Australian Government
Department of Infrastructure and Regional Development

WESTERN SYDNEY AIRPORT

ENVIRONMENTAL IMPACT STATEMENT

VOLUME 2b
STAGE 1 DEVELOPMENT

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Western Sydney Airport Environmental Impact Statement

Proponent	The Australian Government Department of Infrastructure and Regional Development.
EPBC Referral	The action was referred to the Commonwealth Minister for the Environment on 4 December 2014, referral 2014-7391
Proposed action	The proposed Western Sydney Airport would be developed over a number of stages in response to increasing demand. The proposed action is the construction and operation of the first stage of development for the proposed Western Sydney Airport at Badgerys Creek. The environmental impact statement (EIS) provides a detailed consideration of likely environmental impacts arising from the Stage 1 development. The Stage 1 development includes a single runway with associated aviation facilities for approximately 10 million passengers each year and is fully described in the revised draft Airport Plan. The EIS assumes the airport could be operating at this level approximately 5 years after operations commence which for assessment purposes has been assumed to be 2030.
Airport Plan	The Stage 1 development would take place under an Airport Plan determined under Division 4A of Part 5 of the *Airports Act 1996.*
Airport site	The Airport site covers approximately 1,780 hectares at Badgerys Creek. The Stage 1 development impacts about 1,150 hectares within this site. The Airport site currently comprises the following properties owned by the Commonwealth: - Lot 1 on DP838361 - Lot 1 on DP851626 - Lot 2 Section C on DP1451 - Lot 17 on DP258581 - Lot 22 on DP258581 - Lot 23 on DP259698 - Lot 32 on DP259698 - Lot 33 on DP259698 - Lot 7 on DP3050 - Lot 8 on DP3050 - Lot 9 on DP226448 - Lot 3 on DP611519 - Lot 11 on DP226448 - Lot 1 on DP129674 - Lot 1 on DP129675 - Lot 1 on DP996420 - Lot 2 on DP996420 - Lot 28 on DP217001 - Lot 1 on DP996379 - Lot 2 on DP996379 It is also anticipated that one or more easements and a small amount of additional land would be acquired by the Commonwealth and incorporated into the airport site for operational and safety reasons.
EIS	This EIS has been prepared by the Department of Infrastructure and Regional Development supported by GHD Pty Ltd, RPS Manidis Roberts Pty Ltd and various specialist sub-consultants. The EIS has been prepared in accordance with the *Guidelines for the content of a draft environmental impact statement* for the proposed airport issued on 29 January 2015. The EIS is divided into five volumes. Volume 1 provides a description of the proposed Stage 1 development. Volume 1 also explains the approvals and community consultation process. Volume 2 provides a detailed impact assessment of the Stage 1 development. Volume 3 provides a strategic level assessment of environmental impacts of an indicative long term development of the airport site. The assessment has been undertaken to provide a broad understanding of the potential impacts facilitated by the Stage 1 development, given that development beyond Stage 1 would be the subject of future approvals processes. Volume 4 contains detailed technical assessments that have informed the assessment of environmental impacts in Volume 2 and Volume 3. Volume 4 also contains the further information about the proponent, the EIS study team and the *Guidelines for the content of a draft environmental impact statement*. Volume 5 outlines the feedback received from the community and stakeholders. It provides responses to the issues raised and describes how these were addressed in finalising the EIS and revised draft Airport Plan, where relevant.

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Terms and abbreviations

Term	Definition
05/23	The proposed runway orientation. Refers to a generally north-east/south-west orientated runway at 50 degrees north-east and 230 degrees south-west.
1997-99 EIS	PPK 1997, Draft Environmental Impact Statement Second Sydney Airport Proposal, Commonwealth Department of Transport and Regional Development and PPK Environment and Infrastructure Pty Ltd 1999, Supplement to Environmental Impact Statement Second Sydney Airport Proposal, Volume 3 Supplement. Prepared on behalf of the Department of Transport and Regional Services.
90th Percentile N60	The N60 value that is exceeded on 10 per cent of nights.
90th Percentile N70	The N70 value that is exceeded on 10 per cent of days.
ABS	Australian Bureau of Statistics
Acid sulfate soils	Naturally occurring soils or sediments containing iron sulphides, which produce sulfuric acid when exposed to air.
AHD	Australian height datum
Airport Lessee Company	The company that is granted an airport lease over the Airport Site.
Revised draft Airport Plan	Draft plan developed in accordance with the requirements of the *Airports Act 1996*, setting out the Australian Government's requirements for the initial development of the proposed airport.
Airport site	The site for Sydney West Airport as defined in the Airports Act.
Airports Act	*Airports Act 1996* (Cth)
Airports Act amendment	*Airports Amendment Act 2015* (Cth)
ALC	Airport Lessee Company
ANEC	Australian noise exposure concept
ANEF	Australian noise exposure forecast
APU	Auxiliary power unit
ARI	Average recurrence interval – the average or expected value of the periods between exceedances of a given rainfall total accumulated over a given duration.
ATM	Air traffic movement
Australian Height Datum	A common reference level which is approximately equivalent to the height above sea level.
Australian Noise Exposure Concept	Noise exposure contours produced for a hypothetical future airport usage pattern used, for example, in the process of examining flight path options around an airport.
Australian Noise Exposure Forecast	Official forecasts of future noise exposure patterns around an airport. They constitute the contours on which land use planning authorities usually base their controls.
BoM	Bureau of Meteorology
Bulk earthworks	The removal, moving or adding of large quantities of soil or rock from a particular area to another.

Term	Definition
Bund	A constructed retaining wall designed to prevent inundation or breaches from a known source.
BWSEA	Broader Western Sydney Employment Area
CASA	Civil Aviation Safety Authority
Catchment	The area drained by a stream, lake or other body of water.
CO	Carbon monoxide
Construction impact zone	The area that would be directly impacted by construction of the Stage 1 development – indicatively shown in the revised draft Airport Plan.
Continuous descent approaches	A method by which aircraft approach an airport prior to landing that minimises segments of level flight. This type of approach can reduce fuel consumption and noise compared to other conventional descents.
Controlled airspace	Airspace of defined dimensions within which air traffic control services are provided.
Criteria pollutants	Air pollutants that have been regulated and are used as indicators of air quality.
Datum	A level surface used as a reference in measuring elevations.
dBA	A-weighted noise level – an expression of the relative loudness of sounds in air as perceived by the human ear.
DEC	NSW Department of Environment and Conservation (now Office of Environment and Heritage)
DECC	NSW Department of Environment and Climate Change (now Office of Environment and Heritage)
DECCW	NSW Department of the Environment Climate Change and Water (now Office of Environment and Heritage)
Decibel (dB)	A unit of sound.
Direct impact	Direct impacts are caused by an action and occur at the same time and place.
DoE	Australian Government Department of the Environment (now Department of the Environment and Energy)
DP&E	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries
EEC	Endangered ecological community
EIS	Environmental Impact Statement
EIS guidelines	Guidelines for the Content of a Draft Environmental Impact Statement – Western Sydney Airport
EMS	Environmental management system
Environmental assessment	A formal process of evaluating significant short term, long term and cumulative effects or impacts a project will have on the environment.
Environment Minister	The minister who administers the EPBC Act.
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	NSW Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
FTE	Full time equivalent

Term	Definition
Fugitive emissions	Dust derived from a mixture of sources (non-point source) or not easily defined sources. Examples of fugitive dust include dust from vehicular traffic on unpaved roads, materials transport and handling, and un-vegetated soils and surfaces.
GBAS	Ground based augmentation system
GBMWHA	Greater Blue Mountains World Heritage Area
GDE	Groundwater dependent ecosystem
GDP	Gross domestic product
General aviation	Name given to the aviation industry that is non-military (both fixed wing and helicopter) and that excludes the larger airlines operating scheduled passenger services. General aviation sector undertakes a diverse range of passenger and freight activities including charter operations, flight training, aerial agriculture, aerial work, private and business flying and sports related activities.
GPS	Global positioning system
Greenfield airport	A new airport on land which was not previously used for aviation purposes.
Grey water	Wastewater stream from all domestic wastewater sources other than the toilet (such as baths, sinks, washing machines, etc.).
Groundwater	Water found below the surface, usually in porous rock, soil or in underground aquifers.
GRP	Gross regional product
GSE	Ground support equipment
Hazard	The potential or capacity of a known or potential risk to cause adverse effects.
Hazardous material	Any item or agent that has the potential to cause harm to humans, animals or the environment.
Hazardous waste	Any waste that is classified as hazardous in accordance with the Waste Classification Guidelines (NSW EPA, 2014). Hazardous waste cannot be disposed to landfill unless it is treated to remove or immobilise the contaminants. – including waste batteries, fertilisers, fuels, herbicides, oils pesticides, paints, solvents, cleaners, clinical and pharmaceutical waste, and waste tyres.
Heavy metal	Any metal or metalloid of environmental concern.
HIAL	High intensity approach lighting
HIPAP	NSW Hazardous Industry Planning Advisory Papers
IAP2	International Association of Public Participation
ICAO	International Civil Aviation Organization – A specialised agency of the United Nations which codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.
ICAO Standards	Standards and recommended practices concerning air navigation, its infrastructure, flight inspection, prevention of unlawful interference and facilitation of border-crossing procedures for international civil aviation.
Impact	A change in the physical, natural or cultural environment brought about by an action. Impacts can be direct or indirect.
Impervious	Impervious surfaces are surfaces non-permeable to water.

Term	Definition
Indirect impact	As defined in the EPBC Act *Significant impact guidelines 1.2*, indirect impacts include downstream or downwind impacts, such as impacts on wetlands or ocean reefs from sediment, fertilisers or chemicals which are washed or dischardged into river system; upstream impacts, such as those associated with the extraction of raw materials and other inputs which are used to undertake the action; and facilitated impacts which result from futher actions (including actions by third parties) which are made possible or facilitated by the action, such as urban or commercial development of an area made possible by a project.
km/h	Kilometres per hour
L_{A90}	The L_{A90} level is the A-weighted noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.
L_{Aeq}	The equivalent continuous sound level (L_{Aeq}) is the energy average of the A-weighted noise level over a sample period, and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is sometimes used to describe aircraft noise, in which case it refers to the noise level that is due to aircraft only, excluding other noise. Variants of this measure have been defined that cover specific time periods, such as $L_{Aeq,9am-3pm}$, which is used to describe noise affecting school classrooms.
$L_{Aeq,9am-3pm}$	The equivalent-continuous noise level between 9am and 3pm (it is used to describe the impact of noise on school students and teachers).
Leachate	The liquid that passes through, or is released by, waste.
LEP	Local environmental plan
LGA	Local Government Area
$L_{night,outside}$	The equivalent-continuous noise level between 11pm and 7am, or $L_{Aeq,11pm-7am}$ (it is used to describe night time noise exposure and assess chronic health impacts associated with exposure)
Long term development	The long term development of the airport, including parallel runways and facilities for up to 82 million passengers annually (nominally occurring in 2063).
LoS	Level of service
m^2	Square metres
Main Construction Works	Main Construction Works means substantial physical works on the airport site (including large scale vegetation clearance, bulk earthworks and the carrying out of other physical works, and the erection of buildings and structures) described in Part 3 of the Airport Plan, other than Preparatory Activities.
Manual of Standards	Standard procedures for the operation of airports issued by the Civil Aviation Safety Authority.
MAP	Million annual passengers
Master plan	Master plan prepared and approved in accordance with the Airports Act.
Maximum noise level (L_{Amax})	L_{Amax} over a sample period is the maximum A-weighted noise level measured during the period. In the context of aircraft noise, L_{Amax} generally means the maximum A-weighted noise level recorded during a specific overflight, measured using "Slow" speed, and can therefore also be written L_{ASmax}. In this report, L_{Amax} denotes the maximum level attained during a single overflight.
MDP	Major development plan prepared and approved in accordance with the Airports Act.
mg/m^3	Milligrams per cubic metre

Term	Definition
MIKE21 modelling	MIKE21 is a two dimensional hydraulic modelling software program used to simulate surface flow and estimate flood levels and flow velocities.
Infrastructure Minister	The minister who administers the Airports Act.
Mitigation	The action of reducing the severity, seriousness, or painfulness of something.
MNES	Matters of national environmental significance
MOS	Manual of standards
MUSIC modelling	MUSIC is a software program used to estimate the performance of stormwater quality management systems.
N60	N60 is a measure of noise exposure that shows the number of aircraft overflights per day exceeding 60 dBA. N60 is generally used to describe night time noise exposure. In this EIS, unless otherwise noted, N60 values represent the number of aircraft overflights per day exceeding 60 dBA during the period 10pm to 7am.
N70	N70 is a measure of noise exposure that shows the number of aircraft overflights per day (or other specified time period) exceeding 70 dBA. The numbers of overflights are graded in contour lines on a map. N70 contours can be calculated for different time periods; however in this EIS they are presented for 24-hour periods.
NASF	National Airports Safeguarding Framework
National environmental protection measure	Broad framework-setting statutory instruments which outline agreed national objectives for protecting or managing particular aspects of the environment. NEPMs are similar to environmental protection policies and may consist of any combination of goals, standards, protocols, and guidelines.
Nautical mile	A unit of distance. One nautical mile equals 1.852 kilometres.
NEPM	National Environmental Protection Measure
NGER Regulations	*National Greenhouse and Energy Reporting Regulations 2008* (Cth)
Nitrogen	Nitrogen is a colourless element that has no smell and is usually found as a gas. It forms about 78% of the earth's atmosphere, and is found in all living things.
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxide
Non-putrescible	General solid waste including waste cardboard, glass, green waste, metals, paper, plastics, wood and electronic waste.
NPWS Act	*National Parks and Wildlife Act 1974* (NSW)
Nuisance dust	Dust which reduces environmental amenity without necessarily resulting in material harm. Nuisance dust comprises particles with diameters nominally from about one millimetre to 50 micrometres (microns).
O_3	Ozone
Offset measure	A conservation action that is intended to compensate for the negative environmental impacts of an action, such as a development. Offsets can include protecting at-risk environmental assets, restoring or extending habitat for threatened species, or improving the values of a heritage place.
OLS	Obstacle limitation surface – a series of surfaces that define the limits to which structures or objects may project into the airspace to ensure the safety of aircraft in visual flight conditions.
Organic	An organic compound is any member of a large class of gaseous, liquid, or solid chemical compounds whose molecules contain carbon.
PAH	Polycyclic aromatic hydrocarbon

Term	Definition
PANS-OPS	Procedures for air navigation services – aircraft operations
Particulate	A complex mixture of extremely small particles and liquid droplets.
Pathogen	A bacterium, virus, or other microorganism that can cause disease.
Permissible use	A land use which may receive development consent under the *Environmental Planning and Assessment Act 1979* (NSW). For the airport site, proposed permissible uses that would apply once an airport lease has been granted are set out in the land use plan in Part 2 of the revised draft Airport Plan.
PM	Airborne particulate matter
PM_{10}	Airborne particulate matter with an aerodynamic diameter of less than 10 µm
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of less than 2.5 µm
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
Point Merge system	A way of synchronising arriving aircraft and directing them to the runway in a structured manner through a single final approach track. By directing aircraft though a series of predictable routes, the vertical and lateral path taken on approach is more accurate and can result in a reduction in the number of level flight segments required at a low altitude.
ppb	Parts per billion
ppm	Parts per million
Preparatory Activities	Preparatory Activities mean the following: a. day to day site and property management activities; b. site investigations, surveys (including dilapidation surveys), monitoring, and related works (e.g. geotechnical or other investigative drilling, excavation, or salvage); c. establishing construction work sites, site offices, plant and equipment, and related site mobilisation activities (including access points, access tracks and other minor access works, and safety and security measures such as fencing); and d. enabling preparatory activities such as: i. demolition or relocation of existing structures (including buildings, services, utilities and roads) provided they are demolished or relocated in accordance with applicable environmental impact mitigation measures specifically referable to demolition or relocation of the relevant structures; ii. the relocation of cemeteries in accordance with an approved cemeteries relocation management plan; and iii. application of environmental impact mitigation measures.
Proposed airport	The proposed airport at Badgerys Creek and assessed in the Western Sydney Airport Environmental Impact Statement.
PSZ	Public safety zone
Putrescible	In relation to waste, material that may decay or putrefy.
RAAF	Royal Australian Air Force
Ramsar Convention	An intergovernmental treaty that provides the framework for national action and international cooperation in wetland conservation. The treaty is named after the city of Ramsar in Iran, where it was signed.
Receivers	See sensitive receiver.
Receptors	See sensitive receiver.
Residual risk	Residual risk is the level of risk that remains after proposed mitigation and management measures are implemented.

Term	Definition
Restricted airspace	Restricted airspace includes all airspace that has restrictions placed on its use. This is generally associated with military installations or other situations where safety is an issue, for example explosives storage facilities such as the Defence Establishment Orchard Hills.
Reticulated	In relation to water or another utility, transferred from one place to another.
Reverse thrust	A temporary redirection of aircraft engines so that the direction of exhaust is reversed, usually to provide a breaking effect during landings. Reverse thrusting generally produces an increase in noise during landing.
SACL	Sydney Airport Corporation Limited
SEIFA	Socioeconomic Indexes for Areas
Sensitive receiver	A place occupied by people that is sensitive to impacts. This term is usually used in air and noise studies to refer to dwellings, businesses, schools and the like. Also termed sensitive receptor.
SEPP	NSW State Environmental Planning Policy
SES Officer	An SES employee under the *Public Service Act 1999*
Significant impact	As defined in the EPBC Act *Significant impact guidelines 1.2*, a 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.
SO_2	Sulfur dioxide
SO_x	Sulfur oxides
Stage 1 development	The initial stage in the development of the proposed airport, including a single runway and facilities for approximately 10 million annual passengers. (the EIS assumes the airport could be operating at this level approximately 5 years after operations commence which for assessment purposes has been assumed to be 2030).
Stage 1 operations	The airport operating at the Stage 1 capacity as defined in the revised draft Airport Plan.
STM3	Strategic Travel Model (Version 3)
SWRL	South West Rail Link
Sydney Airport	Sydney (Kingsford Smith) Airport
Sydney Basin	The Sydney Basin extends over approximately 350 kilometres of coastline from Newcastle in the north, to Durras Lake in the south. To the west the boundary runs in a line through Lithgow along the Liverpool Range to about 80 kilometres north of Muswellbrook and back to the coast at Newcastle. The total land area of the basin is approximately 44,000 square kilometres and the centre lies about 30 kilometres west of the Sydney CBD at Fairfield.
Sydney CBD	Sydney Central Business District
Sydney West Airport	The proposed airport. Note: this is the name used in the Act. The Airport is also commonly known as Western Sydney Airport.
TAPM	The Air Pollution Model
Taxiways	Defined paved areas provided for the surface movement of aircraft between runways and aprons.
The Department	Australian Government Department of Infrastructure and Regional Development
The Proponent	The proponent for the development and operation of the airport is the Australian Government Department of Infrastructure and Regional Development.

Term	Definition
The proposed airport	The proposed Western Sydney Airport.
Threatened species	Species of animals or plants that are at risk of extinction, or becoming endangered within the next 25 years ('vulnerable species'), defined by the *Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999*
TSC Act	*Threatened Species Conservation Act 1995* (NSW)
TSP	Total suspended particulates
µg/m^3	Micrograms per cubic metre
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compounds
Western Sydney Airport	The proposed airport. The airport is referred to as Sydney West Airport under the Airports Act.
Western Sydney Region	Western Sydney is a major region of Sydney, New South Wales. Defined by the Western Sydney Regional Organisation of Councils (WSROC) as ranging from Auburn to the Blue Mountains and from Liverpool to Hawkesbury, with a total land area of about 5,400 square kilometres.
WHS	Work health and safety
WM Act	*Water Management Act 2000* (NSW)
WSEA	Western Sydney Employment Area
WSIP	Western Sydney Infrastructure Plan
WSU	Western Sydney Unit, Australian Government Department of Infrastructure and Regional Development

PART E:

Environmental Management

28 Environmental Management Framework

28.1 Introduction

This Environmental Management Framework (EMF) identifies the preferred means of addressing environmental impacts and issues associated with construction and operation of the Stage 1 development that have been identified in the environmental assessment.

This EMF is informed by detailed analysis of the Environmental Impact Statement (EIS) and reflects current considerations, including site conditions, airport planning and design, governance and project delivery. In this respect it is recognised that:

- the Stage 1 development of the proposed airport would initially occur in accordance with the Airport Plan, as determined. The Airport Plan forms a transitional planning instrument under the Airports Act 1996 (Airports Act) for the greenfield development of a Western Sydney Airport. The proposed airport would transition into the applicable planning and environmental management framework for airports set out in the Airports Act. This provides for the development of a master plan which includes an environment strategy;
- some construction-related activities may be undertaken by the Commonwealth with the balance of Stage 1 construction and subsequent operation of the proposed airport expected to be undertaken by an Airport Lessee Company (ALC) following the grant of an airport lease;
- further assessment and finalisation of flight paths after the Airport Plan has been determined would establish more definitively which areas would be exposed to various levels of noise;
- the Department of Infrastructure and Regional Development would be responsible for the environment management of the airport site until an airport lease is granted. Once an airport lease is granted, the ALC would be responsible for implementing the EMF other than those matters that are specified as a responsibility of the Commonwealth; and
- future stages of development beyond Stage 1 will be subject to approvals under the Airports Act.

Environmental management plans would be progressively developed for specific issues. These plans would be in accordance with the applicable governance framework for both construction and operational phases of the Stage 1 development.

This chapter sets out:

- objectives for the EMF (Section 28.2);
- an overview of statutory requirements and governance, including roles and responsibilities (Section 28.3);
- the construction environmental management framework (CEMF) applicable to the development of the proposed airport, including the proposed mitigation measures and the structure and content for all required environmental management plans (Section 28.4);
- the arrangements for the future airspace design process including a further *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) referral (Section 28.5);

- the operational environmental management framework (OEMF) applicable to the operation of the proposed airport including the proposed mitigation measures and the structure and content for all required environmental management plans (Section 28.6); and
- the sustainability framework which applies to both construction and operation (Section 28.7).

This chapter presents mitigation and management measures proposed for both the construction and operation of the proposed Stage 1 development. The mitigation measures have been grouped by environmental issue and included in the relevant environmental management plans or as additional measures.

A number of the measures, particularly in relation to managing impacts of Stage 1 operations, depend upon the completion of other processes or activities by third parties. The proposed measures are therefore strategic by nature and will be subject to further review and refinement during the detailed design of the Stage 1 development to ensure best outcomes are achieved.

28.1.1 Effectiveness of mitigation and management measures

The effectiveness of the proposed mitigation and management measures will be ensured through:

- clear statements of the intended outcomes and performance criteria for each plan;
- the requirement for approval of environmental management plans by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development other than the Biodiversity Offset Delivery Plan which will be approved by the Environment Minister or an SES Officer in the Department of the Environment and Energy;
- inclusion of best-practice measures, including the adoption of continuous improvement mechanisms during the detailed design, construction and operation of the proposed airport;
- ongoing monitoring of, and compliance with, environmental management plans through a review, reporting and auditing framework approved by the Infrastructure Minister;
- environmental management requirements of the Airports Act, including the regulation of land use through ongoing master planning and environmental strategy requirements, as well as a system to regulate, and assign accountability for, activities at the airport site that generate or have the potential to generate pollution or excessive noise;
- the sustainability framework which will establish a benchmark for the sustainable performance of the Stage 1 development; and
- ongoing stakeholder consultation and oversight through relevant community forums as required by the Australian Government at major airports in Australia.

Taken together, these mechanisms will ensure that mitigation and management measures proposed in this EMF are effective and achieve the intended outcomes.

28.2 Objectives for environmental management

The following objectives have been developed to guide environmental management of the Stage 1 development:

- to ensure that all construction and operational activities are consistent with sustainability and environmental management principles;
- to identify the regulatory and governance framework for environmental management during the construction and operation of the proposed airport;
- to meet the full range of environmental commitments identified in Sections 28.4, 28.5, 28.6 and 28.7 of the EMF and any other environmental conditions in the determined Airport Plan;
- to ensure that all identified environmental impacts and issues are appropriately managed and mitigated during construction and operation of the proposed airport, including through the identification of contingencies should unexpected adverse outcomes occur or proposed measures are found to be inadequate;
- to promote continuous improvement in environmental performance;
- to provide a comprehensive framework for the development and implementation of detailed environmental management measures and environmental management plans; and
- to ensure that controls are properly implemented, regularly monitored and audited to assess their effectiveness.

These objectives may be enhanced in subsequent stages of project implementation in response to latest and applicable government policies on issues such as sustainability and environmental management.

28.3 Statutory requirements and governance

The proposed Stage 1 development would be constructed and operated in accordance with the Airport Plan, which forms a transitional planning instrument under the Airports Act. While the Airport Plan defines the parameters for the proposed Stage 1 development, all future stages of development beyond Stage 1 (as described in Part 3 of the revised draft Airport Plan) will be subject to the general planning approval framework in Part 5 of the Airports Act which applies to existing federally-leased airports. Further detail on the overall approvals framework for the proposed airport is described in Chapter 3 in Volume 1 of this EIS.

The specific statutory and governance requirements for environmental management are set out below. The requirements in relation to environmental management reflect the transition of the project from environmental assessment under the EPBC Act to determination of the Airport Plan and then ongoing regulation of the Stage 1 development under the provisions of the Airports Act.

28.3.1 Environmental Protection and Biodiversity Conservation Act

This EIS has been prepared to address the requirements of the EPBC Act and the *Guidelines for the content of a draft environmental impact statement: Western Sydney Airport* (EIS guidelines) issued by the Department of the Environment (refer Volume 4, Appendix C). The specific requirements in the EIS guidelines which informed the development of this EMF are outlined in Section 6(c).

The EIS must include specific and detailed descriptions of the proposed avoidance and mitigation measures based on best available practices. This must include the following elements:

i. a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including:
   - a detailed description of proposed measures;
   - assessment of the expected or predicted effectiveness of the mitigation measures;
   - any statutory or policy basis for the mitigation measures; and
   - the likely cost of the mitigation measures.

ii. a detailed outline of a plan for the continuing management, mitigation and monitoring of relevant matters protected by a controlling provision, including a description of the outcomes that will be achieved and any provisions for independent environmental auditing;

iii. where appropriate, each project phase (construction and operation) must be addressed separately. It must state the environmental outcomes, performance criteria, monitoring, reporting, corrective action, contingencies, responsibility and timing for each environmental issue; and

iv. the name of the agency responsible for endorsing or approving each mitigation measure or monitoring programme.

28.4 Airports Act

28.4.1 Construction

The Airports Act has been amended to provide for preparation of an Airport Plan, which is a transitional planning instrument to authorise and guide the proposed Stage 1 development. The Airport Plan would be the primary instrument governing development of the proposed airport during the construction period.

The Airport Plan as determined will contain conditions including any conditions (or provisions) that the Environment Minister considers should be included for the purpose of protecting the environment. It is expected that conditions contained in the Airport Plan will require implementation of the EMF including the relevant plans and mitigation measures applicable to the construction period.

The Airports Act also contains provisions for building controls and environmental management which will apply to all development activities on the proposed airport once an airport lease is granted. Prior to the granting of an airport lease, development activities would be undertaken so as to comply with the standards and objectives of those provisions.

Construction activities at the airport site are expected to be undertaken under contracts with suitably qualified construction companies. Tender processes for the selection of contractors will assess their ability to implement strong environmental management practices on the airport site including compliance with the mitigation and other measures identified in this EMF.

The contract documentation will require compliance with all regulatory requirements including the Airport Plan and its conditions.

28.4.2 Operations

The statutory framework for on-going environmental management at the airport site will be provided by:

- the Airports Act Part 5 and associated parts of the Airports Regulations 1997 which relate to land use, planning and building controls and environmental management;
- Part 6 of the Airports Act and the Airports (Environment Protection) Regulations 1997 (AEPR) which establish a system of regulation of, and accountability for, activities at airports that generate or have the potential to generate pollution or excessive ground based noise. These regulations also promote improving environmental practices for activities carried out at airports;
- the Airports (Building Control) Regulations 1996 which require approval from an airport building controller of building activities on airport sites for which there is an airport lease, and require that those activities be consistent with applicable planning instruments such as the Airport Plan; and
- other applicable laws such as the EPBC Act.

The environmental management framework for existing airports is established in the airport's master plan. The ALC of the proposed airport will be required to submit for approval a master plan within five years of an airport lease being granted, or in such a longer period as allowed by the Infrastructure Minister. Part 2 of the Airport Plan will provide the planning framework for the airport until the first master plan is in place. Airport master plans are subject to public consultation prior to approval and are updated every five years. Table 28–1 describes the purpose and contents of a master plan, including an environment strategy for an airport, as outlined in the Airports Act.

Table 28–1 Purpose and contents of an airport master plan

Aspect	Requirements
Purpose of a master plan	As outlined in section 70 of the Airports Act, the purpose of a master plan is to: • establish the strategic direction for efficient and economic development at the airport over the planning period of the plan; • provide for the development of additional uses of the airport site; • indicate to the public the intended uses of the airport site; • reduce potential conflicts between uses of the airport site, and ensure that uses of the airport site are compatible with the areas surrounding the airport; • ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards; • establish a framework for assessing compliance at the airport with relevant environmental legislation and standards; and • promote the continual improvement of environmental management at the airport.
Master plan contents	Section 71 of the Airports Act states that a master plan is required to include: • the ALC's development objectives for the airport; • the ALC's assessment of the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport; • the ALC's intentions for land use and related development of the airport site, where the uses and developments embrace airside, landside, surface access and land planning/zoning aspects; • an Australian Noise Exposure Forecast for the areas surrounding the airport; • flight paths at the airport; • the ALC's plans, developed following consultations with the airlines that use the airport and local government bodies in the vicinity of the airport, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; • the ALC's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the master plan; • the ALC's plans for dealing with the environmental issues (including plans for ameliorating or preventing environmental impacts); • a plan for a ground transport system on the landside of the airport; • detailed information on the proposed developments in the master plan that are to be used for commercial, community, office or retail purposes or for any other purpose that is not related to airport services; and • the likely effect of the proposed developments in the master plan on employment levels at the airport and the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport.

Aspect	Requirements
Environment strategy content	Section 71 of the Airports Act and the Airports Regulations 1997 require a master plan to include an environment strategy that details: • the ALC's objectives for the environmental management of the airport; • the areas (if any) within the airport site which the ALC, in consultation with State and Federal conservation bodies, identifies as environmentally significant; • the sources of environmental impact associated with airport operations including air quality, water quality, soil quality, ozone depleting substances, hazardous waste, use of natural resources, greenhouse gases and noise generation; • the studies, reviews and monitoring to be carried out by the ALC in connection with the environmental impact associated with airport operations (including matters such as proposed systems of testing and qualifications of experts); • the time frames for completion of those studies and reviews and for reporting on that monitoring; • the specific measures to be carried out by the ALC for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations; • the time frames for completion of those specific measures; • the consultations undertaken in preparing the strategy (including the outcome of the consultations); • any areas within the airport site to which the strategy applies that the ALC for the airport has identified as being a site of indigenous significance, following consultation with any relevant indigenous communities and organisations and any relevant Commonwealth or State body; • the ALC's strategy for environmental management of areas of the airport site that are, or could be, used for a purpose that is not connected with airport operations; • the training necessary for appropriate environment management by persons, or classes of persons, employed on the airport site by the ALC or by other major employers (and relevant training programs); • the ALC's policies and targets for: ▪ continuous improvement in the environmental consequences of activities at the airport; ▪ progressive reduction in extant pollution at the airport; ▪ development and adoption of a comprehensive environmental management system for the airport that maintains consistency with relevant Australian and international standards; ▪ identification, and conservation, by the airport lessee company and other operators of undertakings at the airport, of objects and matters at the airport that have natural, indigenous or heritage value; ▪ involvement of the local community and airport users in development of any future strategy; and ▪ dissemination of the strategy to sub lessees, licensees, other airport users and the local community.

28.4.3 Transition to operations

Operations at the proposed airport would take place in accordance with the OEMF presented in Section 28.6. In the period leading up to finalisation of a master plan (which may be before or after operations commence), the operational plans and measures identified in this EMF would be prepared and implemented as part of the OEMF to guide the environmental performance of the airport operations. To the extent appropriate, the plans and measures would be integrated within the airport master plan, which, when finalised, would replace the EMF described in this chapter.

28.4.4 Consultation with the NSW Government

Arrangements will be established with the NSW Government to ensure the views of relevant State agencies are taken into account before the respective environmental management plans are finalised. For each proposed environmental management plan, this chapter identifies relevant State guidelines and, where applicable, an indicative lead government agency that would be consulted. Final consultation arrangements will be confirmed with the NSW Government at the relevant time.

28.5 Construction Environmental Management Framework

28.5.1 Overview and structure

The overarching approach and structure for environmental management during construction is outlined in a construction environmental management framework (CEMF) as shown in Figure 28–1. The CEMF establishes the relationship between the relevant statutory and approval requirements for the Stage 1 development and draw together all relevant environmental management plans applicable to the construction programme. The CEMF will provide a system and set of procedures to establish and maintain sound and effective controls for the management of environmental impacts and, wherever practicable, realise opportunities for enhanced environmental outcomes.

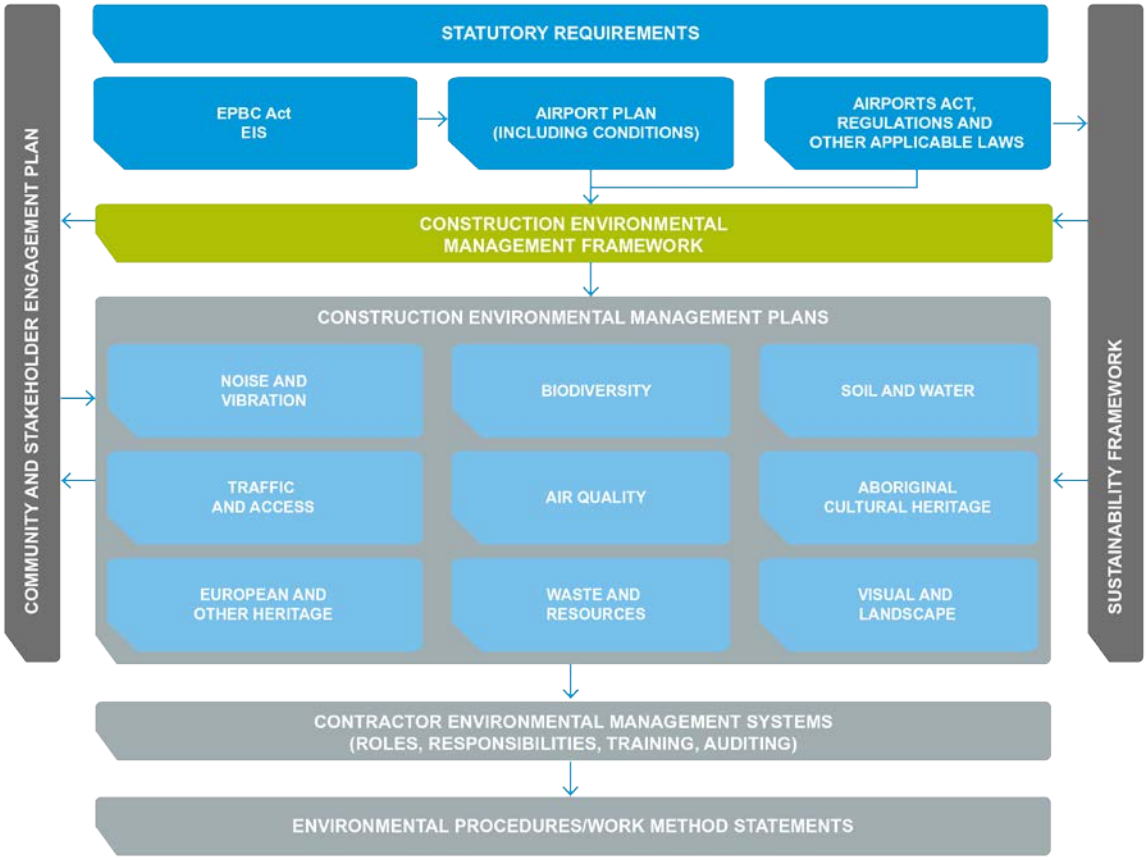


Figure 28–1 Construction environmental management framework

28.5.2 Construction Environmental Management Plans

The CEMF contains a series of issue-specific construction environmental management plans (CEMPs) to address key environmental aspects relating to the construction of the proposed Stage 1 development. The CEMPs will be prepared for the following environmental aspects of the construction of the proposed airport:

- noise and vibration;
- biodiversity;
- soil and water;
- traffic and access;
- air quality;
- Aboriginal cultural heritage;
- European and other heritage;
- waste and resources;
- visual and landscape; and
- community and stakeholder engagement.

The CEMPs will specify objectives, statutory basis and relevant guidelines, performance criteria, monitoring, auditing and reporting requirements, roles and responsibilities, and environmental mitigation and management measures which are relevant to a particular environmental aspect. The performance criteria identified for each environmental aspect represent targets or key performance indicators for managing impacts on that aspect.

28.5.3 Outline of Construction Environmental Management Plans and other measures

This section provides an outline for each CEMP and captures the mitigation and management measures which are proposed for the construction of the proposed airport.

28.5.3.1 Noise and vibration

Noise during construction of the proposed airport is predicted to be largely confined within the airport site, with some predicted impacts on the Luddenham and Badgerys Creek areas. Management of noise and vibration is required to ensure noise impacts at nearby receivers are minimised as far as practicable.

An overview of the framework for implementing the Noise and Vibration CEMP is presented in Table 28–2. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–3.

Table 28–2 Noise and Vibration CEMP

Topic	Noise and vibration management
Management objectives	Key management objectives in relation to the management of noise and vibration impacts are: • managing noise emissions to within permitted noise level criteria as far as practicable; and • implementing best practice noise mitigation practices to ensure noise emissions associated with construction works and associated activities do not unduly affect the amenity of surrounding receivers.
Statutory basis	Statutory requirements for noise management are set out in the Airports Act and the AEPR.
Relevant guidelines	Relevant guidelines used to inform management of construction noise and vibration issues include: • NSW EPA's Interim Construction Noise Guideline; • The Australian New Zealand Environment Conservation Council (ANZECC) guideline – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZECC, 1990); and • German Standard DIN 4150-3: Structural Vibration: Effects of Vibration on Structures.
Performance criteria	Performance criteria for managing construction noise and vibration are: • compliance with the approved Noise and Vibration CEMP; • compliance with criteria provided for in the AEPR and any other criteria established for construction works in the approved Noise and Vibration CEMP; • compliance with vibration criteria set out in German Standard DIN 4150-3: Structural Vibration: Effects of Vibration on Structures; and • compliance with residential criteria for overpressure from blasting activities (ANZECC, 1990).
Implementation framework	A Noise and Vibration CEMP will be approved prior to commencement of Main Construction Works for the proposed airport. The Noise and Vibration CEMP will collate measures to mitigate and manage potential noise and vibration impacts, including cross-references to other environmental management plans where they are relevant. The Noise and Vibration CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-3; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Noise and Vibration CEMP.
Monitoring	General monitoring requirements are set out under the AEPR. These include that: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Additional monitoring requirements include that: • noise and vibration monitoring locations will be determined in consultation with the NSW Environment Protection Authority; • regular site inspections will be undertaken to monitor compliance with the Noise and Vibration CEMP and record inspection results; • an inspection log will be made available to the Department of Infrastructure and Regional Development upon request; and • the frequency of site inspections will be increased by the person accountable for onsite noise and vibration issues when activities with a high potential to result in elevated noise emissions are undertaken in close proximity to residential receptors.

Topic	Noise and vibration management
Auditing and reporting	General reporting requirements are set out under the AEPR. In addition, an annual report for each year up to the commencement of operations will be provided to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Noise and Vibration CEMP. The community and stakeholder engagement plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Noise and Vibration CEMP will be prepared in consultation with the NSW Environment Protection Authority and NSW Health; • the Noise and Vibration CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; • the design and construct (D&C) contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Noise and Vibration CEMP; and • the airport environment officer will be responsible for day to day regulatory oversight of AEPR compliance at the airport after an airport lease is granted

Table 28–3 Noise and vibration management requirements

Topic	Mitigation measures	Timing
Construction noise and vibration CEMP	The Noise and Vibration CEMP will: • ensure, where feasible, that noise emissions comply with the construction noise guidelines in Schedule 4 of the AEPR; • identify construction activities which are predicted to exceed any noise management levels set for the proposed airport and develop proposed actions, such as notification of affected receivers; • ensure that vibration and airblast from rock blasting and other construction activities comply with relevant vibration damage guideline values in German Standard DIN 4150-3 and vibration and airblast criteria in ANZECC 1990, to protect the amenity of local residents and avoid building damage; • determine noise and vibration monitoring, reporting and response procedures; • describe specific mitigation treatments, management methods and procedures to be implemented to control noise and vibration during construction; • describe construction timetabling to minimise noise impacts, including time and duration restrictions, respite periods and frequency; • describe procedures for notifying residents of construction activities likely to affect their amenity through noise and vibration; and • define contingency procedures to be implemented in the event of non-compliance and/or noise complaints.	Pre-Construction

28.5.3.2 Biodiversity

The proposed Stage 1 development would result in the removal of approximately 1,150 hectares of vegetation within the construction impact zone. The majority of this vegetation consists of exotic grassland and cleared land or cropland dominated by exotic species and noxious and environmental weeds with the removal of around 318.5 hectares of native vegetation. Appropriate

management of the construction process is required to minimise the impact upon biodiversity values at the airport site.

The removal of vegetation at the airport site would result in the loss of fauna foraging, breeding, roosting, sheltering and/or dispersal habitat. Construction of the proposed Stage 1 development would also result in indirect impacts on terrestrial and aquatic flora and fauna, including potential impacts associated with increased habitat fragmentation, altered hydrology, erosion and sedimentation, dust, light, noise and vibration. Indirect impacts may also include fauna displacement, injury and mortality.

An overview of the framework for implementing the Biodiversity CEMP is presented in Table 28–4. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–5. The Biodiversity CEMP will be prepared to manage impacts upon the airport site during construction.

It should be noted that a separate Biodiversity Offset Package will be implemented by the Department of Infrastructure and Regional Development. An outline of the Biodiversity Offset Package and the process for identifying and securing suitable offsets is provided in Section 28.5.3.3.

Table 28–4 Biodiversity CEMP

Topic	Biodiversity management
Management objectives	Key management objectives for managing biodiversity are: • minimising disturbance to terrestrial and aquatic flora and fauna in the Environmental Conservation Zone during construction; • minimising adverse effects on terrestrial fauna by construction activities; • protecting areas outside the construction impact zone that contain a listed threatened ecological community or provide important habitat for a listed threatened species during clearing activities; and • managing weed and pest species that may be introduced as a result of the construction programme.
Statutory basis	Statutory requirements for management of biodiversity issues are set out in the Airports Act, the AEPR and the EPBC Act.
Relevant guidelines	Relevant guidelines used to manage biodiversity issues will include: • National Standards for the Practice of Ecological Restoration in Australia (Society for Ecological Restoration Australasia 2016); • Guidelines for the Translocation of Threatened Plants (Vallee et al 2004); and • Cumberland Plain Recovery Plan (DECCW, 2011).

Topic	Biodiversity management
Performance criteria	Performance criteria include: • compliance with the approved Biodiversity CEMP; • compliance with the general duty to preserve habitat under the AEPR; • compliance with the environmental values as outlined in the Land Use Plan in the Airport Plan; • clearing of the construction impact zone is undertaken in an environmentally sensitive manner; • disturbance of fauna outside of the construction impact zone is minimised; and • subject to the requirements for safe airport operations, no clearance of significant vegetation occurs outside the designated Stage 1 construction impact zone prior to further approvals under the Airports Act where the vegetation: ▪ is in the Environmental Conservation Zone; or ▪ comprises a threatened ecological community under the EPBC Act; or ▪ provides important or critical habitat for a listed threatened species under the EPBC Act. • all reasonable and practicable measures are taken to ensure no weed or pest species are introduced to or from the airport site.
Implementation framework	The Biodiversity CEMP will be approved prior to Main Construction Works. The CEMP will collate measures to mitigate and minimise potential impacts to biodiversity, including cross-reference to other environmental management plans where they are relevant. The Biodiversity CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including the measures and sub-plans, protocols and surveys in Table 28–5; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Biodiversity CEMP.
Monitoring	General monitoring requirements include that: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Additional monitoring requirements for specific mitigation measures are outlined in Table 28–5.
Auditing and reporting	General reporting requirements are set out under the AEPR. In addition, an annual report for each year up to the commencement of operations will be provided to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Biodiversity CEMP. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.

Topic	Biodiversity management
Responsibility	Responsibilities include: • the Biodiversity CEMP will be prepared in consultation with DoEE and the NSW Office of Environment and Heritage (OEH); • the Biodiversity CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; • the D&C contractor will be responsible for implementing site specific environmental management arrangements and work method statements applicable to the proposed works in accordance with the requirements of the Biodiversity CEMP; and • the airport environment officer will be responsible for day to day regulatory oversight of AEPR compliance at the airport after an airport lease is granted.

Table 28–5 Biodiversity management requirements

Topic	Mitigation measures	Timing
Worker Induction	All workers are to be provided with an environmental induction prior to starting onsite construction activities. This would include information on: • the ecological values of the airport site; and • protection measures and site procedures to be implemented to protect biodiversity during construction.	Pre-construction
Waterway crossings	New waterway crossings or upgrades of existing crossings, if required on the airport site, will be designed and constructed to minimise potential impacts on watercourse functionality, in particular impacts on riparian and aquatic habitats and fish passage.	Pre-construction Construction

Topic	Mitigation measures	Timing
Pre-clearance surveys for threatened species	Pre-clearance surveys for threatened species will be undertaken by a qualified ecologist. Specific management plans will be prepared to manage impacts on each threatened flora and fauna species. These plans would include: • additional targeted searches of the construction impact zone for the Green and Golden Bell Frog (in suitable conditions) to confirm that they are not present at the site. Should this species be located during targeted surveys, a management plan would be prepared to provide detail on Green and Golden Bell Frog relocation and habitat management. Frog collection and relocation would need to be conducted by appropriately experienced ecologists; • targeted searches of the construction impact zone for the Cumberland Plain Land Snail (in suitable conditions) and salvage and relocation of any snails and/or suitable shelter sites that are detected. A management plan would be prepared to provide more detail on Cumberland Plain Land Snail relocation and habitat management if snails are identified. Snails and/or suitable shelter sites would be relocated to appropriate habitat on or near the airport site. Snail collection and relocation would need to be conducted by appropriately experienced ecologists; • searches for roosting bats at any bridges or culverts that need removal; • pre-clearing surveys for larger birds' nests, particularly the White-bellied Sea-Eagle and Little Eagle; and • targeted searches for threatened flora species in areas of appropriate habitat with particular attention to the vicinity of known populations of *Marsdenia virdiflora* subsp. *viridiflora* and *Pultenaea parviflora*. Any unexpected finds would be communicated to the Department of Infrastructure and Regional Development and addressed in the translocation plan and/or Offset Delivery Plan as appropriate.	Pre-construction

Topic	Mitigation measures	Timing

Habitat clearing and fauna removal plan	A habitat clearing and fauna removal plan will be developed as part of the Biodiversity CEMP for the management of impacts on fauna species during clearing activities. The plan will include the following measures:
	• preparation of a nest box strategy, including provisions for the:
	  ▪ installation of nest-boxes within the Environmental Conservation Zone prior to clearing areas of native vegetation on the airport site. This would provide a safe location for hollow-dwelling fauna to be transferred to during clearing operations;
	  ▪ reuse of hollows and fallen debris within conservation areas; and
	  ▪ salvage of native fauna from existing nest boxes in the construction impact zone prior to their removal and translocation.
	• providing for pre-clearing surveys to be undertaken by a suitably qualified ecologist to mark and map hollow-bearing trees, logs and existing nest boxes that would require fauna management during removal;
	• establishing protocols for the staged clearing of vegetation and safe tree felling and log removal to reduce the risk of fauna mortality;
	• measures outlined in the threatened species translocation plan;
	• establishing protocols for the capture and relocation of less mobile fauna (such as nestling birds and nocturnal fauna) by a trained fauna handler; and
	• establishing protocols for the appropriate management of injured or deceased individuals.
		Pre-construction

Weed management plan	A weed management plan will be developed as part of the Biodiversity CEMP and will include the following measures: • implementing soil erosion and sediment control measures; • mapping of weed infestations; • removing and controlling noxious weed species; • appropriate disposal of weeds and weed-infested soils; • stabilising disturbed areas following clearing to prevent weed spread; • monitoring and adaptive management of weeds; and • reporting on the extent, composition and severity of weed infestations and adaptive management measures.	Pre-construction

Topic	Mitigation measures	Timing
Dam decommissioning and repurposing protocol	A protocol for the decommissioning of dams, or repurposing of dams for storage and use of water during construction, will be developed as part of the Biodiversity CEMP, in consultation with relevant agencies. The measures to be implemented through the protocol include: • any requirements of a Green and Golden Bell Frog management plan; • eradication of the Alligator Weed infestation on the dammed section of Oaky Creek near Elizabeth Drive prior to any works in the vicinity; • progressively emptying dams over a number of days to allow fauna to relocate; • avoiding the nesting season of waterbirds, where possible. A pre-removal survey would be conducted to identify bird breeding locations; • salvaging and relocating aquatic vertebrate fauna, including frogs, turtles and eels, to areas of suitable habitat retained at the airport site or nearby habitats, with regard to numbers and identification of suitable release sites; • preventing the release of Eastern Gambusia *(Gambusia holbrooki)* and other noxious fish into local waterways as a result of the draining of farm dams. Eastern Gambusia will be eradicated from dams using humane methods; and • establishing protocols for the humane euthanasia of aquatic fauna, including fish.	Pre-construction
Bushfire management	As part of ongoing site management activities, the Department of Infrastructure and Regional Development has prepared and implemented a bushfire management plan for the Commonwealth owned land at Badgerys Creek. This plan addresses current bushfire risk and identifies response actions. The existing bushfire management plan will be reviewed and updated in consultation with NSW Rural Fire Service to minimise the risk of bushfire and associated impacts on adjoining areas of native vegetation during construction and operation of the proposed airport, including the proposed environmental conservation area. This would include: • identifying activities likely to generate sparks and putting in place appropriate restrictions based on the forecast fire danger; • preparing pre-planned fire response action plans. The action plans would be issued as part of the site induction for all site personnel; • developing limitations on relevant construction procedures which would be applied during the fire season based on specific fire danger ratings. An example of such restrictions would include the halting of all construction works during extreme or catastrophic fire danger days; • managing the airport site to maintain a low overall fuel hazard. Measures to achieve this would include a combination of herbicide application, slashing, low intensity burning and hand removal; and • ensuring that fuel-reduction measures are appropriate to biodiversity values in each area, e.g. low intensity burns rather than slashing would be used in native woodland and forest.	Pre-construction

Topic	Mitigation measures	Timing
Natural environments adjacent to and downstream from the airport site	Measures to minimise the potential hydrological and contamination impacts on natural environments adjacent to and downstream of the airport site which will be implemented through the Soil and Water CEMP as outlined in Table 28–6. Specific measures to address soil and water impacts are outlined in Table 28–7. Measures to minimise the generation of dust and associated impacts on natural environments adjacent and downstream of the airport will be implemented through the Air Quality CEMP as outlined in Table 28–10. Specific measures to address dust impacts are outlined in Table 28–11.	Pre-construction Construction
Threatened flora translocation plan	A threatened flora salvage and translocation plan will be developed as part of the Biodiversity CEMP, in consultation with relevant agencies and the Australian Botanic Garden at Mount Annan and with consideration of the Guidelines for the Translocation of Threatened Plants (Vallee et al 2004). The threatened flora translocation plan will specify measures for the salvage and translocation of threatened flora species. In particular, it will include: • the salvage and propagation or transplanting of the known local populations of *Pultenaea parviflora* and *Marsdenia viridiflora* subsp. *viridiflora* and any other threatened flora detected at the airport site; and • consideration of the suitability of sites within the Environmental Conservation Zone in order to maintain populations of these species as close to their original location as is possible.	Pre-construction Construction
Threatened species management plans	Threatened species management plans will be prepared and implemented as part of the Biodiversity CEMP to reduce the potential for impacts on threatened species known to occur on the airport site, both inside and outside of the construction impact zone. These plans will include: • maps identifying locations of threatened species; • the scope and requirements for targeted surveys and pre-clearing surveys; including an unexpected finds protocol; • vegetation and habitat clearing protocols; and • reporting and adaptive management measures.	Pre-construction Construction
Vegetation clearance and habitat loss	The following measures will be taken to reduce the potential for adverse impacts on ecologically sensitive areas due to vegetation clearance and habitat loss: • deferring vegetation removal until necessary; • locating site offices and stockpiles in already cleared and disturbed areas where possible, to avoid further unnecessary removal or disturbance of native vegetation and hollow-bearing trees; • providing maps to construction staff engaged in Main Construction Works clearly showing vegetation clearing boundaries and exclusion/no-go zones; • engaging a suitably qualified ecologist or environmental officer prior to any clearing works that form part of Main Construction Works to clearly demarcate vegetation protection areas; and • establishing an unexpected finds protocol to detail measures to be undertaken if threatened flora and fauna not previously recorded at the airport site are detected during Main Construction Works.	Preparatory Activities Construction

Topic	Mitigation measures	Timing
Disease management protocol	A disease management protocol will be developed as part of the Biodiversity CEMP to minimise the potential for the spread of diseases. The protocol will include procedures for the management of plant diseases (such as Phytophthora, Myrtle Rust and Chytrid fungus), as well as any other likely diseases.	Construction
Management of vegetation areas outside the construction impact zone	A vegetation management plan will be developed as part of the Biodiversity CEMP to guide the activities for managing areas of endemic vegetation outside the Stage 1 construction impact zone. The plan will identify how environment protection objectives for the Environmental Conservation Zone shown in the Land Use Plan in the Airport Plan will be met. The plan will detail specific measures to: • avoid unnecessary disturbance in nearby areas of retained vegetation outside of the construction impact zone such as avoiding unnecessary light spill; • replace exotic grasslands with suitable native vegetation in the Environmental Conservation Zones; • rehabilitate existing remnant and native vegetation within the Environmental Conservation Zones; and • protect environmental values within the Environmental Conservation Zone.	Pre-construction Construction
Landscaping	Landscaping on the airport site will utilise predominantly native vegetation endemic to the region, sourced from the local area where possible. This will include: • planting of native grasses in open areas around airport infrastructure; and • the use of native vegetation in decorative gardens and plant screenings used to minimise visual impacts.	Construction

28.5.3.3 Biodiversity offsets

The EIS guidelines state that the proposed airport will require biodiversity offsets calculated with reference to the EPBC Act Offsets Policy. The key considerations included in the policy are that:

offsets are described as measures that compensate for significant residual adverse impacts on the environment and the policy applies to all matters that are protected under the EPBC Act;

the 'offsets assessment guide' spreadsheet is a tool that has been developed to help assess the suitability of offset proposals. The offsets assessment guide uses a balance sheet approach to measure impacts and offsets;

at least 90 per cent of a project's impacts should be directly offset (subject to exceptions outlined in the EPBC Act Offsets Policy) and any offsets should be implemented prior to or at the time of the impact occurring; and

up to 10 per cent (or more if an appropriate exception applies) of a project's impacts may be indirectly offset through compensatory measures such as contributions to a research fund or an educational programme.

A departure from the 90 per cent direct offset requirement may be considered where it can be demonstrated that a greater benefit to the protected matter is likely to be achieved through increasing the proportion of other compensatory measures.

Offsets for significant residual impacts on species and communities listed under the EPBC Act would be calculated using the 'offsets assessment guide' under the EPBC Act Offsets Policy.

Following consultation with the DoEE, it was determined that offsets for significant residual impacts on other features of the natural environment including plant populations, fauna populations and several species and communities (collectively referred to as plants, animals and habitats) listed under NSW legislation, the *Threatened Species Conservation Act 1995* (TSC Act), would be calculated with reference to the NSW Framework for Biodiversity Assessment (FBA) methodology. The framework is based on the NSW Biodiversity Banking and Offsets Scheme (BioBanking) credit calculator and assessment methodology and is used to calculate offsets for major projects in NSW.

The EPBC Act Offsets Policy requires biodiversity offset sites to be securely titled under a legally binding conservation covenant and actively managed under a fully funded plan. There are a variety of mechanisms for achieving this, including BioBanking, Voluntary Conservation Agreements or dedication of land to the National Parks estate.

28.5.3.4 Biodiversity Offset Package

Biodiversity offsets are required to compensate for significant residual impacts arising from the proposed airport. An offset package has been prepared to compensate for the removal of about 104.9 hectares of Cumberland Plain Woodland, about 141.8 hectares of foraging habitat for the Grey-headed Flying-fox, and other features of the natural environment including plant populations, fauna populations and several species and communities, including those listed under NSW legislation (collectively referred to as 'plants, animals and their habitat). The specific areas requiring offsetting will be confirmed through the detailed design process for the proposed airport and further site surveys prior to the commencement of Main Construction Works. The offsets package is intended to conserve habitat as offsets for affected threatened biota in suitable offset sites in the surrounding region in perpetuity.

Biodiversity offsets will be delivered primarily through procurement of biodiversity credits to offset the proposed airport's impacts on affected EPBC Act-listed biota as calculated by the offsets assessment guide. Additional biodiversity credits would be purchased to offset impacts on other plants, animals and their habitat. The biodiversity credits are generated through a system which includes establishing a form of conservation covenant over the area of land from which the credits are generated, and procurement of the biodiversity credits will provide funds for management of that area in perpetuity.

While conservation of offset sites through the NSW BioBanking Scheme is expected to form the primary component of the biodiversity offsets, a variety of other conservation actions will also be considered that would assist in meeting overall offset requirements. These may include additional funding to a variety of existing and future programmes, projects, and policies where such alternative options are more practical, or achieve greater strategic benefits for biodiversity conservation in the region. Examples of other conservation mechanisms which could be used to deliver offsets are presented in Section 16.7 (Volume 2a) of this EIS. The Department will consult closely with the Department of the Environment and Energy (DoEE) and, other relevant NSW agencies (the OEH and Department of Planning and Environment), organisations and stakeholder groups on these and other potential offsetting opportunities.

The process of identifying and securing suitable offset areas will continue after the Airport Plan is determined by the Infrastructure Minister. The process would include identification of further offset

areas for Cumberland Plain Woodland in addition to the areas which have been identified at the time of this EIS. Potential offset sites would be subject to targeted surveys to confirm their qualities and their value in terms of biodiversity credits or other offsetting potential.

28.5.3.5 Biodiversity Offset Delivery Plan

A Biodiversity Offset Delivery Plan will be submitted for approval to the Environment Minister or an SES officer in DoEE prior to the commencement of Main Construction Works for the Stage 1 development, ensuring that biodiversity offsets have been identified and secured, where possible, prior to substantial impacts occurring. The Biodiversity Offset Delivery Plan will set out the specific areas proposed to meet offset requirements for the Stage 1 development and will be guided by the framework established in the offset package.

The delivery plan will include further information such as:

- the final quantum of impacts arising from the Stage 1 development, including refinements to impact calculations based on detailed design, pre-clearing surveys of the Stage 1 construction impact zone and any necessary modifications to vegetation and habitat mapping;
- identification of additional offset areas for Cumberland Plain Woodland and biodiversity credits for impacts on plants, animals and their habitat;
- location details and fine scale mapping of individual offset sites;
- current tenure arrangements, land uses, risk of loss of offsets and legal mechanisms proposed to avert the risk of loss at individual offset sites;
- confirmed presence of threatened biota and assessment of the extent and quality of habitat at individual offset sites and details of studies and surveys used to inform offset calculations;
- the final number and type of biodiversity credits to be purchased, or other action to be taken in relation to alternative offset mechanisms;
- a detailed description of the specific management actions that will be undertaken to improve the quality of the offset sites; and
- the overall cost of the proposed offset package.

28.5.3.6 Soil and water

The proposed Stage 1 development would transform approximately 1,150 hectares of the airport site from a rolling grassy and vegetated landscape to an essentially built environment with some landscaping.

The earthworks programme would involve the redistribution of about 22 million cubic metres of soil across the construction impact zone.

In November 2015, the Department of Infrastructure and Regional Development commenced a programme of water quality monitoring at locations on and around the airport site. Due to existing and previous land uses in the area, the water catchments on and around the airport site are substantially degraded and do not meet existing water quality guidelines outlined in the AEPR. To take account of these local conditions it may be necessary to establish local standards for water quality under the AEPR. It is expected that the existing water quality monitoring programme will be used by the ALC to develop local standards for water quality under the AEPR if required. Local

standards proposed by an ALC must be approved by the Infrastructure Minister based on expert environmental advice.

An overview of the framework for implementing the Soil and Water CEMP is presented in Table 28–6. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–7.

Table 28–6 Soil and Water CEMP

Topic	Soil and water management
Management objectives	Key management objectives in relation to soil and water are to: • ensure appropriate treatment of water prior to off-site discharge or disposal; • minimise the risk of pollution incidents from the construction of the Stage 1 development; • minimise the export of sediment from the airport site; • protect the quantity and quality of groundwater; • minimise potable water use during construction; and • ensure appropriate treatment of any contaminants identified throughout construction.
Statutory basis	Statutory requirements for soil and water management are set out in the Airports Act and the AEPR. Work Health and Safety Legislation (Commonwealth and NSW) also imposes specific requirements in relation to hazardous materials including asbestos. Management of asbestos waste is also addressed in other legislation such as the *Protection of the Environment Operations (Waste) Regulation* 2014 (NSW).
Relevant guidelines	The guidelines that inform soil and water management include: • NSW OEH Blue Book – Managing urban stormwater: soils and construction; • WorkCover NSW Guidelines for managing asbestos in or on soil; • Safe Work Australia Model Code of Practice: How to Safely Remove Asbestos; • National Environment Protection (Assessment of Site Contamination) Measure 2013; • National Water Quality Management Strategy; • NSW Water Quality Objectives; and • Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
Performance criteria	The performance criteria for the Soil and Water CEMP would include: • compliance with the approved Soil and Water CEMP; • compliance with the water pollution and soil pollution accepted limits outlined in the AEPR, including any local standards approved under the AEPR; and • establishment of erosion and sedimentation controls in line with 'NSW OEH Blue Book - *Managing urban stormwater: soils and construction*' at the start of construction and progressively as construction progresses.

Topic	Soil and water management
Implementation framework	A Soil and Water CEMP will be approved prior to commencement of Main Construction Works for the proposed airport. The Soil and Water CEMP will collate measures to mitigate and manage potential impacts to the receiving environment and will include cross-references to other environmental management plans where relevant. The Soil and Water CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-7; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify details of the party responsible for implementing the Soil and Water CEMP.
Monitoring	General monitoring requirements are set out under the AEPR. These include that: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Additional monitoring requirements include that: • the most suitable surface and groundwater monitoring locations will be determined in consultation with NSW Environment Protection Authority and relevant local councils; • regular site inspections will be conducted to monitor the effectiveness of the soil and water management controls. Inspection results will be recorded and the inspection log made available to the Department of Infrastructure and Regional Development upon request; • the frequency of site inspections will be increased during and immediately after wet weather when there is a higher potential for the off-site transport of sediment from the airport site; • groundwater elevation monitoring will be conducted to detect potential impacts to base flow in the vicinity of potentially sensitive creeks or groundwater dependent vegetation. Monitoring will be undertaken quarterly through construction up to a minimum period of three years after the completion of the Stage 1 development and until any identified impacts stabilise; • groundwater quality monitoring of alluvial and Bringelly Shale aquifers will be conducted at major infrastructure locations, down gradient from those locations and in the vicinity of groundwater dependent vegetation or watercourses. Monitoring will initially be undertaken quarterly and adjusted as appropriate; and • monthly surface water quality monitoring will be conducted to monitor performance of the drainage system. This monitoring will occur once the surface water drainage system is in place and take place at basin outflows and during selected upstream and downstream conditions.
Auditing and reporting	General reporting requirements are set out under the AEPR. In addition, an annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Soil and Water CEMP for the period until the airport commences operations. Additional auditing and reporting measures that will be implemented include: • recording in a log book any exceptional incidents that cause excessive pollution of receiving waters and the action taken to resolve the situation; and • reporting pollution incidents resulting in offsite impacts to the NSW Environment Protection Authority. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.

Topic	Soil and water management
Responsibility	Responsibilities include: • the Soil and Water CEMP will be prepared in consultation with the NSW Environment Protection Authority and relevant local councils; • the Soil and Water CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; • the D&C contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Soil and Water CEMP; and • the airport environment officer will be responsible for day to day regulatory oversight of AEPR compliance at the airport after an airport lease is granted.

Table 28–7 Soil and water management requirements

Topic	Mitigation measures	Timing
Surface water management system	As part of the detailed design process for the Stage 1 development, a surface water management system will be developed. Development of a surface water management system for the airport site may involve a progressive process of design and implementation covering both the construction and operational phases. This may include the implementation of temporary system elements specifically for the construction phase. The system will include: • a detailed design of basins and channels to capture the majority of runoff, including during construction; • refined drainage system design performance standards to optimise capacity and release timing, mimicking natural flows as far as practicable; • separate bio-retention basins to provide additional treatment for low flows and separation of these features from the drainage system to protect contained water during flood events; • pollutant traps to prevent debris and other coarse material entering the drainage system; • stabilisation structures at outlets to include rock check dams at regular intervals along channels and energy dissipaters at basin outlets; • capacity for containment of accidental leaks or spills in the drainage system at maintenance areas, fuel farms or other areas where fuels or chemicals are stored or handled in accordance with Australian standards; and • measures to address impacts on downstream and upstream uses, including sensitive environmental values.	Pre-construction Construction
Development of local standards	Local standards for water quality may be developed under the AEPR, with due consideration to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000) and the results of baseline water quality monitoring taking place for a minimum of 24 months prior to the commencement of Main Construction Works.	Pre-construction

Topic	Mitigation measures	Timing
Erosion and sedimentation	Impacts associated with erosion and sediment will be mitigated through: • installing a site drainage system prior to commencement of bulk earthworks; • minimising the surface area disturbed at any one time by, where practical, staging construction works and stabilising soils with vegetation or appropriate cover materials; • establishing erosion and sediment controls in accordance with the 'NSW OEH Blue Book – *Managing urban stormwater: soils and construction'*; • providing intermediate sediment retention basins within the construction impact zone to provide additional treatment prior to completion of the airport's site drainage system. Specific erosion control measures would be developed for the management of highly erodible soils such as those anticipated in the Luddenham and South Creek soil landscapes; • mulching cleared vegetation for use in erosion control at construction sites; • covering and stabilising soil stockpiles with vegetation or mulch; • stockpiling topsoil at a maximum height of two metres, where practicable; and • distributing and seeding topsoil over landscaped areas at the completion of bulk earthworks.	Construction
Leaks or spills of fuel or other chemicals	To minimise the risk of leaks or spills the following mitigation measures will be put in place: • maintenance areas, fuel farms and other areas where fuels or chemicals are stored or handled will be bunded to contain any accidental spills or leaks; • fuel and other chemicals will be stored and handled in accordance with relevant Australian standards such as: ▪ AS 1940-2004 The storage and handling of flammable and combustible liquids; ▪ AS/NZS 4452:1997 The storage and handling of toxic substances; ▪ AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods; and ▪ AS/NZS 1547:2012 On-site domestic wastewater management. • a protocol will be developed and implemented to respond to and remedy leaks or spills.	Construction
Groundwater inflows	To mitigate the impacts associated with groundwater inflows the following measures will be implemented: • groundwater inflows will be reused or released with appropriate treatment; • where groundwater is released to surface waters, treatment will be undertaken to bring water pollution below the accepted limits set out in the AEPR or any local standards; and • corrective measures will be developed and implemented to supplement groundwater supplies in the unlikely event of impacts to dependent vegetation or watercourses.	Construction
Land Contamination	A remedial action plan and unexpected finds protocol would be established to facilitate the quarantining, isolation and remediation of contamination identified throughout the construction programme. Any asbestos identified on site would be managed in accordance with applicable regulatory requirements.	Construction

28.5.3.7 Traffic and access

The Stage 1 development is predicted to generate an estimated 1,254 additional vehicle movements per day on the surrounding road network during the construction period. This includes around 160 additional peak hour vehicle movements during the morning traffic peak on Elizabeth Drive and around 150 additional peak hour vehicle movements during the afternoon peak. In the context of the capacity of the arterial roads and motorways in Western Sydney, these additional movements are not expected to result in undue congestion.

Movements of oversized vehicles or plant may at times require temporary road closures or escorts to the site but these would be conducted outside of peak hours. Local residents and the general community will be informed of any scheduled activities that may interrupt traffic flow or require temporary speed limits or diversions of traffic.

An overview of the framework for implementing the Traffic and Access CEMP is presented in Table 28–8. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–9.

Table 28–8 Traffic and Access CEMP

Topic	Traffic and access management
Management objectives	Key management objectives in relation to traffic and access are: • minimising disturbance to the local and regional road network; • maintaining communication with the potentially affected local residents, visitors and businesses to minimise disruption; and • ensuring access to the airport site does not unduly compromise the safety of the local road network.
Statutory basis	Statutory requirements for road traffic noise on the airport site are set out in the Airports Act and the AEPR.
Relevant guidelines	The guidelines that inform management of traffic and access include: • NSW Roads and Maritime Services (RMS) Road Design Guide; • RMS Traffic Control at Work Sites manual; and • AS 1742.3 Manual of Uniform Traffic Control Devices – Traffic control for works on roads.
Performance criteria	The performance criteria for managing construction traffic and access include: • compliance with the approved Traffic and Access CEMP; • minimising disruption to the local and regional road network associated with construction related traffic; and • effective communication of traffic management measures to the local community.
Implementation framework	A Traffic and Access CEMP will be approved prior to Main Construction Works for the proposed airport. The CEMP will collate measures to mitigate and manage potential impacts to the local and regional road network, including cross-reference to other environmental management plans where they are relevant. The Traffic and Access CEMP will include as a minimum the management and mitigation measures to be implemented, including those outlined in this section: • the process for managing complaints, stakeholder engagement, and emerging traffic management issues as they arise; • the process for monitoring implementation, reporting, and auditing; and • details of the party responsible for implementing the Traffic and Access CEMP.

Topic	Traffic and access management
Monitoring	Monitoring requirements include that: • monitoring must take place under the direction of an appropriately qualified person; • the results of the monitoring must be kept in a written record; and • monitoring of the effectiveness of traffic control measures.
Auditing and reporting	An annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Traffic and Access CEMP for the period until the airport commences operations. Additional auditing and reporting measures that will be implemented include: • recording in a log book any exceptional incidents that cause excessive traffic delays on the local road network and the action taken to resolve the situation. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Traffic and Access CEMP will be prepared in consultation with RMS, Transport for NSW and relevant local councils; • the Traffic and Access CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; and • the D&C contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Traffic and Access CEMP.

Table 28–9 Traffic and access management requirements

Topic	Mitigation measures	Timing
Community Awareness	As part of the community and stakeholder engagement plan a community awareness programme will be implemented prior to Main Construction Works commencing and would continue throughout the entire construction period. The programme will aim to make road users (including local residents) aware of construction traffic and safety issues, such as diversions, temporary road closures, traffic signalling and speed limits.	Pre-construction Construction
Construction traffic and access	To mitigate and manage potential traffic impacts the Traffic and Access CEMP will include the following elements: • management for the temporary and permanent closures of roads within the airport site; • ongoing consultation with NSW RMS and local councils as appropriate and emergency services; • induction for drivers working on the project to cover safety measures particularly for night works; • review of speed environments along transport corridors; • restriction of construction related traffic within the AM and PM peak periods where required; • management of the transportation of construction materials to optimise vehicle loads in order to minimise vehicle movements; • traffic control measures to manage and regulate traffic movements during construction; • identification of potential disruption to road users; • identification of any road closures and/or road upgrades that may be required; • construction vehicle routes, including the use of arterial roads, haulage routes, access to the airport site and procedures for oversize and heavy vehicles; • parking facilities for construction workers; and • measures to support and encourage sustainable travel for construction workers to and from the airport site, including public transport, shuttle buses, cycling, walking, and car-sharing (as also outlined in the Air Quality CEMP).	Construction

28.5.3.8 Air quality

Construction of the Stage 1 development will generate dust emissions, as well as some odour emissions due to the asphalt batching plant. Appropriate management is required to ensure the predicted impacts satisfy the air quality criteria and are minimised as far as practicable.

An overview of the framework for implementing the Air Quality CEMP is presented in Table 28–10. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–11.

Table 28–10 Air Quality CEMP

Topic	Air quality management
Management objectives	Key management objectives in relation to the management of air quality impacts during construction are: • ensuring ambient air quality is maintained at acceptable levels at sensitive receptor locations surrounding the airport site; • minimising the risk of dust or odour nuisance impacts on neighbours; and • ensuring emissions are minimised from all plant, equipment and machinery.
Statutory basis	Statutory requirements for avoiding and monitoring air pollution are set out in the AEPR. The National Greenhouse and Energy Reporting Act 2007 is also relevant.
Relevant guidelines	Relevant guidelines used to inform management of construction air quality issues include: • National Environment Protection Measure (Ambient Air Quality); • National Environment Protection Measure (Air Toxics); and • NSW EPA Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.
Performance criteria	Performance criteria include: • compliance with the approved Air Quality CEMP; and • ensuring that air pollution remains within the accepted limits set out in the AEPR.
Implementation framework	An Air Quality CEMP will be approved prior to commencement of Main Construction Works for the proposed airport. The CEMP will collate measures to mitigate and manage potential impacts on air quality, and include cross-references to other environmental management plans where relevant. The Air Quality CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in this section; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing of the Air Quality CEMP.
Monitoring	General monitoring requirements are set out in AEPR. These include that: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Additional monitoring requirements include that: • suitable locations for dust deposition, dust flux, or real-time PM_{10} continuous monitoring will be determined in consultation with the NSW Environment Protection Authority; • baseline monitoring will commence at least three months before Main Construction Works commence; • regular site inspections will be undertaken to monitor compliance with the dust management plan. Inspection results will be recorded and the inspection log made available to the Department of Infrastructure and Regional Development upon request; and • more frequent site inspections by the person accountable for air quality and dust issues will be conducted onsite when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Topic	Air quality management
Auditing and reporting	General reporting requirements are set out under the AEPR. In addition, an annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the air quality CEMP for the period until the airport commences operations. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Air Quality CEMP will be developed in consultation with the NSW Environment Protection Authority and NSW Health; • the Air Quality CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; • the D&C contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Air Quality CEMP; and • the airport environment officer will be responsible for day to day regulatory oversight of AEPR compliance at the airport after an airport lease is granted.

Table 28–11 Air quality management requirements

Topic	Mitigation measures	Timing
Dust management plan	As part of the Air Quality CEMP, a dust management plan will be developed to mitigate the impacts of dust during construction. The plan will involve: • avoiding site runoff of water or mud to reduce the potential for track-out dust emissions; • only using cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays; • ensuring adequate water will be made available on the site for effective dust and particulate matter suppression and mitigation, using non-potable water where possible; • using enclosed chutes and conveyors and covered skips; • minimising drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment, and using fine water sprays on such equipment wherever appropriate; • making equipment readily available on-site to clean up spillages as soon as reasonably practicable after the event; • measures to reduce dust impacts from earthworks and other works as outlined elsewhere in this table; and • measures to reduce dust track out as outlined elsewhere in this table.	Pre-construction Construction

Topic	Mitigation measures	Timing
Dust impacts from bulk earthworks	Measures to address impacts from bulk earthworks will include: • minimise exposed areas as far as is practical; • re-vegetate earthworks and exposed areas or soil stockpiles to stabilise surfaces as soon as practicable; and • use of hessian, mulches or tackifiers to cover exposed areas as soon as possible after completion of earthworks where it is not possible to re-vegetate or cover with topsoil.	Construction
Dust impacts from other Main Construction Works	Measures to mitigate dust impacts associated with other Main Construction Works include: • avoiding scrabbling (roughening of concrete surfaces) where practicable; • storing sand and other aggregates in bunded areas and not allowing them to dry out unless required for particular processes. If they are required for particular purposes, appropriate additional control measures would need to be in place; • delivering bulk cement and other fine powder materials in enclosed tankers and storing them in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and • sealing and appropriately storing bags of any fine powder materials to prevent dust generation.	Construction
Dust track out	Mitigating the impacts associated with track out dust will involve: • using water-assisted dust sweeper(s) on the access and local roads to remove, as necessary, any material tracked out of the site. This may require the sweeper to be continuously in use; • avoiding dry sweeping of large areas; • sealing high use haul roads and regularly inspecting and making necessary repairs to the surface as soon as reasonably practicable; • recording all inspections of haul routes and any subsequent action in a site log book; • regularly cleaning and damping down hard surfaced haul routes with fixed or mobile sprinkler systems or mobile water bowsers; • implementing a wheel washing system (with rumble grids to dislodge accumulated dust and mud) prior to leaving the site; • providing an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and • locating site access points as far as practicable from sensitive receptors.	Construction

Topic	Mitigation measures	Timing
Vehicle and equipment emissions	A vehicle and equipment emissions plan will be developed and implemented as part of the Air Quality CEMP to mitigate the impacts associated with vehicle and equipment emissions. The plan will involve: • requiring vehicle operators to switch off engines when not in use; • avoiding the use of diesel or petrol powered generators and instead using mains electricity or battery powered equipment, where practicable; • considering appropriate vehicle speeds on sealed and unsealed roads; • developing and implementing a construction logistics plan to manage the sustainable delivery of goods and materials to the airport site; and • implementing measures to support and encourage sustainable travel for construction workers to and from the airport site, including public transport, shuttle busses, cycling, walking, and car-sharing (as also outlined in the Traffic and Access CEMP).	Construction

28.5.3.9 Aboriginal cultural heritage

The airport site has been subject to considerable past disturbance through previous agricultural development. However, it still retains Aboriginal cultural heritage values that are important to traditional owners. Fifty-one Aboriginal heritage sites had been recorded in previous investigations and a further 23 sites were recorded during the preparation of this EIS.

All of the Aboriginal heritage sites recorded at the airport site are considered to have significance. Many sites contain archaeological material which has both cultural and scientific value, and all sites, irrespective of their scientific or other values, are considered to be culturally significant by the Aboriginal community.

Construction of the proposed Stage 1 development will affect at least 39 sites recorded at the airport site, all of which comprise artefact occurrences. Construction activities will also impact approximately 514 hectares of archaeologically sensitive landforms.

An Aboriginal Cultural Heritage CEMP will be prepared and approved prior to the commencement of Main Construction Works. Some measures proposed, while recorded in the CEMP, may be implemented before the plan is approved.

An overview of the framework for implementing the Aboriginal Cultural Heritage CEMP is presented in Table 28–12. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–13.

Table 28–12 Aboriginal Cultural Heritage CEMP

Topic	Aboriginal cultural heritage management
Management objectives	Key objectives for managing aboriginal cultural heritage are: • minimising disturbance and loss of Aboriginal cultural heritage values; • protecting and conserving in situ where appropriate those Aboriginal cultural items and sites located within the Environmental Conservation Zone; • implementing Aboriginal cultural heritage management measures as agreed with Aboriginal stakeholders; • contributing to a greater understanding of the archaeological record within Western Sydney; • seeking Aboriginal stakeholder participation in the development of the Aboriginal Cultural Heritage Management Plan and in the implementation of the measures and strategies contained within it; and • treating all Aboriginal cultural heritage items with respect in regards to their identified values and avoiding any unnecessary impacts.
Statutory basis	The statutory requirements for Aboriginal cultural heritage management include the provisions of the Airports Act and AEPR and the EPBC Act.
Relevant guidelines	The guidelines that inform management of Aboriginal cultural heritage include: • Charter for Places of Cultural Significance ('the Burra Charter') (Australia ICOMOS 1987); • Ask First: A guide to respecting Indigenous heritage places and values (Australian Heritage Commission 2002); and • Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH 2010b).
Performance criteria	The performance criteria for managing Aboriginal cultural heritage are: • compliance with the approved Aboriginal Cultural Heritage CEMP; • compliance with the general duty to preserve heritage under the AEPR; • compliance with the objective to manage heritage values in the Environmental Conservation Zone as outlined in the Land Use Plan in the Airport Plan; • Aboriginal stakeholders contribute to the development of the Aboriginal Cultural Heritage CEMP, participate in archaeological surveys and are consulted about the management and custodianship of cultural materials salvaged at the airport site; and • the Aboriginal cultural heritage values of the airport site are commemorated in the detailed design of the airport, for example, through on-site archiving and curation of heritage items, the naming of places and public display materials.
Implementation framework	An Aboriginal Cultural Heritage CEMP will be approved prior to commencement of the survey and salvage programmes described in Table 28-13. The Aboriginal Cultural Heritage CEMP will collate measures to mitigate and manage potential impacts upon Aboriginal cultural heritage values, including cross-references to other environmental management plans where they are relevant. The Aboriginal Cultural Heritage CEMP will as a minimum: • detail management and mitigation measures to be implemented, including those outlined in Table 28-13; • detail an Aboriginal stakeholder consultation and engagement plan; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Aboriginal Cultural Heritage CEMP.

Topic	Aboriginal cultural heritage management
Monitoring	The overarching approach to management of Aboriginal cultural heritage values at the airport site includes the conduct of an additional pre-construction (i.e. prior to commencement of Main Construction Works) artefact survey and salvage programme, the relocation of topsoil from defined sensitive landscapes, conservation of cultural heritage sites within the Environmental Conservation Zone and the appropriate short and long-term storage of a proportion of the recovered artefacts. Monitoring would not form a significant aspect of the Aboriginal Cultural Heritage CEMP. Apart from the Aboriginal grinding groove site (B120) and the possible Aboriginal scarred tree (B40), the Aboriginal cultural heritage values retained at the airport site would not be directly monitored but would be subject to ongoing protection to the extent they are contained within the Environmental Conservation Zone at the airport site.
Auditing and reporting	General reporting requirements are set out under the AEPR. In addition, an annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Aboriginal Cultural Heritage CEMP for the period until the airport commences operations.
Responsibility	Key activities and responsibilities include: • the Aboriginal Cultural Heritage CEMP will be prepared in consultation with Aboriginal stakeholders, the NSW Office of Environment and Heritage and other relevant Australian and local government bodies; • the Aboriginal Cultural Heritage CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; and • the D&C contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Aboriginal and Cultural Heritage CEMP.

Table 28–13 Aboriginal cultural heritage management requirements

Topic	Mitigation measures	Timing
Aboriginal stakeholder consultation	The Aboriginal Cultural Heritage CEMP will contain an Aboriginal stakeholder consultation and engagement plan that specifies the nature and frequency of consultation throughout the design and construction phase for the proposed airport. The aims of the consultation are to: • inform on, and provide an opportunity for feedback regarding, all matters relating to the mitigation and management of Aboriginal cultural heritage values across the airport site; • provide a forum for organising future stakeholder participation in mitigation and management activities; • provide opportunities to comment on all policy and documentation drafted in regard to the mitigation and management of Aboriginal cultural values; and • provide an opportunity for Aboriginal stakeholders to participate in field actions involving the mitigation and management of Aboriginal cultural values. The Aboriginal stakeholder consultation and engagement plan will be developed in conjunction with the broader Community and Stakeholder Engagement CEMP as outlined in Table 28–20.	Pre-construction Construction
Conservation of heritage sites	The possible scarred tree (B40) and the grinding groove site (B120) will be conserved in situ within an Environmental Conservation Zone at the airport site. A low barrier fence, which does not obstruct pedestrian traffic, will be erected around specific heritage sites as is necessary to demarcate the area as a no-go zone for vehicles. The barrier will be situated so that it does not intrude upon the immediate visual and landscape quality of the heritage sites and their surrounds.	Pre-construction
	The Environmental Conservation Zone will be managed for the protection and conservation of known and predicted Aboriginal heritage sites and values consistent with the objectives of that zone to enhance, restore and protect the cultural values of the land.	Pre-construction
Recording and salvage of heritage sites	A targeted and selective archaeological surface survey will be conducted within those areas of the construction impact zone not previously subject to surface survey (and excluding highly disturbed areas) before commencement of Main Construction Works. The aim of this survey is to identify all visible surface Aboriginal sites for recording and management prior to commencement of Main Construction Works.	Pre-construction Construction
	A comprehensive archaeological inspection of surface sandstone outcrops across the construction impact zone will be conducted before activities related to Main Construction Works. This action has the aim of appropriately recording and salvaging stone surfaces with evidence of Aboriginal markings.	Pre-construction
	Archival recording of the possible scarred tree (B40) and grinding groove site (B120) will occur before the start of any ground disturbance works within the area of these Aboriginal heritage sites or before Main Construction Works commence, whichever occurs first. This has the objective of providing a baseline record and information upon which to develop a conservation management plan for these sites.	Pre-construction
	An oral history will be recorded with the aim of preserving memories and stories from Aboriginal people relating to the airport site and its district. It is intended that this record would serve as an archive and a resource for future interpretation of the Aboriginal heritage values of the site.	Pre-construction Construction

Topic	Mitigation measures	Timing
	A selective salvage programme will be conducted of surface artefacts recovered across known Aboriginal artefact occurrences in the construction impact zone, with the aim of avoiding damage from activities related to Main Construction Works. This action would address strongly held concerns of Aboriginal stakeholders about the protection of artefacts from construction impacts. The collection programme will be conducted using an archaeological methodology and the resulting assemblage will be integrated into the archaeological analysis of salvaged material, where appropriate.	Pre-construction Construction
	A selective archaeological salvage programme will be conducted in the construction impact zone. The objective of the programme is to manage impacts to archaeological or scientific values by recovering and analysing a representative sample of surface and subsurface archaeological material from the areas subject to construction impact. The programme will aim to: • recover archaeological material from all landform types based on a systematic and representative sampling matrix; • recover additional archaeological material from areas with assessed relatively higher archaeological value, with the objective of providing a large enough artefact population for statistical analysis and from which robust results can be derived; and • apply archaeological excavation methodologies which are appropriate to the expected archaeological resource and the objectives of the salvage. As part of designing the salvage programme, consideration will be given to the feasibility of integrating relevant and existing geotechnical data into the process of determining the location and scope of the salvage programme.	Pre-construction Construction
Protocols for discovery of artefacts and human remains	Protocols will be developed and implemented for the unanticipated discovery of Aboriginal objects, and for the discovery of any suspected human remains for all Main Construction Works involving ground disturbance.	Pre-construction Construction
	A protocol will be developed for the management of topsoil assessed as likely to contain a relatively high density of Aboriginal artefacts, and which would otherwise be impacted by construction activities. The aim of this protocol is to manage excavation, storage and placement of this material in a culturally appropriate manner that minimises potential impact to the Aboriginal cultural values resident in these artefacts from activities related to Main Construction Works. Any excavated material will be placed within the Environmental Conservation Zone where possible. The protocol will be developed in consultation with Aboriginal stakeholders.	Pre-construction Construction
Induction training	Training in the identification of Aboriginal artefacts and management of Aboriginal heritage values will be included in compulsory induction courses for site workers. The content of this component will vary according to the stage of construction. After the completion of major cut and fill actions, training may focus on the management of spoil where there is a risk of impacting artefacts, and on no-go areas, where relevant.	Pre-construction Construction

Topic	Mitigation measures	Timing
Commemoration of Aboriginal heritage	The Aboriginal cultural heritage values of the airport site will be commemorated. Options for consideration may include: • the use of Darug words and language in the naming of places and infrastructure; • the dedication of various spaces and places for the placement of art and interpretive elements, storage and display of cultural items, and/or the conduct of cultural activities; and • the provision of public access and interpretive facilities at Aboriginal sites conserved in situ within the Environmental Conservation Zone (such as for sites B40 and B120), subject to safety and security requirements.	Pre-construction
Curation and repatriation of heritage items	One or more areas of open ground will be reserved within the Environmental Conservation Zone, as required, and managed for the primary purpose of repatriation of salvaged Aboriginal cultural material through reburial. The area(s) will be selected and managed in consultation with Aboriginal stakeholders. This provision is to accommodate the repatriation of cultural material for which it is not considered necessary by Aboriginal stakeholders to store above-ground, or to retain access for cultural purposes, interpretation, education or research.	Pre-construction Construction
	Following the completion of archaeological description and analysis, Aboriginal cultural material salvaged from the airport site will, in the first instance, be stored at an appropriate place to be determined in consultation with Aboriginal stakeholders and relevant government agencies. The longer term storage of material not to be repatriated through reburial, and potentially material salvaged from other developments in Western Sydney and the Cumberland Plain, will be managed in consultation with Aboriginal stakeholders, the NSW Office of Environment and Heritage, and relevant Australian and local government agencies, with the aim of establishing, with the support and collaborative action of governments and other stakeholders, an Aboriginal cultural heritage 'keeping place' that would provide secure, above ground storage of artefacts and enable future access for cultural purposes, interpretation, education or research.	Pre-construction Construction

28.5.3.10 European and other heritage

The assessment of European heritage identified 20 European heritage items at the airport site and immediate surrounds in addition to 22 heritage items in the surrounding area. The identified heritage items are of local significance.

The identified items reflect the historical context of the airport site and European settlement more generally, including early attempts to develop local agricultural and pastoral economies and the emergence of settled village communities.

A European and Other Heritage CEMP will be prepared and approved prior to the commencement of Main Construction Works. Some measures proposed, while recorded in the CEMP, are expected to be implemented before the plan is approved as structures may be demolished and /or removed as part of Preparatory Activities.

An overview of the framework for implementing the European and Other Heritage CEMP is presented in Table 28–14. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–15.

Table 28–14 European and Other Heritage CEMP

Topic	European and other heritage management
Management objectives	Key objectives for managing European and other heritage issues are: • minimising disturbance and loss of European or other cultural heritage values; • enhancing public knowledge of the heritage values in the local area; and • implementing agreed management measures for elements of European and other heritage.
Statutory basis	The statutory requirements for cultural heritage management include the provisions of the Airports Act and the AEPR and the EPBC Act.
Relevant guidelines	The guidelines that inform management of European and other cultural heritage include: • Charter for Places of Cultural Significance ('the Burra Charter') (Australia ICOMOS 1987); • Assessing heritage significance (Heritage Council of NSW 2001); • How to Prepare Archival Records of Heritage Items (NSW Heritage Office 1998); • Guidelines for Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Heritage Office 2006); and • Assessing Significance for Historical Archaeological Sites and 'Relics' (Heritage Council of NSW 2009).
Performance criteria	The performance criteria for managing European and other heritage include: • compliance with the approved European and Other Heritage CEMP; • compliance with the general duty to preserve heritage under the AEPR; • compliance with objectives to ensure that environment and heritage items are appropriately considered as outlined in the Land Use Plan in the Airport Plan; • treating all heritage items with respect in regards to their identified values; and • recognising the European and other heritage values of the site in the detailed design of the airport, for example, through onsite archiving and curation of heritage items, and public display materials.
Implementation framework	A European and Other Heritage CEMP will be approved prior to commencement of Main Construction Works for the proposed airport. The European and Other Heritage CEMP will collate measures to mitigate and manage potential impacts upon European and other heritage, including cross-references to other environmental management plans where they are relevant. The European and Other Heritage CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-15; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the European and Other Heritage CEMP.
Monitoring	The overarching approach to management of European cultural heritage values at the airport site is to appropriately record and, where practicable, salvage a proportion of the identified heritage items through mitigation and management measures such as archival recording, staged demolition and/or relocation. All identified European heritage structures and items on the airport site are expected to be removed prior to or during construction of the proposed Stage 1 airport development. Accordingly, ongoing monitoring would not form a significant aspect of the European and Other Heritage CEMP.

Topic	European and other heritage management
Auditing and reporting	General reporting requirements are set out under the AEPR. In addition, an annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the European and Other Heritage CEMP for the period until the airport commences operations.
Responsibility	Responsibilities include: • the European and Other Heritage CEMP and applicable mitigation measures for Preparatory Activities will be prepared in consultation with the NSW Office of Environment and Heritage and other relevant Australian and local government bodies; • the European and Other Heritage CEMP will be submitted for approval by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; • the D&C contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed; and • works in accordance with the requirements of the European and Other Heritage CEMP.

Table 28–15 European and other heritage management requirements

Topic	Mitigation measures	Timing
European heritage management	The following measures will be implemented in the manner identified in Chapter 6 of Appendix O of the EIS for the respective European and other heritage items (i.e. not all measures will apply to each item) under the supervision of a suitably qualified archaeologist: • further targeted archaeological investigation will be undertaken to record subsurface remains and infer the layout, occupants and activities of certain European heritage places; • archival recording will be undertaken, including photographic records and measured drawings in their local context for future reference, having regard to the guidelines How to Prepare Archival Records of Heritage Items (NSW Heritage Office 1998) and Guidelines for Photographic Recording of Heritage Items Using Film or Digital Capture (NSW Heritage Office 2006); • an inventory of moveable items will be prepared to record information such as the location, designer, creator, use and owner of items such as tools of trade or machinery; • cultural plantings will be investigated to identify and collect samples of plant varieties that have local or historic botanical significance, including plant varieties that are characteristic of the area or not otherwise broadly planted; • options will be explored for potential relocation of identified European heritage structures to preserve intact surface structures; and • identified European heritage structures will be demolished in a staged and careful manner that reveals information about their construction, renovation, finishes and so on, which would be recorded.	Preparatory Activities Pre-construction Construction
Cemeteries relocation	A Cemeteries Relocation Management Plan will be submitted for approval by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to the disinterment (removal) and reinterment (relocation) of grave sites from the airport site.	Preparatory Activities

Topic	Mitigation measures	Timing
Heritage awareness	Heritage awareness training will be provided to all workers involved in site preparation and construction of the proposed airport.	Preparatory Activities Pre-construction
Unexpected finds	A procedure will be developed and followed in the event that European heritage items are discovered during construction.	Pre-construction
Unexpected finds	Recognising the possibility of unmarked graves occurring, a procedure will be developed and followed in the event that human remains are discovered at the airport site during construction.	Pre-construction
Cultural significance of the airport site	An oral history will be prepared as a measure to preserve the heritage value of the airport site. This could include descriptions and reminiscences by people closely associated with the site.	Pre-construction Construction
Cultural significance of the airport site	The European and other heritage values of the site will be recognised in the detailed design of the airport, for example, through onsite archiving and curation of heritage items, and public display materials.	Pre-construction

28.5.3.11 Waste and resources

Construction of the Stage 1 development is estimated to generate 202,500 tonnes of waste vegetation and construction materials such as concrete and timber. Resources and waste from the proposed airport would be managed by maximising waste avoidance, reduction, reuse and recycling (in accordance with a waste management hierarchy), while mitigating and managing impacts on human health and the environment.

An overview of the framework for implementing the Waste and Resources CEMP is presented in Table 28–16. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–17.

Table 28–16 Waste and Resources CEMP

Topic	Waste and resources management
Management objectives	Key management objectives in relation to waste and resources are: • minimising waste production and ensuring that all waste material generated on site is handled in a responsible manner, and in accordance with legislative requirements; • maximising efficient use of resources including minimising resource use and maximising recovery and recycling; • preventing pollution associated with the management and disposal of waste material; • minimising the risk of illegal dumping on the airport site; • increasing employee and subcontractor awareness of their obligations with regard to waste management and recycling opportunities; and • ensuring the implementation of appropriate environmental controls and procedures.

Topic	Waste and resources management
Statutory basis	Statutory requirements for waste and resources management on the airport site and for material being transported to and from the site are set out in: • the Airports Act and the AEPR; • the *Biosecurity Act 2015*; • the *Hazardous Waste Act 1989*; • Work Health and Safety Legislation (Commonwealth and NSW); and • the Protection of the Environment Operations (Waste) Regulation 2014 (NSW).
Relevant guidelines	The guidelines that inform waste and resources management include: • the National Waste Policy; • the NSW Waste Avoidance and Resource Recovery Strategy 2014-21; • the NSW Waste Classification Guidelines; and • National Environment Protection (Assessment of Site Contamination Measurer 2013).
Performance criteria	The performance criteria for waste management are: • compliance with the approved Waste and Resources CEMP; • compliance with the approved Sustainability Plan; • waste management practices do not place unnecessary burden on local and regional waste services; and • effective application of the waste management hierarchy across construction activities.
Implementation framework	The Waste and Resources CEMP will be approved prior to the commencement of Main Construction Works for the proposed airport. The Waste and Resources CEMP will collate measures to mitigate and control waste management activities including cross-references to other environmental management plans where they are relevant. The Waste and Resources CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-17; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Waste and Resources CEMP.
Monitoring	Monitoring requirements include that: • monitoring must take place under the direction of an appropriately qualified person; • the results of the monitoring must be kept in a written record; • waste material generated on the airport site and resources used are tracked and classified to meet the requirements of the sustainability targets outlined in the Sustainability Plan; and • regular site inspections are carried out to monitor compliance with the Waste and Resources CEMP, record inspection results, and make an inspection log available to the Department of Infrastructure and Regional Development when asked.

Topic	Waste and resources management
Auditing and Reporting	General reporting requirements are set out under the AEPR. In addition, an annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Waste and Resources CEMP for the period until the airport commences operations. Auditing and reporting requirements will also be included as part of the Sustainability Plan as outlined at Table 28–37. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Waste and Resources CEMP will be prepared in consultation with the NSW Environment Protection Authority and relevant local councils; • the Waste and Resources CEMP will be submitted for approval by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; and • the D&C contractor will be responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Waste and Resources CEMP.

Table 28–17 Waste and resources management requirements

Topic	Mitigation measures	Timing
Waste avoidance	The following measures will be implemented to avoid and reduce waste: • efficient utilisation of resources to reduce consumption; • optimisation of detailed designs to avoid unnecessary resource consumption; • implementation of high efficiency water systems to reduce water consumption; • procurement policies that preference recyclable, minimal and/or returnable packaging; and • procurement of materials in bulk, where practicable, to minimise packaging waste.	Construction
Reuse and recycling	The following measures will be implemented to reuse and recycle waste: • reuse of green waste and topsoil for site landscaping; • reuse of waste streams including metals, oils and solvents; • recycling of waste streams including brickwork, metals, plasterboard, plastics and timber; • contract terms with suppliers that specify recyclable content and returnable packaging; and • co-operation in stewardship programmes for compatible waste streams including pallets.	Construction
Waste recovery	Measures to recover and treat waste will include recovery (prior to reuse) of compatible waste including metals, oils, solvents, brickwork, metals, plasterboard, plastics and timber.	Construction
Hazardous wastes	Hazardous wastes or asbestos identified during construction will be managed consistently with the Protection of the Environment Operations (Waste) Regulation 2014 (NSW).	Construction

Topic	Mitigation measures	Timing
Waste storage and disposal	A central waste area (or areas) would be established during construction, at which waste (including recyclables) would be stored. Some materials would be stored in stockpiles while others would be stored in bins. Stockpiles and bins would be appropriately labelled, managed and monitored. Residual waste that cannot be avoided, reduced, reused, recycle, recovered or treated will be collected by a licensed contractor for disposal at a licensed facility.	Construction
Illegal dumping	An illegal dumping prevention strategy will be developed as part of the Waste and Resources CEMP. The strategy will outlined measures to be undertaken to minimise the risk of illegal dumping on the airport site and will be developed in consultation with the NSW Environment Protection Authority and relevant local councils.	Construction
Resource use	The Sustainability Plan outlined at Table 28–37 and the associated sustainability measures outlined at Table 28–38 will help to ensure that construction resources are used efficiently and waste is minimised.	Construction

28.5.3.12 Visual landscape

The proposed Stage 1 development will transform the airport site from a gently undulating landform with rural landscape character to a developed airport. There would be visual effects to the nearest receptors during construction associated with earthworks and the presence of construction plant, equipment, stockpiling areas and storage areas. Viewpoints that are further away would have more restricted views of the site and would therefore be less affected.

The proposed airport will become a major focal point of the Western Sydney region, driving economic and employment growth and forming part of the broader transition of Western Sydney from semi-rural uses to a more urban area. In this context, it is critical that the design of the proposed airport provides a positive contribution to the changing identity and character of the region. Broader land use and planning measures are addressed in the Community and Stakeholder Engagement Plan outlined in Table 28–20 and Table 28–21.

An overview of the framework for implementing the Visual and Landscape CEMP is presented in Table 28–18. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–19.

Table 28–18 Visual and Landscape CEMP

Topic	Visual and landscape management
Management objectives	Key management objectives for managing visual and landscape impacts during construction are: • ensuring the proposed airport makes a positive contribution to the changing identity and character of Western Sydney; • minimising the landscape and visual amenity impacts during construction; and • minimising impacts associated with light spill during construction.
Statutory basis	No statutory requirements.
Relevant guidelines	Creating Places for People—an urban design protocol for Australian Cities Australian Urban Design Protocol (Infrastructure Australia 2011).

Topic	Visual and landscape management
Performance criteria	Performance criteria include: • compliance with the approved Visual and Landscape CEMP; • appropriate landscape treatments are identified and implemented to reduce visual amenity impacts; and • the proposed airport is appropriately integrated into the surrounding region and land uses, taking into account the changing nature of Western Sydney.
Implementation framework	The Visual and Landscape CEMP will be approved prior to commencement of Main Construction Works for the proposed airport. The Visual and Landscape CEMP will collate measures to mitigate and control visual and landscape impacts including cross-references to other environmental management plans where they are relevant. The Visual and Landscape CEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-19; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Visual and Landscape CEMP.
Monitoring	Monitoring for visual and landscape impacts will occur as part of the monitoring requirements associated with the complaints process outlined in the Community and Stakeholder Engagement Plan.
Auditing and reporting	An annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Visual and Landscape CEMP for the period until the airport commences operations.
Responsibility	Responsibilities include: • the Visual and Landscape CEMP will be prepared in consultation with the NSW Department of Planning and Environment and relevant local councils; • the Visual and Landscape CEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; and • the D&C contractor responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Visual and Landscape CEMP.

Table 28–19 Visual and landscape management requirements

Topic	Mitigation measures	Timing
Urban design	To facilitate the appropriate integration of the proposed airport into the surrounding region, and to assist in minimising impacts to community identity and landscape character, the following measures will be implemented throughout the detailed design process: • site and context analysis to inform the early stages of detailed design; and • consultation with NSW Department of Planning and Environment and relevant local councils, on the detailed design of Stage 1 development.	Pre-construction
Airport lighting impacts	Airport lighting impacts will be mitigated through the use of low angle, cut off LED fixtures in the design of airport infrastructure, where practicable.	Pre-construction

Topic	Mitigation measures	Timing
Visual disturbance and clutter from fencing	Subject to safety and security requirements, perimeter fencing design would have regard to the following considerations: • avoiding long, straight continuous runs; • avoiding finish and colour that is reflective or brightly coloured; • providing a two metre (minimum) setback from the property boundary to allow for perimeter plantings; and • providing a buffer from riparian corridors along the boundary of the airport site.	Pre-construction
Visual disturbance and clutter from construction	Impacts on the visual character of the landscape during construction will be mitigated though the implementation of the following measures: • large grade cut and fill transitions will be avoided where practicable, particularly near the airport site boundary; • construction plant, machinery and vehicle parking areas will be located as far as practicable from sensitive receivers; • any night lighting required for construction works will be located as far as practicable from sensitive receivers with appropriate screening as required; and • if there is a considerable period of time between the completion of bulk earthworks and construction of aviation infrastructure, earthworks areas will be rehabilitated where it is practical to do so.	Pre-construction
Visual screening	Visual amenity impacts will be mitigated through the use of the following visual screening measures: • retaining existing vegetation on the edges of the construction impact zone, where practicable to provide visual screening; and • retaining existing vegetation outside of the construction impact zone to provide visual screening. Opportunities for native vegetation screening will be investigated, particularly in relation to the identified moderate-high impact viewpoints. The appropriateness and use of vegetation for visual screening will take into consideration bushfire risks, airport safety and security, potential impacts on aviation operations, and opportunities for the reestablishment of endemic native species and ecological communities.	Construction

28.5.4 Community and stakeholder engagement

The proposed Stage 1 development will result in a number of benefits and impacts for communities and stakeholders in the region. In particular, construction of the Stage 1 development will involve a number of interactions with local residents, local councils and NSW Government agencies, among others. While the CEMPs will outline consultation activities for particular issues (for example, traffic and access, and Aboriginal cultural heritage), it will also be necessary to address broader stakeholder engagement objectives during construction. In particular, the need to maximise benefits and minimise adverse impacts associated with the social and economic impacts of the proposed airport.

To address these issues, a Community and Stakeholder Engagement Plan will be prepared to coordinate engagement activities for all environmental management issues during the construction phase, keep the community and stakeholders informed of construction activities, and provide a process for the management of complaints about construction activities.

It is important to note that current communication and stakeholder engagement activities for the proposed airport are managed by the Department of Infrastructure and Regional Development. Once an airport lease is established, the ALC will be primarily responsible for communication and stakeholder engagement activities, including those outlined in this section.

An overview of the framework for implementing the Community and Stakeholder Engagement Plan is presented in Table 28–20. The mitigation measures, protocols and procedures proposed are outlined in Table 28–21.

Table 28–20 Community and Stakeholder Engagement Plan

Topic	Community and stakeholder engagement
Management objectives	Key management objectives in relation to community and stakeholder engagement are to: • maximise local and regional community awareness of construction activities; • maintain positive relationships with the local community; • respond quickly and effectively to community complaints; • coordinate communication and stakeholder engagement activities across all CEMPs; • maximise the benefits and minimise the adverse impacts of construction activities through engagement with government agencies at the local, state and national levels; and • ensure the proposed airport makes a positive contribution to the changing identity and character of Western Sydney.
Statutory basis	No statutory requirements.
Relevant guidelines	Relevant guidelines include: • IAP2 Core Values of Public Participation (International Association for Public Participation 2007); and • IAP2 Code of Ethics for Public Participation Practitioners (International Association for Public Participation 2007).
Performance criteria	Performance criteria include: • compliance with the approved Community and Stakeholder Engagement Plan as well as stakeholder and community engagement measures outlined in approved CEMPs; • information regarding construction activities is regularly provided to affected groups and the broader community in an acceptable and timely manner; • all complaints are investigated and replied to within acceptable timeframes; and • participation in forums established by government agencies at the local, state or national level to assist in the coordination of planning activities, policies and programmes across the Western Sydney region.
Implementation framework	The Community and Stakeholder Engagement Plan will be developed prior to commencement of Main Construction Works for the Stage 1 development. The Community and Stakeholder Engagement Plan will collate measures to address community and stakeholder engagement issues, including cross-references to CEMPs where they are relevant. The Community and Stakeholder Engagement Plan will as a minimum: • detail the management and mitigation measures to be implemented, including the measures and sub-plans in Table 28–21; • describe the process for managing complaints, stakeholder engagement, and emerging issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Community and Stakeholder Engagement Plan.

Topic	Community and stakeholder engagement
Monitoring	Specific monitoring requirements will be developed in specific plans and procedures outlined in Table 28–21 below.
Auditing and reporting	An annual report will be prepared and submitted to the Secretary of the Department of Infrastructure and Regional Development in relation to compliance with the Community and Stakeholder Engagement Plan for the period until the airport commences operations.
Responsibility	Responsibilities in relation to the Community and Stakeholder Engagement Plan include: • the Community and Stakeholder Engagement Plan will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; and • the D&C contractor responsible for implementing site specific environmental procedures and work method statements applicable to the proposed works in accordance with the requirements of the Community and Stakeholder Engagement Plan.

Table 28–21 Community and stakeholder engagement requirements

Topic	Mitigation measures	Timing
Stakeholder engagement on social impacts	Engagement will occur with a range of government agencies and organisations to inform their planning allocation of funding to programmes that may be impacted by construction activities. Relevant government agencies and organisations may include local councils, State government agencies, educational facilities, agencies and organisations responsible for affordable housing and other social services, emergency services, and peak bodies representing businesses and non-government organisations. This will include engagement on issues such as: • potential housing and accommodation requirements for the construction workforce and potential effects on housing and other social services; • potential employment opportunities for local residents; • potential business opportunities for local businesses; and • plans for development on the airport site and how this might impact on local and State government land use planning around the airport site.	Pre-construction Construction
Process for complaints	To enable members of the community to make a complaint, the following measures will be taken: • a project website will be established to provide the community with up-to-date information on construction activities and provide the name and contact details for the person(s) responsible for managing complaints; • the name and contact details of the person(s) responsible for managing complaints will be displayed on signs at multiple locations along the airport site boundary; and • multiple channels will be established to allow for complaints to be made including a 1800 toll free number, email, online form, and postal address.	Construction

Topic	Mitigation measures	Timing
Complaints response protocol	A complaints response protocol will be developed to ensure that complaints are adequately responded to within a reasonable amount of time. The protocol will ensure that: • complaints are responded to within 48 hours of receipt, whenever possible; • complaints are to be investigated in an appropriate manner and timeframe; • any trends are identified so they can better inform corrective actions; and • the complainant is informed about the outcomes of the investigation and any corrective action implemented.	Construction
Complaints register	A complaints register will be established to record all complaints made about construction activities and their impacts. The complaints register will include the following information: • the nature of the complaint, including the event or activity which is the basis of the complaint; • the response provided to the complainant; and • any corrective action or further environmental measures taken. The complaints register will be made available to the Department of Infrastructure and Regional Development when asked.	Construction
Government liaison	To maximise the effectiveness of planning interventions, infrastructure projects and other policies and programmes undertaken by the NSW Government and local councils related to the proposed airport, liaison with State and local government agencies will be undertaken throughout the development of the proposed airport. This will include: • liaison with relevant State and local government agencies regarding future access arrangements from The Northern Road and Elizabeth Drive; • liaison with relevant State government agencies to identify opportunities for corridor protection for the provision of a future rail connection to the airport site; and • liaison with relevant State and local government agencies to identify opportunities for protection of a corridor for a future fuel pipeline.	Pre-construction, Construction
Local employment	To maximise local employment and business opportunities throughout construction and operation, the following measures will be implemented: • an Australian Industry Participation Plan that includes consideration of local industry participation; and • an equal opportunity policy that includes training and suitable employment opportunities for Indigenous people and people with disadvantages.	

28.5.5 Implementation of the CEMF

28.5.5.1 Timing

The timing for implementation of measures within each plan is specified as either preparatory activities, pre-construction or construction. Unless otherwise stated, pre-construction timing refers to a measure being undertaken before the commencement of Main Construction Works.

Main Construction Works means substantial physical works on the airport site (including large scale vegetation clearance, bulk earthworks and the carrying out of other physical works, and the erection of buildings and structures) described in Part 3 of the Airport Plan, other than Preparatory Activities.

Preparatory Activities mean the following:

- day to day site and property management activities;
- site investigations, surveys (including dilapidation surveys), monitoring, and related works (e.g. geotechnical or other investigative drilling, excavation, or salvage);
- establishing construction work sites, site offices, plant and equipment, and related site mobilisation activities (including access points, access tracks and other minor access works, and safety and security measures such as fencing); and
- enabling preparatory activities such as:
    - demolition or relocation of existing structures (including buildings, services, utilities and roads) provided they are demolished or relocated in accordance with applicable environmental impact mitigation measures specifically referable to demolition or relocation of the relevant structures;
    - the relocation of cemeteries in accordance with an approved cemeteries relocation management plan; and
    - application of environmental impact mitigation measures.

Due to the size of the airport site and the progressive nature of planning, design and construction activities across the site, it may not always be feasible to implement pre-construction plans, surveys or other activities or measures across the whole airport site at once.

Mitigation and management measures may therefore be broken down into location-specific parts and may be phased across the airport site consistent with the progression of construction activity. This generally means that:

- a pre-construction activity such as a plan, design or survey or other measure which is relevant for a particular area of the airport site must be undertaken or must be in place before the commencement of Main Construction Works in that particular area;
- a plan or strategy (including the Biodiversity Offset Delivery Plan) may be prepared and implemented in two or more sections at different times as construction activity moves from one area of the airport site to another; and
- some parts of a pre-construction plan or strategy may be prepared for parts of the airport site after Main Construction Works have commenced in other parts of the airport site.

Where Main Construction Works are proposed to commence in a particular part of the airport site and a CEMP is proposed to mitigate impacts during construction, a CEMP for that part of the site will be developed and approved. The CEMP will be implemented during relevant construction activities. Given the scope and duration of the construction work, it is expected that plans will need to be updated from time to time, for example to reflect the detailed requirements of a new stage of works, a change in circumstances or a change in responsible contractors.

Any Preparatory Activities will be managed in accordance with specifically applicable environmental impact mitigation measures (highlighted in the timing column as 'Preparatory Activities') as applicable to the activity proposed to be undertaken where feasible and reasonable. All CEMPs would not be required to be in place before Preparatory Activities are undertaken.

28.5.5.2 Responsibilities

The Commonwealth will remain responsible for environmental management of the airport site prior to an airport lease being granted for the airport site. The ALC would then take over statutory responsibility for all relevant aspects of the airport site including establishing the CEMF following the granting of the airport lease.

It is expected that construction contractors would have a key role in developing and complying with the requirements of the obligations within the CEMF. The construction contractors will operate in accordance with their internal company environmental management systems and develop site specific environmental management plans, site specific environmental management procedures and work method statements to manage their activities in accordance with requirements of the CEMF.

An airport environmental officer, appointed by the Secretary of the Department of Infrastructure and Regional Development would have a regulatory role on the airport site for environmental matters under Part 6 of the Airports Act and the AEPR, and an airport building controller, also appointed by the Secretary of the Department of Infrastructure and Regional Development, would have a regulatory role on the airport site for building control matters under Part 5 of the Airports Act and the Airports (Building Control) Regulations 1997.

It is recognised that compliance with the requirements of relevant plans does not remove general obligations and responsibilities under relevant legislation or approvals obtained for the proposed airport including any relevant conditions.

It is also recognised that there will be some communication and stakeholder engagement issues for which the Department of Infrastructure and Regional Development is expected to remain responsible after an airport lease is granted. These include:

- enabling preparatory activities for which the Commonwealth retains responsibility;
- delivery of biodiversity offsets for the Stage 1 development;
- the future flight path design process;
- establishing an Aboriginal cultural heritage 'keeping place' for long-term storage of salvaged artefacts;
- coordination of government land use planning activities, policies and programmes across the local, state and national level in Western Sydney; and

- current potential infrastructure projects off the airport site, such as the Western Sydney Infrastructure Plan and a future rail link to the airport site.

28.5.5.3 Training, awareness and competence

Environmental training for relevant personnel will be carried out prior to commencement of Main Construction Works for the Stage 1 development (and, where appropriate, on a staged basis, consistent with the approach to other measures, as described above). The training of personnel will address the following issues:

- the importance of conformance with procedures and specific induction requirements outlined in the various plans;
- the environmental impacts (actual and potential) of their work activities;
- the environmental benefits of improved performance;
- their roles and responsibilities in environmental management; and
- the potential consequences of departure from specified procedures.

All entities directly involved in environmental management will be appropriately experienced to undertake their relevant tasks. Appropriate documentation including the following will be required to be held by all such entities:

- copies of any applications for consents, licences and approvals and the responses from authorities;
- details of complaints or incidents and corrective and preventative actions taken;
- a summary of any correspondence or consultation with regulatory authorities or other stakeholders;
- a copy of any environmental studies, monitoring results and analysis; and
- a copy of the external audit reports, any environmental internal audit reports or reviews conducted of environmental management systems (EMS).

28.6 Future airspace design

The EIS has considered impacts associated with the operation of the proposed airport based on Airservices Australia's preliminary assessment of airspace implications and air traffic management arrangements for the Sydney basin.

The Commonwealth is responsible for delivering the airspace and flight path design for single runway operations at the proposed airport prior to the commencement of operations. An expert steering group will oversee the detailed planning and technical design process. The steering group, to be led by the Department of Infrastructure and Regional Development, will include representatives from Airservices Australia, the Civil Aviation Safety Authority (CASA) and the ALC (once appointed). It will confirm the objectives and principles for the design process, provide advice in the development of design options and ensure appropriate mechanisms are in place for ongoing consultation with airlines, aerodrome operators, Sydney basin airspace users and the community.

Extensive community and stakeholder engagement will occur throughout the flight path design process, which will commence after the Airport Plan is determined by the Infrastructure Minister. A community and stakeholder reference group will be convened by the Department of Infrastructure and Regional Development to ensure community views are taken into account in the airspace design process. The reference group will provide a forum for stakeholder representatives to exchange information on issues relating to the proposed airspace design and flight path options and their impacts. It is expected that membership will include representatives from the aviation industry, community organisations, resident groups or individuals, state or local government bodies, and local tourism bodies and business groups.

The future airspace and flight path design process for the proposed Western Sydney Airport will employ the same general methodology that has been used for developing airspace concepts and flight paths for other major Australian and international airports. This process, guided by Airservices Australia's Future Airspace System, will involve extensive community and stakeholder consultation and will ensure alignment with international best practice, aviation industry expectations and Australia's obligations under international aviation agreements.

An Australian Noise Exposure Forecast (ANEF) chart for long term parallel runway operations will be prepared and endorsed during the detailed design phase of the airspace and flight path design process. It is envisaged that this ANEF chart will be used to inform land use planning in the vicinity of the airport site.

Any proposal to introduce a new airspace regime for the proposed airport will comply with national environmental law. Accordingly, the proposed airspace design arrangements including nominated flight paths will be formally referred for consideration under the EPBC Act.

Table 28–22 summarises the phases, activities and outputs of the formal airspace design process. The table also shows the current proposed timing for the different stages of the process.

The expert steering group will report to the Infrastructure Minister on its progress, consultation activities, and key considerations and outcomes on a regular basis (at least once every six months).

Table 28–22 Airspace concept development process

Phase	Key activities	Key outcomes	Timing
Planning	• Establish expert steering group • Collect stakeholder views on system requirements, including community and environmental inputs • Confirm Sydney basin airspace and air route requirements and constraints • Establish community and stakeholder reference group • Develop and undertake a preliminary environmental assessment of airspace concept options (i.e. standard arrival and departure routes)	• Consultation conducted with interested parties, including regulatory authorities, government agencies, airlines, other Sydney basin aerodrome operators and airspace users, and the community • Review of airspace concept options and potential noise abatement procedures including identification of a preferred high-level airspace concept option	Approx. 2 years starting from determination of Airport Plan
Preliminary design and environmental assessment	• Evaluate the preliminary airspace design • Refer preferred airspace design to the Environment Minister under the EPBC Act • Prepare and submit any formal environmental assessment documentation required by the Environment Minister • Public exhibition and community consultation • Policy on property acquisition and noise insulation announced • Policy on property acquisition and noise insulation announced	• Preferred airspace design concept	Approx. 1 year Approx. 2 years (c. 2019-2021)
Detailed design	• Evaluate, validate and refine the detailed design taking account of the EPBC Act process	• Final airspace design and noise abatement procedures for implementation • Long term ANEF chart	Approx. 1 year
Implementation	• Notify airspace and air route changes	• Airspace change proposal approved by CASA	Approx. 2 years
		• Commencement of air operations at Western Sydney Airport in accordance with specific noise abatement procedures and noise management measures identified in the airspace design process[1]	Mid-2020s

[1] The specific noise abatement procedures and noise management measures developed through the airspace design process will be recorded in the ALC's Noise operational environmental management plan (see Section 28.6.2).

The design of flight paths for the proposed Western Sydney Airport will be guided by the future airspace design principles provided following Section 28.6.4.

28.6.1 Management of aircraft overflight noise

The assessment of aircraft noise in this EIS has been based on Airservices Australia's preliminary assessment of airspace implications and air traffic management arrangements for the Sydney

basin. The assessment of potential impacts of aircraft overflight noise presented in this EIS is based on indicative flight paths. As discussed above, final flight paths and operating procedures will be developed through the formal airspace and flight path design process prior to the commencement of operations.

Noise impacts from aircraft operations are inherently linked to the flight paths and operating procedures implemented at an airport. AEPR does not apply to noise or other pollution generated by an aircraft in flight or when landing, taking off or taxiing at an airport. These activities and their associated impacts are regulated by other laws and regulations such as the *Air Services Act 1995*, the *Airspace Act 2007*, *Air Navigation Act 1920*, Air Navigation (Aircraft Engine Emissions) Regulations and the Air Navigation (Aircraft Noise) Regulations. These laws and regulations are administered through the Department of Infrastructure and Regional Development, CASA or Airservices Australia. The ALC is responsible for managing the impacts of ground-based noise generated on the airport site from sources such as aircraft engine ground running, road traffic and construction activities in accordance with the airport's environment strategy and the AEPR.

The consideration of flight path options and airport operating procedures and their consequent noise impacts as part of the detailed airspace and flight path design for the proposed airport is consistent with this delineation of responsibilities. Airport operating procedures include measures to control the loudness of noise events, such as noise abatement departure and arrival procedures, and the use of reverse thrust during landings.

The flight path design process will optimise flight paths on the basis of safety, efficiency, capacity, and noise and environmental considerations, while minimising changes to existing airspace arrangements in the Sydney basin. It will consider the safety of all aircraft and airspace users across the Sydney basin, the efficiency of aircraft operations and opportunities to minimise noise and amenity impacts on all potentially affected communities, sensitive receivers and the environment, including the Greater Blue Mountains World Heritage Area. Noise abatement and noise respite opportunities will be examined throughout the design process.

28.6.2 Monitoring and reporting of aircraft overflight noise

Airservices Australia operates a comprehensive Noise and Flight Path Monitoring System (NFPMS) which collects noise and flight path data at major airports across Australia. The system operates 24-hours a day, seven days a week, collecting data from every aircraft operating to and from these airports. The proposed airport will be incorporated into the NFPMS prior to the commencement of operations. Consistent with existing practice, NFPMS monitors will be located within local communities at the proposed airport to monitor aircraft operations and noise

Noise monitoring is not undertaken to determine compliance with aircraft noise regulations—there are no regulations which specify a maximum allowed level of aircraft noise. Rather it is undertaken to:

- determine the contribution aircraft noise makes to the overall noise to which a community is exposed;
- provide information to the community;
- help local authorities make informed land use planning decisions;
- inform estimates of impact to changes in air traffic control procedures-including changes to reduce aircraft noise impacts;

- validate noise modelling;
- inform the determination of aviation policy by government; and
- assist the government in implementing legislation.

Airservices Australia produces quarterly reports that include monitoring information from the NFPMS. The Noise Information Reports are prepared for major urban areas and include information and analysis on aircraft movements, noise monitoring and complaint issues. The reports are available online at Airservices Australia's website. Based on current practice, noise and aircraft movement information obtained from monitoring at the proposed airport will be included in the quarterly report prepared for the Sydney basin.

Real time noise and aircraft operations information is available for major airports in Australia through Airservices Australia's online WebTrak flight tracking tool. Using information from air traffic control secondary surveillance radars and the NFPMS, WebTrak provides details about individual aircraft operations, including flight id, aircraft type, origin and destination and altitude. Noise levels at monitoring sites can be correlated in real time with aircraft departures and arrivals. It is expected that the proposed airport will be added to the WebTrak system upon the commencement of airport operations.

The design and installation of a noise monitoring network at the proposed airport will be undertaken in consultation with the community and stakeholder reference group established for the detailed airspace and flight path design process. This network will be integrated into the NFPMS. In line with existing practice, the noise monitoring network and locations around the proposed airport will be regularly reviewed to ensure they meet contemporary needs.

A Community Aviation Consultation Group (CACG) will be established by the ALC before the commencement of operations at the proposed airport. This permanent forum will provide an ongoing mechanism for the ALC, residents affected by airport operations, local authorities, airport users and other interested parties to exchange information on aircraft noise issues.

Airservices Australia regularly consults with CACGs about airport planning and operations issues, including aircraft noise. Airservices Australia and the Department of Infrastructure and Regional Development attend CACG meetings to provide relevant information and assist in discussions. Airservices Australia consults CACGs on potential changes to flight paths as well as technical reviews, such as those relating to noise monitoring and noise abatement procedures.

28.6.3 Managing aircraft noise enquiries and complaints

Airservices Australia is responsible for managing complaints and enquiries about aircraft noise and operations through its Noise Complaints and Information Service (NCIS). This service is the Australian aviation industry's main interface on aircraft noise and related issues for the community. Complaints and enquiries about aircraft noise relating to operations at the proposed airport will be managed through the NCIS.

There are a number of ways that people can lodge a complaint about aircraft noise through the NCIS:

- directly via WebTrak;
- using an online form;

- by telephoning a 1800 or 1300 number (Monday to Friday, 9.00 am to 5.00 pm) or through an interpreter-assisted telephone service;
- by fax; or
- by mail.

An airport's CACG provides another mechanism for aircraft noise enquiries and complaints to be registered and addressed.

Airservices Australia's service charter requires complaints and enquiries from the public to be treated fairly, seriously and without bias. Complaints are addressed in line with the Commonwealth Ombudsman's guidelines on complaint handling. If a response to a complainant is required, the NCIS aims to make contact within 21 days of the lodgement of the complaint.

The Aircraft Noise Ombudsman conducts independent reviews of Airservices Australia's management of aircraft noise-related activities, including the handling of complaints or enquiries made to the agency about aircraft noise, community consultation processes related to aircraft noise and the presentation and distribution of aircraft noise-related information.

28.6.4 Property acquisition and acoustical treatment for aircraft noise

In line with 1985 recommendations of the Commonwealth House of Representatives Select Committee on Aircraft Noise, the Commonwealth acquired land within the 35 ANEF contour to provide a noise buffer for the proposed airport. Between 1990 and 1993 the Commonwealth acquired 12 properties within the 35 ANEF. A further eight properties were identified at the time as eligible for acquisition but the land owners did not take up the Government's offer of acquisition. No residential dwellings or other buildings have been insulated for aircraft noise through a Commonwealth programme, although new residential dwellings in some predicted noise affected zones have been required by local planning regulation to comply with the internal noise criteria stipulated in Australian Standard 2021:2015.

The Commonwealth will be responsible for any noise amelioration programme required for the proposed airport that aims to mitigate the impact of aircraft overflight noise (including take-offs and landings) for areas surrounding the airport site. Funding arrangements would be considered at the time.

Government policy relating to any aircraft noise acquisition and insulation programme at the proposed airport will be established as part of the detailed airspace and flight path design process.

The establishment of eligibility criteria and other relevant parameters for such a programme will require consideration of several matters including:

- the calculation and endorsement of an appropriate ANEF chart to inform the identification of residential dwellings and other noise sensitive facilities within respective noise exposure zones—noting that delivery of a noise amelioration programme may be staged;
- the eligibility criteria for acquisition and insulation treatment with reference to the appropriate ANEF chart(s), noise exposure acceptability advice contained in AS 2021:2015 and any other noise measures that may be deemed applicable;
- the timeframe for implementation, taking into account issues such as the date of commencement of operations, air traffic movement and noise exposure forecasts;
- staging priorities;
- for any voluntary acquisition scheme, the achievement of appropriate land use planning outcomes;
- funding arrangements; and
- compliance with the internal noise design criteria contained in AS 2021:2015, having regard to the practicality and costs of achieving compliance for certain residences and other buildings.

Future airspace design principles

The following principles will apply to the comprehensive airspace design process for single runway operations:

1. Overflights of residential areas and noise sensitive facilities will be avoided to the maximum extent possible:
    - The most advanced satellite-based navigation technologies will be used to guide the design of flight paths that avoid residential and other noise sensitive areas as far as it is possible to do so.
2. Where flight paths are unable to avoid residential areas:
    - to the extent practicable, residential areas overflown by aircraft arrivals should not also be overflown by aircraft departing the airport; and
    - noise abatement procedures should be optimised to achieve the lowest possible overall impact on the affected community, taking into account safety and other operational factors.
3. Specific noise abatement procedures will be developed to minimise the community impacts of aircraft operations at night while not constraining airport operations and the economic benefits they would bring for Western Sydney.
    - When comparing options, operations that are conducted at night or on weekends will be treated as being more sensitive than those that occur during the daytime or on weekdays; and
    - The use of head-to-head operations to and from the south-west when it is safe to do so, is an important preferred option for managing aircraft noise at night. This preferred option will be thoroughly evaluated through further detailed assessment.
4. Noise mitigation measures will be developed consistent with *Airservices commitment to aircraft noise management* and the strategies developed by the International Civil Aviation Organization (ICAO) in its *Balanced Approach to Aircraft Noise Management*.
5. Aircraft arrivals will use a continuous descent approach where possible to keep aircraft at higher altitudes with low power settings and reduced noise (and greenhouse) emissions.
6. Aircraft arrivals will not converge through a single merge point over any single residential area.
7. Consideration will be given to the impacts of aircraft operations on natural and visually sensitive areas such as the Greater Blue Mountains World Heritage Area.
8. In determining the final flight paths, the community, aerodrome operators and airspace users will be consulted extensively and flight path designs will be subject to referral under the *Environment Protection and Biodiversity Conservation Act 1999*.
9. Changes to current noise sharing arrangements at Sydney (Kingsford Smith) Airport will be avoided.
10. Current airspace restrictions such as those associated with military establishments will be reviewed to improve efficiency and environmental impacts from commercial operations, while meeting Australia's future defence requirements.
11. The Australian Government will work with the New South Wales and local governments to ensure land use planning continues to prevent noise sensitive development in the highest noise exposure areas.
12. Safety is non-negotiable – only practical solutions that uphold Australia's long tradition of world-leading aviation safety will be implemented.

28.7 Operational Environment Management Framework

28.7.1 Overview

The EIS has considered impacts of the proposed airport accommodating approximately 10 million annual passengers and 63,000 air traffic movements per year during Stage 1 operations. The proposed airport is expected to commence operations in the mid-2020s and would operate on a curfew-free basis. This Operational Environmental Management Framework (OEMF) provides for the development of a number of operational management plans to address the potential environmental issues associated with Stage 1 operations.

As noted in Section 28.3.2, a comprehensive environment strategy that addresses the detailed requirements of the Airports Act will be developed and approved as part of the ALC's first master plan for the proposed airport. If the first master plan is in place before operations commence, the operational environmental management plans (or proposed plans, if they have not been prepared by then) identified below will be developed and approved as part of the airport environment strategy, which is a component of the master plan.

If airport operations commence before the first master plan is in place, the plans identified below will be developed and approved as standalone operational environmental management plans. In this case, they will be considered in the process of preparing the master plan and environment strategy.

Once a master plan is in place, future environmental management will be addressed under the master plan framework.

28.7.2 Operational Environmental Management Plans

Operational environmental management plans (OEMPs) would be prepared and approved prior to the commencement of operations of the Stage 1 development. OEMPs would be prepared for the following environmental aspects:

- noise management;
- air quality;
- ground transport;
- soil and water;
- waste and resources;
- biodiversity, land and safety; and
- stakeholder engagement.

The OEMPs will specify objectives, procedures, the relevant statutory basis and guidelines, performance criteria, monitoring, auditing and reporting requirements, roles and responsibilities and other environmental management measures which are relevant to a particular environmental aspect. The performance criteria identified for each environmental aspect represent targets or key performance indicators for managing impacts on that aspect.

Each OEMP would be approved by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development.

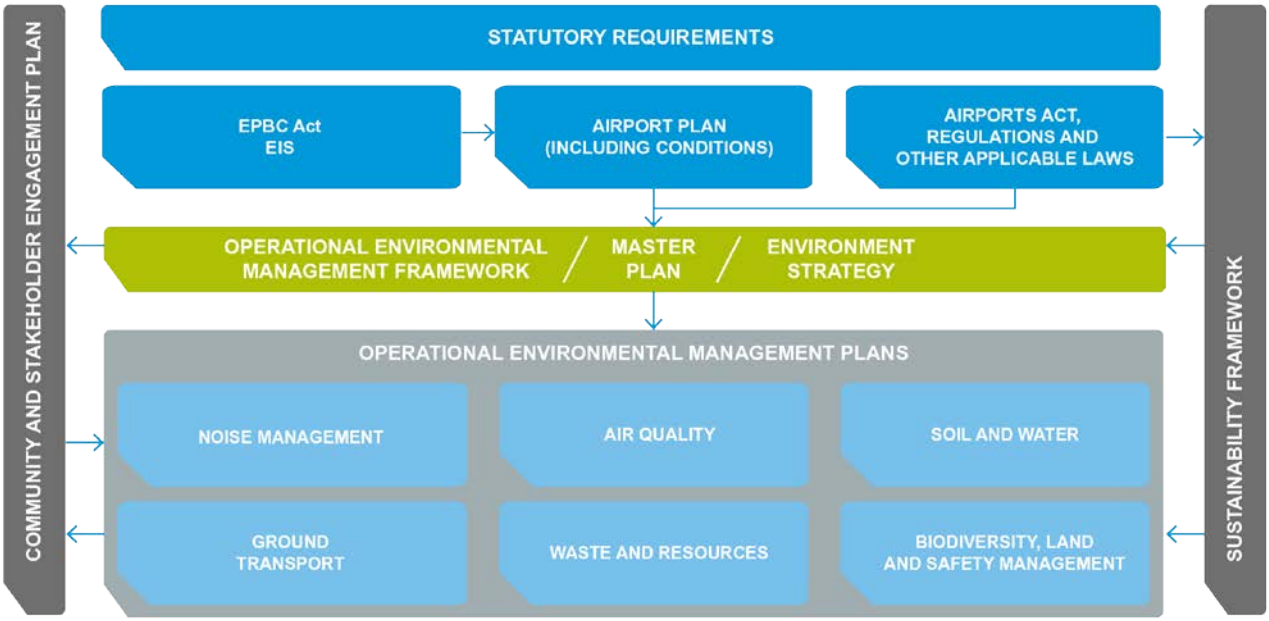


Figure 28–2 Operational environmental management framework

28.7.3 Outline of Operational Environmental Management Plans and other measures

This section provides an outline of each OEMP. Each plan captures the mitigation and management measures which are proposed for the operation of the proposed airport.

References to activities occurring prior to commencement of operations at the airport do not include test flights, commissioning and similar activities.

28.7.3.1 Noise management

The ALC will be responsible for managing the impacts of ground-based noise generated on the airport site in accordance with the AEPR. Ground-based noise at an airport is generated from a number of sources, including:

- aircraft engine ground running;
- construction and development activities;
- road traffic;
- operation of plant and equipment; and
- operation of audible alarm and warning systems.

As noted in Section 28.5.3.1, the AEPR does not apply to noise generated by an aircraft in flight or when landing, taking off or taxiing at an airport. These activities and their associated impacts are regulated by other laws and regulations administered by the Commonwealth.

The ALC will prepare a Noise OEMP for the proposed airport. In addition to ground-based noise management measures, this plan will also record the noise abatement procedures and noise management measures developed through the airspace and flight path design process. This record will serve as a baseline for any future proposed amendments to the aircraft overflight noise abatement procedures and noise management measures developed for the proposed airport.

An overview of the framework for implementation of the Noise OEMP is presented in Table 28–23. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–24.

Table 28–23 Noise OEMP

Topic	Noise management
Management objectives	Key management objectives in relation to the management of noise impacts during the operation of the proposed airport are: • minimising noise associated with ground-based airport operations; • minimising offensive noise to the surrounding community and sensitive natural areas from ground-based noise sources; • complying with relevant noise standards under the AEPR; • recording the noise abatement procedures and noise management measures developed through the airspace and flight path design process; • supporting Australian Government aircraft noise mitigation strategies and policy approaches; • ensuring the CACG and Planning Coordination Forum established for the proposed airport engage meaningfully in the development of the Noise OEMP and are consulted on an ongoing basis about matters relating to its implementation; and • supporting State and local governments to ensure land use planning continues to prevent noise sensitive development in the highest noise exposure areas.
Statutory basis	Statutory requirements for noise management are set out in: • Airports Act; • AEPR; and • Airports Regulations 1997.
Relevant guidelines	Relevant guidelines used to inform management of noise from airport ground-based operations include: • *National Airports Safeguarding Framework* (NASF).
Performance criteria	Performance criteria include: • compliance with the approved Noise OEMP; • compliance with engine operating procedures, including engine ground running rules established for the proposed airport; and • compliance with the noise emissions criteria set out in the AEPR.

Topic	Noise management
Implementation framework	A Noise OEMP will be approved prior to commencement of operation of the proposed airport. The Noise OEMP will seek to minimise the noise associated with ground-based airport operations and collate measures to mitigate and manage potential noise impacts, including cross-references to other environmental management plans where they are relevant. The Noise OEMP will at a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-24; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the plan.
Monitoring	General monitoring requirements are set out under the AEPR. These include that: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Additional monitoring requirements include that: • monitoring of compliance with the performance criteria established for the Noise OEMP and with any measures outlined in Table 28-22 and in the approved Noise OEMP; • baseline noise monitoring of surrounding communities will be undertaken to validate noise exposure modelling of ground-based airport operations and determine the contribution ground-based airport noise makes to the overall noise to which a community is exposed; • monitoring will be conducted of the use of auxiliary power units by stationary aircraft; • monitoring and investigation of all ground-based noise complaints will be undertaken; • a report on monitoring data will be made available to the community, including through the CACG and the Planning Coordination Forum established for the proposed airport; and • a report on monitoring data will be made available to relevant Australian, State and local government agencies to inform land use planning and aviation planning policy.
Auditing and reporting	General reporting requirements are set out under the AEPR. These include providing the Secretary of the Department of Infrastructure and Regional Development with an annual report containing information about monitoring results. Additional auditing and reporting measures that will be implemented include: • a complaints log will be developed which records all noise related complaints, identifying causes, and recording the response to the complaint, including any further mitigation measures taken; • the responsible party will be required to make the complaints log available to the Department when asked; and • record in a log book any exceptional incidents that cause excessive noise and the action taken to resolve the situation. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	The ALC will be responsible for preparing and implementing the Noise OEMP. In doing so, the ALC will consult with Airservices Australia and other relevant Australian Government agencies, State and local government (including NSW Environment Protection Authority and NSW Health), the airline industry, and community representatives through the Community Aviation Consultation Group. The Noise OEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–24 Noise management requirements

Topic	Mitigation measures	Timing
Noise OEMP	A Noise OEMP will be prepared and implemented for managing ground-based aircraft and other noise. The Noise OEMP will at a minimum: • record the noise abatement procedures and noise management measures developed for the airport through the airspace and flight path design process as a baseline for these procedures and measures; • identify noise mitigation measures proposed to be implemented for ground-based noise generating activities, including: ▪ aircraft engine ground running rules, including any proposed restrictions on the timing, location and power intensity of engine runs, and any related safety requirements; ▪ opportunities to refine the location and design of airport features to reduce noise impact; and ▪ other measures to address excessive noise where noise mitigation by physical features (e.g. noise barriers) is deemed ineffective. • provide the outcomes of additional noise modelling and assessment conducted during the detailed airport design phase to: ▪ update and refine the noise exposure modelling undertaken for this EIS; ▪ inform the development of additional noise mitigation measures; and ▪ test the effectiveness of any proposed noise mitigation measures and identify any residual excessive noise levels in areas surrounding the airport site. • describe the measures taken to minimise the use of auxiliary power units (APUs), including the provision of fixed electrical ground power units and preconditioned air at aircraft gates and any measures to minimise APU use by stationary aircraft at other locations on the airport; • detail how noise emissions will be taken into account when considering onsite development proposals, both for the construction and operational phases of those developments; • detail any noise amelioration actions proposed to mitigate offsite noise exposure that cannot be managed appropriately by operational and other onsite mitigation measures; • describe stakeholder engagement undertaken with affected residences and other stakeholders regarding potential noise impacts, and potential mitigation and amelioration measures; • describe the procedures for managing enquiries and complaints about noise impacts from ground-based airport activities; and • describe the procedures for monitoring and managing observed breaches in ground running rules, including those for registering, investigating, reporting, instigating and responding to such incidents.	Pre-operation Operation

28.7.3.2 Air quality

The proposed airport has the potential to generate emissions in the form of nitrogen dioxide, particulate matter, carbon monoxide, sulfur dioxide, air toxics, odour and greenhouse gases. These emissions have the ability to affect human health, reduce amenity and contribute to climate change. Appropriate management is required to ensure the predicted impacts are below the air quality criteria and are minimised as far as practicable.

An overview of the framework for implementation of the Air Quality OEMP is presented in Table 28–25. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–26.

Table 28–25 Air Quality OEMP

Topic	Air quality management
Management objectives	Key management objectives in relation to the management of air quality impacts from operations are: • ensuring ambient air quality is maintained at acceptable levels at sensitive receptor locations surrounding the airport site; • minimising the occurrence of air quality impacts on neighbours; and • ensuring emissions are minimised from plant and equipment.
Statutory basis	Statutory requirements for air quality management are set out in: • Airports Act; • AEPR; • *National Greenhouse and Energy Reporting Act 2007;* • *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989;* • Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995; and • Air Navigation (Aircraft Engine Emissions) Regulations.
Relevant guidelines	Relevant guidelines used to inform management of construction air quality issues include: • National Environment Protection Measure (Ambient Air Quality); • National Environment Protection Measure (Air Toxics); and • NSW Environment Protection Authority Approved Methods for the sampling and analysis of air pollutants in NSW.
Performance criteria	Performance criteria include: • compliance with the AEPR requirements in relation to air pollution; and • compliance with the approved Air Quality OEMP.

Topic	Air quality management
Implementation framework	An Air Quality OEMP will be approved prior to commencement of operation of the proposed airport. The Air Quality OEMP will collate measures to mitigate and manage potential impacts on air quality, including cross-references to other environmental management plans where they are relevant. The Air Quality OEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-24; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing and, • identify the party responsible for implementation of the Air Quality OEMP.
Monitoring	The ALC is required to monitor air pollution under the AEPR. An air quality monitoring station will be installed at the airport site to monitor NO_X, NO, NO_2, CO, O_3, PM_{10}, $PM_{2.5}$ and VOCs and record ambient air quality data prior to operations commencing to establish baseline air quality conditions.
Auditing and reporting	Reporting requirements are set out under the AEPR. These include providing the Secretary of the Department of Infrastructure and Regional Development with an annual report containing information about monitoring results. Any pollution above permissible levels will also be reported to the airport environment officer along with details of remediation proposed. Additional auditing and reporting measures that will be implemented include: • a complaints log will be developed which records all air quality complaints, identifying causes, and recording the response to the complaint, including any further mitigation measures taken; and • the responsible party will be required to make the complaints log available to the Department of Infrastructure and Regional Development. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Air Quality OEMP will be developed in consultation with relevant authorities such as the NSW Environment Protection Authority and NSW Health; and • the Air Quality OEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–26 Air quality management requirements

Topic	Mitigation measures	Timing
Air quality OEMP	The Air Quality OEMP will include the following measures to reduce air emissions and the potential for ground level ozone formation: • using ground support equipment powered by electric, hydrogen, compressed natural gas or compressed air, including belt loaders, pushback tractors, bag tugs, and cargo loaders, where appropriate; • providing remote ground power facilities for remote aircraft parking positions, where practicable; • installing co-generation or tri-generation in-lieu of traditional gas fired boilers or solar hot water systems to replace gas fired boilers; • where possible, avoiding certain activities, such as training fires, and maintenance (spray painting) during the ozone seasons; • using underground fuel hydrant systems and/or vapour recovery systems for refuelling and fuel storage; and • promoting the use of public transport to the airport for workers, passengers and other airport users.	Operation
Greenhouse gases – Scope 1 and Scope 2 emissions	The following measures will be implemented to minimise Scope 1 and Scope 2 greenhouse gas emissions: • using ground support equipment powered by electric, hydrogen, compressed natural gas or compressed air, including belt loaders, pushback tractors, bag tugs, and cargo loaders, where appropriate; • training ground support equipment drivers in techniques to conserve fuel and implementing a no-idling policy; • considering in the detailed design process ways to minimise greenhouse gas emissions through the design of the runway, taxiways, gates and terminals to minimise aircraft and ground support equipment travel distances without limiting long term aeronautical capacity at the airport; • promoting aircraft management procedures that achieve reduced fuel use as far as practicable; • using fixed electrical ground power and preconditioned air supply to aircraft and avoiding the use of auxiliary power units by stationary aircraft where possible; • using high efficiency power, heating and cooling plants on the airport site; and • making use of renewable energy sources where practicable for the generation, use or purchase of electricity, heating and cooling.	Operation
Greenhouse gases – Scope 3 emissions	The following measures will be implemented to minimise Scope 3 greenhouse gas emissions: • promoting the use of public transport to the airport for workers, passengers and other airport users; • developing the waste and resource OEMP in accordance with Table 28–31, to implement waste saving initiatives such as composting and recycling; and • installing tenant energy sub-metering systems.	Operation

28.7.3.3 Ground transport

The proposed airport is located in an area of Western Sydney that is expected to significant population and employment growth over the next 30 years. This growth will place its own demands on the transport system.

The NSW Long Term Transport Masterplan, Western Sydney Infrastructure Plan and South West Rail Link Extension Corridor Preservation set the road and public transport network requirements for the Western Sydney region. In addition, the Australian and NSW governments are undertaking a Joint Scoping Study on the Rail Needs for Western Sydney, including the proposed airport. The Scoping Study will consider the best options for future rail links, including decisions about timing and rail service options, for both the airport site and the Western Sydney region. The Scoping Study will also address the feasibility of having rail on the airport site by the time the airport is operational.

Stage 1 operations are expected to result in approximately 21,500 vehicles entering and leaving the airport site each day. Considering the introduction of the M12 Motorway within this timeframe, this volume of additional traffic would not substantially impact the operation of the surrounding road network.

Consistent with the requirements of the revised draft Airport Plan, the Stage 1 development will include ground transport infrastructure to ensure the safe and efficient movement of vehicles:

within both landside and airside areas of the airport site; and

accessing and leaving the airport site.

The ALC will be required to develop a plan for a ground transport system on the landside of the airport as part of the first master plan prepared for the proposed airport. It is envisaged that this master plan requirement will build on the considerations and measures advanced during the detailed design phase of the Stage 1 development as described below.

An overview of the framework for implementation of the Ground Transport OEMP is presented in Table 28–27. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–28.

Table 28–27 Ground Transport OEMP

Topic	Ground transport management
Management objectives	Key management objectives in relation to ground transport during operation are: • minimising disturbance to the local and regional road network; • optimising connections with the regional transport network; • facilitating effective public transport connections to the airport; • providing airside roads to ensure safe and efficient movement of vehicles without disruption to aircraft operations; • providing landside roads and associated infrastructure for the safe and efficient movement, parking and storage of private, rental and emergency services vehicles, taxis, commercial traffic, buses, pedestrians and cyclists; and • providing drop-off, pick-up and loading facilities that support safe and efficient connections to the airport terminal for passengers and other users.

Topic	Ground transport management
Statutory basis	The Airports Act, the AEPR and the *Disability Discrimination Act 1992*.
Relevant guidelines	The guidelines that inform management of traffic and access include: • the matters specified in Section 71(2)(ga) of the Airports Act; and • RMS Road Design Guide.
Performance criteria	The performance criteria for the Ground Transport OEMP include: • compliance with the approved Ground Transport OEMP; • minimising disruption to local and regional road network; and • effective communication of traffic management measures to the local community.
Implementation framework	A Ground Transport OEMP will be developed during the detailed design and approved prior to commencement of operation of the proposed airport. The Ground Transport OEMP will collate measures to mitigate and manage potential impacts to the local and regional road network, including cross-references to other OEMPs where they are relevant. The Ground Transport OEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-26; • describe the process for managing complaints, stakeholder engagement, and emerging traffic management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Ground Transport OEMP.
Monitoring	Monitoring requirements include: • monitoring must take place under the direction of an appropriately qualified person.
Auditing and reporting	Auditing and reporting measures that will be implemented include: • recording in a log book any exceptional incidents that cause excessive traffic delays on the local road network and the action taken to resolve the situation. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Ground Transport OEMP will be prepared in consultation with NSW RMS, Transport for NSW and relevant local councils; and • the Ground Transport OEMP will be submitted for approval by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the plan for the ground transport system on the landside of the airport required to be contained within the initial airport master plan.

Table 28–28 Ground transport management requirements

Topic	Mitigation measures	Timing
Operational traffic and transport impacts	A Ground Transport OEMP will be prepared as part of the detailed design of Stage 1 and approved before the proposed airport begins operating. The plan will address: • road design speeds; • security issues; • traffic loads from the airport and other onsite developments; • connections with off-site/external roads, including matching capacity, speeds and road geometry; • forecast traffic flows, including public transport requirements; • car parking; • commercial and operational vehicles and storage; • terminal interface; • passenger pick-up and drop-off by private and commercial vehicles; • pedestrian linkages between terminals and all transport drop-off/pick-up areas; • pedestrian, cycle or road networks for movement around the airport site; • use of dedicated busways; • the ability to continue to provide access to and from the airport when key intersections are unavailable; and • the ability to expand, with minimal disruption, to meet future airport and business development requirements.	Pre-operation

28.7.3.4 Soil and water management

The water management system will be designed to manage discharges from the site during both construction and operation of the proposed airport.

An overview of the framework for implementation of the Soil and Water OEMP is presented in Table 28–29. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–30.

Table 28–29 Soil and Water OEMP

Topic	Soil and water management
Management objectives	Key management objectives in relation to soil and water management during operation of the proposed airport are: • ensuring water releases from the airport site mimic natural flows as closely as possible over a range of storm events, in accordance with hydrological discharge criteria established for the airport site; • minimising the risk of pollution incidents occurring through the operation of the airport; • protecting the quantity and quality of groundwater consistent with relevant NSW water policies; • minimising potable water use during operation; and • implementing a sustainable irrigation scheme for the reuse of treated wastewater.

Topic	Soil and water management
Statutory basis	Statutory requirements for soil and water management are set out in the Airports Act and the AEPR. Work Health and Safety Legislation (Commonwealth and NSW) also imposes specific requirements in relation to hazardous materials including asbestos. Management of asbestos waste is also addressed in other legislation such as the Protection of the Environment Operations (Waste) Regulation 2014 (NSW).
Relevant guidelines	The guidelines that inform soil and water management include: • NSW OEH Blue Book – Managing urban stormwater: soils and construction; • WorkCover NSW Guidelines for managing asbestos in or on soil; • Safe Work Australia Model Code of Practice: How to Safely Remove Asbestos; • National Environment Protection (Assessment of Site Contamination) Measure 2013; • National Water Quality Management Strategy; • NSW Water Quality Objectives; and • Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
Performance criteria	The performance criteria for the Soil and Water OEMP include: • compliance with the approved Soil and Water OEMP; • compliance with the water pollution and soil pollution requirements outlined in the AEPR, including any local standards approved under the AEPR; and • no significant detrimental impact upon the quality of surrounding surface and ground water resources.
Implementation framework	The Soil and Water OEMP will be developed prior to operation of the proposed airport. The Soil and Water OEMP will collate measures to mitigate and manage potential impacts to the receiving environment, including cross-references to other environmental management plans where they are relevant. The Soil and Water OEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-28; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Soil and Water OEMP.

Topic	Soil and water management
Monitoring	General monitoring requirements are set out in the AEPR. These include that: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Additional monitoring requirements include that: • surface and groundwater monitoring locations will be determined in consultation with NSW Environment Protection Authority and relevant local councils in accordance with requirements in Table 28–30 below; • regular site inspections will be carried out to monitor the effectiveness of the water management system and water management controls, recording inspection results, and making an inspection log available to the Department of Infrastructure and Regional Development; • the frequency of site inspections will be increased during and immediately after wet weather when there is a higher potential for the off-site transport of pollutants from the site; • monitoring of groundwater elevation will be conducted to detect potential impacts to base flow in the vicinity of potentially sensitive creeks or groundwater dependent vegetation. Monitoring will be undertaken quarterly up to a minimum period of three years after commencement of operations or until any identified impacts stabilise; • monitoring of groundwater quality of alluvial and Bringelly Shale aquifers will be conducted at major infrastructure locations, down-gradient from those locations and in the vicinity of groundwater dependent vegetation or watercourses. Monitoring will initially be undertaken quarterly and adjusted as appropriate; and • monitoring of surface water quality will be conducted on a monthly basis at basin outflows and selected upstream and downstream locations to monitor performance of the water management system.
Auditing and reporting	General reporting requirements are set out under the AEPR. These include providing the Secretary of the Department of Infrastructure and Regional Development with an annual report containing information about monitoring results. Additional auditing and reporting measures that will be implemented include: • recording in a log book any exceptional incidents that cause excessive pollution of receiving waters and the action taken to resolve the situation; and • reporting of pollution incidents resulting in offsite impacts to the NSW Environment Protection Authority. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Soil and Water OEMP will be prepared in consultation with the NSW Environment Protection Authority and relevant local councils; and • the Soil and Water OEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–30 Soil and water management requirements

Topic	Mitigation measures	Timing
Leaks or spills of fuel or other chemicals	To minimise the risk of leaks or spills the following mitigation measures will be put in place: • maintenance areas, fuel farms and other areas where fuels or chemicals are stored or handled will be bunded to contain any accidental spills or leaks; • fuel and other chemicals will be stored and handled in accordance with relevant Australian standards such as: ▪ AS 1940-2004 The storage and handling of flammable and combustible liquids; ▪ AS/NZS 4452:1997 The storage and handling of toxic substances; ▪ AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods; and ▪ AS/NZS 1547:2012 On-site domestic wastewater management. • a protocol will be developed and implemented to respond to and remedy leaks or spills.	Operation
Groundwater inflows	To mitigate the impacts associated with groundwater inflows the following measures will be implemented: • groundwater inflows will be reused or released with appropriate treatment; • where groundwater is released to surface waters, treatment will be to the appropriate level under the AEPR; and • corrective measures will be developed and implemented to supplement groundwater supplies in the unlikely event of impacts to dependent vegetation or watercourses.	Operation
Wastewater reuse	The treated water irrigation scheme will be designed and operated in accordance with the risk framework and management principles contained in the National Guidelines on Water Recycling (EPHC 2006) and Environmental guidelines: Use of effluent by irrigation (DEC 2004).	Operation
Review and refinement of water management system	In the event monitoring shows that water quality or hydrology criteria established for the airport site are not met, relevant aspects of the water management system will be reviewed and refined, as necessary, to ensure future compliance.	Operation

28.7.3.5 Waste and resources

During Stage 1 operations, an estimated 5,251 tonnes of waste would be generated each year, including general waste, food, packaging waste from terminals and waste oils, paints and cleaners from maintenance activities. Resources and waste from the airport would be sustainably managed by maximising waste avoidance, reduction, reuse and recycling (in accordance with a waste management hierarchy), while mitigating and managing impacts on human health and the environment. The Waste and Resources OEMP would update the Waste and Resources CEMP prepared as part of the CEMF for applicability to the operational phase of the proposed airport.

An overview of the framework for implementation of the Waste and Resources OEMP is presented in Table 28–31. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–32.

Table 28–31 Waste and Resources OEMP

Topic	Waste and resources management
Management objectives	Key management objectives for waste and resources management during operation of the proposed airport are: • minimising waste production and ensure that all waste material generated onsite is handled in a responsible manner, and in accordance with legislative requirements; • maximising efficient use of resources including minimising resource use and maximising recovery and recycling; • preventing pollution associated with the management and disposal of waste material; • minimising the risk of illegal dumping on the airport site; • increasing employee and subcontractor awareness of their obligations with regard to waste management and recycling opportunities; and • ensuring the implementation of appropriate environmental controls and procedures.
Statutory basis	The statutory requirements for waste management set out in the following legislation. • Airports Act and the AEPR; • *Biosecurity Act 2015;* • *Hazardous Waste Act 1989;* • *Product Stewardship Act 2011*; • Work Health and Safety Legislation (Commonwealth and NSW); and • Protection of the Environment Operations (Waste) Regulation 2014 (NSW).
Relevant guidelines	The guidelines that inform waste management include: • National Waste Policy; • NSW Waste Avoidance and Resource Recovery Strategy 2014-21; • NSW Waste Classification Guidelines; and • National Environment Protection (Assessment of Site Contamination Measures 2013).
Performance criteria	The performance criteria for the Waste and Resources OEMP include: • compliance with the approved Waste and Resources OEMP; • compliance with the approved Sustainability Plan; • waste management practices do not place unnecessary burden on local and regional waste services; and • effective application of the waste management hierarchy across construction activities for developments on the airport site.
Implementation framework	The Waste and Resources OEMP will be developed prior to commencement of airport operation. The Waste and Resources OEMP will collate measures to mitigate and control waste management activities including cross-references to other environmental management plans where they are relevant. The Waste and Resources OEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-30; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the plan.

Topic	Waste and resources management
Monitoring	General monitoring requirements include that: • monitoring must take place under the direction of an appropriately qualified person; • the results of the monitoring must be kept in a written record; • waste material generated on the airport site and resources used are tracked and classified to meet the requirements of the sustainability targets outlined in the Sustainability Plan; and • regular site inspections are carried out to monitor compliance with the Waste and Resources CEMP, record inspection results, and make an inspection log available to the Department of Infrastructure and Regional Development when asked.
Auditing and reporting	Auditing and reporting will be carried out in accordance with the Airports Act, which requires the ALC to prepare an annual report detailing performance of the environment strategy in the airport master plan. Auditing and reporting requirements will also be included as part of the Sustainability Plan as outlined at Table 28–37. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Waste and Resources OEMP will be prepared in consultation with the NSW Environment Protection Authority; and • the Waste and Resources OEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–32 Waste and resources management requirements

Topic	Mitigation measures	Timing
Waste avoidance	The following measures will be implemented to avoid and reduce waste: • efficient utilisation of resources to reduce consumption; • optimisation of detailed designs to avoid unnecessary resource consumption; • implementation of high efficiency water systems to reduce water consumption; • procurement policies that preference recyclable, minimal and/or returnable packaging; and • procurement of materials in bulk, where practicable, to minimise packaging waste.	Operation
Reuse and recycling	The following measures will be implemented to reuse and recycle waste: • reuse of green waste and topsoil for site landscaping; • reuse of waste streams including metals, oils and solvents; • recycling of waste streams including brickwork, metals, plasterboard, plastics and timber; • agreeing contract terms with suppliers that specify recyclable content and returnable packaging; and • co-operating in stewardship programs for compatible waste streams including pallets.	Operation

Topic	Mitigation measures	Timing
Waste recovery	Measures to recover and treat waste will include recovery (prior to reuse) of compatible waste including metals, oils, solvents, brickwork, plasterboard, plastics and timber.	Operation
Hazardous Wastes	Hazardous wastes or asbestos identified during operation will be managed consistently with the Protection of the Environment Operations (Waste) Regulation 2014 (NSW).	Operation
Waste Disposal	Residual waste that cannot be avoided, reduced, reused, recycled, recovered or treated will be collected by a licensed contractor for disposal at a licensed facility.	Operation
Illegal dumping	An illegal dumping prevention strategy will be developed as part of the Waste and Resources OEMP. The strategy will outline measures to be undertaken to minimise the risk of illegal dumping on the airport site and will be developed in consultation with the NSW Environment Protection Authority and relevant local councils.	Operation
Resource use	The Sustainability Plan outlined at Table 28–37 and the associated sustainability measures outlined at Table 28–38 will help to ensure that resources are used efficiently and waste is minimised.	Operation

28.7.3.6 Biodiversity, land and safety management

The operation of the Stage 1 development would encompass the entire airport site. The operational area of the airport comprising the aviation infrastructure and support services, terminal and business development areas will be primarily restricted to the construction impact zone—an area of 1,150 hectares located in the northern portion of the site. The southern portion of the airport site, outside the construction impact zone, would remain predominantly uncleared for the Stage 1 development and is either reserved for future development activities or would be retained for environmental conservation.

The Biodiversity, Land and Safety OEMP would extend applicable aspects of the CEMF, primarily in relation to biodiversity but will also include aspects of the Aboriginal cultural heritage, European and other heritage, and landscape and visual mitigation and management measures which are applicable to the ongoing management of undeveloped areas on the airport site.

An overview of the framework for implementation of the Biodiversity, Land and Safety OEMP is presented in Table 28–33. The mitigation measures, sub-plans and procedures which are proposed are outlined in Table 28–34.

Table 28–33 Biodiversity, Land and Safety OEMP

Topic	Biodiversity, land and safety management
Management objectives	Key management objectives for biodiversity and land management during operation of the proposed airport are: • minimising disturbance to terrestrial and aquatic flora and fauna in the Environmental Conservation Zone; • minimising adverse effects on terrestrial fauna by operation activities; • protecting areas outside the construction impact zone that contain a listed threatened ecological community or provide important or critical habitat for a listed threatened species; • managing weed and pest species that may be introduced as a result of airport operations; • minimising the landscape and visual amenity impacts during operations; and • minimise off-site risk from operation of the fuel farm.

Topic	Biodiversity, land and safety management
Statutory basis	Statutory requirements for biodiversity, land management and safety are set out in the Airports Act, the AEPR and the EPBC Act.
Relevant guidelines	The guidelines that inform biodiversity and land management include: • Cumberland Plain Recovery Plan (DECCW, 2011); • National Standards for the Practice of Ecological Restoration in Australia (Society for Ecological Restoration Australasia 2016); • Charter for Places of Cultural Significance ('the Burra Charter'); • National Airports Safeguarding Framework; • Australian Standard 1940-2004: The storage and handling of flammable and combustible liquids (AS 1940-2004); • HIPAP 4 – Risk Criteria for Land Use Safety Planning (January 2011); and • HIPAP 10 – Land Use Safety Planning (January 2011).
Performance criteria	Performance criteria include: • compliance with the approved Biodiversity and Land OEMP; • compliance with the Land Use Plan in the Airport Plan; • appropriate landscape treatments are identified and implemented to reduce visual amenity impacts; • the provisions of the AEPR which provide for a 'general duty to preserve' that require the operator of an undertaking to take all reasonable and practicable measures to ensure there are no adverse consequences for sites of Aboriginal cultural heritage significance; • subject to the requirements for safe airport operations, no clearance of significant vegetation occurs outside the designated Stage 1 construction impact zone prior to further approvals under the Airports Act where the vegetation: ▪ is in the Environmental Conservation Zone; or ▪ comprises a threatened ecological community under the EPBC Act; or ▪ provides important or critical habitat for a listed threatened species under the EPBC Act; and ▪ all reasonable and practicable measures are taken to ensure no weed or pest species are introduced to or from the airport site.
Implementation framework	A Biodiversity, Land and Safety OEMP will be approved prior to commencement of operation of the proposed airport. The Biodiversity, Land and Safety OEMP will collate measures to mitigate and manage potential impacts to the receiving environment, including cross-references to other environmental management plans where they are relevant. The Biodiversity, Land and Safety OEMP will as a minimum: • detail the management and mitigation measures to be implemented, including those outlined in Table 28-32; • describe the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting and auditing; and • identify the party responsible for implementing the Biodiversity and Land OEMP.

Topic	Biodiversity, land and safety management
Monitoring	General monitoring requirements include: • monitoring must take place under the direction of an appropriately qualified person; and • the results of the monitoring must be kept in a written record. Aboriginal cultural heritage values retained at the airport site would not be directly monitored but would be subject to ongoing protection to the extent they are contained within the Environmental Conservation Zone at the airport site.
Auditing and reporting	General reporting requirements are set out under the AEPR. These include providing the Secretary of the Department of Infrastructure and Regional Development with an annual report containing information about monitoring results. Auditing and reporting will be carried out in accordance with the Airports Act which requires the ALC to prepare an annual report detailing performance of the environment strategy in the airport master plan. The Community and Stakeholder Engagement Plan provides for the development of a complaints log and includes specific measures for how complaints will be managed.
Responsibility	Responsibilities include: • the Biodiversity, Land and Safety OEMP will be prepared in consultation with DoEE and the NSW OEH; and • the Biodiversity, Land and Safety OEMP will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–34 Land management requirements

Topic	Mitigation measures	Timing
Biodiversity and Vegetation (Environmental Conservation Zone)	A vegetation management plan will be prepared and implemented as part of the Biodiversity, Land and Safety OEMP to guide the activities for managing areas of endemic native vegetation within the Environmental Conservation Zone outlined in the Land Use Plan in the Airport Plan. The vegetation management plan will include the following measures: • retaining endemic vegetation and/or supplementary replanting with local native species; • slashing of grassland to manage fuel loads and bushfire risk; • identifying threatened flora populations and measures to avoid impacts from activities such as weed control or bushfire hazard reduction; • identifying measures for the management of weeds; • planting schedules; and • monitoring and reporting the success of revegetation, weed control and adaptive management.	Pre-operation Operation

Topic	Mitigation measures	Timing
Biodiversity and Vegetation (Other areas outside the Stage 1 construction impact zone)	A vegetation management plan will be prepared and implemented as part of the Biodiversity, Land and Safety OEMP to protect those areas of significant vegetation outside the Stage 1 construction impact zone and the Environmental Conservation Zone, where the vegetation: • comprises a threatened ecological community under the EPBC Act; or • provides important or critical habitat for a listed threatened species under the EPBC Act. The vegetation management plan will: • map and identify those areas of significant vegetation within the airport site to which the plan applies; • identify measures to ensure that no clearance of significant vegetation occurs without prior approval under the Airports Act; • identify measures to protect significant vegetation from impacts associated with land management activities and development activities; and • detail any other measures necessary to retain significant vegetation and protect it from accidental or inadvertent disturbance.	Pre-operation Operation
Wildlife hazard management plan	To manage the risk of fauna hazard and bird and bat strike a wildlife hazard management plan will be developed and implemented. The plan will include the following measures: • the conduct of additional surveys to study and monitor for changes in species and movement patterns. The surveys will be conducted in accordance with relevant Commonwealth and State guidelines and standards including any recovery plans for threatened species; • the review of detailed design documentation to identify potential bird and bat attractants; • liaison with local government in relation to plans for proposed developments within 13 kilometres of the airport site that are likely to increase the bird and bat strike risk; • active management of bird and bat presence at the airport site six months prior to the commencement of airport operations; and • the outcomes of bird and bat strike monitoring will be reviewed by a wildlife strike expert and the results taken into account in any audit of the airport's impacts on wildlife in and around the airport site.	Pre-operation Operation
Fauna hazard	To minimise bird and bat strike risk and terrestrial fauna strike risk, the design of the proposed airport will seek to minimise the attractiveness of the airport site to fauna. To achieve this, the following measures will be incorporated into the detailed design process: • drains, water basins and other airfield components that minimise the availability and attractiveness of water and other potential roosting, nesting or foraging habitat; • an appropriate fence to restrict terrestrial animal access to the airfield; and • airside access roads to facilitate active wildlife management.	Pre-operation

Topic	Mitigation measures	Timing
Fire	Review, update and implement the Bushfire Management Plan developed for the airport site in response to the transition to the airport operation phase, including in response to changes to locations of building envelopes, fuel loads, ignition sources etc.	Operation
Fuel farm	To reduce the risk of hazardous incidents and ensure compliance with relevant off-site risk criteria, the fuel farm will be managed having regard to any further hazard investigations undertaken and operating procedures established during detailed design.	Pre-operation Operation
Conservation of heritage sites	The Environmental Conservation Zone will be managed in accordance with the Aboriginal cultural heritage mitigation and management measures established in the Aboriginal Cultural Heritage CEMP, with the conservation of known and predicted Aboriginal heritage sites as one of the principal objectives.	Operation
Visual Screening	Visual amenity impacts will be mitigated through the use of visual screening measures including: • the retention of existing vegetation on the edges of the airport site, where practicable to provide visual screening; and • investigation of opportunities for native vegetation screening, particularly in relation to the identified moderate-high impact viewpoints. The appropriateness and use of vegetation for visual screening will take into consideration bushfire risks, airport safety and security, potential impacts on aviation operations, wildlife hazard risk and opportunities for the reestablishment of endemic native species and ecological communities.	Operation

28.7.4 Community and stakeholder engagement

Once operational, the proposed airport would operate under the compliance monitoring and reporting requirements that are applicable to other airports under the Airports Act. The proposed airport would be expected to adopt community and stakeholder engagement processes and mechanisms similar to those used at other airports.

The Government expects airports such as the proposed Western Sydney Airport to operate a CACG. The guidelines for CACGs require that they be independently chaired and should engage broad community representation. While they are not decision-making bodies, CACGs provide for effective and open discussion of airport operations and their impacts on nearby communities.

Major capital city airports are also required to establish a Planning Coordination Forum (PCF). The purpose of PCFs is to support a strategic dialogue between the airport operator and local, state and federal government agencies responsible for town planning and infrastructure investment. Effective discussions in PCFs support better integration of planning for the airport and for the surrounding urban and regional community.

An overview of the framework for implementation of the Community and Stakeholder Engagement Plan is presented in Table 28–35. The mitigation measures, protocols and procedures which are proposed are outlined in Table 28–36.

Table 28–35 Community and Stakeholder Engagement Plan

Topic	Community and stakeholder engagement
Management objective	Key management objectives in relation to community and stakeholder engagement during operation of the proposed airport are: • maximising local and regional community awareness of operation activities and planned future developments; • maintaining positive relationships with the local community; • responding quickly and effectively to community complaints; • coordinating communication and stakeholder engagement activities across all OEMPs; and • maximising the benefits and minimise the adverse impacts of operation activities through engagement with government agencies at the local, state and national levels.
Statutory basis	No statutory requirements.
Relevant guidelines	Relevant guidelines include: • IAP2 Core Values of Public Participation (International Association for Public Participation 2007); • IAP2 Code of Ethics for Public Participation Practitioners (International Association for Public Participation 2007); • Community Aviation Consultation Groups Guidelines (DIT 2011a); and • Planning Coordination Forums Guidelines (DIT 2011b).
Performance criteria	Performance criteria include: • compliance with the approved Community and Stakeholder Engagement Plan as well as stakeholder and community engagement measures outlined in other approved OEMPs; • compliance with Australian Government requirements for a CACG and a PCF, when applicable; • information regarding operation activities is regularly provided to affected groups and the broader community in an acceptable and timely manner; • all complaints are investigated and replied to within acceptable timeframes; and • participation in all forums established by government agencies at the local, state or national level to assist in the coordination of planning activities, policies and programmes across the Western Sydney region.
Implementation framework	The Community and Stakeholder Engagement Plan will be developed prior to commencement of airport operation. The Community and Stakeholder Engagement Plan will collate measures to address community and stakeholder engagement issues, including cross-references to other environmental management plans where they are relevant The Community and Stakeholder Engagement Plan will as a minimum: • detail the management and mitigation measures to be implemented, including the measures and sub-plans in Table 28–36; • describe the process for managing complaints, stakeholder engagement, and emerging issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Community and Stakeholder Engagement Plan.
Monitoring	Specific monitoring requirements to be developed in specific plans and procedures are outlined in Table 28–36 below.
Auditing and reporting	An annual report will be prepared in relation to compliance with the Community and Stakeholder Engagement Plan.

Topic	Community and stakeholder engagement
Responsibility	The Community and Stakeholder Engagement Plan will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–36 Community and stakeholder engagement requirements

Topic	Mitigation measures	Timing
Stakeholder engagement on social impacts	Engagement will occur with relevant government agencies and organisations to inform their planning allocation of funding to programmes that may be impacted by operation activities. Relevant government agencies and organisations may include local councils, state government agencies, educational facilities, agencies and organisations responsible for affordable housing and other social services, emergency services, and peak bodies representing businesses and non-government organisations. This will include engagement on issues such as: • potential housing and accommodation requirements for the operation workforce and potential effects on housing and other social services; • potential employment opportunities for local residents; • potential business opportunities for local businesses; and • plans for development on the airport site and how this might impact local and state government land use planning around the airport site.	Pre-operations Operations
Process for complaints	To enable members of the community to make a complaint, the following measures will be taken: • an airport website will be established to provide the community with up-to-date information on operation activities and provide the name and contact details for the person(s) responsible for managing complaints; • the name and contact details of the person(s) responsible for managing complaints will be displayed on signs at multiple locations along the airport site boundary; and • establishment of multiple channels to allow for complaints to be made including a 1800 toll free number, email, online form, and postal address.	Operations
Complaints response protocol	A complaints response protocol will be developed to ensure that complaints are adequately responded to within a reasonable amount of time. The protocol will ensure that: • complaints are responded to within 48 hours of receipt, whenever possible; • complaints are investigated in an appropriate manner and timeframe; • any trends are identified so they can better inform corrective actions; • the complainant is informed about the outcomes of the investigation and any corrective action implemented; and • complaints made in relation to aircraft noise are directed to the Airservices Australia Noise Complaints and Information Service.	Operations

Topic	Mitigation measures	Timing
Complaints register	A complaints register will be established to record all complaints made about operation activities and their impacts. The complaints register will include the following information: • the nature of the complaint, including the event or activity which is the basis of the complaint; • the response provided to the complainant; and • any corrective action or further environmental measures taken. The complaints register will be made available to the Department of Infrastructure and Regional Development when asked. Complaints made in relation to aircraft noise will be directed to the Airservices Australia Noise Complaints and Information Service for consideration and action and will be recorded in the complaints register as such.	Operations
Planning and land use	To maximise the effectiveness of planning interventions, infrastructure projects and other policies and programmes undertaken by the NSW Government and local councils related to the proposed airport, consultations will occur with relevant State and local government agencies to: • ensure protected airspace under the Airports (Protection of Airspace) Regulations 1997 is identified in appropriate environmental planning instruments; • ensure appropriate noise management controls are included in applicable environmental planning instruments with reference to AS 2021-2015 'Acoustics Aircraft noise intrusion – Building siting and construction' and noise guidelines under the National Airports Safeguarding Framework; • identify opportunities for corridor protection for the provision of future rail connection to the airport site; • identify opportunities for protecting a corridor for a future fuel pipeline; and • inform relevant agencies in their planning allocation of funding to programmes that may benefit from the proposed airport. Relevant agencies may include local and State government agencies, tourism agencies, agencies responsible for affordable housing and other organisations (e.g. Western Sydney Business Chamber, educational facilities including universities and TAFE).	Pre-operation Operation

28.7.5 Implementation of the OEMF

28.7.5.1 Timing

The timing for implementation of measures within each plan is specified as either pre-operation or operation. Unless otherwise stated, pre-operation timing refers to a measure being undertaken prior to the commencement of operation of the Stage 1 Development. Operation refers to the ongoing operation of the Stage 1 development up until the development of a master plan. Once a master plan is in place, future environmental management would be addressed under the master plan framework.

28.7.5.2 Responsibilities

The ALC will have statutory responsibility for all relevant aspects of the OEMF following the granting of the airport lease.

An airport environmental officer, appointed by the Commonwealth, would have a regulatory role on the airport site for environmental matters under Part 6 of the AEPR, and an airport building controller, also appointed by the Commonwealth, would have a regulatory role on the airport site for building control matters under Part 5 of the Airports Act and the Airports (Building Control) Regulations 1997.

It is recognised that compliance with the requirements of relevant plans does not remove general obligations and responsibilities under applicable legislation or approvals obtained for the proposed airport including any relevant conditions.

28.7.5.3 Training, awareness and competence

Environmental training for relevant personnel will be carried out prior to commencement of airport operations. The training of personnel will address the following issues:

- the importance of conformance with procedures outlined in the various plans;
- the environmental impacts (actual and potential) of their work activities;
- the environmental benefits of improved performance;
- their role and responsibility in environmental management; and
- the potential consequences of departure from specified procedures.

All entities directly involved in environmental management must be appropriately experienced to undertake their relevant tasks. Appropriate documentation including the following would be required:

- copies of any applications for consents, licences and approvals and the responses from authorities;
- details of complaints or incidents and corrective and preventative actions taken;
- a summary of any correspondence or consultation with regulatory authorities or other stakeholders;
- a copy of any environmental studies, monitoring results and analysis; and
- a copy of the external audit reports, any environmental internal audit reports or reviews conducted of environmental management systems.

28.8 Sustainability framework

Sustainability is recognised as an important part of the development of large infrastructure projects because it can assist in avoiding, reducing or otherwise mitigating adverse environmental impacts and maximise economic and social benefits. The early integration of appropriate sustainability considerations into the design, construction and operation of the Stage 1 development will ensure that the proposed airport is developed using best-practice processes, standards and materials. This will increase efficiency in resource and energy consumption, reduce waste, improve liveability at and around the airport site, and enhance engagement with the local community.

Addressing sustainability in this way will also have benefits for the proposed airport and its users. In particular, the increased efficiency in energy and resource use will increase productivity and reduce long-term operating costs. Additionally, by addressing long-term trends, such as climate change, inclusion of sustainability considerations can help to reduce the proposed airport's exposure to long-term risks. Finally, these benefits could flow on to airport users through enhanced customer experience, particularly for passengers and commercial tenants.

28.8.1 Sustainability plan

At the centre of the sustainability framework is the Sustainability Plan, the details of which are outlined in Table 28–37. The Sustainability Plan will be prepared by the ALC and submitted to the Infrastructure Minister within six months of the grant of the airport lease. It will include details about how sustainability considerations will be integrated into the design, construction, and operation of the Stage 1 development. In particular, the Sustainability Plan will outline the specific targets that the ALC intends to achieve, how those targets would be achieved, as well as describing how the ALC intends to achieve the required sustainability ratings for the Stage 1 development.

28.8.2 Sustainability targets

The measures set out in Table 28–38 require the ALC to develop targets for a range of issues such as energy efficiency, water efficiency, waste management, and use of apprentices and local employment. Targets will be required for construction and operation of the Stage 1 development.

28.8.3 Sustainability ratings

Sustainability ratings will also be required for the proposed airport. Particular ratings to be covered are outlined in Table 28–38. These requirements are based on the following three key rating systems.

The Infrastructure Sustainability (IS) Rating is developed by the Infrastructure Sustainability Council of Australia (ISCA). The IS Rating scheme provides a comprehensive rating system for evaluating sustainability for infrastructure projects and is applied to four types of infrastructure: transport (including airports, ports, rail and roads), water, energy, and communications. It can cover design, construction and operation of infrastructure.

The Green Star Rating is developed by the Green Building Council of Australia. The Green Star rating scheme provides a comprehensive rating system which can cover the design, construction and operation of specific buildings, fit-outs, and communities.

The National Australian Built Environment Rating System (NABERS) is a national initiative managed by the NSW Office of Environment and Heritage on behalf of the Commonwealth, State and Territory governments. NABERS is a performance-based environmental efficiency rating system for buildings. It covers specific sustainability components, most commonly energy efficiency and (less commonly) water efficiency.

All three of these rating systems are often applied together to transport infrastructure projects as they are complementary and are designed to work together. For example, applying an IS rating to the proposed airport allows for broad commitments to be placed over the airport project as a whole, while the application of the Green Star rating system and NABERS allows for more detailed commitments to be set for specific buildings while maintaining consistency with the broader IS rating. The achievement of specific targets in one sustainability rating can often assist in achieving targets in other ratings.

Table 28–37 Sustainability Plan

Topic	Sustainability
Management objective	Key management objectives in relation to sustainability include: • enhance the effectiveness of environmental management measures during construction and operation of the Stage 1 development and assist in avoiding, reducing or mitigating environmental impacts; • maximise social and economic benefits of the Stage 1 development; • contribute to the productivity and liveability of communities in Western Sydney; and • reduce the proposed airport's exposure to long-term risks such as climate change.
Statutory basis	Not applicable. The IS, Green Star and NABERS systems are industry driven, with the intention of encouraging excellence.
Relevant guidelines	Relevant guidelines and sustainability rating tools produced by: • the Infrastructure Sustainability Council of Australia (ISCA), for the IS Rating system; • the Green Building Council of Australia, for the Green Star rating system; and • the NSW Office of Environment and Heritage for NABERS.
Performance criteria	Performance criteria include: • compliance with the approved Sustainability Plan; • establishment and demonstrated achievement of sustainability targets outlined in Table 28–38; and • achievement of the relevant sustainability ratings outlined in Table 28–38.

Topic	Sustainability
Implementation framework	A Sustainability Plan will be submitted for approval by the Infrastructure Minister within six months of the grant of the airport lease. The Sustainability Plan will be updated and revised prior to the commencement of airport operations. The Sustainability Plan will collate measures to be implemented during construction and operation of the Stage 1 development to address sustainability, including cross-references to other environmental management plans where they are relevant. The Sustainability Plan will as a minimum: • detail how sustainability considerations will be integrated into the design, construction, and operation of the Stage 1 development; • specify sustainability targets and detail how those targets would be achieved; • describe how the required sustainability ratings for the Stage 1 development would be achieved; • describe the management and mitigation measures to be implemented, including those outlined in this section; • detail the process for managing complaints, stakeholder engagement, and emerging environmental management issues as they arise; • specify the process for monitoring implementation, reporting, and auditing; and • identify the party responsible for implementing the Sustainability Plan. Further detail on what the sustainability plan will provide is set out in Table 28-37.
Monitoring	Monitoring requirements will include: • monitoring will take place under the direction of an appropriately qualified person; • monitoring will be consistent with industry best-practice and the requirements of the specified sustainability rating schemes; and • the results of the monitoring must be kept in a written record.
Reporting	Reporting measures that will be implemented include providing the Secretary of the Department of Infrastructure and Regional Development with an annual report containing information about monitoring results and details of performance in achieving the sustainability targets and sustainability ratings set out in the Sustainability Plan.
Responsibility	Responsibilities include: • the Sustainability Plan will be developed in consultation with relevant authorities such as the NSW Environment Protection Authority; • within six months of the grant of the airport lease, the Sustainability Plan will be submitted for approval to the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development; • the D&C contractor and/or the ALC will be responsible for implementing site specific environmental procedures and work method statements in accordance with the requirements of the Sustainability Plan; and • the Sustainability Plan will be updated and revised and submitted for approval to the Infrastructure Minister or an SES Officer of the Department of Infrastructure and Regional Development prior to operations commencing as either a standalone plan or as part of the airport environment strategy contained within the initial airport master plan.

Table 28–38 Sustainability requirements

Topic	Mitigation measures	Timing
Sustainability Plan – overall content	The Sustainability Plan will, at a minimum, address and detail: • the sustainability management team structure, including key personnel, authority and roles of key personnel, lines of responsibility and communication, minimum skill levels for each role, and interfaces with the overall project organisation structure; • a sustainability policy statement and strategies outlining the overall approach for adaptation to climate change, mitigation of greenhouse gas emissions, resource management, workforce development, community engagement, and biodiversity and heritage management; • sustainability initiatives to be undertaken during construction and operation of the proposed airport, including milestones for the achievement of those initiatives; • processes and methodologies for embedding sustainability into the design, procurement, construction and operation of the proposed airport; • what the required As Built and Operation ratings from ISCA are and how they will be achieved, including the processes and methodologies to be used; and • details of consultation activities with stakeholders and the local community. The Sustainability Plan will be submitted to the Infrastructure Minister for approval within six months of the grant of the airport lease and will be updated and revised prior to the commencement of airport operations.	Pre-construction
Sustainability targets	Sustainability targets will be identified and established for the construction and operation of the Stage 1 development. These targets will be included in the sustainability plan, will be specific and measurable (expressed in standard units of measurement and percentages, where applicable) and will include targets for: • reduced electricity use; • reduced fuel non-aviation fuel use; • quantity of waste to be recycled; • quantity of waste to be reused; • reduced potable water consumption; • reduced non-potable water consumption; • waste water recycled or reclaimed; • water harvested for reuse; • embodied energy and water use in building and construction materials; • recycled content in building and construction materials; • biodiversity enhancement; and • the workforce, including: ▪ number of apprentices and trainees; ▪ proportion of workforce from Western Sydney; and ▪ workforce diversity.	Pre-construction

Topic	Mitigation measures	Timing
Sustainability ratings	The proposed airport will be required to achieve: • Infrastructure Sustainability (IS) ratings, to be obtained from the Infrastructure Sustainability Council of Australia (ISCA) covering Certified IS As Built and IS Operation ratings; and • ratings under the following schemes for eligible buildings constructed as part of the Stage 1 development: ▪ Green Star Design, As Built and Interiors ratings; and ▪ NABERS Energy and Water scheme ratings for base buildings.	Construction Operation
Local employment	To maximise local employment and business opportunities throughout construction and operation, the following measures will be implemented: • an Australian Industry Participation Plan will be developed and will include consideration of local industry participation; and • an equal opportunity policy, including training and suitable employment opportunities for Indigenous people and people with disadvantages.	

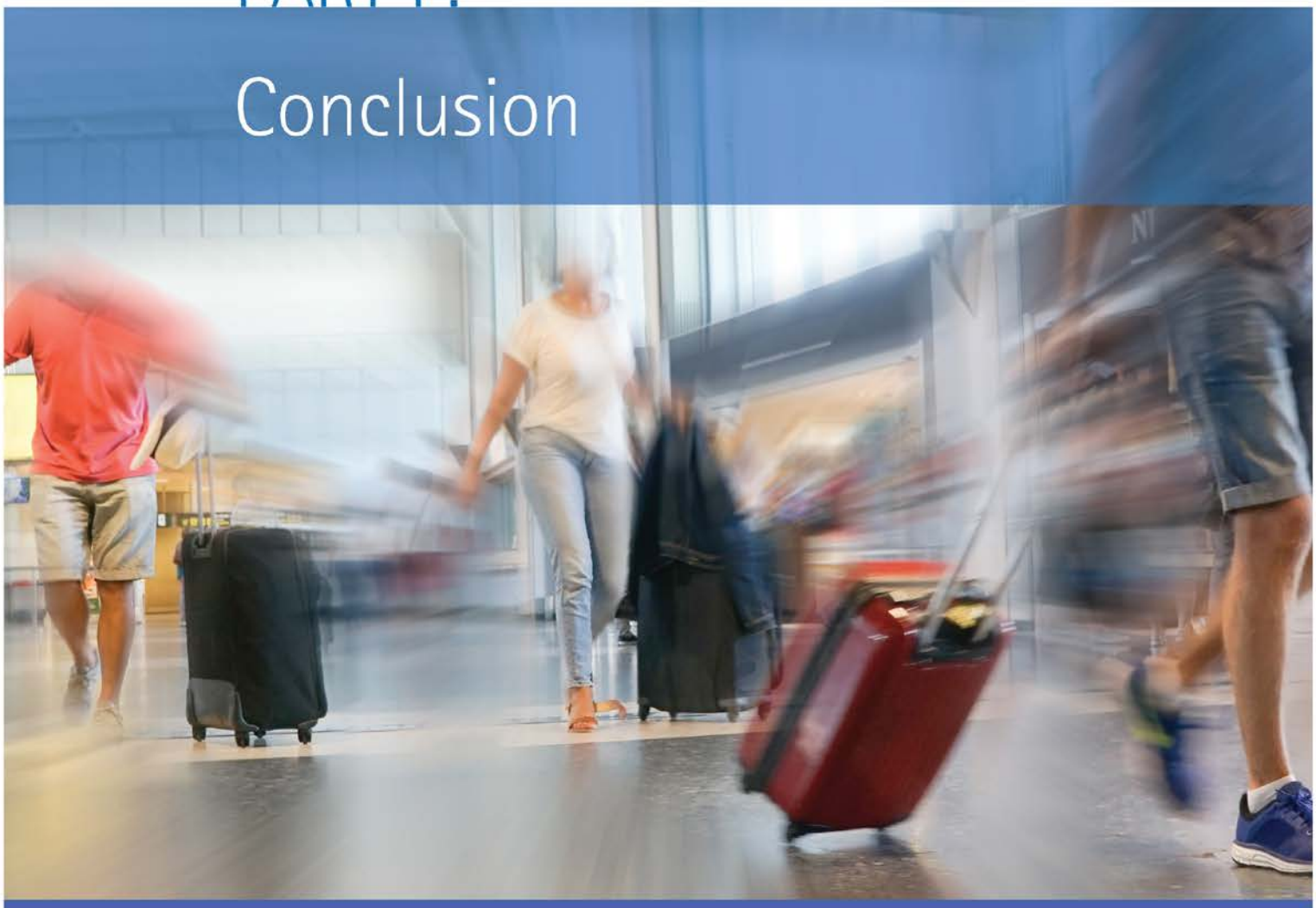
28.9 Cost of environmental management measures

In parallel with the preparation of this EIS, the Department is undertaking planning for the proposed airport. One of the outputs of this process is the revised draft Airport Plan which describes the developments to be undertaken as part of the Stage 1 development.

Costings for both the proposed development and all proposed environmental management measures will be considered by Government as part of its overall consideration of the project. This will have particular regard to significant cost items including environmental management measures outlined in this EMF. Appropriate allowances will be made for contingency events, should they occur.

PART F:

Conclusion



29 Conclusion

29.1 Introduction

This chapter summarises the justification for the proposed airport and potential environmental impacts, including anticipated benefits and the consequences of not proceeding.

29.2 Justification of the proposal

Airports are key international gateways for passenger and freight transport, taking on an increasingly important economic role in a globalised economy. Sydney, in particular, is reliant on the aviation system to maintain its status as a global city, tourist destination and major financial and services centre in the Asia Pacific region.

The need for a second airport in Sydney is driven principally by the increasing demand for aviation services in both Western Sydney and the Sydney region in general, and the limited capacity of existing airports to accommodate the predicted growth.

Strategic alternatives to the development of a new airport in Western Sydney have been considered over a number of decades. Commonly referenced alternatives include increasing the capacity of Sydney (Kingsford Smith) Airport or other existing airport facilities, establishing a new airport outside the Sydney basin, or developing a regional high speed rail network. While these alternatives have demonstrated potential to provide marginal capacity benefits, they would not replace the need for the proposed airport. Detailed studies have been undertaken over a number of decades to assess these options and have consistently found that the most effective way to address increased aviation demand, while mitigating environmental and social impacts, is to develop a new airport at Badgerys Creek.

Western Sydney is identified as the source of many of Sydney's greatest opportunities for economic and employment growth in the NSW Government's A Plan for Growing Sydney (DP&E 2014). It is also a region in which several of Sydney's challenges are most pressing, such as ageing infrastructure, housing demand, growth and access to employment.

Development of the proposed airport would be a catalyst for investment and job creation in the region by accelerating the delivery of vitally important infrastructure and the release of employment and housing land, and providing a long term and diverse source of local jobs and economic activity. Additionally, the proposed airport would improve access to aviation services for the growing population of Western Sydney.

29.2.1 Summary of benefits of the proposal

Proceeding with the proposal would provide the following key benefits:

- Additional aviation capacity for Sydney – existing airports in the Sydney basin do not have the capacity to absorb future aviation demand. The proposed airport would provide the additional capacity to meet increases in demand over the long term;
- Access to aviation for Western Sydney – providing Western Sydney with better access to aviation services and accelerating critical infrastructure and urban development in the region; and
- Economic benefits – Generating opportunities for employment growth and increased economic development in the Western Sydney region.

29.2.2 Alternatives considered

The development of a new airport at Badgerys Creek has consistently been found to be the most effective solution to address long term aviation demand in the Sydney region, a position confirmed by the Joint Study on aviation capacity in the Sydney region (Department of Infrastructure and Transport 2012). In coming to this conclusion, the Joint Study provided a re-evaluation and broad consideration of a number of strategic alternatives to the development of a new airport, including:

- expanding Sydney Airport to meet increased demand;
- reviewing the policy settings and operational restrictions to optimise the use of Sydney Airport;
- optimising the use of other existing airports in the Sydney region;
- using high speed rail to reduce demand for aviation services; and
- developing other new airports.

While the Joint Study acknowledged that some of the options had potential to provide marginal capacity benefits, such as amending cap and curfew arrangements at Sydney Airport, they were considered short term solutions that would not address Sydney's long term aviation capacity requirements. Other proposals, such as expanding Sydney Airport or developing a high speed rail link to Canberra or Newcastle airports, were found to require significant capital investment and would not necessarily address the underlying key drivers of aviation demand growth such as demand for international services.

The Joint Study identified that a major new airport in the Sydney basin would be required before the end of 2030 and that that a greenfield airport in Western Sydney would be best placed to meet this growing demand.

29.2.3 Consequences of not proceeding

The consequences of not proceeding with the proposed airport would include:

- long term operational constraints at Sydney Airport would not be resolved and there would be increased congestion of existing facilities and reduced efficiency of aviation services in the Sydney region; and
- the regional economic benefits expected to be generated by the proposed airport, such as new employment, industry expansion and training opportunities would not be realised.

29.3 Environmental impacts

Potential environmental impacts associated with construction and operation of the Stage 1 development, as well as mitigation measures identified to reduce and manage these potential impacts, are documented in this volume of the EIS. Consideration of the operation of the long term development is provided in Volume 3. A summary of the potential key environmental impacts associated with the Stage 1 development is provided in Table 29–1.

Table 29–1 Summary of key environmental impacts for operation of the Stage 1 development

Issue	Key environmental issues
Noise – aircraft	• Maximum noise levels due to worst case loudest aircraft operations (such as Boeing 747) of over 85 dBA would be experienced at a small number of residential locations close to the airport site in the area of Badgerys Creek; and levels of 70 to 75 dBA within built-up areas in St Marys and Erskine Park. • Maximum noise levels due to more common aircraft types (such as Airbus A320 or equivalent) of over 70 dBA would be experienced in some areas to the south-west of the airport, notably the area of Luddenham and Greendale; and levels of 60 to 70 dBA in built-up areas around St Marys and Erskine Park. • Between1,500 and 1,600 people would experience five or more aircraft noise events per day above 70 dBA over a 24-hour period. • An estimated 48,000 people would experience more than five events above 60 dBA at night under the 'Prefer 05' operating strategy (approach and depart the airport in a south-west to north-east direction). • Approximately 6,000 people would experience more than five events above 60 dBA at night under the 'Prefer 23' operating strategy (opposite direction to 'Prefer 05'). • Approximately 4,000 people would experience more than five events above 60 dBA at night under 'Head-to-Head' operations, if deemed feasible (both approach from and depart to the south-west). • Most recreational areas would not be subject to aircraft overflight noise events with maximum levels exceeding 70 dBA – or their exposure would be less than one event per day. • This EIS presents ANEC contours for Stage 1 operations. The combined ANEC 20 contour for Stage 1 operations is generally less extensive than that developed for the 1985 Draft EIS, which previously guided planning controls for surrounding councils.
Noise – ground operations, construction and road traffic	• Construction noise would be largely confined to within the airport boundary, although there would also be impacts on parts of Luddenham and Badgerys Creek outside of the airport site. • Ground-based operational noise would be generated by aircraft engine run-up and taxiing. • Noise above the criteria adopted for this EIS would be exceeded for aircraft engine run-ups in Luddenham, Badgerys Creek, Bringelly, Wallacia and Greendale under worst case meteorological conditions. • Noise impacts from taxiing would primarily affect Luddenham.
Air quality and greenhouse gasses	• Dust emissions would be generated during construction by both the bulk earthworks and the aviation infrastructure works. • Odour from the asphalt plant is also predicted to be below the relevant criteria at all sensitive residential receptors and would be largely contained within the airport site. Operation of the Stage 1 development would result in an increase in emissions of nitrogen dioxide (NO_2), particulate matter (as PM_{10} and $PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2) and air toxics. • There would be odour emissions from exhaust and from the on-site wastewater treatment plant. • Marginal ozone impacts would result from the operation of the Stage 1 development and greenhouse gas emissions are not expected to be material in terms of the regional air-shed.

Issue	Key environmental issues
Human health	Air Quality • Levels of airborne particulates generated by construction would be low overall and less than those during operation. The highest risk is predicted to be associated with particulate matter, $PM_{2.5,}$ during construction of aviation infrastructure which could result in a maximum of two additional deaths per 100 years. The most affected areas would be at Luddenham and Bringelly. • Health risks due to PM_{10} and $PM_{2.5}$ particulate matter would be low for the Stage 1 development. The highest predicted risk attributed to PM_{10} is for all-cause mortality from long-term exposures with between four additional deaths per 1,000 years and six additional deaths per 100 years. The highest predicted risk attributed to $PM_{2.5}$ is for all-cause mortality and cardiopulmonary mortality from long-term exposures with between two additional deaths per 1,000 years and six additional deaths per 100 years. • Exposure to nitrogen dioxide would be the highest risk category resulting from airport operation. The highest predicted risk is for long-term mortality in people over 30 years of age with a maximum predicted risk of 1.1 additional deaths per year for the Stage 1 development. When traffic emissions on the external road network are excluded (which accounts for some 69 per cent of the NO_x emissions inventory), the maximum risk would reduce to four additional deaths every 10 years. • The health risk due to exposure to sulfur dioxide from the airport operations would be very low. The highest risk is for hospital admissions from respiratory causes with approximately between seven additional admissions per thousand years and seven additional admissions per hundred years. • The health risk arising from exposure to carbon monoxide would be negligible. The highest risk is predicted for hospital admissions for cardiovascular disease in people 65 years of age and older with a maximum of an additional four additional hospital admissions in 1,000 years. • The risk from exposure to benzene during airport operations would result in a very small increase in cancer risk which is within levels considered acceptable by national and international regulatory agencies. • The risk from exposure to diesel particulates falls at the upper bound of the levels of risk considered acceptable by national and international regulatory agencies. The highest risk occurs at an onsite location, which is relevant for the consideration of exposure of onsite workers. • The maximum risk increase resulting from exposure to ozone is 4.5 in 100,000 for emergency department attendances for asthma in children which is marginally above the levels of risk considered acceptable by national and international regulatory agencies. • The EIS includes mitigation and management measures that will reduce the potential impacts considered in the health risk assessment. In particular, an operational air quality management plan which would reduce air emissions and the potential for ground level ozone formation. Noise • The results for the health risk assessment for noise shows that airport operations may lead to an increase in sleep disturbance (assessed as awakenings), increases in the risk of cardiovascular disease and delays in childhood learning and cognitive development. These effects are predicted for suburbs close to the airport site, in particular at Luddenham. • The EIS noise assessment reports include mitigation and management measures that will reduce the potential impacts assessed by the health risk assessment. In particular, an operational noise management plan would be developed that considers both aircraft overflight and ground-based operations, including consideration of the requirements of AS 2021. Water • While there are potential risks to surface and groundwater resources from construction and operation of the airport site, most of these are common for other major infrastructure projects. Implementation of mitigation measures in the construction environmental management plans will minimise these risks. • It is considered unlikely that emergency fuel jettisoning would result in impacts to surface water bodies including potable water storages given the rarity of its occurrence and restrictions on where it can be undertaken.

Issue	Key environmental issues
Hazard and risk	• With the completion of the necessary design studies for Civil Aviation Safety Authority aerodrome certification, as well as implementation of the requirements of the existing regulatory framework, no insurmountable risks associated with the Stage 1 development would be likely. • Key issues that would be finalised prior to the operation of the airport include: ▪ resolution of off-site risks associated with jet fuel storage; ▪ reservation of a pipeline corridor to secure future fuel supply by means other than road transport in conjunction with NSW Department of Planning and Environment; ▪ additional bird and bat surveys to confirm the preliminary risk identified; ▪ completion of a study to identify stack emissions in the proposed airspace; and ▪ implementation of development controls on public safety zones outside Commonwealth land. • Prior to operations commencing at the airport, a safety review would need to be undertaken in accordance with the requirements of the applicable work, health and safety legislation.
Traffic, transport and access	• An estimated 1,254 additional vehicle movements per day would occur on the surrounding road network during construction. This includes approximately 150-160 peak vehicle movements per hour during the peak periods. • During Stage 1 operations approximately 21,562 vehicles are predicted to enter the airport site and approximately 21,556 vehicles leave the airport site each day. • Given the significant expansion of road capacity underway as a result of Western Sydney Infrastructure Plan, this additional traffic is unlikely to affect the operation of the surrounding road network significantly but is expected to result in an increase in congestion: ▪ on the M7 southbound, south of the M4; ▪ on Elizabeth Drive, east and west of the M7; and ▪ at The Northern Road, north of Elizabeth Drive. • A small increase in congestion is also predicted on Mamre Road.
Biodiversity	• The Stage 1 development would require the removal of approximately 1,153.8 hectares of vegetation during construction, including approximately 318.5 hectares of native vegetation. • Removal of vegetation would result in the loss of fauna foraging, breeding, roosting, sheltering and/or dispersal habitat. • Threatened species, populations and ecological communities listed under both the EPBC Act and the TSC Act would be affected by the Stage 1 development. • There is an associated risk of fauna strike from contact with aircraft and ground transportation vehicles both on and surrounding the airport site. • Indirect impacts would be associated with light, noise and vibration and the introduction of exotic species. • An offset package has been prepared to compensate for the removal of approximately 104.9 hectares of Cumberland Plain Woodland, the removal of about 141.8 hectares of foraging habitat for the Grey-headed Flying-fox, and impacts on other features of the natural environment including plant populations, fauna populations and several species and communities listed under NSW legislation.

Issue	Key environmental issues
Topography, geology and soils	• The topography of the site would change as a result of a major bulk earthworks programme involving the redistribution of about 22 million cubic metres of soil and rock across a construction impact zone covering approximately 1,150 hectares. • Storage, treatment and handling of fuel, sewage and other chemicals with potential to contaminate land required for construction and operation. • Potential contaminated land associated with prior activities at the airport site including agriculture, light commercial and building demolition. • Potential impacts during operation are typical of a large scale infrastructure project and would be managed with the implementation of stormwater, erosion and dust controls and adherence to industry standards for the storage and handling of chemicals.
Surface water and groundwater	• Changes to catchment areas within the airport site and the permeability of the ground surface, would alter the duration, volume and velocity of surface water flow. • Bulk earthworks and excavations at the airport site would likely to receive some groundwater inflows. • An estimated 1.36 ML of water would be required per day for site preparation works. Water would be sourced from existing assets operated by Sydney Water and through stormwater runoff captured in sediment dams or existing farm dams. • An estimated 2.7 ML wastewater generated during operation would be treated and recycled (as grey water) or irrigated on site.
Aboriginal heritage	• Construction would affect at least 39 sites recorded at the airport site, all of which comprise artefact occurrences. • Construction activities would also impact approximately 514 hectares of archaeologically sensitive landforms. • Impacts during operation would be limited to indirect impacts on adjacent and nearby sites. The heritage values of these sites are unlikely to be vulnerable to indirect impacts such as loss of context.
European heritage	• The assessment of European heritage identified 20 European heritage items at the airport site and an additional 22 heritage items in the surrounding area. All of the identified European heritage items at the airport site would be directly affected by site preparation prior to Main Construction Works for the proposed Stage 1 development.
Planning and land use	• The proposed airport would result in the removal of existing rural residential, agricultural, recreational, community and extractive industry land uses on the airport site. • Surrounding land uses would be expected to transition from rural to urban land uses both as a result of airport operations, and as the Western Sydney Priority Growth Area, Western Sydney Employment Area and other strategic planning initiatives take effect. Infrastructure improvements to main roads and railways would also facilitate land use change in the region. • The successful implementation of measures to manage land use and planning impacts, including mitigation measures for employment land use conflict, zoning rationalisation, operational airspace controls, aircraft noise and infrastructure corridor protection, the proposed airport and its surrounds would become a focus for employment generating land uses in Western Sydney, creating jobs for the new residents of Greater Western Sydney.

Issue	Key environmental issues
Landscape and visual amenity	• The proposed airport would result in temporary visual impacts during construction for the nearest sensitive receivers in Luddenham and Bringelly due to earthworks and the presence of construction plant, equipment, stockpiling areas and storage areas. • Potential moderate to high visual impacts during operation would result from overflights in Luddenham, Elizabeth Drive, Lawson Road and Mount Vernon. • Lower level impacts as a result of overflights would be likely for areas to the south of the airport site including Silverdale Road, Bents Basin State Conservation Area and Dwyer Road. • Operational lighting would likely have low impacts on sensitive receivers due to topography, existing vegetation, building design, lighting design and runway configuration.
Social	• The proposed airport would increase employment and population growth for Western Sydney, and Greater Sydney more broadly. • Significant benefits to the people and economy of Western Sydney would be related to economic development and employment opportunities. • Creation of jobs for many types of workers of various skills and qualifications, which would contribute to increased incomes across the Western Sydney region. • Stimulation of further development in regional and local centres, providing better quality social infrastructure, such as shops, health services, recreation and leisure services. • Development of training opportunities in the region undertaken by the state government and local governments will encourage innovation to create new small and large businesses supporting the proposed airport. • Varying amenity and lifestyle impacts in the Western Sydney region depending on proximity to the airport, and location with respect to flight paths.
Economic	• Construction of the Stage 1 development is forecast to create approximately 3,180 full-time equivalent (FTE) jobs directly and indirectly in Greater Sydney during the peak of construction activity. Approximately 84 per cent of these jobs would be created in Western Sydney, including about 760 FTE direct onsite jobs. Construction of the Stage 1 development is also expected to create $2.3 billion in value-add across Greater Sydney during the construction period, with approximately $1.9 billion or 83 per cent of that value-add being created in Western Sydney. • Operation of the Stage 1 development would create about 8,730 FTE direct onsite jobs and generate about $77 million in value-add for Western Sydney in 2031.
Resources and waste	• An estimated 202,500 tonnes of waste vegetation and construction materials such as concrete and timber would be generated during construction of the Stage 1 development. • An estimated 5,251 tonnes of waste would be generated each year during operation of the Stage 1 development, including general waste, food, packaging waste from terminals and waste oils, paints and cleaners from maintenance activities.

Issue	Key environmental issues
Greater Blue Mountains World Heritage Area	• Indirect operational impacts would be expected in relation to noise, air emissions and visual impact from the overflight of aircraft. • aircraft passing over locations within the GBMWHA are generally expected to be at an altitude greater than 5,000 feet and most would be more than 10,000 feet above sea level. At these altitudes, aircraft are likely to be difficult to discern from ground level and are not considered to be visually intrusive. • Indicative flight paths at altitudes of less than 5,000 feet above sea level are limited to the eastern boundary of the Blue Mountains National Park, which would experience 50 to 100 flights per day in for Stage 1 operations. • Generally, across the GBMWHA, aircraft maximum noise levels are not expected to exceed 55 dBA. Echo Point at Katoomba would not experience maximum noise levels above 50 dBA, and the majority of other selected sensitive areas are predicted to only be affected by aircraft noise levels above 55 dBA during the infrequent operation of the Boeing 747.
Cumulative impacts	• Potential cumulative impacts with other major projects in the region requiring coordination with NSW Government agencies include: ▪ Western Sydney Infrastructure Plan; ▪ Western Sydney Priority Growth Area; ▪ Western Sydney Employment Area; ▪ South West Priority Growth Area; and ▪ other major projects identified in the region. • Minimal potential for cumulative noise impacts upon sensitive receivers as a result of the distance from other major projects, with the relocation of The Northern Road and construction of the M12 motorway having highest potential for cumulative noise impacts. • Predicted air quality impacts (emissions) would typically be below the respective air quality assessment criteria during construction and operation for both incremental impacts of the airport alone and when considered cumulatively with other surrounding land use and development. • Additional vehicle movements associated with construction and operation are not likely to significantly affect the operation of the surrounding road network.

29.3.1 Mitigation and management measures

Mitigation and management measures would be implemented during both construction and operation to reduce the level of potential environmental impacts. These measures aim to protect the identified environmental values and would be applied as required during the planning and design, construction and operation phases of the Stage 1 development.

The effectiveness of the proposed mitigation and management measures will be ensured through:

- clear statements of the intended outcomes and performance criteria for each plan;
- the requirement for approval of environmental management plans by the Infrastructure Minister or an SES Officer in the Department of Infrastructure and Regional Development other than the Biodiversity Offset Delivery Plan which will be approved by the Environment Minister or an SES Officer in the Department of the Environment and Energy;
- inclusion of best-practice measures, including the adoption of continuous improvement mechanisms during the detailed design, construction and operation of the proposed airport;

- ongoing monitoring of, and compliance with, environmental management plans through a review, reporting and auditing framework approved by the Infrastructure Minister;
- environmental management requirements of the Airports Act, including the regulation of land use through ongoing master planning and environmental strategy requirements, as well as a system to regulate, and assign accountability for, activities at the airport site that generate or have the potential to generate pollution or excessive noise;
- the sustainability framework which will establish a benchmark for the sustainable performance of the Stage 1 development; and
- ongoing stakeholder consultation and oversight through relevant community forums as required by the Australian Government at major airports in Australia.

Taken together, these mechanisms will ensure that mitigation and management measures proposed in this EMF are effective and achieve the intended outcomes.

29.4 Considerations of the objects of the EPBC Act

Section 3 of the EPBC Act identifies the following objects:

b. to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;

c. to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;

d. to promote the conservation of biodiversity;

e. to promote a cooperative approach to the protection and management of the environment involving governments, the community, landholders and indigenous peoples; and

f. *to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge*.

The environmental assessment of the proposed airport development has been conducted having regard to the objectives of the EPBC Act.

This EIS assesses the likely impacts of the proposal and provides mitigation measures for protection of the environment. The EIS specifically assesses potential impacts on, matters of national environmental significance, including listed species and ecological communities and the Greater Blue Mountains World Heritage Area, and National Heritage Place. It also considers the impacts on the general environment from construction and operation of the proposed development.

A biodiversity offset is proposed to allow for the conservation of regional biodiversity values in perpetuity.

The environmental impact assessment of the proposed airport has involved extensive consultation with key stakeholders in a cooperative approach to project development. Consultation with key stakeholders and the community will continue following the finalisation of the EIS alongside a revised draft Airport Plan, during construction and following commencement of operations at the proposed airport.

The principles of ecologically sustainable development were adopted during the preparation of this EIS. An assessment of the proposal against these principles follows below.

29.5 Consideration of the principles of ecologically sustainable development

Section 3A of the EPBC Act adopts the following principles of ecologically sustainable development:

a. *decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations;*

b. *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;*

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

d. *the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making; and*

e. *improved valuation, pricing and incentive mechanisms should be promoted.*

An assessment of the proposal against these principles is provided below.

29.5.1 Consideration of long term and short term

The proposed airport would be consistent with the objective of effectively integrating both long term and short term economic, environmental, social and equitable considerations in decision making.

This EIS has considered the environmental impacts and issues of the construction and operation associated with Stage 1 development. While the long term airport development described in the EIS would not be authorised by the Airport Plan, a strategic land assessment of the potential implication has been undertaken to support considerations of the Stage 1 development and long term planning and land use strategies. The proposed airport would provide both short and long term benefits in terms of job creation and provision of accessibility to aviation services. The airport would also address the long term aviation capacity requirements of the Sydney region.

29.5.2 Precautionary principle

The precautionary principle states that if there are threats of serious environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In applying the principle, decisions should be guided by careful evaluation to avoid, wherever practicable, serious damage to the environment, including an assessment of the risks associated with various options. The proposed airport would be consistent with the precautionary principle.

Potential environmental impacts associated with the proposed airport have been assessed and documented in this EIS to minimise the likelihood of serious damage to the environment, with necessary mitigation measures proposed as required. Conservative approaches in line with the precautionary principle, including contingencies in assumptions such that assessed impacts were likely to be worse than would actually occur, were applied in a number of environmental assessments.

This EIS implemented a compliance, risk, and/or significance-based approach to impact assessment (see Chapter 9 (Volume 2a)). Higher risk aspects were managed through avoidance or suitable mitigation strategies to an acceptable level of residual risk.

The project would adopt 'leading practice' environmental and community management and monitoring plans to manage, mitigate and monitor impacts identified in this EIS. These plans aim to ensure that impacts are within the range predicted in this EIS, and to ensure corrective action is taken if unpredicted impacts are identified.

29.5.3 Intergenerational equity

The principle of intergenerational equity states that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposed airport would be consistent with the principle of intergenerational equity.

Given the alternatives considered (see Chapter 2 (Volume 1)) and the proposed environmental management framework (see Chapter 28), the proposed airport would operate to ensure there would be no significant impact that would diminish the health, diversity or productivity of the environment for future generations.

The incremental nature of the long term development of the airport would provide opportunities for intergenerational equity and decision making that takes full advantage of changing conditions and technologies. The proposed airport would also provide a broad range of economic benefits which would continue to increase with time.

29.5.4 Conservation of biodiversity and ecological integrity

The conservation of biological diversity and ecological integrity should be a fundamental consideration of any development proposal. The proposed airport would be consistent with this principle.

Where feasible, the project would minimise impacts on sensitive ecological areas and minimise clearing of significant patches of native vegetation more generally. An offset package has been prepared to compensate for the removal of approximately 104.9 hectares of Cumberland Plain Woodland, the removal of about 141.8 hectares of foraging habitat for the Grey-headed Flying-fox, and impacts on other features of the natural environment.

29.5.5 Valuation, pricing and incentives

The principle of improved valuation states that environmental factors should be considered in the valuation of assets and services. The principle is implicit in such concepts as 'polluter pays', lifecycle costing, and triple bottom line accounting.

The proposed airport would be consistent with this principle as environmental factors were integrated into the environmental impact assessment and cost benefit analysis, including environmental externalities such as traffic congestion and air quality impacts; and the opportunity costs of other uses of the airport site.

29.6 Summary

On 15 April 2014 the Australian Government announced that the Commonwealth-owned land at Badgerys Creek would be the site for the proposed airport. The proposed airport would cater for ongoing growth in demand for air travel, servicing both domestic and international markets.

A revised draft Airport Plan has been prepared in accordance with the Airports Act, setting out the Australian Government's requirements for the Stage 1 development. The Stage 1 development would include a single 3,700 metre runway on a north-east/south-west orientation and aviation support facilities to provide an operational capacity of approximately 10 million annual passengers, as well as freight traffic. The Stage 1 development is designed to cater for the predicted demand for five years following commencement of operations, expected to occur around the mid-2020s and forms the basis for the consideration of potential impacts.

This EIS has been prepared in accordance with Part 3 of the EPBC Act and the Department of the Environment guidelines for the assessment of the airport proposal (EPBC 2014/7391).

Based on the findings of the environmental investigations undertaken to inform this EIS, the proposed airport would result in some adverse impacts on the environment and the community. Mitigation and management measures have been proposed to reduce these potential impacts and protect the identified environmental values and would be applied as required during the planning and design, construction and operation of the proposed airport.

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