

# Manchester Airport Safeguarding Report

Impact Assessment: Plot North of H5

V1.0

September 2026



**NATS**

A large, thick, purple swoosh that starts from the bottom left, curves upwards and to the right, then loops back down and to the left, ending near the bottom center of the page.

Prepared by:  
ROSE, Laura  
NATS Private

# Manchester Airport Safeguarding Report

Version 1.0

September 2026

NATS Procedure Design  
Corporate and Technical Centre  
4000 Parkway, Whiteley  
Fareham  
PO15 7FL

| Version Number | Changes     | Date       |
|----------------|-------------|------------|
| 1.0            | First Issue | 07/09/2026 |

©2026 NATS (Services) Ltd. ("NATS"). This report [correspondence] must not be disclosed to third parties or copied or reproduced in whole or in part without NATS' prior written consent. Any amendment, variation or distribution of this correspondence must be authorised in advance by NATS.

The circulation of NATS Protectively Marked information outside NATS is restricted. Please do not redistribute this information without first obtaining NATS' permission. Every effort should be made to prevent any unauthorised access to this information and to dispose of it securely when no longer required.

NATS is not a public body and therefore has no duty under FOIA and EIR to release information. NATS does however appreciate that other organisations that receive NATS information could be subject to FOIA and EIR. With this in mind please do not release any NATS protectively marked information without prior consent from the author of the information as exemptions could apply.

# Table of contents

|                              |           |
|------------------------------|-----------|
| <b>1. Introduction</b>       | <b>4</b>  |
| 1.1. Executive Summary       | 4         |
| 1.2. Project Scope           | 4         |
| <b>2. Design Methodology</b> | <b>7</b>  |
| 2.1. Design Criteria         | 7         |
| 2.2. Assumptions             | 7         |
| 2.3. Obstacle Data           | 8         |
| <b>3. Analysis</b>           | <b>11</b> |
| <b>4. Conclusion</b>         | <b>14</b> |

# 1. Introduction

## 1.1. Executive Summary

NATS Procedure Design were tasked with completing an Obstacle Safeguarding Impact Assessment for the Instrument Flight Procedures (IFPs) at Manchester Airport against a proposed development on a plot just north of the existing H5 plot to determine the maximum permitted elevation.

The report concludes that the maximum elevation permissible Above Mean Sea Level (AMSL) for any structure within this plot not to adversely impact any IFPs at Manchester Airport is 131.0 m.

## 1.2. Project Scope

### 1.2.1. Customer Requirements

The NATS Procedure Design brief was to assess a proposed development north of plot H5 (refer to §2.3) to determine the maximum elevation that does not impact the Manchester IFPs.

This report identifies whether the development plot obstacles, as modelled for this assessment, are located within the lateral bounds of the IFPs and if so, what maximum elevation would not interfere in the vertical plane to the extent that the MOCA, OCA or specified climb gradient would require increasing.

The following procedures (inclusive of associated holds, VM(C), TAAs and MSAs) have been assessed in this study:

- > ATCSMAC
- > SID ASMIM 1S
- > SID ASMIM 1Z
- > SID KUXEM 1R
- > SID KUXEM 1Y
- > SID EKLAD 1R
- > SID EKLAD 1Y
- > SID LISTO 2S
- > SID LISTO 2Z
- > SID LISTO 2R

- > SID LISTO 2Y
- > SID POL 5R
- > SID POL 4S
- > SID POL 1Y
- > SID POL 1Z
- > SID SONEX 1R
- > SID SONEX 1Y
- > SID DESIG 1S
- > SID DESIG 1Z
- > SID SANBA 1R
- > SID SANBA 1Y
- > ILS/DME RWY 05R
- > LOC/DME RWY 05R
- > RNP RWY 05R
- > ILS/DME RWY 05L
- > LOC/DME RWY 05L
- > RNP RWY 05L
- > ILS/DME RWY 23R
- > LOC/DME RWY 23R
- > RNP RWY 23R
- > RNP RWY 23L

This report does not assess the CAP 168 Obstacle Limitation Surfaces, nor any additional structures not listed in Section §2.3.

### 1.2.2. Assessment Baseline

An obstacle impacting a procedure is dictated by lateral and vertical infringement of the obstacle protection areas. The protection areas held by NATS and used for this safeguarding assessment were designed in FPDAM in the report '**Manchester Airport – Periodic Review of Instrument Flight Procedures 2024 v1.1**' as well as in the newly designed '**Manchester Airport – Contingency RNP Approaches v2.1**'. Both reports have been approved by the Regulator and are now in publication.

The previously published VOR/DME and RCF procedures have recently been withdrawn from the AIP and have not been assessed in this report.

## 2. Design Methodology

### 2.1. Design Criteria

The procedures in this report are constructed in accordance with:

- > ICAO Doc 8168 PANS-OPS Volume II 7th Edition
- > CAP778
- > CAP785B
- > CAP777

except when superseded by:

- > UK Integrated Aeronautical Information Package (IAIP) section GEN 1.7.
- > Guidance received from the UK CAA on this and previous projects.
- > UK CAA policy where it supersedes ICAO.

### 2.2. Assumptions

The following assumptions have been made:

- 1 All runways, runway data, published navigation aids, and runway lighting will be 'fit for purpose'.
- 2 Survey information received is correct.
- 3 Information confirmed by the customer regarding the development plot boundary as presented in §2.3 below is correct and will not change.
- 4 Any craneage required in the construction of the development will operate entirely within the planning boundary as presented in §2.3 below and will not over sail it.
- 5 Any craneage required in the construction of the development will not exceed the maximum elevation determined in §4 below.

## 2.3. Obstacle Data

The plot location and perimeter were provided by the customer, and subsequently two site obstacles were modelled that, when given a chosen horizontal extent, fully encompassed the planning boundary. **Figure 1** below shows the planning boundary provided.

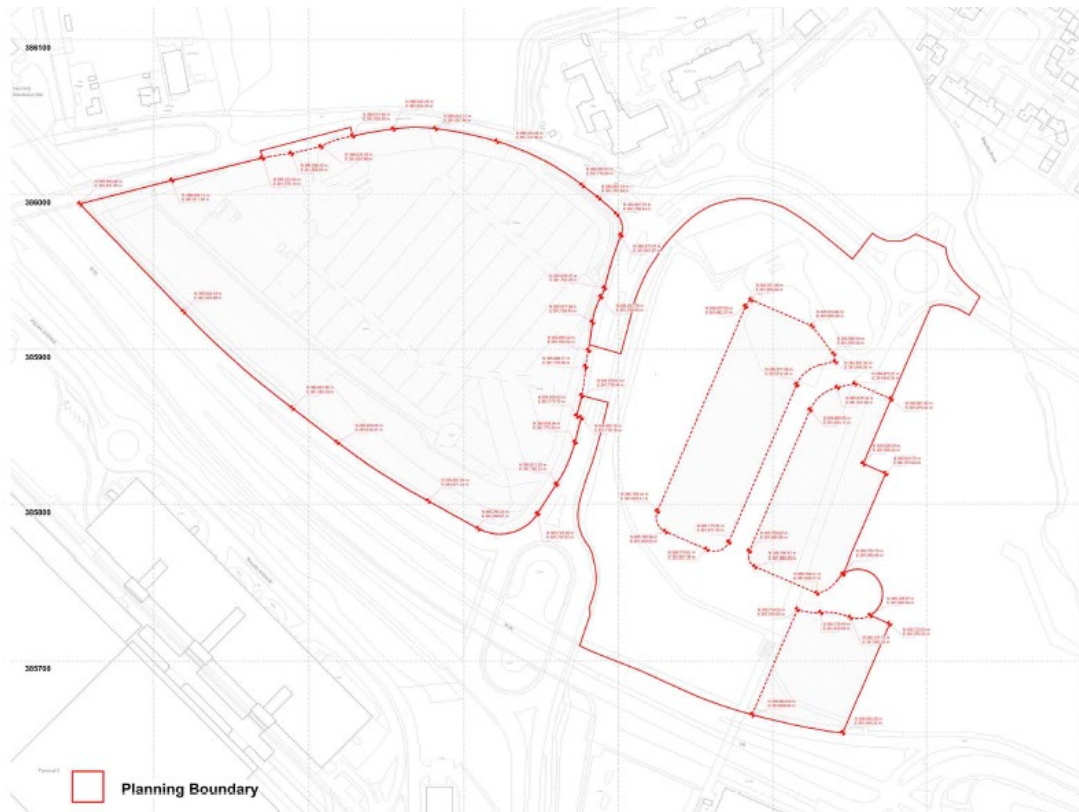


**Figure 1** Planning boundary of the proposed development plot

The proposed development plot is sited north of the existing H5 plot at Manchester Airport, and just north of the M56, as illustrated in **Figure 2** below. **Figure 3** below shows the obstacles modelled to fully encompass this area.



**Figure 2** Position of the development plot in relation to Manchester Airport



**Figure 3** Obstacles modelled so as to encompass the entire plot

The following table details the final modelled obstacles:

| Obstacle ID | Latitude*  | Longitude*  | Horizontal Extent (m) |
|-------------|------------|-------------|-----------------------|
| 2026-055_1  | 532212.77N | 0021638.26W | 200.0                 |
| 2026-055_2  | 532209.25N | 0021628.47W | 240.0                 |

*\*WGS84 Latitude and Longitude, degrees/minutes/seconds*

An additional 20.0 m horizontal tolerance was then applied as standard to account for positional errors and surveying accuracy. In determining the maximum elevation, the CAP 1732 vertical accuracy requirement for obstacles in Area 2 (3.0 m) was accounted for.

### 3. Analysis

The table below show the procedures that have been assessed and details of lateral infringement.

| Procedure           | Segment      | Lateral Infringement |
|---------------------|--------------|----------------------|
| <b>ATCSMAC</b>      | SMAA A       | Yes                  |
|                     | SMAA B       | No                   |
|                     | SMAA C       | No                   |
|                     | SMAA D       | No                   |
|                     | FAVA RWY 05L | No                   |
|                     | FAVA RWY 05R | No                   |
|                     | FAVA RWY 23L | No                   |
|                     | FAVA RWY 23R | No                   |
| <b>MSA ARP</b>      | 360°-090°    | Yes                  |
|                     | 090°-180°    | Yes                  |
|                     | 180°-270°    | Yes                  |
|                     | 270°-090°    | Yes                  |
| <b>VMC</b>          | Whole Area   | Yes                  |
| <b>SID ASMIM 1S</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID ASMIM 1Z</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID KUXEM 1R</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID KUXEM 1Y</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID EKLAD 1R</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID EKLAD 1Y</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID LISTO 2S</b> | Straight     | No                   |
|                     | Turn         | No                   |
| <b>SID LISTO 2Z</b> | Straight     | No                   |
|                     | Turn         | No                   |

| Procedure       | Segment           | Lateral Infringement |
|-----------------|-------------------|----------------------|
| SID LISTO 2R    | Straight          | No                   |
|                 | Turn              | No                   |
| SID LISTO 2Y    | Straight          | No                   |
|                 | Turn              | No                   |
| SID POL 5R      | Straight          | No                   |
|                 | Turn              | No                   |
| SID POL 4S      | Straight          | No                   |
|                 | Turn              | No                   |
| SID POL 1Y      | Straight          | No                   |
|                 | Turn              | No                   |
| SID POL 1Z      | Straight          | No                   |
|                 | Turn              | No                   |
| SID SONEX 1R    | Straight          | No                   |
|                 | Turn              | No                   |
| SID SONEX 1Y    | Straight          | No                   |
|                 | Turn              | No                   |
| SID DESIG 1S    | Straight          | No                   |
|                 | Turn              | No                   |
| SID DESIG 1Z    | Straight          | No                   |
|                 | Turn              | No                   |
| SID SANBA 1R    | Straight          | No                   |
|                 | Turn              | No                   |
| SID SANBA 1Y    | Straight          | No                   |
|                 | Turn              | No                   |
| ILS/DME RWY 05R | OAS CAT I         | Yes                  |
|                 | MAP (Straight)    | No                   |
|                 | MAP (Turn)        | No                   |
|                 | MAP (TIA)         | Yes                  |
|                 | VSS               | No                   |
| LOC/DME RWY 05R | Final             | No                   |
|                 | MAP (Straight)    | No                   |
|                 | MAP (Turn)        | Yes                  |
|                 | MAP (TIA)         | No                   |
|                 | VSS               | No                   |
| RNP 05R         | Intermediate      | No                   |
|                 | LNAV Final        | No                   |
|                 | LNAV VNAV APV     | Yes                  |
|                 | MAP (Straight)    | No                   |
|                 | MAP (Turn)        | Yes                  |
|                 | MAP (TIA)         | Yes                  |
|                 | VSS               | No                   |
| TAA 05R         | Via FECJO (15 NM) | No                   |
|                 | Via FECJO (25 NM) | No                   |

| Procedure              | Segment           | Lateral Infringement |
|------------------------|-------------------|----------------------|
| <b>ILS/DME RWY 05L</b> | OAS CAT I         | Yes                  |
|                        | OAS CAT II        | No                   |
|                        | MAP (Straight)    | No                   |
|                        | VSS               | No                   |
| <b>LOC/DME RWY 05L</b> | Final             | No                   |
|                        | MAP (Straight)    | Yes                  |
|                        | VSS               | No                   |
| <b>RNP 05L</b>         | Intermediate      | No                   |
|                        | LNAV Final        | No                   |
|                        | LNAV VNAV APV     | Yes                  |
|                        | MAP (Straight)    | Yes                  |
|                        | VSS               | No                   |
| <b>TAA 05L</b>         | Via EVAKU (15 NM) | No                   |
|                        | Via EVAKU (25 NM) | No                   |
| <b>ILS/DME RWY 23R</b> | OAS CAT I         | Yes                  |
|                        | OAS CAT II        | No                   |
|                        | MAP (Straight)    | No                   |
|                        | MAP (Turn)        | Yes                  |
|                        | MAP (TIA)         | Yes                  |
|                        | VSS               | No                   |
| <b>LOC/DME RWY 23R</b> | Final             | Yes                  |
|                        | MAP (Straight)    | Yes                  |
|                        | MAP (Turn)        | Yes                  |
|                        | MAP (TIA)         | Yes                  |
|                        | VSS               | No                   |
| <b>RNP 23R</b>         | Intermediate      | No                   |
|                        | LNAV Final        | Yes                  |
|                        | LNAV VNAV APV     | Yes                  |
|                        | MAP (Straight)    | Yes                  |
|                        | MAP (Turn)        | Yes                  |
|                        | MAP (TIA)         | Yes                  |
|                        | VSS               | No                   |
| <b>TAA 23R</b>         | Via UPJEL         | No                   |
| <b>RNP 23L</b>         | Initial           | No                   |
|                        | Intermediate      | No                   |
|                        | LNAV Final        | Yes                  |
|                        | LNAV VNAV APV     | Yes                  |
|                        | MAP (Straight)    | No                   |
|                        | VSS               | No                   |
| <b>TAA 23L</b>         | Via OSNAP         | Yes                  |
|                        | Via DOMIG         | No                   |
|                        | Via TINVA         | Yes                  |

## 4. Conclusion

The IFPs that would be laterally infringed by the proposed development site north of H5 were assessed to determine the maximum elevation of any structure within the planning boundary that would not impact the published MOCA, OCA or specified climb gradient of the instrument flight procedures at Manchester Airport.

This maximum elevation has been determined as 131.0 m. This is the elevation of any structure AMSL (**not AGL**) and would include buildings, antennae and other equipment mounted on/above buildings and any craneage required in the construction.