Average Annual Daily Traffic
AASS	Actual Acid Sulfate Soil
ABARE	Australia Bureau of Agricultural and Resource Economics
Abbot Point X110	the Abbot Point Coal Terminal Expansion X110 project
ABS	Australian Bureau of Statistics
ACH Act	Aboriginal Cultural Heritage Act 2003
ACARP	Australian Coal Association Research Program
ACTFR	Australian Centre for Tropical Freshwater Research
AEMSC	Australian Explosives Manufacturer Safety Committee - Code of Practice
AGO	Australian Greenhouse Office
AGSO	Australian Geological Survey Organisation
AHD	Australian Height Datum
APHI	Australian Heritage Place Inventory
Air Toxics NEPM	National Environment Protection (Air Toxics) Measure
ALDD	Australian Land Disturbance Database
ALS	Airborne Laser Scan
ALUMC	Australian Land Use and Management Classification
AMCI	American Metals & Coal International (Alpha) Pty Ltd
AMG	Australian map grid
AMSA	Australian Maritime Safety Authority
ANC	Acid Neutralising Capacity

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Abbreviation	Meaning
ANFO	Ammonium nitrate fuel oil
ANRA	Australian Natural Resources Atlas
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industry Classifications
AP-42	Compilation of Air Pollutant Emission Factors published by the USEPA
APCT	Abbot Point Coal Terminal
APSDA	Abbot Point State Development Area
AR&R	Australian rainfall and runoff
ARI	average recurrence interval
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian Standard
AS/NZS	Australian Standard / New Zealand Standard
ASC	Australian Soil Classification
ASRIS	Australian Soil Resource Information System
ASS	acid sulfate soil
ASSMP	acid sulfate soil management plan
ATSI	Aboriginal and Torres Strait Islander
AUD	Australian dollars
AusRivas	Australian River Assessment System
AWQC	Australian Water Quality Centre
BAAM	Biodiversity assessment and mapping methodology
BCA	Building Code of Australia
bcm	bank cubic metres
BEMP	Best environmental management practice
BGL	below ground level
BIBO	Bus In – Bus Out
BITRE	Bureau of Infrastructure, Transport and Regional Economics
BMA	BHP Billiton Mitsubishi Alliance Coal Operations Pty Ltd
BMP	Bushfire management plan
BOM	Bureau of Meteorology

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Abbreviation	Meaning
BPA	biodiversity planning assessment
BRC	Barcaldine Regional Council
BTEX	benzene, toluene, ethylbenzene, and xylenes
C/MVKT	crashes per million vehicle kilometres travelled
Ca	Calcium
CAMBA	China-Australia Migratory Bird Agreement
CASA	Civil Aviation Safety Authority
Cat X	Category X Regrowth
CCC	Clean Coal Council
CCS	carbon capture and storage
CCT	Central Control Terminal
CDM	Clean Development Mechanism
CE	Critically Endangered
CEC	Cation Exchange Capacity
CEMP	Construction environmental management plan
CEO	Chief Executive Officer
cf.	Latin for conferre (compare)
CFCT	China First Coal Terminal
CFS	Chemical Fixation and Stabilisation
CG	Coordinator-General of the state of Queensland
CGE	Computable General Equilibrium
CG Report	Report prepared by the CG that evaluates any EIS, submission and other materials in relation to a "significant project" in accordance with the SDPWO Act
CH <sup>4</sup>	Methane
CHMP	cultural heritage management plan
CHPP	coal handling and preparation plant
CHR	Channelised Right Turn Lane
CHR(s)	Channelised Right Turn Lane – short configuration
CHRC	Central Highlands Regional Council
CLR	Contaminated Land Register
cm	Centimetre
CMAF	Coal Mining Abatement Fund

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Abbreviation	Meaning
CMP	construction management plan
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> -e	carbon dioxide equivalent
COP	Conference of Parties
CORVEG	Queensland Herbarium's site-based floristic dataset
CP	Cleaner Production
CPI	Consumer Price Index
CPRS	Carbon Pollution Reduction Scheme
CQLGA	Central Queensland Local Government Authority
CQRGMF	Central Queensland Regional Growth Management Framework
CQSS	Central Queensland Strategy for Sustainability – 2004 and Beyond
CQU	Central Queensland University
CSAS	Coal Sector Adjustment Scheme
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSQ	Construction Skills Queensland
CTC	centralised traffic control
CV	Curriculum Vitae
Cwth (Cth)	Commonwealth
CWRP	Central West Regional Plan
DA	Development Approval
dba	A measured sound pressure level that incorporates A-weighting is denoted LpA, and has units of dB(A), often written as dBA
dbc	A measured sound pressure level. The 'C' frequency weighting adjustments are much reduced at low frequencies compared to 'A' weighting, giving greater 'prominence' to the low-frequency components in the overall measured dbc sound pressure level compared to the measured dBA sound pressure level DCDB digital cadastral database (DERM 2009)
DCC	Department of Climate Change (now Department of Climate Change and Energy Efficiency)
DCCEE	Department of Climate Change and Energy Efficiency
DEEDI	Queensland Government Department of Employment, Economic Development and Innovation
DEEWR	Australian Government Department of Education, Employment and Workplace Relations
DEH	former Department of Environment and Heritage (Qld)

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Abbreviation	Meaning
DERM	Queensland Government Department of Environment and Resource Management
DET	Queensland Government Department of Education and Training
DEU	Desert Uplands
DEWHA	Australian Government Department of the Environment, Water, Heritage and the Arts
DG	dangerous good
DHLG	Queensland Department of Housing and Local Government
DSEWPC	Australian Government Department of Sustainability, Environment, Water, Population and Communities
DGSM Act	Dangerous Goods Safety Management Act 2001
DIDO	Drive-In / Drive-Out workforce
DIP	Queensland Government Department of Infrastructure and Planning
DIWA	Directory of Important Wetlands In Australia
DoE	former Department of Environment (Qld)
DME	former Department of Mines and Energy (Qld)
DMR	former Department of Main Roads (Qld)
DNR	former Department of Natural Resources (Qld)
DNRM	former Department of Natural Resources and Mines (Qld)
DNRW	former Department of Natural Resources and Water (Qld)
DO	Dissolved Oxygen
DPI	former Department of Primary Industries (Qld)
DPIF	former Department of Primary Industries and Fisheries (Qld)
DTMR	Department of Transport and Main Roads (Qld)
DWT	dead weight tonnage
e.g.	Latin for <i>exempli gratia</i> (for example)
E	Endangered
EA	Environmental Authority
EC	Electrical Conductivity
EDR	Economic demonstrated resources
EEO	Equal employment opportunity (as defined in the social impact assessment chapters)
EEO	Energy Efficiency Opportunity (as defined in the Greenhouse Gas Technical Report)
EEO Act	Energy Efficiency Opportunity Act 2006 (as defined in the greenhouse gas chapters)
EET	Emissions Estimation Technique

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Abbreviation	Meaning
EFO	environmental flow objectives
EHA	Queensland Essential Habitat mapping
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EIL	Environmental Investigation Level
EIT	economies in transition
EMOS	Environmental Management Overview Strategy
EMP	Environmental Management Plan
EMR	Environmental Management Register
EMS	Environmental Management System
ENSO	El Nino Southern Oscillation
EP	Environmental Protection
EP Act	Environmental Protection Act 1994
EPA	former Environmental Protection Agency (Qld)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)
EPC	Exploration Permit Coal
EPC	Engineering, procurement and construction
EPM	Exploration Permit Minerals
EPP	Environmental Protection Policy
EPP (Air)	Environmental Protection (Air) Policy 2008
EPP (Noise)	Environmental Protection (Noise) Policy 2008
EPP (Waste)	Environmental Protection (Waste Management) Policy 2000
EPP (Water)	Environmental Protection (Water) Policy 1997
EPR	Environment Protection Regulation 2008
EPD Act	Environment Protection (Sea Dumping) Act 1981
EQIP	Education Queensland and Industry Partnership Program
ERA	Environmentally Relevant Activity
ERE	Endangered Regional Ecosystem
ERP	Emergency Response Plan
ERT	Environment Reporting Tool
ESA	Equivalent Standard Axles
ESA	Environmentally Sensitive Areas (ecological context)

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Abbreviation	Meaning
ESCP	Erosion and Sediment Control Plan
ESD	Ecological Sustainable Development
ESP	Exchangeable Sodium Percentage
et al.	Latin for 'et alii' (masculine plural) or 'et aliae' (feminine plural) or 'et alia' (neuter plural) (and others)
ETM	Emission Technique Manual
EV	Environmental Value
EVR	Endangered, Vulnerable and Rare
FAPA	Forestry Act Protected Area
FBA	Fitzroy Basin Association
FFE	Forced Feed Evaporation
FH	free hold
FHA	fish habitat area
FIFO	fly-in / fly-out
Fisheries Act	Fisheries Act 1994
Forestry Act	Forestry Act 1959
FTE	Full time equivalent employment position
g	grams
g/L	grams per litre
g/m <sup>2</sup> /month	grams per metre squared per month
g/m <sup>2</sup> /s	grams per metre squared per second
GA	Geoscience Australia
GAB	Great Artesian Basin
GABCC	Great Artesian Basin Coordinating Committee
GARID	Guidelines for the Assessment of Road Impacts of Developments
GBD	groundwater bore database
GBR	Great Barrier Reef
GBRMP	Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority
GBRWHA	Great Barrier Reef World Heritage Area
GCM	General Circulation Models
GDA	Geocentric Datum of Australia

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Abbreviation	Meaning
GDE	Groundwater Dependent Ecosystem
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GHG	Greenhouse Gas
GJ	Gigajoules
GMA	Groundwater Management Area
GMU	Groundwater Management Unit
Goaf	The area of underground working from which coal has been removed.
GPO	General Post Office
GPS	Global Positioning System
GPT	Gross Pollutant Trap
GQAL	Good Quality Agricultural Land
GRP	Gross Regional product
GSD	ground sample distance
GSG	great soil group
GSP	gross state product
GVA	gross value added
GWP	global warming potential
H	Hour
ha	Hectare
HACC	home and community care services
HAT	Highest Astronomical Tide
HAZCHEM	Hazardous Chemicals warning plate- A coding system used by emergency responders as an initial response emergency action code
HAZOP	hazard and operability (study)
HDPE	high density polyethylene
HEC-RAS	Hydrologic Engineering Centre River Analysis System
Heritage Act	Queensland Heritage Act 1992
HFCs	hydrofluorocarbons
HML	Higher mass limit
hPa	Hector Pascal (100 Pascal)



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Abbreviation	Meaning
Hrs	Hours
HSD	health service district
HSE	Health, safety and environment
HVR	High Value Regrowth
Hz	Hertz
i.e.	Latin for id est (that is)
IAIA	International Association for Impact Assessment
IAS	Initial Advice Statement
ICMM	International Council on Mining and Metals
IDAS	integrated development assessment system
IECA	International Erosion Control Association
ILUA	Indigenous land use agreement
IMO	International Maritime Organisation
IPA	Integrated Planning Act 1997
IPA Regulation	Integrated Planning Regulation 1998
IPCC	Intergovernmental Panel on Climate Change
IPO	Interdecadal Pacific Oscillation
IQQM	Integrated quantity and quality model
IRC	Isaac Regional Council
ISO	International Organisation for Standardisation
IUCN	International Union for Conservation of Nature
J	joule
JAMBA	Japan-Australia Migratory Bird Agreement
JATWC	Joint Australia Tsunami Warning Centre
JCU	James Cook University
JI	Joint Implementation
K	Potassium
KEI	key emissions indicators
kg	kilograms
kHz	Kilohertz
km	kilometre
km/h	kilometre per hour

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Abbreviation	Meaning
km <sup>2</sup>	square kilometre
KP	kilometre point
kPa	kilopascal
KRA	key resource areas
kt CO <sub>2</sub> -e	kilotonnes of carbon dioxide equivalent
kVA	Kilo Volt-Ampere
kV	kilovolts
kWe	kilowatts (electrical energy output)
kWh	kilowatt hours
kWm <sup>2</sup>	kilowatts per square metre
LA10 (18hour)	Arithmetic average of the hourly LA10 values over the 18 hour period from 6am to midnight
LAeq(24hour),	Time averaged A-weighted equivalent continuous sound pressure level over a time period of 24 hours
LAm <sub>ax</sub>	Average maximum A-weighted sound pressure level
LAeq	Time averaged A-weighted equivalent continuous sound pressure level
LA <sub>90</sub>	A-weighted sound pressure level which is exceeded for 90% of the measurement period. Often referred to as the Background noise level.
LA <sub>10</sub>	A-weighted sound pressure level which is exceeded for 10% of the measurement period.
LA <sub>01</sub>	A-weighted sound pressure level which is exceeded for 1% of the measurement period.
Lat.	Latitude
LAT	Lowest Astronomical Tide
LC	Least Concern
LCZ	landscape character zone
LGA	Local Government Area
LGA	Local Government Authority
L/h	litres per hour
LL	land leasehold
LNG	Liquefied Natural Gas
Long.	Longitude
LOA	Overall length of vessel
LOS	Level of service
LPA	Liberal Party Australia

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Abbreviation	Meaning
LP Act	Land Protection (Pest and Stock Route Management) Act 2002
LWD	large woody debris
m	Metre
m/day	metres per day
m/s	metres per second
m <sup>2</sup>	square metres
m <sup>3</sup>	cubic metres
m <sup>3</sup> /s	cubic metres per second
MAE	Major accident event
mAHD	metres above Australian Height Datum
maxLpA	maximum instantaneous noise level
Mbgl	metres below ground level
MCC	Metallurgical Corporation of China
MCF	Multi Cargo Facility
MDBC	Murray-Darling Basin Commission
MDL	Mineral Development Licence
mEq	Milli equivalence
Mg	Magnesium
mg	Milligram
mg/L	milligram per Litre
mg/m <sup>3</sup>	milligrams per cubic metre
MGA	Map Grid Australia
MGA94	Map Grid of Australia 1994
MGMG	Moranbah Growth Management Group
MIA	Mine Infrastructure Area
Mi	migratory
MIDQ	Minister for Industrial Development of Queensland
MISC	Mining Industry Skills Centre
ML	megalitres
ML	Mining Lease
MLA	Mining Lease Application

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Abbreviation	Meaning
ML/a	Megalitres per annum
ML/d	megalitres per day
mm	millimetre
Mm <sup>3</sup>	million metres cubed
MNES	matters of national environmental significance
MP	Member of Parliament
MRA	Mineral Resources Act 1989
MRET	Mandatory Renewable Energy Target
MRF	Material Recovery Facility
MRL	mandatory reporting level
MRRT	Mining Resources Rent Tax
MSDS	material safety data sheet
MSL	mean sea level
MSQ	Maritime Safety Queensland
Mt	Million tonnes
Mt CO <sub>2</sub> -e	megatonnes of carbon dioxide equivalent
MTDB MERLIN	mining tenures system and database 2009
Mtpa	Million tonnes per annum
MUSIC	Model for Urban Stormwater Improvement Conceptualisation
MW	megawatts
MWh	megawatt hours
MWMP	Mine water management plan
n/a	not applicable or not available
N <sub>2</sub> O	Nitrous oxide
NAF	Non Acid Forming
NAG	Net Acid Generation
NAP	National Action Plan for Salinity and Water Quality
NAPP	Nett Acid Production Potential
NATA	National Association of Testing Authorities
NC Act	Nature Conservation Act 1994
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure

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Abbreviation	Meaning
NEPM Air	National Environment Protection (ambient air quality) Measure
NES	National environmental significance
NGA	National greenhouse accounts
NGER Act	National Greenhouse and Energy Reporting Act 2007
NGERS	National Greenhouse and Energy Reporting System
NICNAS	National Industrial Chemicals Notification and Assessment Scheme
NLWRA	National Land and Water Resources Audit
NMP	Noise Management Plan
NO <sub>2</sub>	nitrogen dioxide
NOC	no concern at present
NODGDM	National Ocean Disposal Guidelines for Dredged Material 2002
NOX	oxides of nitrogen
NPI	National Pollutant Inventory
NQ	North Queensland
NQBPC	North Queensland Bulk Ports Corporation Limited
NRM	Natural Resource Management
NRME	Natural Resources Mines and Energy
NRMP	Natural Resource Management Plan 2004
NRW	Natural Resources and Water, (Department of the Environment and Resource Management) (see DNRW)
NSESD	National Strategy for Ecologically Sustainable Development.
NT	near threatened
NTRB	Native Title Representative Bodies
NTU	nephelometric turbidity units
NVMP	Noise and Vibration Management Plan
OC	of concern
OCM	open cut mine
OCPs	organochlorine pesticides
OECD	Organisation for Economic Co-Operation and Development
OEF	Overburden emplacement facility
OEMP	Operational environmental management plan
OESR	Office of Economic and Statistical Research

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Abbreviation	Meaning
OPPs	organophosphate pesticides
ORWB	off river water bodies
P&G Act	Petroleum and Gas (Production and Safety) Act 2004
Pa	pascal
PAE	Pacific Air and Environment (now PAEHolmes)
PAH	polycyclic aromatic hydrocarbons
PASS	Potential Acid Sulfate Soils
PAWC	plant available water capacity
PCB	polychlorinated biphenyls
pers. comm.	personal communication
PFCs	Perfluorocarbons
PHA	preliminary or process hazard analysis
PIFU	Planning Information and Forecasting Unit (DIP)
PJ	Petajoule
PJ/yr	Petajoules per year
PL	Petroleum Lease
PM	particulate matter (fine dust)
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than 2.5 microns
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than 10 microns
PNL	Planning Noise Level
PPE	Personal Protective Equipment
ppm	parts per million
PPV	peak particle velocity
PSD	particle size distribution
psi	pound per square inch
pw	per week
QA	quality assurance
QASSIT	Queensland Acid Sulfate Soil Investigation Team.
QC	quality control
QCoal	QCoal Pty Ltd
QEPA	former Queensland Environmental Protection Agency
QFRS	Queensland Fire and Rescue Service

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Abbreviation	Meaning
QGEOP	Queensland Government Environmental Offsets Policy
QGS	Queensland Gas Scheme
QICN	Queensland Industry Capability Network
Qld	Queensland
QLUMP	Queensland Land Use Mapping Program 1999
QM	Queensland Museum
QPI&F	Queensland Primary Industries and Fisheries (see DPIF)
QR	Queensland Rail
QRA	quantitative risk assessment
QUDM	Queensland urban drainage manual
QVAS	Queensland Valuation and Sales System
QWQG	Queensland water quality guidelines
RAP	Remediation action plan
RBL	Rating Background Noise Level
RC	Regional Council
RCBC	reinforced rectangular box culvert
RE	regional ecosystem
REDD	regional ecosystem description database
RET	renewable energy target
RFI	radiative force index
RGSQ	Royal Geographical Society of Queensland
RM Act	Regrowth Moratorium Act 2009
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
ROM	Run-of-Mine
ROTAP	CSIRO Rare or Threatened Australian Plants List
RNA	recorded notifiable activity
RNTC	Registered Native Title Claim
RRC	Rockhampton Regional Council
RUMP	Road Use Management Plan
RUP	resource utilisation plan
RWL	reduced water level

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Abbreviation	Meaning
s	second
SAC	soil assessment criteria
SAR	sodium adsorption ratio
SD	statistical division
SDPWO Act	State Development and Public Works Organisation Act 1971 (QLD)
SEAP	Stream and estuarine assessment program
SEC	significant ecological community
SEIFA	socio-economic indexes for area
SEL	sound exposure level
SEP	stakeholder engagement plan
SEQ	South-east Queensland
SEVT	semi-evergreen vine thicket
SF	State Forest
SF6	sulfur hexafluoride
SHMS	Safety health management system
SIA	social impact assessment
SIMP	social impact management plan
SISP	social infrastructure strategic plan
SLA	statistical local area
SMP	Site Management Plan
SMS	Safety Management System
SO2	sulfur dioxide
SOP	standard operating procedure
SP Act	Sustainable Planning Act 2009
sp.	species (singular)
SP/PR	Spontaneous Potential/Point Resistivity
SPOCAS	Suspension peroxide oxidation combined acidity and sulphur analysis for acid sulfate soils using peroxide oxidisable sulphur (Spos) to determine sulphur percent
spp.	species (plural)
SPP2/02	State Planning Policy 2/02, Guideline for the Planning and Management of Acid Sulfate Soils
SPP	State Planning Policy
SRA	sustainable rivers audit



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Abbreviation	Meaning
SRES	Special report on emissions scenarios
SRN	Queensland's stock route network
STF	Sewage treatment facilities
STP	Sewage treatment plant
subsp.	Subspecies
SWAN	simulating waves nearshore
SWMP	Site Waste Management Plan
t	Tonnes
t CO <sub>2</sub> e	tonnes of carbon dioxide equivalent
t ROM	tonnes of run of mine (coal)
TAA	Titrateable Actual Acidity
TAFE	Technical and Further Education
TAL	Total axle loads
TAPM	The Air Pollution Model
TCLP	toxicity characteristic leaching procedure
TDS	Total Dissolved Solids
TJ	Terajoules
TKN	Total Kjeldahl nitrogen
TMP	Traffic Management Plan
TN	Total Nitrogen
TOR	Terms of Reference
TP	Total Phosphorus
TPA	Titrateable Peroxide Acidity (as defined in the Acid Sulfate Soils Technical Report)
tpa	tonnes per annum
TPH	Total Petroleum Hydrocarbons
TSP	Total Suspended Particles
TSS	Total Suspended Solids
µm	Micron
UDA	Urban Development Area
UGM	underground mine
ULDA	Urban Land Development Authority

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Abbreviation	Meaning
UNEP	United Nations Environment Programme
US EPA	United States Environmental Protection Agency
US\$ or USD	United States dollars
UTM	Universal Transverse Mercator
V	Vulnerable
var.	variety
VKT	vehicle kilometres travelled
VCU	visual character unit
VET	Vocational Education and Training
VM Act	Vegetation Management Act 1999
VOC	Volatile Organic Compounds
VPD	Vehicles Per Day
VPH	Vehicle per hour
Water Act	Water Act 2000
WHAM	Whitsunday Hinterland and Mackay
WMA	Wetland Management Areas
WMP	Waste Management Plan
WONS	Weeds of National Significance
WPA	Wetland Protection Areas
WRC	Whitsunday Regional Council
WTF	Water Treatment Facility
WTS	Water Transfer Station
WQO	Water Quality Objective
XLPE	Cross link polyethylene insulation
X50	50 Mtpa export capacity
X80	80 Mtpa export capacity
X110	110 Mtpa export capacity
y	year

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### 1.1.1 Glossary of Terms

Abbreviation	Meaning
%S	Acid quantity expressed as the percentage of sulfur determined By laboratory for the dry mass of soil
A horizon	The original top layer of mineral soil divided into A1 (typically from 5 to 30cm thick; generally referred to as topsoil with a high content of organic matter, dark colour and maximum biological activity) and A2 horizons (usually 5 – 70 cm thick; similar texture to A1 but paler in colour, poorer in structure and less fertile).
Abbot Point Catchment	Consists of the Whitsunday Regional Council and represents the local economy that is most likely to be directly impacted by development of port facilities for the export of coal as part of the China First Project.
Abstraction	The removal of water from a resource e.g. the pumping of groundwater from an aquifer. Interchangeable with extraction.
Acid sulfate soils	Naturally occurring soils, sediments or organic substrates (e.g. peat) that are formed under waterlogged conditions. These soils contain iron sulfide minerals (predominantly as the mineral pyrite) or their oxidation products. In an undisturbed state below the water table, acid sulfate soils are benign. However if the soils are drained, excavated or exposed to air by a lowering of the water table, the sulfides will react with oxygen to form sulfuric acid.
Acoustic Impact Assessment	Engineering report provided to determine the acoustic performance of development scenarios given the current and expected environmental inputs from local noise sources.
Aggregate (soil)	A unit of soil structure consisting of primary soil particles held together by cohesive forces or by secondary soil materials such as iron oxides, silica or organic matter.
Aggregates	may be natural, such as peds.
Air dispersion modelling	Mathematical simulation of how air pollutants disperse in the atmosphere.
Airshed	An airshed is a part of the atmosphere that behaves in a coherent way with respect to the dispersion of emissions.
Airblast overpressure	A measure of the transient air-pressure pulse generated by a blast. Units of unweighted peak pressure, expressed as a decibel level referenced to 20 microPascals (L <sub>peak</sub> ).
Alkaline soil, alkalinity	Alkaline soils have laboratory measured pH values >8.5. Alkalinity may inhibit the growth of plants.
Alluvial	Pertaining to, contained in, or composed of, alluvium; relating to the deposits made by flowing water; washed away from one place and deposited in another; as alluvial soil, mud, accumulations, or deposits.
Alluvial terrace	Former floodplain which either no longer floods or rarely floods due to deepening or enlargement of the stream channel.
Alluvium	Sediment deposited from the transport by channelled stream flow or over-bank stream flow.

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Abbreviation	Meaning
Ambient air quality	The state of quality as it exists in the outdoor environment.
Ambient noise level	Concept of the all-encompassing noise level environment at a location of interest. A full description of the ambient noise level includes description of level variations in time and variations in the frequency composition in time, including subjective audible characteristics.
Analyte	Substance or chemical constituent that is determined in an analytical procedure.
Anthropogenic sources	Sources derived from human activities, as opposed to those occurring in biophysical environments without human influence.
Anticline	A fold in which the older rocks occupy the core.
Antifoulant	Chemicals that are coated on to surfaces to prevent algae, seaweeds and marine organisms from attaching.
Annulus	Space between bore casing and the surrounding geology.
Apedal	In the moderately moist to moist state, none of the soil material occurs in the form of peds; it is massive or single-grained and when disturbed, separates into fragments or primary particles.
Aquatic ecosystems	The abiotic and biotic component, habitats and ecological processes contained within rivers and their riparian zones and reservoirs, lakes, wetlands and their fringing vegetation.
Aquatic macrophytes	Plants which grow in or near water. In lakes macrophytes provide cover for fish and substrate for aquatic invertebrates, produce oxygen, and act as food for some fish and wildlife. A decline in a macrophyte population may indicate water quality problems.
Aquifer	A water-saturated geologic unit that is capable of transmitting significant or usable quantities of groundwater under ordinary hydraulic gradients.
Aquitard	A water-saturated sediment or rock whose permeability is so low it cannot transmit any useful amount of water. An aquitard allows some measure of leakage between the aquifer interval it separates.
Arboreal	Living in trees.
Artesian	A condition which applies to aquifers which are confined by layers of low permeability, and where the hydraulic head in the aquifer is higher than the overlying ground surface. Wells penetrating such aquifers may result in groundwater flowing at the surface without pumping.
Australian Soil Classification (ASC)	A multi-category scheme with classes defined on the basis of diagnostic horizons or materials and their arrangement in vertical sequence as seen in an exposed soil profile.
Assemblage	A group of species co-occurring at a location.
Auditory frequency range	A frequency range in which sounds are potentially perceivable by humans, often reported as 20Hertz – 20kiloHertz (1 Hertz = 1 cycle per second).
Auxiliary Lane	Traffic lane provided to supplement the operation of the main though movement. This includes dedicated turn lanes, overtaking lanes and additional through lanes at

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Abbreviation	Meaning
	intersections.
Available soil water	That part of the water in the soil that can be absorbed by plant roots that can be held between field capacity and the moisture content at which plant growth ceases.
Available water holding capacity	The ability to hold that part of the water in the soil that can be absorbed by plant roots. Available water is the difference between field capacity and permanent wilting point.
Average Car Occupancy	Average number of passengers (including driver) per light vehicle in a traffic flow
Average Vehicle Occupancy	Average number of passengers (including driver) per vehicle in a traffic flow
B horizon	The layer of soil below the A horizon, usually of finer texture (i.e., more clayey), denser and stronger in colour. Thickness ranges from 10 cm to 2 m thick and is divided into B1 and B2 horizons.
Background Traffic Growth	Annual traffic growth on a road network which occurs as a result of general population growth in the local area, exclusive of the traffic contributed directly by the subject development.
Background noise level (LABg)	Concept of the typical minimum ambient noise level, numerically evaluated from the level exceeded for 90 percent of 15 minute sample periods (LA90,15 minute) during a defined time period of interest (e.g. daytime, evening or night-time).
Balloon Loop	Wide radius loop of rail provided to allow trains to turn 180 degrees to allow arrival and departure in a forward direction on a single rail.
Baseflow	The amount of groundwater flowing into a river.
Baseline noise level	Concept of the noise level prior to a development, that can be evaluated by a range of level parameters such as the minimum (LAmin), maximum (LAMax) and percentile descriptors (LA1, LA10, LAeq, LA90).
Basic left/right turn facility	Turn movements allowed to occur from a through lane, with no provision of an auxiliary lane to allow passing of turning vehicles.
Basin	A topographic depression containing, or capable of containing, sediment.
Bathymetry	Underwater topography (soundings).
B-double	Articulated vehicle with 2 trailers, where the second trailer hitches to the first trailer over the first trailers rear axle group
Bedrock	The solid rock that underlies unconsolidated surficial sediments.
Benthic	Relating to the bottom (bed) of any water body.
Berth pocket	An area of water adjacent to a wharf, in a port or harbour, used specifically for berthing vessels.
Bioaccumulation	The process by which substances accumulate in the tissues of living organisms.
Biodiversity	Totality of genes, species, and ecosystems of a region.
Biogenic	Produced by living organisms or biological processes.

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Abbreviation	Meaning
Biological diversity	The totality of genes, species, and ecosystems of a region.
Bioregion	An ecologically and geographically defined area smaller than a 'realm' or 'ecozone' (also known as an eco-region). Bioregions are defined through common physical and environmental features, including watershed boundaries and soil and terrain characteristics.
Biota	All the plant and animal life of a particular region.
Bore / borehole	A hole drilled into the ground for exploratory purposes.
Boundaries (soil)	The boundary between soil horizons defines the nature of the change from one horizon to that below. It is specified by two terms—one a measure of the width of the transition zone between the two horizons, the other a description of its shape.
Boundary condition	Specific condition at the edge or surface of a system.
Brackish water	Water that contains relatively low concentrations of soluble salts. Brackish water is saltier than fresh water, but not as salty as salt water.
Broadband noise	A noise with approximately equal acoustic energy distribution over a large range of frequencies, for example 100Hz – 2KHz. Natural examples include noise from a waterfall, or the sound of wind in trees.
Broader Service Area	Encompass the regional centres adjacent to the mine and export point sites from which workers and supplies will primarily be sourced, and is made up of the Isaac Regional Council, Mackay Regional Council and Rockhampton Regional Council.
Buffer	Area of vegetation providing protection from disturbance.
Building Price Index	An indicator of the variation in building costs over time including the costs of labour and building materials inputs.
C horizon	Layers below the B horizon which may be weathered, consolidated or unconsolidated parent material little affected by biological soil-forming processes.
Cainozoic	The period in geologic time between 65 million years ago and the present.
Carbon dioxide equivalent (CO <sub>2</sub> -e)	The key greenhouse gases are carbon dioxide, methane and nitrous oxide. To simplify the accounting of GHGs, the unit of a carbon dioxide equivalent or CO <sub>2</sub> -e is used. This ensures that the global warming potential of each gas is accounted for. Carbon dioxide has a global warming potential of 1, methane has a global warming potential of 21, and nitrous oxide has a global warming potential of 310.
CALMET	CALMET is part of air dispersion modelling, preparing meteorology for CALPUFF.
CALPUFF	An air dispersion model.
Catadromous	Living in fresh water but migrating to marine waters to breed.
Catchment	The term used to describe the area which is drained by a river. It is sometimes called the river basin or watershed. The catchment is the most significant factor determining the amount or likelihood of flooding.

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Abbreviation	Meaning
Category X Regrowth	Regrowth over which a landholder has received Queensland Government recognition of entitlement to clear into the future. This right to clear is available no matter how mature the regrowth becomes unless otherwise revoked (e.g. through an offset covenant).
Channel	An eroded depression in the soil or bedrock surface within which alluvial deposits accumulate (i.e. gravel, sands, silt, clay).
Chlorophyll a	The principal photosynthetic pigment possessed by phytoplankton and is used to measure phytoplankton concentrations.
Chromosol	ASC soil order classification—soils with a clear or abrupt textural B horizon where the major half of the B2 horizon is not strongly acid (i.e. >pH5.5) and non-sodic (can be sodic at depth).
Clastic	Rocks built up from fragments of pre-existing rocks generated by weathering and erosion and transported to a point of deposition.
Climate change	Any long-term significant change in the 'average weather' that a given region experiences. Average weather may include average temperature, precipitation and wind patterns. It involves changes in the variability or average state of the atmosphere over durations ranging from decades to millions of years.
Climate variability	Deviations of climate statistics over a given period of time (such as a specific month, season or year) from the long-term climate statistics relating to the corresponding calendar period.
Cenozoic	Geological Era dating from 65 million years before present to present
Chromium Reducible Sulfur Suite	suite of analysis for acid sulfate soils using chromium reducible sulfur (Scr) to determine sulfur percent
Coal Haulage Network	Sections of rail network administered by Queensland Rail which are utilised for the bulk movement of coal across the state
Coal seam	A layer, vein, or deposit of coal.
Coal spot prices	The delivery price of coal being traded on a given day.
Coarse particulate organic matter (CPOM)	Any organic material greater than about 1 mm in diameter; examples include twigs, leaves, fruits and flowers of terrestrial or aquatic vegetation.
Coal Terminal	A new coal terminal that is incorporated within the APSDA and existing infrastructure at the Port of Abbot Point, 22km north/west of Bowen
Colluvium	Unconsolidated soil and rock material transported largely by gravity (i.e., mass movement: landslide, mudflow, creep or sheetflow), deposited on a lower slope and/or at the base of a slope. Does not have bedding structure such as alluvium and is has more variable grain size.

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Abbreviation	Meaning
Computable General Equilibrium modelling	An economic modelling technique that estimates the net increase in demand generated by the project after taking into account resource constraints.
Comminuted	grind, mash or pulverize
Communal Transport	Vehicles catering for in excess of 8 people, typically buses, which allow for the mass movement of people from common origins to common destinations
Community	a) Used to describe that stakeholder group which is comprised of both individual community members and community groups. Community groups are regarded as members of the public or a group of citizens that have united to form an identifiable group, due to a common interest. b) Group of populations of plants and animals in a given place.
Conductivity	A measure of waters' ability to conduct electricity.
Confined aquifer	Groundwater bound between layers of impermeable substances like clay or dense rock. When tapped by a well, water in confined aquifers is forced up, sometimes above the soil surface. This is how a flowing artesian well is formed.
Confining layer	Geologic material with little permeability or hydraulic conductivity. Water does not pass through this layer or the rate of movement is extremely slow.
Connectivity	The connectedness between patches of suitable habitat for an individual species or group of species.
Consequence	Outcome or impact/s of a single or multiple event/s
Conservation significance	Species or community listed as endangered, vulnerable, rare, near threatened or migratory under either the EPBC Act or the NC Act and those species considered non-EVR priority species in the relevant bioregion.
Consolidated rock	Tightly bound geologic formation composed of sandstone, limestone, granite, or other rock.
Construction/blast vibration	Transient oscillating movement of the ground or a building structure from transmission of elastic pressure waves from the vibration source, through the ground to the receptor location.
Consumer Price Index	The Consumer Price Index is an indicator that is constructed to measure changes over time in the general level of prices of consumer goods and services that households acquire, use or pay for consumption.
Contaminant	A substance that is present in an environmental medium in excess of natural baseline concentration.
Contrast	The degree to which a development component differs visually from its landscape setting.
Controlled action	A term used under the Environment Protection and Biodiversity Conservation Act 1999 to determine whether an action is likely to have an impact on matters of national environmental significance. If a project is declared a 'controlled action', development



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Abbreviation	Meaning
	approval is required from the Minister for the Environment, Heritage and the Arts.
Control efficiency	The fraction of total emissions that is removed when a measure is put in place to control emissions from the source.
Convective mixing	Convective mixing is the entrainment and deepening of the mixed layer in a lake due to heat loss generally in combination with wind forcing.
Corridor	A continuous link of suitable habitat between vegetation patches allowing movement by fauna.
Cretaceous	The period in geologic time between 140 and 65 million years ago; also, the corresponding system of rocks deposited during that time range.
Critically Endangered	Designated as 'Critically Endangered' under the EPBC Act. Refer to definition of 'EPBC Act conservation status' for meaning of Critically Endangered under the Act
Cuesta	A ridge with a steep face on one side and a gentle slope on the other.
Cultural heritage	The legacy of physical artifacts 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.
Culverts	Concrete or steel structures under the road pavement with a rectangular or circular cross section providing movement of stormwater under the roadway
Cumulative impacts	Within the context of SIA, cumulative impacts refer to the incremental or combined social impacts resulting from both the project that is being assessed and other projects, either existing or planned, now and in the future. The inclusion of cumulative impact assessment aims to ensure that potential impacts of a project are not considered in isolation to other changes that are, or are expected, to occur.
Dam	A land-based structure or void that will contain, divert or control flowable substances. For the purposes of this study, a pond is also referred to as a dam.
Dangerous Goods	Goods which, in accordance with legislation, require vehicles to display warning placards
Darcy's Law	A groundwater movement equation formulated by Henry Darcy during the mid-1800s based on experiments on the flow of water through beds of sand. Darcy's Law forms the scientific basis of fluid permeability used in earth science.
Datalogger	An electronic device that records data over time or in relation to location either with a built in instrument or sensor or via external instruments and sensors.
Debris	Fallen timber and leaves on the ground.
Deltaic	Sediments deposited at the mouth of a river where it enters a lake or the sea.
Depletion	The loss of water from surface water reservoirs or groundwater aquifers at a rate greater than that of recharge.
Depressurisation	The lowering of the groundwater piezometric surface over the desired area.
Dermosol	Other soils with B2 horizons that have structure more developed than weak throughout the major part of the horizon, generally non-sodic subsoil, generally gradational

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Abbreviation	Meaning
	textured soils (gradual boundaries).
Devonian	Geological period 395 – 345 million years ago.
Direct economic impacts	Refers to impacts associated directly with an increase in expenditure within an economy.
Discharge	An outflow of water from a stream, pipe, groundwater aquifer, or watershed; the opposite of recharge.
Dissolved solids	Minerals and organic matter dissolved in water.
Dominant	One or more species, by means of their number, coverage, or size that exerts considerable influence upon or control of the conditions of existence of associated species.
Drawdown	A lowering of the groundwater level caused by pumping.
Draw down on labour	Refers to a transfer of labour from one sector (sector a) of the economy to another (sector b) as a result of increased demand and wage improvements in sector b.
Dredge	Plant and equipment for underwater excavation of the seabed.
Drift deposits	Any sediment laid down by, or in association with, the activity of glaciers and ice sheets.
Drive-in/ Drive –out	Roster of work which allows staff who live remotely from work areas to drive in for several consecutive days work, staying in temporary accommodation, then drive-out for several rostered days off
Dry deposition	The process of particles dropping from the atmosphere to the surface by gravity without influence of rain
Duricrust	Hardened soil crust.
Dust deposition	Dust deposition is the process of particles settling and accumulating on surfaces.
Electrical conductivity	Measure of a material to conduct electricity. Electrical conductivity of water is a measure of the impurity (dissolved ions) in water - usually measured in siemens per unit length (e.g. millisiemens per centimetre).
Ecologically sustainable development	The environmental component of sustainable development. It can be achieved partially through the use of the 'precautionary principle', namely that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
Ecology	The scientific study of the distribution and abundance of life and the interactions between organisms and their environment. The environment of an organism includes physical properties, which can be described as the sum of local abiotic factors such as insolation (sunlight), climate, and geology and biotic factors, which are other organisms that share its habitat.
Ecological	An assemblage of species occupying a particular area

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Abbreviation	Meaning
Community	
Economic demonstrated resources	Economic demonstrated resources (EDR) are resources with the highest levels of geological and economic certainty and include proved but probable (2P) commercial reserves.
Economic impact assessment	Assessment of the measured effect on the economy of a region of an impacting agent.
Ecosystem	A natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the non-living physical (abiotic) factors of the environment.
Ecosystem function	Processes including soil formation and stabilisation, nutrient cycling, water infiltration, pollination and seed production.
Effective porosity	The percentage of the total volume of a given mass of soil or rock that consists of interconnected void spaces.
Environmental impact statement (EIS)	The information document prepared by the proponent when undertaking an environmental impact assessment. It is prepared in accordance with terms of reference prepared or approved by government. EIS is the term used by the Environment Protection and Biodiversity Conservation Act 1999 and the Environmental Protection Act 1994, and it is defined in Part 4 of the State Development and Public Works Organisation Act 1971.
EIS Study Area	The EIS Study Area (or the Study Area) refers to the region encompassing the Mine Catchment, Abbot Point Catchment and Broader Service Area and represents the region in which the project is located and expected to have the greatest direct impact.
Electrical conductivity	Measure of a material to conduct electricity. Electrical conductivity of water is a measure of the impurity (dissolved ions) in water - usually measured in siemens per unit length (e.g. millisiemens per centimetre).
Electrofishing	The use of electricity to stun fish. Electrofishing is a common scientific survey method used to sample fish populations to determine abundance, density, and species composition. When performed correctly, electrofishing results in no permanent harm to fish, which return to their natural state in as little as 2 minutes after being stunned.
Emergent species	A species that emerges above the canopy or overstorey.
Emissions	Release of pollutants to air.
Endangered	Designated as 'Endangered' under the EPBC Act, NC Act and / or VM Act. Refer to definitions of 'EPBC Act conservation status', 'NC Act conservation status' and 'VM Act conservation status' for meaning of Endangered under each Act
Endemic	A species restricted to a particular place or region.
Environmental Impact Assessment (EIA)	The process used to assess the environmental impact of a proposed development.
Environmental	The information document prepared by the proponent when undertaking an

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Abbreviation	Meaning
Impact Statement (EIS)	environmental impact assessment. It is prepared in accordance with terms of reference prepared or approved by government. EIS is the term used by the Environment Protection and Biodiversity Conservation Act 1999 and the Environmental Protection Act 1994, and it is defined in Part 4 of the State Development and Public Works Organisation Act 1971.
Environmental Management Plan	A document developed by proponents during a project’s planning and design. An Environmental management plan (EMP) provides life-of-project control strategies in accordance with agreed performance criteria for specified acceptable levels of environmental harm. It may continue through the whole life of a project (e.g. preconstruction, construction, operation and decommissioning).
Environmental Planning Policies	Supplementary laws to the Environmental Protection Act 1994.
Environmental values	An aspect of the environment that is to be protected.
EPBC Act conservation status	<p>Under the EPBC Act, listed threatened species and ecological communities are assigned a conservation status of ‘extinct in the wild’, ‘Critically Endangered’, ‘Endangered’ or ‘Vulnerable’. Definitions of these terms under the EPBC Act areas follows:</p> <p><b>Extinct in the wild</b>                      it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range or                      it has not been recorded in its known and / or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</p> <p><b>Critically Endangered</b>                      it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.</p> <p><b>Endangered</b>                      it is not Critically Endangered and                      it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.</p> <p><b>Vulnerable</b>                      it is not Critically Endangered or Endangered and                      it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.</p>
Ephemeral	A stream, creek, river or waterbody that carries or contains water only during or immediately after irregular rainfall or flow events. These waterbodies have limited baseflow component with no groundwater discharge during the no flow period.
Equivalent Standard	Method of determining the structural pavement impact load on pavement based on a

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Abbreviation	Meaning
Axle	specific axle group configuration
Epifauna	Benthic invertebrates that attach themselves to rocky reefs or to the seafloor. They include hydroids, sea-pens, small bryozoans and sponges.
Erosion	The process by which material, such as rock or soil, is worn away or removed by wind or water.
Estuarine	Pertaining to aquatic habitats where freshwater from streams or rivers mixes with sea water, resulting in a gradation of brackish waters with varying degrees of salinity. The estuarine environment consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partially obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land.
Evapotranspiration	The process by which water is discharged to the atmosphere as a result of evaporation from the soil and surface-water bodies and transpiration by plants. Transpiration is the process by which water passes through living organisms, primarily plants, into the atmosphere.
Exchange rate	Rate at which one currency may be converted into another.
Exotic	An introduced species.
Factor cost	The cost of all factors of production as paid by the producer (i.e., at basic prices), and does not include any taxes or subsidies on products.
Factor incomes	Comprises compensation of employees by, and operating surplus of, producers.
Factors of production	Represent the factors used during production activities that are not consumed during the process. Includes land, labour, capital and entrepreneurship
Family	The ABS define a family as two or more persons, one of whom is at least 15 years of age, who are related by blood, marriage (registered or de facto), adoption, step or fostering and who are usually resident in the same household.
Fault	A crack in the earth's crust resulting from the displacement of one side with respect to the other.
Fault Line	Line determined by the intersection of a geological fault and the earth's surface.
Fauna	Animal life.
Ferrosol	Soils with B2 horizons in which the major part has a free iron oxide content greater than 5% Fe in the fine earth fraction (<2mm). Soils with a B2horizon in which at least 0.3m has vertic properties are excluded.
Fine particulate organic matter	Any organic material smaller than about 1mm in diameter. In the process of feeding, shredders often create FPOM when they consume coarse particulate organic matter (CPOM).
Floodplain	An area of land periodically inundated by floodwater.
Flora	Plant life.

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Abbreviation	Meaning
Flow-on / indirect economic impacts	Flow-on (or indirect) economic impacts refer to impacts throughout an economy induced by a direct increase in expenditure.
Flow rate	The time required for a volume of groundwater to move between points. Typically groundwater moves very slowly—sometimes as little as millimetres per year.
Fluvial	Material deposited by moving water (i.e. rivers and streams).
Fluvial deposits	Particles of minerals or rocks which are transported and deposited by moving water (i.e. a river).
Fluvial geomorphology	The study of rivers and streams and the processes that shape them, including the transport of sediment, erosion of or deposition on the river bed.
Fly-in/Fly-out	Roster of work which allows staff who live remotely from work areas to fly in for several consecutive days work, staying in temporary accommodation, then fly-out for several rostered days off
Formation	A geologic unit of distinct rock types that is large enough in scale to be mappable over a region.
Formed Road	Road carriageway provided by clearance of obstructions, such as vegetation, and graded to provide a relatively well defined vehicle travel path, however without any additional provision of pavement layers
Fossiliferous	Fossil containing rock formations.
Fresh water	Water that is not salty, especially when considered as a natural resource.
Full time equivalent employment position	Represents one employee working full time for a period of one year.
GAMS	Gladstone Airshed Modelling System (GAMS)
Galilee Coal	Waratah Coal China First Project
Gamma log	Gamma logs record the level of natural occurring gamma ray emissions from rocks around boreholes. The gamma ray signal is comprised of gamma ray emissions from at different energy levels from the radioactive isotopes of the elements potassium (40K), Thorium (232Th) and Uranium (238U) and the daughter products in the decay of each series. In sedimentary rock sequences, relatively high natural gamma counts are recorded in shales and other clay rich sediment (due to the affinity of clay minerals for potassium) and relatively low counts are recorded in clean quartz sandstones and limestones.
Gaussian models	It assumes that the air pollutant dispersion has a Gaussian distribution
Gilgai	A small, ephemeral lake formed from a depression in the soil surface.
Good quality agricultural land	Land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources. As defined in State Planning Policy 1/92: Development and the Conservation of Agricultural Land.
Granite	A granular igneous rock composed chiefly of feldspar (orthoclase) and quartz, usually

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Abbreviation	Meaning
	with one or more other minerals, as mica, hornblende, etc.
Granodiorite	Plutonic rock consisting of potassium feldspar, quartz, plagioclase, biotite and hornblende. Granodiorite is an intermediate between quartz, monzonite and quartz diorite.
Gravel	The amount (visual abundance estimate) of gravel-sized (>2mm) materials that occur on the surface and in the A1 horizon and include hard (when moist), coarse fragments and segregations of pedogenic origin.
Gravelly	Over 60% of surface cover consists of gravel (2 - 60mm).
Greenhouse gas	The gases present in the earth's atmosphere which reduce the loss of heat into space and therefore contribute to global temperatures through the greenhouse effect.
Good quality agricultural land	Land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources. As defined in State Planning Policy 1 / 92: Development and the Conservation of Agricultural Land.
Gross Domestic / State / Regional Product	Represents the market value of all final goods and services produced within the Australian / State / regional economy during a given period of time.
Gross operating surplus	Represents the excess of gross output over the sum of intermediate consumption, compensation of employees and taxes less subsidies on production and imports.
Gross value added	Measurement of the contribution to the economy of each individual producer, industry or sector based on the net activity at each stage of production. Gross value added only measures the additional value added at each stage of production, and as such is considered a true measure of economic activity.
Groundwater	All the water contained in the pores/voids within unconsolidated sediments or consolidated rocks (i.e. bedrock).
Group	A grouping of geological or hydrogeological formations.
Habitat	An area or areas permanently, periodically or occasionally occupied by a species, population or ecological community, including any and all biotic and abiotic features of the area or areas occupied
Half graben	A topographic depression that forms as a result of movement on a fault plane.
Haulage Route	Private and public road sections utilized by heavy vehicles for the bulk movement of materials
Hazard	A source of potential harm (AS/NZS ISO 3100:2009 Risk management – Principles and guidelines).
HAZID	A hazard identification study to identify major hazards and risks.
HAZOP	A hazard and operability study to identifying hazards which may prevent efficient operation and/or which may pose a risk to the safety of personnel.
Heavy Vehicle	Commercial vehicle with a gross vehicle mass exceeding 2.5 tons

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Abbreviation	Meaning
High Value Regrowth	Regrowth that has been mapped and protected from clearing as 'Regulated Regrowth' under the VM Act.
Holocene	Present geological epoch which commenced 10,000 years ago.
Horizon	A layer within the soil profile with morphological characteristics and properties different from layers below and/or above it.
Household	The ABS defines a household as one or more persons, at least one of whom is at least 15 years of age, usually resident in the same private dwelling.
Hydraulic conductivity	The ease with which water moves through soil or rock. A coefficient ("K") depends on the physical properties of formation and fluid. "K" is the rate of flow per unit crosssectional area under the influence of a unit gradient, and has the dimension of length <sup>3</sup> /length <sup>2</sup> x time or length/time (e.g. m/s).
Hydraulic gradient	The change in hydraulic head or water level over a distance. Usually expressed in meters/meter. For example, a hydraulic gradient of 0.01 indicates a one-metre drop in water level over a distance of 100m. The hydraulic gradient is the driving force that causes groundwater to flow.
Hydraulic head	A measure of the groundwater pressure in an aquifer. Hydraulic head is determined from water level measurements in wells.
Hydrocarbons	An organic molecule containing hydrogen and carbon; the major component of petroleum.
Hydrochemical type	The definition of a chemical composition of groundwater based on the relative percentages of major cation and anion concentrations.
Hydrogeology	The science that relates geology, fluid movement (i.e. water) and geochemistry to understand water residing under the earth's surface. Groundwater as used here includes all water in the zone of saturation beneath the earth's surface, except water chemically combined in minerals.
Hydrographic	Mapping of an area of sea including coastal features.
Hydrological cycle	The paths water takes through its various states--vapour, liquid, solid--as it moves throughout the oceans, atmosphere, groundwater, streams, etc.
Hydrological integrity	The ability of a landscape to maintain proper drainage and groundwater-surface water interaction to support healthy ecological functioning and aquatic habitat.
Hydrosols	Seasonally or permanently wet soils
Hydrostatic head	The force (pressure) exerted by a body of fluid at rest.
Hydrostratigraphic unit	Geological units that are not solely based on lithologic characteristics but also include characteristics related to water movement, occurrence and storage.
Impact Mitigation	Road upgrade works undertaken to provide traffic operation at a standard equivalent to that which would exist if a development was not undertaken.
Impermeable layer	A layer of material (such as clay) in an aquifer through which water does not pass.



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Abbreviation	Meaning
In situ	A Latin phrase meaning in the place.
Indicators	Anything that is used to measure the condition of something of interest. Indicators are often used as variables in the modelling of changes in complex environmental systems.
Industry output	Measurement of the contribution to the economy of each producer, industry or sector based on the gross sales throughout the whole economy. As a gross measurement, industry output includes the purchases of goods and services consumed in the production process, and as such “double counts” the contribution of these goods and services.
Infiltration	Flow of water from the land surface into the subsurface. Infiltration is the main factor in recharge of groundwater reserves.
Initial advice statement	A document prepared for a proposed project that is submitted to the Coordinator-General so that a decision can be made as to whether the project should be declared a ‘significant project for which an environmental impact statement is required’ under Section 26 (1) (a) of the Queensland State Development and Public Works Act 1971.
Instream flow needs	The amount of water required in a river to sustain a healthy aquatic ecosystem, and/or meet human needs such as recreation, navigation, waste assimilation or aesthetics.
Integration	The degree to which a development component can be blended into the existing landscape without necessarily being screened from view.
Interfluve	A ridge or area of land dividing two river valleys.
Inter-generational equity	A concept that says the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
Inter-regional traffic	Vehicle movements over relatively long distances from one region to another
Inter-state Traffic	Vehicle movements over relatively long distances from one state to another
Irrigation	The controlled application of water to cropland, hay fields, and/or pastures to supplement that supplied by nature.
Jurassic	Geological period 295 - 135 million years ago.
Kandosol	Other soils that are lacking a strong texture contrast and (i) have well-developed B2 horizons in which the major part is massive or has only a weak grade of structure, and (ii) have a maximum clay content in some part of the B2 horizon which exceeds 15%.
kg CaCO <sup>3</sup> / tonne	Acid neutralisation liming rate unit expressed as kilograms of calcium carbonate per metric tonne
Kurosol	Soils with a clear or abrupt textural B horizon and in which the major part of the upper 0.2m of the B2 horizon (or the major part of the entire B2 horizon if less than 0.2m thick) is strongly acid (i.e. pH<5.5).
Labour force	The labour supply available for the production of economic goods and services in a given period. Labour force is the most widely used measure of the economically active population.

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Abbreviation	Meaning
Lacustrine deposits	Sedimentary material laid down in a lake environment.
Lacustrine sediment	Sediment mass deposited from transport by waves and from sediment solution and suspension in still water in a closed depression on land.
Lagoon	A body of water enclosed by a barrier, such as a water storage pond.
Landform	A natural feature of a land surface such as a mountain, plain or valley.
Landscape	Natural and manmade features of the urban, rural or natural environment, such as vegetation, topography and land use elements.
Landscape character zone	Zones of the landscape that defined by geographical and topographical boundaries.
Landscape Condition	Is a measure of the physical status of the area and landscape. This is in line with people's perception of the landscape and less concerned with visual impact.
Landscape typology	Classification of land characteristics according to their structural features
Lateritic	Red, residual soil containing large amounts of aluminium and ferric hydroxides, formed by the decomposition of many kinds of rocks.
Lateritised	The process of formation of a soil by leaching of silica and residual enrichment of aluminium and iron oxides.
LCRE	Least concern regional ecosystem
Leachate	Liquids that have percolated through a soil and that carry substances in solution or suspension.
Least Concern	Designated as 'Least Concern' under the VM Act. Refer to definition of 'VM Act status' for meaning of 'Least Concern' under the Act.
Level of Service	A qualitative measure describing traffic operational conditions on a road and the perception of these conditions by motorists and/or passengers.
Light Vehicle	Non-commercial vehicle, limited to 2 axles and a gross vehicle mass of 2.5 tons
Likelihood	Used as a general description of probability or frequency. Can be expressed qualitatively or quantitatively (AS/NZS ISO 3100:2009 Risk management – Principles and guidelines).
Limestone	A sedimentary rock rich in calcium carbonate.
Lithic	Formed of rock.
Lithology	The systematic description of sediment and rocks, in terms of composition, texture and internal structure.
Lithosol	A shallow soil showing minimal profile development and dominated by the presence of weathering rock and rock fragments. Lacking horizons other than an A1 (one layer only).
Loam	A medium, textured soil of approximate composition 10 – 25 per cent clay, 25 - 50 per cent silt and <50 per cent sand.

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Abbreviation	Meaning
Local Government Area	A geographical area under the responsibility of an incorporated local government Council
Loss of containment	Unintended spill or leak from the primary containment.
Macroinvertebrates	The taxonomic group of freshwater invertebrates, which are visible without magnification.
Material Stockpiling	Temporary bulk storage of materials in a pile until such time that it can be processed, reused or transported for an alternative use.
Material Treatment	Processing of raw materials to refine to a higher grade material suitable for transport and sale to customer.
Matters of national environmental significance	Matters of national environmental significance, as defined under the Environment Protection and Biodiversity Conservation Act 1999.
Melonhole	Irregularly distributed large depressions within soil surface, usually greater than 3m in diameter.
Mesa	An elevated area of land with a flat top and sides that are usually steep cliffs.
Mesozoic	The middle of the three Phanerozoic eras; it lasted from 245 to 65 million years before present.
Metamorphic rock	A rock derived from pre-existing rocks by way of mineralogical, chemical, or structural changes. These changes come in response to marked changes in temperature, pressure, shearing stress, or the chemical environment.
Micro-bat	Bats belonging to the suborder Microchiroptera, typically small, insectivorous and able to echolocate.
Micro-habitat	A small localized habitat within a larger ecosystem.
Migratory species	Species listed as 'Migratory' under the EPBC Act
Mine Catchment	Consists of the Barcaldine and Central Highlands Regional Councils, and represents the local economies that are most likely to be directly impacted by mining activities undertaken during the China First Project.
Mine footprint	Area to be cleared for mining activities.
Mine surface clearance footprint	Same as 'Mine footprint'.
Mining Lease	Area of land where exploration has identified suitable resources for extraction and a lease arrangement has been entered into with relevant land holders and authorities to investigate and commence resource extraction
Mitigation	Actions that can be taken to reduce the affect of actions/works.
Mixing height	The height of the mixing layer in the lower atmosphere.

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Mol H+ / tonne	Acid quantity expressed as molar concentration of hydrogen ions per metric tonne
Monitoring well	A constructed controlled point of access to an aquifer which allows groundwater observations. Small diameter observation wells are often called piezometers.
Mottled horizon	A horizon in which mottle abundance is greater than 10 per cent (visual abundance estimate) and contrast between colours is distinct and prominent.
Mottling	The presence of more than one soil colour in the same soil horizon, not including different nodule or cutan colours.
Mound spring	Mound springs are geomorphic formations raised above the surrounding land surface formed by a deposit of minerals and sediment brought up from artesian aquifers or confining beds by water at certain natural discharge points in the Great Artesian Basin. Other spring systems not raised above the surrounding land surface also occur throughout the Basin.
NC Act conservation status	<p>Under the NC Act, protected species are assigned a conservation status of ‘Extinct in the wild’, ‘Endangered’, ‘Vulnerable’, ‘Near Threatened’, or ‘Least Concern’. Definitions of these terms under the NC Act are as follows:</p> <p><b>Extinct in the wild</b>                      there have been thorough searches conducted for the wildlife and                      it has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife.</p> <p><b>Endangered</b>                      there have not been thorough searches conducted for the wildlife and the wildlife has not been seen in the wild over a period that is appropriate for the life cycle or form of the wildlife or                      the habitat or distribution of the wildlife has been reduced to an extent that the wildlife may be in danger of extinction or                      the population size of the wildlife has declined, or is likely to decline, to an extent that the wildlife may be in danger of extinction or                      the survival of the wildlife in the wild is unlikely if a threatening process continues.</p> <p><b>Vulnerable</b>                      its population is decreasing because of threatening processes or                      its population has been seriously depleted and its protection is not secured or                      its population, while abundant, is at risk because of threatening processes or                      its population is low or localised or depends on limited habitat that is at risk because of threatening processes.</p> <p><b>Near Threatened</b>                      the population size or distribution of the wildlife is small and may become smaller or                      the population size of the wildlife has declined, or is likely to decline, at a</p>

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Abbreviation	Meaning
	<p>rate higher than the usual rate for population changes for the wildlife or the survival of the wildlife in the wild is affected to an extent that the wildlife is in danger of becoming vulnerable.</p> <p>Least Concern</p> <p>the wildlife is common or abundant and is likely to survive in the wild.</p> <p>Native wildlife may be prescribed as Least Concern wildlife even if:</p> <p>the wildlife is the subject of a threatening process or the population size or distribution of the wildlife has declined or there is insufficient information about the wildlife to conclude whether the wildlife is common or abundant or likely to survive in the wild.</p>
Near Threatened	Designated as 'Near Threatened' under the NC Act. Refer to definition of 'NC Act conservation status' for meaning of Near threatened under the NC Act.
No Through Road	A road reserve which provides vehicle access at one end only, requiring any vehicle entering this road section to exit via the same location or via private property.
Non-remnant vegetation	Vegetation that is not mapped as remnant vegetation by DERM and / or which fails to meet DERM's criteria for 'remnant vegetation' (see definition of 'remnant vegetation', below). This includes regrowth, heavily thinned or logged vegetation and significantly disturbed vegetation that fails to meet the structural and / or floristic characteristics of remnant vegetation. It also includes urban and cropping land. Non-remnant vegetation may retain significant biodiversity values (Neldner et al. 2005).
NOx	Oxides of nitrogen (NOx) is a generic term for mono-nitrogen oxides (NO and NO2). The oxides of nitrogen are predominantly (greater than 90%) nitric oxide (NO).
Nutrients	Any substance that promotes growth with living organisms. The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements.
Observers	A person or group of people who are seeing the view
OCRE	Of concern endangered regional ecosystem
Old age dependency ratio	The ratio of people aged 65 years and over to people of working age (from 15 to 64 years of age).
Offsetting	Anything that balances, counteracts, or compensates for something else; providing compensation. For example carbon offsetting is the process of reducing greenhouse gas emissions by purchasing credits from others through emissions reductions projects, or carbon trading schemes.
One-third-octave spectrum	The frequency content of a noise is described by a frequency spectrum. A frequency spectrum can be expressed as a one-third-octave spectrum, which, instead of displaying every frequency individually, is comprised of sub-frequency ranges centred at the following frequencies, measured in Hertz (1 Hertz = 1 cycle per second): 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, etc.
Overburden	Any loose material which overlies bedrock (often used as a synonym for Quaternary sediments and/or surficial deposits) or any barren material, consolidated or loose, that

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Abbreviation	Meaning
	overlies a coal body.
Over Dimensional Vehicle	Vehicle which exceeds standard legal dimensions, without the need for an operating permit. These dimension limits are typically, 4.5m high, 2.5m wide and 53.5m long, depending on vehicle class.
Oxidation	A chemical reaction in which ions are transferring electrons, to increase positive valence.
Palaeocene	Period of geological time, 65 – 54.8 million years before present.
Palaeochannel	A buried stream channel.
Palaeozoic	Geological Era dating from 570 million years before present to 225 million years before present
Particulate matter (PM)	Dust particles in the air
Pavement Impact Assessment	Engineering report provided to determine the impact of development scenarios on the structure of pavements within the local road network.
Peak VPH	The maximum traffic volume occurring during a single hour of a specific time period (usually a day)
Peat	Unconsolidated soil material consisting largely of undecomposed, or only slightly decomposed, organic matter.
Ped	An individual, natural soil aggregate.
Pedologically	Relating to the study of soils
Percentile	A value on a scale that indicates the percent of a distribution that is equal to it or below it. For example, the 95th percentile is a value below which 95 percent of the data reside.
Perched aquifer	Localized zone of saturation above the main water table created by an underlying layer of impermeable material.
Percolation	The movement of water through the openings in rock or soil.
Perennial	A stream, creek, river or waterbody that carries or contains water in parts of its bed all year round during years of normal rainfall.
Permeability	A measure of the ability of a medium to transmit a fluid (any fluid). Similar to hydraulic conductivity that describes the ability of a porous medium to transmit water specifically.
Permian	Period of geological time, 290 – 248 million years before present.
pH	The logarithm of the reciprocal of hydrogen-ion concentration in gram atoms per litre; provides a measure on a scale from 0 to 14 of the acidity or alkalinity of a solution (where 7 is neutral and greater than 7 is more basic and less than 7 is more acidic).
pHf	Soil pH measured in the field on saturated soil paste sub sample

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Abbreviation	Meaning
pHfox	Soil pH measured in the field on a sub sample of soil after oxidation with 30% hydrogen peroxide
Phenols	Oxygen–substituted benzenes commonly derived from the degradation of natural organic matter, the distillation of wood and coal, and the refining of oil. This particular class of organic compounds is ubiquitous in nature, and is common in groundwater.
Planning noise level	Nomenclature specific to the Department of Environment and Resource Management Ecoaccess guideline 'Planning for noise control' defining the permissible noise contribution from a proposed facility at a defined receptor.
Pleistocene	First epoch of the Quaternary period, from two million years ago to 10,000 years ago.
Pleistocene Epoch	Geological time epoch dating from 2-3 million years before present to 10 000 years before present. The Pleistocene epoch and the Holocene epoch make up the quaternary period
Pollution	An alteration in the character or quality of the environment, or any of its components, that renders it less suited for certain uses. The alteration of the physical, chemical, or biological properties of water by the introduction of any substance that renders the water harmful to use.
Polycyclic aromatic hydrocarbons	A group of over 100 different organic compounds composed of several benzene rings.
Porosity	The ratio of the volume of void or air spaces in a rock or sediment to the total volume of the rock or sediment. The capacity of rock or soil to hold water varies with the material. For example, saturated small grain sand contains less water than coarse gravel.
Precautionary principle	Within the context of social impact assessment, the precautionary principle infers that social impacts shall be identified, described and monitored even though the potential risk of a serious social impact may be low, or the actual impact difficult to predict or quantify.
Predators	An ecological functional feeding group of macroinvertebrates. Predators are animals that require live prey.
Primary containment	First level of containment, eg containers, vessels, pipework.
Priority Controlled Intersection	Intersection of two roads where one road has priority over the other provided by Stop sign control, Give Way control or by the t-intersection priority rules
Public Road	Road section provided within a road reserve which is legally accessible to any person utilizing an appropriate mode of transport
Quaternary Period	A time period dating from approximately 2-3 million years before present to present time
Queuing	Extent of road, from a control point, occupied by very slow moving or stationary vehicles.
Radius of influence	Radial distance to points where hydraulic head is noticeably affected by a pumping well.

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Abbreviation	Meaning
Rail corridor	The 'corridor' of land in which the China First Project's rail line will intersect.
Ramsar	The Ramsar Convention (The Convention on Wetlands of International Importance, especially as Waterfowl Habitat) is an international treaty for the conservation and sustainable utilisation of wetlands.
Rating background noise level	Nomenclature specific to the Department of Environment and Resource Management Ecoaccess guideline 'Planning for noise control' defining the background noise level from LA90,15minute levels during the day, evening and night over a minimum seven day period.
Real wage impact	Measurement of the change in wages and salaries as a result of a project over and above impacts on inflation.
Receptors	<p>a) Sensitive component of the ecosystem that reacts to, or is influenced by environmental stressors (as defined in the Aquatic Ecology chapters).</p> <p>b) Sites from which the proposed Project can be seen (as defined in the Landscape and Visual Amenity chapters).</p> <p>c) A place that may be sensitive to additional noise associated with a proposed development (as defined in the Noise and Vibration chapters).</p>
Recharge	The infiltration of water into the soil zone, unsaturated zone and ultimately the saturated zone. This term is commonly combined with other terms to indicate some specific mode of recharge such as recharge well, recharge area, or artificial recharge.
Recharge area	An area where permeable soil or rock allows water to seep into the ground to replenish an aquifer.
Recovery	The return of environmental conditions to the state before the project.
Red earths	Massive, reddish sandy profiles with a gradual increase in clay content with depth over a diffuse to gradual boundary.
Refugia	A geographical location that maintains habitat when other areas not longer are accessible, places where negative impacts are lower than elsewhere
Regional Ecosystem	A vegetation community, within a bioregion, that is consistently associated with a particular combination of geology, landform and soil. REs may be classified under schedules 1–3 of the Vegetation Management Regulation 2000 as either Endangered, Of Concern or Least Concern. Refer to 'VM Act conservation status' for meaning of Endangered, Of Concern or Least Concern under the VC Act.
Regionally Significant	Refer to taxa not listed as Threatened or Near Threatened species under the EPBC Act and / or NC Act, but have been listed as non-threatened priority taxa for the Desert Uplands bioregion.
Regrowth	A native vegetation community that has regrown after clearing, in which native species that would have naturally occurred within this vegetation community dominate but have not reached the height and canopy cover necessary to be regarded as remnant as defined in the Queensland Vegetation Management Act 1999.
Rehabilitation	The process of environmental restoration to a former condition or status after some



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Abbreviation	Meaning
	process (business, industry, natural disaster etc.) has damaged it.
Remediation	Containment, treatment or removal of contaminated groundwater. May also include containment, treatment or removal of contaminated soil above the water table.
Remnant vegetation	Remnant woody vegetation is defined as vegetation where the dominant canopy has >70% of the height and >50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy (Neldner et al. 2005).
Reported Crashes	Vehicle crash incidents which resulted in fatalities, hospitalization, reported injuries or at least \$1,000 of property damage.
Riparian	Any land which adjoins or directly influences or is influenced by a body of water.
Road Reserve	Section of land under public ownership which is retained for the purpose of constructing a road to provide direct access to private properties and the movement of traffic
Road Train	Articulated truck consisting of a tractor and at least 2 trailers
Road Shoulder	Area of sealed, unsealed or formed road adjacent to, and at grade with, traffic lanes to provide an effective road widening to allow parking, stopping or run-off from the main carriageway
Rock pavement	Areas of shallow skeletal soils formed on Cainozoic lateritic duricrusts and sometimes lithosols derived from quartzose sandstone, forming a mosaic of exposed gravelly soils and sclerophyllous shrubs.
Rudosol	Soils with minimal soil development
Runoff	The portion of precipitation (rain and snow) that ultimately reaches streams.
Run-of-Mine	Coal as it comes from the mine prior to screening or any other treatment.
Safe yield	The annual amount of water that can be taken from a source of supply over a period of years without depleting that source beyond its ability to be replenished naturally in "wet years."
Saleable coal	Coal that has been screened and treated and is suitable for sale.
Salinity	An accumulation of soluble salts in the soil root zone, at levels where plant growth or land use is adversely affected. Also used to indicate the amounts of various types of salt present in soil or water (see total dissolved solids).
Sampling sites	Specific locations within the study area where data is collected.
Sandstone	A sedimentary rock composed of individual grains of sand cemented together.
Scarp	A line of cliffs produced by faulting or erosion.
Scope 1 emissions	Scope 1 greenhouse gas (GHG) emissions are produced from sources within the reporting boundary and arise from: combustion of fuels to generate heat and energy; on-site transport; and fugitive (intentional or unintentional) releases of GHGs from pipes and joints.

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Abbreviation	Meaning
Scope 2 emissions	Scope 2 GHG emissions arise from purchased electricity, heat and steam. These emissions are generated outside of the project boundary.
Scope 3 emissions	Scope 3 GHG emissions are related to the activities of the reporting entity but arising from sources beyond the reporting boundary – for example, extraction, processing and transport of purchased fuels to the project site.
Sealed Road	Road carriageway constructed with a waterproof upper layer, generally formed by asphalt or a bituminous spray seal.
Secondary containment	Second level of containment, eg bunds, outer tanks.
Seep Point	Where seepage occurs.
Seepage	1. The slow movement of water into or out of a body of surface or subsurface water. 2. The loss of water by infiltration into the soil from a canal, ditch, lateral, watercourse, reservoir, storage facility, or other body of water, or from a field.
SEIFA	SEIFA is a series of indices developed by the ABS to measure socio-economic conditions for geographic areas:  the Index of Relative Socio-economic Disadvantage focuses on variables such as low income, low educational attainment, unemployment, and dwellings without motor vehicles;  the Index of Relative Socio-economic Advantage and Disadvantage is a continuum of advantage (high values) to disadvantage (low values) which is derived from variables such as households with low income and people with a tertiary education;  the Index of Economic Resources focuses on variables such as the income, housing expenditure and assets of households; and  The Index of Education and Occupation focuses on the proportion of people with a higher qualification or those employed in a skilled occupation.  Additional details can be sourced from a SEIFA Technical Paper (refer ABS, 2006).
Seismic	Pertaining to shock waves, natural or artificial, within the Earth.
Sensitive receptors	Locations that may be sensitive to air quality
Sensitive Receivers	Land uses which will be excessively impacted by moderate changes in increased environmental inputs such as noise, pollution, dust, etc.
Sensitivity	The relative susceptibility to adverse impacts to environments.
Sex Ratio	The number of males per 100 females.
Shade lines	Long narrow strips of native trees retained within pasture areas to provide shelter from prevailing winds and shade for livestock.
Shale	A sedimentary rock formed by the deposition of successive layers of clay.
Shear stress	A condition in which the material on one side of a surface pushes another material on the other side of the surface with a force that is parallel to the surface.

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Abbreviation	Meaning
Sheet erosion	The removal of the upper layers of soil by raindrop splash and/or runoff.
Silt	Mud or clay or small rocks deposited by a river or lake. Fine particles in the size range 0.02 - 0.002 mm.
Siltstone	Fine-grained sandstone of consolidated silt.
Skills shortage	An economic condition in which there are insufficient qualified candidates (employees) to fill available positions.
Skills transfer	Refers to the transference of skills from one employee to another.
Social impact assessment	SIA is the process of analysing and managing intended and unintended consequences of planned interventions (projects or policies) and any social change processes invoked by those interventions, to bring about a more sustainable and equitable biophysical and human environment.
Sodic	Soil containing sodium
Sodosol	Soils high in sodium with an abrupt increase in clay in the B horizon
Soil profile	A vertical section of the soil through all its horizons and extending into the parent material.
Solum	The upper part of a soil profile above the parent material in which current processes of soil formation are active. This is where the living roots and other plant and animal life characteristics are exhibited.
Specific storage	The volume of water released from a unit volume of porous aquifer when there is a unit decline of hydraulic head. Compare with storativity, which is the specific storage multiplied by the aquifer thickness.
Stakeholder	A person or organisation with an interest or stake in a project.
State Transport Authority	Government agency responsible for state wide infrastructure, includes TMR, Queensland transport, Queensland Rail, etc.
Static water level	1. Elevation or level of the water table in a well when the pump is not operating. 2. The level or elevation to which water would rise in a tube connected to an artesian aquifer or basin in a conduit under pressure.
Status	The listing of a species or community under various legislation or in government documents, for example, endangered, vulnerable, least concern Stepping stones Disconnected patches of habitat that more mobile species, or species with some tolerance of modified habitat, move through from one vegetation patch to another.
Storativity	The volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer, per unit change in head. It is equal to the product of specific storage and aquifer thickness. In an unconfined aquifer, the storativity is equal to the specific yield.
Storm tide	Combination of the surge with the normal tide of the day.
Stratigraphy	The study of the sequence of layered geologic deposits based on their spatial positions, depositional sequence in time, and correlations across different localities.

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Abbreviation	Meaning
Steady state operations	Refers to a state in which operational activity does not change substantially over time.
Stream power	The rate of energy dissipation against the bed and banks of a river or stream.
Stygofauna	Any fauna that live within groundwater systems, such as caves and aquifers, or more specifically small, aquatic groundwater invertebrates, though terrestrial air-breathing subterranean animals are also sometimes included.
Subcrop	Bedrock unit occurring at the bedrock surface but covered by surficial deposits.
Subsidence	The gradual settling or sudden sinking of the land surface owing to natural or anthropogenic influences of materials in the subsurface.
Subsoil	The layer of weathered material that underlies the surface soil.
Subtidal	A marine or estuarine environment that lies below mean low-water; always (or almost always) submerged in a tidally-influenced area.
Surface water	Water above the surface of the land, including lakes, rivers, streams, ponds, floodwater, and runoff.
Surficial deposits	Uncompacted sediments and soil lying on bedrock or occurring on or near the earth's surface.
Surficial sediments	Gravel, sand, silt, and clay particles that form the seabed.
Table Drain	Shallow drainage channel located in the road verge running parallel to the carriageway which collects run off from the carriageway and directs flows to the drainage network
TEC	Threatened ecological community
Temporary accommodation facility	Onsite accommodation for the construction and/or operational workforce.
Temperature inversion	Refers to a layer of air in the atmosphere in which the temperature cools at a much lower rate (or even warms) with height than in other parts of the atmosphere.
Tenosols	Weakly developed soils
Terms of Reference	As defined by Part 4 of the State Development and Public Works Organisation Act 1971.
Tertiary	A geological time unit from about 65 to 2 million years ago.
Texture	A measure of the behaviour of a small handful of soil when moistened and kneaded into a ball (bolus) and then pressed out between the thumb and forefinger.
Texture contrast soils	Soils with a very strong contrast between layers of different soil types.
Threatened	A term used for:  flora and fauna species which have been designated as Extinct in the wild, Endangered or Vulnerable under the NC Act;  flora and fauna species which have been designated as Extinct in the wild, Endangered

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Abbreviation	Meaning
	or Vulnerable under the EPBC Act;  Ecological Communities designated as Critically Endangered, Endangered or Vulnerable under the EPBC Act; and / or  REs designated as Endangered or Of Concern under the VM Act.
Tide	Movement of the oceans due to astronomical influences.
Tonality	Noise containing a prominent frequency and characterized by a definite pitch
Topography	A description of the surface features of a place or region.
Topsoil	A part of the soil profile, typically the A1 horizon, containing material which is usually darker, more fertile and better structured than the underlying layers.
Total dissolved solids	Concentration of all substances dissolved in water (solids remaining after evaporation (TDS) of a water sample).
Total solids	The weight of all present solids per unit volume of water. It is usually determined by evaporation. The total weight concerns both dissolved and suspended organic and inorganic matter.
Tract	A generally continuous patch of native vegetation often containing more than one vegetation community type.
Trade exposed	An industry or commodity that is exposed to international competition and prices.
Traffic Impact Assessment	Engineering report provided to determine the impact of development scenarios on traffic flows within the local road network.
Transmissivity	A measure of the capability of the entire thickness of an aquifer to transmit water. Also known as coefficient of transmissivity.
Transport Loading	Location of bulk loading equipment to move materials onto transport vehicles for movement to another location
Triassic	Period of geological time, approximately 180 – 250 million years before present.
Turbidity	The cloudiness or haziness of a fluid caused by individual particles (suspended solids) that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality.
Unconfined Aquifer	A permeable bed only partly filled with water and overlying a layer of lower hydraulic conductivity. Its upper boundary is formed by a free water table where pore pressure is equal to atmospheric pressure. Water in a well penetrating an unconfined aquifer does not, in general, rise above the water surface.
Unformed Road	Road reserve which has not been significantly constructed in any way. Vehicle path may be fully undefined or limited to wheel tracks resulting from occasional vehicle passage.
Unsaturated zone	The body of soil and rock separating the water table and the land surface.
Unsealed Road	Constructed road pavement finished with a graded gravel surface and with no waterproof top layer.

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Abbreviation	Meaning
Vehicle Class/Classification	Grouping of vehicles by their axle configuration
Vertosol	Clay soils with shrink-swell properties that exhibit strong cracking when dry and at depth have slickensides and/or lenticular structural aggregates. Although many soils exhibit gilgai microrelief, this feature is not used in their definition.
Vehicle Delay	Time penalty to a vehicle resulting from traffic congestion or the requirement for a vehicle to slow or stop to give priority to other road users
Vehicle Kilometers Travelled	Sum of all kilometers travelled by all vehicles on a road section or network
Verge	Area of road reserve between the carriageway and the property boundary
View-shed	Is a region or area visible to an observer.
View distance	The distance an observer can see, this is influence by weather conditions, vegetation, and elevation.
Visual buffering	An effect of mitigation in obstructing the view between the observer and the area being seen.
Visual impact	An assessment of the affect a change in a view will cause to observers.
Visual sensitivity	The ability of a view to accommodate changes and the affect the change has on the view.
VM Act conservation status	<p>Under the VM Act, REs may be classified as either ‘Endangered’, ‘Of Concern’ or ‘Least Concern’. Definitions of these terms under the VM Act are provided below.</p> <p><b>Endangered</b></p> <p>less than 10% of pre-clearing extent of remnant vegetation (see following definition) exists in the bioregion, or 10 to 30 % of pre-clearing extent remains and the remnant vegetation is less than 10 000 hectares.</p> <p>In addition, for biodiversity planning purposes DERM also classifies a regional ecosystem as Endangered if:</p> <p>less than 10% of its pre-clearing extent remains unaffected by severe degradation and / or biodiversity loss or</p> <p>10-30% of its pre-clearing extent remains unaffected by severe degradation and / or biodiversity loss and the remnant vegetation is less than 10,000 hectares; or it is a rare regional ecosystem subject to a threatening process.</p> <p><b>Of Concern</b></p> <p>10 to 30% of pre-clearing extent of remnant vegetation exists in the bioregion, or more than 30% of pre-clearing extent remains and the remnant vegetation is less than 10 000 hectares.</p> <p>In addition, for biodiversity planning purposes DERM also classifies a regional ecosystem as Of Concern if:</p> <p>10-30% of its pre-clearing extent remains unaffected by moderate degradation and / or</p>

Volume 5 – Attachments  
Attachment 4 – Abbreviations and Glossary of Terms  
China First Project Environmental Impact Statement



Abbreviation	Meaning
	<p>biodiversity loss.</p> <p>Least Concern</p> <p>more than 30% of pre-clearing extent of remnant vegetation exists in the bioregion, and it is greater than 10, 000 hectares.</p> <p>In addition, for biodiversity planning purposes DERM also classifies a regional ecosystem as Least Concern if the degradation criteria listed above for Endangered or Of Concern regional ecosystems are not met.</p>
Volatile Organic Compounds (VOCs)	Any organic compound which participates in atmospheric photochemical reactions.
Volunteer	The ABS define a volunteer as anyone who has spent time doing unpaid voluntary work through an organisation or group in the 12 months prior to the census night.
Vulnerable	Designated as 'Vulnerable' under the EPBC Act and / or NC Act. Refer to definitions of 'EPBC Act conservation status' and 'NC Act conservation status' for meaning of 'Vulnerable' under these Acts.
Water column	The height of water in a waterway.
Watershed	An area bounded peripherally by a divide, draining ultimately to a particular watercourse or waterbody.
Weeds	Plant species that invade native ecosystems and can adversely affect the survival of indigenous flora and fauna.
Well	An excavation or structure created in the ground by digging, driving, boring or drilling to access water in the subsurface.
Wet Season	In Queensland this is typically the period between November and April
Wetland	The land area alongside fresh and salt waters, that is flooded all or part of the time.
Wind rose	Wind roses show the frequency of occurrence of winds by direction and strength.
Workforce	<p>The ABS defines anyone aged 15 years and over and either employed or unemployed (but looking for work) in the week prior to the Census Night as part of the workforce. Those people not in the workforce are aged 15 years and above and usually studying on a full-time basis, retired or are either physically or mentally incapacitated and therefore unable to undertake work.</p>
World Heritage Area	Australia has 17 world heritage sites with five in Queensland. Sites listed by the International World Heritage Programme. The Programme catalogues sites of cultural or natural importance to the common heritage of humanity.
Yield	The quantity of water removed, or able to be removed from a well.