Cooks Cove Planning Proposal — Aeronautical Impact Assessment & Airport Safeguarding

v1.1 (Final)

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strategic airspace

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Document Title: **Cooks Cove Planning Proposal — Aeronautical Impact Assessment & Airport Safeguarding**

Purpose / Abstract: *This report has been prepared, on behalf of Cook Cove Inlet Pty Ltd, to support the public exhibition and assessment of the Cooks Cove Planning Proposal (PP-2022-1748), which was issued a Gateway Determination by the Department of Planning and Environment on 5 August 2022. The proposal seeks to amend Bayside Local Environmental Plan 2021 (BLEP 2021) to rezone and insert planning controls for certain land known as Cooks Cove within the BLEP 2021.*

The Cooks Cove Planning Proposal aims to facilitate the long-planned transformation of 36.2ha of underutilised and strategically important land at Arncliffe, located to the north of the M5 Motorway and adjacent to the western foreshore of the Cooks River. The project seeks a renewed focus on delivering a contemporary logistics and warehousing precinct within a well-connected location, surrounded by enhanced open space provisions. The site forms part of the broader Bayside West 2036 Precincts and generally comprises the footprint of the former Kogarah Golf Club, now in part occupied by a temporary M6 Stage 1 construction compound.

This report addresses the planning proposal for the Cooks Cove Master Plan in relation to potential aeronautical impact and airspace height approvability; and safeguarding of Sydney Airport operations, with reference to the National Airports Safety Framework (NASF) guidelines. By addressing the above factors, it also responds to the requirements of Local Planning Direction 5.3 which set out directions that must be considered by planning authorities when evaluating planning proposals for sites located near regulated airports.

For information only (not required for planning approval), this report also canvasses the considerations already taken into account in advance to inform future detailed planning and design stages (eg, the feasibility of construction in relation to crane height implications) in order to assure no adverse impact on the safety and regularity of aircraft operating near and at Sydney Airport.

The report concludes that as a result of the careful approach to master planning of the development in cognisance of the airspace limits and other aeronautical and operational impacts — and the fact that the proposed buildings will not infringe the Prescribed Airspace of Sydney Airport, satisfies all airport safeguarding guidelines as set out in the National Airports Safety Framework (NASF), and meets the Local Planning Direction 5.3 — there is no impediment to approval of the planning proposal for the Cooks Cove Master Plan .

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1. Executive Summary

This report has been prepared, on behalf of Cook Cove Inlet Pty Ltd, to support the public exhibition and assessment of the Cooks Cove Planning Proposal (PP-2022-1748), which was issued a Gateway Determination by the Department of Planning and Environment on 5 August 2022. The proposal seeks to amend *Bayside Local Environmental Plan 2021* (BLEP 2021) to rezone and insert planning controls for certain land known as Cooks Cove within the BLEP 2021.

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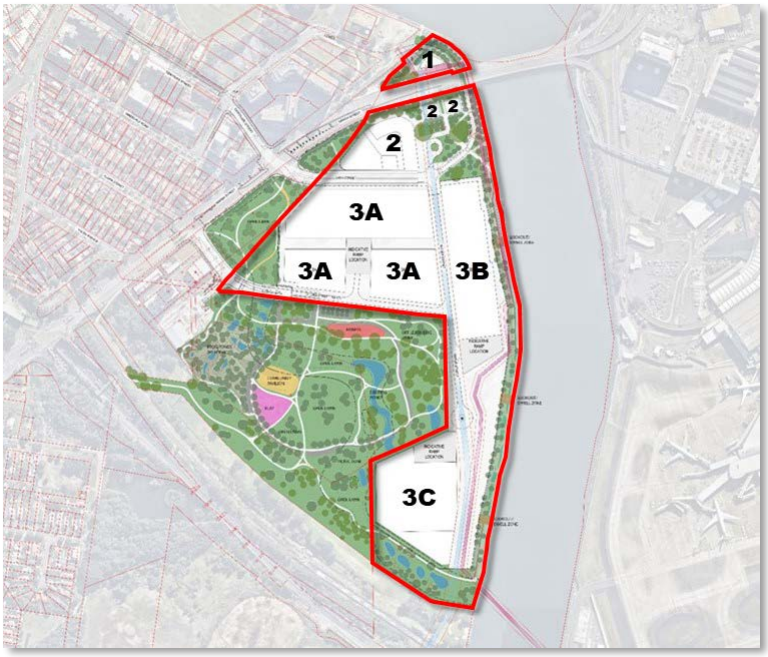
This report addresses the planning proposal for the Cooks Cove Master Plan in relation to:

- Potential aeronautical impact and airspace height approvability.
- Safeguarding of Sydney Airport operations, with reference to the National Airports Safety Framework (NASF) guidelines.

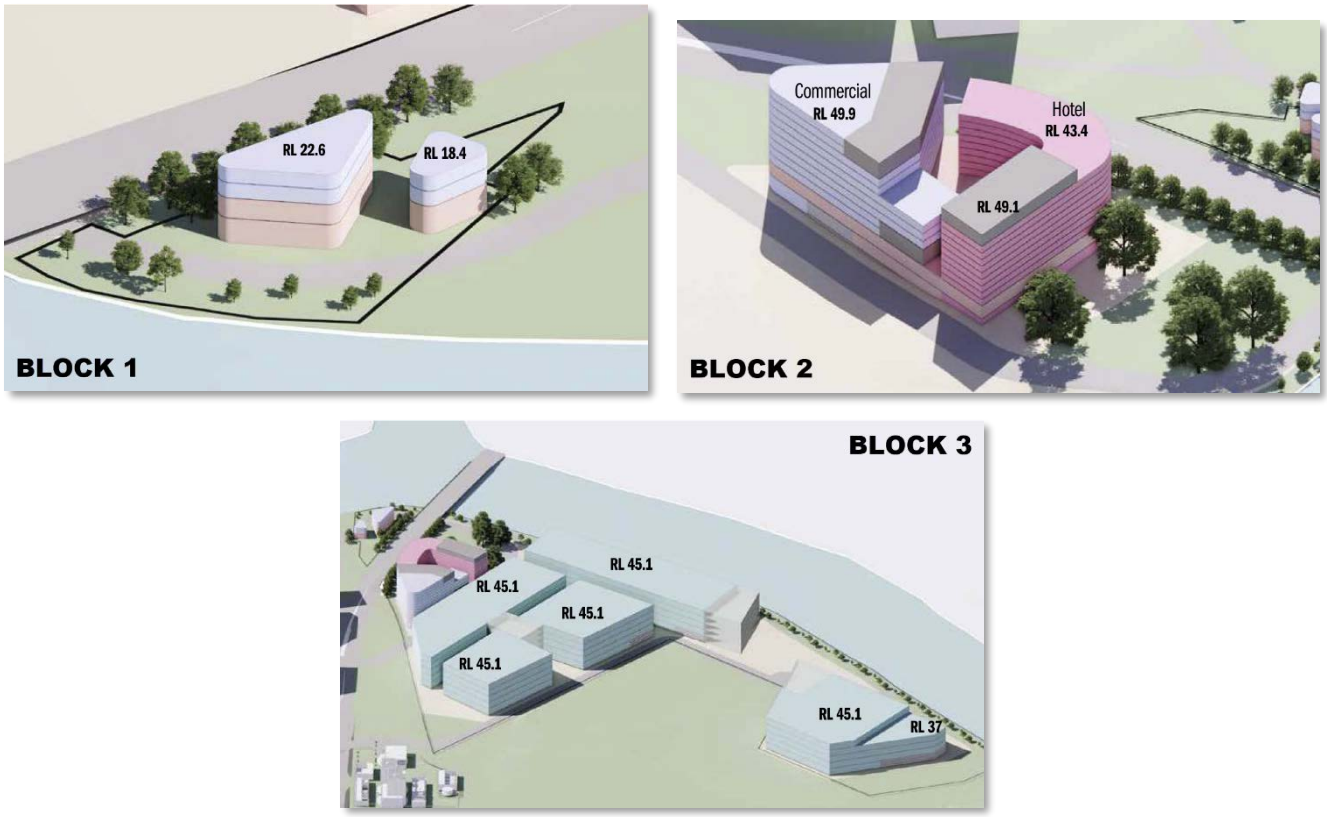
By addressing the above factors, it also responds to the requirements of Local Planning Direction 5.3 which set out directions that must be considered by planning authorities when evaluating planning proposals for sites located near regulated airports.

Figure 1-1 — Scope of the Aeronautical Assessment — Cooks Cove Precinct Master Plan



Source: Ethos Urban / Additional Annotation by Strategic Airspace

Figure 1-2 — Building Height Massing in 3D



Source: Hassell / Additional Annotation by Strategic Airspace

The Cooks Cove Precinct is adjacent to Sydney Airport on the western side, across the Cooks River. The location of the site (especially the northern part of the Precinct) in relation to the north-west quadrant between the nearest runways — the western parallel Runway (RWY 16R/34L) and the shorter cross runway RWY 07/25 (shown on the image below) — means that the airspace height limits are less restrictive than one would at first think, despite the proximity to the airport.

The restrictive prescribed airspace over the Cooks Cove Precinct site comprises:

- Obstacle Limitation Surfaces (OLS) — as depicted in Figure 1-3 below; and
- PANS-OPS Surfaces — the most restrictive surfaces that remain after analysing the surfaces from the overlapping protection areas of many procedures.

  All other surface types are either outside the extent of the planning proposal precinct or less restrictive than the PANS-OPS surfaces.

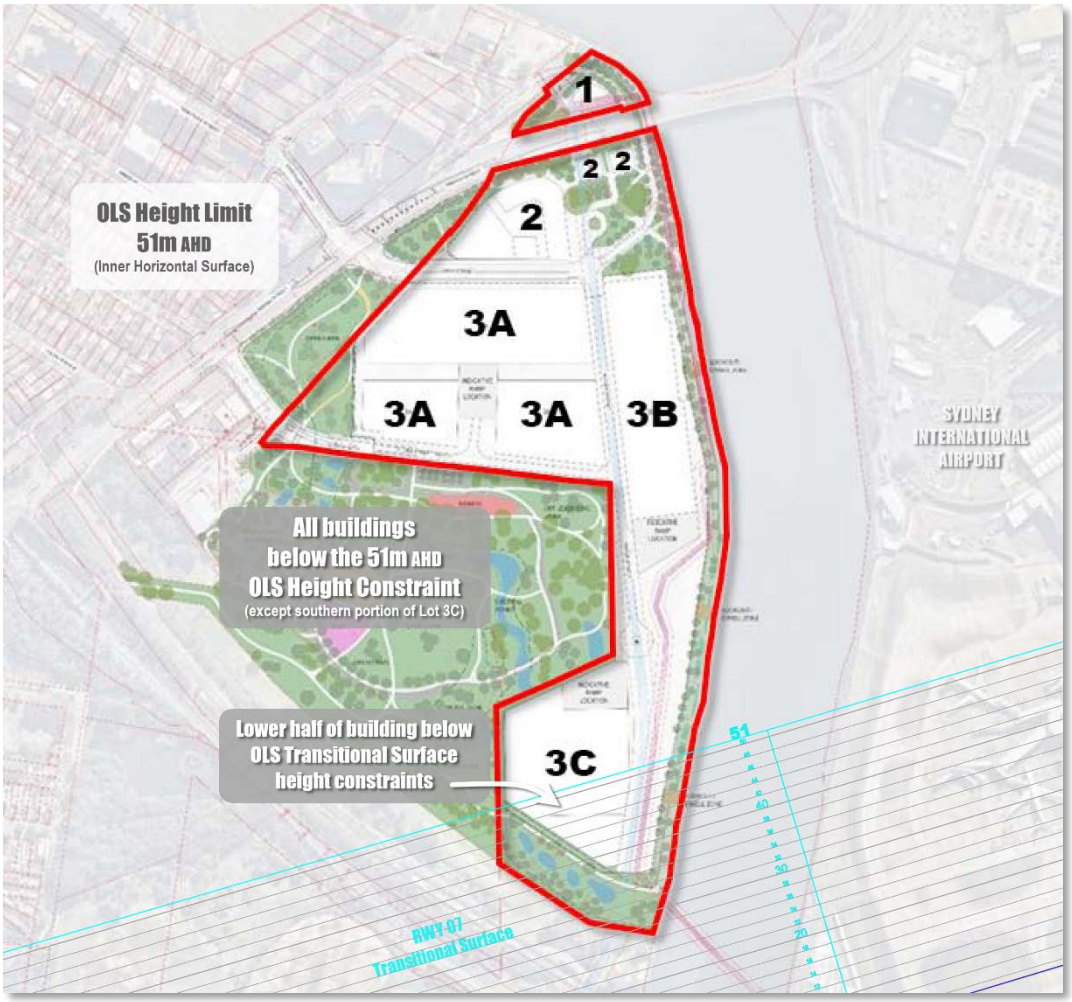
The revised master plan has been developed in accordance with the airspace limitations in order to support the approvability of the project under the relevant regulations. The revised master plan has thus reduced the heights previously proposed so that no building will infringe the prescribed airspace. The southern-most building (Lot 3C in Block 3) will be stepped down to remain below the sloping OLS surface at that location, and all other buildings will be no higher than the 51m Australian Datum Height (AHD) OLS across the rest of the site — as illustrated in Figure 1-3 below. Further, the PANS-OPS surfaces will not be infringed.

Thus, none of the proposed buildings will require a prior airspace approval under the Airports (Protection of Airspace) Regulations (APAR).

However, separate approval for most structures may be required prior to construction under the legacy Civil Aviation (Buildings Control) Regulations 1988 — a predecessor to the APAR but which currently remains in force (refer section 3.3.4, p15, and section 9 and

Table 9-1, p29). It is anticipated that approval under these regulations would be granted. Approval under these regulations is granted by Sydney Airport under delegation.

Figure 1-3 — Cooks Cove Precinct — Clear Of / Below Prescribed Airspace



Source: Ethos Urban / Additional Annotation by Strategic Airspace

Although not necessary for planning approval, issues related to potential aeronautical impact during construction and after development were also considered — for information only — primarily to demonstrate that these factors have been considered as part of the planning proposal and for early project planning for the stages beyond planning approval. One of these factors is the feasibility of construction in relation to airspace height constraints for construction facilities, such as cranes, and the likelihood of gaining height approvals for them. Evaluation of existing and known future airspace shows that cranes required for construction could be approved under the APAR. Construction Management Plans will be prepared very early in the future detailed design stages in order to ensure that all cranes and any other facilities required for construction will not adversely affect the operational airspace of Sydney Airport. Applications under the APAR for cranes will not be required until well in the future; approvals for these are required only prior to construction.

In consideration of the assessments conducted as part of this study, the careful approach to master planning of the development in cognisance of the airspace limits and other aeronautical and operational impacts — and the fact that the proposed buildings will not infringe the Prescribed Airspace of Sydney Airport, satisfies all airport safeguarding guidelines as set out in the National Airports Safety Framework (NASF), and meets the Local Planning Direction 5.3 — **there is no impediment to approval of the planning proposal for the Cooks Cove Master Plan**.

2. Introduction

This report has been prepared, on behalf of Cook Cove Inlet Pty Ltd, to support the public exhibition and assessment of the Cooks Cove Planning Proposal (PP-2022-1748), which was issued a Gateway Determination by the Department of Planning and Environment on 5 August 2022. The proposal seeks to amend *Bayside Local Environmental Plan 2021* (BLEP 2021) to rezone and insert planning controls for certain land known as Cooks Cove within the BLEP 2021.

The Cooks Cove Planning Proposal aims to facilitate the long-planned transformation of 36.2ha of underutilised and strategically important land at Arncliffe, located to the north of the M5 Motorway and adjacent to the western foreshore of the Cooks River. The project seeks a renewed focus on delivering a contemporary logistics and warehousing precinct within a well-connected location, surrounded by enhanced open space provisions. The site forms part of the broader Bayside West 2036 Precincts and generally comprises the footprint of the former Kogarah Golf Club, now in part occupied by a temporary M6 Stage 1 construction compound.

This report addresses the Cooks Cove Master Plan in relation to:

- Potential aeronautical impact and airspace height approvability.
- Safeguarding of Sydney Airport operations, with reference to the National Airports Safety Framework (NASF) guidelines.

2.1 Cooks Cove Master Plan

The Cooks Cove Master Plan, as prepared by Hassell, represents an optimised and refined reference scheme, to guide best practice design and the preparation of detailed planning controls to achieve an attractive precinct with high amenity. Key features of the Cooks Cove Master Plan are:

- A net development zone of approximately 15ha with up to 343,250m^2 Gross Floor Area (GFA) comprising:
  - 290,000m^2 of multi-level logistics and warehousing
  - 20,000m^2 for hotel and visitor accommodation uses
  - 22,350m^2 for commercial office uses
  - 10,900m^2 of retail uses
- Multi-level logistics with building heights generally up to 5 storeys (approx. 48m)
- A retail podium with commercial office and hotel above, up to a total of 12 storeys (approx. 51m)
- Built form of a scale and composition which caters for the generation of approximately 3,300 new jobs
- A surrounding open space precinct including:
  - A highly activated waterfront including the Fig Tree Grove outdoor dining and urban park precinct
  - A contribution to the regional Bay to Bay cycle link, ‘Foreshore Walk’, including active and passive recreational uses, together with environmental enhancements
  - Master planned and Council-owned ‘Pemulwuy Park’ – with an agreed embellishment outcome of passive open space and environmental enhancements to be delivered in stages post construction of the M6 Stage 1 Motorway

- Complementary on and off-site infrastructure to be delivered by way of State and Local Voluntary Planning Agreements.

Figure 2-1 — Proposed Cooks Cove Master Plan

Source: Hassell

2.2 Proposed Planning Controls

The Planning Proposal Justification Report, as prepared by Ethos Urban, details the intention to insert new planning provisions covering the Cooks Cove development zone and adjoining lands, through the amendment of the BLEP 2021, accordingly removing this same area from State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021 (formerly Sydney Regional Environmental Plan No. 33 – Cooks Cove).

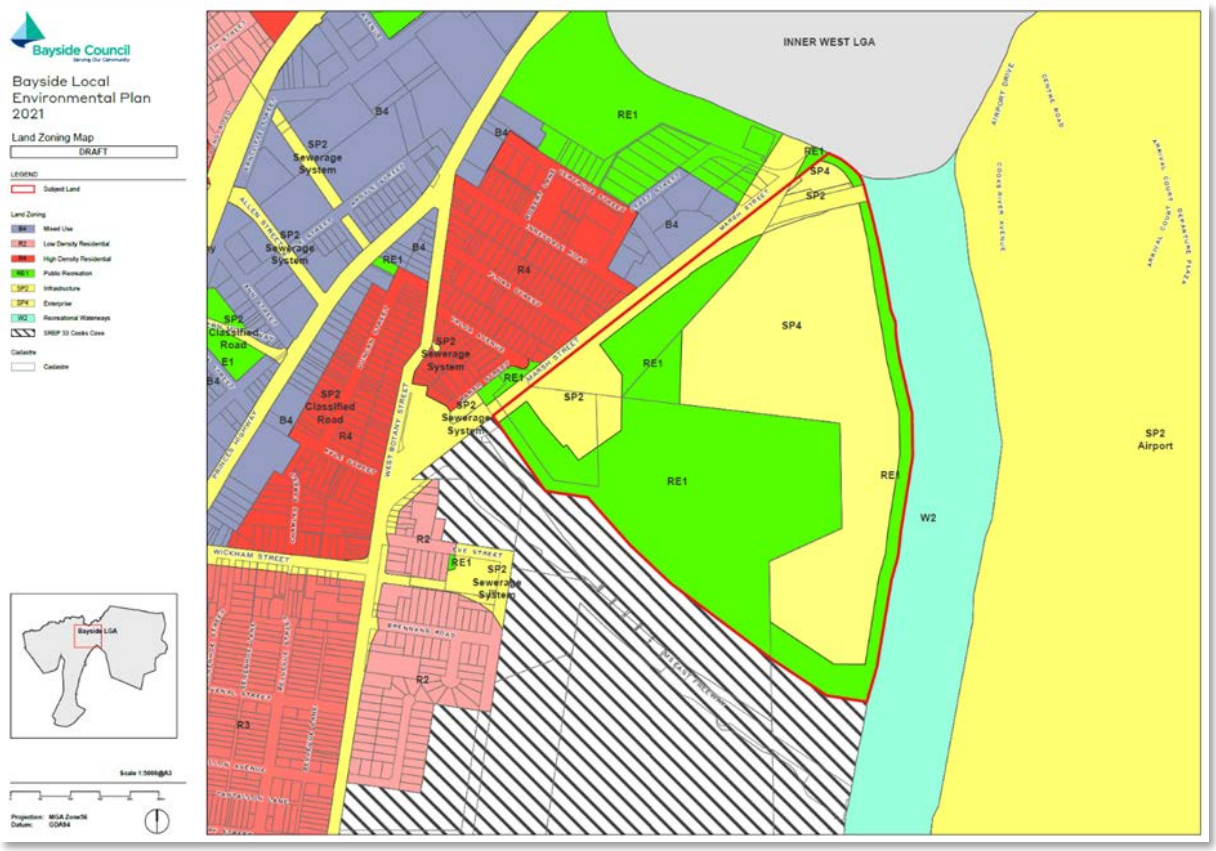
Specifically, the Planning Proposal will:

- Seek new land use zones within the development zone, including a primary SP4 Enterprise zone across the majority of the Kogarah Golf Course freehold land, RE1 Public Recreation foreshore and passive open space zones and elements of SP2 Infrastructure.
- Impose an overall maximum building height of RL51m with appropriate transitions to respond to aviation controls within limited sections of the site.
- Limit gross floor area (GFA) to the south of Marsh Street to 340,000m^2, with a further 1.25:1 Floor Space Ratio (circa 3,243m^2 of GFA) to the north of

Marsh Street, to achieve the overall intended logistics, commercial, retail and short-term accommodation land uses.

- Other additional permitted uses and site-specific planning provisions.
- Reclassification of Lot 14 DP213314 and Lot 1 DP108492 (Council owned and the subject of Charitable Trusts), initially from 'community' to 'operational' to ensure appropriate access, improve utility of public open space and to create contiguous boundaries. Following rezoning and subdivision it is subsequently intended that Council reclassify residue RE1 parcels as 'community' by resolution.

Figure 2-2 — Proposed Draft Bayside LEP 2021 Zoning Map



Source: Ethos Urban

The proposal is in response to Bayside West Precincts 2036 – Arncliffe, Banksia and Cooks Cove (released August 2018) and the subsequent Ministerial Directions under s9.1 of the EP&A Act, being Local Planning Directions 1.11 Implementation of Bayside West Precincts 2036 Plan and 1.12 Implementation of Planning Principles for the Cooks Cove Precinct.

2.3 Site Description

2.3.1 Cooks Cove

Cooks Cove is located in the suburb of Arncliffe within the Bayside Council Local Government Area (LGA). The site is located to the west of the Cooks River, approximately 10km south of the Sydney Central Business District (CBD). The site enjoys adjacency to key trade-related infrastructure being immediately west of Sydney Kingsford Smith International Airport and approx. 6km west of Port Botany.

Cooks Cove is strategically located within close proximity to a number of railway stations including Banksia, Arncliffe, Wolli Creek and the International Airport Terminal, which vary in distance from the site between 700m and 1.1km. The M5 Motorway, providing regional connectivity to the Sydney Metropolitan area, runs in an east-west direction immediately to the south of the site. The M8 and M6 Motorways are, and will be, constructed in tunnels approximately 60 metres beneath the adjoining Bayside Council 'Trust' lands. The Sydney Gateway project, presently under construction to the immediate north of Cooks Cove and Sydney Airport, will substantially improve future accessibility to the St Peters interchange and the wider M4/M5 WestConnex network, via toll free connections, as well as the Domestic Airport and Port Botany.

The Cooks Cove Development Zone is located to the north of the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS), and is generally bound by the Cooks River to the east and Marsh Street to the north and west. The site is approximately 36.2ha and is owned and managed by a number of landowners, both public and private. Surrounding development includes the Sydney Airport International Terminal precinct, Mercure Sydney Airport, an area of low density dwellings presently transitioning to medium-high density residential flat buildings, recreation and open space facilities and road and airport related infrastructure.

2.3.2 Kogarah Golf Club

Kogarah Golf Club was established in 1928, with the Club occupying the land subject to the Planning Proposal boundary since 1955. At this time, the Cooks River was reconfigured to its current alignment to accommodate the expansion of Sydney Airport. The land presents a highly modified environment, with relatively flat topography, gently moulded fairways and greens, separated by strips of vegetation and man-made water bodies. The golf course clubhouse, car park and maintenance facilities are located in the northern corner of the site, adjacent the Cooks River. Access is provided via Levey Street. The members of Kogarah Golf Club will relocate from the site in May 2024 to new playing facilities.

2.3.3 Arncliffe Motorway Operations Complex

The temporary construction compound for the WestConnex M8 and M6 Stage 1 Motorway tunnelling works was originally established in June 2016. The temporary construction facility occupies approximately 7.5ha and is expected to remain until 2025. At this time the facility will reduce to 1.5ha to accommodate the permanent Arncliffe Motorway Operations Complex, located in the western corner of the site, adjacent Marsh Street. The complex will house ventilation and water treatment plant and maintenance equipment for both the M6 and M8 sub-grade motorways.

2.3.4 Easements and Affectations

The Sydney Desalination Plant pipeline runs through the development zone, north-south adjacent the Cooks River. The pipe has a diameter of 1.8m and sits within an easement of 6-9m in width. From south to north the pipeline is constructed in a combination of trench and above ground with mounded cover and then transitions to micro-tunnel and typical depth of circa 11m. The Moomba to Sydney Pipeline, containing ethane gas, follows a similar general alignment north-south adjacent the Cooks River. The pipe has a nominal 225mm diameter, within an easement generally 5m wide and with the pipe located at a depth of 1.2m-2.3m.

2.4 NASF Guidelines Cross-Reference

The National Airports Safety Framework encompasses a range of disciplines and factors to be considered when assessing the safeguarding of an airport, structured as a set of Guidelines: A through I. An overview of the NASF and the specific Guidelines can be found in section 3.4 (p16).

All Guidelines are mentioned in this report for completeness, and the aviation-specific ones covered in detail. However, where a Guideline is very discipline-specific, the full assessment is covered in another report by another specialist consultant. Table 2-1 below provides a quick cross-reference summary of the where each Guideline is addressed.

Table 2-1 — NASF Guidelines Cross-Reference Index

NASF Guideline	*Section Reference (This Report)*	*Other Report Reference*
A — Aircraft Noise	*Section 4 NASF Guidelines A – D* Section 4.1 Guideline A: Aircraft Noise Assessment (p18)	Acoustic Assessment Report (Arup)
B — Building-Generated Windshear / Turbulence	*Section 4 NASF Guidelines A – D* Section 4.2 Guideline B: Risk of Building-Generated Windshear & Turbulence on Flight Operations at Sydney Airport (p19)	Wind Shear and Turbulence Assessment (Arup)
C — Wildlife Strikes	*Section 4 NASF Guidelines A – D* Section 4.3 Guideline C: Risk of Wildlife Strikes (Birdstrike) (p19)	Cooks Cove Northern Precinct Flora and Fauna Assessment (Cumberland Ecology) Cooks Cove Urban Design + Landscape Report (Hassell Studio)
D — Wind Turbines	*Section 4 NASF Guidelines A – D* Section 4.4 Guideline D: Wind Turbines as Obstacles (p19)	N/A
E — Distraction to Pilots	Section 5 Guideline E: Managing the Risk of Distraction to Pilots (p20) Section 5.1 External Lighting in the Vicinity of Airports (p20) Section 5.2 Glare from Cladding, Rooftops & Rooftop Features (p23)	Planning Proposal, Cooks Cove, Arncliffe (Ethos Urban) Cooks Cove Urban Design + Landscape Report (Hassell Studio)
F — Protected Airspace	Section 6 Guideline F: Aeronautical Impact Analysis (p24)	N/A
G — Protecting Aviation (CNS) Facilities	*Section 7 NASF Guidelines G – I* Section 7.1 Guideline G: Protecting Communications, Navigation & Surveillance (CNS) Facilities (p27)	N/A
H — Strategic Helicopter Landing Sites (SHLS)	*Section 7 NASF Guidelines G – I* Section 7.2 Guideline H: Protecting Strategic Helicopter Landing Sites (SHLS) (p27)	N/A
I — Public Safety Areas (PSAs)	*Section 7 NASF Guidelines G – I* Section 7.3 Guideline I: Public Safety Areas (p28)	N/A

3. Aeronautical & Airport Safeguarding Impact Context

3.1 Location of the Proposed Development

The Cooks Cove Precinct is adjacent to Sydney Airport on the western side, across Cooks River. The location of the site in relation to the north-west quadrant between nearest runways — the western parallel Runway (RWY 16R/34L) and the shorter cross runway RWY 07/25 — means that the airspace height limits are less restrictive than one might at first think, despite the proximity to the airport.

Figure 3-1 — Cooks Cove Precinct Site in Relation to Sydney Airport

Source: Ethos Urban / Additional Annotation by Strategic Airspace

Coordinates for the northern-most and southern corners of the site have been provided for reference. These and the distance and bearings of each from the two closest landing thresholds are listed in Table 3-1 below.

Table 3-1 — Key Site Coordinates — for Reference

			Distance & Bearing to RWY Threshold	
Site Location	*Coordinates Lat/Long & GDA94*	*RWY Threshold*	*Metres (Nautical Miles)*	*Degrees Magnetic (True)*
South-eastern Corner	33° 56' 30.10" S 151° 09' 37.10" E	07	382m (0.2 NM)	294° M (306.7° T)
	329981.040 6242784.569	16R	1666m (0.9 NM)	207° M (219.5° T)
Northern tip (North of Marsh St)	33° 56' 30.10" S 151° 09' 37.10" E	07	1205m (0.64 NM)	330° M (342.9° T)
	329981.040 6242784.569	16R	1166m (0.63 NM)	239° M (251.9° T)

The other airports in the Sydney Basin are too distant from the proposed development to have any impact on the airspace surrounding it.

3.2 Proposed Block Structure, Buildings & Maximum Heights

The structure concept shown in in Figure 3-2 below illustrates the proposal to break the Precinct into three separate blocks:

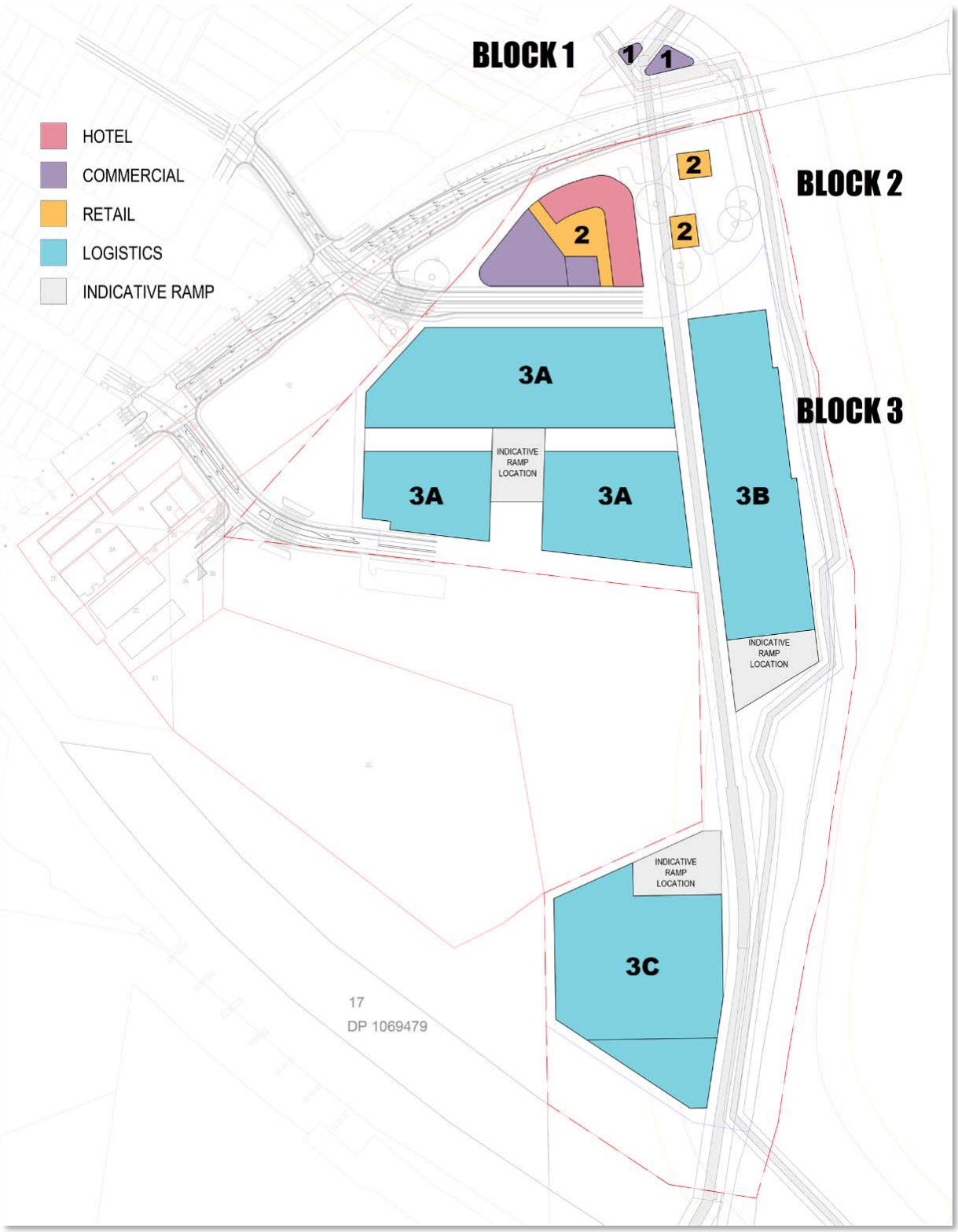
- Block 1 — Cooks River Plaza, being for retail and commercial
- Block 2 — Fig Tree office and accommodation precinct, including commercial, hotel and retail developments
- Block 3 — Logistics Hub

Whilst the planning proposal seeks an overall maximum building height of 51m AHD, with appropriate transitions to respond to aviation controls within limited sections at the very southern portion of the site (as noted in section 2.2 Proposed Planning Controls above), the top heights of various buildings will vary.

The Hassell Urban Design + Landscape Report provides massing for an indicative development scheme in each of the Blocks, as depicted in the Figures below. Based on the massing diagrams, the top heights of the proposed buildings in the development are set at no higher than 49.9m AHD across the site, as described in the master plan and as indicated in the following images. The proposed maximum height of buildings in Block 1 is 24m AHD; 49.9m AHD in Block 2; and 45.1m AHD in Block 3.

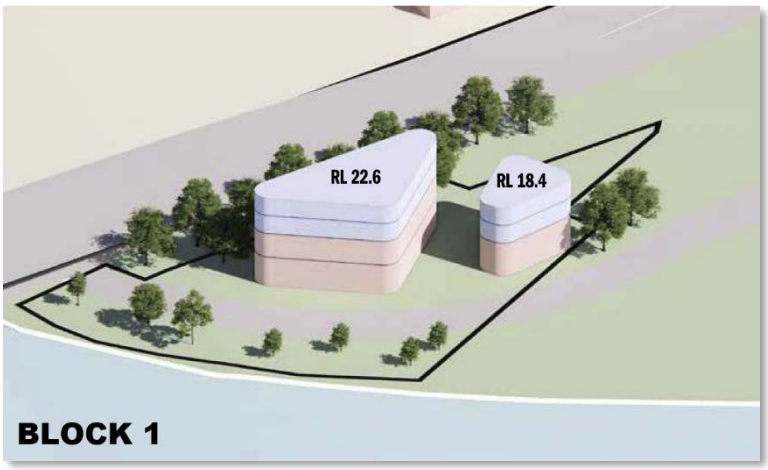
It is also noted that these heights are the currently planned top-of-roof heights and do not include any rooftop structures or furniture (such as antennae, satellite dishes, etc) which must be taken into account when assessing airspace height implications.

Figure 3-2 — Proposed Block Structure of the Master Plan



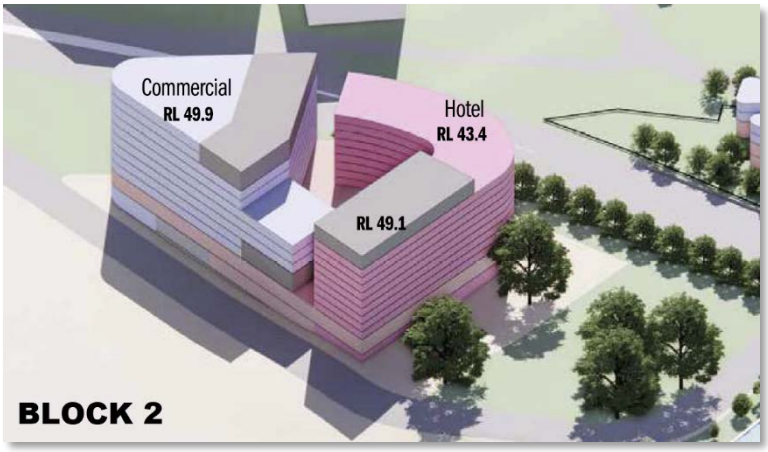
Source: Hassell / Additional Annotation by Strategic Airspace

Figure 3-3 — Building Height Massing in 3D: Block 1 (Commercial)



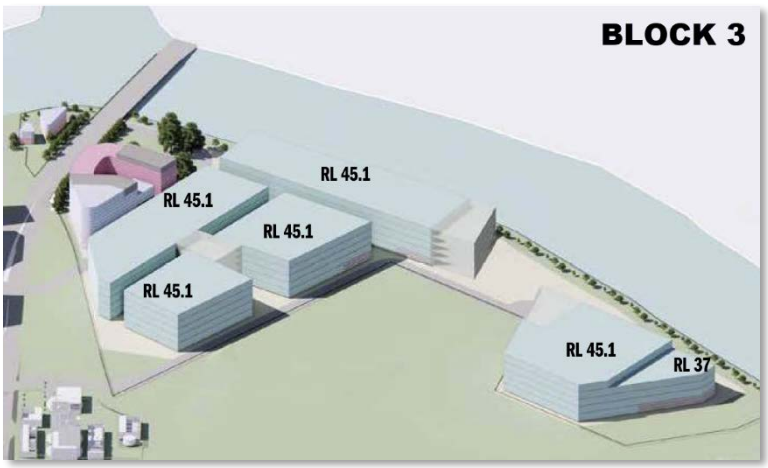
Source: Hassell / Additional Annotation by Strategic Airspace

Figure 3-4 — Building Height Massing in 3D: Block 2 (Hotel, Commercial & Retail)



Source: Hassell / Additional Annotation by Strategic Airspace

Figure 3-5 — Building Height Massing in 3D: Block 3 (Logistics)



Source: Hassell / Additional Annotation by Strategic Airspace

The maximum building RLs model, as depicted in the images above, was used to inform the master planning process so that all buildings will remain below the airspace-related height limits at the relevant locations.

3.3 Height Assessment Methodology

The methodology used to determine the maximum building height (or minimum airspace height limitation) above the development site and related airspace height approval requirements takes into consideration each of the following.

3.3.1 Airspace Regulations

The proposed development site is subject to the Airports (Protection of Airspace) Regulations 1996, as amended [1] (APAR), under the Commonwealth's Airports Act, 1996, because of its proximity to Sydney Airport. These regulations, administered by the Commonwealth Department of Infrastructure, Transport. Regional Development, Communications & the Arts (DITRDCA), define both: how building height limitations due to airspace safety can be determined; and the process for gaining approval of the proposed development under the regulations. Airspace and building heights under the APAR are assessed in terms of heights expressed in metres Australian Height Datum (AHD) — ie, standardised heights above mean sea level, with no reference to the height above ground.

The Prescribed Airspace Regulations, and their impact upon building height limitations, are described in section 3.3.2 below.

An older set of regulations — the Civil Aviation (Buildings Control) Regulations 1988, as amended (CA(BC) Regs) — which preceded the APAR are also theoretically applicable for airspace approval purposes — especially where an approval under the APAR is not required. These are separately discussed in section 3.3.4 below (p15).

3.3.2 Prescribed Airspace

Prescribed airspace, under Airports (Protection of Airspace) Regulations, describe various airspace height limits that are related to protection of airspace around airports which is primarily based on the airport geometry (runways, etc) and the instrument flight procedures used for approaches to and departures from the airport. It also makes provision for other factors that may need to be considered when assessing any potential impact on the safety of using the airspace.

They include at minimum:

- **Obstacle Limitation Surfaces (OLS)**
  - The OLS surfaces are used to identify buildings and other structures that may have an impact upon the safety or regularity of aircraft operations at an airport. This impact depends upon both the type of operations at the aerodrome and which OLS surfaces are penetrated by a (proposed) building or structure.
  - The OLS are flat and rising (invisible) surfaces around the airport. They are based on the geometry of the airport and its runways and therefore they rarely change.
  - If a permanent building development (or temporary crane) that is proposed at a height that will penetrate (exceed) the height limit of an OLS surface, then an application must be made to the Department of Infrastructure, Transport. Regional Development, Communications & the Arts (DITRDCA) — via the closest airport, and with copies to any other potentially affected airport — for an airspace height approval prior to construction of the permanent development &/or erection of the temporary crane obstacle. Such applications

1 Refer https://www.legislation.gov.au/Series/F1996B04438

should demonstrate the proposed building development does not penetrate or adversely affect surfaces protecting: instrument flight procedures (PANS-OPS surfaces); radar vectoring; navigation infrastructure; or anything else that might affect the safety or regularity of operations at the airport.

PANS-OPS Surfaces

- PANS-OPS surfaces represent the protection surfaces for published instrument flight procedures to and from the airport. These surfaces comprise flat, sloping and complex surface components.
- PANS-OPS surfaces must not be penetrated by permanent buildings or structures. However, for a variety of reasons, PANS-OPS surfaces can and do change over time. Approval may be granted, under certain conditions, for temporary obstacles (such as cranes) which at their maximum height would infringe the limiting PANS-OPS surface, and in such cases operation at such heights would most likely be capped by the RTCC surface constraint (see below) and limited to 3 months duration.
- As flight procedures are changed from time to time (usually by Airservices) , the PANS-OPS Surface Plan published by an airport may not reflect the current situation — which is why we not only reference the airport's plans but also review the published charts for current (or pending) instrument flight procedures and evaluate the associated PANS-OPS height limits. The regulations also make a provision for any factor which may be deemed to adversely affect the safety, regularity or efficiency of aircraft operations at an airport. In light of this, it is necessary to consider the following factors.

Other Considerations

- **Sydney Airport's Declared Airspace Plans** additionally include:
  - Radar Terrain Clearance Charts (RTCC), which depict the areas and height limits related to the Minimum Vector Altitudes (MVAs) used by Air Traffic Controllers when vectoring aircraft;
  - Lighting and visual guidance protection plans — used for approach guidance by aircraft, especially at night and in times of poor visibility; and
  - Navaid and radar evaluation / protection surface plans.
- **Sydney Airport's 2039 Master Plan**
- **Other Factors**
  - Protection for other Instrument Flight Procedure surfaces, where the procedures are not classified as PANS-OPS and/or have been omitted from Sydney Airport's declared PANS-OPS surfaces charts. These may include a variety of Required Navigation Procedures (RNP).
  - Airline Engine-Out (Contingency) Take-Off Splays
    (as per Civil Aviation Order 20.7 1b)
    These are generally assessed independently by the airlines as part of their own evaluations of any given airspace height application, but it is prudent to evaluate any potential impact in advance.
  - Proximity to the critical parts of flight paths to/from Strategic Helicopter Landing Sites (SHLS), which are usually limited to the helipads used by Helicopter Emergency Management Services (HEMS) at major trauma hospitals.
  - Other miscellaneous factors that may be considered as potential safety issues by any of the key stakeholders, and the Civil Aviation Safety Authority (CASA) in particular.
- *Note: Airspace that is approved by DITRDCA as Declared Airspace is considered part of an airport's Prescribed Airspace.*

All applications under APAR must be submitted to DITRDCA, at the appropriate time, through the closest relevant airport. Applications should include aeronautical impact assessment reports that are based on the most current plans for the proposed development available at the time. For major developments, such reports should include consideration of cranes that will be required for construction so that the feasibility of construction can be assessed at the time of evaluating any application for a building.

3.3.3 About Airspace Heights

All "heights" provided in this document are elevations expressed in metres in the Australian Height Datum (AHD) — and thus they are true elevations, and NOT heights above ground level (AGL).

For estimating maximum development heights AGL, the ground elevation^{AHD} should be subtracted from the airspace height limits^{AHD}.

Note also — for aviation-related building airspace height approval under the Airports (Protection of Airspace) Regulations, approved heights are inclusive of the building itself, all rooftop furniture and overruns (eg, plant, lift risers, antennae, signage, building maintenance units (BMUs), etc) and any significant rooftop vegetation (eg, trees).

3.3.4 Civil Aviation (Buildings Control) Regulations

These regulations[2] specify various threshold above-ground heights beyond which buildings and structures cannot be constructed without prior approval.

It includes several regulations that specify approval requirements based on above-ground height thresholds, such as:

- Regulation 4 — prior approval required for a structure taller than 25ft (7.62m) above ground level (AGL)
- Regulation 5 — prior approval required for a structure taller than 50ft (15.24) AGL

Each regulation is linked to one or more Schedules. Schedule 5 contains a number of Plans, wherein each Plan depicts the areas of different above-ground height limits, delineated by different methods of hatching. The relevant plans are depicted in Figure 9-1 (p29).

In effect these regulations were a predecessor to the APAR in terms of the objective of protecting airspace around an airport but, whilst legally still in force, in a practical sense they are now largely superseded in effect by the APAR. Nevertheless, in some cases approvals under the CA(BC) regulations may still be required even though a proposed structure is considered as not requiring a height assessment or approval under APAR — for example, where the maximum height of a proposed building would not penetrate the OLS, but may exceed a regulation threshold height under the CA(BC) regulations.

For the impact of these regulations on the Cooks Cove Precinct planning proposal, refer to section 9 and Table 9-1 (p29).

3.3.5 Note re Planned Sunsetting of Airspace Height Regulations

The government plans to sunset the APAR are scheduled to take effect in early April 2025 (deferred from April 2024)[3].

At the date of this report there are no clear documented plans for what will replace the APAR, but the general intent is to replace the APAR with a more holistic set of regulations that will incorporate the current APAR and the

2 Civil Aviation (Buildings Control) Regulations 1988 (Statutory Rules 1988 No 161 as amended) made under the Civil Aviation Act 1988. The latest compilation is dated 12-Oct-2017, up to Amendment F2017L01341. Refer https://www.legislation.gov.au/Details/F2017C01003

3 https://www.infrastructure.gov.au/aviation/sunsetting/index.aspx

National Airports Safety Framework (NASF) principles and guidelines[4], and also allow for assessment for major projects with extended development timeframes. The replacement regulations would be made before the sunset date of the current APAR.

By contrast, falling under the Civil Aviation Act, the CA(BC) Regulations are exempt from sunsetting. The only way to remove them would be to repeal them, which was a recommendation of the 2016 Modernising Airspace Protection Discussion Paper published by the DITRDCA (then DIRD). To date, this issue has not been resolved.

Thus, for the purposes of this report, the APAR and the CA(BC) regulations should still be regarded as the effective regulations to be considered.

3.4 National Airports Safeguarding Framework (NASF) Overview

The NASF is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The NASF was developed and is maintained for the Commonwealth (under the auspices of DITRDCA) by the National Airports Safeguarding Advisory Group (NASAG). The NASAG comprises representatives from Commonwealth, State and Territory Government planning and transport departments, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA).

The NASF principles are supported by a set of guidelines and associated attachments and appendices. The current set of guidelines are:

Guideline A — Measures for Managing Impacts of Aircraft Noise

Guideline B — Managing the Risk of Building-Generated Windshear & Turbulence at Airports

Guideline C — Managing the Risk of Wildlife Strikes in the Vicinity of Airports

Guideline D — Managing the Risk of Wind Turbine Farms a Physical Obstacles to Air Navigation

Guideline E — Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports

Guideline F — Managing the Risk of Intrusion into the Protected Airspace of Airports

Guideline G — Protecting Aviation Facilities – Communication, Navigation & Surveillance (CNS)

Guideline H — Protecting Strategically Important Helicopter Landing Sites (HLS)

Guideline I — Managing the Risk in Public Safety Areas (PSAs) at the Ends of Runways

4 NASF – refer https://www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/nasf_principles_guidelines.aspx

As such, presently the NASF guidelines do not have a direct bearing on the airspace height approvability of proposed structures, but assessment against various guidelines may impact final planning consent for proposed developments.

3.5 Local Planning Direction 5.3

In tandem with the aviation height control regulations and the NASF guidelines, Local Planning Direction 5.3 (LPD 5.3) by the NSW Department of Planning and Environment sets out directions applicable to planning authorities when considering planning proposals near regulated airports (refer Appendix 3 — Local Planning Direction 5.3 (Development near Regulated Airports).

Amongst other requirements, the LPD 5.3 includes clauses that require that:

- the height of the proposed development not adversely affect the operational airspace of the airport;
- the nature of the proposed development not adversely affect the current or the future operations of the airport; and
- the planning proposal meets the Australian Standards 2021 – 2015, Acoustic – Aircraft Noise Intrusion – Building Siting & Construction.

The LPD 5.3 and the items specifically noted above are not responded to on an item-by-item basis as they are integrally addressed in response to the airspace height regulations and NASF guideline issues.

For completeness however they are addressed in section 12 Conclusion (p36).

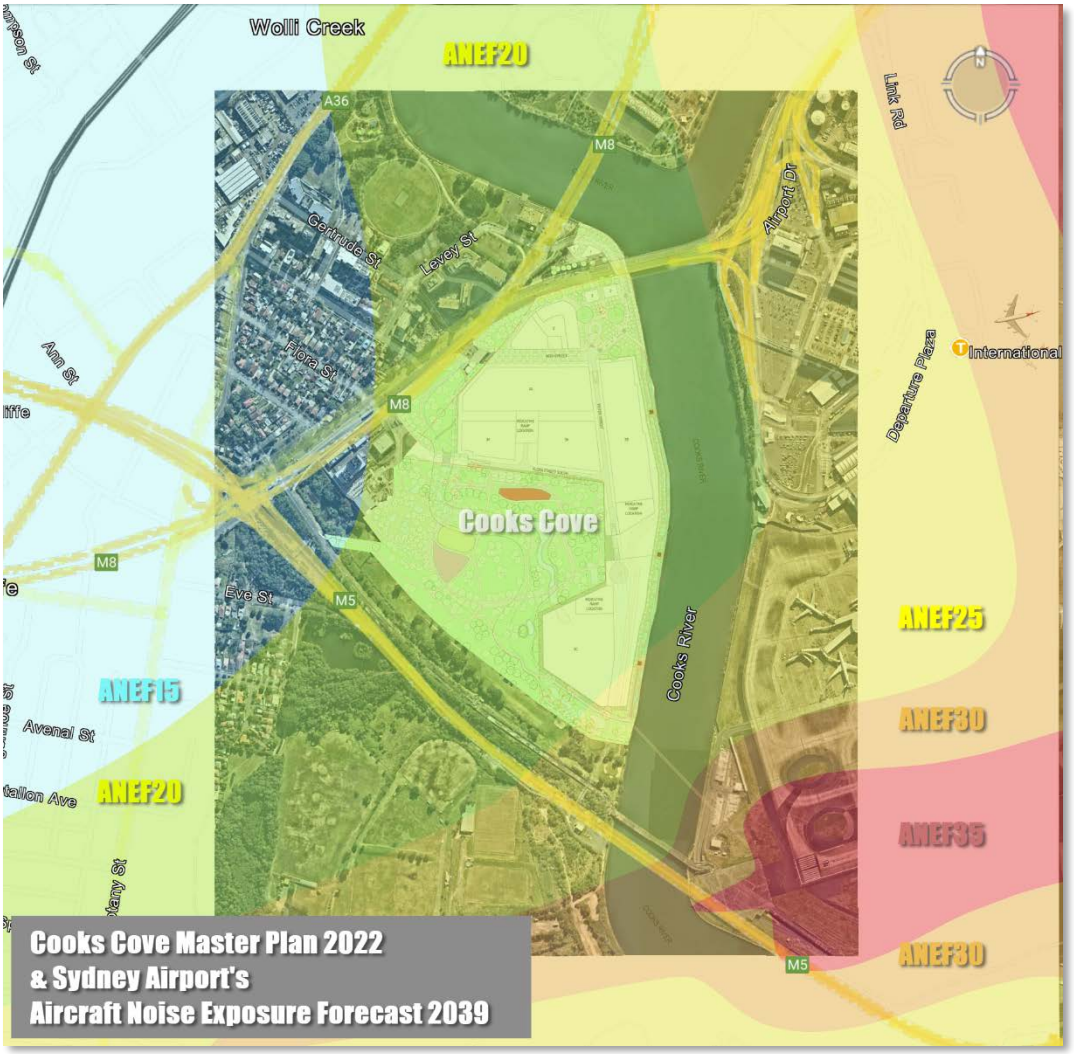
4. NASF Guidelines A – D

4.1 Guideline A: Aircraft Noise Assessment

The site lies within Sydney Airport's 2039 Aircraft Noise Exposure Forecast (ANEF) zone of ANEF 20, as depicted below in Figure 4-1. The higher the ANEF number, the higher the potential level of noise from aircraft operations. ANEF 20 is a key trigger level for assessment of aircraft noise impact for new developments.

As a predominantly commercial, logistics and warehousing precinct, the proposed Cooks Cove development is not subject to the level of acoustics-related planning constraints that might otherwise be imposed. This aspect has however been fully considered during the preparation of the Master Plan.

Figure 4-1 — Cooks Cove in relation to the Aircraft Noise Exposure Forecast (ANEF) 2039



The specialist acoustics assessment against this Guideline is documented in a separate specialist report — refer to Table 2-1 (p8) for more details.

4.2 Guideline B: Risk of Building-Generated Windshear & Turbulence on Flight Operations at Sydney Airport

Buildings constructed close to runways may interfere with the normal wind patterns and generate turbulence and windshear events that may adversely affect aircraft on the final stages of approaches to landing or the early stages of take-offs.

Windshear is when there is a noticeable change in the wind speed over a relatively short distance — either horizontally (sideways) and/or vertically (up or down). Note also that windshear does occur naturally, even without nearby buildings.

The purpose of this Guideline is to assess the likelihood that buildings proposed in the Master Plan could generate turbulence and/or windshear.

As noted in section 3.1 above (p9), the site is closest to the short cross-runway at Sydney Airport, RWY 07/25 — so the focus on potential impact on flights to and from the western end of this runway are the focus of the assessment.

Assessment against this Guideline is documented in a separate specialist report — refer to Table 2-1 (p8) for more details.

4.3 Guideline C: Risk of Wildlife Strikes (Birdstrike)

Birds flying into the path of an aircraft can be a risk to the safety of the aircraft. If a bird hits an aircraft (in the worst case, hitting a propellor or getting sucked into a jet engine), this is known as a birdstrike. As the site is separate from the airport itself, other types of wildlife need not be considered.

Different levels of potential risk, and need for safety mitigations, are specified by distance from the airport in Guideline C. Cooks Cove is in the closest defined area.

At the most simplistic level, the planned change of land usage — from the pre-existing Kogarah Golf Club (featuring with grasses, trees and water features) to a logistics and warehousing precinct — means a reduction of the ecological features that would be attractive to birds and therefore a qualitative decrease of risk of birdstrikes.

These factors are covered in more detail in a separate specialist report — refer to Table 2-1 (p8) for more details.

4.4 Guideline D: Wind Turbines as Obstacles

There are no wind farm or individual wind turbines planned for in the Cooks Cove Master Plan — hence, there is no need for assessment against this Guideline.

5. Guideline E: Managing the Risk of Distraction to Pilots

Pilots are reliant on the specific patterns of aeronautical ground lights during inclement weather and outside daylight hours. These aeronautical ground lights, such as runway lights and approach lights, play a vital role in enabling pilots to align their aircraft with the runway and descend on an appropriate glidepath. These visual aids enable the pilot to land the aircraft at the appropriate part of the runway. It is therefore important that lighting in the vicinity of airports is not configured or is of such a pattern that pilots could either be distracted or mistake such lighting as being ground lighting from the airport.

Equally, during daylight hours, it is important to minimise the risk of reflection and glare that may distract pilots during the critical phases of flight close to the runway, specifically during the final stages of approach to landing and early take-off.

Note also that the local Development Control Plan (DCP) includes provisions which reflect the NASF Guideline E.

The importance of this Guideline has been considered as part of the Planning Proposal and measures to implement appropriate steps in this regard will be carried through to the future detailed design stages of the project.

5.1 External Lighting in the Vicinity of Airports

The wording of Guideline E in relation to external lighting is partially based on a superseded version Civil Aviation Safety Regulations Manual of Standards (CASR MOS) Part 139 (Section 9.21 Lighting in the Vicinity of Airports) which included guidance on the limitation of lighting in the vicinity of airports, placing limits on the maximum intensities of light sources measured at 3° above the horizontal, and screening as a mitigation. This Guideline is based on the Civil Aviation Safety Regulations Manual of Standards MOS Part 139 (Section 9.21) which contains guidance on the limitation of lighting in the vicinity of airports, placing limits on the maximum intensities of light sources measured at 3° above the horizontal.

An extract of the legislative background in force at that time is shown in Figure 5-1 below for further information. The version of Regulation 94 (Dangerous Lights) currently in force is essentially the same.

The superseding regulations are the CASR Part 139 (Aerodromes) Manual of Standards 2019 (as amended, compilation date 13th August 2020). The part of the current Part 139 (Aerodromes) MOS which refers to external lighting outside the aerodrome boundary are confusingly part of Regulation 9.143, entitled Other Lighting on the Aerodrome (refer Figure 5-2 below).

The key changes are:

- There is no requirement or recommendation to consult CASA about a proposal for external lighting within the Light Control Zones A, B, C and D (which remain the same as previously specified).
  - The onus falls on the aerodrome operator (ie, Sydney Airport) to notify CASA of any proposals that may have lighting or lighting intensities greater than specified for the relevant Lighting Control Zone. And in such cases, CASA must consider whether the notification identifies a risk to the safety of aviation.
  - CASA does not need to be consulted or proposals referred to them if the external lighting for a proposed development do not exceed the Zone lighting intensity limits. This does not preclude the option of a developer voluntarily consulting CASA for guidance on compliance.

- There are no requirements or guidelines for lights inside the 6km zone but outside the four Light Control Zones A – D.
- Constraints regarding multiple light colours, rapidly changes in light colour and flashing lights are appliable only within the aerodrome boundary — but this prescription is not applicable to visual aids required for aircraft operations, signalling equipment and visual aids required for road safety.
  - Given this, we contend that visual aids required for road safety outside the aerodrome boundary should also be permitted.

Figure 5-1 — Legislative Background re Dangerous Lights near Airports — Extract from the Superseded CASR MOS Part 139

9.21.2 Legislative Background

9.21.2.1 The Civil Aviation Safety Authority (CASA) has the power through regulation 94 of the Civil Aviation Regulations 1988 (CAR 1988), to require lights which may cause confusion, distraction or glare to pilots in the air, to be extinguished or modified. Ground lights may cause confusion or distraction by reason of their colour, position, pattern or intensity of light emission above the horizontal plane. The text of regulation 94 is reproduced below for reference:

94 Dangerous lights

(1) Whenever any light is exhibited at or in the neighbourhood of an aerodrome, or in the neighbourhood of an air route or airway facility on an air route or airway, and the light is likely to endanger the safety of aircraft, whether by reason of glare, or by causing confusion with, or preventing clear reception of, the lights or signals prescribed in Part 13 or of air route or airway facilities provided under the Air Services Act 1995; CASA may authorise a notice to be served upon the owner of the place where the light is exhibited or upon the person having charge of the light directing that owner or person, within a reasonable time to be specified in the notice, to extinguish or to screen effectually the light and to refrain from exhibiting any similar light in the future.

Figure 5-2 — Extract from the Current CASR Part 139 (Aerodromes) MOS 2019 concerning Lighting Outside the Aerodrome Boundary

9.143 Other lighting on the aerodrome

(1) This section applies only to lights that are not otherwise provided as visual aids to aircraft under the other provisions of this MOS.

(2) The following requirements must be complied with:

(a) an aerodrome operator must notify CASA in writing as soon as possible after becoming aware that a person is installing or proposing to install, or is using or is proposing to use, any installation, equipment or laser, outside the aerodrome boundary, that has or may have lighting or lighting intensity greater than that specified in Figure 9.144 (2);

(b) CASA must:

(i) consider whether the notification identifies a risk to the safety of aviation; and

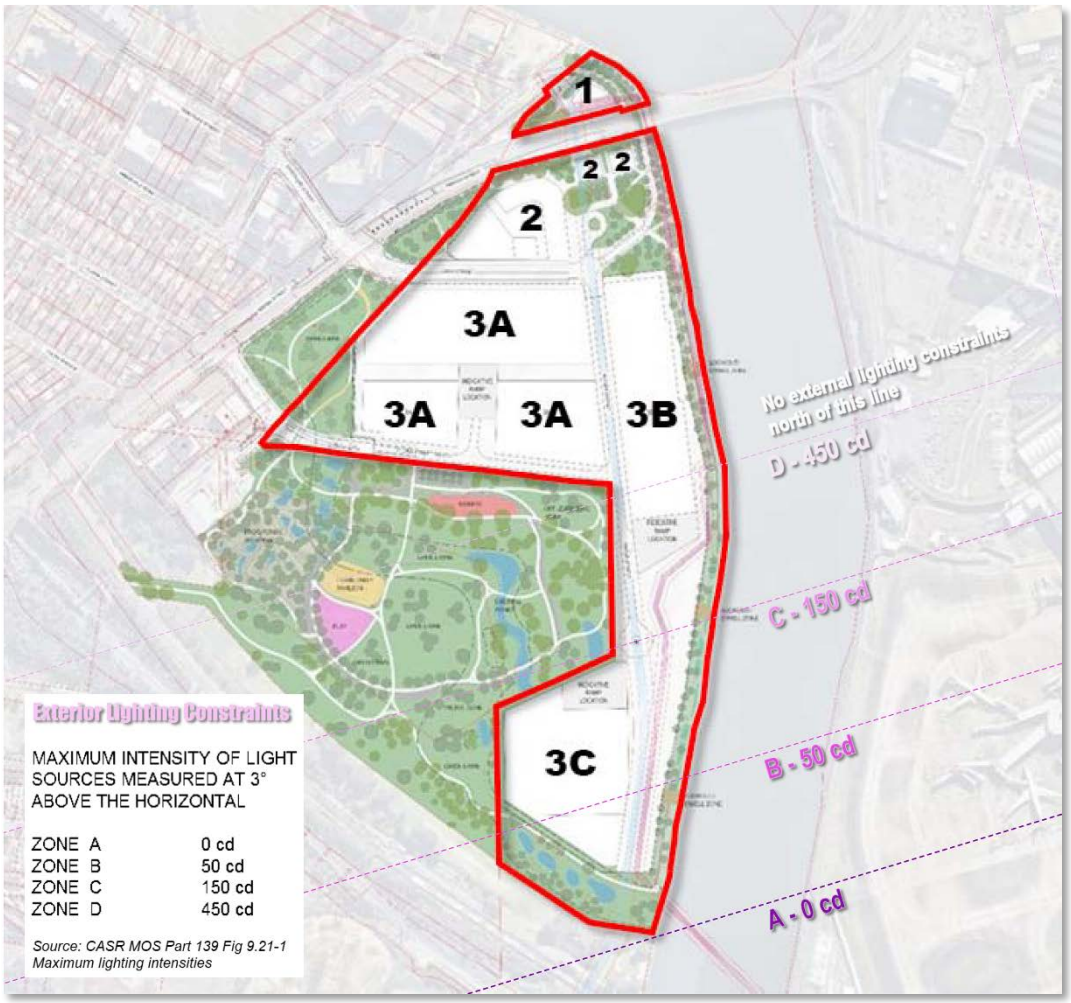
(ii) if necessary, issue directions for action to mitigate the risk.

Note For directions, see regulation 94 of CAR, and regulation 11.245 of CASR.

The Figure 9.144 (2) referenced above shows the Lighting Control Zones, unchanged from the previous MOS Part 139, Figure 9.21-1

Given the site location, the lighting constraints are limited to those related to RWY 07/25 only. As illustrated in Figure 5-3 below, only the southern portion of the Cooks Cove Precinct site (the Commercial Precinct) will be subject to these constraints.

Figure 5-3 — Max Lighting Intensity Zones across the Site



Source: Ethos Urban / Additional Annotation by Strategic Airspace

The impact of the four lighting zones, defined as lighting intensity measured at 3° above horizontal, on the blocks / lots in the Master Plan are summarized in the table below.

Table 5-1 — Impact of External Lighting Zones on the Master Plan

Zone & Intensity Limit	*Affected Area*
Zone A — 0 iso-candela (0 cd)	Nil impact —the precinct developments are outside this zone.
Zone B — 50 cd	The southern part of Lot 3C.
Zone C — 150 cd	The northern part of Lot 3C, part of which is planned to be a ramp location.
Zone D — 450 cd	Only the very southern part of Lot 3B, the majority of which is planned to be a ramp location.
Outside Zones A – D	No constraints on northern half of the Master Plan

Lighting design in later stages of the project — ie, during detailed design for Development Applications — will take these constraints into account. It is also proposed, as recommended by CASA, that consultation will be undertaken with Sydney Airport and air traffic management at the airport in the future, prior to finalising lighting designs, to assure that external lighting will not endanger the safety of aircraft operations, with particular focus on aircraft conducting RWY25 departures.

5.2 Glare from Cladding, Rooftops & Rooftop Features

The potential for glare caused by reflected sunlight from structures such as buildings has been raised in some quarters as a potential source of distraction to pilots. However, CASA has advised that glare from buildings tend to be momentary and therefore unlikely to be a source of risk. The potential for risk from building glare is further attenuated by the use of sunglasses which pilots normally wear in bright daylight.

In general, adverse glare from the proposed development is not anticipated, because of the location of the site between the runways (not directly in line with them), and due to the types and low heights of structures and external cladding and roofing materials planned.

In line with the Sustainability Strategy, Hassell identify that the rooftops of the logistics hub will provide an opportunity for a number of sustainability initiatives that seek to capture sunlight via roof-mounted solar panels, provide increased amenity for the workforce, capture and recycle water, and provide large zones of ecology and habitat through green roof systems,

Rooftop strategies will be developed as part of the detailed design stage to ensure compatibility between sustainability and NASF objectives — for example. managing and mitigating the potential glare impact of roof mounted solar panels by orientation and the use of non-reflective coatings.

A precedent demonstrating this is an achievable sustainability and aviation safety outcome is the solar panel array developed by Sydney Airport / Lend Lease / Autonomous Energy on the rooftop of the Terminal 1 Northern Multi Storey Car Park in closer proximity to the airfield.

6. Guideline F: Aeronautical Impact Analysis

This section addresses the aeronautical impact in relation to Guideline F — Protected Airspace.

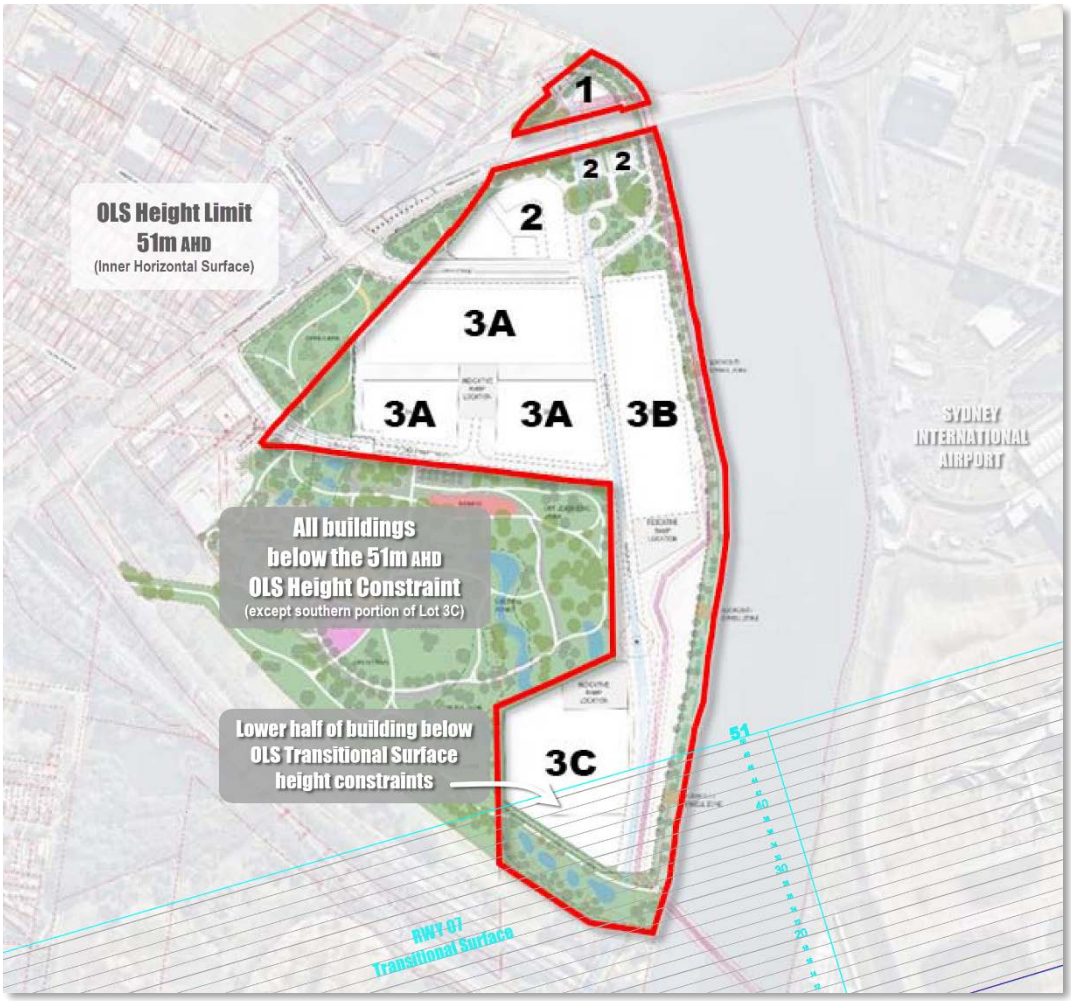
From an aeronautical impact point of view, the Cooks Cove Precinct is heavily constrained by the airspace height limitations — however, the Cooks Cove Master Plan has been developed based on these airspace limitations to ensure that any future airspace-related height applications will be approved.

The maximum height of buildings is set at 51m AHD across the site, and lower in the most southern portion of the precinct, specifically to ensure that they remain below the limiting OLS heights. Consequently, the prescribed airspace of Sydney Airport will not be infringed and therefore prior approval under the APAR for the proposed buildings will not be required.

Further, even though no part of the proposed built environment will exceed the OLS, the PANS-OPS surfaces were also evaluated in studies leading up to this report to evaluate the future constructability of these buildings — an aspect which does not need to be examined in detail until the detailed design development leading up to Development Applications. For further information, also refer to section 11 Next Stages — Development Approvals, Construction & Beyond (p34).

6.1 Obstacle Limitation Surfaces (OLS) Analysis

Figure 6-1 — Obstacle Limitation Surfaces (OLS)



Source: Ethos Urban / Additional Annotation by Strategic Airspace

Sydney Airport's OLS surfaces across the precinct vary, as depicted in Figure 6-1.

6.1.1 Southern Portion of the Site — No Infringement

The south-eastern half of Lot 3C is covered by an OLS surface — the RWY07/25 transitional surface — which slopes up from the south-east. The top of the building under this surface is planned to be below the most restrictive contour height at the southern end — so the entire building remains below the relevant OLS height.

6.1.2 Major Northern Portion of the Site — No Infringement

The OLS inner Horizontal Surface, at a height of 51m AHD, covers the majority of the northern part of the site, comprising the northern portion of the Block 3 (Logistics) and the whole of Blocks 1 and 2. All buildings in this area of coverage will be no higher than this height.

6.2 PANS-OPS Analysis

A previous assessment, based on an earlier Master Plan, demonstrated that the PANS-OPS surfaces related to the Instrument Flight Procedures (IFPs) for Sydney Airport were not infringed. The PANS-OPS procedures analysed in the previous report are listed in Table 12-1 in Appendix 2 — PANS-OPS Procedures. The table also cross-references those against the charts currently published and the lack of impact of any changes since the earlier report.

6.3 Other Height-Related Assessment Considerations

6.3.1 Other Potential Height Constraints

Table 6-1 — Other Assessable Height Limitations

Procedure	*Height Limit (m AHD)*	*Description*
Airlines Engine Out Procedures	N/A	Engine Out procedures (from RWY 25, the most relevant take-off runway end) are designed and maintained by each of the passenger transport aircraft operators in accordance with the relevant regulations. The Cooks Cove Precinct site is outside the lateral extent of the splays defined which must be used for assessment of engine-out impact by airlines, under Civil Aviation Order (CAO) 20.7.1B. As such this proposal will not adversely affect the safety of any contingency procedures.

There are no other factors considered relevant that might limit the building height at the project site — with the exception of the approval requirements under the Civil Aviation (Building Controls) Regulations (see section 9, p28).

6.4 Summary of Impact on Protected Airspace

With the proposed development being lower than the OLS, and not adversely affecting any other critical airspace assessment factors, the Cooks Cove Master Plan does not have any impact on Sydney Airport's protected airspace.

7. NASF Guidelines G – I

7.1 Guideline G: Protecting Communications, Navigation & Surveillance (CNS) Facilities

The Communications, Navigations and Surveillance (CNS) facilities are used by Airservices Australia to support the processes and functions required for the safe and effective management and control of air traffic.

Guideline G specifies a Building Restricted Area (BRA) around a CNS facility as a means of identifying whether a proposed development should be assessed by Airservices for potential impact. Note however that there have been no BRAs established for Sydney Airport. Instead, the Airport has a pre-existing Navigation Infrastructure chart which has been declared as part of its Prescribed Airspace.

The 2015 SACL Declared Airspace plan for Navigation Infrastructure shows curved surfaces across the Cooks Cove Precinct site that are fairly restrictive — ie, sloping up to approximately 51m AHD at the north-western edge of the site.

These height contours relate to the Sydney Terminal Area Radar (SY TAR), the geometry of which are based on assessment guidelines for siting a new radar.

However, the surfaces charted do not take into account any shielding that would occur by the existing infrastructure of on-airport buildings — in this case the Sydney International Terminal Buildings would in fact shield the vast majority if not all of the proposed development.

Further, given the fact that the radar at Cecil Park (far from the airport) is used as the primary radar source, along with timelier and more accurate GNSS-based ADS-B signals, for surveillance of approaches and departures to/from Sydney Airport, we believe that the surfaces depicted on the chart are not relevant and will not be constraining on buildings which remain below the PANS-OPS height limits on the site.

In addition, the site is clear of protection surfaces for all landing aids used by aircraft.

7.2 Guideline H: Protecting Strategic Helicopter Landing Sites (SHLS)

A SHLS is a site declared by a State or Territory to be of critical need to the provision of critical services, including:

- A helicopter landing site (HLS) associated with a hospital.
- An elevated HLS, located within a populated area.
- An HLS which has published PANS-OPS instrument flight procedures.

The closest SHLS are the helipads at Royal Prince Alfred Hospital, Camperdown (~ 5.4km), and Prince of Wales Hospital, Randwick (~7.5km). The distance of these SHLS and their nominal flight paths mean that they will not be affected at all by the Cooks Cove development.

It has also been noted that there are two helipads at Sydney Airport, but these are not classified as SHLS. They are on the eastern side of the airport, south-east of the eastern edge of the cross-runway, with the nearest being ~2.8km from the closest (eastern) boundary of the Cooks Cove site. Even though these are not classified as SHLS, it has been confirmed that the development would not infringe any visual flight to/from these

helipads due to the maximum height of the proposed buildings on the site, and the location of the site on the other side of the airport.

In summary, the proposed development would have no adverse impact on any SHLS.

7.3 Guideline I: Public Safety Areas

A Public Safety Area (PSA) is a designated area of land at the end of an airport runway within which development may be restricted in order to control the number of people on the ground around runway ends.

The size and shape of a PSA typically depend on the statistical chance of an accident occurring at a particular location, which is related to the number of aircraft movements and the distance from the critical take-off and landing points. Generally, the chance of an accident occurring at a location decreases the further the location is from the runway.

Guideline I provides flexibility for States and Territories to identify and map PSAs at airports, and how they are to be designed based on each airport's unique set of operations.

Notably, there are no published PSAs for the ends of runways at Sydney Airport.

Even if one was to consider a PSA of a shape like those designed for the new Western Sydney Airport, the Cooks Cove Precinct would be outside such a nominal PSA for the western end of RWY 07/25.

As such, the Cooks Cove Precinct can be considered as having no impact on a PSA.

8. Cumulative Impact

The location and size of the Precinct (predominantly behind the International Terminal precinct of the airport), and the low heights of buildings (all under 51m AHD), mean that the proposed development will have negligible, if any, cumulative impact over the existing built developments to the west (Arncliffe) and north-west (Wolli Creek) of the site.

9. Assessment of the Planning Proposal in relation to the CA(BC) Regulations

Where any building or structure or even temporary structure (eg, a work shed or crane required for construction) would exceed the relevant CA(BC) regulation height, regardless of whether it exceeds the OLS or not, technically a specific approval would be required under these regulations.

The table below summarises the general impact of this regulation on the planning proposal. The coverage of the relevant regulations and approval height thresholds are illustrated in the maps in Figure 9-1 below.

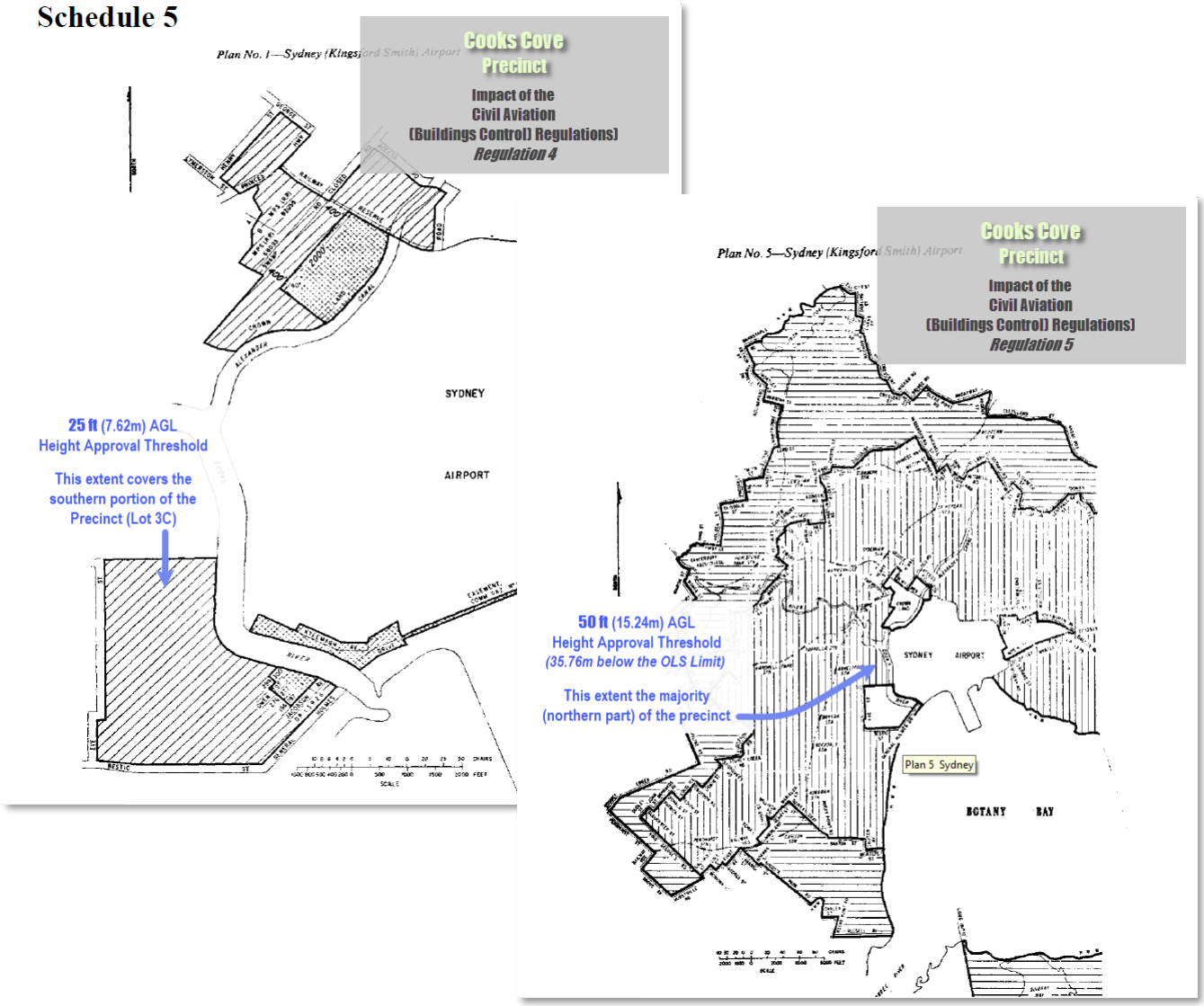
Table 9-1 — Civil Aviation (Buildings Control) Regulations Impact

Site Area	*Reg*	*Approval Height (AGL) Threshold*	*Schedule*	*Schedule 5 Plan*	*Notes*
Southern End — Lot 3C	4	25 ft (7.62 m)	2	1	Diagonally-hatched area
Majority of Precinct — the northern part of the Precinct, encompassing Blocks 1, 2 & 3 (excluding Lot 3C)	5	50 ft (15.24m)	3	5	Vertically-hatched area

Because buildings would not require prior approvals under the APAR, it is recommended that approval for any structure that exceeds the relevant CA(BC) regulation heights is sought from Sydney Airport, as a delegate for CASA. In such cases, it is anticipated that approval would be granted, even if only because their prescribed airspace would not be infringed by the proposed buildings.

Where an application for a temporary structure such as a crane for construction is required under the APAR, then it is highly probable that this would be considered as superseding the requirement for an approval under the CA(BC) Regulations and so a separate approval under these regulations would not be required.

Figure 9-1 — CA(BC) Regulations Impact on the Precinct



10. Qualitative Risk Assessment: Perceived Risk of Overflights vs Airspace Protections & Internationally Accepted Safety Standards

This section aims to demystify some of the airspace protections afforded by the prescribed airspace surfaces (OLS and PANS-OPS), the internationally accepted Target Levels of Safety inherent in the PANS-OPS IFPs, and why the controlled air traffic environment at Sydney Airport adds an additional level of safety to these other measures of airspace protection. The other objectives of this section are to explain why compliance with these measures should eliminate any perceptions of risk associated with potential overflight of the Cooks Cove Precinct, despite the proximity of the site to the airport.

In short, because the planning proposal is designed so that it will not infringe the OLS nor the prescribed airspace of Sydney Airport, it will not adversely affect the safety, efficiency or regularity of air traffic at the Airport.

Figure 10-1 — 3D Image of RWY25 Take-Off to the West

3D model rendering

Each of the specific planning and/or design constraints that have been adhered to are discussed in the following sections. The specific benefit that each of these imposed design limitations provides are outlined below.

Any aircraft that are near or overhead the Precinct will be:

- Flying visually using Visual Flight Rules to maintain clearance above the obstacle environment — but can only do so with the permission of Air Traffic Control (ATC) and surveillance by ATC.

- Flying using instruments for navigation and following a published PANS-OPS procedure for guidance and to maintain a safety margin above the obstacle environment — for straight-in approaches, for circling, and for departures.
- Because of modern navigation facilities in the aircraft and the types of procedures flown, it is highly unlikely that any aircraft on final approach would overfly the site.
- Flying visually but vectored (given paths to follow) by Air Traffic Control.
- Flying an Engine-Out procedure when an engine fails during or immediately after take-off.

In each of the above cases, the pilot will be in contact with an ATC who will provide instructions, as necessary, including adhering to minimum flight altitudes and headings for the pilot to follow.

10.1 Purpose of Obstacle Limitation Surfaces (OLS)

The OLS are primarily intended to protect visual operations of arriving, landing and departing aircraft at an airport. Towards this end, the OLS are specifically intended to be used in the “control [of] the growth of obstacles around an airport”. They are not intended as a set of surfaces that define operating minima for aircraft at an airport; these minima are defined using other means.

10.1.1 As a Threshold Height

The OLS may be penetrated by obstacles but only if CASA is satisfied that such penetrations do not diminish safety or regularity of intended operations in any way. Because of this, the OLS form a critical part of the APAR in that if the OLS would be infringed by the erection of a new object then an application must be made for approval of the object as a Controlled Activity. This is the primary purpose of some of the OLS at Sydney Airport. As noted above, the proposed buildings will NOT infringe the OLS.

10.1.2 Protection of Visual Operations

There are almost no visual operations at Sydney Airport. Any that do occur are monitored, and to some extent controlled, by ATC. Obstacle clearance is the responsibility of the pilot who should maintain 1,000ft minimum visual clearance except when positioning to land.

10.2 PANS-OPS Procedures flown under Instrument Flight Rules (IFR)

10.2.1 Based on International Safety Standards

IFR procedures are designed to strict international standards by procedure designers who are certified by CASA. These procedures are designed to have minimum safe vertical clearances above all obstacles — so the PANS-OPS surfaces are actually well below the designed flight altitude. The PANS-OPS surfaces also cover the lateral containment areas for different parts of the procedures — and these areas also incorporate wide margins both to the left and right of the nominal flight track; according to international standards an aircraft flying a PANS-OPS procedure will stay within the containment (ie, protection) area 99.9% of the time.

All in all, the international design criteria ensure that the probability that an aircraft will have an accident is less than 10^{-7} — that is, less than 1 in 10,000,000 chance. This probability is often referred to as the Target Level of Safety (TLS).

10.2.2 Minimum Height Protections before Potential Overflights can Occur

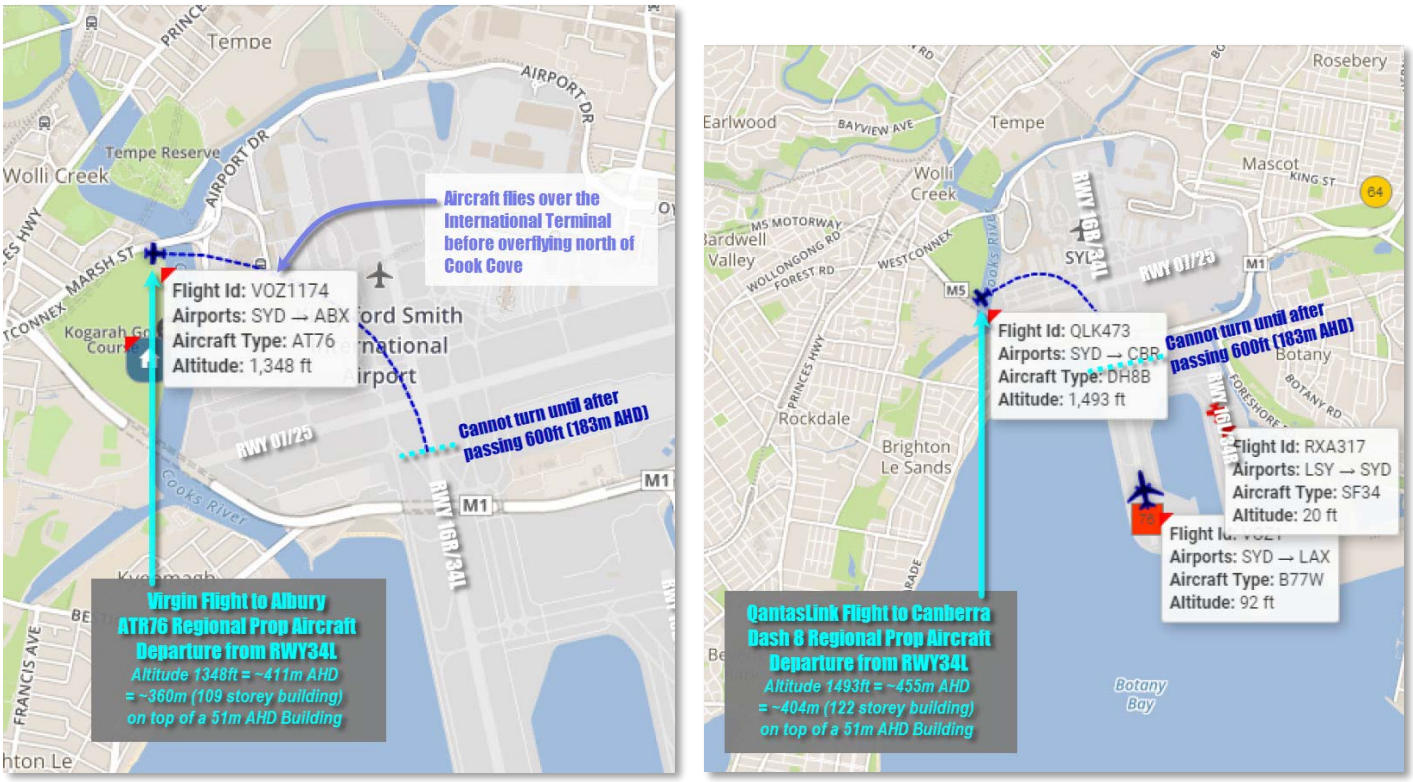
The intended flightpath of most PANS-OPS procedures is highly constrained. Because of this, only some Departures and Missed Approaches (which have less constrained flightpaths) might fly overhead the Precinct — and even when they do they will do so at altitudes that are much higher than the OLS and PANS-OPS surfaces heights.

The specific procedures that may fly over the Precinct are:

- RWY 34L Departures (see Figure 10-2 below):
  The minimum turn altitude is 600ft (182.9m AHD, approximately 177m AGL) for Non-jet aircraft and 800 ft (243.8m AHD, 237m AGL) for Jet aircraft.
- RWY 34L Missed Approaches: The missed approaches must continue straight ahead until they reach an altitude of 500ft (152.4m AHD, approximately 146m AGL) before veering 15° to the left shortly after passing the landing threshold (at the southern end of the runway). In most cases an aircraft flying this missed approach would fly over the international terminal, but it is possible in the case of a strong wind or less accurate flying that it could potentially fly over the Cooks Cove site — in which case by that stage it would be even higher if over-flying the Precinct.

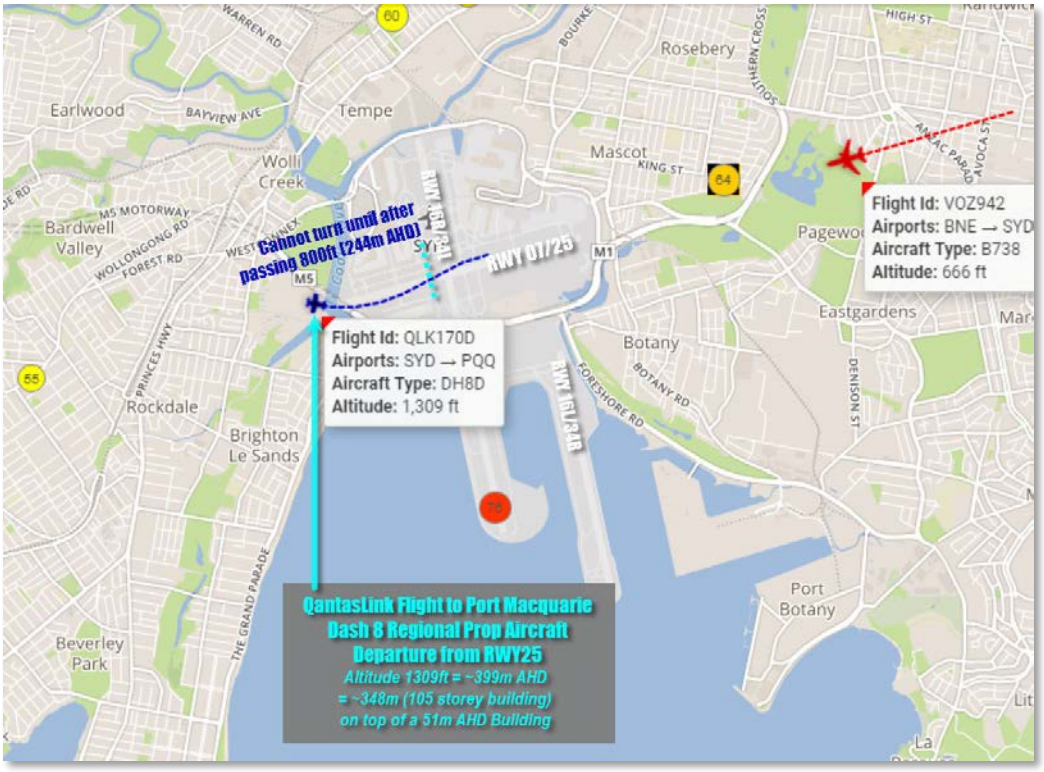
  Note that aircraft using the RWY 34L Departures or Missed Approaches are most likely to fly over the International Terminal before potentially overlying any portion of the Cooks Cove Precinct.

Figure 10-2 — Examples of Overflights from RWY34L Departures (from WebTrak data, 2019)



The minimum turn altitude for Jet aircraft for RWY34L departures is higher — 800ft (~244m AHD) — than for non-jet (ie, propeller) aircraft.

Figure 10-3 — Examples of Overflight from RWY25 Departures (from WebTrak data, 2019)



The minimum turn altitude for Jet aircraft for RWY25 departures is higher — 1500ft (~457m AHD)

- RWY 25 Departures (see Figure 10-3 above):
  The minimum turn altitude is 600ft (243.9m AHD, approximately 237m AGL) for Non-jet aircraft and 800ft (457.2m AHD, 451m AGL) for Jet aircraft.
- RWY 25 Missed Approaches: The RWY 25 missed approaches go straight ahead so they will not fly over the Precinct.

  It is also noted that approaches to and take-offs from RWY25 to the west occur quite infrequently — occasionally to satisfy noise sharing objectives, on those occasions where there are very strong westerly winds, or on the very rare occasions when one or both main north-south runways are unusable.

- The only other PANS-OPS procedure that might overfly the Precinct is a visual procedure called a Circling Approach. This procedure is used infrequently by the Royal Flying Doctor Service. The RFDS is the only user of this procedures according to the Sydney ATC. Aircraft using this procedure must fly no lower than 710ft — ie, 216.4m AHD, which is the equivalent of a 50-storey building on top of a 51m AHD building.

10.3 Engine-Out Contingency Procedures

These procedures are designed by the airline operators. Typically, they are designed so that the aircraft climbs straight ahead until they reach a safe altitude (minimum 1000ft or 304.8m AHD) before turning towards the ocean to discharge some fuel before returning to land. Aircraft are very unlikely to fly over the Precinct when performing such a manoeuvre because they normally track straight ahead for at least 10-15km before turning. Pilots train for these manoeuvres and if required to perform them must follow the company's own Engine-Out Standard Operating Procedures and charts which are designed specifically for each aircraft type (and usually also even weight and temperature conditions). Further, as noted above in Table 6-1 (p26) in section 6.3 Other Height-Related Assessment Considerations, the entire precinct lies outside regulated minimum lateral protection areas for such procedures.

10.4 Additional Protections by ATC

In addition to vectoring aircraft in order to help maintain efficiency of movements (ie, sequencing of aircraft for landing and take-off), the ATC service at Sydney Airport also monitor air traffic for potential conflicts and also for abnormal or unexpected deviations from flight tracks and altitudes.

In effect, this adds another level of safety to that already intrinsic in the TLS of PANS-OPS procedures that are designed in accordance with the international criteria.

11. Next Stages — Development Approvals, Construction & Beyond

11.1 Crane Considerations for the Future Design & Development Stages

This section considers the feasibility of construction in relation to airspace limits — specifically the potential approvability of future cranes in relation to the OLS & PANS-OPS Surfaces.

This aspect has been canvassed in this report to document the assessment of likely airspace impact on cranes required for construction, information which can be used in the

future stages of detailed architectural design, construction management planning and development applications (DAs).

The assessment at this stage of planning looks at the potential vertical space for cranes required for construction in relation to the prescribed airspace. As for buildings, any cranes (or other construction facilities) that would exceed the OLS surface would require prior approval under the APAR. The absolute maximum height that would be considered approvable under the APAR would be the then current PANS-OPS surface height over the relevant location (the PANS-OPS surface heights vary across the site).

Airspace height approvals under the APAR are likely to be required for cranes and potentially other facilities required for the construction of the majority of buildings, especially for those where the maximum height is close to the relevant OLS height where the cranes would infringe the OLS surfaces.

For the majority of buildings, especially across the northern half of the precinct, there will be ample vertical space for cranes to be used without infringing the PANS-OPS surface heights — with clearances above the tops of buildings ranging from at least 30m to no less than 51m. Airspace height applications under APAR for cranes in this area are expected to be approved.

At the southern end of the site (the lower half of Lot 3C in particular), more detailed design and construction planning (at the appropriate time, before and after DA lodgement) will take the PANS-OPS height constraints into consideration, and applications for cranes under the APAR would be required prior to erection of cranes. Further, the proponent understands that any approvals granted for cranes that would infringe both the OLS and the relevant PANS-OPS surface heights would most likely be subject to a number of operating constraints, including a maximum operating duration of 3 calendar months.

Any future height applications for cranes will require a detailed airspace assessment, current at the time of the application, inclusion of the then current Construction Management Plan (CMP), crane plans and operations programme and, subject to the final height impact, demonstration that the cranes could be operated within the anticipated time and operational constraints without any adverse impact on the safety, regularity or efficiency to air transport operations. Separate applications would be required for each crane and for different stage heights.

This section is purely for information — to demonstrate that this issue has been duly considered by the Proponents of the planning proposal. It is not an issue that prevents planning approval of the Cooks Cove Master Plan.

11.2 Mitigation Measures

No safety mitigation measures — such as the installation of obstacle lighting on buildings — are considered necessary given the location of the Precinct and the relatively low heights of the planned built structures.

As noted above, approval conditions for any cranes to be used during construction will most likely require that the cranes be marked and lit in accordance with civil aviation safety regulations and recommendations made by CASA at that time.

12. Conclusion

From an aeronautical impact point of view, the Cooks Cove Precinct site is heavily constrained by the airspace height constraints — however, the master plan for the project has been developed based on these airspace limitations and has reduced heights so that the proposed buildings would not infringe the prescribed airspace of Sydney Airport.

The southernmost part of Block 3 has the most limiting height constraints. The southern part of Lot 3C is constrained by the sloping Transitional Surface of the OLS and so has stepdown to a lower roof level so that the entire building will remain below the OLS.

As is evident in the massing plans, the maximum heights of all other buildings are intended to remain below 51m AHD — which means that no building will infringe the OLS.

And, because Sydney Airport's prescribed airspace will not be infringed, prior approval under the APAR will not be required for the proposed buildings in the planning proposal.

However if at the time of final planning approval, the legacy Civil Aviation (Buildings Control) Regulations are still in force, approval under these regulations would be required for the majority of buildings before construction. It is anticipated that approval under these regulations would be granted under delegation by Sydney Airport.

Further, the Master Plan has been assessed in relation to all National Airports Safety Framework and assessed to be within the Guidelines. As noted in Table 2-1 — NASF Guidelines Cross-Reference Index (p8), separate reports by specialist consultants also provide more detail for some of the guidelines.

This report and associated specialist reports referred to herein also demonstrate that the relevant requirements of Local Planning Direction 5.3 are also satisfied — specifically:

- Clauses 1) (a) – (d): The airport has been consulted, and this report demonstrates that the airport's operational airspace has been considered and assessed to not be adversely affected by the proposed development.
- Clause 2) subclauses (a) – (d): The Commonwealth has been consulted and the Master Plan is a complying development.
- Clause 5): The proposed development meets the relevant acoustics standards.

Construction Management Plans will be prepared very early in the detailed design stages in order to ensure that all cranes and any other facilities required for construction will not adversely affect the operational airspace of Sydney Airport.

In consideration of the assessments conducted as part of this study, the careful approach to master planning of the development in cognisance of the airspace limits and other aeronautical impacts, and the fact that the proposed buildings will not infringe the Prescribed Airspace of Sydney Airport, and that the planning proposal meets the requirements of all NASF Guidelines and the Local Planning Direction 5.3, **there is no technical impediment to approval of the planning proposal for the Cooks Cove Master Plan**.

APPENDICES

APPENDIX 1 — Abbreviations

Abbreviations used in this report and/or associated reference documents, and the meanings assigned to them for the purposes of this report are detailed in the following table:

Abbreviation	*Meaning*
AC	Advisory Circular (document supporting CAR 1998)
ACFT	Aircraft
AD	Aerodrome
AGL	Above Ground Level (Height)
AHD	Australian Height Datum
AHT	Aircraft Height
AIP	Aeronautical Information Publication
Airports Act	Airports Act 1996, as amended
AIS	Aeronautical Information Services
ALARP	As Low As Reasonably Practicable
ALC	Airport Lease Company
Alt	Altitude
AMAC	Australian Mayoral Aviation Council
AMSL	Above Minimum Sea Level
ANEF	Australian Noise Exposure Forecast
ANSP	Airspace and Navigation Service Provider
APCH	Approach
APARs, or A(PofA)R	Airports (Protection of Airspace) Regulations, 1996 as amended
ARP	Aerodrome Reference Point
AsA	Airservices Australia
ASDA	Accelerated Stop Distance Available
ATC	Air Traffic Control(ler)
ATM	Air Traffic Management
BA (Planning)	Building Application or Building Approval (Planning)
BMU	Building Maintenance Unit
CAAP	Civil Aviation Advisory Publication
CAO	Civil Aviation Order
CAR	Civil Aviation Regulation
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation
Cat	Category
CBD	Central Business District
CG	Climb Gradient
CMP	Construction Management Plan
CNS/ATM	Communications, Navigation, Surveillance / Air Traffic Management
CoS	City of Sydney (Council)
DA (Aviation)	Decision Altitude (Aviation)
DA (Planning)	Development Application (Planning)
DAH	Designated Airspace Handbook
DAP	Departure and Approach Procedures (published by AsA)
DEP	Departure
DER	Departure End of Runway
DEVELMT	Development
DH	Decision Height
DITRDCA	Department of Infrastructure, Transport, Regional Development, Communications & the Arts (Commonwealth) (former abbreviations include DIRD, DIRDC, DITRDC)
DME	Distance Measuring Equipment
Doc nn	ICAO Document Number nn
DoD	Department of Defence
DODPROPS	Dependent Opposite Direction Parallel Runway OPerations
DPE	Department of Planning & Environment (NSW)
EIS	Environmental Impact Study

Abbreviation	*Meaning*
ELEV	Elevation (above mean sea level)
ENE	East North East
ERSA	EnRoute Supplement Australia
ESE	East South East
FAF	Final Approach Fix
FAP	Final Approach Point
Ft	Feet
GDA94	Geocentric Datum of Australia 1994
GDA2020	Geocentric Datum of Australia 2020
GLS	GNSS Landing System – a precision landing system like ILS but based on augmented GNSS using ground and satellite systems.
GNSS	Global Navigation Satellite System
GP	Glide Path
HIAL	High Intensity Approach Light
HLS	Helicopter Landing Site
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
IHS	Inner Horizontal Surface, an Obstacle Limitation Surface
ILS	Instrument Landing System, a precision approach landing system
IMC	Instrument Meteorological Conditions
IPA	Integrated Planning Act 1997, Queensland State Government
ISA	International Standard Atmosphere
IVA	Independent Visual Approach
Km	Kilometres
Kt	Knot (one nautical mile per hour)
LAT	Latitude
LDA	Landing Distance Available
LEP	Local Environment Plan (Planning)
LLZ	Localizer
LNAV	Lateral Navigation
LONG	Longitude
LSALT	Lowest Safe ALTitude
M	Metres
MAPt	Missed Approach Point
MDA	Minimum Descent Altitude
MDH	Minimum Descent Height
MDP	Major Development Plan
MGA94	Map Grid Australia 1994
MGA2020	Map Grid Australia 2020
MOC	Minimum Obstacle Clearance
MOCA	Minimum Obstacle Clearance Altitude
MOS	Manual Of Standards, published by CASA
MP	Master Plan
MSA	Minimum Sector Altitude
MVA	Minimum Vector Altitude
NASF	National Airports Safeguarding Framework
NDB	Non-Directional Beacon
NE	North East
NM	Nautical Mile (= 1.852 km)
nnDME	Distance from the DME (in Nautical Miles)
NNE	North North East
NNW	North North West
NOTAM	NOTice to AirMen
OAR	Office of Airspace Regulation
OCA	Obstacle Clearance Altitude (in this case, in AMSL)

Abbreviation	*Meaning*
OCH	Obstacle Clearance Height
ODPROPS	Opposite Direction Parallel Runway OPerations
OHS	Outer Horizontal Surface, an Obstacle Limitation Surface
OLS	Obstacle Limitation Surface, defined by ICAO Annex 14; refer also CASA MOS Part 139
PANS-OPS	Procedures for Air Navigation – Operations, ICAO Doc 8168; refer also CASA MOS Part 173
PAPI	Precision Approach Path Indicator (a form of VGSI)
PBN	Performance Based Navigation
PRM	Precision Runway Monitor
RAAF	Royal Australian Air Force
RAPAC	Regional AirsPace users Advisory Committee
REF	Reference
RL	Relative Level
RNAV	aRea NAVigation
RNP	Required Navigation Performance
RNP AR	Required Navigation Performance – Authorisation Required
RPT	Regular Public Transport
RTCC	Radar Terrain Clearance Chart (refer also MVA)
RWY	Runway
SACL	Sydney Airport Corporation Limited
SHLS	Strategic Helicopter Landing Site
SID	Standard Instrument Departure
SODPROPS	(Independent) Simultaneous Opposite Direction Parallel Runway OPerations
SSDA	State Significant Development Application
SSP	State Significant Precinct
SSR	Secondary Surveillance Radar
STAR	STandard Arrival
TAR	Terminal Approach Radar
TAS	True Airspeed
TfNSW	Transport for NSW
THR	THReshold (of Runway)
TMA	TerMinal Area
TNA	Turn Altitude
TODA	Take-off Distance Available
TORA	Take-Off Runway Available
VFR	Visual Flight Rules
VIS	Visual
VMC	Visual Meteorological Conditions
V_n	Aircraft critical velocity reference
VNAV	Vertical Navigation
VNC	Visual Navigation Chart
VOR	Very high frequency Omni-directional Range
VSS	Visual Segment Surface
VTC	Visual Terminal Chart
WAM	Wide-Area Multilateration
WNW	West North West
WSW	West South West
WGS84	World Geodetic System 1984
WSA	Western Sydney Airport

APPENDIX 2 — PANS-OPS Procedures

In producing this report, the PANS-OPS Instrument Flight Procedures (IFPs), for Sydney Airport analysed in the previous study for this project were compared with those listed in the current AIP Amendment 174, effective from 22-Mar-2023 to 14-Jun-2023, current as of the date of this report — the summary of which is documented in Table 12-1 below. In short, the comparative review confirms that the Cooks Cove Planning Proposal has no adverse impact on the IFPs to/from Sydney Airport.

Table 12-1 — Appendix: Validation of PANS OPS Instrument Flight Procedure Charts for Sydney Airport (from AIP Amendment 163 to Amendment 174 – Effective 22-Mar-2023 to 14-Jun-2023)

SYDNEY (YSSY)

Name of Chart	*Effective Date (AMDT No)*	*Prev Amdt No*	*CHG*	*CHG Note*	*Airspace Impact on Cooks Cove*
AERODROME CHART PAGE 1	23-Mar-2023 (Am 174)	161	Y	No impact on flight procedures	N/A
AERODROME CHART PAGE 2	1-Dec-2022 (Am 173)	161	Y	No impact on flight procedures	N/A
AERODROME GROUND MOVEMENT CHART	23-Mar-2023 (Am 174)	—	New	No impact on flight procedures	N/A
APRON CHART - INTERNATIONAL PAGE 1	2-Dec-2021 (Am 169)	163	Y	No impact on flight procedures	N/A
APRON CHART - INTERNATIONAL PAGE 2	2-Dec-2021 (Am 169)	161	Y	No impact on flight procedures	N/A
APRON CHART - DOMESTIC PAGE 1	7-Nov-2019 (Am 161)	161	=		
APRON CHART - DOMESTIC PAGE 2	16-Jun-2022 (Am 171)	162	Y	No impact on flight procedures	N/A
APRON CHART - DOMESTIC PAGE 3	13-Aug-2020 (Am 164)	162	Y	No impact on flight procedures	N/A
STANDARD DOMESTIC TAXI ROUTES - ARRIVALS	16-Jun-2022 (Am 171)	161	Y	No impact on flight procedures	N/A
STANDARD DOMESTIC TAXI ROUTES - DEPARTURES	16-Jun-2022 (Am 171)	161	Y	No impact on flight procedures	N/A
NOISE ABATEMENT PROCEDURE PAGE 1	7-Nov-2019 (Am 161)	161	=		
NOISE ABATEMENT PROCEDURE PAGE 2	1-Dec-2022 (Am 173)	161	Y	No impact on flight procedures	N/A
NOISE ABATEMENT PROCEDURE PAGE 3	1-Dec-2022 (Am 173)	161	Y	No impact on flight procedures	N/A
NOISE ABATEMENT PROCEDURE PAGE 4	23-Mar-2023 (Am 174)	163	Y	No impact on flight procedures	N/A
NOISE ABATEMENT PROCEDURE PAGE 5	23-Mar-2023 (Am 174)	163	=		
NOISE ABATEMENT PROCEDURE PAGE 6	1-Dec-2022 (Am 173)	161	Y	No impact on flight procedures	N/A
NOISE ABATEMENT PROCEDURE PAGE 7	7-Nov-2019 (Am 161)	161	=		
NOISE ABATEMENT PROCEDURE PAGE 8	1-Dec-2022 (Am 173)	161	Y	No impact on flight procedures	N/A
NOISE ABATEMENT PROCEDURE PAGE 9	7-Nov-2019 (Am 161)	161	=		
NOISE ABATEMENT PROCEDURE PAGE 10	7-Nov-2019 (Am 161)	161	=		
AIRPORT EFFICIENCY PROCEDURES	7-Nov-2019 (Am 161)	161	=		
IVA USER GUIDE PAGE 1	7-Nov-2019 (Am 161)	161	=		
IVA USER GUIDE PAGE 2	7-Nov-2019 (Am 161)	161	=		
PRM USER INSTRUCTIONS	17-Jun-2021 (Am 167)	163	Y	No impact on flight procedures	N/A
SID SYDNEY TWO DEPARTURE (RADAR)	24-Mar-2022 (Am 170)	163	Y	No change to 25 Dep	N/A
SID RWY 34L SOUTH WEST DEP (JET)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A

Name of Chart	*Effective Date (AMDT No)*	*Prev Amdt No*	*CHG*	*CHG Note*	*Airspace Impact on Cooks Cove*
SID RWY 16R DEENA SEVEN (JET) (RNAV)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A
SID RWY 34R ENTRA FIVE (JET) (RNAV)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A
SID RWY 07 FISHA EIGHT (JET) (RNAV)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A
SID RWY 16R KAMPI FIVE (RNAV)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A
SID RWY 16L KEVIN SIX (RNAV)	24-Mar-2022 (Am 170)	163	Y	RWY N/A	N/A
SID RWY 16L ABBEY THREE (JET) (RNAV)	16-Jun-2022 (Am 171)	161	Y	RWY N/A	N/A
SID RWY 34R MARUB SIX (JET) (RNAV)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A
SID RWY 34L RICHMOND FIVE DEP (JET)	24-Mar-2022 (Am 170)	161	Y	RWY N/A	N/A
STAR BOREE THREE A ARRIVAL (RNAV)	24-Mar-2022 (Am 170)	163	Y	No impact on approach procedures	N/A
STAR BOREE THREE P ARRIVAL (RNAV)	24-Mar-2022 (Am 170)	163	Y	No impact on approach procedures	N/A
STAR MEPIL THREE ARRIVAL (RNAV)	24-Mar-2022 (Am 170)	163	Y	No impact on approach procedures	N/A
STAR MARLN FIVE ARRIVAL (RNAV)	24-Mar-2022 (Am 170)	163	Y	No impact on approach procedures	N/A
STAR ODALE SEVEN ARRIVAL (RNAV)	24-Mar-2022 (Am 170)	163	Y	No impact on approach procedures	N/A
STAR RIVET THREE ARRIVAL (RNAV)	24-Mar-2022 (Am 170)	163	Y	No impact on approach procedures	N/A
ILS OR LOC RWY 07	7-Nov-2019 (Am 161)	161	=		
ILS OR LOC RWY 16L PAGE 1	9-Sep-2021 (Am 168)	161	Y	RWY N/A	N/A
ILS RWY 16L PAGE 2	9-Sep-2021 (Am 168)	161	Y	RWY N/A	N/A
ILS OR LOC RWY 16R PAGE 1	23-Mar-2023 (Am 174)	161	Y	RWY N/A	N/A
ILS RWY 16R PAGE 2	23-Mar-2023 (Am 174)	161	Y	RWY N/A	N/A
ILS OR LOC RWY 25	17-Jun-2021 (Am 167)	161	Y	No impact on procedure track / minima	N/A
ILS OR LOC RWY 34L PAGE 1	9-Sep-2021 (Am 168)	161	Y	RWY N/A	N/A
ILS RWY 34L PAGE 2	9-Sep-2021 (Am 168)	161	Y	RWY N/A	N/A
ILS OR LOC RWY 34R PAGE 1	8-Sep-2022 (Am 172)	161	Y	RWY N/A	N/A
ILS RWY 34R PAGE 2	8-Sep-2022 (Am 172)	161	Y	RWY N/A	N/A
RNP RWY 07	9-Sep-2021 (Am 168)	161	Y	No impact on procedure track / minima	N/A
RNP RWY 16L	23-Mar-2023 (Am 174)	161	Y	RWY N/A	N/A
RNP RWY 16R	8-Sep-2022 (Am 172)	161	Y	RWY N/A	N/A
RNP RWY 25	9-Sep-2021 (Am 168)	161	Y	RWY N/A	N/A
RNP RWY 34L	8-Sep-2022 (Am 172)	161	Y	No impact on procedure track / minima	N/A
RNP RWY 34R	8-Sep-2022 (Am 172)	161	Y	RWY N/A	N/A

Name of Chart	*Effective Date (AMDT No)*	*Prev Amdt No*	*CHG*	*CHG Note*	*Airspace Impact on Cooks Cove*
GLS RWY 07	7-Nov-2019 (Am 161)	161	=		
GLS RWY 16L	9-Sep-2021 (Am 168)	163	Y	RWY N/A	N/A
GLS RWY 16R	9-Sep-2021 (Am 168)	163	Y	RWY N/A	N/A
GLS RWY 25	17-Jun-2021 (Am 167)	161	Y	No impact on procedure track / minima	N/A
GLS RWY 34L	23-Mar-2023 (Am 174)	163	Y	RWY N/A	N/A
GLS RWY 34R	23-Mar-2023 (Am 174)	163	Y	RWY N/A	N/A

Source: AIP Book (22-Mar-2023 to 14-Jun-2023) via http://www.airservicesaustralia.com/aip/aip.asp?pg=10

APPENDIX 3 — Local Planning Direction 5.3 (Development near Regulated Airports)

5.3 Development Near Regulated Airports and Defence Airfields

Objectives

The objectives of this direction are to:

(a) ensure the effective and safe operation of regulated airports and defence airfields;

(b) ensure that their operation is not compromised by development that constitutes an obstruction, hazard or potential hazard to aircraft flying in the vicinity; and

(c) ensure development, if situated on noise sensitive land, incorporates appropriate mitigation measures so that the development is not adversely affected by aircraft noise.

Application

This direction applies to all relevant planning authorities when preparing a planning proposal that will create, alter or remove a zone or a provision relating to land near a regulated airport which includes a defence airfield.

Direction 5.3

(1) In the preparation of a planning proposal that sets controls for development of land near a regulated airport, the relevant planning authority must:

(a) consult with the lessee/operator of that airport;

(b) take into consideration the operational airspace and any advice from the lessee/operator of that airport;

(c) for land affected by the operational airspace, prepare appropriate development standards, such as height controls.

(d) not allow development types that are incompatible with the current and future operation of that airport.

(2) In the preparation of a planning proposal that sets controls for development of land near a core regulated airport, the relevant planning authority must:

(a) consult with the Department of the Commonwealth responsible for airports and the lessee/operator of that airport;

(b) for land affected by the prescribed airspace (as defined in clause 6(1) of the *Airports (Protection of Airspace) Regulation 1996*, prepare appropriate development standards, such as height controls.

(c) not allow development types that are incompatible with the current and future operation of that airport.

(d) obtain permission from that Department of the Commonwealth, or their delegate, where a planning proposal seeks to allow, as permissible with consent, development that would constitute a controlled activity as defined in section 182 of the *Airports Act 1996*. This permission must be obtained prior to undertaking community consultation in satisfaction of Schedule 1 to the EP&A Act.

(3) In the preparation of a planning proposal that sets controls for the development of land near a defence airfield, the relevant planning authority must:

(a) consult with the Department of Defence if:

i. the planning proposal seeks to exceed the height provisions contained in the *Defence Regulations 2016 – Defence Aviation Areas* for that airfield; or

ii. no height provisions exist in the *Defence Regulations 2016 – Defence Aviation Areas* for the airfield and the proposal is within 15km of the airfield.

(b) for land affected by the operational airspace, prepare appropriate development standards, such as height controls.

(c) not allow development types that are incompatible with the current and future operation of that airfield.

(4) A planning proposal must include a provision to ensure that development meets *Australian Standard 2021 – 2015, Acoustic- Aircraft Noise Intrusion – Building siting and construction* with respect to interior noise levels, if the proposal seeks to rezone land:

(a) for residential purposes or to increase residential densities in areas where the Australian Noise Exposure Forecast (ANEF) is between 20 and 25; or

(b) for hotels, motels, offices or public buildings where the ANEF is between 25 and 30; or

(c) for commercial or industrial purposes where the ANEF is above 30.

(5) A planning proposal must not contain provisions for residential development or to increase residential densities within the 20 Australian Noise Exposure Concept (ANEC)/ANEF contour for Western Sydney Airport.

Consistency

A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Planning Secretary (or an officer of the Department nominated by the Secretary) that the provisions of the planning proposal that are inconsistent are:

(a) justified by a strategy approved by the Planning Secretary, which:

i. gives consideration to the objectives of this direction; and

ii. identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites), or

(b) justified by a study prepared in support of the planning proposal which gives consideration to the objectives of this direction; or

(c) in accordance with the relevant Regional Plan prepared by the Department of Planning and Environment which gives consideration to the objectives of this direction.

Issued to commence 1 March 2022 (replaces previous Direction 3.5)