

# Helicopter Off Airfield Operating Site Procedures

CAP 3043

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# Foreword

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## Purpose

1. Alongside the evolution of Air Ops Regulation from purely national legislation, through Joint Aviation Authorities Operations (JAA Ops) and EASA to the UK Regulation currently in force, the CAA has provided additional guidance to operators in the form of Civil Aviation Publications (CAPs), some of which have now been withdrawn.
2. The aim of this publication is to collate relevant information from previously published or withdrawn CAPs to ensure that all operators and pilots-in command have access to guidance on regulation and best practice when using Off Airfield operating sites. This CAP therefore provides guidance and CAA policy on regulation, preparation of landing site information, permissions and procedures.
3. There is limited regulation and acceptable means of compliance in force for the use of Off Airfield operating sites by night. Therefore, both commercial and private operators are reminded that they own the risk associated with conducting safe operations into adequate sites with adequate lighting and should use any guidance in this CAP accordingly.

## References

- Air Navigation Order 2016 SI 2016 No 765
- UK Air Operations Regulation UK Regulation (EU) No 965/2012
- The Rules of Air Regulations 2015 – SI 2015 No 840
- UK Standardised Rules of the Air Regulation UK Regulation (EU) No 923/2012
- ICAO Annex 14 Vol 2 – Heliports
- CAP789 Requirements and Guidance Material for Operators, published 2011 (withdrawn.)
- CAP793 Safe Operating Procedures at Unlicensed Aerodromes, published 2010
- [CAP2543](#) Helicopter Pleasure Flying and Feeder Sites: Requirements and Guidance material for Operators.
- NATS UK [AIP – Part 1 GEN 1.6 Section 2](#)

## Chapter 1

# Introduction

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- 1.1 Flight Operations in the UK are subject to the Air Navigation Order 2016 SI 2016 No 765 and UK Air Operations Regulation UK Regulation (EU) No 965/2012.

## Air Operations Regulation 965/2012

- 1.2 Air Operations Regulation 965/2012 details the requirements for the use of aerodromes and operating sites and includes AMC for operations under Parts CAT, NCC, NCO and SPO. All Parts require the aerodrome or operating site to be adequate for the type of aircraft and operation concerned. AMC for Part CAT requires the operator to consider ICAO Annex 14 Volume 2 and in the ICAO Heliport Manual (Doc 9261- AN/903) and performance when determining the adequacy of a site. AMC for Part SPO requires the operator should consider characteristics of the site and performance when determining the adequacy of a site. However, under Part NCC and Part NCO there is currently no AMC.
- 1.3 AMC to Parts CAT and SPO require the operator to have procedures for site surveys and for the pilot to judge the suitability of a non-surveyed site from the air. AMC to Parts NCC and NCO describes the details required for a pre-surveyed site but not the process to complete the survey.
- 1.4 AMC to Parts CAT and SPO require that sites must be pre-surveyed for night operations but there is no requirement to do the same for Parts NCC and NCO.
- 1.5 Air Ops Regulation 965/2012 lacks guidance on the use of lights to illuminate an operating site at night and leaves both the CAA and the operator to judge what lighting is required to be adequate for safe operations, see para 1.7 below.

## Air Navigation Order 2016

- 1.6 ANO 2016 Art.210 requires the person in charge of any landing area to be used for public transport flights to have lighting that will enable the pilot of the helicopter to identify the landing area in flight, determine the landing direction and to make a safe approach and landing; and when taking off, to make a safe take-off.
- 1.7 It is CAA policy that all operators, regardless of the type of operation, utilise Article 210 as a minimum requirement for safe operations to Off Airfield landing sites by night.

## Summary

- 1.8 The regulatory requirements and best practice are summarised in the table below. The Air Operations Regulation 965/2012 requirements for Part CAT operations contain sufficient AMC for Operators to develop appropriate processes for use of Off Airfield operating sites by day. Industry best practice has seen improved lighting standards for night operations with many operators deploying portable lighting systems to ensure that the aiming point for the FATO and obstructions can be seen in line with requirements of ANO 2016 Art.210. In the absence of regulation and AMC for private operations under Part NCC and NCO, pilots-in-command are advised that the recommendation to comply with ANO 2016 Art.210 should be considered as the minimum to ensure safe operations.

| Requirement                                   | Part CAT   | Part SPO   | Parts NCC & NCO  |
|---|--|--|--|
| Adequacy of the site                          | Operator to consider:-<br>ICAO Annex 14 Volume 2<br>ICAO Heliport Manual (Doc 9261- AN/903)<br>Site characteristics<br>Performance       | Operator to consider:-<br>Site characteristics<br>Performance  | CAA recommends as a minimum consideration:-<br>Site characteristics<br>Performance   |
| Site surveys                                  | Procedures published for site surveys<br>Details required for a site survey described in AMC   | Procedures published for site surveys<br>Details required for a site survey described in AMC   | CAA recommends as a minimum consideration:-<br>Procedures published for site surveys<br>Details required for a site survey described in AMC                        |
| Non-surveyed site operations by day           | Procedures published so pilot can judge the suitability of the site from the air using details required for site survey described in AMC | Where an operator specifically permits, so that a pilot can judge the suitability of the site from the air using details required for site survey described in AMC | Where an operator specifically permits, so that a pilot can judge the suitability of the site from the air using details required for site survey described in AMC |
| Sites to be pre-surveyed for night operations | Yes  | Yes  | CAA policy   |
| Adequate lighting for night operations        | ANO 2016 Art.210   | ANO 2016 Art.210   | ANO 2016 Art.210   |

## Chapter 2

# Off Airfield Operating Sites

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## Types of Helicopter Operating Sites

- 2.1 Previously issued guidance categorised landing sites as: estimated, measured or surveyed. With commonly available tools and online applications for mapping and satellite imagery, a desk-top study of a landing-site can result in an operating site being considered measured site with similar ease to simply producing a brief for a measured site. Estimated operating sites can only be used in non-congested areas. Operators with approved procedures for estimating operating sites are encouraged to review their continued use and to consider adopting measured as the minimum standard required.
- 2.2 The estimation, measurement or survey of a site needs to determine that the site is adequate in size to meet the performance requirements and flight profiles that will be used for approach, landing, take-off and departure.

## Estimated Operating Sites

- 2.3 A site where no reliable information has been obtained, but a reasonable estimate of site size and obstacle heights is available. For example, “it is an open field with a length equivalent to three full-size football pitches with trees about 25 feet high at the end”.
- 2.4 Operators should specify in their Operations Manual the minimum acceptable dimensions for using estimated sites. In addition, they should specify the minimum acceptable size of site for helipad profiles (if applicable) to be flown on departure, following measurement of the site on arrival. The minimum acceptable size should include an allowance for the horizontal distance flown, forward of the initial hover point, during drop down following an engine failure at Take-off Decision Point (TDP).
- 2.5 A landing site plate should be completed and include that it is an estimated site.
- 2.6 The use of Estimated Sites is limited to non-congested areas by day only.

## Measured Operating Sites

- 2.7 A measured site is one which has been measured to an accuracy less than that required for a surveyed site by conducting a virtual survey using maps and satellite imagery available on tools such as Google Earth and EFB applications. Obstacle heights may be determined by comparison with known objects such as a standard two storey house or similar ‘known’ items or may be provided from other acceptable sources such as spot heights from a largescale chart.

- 2.8 A landing site plate should be completed and include that it is a measured site.
- 2.9 The use of Measured Sites is limited to day only.

### **Surveyed Operating Sites**

- 2.10 A surveyed site is one which has been accurately measured for calculating performance which may be used by day and by night providing adequate lighting is provided.
- 2.11 For Part CAT and Part SPO operations, the survey need not be completed by the Operator but must be completed in accordance with their defined procedure and to the standard specified by them. The operator should record the date of the survey and ensure no changes that might affect the pilot-in-command's helicopter performance calculations have occurred at the site since the last survey. A landing site plate should be completed and include the survey expiry date (survey date plus 12 months maximum).
- 2.12 Sites should be resurveyed at intervals of not less than 12 months in order to remain valid as surveyed sites.

### **Surveying Procedures and Surveyor Training**

- 2.13 The purpose of the survey is to produce an operating site brief that meets the requirements of Air Ops Regulation for the relevant type of operation, Part CAT, SPO, NCC or NCO. The brief should include maps and satellite imagery as for a measured site augmented by photographs taken during the survey.
- 2.14 Persons authorised by an Operator for Part CAT or SPO, or pilot-in-command for Part NCC or NCO, should conduct the survey using appropriate measuring and obstacle height measuring equipment to ensure that the details recorded in the operating site brief are accurate and complete. Where smart phone applications are used, the surveyor must use a gross error check comparing the measurements and angles with expectations based on experience to confirm the validity of the data.
- 2.15 Operators should detail surveyor training and authorisation in their operations manuals. All line pilots-in-command should be trained to survey Estimated and Measured sites. Surveyors should undergo recurrent training and checking in their ability to carry out a full site survey annually and training records annotated accordingly. Surveyor training and checking should be detailed in Part D of the Operations Manual.



## Operating Site Detail and Description

- 2.16 Whether the operating site is estimated, measured or surveyed, the result is the provision of details of the operating site, a 'landing site plate', to the pilot-in-command for the operation.
- 2.17 Air Ops Regulation requires that for Part CAT and Part SPO operations, the operations manual should contain details of operating sites. This information is commonly held in the Company Landing Site Directory (CLSD) referenced from the Operations Manual Part C. The operator requires procedures to ensure that operating site details remain up to date.
- 2.18 For Part NCC and NCO operations, the pilot-in-command should have available similarly defined details for the operating site.
- 2.19 The key elements of the landing site description are common for all operations and require the pilot-in-command to have available diagrams and/or ground and aerial photographs and description of:
- a) the overall dimensions of the site;
  - b) location and height of relevant obstacles to approach and take-off profiles, and in the manoeuvring area;
  - c) approach and take-off flight paths;
  - d) surface condition (blowing dust/snow/sand);
  - e) site suitability with reference to aircraft performance;
  - f) provision of control of third parties on the ground (if applicable);
  - g) procedure activating the operating site in accordance with national regulations;
  - h) other useful information, for example, appropriate ATS agency and frequency; and
  - i) lighting (if applicable).

## Congested Areas

- 2.20 A 'congested area' in relation to a city, town or settlement, means any area which is substantially used for residential, commercial, or recreational purposes.<sup>1</sup>

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<sup>1</sup> ANO 2016 Schedule 1 Interpretation Article 2

## Congested Area Permissions

- 2.21 The Rules of the Air Regulations 2015 – 5(1) states:
- An aircraft must not take off or land within a congested area of any city, town or settlement except—
- (a) at an aerodrome in accordance with procedures notified by the CAA; or
  - (b) at a landing site which is not an aerodrome in accordance with the permission of the CAA.
- 2.22 It therefore follows that an application to the CAA is required for any Congested Area Landing / Take Off Permission and that is described below. This application covers both single use, or long term Permissions.
- 2.23 A long-term Permission to allow operators to self-authorise operations to or from congested-area unlicensed heliports will only be granted for helicopters operated in Performance Class 1. Operators wishing to conduct Performance Class 2 or 3 operations to or from heliports within a congested area will be required to obtain one-off Permissions from the CAA for the specific flights.
- 2.24 Operators of twin-engine helicopters who wish to apply for the initial issue of a self-authorising long-term Permission to take-off and land within a congested area, and those operators who currently hold a Permission, should include and maintain information in their Operations Manuals to reflect the procedures contained in this CAP.
- 2.25 To be granted a long-term self-authorising congested area Permission, an operator will have to satisfy the CAA as to its competence to survey sites with the appropriate equipment. Initial applicants shall establish within their CLSD a minimum of three surveyed sites, including at least one in a congested area, prior to applying for the Permission. All applicants will need to specify in the company Operations Manual detailed procedures to establish the suitability of a site.
- 2.26 The requirements are intended to ensure that all operations, including those into congested areas, can be conducted in a safe and practical manner. Operators wishing to propose variations to these procedures may do so, but before a Permission is issued they will need to satisfy the CAA that a level of safety at least equivalent to that achieved by these provisions can be ensured.
- 2.27 The relevant requirements of the ANO 2016, UK SRA and Rules of the Air 2015 must be complied with in full when operating at an unlicensed site.

## Congested Area Permission Applications

- 2.28 Any Permission (or Exemption) should be applied for using the latest version of [SRG1843](#).

**Please Note:** Incorrect or missing information will result in a delay to the processing of any application.

- 2.29 For Same Day Service applications, all documents must be received by 11:00, with the aim of completion of the processing of the application by 16:30. More information about Same Day Service can be found on the CAA Website [here](#).

**Please Note:** This service is subject to all information being submitted and all queries answered within this timeframe, therefore it is imperative that the SRG1843 and supporting documents are correct by the Same Day Service application deadline (11:00), otherwise this service will not be possible.

## Congested Area Permission Conditions

- 2.30 The following considerations are given when any Congested Area Permission is processed:

- a) The necessity of the task
- b) Location
- c) Noise and nuisance
- d) Operator experience
- e) Appropriate Risk Assessments
- f) Acceptable Site Survey / HLS plate
- g) Operations Manual procedures / SOPs
- h) Weather limits
- i) Local Authority & Police notification
- j) Obstructions and hazards
- k) Performance (see section below)
- l) Aircraft equipment / additional personnel
- m) Requirement for CAA FOI Site inspection

## Performance Requirements

~~2.31 Helicopters must operate to Performance Class 1 in congested areas.~~

~~2.32 Performance Class 3 single engine helicopters conducting Part CAT operations cannot use operating sites in congested areas.~~

2.31 Twin-engine helicopter operations should be conducted to the highest level of performance possible. Pilots-in-command of helicopters being conducted within Performance Classes 2 or 3 must ensure that the take-off and landing are conducted over a surface which permits a safe forced landing to be executed in the event of an engine failure. Helicopters operating to sites where a safe forced landing is not possible must operate to Performance Class 1.

## Night Operating Site – Adequate Lighting

2.32 Air Ops regulation requires lighting at operating sites to be adequate but does not provide further guidance.

2.33 ANO 2016 Art.210 contains requirements for Public Transport flights and the lighting must enable to pilot to:

- a) when landing, to identify the landing area in flight, to determine the landing direction and to make a safe approach and landing; and
- b) when taking off, to make a safe take-off.

2.34 While adequacy may be subjective, in the event of an incident or accident, it is far easier to conclude that lighting has been inadequate. Therefore, all operators, regardless of type of operation, should consider the guidance in ANO 2016 Art.210 as a guide to the minimum standard that is considered adequate.

## Landing and Taking Off Near Open Air Assemblies

2.35 The Rules of the Air Regulations 2015 - 5(2) States:

An aircraft must not land or take-off within 1,000 metres of an open-air assembly of more than 1,000 persons except—

- (a) at an aerodrome in accordance with procedures notified by the CAA; or
- (b) at a landing site which is not an aerodrome in accordance with procedures notified by the CAA and with the written permission of the organiser of the assembly.

Note: ORS1492 corrects a discrepancy in the above to specify that any open-air assembly is 'organised.'

- 2.36 Therefore, when an event involving an organised open-air assembly of more than 1000 people takes place within 1000 metres of an unlicensed aerodrome or helicopter landing site, compliance with procedures is required for both the above Regulation and under Standardised European Rules of the Air SERA.3105 Minimum Heights. These procedures applicable for Off Airfield temporary helicopter landing sites can be found at NATS UK [AIP – Part 1 GEN 1.6 Section 2](#)

## Helicopter Pleasure Flying and Feeder Sites

- 2.37 The requirements and guidance material for operators who wish to utilise Off Airfield helicopter landing sites for the purpose of Pleasure Flying or Feeder Sites can be found in [CAP2543](#)

## Chapter 3

# Procedures

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## Procedures For The Use Of Off Airfield Operating Sites

### Prior to Helicopter Departure

- 3.1 Following a request to operate to a non-surveyed or congested area site, an authorised person is to assess the type of site and its suitability.
- 3.2 If satisfied that the site is appropriate for use, the authorised person will authorise use of the site. They are responsible for ensuring that the pilot has full details of the site including the type of site and any restrictions upon its use.
- 3.3 Following completion of steps (a) to (c), the aircraft may be dispatched on the flight. Sites in congested areas can only be authorised during the planning stage of a flight and under no circumstances can they be authorised in-flight.
- 3.4 Normal passenger handling considerations must apply, see section on Site Security below.

### On Arrival at an Operating Site

- 3.5 On arrival above the site and before commencing an approach to a landing, the pilot-in-command must be satisfied that it is obstacle free. He should conduct and airborne recce and consider the following:
  - a) *Size*: The FATO is adequate; there should be sufficient distance to accommodate the published landing distance from 100 ft.
  - b) *Shape*: The site accommodates the approach, go-around, touchdown and lift-off area and departure route with due regard to the appropriate Performance Class.
  - c) *Surrounds*: Any obstacles and wires etc. have been identified and do not infringe the approach or departure flight path.
  - d) *Surface*: The surface appears satisfactory and is free from debris that may damage the helicopter and the ground is able to support a safe forced landing.
  - e) *Slope*: Any slope is within the helicopter's limits.
  - f) *Downwash*: Will the downwash pose a risk of death or injury to third parties on the ground or damage to buildings or property. Such injury or damage may be as a result of FOD being blown.

### **Additionally for Estimated Sites**

- 3.6 No performance credit may be taken for wind and approaches should be conducted with a headwind component.
- 3.7 Sites are limited to use by day only.
- 3.8 If the site lies within a congested area, prior to departure from the site it must be measured or surveyed. For single-pilot operations, to achieve this it will be necessary for the helicopter to be shut down.

### **Additionally for Measured Sites**

- 3.9 The pilot-in-command must also be satisfied that the landing distance available is not less than that required for the aircraft to land from 100 ft.
- 3.10 No performance credit may be taken for wind and approaches should be conducted with a headwind component.
- 3.11 If the site lies within a congested area, and if dimensions appear to be less than originally advised, then prior to departure from the site it must be re-measured or surveyed in. For single-pilot operations, to achieve this it will be necessary for the helicopter to be shut down.
- 3.12 Sites within a congested area are limited to use by day only.

### **Additionally for Surveyed Sites**

- 3.13 The pilot-in-command must also be satisfied that the site has not changed in respect of its size and obstacle domain since its most recent survey.
- 3.14 Prior to commencing an approach to land at night, the pilot-in-command shall ensure that the nominated person in charge of the site has provided sufficient lighting to enable the pilot-in-command to identify the landing area from the air, to determine the landing direction and to make a safe approach and landing.
- 3.15 Approaches should be made with a headwind component.

### **Prior to Departure From an Operating Site**

- 3.16 If Performance Class 1 is required:
  - a) The pilot-in-command is to calculate the maximum WAT limit for the conditions.
  - b) The pilot-in-command is to calculate the maximum weight at which, in the ambient conditions, the helicopter is able to clear all obstacles by a vertical interval of not less than 35 ft, assuming an engine fails at the TDP. (If a helipad profile is to be flown, allowance must be made for the horizontal

distance during the drop down from TDP to 35 ft, when calculating the take-off weight.)

- c) The pilot-in-command is to calculate the rejected take-off distance required for the lowest maximum weight calculated in paragraph (a) or (b); or the maximum weight calculated for the rejected take-off distance available.
- d) The maximum permissible take-off weight shall be the least of (a),(b) and (c) above.
- e) No departure is permitted with a tailwind component.
- f) At Measured and Estimated sites, no performance credit may be assumed for wind.
- g) At Measured and Estimated sites, the actual horizontal and vertical dimensions used for calculating take-off performance shall be factored by 10%.
- h) At Surveyed sites, 50% of the headwind component of the actual wind may be used where the wind velocity and direction are obtained from within the site.
- i) Prior to a night departure, the pilot-in-command shall ensure that the nominated person in charge of the site has provided sufficient lighting to enable a safe take-off.

- 3.17 If the helicopter is to be operated in Performance Class 2 or 3, items (a),(b) and (c) need not apply. However, the pilot-in-command must satisfy himself that the aircraft can, in the event of an engine failure, either conduct a safe forced landing or continue the take-off avoiding all obstacles.

## Off Airfield Operating Site Security

- 3.18 An important aspect of Off Airfield operating site operations is security of the site with regard to the protection of 3<sup>rd</sup> parties not-involved with the operation. Before using an Off Airfield operating site, it is the operator's or pilot-in-command's responsibility to ensure that the operation does not pose a risk to 3<sup>rd</sup> parties. As a minimum, the operator for Part CAT or Part SPO operations, or pilot-in-command in the case of Part NCC or NCO operations, should confirm that there are no 3<sup>rd</sup> parties in the vicinity of the FATO. The affect of downwash on any loose articles or FOD that may pose a threat should also be considered.
- 3.19 For Part CAT operations, AOC Operators also need to consider passenger handling and briefing.
- 3.20 Further guidance can be found in [CAP2543](#) Helicopter Pleasure Flying and Feeder Sites: Requirements and Guidance material for Operators.