

Chapter 23 Matters of National Environmental Significance

Overview

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides the national framework for protecting and managing nationally (and internationally) important flora and fauna, ecological communities and heritage places (including World heritage) that are collectively defined under the EPBC Act as ‘matters of national significance’ (MNES). The primary focus of the consideration of MNES was with respect to impacts on the World Heritage and National Heritage values and other values of the Greater Blue Mountains Area (GBMA) and National Heritage place.

Existing environment

The Greater Blue Mountains was inscribed on the World Heritage List in 2000 for both its fauna and flora values. This listing formally recognises that the area has Outstanding Universal Value under the World Heritage Convention.

At its closest point, the GBMA is around 4 nm (7 km) from WSI. It is a deeply incised sandstone tableland that encompasses around 1.03 million hectares of eucalypt-dominated landscape just inland from Sydney (UNESCO, 2022b). The GBMA comprises one of the largest and most intact regions of protected bushland in Australia and is noted for its representation of the evolutionary adaptation and diversification of the eucalypts in post-Gondwana isolation on the Australian continent (UNESCO, 2022b). It also supports an exceptional representation of the taxonomic, physiognomic and ecological diversity that eucalypts have developed: an outstanding illustration of the evolution of plant life. Several rare and endemic species, including relict flora such as the Wollemi Pine, also occur within its boundaries. The GBMA also includes an outstanding diversity of habitats and plant communities that support its globally significant species and ecosystem diversity.

Methodology

The assessment of the potential impacts of the project on MNES was undertaken in 2 key steps as follows:

- initial screening of MNES impacts
- assessment of applicable MNES identified as being potentially impacted by the project.

The assessment of significance was based on the guidance provided in the *EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*, which state that an action is likely to have a significant impact on the World Heritage values of a declared World Heritage Area if there is a real chance or possibility that it would cause:

- one or more of the World Heritage values to be lost
- one or more of the World Heritage values to be degraded or damaged, or
- one or more of the World Heritage values to be notably altered, modified, obscured or diminished.

Summary of impacts to MNES

Four MNES have been identified as relevant to the project being potential impacts to:

- a World Heritage property
- a National Heritage place
- listed threatened species or communities
- listed migratory species.

World heritage Outstanding Universal Value criterion

Given the nature of the project, the proposed flight paths are expected to result in minimal direct impacts on the World Heritage or National Heritage values of the area, including the criterion which relate to the Outstanding Universal Value of the site and contribute to its World Heritage status.

The criterion that relate to the GBMA are:

- Criterion (ix) ongoing evolutionary processes
- Criterion (x) biological diversity.

Direct impacts would primarily be associated with the potential for wildlife strikes to species that utilise habitats within the GBMA and the potential for localised impacts in the unlikely event of an aircraft crash. It is considered that these potential impacts would result in negligible impacts on the attributes within the GBMA relevant to both the evolutionary processes or biological diversity of the property. Additionally, it is not considered that the operation of the proposed flight paths would result in any indirect impacts which may cause the World Heritage value to be lost, degraded or damaged, or notably altered, modified, obscured or diminished.

Accordingly, it is considered that the project would not have a significant impact on the attributes identified for each of the relevant World Heritage criterion that affords the site its Outstanding Universal Value.

Integrity

The integrity of the GBMA area is associated broadly with:

- the level of protection (e.g., National Parks and declared wilderness areas), size, topography and certain adjoining land uses (State Forests etc.)
- the size, condition (high wilderness quality) and connectivity of the natural bushland, plant communities and habitats. This extends to adaptation opportunities and ecological processes
- its geological, geomorphology and water systems, which require the same level of protection
- Aboriginal cultural values and custodial relationships.

The proposed flight paths would not result in the loss of any elements necessary for the GBMA to express its Outstanding Universal Value, including potential impacts to the size, condition, ability to maintain connectivity or provide protection to its geological, geomorphology and water systems. The proposed flight paths would not change the size or boundary of the GBMA and would not impact on any features and processes that convey the GBMA's Outstanding Universal Value or its existing integrity.

Overall, the project is unlikely to have a significant impact on the biodiversity values, and the integrity of those values (including Aboriginal cultural values), for which the GBMA was listed and which are identified in the Statement of Integrity for the site. It would not result in the loss of any elements necessary for the GBMA to express its Outstanding Universal Value with respect to its size, biodiversity condition, ability to maintain connectivity or provide protection to its geological, geomorphology and water systems.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the assessment on MNES as presented in this chapter and the supporting technical paper.

Conclusion

Given the nature of the project, complete avoidance of potential impacts on the GBMA and MNES would not be possible. However, the design of the proposed flight paths is such that impacts expected to result from the project would have minimal direct impacts on the World Heritage or National Heritage values of the area, including the Outstanding Universal Value which contribute to its World Heritage status.

23.1 Introduction

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides the national framework for protecting and managing nationally (and internationally) important flora and fauna, ecological communities and heritage places (including World heritage) that are collectively defined under the EPBC Act as ‘matters of national significance’ (MNES). In particular, the EPBC Act is Australia’s main legislative instrument for implementing its obligations under the World Heritage Convention. The EPBC Act also confers jurisdiction over actions that have the potential to make a significant impact on the environment where the actions affect Commonwealth land or are undertaken on behalf of Commonwealth agencies.

Under Part 3, Division 1 of the EPBC Act, a project (or action) that would or is likely to have a significant impact on MNES requires an approval from the Australian Minister for the Environment and Water (referred to as a ‘controlled action’). As outlined in Chapter 5 (Statutory context), the project is subject to Section 160(2) of the EPBC Act and this approval is not required. While this approval is not required, the assessment of the project has still considered the impacts on the ‘whole of the environment’ (as documented in this EIS), which includes MNES.

This chapter summarises the assessment on MNES, as provided throughout this EIS. It primarily focuses on the consideration of impacts on the World Heritage and National Heritage values and other values of the Greater Blue Mountains Area (GBMA) and National Heritage place. The full assessment of the potential impacts of the project on the GBMA is provided in Technical paper 14: Greater Blue Mountains World Heritage Area (Technical paper 14).

The assessment has been carried out in accordance with the EIS Guidelines for the project issued by the Commonwealth Department of Climate Change, Energy, the Environment and Water.

23.2 Legislative and policy context

This section identifies the applicable legislation and policies relevant to the consideration of impacts to MNES by the project in addition to the EPBC Act, inclusive of the legislation applicable to the GBMA. While the NSW legislative requirements outlined below are not specific to Commonwealth airport activities or aircraft operations, the general provisions of this legislation have been included for completeness of consideration. Further detail of the relevant legislation and guidelines which have been considered is provided in Section 3.5 of Technical paper 14.

23.2.1 The World Heritage Convention

The Convention Concerning the Protection of World Cultural and Natural Heritage 1972 (the World Heritage Convention) aims to promote cooperation among nations to protect heritage around the world that is of such Outstanding Universal Value that its conservation is important for current and future generations. The World Heritage Convention also sets out the criteria that a site must meet to be inscribed on the World Heritage List.

The World Heritage Convention provides State Parties (i.e. the Australian Government) with direction regarding the identification of potential sites for inscription onto the World List, and what is required to be undertaken in order to preserve and protect such sites if they are added. Signatories to the World Heritage Convention agree to conserving World Heritage sites within their jurisdictions, and that they would take the required measures in order to protect their recognised National Heritage.

Both the Australian and NSW governments are responsible for managing and protecting World Heritage properties within NSW, with the NSW State Government being directly responsible for the day-to-day management of the GBMA through the Greater Blue Mountains World Heritage Area Advisory Committee.

23.2.2 International Union for Conservation of Nature

The International Union for Conservation of Nature (IUCN) is an international organisation involved in nature conservation and the sustainable use of natural resources. There are over 1,400 member organisations including a number from Australia such as DCCEEW, the Blue Mountains World Heritage Institute and the Australian Foundation for Wilderness (IUCN, 2022).

The IUCN in November 2013, published an Advice Note (IUCN, 2013) to provide guidance on integrating natural World Heritage sites into environmental assessments. Section 3 of the Advice Note states:

An Environmental Assessment for a proposal affecting, or with the potential to affect, a natural World Heritage Site is intended to ensure that the proposal's likely impacts on the Outstanding Universal Value of the site are fully considered in land-use planning decisions with the objective of preserving these exceptional places for future generations. The assessment should also consider the site's links with the surrounding landscape as a natural World Heritage Site cannot be considered separately from the wider ecosystem.

Section 4 of the Advice Note states that the IUCN's position is that infrastructure and other development proposals located within, or outside the boundaries of a natural World Heritage Site, should be considered in terms of whether they are compatible with the long-term objective of preserving the Outstanding Universal Value of the site for future generations.

The section also notes that where developments affecting a natural World Heritage Site are under consideration, these should be subject to a rigorous environmental assessment in line with 8 World Heritage Impact Assessment Principles. Further details regarding the 8 World Heritage Impact Assessment Principles are provided in Section 3.5.2 of Technical paper 14.

23.2.3 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides the national framework for protecting and managing nationally (and internationally) important flora and fauna, ecological communities and heritage places (including World Heritage) that are defined under the EPBC Act as 'matters of national significance' (MNES). In particular, the EPBC Act is Australia's main legislative instrument for implementing its obligations under the World Heritage Convention. The EPBC Act also confers jurisdiction over actions that have the potential to make a significant impact on the environment where the actions affect Commonwealth land or are undertaken on behalf of Commonwealth agencies.

Under Section 160 of the EPBC Act, an Australian agency (or employee) must obtain and consider advice from the Australian Minister for the Environment and Water before a plan for aviation airspace management is adopted or implemented where the aircraft operations will have or is likely to have a significant impact on the environment. The preliminary airspace design for the project is a plan for aviation airspace management within the meaning of the EPBC Act.

A referral was made under Section 161 of the EPBC Act by the Department, Airservices Australia and CASA in 2021 (EPBC 2022/9143). Under Part 3, Division 1 of the EPBC Act, a project (or action) that will or is likely to have a significant impact on MNES requires an approval from the Australian Minister for the Environment and Water (referred to as a 'controlled action'). However, as the project is subject to Section 160(2) of the EPBC Act, this approval is not required. While this approval is not required, the assessment of the project has still considered the impacts on the 'whole of the environment'. That is, the assessment has assessed impacts to MNES but it will not be limited to those considerations.

23.2.3.1 World Heritage

Part 15, Division 1 of the EPBC Act sets out the requirements for the management of properties on the World Heritage List. This includes the identification of management principles and the requirement to prepare a management plan for a World Heritage property or area that is consistent with Australia's obligations under the World Heritage Convention or the Australian World Heritage management principles.

The *Greater Blue Mountains World Heritage Area Strategic Plan* (Department of Environment and Climate Change (DECC) 2009) and *Greater Blue Mountains World Heritage Area Strategic Plan Addendum 2016* (Office of Environment and Heritage, 2018) have been prepared to provide a framework for the area's management, protection and monitoring. The key management objectives set out in the Strategic Plan (NSW DECC, 2009) provide the basis for the management of the Greater Blue Mountains and guidance for operational strategies in accordance with requirements of the World Heritage Convention and its Operational Guidelines (UNESCO, 2021). The Strategic Plan and the 2016 Addendum are discussed further in Section 23.2.4 below.

23.2.4 NSW legislation

As described above, the EPBC Act provides for the development and implementation of management plans for World Heritage properties, which describe aspects of the Greater Blue Mountains Area and how it would be managed. The NSW Government, through the NSW Department of Planning and Environment (Environment and Heritage Group) is responsible for the day-to-day management of the GBMA. The GBMA is protected and managed primarily under the following State legislation:

- *National Parks and Wildlife Act 1974* (NSW) (NP&W Act) – The NP&W Act provides for the protection and reservation of certain lands, the protection of Aboriginal objects and places, the protection of fauna and the protection of native vegetation. It also provides for the declaration of wild rivers. Within the GBMA, the Grose River (Blue Mountains National Park), Colo River (Wollemi and Blue Mountains National Parks) and Kowmung River (Kanangra-Boyd National Park).
- *Wilderness Act 1987* (NSW) (Wilderness Act) – The Wilderness Act makes provisions for the identification, protection and management of wilderness areas in NSW. Kanangra-Boyd, Nattai, Yengo, Grose and Wollemi national parks, which form part of the GBMA, are declared wilderness areas. The management of wilderness areas is to restore and protect the unmodified state of wilderness areas, preserve its capacity to evolve in the absence of significant human interference and permit opportunities for solitude and appropriate self-reliant recreation.

These Acts cover the protection and management of areas such as national parks, nature reserves and wilderness. Other relevant legislation includes the NSW *Biodiversity Conservation Act 2016*, the *Environmental Planning and Assessment Act 1979*, and the *Heritage Act 1977*.

The *Greater Blue Mountains World Heritage Area Strategic Plan* (NSW Department of Environment and Climate Change (DECC), 2009) and *Greater Blue Mountains World Heritage Area Strategic Plan Addendum 2016* (NSW Office of Environment and Heritage, 2018) provide frameworks for the area's integrated management, protection, interpretation and monitoring. The key management objectives set out in the Strategic Plan (NSW DECC, 2009) provide the basis for the management of the Greater Blue Mountains and guidance for operational strategies in accordance with requirements of the *2021 World Heritage Convention and its Operational Guidelines* (UNESCO, 2021). The Strategic Plan and Addendum identifies the following threats to the integrity of the area that require protection measures to be identified for:

- uncontrolled and inappropriate use of fire
- inappropriate recreation and tourism activities, including development of tourism infrastructure
- invasion by pest species including weeds and feral animals
- loss of biodiversity and geodiversity
- impacts of human enhanced climate change
- lack of understanding of heritage values.

23.3 Methodology

The assessment of the potential impacts of the project on MNES was undertaken in 2 key steps as follows:

- initial screening of MNES impacts
- assessment of applicable MNES identified as being potentially impacted by the project.

A summary of the methodology for each of these steps is outlined in the following sections.

23.3.1 Initial screening of MNES impacts

The EPBC Act confers jurisdiction over actions that have impacts on 10 MNES. The potential impact of the project on each MNES was considered. A summary of the consideration is provided in Table 23.1.

Table 23.1 Consideration of potential MNES impacts from the project

MNES	Potential impact	Impact assessment required?
Any impact on a World Heritage property?	<p>The study area includes the curtilages of 6 places listed on the World Heritage List being:</p> <ul style="list-style-type: none"> • The Greater Blue Mountains • Australian Convict Sites (Old Great North Road and Buffer Zone) • Australian Convict Sites (Old Government House and Domain) • Australian Convict Sites (Cockatoo Island Convict Site) • Australian Convict Sites (Hyde Park Barracks) • Sydney Opera House. <p>The GBMA is located around 7 km to the west of the Western Sydney International Airport (the Airport Site) and has the potential to be impacted by the project (refer to Section 23.4 for the assessment on the GBMA).</p> <p>Direct impacts to the remaining 5 World Heritage Sites are expected to be negligible due to the locations of these sites in relation to the proposed flight paths and the altitudes at which aircraft would be within the vicinity of these sites. Therefore detailed assessment of impacts to these sites has not been considered further as part of the MNES assessment. Further consideration of these sites is provided in Technical paper 9: Heritage (Technical paper 9).</p>	Yes

MNES	Potential impact	Impact assessment required?
Any impact on a National Heritage place?	<p>Three 'natural' National Heritage Places as occurring within the project study area, being:</p> <ul style="list-style-type: none"> • Ku-ring-gai Chase National Park, Lion, Long and Spectacle Island Nature Reserves • Royal National Park and Garawarra State Conservation Area • the GBMA. <p>Of these, only the GBMA is considered likely to be affected by the project. The GBMA was included on the National Heritage List in 2007. The National Heritage values identified for the listing are the same as the values recognised for the World Heritage Area (refer to Section 23.4 for the assessment on the GBMA).</p> <p>Detailed assessment of impacts to these other National Heritage Places is provided in Technical paper 9.</p>	Yes
Any impact on a wetland of international importance?	<p>Based on the potential impacts of the project, it is unlikely that any wetlands of international importance would be impacted.</p> <p>Refer to Chapter 16 (Biodiversity) for further information.</p>	No
Any impact on a listed threatened species or communities?	<p>The database searches identified 92 threatened fauna species listed under the EPBC Act that are known or predicted to occur within an area that may be impacted by the project. Of these, 16 are considered to have a moderate to high likelihood of occurring or utilising the habitats available and determined as candidate species requiring further assessment as they are considered to have potential to be impacted upon by the project. Of these, the key species of potential impact are the Grey-headed Flying-fox and Glossy Ibis. Additional threatened species and communities were also considered to have a moderate to high likelihood of being affected by the project.</p> <p>The significant impact assessments completed in Technical paper 8: Biodiversity (Technical paper 8) concluded that it is unlikely that the project would have a significant impact on the potential species that may be impacted by wildlife strikes (refer to Chapter 16 (Biodiversity) for further details).</p>	Yes
Any impacts on listed migratory species?	<p>The desktop assessment identified 79 migratory fauna species listed under the EPBC Act that are known or predicted to occur within an area that may be impacted by the project. Of these, 28 are considered to have a moderate to high likelihood of occurring or utilising habitats within the vicinity of the project potential to be impacted. Potential impact to these listed migratory species include direct impacts due to wildlife strike, and indirect impacts due to changes to noise, lighting and air quality.</p> <p>The significant impact assessments completed in Technical paper 8 concluded that it is unlikely that the project would have a significant impact on these species (refer to Chapter 16 (Biodiversity) for further details).</p>	Yes
Does the Proposal involve a nuclear action (including uranium mining)?	The project does not involve a nuclear action.	No

MNES	Potential impact	Impact assessment required?
Any impact on a Commonwealth marine area?	The project would not impact on a Commonwealth marine area.	No
Any impact on the Great Barrier Reef Marine Park?	The project would not impact on The Great Barrier Reef Marine Park.	No
Does the Proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources?	The project is not related to coal seam gas or mining.	No
Any impact (direct or indirect) on Commonwealth land?	<p>The project would not directly impact on Commonwealth land.</p> <p>The involvement of the Department of Defence (Defence) during the design of the preliminary airspace and flight path design has ensured that the current and future operational requirements for key Defence sites in the Sydney Basin (refer to Section 6.3.2.2 of Chapter 6 (Project development and alternatives)) are maintained with the implementation of the project. Co-ordination would continue to occur with Defence into the detailed design phase of the project.</p> <p>Indirect impacts (visual, noise, etc) on other Commonwealth land external to the Airport Site has been considered as part of the ‘whole of environment’ assessment as contained in this EIS.</p>	No

23.3.2 Assessment of impacts

Based on the screening of potential impacts to MNES the assessment focused on the potential impacts of the project on the GBMA. The assessment was undertaken in consideration of the requirements outlined in the *Guidance and Toolkit for impact assessments in a World Heritage Context* (UNESCO, 2022a). Reflecting the guidance, the assessment of impact on the GBMA involved the following key processes:

- identification of the World Heritage and National Heritage values of the Greater Blue Mountains Area, as outlined in the Statement of Outstanding Universal Value
- identification of the other values that complement and interact with the World Heritage and National Heritage values of the Greater Blue Mountains Area
- collation of baseline environmental information including:
 - confirmation of existing ecological features of key significance that contribute to the Outstanding Universal Value of the site
 - baseline noise levels
 - identification of key social, recreation, and tourism attributes of the Greater Blue Mountains Area whose contributing values may be impacted as a result of the project
- identification of the potential impacts that may arise as a result of the proposed flight paths. This included screening of the potential elements that may be impacted as a result of the project (e.g. biodiversity, noise, air quality, heritage and visual)

- assessment of the impacts of the project against their potential to impact on the World Heritage and Natural Heritage values and integrity of the World Heritage property based on the Statement of Outstanding Universal Value for the GBMA
- assessment of impacts of the project against their potential to impact on the other values of the GBMA
- identification of recommended mitigation measures.

A summary of the process of an impact assessment conducted for World Heritage is shown in Figure 23.1.



Adapted from Figure 5.1 Guidance and Toolkit for impact assessments in a World Heritage Context (UNESCO, 2022a)

Figure 23.1 The process of an impact assessment conducted for World Heritage

23.4 Greater Blue Mountains Area

23.4.1 World Heritage Area

At its closest point, the GBMA is around 7 kilometres from the Airport Site. It is a deeply incised sandstone tableland that encompasses around 1.03 million hectares of eucalypt-dominated landscape just inland from Sydney (UNESCO, 2022b). The Greater Blue Mountains comprises one of the largest and most intact regions of protected bushland in Australia and is noted for its representation of the evolutionary adaptation and diversification of the eucalypts in post-Gondwana isolation on the Australian continent (UNESCO, 2022b). It also supports an exceptional representation of the taxonomic, physiognomic and ecological diversity that eucalypts have developed: an outstanding illustration of the evolution of plant life (refer to Section 23.4.1.1 for further details).

Several rare and endemic species, including relict flora such as the Wollemi Pine, also occur within its boundaries. Ongoing research continues to reveal the rich scientific value of the area as more species are discovered.

The GBMA was inscribed on the World Heritage List because it satisfies 2 of the criteria for natural values of Outstanding Universal Value related to both its fauna values as well as flora values. While the criteria for Outstanding Universal Value have changed over time, the underlying concepts have remained constant.

The GBMA comprises 8 protected areas (refer to Figure 23.2):

- Blue Mountains National Park
- Wollemi National Park
- Yengo National Park
- Nattai National Park
- Kanangra-Boyd National Park
- Gardens of Stone National Park
- Thirlmere Lakes National Park
- Jenolan Caves Karst Conservation Reserve.

The geology and geomorphology of the site, which includes 300 metre cliffs, slot canyons and waterfalls, provides physical conditions and a visual backdrop to support these outstanding biological values. The Greater Blue Mountains Area includes large areas of accessible wilderness near Sydney's population of 4.5 million people. Its exceptional biodiversity values are complemented by numerous others, including Aboriginal and historic cultural values, geodiversity, water production, wilderness, recreation and natural beauty.

The Greater Blue Mountains makes up a significant representation of Australia's biodiversity with 10 per cent of the country's vascular flora and significant numbers of rare or threatened species (UNESCO, 2022b). Additional to its outstanding eucalypts, the area also contains relict species of global significance including the ancient Wollemi Pine, one of the world's rarest species that was thought to have been extinct for millions of years. The few surviving trees are known only from 3 small populations located in remote, inaccessible gorges within the Greater Blue Mountains (DCCEEW, 2022d).

Every World Heritage property is surrounded by a wider setting, which is the immediate and extended environment that is part of, or contributes to, its significance and distinctive character. While adjacent areas are acknowledged to be important in protecting the GBMA in the Statement of Outstanding Universal Value, the GBMA does not have a formal buffer zone included as part of the World Heritage listing. It is however noted that under the EPBC Act, any action that has, would have, or is likely to have an impact on the World Heritage values of a World Heritage property must be referred to the responsible Australian Minister for consideration (whether or not the action occurs inside the boundary of the World Heritage property or not). This allows potential projects to capture potential impacts to mobile species (e.g. birds, bats) that provide value to GBMA.

A number of areas outside of the designated boundary for the GBMA provide an informal buffer between the World Heritage item and its surrounding land uses. These include adjoining areas of:

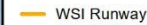



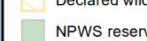

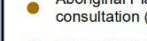
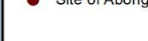

- National Parks such as Goulburn River National Park, Capertee National Park and the Dharug National Park
- State Forests such as the Newnes, Pokolbin, Coricudgy, Nullo Mountain, Gurnang, Wolgan, Ben Bullen, Jellore, McPherson and Putty State Forests
- other Protected Areas such as the Bargo, Yerranderie, Natti, Burratorang and Parr State Conservation Areas.

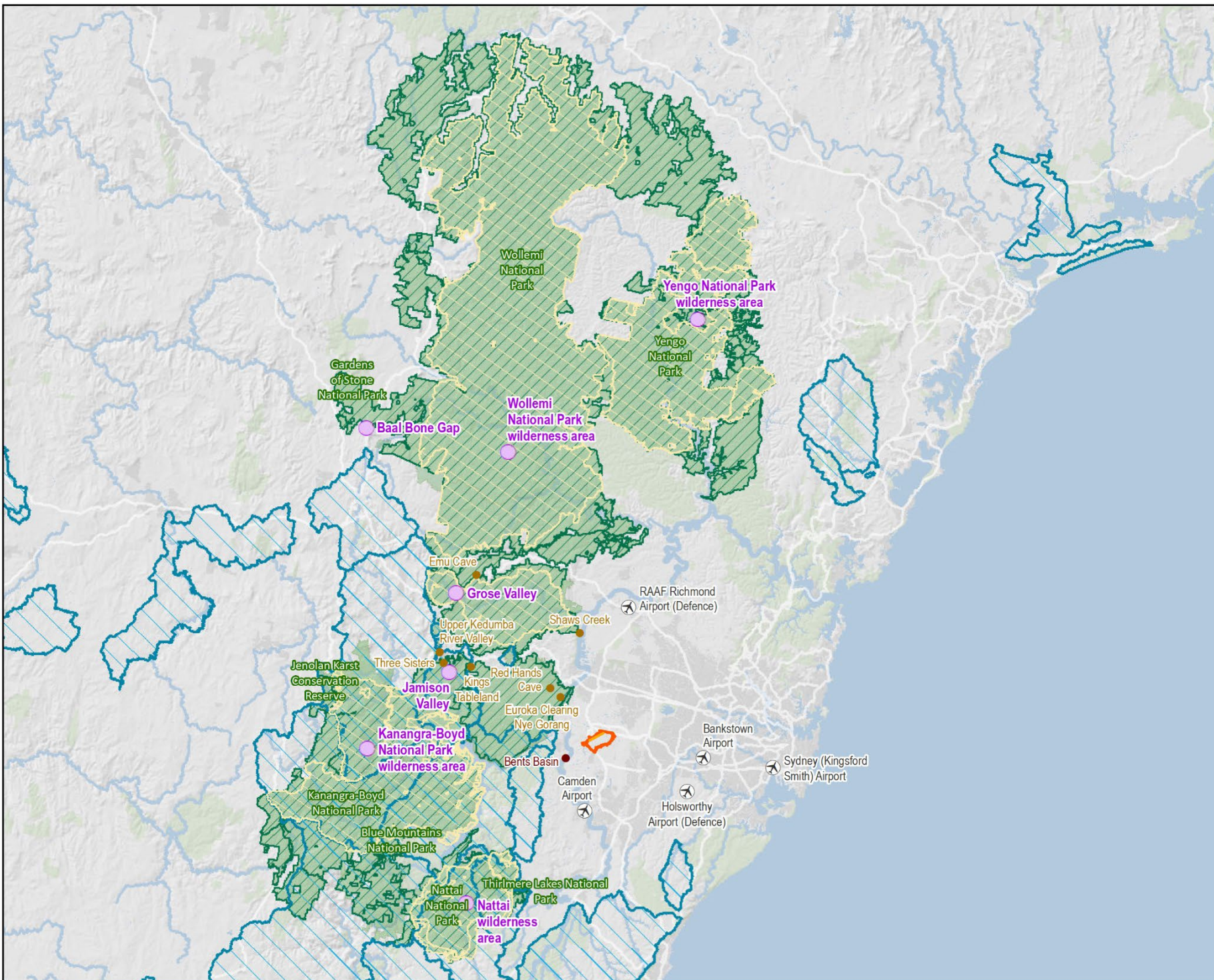
These surrounding protected areas assist in maintaining and protecting the overall natural setting of the GBMA, thereby reducing pressure on the region from adjoining land uses which may cause negative impact(s) to the Outstanding Universal Value of the site.

Figure 23.2

The Greater Blue Mountains and surrounds

Legend

-  WSI Runway
-  Western Sydney International (Nancy-Bird Walton) Airport land boundary
-  Greater Blue Mountains World Heritage Area
-  Drinking water catchments
-  Declared wilderness
-  NPWS reserve
-  Tourist locations
-  Aboriginal Places raised during consultation (NPW Act)
-  Site of Aboriginal significance



0 10 20 km
 Coordinate system: GDA 1994 NSW Lambert
 Scale ratio correct when printed at A4
 1:1,200,000 Date: 23/05/2023

Data sources - SITSEC, DCS, Geoscience Australia, Esri, HERE, Garmin, IGN, OpenStreetMap contributors, and the GIS user community, Airbus, USGS, NOAA, NASA, CCGAR, NCEAS, NLS, OLS, IMJA, Geostatsystems, USA, GSI and the GSI User Community.
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23.4.1.1 World Heritage values

Outstanding Universal Value

The Greater Blue Mountains was inscribed on the World Heritage List because it satisfies 2 of the criteria for natural values of Outstanding Universal Value. While the criteria for Outstanding Universal Value have changed over time, the underlying concepts have remained constant (UNESCO, 2022b). The 2 criteria for which the Greater Blue Mountains are listed are described below.

Criterion ix

Criterion ix is defined in the Operational Guidelines for the Implementation of the World Heritage Convention (UNESCO, 2021) as follows:

to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

The Greater Blue Mountains include outstanding and representative examples in a relatively small area of the evolution and adaptation of the genus *Eucalyptus* and eucalypt-dominated vegetation on the Australian continent.

The site contains a wide and balanced representation of eucalypt habitats including wet and dry sclerophyll forests and mallee heathlands, as well as localised swamps, wetlands and grassland. It is a centre of diversification for the Australian scleromorphic flora, including significant aspects of eucalypt evolution and radiation. Representative examples of the dynamic processes in its eucalypt-dominated ecosystems cover the full range of interactions between eucalypts, understorey, fauna, environment and fire.

The site includes primitive species of outstanding significance to the evolution of the earth's plant life, such as the highly restricted Wollemi Pine (*Wollemia nobilis*) and the Blue Mountains Pine (*Pherosphaera fitzgeraldii*). These are examples of ancient, relict species with Gondwanan affinities that have survived past climatic changes and demonstrate the highly unusual juxtaposition of Gondwanan taxa with the diverse scleromorphic flora (UNESCO, 2022b).

Criterion x

Criterion x is defined in the Operational Guidelines for the Implementation of the World Heritage Convention (UNESCO, 2021) as follows:

to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation

The Greater Blue Mountains includes an outstanding diversity of habitats and plant communities that support its globally significant species and ecosystem diversity (152 plant families, 484 genera and c. 1,500 species). A significant proportion of the Australian continent's biodiversity, especially its scleromorphic flora, occur in the area. Plant families represented by exceptionally high levels of species diversity here include Myrtaceae (150 species), Fabaceae (149 species), and Proteaceae (77 species).

Eucalypts (*Eucalyptus*, *Angophora* and *Corymbia*, all in the family Myrtaceae) which dominate the Australian continent are well represented by more than 90 species (13 per cent of the global total). The genus *Acacia* (in the family Fabaceae) is represented by 64 species. The site includes primitive and relictual species with Gondwanan affinities (*Wollemia*, *Pherosphaera*, *Lomatia*, *Dracophyllum*, *Acrophyllum*, *Podocarpus* and *Atkinsonia*) and supports many plants of conservation significance including 114 endemic species and 177 threatened species.

The diverse plant communities and habitats support more than 400 vertebrate taxa (of which 40 are threatened), comprising some 52 mammal, 63 reptile, over 30 frog and about one third (265 species) of Australia's bird species. Charismatic vertebrates such as the platypus and echidna occur in the area. Although invertebrates are still poorly known, the area supports an estimated 120 butterfly and 4,000 moth species, and a rich cave invertebrate fauna (67 taxa) (UNESCO, 2022b).

Integrity

In addition to meeting at least one of the criteria for Outstanding Universal Value, a World Heritage Area that is listed for natural values also needs to meet conditions of integrity. Integrity is a measure of the ‘wholeness and intactness’ of the natural heritage and its attributes (UNESCO, 2022b).

The *Greater Blue Mountains World Heritage Area Strategic Plan* (NSW DECC, 2009) states, with respect to objective of integrity, ‘... to maintain, and wherever possible improve, the current and future integrity of the Greater Blue Mountains World Heritage Area...’ including, seeking ‘to ensure that adjoining land uses are sympathetic to the conservation and presentation of World Heritage values’.

The Statement of Outstanding Universal Value for the GBMA (UNESCO, 2022b) states that the 7 adjacent national parks and single karst conservation reserve that comprise the Greater Blue Mountains Area are of sufficient size to protect the biota and ecosystem processes, although the boundary has several anomalies that reduce the effectiveness of its 1-million-hectare size. This is explained by historical patterns of clearing and private land ownership that preceded establishment of the parks. However, parts of the convoluted boundary reflect topography, such as escarpments that act as barriers to potential adverse impacts from adjoining land. In addition, much of the Greater Blue Mountains Area is largely protected by adjoining public lands of State Forests and State Conservation Areas. Additional regulatory mechanisms, such as the statutory wilderness designation of 65 per cent of the area, the closed and protected catchment for the Warragamba Dam and additions to the conservation reserves that comprise the area further protect the integrity of the Greater Blue Mountains Area.

Most of the natural bushland of the Greater Blue Mountains Area is of high wilderness quality and remains close to pristine. The plant communities and habitats occur almost entirely as an extensive, largely undisturbed matrix almost entirely free of structures, earthworks and other human intervention. Because of its size and connectivity with other protected areas, the area would continue to play a vital role in providing opportunities for adaptation and shifts in range for all native plant and animal species within it, allowing essential ecological processes to continue.

The area’s integrity depends upon the complexity of its geological structure, geomorphology and water systems, which have created the conditions for the evolution of its outstanding biodiversity and which require the same level of protection.

First Nations people from 6 language groups, through ongoing practices that reflect both traditional and contemporary presence, continue to have a custodial relationship with the area. Occupation sites and rock art provide physical evidence of the longevity of the strong Aboriginal cultural connections with the land. The conservation of these associations, together with the elements of the area’s natural beauty, contributes to its integrity.

The current statement of integrity (UNESCO, 2022b) says that since World Heritage listing, proposals for a second Sydney airport at Badgerys Creek, adjacent to the Greater Blue Mountains Area, have been abandoned. This statement is no longer current. In 2012, the Joint Study on Aviation Capacity in the Sydney Basin airspace (Department of Infrastructure and Transport, 2012) confirmed a second airport would be required and the location at Badgerys Creek was announced in 2014 by the Australian Government. In 2016, the then Australian Minister for Urban Infrastructure approved development for WSI. This comprised the Stage 1 Development works required for single runway operations including the terminal and landside layout and facilities, and ground infrastructure such as the instrument landing systems and high intensity approach lighting arrays.

23.4.2 National Heritage place

Under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), all World Heritage properties in Australia were automatically included on the National Heritage List (NHL) for their World Heritage Outstanding Universal Value in 2007. The National Heritage values identified for the listing are the same as the values recognised for the World Heritage Area. As such the assessment against the World Heritage values is considered to be sufficient to address both the World Heritage and National Heritage values of the Greater Blue Mountains Area.

23.4.2.1 Proposed National Heritage Area extensions

The Australian Heritage Council is currently assessing whether the Greater Blue Mountains National Heritage place has additional nationally significant heritage values, and whether to expand it to include adjacent areas. The values relate to geodiversity, biodiversity and historic values that satisfy the National Heritage criterion of events and processes, rarity and aesthetic characteristics. The Australian Heritage Council has identified engagement with First Nations People is required before it can identify any Aboriginal cultural heritage values that satisfy National Heritage criteria. Consent would also be sought to list any such values.

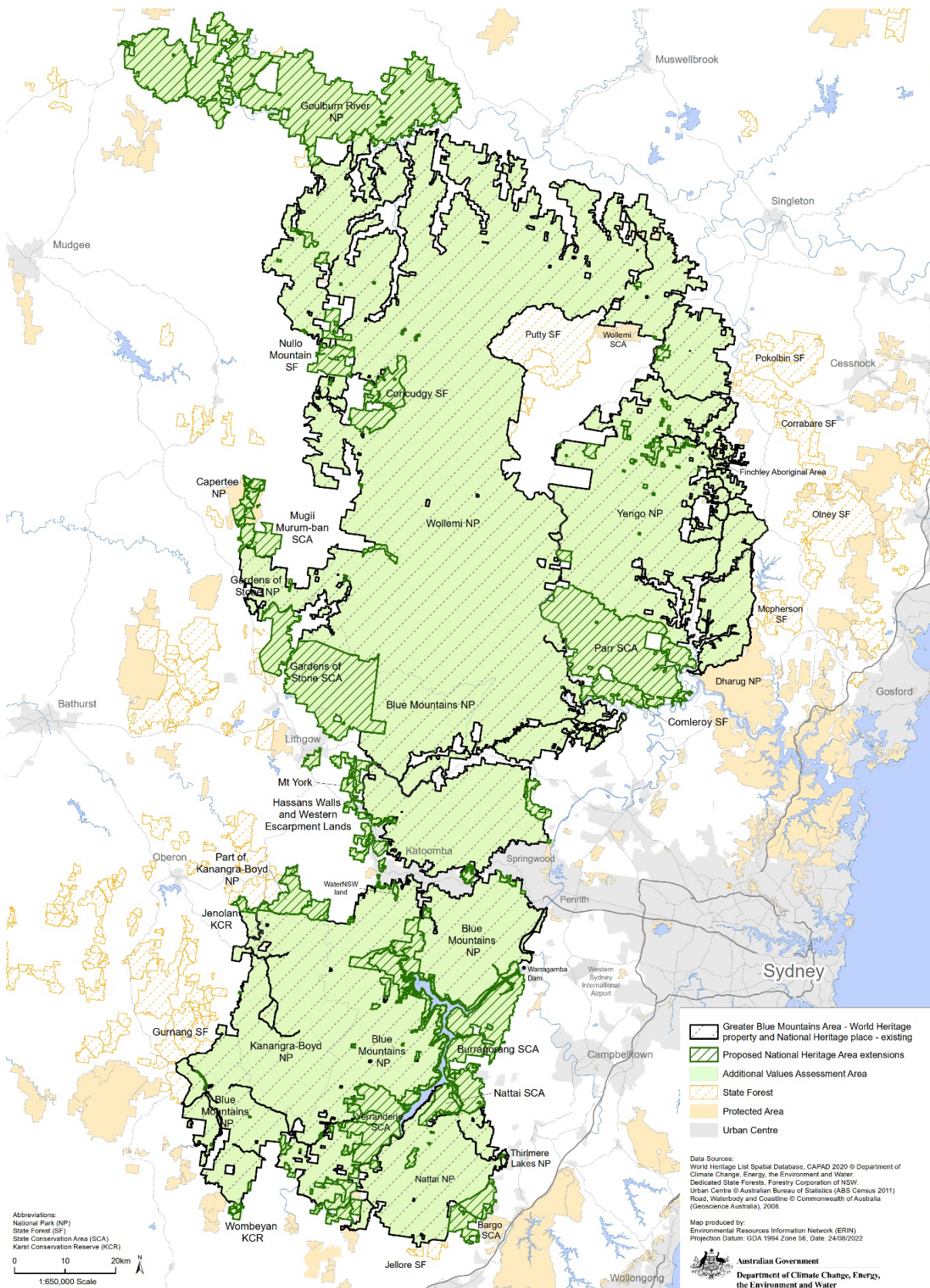
In 2014–15, the Greater Blue Mountains Area World Heritage Advisory Committee and the NSW Government recommended that the National Heritage List assessment be updated to include additional lands which are contiguous with or close to the GBMA and act as buffers to the GBMA. As listed in the *Greater Blue Mountains World Heritage Area Strategic Plan Addendum 2016* (NSW Office of Environment and Heritage, 2018), these additional areas included (refer to Figure 23.3):

- Bargo State Conservation Area
- Blue Mountains National Park
- Burrangorang State Conservation Area
- Capertee National Park
- Comleroy State Forest
- Coricudgy State Forest
- Gardens of Stone State Conservation Area
- Goulburn River National Park
- Hassans Walls and Western Escarpment Lands
- Kanangra-Boyd National Park
- Mugii Murum-ban State Conservation Area
- Nattai State Conservation Area
- Nullo Mountain State Forest and Flora Reserve
- Parr State Conservation Area
- Wollemi National Park
- Wombeyan Karst Conservation Reserve
- Yengo National Park
- Yerranderie State Conservation Area.

The opportunity to provide comment on the proposed changes was made available to the public in late 2022 with comments closing in November 2022. As at the time of this assessment, the Australian Heritage Council was reviewing the information gathered during the consultation period. Based on the outcomes of this consultation, it is noted that additional (or refined) areas to those shown in Figure 23.3 may be confirmed for inclusion in the listing.

The final outcomes of this assessment would not change the World Heritage listing.

As WSI was a 'greenfield' development with no appointed ALC at the time of developing and assessing the proposal for WSI, the statutory process at that time did not appropriately cater for WSI. As such, the Airports Act was amended to provide an alternative approvals pathway for the initial development of the WSI through the approval of an Airport Plan and to exclude the approvals pathway under Part 9 of the EPBC Act.



Sourced from National Heritage assessment for the Greater Blue Mountains Area (DCCEEW, 2022e)

Figure 23.3 Greater Blue Mountains Area – proposed National Heritage Area extensions (under consideration)

23.4.3 Other values of the Greater Blue Mountains

In addition to the attributes recognised by the World Heritage Committee in 2000, the Greater Blue Mountains has several other important values that complement and interact with its World Heritage values. Protection of these values is integral in managing individual protected areas and the Greater Blue Mountains as a whole (NSW DECC, 2009).

Table 23.2 provides a summary of the values, identified by the NPWS in the GBMA Strategic Plan (NSW DECC, 2009), that contribute to the overall values of the area.

Table 23.2 Other important values of the GBMA

Value	Description
Geodiversity and biodiversity	In addition to the outstanding biodiversity features of the GBMA which form the basis of its listing, the area also contains karst landscapes with several cave systems including the world’s oldest open cave system, Jenolan Caves. Other features include prominent basalt-capped peaks, quaternary alluvial deposits and a series of perched perennial freshwater lakes of considerable geomorphological and biological significance.
Water catchment	The GBMA protects a large number of pristine and relatively undisturbed catchment areas, some of which make a substantial contribution to maintaining high water quality in a series of water storage reservoirs supplying Sydney and adjacent rural areas. The catchments also make an important contribution to the maintenance of water quality and natural flow regimes in the Hawkesbury-Nepean and Goulburn-Hunter river systems.
Cultural values (Aboriginal)	Known sites provide evidence of at least 14,000 (and possibly 22,000) years of Aboriginal occupation of the area, but traditional beliefs connect First Nations people with the landscape even further. Numerous Aboriginal sites within the area are known to be widespread, diverse and include landscape features of spiritual significance and rock art sites. Recorded sites of archaeological significance include a widespread sample of the Sydney Region’s distinctive Aboriginal rock art, on a scale unique in Australia.
Cultural values (historic heritage)	The GBMA includes a large number of places of historic significance some of which date back to the early years of European settlement and exploration in Australia. Recorded sites within the area demonstrate a range of post-1788 human use are associated with rural settlement, pastoral use, timber getting, mining, transport routes, tourism and recreation. The sites include small graziers’ huts, logging roads, stock routes and the ruins of mines.
Recreation and tourism	The GBMA provides settings for recreation and tourism that are outstanding and increasingly rare by world standards. The high recreational values are primarily derived from the area’s intrinsic beauty, natural features and accessibility from major population centres. The regional economy surrounding the GBMA is also heavily supported by tourism with the area contributing both directly and indirectly to the employment, income and output of much of the region (through elements such as formal accommodation and camping, food, nature-based tours and activities, visitor centres and other attractions).
Wilderness	The extraordinary wilderness quality of much of the GBMA considerably contributes to its World Heritage values, ensures the integrity of its ecosystems and the retention and protection of its heritage value. Protection of wilderness was one of the main reasons for the establishment of many of the national parks within the GBMA. The GBMA contains some of the largest forested wilderness areas in eastern mainland Australia. As noted in the Integrity statement for the GBMA, 65 per cent of the area is designated as statutory wilderness. These areas are located primarily in the northern section of the site. The Greater Blue Mountains park system includes 5 declared wilderness areas through formal recognition of the Wilderness Act (Wollemi, Kanangra-Boyd, Nattai, Yengo and Grose) which encompasses over 551,000 hectares of wilderness areas in the GBMA.

Value	Description
	<p>The Blue Mountains wilderness areas also protect 3 of only 6 streams declared as 'Wild Rivers' in NSW under the NP&W Act: the Colo, Grose and Kowmung.</p> <p>As stated in the GBMA Strategic Plan, the wilderness qualities of the site also have many cultural values, providing not only opportunities for solitude and self-reliant recreation, but also aesthetic, spiritual and intrinsic value.</p>
Social and economic	<p>The regional economy surrounding the GBMA is substantially supported by various forms of tourism, in particular people accessing the various towns along the Great Western Highway and Bells Line of Road, as well as various recreational activities within the bushland areas. The reserves within the GBMA have considerable social and economic value and contribute directly and indirectly to the employment, income and output of the regional economy. Although visitation to specific locations can be highly variable, both in time (due to seasonal effects) and location (given the broad area of the property), overall visitation to the GBMA is considered to be generally increasing (outside the recent impacts of COVID) – reflecting the region's importance as a tourist destination for both day and longer trips.</p>
Research and education	<p>The GBMA is ideal for research and educational visits due to the variety of ecological communities, landscape and associated cultural sites. Information arising from the scientific research conducted within the GBMA was a key supporting component for its World Heritage nomination.</p> <p>The high scientific value reflects what has been discovered and what remains to be discovered, including large gaps in knowledge which still remain with respect to Aboriginal use and occupation in the area and the ecological needs of threatened species and communities.</p>
Scenic and aesthetic	<p>The GBMA includes some of the most dramatic scenery in Australia, with its best known landscapes dominated by striking vertical cliffs and waterfalls. With many vantage points on ridges and escarpments, the GBMA offers outstanding vistas, from uninterrupted views of forested wilderness covered by natural vegetation to the contrasts of steep forested slopes surrounding cleared valleys.</p> <p>The area's scenic and aesthetic values are demonstrated in a variety of ways, for example the large body of contemporary art and photography inspired by the landscape and the significant levels of visitation to scenic vantage points.</p>
Bequest, inspiration, spirituality and existence.	<p>One of the goals of World Heritage management is to ensure that future generations can experience and appreciate the uniqueness of these areas. This goal explicitly recognises an area's bequest values and the importance of Aboriginal cultural continuity. The wild and rugged landscapes, diverse flora and fauna, and opportunities for solitude and quiet reflection are attributes that promote inspiration, serenity and rejuvenation of the human mind and spirit.</p>

23.4.4 Key sensitive tourist and recreation areas

While COVID impacted on the level of annual tourism to the Blue Mountains region generally, for the prior 12 months to December 2022, the Blue Mountains received around 3.8 million total domestic visitors, with around 1.4 million domestic overnight visitors (contributing to around 3.5 million total nights of visitation), and around 2.5 million total daytrip visitors (Destination NSW, 2022). Bushwalking/rainforest walks and visiting National Parks/State Parks were 2 of the top 5 activities identified by visitors to the Blue Mountains during this time.

Key sensitive tourism and recreation areas were selected for this assessment based on the identification of important attractions and associated viewing locations within the GBMA (Table 23.3). The assessment considered the remoteness, accessibility and accommodation options as an indication of the type of tourism and recreational experiences available at each location.

Table 23.3 Key sensitive tourist and recreational areas, viewing locations and accessibility

National park	Key attribute	Key viewing locations	Location
Blue Mountains National Park	Jamison Valley including the Three Sisters	Echo Point Lookout, Sublime Point Lookout, Perrys Lookdown, Evans Lookout, Mount Hay, Lockleys Pylon, Pulpit Rock Lookout, Gladstone Lookout, Moya Point Lookout, Sunset Rock Lookout, Cleary Memorial Lookout, Honeymoon Lookout, Queen Elizabeth and Drum Lookouts, Scenic Cableway and Scenic Railway, Narrowneck Lookout, Castle Head Lookout, Cahills Lookout, Peckmans Plateau Lookout, Eaglehawk Lookout, Hildas Lookout, Norths Lookout, McMahons Lookout, Peckmans Plateau Lookout, Norths Lookout, Nepean Narrows Lookout, Nepean Gorge Lookout, Nepean Lookout, Freds Lookout, Erskine Lookout, Mount Portal Lookout, Rileys Lookout, The Rock Lookout Greenfields Lookout, Melville Lookout, Wynnes Rocks Lookout, Point Pilcher Lookout, Du Faur's Lookout, Mount Banks Lookout, and Walls Lookout.	Katoomba
	Wentworth Falls waterfall	Wentworth Falls Lookout	Wentworth Falls
	Grose Valley	Evans Lookout; Govetts Leap Lookout	Blackheath
	Wilderness, bushwalking, rock-climbing, trail bike riding, picnicking and remote camping	Views from walking tracks such as National Pass, Federal Pass, Mount Solitary, and Narrowneck Fire trail	Southern section of the national park
Wollemi National Park	Wilderness, bushwalking, rock climbing, canoeing, picnicking	Deanes Lookout; Crawfords Lookout	Not identified
Yengo National Park	Wilderness, bushwalking, horse riding, trail bike riding, picnicking	Finchley Lookout; Mount Yengo Lookout	50 km south-west of Cessnock
Nattai National Park	Wilderness, bushwalking, remote camping	Kanangra-Boyd Lookout, Kowmung Lookout, Rigby Rock Lookout, Moorilla Lookout, Mount Dingo Lookout, and Kanangra Walls Lookouts	30 km north of Mittagong

National park	Key attribute	Key viewing locations	Location
Kanangra-Boyd National Park	Kanangra Walls Mount Cloudmaker	Wollondilly Lookout; Starlights trail; Couridjah Corridor walk	50 km south-east of Oberon
	Wilderness, bushwalking, rock-climbing, trail bike riding, picnicking and remote camping	Not applicable	Southern sections of the park
Gardens of Stone National Park	Baal Bone Gap, four-wheel driving	Baal Bone Gap picnic area	35 km north of Lithgow
Thirlmere Lakes National Park	Birdwatching, picnicking, walking and swimming	Werri Berri picnic area	Couridjah
Jenolan Caves Karst Conservation Reserve	Jenolan Caves	Not applicable	Jenolan
Burratorang State Conservation Area	Warragamba Dam	Burratorang Lookout, Warragamba Dam	Nattai
Prospect Reservoir	Prospect Reservoir	George Maunder Lookout, Prospect Reservoir	Prospect
Various	Scenic and tourist drives	Scenic and tourist drives including the: <ul style="list-style-type: none"> • Warragamba Waters scenic drive • Greater Blue Mountains scenic drive • Greater Blue Mountains Drive • The Bells Line of Road. 	Various

23.4.5 Assessment of impacts

This chapter provides an evaluation of the significance of potential impacts on the attributes which sustain the GBMA's Outstanding Universal Value and other heritage/conservation values. It considers the potential positive and negative impacts of the proposed flight paths on the GBMA and National Heritage values, including cumulative impacts. A prediction of the characteristics of these potential impacts, including identification of any uncertainty with respect to the assessment, is provided.

23.4.5.1 Influence on existing threats

Table 23.4 provides a description of the proposed airport's influence on existing threats identified in the *Greater Blue Mountains World Heritage Area Strategic Plan Addendum 2016* (NSW Office of Environment and Heritage, 2018).

Table 23.4 Operational impacts on other important values of the GBMA

Threat	Project influence
Uncontrolled and inappropriate use of fire	<p>Operation of the project would not result in any inappropriate use of fire.</p> <p>Operation of flightpaths over the GBMA would also present a very low risk of introducing uncontrolled fire to the GBMA. The main potential risk associated with the operation of the flight paths with respect to uncontrollable fire may occur as a result of an aircraft crash within the GBMA. This potential is however considered to be extremely rare and an unlikely event. As such, it is not considered to be a contributory factor in the overall threat of uncontrolled and inappropriate use of fire that may impact on the GBMA.</p> <p>Operation of the flight paths over the Blue Mountains are also not expected to impact on the ability of organisations such as the NPWS or Rural Fire Service to continue to undertake firefighting operations (for wild fires) or fire hazard reduction burns. With respect to the assessment of priorities, current regulations of flight (as identified in the Aeronautical Information Publication) notes that (among other conditions), if an aircraft is participating in an emergency action that has significant potential human and environmental consequences, including for life critical operations (such as firefighting operations or search and rescue operations) then they would have a nominated priority within the airspace they need to operate. This is consistent with the management of existing airspace for current flight paths across the Sydney Basin and GBMA.</p>
Inappropriate recreation and tourism activities, including development of tourism infrastructure	<p>The proposed flight paths are an integral part of the development of WSI, ensuring that the benefits of WSI are realised. The tourism industry is recognised as an important part of the regional economy which sits adjacent to, and for some aspects within, the GBMA, noting that around 3.8 million domestic visitors accessed the region in the 12 months to December 2022 (Destination NSW, 2022). Bushwalking/rainforest walks and visiting National Parks/State Parks were 2 of the top 5 activities identified by visitors to the Blue Mountains during this time.</p> <p>Tourism businesses in the Blue Mountains are mostly concentrated in Leura, Katoomba, Springwood, Winmalee, Blaxland, Warrimoo and Lapstone. Mount Irvine, Blackheath, and Mount Victoria are also important tourism areas for the region.</p> <p>The development of the WSI airport itself would provide an additional access point in closer proximity to key tourist and recreation sites within the GBMA. This is likely to result in an increase in the overall volume of tourists accessing the GBMA. Such an increase in tourism may influence the potential for inappropriate tourism development. However, it is very unlikely that the operation of the project would directly contribute to inappropriate development or uncontrolled visitor access.</p> <p>Development controls within the context of existing management plans and local and State government planning controls are in place that protect World Heritage Area.</p>

Threat	Project influence
Invasion by pest species including weeds and feral animals	All aircraft using the proposed flight paths to access WSI from overseas would be subject to Australian biosecurity requirements that are currently administered for all Australian airports. No direct impacts or indirect threats associated with weed and/or pest species are expected as a result of the implementation of the proposed flight paths associated with WSI.
Loss of biodiversity and geodiversity	<p>Where the project intersected areas above the GBMA, the flight paths would typically occur at altitudes of greater than 1,000 ft and would therefore limit the potential for loss or impact to existing biodiversity and geodiversity. Subsequently impacts to biodiversity within these areas would be potentially limited to:</p> <ul style="list-style-type: none"> potential direct impact in the (unlikely) event of an aircraft crash that may result in the localised loss of habitat or in the event of an aircraft striking a bird/wildlife indirect negligible noise, light and air quality impacts. <p>With respect to the potential for localised loss of habitat due to an aircraft crash, it is very unlikely but there is a chance that over the lifespan of the WSI an aircraft crash could occur within the GBMA. In this rare circumstance, impacts would be largely localised and include vegetation removal, mortality of some animals, the potential to introduce/spread of chemicals and potential bush fire event(s).</p> <p>With respect to the potential for wildlife strike, within the airspace of the GBMA, at these locations the potential for impact would be infrequent and limited to species that occur at altitude of greater than 1,000 ft. These species include the Fork-tailed Swift and Grey-headed Flying-fox. Impacts to bird species are likely to be minimised through implementation of the recommended mitigation measures (refer to Chapter 6 (Project development and alternatives)). It is not expected that there would be any other direct impacts on biodiversity that would lead to the loss of these values within the GBMA, or impact the values upon which the World Heritage Listing has been made.</p>
Impacts of human enhanced climate change	<p>Reflecting the fuel consumption rates in Australia's latest <i>State Action Plan</i> published in October 2022, <i>Managing the Carbon Footprint of Australian Aviation</i>, aviation emissions were estimated to be 23.7 million tonnes in 2019, based on 9,057 megalitres of fuel use nationally (DITRDCA, 2022). Broken down, domestic aviation in Australia emitted around 8.3 million tonnes of CO₂e accounting for around 35 per cent of Australia's total aviation emissions.</p> <p>In 2019, total GHG emissions from all sectors were reported by the NSW EPA to be around 136.6 million tonnes of CO₂e. GHG emissions from the NSW transport sector accounted for around 20 per cent of the state's carbon with 27.6 million tonnes of CO₂e. Approximately 1.7 per cent or 2.4 million tonnes of CO₂e emissions were attributed to the state's domestic aviation sector.</p> <p>The operation of the proposed flight paths is expected to make a minimal contribution to national transport-related GHG emissions. WSI's projected emissions of CO₂e from aircraft main engine use on domestic flights operating in Australia have been compared to Australia's total emissions (for all WSI domestic flights) and NSW's total emissions (for WSI flights in NSW and ACT only). This identified that:</p> <ul style="list-style-type: none"> in 2033, the project's domestic flight departure emissions of CO₂e would represent 0.13 per cent for Australia's total projected economy wide emissions which is low whereas the project's intrastate flight departure emissions of CO₂e would represent around 0.04 per cent of NSW's total economy wide emissions, which is extremely low resulting in very minor adverse impacts to Australian and NSW Government's decarbonisation plans and transition to net zero carbon economies by 2050

Threat	Project influence
	<ul style="list-style-type: none"> in 2055, the project’s domestic flight departure emissions of CO2e are projected to increase to 0.95 Mt CO2e and would represent 0.5 per cent of Australia’s total projected emissions which is moderately low whereas the project’s intrastate flight departure emissions of CO2e would represent around 0.2 per cent of NSW’s total projected economy wide emissions, remaining low despite the significant increase in air traffic growth and increase in the number of domestic destinations being served. <p>These changes are not expected to result in a noticeable impact to the GBMA.</p>
Lack of understanding of heritage values.	This threat would be relevant if no assessment of potential impacts was undertaken. Technical paper 14: Greater Blue Mountains World Heritage Area, along with the preparation of other relevant supporting papers, including a separate heritage technical paper and this EIS has provided an assessment and considered all potential heritage values. As such the proposed flight paths are not considered to present a lack of understanding of the heritage values associated with the GBMA.

23.4.5.2 Impacts on World Heritage values

The assessment of significance is based on the guidance provided in the *EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (Commonwealth of Australia, 2013a), which state that an action is likely to have a significant impact on the World Heritage values of a declared World Heritage Area if there is a real chance or possibility that it would cause:

- one or more of the World Heritage values to be lost
- one or more of the World Heritage values to be degraded or damaged, or
- one or more of the World Heritage values to be notably altered, modified, obscured or diminished.

Given the nature of the project, the proposed flight paths are expected to result in minimal direct impacts on the World Heritage or National Heritage values of the area, including the Outstanding Universal Value which contribute to its World Heritage status, with direct impacts primarily associated with the potential for wildlife strikes to species that utilise habitats within the GBMA and the potential for localised impacts in the unlikely event of an aircraft crash. Indirect effects on the Outstanding Universal Value of the Greater Blue Mountains Area are expected to be limited to potential noise, visual amenity, air quality and cultural/heritage impacts as a result of aircraft overflights of the GBMA. These potential impacts are described and their significance assessed in Table 23.5.

The project is also unlikely to have a significant impact on the integrity of the values (including Aboriginal cultural values) for which the GBMA was listed. While the project would not have a direct impact on the physical evidence of the cultural connection to the GBMA, it is inevitable that visual presence and aircraft noise would impact some Aboriginal sites within the GBMA, and the integrity of these areas with respect to custodial relationships. While flight paths associated with Sydney (Kingsford Smith) Airport already cross the Greater Blue Mountains Area, they currently do so at heights that minimise these intrusions. The proposed flight paths would mean that aircraft are lower over areas of the Blue Mountains National Park, as they approach and depart WSI. The project would not affect all Aboriginal cultural places and practices throughout the much larger expanse of the GBMA, and First Nations people will continue to have a custodial relationship with the area. Sites considered in this assessment that are located within the GBMA (identified through engagement with stakeholders on sites of high cultural value) would not be severely impacted, and assessed sites would not be comprised to the level that comprises the values of the place, or would result in discontinuation of cultural practices at these sites (with the exception of Aboriginal sites located at Linden Ridge which may, due to potential visual and noise disruption, result in moderate, increasing to severe, impacts over time).

23.4.5.3 Impacts on other values

Table 23.6 provides an assessment of the potential operational impacts of the proposed airport on the additional values of the GBMA identified in the Strategic Plan (NSW DECC, 2009). These values interact with and complement the World Heritage site values but are not part of the defined natural values for which the Greater Blue Mountains Area is listed (i.e. Outstanding Universal Value).

Table 23.5 Outstanding universal value impacts on the GBMA from the project

Criterion	Criterion description	Flight path impacts	Assessment of significance
Criterion (ix) ongoing evolutionary processes	<p>The inscribed values of the GBMA for this criterion is associated broadly with:</p> <ul style="list-style-type: none"> • outstanding and representative examples of: <ul style="list-style-type: none"> – evolution and adaptation of the genus <i>Eucalyptus</i> and eucalypt-dominated vegetation on the Australian continent – products of evolutionary processes associated with the global climatic changes of the late Tertiary and the Quaternary • centre of diversification for the Australian scleromorphic flora, including significant aspects of eucalypt evolution and radiation • primitive species of outstanding significance to the evolution of the earth’s plant life: <ul style="list-style-type: none"> – Wollemi Pine (<i>Wollemia nobilis</i>) – Blue Mountains pine (<i>Pherosphaera fitzgeralii</i>). 	<p>The significant aspects of scleromorphic flora and the existence of primitive species (including the <i>Eucalyptus</i> and eucalypt-dominated vegetation) present are representative of evolutionary processes for which the GBMA has been identified. Impacts on these attributes would only be anticipated to occur in instances where there was a direct impact to this flora as a result of ground disturbance or significant pollution resulting in loss of habitat or alteration to the existing evolutionary processes.</p> <p>Potential direct impacts from the operation of the flight paths are expected to be limited to the potential for wildlife strike to some bird species whose habitat is within the GBMA, or potential impacts associated with the unlikely event of an aircraft crash (and resultant potential impacts such as loss of vegetation, fire or potential pollution resulting) noting that, in the unlikely occurrence of such an event, the impact would only occur at a localised level.</p> <p>Ecologically, no operational activities are anticipated to result in impacts such that they would affect the existing inscribed values of outstanding ecological diversity for the GBMA or contribute to a decline in the habitat of the area that supports a significant range of species. As such, it is considered that the operation of the proposed flight paths would result in no discernible impacts associated with the aspects of this criterion.</p> <p>Indirectly, noise and air emissions may result in some minimal impacts, however given the altitudes at which aircraft would be flying at the points at which they have the potential to impact on the GBMA, these impacts are not considered to present a threat to the values listed in this criterion values.</p>	<p>The proposed flight paths would not result in any direct impacts on the attributes demonstrated within the GBMA relevant to evolutionary processes or to the potential for direct impact of primitive plant life species of outstanding significance such as the Wollemi Pine or Blue Mountains pine.</p> <p>Additionally, it is not considered that the operation of the proposed flight would result in any indirect impacts which may cause the World Heritage value to be being lost, degraded or damaged, or notably altered, modified, obscured or diminished.</p> <p>Accordingly, it is considered that the project would not have a significant impact on the attributes identified for this World Heritage criterion.</p>

Criterion	Criterion description	Flight path impacts	Assessment of significance
		<p>Air emissions from the operation of aircraft utilising the proposed flight paths are not expected to result in material contribution to global climate or overall air emissions that may impact on the evolutionary processes, or adaptation, of the existing environment. Additionally, direct emissions from fuel jettisoning are rare and, where undertaken in line with strict regulations guiding this process, disperses rapidly and evaporates prior to reaching the ground. As such, air emissions are not anticipated to have an impact on evolutionary processes of the GBMA.</p> <p>The expected noise emissions from overflights is not expected to affect the evolutionary processes associated with the GBMA. Noise may indirectly result in some impacts to certain species currently existing within the GBMA, however given the altitudes at which aircraft would be flying at the points at which they have the potential to impact on the GBMA, the resultant noise impacts are not considered to present a threat to the biodiversity values for which the site was listed. Increases or changes to existing noise levels associated with the project within the GBMA would be largely limited and the predicted noise levels are unlikely to be of a magnitude that would threaten the viability of biodiversity attributes within the GBMA.</p> <p>The project's operational light would be limited to lights on aircraft as they travel along the flight paths during nocturnal hours. The magnitude of visual impacts at night (including light spill) would be experienced across a small portion of the urban area and would not contrast substantially with the surrounding landscape at night, and would not result in any impacts to the inscribed values of the GBMA for this criterion.</p>	

Criterion	Criterion description	Flight path impacts	Assessment of significance
Criterion (x) biological diversity	<p>The inscribed values of the GBMA for this criterion is associated broadly with:</p> <ul style="list-style-type: none"> outstanding diversity of habitats and plant communities significant proportion of the Australian continent’s biodiversity (scleromorphic flora) primitive and relictual species with Gondwanan affinities plants of conservation significance including 114 endemic species and 177 threatened species habitat that supports 52 mammal species, 63 reptile species, over 30 frog species and about one third of Australia’s bird species. 	<p>Ecologically, no operational activities are anticipated to impact on the existing outstanding ecological diversity of the GBMA or contribute to a decline in the habitat of the area that supports a significant range of species. As such, it is considered that the operation of the proposed flight paths would result in no discernible impacts associated with the aspects of this criterion.</p> <p>Air emissions from the operation of aircraft utilising the proposed flight paths are not expected to result in material contribution to global climate or overall air emissions that may impact on the evolutionary processes, or adaptation, of the existing environment. Additionally, impacts from fuel jettisoning are rare and, where undertaken in line with strict regulations guiding this process, disperses rapidly and evaporates prior to reaching the ground. As such, air emissions are not anticipated to have an impact on evolutionary processes of the GBMA.</p> <p>The assessment of potential noise emissions indicates that noise from overflights would not impact biological diversity values of the GBMA. Although the peak noise levels associated with direct overflight of the GBMA may temporarily disturb some species, flight paths associated with WSI would generally be between at least 1,500 and 10,000 ft (or more) above ground level at most locations over the GBMA.</p> <p>A majority of the area within the boundaries of the overall GBMA site would not be expected to have noise levels which exceed around 60 dB(A). Some smaller areas of the site (such as areas to the west of WSI and north of Lake Burragorang) may, at times, experience slightly higher levels of noise above 60 dB(A). These impacts are likely to be intermittent with generally low levels of aircraft movement and are unlikely to cause disturb to fauna within the GBMA, or affect the habitats of these fauna.</p>	<p>The proposed flight paths would not result in any direct impacts on the examples of biological diversity present within the GBMA.</p> <p>Additionally, it is not considered that the operation of the proposed flight paths would result in any indirect impacts which may cause the World Heritage value to be being lost, degraded or damaged, or notably altered, modified, obscured or diminished.</p> <p>Accordingly, it is considered that the project would not have a significant impact on the attributes identified for this World Heritage criterion.</p>

Criterion	Criterion description	Flight path impacts	Assessment of significance
Integrity	<p>The integrity of the GBMA area is associated broadly with:</p> <ul style="list-style-type: none"> the level of protection (e.g. NPs and declared wilderness areas), size, topography and certain adjoining land uses (State Forests etc) the size, condition (high wilderness quality) and connectivity of the natural bushland, plant communities and habitats. This extends to adaptation opportunities and ecological processes its geological, geomorphology and water systems, which require the same level of protection Aboriginal cultural values and custodial relationships. 	<p>The implementation of the proposed flight paths would not result in any change to the boundaries of the GBMA or the physical size of the area or the adjoining lands and buffer zones.</p> <p>The operation of the proposed flight paths is not expected to have any impact on the plant communities and habitats within the Greater Blue Mountains Area to a level that would impact on the integrity of the existing environment.</p> <p>As the project would not result in any physical or direct impacts at ground level, the implementation of the proposed flight paths would result in any impacts to the size, condition or existing connectivity of the natural bushland, plant communities and habitats which currently existing within the GBMA.</p> <p>The GBMA contains numerous waterways and other water systems including major systems such as the Nepean, Hawkesbury and Grose Rivers in the east, Lake Burragorang and the Coxs, Kowmung and Abercrombie Rivers to the west and south, and the Wolgan, Wollangambe and Colo rivers towards the central area and the McDonald, Bylong and Goulburn Rivers to the north. Potential impacts on this value would be anticipated to occur in the unlikely event there was an aircraft crash or through other operational actions resulting in potential harm to a waterway or water catchment (such as through fuel jettisoning).</p> <p>The proposed flight paths would also not directly impact the existing use of or maintenance of existing Aboriginal cultural practices within the GBMA. The proposed flight paths would fly over a number of significant cultural sites and places, however in many cases existing flight paths already traverse the airspace above these sites and places. In addition, many of the types of heritage places identified are considered robust in the face of impacts such as air pollution, noise and visual impacts.</p>	<p>The proposed flight paths would not result in the loss of any elements necessary for the Greater Blue Mountains Area to express its Outstanding Universal Value, including potential impacts to the size, condition, ability to maintain connectivity or provide protection to its geological, geomorphology and water systems.</p> <p>The proposed flight paths would not change the size or boundary of the GBMA and would not impact on any features and processes that convey the Greater Blue Mountains Area’s Outstanding Universal Value or its existing integrity.</p> <p>While the project would not have a direct impact on the physical evidence of the cultural connection to the GBMA, it is inevitable that visual presence and aircraft noise would have the potential to impact some Aboriginal sites within the GBMA, and the integrity of these areas with respect to custodial relationships.</p> <p>The project would not affect all Aboriginal cultural places and practices throughout the much larger expanse of the GBMA, and First Nations people will continue to have a custodial relationship with the area. Sites considered in this assessment that are located within the GBMA (identified through engagement with stakeholders on sites of high cultural value) would not be severely impacted, and assessed sites would not be compromised to the level that compromises the values of the place, or would result in discontinuation of cultural practices at these sites (with the exception of Aboriginal sites located at Linden Ridge which may, due to potential visual and noise disruption, result in moderate, increasing to severe, impacts over time).</p>

Table 23.6 Impacts on other associated values GBMA from the project

Values	Criterion attributes	Flight path impacts	Assessment of significance
Geodiversity and biodiversity	<ul style="list-style-type: none"> • Extensive dissected sandstone plateaus • Karst landscapes with several cave systems • Prominent basalt-capped peaks • Quaternary alluvial deposits • Specific sites of international or national significance 	<p>Potential impacts on this value would only occur in the unlikely event of an aircraft crash or from significant pollution resulting in loss of biota at a localised level (such as through fuel jettisoning). Any such impacts would be localised and are unlikely to have a significant impact on biota and habitats.</p> <p>No operational activities would have an impact on the identified criterion attributes and as such no impact on this overall value is expected to occur as a result of the project.</p>	<p>The proposed flight paths are not anticipated to result in a significant impact on the geodiversity and biodiversity values associated with the GBMA.</p>
Water catchment	<ul style="list-style-type: none"> • Wild rivers • Pristine and relatively undisturbed catchment areas • Substantial contribution to maintaining high water quality. 	<p>The GBMA contains numerous waterways and waterway catchments including major systems such as the Nepean, Hawkesbury and Grose Rivers in the east, Lake Burragorang and the Coxs, Kowmung and Abercrombie Rivers to the west and south, and the Wolgan, Wollangambe and Colo rivers towards the central area and the McDonald, Bylong and Goulburn Rivers to the north.</p> <p>Portions of the GBMA also includes part of the water catchment areas for the Warragamba Catchment. Four additional areas, which make up the Blue Mountains catchment (comprising the areas associated with Greaves Creek Dam, Medlow Dam, Cascade Dams and Woodford Dam) also adjoin areas of the GBMA.</p> <p>Potential impacts on this value would only be anticipated to occur in the unlikely event there was an aircraft crash or through other operational actions resulting in potential harm to a waterway or water catchment (such as through fuel jettisoning).</p>	<p>While the contamination of the water is a possibility in the event of a crash, it is expected that the probability of a crash impacting on water quality or occurring within a large body of water such as Lake Burragorang is very low.</p> <p>In the unlikely event of a fuel spillage from a crash, there may be some localised impacts to water quality, however these are expected to be minimal given the dilution which would be involved in such a large area of water, including portions of the Warragamba Catchment.</p> <p>Additionally, while aircraft crashes are uncommon, the majority also occur along flight paths and close to the runway ends where the crash risk is more concentrated (i.e. not within the boundary of the GBMA). While a crash could occur, it would be a remote possibility and the likelihood that it would result in a significant impact on water quality or other water catchments or rivers would be expected to be similarly minimal.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
			<p>With respect to fuel jettisoning, this action is only required in extremely rare circumstances in the event of an emergency and is only relevant for certain types of aircraft. Fuel jettisoning may introduce harmful contaminants into the sensitive native terrestrial and aquatic ecosystems associated with the GBMA. If required, fuel jettisoning would be carried out safely in accordance with appropriate procedures. This would involve jettisoning fuel over the sea (where practicable) and at sufficient altitude so fuel would volatilise (change from liquid to vapour) as it falls and be completely dispersed as vapour before any liquid reaches the ground. Given the strict regulations associated with its implementation and the high evaporation rate of the fuel at higher altitudes, potential impacts are considered to be negligible and unlikely to have an immediate or future impact on water catchment values.</p> <p>Overall, the project is not anticipated to result in a significant direct or indirect operational impact on the water catchment values (or the extensive waterways) associated with the GBMA.</p>
<p>Cultural values (Aboriginal)</p>	<ul style="list-style-type: none"> • Prominent landscape features with spiritual significance: <ul style="list-style-type: none"> – Mt Yengo – Coxs River and Wollondilly River valleys • Aboriginal rock art • Potential for uncovering further significant sites. 	<p>The proposed flight paths would also not directly or indirectly impact the existing use of or maintenance of existing Aboriginal cultural practices within the GBMA. There are places just outside the GBMA where cultural practices will be impacted and in the case of Bents Basin, that place is linked to other places in the GBMA. These impacts are discussed in detail in Chapter 17 (Heritage) and Technical paper 9.</p>	<p>It is acknowledged that there are prominent landscape features with spiritual significance within the GBMA that are important places for contemporary ceremony and practice.</p> <p>While the project would not directly impact the existing use of or maintenance of Aboriginal cultural practices within the GBMA, it is acknowledged that the proposed flight paths would fly over a number of significant cultural sites and places. In many cases, existing flight paths already traverse the airspace above these sites and places.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
		<p>The proposed flight paths would fly over a number of significant cultural sites and places, however in many cases existing flight paths already traverse the airspace above these sites and places, including prominent landscape features with spiritual significance as well as known Aboriginal rock art sites.</p> <p>The distribution of the majority of known rock art sites occurs across a number of areas within the Sydney Basin, including throughout the GBMA. In the Sydney Basin, art sites generally only occur in sandstone-based topographies (formed on the Hawkesbury and Narrabeen sandstones) which support open sandstone platforms and overhangs. It should be noted that the actual number and incidence of rock art sites within the GBMA is likely to be greater and higher than those which have been formally identified through previous studies.</p> <p>The operation of the proposed flight paths is also not expected to result in the potential for uncovering further significant sites.</p>	<p>In addition, it is acknowledged that designing flight paths to avoid all Aboriginal and non-Aboriginal sites of cultural value would be impossible. In most cases aircraft would be at such a distance as to render the impact from these factors as minimal and are not expected to impact the overall integrity of the GBMA in relation to Aboriginal cultural values and custodial relationships.</p> <p>Although it is possible to outline processes of potential rock art deterioration related to aircraft emissions, it is as yet, impossible to evaluate the risk presented by these processes, or indeed to identify and quantify any resulting damage.</p> <p>As a consequence of the relative location of the WSI on the distribution of rock art sites across the Sydney basin, it is considered that the higher concentrations of atmospheric pollutants associated with the proposal are most likely to occur within the local area of WSI (within a 5-kilometre radius). While a substantial number of both arrival and departure flightpaths overfly the sandstone ranges within the GBMA, given their height and distance from the WSI site, the impacts are unlikely to extend into the proximity of a majority of the rock art sites located within the GBMA.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
Cultural values (historic heritage)	<ul style="list-style-type: none"> • Small graziers’ huts • Cedar logging roads and stock routes • Ruins of oil shale mines and coal/shale mines • Road and transport routes • Recreation and tourism. 	<p>Operation of the proposed airport would not directly impact sites within the GBMA that have historic heritage values.</p> <p>Indirect impacts on recreation and tourism are considered below.</p>	<p>The proposed flight paths are not anticipated to result in a significant impact on the historic heritage values associated with the GBMA.</p> <p>Of the listed non-Aboriginal heritage items, the greatest potential for impact to the value of the item would be on the Blue Mountains Walking tracks. There are 37 walking tracks listed on the SHR under this collective title. While the fabric and functionality of the tracks would not be impacted by overhead flightpaths, it is important to note that these tracks are a key to facilitating visitor access and are how most visitors experience them. The potential for intrusion (particularly noise but also to some extent visual) would have the potential to reduce the intangible values of these tracks (i.e. serenity, connection to nature, etc.).</p> <p>Visitors may experience some changes to the use and enjoyment of walking tracks within the Blue Mountains as a result of the project. People who visit and use these walking tracks where they fall within the N60 contours may be likely to experience moderate changes to their use and enjoyment, where some tracks have been identified. The majority of the broader GBMA is also largely outside the area predicted to experience aircraft noise at or above 60 and 70 dB(A).</p> <p>Indirect impacts on individual sites with historic cultural values (from impacts such as emissions and visual intrusion) are expected to be minimal.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
<p>Recreation and tourism</p>	<ul style="list-style-type: none"> • Vantage points on ridges and escarpments, offering outstanding vistas, from uninterrupted views of forested wilderness • Canyoning, bushwalking, rock climbing, nature observation, scenic driving, photography • Picnic sites and basic camping facilities • Catering, tours, accommodation 	<p>There are numerous vantage points on ridges and escarpments within the GBMA including:</p> <ul style="list-style-type: none"> • Echo Point Lookout, Katoomba which offers panoramic views across GBMA including the Three Sisters, the Jamison Valley, Mount Solitary and Narrow Neck • Portal Lookout, offering views of the junction between Glenbrook Gorge and the Nepean River • Nepean Lookout, Nepean Lookout Trail • Walls Lookout, Bells Line of Road • The Rock Lookout, Mulgoa. <p>Additionally, other recreation and tourism features which currently occur within the GBMA include:</p> <ul style="list-style-type: none"> • campgrounds and day use areas such as: <ul style="list-style-type: none"> – Euroka Campground, Glenbrook – Perrys Lookdown, Blackheath – Dunphys Campground, Megalong Valley – Ingar, Wentworth Falls – Murphys Glen, Woodford 	<p>While the line of sight between these vantage points to the forested wilderness would not be interrupted due to the height of the aircraft, there would be views where additional aircraft (to those associated with existing flight paths over the GBMA) would be seen flying overhead and across these views. The aircraft would range in height and distance from these locations but would be at least 1.5 km (5,500 feet) high and therefore of a relatively small scale. There may be locations where multiple aircraft are seen together, as the flight numbers increase over time (i.e. 2055 scenario), and where multiple flight paths intersect or overlap.</p> <p>The visual amenity and wilderness experience of these recreational activities would generally not be substantively impacted by the project. The visual impacts of the project have been concluded as being likely to be negligible to moderate-high. Walls Lookout and Echo Point would experience a moderate-high visual impact due to the high sensitivity of these views and the introduction of flights that would be perceptible moving across the view even though the altitudes are high. However, within the more remote and wilderness areas of the GBMA, there are scattered day use facilities and campgrounds. The camp sites are generally located in areas of high scenic quality and are generally considered to have a high sensitivity to impact. The effect of the project on campgrounds and day use areas would result in a slight reduction in the amenity of views resulting in moderate overall visual impacts. However, it is noted, these aircraft would be at an altitude of over 1 kilometre (5,000 ft), and would generally be visible only at a small scale in the sky.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
		<ul style="list-style-type: none"> • scenic and tourist drives such as: <ul style="list-style-type: none"> – ‘Warragamba Waters scenic drive’ along Silverdale Road and part of the ‘Greater Blue Mountains Drive, identified by NSW NPWS. – ‘Greater Blue Mountains scenic drive’, including the Great Western Highway, from Sydney along the M4 towards the Blue Mountains and part of the ‘Greater Blue Mountains Drive’. <p>There are also numerous historic Lookouts and walking tracks along the central Blue Mountains ridgeline. This includes many Lookouts between Wentworth Falls and Katoomba which are oriented to the south and towards the proposed WSI, including Echo Point Lookout, Wynnes Rocks Lookout, Walls Lookout (including the surrounding Victoria Falls, Mount Banks Picnic area and Lookout, Anvil Rock Lookout and the Baltzer Lookout).</p>	<p>Additionally, there would be some tourist and recreational areas of the GBMA that would experience maximum noise levels of 60 dB(A) and greater. These location would include sites such as The Rock Lookout, the Nepean Lookout, The Oaks area, Murphys Glen, Ingar Campground, Katoomba River campground, Clearly Memorial Lookout, Ruined Castle Lookout, Wynnes Rock Lookout, Mount Banks picnic area and Lookout, Anvil Rock Lookout, Baltzer Lookout, Victoria Creek Cascades, Victoria Falls, and Burra Korain campground.</p> <p>The level of visitation in these areas is much lower than the Upper Blue Mountains. The noise impacts are not considered significant enough to result in any measurable economic impacts in terms of tourist visitation numbers to Blue Mountains area.</p> <p>Overall, the experience of some of these recreational activities may be slightly reduced by increased visual or noise intrusion associated with by aircraft movements.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
Wilderness	<ul style="list-style-type: none"> • Extensive natural areas • Absence of significant human interference • Opportunity to maintain integrity, gradients and mosaics of ecological processes • Opportunities for solitude and self-reliant recreation • Aesthetic, spiritual and intrinsic value. 	<p>As noted in the Integrity statement for the GBMA, 65 per cent of the area is designated as statutory wilderness. These areas are located primarily in the northern section of the site. The GBMA includes 5 declared wilderness areas through formal recognition of the Wilderness Act (Wollemi, Kanangra-Boyd, Nattai, Yengo and Grose) which encompasses over 551,000 hectares of wilderness areas in the GBMA. The Blue Mountains wilderness areas also protect 3 of only 6 streams declared as 'Wild Rivers' in NSW under the NP&W Act: the Colo, Grose and Kowmung. Access to these areas is predominantly limited to hikers and other low impact tourism activities.</p> <p>Aircraft operations would include various flight paths that would traverse above each of these wilderness areas. As a result of the operation of the flight paths, some areas of Wollemi National Park, Kanangra-Boyd National Park, Yengo National Park and Natti National Park (night time only) would have the potential to be affected by noise associated with infrequent overflights of aircraft.</p> <p>Aircraft over flying these areas would be able to be seen from these declared wilderness areas, including infrequent overflights at night.</p>	<p>The proposed flight paths are not anticipated to result in a significant impact on the wilderness values associated with the GBMA.</p> <p>While some noise and visual impacts may potentially occur to the wilderness areas, these are considered to be generally insignificant for a vast majority of wilderness areas and are not considered to be such that they would interfere with the values attributed to the wilderness nature of the GBMA.</p> <p>As a result of the proposed overflights, a small proportion of the wilderness areas may be impacted by visual and lighting changes (night time), however, these are considered to be insignificant for a vast majority of wilderness areas. The proposed lighting from aircraft at night is considered to be minimal when considered in the context of their contribution to urban sky glow within the broader Sydney Basin.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
Social and economic	<ul style="list-style-type: none"> Regional economy largely supported by tourism The GBMA has considerable social and economic value and contribute directly and indirectly to the employment, income and output of the regional economy. 	<p>The location of the flight paths over the GBMA have the potential to negatively affect the tourist experience of the area either through the visual location of planes or the noise they would generate, as well as the social and economic value that tourists contribute directly and indirectly to the employment, income and output of the regional economy. Negative (or perceived negative) impacts associated with the project could lead to a reduction to the number of tourists coming to the local area and in turn can reduce the tourist dollars being spent in the local economy.</p>	<p>While most tourists who visit the Greater Blue Mountains are day trippers, there are a number who stay overnight and longer. Noise affecting tourist accommodation such as hotels, motels and camping grounds would have the potential to lead to fewer tourists staying for more than a day which could have a marked impact on the local tourist accommodation. It is noted however that there is only one short stay accommodation place within N60 contour within the Blue Mountains, meaning the potential of impacts on this type of accommodation would be minimal.</p> <p>The key impact that may affect people visiting the Blue Mountains for a day could be impacted due to the noise while they are undertaking any outdoor pursuits (including overnight tourist activities such as camping).</p> <p>There could also be a reduction on the amount of tourists visiting local eateries, shops, and markets leading to a reduction in the indirect benefits of the GBMA tourist areas.</p> <p>Conversely, it is expected that the location of an international airport closer to the GBMA could also provide a boost to the tourists within the area outweighing the potential impact of the flight paths. As planes fly over such a distinct and unique area of Australia, tourists would be able to gain an appreciation over the area and could choose to stay in the area for longer. The flights that would use WSI could bring more people into Western Sydney who may have always flown into Sydney (Kingsford Smith) Airport and therefore not been close enough to the area for a visit.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
Research and education	<ul style="list-style-type: none"> • High scientific value discovered and undiscovered • Scientific research into the identification, conservation and rehabilitation of World Heritage values, best management practice and threat abatement • Education value for schools and universities. 	<p>Operation of the proposed flight paths area is not expected to have an impact on the biological diversity of the GBMA or the availability of the area for scientific investigation and research.</p>	<p>Based on consideration of the potential social and economic impacts identified, it is expected that impact to the visitor economy and livelihoods associated with the Blue Mountains World Heritage Listing is low. The project is not expected to result in a substantial impact to the social and economic values that contribute directly and indirectly to the employment, income and output of the regional economy associated with the GBMA.</p> <p>The proposed flight paths are not anticipated to result in a significant impact on the research and education values associated with the GBMA.</p>

Values	Criterion attributes	Flight path impacts	Assessment of significance
Scenic and aesthetic	<ul style="list-style-type: none"> Vertical cliffs, waterfalls, ridges, escarpments. Outstanding vistas, uninterrupted views of forested wilderness Extensive caves Sandstone canyons and pagoda rock formations. 	<p>Aircraft overflying key tourism and recreation areas would be more than 5,000 feet (1.5 km) above the relevant ground level and at this altitude, would have limited visual intrusion. Similarly, visual and lighting impacts of WSI are not considered to represent a significant change to existing conditions for scenic and aesthetic amenity.</p>	<p>Aircraft would be at least 1.5 km (5,000 feet) above the Blue Mountains, in the vicinity of key views and would not obstruct views to the sandstone canyons and pagoda rock formations.</p> <p>There are currently aircraft visible intermittently over the Blue Mountains, however, there would be more frequent flights and flights seen in key viewpoints and campgrounds across the GBMA including in views from Echo Point, Rock Lookout, Cleary Memorial Lookout and Portal Lookout.</p> <p>Views to narrow sandstone canyons and pagoda rock formations, such as in views to the 'Three Sisters' Lookout at Echo Point, Katoomba would include distant aircraft crossing views at a high altitude in the background.</p> <p>The scenic value of these views would be altered slightly reducing the visual amenity of these views. Due to the very high sensitivity of these views, a low magnitude of change would result in a high-moderate adverse visual impact.</p> <p>With respect to each of the other individual criteria attributes:</p> <ul style="list-style-type: none"> views to vertical cliffs and waterfalls, ridges and escarpments may include distant aircraft where they are overflowed by air traffic, however these would not impact on the existing attributes of these features there would be no direct or indirect impact on the cave networks as views to these features do not rely on views of the sky.

Values	Criterion attributes	Flight path impacts	Assessment of significance
<p>Bequest, inspiration, spirituality and existence</p>	<ul style="list-style-type: none"> • Opportunities for solitude and quiet reflection • Aboriginal cultural connections • Ensuring that future generations can experience and appreciate the uniqueness of the areas associated with the GBMA. 	<p>Operation of the proposed flight paths area is not expected to have a direct impact on the existing inspiration, spirituality and existence values of the GBMA.</p> <p>A key concern raised by First Nations knowledge holders and by owners and managers of heritage properties as part of the preparation of the impact assessment for the project did identify the potential for increased noise at heritage places especially where the cultural values relate to connecting with nature, spirituality (including but not limited to connections between the skyscape and landscape), experiencing a sense of serenity and well-being.</p>	<p>Overall, it is acknowledged that designing flight paths to avoid all Aboriginal and non-Aboriginal sites of cultural value would be impossible, including those associated with the GBMA.</p> <p>The proposed flight paths would fly over a large number of significant sites and places, however in many cases existing flight paths already traverse the airspace above these sites and places. In addition, many types of heritage places are considered robust in the face of impacts such as air pollution, noise and visual impacts. In most cases aircraft would be at such a distance as to render the impact from these factors as minimal. However, the places closest to WSI are likely to experience higher impacts.</p>

23.4.5.4 Cumulative impacts

Cumulative impacts have the potential to occur when impacts from a project interact or overlap with impacts from other projects. These impacts can potentially result in a larger overall effect (positive or negative) on the environment.

Related actions, proposals and impacts

Table 23.7 summarises the proposals/projects or ongoing actions that have been identified, or are currently being taken within the broader vicinity of the project that may result in cumulative impacts on the GBMA.

Table 23.7 Related actions and proposals

Related action(s) or proposal	Overview
Warragamba Dam Raising project	<p>The proposed Warragamba Dam Raising project proposes to increase the height of the existing Warragamba Dam wall in order to provide additional flood mitigation through increased temporary storage allowing for improved controlled water release. While not directly located within the GBMA site, the project would be located adjacent to the southern end of the GBMA within the Wollondilly Shire LGA. The project has been deemed to be a controlled action (reference number 2017/7940) and is subject to approval under the EPBC Act. Upstream areas that could be impacted by the project are located within the GBMA.</p> <p>On 8 June 2023, WaterNSW (as the proponent) provided an update on the status of Warragamba Dam on its website and stated that it is not NSW Government policy to raise the dam wall for flood mitigation or additional storage (WaterNSW, 2023). WaterNSW (2023) advised that it is now assessing what are the practical and reasonable ways to reduce risks to downstream communities associated with extreme floods and to adapt to climate change in line with contemporary dam safety regulatory standards. Investigations are now underway to explore what measures may be required to address these risks and as such the required work (which could be infrastructure or non-infrastructure related) is not known. As WaterNSW (2023) has stated that dam rising for the purposes of flood mitigation is no longer proceeding and any required future work (and therefore impacts) are undefined, this assessment has not considered this project further.</p>
Great Western Highway upgrade program	<p>Transport for NSW is currently working on a program to upgrade sections of the Great Western Highway throughout the Blue Mountains. The works currently in delivery include upgrades to locations such as Medlow Bath, Mount Victoria and between Little Hartley and Lithgow. These upgrades would provide important economic and safety benefits and would improve the connection between Central West NSW and Sydney for thousands of residents, commuters, tourists and freight operators who travel in, around and through the Blue Mountains.</p> <p>While providing important access improvements, the increased access is also likely to increase traffic within the region and may allow for increased urban development of the region. Additionally, the improved access may also result in increased levels of tourism accessing the region. These factors may result in indirect impacts to the GBMA (such as increased noise and air quality) and may potentially lead to contributing to diminishing of the values associated with the GBMA.</p> <p>Additional upgrade works have also been identified between Katoomba and Blackheath, and between Little Hartley and Lithgow that would generally split the existing road configuration into 2 lanes in each direction. Timing for the delivery of these works is however currently known.</p>

Related action(s) or proposal	Overview
2019–2020 bushfire impacts	<p>The 2019-20 bushfires in NSW were unprecedented in their extent and severity in recent history. They occurred during a period of record-breaking temperatures and extremely low rainfall with the Australian Government Bureau of Meteorology determining 2019 was Australia’s warmest and driest year on record (DAWE, 2020).</p> <p>The GBMA was affected by bushfire from late October 2019 to early February 2020. During this time, more than 60 per cent of the GBMA was fire-affected and more than half of this burnt with high or very high severity (DCCEEW, 2022f). While assessment of the overall impacts of the fires on the GBMA Outstanding Universal Value are still to be fully quantified, it is estimated that a number of ecological communities known to occur in the Greater Blue Mountains Area are at high risk of decline due to the combined effects of high fire frequency and drought.</p> <p>Impacts of the fires identified to date have included impact to the following important environmental values within the Greater Blue Mountains Area (DCCEEW, 2022f):</p> <ul style="list-style-type: none"> • 10 Threatened Ecological Communities including Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion, Temperate Highland Peat Swamps on Sandstone and Lowland Rainforests of Subtropical Australia • around 99 animals including the following threatened species (all of which have both NSW and Commonwealth status of either endangered and/or vulnerable): Blue Mountains Water Skink, Broad-headed Snake, Brush-tailed Rock-wallaby, Koala, Spotted-tail Quoll, Gang-gang Cockatoo and the Stuttering Frog • around 101 plant species including the Wollemi Pine, Benson’s Stringybark, Kowmung Hakea, Fletcher’s Drumsticks, and Paddys River Box.
Mining	<p>At its 43rd session in 2019 the World Heritage Committee requested the Australian Government undertake an assessment of the potential cumulative impacts of all existing and planned mining projects in the vicinity of the Greater Blue Mountains Area. In response to this request, the Australian Government commissioned CSIRO to undertake a comprehensive review of the potential risks from mining near the Greater Blue Mountains Area, releasing the <i>Potential cumulative impacts of mining on the Outstanding Universal Value of the Greater Blue Mountains Area</i> in 2022 (DAWE, 2022).</p> <p>The report identified that at the time of preparation of the report, 15 existing and planned open-cut and underground coal mines and 3 sand mines within 20 km of the GBMA were identified as potential threats to its Outstanding Universal Value. The report identified a highly conservative potential cumulative impact area of 1,984-square km within the 10,438-square km GBMA, distributed across 6 discrete areas, where cumulative impacts from mining could occur in the absence of protection and management measures. Within the identified potential cumulative impact area, the risk of significant impacts to components of the property’s Outstanding Universal Value is assumed to generally decrease with increasing distance from the mining areas.</p> <p>The report identified that the greatest mining-associated risk to the Outstanding Universal Value was potentially to the ‘water systems’ of the GBMA via water table lowering and changes in streamflow, water quality and channel condition. Water systems of the GBMA include streams, riparian areas and many groundwater-dependent ecosystems, occupying about 400 square km potential cumulative impact area. The Australian Government used the independent CSIRO analysis to determine residual risk of the identified mining operations to the 8 high-level components of the Outstanding Universal Value. Overall, the residual risk to the Outstanding Universal Value of the GBMA was assessed as ‘low’ because most potential impacts are currently effectively mitigated by strict environmental conditions imposed on mine operators.</p>

Assessment of impacts

Potential cumulative impacts on the GBMA associated with the project and the related actions/impacts identified in Table 23.7 include:

- incremental increases in potential wildlife injury or mortality due to wildlife strike (in particular associated with cumulative impacts associated with Great Western Highway upgrades)
- incremental increases of noise and light exposure that may disrupt species within the locality for example lead to species relocating or alter species behaviour and communication
- alterations to air quality, greenhouse gas emissions and water quality (in particular associated with cumulative impacts associated with ongoing mining).

Potential cumulative impacts on the GBMA resulting from the project are considered to be minimal, as the project is not expected to result in significant on-ground impacts. Despite this, the project does however have the potential to result in contributing incremental increases in impacts such as wildlife strike, noise, light and alteration of the overall air quality within the GBMA.

Overall, aircraft operating from WSI concurrently with aircraft from other Sydney Basin airports have the potential to increase overall noise exposure of communities being directly overflowed by the preliminary flight paths, immediately peripheral to and further surrounding WSI, and underneath or along the other flight paths in use. Overall noise exposure in a geographic area as large as the Sydney Basin does not necessarily translate into a quantifiable cumulative increase in impact. WSI will introduce additional aircraft into an already complex and heavily trafficked Sydney Basin airspace environment. In 2033, this additional traffic is projected to represent around 9 per cent of total projected Sydney Basin air traffic movements (estimated to be over 890,000 movements inclusive of the expected 81,000 movements projected at WSI in 2033). The cumulative contributions of impacts from the project, in addition to the impacts that are expected from projects such as the Great Western Highway upgrades and ongoing mining projects in areas adjacent to the GBMA, are considered to be minimal to negligible.

With respect to cumulative noise, it is also important to note that a 60 dB(A) event in an area already experiencing for example 70 dB(A) would not result in an arithmetic addition of exposure. Rather, the resulting addition of sound waves reaching the human ear will be less than 71 dB(A) and the difference not discernible to the human ear.

23.4.5.5 Assessment of design refinements

Some areas of the GBMA to the north of Lake Burragorang would be newly overflowed as part of the RRO mode of operation during implementation of the RRO-NAP. Similarly, some areas of the GBMA to the south of the Great Western Highway and to the north and east of Blackheath would no longer be overflowed during this runway mode of operation. The change would continue to allow non-jet aircraft to travel along the previously identified flight paths to the north and west during the implementation of the RRO-NAP. Overall, the refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the assessment on MNES as presented in this chapter and Technical paper 14.

Further details of the design refinement are provided in Chapter 24 of the Submissions Report. Further discussion of the potential impacts of the design refinements with respect to MNES are provided in Appendix G (Assessment of the refinements to the project).

23.5 Mitigation and management

23.5.1 Existing management of GBMA

Strategic planning and management for the GBMA is guided by a number of policies and guidelines relating to the consideration of management of World Heritage including:

- the provisions in the *2021 Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO, 2021) which outline Australia's obligations under the World Heritage Convention
- The *Greater Blue Mountains World Heritage Area Strategic Plan* (NSW DECC, 2009) and *Greater Blue Mountains World Heritage Area Strategic Plan Addendum 2016* (NSW Office of Environment and Heritage, 2018)
- The *2013 IUCN advice note on environmental assessments* (IUCN, 2013)
- The Australian World Heritage management principles (Schedule 5 of the EPBC Regulations).

Of particular importance to the ongoing management of the GBMA are the *Greater Blue Mountains World Heritage Area Strategic Plan* (NSW DECC, 2009) and *Greater Blue Mountains World Heritage Area Strategic Plan Addendum 2016* (NSW Office of Environment and Heritage, 2018). These plans provide the frameworks for the GBMA integrated management, protection, interpretation and monitoring. The key management objectives set out in the Strategic Plan (NSW DECC, 2009) provide the basis for the management of the Greater Blue Mountains and guidance for operational strategies in accordance with requirements of the World Heritage Convention and its Operational Guidelines (UNESCO, 2021).

The Strategic Plan and Addendum identifies the following threats to the integrity of the area that require protection measures to be identified for:

- uncontrolled and inappropriate use of fire
- inappropriate recreation and tourism activities, including development of tourism infrastructure
- invasion by pest species including weeds and feral animals
- loss of biodiversity and geodiversity
- impacts of human enhanced climate change
- lack of understanding of heritage values.

To date, these strategic plans and guidelines have been an effective means of guiding appropriate management of impacts to date.

23.5.2 Project specific mitigation measures

No MNES-specific management and mitigation measures have been identified, however, a number of measures identified as part of supporting technical papers have identified mitigation measures that would apply to impacts associated with the potential impacts on the GBMA (refer Chapter 24 (Mitigation and management)).

23.5.3 Dependencies and interactions with other mitigation measures

Mitigation measures outlined elsewhere throughout the EIS are relevant to the management of impacts on the GBMA and include:

- Noise (Chapter 11) including:
 - the development and review of noise abatement procedures in consultation with stakeholders, including aircraft operators, airlines, WSA and FoWSA/WSI Community Aviation Consultation Group (CACG) following a draft proposal developed by the Expert Steering Group
 - to establish a CACG to ensure appropriate community engagement on airport planning and operations
 - undertaking a post-implementation review (PIR) of the flight path design and implementation.
- Aircraft hazard and risk (Chapter 13) including:
 - implementation of contingency planning to respond to the impacts of crash events as per Part 139 Aerodromes Manual of Standards 2019
 - application of existing procedures to deal with aircraft fuel jettisoning occurrences as per the Aeronautical Information Publication Australia, Part 2 – En Route (AIP ENR) (Airservices Australia, 2022a)
 - monitoring and control the presence of birds and other wildlife on or in the vicinity of WSI in accordance with Civil Aviation Safety Regulations (CASR) Part 139 MOS requirements and National Airports Safeguarding Framework (NASF) Guideline C.
- Heritage (Chapter 17): including:
 - ensuring that the detailed design phase considers Aboriginal cultural places and values, where safe and feasible
 - undertaking a research program to investigate the potential impact of aircraft emissions on historic and Aboriginal heritage sites (including rock art sites), with a particular focus on sites within the Greater Blue Mountains Area.