

PRELIMINARY AERONAUTICAL IMPACT ASSESSMENT

University of Technology Sydney



University of Technology Sydney 14-18 Ultimo Road, Ultimo NSW 2007 Master Plan Submission 25 August, 2021



Publication Title

Preliminary Aeronautical Impact Assessment - University of Technology Sydney

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Executive Summary

Executive Summary

This report has been prepared on behalf of Ethos Urban who sought advice in relation to identifying airspace constraints associated with a proposed development of Building 13-15 on the University of Technology Sydney (UTS) Master Plan located at 622-644A Harris Road, Ultimo NSW 2007 in Sydney, referred to herein as "the site".

Avlaw Pty Ltd, trading as Avlaw Aviation Consulting (Avlaw), has conducted a preliminary aeronautical impact assessment of the maximum building height restrictions at the site against prescribed airspace limits. These limits exist due to necessary safety clearances (mandated in legislation) that must be provided between an aircraft and an obstacle, such as buildings and cranes.

This report provides details of the current airspace protection surfaces that cover the site which have been assessed following provision of a maximum building height of 67.9m AHD. The table below summarises the findings:

Airspace Surface/Planning Guideline	Height
Obstacle Limitation Surfaces (OLS) – Conical Surface	148-150m AHD
Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS)	267-277m AHD
Radar Terrain Clearance Chart (RTCC)	1100ft/335.28m AHD
Combined Radar Departure Assessment Surfaces	275m AHD (N/A)
National Airports Safeguarding Framework – Guideline H	N/A

The critical (i.e. lowest) airspace protection surface for operations at Sydney Airport which covers the site is the Conical Surface of the OLS which ranges from 148-150m AHD. As this surface will not be penetrated either permanently by the building (67.9m AHD) or temporarily by a hammerhead crane to be used during construction (approximately 87.9m AHD) neither will require further detailed aeronautical assessment or be classified as a "controlled activity" and therefore do not need to be approved by aviation authorities to be carried out.

Avlaw has determined that the minimum vertical distance between the proposed maximum building height of 67.9m AHD and the lowest relevant airspace protection surface (i.e. Conical Surface of the OLS) is 80.1m, providing a generous buffer for temporary crane activity. Temporary crane activity is not expected to exceed a height of 87.9m AHD and therefore is well below the next lowest airspace protection surface which is the PANS-OPS at 267m AHD.

With respect to helicopter operations, Coded Clearances in the Aeronautical Information Publication-En Route Supplement Australia (AIP-ERSA) for helicopter operations into and out of Sydney Airport which refer to Darling Harbour will not be affected by development at the site as they are significantly higher than the proposed building height and hammerhead crane to be used during construction. Avlaw has also determined that the airspace protected under National Airport Safeguarding Framework (NASF) - Guideline H for strategically important helicopter landing sites does not apply with respect to the development as approaches and departures at the nearest hospitals to the site with a helipad, the Royal Prince Alfred Hospital and St Vincent's – Victoria Barracks Helipad, are clear of the site.

In summary, provided temporary construction cranes and the overall building envelope inclusive of plant room and ancillary features (e.g. towers, masts, building maintenance unit (BMU) when in operation) all remain below the 148m AHD OLS, then no specific aviation approval should be required. Should the OLS be penetrated, then aviation approval will be required and Avlaw believes can be approved up to the 267m AHD PANS-OPS covering the site.

Introduction

Introduction

This report has been prepared on behalf of University of Technology Sydney (UTS) in support of its Ultimo Haymarket Precinct Key Site Master Plan.

The Master Plan is being progressed under the framework established by the Pyrmont Peninsula Place Strategy (PPPS), where UTS is identified as one of four "key sites". The PPPS sets out the NSW Government's 20-year strategic direction and vision for Pyrmont, where Pyrmont's locational advantages in terms of its proximity to Central Sydney, context within the Innovation Corridor and delivery of a new metro station have been embraced as part of its next evolution as the Western Gateway to the CBD.

As an identified "key site" it is recognised that UTS has the greatest potential to deliver strategic growth and change across the Peninsula together with leveraging the delivery of broader public benefits and infrastructure.

The Master Plan ultimately seeks to inform updated planning controls in relation to UTS's short-term development plans for UTS Sites 13 -15, where it is planning to deliver Australia's largest Indigenous Residential College (IRC) including Indigenous Arts Centre and Library.

In particular, this report assesses the Master Plan against airspace height restrictions which cover the site that are related to aircraft operations to/from Sydney Airport and any relevant helicopter flight paths, including those related to hospital helipads.

1.1 Pyrmont Peninsula Place Strategy (PPPS)

The Pyrmont Peninsula Place Strategy provides a 20-year framework that identifies areas that can accommodate future growth in order to support Pyrmont's evolution as the western gateway to the CBD and a hub for jobs in innovation, technology, creative industries, and media.

A balanced approach to growth has been established within the PPPS to ensure its local character and heritage is protected and it remains a great place to live, with the focus of strategic change occurring within four "key sites", including UTS (refer to Figure 1).

The first phase in implementing the PPPS is the preparation of master plans for each of the seven sub-precincts ("places") that make up the Peninsular (Figure 2). The master plans will provide the next level of detail, outlining the spatial components of the PPPS, which will be used to inform changes to land use zones, building height and density, and community infrastructure requirements etc.

As a "Key Site", UTS is progressing its own master plan for its "Key Site" which seeks to respond, inform and align with the sub-precinct master plan process and broader aspirations for the Peninsular.





Harbourside Shopping Centre

UTS Ultimo/ Haymarket

Figure 1 - Pyrmont Peninsula and Key Sites



Figure 2 - Pyrmont Peninsula Sub-Precincts

1.2 Background

UTS is a public university of technology committed to research, innovation and social justice, indigenous knowledge, and collaboration with industry. With a total enrolment of over 44,000 students, UTS is one of the largest universities in Australia. It has a culturally diverse campus next to Sydney's central business district (CBD).

UTS is an anchor institution within the Pyrmont Peninsula and plays an important role in the success of Sydney and NSW, with the Greater Sydney Commission's Sydney Regional and District plan acknowledging this importance and identifying the need to protect and support the growth of education activity within the Harbour CBD Innovation Corridor.

UTS has largely completed its \$1 billion+ Broadway Precinct master plan and is now planning for its next growth phase at its Ultimo Haymarket Precinct, leveraging the opportunities and strategic planning focus on innovation, technology, creative industries and diverse housing (Figure 3). UTS's immediate short-term plans are focussed on the redevelopment of Sites 13-15 (CB13-15) into an Indigenous Residential College (IRC) including adaptive reuse of the local heritage listed building and public realm improvements. UTS redevelopment plans for its other significant site (Site 5 – CB05) will be progressed through a separate process with the City of Sydney and its Central Sydney planning framework in the future.



Figure 3 - UTS City Campus

1.3 The Proposal

The UTS Key Site Master Plan is proposing to "rezone" Sites 13-15 in order to establish new planning controls to enable its redevelopment as an Indigenous focussed Residential College, arts centre and library. Site 13-15 is more specifically identified within Figure 4.



Figure 4 – UTS City Campus

The rezoning and proposed planning controls are based on an envelope informed by detailed site planning considerations and local context analysis, an indigenous led design brief for the college, and tested by a reference design. The proposed new planning controls including LEP amendments and Design Guide respond to the vision, strategic directions, big moves and place priorities established within the PPPS along with site specific opportunities and constraints informed through environmental, social and economic considerations.

The key development outcomes sought to be achieved for Site 13-15 from the Key Site Master Plan process include:

- » A new 250 bed Indigenous Residential College and supporting arts centre and library
- Retention and adaptive re-use of a local heritage item accommodating a mix of uses, including potential teaching/university support space
- » Creation of new open space within the site
- » Creation of a new pedestrian through-site link from Harris Street to Omnibus Lane
- » A country led design and landscape outcome

Potential for additional local public domain works for Omnibus Lane and Mary Ann Street subject to a VPA.

Once new planning controls are in place, UTS will progress with the detailed design and planning of the IRC project, including progressing with a design competition and securing development approval for the winning design.

1.4 General Requirements

This report has been prepared with reference to the General Requirements for Preparing Key Site Master Plans under the Pyrmont Peninsula Place Strategy and the alignment review prepared by the Department of Planning, Industry and Environment (DPIE) dated 5 May 2021.

In particular, this report assesses the Master Plan against airspace height restrictions which cover the site that are related to aircraft operations to/from Sydney Airport and any relevant helicopter flight paths, including those related to hospital helipads.

Airspace Height Controls

Airspace Height Controls

As a signatory to the Chicago Convention 1944, Australia adopts International Civil Aviation Organisation (ICAO) Standards and Recommended Practices (SARPs) with respect to airspace which define sets of invisible surfaces above the ground around an airport. The airspace above these surfaces forms the airport's prescribed airspace. With respect to Sydney Airport, the following airspace protection surfaces have been "declared" by the Department of Infrastructure, Transport, Cities and Regional Development (Department) and are therefore enshrined in legislation as each airport's prescribed airspace:

- » Precision Approach Path Indicator (PAPI) system protection surfaces;
- » OLS;
- » PANS-OPS surfaces;
- » Navigation Aid Protected Surfaces;
- » High Intensity Light Protected Surfaces;
- » Radar Terrain Clearance Chart (RTCC)/Radar Lowest Sector Altitude (RLSALT) surfaces; and
- » Combined Radar Departure Assessment surfaces.



Airspace Approval Process

Airspace Approval Process

Part 12 of the Airports Act 1996 (Act) and the Airports (Protection of Airspace) Regulations 1996 (Regulations) establish a framework for the protection of airspace at and around airports. The Act defines any activity resulting in an intrusion into an airport's prescribed airspace to be a "controlled activity" and requires that controlled activities cannot be carried out without approval. Controlled activities include the following:

- » permanent structures, such as buildings, intruding into the prescribed airspace;
- » temporary structures such as cranes intruding into the prescribed airspace; or
- any activities causing intrusions into the prescribed airspace through glare from artificial light or reflected sunlight, air turbulence from stacks or vents, smoke, dust, steam or other gases or particulate matter.

The Regulations differentiate between short-term (not expected to continue longer than 3 months) and long-term controlled activities. The Regulations allow for the airport operator to approve short-term penetrations of the OLS under delegation from the Department of Infrastructure, Transport, Regional Development and Communication (Department) following consultation with the Civil Aviation Safety Authority (CASA) and Airservices Australia (Airservices). However, this will not be required based on currently proposed building and crane heights as neither penetrate any airspace protection surfaces are therefore not considered obstacles from an aviation perspective.



Preliminary Aeronautical Impact Assessment Findings

Preliminary Aeronautical Impact Assessment Findings

Based on the site location provided, interrogation of satellite imagery, OLS requirements, PANS-OPS limitations as well as RTCC stipulations, Avlaw's assessment of the heights of airspace protection surfaces covering the site and the respective clearance/penetration of each by the proposed building heights across the site are tabulated on the following page.

Sydney Airport						
Airspace Surface	Height	The Site				
		Clearance/Penetration (building at 67.9m AHD)	Clearance/Penetration (crane at approximately 87.9m AHD)			
OLS	148-150m AHD	80.1 - 82.1m	60.1 - 62.1m			
PANS-OPS	267-277m AHD	199.1 - 209.1m	179.1 - 189.1m			
RTCC	335.28m AHD	267.38m	247.38m			

Figure 5: Summary of Preliminary Aeronautical Impact Assessment Findings



Figure 6 - Extract from OLS Chart (2018 revision)



Figure 7 – Extract from PANS-OPS Chart (2017)



Figure 8 - Extract from RTCC (2018)

The airspace protection surfaces over the site are the OLS, PANS-OPS, the Combined Radar Departure Assessment Surfaces, and RTCC for Sydney Airport. Since the OLS is not proposed to be penetrated by the building structure (67.9m AHD) and temporary construction crane (approximately 87.9m AHD), neither will therefore be considered a controlled activity and trigger detailed aviation assessment.

In the event changes to the building and/or crane heights result in increases, Avlaw believes that penetration of the OLS up to the PANS-OPS is not considered problematic in this instance because the site is not in the approach and take-off area for any runway at Sydney Airport and providing there is no penetration of the PANS-OPS, then no flight operational surfaces will be affected.

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Helicopter Operations

Helicopter Operations

Legislation requires the pilot of a helicopter to determine the safe take-off and landing approach taking into account all factors including aircraft performance, wind direction, obstacles, and emergency landing in the event of engine failure. The proposed development is clear of specific helicopter transit routes. The helicopter operations assessed are all conducted under Visual Flight Rules (VFR) whereby the pilot in command (PIC) is solely responsible for safe navigation clear of any obstacles.

5.1 Coded Clearances and Sightseeing Flights

The nearest corner of site is located approximately 7,495m NE of Sydney Airport Aerodrome Reference Point (ARP). There are a number of prescribed helicopter transit routes published in Aeronautical Information Publication – Enroute Supplement Australia (AIP-ERSA) for helicopter operations in the Sydney Control Zone. These are included in the Coded Clearances and Operating Requirements for Sydney Airport, with the coded clearances containing the specific routes and prescribed altitudes to be flown. The coded clearances namely "Harbour Bridge 5 Inbound", "Harbour Bridge 5 Outbound", "Erskineville 5 Inbound" and "Erskineville 5 Outbound" to and from Sydney Airport may have helicopter traffic at 1,000ft (304.8m AHD) over or to the west of the site, however, pilots are required to fly by visual reference and remain clear of all obstacles. The height of buildings or temporary construction cranes at the site to 148m AHD providing 514 ft (156.8m) clearance will therefore not pose an increased risk to helicopter traffic than other buildings in the area.

5.2 Hospital Helipads

A <u>National Airport Safeguarding Framework (NASF)</u> Guideline H has been developed to protect what are being termed Strategic Helicopter Landing Sites (SHLS). Under the guideline, hospital helipads would be considered as SHLS and therefore protected from obstacles being erected in close proximity to it when they conflict with flight paths. The guideline provides for 140m wide rectangular steps in the direction of approach/takeoff in 500m increments until reaching 125m above the SHLS which would be protected from obstacles such as buildings and cranes. The figure below has been sourced from the guideline and illustrates this proposed protection of SHLS and the heights above which it is triggered.





Two hospital helipads in the vicinity of the site are Royal Prince Alfred Hospital Helipad and the St Vincents - Victoria Barracks Helipad.

Royal Prince Alfred Hospital helipad is 1,795 metres to the SW of the site. Information relating to flight paths for this hospital are found through a number of sources. Firstly, there is an ERSA entry for this helipad which specifies preferred flight paths as follows:

- » 165 degrees M in/345 degrees M out
- » 330 degrees M in/320 degrees M out

None of the flight paths specified above are in the direction of the site and therefore helicopter operations to/from the helipad will not be adversely impacted by the proposed development.

Another source for information relating to flight paths for this helipad is ozrunways.com.au which describes approaches and departures as being to the north and south and therefore not in the direction of the site.

St Vincents - Victoria Barracks helipad is 2,115m SE of the site. Approaches and departures for the helipad as published at ozrunways are to the south over Moore Park and therefore not in the direction of the site.



Figure 10 - Hospital Helipads SHLS

There are no published approach and departure flight paths for the nearby hospital helipads over the site and therefore the referral trigger (Figure 9) contained in NASF guideline H is not enacted.



Rationale for Obtaining Approval

Rationale for Obtaining Approval

The Regulations require any decision by the Department to be made in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of the airport. The proposed development at the site to a height of 67.9m AHD will not involve penetration of the OLS and therefore will not be considered an obstacle from an aviation perspective. In the event changes to the building height result in a significant increase in height, Avlaw believes penetration of the OLS should be approved as it is not in the approach and departure paths for Sydney Airport and not affecting declared flight operational surfaces. In the event the height of temporary crane activity increases and does penetrate the OLS, any approval given may be subject to specific conditions, which may concern how the controlled activity is carried out (e.g. hours of operation of a crane) or may require the building or structure to be marked or lit in a certain way as detailed in Manual of Standards (MOS) 139. These conditions must also be in the interests of the safety, efficiency and regularity of existing or future air transport operations.

Future Controlled Activity Approval Requirements

Future Controlled Activity Approval Requirements

No controlled activity approval from aviation authorities will be required for this development to proceed based on currently proposed building (67.9m AHD) and crane heights (approximately 87.9m AHD). In the event changes to the building and/or crane heights result in a significant increase whereby the OLS is penetrated, Avlaw's experience suggests proponents should allow at least three (3) months for project planning purposes with respect to processing time with Sydney Airport, Airservices Australia, CASA and the Department conducting their own assessments in succession if approval is to be sought.

With respect to development at the site, maximum building and crane heights that may be considered acceptable to aviation regulatory authorities must not penetrate the PANS-OPS (266-277m AHD).

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