Guidance Material for

an Aerodrome Certification Applicant

Civil Aviation Authority Cayman Islands
Date: March 26, 2012

Guidance material for an aerodrome certification applicant

It is the applicant's responsibility to know and comply with the regulatory requirements for certification and it is inevitable that failure to understand these obligations will lead to delays in the process and wasted resources. At the same time, the need for the regulator to provide an impartial assessment of the final submission prevents direct involvement in the preparation of an application. The regulator can provide comments pertaining to acceptability as the manual is progressively developed .

This document is aimed at providing generic guidance material for an applicant's use to understand:

Section 1. The regulatory authorities involved in the aerodrome certification process and access associated web links sources to permit detailed review of an applicant's obligations;

Section 2. Essential considerations for development of an aerodrome manual;

Section 3. The required steps for processing a certification application; and

Section 4. The content requirement for the development of an Aerodrome Operations Manual.

Regulatory Authorities Related to Certification

The Air Navigation (Overseas Territories) Order is the foundation framework for aviation in the Territories. It became law in 2007 with amendments made in 2008 and 2011. A consolidated version of the Air Navigation (Overseas Territories) Order which incorporates both amendments is available on the ASSI web site at the following web link:
http://www.airsafety.aero/assets/uploads/files/ANOTO_Consolidated_ARTICLES_v1.pdf

The Overseas Territories Aviation Requirements (OTARs) supports the Air Navigation (Overseas Territories) Order by providing detailed means of compliance with the order. OTAR 139 related to airport certification and standards was gazetted in the Cayman Islands by Gazette issue No. 2 page 61 on Mon. Jan 21, 2008, with the most current version available from the following web link to the ASSI web site:
http://www.airsafety.aero/assets/uploads/files/assi_OTAR_Part_139_v5.pdf

Aeronautical Study guidance material
OTAR Part 139.91 contains basic provisions on the use of Aeronautical Studies as a means to identify alternative means to achieve an equivalent level of safety by means other than full compliance with a specific OTAR requirement, when so permitted by that requirement. This OTAC provides broad guidelines as to how an aeronautical study or risk assessment may be carried out.
http://www.airsafety.aero/assets/uploads/files/assi_OTAC_139-5_v1.pdf

Glossary of terms and definitions
AN OTO and OTAR 139 are to be used as the reference documents for interpretations

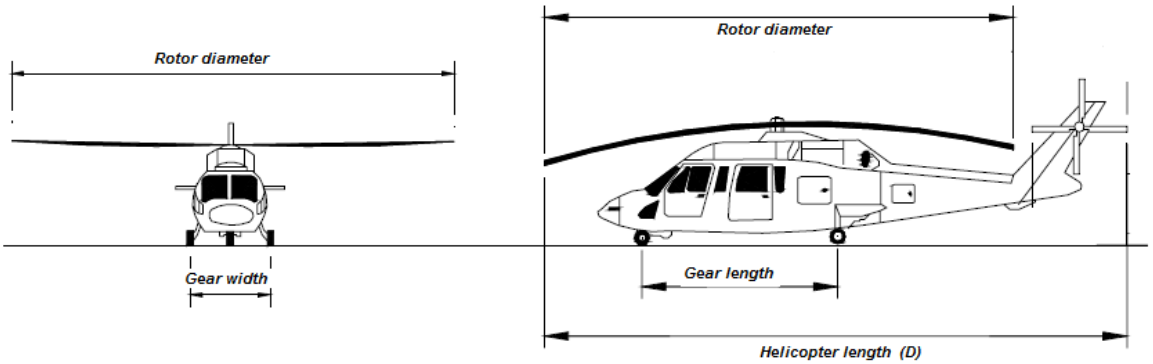
Section 2. Essential Considerations

General: In that the major demand for certification in the Cayman Islands relates to surface level heliports, the text has been written primarily to address this requirement. Although the specific requirements may be unique for helicopters, the same considerations for fixed wing aerodromes must also include:

- Identification of the critical aircraft;
- Determination of the category of aerodrome usage;
- Physical aerodrome design elements;
- Assessment of obstacle considerations;
- Land use authority considerations;
- ATC acceptability of Site;
- Development of documentation for plans and procedures;
    - Application of a Safety Management Process; and
- The CAACI approval of an aerodrome operational manual incorporating all of the above.

Identification of the critical aircraft

When designing a heliport, the critical design helicopter, having the largest set of dimensions and the greatest maximum take-off mass (MTOM) the heliport is intended to serve, must be considered. This will define the dimensions for the heliport design elements.



Critical aircraft considerations for a fixed wing aerodrome include runway operational length, aircraft width and undercarriage width to code aerodrome in accordance with OTAR 139.B.05.

Determination of the category for aerodrome usage

The most basic heliport operational category is "class 3, day, Non-Instrument"
The implications of Category class are as follows:

- a class 1 category is a twin engine helicopter with the capability of returning to land or continuing the take-of with only one operating engine;
- a class 3 category is a single engine helicopter which can not continue flight if the engine quits.

The implications for Operational conditions are as follows:
139.I.123 requires the following obstacle limitation surfaces for:

(a) a precision approach FATO:

(1) take-off climb surface; and

(2) approach surface; and
(3) transitional surfaces; and
(4) conical surface.

(b) a nonprecision approach FATO:
(1) take-off climb surface; and
(2) approach surface; and
(3) transitional surfaces; and
(4) conical surface; and
(5) inner horizontal surface.

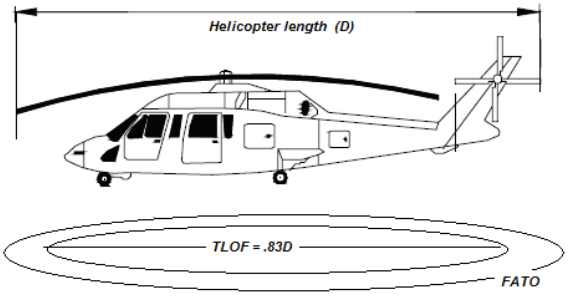
(c) The following obstacle limitation surfaces shall be established for a non-instrument FATO:
(1) take-off climb surface; and
(2) approach surface.

The operational category for a fixed wing aerodrome will be determined by navaid supporting a runway's approach procedures and the obstacle environment affecting the available approach limits.

Physical aerodrome design elements

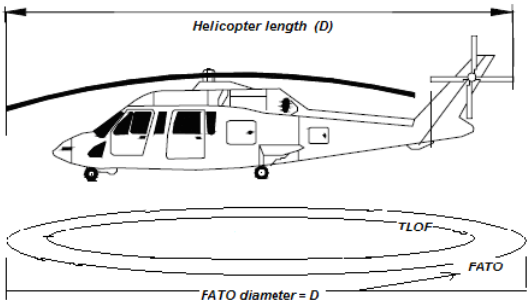
The considerations for a heliport are as follows:

A touchdown and Lift-off Area (TLOF)



Whenever it is intended that the undercarriage of a helicopter will actually touch down on the surface of a heliport or leave the surface to achieve a hover, a touchdown and lift-off area shall be provided. The dimension of the area shall be of sufficient size to contain a circle of diameter 0.83D of the largest helicopter the area is intended to serve and be dynamic load bearing when located within the FATO.

Final Approach and Take-off Area (FATO)



A FATO is an area over which a helicopter completes the approach manoeuvre to a hover for landing or commences movement into forward flight in the take-off manoeuvre. A FATO may be any shape but must meet the requirements of 139.I.21(d)2 which states

"where intended to be used by helicopters operated in performance class 2 or 3, of sufficient size and shape to contain an area in which can be drawn a circle of diameter not less than 1 D of the largest helicopter the FATO is intended to serve. "

139.I.21 further states:

in e) the mean slope shall not exceed 3 per cent; and

in f) the surface of the FATO shall:

(1) be resistant to the effects of rotor downwash; and

(2) be free of irregularities that would adversely affect the take-off or landing of helicopters; and

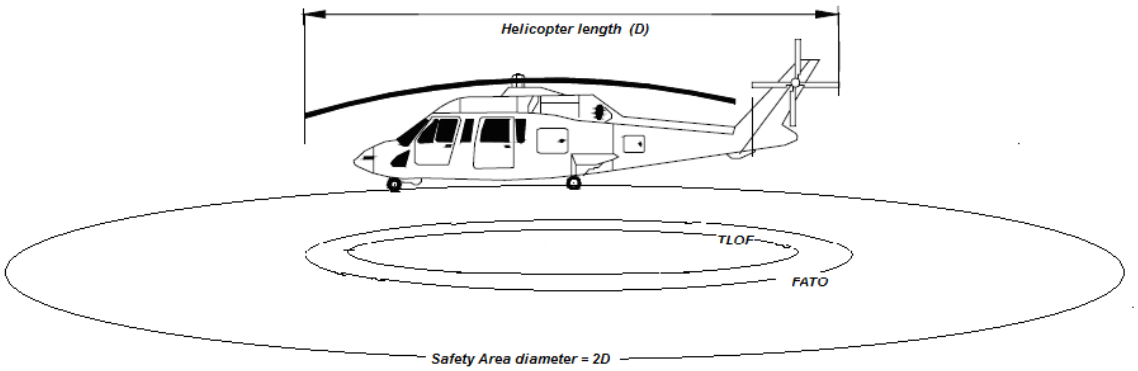
(3) have bearing strength sufficient to accommodate a rejected take-off by helicopters operated in performance class 1; and

(4) provide ground effect.

<u>Safety Area</u>

A Safety Area is provided around a FATO to:

- reduce risk of damage to a helicopter caused to move off the FATO by the effect of turbulence or cross-wind, mislanding or mishandling; and
- protect helicopters flying over the area during landing, missed approach or take-off by providing and area which is cleared of all obstacles except small objects which because of their function must be located on the area.



OTAR 139 .I.27 includes the following as requirements for a safety area:

a) A FATO shall be surrounded by a safety area which need not be solid.

(c) A safety area surrounding a FATO intended to be used by helicopters operated in performance class 2 or 3 in visual meteorological conditions (VMC) shall extend outwards from the periphery of the FATO for a distance of at least 3 m or 0.5D, whichever is greater, of the largest helicopter the FATO is intended to serve; and:

(1) each external side of the safety area shall be at least 2D where the safety area is quadrilateral; or

(2) the outer diameter of the safety area shall be at least 2D where the FATO is circular.

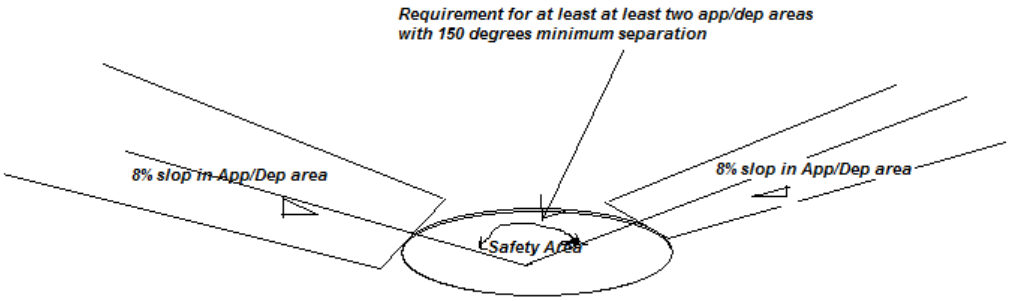
(d) There shall be a protected side slope rising at 45 degrees from the edge of the safety area to a distance of 10 metres, whose surface shall not be penetrated by obstacles; **except** that when obstacles are located to one side of the FATO only, they may be permitted to penetrate the side slope surface.
(f) No fixed object shall be permitted on a safety area, except for frangible objects, which, because of their function, must be located on the area. No mobile object shall be permitted on a safety area during helicopter operations.
(g) Objects whose functions require them to be located on the safety area shall not exceed a height of 25 cm when located along the edge of the FATO nor penetrate a plane originating at a height of 25cm above the edge of the FATO and sloping upwards and outwards from the edge of the FATO at a gradient of 5 per cent.
(h) The surface of the safety area, when solid, shall not exceed an upward slope of 4 per cent outwards from the edge of the FATO.
(i) Where applicable, the surface of the safety area shall be treated to prevent flying debris caused by rotor downwash.
(j) The surface of the safety area adjoining the FATO shall be continuous with the FATO.

Approach/Departure areas

The approach/ departure airspace, begins at the edge of the Safety area and beginning with an 8% slope extended outward, to provide sufficient airspace clear of hazards to allow safe approaches to and departures from the TLOF.

An approach/departure surface is centered on each app/dep path beginning at the width of the safety area and splays outward at 10% on each side in its first segement. Each surface heliport is to have at least two take-off climb and approach surfaces which are separated by not less than 150 degrees

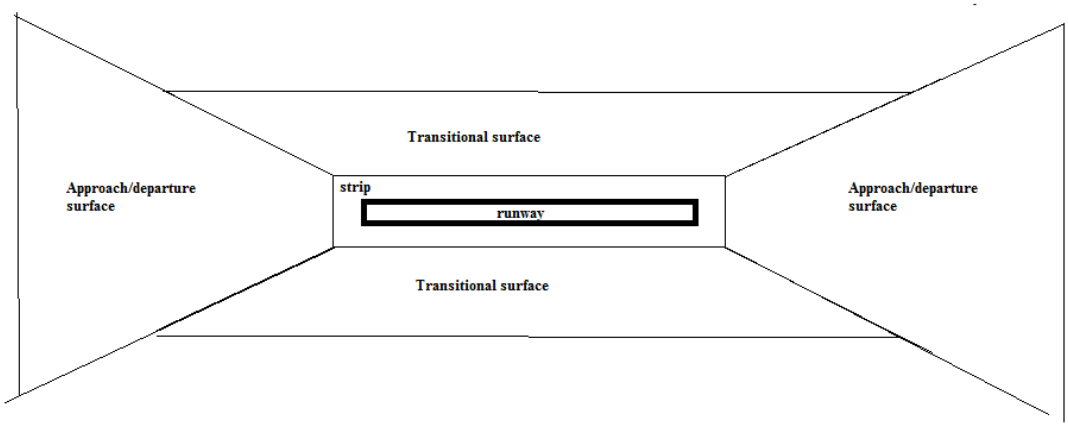
In the event of an engine failure for a category 2 or 3 operation, all approach departure areas are required to have suitable underlying forced landing areas. (ref OTAR 139 I 113.d(2)5 & e(7).



A fixed wing aerodrome has similar elements around the runway where:

- A strip is required where no obstacles are allowed except for specific aviation requirements;
- An approach departure area where the height of obstacles are allowed to progressively increase as the distance from the runway increases; and

- A transitional area along the side of the runway strip, where the height of obstacles is limited to prevent collisions with aircraft while flying in the vicinity of the runway.



Land use authority considerations

Although outside the Civil Aviation mandate, the applicant is expected to coordinate the application with the local planning authority to ensure compatibility with the local community.

ATC acceptability of Site

The CAA will not consider certification of a site which will interfere with the airspace of an existing certified site. This requires the applicant to coordinate airspace operational acceptability with the Cayman Islands Air Traffic Services.

Development of documentation for plans and procedures

The following documentation is to be developed and attached to the actual certificate application:

- Heliport Operations Manual (Sample provided as Attachment A which includes the requirements of a Safety Management System suitable for the level of operation at the site.

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Section 3. The required steps for processing a certification application

Responsibility	Steps
Applicant to request from CAA inspector	Request for initial site assessment before any work proceeds
CAA Inspector	Conduct initial site assessment of physical limitations for the site
Applicant	After initial site inspection issues are resolved, preparation of formal application including: - CAA application - Required application fee - Operations Manual to support the application (see attachment A) - Documentation confirming site consideration by planning authority
CAA Inspector	Completes review of submitted documents and refinement discussions with applicant. The development of the Operations Manual provides a record of the progress for completion of the required items.
CAA Inspector	Final site inspection - Physical inspection for obstacle limitation surfaces - Physical inspection for marking and lighting - Confirmation of appropriate effective plans - Staffing training and knowledge
Applicant	Address non conformances with standards by either: - corrective action; or - preparation and submission of aeronautical study ref OTAC 5 to CAA

	inspector Applicant submits completed operation manual documenting compliance with all applicable requirements
Inspector	Appropriate recommendation to DGCA
DGCA	Rejection or Issuance of certificate with conditions as appropriate
Inspector	CAA oversight for certification compliance. First year will develop confidence in certificate holder to permit reduction in oversight requirement until general requirement becomes consistent with CAACI audit and inspection policy.

Section 4. Content requirement for the development of an Aerodrome Operations Manual.

Note: All the steps necessary to meet certification requirements will be addressed by the development and approval of an Airport Operations Manual. In practice, the final document is used as a checklist validation by the CAACI for all the elements required by an aerodrome certification.

As stated in this document's preface, the example provided is applicable to a heliport but the content requirement is also relevant to a fixed aerodrome's requirements.

Heliport Operations Manual for ……...*Name of Site*

Forward and Obligations

STATEMENT BY AIRPORT OPERATOR

…….. accepts certification of …… Heliport and as its certificate holder commits to ensuring the site is maintained and operated in accordance with OTAR 139 the procedures and conditions detailed in this manual.

Signature _____

Contact Information: e-mail ……..
Office ……..
Mobile ……..

Date _____

Applicable regulatory documents:
ANOTO
OTAR 139

Table of contents Page

Acronyms:

HOM	Heliport Operation Manual
VFR	Visual Flight Rules
CAACI	Civil Aviation Authority of the Cayman Islands
ARP	Aerodrome Reference Point
AD	Acrodrome
MAG VAR	Magnetic Variation
AFS	Aeronautical Fixed Service
MET	Meteorology
ORIA	Owen Roberts International Airport
FATO	Final Approach and Take-off Area
TLOF	Take-off & Landing Area
AN OTO	Air Navigation (Overseas Territories) Order
OTAR	Overseas Territories Aviation Requirement
FOD	Foreign Object Damage

Part I General

1a) Purpose and Scope

This …… Heliport Operations Manual has been prepared as a condition of certification and forms an integral part of the Heliport Certificate. The objective is to define the standards that are met and the services that are provided by the …...*Name of Heliport Operator*…., and serves as:

(a) a legal reference, between the Airport Operator (Cayman Shores Development Ltd.) and the Civil Aviation Authority Cayman Islands, with respect to the standards, conditions and levels of service to be maintained for certification;

(b) a reference document for heliport inspections;

(c) a reference document for heliport users; and

(d) a legal instrument to record any approved changes to or deviations from the heliport standards, conditions, or levels of service affecting airside operations.

1b) Legal requirement for certification

(select one and delete the others and this instruction):

Option A.

This heliport is certified in order to permit landings and take offs within 500 feet of a person, vessel, vehicle or structure in accordance with AN OTO section III para 6(a)ii

Option B

This heliport is certified on the assessment of the Governor that it is in the public interest to require an aerodrome to be certificated. AN OTO section XIII para 105(1)b

Option C

This heliport is not required by the regulations to be certified but is certified on the request of the heliport operator. AN OTO section XIII para 105 (3)

1c) Conditions for use of the Heliport *(Choose as appropriate then delete the others and this instruction)*

- This heliport is certified for use to all persons on equal terms and conditions. AN OTO 105(3)
- This heliport is certified for use by aircraft operators receiving prior permission from the certificate holder.
- day VFR
- night VFR
- The critical helicopter is a _____ with an overall length of____feet.
- Operational conditions assigned for use of the site are to be listed here

1d) Aeronautical information

Choose one of the following options or prepare as required and delete this instruction

- Information on the heliport will be published in the AIP and kept current in accordance with items "m" and "n" of the aerodrome operator regulatory obligations listed in OTAR 139.71 (listed below in Par 1f.

- The heliport information will not be published in the AIP. *Operator Name* will be the only operator using the site and will have access to the site data through a copy of the Heliport Operations Manual.

- Information on the heliport will be published (state where authorized users can access current information necessary for their safe use of the site).

1e) Aircraft movement reporting

Monthly movement statistics will be provided by the certificate holder to the Director General Civil Aviation on a quarterly basis.

1 f) Obligations of the aerodrome operator

The heliport is certified under OTAR 139 and the certificate holder must ensure the site is maintained and operated in accordance with the applicable regulations and standards. Ref OTAR 139.71

1 g) Occurrence reporting

An aerodrome certificate holder, operator or manager of a certificated aerodrome, shall report to the Governor any reportable occurrence which comes to his attention in the exercise of his functions. Reference Mandatory Reporting program AN OTO 139.3 and CAACI web link

http://www.caacayman.com/pls/portal/docs/PAGE/CAAHOME/ABOUTUS/POLICY/REPORTING/MANDATORY%20OCCURRENCE%20REPORTING%20MANUAL.PDF

1h) Aerodrome Manual Management

The Heliport Certificate holder will provide a copy of this manual to the following personnel and ensure amendments are provided on a timely basis.

No.	Allocation	No.	Allocation
1	Director General Civil Aviation	5	
2		6	
3		7	
4		8	

Applicable portions of the manual for which staff are responsible are distributed as follows:

No.	Allocation	Assigned portion *Full document/specific sections*
1		
2		
3		
4		

Authorized Amendments

The Heliport Manager is responsible for the development, issuance and control of amendments to this manual, subject to approval by the Cayman Islands Civil Aviation Authority, Aerodromes Section of the Air Navigation Services Directorate. Once approved, amendments will be properly distributed to the appropriate document holders for amendment of their document. All manual holders are responsible for the safe custody and maintenance of their manual or portion thereof.

Amendments to the original manual are to:
- be listed in an amendment record;
- be recorded in the list of effective pages;
- be dated on the outside bottom corner; and
- be marked with a vertical bar next to the amended text;

LIST OF EFFECTIVE PAGES

(Amend as applicable, e.g.,) *(**Note**: Insert full date for each page)*

Page	Amendment	Date (mm/dd/yy)	Page	Amendment	Date (mm/dd/yy)
i (Title Page)	Original	_____ __, 201_	App 0-1	Original	_____ __, 201_
iii	Original *(or, e.g.,*	_____ __, 201_	App 0-3	Original	_____ __, 201_
v	*Amendment _)*	_____ __, 201_	App A-1	Original	_____ __, 201_
vii	Original	_____ __, 201_	App B-1	Original	_____ __, 201_
ix	Original	_____ __, 201_	App B-2	Original	_____ __, 201_
xi	Original	_____ __, 201_			
xii	Original	_____ __, 201_			
Gen 1	Original	_____ __, 201_			
Gen 3	Original	_____ __, 201_			
Gen 4	Original	_____ __, 201_			
Gen 5	Original	_____ __, 201_			
Gen 6	Original	_____ __, 201_			
Gen 7	Original	_____ __, 201_			
Gen 8	Original	_____ __, 201_			
Gen 9	Original	_____ __, 201_			
		_____ __, 201_			
Part I-1	Original	_____ __, 201_			
Part I-3	Original	_____ __, 201_			
Part I-4	Original	_____ __, 201_			
Part I-5	Original	_____ __, 201_			
Part I-6	Original	_____ __, 201_			
Part I-7	Original	_____ __, 201_			
Part I-8	Original	_____ __, 201_			
Part I-9	Original	_____ __, 201_			
Part II-1	Original	_____ __, 201_			
Part II-3	Original	_____ __, 201_			
Part II-4	Original	_____ __, 201_			
Part II-5	Original	_____ __, 201_			
Part II-6	Original	_____ __, 201_			
Part II-7	Original	_____ __, 201_			
Part III-1	Original	_____ __, 201_			
Part III-3	Original	_____ __, 201_			
Part III-4	Original	_____ __, 201_			
Part III-5	Original	_____ __, 201_			
Part IV-1	Original	_____ __, 201_			
Part IV-3	Original	_____ __, 201_			
Part IV-4	Original	_____ __, 201_			
Part IV-5	Original	_____ __, 201_			
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Part IV-7	Original	_____ __, 201_			
Part IV-8	Original	_____ __, 201_			
Part IV-9	Original	_____ __, 201_			
Part IV-10	Original	_____ __, 201_			
Part IV-11	Original	_____ __, 201_			
Part IV-12	Original	_____ __, 201_			
Part IV-13	Original	_____ __, 201_			
Part IV-14	Original	_____ __, 201_			
Part IV-15	Original	_____ __, 201_			

RECORD OF AMENDMENTS

AOM(H) Amend. No.	**Date of Issue** (mm/dd/yy)	**Date Entered** (mm/dd/yy)	**Entered By**

PART 2
Particulars of the Aerodrome site

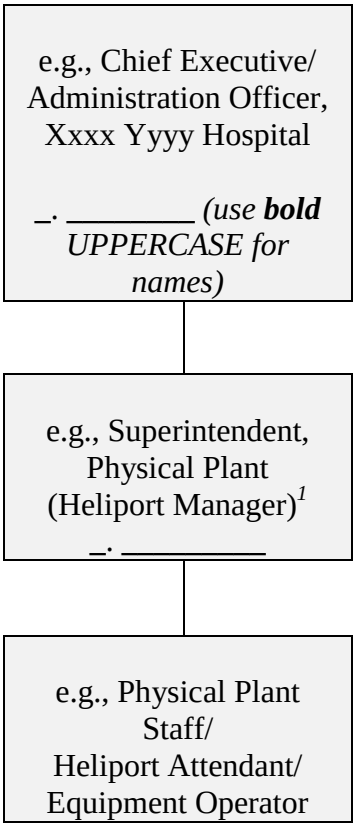
2a) Heliport site plan
A site plan of facilities for the operation of the aerodrome is provided as Figure2.1 include approach departure surfaces

2b) Heliport boundaries
The boundaries for the heliport are shown on Figure 2.2

2c) Heliport location
Map showing heliport in relation to nearest community is shown in Figure 2.3

2d) Particulars of site ownership
This heliport is owned and operated by ……. The Heliport Certificate is held on behalf of the *e.g., Xxxx Yyyy Hospital* by the Heliport Manager *(if title differs, amend accordingly throughout the document)*; and is maintained in the Heliport Manager's office at Heliname Heliport, *or Xxxx Yyyy Hospital, Physical Plant Manager* office.

2e) Organizational Chart



Note:
[1] Where the person holding the position of Heliport Manager has more than one title, both titles must appear on the organization chart, e.g., Manager/Superintendent, Physical Plant, Xxxx Yyyy Hospital (Heliport Manager).

Amend the following as applicable

2f) Duties and Responsibilities

e.g.,

(a) Heliport Manager

The Heliport Manager reports directly to the _____ _____, and is responsible for all aspects of the heliport operation and maintenance; and for the issuing and cancelling of Notice to Airmen (NOTAMs).

The Heliport Manager is also responsible for implementation of and compliance with the ……Heliport's:

- Emergency Response Plan;
- Heliport Safety Plan;
- Manoeuvring Area Access and Control Procedures;
- Apron Management and Safety Plan;
- Disable Aircraft Removal Plan; and
- other environmental, security and safety programs as required.

The heliport manager is also responsible for oversight to ensure compliance with certification regulatory obligations.

(b) ***(Insert other Management/Supervisory Level Position[s] as applicable)***

The _____ _____ _____ is responsible for, e.g., maintaining heliport surfaces, lighting, electrical systems, facilities and mobile equipment, and the issuing of NOTAMs. ***Note:*** *Where there are no staff positions, other than Heliport Manager, involved in operation/maintenance of the heliport, then include the responsibilities in this paragraph (as applicable) into the Heliport Manager description*

2h) HELIPORT OPERATIONAL POLICY

2h1) General Requirements

a. Without charge, at the request of a CAACI Inspector, access to heliport facilities shall be allowed and equipment necessary to conduct an inspection of the airport shall be provided.
b. The heliport shall be inspected by the certificate holder as the circumstances

require for the purpose of ensuring aviation safety:

(i) as soon as practicable after any aviation occurrence;

(ii) during any period of construction or repair of the heliport, or of heliport facilities that are designated in the airport certificate (heliport), and

(iii) at any other time when there are conditions at the heliport that could affect aviation safety.

2.h.2) Hazard Removal on Heliport

Any vehicle or other obstruction located on the surface of the …….. Heliport that is likely to be a hazard to aviation at or near the heliport shall be removed.

2.h.3) COMMITTEES

There are no operationally related committees established, that relate directly to the heliport.

For heliports published in the AIP,

the following obligations must be accepted and defined:

2 h 4 Obligations for published AIS information

a) Subject to paragraph 139.71n, an aerodrome certificate holder shall notify AIS and the Director General Civil Aviation, in writing, at least 60 days before effecting any change to the aerodrome facility or equipment or the level of service at the aerodrome that has been planned in advance and which will affect the accuracy of the information contained in any AIS publication.

b) To ensure that the AIS units obtain information to enable them to provide up to- date pre-flight information and to meet the need for in-flight information,

arrangements shall be made between aeronautical information services and heliport authorities responsible for heliport services to report to the responsible AIS unit, with a minimum of delay:

(1) information on heliport conditions; and

(2) the operational status of associated facilities, services and navigation aids within their area of responsibility; and

(3) any other information considered to be of operational significance.

(c) Before introducing changes to the air navigation system, due account shall be

taken by the services responsible for such changes of the time needed by the AIS for the preparation, production and issue of relevant material for promulgation. To ensure timely provision of the information to the AIS, close co-ordination between those services concerned is therefore required.

(d) Of a particular importance are changes to aeronautical information that affect charts and/or computer based navigation systems which qualify to be notified by the aeronautical information regulation and control (AIRAC) system, as specified in Annex 15, Chapter 6 and Appendix 4. The predetermined, internationally agreed AIRAC effective dates in addition to 14 days postage time shall be observed by the responsible heliport services when submitting the raw information/data to AIS.

(e) The heliport services responsible for the provision of raw aeronautical information/data to the AIS shall do that while taking into account accuracy and integrity requirements for aeronautical data as specified in ICAO Annex
14, Volume II Appendix 1.

Part 3

Particulars of the Heliport

3. Aerodrome Information

3.1 Aerodrome Location Indicator and Name

……..

3.2 Aerodrome Geographical and Administrative Data

1	**ARP coordinates and site at AD**	**X= Y=**
2	**Direction and distance from the city**	
3	**Elevation/Reference temperature**	
4	**Mag Var/Annual change**	
5	**AD administration, address, telephone, fax. Telex, AFS**	
6	**Types of traffic permitted**	**VFR/Day**
7	**Remarks**	**Sample** **Use limited to "Prior Permission Required" see Part 4 section 4.2.6** **Or include the restrictions included in the certificate.**
8	**Significant obstacles in the vicinity**	**Provide coordinates and height**

3.3 Operational Hours

1	**AD Administration**	
2	**Customs and Immigration**	
3	**Health and sanitation**	
4	**AIS Briefing Office (ORIA)**	Hours of operations 1000 – 0500 UTC Phone number (345) 949 4528 / (345) 943 7070
5	**ATS reporting Office (ARO)**	**5:00am – 9:00 pm**
6	**Met Briefing Office (ORIA)**	**7:00am – 9:00 pm**
7	**ATS (ORIA)**	**5:00am – 9:00 pm**
8	**Fueling**	
9	**Handling**	
10	**Security**	
11	**Remarks**	
12	**AD Reference Code**	**Class ?, FATO Diameter X**

3.4 Handling Services and Facilities

3.5 Nearest Passenger Facilities

1	Hotels	
2	Restaurants	
3	Transportation	
4	Medical facilities	

5	Bank and post office	
6	Tourist Office	
7	Remarks	

3.6 Rescue and Fire Fighting Services

1	AD category for fire fighting	**H category determined by the following OTAR requirements**
2	Rescue equipment	
3	Remarks	

Chose the level of Rescue and Fire Fighting from the guidance information provided below and summarize in a clear simple statement.

Guidance reference for defining firefighting level of service:
ICAO recommends in Annex 14 Vol 2 para 6.1.1 "The level of protection to be provided for rescue and fire fighting should be based on the over-all length of the longest helicopter normally using the heliport and in accordance with the heliport fire fighting category determined from Annex 14 Vol II Table 6- 11, except at an unattended heliport with a low movement rate."

Annex 14 Vol II Table 6- 1. Heliport fire fighting category

Category	Helicopter over-all length (see note a.)
HI	up to but not including 15 **m**
H3	from **24 m** up to but not including 35 **m**

Note a. length includes the distance of the tail boom and rotor. For performance requirements for each Catgory, see section 4.4 of this HOM.

The required RFF Category for _____Heliport is _____(H-1, H-2 or H-3) and the following level of performance is provided:

(Reference table 6-2 and 6-3 from ICAO Annex 14 Vol 2 for recommended requirements.)

Category	Foam meeting performance level B		Complementary agents				
	Water (L)	Discharge rate foam solution (L/min)	Dry chemical powders (kg)	or	Halons (kg)	or	CO_2 (kg)
(1)	(2)	(3)	(4)		(5)		(6)
H1	500	250	23		23		45
H2	1 000	500	45		45		90
H3	1 600	800	90		90		180

Consideration for surface heliports RFF planning should include:

(a) above ground flammable liquid storage tanks, compressed gas storage tanks, and liquefied gas storage tanks to be located at least 15 m from the edge of the FATO;

(b) the heliport shall have at least one access point that provides rapid access to fire-fighting personnel;

(c) the heliport shall be pitched or sloped so that drainage flows away from access points and passenger holding areas; and

(d) no smoking signs shall be erected at access and egress points of the heliport.

At a surface-level heliport,
the operational objective of the rescue and firefighting service
should be to achieve response times not exceeding two minutes
in optimum conditions of visibility and surface conditions.

Consideration for elevated heliports RFF planning should include:

At an elevated heliport, the rescue and fire j5ghting service should be immediately
available on or in the vicinity of the heliport while helicopter movements are taking place.

Recommended requirements in respect of fire protection for a rooftop heliport, are the following:

(a) main structural support beams that could be exposed to a fuel spill shall have a fire-resistance rating of not less than 2 hours;

(b) the TLOF shall be pitched to provide drainage that flows away from passenger holding areas, access points, stairways, elevator shafts, ramps, hatches, and other openings not designed to collect drainage;

(c) the TLOF surface shall be constructed of non-combustible, non-porous materials;

(d) at least two means of egress from the TLOF shall be provided;

(e) the helicopter rooftop landing pad shall have at least two access points that provide rapid access to fire-fighting personnel;

(f) where buildings are provided with a fire alarm system, a manual pull station shall be provided near each designated means of egress from the roof;

(g) no smoking signs shall be erected at access and egress points of the heliport; and

(h) flammable liquids, compressed gas, and liquefied gas shall not be permitted within the approach/departure path.

3.7 Heliport Dimensions and related information

A. PHYSICAL CHARACTERISTICS		**REMARKS**
Heliport Type, e.g., Surface level; or elevated, or roof top	_____ _____	Nil *(Amend as applicable)*
Critical helicopter		
- Model		
- Overall length (D)		
Touchdown and Lift-off (TLOF)		
- TLOF Pad Diameter (.83 D=)	------	Nil
- TLOF area surface		
- TLOF surface slope less than 2%		
Final Approach and Take-Off Area (FATO)		
-FATO diameter (min =D)	----------	Nil
-FATO surface		
SAFETY AREA		
-SAFETY AREA (Diameter) (min = 2D)	----------	Nil
-SAFETY AREA SURFACE		Stability to prevent blowing debris?
- 45 degree protected side slope for distance of 10 m from edge of safety area Ref 139.I.27 Safety areas (d)		penetration permitted on one side provided there are no obstacles on the other side

Access security		
139.H.11 Security fencing and barriers		
Approach/Departure centerline alignment		
- minimum separation of 150 degrees		
Approach/Departure area Primary		
-Magnetic bearing of App/Dep path	___° Mag	Nil
-App/Dep slope of 8% (1:12.5)		Nil
- available forced landing areas underlying the App/Dep area		
Approach/Departure area secondary		
-BEARING OF TAKE-OFF AND APPROACH PATH(S)	___° Mag	Nil
-App/Dep slope of 8% (1:12.5)		Nil
- available forced landing areas underlying the App/Dep area		
-TRANSITIONAL SURFACE SLOPE		Not required for non instrument FATO
-ARRIVAL/DEPARTURE HOVER AREA (LOCATION)	N/A	Nil
-ARRIVAL/DEPARTURE HOVER AREA (DIMENSIONS)	N/A	Nil
Transitional Surface Slope		No requirement for non-instrument FATO
Arrival/departure hover area (Location)		
Arrival/departure hover area (Dimensions)		

B. MARKINGS AND MARKERS	**YES**	**NO**	*REMARKS*
-HELIPORT IDENTIFICATION [H]			
TAKE-OFF/LANDING AREA MARKING TLOF *139.I.165 Touchdown/Positioning marking* *(a) A touchdown/positioning marking shall be provided where it is necessary for a helicopter to touch down or be accurately placed in a*			

specific position. *(b) A touchdown/positioning marking shall be located so that when the pilot's seat is over the marking, the main undercarriage will be inside the load bearing area and all parts of the helicopter will be clear of any obstacle by a safe margin.* *(d) A touchdown/positioning marking shall be a yellow circle and have a line width of at least 0.5 m. For a helideck, the line width shall be at least 1 m.* *(e) The inner diameter of the circle shall be 0.5D of the largest helicopter the TLOF is intended to serve.*			
FATO marking ***139.I.157*** *(a) FATO area marking or markers shall be provided at a surface level heliport on ground where the extent of the final approach and take-off area is not self-evident.* *(b) FATO area marking or markers shall be located on the boundary of the final approach and take-off area.* *(c) FATO area marking or markers shall be spaced:* *(1) for a square or rectangular area at equal intervals of not more than 50 m with at least three markings or markers on each side including a marking or marker at each corner; and* *(2) for any other shaped area, including a circular area, at equal intervals of not more than 10m with a minimum number of five markings or markers.* *(d) A FATO area marking shall be a rectangular stripe with a length of 9 m or one-fifth of the side of the final approach and take-off area which it defines and a width of 1m. Where a marker is used its characteristics shall conform to those specified in OTAR Part 139G.95(c), except that the height of the marker shall not exceed 25cm above ground or snow level.* *(e) A FATO area marking shall be white.*			
-SAFETY AREA BOUNDARY MARKING			SPECIFY: (FENCE/ PAINT etc.)
-ARRIVAL/DEPARTURE HOVER AREA MARKING			
-APPROACH/DEPARTURE DIRECTION INDICATOR			(PATIO STONES/PAINT etc.)
-SIGNAGE			SPECIFY: (e.g., No Parking , No Smoking, No Access, etc.)
C. LIGHTING			**REMARKS**
-HELIPORT BEACON			Nil *(Amend as applicable)*
-RADIO CONTROL			Nil
-LOW INTENSITY APPROACH LIGHTS			Nil
-TAKE-OFF/LANDING AREA PERIMETER LIGHTING			NO. OF LIGHTS (5 or 8)
-ARRIVAL/DEPARTURE HOVER AREA LIGHTING			Nil
-TAKE-OFF/LANDING AREA			SPECIFY: (4)

FLOODLIGHTING			HI/LO	
-APPROACH SLOPE INDICATOR			Nil *(Amend as applicable)*	
-APPROACH/DEPARTURE DIRECTION INDICATOR			NO. OF LIGHTS	(5)
D. WIND DIRECTION INDICATORS			**REMARKS**	
- LOCATION				
- Maximum speed design indication				
-LIGHTED			(Intern/external/flood lit)	

3.8 HELIPORT ENVIRONMENT

OBSTRUCTIONS		**REMARKS**
-OFF HELIPORT	_____*Lat and Log plus elevation asl*_____	*i.e. Painted and lighted?*
-ON HELIPORT	_____	

3.9 ATS Airspace

1	Designated and lateral limits	Lies within ORIA CTR A circle, radius 10nm centered at 191732.77N 812133.08W
2	Vertical limits	SFC to 1500 MSL
3	Airspace Classification	D
4	ATS unit call sign Language (s)	Owen Roberts Tower English
5	Transitional altitude	17000Ft MSL
6	Remarks	See Attachment B for Airspace procedures

3.10 ATS Communications Facilities

Service Designation	*Call sign*	*Frequency*	*Hours of operation*	*Remarks*
1	2	3	4	5
APP	Cayman Approach	120.200 MHz	1200 – 0200 UTC	Primary frequency Emergency frequency
TWR	Owen Roberts	121.500 MHz		Primary frequency

ATIS	Tower	118.000 MHz 121.900 MHz 132.350 MHz	1200 – 1900 UTC 1200 – 0200 UTC	Secondary frequency

3.11 Radio Navigation Aids

Type of aid	*ID*	*Frequency*	*Hours of operation*	*Site of Transmitting Antenna Coordinates*	*Elevation of DME transmitting Antenna*	*Remarks*
1	2	3	4	5	6	7
VOR/DME (4^0 W)	GCM	115.600 MHz	H24	191721.78N 812219.36 W	2.4 M/8 FT	Nil
NDB	ZIY	344	H24	191708.88N 812309.92 W	2 M/7 FT	Nil

Part 4

Particulars of the Aerodrome Operating Procedures and Safety Measures

4.1 Aerodrome Reporting

Urgent requests for distribution of operational information will be:

- requested through the Owen Roberts International Airport control tower: Tel: 943-7070; and
- Notification given to the Director of Air Navigation Services, Civil Aviation Authority Cayman Islands; Tel 345-949-7811

Planned requirements for changes in the Heliport Operations Manual will be coordinated with:

- the Director of Air Navigation Services, Civil Aviation Authority Cayman Islands, Unit 2 Cayman Grand Harbor, P.O. Box 10277 Grand Harbor KY1-1003 Cayman Islands for insertion in the HOM

Accidents and incidents occurring on the heliport sites are also to be reported to the Director of Air Navigation Services, Civil Aviation Authority Cayman Islands, Unit 2 Cayman Grand Harbor, P.O. Box 10277 Grand Harbor KY1-1003 Cayman Islands. Information is to be provided in accordance with OTAR 13 using the web form

Reference Mandatory Reporting program AN OTO 139.3 and CAACI web link:
http://www.caacayman.com/pls/portal/docs/PAGE/CAAHOME/ABOUTUS/POLICY/REPORTING/MANDATORY%20OCCURRENCE%20REPORTING%20MANUAL.PDF

Contact information for the position and persons responsible for making the above notifications is as follows:

Position: …….
Name: ……
Contact numbers:
Business …….
Cell ……..……
Home ……..……

4.2a Ground Access to aerodrome movement area

…… is the person responsible for authorizing permission to land or depart the site and is to notify their onsite security at least 60 minutes in advance of when the heliport is to be used. On site security are then to ensure there are no vehicles or personnel inside the heliport safety area or the area marked as the approach/departure restricted area.

When a helicopter is conducting an approach or running on the ground, the site must be free of all personnel. The pilot must give permission before only trained ground crew are allowed to approach the helicopter.
Ground crew training must have included:

- obstacle assessments
- helicopter normal operating procedures
- FOD risks

- helicopter high risk areas
- safe approach areas

- Location and use of fire extinguisher

4.2.b Flight access to and from the aerodrome

This section Authorization to land or take off at the ……. heliport must be obtained by calling ……at …….... This request must be made at least 1 hour in advance of the planned operation listing:

- the name of the company making the request
- the type and registration of the helicopter
- the rational for making the request
- the length of time the helipad will be occupied
- confirmation that the pilot has received the necessary operational information from the ……...

The (person giving the authority to use the site) …… will then advise:

- site security ……
- (Name of other required personnel) ……..

Note: Permission to use the helipad does not supersede the requirement for permission to use the airspace above the site. This requires authorization from ORIA control tower.

4.3 Heliport Emergency Response Plan

The Emergency Response Plan is to outline the responsibilities and functions of the various departments and external agencies in the event of an emergency at the …… Heliport. The plan will be tested on at least a yearly basis.

(State who will monitor and/or will be in attendance at all landings)
Example:

All takeoffs and landings will be monitored by …….. In addition a …….. security officer (or a plant operations, operating engineer) will be on hand at all planned landings and takeoffs.

The Plan is to describe:

Communications plan

- Who will be responsible for initiating the ***Heliport*** Emergency Response Plan - - Who they will contact
- Means of making contact (equipment)

Response

- What role will the "on site" personnel play in responding to an accident or incident
- What training will personnel be given
- What role will the Town Fire Department play and how long will it be for that response

- Who will be responsible for site security until the scene is released by the CAA

Resources

- The medical supplies and equipment are available on site
- The schedule to be followed for inspection of emergency equipment

The plan is to list the tasks to be followed in the event of an emergency: i.e. "The following actions, which form part of the Shortname Emergency Response Plan, will be initiated:

a)……will call 911.

b)…… will notify all appropriate personnel as per their Critical Incident Response Plan (i.e.,):

(i) Xxxx Yyyy Hospital at ___-___-____,
(ii) Town Police at ___-___-____.
(iii) Town Fire Department at ___-___-____,
(iv) Town Ambulance Services at **911** *(or insert specific individual telephone numbers where 911 service is not available)*, and ATS at ___-____-____

c)……..will provide initial fire suppression is possible

d) ……will assist passengers with their evacuation

Site: …….. Heliport

full address

_____

Acknowledgement

I am an authorized representative of the agency listed below, which holds a copy of the ***Heliport*** Heliport Emergency Response Plan. I have reviewed and understand the contents and procedures of the plan.

This agency will undertake to advise the Heliport Operator and/or the other listed agencies, as appropriate, of any changes to our operational plans and procedures which would effect our ability to fulfil our role within the Helname Heliport Emergency Response Plan.

AGENCIES:

Community Fire Department	_____ Ambulance Service
Signed: _____	Signed: _____
Date: _____	Date: _____
Position: _____	Position: _____

Community Police

Signed: _____

Date: _____

Position: _____

Heliport Manager

Signed: _____

Date: _____

4.4 Rescue and Fire fighting

The required RFF Category for _____Heliport is _____(H-1, H-2 or H-3) and the following level of performance is provided:

(Reference table 6-2 and 6-3 from ICAO Annex 14 Vol 2 for recommended requirements.)

Table 6-2 for surface level heliports

	Foam meeting performance level B		Complementary agents				
Category	Water (L)	Discharge rate foam solution (L/min)	Dry chemical powders (kg)	or	Halons (kg)	or	CO_2 (kg)
(1)	(2)	(3)	(4)		(5)		(6)
H1	500	250	23		23		45
H2	1 000	500	45		45		90
H3	1 600	800	90		90		180

4.5 Inspection and maintenance of the aerodrome movement area and obstacle limitation surface by the aerodrome operator

Suggested text

> The heliport area will be inspected before the site is opened for operation, during morning rounds by the ***Heliport*** ……. Staff using the checklist attached as Appendix 4-A. This checklist is to be signed by the (*inspector*) and kept …….. on record for two years.

As necessary, this inspection will result in helipad sweeping and removal of any Foreign Object Debris.

Any out of standard items will be immediately reported to …….. at extension (____) for repair. Any unsafe conditions that can not be immediately corrected will be reported to the ……. and an appropriate NOTAM issued. Upon correction, the …… will notify the above contacts of the new status and cancel the NOTAM.

.

4.6 Apron Safety Management

The primary intent of the ***Heliport*** Heliport is to provide a safe landing zone for …….. It will not normally be used for ……..

…… is the designated Heliport Manager. This is the primary contact person for all physical aspects of the heliport including maintenance and repairs and maintenance of the various Regulatory requirements. …… can be reached at (___-___-____), after hours call (___-___-____) and ask for ( ).

Safety Training

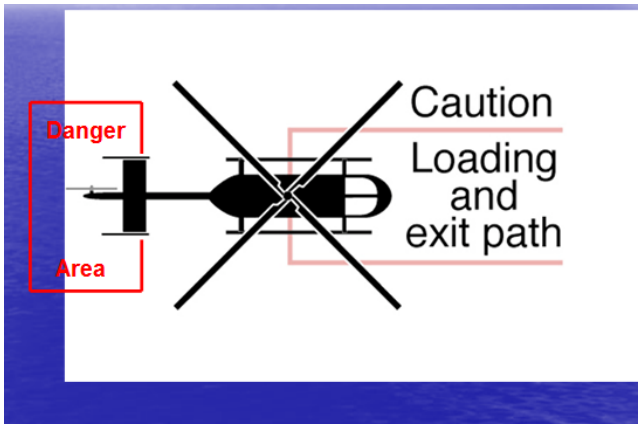
All personnel responding to the helipad should have initial helipad orientation training and participate in annual helipad safety training.

Basics of helipad safety.

General:

- remain alert at all time;
- the helipad is inspected before operations begin for the day but all ground personnel are to be alert for any changes in status during the day and report such observations to the Gate Security officer;
- only trained personnel and persons under their escort are to have access to the helipad;
- Appropriate hearing and eye protection must be worn by ground personnel in proximity to the helipad when the helicopter is landing or taking off. Caution for rotor down wash. Whenever possible, stay within a vehicle with windows closed when a helicopter is approaching of departing;
- In the event of compromised vision due to foreign body (ies) in the eyes, that person should kneel on the ground in a stationary position until assisted away from the aircraft by a member of the flight or ground crew; and
- vehicles are not to be parked on the heliport at any time.

Approaching the Helicopter



When approaching the aircraft after it has landed, the following guidelines must be followed:

- Never approach the aircraft when its rotor blades are turning;
- No one is to approach the helicopter unless signaled to do so by the pilot;
- Entrance onto the helipad is to be only by the designated walkway only after blades and tail rotor have stopped completely;
- Always approach the aircraft from the front;
- At no time is anyone permitted near the tail of the aircraft;
- Smoking is prohibited to all personnel on the helipad;
- No running is permitted on the helipad;
- Use caution when surface is slippery; and
- Keep the heliport clean. Lose debris on the TLOF is to be swept clear and waste is not to be thrown on the ground.

Loading and Unloading

The flight crew is responsible for loading and unloading patients and equipment. Do not assist the flight crew in this responsibility unless specifically asked to do so.

- Allow flight crew to open and close doors;
- Follow flight crew's instructions during off-loading;
- Secure any lose articles of clothing prior to approaching or departing the helicopter;
- Keep head low when walking under rotor blades, especially when windy;
- Keep hands at shoulder level; and
- Equipment must be carried no higher than shoulder height to avoid contact with the rotor blades.

Departure

- When the helicopter is loaded and ready for lift-off, keep the departure path free of vehicles and spectators;
- Notify your dispatch that the helicopter has lifted off and if possible their destination; and
- If at all possible, try to maintain a secure landing zone with all personnel and emergency equipment for 5 minutes after the helicopter departs. If an in-flight emergency develops, this will allow the pilot to return safely to a secure landing zone.

FOD Control
This section should detail how the heliport operator will deal with FOD control under the following suggested topics:

1. education and awareness measures for presence of FOD
2. availability of disposal sites and bins
3. airside cleanliness practices

4.7 Wildlife Hazard Management
This section should contain a description of how the heliport deals with the presence of wild life and particularly birds, to ensure the safety of operations. The following elements should be addressed:

1. how wildlife will be monitored
2. at what level will control measures be instituted
3. what wildlife measures will be employed and by whom
4. who will be involved and the coordination measures necessary

4.8 Obstacle Control
The section should describe procedures for who and how the obstacle limitation surfaces will be monitored and the commitment to notify the CAACI of violations that will affect airport certification.

4:9 Disabled Aircraft removal

It is recognized that most heliports are intended for one aircraft and where that aircraft is unable to depart the facility for any reason, it would not be inconveniencing other operators. In such cases, removal of the helicopter can be at the discretion and judgment of the operator. This section can then be limited to just the acknowledgement of a requirement to provide security to the site until the CAA investigators give any required permissions.

It may also be advantageous to consider the checklist provided in Attachment 4-2 and to inventory available resources for recovery and removal:
Recovery/Removal Equipment Available Locally:

(i) Crash Equipment:

e.g.,
None available locally

(ii) Heavy Mobile Support Equipment:

e.g.,
Skyservices Ltd. (Telephone: ___-____)
- tow bars, dollies, wheels, tractor, jacks

Smith Crane Rental Ltd. (Telephone: ___-____)
- mobile crane, truck mounted hoist, equipment floats

Attachment 4-A

Checklist for daily inspection

1	Security for site is in working order. In particular access control, vehicle operation and staff understanding of responsibilities.		
2	Suitability of communications required to support emergency plan		
3	Condition of wind indicator		
4	Correct charge on fire extinguisher		
5	Condition of helipad including: - absence of debris in FATO area and safety area; - condition of Supa-Tacpad, - clarity of markings - absence of erosion between TLOF and FATO; - Absence of pooled water; - Wildlife activity - Condition of signs for "No Smoking" and "No Parking"		
6	Approach/Departure: - presence of new significant obstacles		
7	Currency of web page information and AOM on a weekly basis		
8	Monthly inspection of fire extinguisher		

Attachment 4-B

Disabled Aircraft Recovery and/or Removal Check List

(Amend the check list and/or re-order the "Actions" as applicable to specific site, e.g.,)

ITEM	(✓) or N/A	ACTION	COMMENTS
1		**Helicopter owner** and/or **air operator** notified of incident and/or of impending disabled aircraft recovery/removal	
2		Authorization and release of aircraft by **the CAA**	
3		Release waiver from **aircraft owner** or **insurance company**	
4		**Xxxx Fire Department** (and **Police** [as applicable]) contacted	
5		Fire fighting vehicle(s) on site during the recovery/removal process	
6		No smoking at scene of the incident	
7		Check for hazardous materials	
8		Helicopter batteries disconnected and removed	
9		Oxygen bottles turned off	
10		Fuel tanks drained	
11		Photographs, diagrams and/or maps of the site prior to, and during aircraft removal, including general views, separated parts, damaged area(s), etc.	
12		Reduce mass of the aircraft to the minimum	
13		Runway and/or taxiway ground surface flushed for flammable liquids	
14		Contact **Air Traffic Services** (ATC or FIC) to amend or cancel existing NOTAM(s)	

15		Inspection of final approach and take-off (FATO) areas prior to reopening operational areas	
16		Provide information update to, and/or close off the initial aerodrome incident report with the DGCA of the CAACI	
17		Critique removal operation (with helicopter owner and/or operator and others)	

4.10 Air Traffic Services

This section is to detail the ATC procedures that are identified through coordination with Air Traffic services.

4.11 NOTAM Requirements (*For sites published in the AIP*)

If a disabled aircraft (rotary wing), salvage equipment or vehicles are to occupy a heliport and/or safety area for an extended period of time, a NOTAM will be issued through the **CIAA personnel** assigned and/or CIAA **Air Traffic Services Unit**. Other appropriate NOTAMs will be issued and up-dated by the Airport Manager or designate.

Provide contact information: ----------

4.13 Handling of Hazardous materials

Site operator is to provide particulars for the safe handling, storage and clean-up of hazardous materials.

4.14 Low visibility operations

Not applicable for VFR helicopter operations.

Part 5 Safety Management Program

(This example was developed for a new heliport site where data would not be available to define performance expectation/goals. As history for the airport grows and with it, the associated data on incidents and accidents, a more refined SMS must also grow with it.)

Sample content:

In addition to the day-to-day operation and maintenance for the heliport, the ---------- manager is also responsible for the Safety Management Program. The Safety Management section is to describe how compliance with the following is achieved:

Establishing and ongoing refinement of safety targets.

In the first year of certification, there is no data on which to identify issues for proactive initiative so the initial safety objective is to adopt and apply the principles of safety management while complying with regulatory requirements to achieve the highest level of safety possible. As understanding of the obligation by all employees towards safety grows, communication on safety concerns and site data growth will lead to refinement in goals and opportunities for identification of proactive hazard mitigation initiatives.

Documentation, training and communicating

The basis of the Safety program is documentation, training, communicating and self-assessment.

Documentation

Job descriptions are to be reviewed to ensure they clearly state that each employee has an obligation towards safety and where necessary amended accordingly.

Procedures are to be clearly defined and easily accessible for employee reference.

Data bases will be developed and maintained to support oversight assessment and target refinement.

Training

The obligation is also accepted to ensure each employee has the proper technical training for their own duties around the heliport and the interrelationship with fellow employees. New employees will receive initial training and experienced employees will receive annual recurrent training with encouragement to provide suggestions for improvement. Two specific areas include the Emergency Response Plan and Access and Control Procedures.

Communication

Staff meetings and training foster the free flow of two way communication regarding safety concerns. These sessions are to be held throughout the year to provide an opportunity to educate staff on policy objectives and operational changes.

Self Assessment

The heliport is to have a person identified as responsible for Safety Management who will arrange for an annual safety assessment based on available data and comments, to determine compliance with existing requirements and potential opportunities for ongoing refinement. This report is to be submitted to the CAA within one month of the certification anniversary.