SAFEGUARDED AND OBSTACLE LIMITATION SURFACES – LONDON CITY AIRPORT

Aerodrome Standards Department, Safety Regulation Group
Civil Aviation Authority

1. INTRODUCTION

London City Airport was opened on 26 October 1987 and licensed in 1988. London City Airport is situated in a unique area and requires a unique regime for safeguarding its environment. A safeguarding model and map was produced and issued by the Civil Aviation Authority in 1988, which was based on a mixture of ICAO STOLPORT criteria and practical examples taken from the USA, Canada and Norway. This model, together with reference to ICAO Annex 14 and CAP 168 Licensing of Aerodromes criteria, identified suitable parameters upon which safeguarding surfaces for London City Airport would be based. The resulting surfaces were hybrid and were not directly related to CAP 168 criteria.

However, recent developments at and in the vicinity of the airport prompted a review by the CAA of the safeguarding surfaces and other relevant criteria for London City Airport.

2. PURPOSE

The purpose of this report is to identify and define the Obstacle Limitation Surfaces (OLS) and, where relevant, the safeguarding surfaces for London City Airport.

3. SCOPE

The surfaces described in this report substitute those that are stated in Chapter 4 of CAP 168, and will form a variation to the Aerodrome Licence. However, all other requirements specified in CAP 168 Chapter 4 shall remain applicable.

4. AERODROME SAFEGUARDING MAP (SCALE 1:50,000)

In accordance with the criteria detailed in this report, the London City Airport has produced an Aerodrome Safeguarding Map, which has been certified by the CAA. Copies of this map have been distributed to all relevant Local Planning Authorities and shall be used to identify planning applications which require consultation under the Town and Country Planning (Safeguarded Aerodromes, Protecting Sites and Military Explosive Storage Areas) Direction 2002, Circular 1/03 with London City Airport. This is achieved by using a colour-coded reference system.

It should be noted that the safeguarding map does not indicate the height of the safeguarded surfaces or any height limitations that may be imposed. It is used only as a means of determining whether London City Airport needs to be consulted on a planning application.

The safeguarding area extends to 10km from the mid-point of the runway.

An additional map has been produced for London City Airport that depicts the area in which London City Airport would need to consult with the Directorate of Airspace Policy (DAP) of the CAA should it wish to safeguard the Instrument Landing System (ILS) Obstacle Assessment Surfaces (see paragraph 7).

5. PROCEDURE FOR SAFEGUARDING LONDON CITY AIRPORT

Due to the complex nature of the Obstacle Limitation Surfaces surrounding London City Airport, which replace CAP 168 approach surfaces for both runways, the procedures for safeguarding the airport is divided into two stages.

Surfaces do not replace or assume a greater authority over each other; therefore, each surface should be assessed individually. When a site lies beneath more than one surface, the most limiting height shall be applied, unless in the opinion of the safeguarding authority safety would not be adversely affected.

STAGE 1 - SAFEGUARDING SURFACES ASSESSMENT (SURROUNDING AREA)

This stage involves the assessment of the proposed development with regard to the OLS surrounding the airport. The surrounding horizontal and related surfaces are established in respect of protection of the missed approach operations.

The basis for the elevations of each surface is the elevation datum of 4.95m AOD, (the elevation of the lowest landing threshold). They are illustrated in Annexes A and B and described as follows:

Transitional Surface

The transitional surface slope shall be 1:6 (16.7%), with its inner edge starting from the edge of the runway strip (75m from runway centreline; 60m beyond the runway end), to a height of 45m, where the inner horizontal surface is met.

Inner Horizontal Surface

A horizontal surface rectangular in shape at a height of 45 m above aerodrome reference, that extends laterally to a distance of 650 m on either side of the runway centreline and beyond the end of the runway strip to a distance of 1125 m from the inner edge of the take-off climb surface, at which point the take-off climb surface reaches a height of 45 m.

Flight Protection Surface – Runway 28

A surface sloping at 1:25 (4%), that lies in the same plane as the take-off climb surface but extends laterally beyond that surface, with the objective of providing an adequate margin during the climb out phase of the missed approach and emergency procedures, taking account of the anticipated lateral deviation during the procedure. The boundaries of this surface are as follows:

- An inner edge that lies along the outer edge of the 45 m horizontal surface at a range of 1125 m from the inner edge of the take-off climb surface and extending 650m either side of the runway centreline.

- Lateral boundaries that correspond with a 15% divergence on the south and at an angle of 60 degrees from the outer edge of the 45m horizontal surface on the north.

- An outer edge on the south where the 4% sloping surface reaches a height of 150m, at a range of 3750 m from the inner edge of the take-off climb surface and extending 1043.75 m from the runway centreline. An outer edge on the north where the 4% sloping surface reaches at height of 150m, at a range of 3750m from the inner edge, extending at an arc of radius 3750 to a point 60 degrees from the outer edge of the 45m horizontal surface.

Flight Protection Surface – Runway 10

A surface sloping at 1:25 (4%), that lies in the same plane as the take-off climb surface but extends laterally beyond that surface, with the objective of providing an adequate margin during the climb out phase of the missed approach and emergency procedures (for example, late go-around or engine failure after take-off), taking account of the anticipated lateral deviation during the procedure. The boundaries of this surface are as follows:

- An inner edge that lies along the outer edge of the 45 m horizontal surface at a range of 1125 m from the inner edge of the take-off climb surface and extending 650m either side of the runway centreline.

- Lateral boundaries that correspond with a 15% divergence to both the south and north, meeting the outer edge of the 45m horizontal surface on both sides.

- An outer edge where the 4% sloping surface reaches a height of 150m, at a range of 3750 m from the inner edge of the take-off climb surface and extending 1043.75 m either side of the runway centreline.

Outer Transitional Surface

- An outer transitional surface rising at a slope of 1 in 20 (5%) from the lateral boundary of the 45 m horizontal surface, throughout its length, to a height of 150 m and extending to a distance of 2750 m from the runway centreline perpendicular to that lateral boundary. At ranges of 1125 m and above beyond the inner edge of the take-off climb surface (i.e. beyond the line defined by the preceding sentence), the outer transitional surface is bounded by a line that joins the end of that line to the point at which the 4% sloping surface reaches a height of 150 m (the corner of its outer edge).

Outer Horizontal Surface

- The outer horizontal surface extends from the outer transitional surface at a height of 150m. The outer edge of the horizontal surface extends to a final limit of a 10,000m-circle radius centred on the Aerodrome Reference Point.

- In areas covered by both the 150 m outer horizontal surface and the take-off climb and approach surfaces, the requirements of the outer horizontal surface will apply as a minimum.

The proposed revised safeguarding regime is shown schematically in the following figure.

The following reference points illustrated at Annex A are defined as:

ARP: 542731E 180479N

Centre of Strip End (runway direction 10): 541918E 180496N
Centre of Strip End (runway direction 28): 543545E 180463N

STAGE 2 – SAFEGUARDING SURFACES ASSESSMENT (TAKE-OFF & CLIMB AND APPROACH SURFACES)

Take-Off and Climb Surfaces (TOCS)

This stage involves the assessment of the proposed development with regard to the Take-Off and Climb Surfaces (TOCS). The TOCS are illustrated at Annex C, and the dimensions are as follows:

Slope:	1:25 (4%)
Length:	3750m
Width:	150m (inner edge) to 1275m (outer edge)
Divergence:	15% (1:6.67)
Inner edge:	From end of Take-Off Distance Available (TODA) Grid reference for the end of TODA on the extended runway centreline: Runway 10 – 543296E 180467N Runway 28 – 542100E 180494N

Approach Surfaces (APPS)

The APPS are also illustrated at Annex D, and the dimensions are as follows:

Slope:	1:20 (5%)
Length:	10000m overall (6000m + 4000m horizontal). From this point the surface will extend out to 10,000m surface limits at a horizontal level surface of 300m.
Width:	150m (inner edge) to 1950m (outer edge).
Divergence:	15% (1:6.67)
Inner edge:	On the extended runway centreline 60m prior to the landing threshold Grid reference of threshold: Runway 10 – 542077E 180494N Runway 28 – 543411E 180464N

6. SAFEGUARDING OAS (ILS) ASSESSMENT

This assessment is not part of SRG's remit; however, if an assessment with regard to the Obstacle Assessment Surfaces (OAS) for the ILS is desired, any proposed development within the defined OAS assessment area (see Annex E) that is 45m or greater in height above the lowest runway threshold shall be referred by London City Airport to the Terminal Airspace Section of DAP for further investigation of any effect on the ILS.

The grid references for the OAS assessment area are:

NE corner:	548119.30E 181121.34N
SE corner:	548095.92E 179665.53N
SW corner:	537231.38E 179840.02N
NW corner:	537254.76E 181295.83N

Note 1: DAP should be notified if it is known that, despite an objection being lodged because of an infringement of an OLS, a development has been granted planning permission.

Note 2: London City Airport should ensure that the OAS assessment criteria are current. Grid references (in OSGB) given in this document refer to survey dated December 2002.

7. IMPLEMENTATION AND CONCLUSIONS

Due to pressures to maximise building opportunities to develop the area, it is vital that the Obstacle Limitation Surfaces surrounding London City Airport are protected in order to ensure safe aircraft operations, through the protection of the airspace surrounding London City Airport.

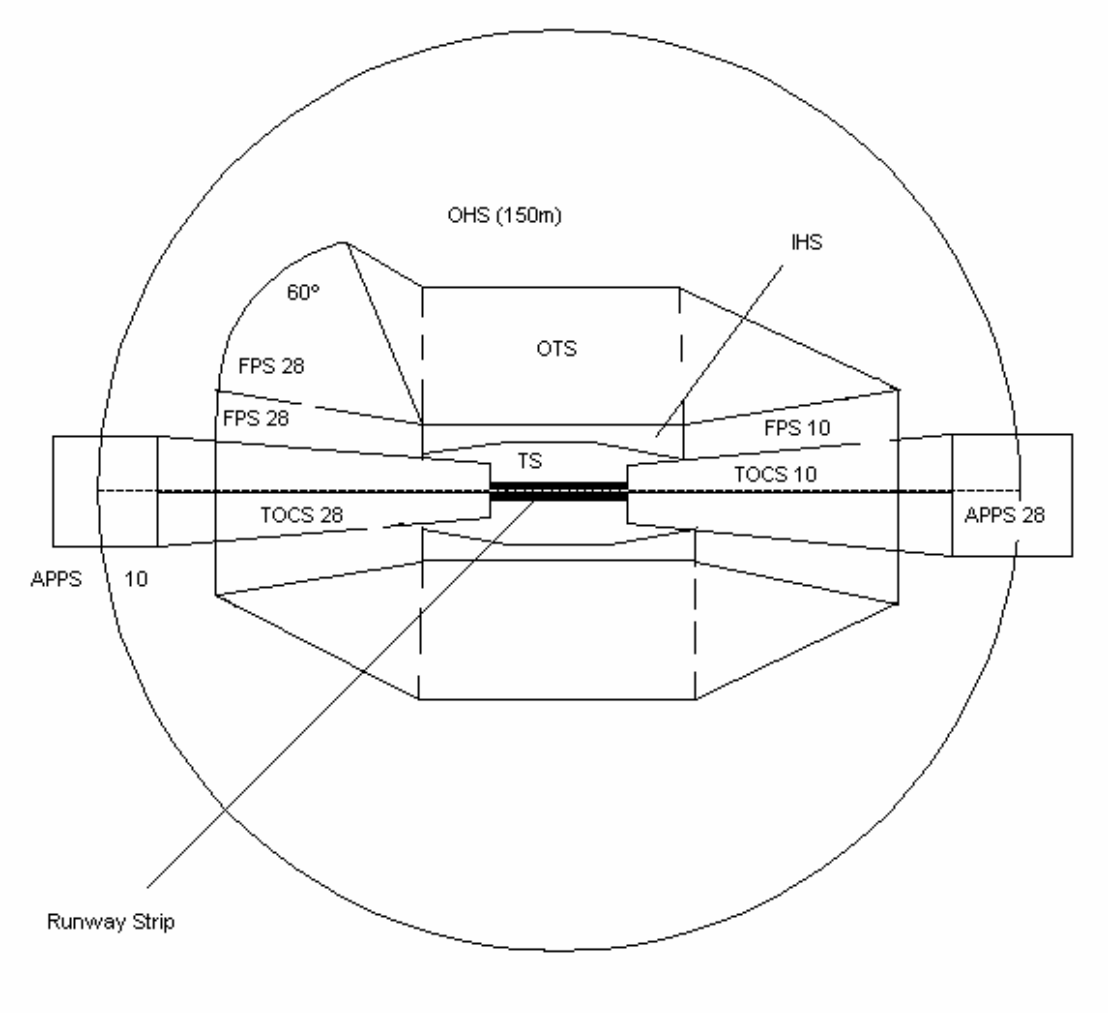
Should a proposed development infringe any of the stated levels for the surfaces included in this document, an assessment of the potential impact of that development is required. Should an assessment indicate an impact on aircraft operations, an “objection” should be issued.

Please be advised the information provided within this document may change without notice. If you require the latest issue please contact the Safeguarding Consultee at London City Airport on 020 7646 0255, or 0207 646 0200.

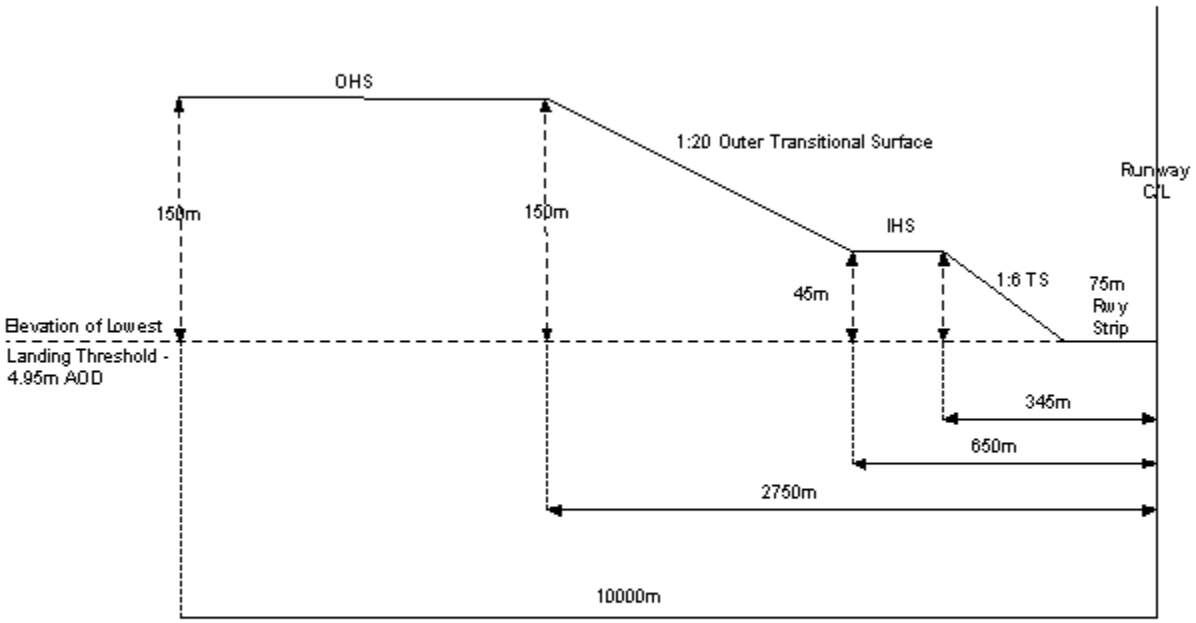
ANNEX A

LONDON CITY SAFEGUARDED ASSESSMENT SURFACES – PLAN VIEW

The safeguarding regime is shown schematically in the following figure:



London City Safeguarded Assessment Surfaces - Cross-Section Through Runway

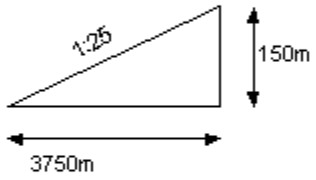


Not to Scale

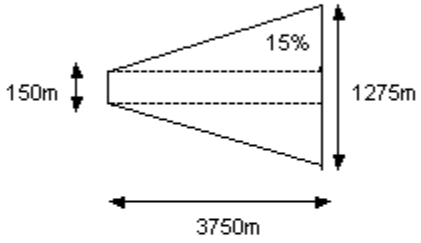
Annex B

London City Safeguarded Assessment Surfaces - Take-Off and Climb

Profile



Plan

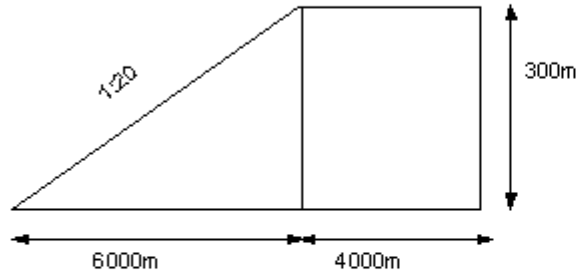


Not to Scale

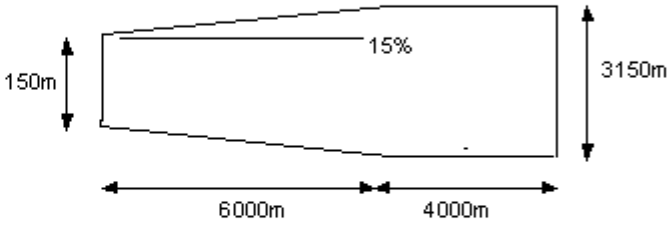
Annex C

London City Safeguarded Assessment Surfaces - Approach

Profile



Plan



Not to Scale

Annex D

The final width of the APPS should read 1950m not 3150m

Annex E

DAP Assessment Coverage Diagram