

Section 9 Glossary of Technical Terms, Acronyms, Symbols and Units



Glossary of Technical Terms

- **Aboriginal Heritage Site** discrete area or concentration of artefactual material, place of past Aboriginal activity, or place of significance to Aboriginal people.
- acid substance with a pH less than 7.0
- acid sulphate soil common name given to sediment and soil containing iron sulphides (pyrite) which oxidise creating sulfuric acid.
- **alluvium** deposit of sand, mud, etc. formed by flowing water.
- ambient relating to conditions outside the active project area.
- anion a negatively charged ion.
- aquatic living in or on water, or concerning water.
- **aquifer** rock or sediment capable of holding and transmitting groundwater.
- **archaeology** the scientific study of human history, particularly the relics and cultural remains of the distant past.
- artefact anything made by human workmanship, particularly by previous cultures (such as chipped and modified stones used as tools).
- **attenuation** reduction in sound pressure levels between two locations.
- background noise levels the level of the ambient sound indicated on a sound level meter in the absence of the sound under investigation (e.g. sound from a particular noise source: or sound generated for test purposes).
- backfill material used to fill created void.
- **biophysical** relating to the biological and physical attributes of the environment.
- biota living components of a habitat.
- **bore** a well, usually of less than 20 cm diameter, sunk into the ground and from which water is pumped or monitored.
- **Calcarosols** soils formed on calcareous aeolian sediments of variable texture.

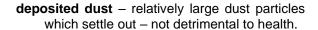
- catchment the entire land area from which water (e.g. rainfall) drains to a specific water course or waterbody.
- chromosols soils that display a strong texture contrast between surface (A) horizons and subsoil (B) horizons.
- **clay** very fine-grained sediment or soil (often defined as having a particle size less than 0.002 mm (2 microns) in diameter).
- concentration the amount of a substance, expressed as mass or volume, in a unit volume of air.
- **conductivity** the dissolved salt content of water expressed in terms of μs/cm.
- conglomerate coarse grained sedimentary rock (>2mm) consisting of subrounded fragments.
- **consolidation** the process whereby loose or soft sedimentary material (e.g. an alluvial deposit) becomes a compacted, harder sedimentary material (e.g. a sandstone).
- **contaminant** any physical, chemical, biological or radiological substance or matter in water or soil that is not of natural origin.
- contamination the degradation of natural water quality as a result of man's activities. There is no implication of any specific limits, since the degree of permissible contamination depends upon the intended end use, or uses, of the water.
- **contour bank** an earth bank constructed across a slope parallel to contours.
- **cross-section** a two-dimensional diagram of an object presented as if the object had been cut along its length.
- **cutter-suction dredge** a floating machine that extracts sand through mechanically cutting and then pumping the sand to a processing plant.
- cyclone a conical shaped vessel designed to separate particles from a moving stream of either air or water.
- **decibel** unit expressing difference in power between acoustic signals.

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- **dermosols** non texture contrast soils that have structured subsoils (B horizons).
- **Development Application** an application for approval of an activity deemed to require an approval prior to commencement.
- **dewatering** part removal of water from an aquifer system in excess of natural recharge so that the potentiometric surface declines appreciably in the area of extraction.
- ecologically sustainable development (ESD) using, conserving and enhancing the community's resources so that ecological processes on which life depends are maintained and the total quality of life, now and in the future can be increased.
- electrical conductivity (EC) the ability of a substance (either solid, liquid or gas) to transmit electricity – an indicator of salinity.
- ephemeral lasting only a short time.
- **ephemeral creek** creek in which flow is intermittent, usually short term following rainfall.
- **erodibility** the tendency of soil, earth or rock to erode.
- **erosion** the wearing away of the land surface (whether natural or artificial) by the action of water, wind and ice.
- **evaporation** the loss of water as vapour from the surface of a liquid that has a temperature lower than its boiling point.
- exotic introduced or foreign, not native.
- extraction area an area that is approved for extraction.
- final void cavity created by material extraction.
- fluvial pertaining to or produced by a river.
- **fractures** any breakage of a rock mass along a direction or directions not associated with cleavage or fissility.
- **geochemical** chemical aspects of the composition of the earth's crust.
- **geomechanical** the materials engineering of rock properties and behaviour when forces or loads are applied to the rock mass.



- **geotechnical** technical or engineering aspects relating to soil, rock and other materials.
- groundcover vegetation that grows close to the ground (such as grasses and herbs) providing protection from erosion.
- groundwater all waters occurring below the land surface; the upper surface of the soils saturated by groundwater in any particular area is called the water table.
- habitat the place where an organism normally lives; habitats can be described by their floristic and physical characteristics.
- haul road road used for haulage of material.
- **heavy metals** normally trace metals which occur in ore deposits and may be environmentally hazardous.
- heavy mineral concentrate a concentrate of heavy mineral where waste and other impurities have been almost completely removed, therefore incorporating only valuable heavy minerals (mostly zircon, rutile and ilmenite) and some residual waste
- hydraulic conductivity (k) the rate of flow of water in an aquifer through a cross section of unit area under a unit hydraulic gradient, at the prevailing temperature. Usually expressed in units of metres per second or metres per day.
- **hydraulic gradient** the direction of flow of groundwaters.
- **hydrosol** soils that are saturated with water for long periods of time.
- in-situ a term sued to distinguish material (e.g. rocks, minerals, fossils, etc.) found in its original position of formation, deposition, or growth, as opposed to transported material.
- interburden material of any nature that lies between two or more bedded ore zones.
- Inter-generational equity the present generation should ensure that the health, diversity and the productivity of the environment is maintained or enhanced for the benefit of future generations.
- **intermittent** periodically, irregularly.
- intra-generational equity the present generation should ensure that improved well-being and welfare are accessible to all sectors of society within Australia does not result in decreased welfare in other nations.



- **lithology** refers to the general characteristics of sediments or rocks.
- **Local Environmental Plan (LEP)** a plan developed by a council to control development in part or all of its local government area.
- **lunettes** formed from material which is blown out of water bodies and deposited on their leeside during drier climatic periods.
- mitigation measures measures employed to reduce (mitigate) an impact (such as the construction of a perimeter bund to reduce sound emissions).
- **mobile equipment** wheeled or tracked selfpropelled equipment such as trucks and front-end loaders.
- **monitoring** systematic sampling and, if appropriate, sample analysis to record changes over time caused by impacts such as mining.
- **non-perennial** refers to streams which do not flow the whole year through also known as intermittent streams.
- offsets to offset an activity means to compensate for the negative impacts of that activity, by taking a separate action with positive impacts.
- **operational constraints** limitations upon a project by equipment or machinery.
- **overburden** subsoil and decomposed rock overlying the main rock body that is not suitable for use in the final product.
- **oxidation** the process of combining with oxygen.
- **perennial** refers to stream which has flow throughout the year.
- **permeability** a material property relating to the ability of the material to transmit water.
- **permeable** able to transmit fluids e.g. groundwater.
- pH a measure of the degree of acidity or alkalinity of a solution; expressed numerically (logarithmically) on a scale of 1 to 14, on which 1 is most acid, 7 is neutral acid, and 14 is most basic (alkaline).
- **piezometer** a hole drilled and fitted specifically for the monitoring of groundwater levels and water quality.

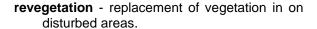
- **pollution** the alteration of air, soil, or water as a result of human activities such that it is less suitable for any purpose for which it could be used in its natural state.
- **population** a group of organisms all of the same species occupying a particular area.
- **porous** containing voids, pores, interstices or other openings which may or may not be interconnected.
- **potable** water suitable for human consumption.
- precautionary principle where 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.
- **production bore** a small diameter hole from which groundwater is extracted. It usually relates to a cased and screened, adequately developed and efficient bore used for groundwater removal.
- progressive rehabilitation rehabilitation of disturbed areas as soon as practicable after they are no longer required during the life of a project.
- Ramsar listed wetlands wetlands recognised to have considerable ecological value in accordance with the Ramsar convention.
- **recharge** the addition of water to an aquifer, directly from the surface, indirectly from the unsaturated zone, or by discharge from overlying or underlying aquifer systems.
- **rehabilitation** the progressive formation of a landform after disturbance and its stabilisation with grasses, trees and/or shrubs.
- **reject** the by-product of the mining or processing operations with the valuable material removed.
- **reserves** refers to an estimated quantity of usable material.
- **resource** an estimate of potentially usable material in a defined area based on preliminary geological information; recoverable material of economic interest.
- **revegetated** an area that has been planted with trees, bushes and grasses after being disturbed.

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riparian – pertaining to or situated on the bank of a river or creek.

rudosol – soils with rudimentary pedological development, apart from minimum development of a surface (A) horizon.

runoff – that portion of the rainfall falling on a catchment area that flows from the catchment past a specified point.

saline – water with high salt concentration.

salinity – the dissolved content of water expressed in terms of milligrams per litre.

sedimentary rocks – rocks formed from material derived from pre-existing rocks or by chemical precipitation.

sedimentation – process or rate of depositing of sediment.

social equity – embraces value concepts of justice and fairness so that the basic needs of all the sectors of society are met and there is a fairer distribution of costs and benefits to improve the well-being and welfare of the community, population or society.

species – a taxonomic grouping of organisms that are able to interbreed with each other but not with members of other species.

species diversity – a measure of the number of different species in a given area.

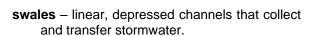
stormwater – surface water runoff reaching stream channels immediately after rainfall.

subsoil – surface material comprising the B and C Horizons of soil with distinct profiles; often having brighter colours and higher clay contrasts.

sulfate – a bivalent negative ion of sulphur and oxygen (SO₄).

surface waters – all water flowing over, or contained on, a landscape (e.g. runoff, channels, ponds, etc.).

sustainable development – development that meets the needs of the present without compromising the ability of future generations to meet their needs (World Commission on Environment and Development 1990).



terrestrial – of or relating to the land, as distinct from air or water.

topsoil – the upper layer of soil, usually containing more organic material and nutrients than the subsoil beneath it.

total suspended solids – a common measure used to determine suspended solids concentrations in a waterbody and expressed in terms of mass per unit of volume (e.g. milligrams per litre).

turbidity – discolouration of or suspension of particles in water resulting in a reduction in clarity.

type I road train - a heavy combination vehicle no longer than 36.5m consisting of a prime mover towing two trailers.

type II road train - a heavy combination vehicle consisting of a prime mover towing three trailers.

unconsolidated – loose or soft, not compacted (particularly soil or sediment).

vehicle movement – a one-way trip.

water quality – degree of the lack of contamination of water.

water table – the upper limit of the saturated zone within a rock mass, generally at atmospheric pressure. It is characteristic of unconfined aquifers.

watercourse – stream or river, running water.

weathered rock – rock affected to any degree by the processes of chemical or physical weathering.

weathering – the group of processes (e.g. action or air, rain, water, etc.) change in character, decay and eventually crumble to soil.

weed – any plant (in particular an herbaceous one) that survives in an area where it is harmful or troublesome to the desired land use.



Glossary of Acronyms

ACHAR – Aboriginal Cultural Heritage Assessment Report

ACHCRs – Aboriginal Cultural Heritage Consultation Requirements for Proponents

AEP - Annual Exceedance Probability

AHD – Australian Height Data (in metres)

AHIMS – Aboriginal Heritage Information Management System

ALRA - Aboriginal Land Rights Act

ANCOLD – Australian National Committee on Large Dams

ANL - Amenity Noise Levels

ANZECC – Australian and New Zealand Environment and Conservation Council

AQIA – Air Quality Impact Assessment

AQMS – Air Quality Monitoring Station

AS - Australian Standard

BAL – Basic Auxiliary Left

BAM – Biodiversity Assessment Method

BAR – Basic Auxiliary Right

BCD – Biodiversity Conservation Division

BDAR – Biodiversity Development Assessment Report

BoM – Bureau of Meteorology

CIV - Capital Investment Value

DP – Deposited Plan

DPC – Department of Premier and Cabinet

DPE - Department of Planning and Environment

DPIE – Department of Planning, Industry and Environment

Dol – Department of Industry

EM - Electromagnetic

ENM – Excavated natural material

EPL – Environmental Protection Licence

ESA – Equivalent Standard Axles

GDE – Groundwater Dependent Ecosystems

GRES - GR Engineering Services Pty Ltd

HEVAE – High Ecological Value Aquatic Ecosystem

HIO - Hawsons Iron Ore

HHAR - Historic Heritage Assessment Report

LEP - Local Environmental Plan

LGA – Local Government Areas

LNS – Liquified Natural Gas

LPS - Loxton-Parilla Sands

LSC – Land and Soil Capability

MDB - Murray Darling Basin

MDP – Mining Development Panel

MEG - Mining, Exploration and Geosciences

MLA – Mining Lease Application

MNES – Matters of National Environmental Significance

MRCC - Mildura Regional City Council

NATA – National Association of Testing Authority

NGER – National Greenhouse and Energy Reporting

NHMRC – National Health and Medical Research Council

NML - Noise Management Level

NSW - New South Wales

OEH – Office of Environment and Heritage

OOH - Out of Hours

PAD - Potential Archaeological Deposit

PANL – Project Amenity Noise Level

PCT – Plant Community Type

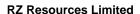
PFM – Planning Focus Meeting

PHA - Preliminary Hazard Analysis

PINL - Project Intrusiveness Noise Level

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PNTL – Project Noise Trigger Level

RAP – Registered Aboriginal Party

RBL – Rating Background Level

RFS - Rural Fire Service

RMS - Roads and Maritime Services

RWC - R. W. Corkery & Co

SEED – Sharing and Enabling Environmental Data

SEIFA - Socio-Economic Indexes for Areas

SEPP – State Environmental Planning Policy

SES – Swainsona Environmental Services

SIA - Social Impact Assessment

SILO - Scientific Information for Landowners

SISD - Safe Intersection Sight Distance

SSD - State Significant Development

SSM - Sustainable Soils Management Pty Ltd

TBDC – Threatened Biodiversity Data Collection

TDS - Total Dissolved Solids

THM – Total Heavy Mineral

TSP - Total Suspended Particulates

VENM – Virgin Excavated Natural Material

VI – Vegetation Integrity

VIS – Vegetation Information System

VLAMP – Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments

WAL - Water Access Licence

WSC - Wentworth Shire Council

WM – Water Management



Glossary of Symbols and Units

% - percentage

< - less than

> - greater than

Bq/g - becquerel per gram

CO₂-e - carbon dioxide equivalent

CO - carbon monoxide

cm - centimetre (unit of measure)

dB – decibel, unit used to express sound intensity

dB(A) – the unit of measurement of sound pressure level heard by the human ear, expressed in "A" scale

GJ/kL - energy content

ha - hectares

kg – kilogram (weight measure)

kL – kilolitre (thousand litre)

km – kilometre (= 1 000 metres)

L - litre

L/s - litres per second

L_{A90} – sound level exceeded 90 per cent of the sampling time

L_{Aeq} – the L_{Aeq} is the "equal energy" average noise levels, and is used in some instances for the assessment of traffic noise effects or the risk of hearing impairment due to noise exposures

L_{Amax} – the absolute maximum noise level measured in a given time interval

m - metre

m AHD - metres Australian Height Datum

m² - square metre

m³ - cubic metre

mg - milligram (weight unit)

mg/L - milligrams per litre (parts per million)

ML - megalitre

mS/m - milliSiemens per meter

mSv/yr - millisieverts per year

Mt – million tonnes (metric tonne = 1 000 kg)

Mtpa – million tonnes per annum

NO_X – oxides of nitrogen

NO₂ – nitrogen dioxide

pH – a measure of the degree of acidity or alkalinity of a solution; expressed numerically (logarithmically) on a scale of 1 to 14, on which 1 is most acidic, 7 is neutral acid, and 14 is most basic (alkaline)

PM_{2.5} − particulate matter <2.5µm in diameter

PM₁0 – particulate matter <10µm in diameter

SiO₂ - Silica

SO₂ – sulphur dioxide

t - tonnes

TDS - total dissolved solids expressed in mg/L

tpa – tonnes per annum

μg/m³ – micrograms per cubic metre

µm - micrometres

μS/cm - micro seimens per centimetre

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