

northern expressway environmental report

ABBREVIATIONS
GLOSSARY

Abbreviations/Glossary

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Glossary

Abbreviations

'A' Weighted	Frequency filter applied to measured noise levels to represent how humans hear sounds
AADT	Annual average daily traffic
AARD	Aboriginal Affairs and Reconciliation Division
ABS	Australian Bureau of Statistics
ACHM	Australian Cultural Heritage Management Pty Ltd
AGO	Australian Greenhouse Office
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment Conservation Council
ARI	Average Recurrence Intervals
ASR	aquifer storage and recovery
BCR	benefit cost ratio
CAMBA	Agreement between the Government of Australia and the Government of the Peoples Republic of China for the Protection of Migratory Birds and their Environment (1986)
CASANZ	Clean Air Society of Australia and New Zealand
CBR	California Bearing Ratio
CCTV	closed circuit television
CD	collector district
CEMP	Construction Environment Management Plan
CFS	Country Fire Service
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973)
CMS	changeable message signs
CO	carbon monoxide
CPAA	Concrete Pipe Association of Australasia
dB(A)	'A' weighted overall sound pressure level
DEH (Cwlth)	Australian Government Department of the Environment and Heritage
DEH (SA)	South Australian Department for Environment and Heritage
dGPS	differential Geographic Position System (Trimble)
DOTARS	Department of Transport and Regional Services (Commonwealth)
DSTO	Defence Science and Technology Organisation
DTED	Department of Trade and Economic Development (State)
DTEI	Department for Transport, Energy and Infrastructure (State)
DTUP	Department of Transport and Urban Planning (State) – now DTEI
EBS	Environmental and Biodiversity Services Pty Ltd
EMIP	Environmental Implementation Management Plan
EMP	Environmental Management Plan

EMS	Environmental Management System
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
g/km/vehicle	grams per kilometre per vehicle
GIS	Geographic information system
GM Holden	General Motors Holden
GPS	Global Positioning System
ha	hectares
IARC	International Agency for Research on Cancer
ITS	Intelligent Transport Systems
JAMBA	Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (1974)
KBR	Kellogg Brown & Root Pty Ltd
L ₉₀	90 th percentile noise statistic, in other terms, the noise level at which 90% of ambient noise over a period is below. Often referred to as the 'background noise level'.
L _{eq, 15h}	Equivalent (energy averaged) continuous noise level measured over the 15 hour daytime period (7 a.m. to 10 p.m.)
L _{eq, 9h}	Equivalent (energy averaged) continuous noise level measured over the 9 hour night time period (10 p.m. to 7 a.m.)
L _{eq, T}	Equivalent (energy averaged) continuous noise level measured over a time period T. Often referred to as the 'ambient noise level'.
LOS	Level of Service
LMC	Land Management Corporation
LPG	liquid petroleum gas
MASTEM	Metropolitan Adelaide Strategic Transport Evaluation Model
m/s	metres per second
MOSS	Metropolitan Open Space System
MSDS	Material Safety Data Sheets
NAASRA	National Association of Australian State Road Authorities
NAEDA	Northern Adelaide Economic Development Alliance
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
ng/m ³	nanograms per cubic metre
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPV	net present value
NPW Act	National Parks and Wildlife Act (SA) 1972 – State
NRM Act	Natural Resources Management Act 2004 – State
NSSED	<i>National Strategy for Ecologically Sustainable Development</i>
NVC	Native Vegetation Council
OD3	over dimensional route number 3

PAH (as BaP)	Polycyclic aromatic hydrocarbons (expressed as benzo-(a)-pyrene)
PDO	property damage only
PIRSA	Primary Industries and Resources, South Australia
PM10	particulate matter. Fine particles less than 10 microns in diameter
PM2.5	particulate matter. Fine particles less than 2.5 microns in diameter
ppm	parts per million
QED	QED Pty Ltd
RAA	Royal Automobile Association of South Australia
RAAF	Royal Australian Air Force
RBL	Rating Background Level
RMS	roadside marker sites
RSS	roadside significant sites
SAA	Standards Association of Australia
SAMFS	South Australian Metropolitan Fire Service
SAPOL	South Australian Police
SMA	stone mastic asphalt
SMS	short message service (text messaging)
SEB	significant environmental benefit
SEDMP	Soil Erosion and Drainage Management Plan
SEIFA	Socio-Economic Indexes for Areas
SKM	Sinclair Knight Merz Pty Ltd
SMEC	Snowy Mountains Engineering Corporation Pty Ltd
Syn.	synonym
TBL	triple bottom line
TSD	Transport Services Division (now in DTEI)
UFBP	Urban Forest Biodiversity Program
µg/m ³	micrograms per cubic metre
um	micrometres
VHC	Virginia Horticulture Centre
VMS	variable message signs
vpd	vehicles per day
vph	vehicles per hour
VSLs	variable speed limit signs
WONS	weed of national significance
WRSV	Water Reticulation Systems Virginia
WWTP	Wastewater treatment plant

Glossary

Word	Definition
1V:1H	measure of slope, where each increase of 1 vertical metre corresponds to 1 horizontal metre
Adelaide plains	a relatively flat area from the Northern Adelaide Plains to the Willunga basin in the south, covering about 560 km ² (see also Northern Adelaide Plains)
aeolian	relating to or caused by wind
alkaline	having a pH greater than 7
alluvium	sediment deposited by flowing water, as in a riverbed, flood plain or delta
AnaBat detectors	a system that can permanently record and convert the echolocation signals of bats into audible electronic signals to assist in species identification
anthropogenic	caused by humans or related to human activity
arboreal	living in or amongst trees
assessment criteria	criteria used to assess and select a preferred route
at-grade	on the ground surface
Average Recurrence Intervals (ARI)	likelihood of a flood occurring in a given year e.g. 100 year ARI flood is a flood that occurs or is exceeded on average once every 100 years
Averaging period	the period over which the average is taken (e.g. 1-hour averaging period is the average of all readings over 1 hour)
base case	system that would exist without the introduction of changes proposed in the project being analysed
batter	the uniform side slopes of walls, banks, cuttings, etc.
B-double	a combination road vehicle consisting of a prime mover towing two semitrailers
benefit cost ratio	the ratio representing the relative proportion of benefits to costs of a project. A ratio greater than one is needed for the benefits of a project to outweigh the costs
biodiversity	the variety of all life forms: different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form part
brackish	slightly saline water that contains dissolved salts in the range of 0.5-30 ppm, being less salty than sea water (35 ppm)
calcareous	composed of, containing, or characteristic of calcium carbonate, calcium, or limestone; chalky
calcrete	a conglomerate of surficial (relating to the surface) gravel and sand cemented by calcium carbonate

Word	Definition
California Bearing Ratio	the California Bearing Ratio (CBR) test, initially developed by the California Highways Department, assesses the quality of fine crushed rock base material, by relating the load versus penetration curve to that of a selected good quality fine crushed rock. The standard fine crushed rock was allocated a CBR of 100. The CBR of other materials is expressed as a percentage of this standard material. Pavement materials used for base layers would be expected to have strengths similar to crushed rock and the specification for base materials will therefore require a minimum CBR of perhaps 60 or 80
capital costs	money used to invest in the project
catenary	the curve formed by a hanging cable or chain
chert	compact siliceous rocks
concept (design)	initial functional layout of a concept to provide a level of understanding to later establish detailed design parameters
concept planning phase	phase to determine a more detailed definition of the project scope
crepuscular	species which are active just after sunset and prior to dawn
crossfall	the slope, at right angles to the alignment, of a surface of any part of a carriageway
cut	depth from natural surface of the ground down to the sub-grade level
cut faces	vertical walls of a cut
dB(A)	noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear at low sound pressure levels
deep lift asphaltic pavement	a paving technique whereby asphalt is placed in a lift of at least 75 mm compacted thickness
dense grade	an asphalt produced with aggregate that produces a continual grading to reduce voids
discount rate	rate used in economic analysis to convert current dollar values of costs which occur in future years to a present value in the base year
dissipaters (energy)	any means to reduce the total energy of flowing water, especially high velocity flows
ecology	the study of the interaction between living organisms and with their physical, chemical and biological environments
ephemeral wetlands	wetlands that temporarily hold water
fill	material placed in an embankment
flexible granular pavement	a pavement structure that obtains its load spreading properties mainly by intergranular pressure, mechanical interlock and cohesion between the particles of the pavement material
flood plain	a portion of river valley, adjacent to the river channel, which is covered with water when the river overflows during floods
forbs	non-grass like herbaceous plant, broad leaved herb
freeboard	the height between a given water level and the underside of a bridge or top of an embankment
gantry	an overhead structure spanning road or rail carriageways for displaying signals and/or signs

Word	Definition
geometric design	the arrangement of the visible elements of a road, such as alignment, grades, sight distances, widths, slopes, etc.
geotextile	a synthetic fabric, woven or non-woven, used for various purposes, including embankment reinforcing and stabilisation
grade-separated	the separation of road, rail or other traffic so that crossing movements, which would otherwise conflict, are at different elevations
gully	a pit, usually of concrete or brick, forming an entrance for surface water to an underground drain
habitat	locality or environment where a plant, animal, population or community of interest lives. Each living organism has a preferred habitat with the physical surroundings having a direct bearing on the organism's function and survival
head loss	loss of energy between two points along the path of a flowing fluid
headwall	a retaining wall at the end of a culvert
heavy duty pavement	pavement consisting of a mixture of fine and coarse granular materials bound together with bitumen, cement, etc., designed for heavy traffic volumes and heavy loads
horticulture	intensive cultivation of flowers, fruits, vegetables or ornamental plants
hydro-period	period of time during which a wetland is covered by water
hydro-seeding	planting process in which a slurry of mulch, seed, fertiliser, pigment and water is transported in a tank and sprayed over prepared ground in a uniform layer. Promotes quick germination and inhibits soil erosion
illuminance	physical measure of illumination is illuminance. It is the luminous flux arriving at a surface divided by the area of the illuminated surface. Unit: lux (lx); 1 lx = 1 lm/m ²
indigenous	originating and living or occurring naturally in an area or environment
in-stream flora	plant species growing in an aquatic environment
Intelligent Transport Systems	a system involving the use of electronic or other technology that has the capacity and capability to monitor, collect, store, display, analyse, transmit or report information relating to the transport network
interchange	a grade separation of two or more roads with one or more interconnecting carriageways
intermodal	terminal where freight (generally containers) is transferred from one mode (e.g. rail) to another (e.g. road)
introduced species	an animal or plant that has been introduced to an area where it normally does not occur
invasive species	a species is regarded as invasive if it has been introduced by human action to a location, area or region where it did not previously occur naturally (i.e., is not native), and becomes capable of establishing a breeding population in the new location without further intervention by humans, spreading widely throughout the new location
L10	a noise level which is exceeded 10% of the time. It is approximately equivalent to the average of maximum noise levels
L90	commonly referred to as the background noise, this is the level exceeded 90% of the time

Word	Definition
L_{eq}	the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
limestone	a common sedimentary rock consisting mostly of calcium carbonate, $CaCO_3$, used as a building stone and in the manufacture of lime, carbon dioxide and cement
L_{max}	the maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval
lower stratum	lowest layer of the vegetation canopy
luminaire	the apparatus which distributes, filters or transforms the light transmitted from a lamp which is fitted to or within the luminaire. The apparatus includes all the parts for fixing and protecting the lamps
luminance	the physical quantity corresponding to the brightness of a surface (e.g. a lamp, luminaire or reflecting material such as the road surface) when viewed from a specified direction. Unit: candela per square metre (cd/m^2).
L_w	a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment.
macro-invertebrate taxa	invertebrates visible to the naked eye such as insect larvae
micro-chiropteran	insectivorous bat species
midblock	section of road between intersections
middle stratum	middle layer of the vegetation canopy
migratory species	a mobile organism that changes habitat according to season, climate, food supply, etc. often across vast distances and along defined paths
National estate	those places, being components of the natural or cultural environment of Australia, that have aesthetic, historic, scientific or social significance, or other special value for future generations and for the present community
native	animals or plants that originate in the region in which they are found, that is not introduced and naturally occurring in an area
net present value	the difference between the costs and benefits of a project, those values calculated by discounting a series of values from future periods to amounts in 'today's' dollars
New Jersey barrier	a rigid concrete barrier placed along roadsides, particularly along the centre of a highway, to prevent errant vehicles from leaving the road or colliding with opposing traffic
non-monetised	qualitative attributes for which a dollar value cannot be quantified
Northern Adelaide Plains	a relatively flat area covering approximately 750 km^2 centred 30 km north of Adelaide's CBD, and forming part of the larger St Vincent (Sedimentary) Basin
outwash plain	a broad, outspread flat or gently sloping alluvial deposit of outwash
over-dimension vehicle	vehicle, due to its mass or dimensions, precluded by legislation from using public roads without following a prescribed route or obtaining a special permit from the relevant traffic authority
overlay	the addition of one or more courses of pavement material to an existing road surface, generally to increase strength and/or improve riding quality

Word	Definition
overpass	a grade separation where the subject carriageway passes over an intersecting carriageway or railway
overstorey	the roughly horizontal uppermost layer of mature vegetation (i.e. trees) that overtops all other layers of foliage in the understorey (e.g. mallee, river red gums)
P90	the value which is greater than the values of 90% of the members of the sample
parallel lane entry ramp	a carriageway that joins parallel to a freeway or expressway to allow entering vehicles to merge with the main traffic stream
Peachey Belt	an area in the Northern Adelaide Plains that is defined by a 2 km stretch of road, Peachey Road, and characteristic mallee woodland communities that were mostly cleared for primary production in the first 80 years of European settlement
perched water table	groundwater separated from an underlying body of groundwater by unsaturated rock or soil – its water table is a perched water table
peri-urban area	the outer urban area
plasticity	a condition of a material when it can be easily remoulded, e.g. moist to wet clay soils
pre-European	before European settlement (1836 in South Australia)
(priority) controlled junction	an intersection, the entry into which is controlled by traffic signals
Quaternary aquifer	a water-bearing bed of porous rock from the Quaternary geological period
Ramsar Convention	the Convention on Wetlands, signed in Ramsar, Iran, in 1971 providing the framework for the conservation and wise use of wetlands and their resources
Rating Background Level (RBL)	the overall single figure background level representing each assessment period (day or night) over the whole monitoring period. Determination of the RBL is calculated by assessing the lower tenth percentile of the dB(A)L90 noise level, or in other terms 'the L90 of the L90s'. Note this method is used as a basis for determining construction noise criteria
recent	geological time period from the present day to 10,000 years BP (before present)
rectilinear	moving in a straight line
remnant	a small surviving component of an original extent: remnant vegetation includes all intact and predominantly intact indigenous vegetation communities
riparian	relating to the banks of a watercourse or other water body
road train	a combination road vehicle, other than a B-double, consisting of a prime mover towing two or more trailers
sensitive receptors	residences, schools and other non-commercial places that are permanently occupied by people
Significant tree (under <i>Development Act 1993</i>)	'Significant' trees include all exotic and native trees with a trunk circumference of 2 m or greater, or in the case of trees with multiple trunks, those with trunks with a total circumference of 2 m or more and an average circumference of 625 mm or more. Measurements are taken at 1 m above natural ground level

Word	Definition
slaking	the breaking down of soil aggregates when immersed in water into smaller sized micro-aggregates. These aggregates may subsequently disperse
stone mastic asphalt (SMA)	asphalt with special grading and binders to produce a high level of resistance to road deformations
study area	within 500 m either side of the proposed route for the Northern Expressway, and generally 100 m either side (up to 500 m in places) of Port Wakefield Road between Taylors Road and Salisbury Highway
subcrop	an occurrence of strata beneath the subsurface of an inclusive stratigraphic unit that succeeds an unconformity on which there is marked overstep
sub-grade	prepared portion of the formation on which the pavement is constructed
swale(drainage)	a wide surface water channel, usually 5-10 m wide
table drain	constructed depression adjacent to a highway pavement which conveys surface water away from the area
tapered entry ramp	a carriageway that reduces in width as it joins a freeway or expressway, allowing entering traffic to merge with the main traffic stream
terrestrial	living or found on land, as opposed to in water bodies or the atmosphere
Tertiary aquifer	a water-bearing bed of porous rock from the Tertiary geological period
threatening process	a process that threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community
three-leg signalised junction	a junction at which three roads converge and are controlled by traffic signals
triple bottom line	a holistic approach to company performance that takes into account a company's environmental, social and financial results
understorey	the small trees, shrubs, herbs and grasses which make up the lower layers of vegetation in a vegetation community
upper stratum	tallest layer of the vegetation canopy
vagrant	a migratory bird found outside the normal range of its species
vegetation communities	the make-up of the vegetation according to the plant species present and the relative cover of each
viro-cell	pyramid-shaped tubes developed for growing seedlings that have fibrous root growth (e.g. grasses and wetland plants)
visual catchment	the extent to which a roadway can be viewed from nearby areas or other areas viewed by the travelling public
wake effects	the air flow or suction that occurs when a truck passes
W-beam guard fence	the W-Beam guard fence is the preferred steel flexible roadside safety barrier in Australia and around the world. It is a semi-rigid barrier that comprises a steel rail mounted on steel posts. The profile of the rail resembles the shape of a 'W' turned on its end
Y-interchange	a junction in which a road joins a through road at an oblique angle