

**DRAFT REPORT V0.1**

**PRELIMINARY HEIGHT ASSESSMENT**

**PROPOSED DEVELOPMENT**

**AT**

**180 GEORGE ST PARRAMATTA, NSW**

**J0455**

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**Meriton Group**

**20 July 2015**




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## DOCUMENT RELEASE APPROVAL

Approved for Release: Draft Preliminary Report



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## DOCUMENT CONTROL

REV NO	DESCRIPTION	DATE	Prepared	QA
V0.1	Draft Preliminary Report	20 July 2015	BR	BWS

### 3. OLS EXAMINATION

#### SYDNEY

The proposed site is located beyond the Outer Horizontal Surface (OHS) of the Sydney Airport OLS (Figure 3.1).

**The site is not impacted by the Sydney Airport OLS.**

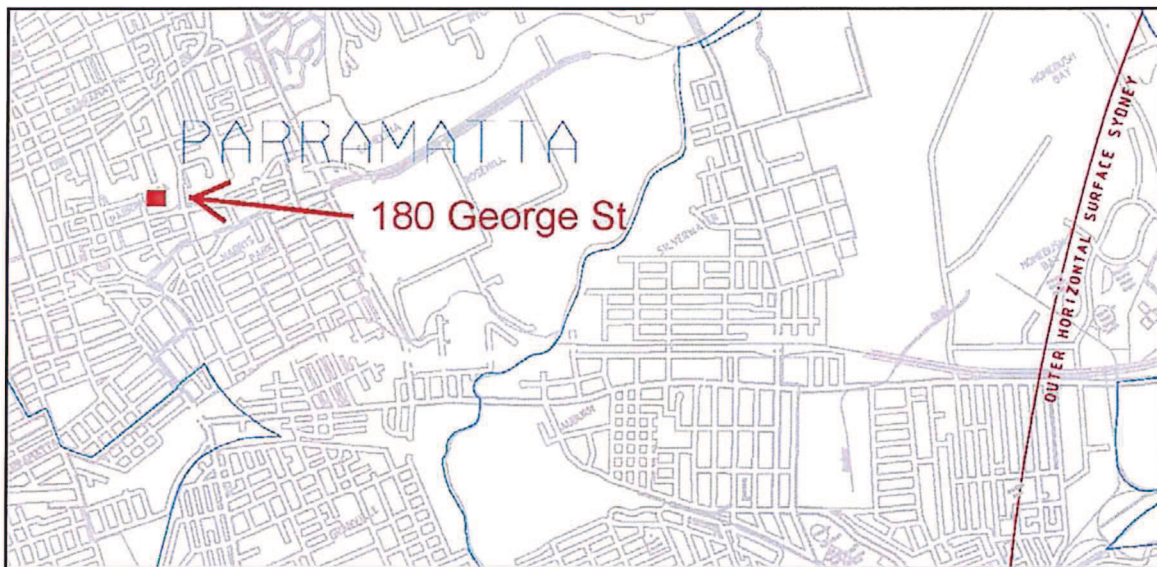


Figure 3.1 - Development site in relation to the Sydney Airport OLS surfaces

(From SACL OLS Chart)

#### BANKSTOWN

The development site is located in the area of the OLS Outer Horizontal Surface (OHS) published in the Bankstown Airport 2014 Master Plan. An extract from the OLS is shown in Figure 3.2 below. The height of this surface at the development site is 160 m AHD.

CASA MOS Part 139 Section 7 Para 7.1.3.2 contains a list of the OLS surfaces that are required to be published for aerodromes such as Bankstown which have non precision instrument runways. The OHS is not included in this list. An OHS is only required for aerodromes that have precision instrument runways (Para 7.1.3.3).

There is an existing 225 m obstacle (Tower) which penetrates the Master Plan OHS by 65 m. This obstacle is also shown on Figure 3.2.

So although the Bankstown OHS is published, this is not considered significant as an OHS is not required for Bankstown. An existing obstacle is 65 m higher than the OHS.



## SYDNEY

An extract from the SACL PANS-OPS chart for Sydney is shown in Figure 4.1 below. The surface height at the development site is 335.2 m AHD.

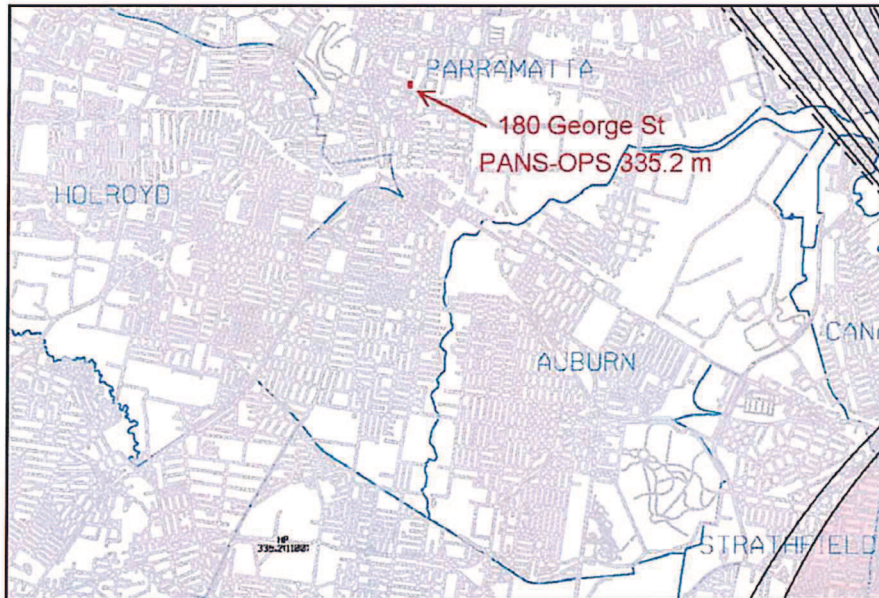


Figure 4.1 Sydney PANS-OPS and the Development Site (from SACL PANS-OPS Chart)

## BANKSTOWN

An extract from the Bankstown 2014 Master Plan PANS-OPS chart is shown in Figure 4.2 below. The surface height at the development site is 330 m AHD.

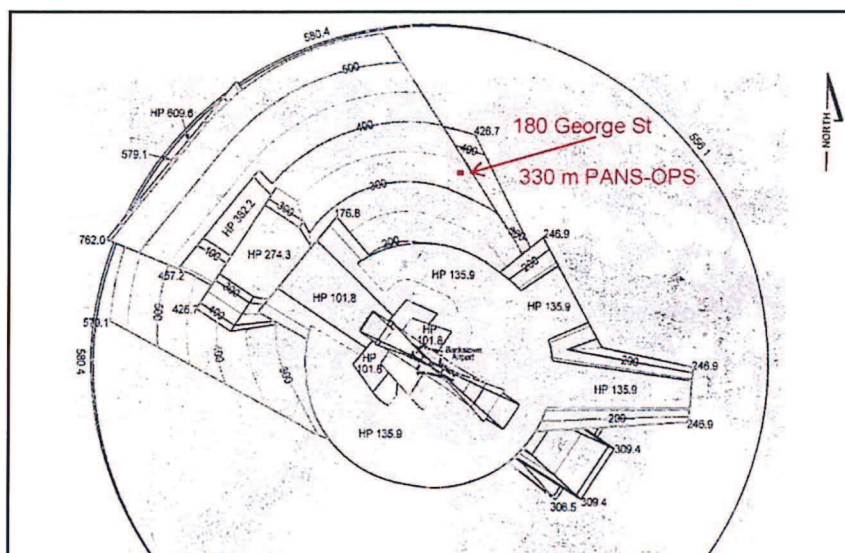


Figure 4.2 Bankstown PANS-OPS and the Development Site (from 2014 Bankstown Master Plan PANS-OPS Chart)



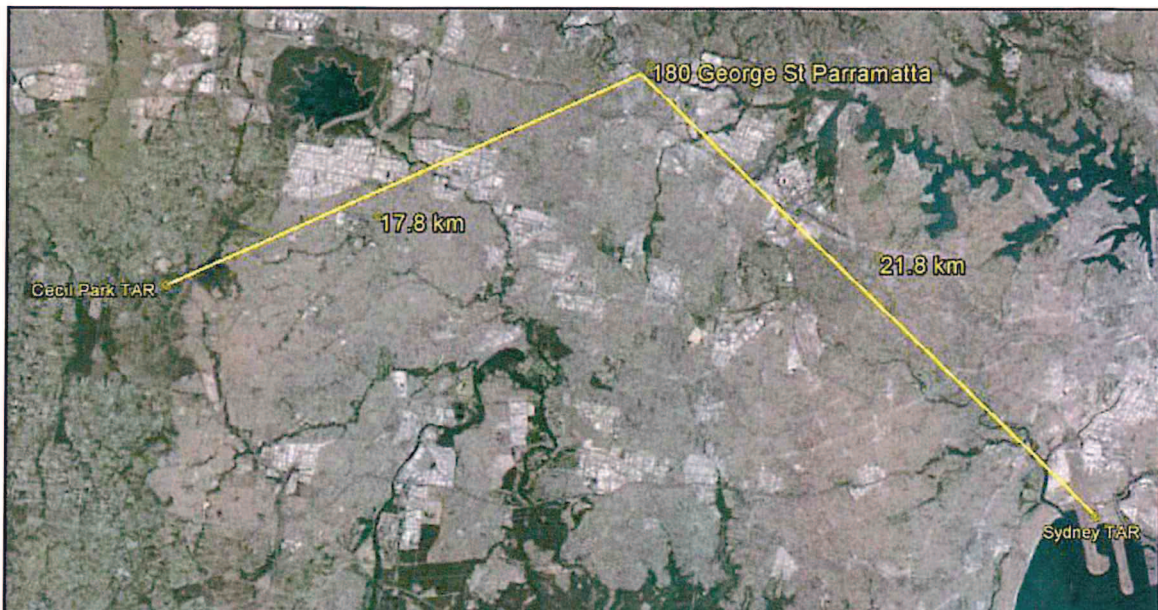


Figure 6.1 Sydney Airport and Cecil Park TARs and the Development Site

## 6.1 CLEARANCE REQUIREMENTS FOR RADARS

CASA Manual of Standards (MOS) Part 139 Aerodromes publishes the clearance requirements for radars. The section of the MOS that applies to the Kent Road site is:

### 11.1.14.4

*The following clearance requirements are to be maintained:*

- (a) *No intrusion within 1 km of the radar into a height surface 5 m below the bottom of the antenna. No intrusion between the radar and the possible location of any desired targets, i.e. roughly speaking above 0.5 degrees elevation at any distance.*
- (b) *No metallic or other electrical reflective surfaces anywhere which subtend an angle of more than 0.5 degrees when viewed from the radar, e.g. fences, power lines, tanks as well as many buildings. All overhead power lines within 1 km must be aligned radially from the radar or be located at least 10 degrees below horizontal from the antenna.*

## 6.2 CLEARANCE REQUIREMENTS FOR THE SYDNEY AIRPORT TAR

The elevation of the Sydney airport TAR antenna is 34.5 m AHD, and the distance to the building site is 21800 m. The elevation of a 0.5° plane from the antenna at the site is:

$$21800 \times \tan 0.5^\circ = 190.24 \text{ m} + \text{TAR elevation of } 34.5 \text{ m} = 224.74 \text{ m.}$$

If the building height at the site exceeds 224.7 m, Airservices Australia may require an engineering analysis to be conducted to confirm if the penetration of the clearance requirement impacts on the performance of the Sydney TAR.

The clearance planes, sensitive areas and Building Restricted Areas for the ILS systems serving all runways at Sydney Airport are not infringed by this proposed development.

### **Ground Based Augmentation System (GBAS)**

A GBAS is installed at Sydney and GLS approach procedures are published for all runways. The BRA for the VHF Data Broadcast Unit (VDB) and Remote Satellite Measurement Unit (RSMU) antennas associated with GBAS is a 3000 m radius. As the development site is located approximately 22 k m from the GBAS site, it is outside of the GBAS BRA.

### **Glenfield Non Directional Beacon (NDB)**

CASR Part 139 MOS stipulates a clearance area of 150m around NDB facilities.

As the building development site is approximately 20 km from the site of this NDB, the development is outside the requisite clearance zone for the Glenfield NDB.

### **Bankstown NDB**

CASR Part 139 MOS stipulates a clearance area of 150m around NDB facilities.

As the building development site is approximately 13 km from this NDB, the development is outside the requisite clearance zone for the Bankstown NDB.

### **ATC Communication Facilities**

Reliable VHF communications require a clear line of sight path between the base station and aircraft using the facilities.

The current configuration of the buildings surrounding Sydney and Bankstown Airports does not restrict the ATC communication facilities located on the Control Towers at Sydney and Bankstown Airports. The proposed building development is unlikely to impact upon ATC communication facilities in the area.

## **8. OTHER AIRSPACE CONSIDERATIONS**

The Parramatta site is located in a Danger Area (D539A) from the Earth's surface to 2000 ft AHD. This area is used by traffic to and from Bankstown Airport. The Parramatta CBD is a tracking point for north bound traffic from Bankstown, and helicopter traffic tracks via the "Choppers North" and "Choppers West" points. These details are shown on an extract from the Sydney Visual Terminal Chart (VTC) in Figure 8.1.

The Danger Area and airspace traffic in the vicinity of the Parramatta CBD do not restrict building heights. However CASA may require obstruction lighting on buildings and any associated towers or masts.

## **9.2 POSSIBLE PENETRATION OF THE PANS-OPS SURFACES**

Any submissions for permanent penetration of the PANS-OPS surfaces will most likely be refused. Submissions for temporary penetrations up to three months by construction cranes will have more chance of approval, and there may be conditions required on crane operating hours and obstruction lighting.

## **9.3 POSSIBLE PENETRATION OF THE TERMINAL AIRSPACE RADAR SURFACES**

If the building height at the site exceeds the Sydney and Cecil Park Radar protection surfaces Airservices Australia may require an engineering analysis to be conducted to confirm if the penetration of the clearance requirement impacts on the performance of the TARs.

Even if there is an impact on the performance of the TARs, the WAM surveillance system which can provide alternative primary and secondary surveillance coverage in the airspace in the vicinity of the site.

ADS-B surveillance is also an alternative for surveillance of ADS-B equipped aircraft.

**Ambidji can prepare safety cases for proposed penetrations of any of the limiting surfaces if Meriton wishes to apply for higher building and crane heights.**



## APPENDIX A

### GLOSSARY OF TERMS and ABBREVIATIONS

#### AERONAUTICAL STUDY GLOSSARY

To facilitate the understanding of aviation terminology used in this report, the following is a glossary of terms and acronyms that are commonly used in aeronautical impact assessments and similar aeronautical studies.

**AC** (Advisory Circulars) are issued by CASA and are intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means, of complying with the *Regulations*.

**Aeronautical study** is a tool used to review aerodrome and airspace processes and procedures to ensure that safety criteria are appropriate.

**AIPs** (Aeronautical Information Publications) are publications promulgated to provide operators with aeronautical information of a lasting character essential to air navigation. They contain details of regulations, procedures and other information pertinent to flying and operation of aircraft. In Australia, AIPs may be issued by CASA or Airservices Australia.

**Air routes** exist between navigation aid equipped aerodromes or waypoints to facilitate the regular and safe flow of aircraft operating under IFR.

**Airservices Australia** is the Australian government-owned corporation providing safe and environmentally sound air traffic management and related airside services to the aviation industry.

**Altitude** is the vertical distance of a level, a point or an object, considered as a point, measured from mean sea level.

**ATC** (Air Traffic Control) service is a service provided for the purpose of:

- a. preventing collisions:
  1. between aircraft; and
  2. on the manoeuvring area between aircraft and obstructions; and
- b. expediting and maintaining an orderly flow of air traffic.

**CASA** (Civil Aviation Safety Authority) is the Australian government authority responsible under the *Civil Aviation Act 1988* for developing and promulgating appropriate, clear and concise aviation safety standards. As Australia is a signatory to the ICAO *Chicago Convention*, CASA adopts the standards and recommended practices established by ICAO, except where a difference has been notified.

**CASR** (Civil Aviation Safety Regulations) are promulgated by CASA and establish the regulatory framework (*Regulations*) within which all service providers must operate.



and 2) outlines the principles for airspace protection and procedure design which all ICAO signatory states must adhere to. The regulatory material surrounding PANS-OPS may vary from country to country.

**PANS OPS Surfaces.** Similar to an Obstacle Limitation Surface, the PANS-OPS protection surfaces are imaginary surfaces in space which guarantee the aircraft a certain minimum obstacle clearance. These surfaces may be used as a tool for local governments in assessing building development. Where buildings may (under certain circumstances) be permitted to penetrate the OLS, they cannot be permitted to penetrate any PANS-OPS surface, because the purpose of these surfaces is to guarantee pilots operating under IMC an obstacle free descent path for a given approach.

**Prescribed airspace** is an airspace specified in, or ascertained in accordance with, the Regulations, where it is in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of an airport for the airspace to be protected. The prescribed airspace for an airport is the airspace above any part of either an OLS or a PANS OPS surface for the airport and airspace declared in a declaration relating to the airport.

#### **Regulations** (Civil Aviation Safety Regulations)

**VFR** (Visual Flight Rules) are rules applicable to the conduct of flight under VMC. VFR allow a pilot to operate an aircraft in weather conditions generally clear enough to allow the pilot to maintain visual contact with the terrain and to see where the aircraft is going. Specifically, the weather must be better than basic VFR weather minima. If the weather is worse than VFR minima, pilots are required to use instrument flight rules.

**VMC** (Visual Meteorological Conditions) are meteorological conditions expressed in terms of visibility, distance from cloud and ceiling, equal or better than specified minima.

<b>Abbreviation</b>	<b>Meaning</b>
GP	Glide Path
IAS	Indicated Airspeed
ICAO	International Civil Aviation Organisation
IHS	Inner Horizontal Surface, an Obstacle Limitation Surface
ILS	Instrument Landing System
ISA	International Standard Atmosphere
km	kilometres
kt	Knot (one nautical mile per hour)
LAT	Latitude
LLZ	Localizer
LONG	Longitude
m	metres
MAPt	Missed Approach Point
MDA	Minimum Descent Altitude
MGA94	Map Grid Australia 1994
MOC	Minimum Obstacle Clearance
MOS	Manual of Standards, published by CASA
MSA	Minimum Sector Altitude
MVA	Minimum Vector Altitude
NASAG	National Airports Safeguarding Advisory Group
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
NOTAM	NOTice To AirMen
OAS	Obstacle Assessment Surface
OCA	Obstacle Clearance Altitude
OCH	Obstacle Clearance Height
OHS	Outer Horizontal Surface
OIS	Obstacle Identification Surface
OLS	Obstacle Limitation Surface
PANS-OPS	Procedures for Air Navigation Services – Operations, ICAO Doc 8168
PBN	Performance Based Navigation
PRM	Precision Runway Monitor
QNH	An altimeter setting relative to height above mean sea level
REF	Reference
RL	Relative Level
RNAV	aRea NAVigation
RNP	Required Navigation Performance
RPA	Rules and Practices for Aerodromes — replaced by the MOS Part 139 — Aerodromes
RPT	Regular Public Transport
RTCC	Radar Terrain Clearance Chart

Appendix