Section 7

Glossary of Technical Terms

A horizon – part of soil profile immediately below the topsoil.

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; the lower the pH, the higher the corrosive ability of the substance.

acoustic bund wall – a natural or artificial structure (e.g. a hill or a bund) that inhibits the transmission of sound.

aggregate – fragments of crushed rock with a defined size specified for use in the construction industry.

air pollutant – a substance in ambient atmosphere, resulting from the activity of man or from natural processes, causing adverse effects to man and the environment (also called "air pollution").

alkaline – having a pH greater than 7.0.

alkalinity – in water analysis a measure of the carbonates, bicarbonates, hydroxides and occasionally the borates, silicates and phosphates in the water.

ambient – relating to conditions outside the active quarry site.

amenity – the desirability of an area.

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.

B horizon – subsoil material located below the A horizon material and above the parent rock.

backfill – material used to fill created void.

batter – An engineered slope of soil or rock fill on either side upslope or downslope of a road, embankment or mine waste storage.

bedrock – a general term for the rock, usually solid, that underlies soil or other unconsolidated, superficial material e.g. sand.

bench - a step in the face of a quarry or mine which could be up to 25 m high.

biodiversity – the full range of living things and the ecosystem in which they live.

biophysical – relating to the biological and physical attributes of the environment.

bore – a cylindrical drill hole, sunk into the ground and from which water is pumped for use or monitoring purposes.

bulldozer – an item of tracked mobile earth moving equipment fitted with a front blade and with rear rippers used for pushing and ripping soil and rock.

catchment - the area determined by topographic features within which rainfall will contribute to runoff at a particular point.

cation – an ion having a positive charge and characteristically moving toward a negative electrode.

channel – river or irrigation channel, includes bed and bank.

clay – very fine-grained sediment or soil (often defined as having a particle size less than 0.002 mm (2 microns) in diameter).

community – a combination of plants that are dependent on their environment and influence one another and modify their own environment. They form together, with their common habitat and other associated organisms, an ecosystem, which is also related to neighbouring ecosystems and to the macroclimate of the region.

concentration – the amount of a substance, expressed as mass or volume, in a unit volume of air.

conservation – the management of resources in a way that will benefit both present and future generations.

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.

crushing – the mechanical process of reducing rock size usually by pressure or impact.

culvert – large pipe or channel carrying water underneath a structure (e.g. a road or railway track) or underneath the ground.

cumulative – increasing by successive additions.

decibel - unit expressing difference in power between acoustic signals.

density – 1. The mass of a substance (e.g. sediment) divided by its volume; water has a density of exactly 1 kilogram per litre; gold has a density of 19.3 kilograms per cubic metre. 2. The coverage of vegetation (e.g. trees) per unit of distance (along a linear transect) or unit of area (in an area transect).

deposition – laying down of particulate material (e.g. sediment in a lake or tailings solids in a tailings storage).

dispersibility - a characteristic of soils relating to their structural breakdown in water into individual particles.

diversion bank – an earth bank constructed to divert water away from disturbed areas.

drainage line – a passage along which water concentrates and flows towards a stream, drainage plain or swamp intermittently during or following rain.

drawdown – the difference between the water level observed during pumping and the non-pumping water level (static water level or static head).

dust - particles of mostly mineral origin generated by erosion of surfaces and the mining and handling of materials.

ecology – the relationship between living things and their environment.

Ecologically Sustainable Development (ESD) – using, conserving and enhancing the community's resources so that the ecological processes on which life depends, are maintained, and the total quality of life now and in the future, can be increased (Commonwealth of Australia 1992).

ecosystem – a functional unit of energy transfer and nutrient cycling in a given place. It includes all the relationships within the biotic community and between the biotic components of the system.

environment – a general term for all the conditions (physical, chemical, biological and social) in which an organism or group of organisms (including human beings) exists.

Environmental Impact Statement (EIS) – a formal description of a project and an assessment of its likely impacts on the physical, social and economic environment. It includes an evaluation of alternatives and an overall justification of the project. The EIS is used as a vehicle to facilitate public comment and as the basis for analysing the project with respect to granting approval under relevant legislation.

ephemeral - refers to stream which flows only intermittently throughout the year.

erosion – the wearing away of the land surface (whether natural or artificial) by the action of water, wind and ice.

excavate – to dig into natural material or fill using an excavator or other machinery.

excavator – item of earth-moving equipment fitted with a bucket on an articulated boom used for digging material from a face in front of, or below the machine.

extraction – a term synonymous with quarrying and dredging.

fauna – a general term for animals such as birds, reptiles, marsupials, fish, etc.

fill – material imported and emplaced to raise the general surface level of a site.

flora – a general term for plants.

fractures – Any breakage of a rock mass along a direction or directions not associated with cleavage or fissility

front-end loader – machine used to lift and place soil, earth, rocks, etc. within an extraction site or to load products into trucks.

grader – an item of earthmoving equipment, rubber tyred and fitted with a centrally mounted blade and rippers used to shape and trim the ground surface.

gradient – rate of change of a given variable (such as temperature or elevation) with distance.

grassland – an extensive area of largely treeless land covered mainly by natural grasses.

ground vibration – oscillatory motion of the ground caused by the passage of seismic waves originating from a blast.

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.

heritage – the things of value which are inherited.

hydraulic gradient – the direction of groundwater flow.

hydrocarbon – any organic compound, gaseous, liquid, or solid, consisting solely of carbon and hydrogen. Crude oil is essentially a complex mixture of hydrocarbons.

hydrogeology – the study of groundwater.

impact – the effect of human induced action on the environment.

infrastructure – the supporting installations and services that supply the needs of a project e.g. roads.

inter-generational equity – the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

intra-generational equity – the present generation should ensure that improved well-being and welfare are accessible to all sectors of society within Australia and that improved welfare within Australia does not result in decreased welfare in other nations.

inversion - generally used in meteorology with respect to an increase of temperature with height in contrast with the usual decrease of temperature with height in the troposphere. An inversion layer is distinguished by its large stability, which limits the turbulence and therefore the dispersion of pollutants.

landform – a specific feature of a landscape (such as a hill) or the general shape of the land.

loam - loose soil composed of clay and sand, especially a kind containing organic matter and of great fertility.

migratory – passing, usually predictably (based on aquatic species), from one region or climate to another, for purposes of feeding, breeding, or other biological purposes.

mitigation measures – measures implemented to reduce (mitigate) an impact (such as the construction of a perimeter bund to reduce sound emissions).

monitoring – the regular measurement of components of the environment to understand a feature of the environment and/or establish that environmental standards are being met.

native – said of an organism or group of organisms that is restricted to a particular region or environment. A local inhabitant of a place.

overburden – refers to non-economic material to be removed to allow access to the resource.

particulate matter - small solid or liquid particles suspended in or falling through the atmosphere - sometimes expressed by the term particulates.

perennial - refers to stream which has flow throughout the year.

permeable – able to transmit fluids e.g. groundwater.

permeability – a material property of a porous rock relating to the ability of the material to transmit water.

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 specifically for the monitoring of groundwater levels and water quality.

population – a group of organisms all of the same species occupying a particular area.

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.

processing plant – a group of equipment used to crush and screen the extracted rock into various sizes.

progressive rehabilitation – rehabilitation of a disturbed area as soon as practicable after the final landform is achieved.

pump test – the systematic pumping of water from a bore to test the response of an aquifer.

quadrat – a square survey area.

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 preparation of a final landform after quarrying and its stabilisation with grasses, trees and/or shrubs.

resource – an estimate of potentially usable material in a defined area based on preliminary geological information.

relief – the variation in landscape elevation over a region.

revegetation – replacement of vegetation, principally grasses and legumes on areas disturbed by quarrying activities.

screening – a process which separates crushed rock into various size fractions – this usually involves a mechanical vibration of the rock over a series of decks fitted with steel mesh, steel plate or polyurethane or rubber mats with fixed sized apertures.

sediment basin – a small excavation designed to trap the coarse material washed from disturbed areas.

silt-stop fencing – fine mesh fencing normally installed downslope of a sediment source, designed to trap silt and sediment and allow the water to pass through.

soil erosion hazard – the susceptibility of an area of land to erosion and includes rainfall erosivity, slope, soil erodibility and cover.

source – the place where pollutants are emitted into the atmosphere. Sources may be point, area or line sources. Often the term "source" is used for a whole plant or an installation. In air pollution modelling, the terms "continuous source" and "instantaneous source" are used:

continuous source: source which emits pollution continuously over a time period much larger than the travel time to a point where the concentration is considered. Usually it is assumed that during this time period the emission is constant.

instantaneous source: source which emits pollution over a time period much short than the travel time of the emission to a point where its concentration is considered.

stockpile – a pile or mound used to store material, typically products.

storage capacity – the maximum volume of liquid able to be retained in a structure.

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

stripping – removal of vegetation and topsoil.

structure (soil) – the physical texture of the soil arising from the interrelationship between the grain size, composition, and organic nature of a soil.

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

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

suspended solids - analytical term applicable to water samples referring to material recoverable from the sample by filtration.

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).

texture (of soil) – variations in composition, grain size distribution, and structure.

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

topography – the physical relief and contour of an area.

topsoil – the surface layer of a soil profile containing the main percentage of organic material and viable life forms and seeds.

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).

tributary – a stream or river that flows into a larger river or lake.

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

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

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

wind rose – diagrammatic representation of wind direction, strength, and frequency of occurrence over a specified period.

yield - Yield of a water bore can refer either to the capacity of the bore or to the amount of water actually withdrawn.