263-273 and 273A Coward Street and 76-82 Kent Street, Mascot – QF1 QF2

Aeronautical Impact Assessment Report

C – May 2023

PREPARED FOR

Perpetual Corporate Trust Limited as the trustee of the LMLP 1 and 2 Trust

PRESENTED BY

Landrum & Brown Worldwide Australia Pty Ltd

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1 Executive Summary

Landrum & Brown (L&B) have reviewed the preliminary concept proposal for compliance with relevant national (federal) and / or local regulations as shown below for the purposes of preparing this Aeronautical Impact Assessment (AIA). L&B understands that Perpetual Corporate Trust Limited as the trustee of the LMLP 1 and 2 Trust ('the Proponent') is seeking to amend the Bayside Local Environmental Plan 2021 to increase the maximum floor space ratio (FSR) of the site from 1.2:1 to 2:1.

Name of Proposed Development:	Coward Street Multi-Level Warehouse, Mascot
Location / Address of Proposed Development:	263-273 and 273A Coward Street and 76-82 Kent Street, Mascot
Name of Developer / Project Proponent:	Perpetual Corporate Trust Limited as the trustee of the LMLP 1 and 2 Trust (the Proponent)

A preliminary concept proposal has been prepared that complies with the amended FSR. L&B understands that a development application (DA) will need to be prepared to seek approval for the construction and operation for the planned future development.

L&B's review has reached the conclusions set out in the following pages. Full information on the assessment approach leading to the development of the conclusions is contained with the body of this report.

1.1 Aeronautical Impediments to the Proposed Development

In L&B's opinion the following aeronautical related impediments exist in relation to the proposed development:

- No direct impediments exist, but the actions shown below are essential to ensure that this opinion remains valid.

In L&B's opinion the developer should undertake the following actions upon receipt of this report:

- The proponent needs to ensure that the design and construction of the future development limits the upward light (measured 3° to the horizontal) is no more than 150 candelas during both construction and ultimate operation.
- Construction activity will need to be planned so that temporary craneage does not infringe the various protection surfaces including the OLS, PANS-OPS and Sydney Airport TAR. If construction activities infringe then additional assessments in respect of safety will be required to determine the appropriate construction methodology. Details of the proposed development and related construction activities need to be discussed with Sydney airport at the DA stage for the planned future development.

1.2 Basis of L&B's Opinion

L&B's review as presented in this report has been based on information provided by the developer / project proponent as set out in this report. Should the proposed development alter from that set out in this report then the findings of the report may be subject to change. Particular attention should be paid to any changes in size, scale, nature and location of the proposed development.

1.2.1 Key Assessment Input Information

In addition to the location information shown above the following key inputs from the Developer / Project Proponent were relied upon in undertaking the assessment described in this report.

Development Height (m AHD):	**46.10 m AHD**, It is assumed that any plant will be no more than **1 m** higher than the height of the nominal building resulting in a height, for permanent objects, of **47.10 m AHD**. The height of **47.10 m AHD** is used for assessment against the various airspace requirement.
Temporary Height (m AHD) incl. Cranage etc.:	Temporary craneage / construction equipment above the fixed development height can be permitted to a height of 51m AHD and may be permissible up to 61m AHD.
Proposed Development's Function / Purpose:	It is assumed that the planned future building on the site will be used for the purposes of a warehouse and distribution centre with ancillary office and cafe.
Additional Information:	It is assumed that all buildings will not include any facilities that emit smoke, dust or other plumes into the atmosphere.

1.3 Conclusions: National Airports Safeguarding Framework (NASF)

Assessment Principle	Conclusion / Action	Reference Page / Section
NASF Guideline A: Measures for Managing Impacts of Aircraft Noise	No impact.	Page: 10 Section: 4.2.2
NASF Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports	No impact.	Page: 17 Section: 4.3.2

NASF Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports	No impact.	Page: 23 Section: 4.4.2
NASF Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation	No impact.	Page: 23 Section: 4.5
NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports	The proponent needs to ensure that the design and construction of the future development limits the upward light (measured 3° to the horizontal) is no more than 150 candelas during both construction and ultimate operation.	Page: 25 Section: 4.6.2
NASF Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports	The likely future development's height will not infringe the OLS and PANS OPS of aerodrome. Once including temporary craneage, it will potentially infringe the surfaces. There is a need to understand construction approach and potentially seek views from Sydney Airport on temporary infringement of the OLS at the DA stage.	Page: 29 Section: 4.7.2
NASF Guideline G: Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)	The likely future development does not infringe the DME equipment. Once including temporary craneage, it will potentially infringe the DME equipment Building Restriction Area. There is a need to consult with Airservices Australia at the DA stage. The likely future development does not infringe the Sydney Airport TAR equipment restriction. Once including temporary craneage, it will potentially infringe the TAR equipment Building Restriction Area. Consultation with Airservices will be required at the DA stage.	Page: 34 Section: 4.8.2
NASF Guideline H: Protecting Strategically Important Helicopter Landing Sites (HLS)	No impact.	Page: 43 Section: 4.9.2
NASF Guideline I: Public Safety Areas (PSAs)	No impact.	Page: 45 Section: 4.10.2

1.4 Conclusions: State and Local Planning Requirements

1.4.1 Bayside Local Environmental Plan (2021)

Assessment Principle	Conclusion / Action	Reference Page / Section
Clause 6.7: Airspace Operations	The requirements of Council are covered by the NASF review detailed above.	Page: 47 Section: 5.1.2

2 Introduction

The Proponent has engaged L&B Worldwide Australia Pty Ltd (L&B / Landrum & Brown) to prepare an Aeronautical Impact Assessment (AIA) report for planning proposal seeking to increase the FSR control; at 263-273 and 273A Coward Street and 76-82 Kent Street, Mascot, within Bayside Local Government Area. Concept designs have been prepared to outline the likely future development that could be accommodated within the revised FSR control of 2:1 - refer Figure 1. The concept design has been reviewed to determine whether the increased FSR can be accommodated within the relevant aviation guidelines and requirements.

Figure 1 263-273 and 273A Coward Street and 76-82 Kent Street Mascot Layout (Source: the Proponent)

The likely future buildings' highest height is **46.10m AHD** shown in Figure 2. It is assumed that any plant will be no more than 1m higher than the height of the virtual building resulting in a height, for permanent objects, of **47.10 m AHD**. Due to the prevailing height limits an assumption has been made that no temporary craneage will be used. A height of **47.10 m AHD** is used for assessment against the various airspace requirements.

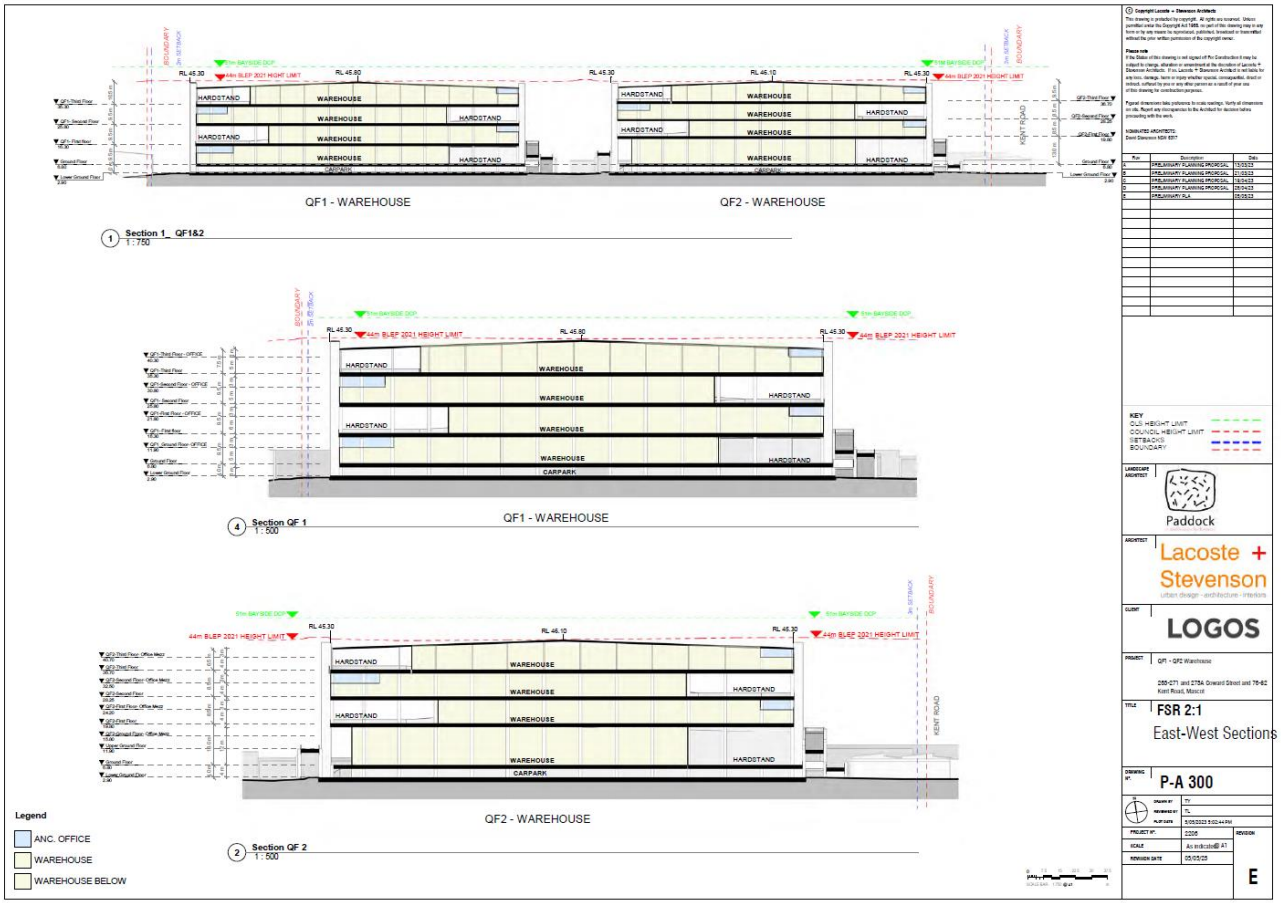

Figure 2 263-273 and 273A Coward Street and 76-82 Kent Street Mascot Site Section Drawing (Source: the Proponent)

The location, elevation and proposed form information for the likely future development are shown in Section 2.

This report considers:

- National Airports Safeguarding Framework Principles and Guidelines (NASF).
  - Guideline A: Measures for Managing Impacts of Aircraft Noise
  - Guideline B: Managing the Risk of Building Generated Windshear and 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 as 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 Intrusions into the Protected Airspace of Airports
  - Guideline G: Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)
  - Guideline H: Protecting Strategically Important Helicopter Landing Sites (HLS)
  - Guideline I: Public Safety Areas (PSAs)
- Bayside Local Environmental Plan (2021):
  - Clause 6.7: Airspace Operations

3 Location and Proposed Form of the Proposed Development

3.1 Location

The site location is shown in Figure 3 below.

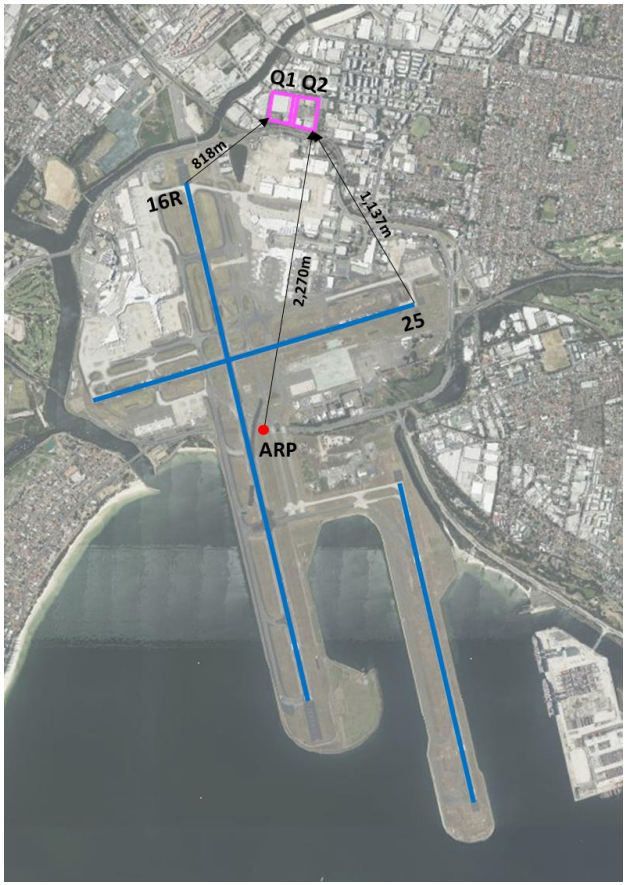

Figure 3 Location of planned future development (Source: L&B CAD & Google Map)

The site is located approximately 0.82 km and 2.2 km from Sydney Airport runway 16R end and the airfield reference point (ARP), as shown in Figure 3.

4 NASF Requirements and Assessment

4.1 Introduction to NASF

The National Airports Safeguarding Framework (NASF) is issued by the Department of Infrastructure, Transport, Regional Development and Communications. The stated purpose of the NASF is to "enhance the current and future safety, viability and growth of aviation operations, by supporting and enabling:

- the implementation of best practice in relation to land use assessment and decision making in the vicinity of airports and strategic helicopter landing sites;
- assurance of community safety and amenity near airports and strategic helicopter landing sites;
- better understanding and recognition of aviation safety requirements and aircraft noise
- impacts in land use and related planning decisions;
- the provision of greater certainty and clarity for developers and land owners;
- improvements to regulatory certainty and efficiency; and
- the publication and dissemination of information on best practice in land use and related planning that supports the safe and efficient operation of airports and strategic helicopter landing sites."

L&B uses the NASF to provide a baseline for the consideration of safeguarding issues in Australia under a common framework. This aligns with the Departments view that the NASF should "drive improvements in planning outcomes consistently across all jurisdictions, and contribute to the improvement of the safety and viability of aviation in Australia."

The following sections set out the requirements under NASF and the impact assessment related to the proposed development.

4.2 Guideline A: Measures for Managing Impacts of Aircraft Noise

This guideline principally provides recommendations to local planning authorities on the implementation of noise policies within their legislative frameworks using principles set out in Australian Noise Exposure Forecast (ANEF) System and the Australian Standard AS 2021-2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction (AS2021). The "requirements" set out below are extracted from those recommendations. Note: Any local implementation of noise requirements is covered under Section 4 of this document.

4.2.1 Requirements

4.2.1.1 Greenfield Areas

- No noise sensitive developments within a 20 ANEF where that land was previously rural or for non-urban purposes.

- Avoid noise sensitive development where ultimate capacity or long range noise modelling for the airport indicates either:
  - 20 or more daily events greater than 70 dB(A);
  - 50 or more daily events of greater than 65 dB(A); or
  - 100 events or more daily events of greater than 60 dB(A).
- Consider likely night-time aircraft movements (11pm to 6am) with 60 dB(A) or greater noise impact.

4.2.1.2 Brownfield Areas (Urban Land)

- Consider balance of aircraft noise impacts against strategic planning outcomes.
- Manage implications of aircraft noise through construction and / or disclosure processes to residents / occupants.
- Consider if new development improves existing noise issues through improved management of implications.
- Consider dB(A) level guidelines shown elsewhere.

4.2.1.3 New Noise Sensitive Developments within Residential Areas

- Physically reduce aircraft noise through construction and / or AS2021 processes
- Ensure disclosure processes to residents / occupants if one or more of the criteria in shown in section 3.2.1.1 (Points 2 and 3) apply.

4.2.1.4 Airports without an ANEF

- Consider application of 3.2.1.1 requirements for the airport based on the following zones of influence;
  - Within 15 km of an international airport, major domestic airport, or major military aerodrome.
  - Within 10 km of a domestic airport with regular scheduled public transport services
  - Within 5 km of any other type of aerodrome for which an ANEF chart is unavailable.

4.2.2 Assessment and Conclusions

4.2.2.1 Greenfield Areas

The development site is not classified as a Greenfield Area.

Conclusion:	No action required.

4.2.2.2 Brownfield Areas (Urban Land)

The development site is not classified as a Brownfield Area.

Conclusion:	No action required.

4.2.2.3 New Noise Sensitive Developments within Residential Areas

Australian Standard AS 2021:2015 – Acoustics – Aircraft Noise Intrusion – Building Siting and Construction, provides guidance on the siting and construction of buildings in the vicinity of airports to minimise aircraft noise intrusion. It also describes the process that should be followed in producing ANEF charts for use in applying this standard,

The projected ANEF contours for Sydney Airport are described in Sydney Airport Master Plan 2039 Section 15, shown in Figure 4 and Figure 5.

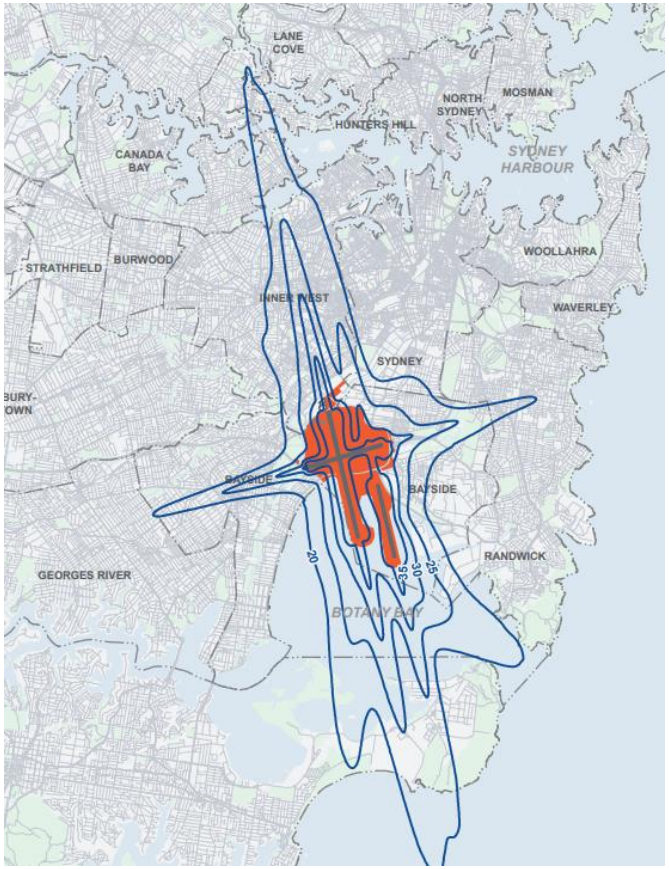

Figure 4 2039 Master Plan – Noise ANEC (Source Sydney Master Plan 2039)

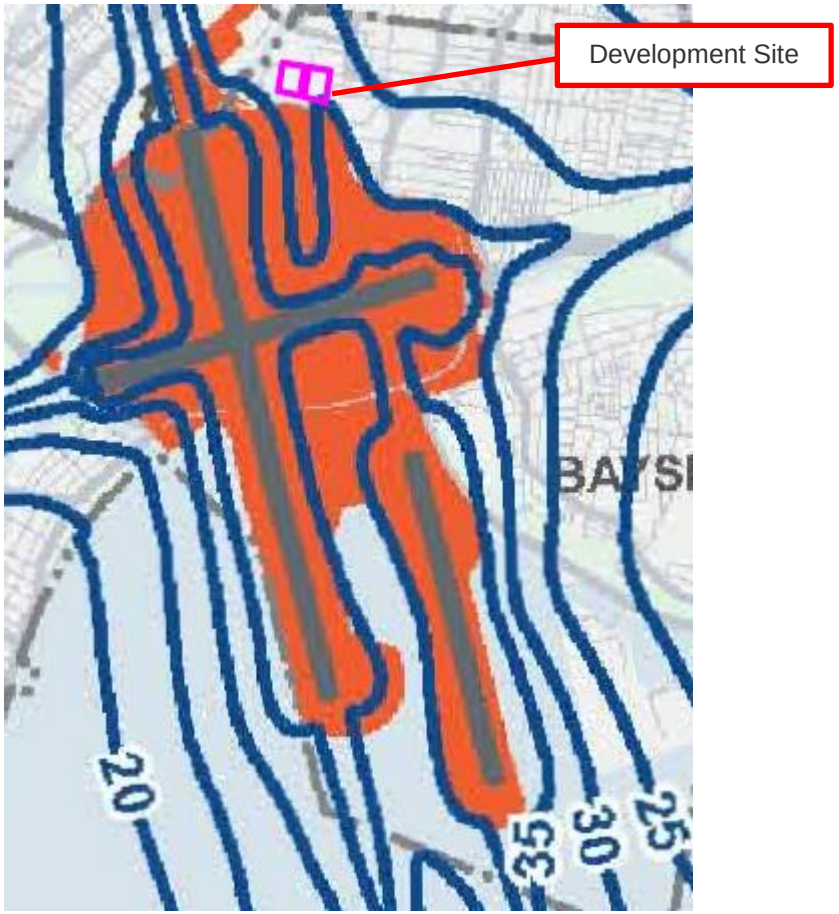

Figure 5 Mascot Site location related to ANEC Map (Source Sydney Master Plan 2039)

Table 1 and the associated figures shows the ANEC contour levels for each particular stage of development of the airport and the particular runway in use.

Building Type	Acceptable	Conditionally Acceptable	Unacceptable
House, home unit, flat, Caravan Park	< 20 ANEF	20 < 25 ANEF	> 25 ANEF
Hotel, motel, hostel	< 25 ANEF	25 < 30 ANEF	> 30 ANEF

School, university	< 20 ANEF	20 < 25 ANEF	> 25 ANEF
Hospital, nursing home	< 20 ANEF	20 < 25 ANEF	> 25 ANEF
Public building	< 20 ANEF	20 < 30 ANEF	> 30 ANEF
Commercial building	< 25 ANEF	25 < 35 ANEF	> 35 ANEF
Light industrial	< 30 ANEF	30 < 40 ANEF	> 40 ANEF
Other industrial	Acceptable in all ANEF zones		

Table 1 Building Type Acceptability Table (AS2021-2015)

Based on above analysis, the development site falls within following ANEC contour is within ANEC 25-30.

Conclusion:	The development site is considered as 'Light Industrial' and is acceptable within ANEF zones as per the Australian Standard AS 2021:2015 Acoustics - Aircraft Noise.

4.2.2.4 Airports without an ANEF

Airservices Australia provides a Noise Modelling Tool for Sydney Airport. Therefore, this requirement does not apply.

Conclusion:	No action required.

4.3 Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports

This guideline principally provides recommendations for a risk based approach to the consideration of influences on the wind conditions on runways. The "requirements" set out below are extracted from those recommendations. Note: Any local implementation of wind related requirements is covered under Section 4 of this document.

Guideline B sets out a clear process map for the assessment of the risk presented by development. This is replicated below. L&B assessment methodology follows the process map.

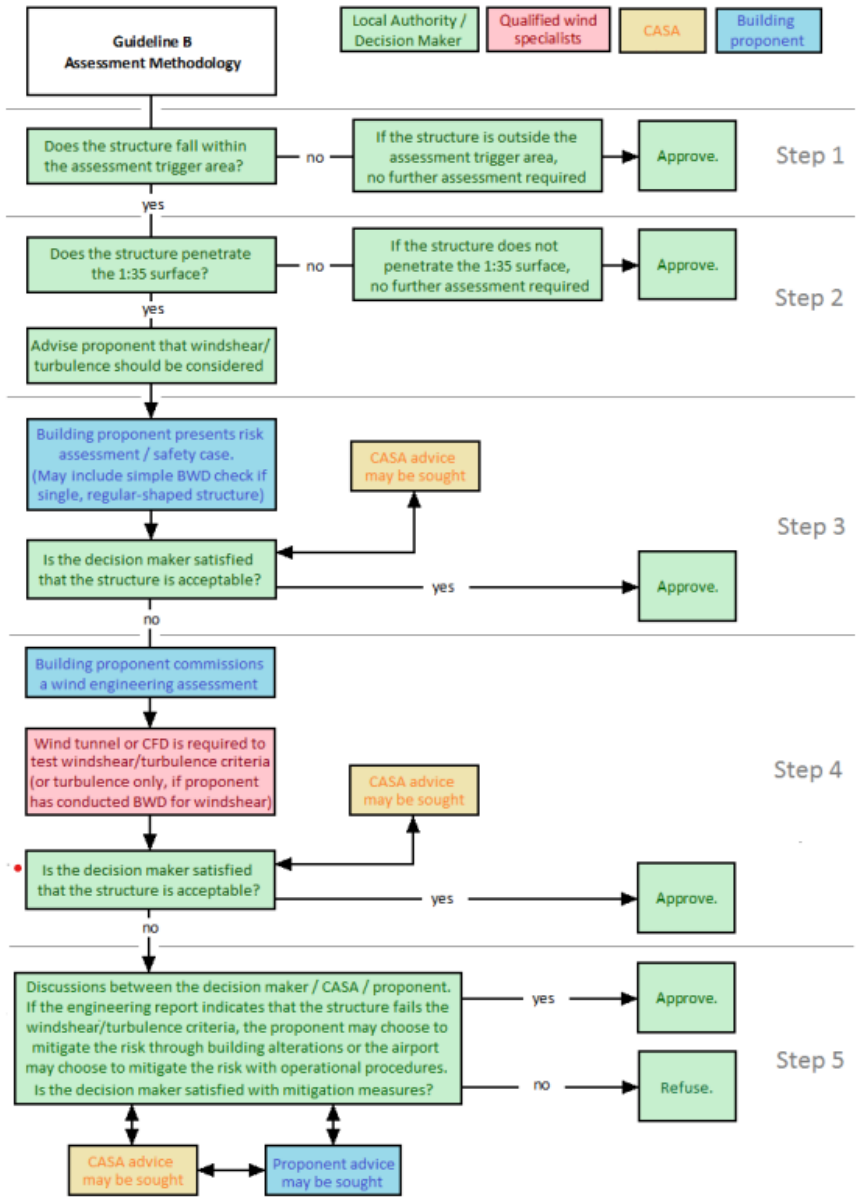
Guideline B
Assessment Methodology
Local Authority / Decision Maker
Qualified wind specialists
CASA
Building proponent
Does the structure fall within the assessment trigger area?
no
If the structure is outside the assessment trigger area, no further assessment required
Approve.
Step 1
yes
Does the structure penetrate the 1:35 surface?
no
If the structure does not penetrate the 1:35 surface, no further assessment required
Approve.
Step 2
yes
Advise proponent that windshear/ turbulence should be considered
Building proponent presents risk assessment / safety case. (May include simple BWD check if single, regular-shaped structure)
CASA advice may be sought
Step 3
Is the decision maker satisfied that the structure is acceptable?
yes
Approve.
no
Building proponent commissions a wind engineering assessment
Wind tunnel or CFD is required to test windshear/turbulence criteria (or turbulence only, if proponent has conducted BWD for windshear)
CASA advice may be sought
Step 4
Is the decision maker satisfied that the structure is acceptable?
yes
Approve.
no
Discussions between the decision maker / CASA / proponent. If the engineering report indicates that the structure fails the windshear/turbulence criteria, the proponent may choose to mitigate the risk through building alterations or the airport may choose to mitigate the risk with operational procedures. Is the decision maker satisfied with mitigation measures?
yes
Approve.
no
Refuse.
Step 5
CASA advice may be sought
Proponent advice may be sought

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Figure 6 Assessment Methodology (Guideline B – May 2018)

4.3.1 Requirements

4.3.1.1 Step 1: Assessment Trigger Area

- Buildings falling within the “Assessment Trigger Area” shown below must be considered.

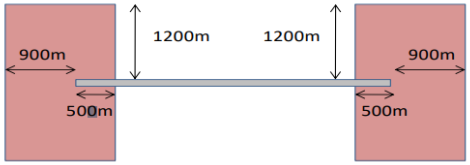


Figure 7 Assessment Trigger Area (Guideline B – May 2018)

4.3.1.2 Step 2: Building Height Assessment

- Buildings within the Assessment Trigger Area must be considered for any infringement of a 1:35 slope from the centreline (or extended centreline) of the applicable runway. Diagrams of the 1:35 slope and its application are shown below.

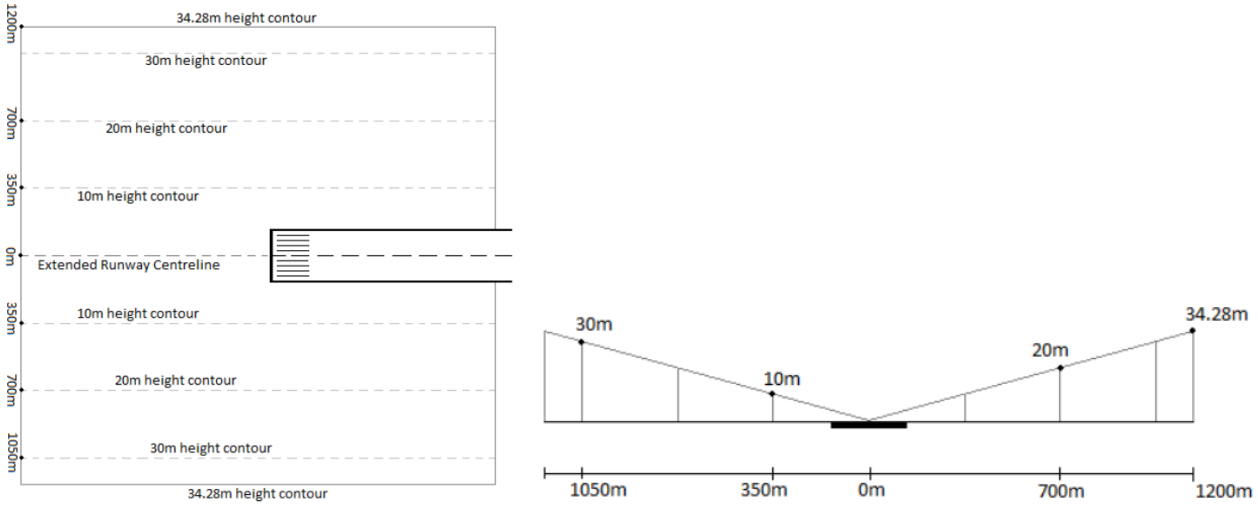


Figure 8 1:35 Slope Diagrams (Guideline B – May 2018)

4.3.1.3 Step 3: Risk Assessment / Safety Case (incl BWD Check)

- Buildings that infringe the 1:35 slope should be risk assessed and a safety case prepared.
- Initial consideration should be through use of the building-induced wind speed deficit (BWD) approach as outlined in Guideline B. This approach uses wind rose information combined with building size and location in conjunction with the table below.

BWD	W/H Ratios = 1	2	4	6	8
0.48 VH	1.7 H	3.4 H	6.5 H	9.5 H	12.5 H
0.35 VH	2.2 H	4.2 H	8 H	11.5 H	15 H
0.22 VH	3 H	5.5 H	10 H	14 H	18 H
0.11 VH	5 H	9 H	17 H	24.5 H	32 H

Figure 9 BWD Check Table (Guideline B – May 2018)

- The criteria to be considered using BWD are;
  - 7 knots (3.6 m/s) parallel to the runway centreline (or extended runway centreline) at heights below 61m AGL. Any speed deficit change of 7 knots or greater must take place over a distance of at least 100m. The “7 knot along-wind windshear criterion”.
  - 6 knots (3.1 m/s) perpendicular to the runway centreline (or extended runway centreline) at heights below 61m AGL. Any speed deficit change of 6 knots or greater must take place over a distance of at least 100m. The “6 knot across-wind windshear criterion”.
- Further consideration, after BWD, should include; wind directions, wind speeds, runway operating modes, shielding from surrounding buildings and features.
- Turbulence criteria set in Guideline B is not assessable via the BWD approach which may result in Step 3 approach being deemed unacceptable by approving authorities.

4.3.1.4 Step 4: Wind Engineering Assessment

- Proposed development (buildings) that are not able to be evaluated via the process outlined in Step 3, or where approval authorities require further study, should be assessed using wind tunnel or computational fluid dynamics (CFD) modelling. Note: L&B favours the CFD approach.

4.3.1.5 Step 5: Modifications and Mitigations

- Should the proposed development (building) be proven in Step 4 not to meet the requirements of Guideline B then the proponent and approving authorities may wish to discuss modifications to the proposed development and / or operational mitigations.

4.3.2 Assessment and Conclusions

4.3.2.1 Step 1: Assessment Trigger Area

The asterix (*) shown in the diagram below indicates the approximate location of the site in the context of the Assessment Trigger Area. Note: Where the site is well outside the trigger area the distance and location of the asterix is indicative only.

Figure 10 Approximate Location of Planned Future Development against Assessment Trigger Area (L&B)

Any building (or part thereof) falling within the windshear assessment trigger areas in the diagram above must be considered for wind effects. The blue bar is the applicable runway. The indicative location of the planned future development within the assessment zone is shown on Figure 10.

Conclusion:	The planned future development falls within the Assessment Trigger Area.

4.3.2.2 Step 2: Building Height Assessment

The asterix (*) shown in the diagram below indicates the approximate location of the future development in the context of the Assessment Trigger Area. Note: Where the site is inside the trigger area the distance and location of the asterix is indicative only.

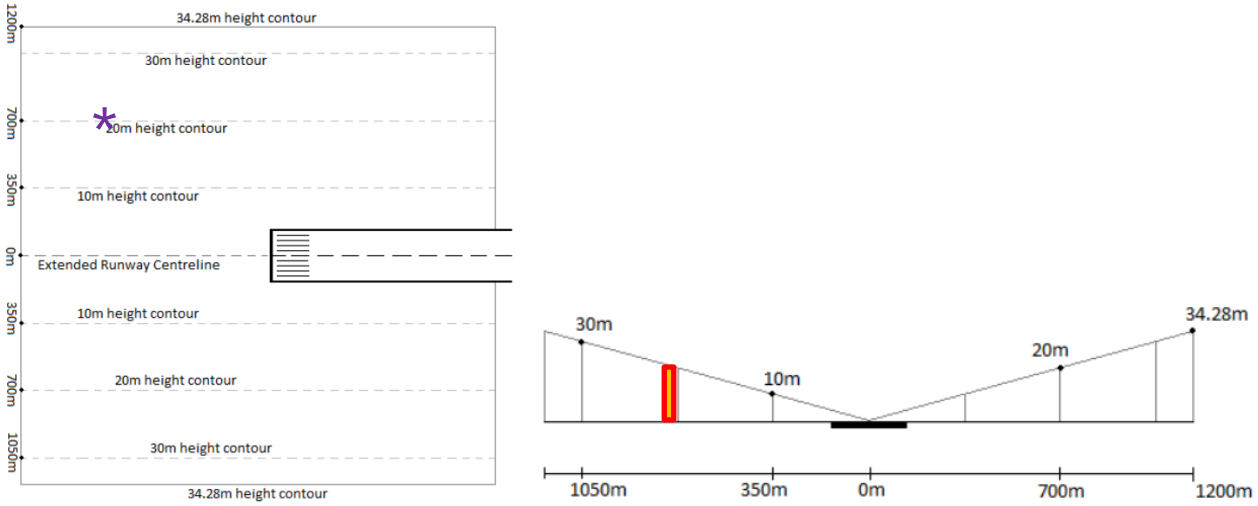


Figure 11 Approximate Location of Planned Future Development against 1:35 Slope Diagrams (Guideline B – May 2018)

Any building (or part thereof) falling within the contours in the diagram above (Figure 11) must be considered for wind effects. The applicable runway is shown in both plan and section. The indicative location of the development within the assessment zone is shown on Figure 11. To be sure the future development is underneath 1:35 slope, Building Height for the area indicated in orange highlight area and Figure 12.

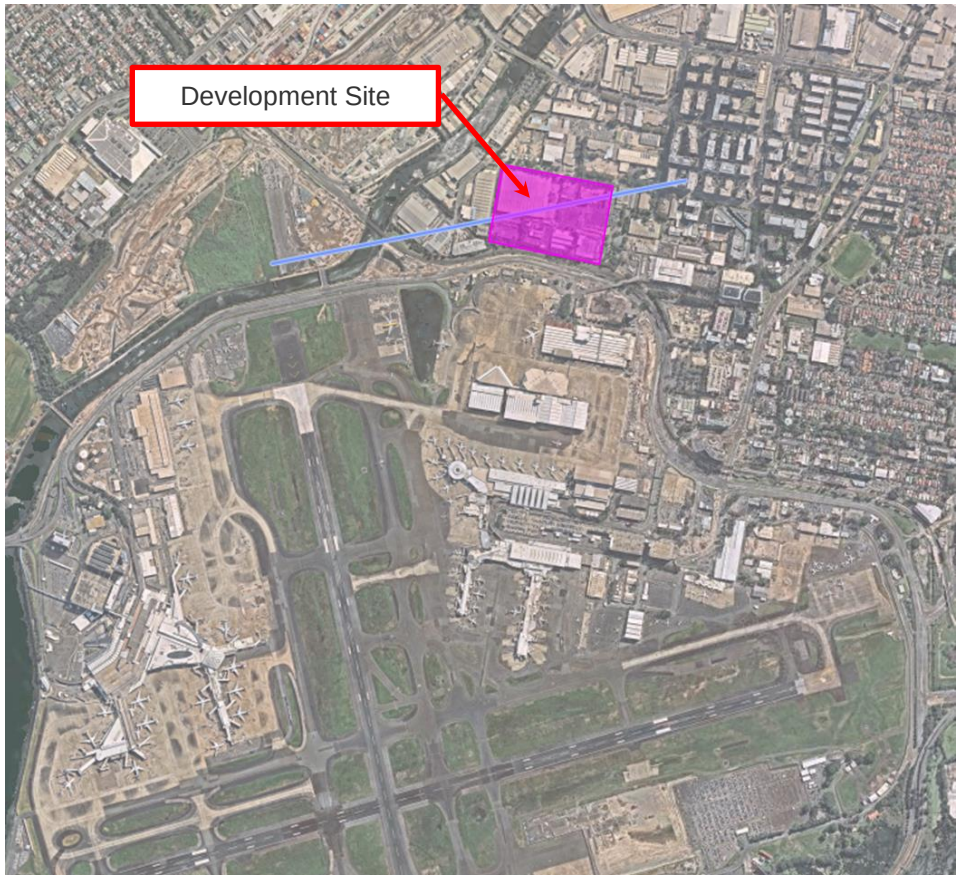
Figure 12 Lowest Building Height Indication (Source: L&B Drawing and google Map)

Conclusion:	Part of the site fails within windshear area, the height in the impacted areas within the Assessment Trigger Zone will need to be lower than **20.06 m AHD** to be acceptable without further consideration. Planned building height is **47.10 m AHD**. On this basis a further assessment as described in Step 3 of the Guideline is required.

4.3.2.3 Step 3: Risk Assessment / Safety Case

Step 3 of Guideline B requires the building proponent to consider windshear issues in more detail. The simple BWD check outlined in Guideline B is not considered appropriate. The simple BWD check assumes clear land between the development and runways. The built form environment between the proposed development and runway 16R/34L is highly complex and consists of multiple major buildings.

Due to the extensive development between the site and the applicable runway and the size and scale of the future development we consider that the likely future warehouse building(s) will not impact wind conditions on runway 16R/34L. The existing developments will block and / or create their own wind impacts irrespective of the proposed future development. Figure 13 shows a cross section profile taken along a line perpendicular from Runway 16R/34L to existing buildings adjacent to the site.



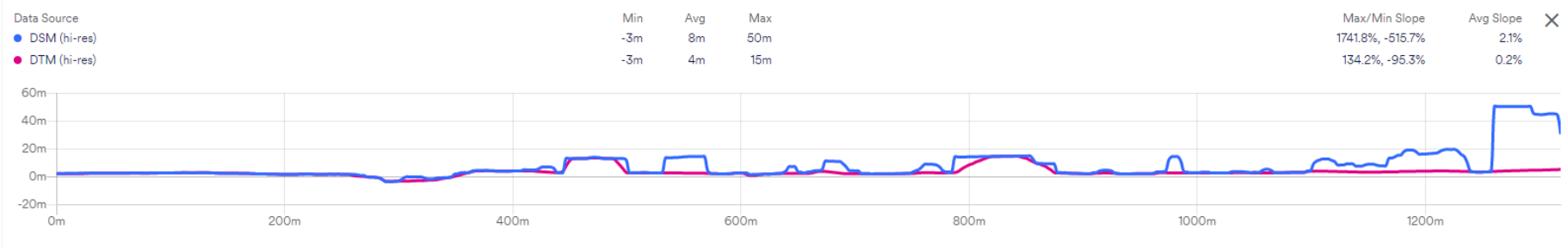


Figure 13 Elevation Profile from Development site to Runway 25 (Source: L&B Drawing and Nearmap)

Conclusion:	The complex built forms shown in the cross section profiles allow us to conclude that the likely future development to be delivered in association with the revised FSR will not likely impact the wind conditions on runway 16R/34L. Wind flow over the proposed development will be broken by the various developments up and down wind of the future building(s). We consider that more complex simulation / modelling assessment of wind conditions as outlined in Steps 4 and 5 of the guideline is not required.

4.4 Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports

This guideline principally provides recommendations to local planning authorities on the implementation of policies to limit the impact of (generally flying) wildlife on aircraft operations within their legislative frameworks using principles set out in International Civil Aviation Organisation (ICAO) documentation. The “requirements” set out below are extracted from those recommendations. Note: Any local implementation of wildlife requirements is covered under Section 4 of this document.

4.4.1 Requirements

- Proposed development should not increase the risk of wildlife strikes at airports. Land uses that present a risk of attracting wildlife should be controlled (and mitigated) within 3km, 8km and 13km of an airport as set out below.

Land Use	Wildlife Attraction Risk	Actions for Existing Developments			Actions for Proposed Developments/ Changes to Existing Developments		
		3 km radius (Area A)	8 km radius (Area B)	13 km radius (Area C)	3 km radius (Area A)	8 km radius (Area B)	13 km radius (Area C)
Agriculture							
Turf farm	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Piggery	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fruit tree farm	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Fish processing /packing plant	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Cattle /dairy farm	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Poultry farm	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Forestry	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Plant nursery	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Conservation							
Wildlife sanctuary / conservation area - wetland	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Wildlife sanctuary / conservation area - dryland	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Recreation							
Showground	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Racetrack / horse riding school	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Golf course	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Sports facility (tennis, bowls, etc)	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Park / Playground	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Picnic / camping ground	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Commercial							
Food processing plant	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Warehouse (food storage)	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Fast food / drive-in / outdoor restaurant	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Shopping centre	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action
Office building	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Hotel / motel	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Car park	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Cinemas	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Warehouse (non-food storage)	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Petrol station	Very Low	Monitor	No Action	No Action	Monitor	No Action	No Action
Utilities							
Food / organic waste facility	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Putrescible waste facility - landfill	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Putrescible waste facility - transfer station	High	Mitigate	Mitigate	Monitor	Incompatible	Mitigate	Monitor
Non-putrescible waste facility - landfill	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Non-putrescible waste facility - transfer station	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Sewage / wastewater treatment facility	Moderate	Mitigate	Monitor	Monitor	Mitigate	Mitigate	Monitor
Potable water treatment facility	Low	Monitor	Monitor	No Action	Monitor	Monitor	No Action

Figure 14 Wildlife Control Zones and Mitigations (Guideline C – October 2014)

4.4.2 Assessment and Conclusions

The site is 2.2 km from the ARP and is within Area A. Within the 3km zone there are “incompatible” uses that would not normally align with an industrial precinct of the type understood to be foreseen at development site. Specific building / lot uses may need to ensure that any “mitigate” and “monitor” actions are included.

The nature of the planned future development site does not include large dams, large waterbodies, wastewater treatment plants, parks or biodiversity conservation sites. Any stormwater evaporation ponds required under DCP Stormwater Strategy will be covered with netting in accordance with DCP Stormwater requirements.

We understand that the future DA will provide for the appropriate types of flora that will enhance the visual features of the site without being an attractant for birds or bats and not encouraging fauna such as rats and mice, being recognised as food, that would attract birds to the site.

Conclusion:	The developer needs to confirm the planned future development site will not impact the risk of wildlife strikes in the vicinity of Sydney Airport through appropriate flora selection and ensuring no “incompatible” uses from the table above are permitted.

4.5 Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation

This guideline principally provides recommendations to local planning authorities and proponents of wind farm developments on the implementation of policies to limit the impact of such development on aircraft operations. The “requirements” set out below are extracted from those recommendations.

As the planned future development is not a wind farm nor includes a single wind turbine this Guideline does not apply. Requirements and assessment approach are therefore not included in this report.

Conclusion:	The planned development is compliant. No action required.

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

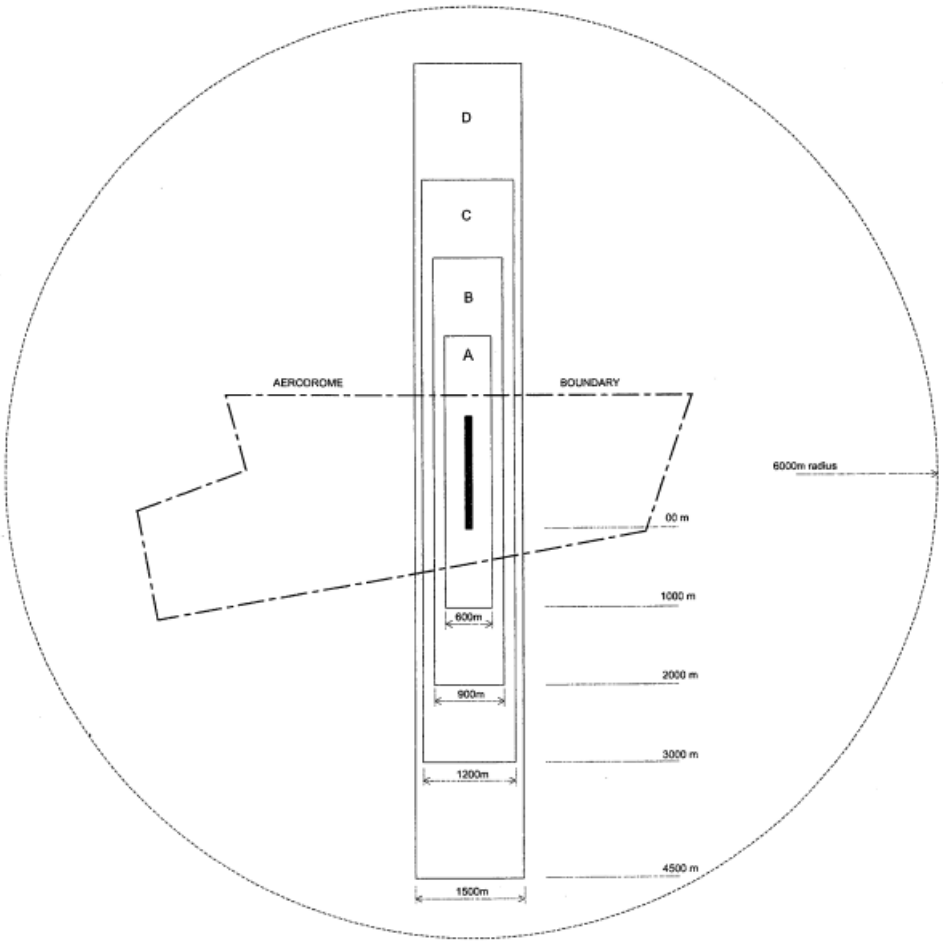
This guideline principally provides recommendations to local planning authorities and airport operators on the implementation of policies to address the risk of distractions to pilots of aircraft from lighting and light fixtures near airports. The “requirements” set out below are extracted from those recommendations. Note: Any local implementation of lighting requirements is covered under Section 4 of this document.

4.6.1 Requirements

- In the context of this Guidelines proposed developments should include;
  - motorway/freeway lighting

- sea container yards
- wharves
- refinery flare plumes
- stadium flood lighting
- construction lighting.

- Lighting within a 6km radius of the centre of each runway at an airport should be assessed under this Guideline. The diagram below shows the application of this radius and the four lighting control zones within it.



Lighting Zone Reference	Distance in m zone extends from runway end	Distance in m zone extends from runway centreline / extended centreline	Max 3° Upward Light Intensity (Candela)
A	1000	300 (600m total width)	0
B	2000	450 (900m total width)	50
C	3000	600 (1200m total width)	150
D	4500	750 (1500m total width)	450

Figure 15 Lighting Control Zones (Guideline E – October 2014) with added explanatory table (L&B)

- In addition, proponents should note that coloured lights should be considered and potentially referred to CASA for consideration.

4.6.2 Assessment and Conclusions

The site is 2.7 km from the end of an applicable runway and is within Areas C. Showing in Figure 16.

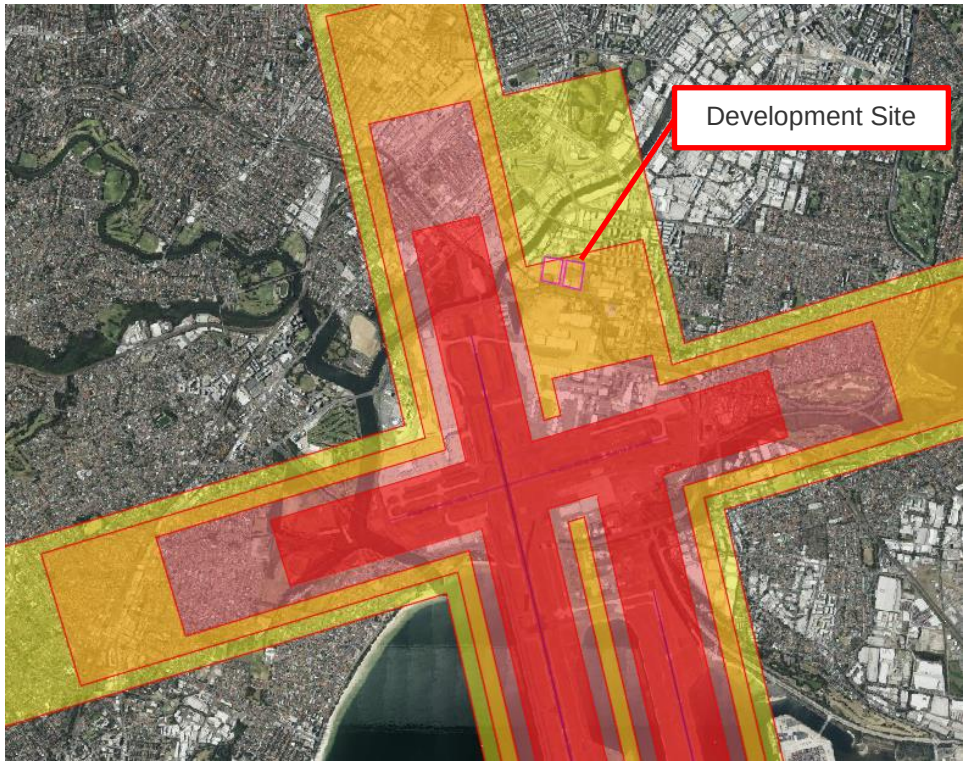


Figure 16 Sydney Airport Master 2039 - Lighting Intensity (Source: L&B drawing & Google Map)

Conclusion:	The proponent needs to ensure that the design and construction of the future development limits the upward light (measured 3° to the horizontal) is no more than 150 candelas during both construction and ultimate operation.

4.7 Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports

This guideline principally provides recommendations to local planning authorities and airport operators on the implementation of policies to address the risk of distractions to pilots of aircraft from lighting and light fixtures near airports. The “requirements” set out below are extracted from those recommendations. Note: Any local implementation of lighting requirements is covered under Section 4 of this document.

4.7.1 Requirements

- In the context of this Guidelines proposed developments should include;
  - Activities that could cause air turbulence, where the turbulence could affect the normal flight of aircraft operating in the prescribed airspace; and
  - Activities that could cause the emission of steam, other gas, smoke, dust or other particulate matter, where the smoke, dust or particulate matter could affect the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules (VFR).

4.7.1.1 Protection of visual operations – Obstacle limitation surfaces

The first group of criteria are used to determine the obstacle limitation surfaces (OLS) for a runway. Criteria for determining these surfaces are established by the International Civil Aviation Organization (ICAO). In Australia, CASA publishes these criteria in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations.

Structures, trees or other activities that intrude into the OLS could constitute obstacles to aircraft taking off or approaching to land. The OLS for an airport charts the volume and dimensions of operational airspace that should be kept free of obstacles to aircraft operations being conducted under VFR or during the visual stages of IFR operations.

It is important to note that the OLS does not prohibit all intrusions. The aim is to ensure that all objects that intrude into the OLS can be identified and assessed for their potential impact on aircraft operations. The assessment will enable a determination on whether the intrusion is permissible, and if so, a determination on whether any risk mitigation requirements should be imposed.

The requirements to protect operational airspace will be enforced most rigorously along the extended centrelines of runways in the approach and takeoff areas. This could extend up to 15 kilometers from the ends of runways at major airports. Other OLS surfaces that protect aircraft circling to land may also extend up to 15 kilometers from major airports.

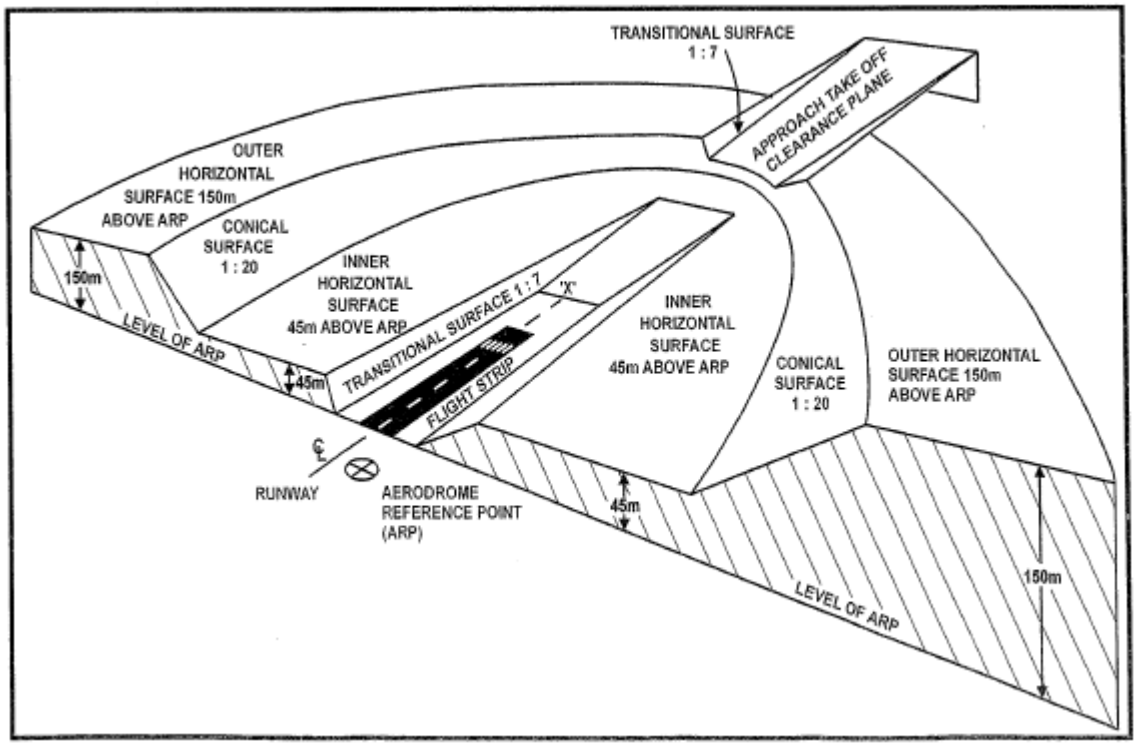


Figure 17 Isometric view of OLS

4.7.1.2 Protection of instrument operations – Procedures for Air Navigation Services – Operations (PANS-OPS) Surfaces

A second group of criteria is used to determine the volumes and dimensions of airspace required to protect the safety of IFR operations. Under IFR operations, pilots fly aircraft relying on instruments for navigation. Airspace protection for IFR operations cannot allow for any long-term penetrations.

ICAO established these criteria which are published in a document titled 'Procedures for Air Navigation Services – Operations (PANS-OPS)'. The surfaces determined by using the criteria in the PANS-OPS publication are called PANS-OPS surfaces.

The PANS-OPS surfaces are used in the construction of take-off, landing and approach procedures based entirely on navigation with sole reference to aircraft instruments. They are designed to protect aircraft from colliding with obstacles when flying on instruments. Minimum safe altitudes are established for each segment of an instrument procedure.

If it is agreed by all stakeholders that a long-term penetration of the PANS-OPS surfaces is essential, the PANS-OPS surfaces must be raised so they are clear of the development causing the penetration. However, this may also have operational penalties for airport operations and could have community impacts, such as re-design of flight paths that increase the population exposed to high levels of aircraft noise.

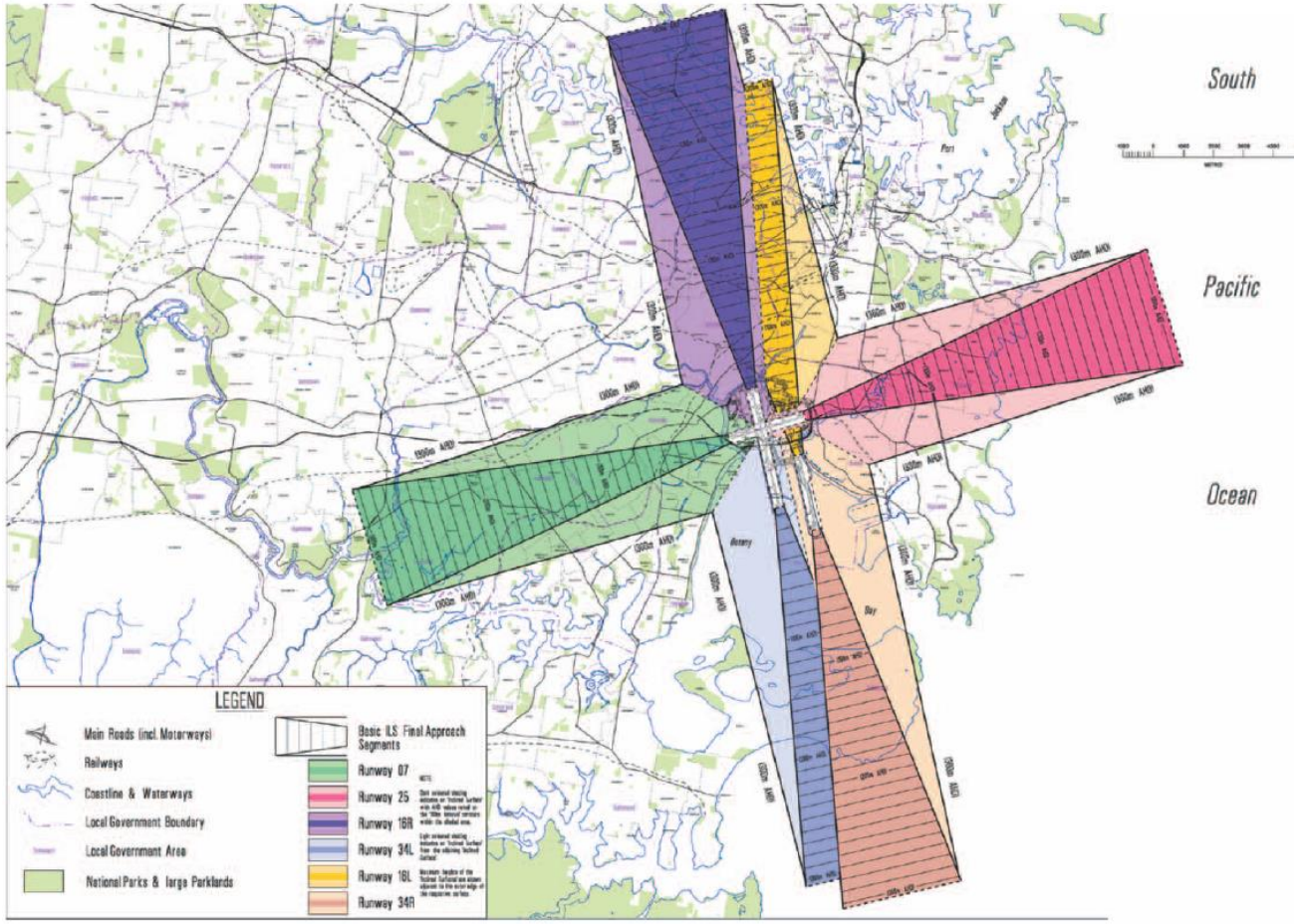


Figure 18 An example of a PANS-OPS chart

4.7.1.3 Roof Top Exhaust Plumes

Part 139 of the Civil Aviation Safety Regulations 1988 (CASR 1988) provides that CASA may determine that a gaseous efflux having a velocity in excess of 4.3 m/s is, or will be, a hazard to aircraft operations because of the velocity of the efflux. In this case, any exhaust plume with a velocity in excess of 4.3 m/s from any vent on top of the building is unlikely to reach the height of the lowest PANS OPS or OLS.

4.7.2 Assessment and Conclusions

4.7.2.1 Obstacle limitation surfaces

The site is within 2.2 km of the centre of airport, it is located beneath the inner horizontal surface with lowest height of **51.0 m AHD**.

Figure 19 shows Sydney Airport Obstacle Limitation Surface Map and the location of the future development.

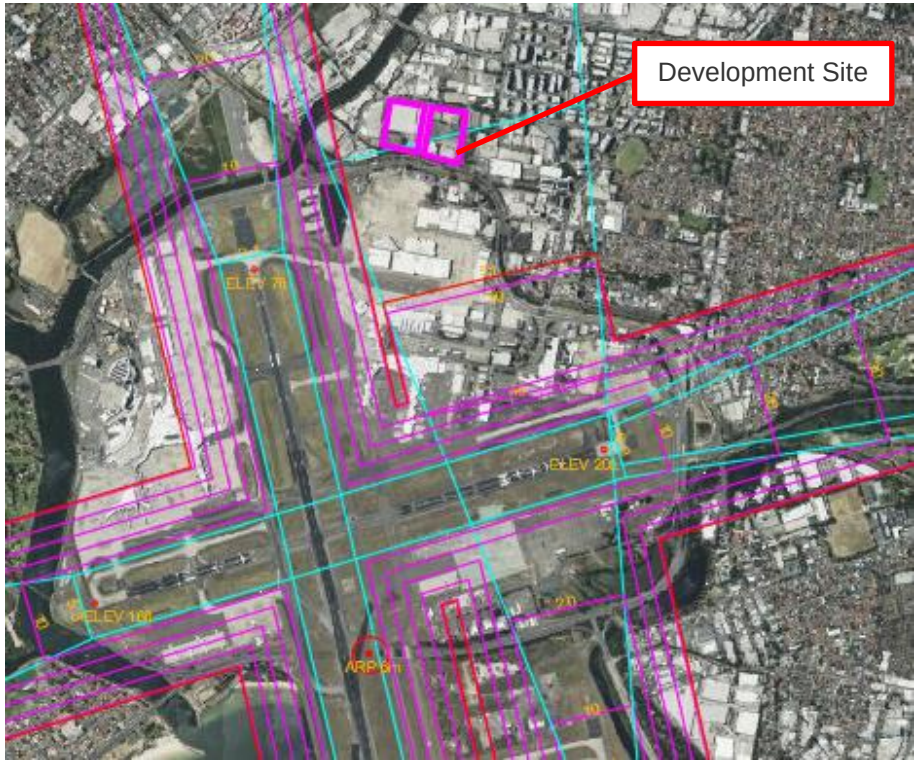


Figure 19 Sydney airport OLS surface and planned future development location (Source: L&B CAD & Google Map)

Conclusion:	To be ensure the future development does not infringe the OLS of aerodrome. The future development must not exceed **51.0 m AHD**. The future development's height will not infringe the OLS of aerodrome. However, once including temporary craneage is included it is possible that such construction activity will infringe the OLS inner horizontal surface. Extended infringement of the inner horizontal surface is potentially likely to be permitted by Sydney Airport / CASA. Refer extracted information below. Correspondence from Sydney Airport on behalf of Airspace Protection: • 'Subregulation 14 (5) prevents an application being approved if the proposed controlled activity would, if carried out, result in an intrusion into PANS-OPS airspace, unless the controlled activity is a short-term controlled activity and the airport operator supports the approval' - Airports (Protection of Airspace) Regulations 1996 – REG 10. The short term controlled does not exceed 3 months. • The mobile crane operation would need to operate during Airport curfew and would need to close a Runway. • Crane works lower than 51m AHD, require a crane permit from Sydney Airport. Mobile/ crawler crane operation above OLS but under PANS OPS needs to request from CASA & approval from the Federal Department.

4.7.2.2 Operations (PANS-OPS) Surfaces

All Sydney basin airports' PANS OPS surfaces were assessed for this proposed development. The PANS OPS surfaces for all airports, other than Sydney Airport, are well above the maximum height of this proposed development and accompanying construction activity.

Minimum Sector Altitudes (MSA)

Certified aerodromes have flight protection (PANS-OPS) surfaces associated with them. The PANS OPS surfaces associated with a 25 nm Minimum Safe Altitude (MSA) include a 5 nm buffer and therefore exist out to a maximum of 55.5 km (30 nm) from an airport with instrument approach procedures.

The nearest certified aerodrome is less than 2 km away, within the 30nm (55.5 km) MSA and 10nm (18.52km) MSA, with height limit is **1716 ft (523.04 m) AHD** and **1116 ft (340.16m) AHD**.

According to Sydney Airport Prescribed Airspace PANS OPS Protection Surfaces (updated 2017) issued on Sydney Airport website (https://www.sydneyairport.com.au/corporate/planning-and-projects/airspace-protection-tile), the lowest Basic ILS surface above the development is related to the Runway 16L ILS and is at a height of **61.5 m AHD**, shown in Figure 20.

An assessment by Airservices Australia is necessary to obtain the exact PANS OPS surface heights above the proposed development to understand the impact that the development may have on the approach procedure. The aviation authorities can then determine whether an adjustment to the procedure can be considered to allow urban development in this sector.

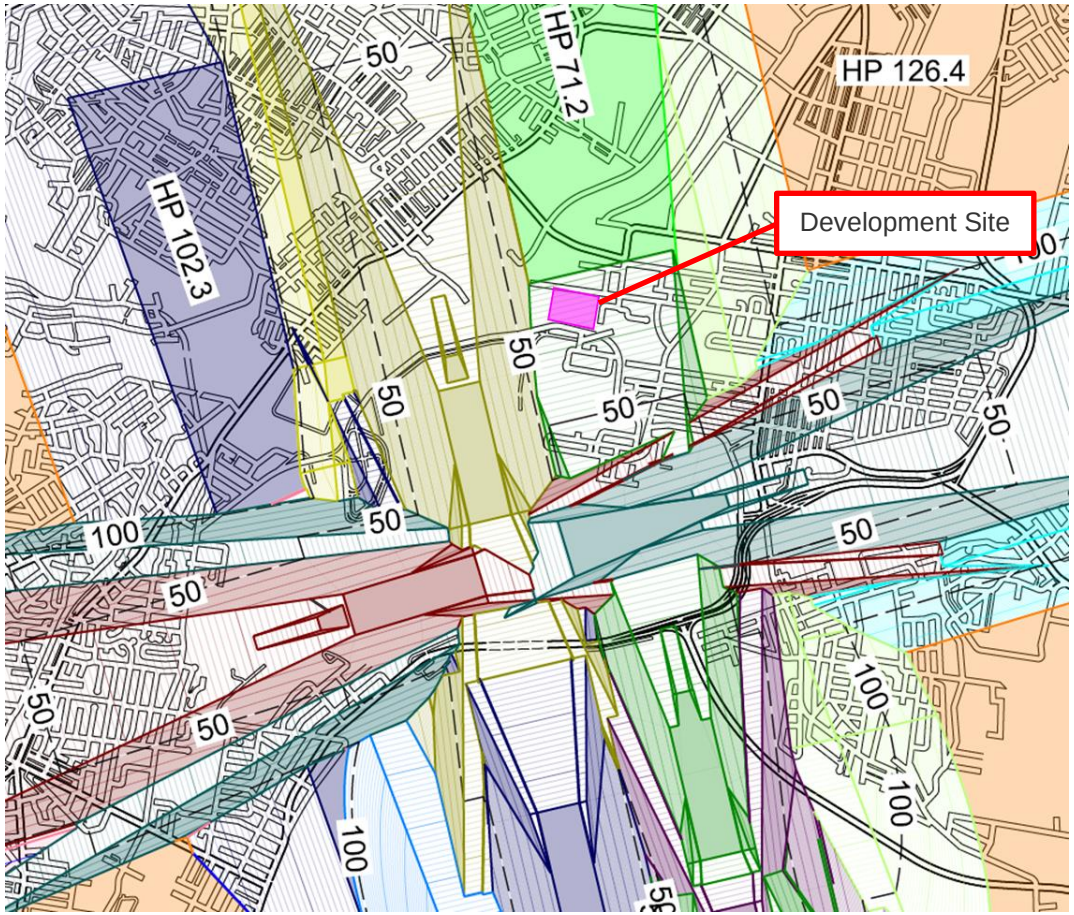


Figure 20 Sydney Airport Prescribed Airspace PANS-OPS Protection Surfaces (Source96: L&B Drawing & Sydney Airport Website)

Conclusion:	With maximum building heights projected to be beneath **47.10 m AHD**. The planned future development does not infringe the PANS OPS of aerodrome.

	The issues related to temporary construction equipment / cranes could create an infringement of PANS-OPS surfaces. Infringements of PANS-OPS surfaces are unlikely to receive clearance from Sydney Airport / CASA. Temporary construction equipment / cranes could potentially be permitted by Sydney Airport and CASA up to 61.5m in height. Refer extracted information below. Correspondence from Sydney Airport on behalf of Airspace Protection: • 'Subregulation 14 (5) prevents an application being approved if the proposed controlled activity would, if carried out, result in an intrusion into PANS-OPS airspace, unless the controlled activity is a short-term controlled activity and the airport operator supports the approval' - Airports (Protection of Airspace) Regulations 1996 – REG 10. The short term controlled does not exceed 3 months. • The mobile crane operation would need to operate during Airport curfew and would need to close a Runway. • Crane works lower than 51m AHD, require a crane permit from Sydney Airport. Mobile/ crawler crane operation above OLS but under PANS OPS needs to request from CASA & approval from the Federal Department.

4.7.2.3 Roof Top Exhaust Plumes

Planned activity within the proposed development is not likely to produce such an exhaust plume.

Conclusion:	The likely future development as shown in the concept design will not have an impact upon airport.

4.8 NASF Guideline G: Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)

To guideline provides land use planning information to enable protection of CNS facilities which support the systems and processes in place by Airservices Australia (Airservices), the Department of Defence (Defence) or other agencies under contract with the Australian Government, to safely manage the flow of aircraft into, out of and across Australian airspace.

4.8.1 Requirements

- To consider if the proposed development (or any part therefore) is within the Building Restricted Area (BRA) of any Airservices or Defence CNS equipment and what notification requirements exist. The full details for each type of CNS facility are extensive and are provided in Attachment 3 to Guideline G.
- CNS equipment provides one or more of the following;
  - Communications to or from aircraft; or

- Communications to or from centres established for air traffic control; or
- Navigational aids; or
- Surveillance systems

- Generally, a BRA should be kept clear of permanent or temporary:
  - Obstructions (e.g. buildings, other structures or trees) to the 'line of sight' between transmitting and receiving devices;
  - Objects (e.g. wind turbines) which act as reflectors or deflect signals used by aviation facilities;
  - radio frequency interference;
  - Electromagnetic emissions (e.g. such as those emitted by arc welding associated with steel fabrication); or
  - Plume rises (as defined in the Airports (Protection of Airspace) Regulations 1996.

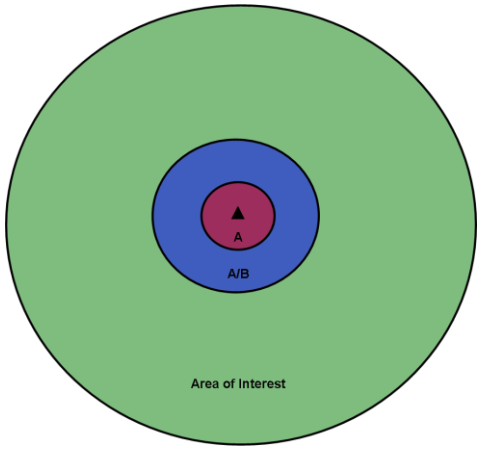


Figure 21 Two dimensional representation three dimensional zones in BRA (Guideline G)

Facility Type	Zone A (metre radius)	Zone A/B (metre radius)	Area of Interest (metre radius)
High Frequency (HF)	0 – 100	100 – 6000	6000 - 10000
Very High Frequency (VHF)	0 – 100	100 – 600	100 – 2000
Satellite Ground Station (SGS)	0 - 30	30 - 150	n/a
Non-Directional Beacon (NDB)	0 – 60	60 – 300	n/a
Distance Measuring Equipment (DME)	0 – 100	100 – 1500	n/a
VHF Omni-Directional Range (VOR)	0 – 100	100 – 1500	n/a

Conventional VHF Omni-Directional Range (CVOR)	0 – 200	200 – 1500	n/a
Doppler VHF Omni-Directional Range (DVOR) - Elevated	0 – 100	150 – 1500	n/a
Doppler VHF Omni-Directional Range (DVOR) – Ground Mounted	0 – 150	150 – 1500	n/a
Middle and Outer Marker	0 – 5	5 – 50	n/a
Glide path	n/a	n/a	n/a
Localiser	n/a	n/a	n/a
Automatic Dependent Surveillance Broadcast (ADS-B)	0 – 100	100 – 1500	n/a
Wide Area Multilateration (WAM)	0 - 100	100 - 1500	n/a
Primary Surveillance Radar (PSR)	0 – 500	500 – 4000	4000 – 15000
Secondary Surveillance Radar (SSR)	0 – 500	500 – 4000	4000 – 15000
Ground Based Augmentation System (GBAS) - RSMU	0-155	155-3000	n/a
GBAS - VDB	0-200	200-3000	n/a
Link Dishes	30m		
Radar Site Monitor – Type A	30m	0 – 500	n/a
Radar Site Monitor – Type B	70m	0 – 500	n/a

Table 2 Summary of BRA for CNS Facilities (Guideline G)

4.8.2 Assessment and Conclusions

4.8.2.1 Airport CNS Equipment

Current Sydney Airport Navaids include:

- Instrument Landing System – CAT II incl. Glide Path and Localiser
- Ground-based augmentation system (GBAS)
- DME facility

Instrument Landing System – CAT IIIB (ILS)

Based on Guideline G Attachment 3, The Instrument Landing System is a precision navigation aid that consists of a Localizer, Glide Path, markers and monitors. Beams emanate from the antennas to provide:

- Horizontal Guidance (Localizer), and

- Vertical Guidance (Glide Path).

Aircraft are guided down the horizontal and vertical beams towards the antennas to arrive at the touchdown point.

Middle and Outer Marker beacon:

General guidance - within 5 metres of the marker beacon, grass and other vegetation should be less than 60cm tall.

If application within Zone A, all applications must be referred to Airservices Australia for assessment. No action required within Zone B.

Zone A: If development is located,

- Within 5 meters of the marker beacon antenna; or
- Between 5 -10 meters of the marker beacon antenna and the development will cross the zone boundary (defined as an elevation angle of 50° from ground level at the marker beacon antenna).

Zone B: If development is located between 5 - 50 metres of the marker beacon antenna and the development will not cross the zone boundary.

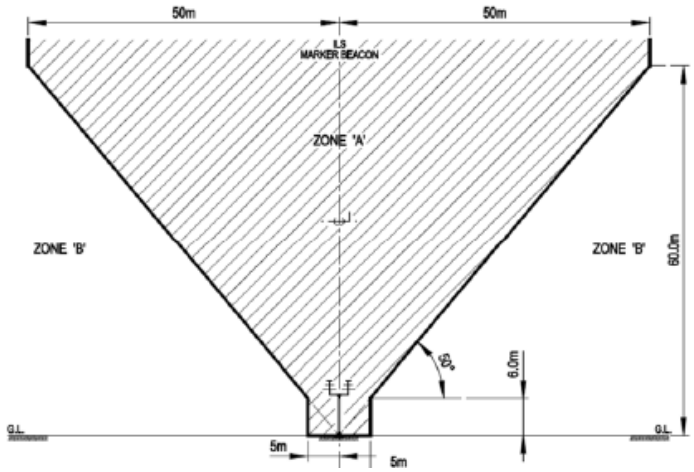


Figure 22 Middle and Outer Marker Beacon BRA (Source: Guideline G Attachment 3)

Glide Path:

If application within Zone A, all applications must be referred to Airservices Australia for assessment. No action required within Zone B.

Zone A: If development is located,

- Within the area defined as greater than 0.5° elevation longitudinally and 2° elevation laterally from the edges of the vehicle critical area (runway) (measured from the ground level at the Glide Path Antenna Tower); and
- Within 40 metres either side of the extended glide path centreline to a distance of 50 metres behind the Glide Path Antenna Tower.

Zone B: All other areas not described by Zone A.

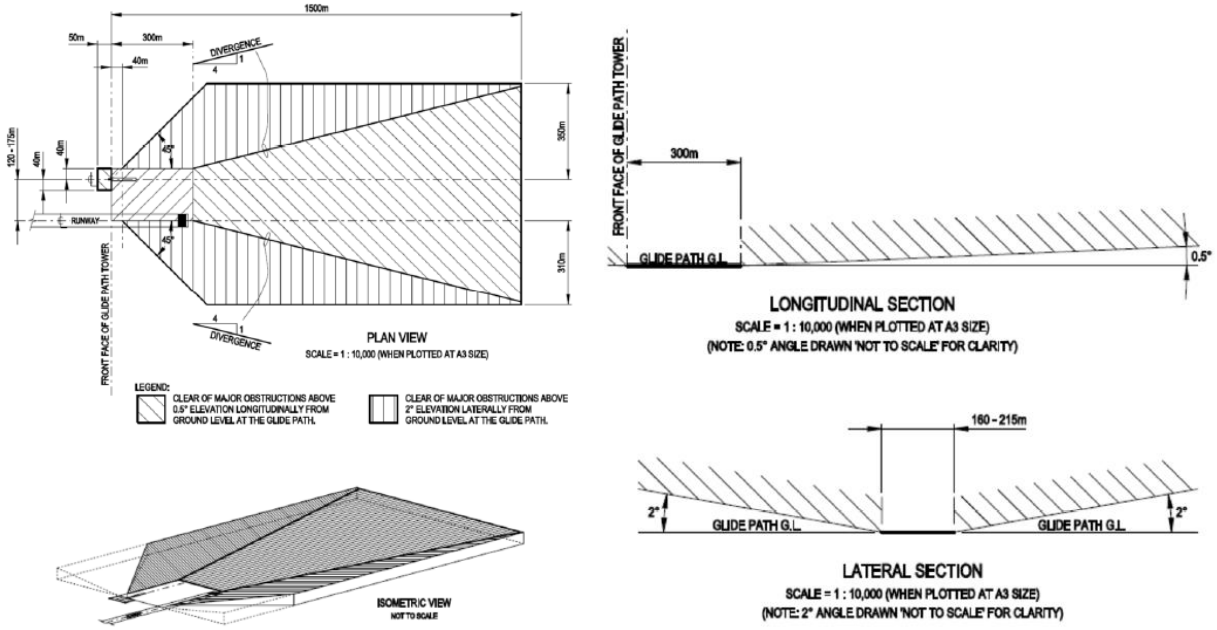


Figure 23 Glide Path BRA (Source: Guideline G Attachment 3)

Localizer:

General guidance - all buildings within 1,000 metres of the runway centreline, which have a vertical wall facing the runway that exceeds 2,000 square metres in area and a height more than 20 metres above the Localizer ground level (e.g. hangars/office blocks) will require assessment by Airservices Australia.

If application within Zone A, all applications must be referred to Airservices Australia for assessment. No action is required within Zone B.

Zone A: If development is located,

- With the area defined as greater than 0.5° elevation longitudinally and 2° elevation laterally from the edges of the vehicle critical area (runway) (measured from the ground level at the Localizer antenna); and
- Within 45 metres either side of the extended runway centreline to a distance of 50 metres behind the Localizer antenna. Within 40 metres either side of the extended glide path centreline to a distance of 50 metres behind the Glide Path Antenna Tower.

Zone B: All other areas not described by Zone A.

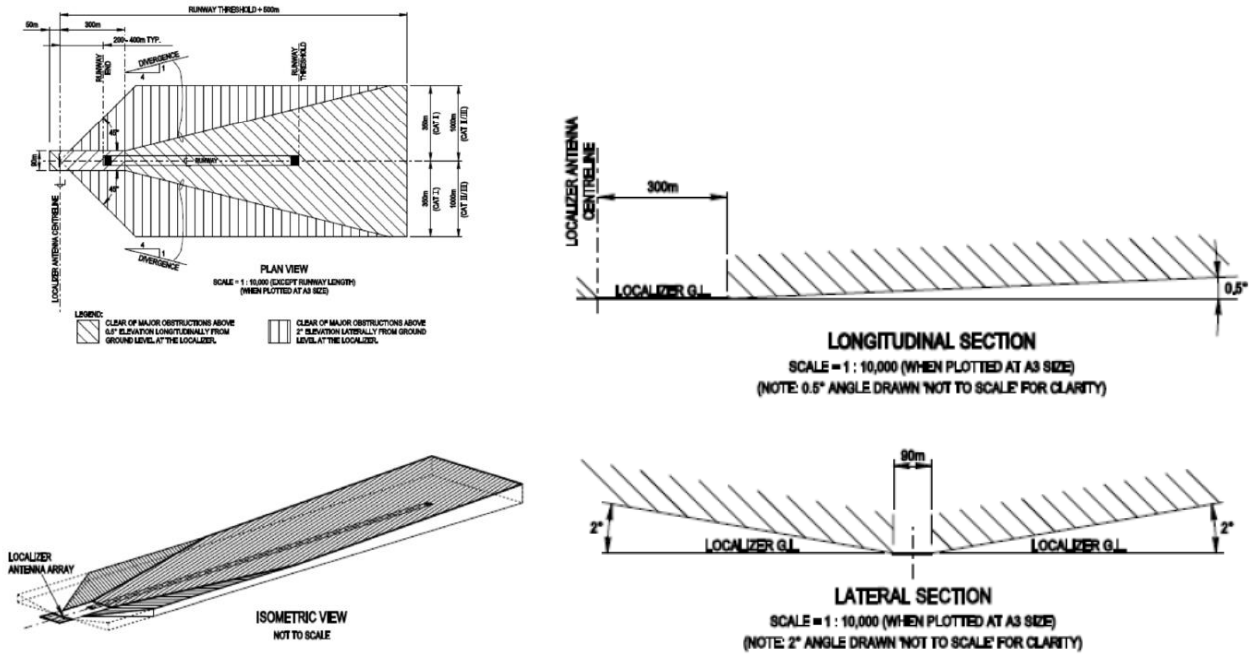


Figure 24 Localizer BRA (Source: Guideline G Attachment 3)

Development site is located outside Instrument Landing System sensitive areas.

Conclusion:	No action in respect of Instrument Landing System equipment at the airport is required.

Distance Measuring Equipment

Based on Guideline G Attachment 3, Distance Measuring Equipment measures the slant range between an aircraft and the Distance Measuring Equipment antenna.

General guidance:

- High voltage overhead powerlines, 33kV or greater, which cross the zone boundary should be at least 300 metres from the Distance Measuring Equipment antenna;
- If the Distance Measuring Equipment antenna is co‐located with a Very High Frequency Omni‐directional Range, Localizer or Glidepath facility, the building restricted area of the collocated facility should be used as the Distance Measuring Equipment building restricted area.

Zone A:

If development is located:

- Within 100 metres of the Distance Measuring Equipment antenna and above a horizontal plane located 4 metres below the centre of the Distance Measuring Equipment antenna; or
- Between 100–1500 metres from the Distance Measuring Equipment antenna and the development will cross the zone boundary (defined as an elevation angle of 2°, measured from the above horizontal plane beneath the Distance Measuring Equipment antenna).

Zone B:

If development is located between 100‐1500 metres from the centre of the Distance Measuring Equipment antenna and the development will not cross the zone boundary.

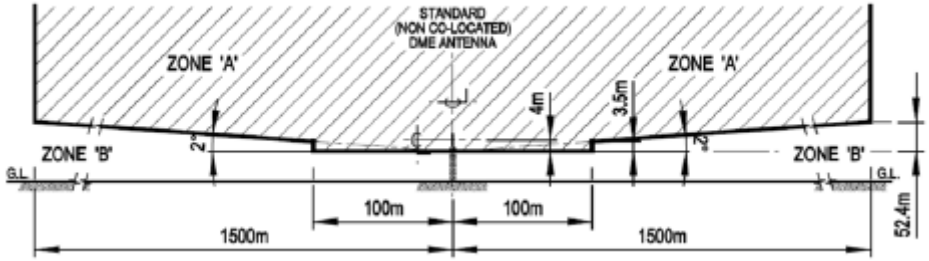


Figure 25 DME (Source: Guideline G Attachment 3)

Development site is about 1.6 km away from DME equipment, which is located within Distance Measuring Equipment cover area. Sydney Airport Runway 25 DME antenna height is 10 m **AHD**. The height limit for development is **64.69 m AHD.**

Conclusion:	With maximum building heights projected to be beneath **47.10 m AHD**.

	The likely future development does not infringe the DME equipment. The issues related to temporary construction equipment / cranes could create an infringement of DME surfaces. It may be possible to obtain permission for infringements of DME surfaces in the location of the Proposed Development on the basis that the DME surfaces may already be impacted by the other development in the area. Consultation with Airservices would be required at the DA stage for the planned future development.

GBAS

Based on Table 3 The GBAS BRA extend to 3 km from the facility which is based next to Runway 34L end.

The development site is more than 3 km away from current GBAS system.

Conclusion:	No action in respect of Instrument Landing System equipment at aerodromes is required.

Primary and Secondary Surveillance Radar

There should no temporary or permanent obstructions should infringe on Zone A or Zone B. And any sharp discontinuity protruding into the area of interest such as single metal light towers, power pylons and city buildings, will impact on performance and should be avoided where possible.

If development is within Zone A, B and area of interested, they must be referred to Airservices Australia for assessment.

Zone A: If development is located:

- Within 500 metres of the antenna; and
- Above a horizontal plane located 4 metres below the base of the antenna.

Zone B: If development is located:

- Within 4000 metres of the antenna; and
- The development will cross the zone boundary (defined as an elevation angle of 0.5° measured from 8 metres below the height of the radar antenna)

Area of interest: If development is located:

- Within 15 km of the antenna; and
- The height of the development will cross the zone boundary (defined as an angle of elevation of 0.25° measured from the height of the antenna)

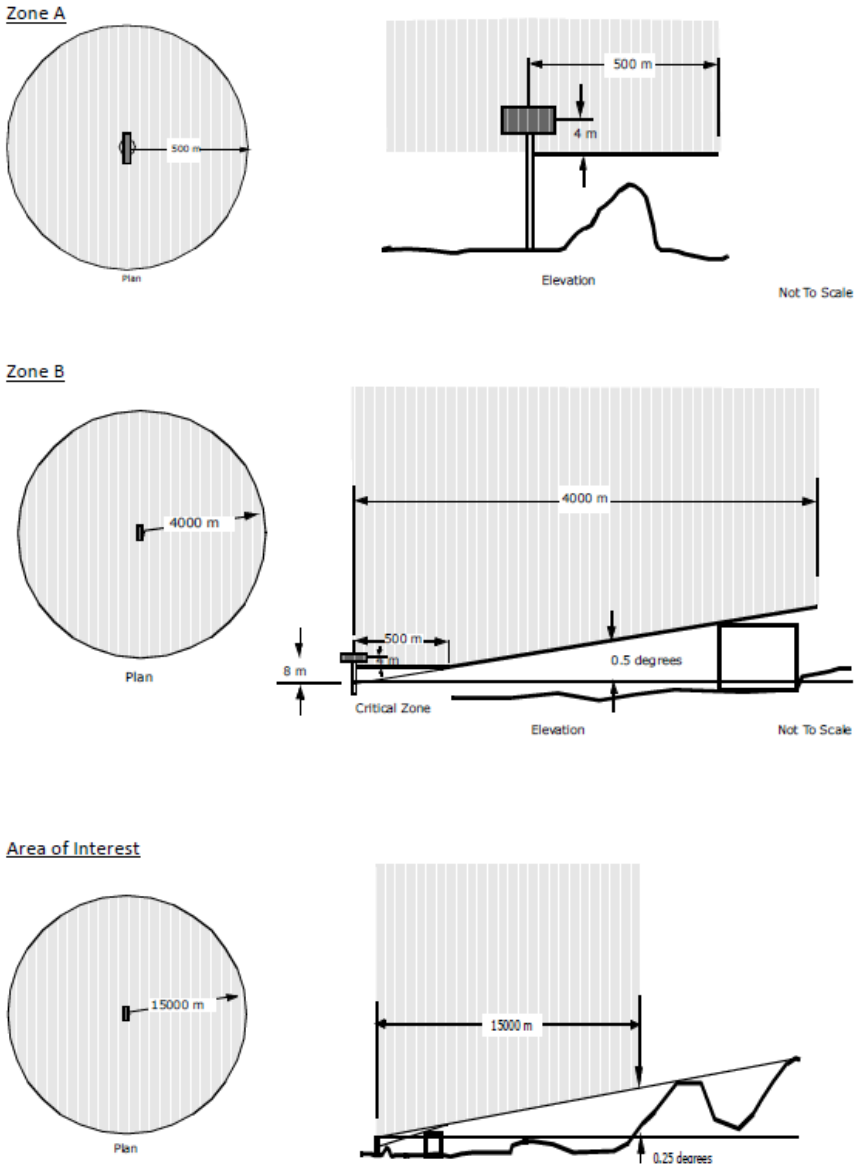


Figure 26 Primary and Secondary Surveillance Radar Area

The development site is within 15km Area of Interest area of Sydney Airport TAR. The elevation of TAR antenna is provided by Airservces as **34.5 m AHD**. Therefore, the height of development will need to be below **49.75 m AHD**.

Surveillance System	Distance from development	Antenna Elevation (AHD)	Clearance Plane Elevation at development site Distance x Tan 0.5° + TAR elevation – 8m
Sydney Airport TAR	2664 m	34.5 m	**49.75 m AHD**

Table 3 Surveillance System Clearance Plane

Initial review indicates that the likely future development would be compliant with the safeguarding requirements imposed by the Sydney Airport TAR. The issues related to temporary construction equipment / cranes could create an infringement of TAR surfaces.

The cross section / elevation profile of existing development in the vicinity of proposed development site to TAR shown in Figure 27. The profile is taken along the blue line shown in the aerial image.

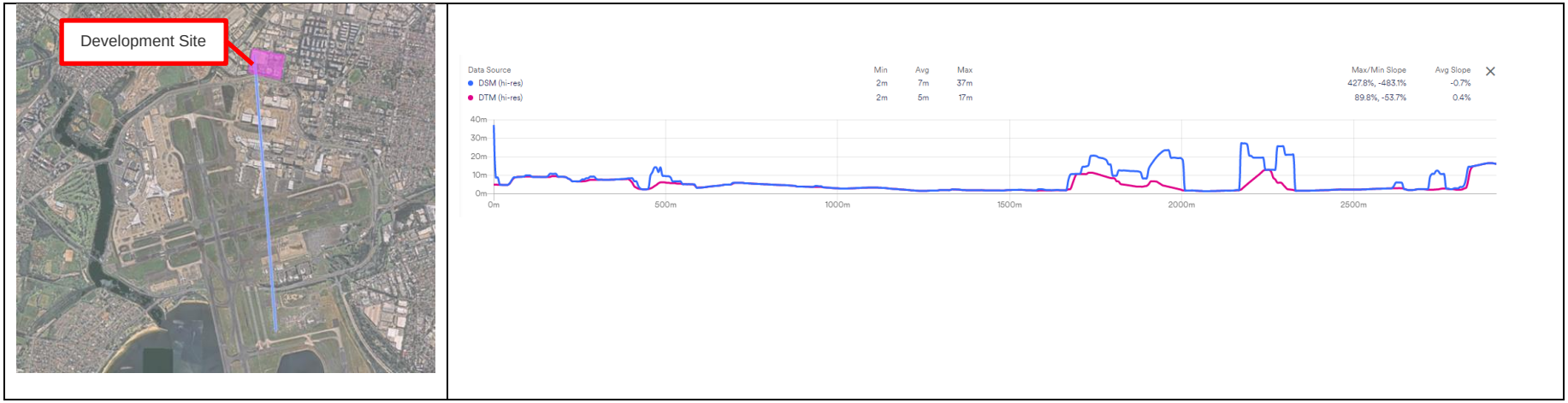


Figure 27 Elevation Profile from Existing Buildings to TRA (Source: L&B Drawing and Nearmap)

Conclusion:	With maximum building heights projected to be beneath **47.10 m AHD**. The likely future development does not infringe the Sydney Airport TAR equipment restriction surfaces. The temporary construction equipment / cranes could create an infringement of TAR surfaces. However, the Proposed Development appears less onerous infringements compared to existing development in the area. Consultation with Airservices is required at the DA stage for the planned future development to obtain more detailed consideration of the impact (or not) on the Sydney Airport TAR.

	We observe that existing buildings in the broad vicinity of the development site may already meet the basic safeguarding requirements for the Sydney Airport TAR. This would suggest that, due to the extensive development at Sydney Airport, the standard safeguarding requirements for the Sydney Airport TAR are not applied. Reference to Airservices is required to understand if the planned future development is of concern to the TAR operation.

4.8.2.2 Non-Airport CNS System Identification

The nearest Non Airport PSR and SSR is located at Cecil Park. The proposed development site is outside 15km Area of Interest area.

Conclusion:	No action in respect of Non Airport CNS equipment at aerodromes is required.

4.9 NASF Guideline H: Protecting Strategically Important Helicopter Landing Sites (HLS)

The purpose of this document is to protect important Helicopter Landing Sites (HLS) from infringements. An HLS is a specific nominated area (not located on an aerodrome) wholly or partly used for the arrival or departure of helicopters for strategically important purposes.

4.9.1 Requirements

- Development that infringes the height limits of the HLS are not permitted.
- Any development that exceeds the heights shown in Figure 28, which is consistent with the highest level of HLS classification (Performance Class 1), must be referred to the asset owner and CASA.
- Any development within the Referral Trigger zone or above 100m height (above ground level) needs to be light with a steady low intensity light.
- Windshear and turbulence impact on HLS should be considered. (L&B uses the wind turbulence information from Guideline B for this purpose.)

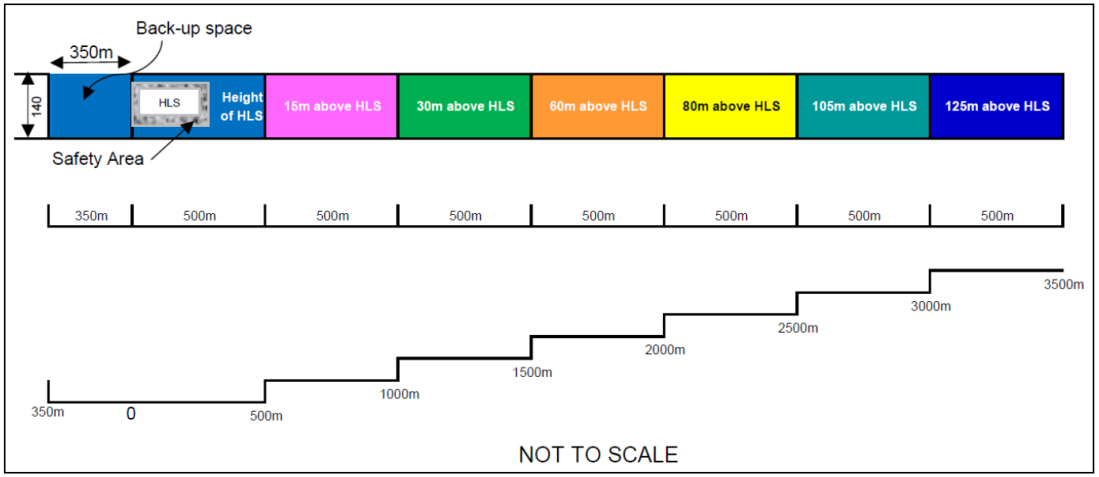


Figure 28 Referral Trigger for SHLS (Guideline H)

4.9.2 Assessment and Conclusions

There are few Helicopter sites located next to runway 25. In guideline H, the HLS is a specific nominated area (not located on an aerodrome). So those few Helicopter sites will not be accessed.

The site is located more than 3.5km from any other relevant helicopter landing sites.

Conclusion:	No action in respect of HLS is required.

4.10 NASF Guideline I – Public Safety Areas (PSAs)

Guideline I provides guidance to Australian Government, state, territory and local government decision makers on the assessment and treatment of potential increases in risk to public safety which could result from an aircraft incident or development proposal in areas near the end of an airport runway. Guideline informs a more consistent approach to the application of Public Safety Areas (PSAs) at and near Australian airports.

4.10.1 Requirements

This Guideline suggests a balanced approach with the PSA made up of two different areas:

- Outer area = 1 in 100,000 (1 x 10^{-5}) risk level per year

This identifies the area (or risk contour) within which, any person living or working for a period of a year, has approximately a 1 in 100,000 chance per year of being killed as a result of an aircraft incident (see Figure 29).

- Inner area = 1 in 10,000 (1 x 10^{-4}) risk level per year

This identifies the higher risk area (or risk contour) immediately adjoining the end of the runway within which, any person living or working for a period of a year, has approximately a 1 in 10,000 chance per year of being killed as a result of an aircraft incident (see Figure 29).

The dimensions of the two areas are dependent on a range of airport specific factors (such as forecasts about the numbers and types of aircraft movements).

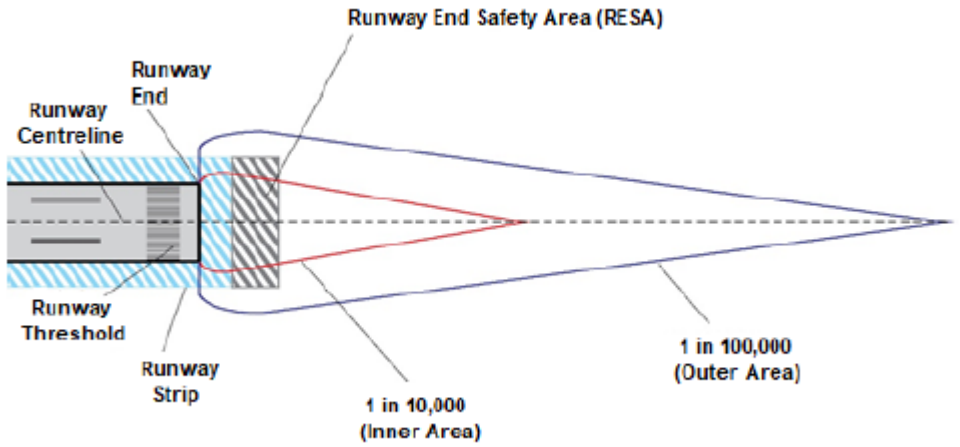


Figure 29 Example of PSA showing inner area and outer area

As a general guide, the types of new or changed development considered compatible and incompatible within the outer (1 in 100,000) and inner (1 in 10,000) areas include those listed in Figure 30.

PSA	COMPATIBLE USES	INCOMPATIBLE USES/ACTIVITIES
OUTER AREA - 1 in 100,000	• **Long stay and employee car parking** (where the minimum stay is expected to be in excess of six hours) • **Shorter stay car parking** (with a safety case – depends on intensity of use) • **Built development for the purpose of housing plant or machinery** and would require **no people** on site on a regular basis, such as electricity switching stations or installations associated with the supply or treatment of water • **Golf courses, but not club houses** (provided appropriate mitigation measures are in place to reduce wildlife attraction risk - see NASF Guideline C) • **Open storage and types of warehouses with a very small number of people on site.** The planning authority could consider imposing conditions to prevent future intensification of the use of the site and limit the number of people to be present on the site • **Developments which require few or no people on site on a regular basis** such as buildings housing plant or machinery • **Low intensity public open space**	• **Accommodation activities:** This includes dwelling houses, multiple dwellings, resort complexes, tourist park, hostels, retirement villages or other residential care buildings • **Community activities:** educational establishment, community centres, hospitals, theatres, child-care and playgrounds, detention facilities, place of worship • **Recreation activities:** This includes parks, outdoor recreation and sport, major sport and entertainment facilities • **Entertainment and centre activities:** Shopping centres, service stations, showrooms, markets, hotels, theatres, tourist attraction, garden centres • **Industrial and commercial uses involving large numbers of workers or customers:** Intensive uses such as high impact, medium and low impact industry, warehousing, services industry • **Manufacture or bulk storage of flammable, explosive or noxious materials** • **Public passenger transport infrastructure:** This includes bus, train and light rail stations
INNER AREA – 1 in 10,000	• **Long stay and employee car parking** (where the minimum stay is expected to be in excess of six hours) • **Built development for the purpose of housing plant or machinery** and would require **no people** on site on a regular basis, such as electricity switching stations or installations associated with the supply or treatment of water • **Golf courses, but not club houses** (provided appropriate mitigation measures are in place to reduce wildlife attraction risk - see NASF Guideline C)	• **Accommodation activities:** This includes dwelling houses, multiple dwellings, resort complexes, tourist park, hostels, retirement villages or other residential care buildings • **Community activities:** educational establishment, community centres, hospitals, theatres, child-care and playgrounds, detention facilities, place of worship • **Recreation activities:** This includes parks, outdoor recreation and sport, major sport and entertainment facilities • **Entertainment and centre activities:** Shopping centres, service stations, showrooms, markets, hotels, theatres, tourist attraction, garden centres • **Industrial and commercial uses involving large numbers of workers or customers:** Intensive uses such as high impact, medium and low impact industry, warehousing, services industry • **Manufacture or bulk storage of flammable, explosive or noxious materials** • **Public passenger transport infrastructure:** This includes bus, train and light rail stations

Figure 30 General guidance for new/proposed developments on compatible and incompatible activities within PSA risk contours

4.10.2 Assessment and Conclusions

The site is outside PSAs associated with all runways Sydney Airport, shown in Figure 31.

Figure 31 Sydney Airport Public Safety Area (PSA) (Source: L&B drawing & Google Map)

Conclusion:	No action in respect of PSAs.

5 Bayside Local Environment Plan 2021

The report assesses the site against the relevant clauses of the Bayside Local Environment Plan 2021, Part 6 Additional local provisions.

5.1 Clause 6.7: Airspace Operations

5.1.1 Requirement

The objectives of this clause are:

- The objective of this clause is to protect airspace around airports.
- The consent authority must not grant development consent to development that is a controlled activity within the meaning of Division 4 of Part 12 of the Airports Act 1996 of the Commonwealth unless the applicant has obtained approval for the controlled activity under regulations made for the purposes of that Division.

5.1.2 Assessment and Conclusions

These matters are covered by the various topics of the NASF as detailed in the previous sections.

Conclusion:	No further assessment in respect of the Bayside Council is required. Reference must be made to the sections covering NASF.

6 Summary of Conclusions and Actions

6.1 Conclusions: National Airports Safeguarding Framework (NASF)

Assessment Principle	Conclusion / Action	Reference Page / Section
NASF Guideline A: Measures for Managing Impacts of Aircraft Noise	No impact.	Page: 10 Section: 4.2.2
NASF Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports	No impact.	Page: 17 Section: 4.3.2
NASF Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports	No impact.	Page: 23 Section: 4.4.2
NASF Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation	No impact.	Page: 23 Section: 4.5
NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports	The proponent needs to ensure that the design and construction of the future development limits the upward light (measured 3° to the horizontal) is no more than 150 candelas during both construction and ultimate operation.	Page: 25 Section: 4.6.2
NASF Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports	The likely future development's height will not infringe the OLS and PANS OPS of aerodrome. Once including temporary craneage, it will potentially infringe the surfaces. There is a need to understand construction approach and potentially seek views from Sydney Airport on temporary infringement of the OLS at the DA stage.	Page: 29 Section: 4.7.2

NASF Guideline G: Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)	The likely future development does not infringe the DME equipment. Once including temporary craneage, it will potentially infringe the DME equipment Building Restriction Area. There is a need to consult with Airservices Australia at the DA stage. The likely future development does not infringe the Sydney Airport TAR equipment restriction. Once including temporary craneage, it will potentially infringe the TAR equipment Building Restriction Area. Consultation with Airservices will be required at the DA stage.	Page: 34 Section: 4.8.2
NASF Guideline H: Protecting Strategically Important Helicopter Landing Sites (HLS)	No impact.	Page: 43 Section: 4.9.2
NASF Guideline I: Public Safety Areas (PSAs)	No impact.	Page: 45 Section: 4.10.2

6.2 Conclusions: State and Local Planning Requirements

6.2.1 Bayside Local Environmental Plan (2021)

Assessment Principle	Conclusion / Action	Reference Page / Section
Clause 6.7: Airspace Operations	The requirements of Council are covered by the NASF review detailed above.	Page: 47 Section: 5.1.2