

# CAP 232 Surveys

## Airside Operational Instruction 17

**AOI Owner - Ops Developments & Safety Manager** |



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## 1. Introduction

- 1.1 The purpose of the aerodrome survey is to enable the Aerodrome Certificate holder to meet their safety responsibilities and to provide the data required by the CAA.
- 1.2 East Midlands Airport (EMA), using the guidance in CAP232 will determine what information is required from the aerodrome survey to enable it to comply with the CAP232 requirements.
- 1.3 EMA has been the subject of full CAP232 and Geodetic Connection Surveys, and therefore requires an annual Check Survey to identify any changes, including significant tree growth or reduction, since the previous survey.
- 1.4 The completed check survey must be notified to the CAA by means of a Survey Declaration Form. In addition the survey data must be given to the CAA by the Survey Company in the appropriate format.
- 1.5 A Check Survey will be completed annually with a full survey undertaken as required by regulation.
- 1.6 Following the survey any remedial action must be carried out and the aerodrome plan updated and re-issued

## 2 Pre-Survey Procedure

- 2.1 Approximately 2 months prior to the survey, EMA Ops Safety team will contact the nominated Survey Company to arrange a survey date. The survey will take 2 to 3 days, airside duration of approximately 1 day.
- 2.2 The Ops Safety team will review the previous survey and any remedial action taken since then to identify any items to be re-surveyed or removed from the survey.
- 2.3 The Ops Safety team will raise an Airfield Survey Pro-forma (detailed on pages 3 and 4) that will chart the progress of the survey from start to finish and provide a written trail to confirm that the survey process has been followed to completion.
- 2.4 The Ops Safety team will contact the Airfield Technical Manager and Air Traffic Services Manager, and check if they have any additional survey requirements.
- 2.5 Ops Safety team will then arrange the survey (subject to any additional requirements).

## 3 Post-Survey Procedure

- 3.1 Following the survey the Survey Company will send a copy of the survey data in Electronic format. Copies of the electronic data must be sent to Ops Safety team.
- 3.2 The Ops Safety team will plot the locations and check for accuracy against existing survey points and will use the OLS software to assess the data and produce a report detailing Obstacles that penetrate any obstacle limitation surfaces and of navaid Obstacles relative to the 1:10 slope.

- 3.3 The **Ops Safety team** will review the report. Obstacles penetrating the obstacle limitation surfaces or the 1:10 surface must be treated in accordance with the requirements of EASA IR ADR.OPS.B.075, including removal if necessary.
- 3.4 When the **Ops Safety team** are satisfied survey data is correct, **ODSM** signs the survey declaration form, returning one copy to the Survey Company and the other to CAA DAP.
- 3.5 CAA DAP will return a Type A chart for proof reading, and a Type A Obstacle Booking form, which lists any Type A obstacles. The **Ops Safety team** must review the obstacles against the Aerodrome Obstacles listed against the Airport in the AD-2 section of the UK AIP and amend as required.
- 3.6 The **Ops Safety team** must also review the other survey data against the AD-2 section and carry out a complete review of the Airport's UK AIP entries.

#### **4. Treatment of Obstacles**

- 4.1 Obstacles that have been identified as penetrating OLS or navaid surfaces will be assigned a unique reference number that provides details on:
  - The type of obstacle (trees, vegetation or temporary i.e. vehicles).
  - The location of the obstacle (easting's and northings) and height in metres above sea level.
  - OLS affected together with clearance / infringement data.

All identified obstacles should be treated in accordance with the requirements of EASA IR ADR.OPS.B.075, using the guidance in the following paragraphs.

- 4.2 The **Ops Safety team** will assemble a team to assess the obstacles and determine what corrective action should be taken. That team should include a representative of assets management who will be responsible for any remedial action. They will carry out a simple risk assessment using the guidance below. The hazard presented should be determined as Green, Yellow or Red in accordance with the hazard ratings below and dealt with accordingly.
- 4.3 For definition of EMA boundaries in relation to the treatment of obstacles, reference should be made to "East Midlands Airport Ownership", located in the Aerodrome Manual within Part C, Section 1 appendices" ensuring that the current and correct (at the time of survey) version is utilised.

#### **5. Factors to be considered in Assessing Risk**

- 5.1 The location of the obstacle
  - The closer to a runway the higher the safety risk.
  - Obstacles in the Approach Surface or Take-Off Climb Surface are a higher risk than in the Transitional Surface, because they are routinely overflowed.
  - Obstacles penetrating the Transitional Surface or Inner Horizontal Surface are not routinely over-flown at low level and therefore considered a lesser risk.

- Obstacles which are located further from the aerodrome e.g. trees on distant hills, will be assessed as Green (no safety significance).
- If an obstacle is shadowed by another, promulgated obstacle, the safety risk of the shadowed obstacle is reduced.

#### 5.2 The nature of the obstacle

- Non-frangible structures are assessed as a high risk.
- Frangible structures and vegetation are assessed as a lower safety risk.

#### 5.3 The degree of penetration of OLS

- Greater penetration generally equals greater risk. Obstacles which penetrate surfaces by more than 2 metres will be trigger a Yellow rating (or possibly Red) unless mitigating factors apply, such as obstacle nature, terrain, lighting or promulgation.
- Trees and bushes which have grown to less than 5 metres above local terrain level are considered to be a negligible risk compared to the terrain itself, where the penetrated surface is the Transitional, Conical, Inner or Outer Horizontal.
- Penetration of the TOCS or APPS should trigger a red rating.

#### 5.4 The frequency of exposure to the risk

- How often is the flight path flown for which the obstacle is relevant? e.g. Runway 09 is used less frequently than 27.

#### 5.5 Whether and how the obstacle is promulgated

- If promulgated on Type A chart risk is reduced
- NOTAM reduces risk
- Un-promulgated obstacles higher risk

#### 5.6 Hazard Ratings:

**Green** -the obstacle is considered to have no safety implications and no action is considered necessary to remove or mitigate this obstacle.

**Yellow** -the obstacle presents no significant safety risk, however it will be monitored and continually reviewed with each Annual Check Survey.

**Red** -the object may present a safety risk and will be monitored closely. Steps will be taken where possible to remove or reduce the obstacle. It will be considered for promulgation.

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## 6. Obstacle Reduction

### 6.1 General approach

Ideally, the objective should be to remove any obstacles which penetrate OLS to comply with Aerodrome Certification requirements. In practice this can be impracticable, disproportionately expensive, and environmentally unsound. Therefore a risk-based approach is taken. Obstacles should be reduced as much as possible in number and/or height in accordance with the result of the risk assessment. Where the outcome of this assessment is acceptable the obstacle may remain untreated, subject to promulgation by NOTAM or in the AIP. Where the outcome is not acceptable the obstacle must be removed, reduced, or some other mitigating action taken such as limiting operations.

### 6.2 Trees

6.2.1 Trees which are assessed as safety risks should be removed or cut back to a level whereby they will not penetrate the OLS for several years. Once a decision has been taken to remove or reduce trees, the best course of treatment will be determined by facilities management in consultation with tree specialists and landowners. Records of action taken will be kept and a forecast of any future penetrations produced, thus enabling pre-emptive treatment at an appropriate time.

6.2.2 Should the tree reduction process impact on local communities (i.e. trees shielding airport infrastructure or providing noise abatement), details of the proposed works should be forwarded to Community Relations.

6.2.3 Evidence of reduction or removal should be gathered by photographing the tree before and after treatment. Each picture should be labelled by quoting the 4-digit obstacle reference number from the survey, date stamped and recorded on the appropriate database.

#### 6.2.4 Tree Preservation Orders (TPO's)-

Currently the only TPO at EMA is the stretch of trees from the Pegasus Roundabout to the main entrance. Works can be carried out to these trees only with the consent of NWLDC.

Although not covered by TPOs, other areas within EMA boundaries where there are informal agreements relating to the removal of trees / shrubs are:

- Alongside car park 4, running alongside Ambassador Road. This 'informal agreement' was made when trees were removed for car park works, further removal could be negotiated if necessary.

These restrictions will be compiled on to a centralised plan for future reference.

#### 6.2.5 Wildlife Countryside Act 1981

Trees and hedges can only be cut outside the UK bird nesting and breeding season defined as 1st March- 31st July

### 6.2.6 EMA Landscape Strategy

Any coppicing or cutting back of trees, shrubs or bushes should, prior to any works being undertaken be passed to EMA Environment Manager to enable Wildlife Countryside Act / ISO14001 regulatory register checks to be carried out.

### 6.2.7 Felling License restrictions

Subject to Code of Practice BS3998, promulgated via Forestry Commission Guidance "Tree Felling, Getting Permission" - EMA is allowed to fell a maximum volume of 5 cubic metres, the equivalent of "1 mature oak, or 50 thin chestnut coppice trees". If more than 5 cubic metres is felled EMA is open to prosecution; with a maximum penalty of £5000 if convicted of illegal felling. If more than 5 cu metres is required, a Forestry Commission license is needed; this is free to obtain however the process can take between 6 weeks and 3 months.

### 6.2.8 Hedgerow Regulations 1997

If a tree is within a hedgerow, permission needs to be sought for the tree to be cut.

## 6.3 Other obstacles

6.3.1 Opportunities should be sought to remove or reduce in height any existing structures which penetrate OLS. Where this is possible evidence should be gathered in the same way as for trees, above.

6.3.2 The Aerodrome Safeguarding process should prevent any new structures from penetrating the OLS. Nevertheless, it is not unknown for this process to be by-passed or to fail. Any such new obstacles revealed by the annual check survey must be followed-up in consultation with the Safeguarding and Planning departments with a view to their removal or reduction. Interim promulgation and notification to CAA Safety Regulation Group may be required.

## 6.4 Promulgation

6.4.1 Trees and other obstacles which cannot be quickly removed or reduced should be considered for promulgation. In deciding which are to be promulgated all of the above factors (Red, Yellow or Green) should be taken into account. In some cases, typically obstacles in the Take-Off Climb Surface, promulgation will be covered by the Type A Charts. The most significant or representative obstacles in the Approach and Transitional Surfaces will be selected for promulgation in the AD2 section of the UK AIP.

6.4.2 Where the obstacle is part of a group or cluster, as is often the case with trees, data for the highest obstacle will be used. Obstacles on high ground away from the aerodrome are considered to be covered by en-route and Instrument Approach Procedure charts produced by the CAA.

**Appendix 1 – ANNUAL CAP232 SURVEY (Part 1 Pre-Survey)**

Date of request..... Request by..... ( Ops Safety team)

Request to Airfield Technical Manager, are there any items that you would like surveying/re-surveying?

*Insert details*

Signed.....

Date.....

In addition to the annual CAP232 survey I require the following items to be surveyed:  
*(The Ops Safety team are responsible for deciding what items are surveyed)*

*If none, 'None'*

Signed.....

Date.....

**Appendix 1, Part 2 – Post Survey**

To **Ops Safety team**, please confirm by signing below that you have assessed the survey data and it appears to be accurate (or detail below any data that appears incorrect).

The survey data appears to be correct when assessed against the Airport plan, except for any data listed below:

<p><i>If none, 'None'</i></p>
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Signed **Ops Safety team** ..... Date.....

To **Ops Safety team**, please confirm by signing below that you have produced the obstacle reports and have a copy of the report.

Signed..... Date.....

To **Ops Safety team**, please confirm by signing below that you have reviewed the obstacle reports and produced a list of obstacles with any required action and passed them on to Facilities Management for action.

<p><i>If none, 'None'</i></p>
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Signed **Ops Safety team** ..... Date.....

To **Ops Safety team**, please confirm by signing below that the CAP232 data and survey declaration has been submitted to CAA.

Signed **Ops Safety team** ..... Date.....

To **Ops Safety team**, please confirm that all actions demanded by the CAP232 Survey Data Procedure has been completed.

Signed **Ops Safety team** ..... Date.....