GOVERNMENT NOTICE No. 2 published on 5/1/2024

THE CIVIL AVIATION ACT,
(CAP. 80)

———

REGULATIONS

———

(Made under section 4)

THE CIVIL AVIATION (HELIPORTS) REGULATIONS, 2024

ARRANGEMENT OF REGULATIONS

PART I
PRELIMINARY PROVISIONS

PART II
TYPES, DESIGN AND CONSTRUCTION OF HELIPORTS

PART III
HELIPORTS DATA

PART IV
INFORMATION TO BE REPORTED TO AERONAUTICAL INFORMATION SERVICES

PART V
HELIPORTS PHYSICAL CHARACTERISTICS

(a) Onshore Heliports

(b) Helidecks

(c) Shipboard Heliports

(c) Lights

PART VIII
HELIPORT EMERGENCY RESPONSE

(a) Rescue and Fire fighting

THE CIVIL AVIATION ACT,
(CAP. 80)

REGULATIONS

(Made under section 4)

THE CIVIL AVIATION (HELIPORTS) REGULATIONS, 2024

PART I
PRELIMINARY PROVISIONS

Citation

1. These Regulations may be cited as the Civil Aviation (Heliports) Regulations, 2024.

Application

2.-(1) These Regulations shall apply to civil heliports in the United Republic except where otherwise specified.

(2) The provisions of the regulations relating to aerodromes design and operations shall apply to the helicopter operations being conducted at aerodromes primarily meant for use of aeroplane where relevant.

(3) The specification for a colour referred to in these Regulations shall be that contained in the regulations relating to aerodromes design and operations unless otherwise specified.

Interpretation

3. In these Regulations, unless the context otherwise requires-

"accident" has the meaning ascribed to it under the Act;

"accuracy" means a degree of conformance between the estimated or measured value and the true value;

Cap. 80 "Act" means the Tanzania Civil Aviation Act;

"aeronautical ground light" means any light provided as an aid to air navigation, other than a light displayed on an aircraft;

"Aeronautical Information Circula-AIC)" means a notice

containing information that does not qualify for the origination of a NOTAM or for inclusion in the Aeronautical Information Publication, but which relates to flight safety, air navigation, technical, administrative or legislative matters;

"Aeronautical Information Publication-(AIP)" means an aeronautical information publication of a lasting character essential to air navigation, issued by the Authority;

"air traffic service-(ATS)" means a flight information service, alerting service, air traffic advisory service, or air traffic control service;

"air taxi-route" means a marked taxi-route intended for air taxiing;

"apron" means a helicopter stand on an elevated heliport;

"Authority" means the Tanzania Civil Aviation Authority established under the Act;

"authorised person" means any person authorised by the Authority either generally or in relation to a particular case or class of cases and reference to an authorised person includes references to the holder for the time being of an office designated by the Authority;

"calendar" means discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day;

"critical data" means there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

Cap. 80

"D" means the largest overall dimension of the helicopter when rotor or rotors are turning measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor tip path plane or helicopter structure;

"datum" means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities;

"declared distances-heliports" means-

(a) take-off distance available (TODAH) where the

length of the FATO plus the length of helicopter clearway (if provided) declared available and suitable for helicopters to complete the take-off;

(b) rejected take-off distance available (RTODAH) where length of the FATO declared available and suitable for helicopters operated in performance Class 1 to complete a rejected take-off; and

(c) landing distance available (LDAH) where the length of the FATO plus any additional area declared available and suitable for helicopters to complete the landing maneuvers from a defined height;

"design D" means the D of the design helicopter;

"D-value" means a limiting dimension, in terms of "D", for a heliport, helideck or shipboard heliport, or for a defined area within;

"dynamic load-bearing surface" means surface capable of supporting the loads generated by a helicopter in motion;

"elevated heliport "means a heliport located on a raised structure on land;

"elongated" when used with TLOF or FATO, elongated means an area which has a length more than twice its width;

"en-route obstacle" means any building, structure or erection, which is one hundred metres or more, above ground level, except a building, structure or erection, which is in the vicinity of a heliport;

"essential data" means there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

"final approach and take-off area (FATO)" means a defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced. Where the FATO is to be used by helicopters operated in performance Class 1, the defined area includes the rejected take-off area available;

"ground taxi-route" means a taxi-route centred on a taxiway;

"helicopter clearway" means a defined area on the ground or water, selected or prepared as a suitable area over which a helicopter operated in performance Class 1 may accelerate and achieve a specific height;

"helicopter stand" means a defined area intended to accommodate a helicopter for purposes of: loading or unloading passengers, mail or cargo; fuelling, parking or maintenance; and, where air taxiing operations are contemplated, the TLOF;

"helicopter taxiway" means a defined path on a heliport intended for the ground movement of helicopters and that may be combined with an air taxi-route to permit both ground and air taxiing;

"helicopter taxi-route" means a defined path established for the movement of helicopters from one part of a heliport to another, including-

(a) air taxi-route-, a marked taxi-route intended for air taxing; and

(b) ground taxi-route, a taxi-route centred on a taxiway;

"helideck" means a heliport located on a fixed or floating offshore facility such as an exploration or production unit used for the exploitation of oil or gas;

"heliport" means a heliport or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters;

"heliport elevation" means the elevation of the highest point of the FATO;

"heliport operator" in relation to a certified or licenced heliport, means the holder of a heliport certificate or licence;

"heliport reference point (HRP)" means the designated location for a heliport;

"incident" means an occurrence other than an accident associated with the operation of an aircraft, which affect or may affect the safety of operation of aircraft;

"medium intensity steady light" means a light, which complies with the characteristics described for a medium intensity Type C light;

"Minister" means the Minister responsible for civil aviation;

"obstacle" means all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

(a) are located on an area intended for the surface movement of aircraft;

(b) extend above a defined surface intended to protect aircraft in flight; or

(c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation;

"point-in-space approach (PinS)" means the Point-in-space approach is based on Global navigation satellite system (GNSS) and is an approach procedure designed for helicopters only. It is aligned with a reference point located to permit subsequent flight manoeuvring or approach and landing using visual manoeuvring in adequate visual conditions to see and avoid obstacles;

"point-in-space (PinS) visual segment" means the segment of a helicopter PinS approach procedure from the Missed approach point (MAPt) to the landing location for a PinS "proceed visually" procedure. This visual segment connects the Point-in-space (PinS) to the landing location;

"protection area" means a defined area surrounding a stand intended to reduce the risk of damage from helicopters accidentally diverging from the stand;

"rejected take-off area" means a defined area on a heliport suitable for helicopters operating in performance Class 1 to complete a rejected take-off;

"relevant authority" means any authority other than the Authority whose action may be necessary or complimentary for the implementation of these Regulations;

"routine data" means there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

"runway-type FATO" means a FATO having characteristics similar in shape to a runway;

"safety" means a state in which the risk of harm to persons or of property damage is reduced to, and maintained at or below unacceptable level through a continuing process or hazard identification and risk management;

"safety area" means a defined area on a heliport surrounding the FATO which is free of obstacles, other than those required for air navigation purposes and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO;

"shipboard heliport" means a heliport located on a ship which may be purpose built shipboard heliport designed specifically for helicopter operations or non-purpose built shipboard heliport which utilises an area of the ship that is capable of supporting a helicopter but is not designed specifically for it;

"static load-bearing surface" means a surface capable of supporting the mass of a helicopter situated upon it;

"surface-level heliport" means a heliport located on the ground or on a structure on the surface of the water;

"touchdown and lift-off area (TLOF)" means an area on which a helicopter may touch down or lift off;

"touchdown positioning circle (TDPC)" means a touchdown positioning marking (TDPM) in the form of a circle used for omnidirectional positioning in a TLOF;

"touchdown positioning marking (TDPM)" means a marking or set of markings providing visual cues for the positioning of helicopters; and

"winching area" means an area provided for the transfer by helicopter of personnel or stores to or from a ship.

Certification and licensing of heliports

4. A person shall not operate a heliport in the United Republic unless he is certified or licensed under the regulations relating to certification, licensing and registration of aerodromes.

Common reference systems

5.-(1) Horizontal reference system - the World Geodetic System–1984 (WGS-84) shall be used as the horizontal (geodetic) reference system. Reported aeronautical geographical coordinates indicating latitude

and longitude shall be expressed in terms of the WGS-84 geodetic reference datum.

(2) Vertical reference system - the Mean Sea Level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system.

(3) Temporal reference system – the Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system unless where notified in the AIP or the AIC.

(4) Unless otherwise prescribed by the Authority, the International System of Units developed and maintained by the General Conference of Weights and Measures (CGPM) shall be used as the standard system of units of measurement.

PART II
TYPES, DESIGN AND CONSTRUCTION OF HELIPORTS

Types of heliports

6. These Regulations shall consider the following types of heliports:

(a) surface-level heliport: a heliport located on the ground or on a structure on the surface of the water;

(b) elevated heliport: a heliport located on a raised structure on land;

(c) helideck: a heliport located on a fixed or floating offshore facility such as an exploration or production unit used for the exploitation of oil or gas; and

(d) shipboard heliport: a heliport located in the bow or stern of a ship or is purpose-built above the ship's structure.

Requirements for application for heliport construction permit

7.-(1) A person shall not construct a heliport unless that person has a valid heliport construction permit issued under these Regulations.

(2) An application for a heliport construction permit shall be considered for approval, where-

(a) the applicant holds a valid authorisation from a

relevant authority for use of the place as a heliport;

(b) the application is approved by the authority responsible for national environment management; and

(c) have paid regulatory fee as applicable.

(3) The Authority shall, prior to issuance of a construction permit, assess the suitability of the place proposed for construction taking into consideration-

(a) the proximity of the place to other aerodromes and landing areas including military aerodromes or heliports;

(b) obstacles, terrain and existing airspace restrictions; and

(c) that it is not against public interest that the place where the aerodrome is to be constructed shall be used as such.

(4) An applicant for a heliport construction permit shall submit to the Authority an Application Form set out in the First Schedule for the approval.

Issuance of heliport construction permit.

8. The Authority shall issue a heliport construction permit to an applicant where the application meets the requirements in these Regulations and any other requirements as may be specified by any relevant authority.

Design and construction of heliports

9.-(1) An applicant for a construction permit shall ensure that the design and construction of the heliport is undertaken by a person registered by the relevant professional body and shall take into account land use and environmental control measures.

(2) The Authority shall inspect the site of a heliport during construction to ascertain compliance with the standards prescribed and the terms of the heliport construction permit.

Requirements for a heliport design

10. A heliport design shall indicate-

(a) the types of heliports including onshore, helidecks or shipboard as applicable;

(b) the physical characteristics in accordance with

these Regulation;

(c) the obstacle limitation surface;

GN. No. 756 of 2018

(d) visual aids for air navigation; and

(e) the appropriate equipment and installations; and integrate security measures in accordance with the Civil Aviation (Security) Regulations.

PART III
HELIPORT DATA

Aeronautical data

GN. No. 66 of 2017

11.-(1) A heliport operator or owner shall determine and report heliport-related aeronautical data with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data as specified in the Civil Aviation (Aeronautical Information Services) Regulations.

(2) Digital data error detection techniques shall be used during the transmission or storage of aeronautical data and digital data sets.

(3) The digital error detection techniques shall be in accordance with the specifications contained in the Civil Aviation (Aeronautical Information Service) Regulation.

Heliport reference point

12.-(1) A heliport reference point shall be established for a heliport not collocated with an aerodrome.

(2) Where the heliport is collocated with an aerodrome, the established heliport reference point shall serve both aerodrome and heliport.

(3) The heliport reference point shall be located near the initial or planned geometric centre of the heliport and shall normally remain where first established.

(4) The position of the heliport reference point shall be measured and reported to the aeronautical information services department in degrees, minutes and seconds.

Heliport elevation

13.-(1) The heliport elevation and geoid undulation at the heliport elevation position shall be measured and reported to the aeronautical information services to the accuracy of one-half metre or foot.

(2) Subject to subregulation (1), the elevation of the

TLOF and the elevation and geoid undulation of each threshold of the FATO where appropriate shall be measured and reported to the aeronautical information services department to the accuracy of one-half metre or foot.

Heliport dimensions and related information

14.-(1) A heliport operator shall measure or describe the following data as appropriate, for each facility provided on a heliport:

(a) heliport type: surface-level, elevated, shipboard or helideck;
(b) TLOF: dimensions to the nearest metre or foot, slope, surface type, bearing strength in tonnes (1,000 kg);
(c) FATO: type of FATO, true bearing to one-hundredth of a degree, designation number where appropriate, length and width to the nearest metre or foot, slope, surface type;
(d) safety area: length, width and surface type;
(e) helicopter taxiway and helicopter taxi route: designation, width, surface type;
(f) apron: surface type, helicopter stands;
(g) clearway: length, ground profile; and
(h) visual aids for approach procedures, marking and lighting of FATO, TLOF, helicopter ground taxiways, helicopter air taxiways and helicopter stands.

(2) The geographical coordinates of the geometric centre of the TLOF or of each threshold of the FATO, where appropriate, shall be measured and reported to the aeronautical information services department in degrees, minutes, seconds and hundredths of seconds.

(3) The geographical coordinates of appropriate centre line points of helicopter ground taxiways and helicopter taxi routes shall be measured and reported to the aeronautical information services department in degrees, minutes, seconds and hundredths of seconds.

GN. No. 66 of 2017

(4) The geographical coordinates of each helicopter stand shall be measured and reported to the aeronautical information services department in degrees, minutes, seconds and hundredths of seconds.

(5) The geographical coordinates of obstacles in Area 2, the part within the heliport boundary, and in Area 3 shall be measured and reported to the aeronautical information services department in degrees, minutes, seconds and tenths of seconds.

(6) The top elevation, type, marking and lighting, if any, of obstacles shall be reported in accordance with the Civil Aviation (Aeronautical Information Service) Regulations.

Declared distances

15. A heliport operator shall declare the following distances to the nearest metre or foot where applicable, for a heliport:

(a) take-off distance available;
(b) rejected take-off distance available; and
(c) landing distance available.

Coordination between aeronautical information services department and heliport operators

16.-(1) A heliport operator shall-

(a) ensure that aeronautical information services department obtains information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information; and
(b) make arrangements with aeronautical information services department to report the following with a minimum delay:
    (i) information on heliport conditions;
    (ii) the operational status of associated facilities, services and navigation aids within their area of responsibility; and
    (iii) any other information considered to be of operational significance.

(2) The heliport operator shall ensure that-

(a) 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 aeronautical information services for the preparation, production and issue of relevant material for promulgation; and
(b) there is close coordination between the services concerned to ensure timely provision of the

information to aeronautical information services.

(3) The heliport operator shall obtain up-to-date information on changes to aeronautical information that affect charts and computer-based navigation systems which qualify to be notified by the specified aeronautical information regulation and control (AIRAC) system, as specified in the Civil Aviation (Aeronautical Information Services) Regulations.

GN. No. 66 of 2017

(4) A heliport operator shall observe the predetermined, internationally agreed Aeronautical Information Regulation and Control (AIRAC) effective dates when submitting the raw information or data to aeronautical information services.

(5) The heliport operator shall, while providing raw aeronautical information or data to the aeronautical information services take into account accuracy and integrity requirements necessary to meet the needs of the end-user of aeronautical data.

Rescue and fire fighting

17.-(1) A heliport operator shall make available information concerning the level of protection provided at a heliport for helicopter rescue and fire fighting purposes.

(2) Subject to subregulation (1), the level of protection normally available at a heliport shall be expressed in terms of the category of the rescue and fire fighting service as described under these Regulations and in accordance with the types and amounts of extinguishing agents normally available at the heliport.

(3) The heliport operator shall notify changes in the level of protection normally available at a heliport for rescue and fire fighting to the aeronautical information services department and air traffic services units to enable them to provide the necessary information to arriving and departing helicopters.

(4) Subject to subregulation (3), when such changes have been made, the aeronautical information services department and air traffic services units shall be advised accordingly.

(5) Subject to subregulations (3) and (4), the changes in the level of protection from that normally

available at the heliport may result from-

(a) a change in the availability of extinguishing agent;

(b) equipment used to deliver agents; or

(c) personnel used to operate the equipment.

(6) Subject to subregulation (3), a heliport operator shall express any change in terms of the new category of the rescue and firefighting service available at the heliport.

PART IV
INFORMATION TO BE REPORTED TO AERONAUTICAL INFORMATION SERVICES

Availability of information

18.-(1) An operator shall ensure that information relating to the heliports and its facilities, which is significant for the conduct of flights to and from the heliports, is available to the users of the heliport.

(2) An operator shall be responsible for notifying the Aeronautical Information Services of any errors and omissions in the aeronautical information of operational significance, published in the Aeronautical Information Publication or Aeronautical Information Circular or in the NOTAM, and of any pending changes in the heliport or its facilities which are likely to affect this information.

(3) An operator shall provide information on the following for the guidance of pilots and other operators:

(a) status of licensing of the heliport;

(b) construction or maintenance work on or immediately adjacent to the manoeuvring area;

(c) unserviceable portions of any part of the maneuvering area;

(d) the heliport surface conditions when affected by water, damp, wet, water patches or flooded, as appropriate;

(e) parked aircraft or other objects on, or immediately adjacent to the taxiways;

(f) the presence of other temporary hazards;

(g) failure or irregular operation of any part of the heliport lighting system, or of the heliport main and secondary power supplies;

(h) failure, irregular operation and changes in the operational status of any electronic approach or navigation aid, or aeronautical communication facility; and
(i) any other information of operational significance.

Action required for occurrences of operational significance other than those involving electronic aids and communication facilities

19.-(1) Where any of the following conditions occur or are anticipated, an operator shall take immediate action to amend the information contained in the Aeronautical Information Circular and where necessary, promulgate the change by NOTAM through the Aeronautical Information Services using the Aeronautical Information Services address notified in the Aeronautical Information Circular-

(a) changes in the availability of the manoeuvring area and changes in the heliport declared distance; except that increases in declared distances may only be made with the approval of the Authority;
(b) significant changes in heliport lighting and other visual aids;
(c) presence or removal of temporary obstructions to aircraft operation in the manoeuvring area;
(d) presence of airborne hazards to air navigation;
(e) interruption, return to service, or major changes to rescue facilities and firefighting services in terms of the new category of the rescue and firefighting service available at the heliport; except that permanent changes to the promulgated rescue firefighting category may only be made with the approval of the Authority;
(f) failure of or return to operation of hazard beacons and obstruction lights on or in the vicinity of the heliport;
(g) erection or removal of obstructions to air navigation, and erection or removal of significant obstacles in take-off, climb or approach areas;
(h) air displays, air races, parachute jumping, or any

unusual aviation activity; and

(i) any other information of operational significance.

(2) Where any of the conditions in subregulation (1) arises at short notice, an operator shall notify the Aeronautical Information Services for promulgation of a NOTAM.

(3) Where any of the conditions in subregulation (1) is intended, the operator shall make a written request to the Aeronautical Information Services, for the amendment of the Aeronautical Information Publication and Aeronautical Information Circular or for supplementary action.

Aeronautical data reporting

20.-(1) An operator shall provide to the Authority for promulgation, accurate aeronautical data as specified in these Regulations.

(2) An operator shall ensure that heliport related aeronautical data is adequate and accurate and that the integrity of the data is maintained and protected throughout the data process from survey or origin up to the next intended user.

(3) An operator shall determine and report heliport related aeronautical data in accordance with prescribed accuracy and integrity requirements while taking into account the established quality system procedures.

(4) Accuracy requirements for aeronautical data shall be based upon a ninety-five percent confidence level and in that respect, three types of positional data, namely; surveyed points, calculated points and declared points shall be identified.

(5) Where made available in accordance with these regulations, the selection of the heliport mapping data features to be collected shall be made with consideration of the intended applications.

(6) Where made available in accordance with these regulations, heliport mapping data shall comply with the accuracy and integrity requirements prescribed by the Authority.

(7) Subject to subregulation (6), the following classification and data integrity levels shall apply:

(a) for routine data: avoid corruption throughout the processing of the data;

(b) for essential data: assure corruption does not occur at any stage of the entire process and may include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and

(c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance procedures to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

PART V
HELIPORTS PHYSICAL CHARACTERISTICS

(a) Onshore Heliports

General design requirements

21. A heliport operator shall ensure that-
(a) the heliport has at least one FATO;
(b) no FATO is used to accommodate the manoeuvres of more than one helicopter at a time; and
(c) the requirements specified in this part are common for surface-level heliports and elevated heliports unless otherwise specified.

Final approach and take-off area (FATO)

22.-(1) A FATO shall provide-
(a) an area free of obstacles, except for essential objects, specified in paragraph (b), which because of their function are located on it, and of sufficient size and shape to ensure containment of every part of the design helicopter in the final phase of approach and commencement of take-off in accordance with the intended procedures;
(b) the essential objects specified in paragraph (a) include visual aids for example lighting or others such as firefighting systems necessary for safety purposes and further requirements regarding penetration of a FATO by essential objects as provided in subregulation (7);
(c) when solid, a surface which is resistant to the effects of rotor downwash-
    (i) when collocated with a TLOF, is contiguous and flush with the TLOF; has bearing strength capable of withstanding the intended loads; and ensures effective drainage; or
    (ii) when not collocated with a TLOF, is free of hazards should a forced landing be required.
(2) The FATO shall be associated with a safety area.

(3) A heliport shall be provided with at least one FATO, which need not be solid.

(4) The minimum dimensions of a FATO shall be-

(a) where intended to be used by helicopters operated in performance Class 1-

(i) the length of the Rejected Take-Off Distance (RTOD) for the required take-off procedure prescribed in the helicopter flight manual (HFM) of the helicopters for which the FATO is intended, or 1.5 design D, whichever is greater; and

(ii) the width for the required procedure prescribed in the HFM of the helicopters for which the FATO is intended, or 1.5 design D,

whichever is greater;

(b) where intended to be used by helicopters operated in performance Class 2 or 3, the lesser of-

(i) an area within which can be drawn a circle of diameter of 1.5 design D; or

(ii) when there is a limitation on the direction of approach and touchdown, an area of sufficient width to meet the requirement subregulation (1), but not less than 1.5 times the overall width of the design helicopter.

(5) Essential objects located in a FATO shall not penetrate a horizontal plane at the FATO elevation by more than 5 cm.

(6) When the FATO is solid the slope shall not-

(a) except as provided in paragraphs (b) or (c); exceed 2 percent in any direction;

(b) when the FATO is elongated and intended to be used by helicopters operated in performance Class 1, exceed 3 percent overall, or have a local slope exceeding 5 percent; and

(c) when the FATO is elongated and intended to be used solely by helicopters operated in performance Class 2 or 3, exceed 3 percent

overall, or have a local slope exceeding 7 percent.

(7) The FATO shall be located so as to minimise the influence of the surrounding environment, including turbulence, which could have an adverse impact on helicopter operations.

(8) A FATO shall be surrounded by a safety area which need not be solid as prescribed in Figure 2-1 in the Second Schedule.

Safety areas

23.-(1) A safety area shall provide-

(a) an area free of obstacles, except for essential objects which because of their function are located on it, to compensate for manoeuvring errors; and

(b) when solid, a surface which is contiguous and flush with the FATO, is resistant to the effects of rotor downwash; and ensures effective drainage.

(2) The safety area surrounding a FATO shall extend outwards from the periphery of the FATO for a distance of at least 3 m or 0.25 design D, whichever is greater.

(3) A mobile object shall not be permitted in a safety area during helicopter operations.

(4) Essential objects located in the safety area shall not penetrate a surface originating at the edge of the FATO at a height of 25 cm above the plane of the FATO sloping upwards and outwards at a gradient of 5 percent.

(5) When solid, the slope of the safety area shall not exceed an upward slope of 4 percent outwards from the edge of the FATO.

Protected side slope

24.-(1) A heliport shall be provided with at least one protected side slope, rising at 45 degrees from the edge of the safety area and extending to a distance of 10 m as prescribed in Figure 2-2 in the Second Schedule.

(2) A heliport shall be provided with at least two protected side slopes, rising at 45 degrees outward from the edge of the safety area and extending to a distance of 10 m.

(3) The surface of a protected side slope shall not be penetrated by obstacles as prescribed in Figure 2-2 in the Second Schedule.

Helicopter clearways

25.-(1) A helicopter clearway shall provide-

(a) an area free of obstacles, except for essential objects which because of their function are located on it, and of sufficient size and shape to ensure containment of the design helicopter when it is accelerating in level flight, and close to the surface, to achieve its safe climbing speed; and

(b) when solid, a surface which is contiguous and flush with the FATO is resistant to the effects of rotor downwash and is free of hazards should a forced landing be required.

(2) When a helicopter clearway is provided, it shall be located beyond the end of the FATO and its width shall not be less than the width of the FATO and associated safety area as prescribed in Figure 2-2 in the Second Schedule.

(3) When solid, the ground in a helicopter clearway shall not project above a plane having an overall upward slope of 3 percent or having a local upward slope exceeding 5 percent, the lower limit of this plane being a horizontal line which is located on the periphery of the FATO.

(4) An object situated in a helicopter clearway, which may endanger helicopters in the air, shall be regarded as an obstacle and shall be removed.

Touchdown and lift-off areas (TLOF)

26.-(1) A TLOF shall provide-

(a) an area free of obstacles and of sufficient size and shape to ensure containment of the undercarriage of the most demanding helicopter the TLOF is intended to serve in accordance with the intended orientation;

(b) a surface which-

(i) has sufficient bearing strength to accommodate the dynamic loads associated with the anticipated type of arrival of the helicopter at the designated TLOF;

(ii) is free of irregularities that would adversely affect the touchdown or lift-off of helicopters;

(iii) has sufficient friction to avoid skidding of helicopters or slipping of persons;

(iv) is resistant to the effects of rotor downwash; and

(v) ensures effective drainage while having no adverse effect on the control or stability of a helicopter during touchdown and lift-off, or when stationary.

(2) A TLOF shall be associated with a FATO or a stand.

(3) A heliport shall be provided with at least one TLOF.

(4) A TLOF shall be provided whenever it is intended that the undercarriage of the helicopter will touch down within a FATO or stand or lift off from a FATO or stand.

(5) The minimum dimensions of a TLOF shall be-

(a) when in a FATO intended to be used by helicopters operated in performance Class 1, the dimensions for the required procedure prescribed in the helicopter flight manuals (HFMs) of the helicopters for which the TLOF is intended; and

(b) when in a FATO intended to be used by

helicopters operated in performance Class 2 or 3, or in a stand-

(i) when there is no limitation on the direction of touchdown, of sufficient size to contain a circle of diameter of at least 0.83 D of-

(aa) in a FATO, the design helicopter; or

(bb) in a stand, the largest helicopter the stand is intended to serve;

(ii) when there is a limitation on the direction of touchdown, of sufficient width to meet the requirement of regulation 25(1) (a) but not less than twice the undercarriage width (UCW) of-

(aa) in a FATO, the design helicopter; or

(bb) in a stand, the most demanding helicopter the stand is intended to serve.

(6) For an elevated heliport, the minimum dimensions of a TLOF, when in a FATO, shall be of sufficient size to contain a circle of diameter of at least 1 Design-D.

(7) The slope on a TLOF shall not-

(a) except as provided in paragraphs (b) or (c); exceed 2 percent in any direction;

(b) when the TLOF is elongated and intended to be used by helicopters operated in performance Class 1exceed 3 percent overall, or have a local slope exceeding 5 percent; and

(c) when the TLOF is elongated and intended to be used solely by helicopters operated in performance Class 2 or 3, exceed 3 percent overall, or have a local slope exceeding 7 percent.

(8) When a TLOF is within a FATO it shall be-

(a) centred on the FATO; or

(b) for an elongated FATO, centred on the longitudinal axis of the FATO.

(9) When a TLOF is within a helicopter stand, it shall be centred on the stand.

(10) A TLOF shall be provided with markings which clearly indicate the touchdown position and, by their form, any limitations on manoeuvring.

(11) Where an elongated Performance Class 1 FATO/TLOF contains more than one TDPM, the heliport operator shall put be in place measures to ensure that only one can be used at a time.

(12) Where alternative TDPMs are provided they shall be placed to ensure containment of the undercarriage within the TLOF and the helicopter within the FATO.

(13) Safety devices such as safety nets or safety shelves shall be located around the edge of an elevated heliport but shall not exceed the height of the TLOF.

Helicopter taxiways

27.-(1) A helicopter taxiway shall-

(a) provide an area free of obstacles and of sufficient width to ensure containment of the undercarriage of the most demanding wheeled helicopter the taxiway is intended to serve;

(b) provide a surface which-

(i) has bearing strength to accommodate the taxiing loads of the helicopters the taxiway is intended to serve;

(ii) is free of irregularities that would adversely affect the ground taxiing of helicopters;

(iii) is resistant to the effects of rotor downwash; and

(iv) ensures effective drainage while having no adverse effect on the control or stability of a wheeled helicopter when being manoeuvred under its own power, or when stationary;

(c) be associated with a taxi-route.

(2) The minimum width of a helicopter taxiway shall be the lesser of-

(a) twice the undercarriage width (UCW) of the most demanding helicopter the taxiway is intended to serve; or

(b) a width meeting the requirements of subregulation (1)(a).

(3) The transverse slope of a taxiway shall not exceed 2 percent and the longitudinal slope shall not exceed 3 percent.

Helicopter taxi-routes

28.-(1) A helicopter taxi-route shall provide-

(a) an area free of obstacles, except for essential objects which because of their function are located on it, established for the movement of helicopters; with sufficient width to ensure containment of the largest helicopter the taxi-route is intended to serve;

(b) when solid, a surface which is resistant to the effects of rotor downwash;

(c) when collocated with a taxiway-

(i) is contiguous and flush with the taxiway;

(ii) does not present a hazard to operations; and

(iii) ensures effective drainage; and

(d) when not collocated with a taxiway, the taxi-route shall be free of hazards if a forced landing is required.

(2) A mobile object shall not be permitted on a taxi-route during helicopter operations.

(3) When solid and collocated with a taxiway, the taxi-route shall not exceed an upward transverse slope of 4 percent outwards from the edge of the taxiway.

Helicopter ground taxi-routes

29.-(1) A helicopter ground taxi-route shall have a minimum width of 1.5 times the overall width of the largest helicopter it is intended to serve and be centred on a taxiway as shown in Figure 2-3 in the Second Schedule.

(2) Essential objects located in a helicopter ground taxi-route shall not-

(a) be located at a distance of less than 50 cm outwards from the edge of the helicopter ground taxiway; and

(b) penetrate a plane originating 50 cm outwards of the edge of the helicopter taxiway and a height of 25 cm above the surface of the taxiway and sloping upwards and outwards at a gradient of 5 percent.

Helicopter air taxi-routes

30.-(1)A helicopter air-taxi route shall permit the movement of a helicopter above the surface at a height normally associated with ground effect and at ground speed less than 37 km/h (20 kt).

(2) A helicopter air taxi-route shall have a minimum width of twice the overall width of the largest helicopter it is intended to serve.

(3) where collocated with a taxiway for the purpose of permitting both ground and air taxi operations as shown in Figure 2-4 in the Second Schedule-

(a) the helicopter air taxi-route shall be centred on the taxiway; and

(b) essential objects located in the helicopter air taxi-route shall not-

(i) be located at a distance of less than 50 cm outwards from the edge of the helicopter taxiway; and

(ii) penetrate a surface originating 50 cm outwards of the edge of the helicopter taxiway and a height of 25 cm above the surface of the taxiway and sloping upwards and outwards at a gradient of 5 percent.

(4) Where not collocated with a taxiway, the slopes of the surface of an air taxi-route shall not exceed the slope landing limitations of the helicopters the taxi-route is intended to serve and the transverse slope shall not exceed 10 percent and the longitudinal slope shall not exceed 7 percent as shown in Figure 2-4 in the Second Schedule.

Helicopter stands

31.-(1) A helicopter stand shall provide-

(a) an area free of obstacles and of sufficient size and shape to ensure containment of every part of the largest helicopter of which the stand is intended to serve when it is being positioned within the stand;

(b) a surface which-

(i) is resistant to the effects of rotor downwash;

(ii) is free of irregularities that would adversely affect the manoeuvring of helicopters;

(iii) has bearing strength capable of withstanding the intended loads;

(iv) has sufficient friction to avoid skidding of helicopters or slipping of persons; and

(v) ensures effective drainage while having no adverse effect on the control or stability of a wheeled helicopter when being manoeuvred under its own power, or when stationary.

(2) A helicopter stand shall be associated with a protection area.

(3) The minimum dimensions of a helicopter stand shall be-

(a) a circle of diameter of 1.2 D of the largest helicopter the stand is intended to serve; or

(b) when there is a limitation on manoeuvring and positioning, of sufficient width to meet the requirement of subregulation (1)(a) but not less 1.2 times overall width of largest helicopter the stand is intended to serve.

(4) The mean slope of a helicopter in any direction shall not exceed 2 percent.

(5) Each helicopter stand shall be provided with positioning markings to clearly indicate where the helicopter is to be positioned and, by their form, any limitations on manoeuvring.

(6) A stand shall be surrounded by a protection area which need not be solid.

Protection areas

32.-(1) A protection area shall provide-

(a) an area free of obstacles, except for essential objects which because of their function are located on it; and

(b) when solid, a surface which is contiguous and flush with the stand; is resistant to the effects of rotor downwash; and ensures effective drainage.

(2) When associated with a stand designed for turning, the protection area shall extend outwards from the periphery of the stand for a distance of 0.4 D as shown in Figure 2-5 in the Second Schedule.

(3) When associated with a stand designed for taxi-through, the minimum width of the stand and protection area shall not be less than the width of the associated taxi-route shown in Figures 2-6 and 2-7 in the Second Schedule.

(4) When associated with a stand designed for non-simultaneous use as shown in Figures 2-8 and 2-9 in the Second Schedule-

(a) the protection area of adjacent stands may overlap but shall not be less than the required protection area for the larger of the adjacent stands; and

(b) the adjacent non-active stand may contain a static object but it shall be wholly within the boundary of the stand.

(5) The instruction to pilots in the AIP shall make it clear that a limitation on the use of the stands is in force to ensure that only one of the adjacent stands is active at a time.

(6) A heliport operator shall not permit any mobile object in the protection area during helicopter operations.

(7) Essential objects located in the protection area shall not-

(a) where located at a distance of less than 0.75 D from the centre of the helicopter stand, penetrate a surface at a height of 5 cm above the surface of the central zone; and

(b) where located at a distance of 0.75 D or more from the centre of the helicopter stand, penetrate a surface at a height of 25 cm above the plane of the central zone and sloping upwards and outwards at a gradient of 5 percent.

(8) When solid, the slope of a protection area shall not exceed an upward slope of 4 percent outwards from the edge of the stand as shown in Figure 2-5 to Figure 2-9 in the Second Schedule.

Location of final approach and take-off area in relation to runway or taxiway

33.-(1) Where a FATO is located near a runway or taxiway, and where simultaneous operations are planned, the separation distance between the edges of a runway or taxiway and the edge of a FATO shall not be less than the appropriate dimension in Table 1-1.

(2) A FATO shall not be located-

(a) near taxiway intersections or holding points where jet engine efflux is likely to cause high turbulence; or

(b) near areas where aeroplane vortex wake generation is likely to exist.

Table 1-1: FATO minimum separation distance for simultaneous operations

where aeroplane mass or helicopter mass are	be edg ed
up to but not including 3175 kg	
3175 kg up to but not including 5760 kg	
5760 kg up to but not including 100000 kg	
100000 kg and over	

(b) Helidecks

Final approach and take-off areas and touch down and lift-off areas for helidecks

34.-(1) The specifications in this part are for helidecks located on structures engaged in such activities as mineral exploitation, research or construction.

(2) Helidecks that have a 1 D or larger FATO, the FATO and the TLOF shall occupy the same space and have the same load bearing characteristics so as to be coincidental.

(3) For helidecks that are less than 1 D-

(a) the reduction in size shall be applied to the TLOF which is a load bearing area;

(b) the FATO remains at 1 D but the portion extending beyond the TLOF perimeter shall not be load bearing for helicopters; and

(c) the TLOF and the FATO shall be assumed to be collocated.

(4) Subject to regulation 100, the specifications in suregulation (13) and (14) shall apply to helidecks completed on or after 1 January 2012.

(5) A helideck shall be provided with one FATO and one coincident or collocated TLOF.

(6) A FATO may be any shape but shall be of sufficient size to contain an area within which can be accommodated a circle of diameter of not less than 1 D of the largest helicopter the helideck is intended to serve.

(7) A TLOF may be any shape but shall be of sufficient size to contain-

(a) for helicopters with an MTOM of more than 3175 kg, an area within which can be accommodated a circle of diameter not less than 1 D of the largest helicopter the helideck is intended to serve; and

(b) for helicopters with an MTOM of 3175 kg or less, an area within which can be accommodated a circle of diameter not less than 0.83 D of the largest helicopter the helideck is intended to serve.

(8) For helicopters with a MTOM of 3175 kg or less, the TLOF shall be of sufficient size to contain an area

within which can be accommodated a circle of diameter of not less than 1 D of the largest helicopter the helideck is intended to serve.

(9) A helideck shall be arranged to ensure that a sufficient and unobstructed air-gap is provided which encompasses the full dimensions of the FATO.

(10) The FATO shall be located so as to avoid, as far as is practicable, the influence of environmental effects, including turbulence, over the FATO, which could have an adverse impact on helicopter operations.

(11) The TLOF shall be dynamic load-bearing and shall provide ground effect.

(12) A heliport operator shall not permit any fixed object around the edge of the TLOF except for frangible objects, which, because of their function, may be located thereon.

(13) For any TLOF 1 D or greater and any TLOF designed for use by helicopters having a D-value of greater than 16.0 m, objects installed in the obstacle-free sector whose function requires them to be located on the edge of the TLOF shall not exceed a height of 25 cm.

(14) For any TLOF 1 D or greater and any TLOF designed for use by helicopters having a D-value of greater than 16.0 m, objects installed in the obstacle-free sector whose function requires them to be located on the edge of the TLOF shall be as low as possible and in any case not exceed a height of 15 cm.

(15) A TLOF designed for use by helicopters having a D-value of 16.0 m or less, and any TLOF having dimensions of less than 1 D, objects installed in the obstacle-free sector whose function requires them to be located on the edge of the TLOF, shall not exceed a height of 5 cm.

(16) Lighting that is mounted at a height of less than 25 cm shall be assessed for adequacy of visual cues before and after installation.

(17) Objects whose function requires them to be located within the TLOF such as lighting or nets shall not exceed a height of 2.5 cm and such objects shall only be present where they do not represent a hazard to helicopters.

(18) Safety devices such as safety nets or safety shelves shall be located around the edge of a helideck but not exceed the height of the TLOF.

(19) The surface of the TLOF shall be skid-resistant to both helicopters and persons and be sloped to prevent pooling of water.

(c) Shipboard Heliports

General Requirements for shipboard heliports

35. When helicopter operating areas are provided in the bow or stern of a ship or are purpose-built above the ship's structure, they shall be regarded as purpose-built shipboard heliports.

Final approach and take-off areas and touchdown and lift-off areas for shipboard heliports

36.-(1) For shipboard heliports, the FATO and the TLOF will be coincidental and guidance on the effects of airflow direction and turbulence, prevailing wind velocity and high temperature from gas turbine exhausts or flare-radiated heat on the location of the FATO as specified in the applicable material.

(2) A shipboard heliport shall be provided with one FATO and one coincidental or collocated TLOF.

(3) A FATO may be any shape but shall be of sufficient size to contain an area within which can be accommodated a circle of diameter of not less than 1 D of the largest helicopter the heliport is intended to serve.

(4) The TLOF of a shipboard heliport shall be dynamic load-bearing and shall provide ground effect.

(5) For purpose-built shipboard heliports provided in a location other than the bow or stern, the TLOF shall be of sufficient size to contain a circle with a diameter not less than 1 D of the largest helicopter the heliport is intended to serve.

(6) For purpose-built shipboard heliports provided in the bow or stern of a ship, the TLOF shall be of sufficient size to-

(a) contain a circle with a diameter not less than 1 D of the largest helicopter the heliport is intended to serve; or

(b) for operations with limited touchdown

directions, contain an area within which can be accommodated two opposing arcs of a circle with a diameter of not less than 1 D in the helicopter's longitudinal direction and the minimum width of the heliport shall be not less than 0.83 D as shown in Figure 2-10 in the Second Schedule.

(7) The ship shall be manoeuvred to ensure that the relative wind is appropriate to the direction of the helicopter touchdown heading.

(8) The touchdown heading of the helicopter shall be limited to the angular distance subtended by the 1 D arc headings, minus the angular distance which corresponds to 15 degrees at each end of the arc.

(9) For non-purpose-built shipboard heliports, the TLOF shall be of sufficient size to contain a circle with a diameter not less than 1 D of the largest helicopter the heliport is intended to serve.

(10) A shipboard heliport shall be arranged to ensure that a sufficient and unobstructed air-gap is provided which encompasses the full dimensions of the FATO.

(11) The FATO shall be located so as to avoid, as far as is practicable, the influence of environmental effects, including turbulence, over the FATO, which could have an adverse impact on helicopter operations.

(12) A fixed object shall not be permitted around the edge of the TLOF except for frangible objects, which, because of their function, must be located thereon.

(13) For any TLOF 1D or greater and any TLOF designed for use by helicopters having a D-value of greater than 16.0 m, objects installed in the obstacle-free sector whose function requires them to be located on the edge of the TLOF shall not exceed a height of 25 cm.

(14) For any TLOF 1 D or greater and any TLOF designed for use by helicopters having a D-value of greater than 16.0 m, objects installed in the obstacle-free sector whose function requires them to be located on the edge of the TLOF should be as low as possible and in any case not exceed a height of 15 cm.

(15) For any TLOF designed for use by helicopters

having a D-value of 16.0 m or less, and any TLOF having dimensions of less than 1 D, objects in the obstacle-free sector, whose function requires them to be located on the edge of the TLOF, shall not exceed a height of 5 cm.

(16) Lighting that is mounted at a height of less than 25 cm is typically assessed for adequacy of visual cues before and after installation.

(17) Objects whose function requires them to be located within the TLOF (such as lighting or nets) shall not exceed a height of 2.5 cm. Such objects shall only be present if they do not represent a hazard to helicopters.

(18) Safety devices such as safety nets or safety shelves shall be located around the edge of a shipboard heliport, except where structural protection exists, but shall not exceed the height of the TLOF.

(19) The surface of the TLOF shall be skid-resistant to both helicopters and persons as prescribed by the Authority in Figure 2-10 in the Second Schedule.

PART VI
OBSTACLE ENVIRONMENT

(a) Obstacle Limitation Surfaces and Sectors

General requirements

37.-(1) The specifications in this part specify the requirements for the airspace around heliports that permit helicopter operations to be conducted safely and to prevent, where appropriate state controls exist, heliports from becoming unusable by the growth of obstacles around them.

(2) Subject to subregulation (1), the specifications establish a series of obstacle limitation surfaces that define the limits to which objects may project into the airspace.

Approach surface

38.-(1) An Approach surface shall be an inclined plane or a combination of planes or, when a turn is involved, a complex surface sloping upwards from the end of the safety area and centred on a line passing through the centre of the FATO.

(2) The approach surface shall be depicted as shown in Figures 3-1, 3-2, 3-3 and 3-4 in the Third Schedule

Figures and the dimensions and slopes of surfaces shall be as provided in Table 2-1.

Table 2-1. Dimensions and slopes of obstacle limitation surfaces for all visual FATOs

Surface and dimensions	*Slope design categories*		
	A	*B*	*C*
Approach and take-off climb surface:			
Length of inner edge	Width of safety area	Width of safety area	Width of safety area
Location of inner edge	Safety area boundary (Clearway boundary if provided)	Safety area boundary	Safety area boundary
Divergence: (1st and 2nd section)			
Day use only	10%	10%	10%
Night use	15%	15%	15%
First section:			
Length	3 386 m	245 m	1 220 m
Slope	4.5% (1:22.2)	8% (1:12.5)	12.5% (1:8)
Outer width	(b)	N/A	(b)
Second section:			
Length	N/A	830 m	N/A
Slope	N/A	16% (1:6.25)	N/A
Outer width	N/A	(b)	N/A
Total length from inner edge (a)	3 386 m	1 075 m	1 220 m
Transitional surface: (FATOs with a PinS approach procedure with a VSS)			
Slope	50% (1:2)	50% (1:2)	50% (1:2)
Height	45 m	45 m	45 m

a. The approach and take-off climb surface lengths of 3 386 m, 1 075 m and 1 220 m associated with the respective slopes brings the helicopter to 152 m (500 ft) above FATO elevation.

b. Seven rotor diameters overall width for day operations or 10 rotor diameters overall width for night operations.

Note. -The slope design categories in Table 24-1 may not be restricted to a specific performance class of operation and may be applicable to more than one performance class of operation. The slope design categories depicted in Table 2-1 represent minimum design slope angles and not operational slopes. Slope Category "A" generally corresponds with helicopters operated in performance Class 1; slope Category "B" generally corresponds with helicopters operated in performance Class 3; and slope Category "C" generally corresponds with helicopters operated in performance Class 2. Consultation with helicopter operators will help to determine the appropriate slope category to apply according to the heliport environment and the most critical helicopter type for which the heliport is intended.

(3) The limits of an approach surface shall comprise of-

(a) an inner edge horizontal and equal in length to the minimum specified width or diameter of the FATO plus the safety area, perpendicular to the

centre line of the approach surface and located at the outer edge of the safety area;

(b) two side edges originating at the ends of the inner edge diverging uniformly at a specified rate from the vertical plane containing the centre line of the FATO; and

(c) an outer edge horizontal and perpendicular to the centre line of the approach surface and at a specified height of one hundred and fifty-two metres (500 ft) above the elevation of the FATO.

(4) The elevation of the inner edge shall be the elevation of the FATO at the point on the inner edge that is intersected by the centre line of the approach surface. For heliports intended to be used by helicopters operated in performance Class 1 and when approved by an appropriate authority, the origin of the inclined plane may be raised directly above the FATO.

(5) The slope of the approach surface shall be measured in the vertical plane containing the centre line of the surface.

(6) In the case of an approach surface involving a turn, the surface shall be a complex surface containing the horizontal normal to its centre line and the slope of the centre line shall be the same as that for a straight approach surface, as shown in Figure 3-5 in the Third Schedule.

(7) For an approach surface involving a turn, the surface shall not contain more than one curved portion.

(8) Where a curved portion of an approach surface is provided, the sum of the radius of arc defining the centre line of the approach surface and the length of the straight portion originating at the inner edge shall not be less than 575 m.

(9) Any variation in the direction of the centre line of an approach surface shall be designed so as not to necessitate a turn radius less than 270 m.

Transitional surface

39.-(1) A transitional surface is a complex surface along the side of the safety area and part of the side of the approach take-off climb surface, that slopes upwards and

outwards to a predetermined height of 45 m (150 ft).

(2) A transitional surface is as shown in Figure 3-3 in the Third Schedule, and the dimensions and slopes of the surfaces shall be as provided in Table 2-1.

(3) For a FATO at a heliport without a PinS approach incorporating a visual segment surface may not be required to provide transitional surfaces.

(4) The limits of a transitional surface shall comprise the following characteristics:

(a) a lower edge beginning at a point on the side of the approach or take-off climb surface at a specified height above the lower edge extending down the side of the approach or take-off climb surface to the inner edge of the approach or take-off climb surface and from there along the length of the side of the safety area parallel to the centre line of the FATO; and

(b) an upper edge located at a specified height above the lower edge as set out in Table 2-1.

(5) The elevation of a point on the lower edge shall be-

(a) along the side of the approach or take-off climb surface; equal to the elevation of the approach or take-off climb surface at that point; and

(b) along the safety area equal to the elevation of the inner edge of the approach or take-off climb surface.

(6) Where the origin of the inclined plane of the approach or take-off climb surface is raised as approved by the Authority, the elevation of the origin of the transitional surface shall be raised accordingly.

(7) Subject to subregulation (5)(b), the transitional surface along the safety area shall be curved where the profile of the FATO is curved, or a plane where the profile is a straight line.

(8) The slope of the transitional surface shall be measured in a vertical plane at right angles to the centre line of the FATO.

Take-off climb surface

40.-(1) Take-off climb surface shall be an inclined plane, a combination of planes or, when a turn is involved, a complex surface sloping upwards from the end of the safety area and centred on a line passing through the centre of the FATO.

(2) Take-off climb surface shall be depicted as indicated in Figures 3-1, 3-2, 3-3 and 3-4 in the Third Schedule, and dimensions and slopes of surfaces shall be as provided in Table 2-1.

(3) The limits of a take-off climb surface shall comprise the following characteristics:

(a) an inner edge horizontal and equal in length to the minimum specified width or diameter of the FATO plus the safety area, perpendicular to the centre line of the take-off climb surface and located at the outer edge of the safety area;

(b) two side edges originating at the ends of the inner edge and diverging uniformly at a specified rate from the vertical plane containing the centre line of the FATO; and

(c) an outer edge horizontal and perpendicular to the centre line of the take-off climb surface and at a specified height of 152 m (500 ft) above the elevation of the FATO.

(4) The elevation of the inner edge shall be the elevation of the FATO at the point on the inner edge that is intersected by the centre line of the take-off climb surface.

(5) Subject to subregulation (4), for a heliport used by helicopters operated in performance Class 1 and when approved by the Authority, the origin of the inclined plane may be raised directly above the FATO.

(6) Where a clearway is provided the elevation of the inner edge of the take-off climb surface shall be located at the outer edge of the clearway at the highest point on the ground based on the centre line of the clearway.

(7) In the case of a straight take-off climb surface, the slope shall be measured in the vertical plane containing the centre line of the surface.

(8) In the case of a take-off climb surface involving a turn, the surface shall be a complex surface containing the

horizontal normals to its centre line and the slope of the centre line shall be the same as that for a straight take-off climb surface as shown in Figure 3-5 in the Third Schedule.

(9) In the case of a take-off climb surface involving a turn, the surface shall not contain more than one curved portion.

(10) Where a curved portion of a take-off climb surface is provided the sum of the radius of arc defining the centre line of the take-off climb surface and the length of the straight portion originating at the inner edge shall not be less than 575 m.

(11) Any variation in the direction of the centre line of a take-off climb surface shall be designed so as not to necessitate a turn of radius less than 270 m.

Obstacle-free sector or surface-helidecks

41.-(1) Obstacle-free sector or surface shall be a complex surface originating at and extending from, a reference point on the edge of the FATO of a helideck and in the case of a TLOF of less than 1 D, the reference point shall be located not less than 0.5 D from the centre of the TLOF.

(2) An obstacle-free sector or surface shall subtend an arc of specified angle.

(3) A helideck obstacle-free sector shall comprise of two components, as shown in Figure 3-7 in the Third Schedule, one above and one below helideck level-

(a) above helideck level - the surface shall be a horizontal plane level with the elevation of the helideck surface that subtends an arc of at least 210 degrees with the apex located on the periphery of the D circle extending outwards to a distance that will allow for an unobstructed departure path appropriate to the helicopter the helideck is intended to serve;

(b) below helideck level - within the minimum 210-degree arc, the surface shall additionally extend downward from the edge of the FATO below the elevation of the helideck to water level for an arc of not less than 180 degrees that passes through the centre of the FATO and outwards to

a distance that will allow for safe clearance from the obstacles below the helideck in the event of an engine failure for the type of helicopter the helideck is intended to serve.

(4) Subject to subregulation (1), for both the above obstacle-free sectors for helicopters operated in performance Class 1 or 2, the horizontal extent of these distances from the helideck shall be compatible with the one-engine-inoperative capability of the helicopter type to be used.

Limited obstacle sector or surface-helidecks

42.-(1) Where obstacles are located on the structure, a helideck shall have a limited obstacle sector (LOS).

(2) Limited obstacle sector or surface shall be a complex surface originating at the reference point for the obstacle-free sector and extending over the arc not covered by the obstacle free sector within which the height of obstacles above the level of the TLOF will be prescribed.

(3) A limited obstacle sector shall not subtend an arc greater than 150 degrees and its dimensions and location shall be as shown in the Third Schedule, Figure 3-8 for a 1 D FATO with coincidental TLOF and Figure 3-9 for a 0.83 D TLOF.

(b) Obstacle Limitation Requirements

General requirements

43.-(1) The requirements under this part are specified on the basis of the intended use of a FATO including approach manoeuvre to hover or landing, or take-off manoeuvre and type of approach, and shall be applied when such use is made of the FATO.

(2) Subject to subregulation (1), where operations are conducted to or from both directions of a FATO, then the function of certain surfaces shall be nullified because of more stringent requirements of another lower surface.

Surface-level heliports

44.-(1) The following obstacle limitation surfaces shall be established for a FATO at heliports with a PinS approach procedure utilising a visual segment surface as shown in Figure 3-3 in the Third Schedule-

(a) take-off climb surface;

(b) approach surface; and

(c) transitional surface.

(2) The following obstacle limitation surfaces shall be established for a FATO at heliports, other than specified in subregulation (1), including heliports with a PinS approach procedure where a visual segment surface is not provided-

(a) take-off climb surface; and

(b) approach surface.

(3) The slopes of the obstacle limitation surfaces shall not be greater than, and their other dimensions not less than, those provided in Table 2-1 and shall be located as shown in Figures 3-1, 3-2 and 3-6 in the Third Schedule.

(4) For heliports that have an approach or take-off climb surface with a 4.5 percent slope design, objects shall be permitted to penetrate the obstacle limitation surface, where the results of an aeronautical study approved by the Authority have reviewed the associated risks and mitigation measures.

(5) Subject to subregulation (6), the identified objects may limit the heliport operation.

(6) A heliport operator shall not permit new objects or extensions of existing objects above any of the surfaces in subregulations (1) and (2) except when shielded by an existing immovable object or after an aeronautical study

approved by the Authority determines that the object will not adversely affect the safety or significantly affect the regularity of operations of helicopters.

(7) Heliport operator shall ensure that any existing objects above any surfaces specified in subregulations (1) and (2) are removed except when the object is shielded by an existing immovable object or after an aeronautical study approved by the Authority determines that the object will not adversely affect the safety or significantly affect the regularity of operations of helicopters.

(8) A surface-level and elevated heliport shall have at least one approach and take-off climb surface and an aeronautical study shall be undertaken by an appropriate authority when only a single approach and take-off climb surface is provided considering as a minimum, the following factors:

(a) the area or terrain over which the flight is being conducted;

(b) the obstacle environment surrounding the heliport and the availability of at least one protected side slope;

(c) the performance and operating limitations of helicopters intending to use the heliport; and

(d) the local meteorological conditions including the prevailing winds.

(9) Surface-level and elevated heliport shall have at least two approach and take-off climb surfaces to avoid downwind conditions, minimise crosswind conditions and permit for a balked landing.

Elevated heliports

45.-(1) A heliport operator shall ensure that obstacle limitation surfaces for elevated heliports conform to the requirements for surface-level heliports as specified in this regulation.

(2) An elevated heliport shall have at least one approach and take-off climb surface and an aeronautical study shall be undertaken by the aerodrome operator when only a single approach and take-off climb surface is provided considering as a minimum, the following factors:

(a) the area or terrain over which the flight is being

conducted;

(b) the obstacle environment surrounding the heliport and the availability of at least one protected side slope;

(c) the performance and operating limitations of helicopters intending to use the heliport; and

(d) the local meteorological conditions including the prevailing winds.

(3) An elevated heliport shall have at least two approach and take-off climb surfaces to avoid downwind conditions, minimise crosswind conditions and permit for a balked landing.

Helidecks

46.-(1) A helideck shall have an obstacle-free sector.

(2) There shall be no fixed obstacles within the obstacle free sector above the obstacle-free surface of a helideck.

(3) The heliport operator shall provide obstacle protection for helicopters below the helideck level in the immediate vicinity of the helideck.

(4) Subject to subregulation 3, the heliport operator shall provide protection extended over an arc of at least 180 degrees with the origin at the centre of the FATO, with a descending gradient having a ratio of one unit horizontally to five units vertically from the edges of the FATO within the 180 degree sector and the descending gradient may be reduced to a ratio of one unit horizontally to three units vertically within the 180-degree sector for multi-engine helicopters operated in performance Class 1 or 2 as shown in Figure 3-7 in the Third Schedule.

(5) Where one or more offshore support vessel such as a standby vessel essential to the operation of a fixed or floating offshore facility at sea surface level, but located within the proximity of the fixed or floating offshore facility, such offshore support vessel shall be positioned so as not to compromise the safety of helicopter operations during take-off departure or approach to landing.

(6) Objects shall not exceed a height of 25 cm above the TLOF of 1 D and larger, within the 150-degree limited obstacle surface or sector out to a distance of 0.12 D

measured from the point of origin of the limited obstacle sector.

(7) Subject to subregulation (5), beyond that arc, out to an overall distance of a further 0.21 D measured from the end of the first sector, the limited obstacle surface shall rise at a rate of one unit vertically for each two units horizontally originating at a height 0.05 D above the level of the TLOF, as shown in Figure 3-8 in the Third Schedule.

(8) Where the area enclosed by the TLOF perimeter marking is a shape other than circular, the extent of the LOS segments shall be represented as lines parallel to the perimeter of the TLOF rather than arcs.

(9) Subject to subregulation (7), helideck obstacle limitation sectors and surfaces for a FATO and coincidental TLOF of 1 D and larger as prescribed in Figure 3-8 in the Third Schedule shall be constructed:

(a) on the assumption that an octagonal helideck arrangement is provided; and

(b) in accordance with guidance for square or quadrilateral and circular FATO and TLOF arrangements specified in the applicable guidance material.

(10) Objects shall not exceed a height of 5 cm above the TLOF less than 1 D within the 150-degree limited obstacle surface or sector out to a distance of 0.62 D and commencing from a distance 0.5 D, both measured from the centre of the TLOF.

(11) Subject to subregulation (9), beyond that arc, out to an overall distance of 0.83 D from the centre of the TLOF, the limited obstacle surface shall rise at a rate of one unit vertically for each two units horizontally originating at a height 0.05 D above the level of the TLOF as shown in Figure 3-9 in the Third Schedule.

Shipboard heliports

47.-(1) The requirements in subregulations (5) and (9) shall apply to shipboard heliports completed on or after 1 January 2012.

(2) When helicopter operating areas are provided in the bow or stern of a ship for purpose-built heliports located forward or aft, shall apply the obstacle criteria for helidecks.

(3) The forward and aft of a TLOF of 1 D and larger shall be two symmetrically located sectors, each covering an arc of 150 degrees, with their apexes on the periphery of the TLOF amidships location for a purpose-built and non-purpose-built.

(4) Subject to subregulation (3), there shall be no objects rising above the level of the TLOF within the area enclosed by the two sectors, except those aids essential for the safe operation of a helicopter and only up to a maximum height of 25 cm.

(5) Objects whose function requires them to be located within the TLOF such as lighting or nets, shall not exceed a height of 2.5 cm and such objects shall only be present when they do not represent a hazard to helicopters.

(6) Subject to subregulation (5), potential hazards shall include nets or raised fittings on the deck that might induce dynamic rollover for helicopters equipped with skids.

(7) Rising surfaces with gradients of one unit vertically to five units horizontally shall extend from the entire length of the edges of the two 150-degree sectors to provide further protection from obstacles fore and aft of the TLOF.

(8) Subject to subregulation (7), the surfaces shall extend for a horizontal distance equal to at least 1 D of the largest helicopter the TLOF is intended to serve and shall not be penetrated by any obstacle as shown in Figure 3-10 in the Third Schedule.

(9) For non-purpose-built heliports-ship's side location, objects shall not be located within the TLOF except those aids essential for the safe operation of a helicopter, such as nets or lighting, and only up to a maximum height of 2.5 cm.

(10) Subject to subregulation (9), such objects shall only be present where they do not represent a hazard to helicopters.

(11) From the fore and aft mid-points of the D circle in two segments outside the circle, limited obstacle areas shall extend to the ship's rail to a fore and aft distance of 1.5 times the fore-to-aft-dimension of the TLOF, located symmetrically about the athwart ships bisector of the D circle.

(12) Subject to subregulation (11), there shall be no objects rising above a maximum height of 25 cm above the level of the TLOF within these areas as shown in Figure 3-11 in the Third Schedule, and such objects shall be present where they do not represent a hazard to helicopters.

(13) A limited obstacle sector horizontal surface shall be provided, at least 0.25 D beyond the diameter of the D circle, which shall surround the inboard sides of the TLOF to the fore and aft mid-points of the D circle.

(14) The limited obstacle sector shall continue to the ship's rail to a fore and aft distance of 2.0 times the fore-to-aft dimension of the TLOF, located symmetrically about the athwartships bisector of the D circle and within this sector there shall be no objects rising above a maximum height of 25 cm above the level of the TLOF.

(15) Any objects located within the areas described in subregulations (11), (12), (13) and (14) that exceed the height of the TLOF shall be notified to the helicopter operator using a ship's helicopter landing area plan.

(16) Subject to subregulation (15), for notification purposes, consideration shall be made for immoveable objects beyond the limit of the surface specified in subregulations (13) and (14), particularly where objects are significantly higher than 25 cm and in close proximity to the boundary of the LOS.

Winching areas

48.-(1) An area designated for winching on-board ships shall be provided by the aerodrome operator, comprising of a circular clear zone of diameter 5 m and extending from the perimeter of the clear zone, a concentric manoeuvring zone of diameter 2 D as shown in Figure 3-12 in the Third Schedule.

(2) The manoeuvring zone shall be comprised of two areas-

(a) the inner manoeuvring zone extending from the perimeter of the clear zone and of a circle of diameter not less than 1.5 D; and

(b) the outer maneuvering zone extending from the perimeter of the inner maneuvering zone and of a circle of diameter not less than 2 D.

(3) Within the clear zone of a designated winching area, no objects shall be located above the level of its surface.

(4) Objects located within the inner manoeuvring zone of a designated winching area shall not exceed a height of 3 m.

(5) Objects located within the outer manoeuvring zone of a designated winching area shall not exceed a height of 6 m.

PART VII
VISUAL AIDS

(a) Indicators

General requirements

49.-(1) For the purpose of this part, a FATO having characteristics similar in shape to a runway is considered as satisfying the concept for a "runway-type FATO" and for such arrangements specific markings shall be provided to enable a pilot to distinguish a runway-type FATO during an approach.

(2) Subject to subregulation (1), appropriate markings shall be contained within subsections entitled "Runway-type FATOs" and the requirements applicable to all other types of FATOs shall be given within sub-sections entitled "all FATOs except runway-type FATOs.

(3) On surfaces of light colour, the conspicuity of white and yellow markings can be improved by outlining them in black.

(4) Discretion shall be exercised in the colour selection of heliport paint schemes for a non-purpose-built heliport located on a ship's side to ensure that the markings are conspicuous against the surface of the ship and the operating background.

Wind direction indicators

50.-(1) A heliport operator shall equip the heliport with at least one wind direction indicator.

(2) A wind direction indicator shall be located so as to indicate the wind conditions over the FATO and TLOF and in such a way as to be free from the effects of airflow disturbances caused by nearby objects or rotor downwash.

(3) Subject to subregulation (2), the wind direction shall be visible from a helicopter in flight, in a hover or on the movement area.

(4) Where a TLOF and FATO are subject to a disturbed airflow, additional wind direction indicators located close to the area shall be provided to indicate the surface wind on the area.

(5) The wind direction indicator shall be constructed to provide a clear indication of the direction of the wind and a general indication of the wind speed.

(6) A wind direction indicator shall be a truncated cone made of lightweight fabric and shall have the following minimum dimensions:

Surface-level Heliports Elevated heliports and Helidecks		
Length	2.4 m	1.2 m
Diameter (larger end)	0.6 m	0.3 m
Diameter (smaller end)	0.3 m	0.15 m

(7) The colour of the wind direction indicator shall be selected so as to make it clearly visible and understandable from a height of at least 200 m (650 ft) above the heliport, having regard to background and where practicable, a single colour, preferably white or orange, shall be used.

(8) Where a combination of two colours is required to give adequate conspicuity against changing backgrounds, they shall be-

(a) orange and white;

(b) red and white; or

(c) black and white.

(9) Subject to subregulation (8), combination of two colours shall be arranged in five alternate bands the first and last band being the darker colour.

(10) A wind direction indicator at a heliport intended for use at night shall be illuminated.

(b) Markings and Markers

Winching area marking

51.-(1) A heliport operator shall provide winching area markings at a designated winching area as shown in Figure 3-12 in the Third Schedule, to give visual cues which assist a helicopter to be positioned over, and retained within, an area from which a passenger or equipment can be lowered or raised.

(2) Winching area markings shall be located so that their centre(s) coincides with the centre of the clear zone of the winching area as shown in Figure 3-12 in the Third Schedule.

(3) Winching area markings shall comprise a winching area clear zone marking and a winching area manoeuvring zone marking.

(4) A winching area clear zone marking shall consist of a solid circle of diameter not less than 5 m and of a conspicuous colour.

(5) A winching area manoeuvring zone marking shall consist of a broken circle line of 30 cm in width and of a diameter not less than 2 D and be marked in a conspicuous colour, within it “Winch Only” shall be marked to be easily visible to the pilot.

Heliport identification marking

52.-(1) A heliport operator shall provide a heliport with identification marking, to provide to the pilot an indication of the presence of a heliport and, by its form, likely usage; the preferred direction of approach; or the FATO orientation within the helideck obstacle environment.

(2) The heliport identification marking shall be located at or near the centre of the FATO except runway-type FATO.

(3) When the touchdown or positioning marking is offset, the heliport identification marking shall be established in the centre of the touch down or positioning marking.

(4) On a FATO, which does not contain a TLOF and which is marked with an aiming point marking except for a heliport at a hospital, the heliport identification marking shall be established in the centre of the aiming point marking as shown in Figure 4-1 in the Fourth Schedule.

(5) On a FATO which contains a TLOF, a heliport identification marking shall be located in the FATO so the position of it coincides with the centre of the TLOF.

(6) A heliport identification marking shall be located in the FATO and when used in conjunction with FATO designation markings, it shall be displayed at each end of the FATO as shown in Figure 4-3 in the Fourth Schedule.

(7) A heliport identification marking, except for a heliport at a hospital, shall consist of a letter H, white in colour, and the dimensions of the H marking shall be no less than those shown in Figure 4-4 in the Fourth Schedule, and where the marking is used for a runway-type FATO, its dimensions shall be increased by a factor of 3 as shown in Figure 4-3 in the Fourth Schedule.

(8) A heliport identification marking for a heliport at a hospital shall consist of a letter H, red in colour, on a white cross made of squares adjacent to each of the sides of a square containing the H as shown in Figures 4-2 and 4-4 in the Fourth Schedule.

(9) A heliport identification marking shall be oriented with the cross arm of the H at right angles to the preferred final approach direction.

(10) Subject to subregulation (9), the cross arm shall be on or parallel to the bisector of the obstacle free sector and for a non-purpose-built shipboard heliport located on a ship's side, the cross arm shall be parallel with the side of the ship.

(11) On a helideck or a shipboard heliport where the D-value is 16.0 m or larger, the size of the heliport identification H marking shall have a height of 4 m with an overall width not exceeding 3 m and a stroke width not exceeding 0.75 m.

(12) Where the D-value referred in subregulation (10) is less than 16.0 m, the size of the heliport identification H marking shall have a height of 3 m with an overall width not exceeding 2.25 m and a stroke width not exceeding 0.5 m.

Maximum allowable mass marking

53.-(1) A heliport operator shall display a maximum allowable mass marking at an elevated heliport, a helideck, a shipboard heliport and at a surface level heliport.

(2) A maximum allowable mass marking shall be located within the TLOF or FATO and so arranged as to be readable from the preferred final approach direction.

(3) A maximum allowable mass marking shall consist of a one, two- or three-digit number.

(4) The maximum allowable mass shall be expressed in tonnes, 1,000 kg rounded down to the nearest 1,000 kg followed by a letter "t".

(5) For all FATOs except runway-type FATO, the numbers and the letter of the marking shall have a colour contrasting with the background and shall be in the form and proportion shown in Figure 4-5 in the Fourth Schedule, D-value of more than 30 m.

(6) For a D-value between fifteen metres to thirty metres the height of the numbers and the letter of the marking shall be a minimum of 90 cm, and for a D-value of less than fifteen metres the height of the numbers and the letter of the marking shall be a minimum of sixty centimetre, each with a proportional reduction in width and thickness.

(7) For runway-type FATOs, the numbers and the letter of the marking shall have a colour contrasting with the background and shall be in the form and proportion shown in Figure 4-5 in the Fourth Schedule.

D-value marking

54.-(1) All FATOs except runway-type FATOs shall have the D-value marking displayed at a helideck and at a shipboard heliport.

(2) Runway-type FATOs do not need to be marked with the D-value.

(3) The D-value marking shall be displayed at surface-level and elevated heliports.

(4) A D-value marking shall be located within the TLOF or FATO and so arranged as to be readable from the preferred final approach direction.

(5) Where there is more than one approach direction, additional D-value markings shall be provided such that at least one D-value marking is readable from the final approach directions. For a non-purpose-built heliport located on a ship's side, D-value markings shall be provided on the perimeter of the D circle at the 2 o'clock, 10 o'clock and 12 o'clock positions when viewed from the side of the ship facing towards the centre line.

(6) The D-value marking shall be white and rounded to the nearest whole metre or foot with 0.5 rounded down.

(7) The numbers of the marking shall have a colour contrasting with the background and shall be in the form and proportion shown in Figure 4-5 in the Fourth Schedule, for a D-value of more than thirty metre. for a D-value with a dimension of between fifteen metres to thirty metres the height of the numbers of the marking shall be a minimum of eighty centimetre, and for a D-value of less than fifteen metres the height of the numbers of the marking shall be a minimum of sixty centimetre, each with a proportional reduction in width and thickness.

Final approach and take-off area perimeter marking or markers for surface-level heliports

55.-(1) A heliport operator shall provide a FATO perimeter marking or markers at a surface-level heliport where the extent of a FATO with a solid surface is not self-evident.

(2) The FATO perimeter marking, or markers shall be located on the edge of the FATO.

(3) The perimeter of a FATO shall be defined with markings or markers spaced at equal intervals of not more than fifty metres with at least three markings or markers on each side including a marking or marker at each corner.

(4) A FATO perimeter marking shall be a rectangular stripe with a length of 9 m or one-fifth of the side of the FATO which it defines and a width of 1 m.

(5) FATO perimeter markings shall be white.

(6) A FATO perimeter markers shall have dimensional characteristics as shown in Figure 4-6 in the Fourth Schedule.

(7) A FATO perimeter markers shall be of colours that contrast effectively against the operating background.

(8) A FATO perimeter markers shall be a single colour, orange or red, or two contrasting colours, orange and white or, alternatively, red and white shall be used except where such colours would merge with the background.

(9) All FATOs except runway-type FATOs shall be defined as follows:

(a) for an unpaved FATO, the perimeter shall be defined with flush in-ground markers; the FATO perimeter markers shall be thirty centimetres in width, fifteen meters in length, and with end-to-end spacing of not less than 1.5 m and not more than 2 m, the corners of the square or rectangular FATO shall be defined;

(b) for a paved FATO the perimeter shall be defined with a dashed line; the FATO perimeter marking segments shall be 30 cm in width, 1.5 m in length, and with end-to-end spacing of not less than 1.5 m and not more than 2 m, the corners of the square or rectangular FATO shall be defined.

(10) FATO perimeter markings and flush in-ground markers shall be white.

Final approach and take-off area designation markings for runway-type FATOs

56.-(1) A heliport operator shall provide a FATO designation marking at a heliport where it is necessary to designate the FATO to the pilot.

(2) A FATO designation marking shall be located at the beginning of the FATO as shown in Figure 4-3 in the Fourth Schedule.

(3) A FATO designation marking shall consist of a two-digit number and the two-digit number shall be the whole number nearest the one-tenth of the magnetic north when viewed from the direction of approach and where the above rule would give a single digit number, it shall be preceded by a zero.

(4) The marking as shown in Figure 4-3 in the Fourth Schedule, shall be supplemented by the heliport identification marking.

Aiming point marking

57.-(1) A heliport operator shall provide an aiming point marking at a heliport where it is necessary for a pilot to make an approach to a particular point above a FATO before proceeding to a TLOF.

(2) The aiming point marking shall be located within the FATO.

(3) For all FATOs except runway-type FATOs, the aiming point marking shall be located at the centre of the FATO as shown in Figure 4-1 in the Fourth Schedule.

(4) The aiming point marking shall be an equilateral triangle with the bisector of one of the angles aligned with the preferred approach direction.

(5) The point marking shall consist of continuous lines, providing a contrast with the background colour, and the dimensions of the marking shall conform to those shown in Figure 4-7 in the Fourth Schedule.

Touchdown and lift-off area perimeter marking

58.-(1) A heliport operator shall display a TLOF perimeter marking on a TLOF located in a FATO at a surface-level heliport if the perimeter of the TLOF is not self-evident.

(2) A TLOF perimeter marking shall be displayed on an elevated heliport, a helideck and a shipboard heliport.

(3) The TLOF perimeter marking shall be located along the edge of the TLOF and shall consist of a continuous white line with a width of at least 30cm.

Touchdown or positioning marking

59.-(1) A heliport operator shall provide a touchdown or positioning marking for a helicopter to touch down or be accurately placed in a specific position.

(2) The touchdown or positioning marking shall be-

(a) when there is no limitation on the direction of touchdown or positioning, a touchdown or positioning circle (TDPC) marking; and

(b) when there is a limitation on the direction of touchdown or positioning-

(i) for unidirectional applications, a shoulder line with an associated centreline; or

(ii) for multidirectional applications, a TDPC marking with prohibited landing sectors marked.

(3) The inner edge or inner circumference of the touchdown or positioning marking shall be at a distance of 0.25 D from the centre of the area in which the helicopter is to be positioned.

(4) On a helideck, the centre of the TDPC marking shall be located at the centre of the FATO, except that the marking may be offset away from the origin of the obstacle-free sector by no more than 0.1 D where an aeronautical study indicates such offsetting is necessary and would not impair safety.

(5) Prohibited landing sector markings, when provided, shall be located on the touchdown or positioning marking, within the relevant headings, and extend to the inner edge of the TLOF perimeter marking.

(6) The inner diameter of the TDPC shall be 0.5 D of the largest helicopter the area is intended to serve.

(7) A touchdown or positioning marking shall have a line width of at least 0.5 m, and for a helideck and a purpose-built shipboard heliport, the line width shall be at least 1 m.

(8) The length of a shoulder line shall be 0.5D of the largest helicopter the area is intended to serve.

(9) The prohibited landing sector markings, when provided, shall be indicated by white and red hatched markings as shown in Figure 4-8 in the Fourth Schedule.

(10) The TDPM shall take precedent when used in conjunction with other markings on the TLOF except for the prohibited landing sector marking.

Heliport name marking

60.-(1) A heliport operator shall provide name marking at a heliport and helideck where there is insufficient alternative means of visual identification.

(2) Where a Limited Obstacle Sector (LOS) exists on a helideck the marking shall be located on that side of the heliport identification marking.

(3) For a non-purpose-built heliport located on a ship's side, the marking shall be located on the inboard side of the heliport identification marking in the area between the TLOF perimeter marking and the boundary of the LOS.

(4) A heliport name marking shall consist of the name or the alphanumeric designator of the heliport as used in the radio (R/T) communications.

(5) A heliport name marking intended for use at night or during conditions of poor visibility shall be illuminated, either internally or externally.

(6) For runway type FATOs, the characters of the marking shall be not less than 3 m in height.

(7) For All FATOs except runway-type FATOs, the characters of the marking shall be not less than 1.5 m in height at surface-level heliports and not less than 1.2 m on elevated heliports, helidecks and shipboard heliports.

(8) The colour of the marking shall contrast with the background and preferably be white.

Helideck obstacle-free sector (chevron) marking

61.-(1) A helideck with adjacent obstacles that penetrate above the level of the helideck shall have an obstacle-free sector marking.

(2) A helideck obstacle-free sector marking shall be located, where practicable, at a distance from the centre of the TLOF equal to the radius of the largest circle that can be drawn in the TLOF or 0.5 D, whichever is greater.

(3) The helideck obstacle-free sector marking shall indicate the location of the obstacle-free sector and the directions of the limits of the sector.

(4) The height of the chevron shall not be less than thirty centimetres and shall be in a conspicuous colour preferably black.

Helideck and shipboard heliport surface marking

62.-(1) A heliport operator shall provide surface marking to assist the pilot to identify the location of the helideck or shipboard heliport during an approach by day.

(2) A surface marking shall be applied to the dynamic load bearing area bounded by the TLOF perimeter marking.

(3) The helideck or shipboard heliport surface bounded by the TLOF perimeter marking shall be of dark green using a high friction coating.

(4) Where the application of a surface coating may have a degrading effect on friction qualities the surface may not be painted and in such cases the best operating practice to enhance the conspicuity of markings is to outline deck markings with a contrasting colour.

Helicopter taxiway markings and markers

63.-(1) The specifications for taxi-holding position markings in the relevant regulations relating to aerodrome design and operations are equally applicable to taxiways intended for ground taxiing of helicopters.

(2) The centre line of a helicopter taxiway shall be identified with a marking.

(3) The edges of a helicopter taxiway, if not self-evident, shall be identified with markers or markings.

(4) Helicopter taxiway markings shall be along the centre line and, if required, along the edges of a helicopter taxiway.

(5) Helicopter taxiway edge markers shall be located at a distance of 1 m to 3 m beyond the edge of the helicopter taxiway.

(6) Helicopter taxiway edge markers shall be spaced at intervals of not more than 15 m on each side of straight sections and 7.5 m on each side of curved sections with a minimum of four equally spaced markers per section.

(7) On a paved taxiway, a helicopter taxiway centre line marking shall be a continuous yellow line 15 cm in width.

(8) On an unpaved taxiway that will not accommodate painted markings, a helicopter taxiway centre line shall be marked with flush in-ground 15 cm wide and approximately 1.5 m in length yellow markers, spaced at intervals of not more than 30 m on straight sections and not more than 15 m on curves, with a minimum of four equally spaced markers per section.

(9) Helicopter ground taxiway edge markings shall be a continuous double yellow line, each 15 cm in width, and spaced fifteen centimetres apart, nearest edge to nearest edge.

(10) A helicopter taxiway edge marker shall be frangible to the wheeled undercarriage of a helicopter.

(11) A helicopter taxiway edge marker shall not exceed a plane originating at a height of twenty-five centimetres above the plane of the helicopter taxiway, at a distance of 0.5 m from the edge of the helicopter ground taxiway and sloping upwards and outwards at a gradient of five percent to a distance of three metres beyond the edge of the helicopter taxiway.

(12) A helicopter taxiway edge marker shall be blue in colour.

(13) Where the helicopter taxiway is to be used at night, the edge markers shall be internally illuminated or retro-reflective.

Helicopter Air taxi-route markings and markers

64.-(1) A heliport operator shall identify the centre line of a helicopter air taxi-route with markers or markings.

(2) A helicopter air taxi-route centre line marking or flush in-ground centre line marker shall be located along the centre line of the helicopter air taxiway.

(3) A helicopter air taxi-route centre line, when on a paved surface, shall be marked with a continuous yellow line 15 cm in width.

(4) A helicopter air taxi-route centre line, when on an unpaved surface that will not accommodate painted markings, shall be marked with flush in-ground fifteen centimetre wide and approximately 1.5 m in length yellow markers, spaced at intervals of not more than thirty metres on straight sections and not more than fifteen m on curves, with a minimum of four equally spaced markers per section.

(5) Where the helicopter air taxi-route is to be used at night, markers shall be either internally illuminated or retro-reflective.

Helicopter stand markings

65.-(1) A heliport operator shall provide helicopter stand perimeter marking.

(2) A helicopter stand shall be provided with the appropriate TDPM as shown in Figure 4-8 in the Fourth Schedule.

(3) Alignment lines and lead-in-lead-out lines shall be provided on a helicopter stand.

(4) The TDPM, alignment lines and lead-in-lead-out lines shall be located such that every part of the helicopter can be contained within the helicopter stand during positioning and permitted manoeuvring.

(5) Alignment lines and lead-in-lead-out lines shall be located as shown in Figure 4-8 in the Fourth Schedule.

(6) A helicopter stand perimeter marking shall consist of a continuous yellow line and have a line width of 15 cm.

(7) The TDPM shall have the characteristics described in regulation 54 above.

(8) Alignment lines and lead-in or lead-out lines shall be continuous yellow lines and have a width of fifteen cm.

(9) Curved portions of alignment lines and lead-in-lead-out lines shall have radii appropriate to the most demanding helicopter type the helicopter stand is intended to serve.

(10) Stand identification markings shall be marked in a contrasting colour so as to be easily readable.

(11) Where it is intended that helicopters proceed in one direction only, arrows indicating the direction to be followed may be added as part of the alignment lines.

Flight Path alignment guidance marking

66.-(1) A heliport operator shall provide flight path alignment guidance markings at a heliport where it is desirable and practicable to indicate available approach or departure path direction.

(2) The flight path alignment guidance marking shall be located in a straight line along the direction of approach or departure path on one or more of the TLOF, FATO, safety area or any suitable surface in the immediate vicinity of the FATO or safety area.

(3) A flight path alignment guidance marking shall consist of one or more arrows marked on the TLOF, FATO or safety area surface as shown in Figure 4-9 in the Fourth Schedule.

(4) The stroke of the arrow(s) shall be fifty centimetres in width and at least 3 m in length and where combined with a flight path alignment guidance lighting system it shall take the form shown in Figure 4-9 in the Fourth Schedule, which includes the scheme for marking 'heads of the arrows' which are constant regardless of stroke length.

(5) The markings shall be in a colour which provides good contrast against the background colour of the surface on which they are marked, preferably white.

(c) Lights

General requirements for heliport lights

67.-(1) The specifications on screening of non-aeronautical ground lights, and design of elevated and inset lights shall be those in the regulations relating to aerodrome design and operations.

(2) In the case of helidecks and heliports located near navigable waters, consideration shall be given to ensuring that aeronautical ground lights do not cause confusion to mariners.

(3) The specifications for marking and lighting of obstacles in the regulations relating to the aerodrome design and operations are equally applicable to heliports and winching areas.

Heliport beacon

68.-(1) A heliport operator shall provide a heliport beacon at a heliport where-

(a) long-range visual guidance is considered necessary and is not provided by other visual means; or

(b) identification of the heliport is difficult due to surrounding lights.

(2) The heliport beacon shall be located on or adjacent to the heliport preferably at an elevated position and so that it does not dazzle a pilot at short range.

(3) Where a heliport beacon is likely to dazzle pilots at short range, it may be switched off during the final stages of the approach and landing.

(4) The heliport beacon shall emit repeated series of equispaced short duration white flashes in the format shown in Figure 4-10 in the Fourth Schedule, and the light shall show at all angles of azimuth.

(5) The effective light intensity distribution of each flash shall be as shown in Figure 4-11 in the Fourth Schedule.

Approach lighting system

69.-(1) A heliport operator shall provide an approach lighting system at a heliport where it is desirable and practicable to indicate a preferred approach direction.

(2) The approach lighting system shall be located in a straight line along the preferred direction of approach.

(3) An approach lighting system shall consist of a row of three lights spaced uniformly at 30 m intervals and of a crossbar 18 m in length at a distance of 90 m from the perimeter of the FATO as shown in Figure 4-13 in the Fourth Schedule; the lights forming the crossbar shall be as nearly as practicable in a horizontal straight line at right angles to, and bisected by, the line of the centre line lights and spaced at 4.5 m intervals; where there is the need to make the final approach course more conspicuous, additional lights spaced uniformly at thirty metres intervals shall be added beyond the crossbar; the lights beyond the crossbar may be steady or sequenced flashing, depending upon the environment.

(4) Both steady and sequenced flashing lights shall be omnidirectional white lights.

(5) The flashing lights shall have a flash frequency of one per second and their light distribution shall be as shown in Figure 4-12 in the Fourth Schedule, Illustration 3; the flash sequence shall commence from the outermost light and progress towards the crossbar.

(6) A suitable brilliancy control shall be incorporated to allow for adjustment of light intensity to meet the prevailing conditions; and the following intensity settings are suitable:

(a) steady lights - 100 percent, 30 percent and 10 percent; and

(b) flashing lights - 100 percent, 10 percent and 3 percent.

Flight Path alignment guidance lighting system

70.-(1) Flight path alignment guidance lighting system shall be provided at a heliport where it is desirable and practicable to indicate available approach and departure path direction.

(2) The flight path alignment guidance lighting system shall be in a straight line along the direction of approach or departure path on one or more of the TLOF, FATO, safety area or any suitable surface in the immediate vicinity of the FATO, TLOF or safety area.

(3) Where combined with a flight path alignment guidance marking, as far as is practicable the lights shall be located inside the "arrow" markings.

(4) A flight path alignment guidance lighting system shall consist of a row of three or more lights spaced uniformly a total minimum distance of 6 m intervals between lights shall not be less than 1.5 m and shall not exceed 3 m where space permits there shall be 5 lights steady omnidirectional inset white lights as shown in Figure 4-10 in the Fourth Schedule.

(5) The lights shall be steady omnidirectional inset white lights.

(6) The distribution of the lights shall be as shown in Figure 4-12 in the Fourth Schedule, Illustration 6.

(7) A suitable control shall be incorporated to allow for adjustment of light intensity to meet the prevailing conditions and to balance the flight path alignment guidance lighting system with other heliport lights and general lighting that may be present around the heliport.

Visual alignment guidance system

71. Visual alignment guidance system shall be provided to serve the approach to a heliport where one or more of the following conditions exist especially at night:

(a) obstacle clearance, noise abatement or traffic control procedures require a particular direction to be flown;

(b) the environment of the heliport provides few visual surface cues; and

(c) it is physically impracticable to install an approach lighting system.

Visual approach slope indicator

72. A visual approach slope indicator shall be provided to serve the approach to a heliport, whether or not the heliport is served by other visual approach aids or by non-visual aids, where one or more of the following conditions exist especially at night:

(a) obstacle clearance, noise abatement or traffic control procedures require a particular slope to be flown;
(b) the environment of the heliport provides few visual surface cues; and
(c) the characteristics of the helicopter require a stabilised approach.

Final approach and take-off area lighting systems for onshore surface-level heliports

73.-(1) Where a FATO with a solid surface is established at a surface-level heliport intended for use at night, FATO lights shall be provided except that they may be omitted where the FATO and the TLOF are nearly coincidental or the extent of the FATO is self-evident.

(2) FATO lights shall be placed along the edges of the FATO and the lights shall be uniformly spaced as follows:

(a) for an area in the form of a square or rectangle, at intervals of not more than fifty m with a minimum of four lights on each side including a light at each corner; and
(b) for any other shaped area, including a circular area, at intervals of not more than 5 m with a minimum of ten lights.

(3) FATO lights shall be fixed omnidirectional lights showing white and where the intensity of the lights is to be varied the lights shall show variable white and the light distribution of FATO lights shall be as shown in Figure 4-12 in the Fourth Schedule, Illustration 4.

(4) The lights shall not exceed a height of twenty-five centimetre and shall be insert when a light extending above the surface would endanger helicopter operations and where a FATO is not meant for lift-off or touchdown, the lights shall not exceed a height of 25 cm above ground or snow level.

Aiming point lights

74.-(1) Where an aiming point marking is provided at a heliport intended for use at night, aiming point lights shall be provided.

(2) Aiming point lights shall be collocated with the aiming point marking.

(3) Aiming point lights shall form a pattern of at least six omnidirectional white lights as shown in Figure 4-7 in the Fourth Schedule.

(4) The lights shall be inset when a light extending above the surface could endanger helicopter operations.

(5) The light distribution of aiming point lights shall be as shown in Figure 4-12 in the Fourth Schedule, Illustration 4.

Touchdown and lift-off area lighting system

75.-(1) A heliport operator shall provide a TLOF lighting system at a heliport intended for use at night.

(2) For a surface-level heliport, lighting for the TLOF in a FATO shall consist of one or more of the following-

(a) perimeter lights;
(b) flood lighting;
(c) arrays of segmented point source lighting (ASPSL) or luminescent panel (LP) lighting to identify the TLOF when paragraphs (a) and (b) are not practicable and FATO lights are available.

(3) For an elevated heliport, shipboard heliport or helideck, lighting of the TLOF in a FATO shall consist of-

(a) perimeter lights; and
(b) ASPSL or LPs to identify the TDPM or floodlighting to illuminate the TLOF.

(4) TLOF ASPSL or LPs to identify the TDPM or floodlighting shall be provided at a surface-level heliport intended for use at night when enhanced surface texture cues are required.

(5) TLOF perimeter lights shall be placed along the edge of the area designated for use as the TLOF or within a distance of 1.5 m from the edge; where the TLOF is a circle, the lights shall be-

(a) located on straight lines in a pattern which will provide information to pilots on drift displacement; and

(b) where paragraph (a) is not practicable, evenly spaced around the perimeter of the TLOF at the appropriate interval, except that over a sector of 45 degrees the lights shall be spaced at half spacing.

(6) TLOF perimeter lights shall be uniformly spaced at intervals of not more than 3 m for elevated heliports and helidecks and not more than 5 m for surface-level heliports, and there shall be a minimum number of four lights on each side including a light at each corner; for a circular TLOF, where lights are installed in accordance to subregulation (5)(b) shall be a minimum of fourteen lights.

(7) The TLOF perimeter lights shall be installed at an elevated heliport or fixed helideck such that the pattern cannot be seen by the pilot from below the elevation of the TLOF.

(8) The TLOF perimeter lights shall be installed on a moving helideck or shipboard heliport, such that the pattern cannot be seen by the pilot from below the elevation of the TLOF when the helideck or shipboard heliport is level.

(9) On surface-level heliports, ASPSL or LPs, if provided to identify the TLOF, shall be placed along the marking designating the edge of the TLOF; where the TLOF is a circle, they shall be located on straight lines circumscribing the area.

(10) On surface-level heliports the minimum number of LPs on a TLOF shall be nine, where the total length of LPs in a pattern shall not be less than 50 percent of the length of the pattern; where there shall be an odd number with a minimum number of three panels on each side of the TLOF including a panel at each corner; and where LPs shall be uniformly spaced with a distance between adjacent panel ends of not more than 5 m on each side of the TLOF.

(11) When LPs are used on an elevated heliport or helideck to enhance surface texture cues, the panels shall not be placed adjacent to the perimeter lights and they shall be placed around a touchdown marking or coincident with heliport identification marking.

(12) TLOF floodlights shall be located so as to avoid glare to pilots in flight or to personnel working on the area; where the arrangement and aiming of floodlights shall be such that shadows are kept to a minimum.

(13) The TLOF perimeter lights shall be fixed omnidirectional lights showing green.

(14) At a surface-level heliport, ASPSL or LPs shall emit green light when used to define the perimeter of the TLOF.

(15) The chromaticity and luminance of colours of LPs shall conform the regulations relating to aerodrome design and operations.

(16) An LP shall have a minimum width of 6 cm, and the panel housing shall be the same colour as the marking defines.

(17) For a surface level or elevated heliport, the TLOF perimeter lights located in a FATO shall not exceed a height of 5 cm and shall be inset when a light extending above the surface could endanger helicopter operations.

(18) For a helideck or shipboard heliport, the TLOF perimeter lights shall not exceed a height of 5 cm, or for a FATO or TLOF, 15 cm.

(19) When located within the safety area of a surface level or elevated heliport, the TLOF floodlights shall not exceed a height of twenty-five centimetre.

(20) For a helideck or shipboard heliport, the TLOF floodlights shall not exceed a height of 5 cm, or for a FATO or TLOF, fifteen centimetres.

(21) The LPs shall not extend above the surface by more than 2.5 cm.

(22) The light distribution of the perimeter lights shall be as shown in Figure 4-12, Illustration 5 in the Fourth Schedule.

(23) The light distribution of the LPs shall be as shown in Figure 4-12, Illustration 6 in the Fourth Schedule.

(24) The spectral distribution of TLOF area floodlights shall be such that the surface and obstacle marking can be correctly identified.

(25) The average horizontal illuminance of the floodlighting shall be at least 10 lux, with a uniformity ratio, average to minimum, of not more than 8:1 measured on the surface of the TLOF.

(26) Lighting used to identify the TDPC shall comprise a segmented circle of omnidirectional ASPSL strips showing yellow. The segments shall consist of ASPSL strips, and the total length of the ASPSL strips shall not be less than fifty percent of the circumference of the circle.

(27) Where utilised, the heliport identification marking lighting shall be omnidirectional showing green.

Helicopter stand floodlighting

76.-(1) A heliport operator shall provide floodlighting on a helicopter stand intended for use at night.

(2) Helicopter stand floodlights shall be located so as to provide adequate illumination, with a minimum of glare to the pilot of a helicopter in flight and on the ground, and to personnel on the stand.

(3) The arrangement and aiming of floodlights shall be such that a helicopter stand receives light from two or more directions to minimise shadows.

(4) The spectral distribution of stand floodlights shall be such that the colours used for surface and obstacle marking can be correctly identified.

(5) Horizontal and vertical illuminance shall be sufficient to ensure that visual cues are discernible for required manoeuvring and positioning, and essential operations around the helicopter can be performed expeditiously without endangering personnel or equipment.

Winching area floodlighting

77.-(1) A heliport operator shall provide winching area floodlighting at a winching area intended for use at night.

(2) Winching area floodlights shall be located so as to avoid glare to pilots in flight or to personnel working on the area; where the arrangement and aiming of floodlights shall be such that shadows are kept to a minimum.

(3) The spectral distribution of winching area floodlights shall be such that the surface and obstacle markings can be correctly identified.

(4) The average horizontal illuminance shall be at least 10 lux, measured on the surface of the winching area.

Taxiway lights

78. Light requirements for taxiways intended for ground taxiing of helicopters shall conform to the taxiway lights and taxiway centre line lights requirements of the regulations relating to aerodrome design and operations regulations.

Visual aids for denoting obstacles outside and below obstacle limitation surfaces

79.-(1) Where an aeronautical study indicates that obstacles in areas outside and below the boundaries of the OLS, established for a heliport, constitute a hazard to helicopters, they shall be marked and lit, except that the marking may be omitted when the obstacle is lighted with high-intensity obstacle lights by day.

(2) Where an aeronautical study indicates that overhead wires or cables crossing a river, waterway, valley or highway constitute a hazard to helicopters, they shall be marked, and their supporting towers marked and lit.

Floodlighting of obstacles

80.-(1) At a heliport intended for use at night, obstacles shall be floodlighted if it is not possible to display obstacle lights on them.

(2) Obstacle floodlights shall be arranged so as to illuminate the entire obstacle and as far as practicable in a manner so as not to dazzle the helicopter pilots.

(3) Obstacle floodlighting shall be such as to produce a luminance of at least 10 cd/m^2.

PART VIII
HELIPORT EMERGENCY RESPONSE

Heliport emergency planning

81.-(1) A heliport operator shall establish an emergency plan commensurate with the helicopter operations and other activities conducted at the heliport.

(2) The plan shall identify agencies which could be of assistance in responding to an emergency at the heliport or in its vicinity.

(3) The heliport emergency plan shall provide for the coordination of the actions to be taken in the event of an emergency occurring at a heliport or in its vicinity.

(4) Where an approach/departure path at a heliport is located over water, the plan shall identify which agency is responsible for coordinating rescue in the event of a helicopter ditching and indicate how to contact that agency.

(5) The plan shall include, as a minimum, the following information:

(a) the types of emergencies planned for;
(b) how to initiate the plan for each emergency specified;
(c) the name of agencies on and off the heliport to contact for each type of emergency with telephone numbers or other contact information;
(d) the role of each agency for each type of emergency;
(e) a list of pertinent on-heliport services available with telephone numbers or other contact information;
(f) copies of any written agreements with other agencies for mutual aid and the provision of emergency services; and
(g) a grid map of the heliport and its immediate vicinity.

(6) All agencies identified in the plan shall be consulted about their role in the plan.

(7) The plan shall be reviewed and the information in it updated at least yearly or, if deemed necessary, after an actual emergency, so as to correct any deficiency found during an actual emergency.

(8) A test of the emergency plan shall be carried out at least once every three years.

(a) Rescue and Fire fighting

Provision of RFFS equipment

82.-(1) A heliport operator shall provide rescue and fire fighting equipment and services at helidecks and at elevated heliports located above occupied structures.

(2) A safety risk assessment shall be performed to determine the need for rescue and fire fighting equipment and services at surface level heliports and elevated heliports located above unoccupied structures.

Level of protection provided

83.-(1) For the application of primary media, the discharge rate, in litres per minute, applied over the assumed practical critical area, in m^2, shall be predicated on a requirement to bring any fire which may occur on the heliport under control within one minute, measured from activation of the system at the appropriate discharge rate.

(2) For practical critical area calculation where primary media is applied as a solid stream, the practical critical area shall be calculated by multiplying the helicopter fuselage length (m) by the helicopter fuselage width (m) plus an additional width factor (W1) of 4 m and categorisation from H0 to H3 shall be determined on the basis of the fuselage dimensions in the following Table 3-1:

Table 3-1. Heliport Fire Fighting Category

Category (1)	Maximum fuselage length (2)	Maximum fuselage width (3)
H0	up to but not including 8 m	1.5 m
H1	from 8 m up to but not including 12 m	2 m
H2	from 12 m up to but not including 16 m	2.5 m
H3	from 16 m up to 20 m	3 m

(3) Practical critical area calculation where primary media is applied in a dispersed pattern-

(a) For heliports, except helidecks, the practical critical area shall be based on an area contained within the heliport perimeter, which always includes the TLOF, and to the extent that it is load-bearing, the FATO.

(b) For helidecks the practical critical area shall be based on the largest circle capable of being accommodated within the TLOF perimeter.

Extinguishing agents

84.-(1) For surface level heliports where an RFFS is provided; with primary media applied as a solid stream using a portable foam application system (PFAS); the amount of primary media and complementary agents shall be in accordance with the following Table 3-2.

Table 3-2 Minimum usable amounts of extinguishing agents for surface-level heliports

	Foam meeting performance level B		Foam meeting performance level C		Complementary agents		
Category	Water (L)	Discharge rate foam solution/ minute (L)	Water (L)	Discharge rate foam solution/ minute (L)	Dry chemical powder (kg)	and	Gaseous media (kg)
(1)	(2)	(3)	(4)	(5)	(6)		(7)
H 0	500	250	330	165	23		9
H 1	800	400	540	270	23		9
H 2	1 200	600	800	400	45		18
H 3	1 600	800	1 100	550	90		36

(2) For Elevated heliports where an RFFS is provided; with primary media applied as a solid stream using a fixed foam application system (FFAS) the amount of foam media and complementary agents shall be in accordance with Table 3-3.

Table 3-3 Minimum Usable Amounts of Extinguishing Agents for Elevated Heliports

Foam meeting performance level B					Complementary agents		
Category	Water (L)	Discharge rate foam solution/minute (L)	Water (L)	Discharge rate foam solution/minute (L)	Dry chemical powder (kg)	and	
(1)	(2)	(3)	(4)	(5)	(6)		(7)
H 0	1 250	250	825	165	23		9
H 1	2 000	400	1 350	270	45		18
H 2	3 000	600	2 000	400	45		18
H 3	4 000	800	2 750	550	90		36

(3) For elevated heliports or limited-sized surface level heliports with primary media applied in a dispersed pattern through a fixed foam application system (FFAS) a solid plate heliport-

(a) the amount of water required for foam production shall be predicated on the practical critical area (m2) multiplied by the appropriate application rate (L/min/m2), giving a discharge rate for foam solution (in L/min) and the discharge rate shall be multiplied by the discharge duration to calculate the amount of water needed for foam production;

(b) the discharge duration shall be at least three minutes;

(c) complementary media shall be in accordance with Table 3-3, for H2 operations.

(4) For purpose-built elevated heliports/limited-sized surface level heliport with primary media applied in a dispersed pattern through a fixed application system (FAS), a passive fire retarding surface with water-only Deck Integrated Fire fighting System (DIFFS)-

(a) the amount of water required shall be predicated on the practical critical area (m2) multiplied by the appropriate application rate (3.75 L/min/m2) giving a discharge rate for water (in L/min) and the discharge rate shall be multiplied by the discharge duration to determine the total amount of water needed;

(b) the discharge duration shall be at least two minutes;

(c) complementary media shall be in accordance with Table 3-3, for H2 operations.

(5) For purpose-built helidecks with primary media applied in a solid stream or a dispersed pattern through a fixed foam application system (FFAS), a solid plate heliport-

(a) the amount of water required for foam media production shall be predicated on the practical critical area (m2) multiplied by the application rate (L/min/m2) giving a discharge rate for foam solution (in L/min) and the discharge rate shall be multiplied by the discharge duration to calculate the amount of water needed for foam production;

(b) the discharge duration shall be at least five minutes;

(c) complementary media shall be in accordance with Table 3-3, H0 levels for helidecks up to and including 16.0 m and to H1/H2 levels for helidecks greater than 16.0 m. Helidecks greater than twenty-four metre shall adopt H3 levels.

(6) For purpose-built helidecks with primary media applied in a dispersed pattern through a fixed application system (FAS), a passive fire-retarding surface with water-only DIFFS-

(a) the amount of water required shall be predicated on the practical critical area (m2) multiplied by the application rate (3.75 L/min/m2) giving a discharge rate for water (in L/min) and the discharge rate shall be multiplied by the discharge duration to calculate the amount of water needed;
(b) the discharge duration shall be at least three minutes;
(c) complementary media shall be in accordance with Table 3-3, to H0 levels for helidecks up to and including 16.0 m and to H1/H2 levels for helidecks greater than 16.0 m and helidecks greater than twenty-four metre shall adopt H3 levels.

Response time

85.-(1) At surface level heliports, the operational objective of the rescue and fire fighting response shall be to achieve response times not exceeding two minutes in optimum conditions of visibility and surface conditions.

(2) At elevated heliports, limited-sized surface level heliports and helidecks, the response time for the discharge of primary media at the required application rate shall be fifteen seconds measured from system activation and if rescue and fire fighting personnel are needed, they shall be immediately available on or in the vicinity of the heliport while helicopter movements are taking place.

Rescue arrangements

86. A heliport operator shall provide rescue arrangements commensurate with the overall risk of the helicopter operation at the heliport.

Communication and alerting system

87. A heliport operator shall provide suitable alerting and communication system in accordance with the emergency response plan.

Personnel

88.-(1) Where provided, the number of rescue and fire fighting personnel shall be sufficient for the required task.

(2) Where provided, rescue and fire fighting personnel shall be trained to perform their duties, and maintain their competence.

(3) Rescue and fire fighting personnel shall be provided with protective equipment.

Means of escape

89.-(1) Elevated heliports and helidecks shall be provided with a main access and at least one additional means of escape.

(2) Access points shall be located as far apart from each other as is practicable.

Wildlife Management

90. A heliport operator shall establish measures for the management of wildlife at the heliport in accordance with the regulations relating to aerodrome design and operations.

Apron management service

91. Where applicable, a heliport operator shall provide apron management service at the heliport in accordance with the relevant regulations relating to aerodrome design and operations .

Maintenance

92. A heliport operator shall establish and maintain a system for the maintenance of heliport facilities and equipment in accordance with the relevant regulations relating to aerodrome design and operations.

PART IX
EXEMPTIONS

Application for exemption

93. A person may apply in writing to the Authority for an exemption from specific provision of these Regulations in accordance with the regulations relating to certification, licensing and registration.

Aeronautical study

94. Where a heliport does not meet the requirements of these regulations, the Authority may determine, after an aeronautical study, the conditions and procedures that are necessary to ensure a level of safety equivalent to that established by the relevant regulations.

PART X
GENERAL PROVISIONS

Deviations from these Regulations

95. Any deviation from these Regulations shall be set out in an endorsement on the aerodrome certificate, license and in the aerodrome manual.

Safety inspections and audits

96. The Authority shall-

(a) carry out such safety inspections and audits as may be necessary for the purpose of verifying the validity of an application for construction and operation of a heliport;

(b) carry out safety inspections and audits of any document and records of an operator, which may be necessary to determine compliance with the appropriate requirements as prescribed in these Regulations.

Enforcement

97.-(1) The Authority shall take enforcement action on any regulated entity that fails to comply with the provisions of these Regulations.

(2) Inspectors of the Authority holding valid delegations shall take necessary action to preserve safety where an undesirable condition has been detected.

(4) In carrying out the enforcement actions pursuant to the provisions of subregulation (2), the inspectors of the Authority shall invoke the powers with due care and act in good faith in the interest of preserving safety.

PART XI
OFFENCES AND PENALTIES

Contravention of Regulations

98. A person who contravenes any provision of these Regulations may have his certificate, licence, approval, authorisation or such other document suspended or revoked.

Offences and penalties

99.-(1) A person who contravenes any provision of these Regulations, commits an offence and on conviction shall be liable to a fine of not less than the equivalent in Tanzanian shillings of United States dollars one thousand or to imprisonment for a term not less than twelve months or to both.

(2) In the case of a continuing contravention, each day of the contravention shall constitute a separate offence and shall be liable to an additional fine of not less than the equivalent in Tanzanian shillings of United States dollars five hundred for each day the offence continues.

(3) Where it is proved that an act or omission of any person, which would otherwise have been a contravention by that person of a provision of these Regulations was due to any cause not avoidable by the exercise of reasonable care by that person, the act or omission shall be deemed not to be a contravention by that person of that provision.

PART XII
SAVINGS

Savings GN. No. 73 of 2017

100. Notwithstanding the provisions of regulation 34 (4) and the revocation of the Civil Aviation (Aerodromes) Regulations by the Civil Aviation (Certification, Licensing and Registration of Aerodromes) Regulations, 2023, licences, certificates, approvals or any other documents issued to an operator prior to the commencement of these Regulations shall continue in force as if it was issued under these Regulations until it expires or is otherwise cancelled by the Authority or a court of competent jurisdiction.

FIRST SCHEDULE

(*Made under regulation 7)*

Form No. TCAA-01

Heliport Licence Application / Permit of Construction

TCAA	*TANZANIA CIVIL AVIATION AUTHORITY SAFETY REGULATION*	*Revision: 1*
Form No. TCAA-01	*Title: Heliport Licence Application / Permit of Construction*	*Page …… of …….*

Purpose of application	*Tick applicable*	
	New aerodrome	
	Initial license	
	License Renewal	

1. PARTICULARS OF APPLICANT
a) Name/Title
b) Permanent Address
c) Telephone
d) Fax
e) Email
f) Physical address
g) Residential Address
h) Occupation
2. PARTICULARS OF HELIPORT/HELIPAD:
a) Proposed/name of the heliport and licence no if renewal
b) Village
c) Ward
d) District
e) Region
f) Position of aerodrome with reference to the nearest town
3. DETAILS OF LICENCE
a) Period for which licence is required, if less than 24 months:
b) Category of licence required: ordinary /public
c) Type and maximum total mass authorised of the heaviest helicopter engaged on flights for the purpose of the commercial transport of passengers and for instructions in flying expected to use the heliport/helipad:
d) Expected average number movements per calendar month of helicopter shown at (c) during the three busiest calendar months of the year (one movement is one take-off or one landing)
e) Is the heliport to be used for night flying?
f) Are you the owner of the heliport site? if yes attach copies of title deed.
If NOT please state, with supporting documentary evidence

(i) Details of any rights you hold over the site	
(ii) The period for which you hold these rights	
(iii) The name and address of the owner or tenant whose permission has been obtained for the site to be used as a heliport	
g) Does any public or private right of way exist on or near the proposed heliport?	
(i) If so would the use of the site as an heliport interfere with such rights?	
(ii) If there is a risk of interference with private rights, please give details of any agreement made with the holder of the rights for the use of the site as a heliport	
h) Before submitting this application, the authorities, as indicated below, should be consulted and ,if appropriate ,their approvals obtained .Please give details. District /Regional Land Planning Authority, Port and Harbour Authority (in case of water aerodrome), Ship name (in case of helideck), District and Regional Government Authorities of the area of heliport location and national Environment Management Council. (Attach Documentary evidence).	
Name and address of Authority	Date and reference of approval
Have any of the authorities mentioned above raised any objection to the proposed use of the site as heliport? if the answer is YES please state the authority concerned	
4. HELIPORT/HELIPAD PHYSICAL CHARACTERISTICS	
Type: Surface-level heliport/Elevated Heliport/Helideck/Shipboard heliport *(tick the correct)*	
Heliport reference point in geographical coordinates (in WGS-84):	
Heliport elevation to the nearest foot above mean sea level :	
Heliport reference temperature in degrees Celsius:	
Final Approach and Take off Area (FATO) m:_____ Helicopter clearways : _____ Touchdown and lift off area (TFLO) m: _____ Safety area available (m): _____ Ground taxiway and ground taxi-routes available:_____ Air taxiway and air taxi-routes available: _____	
Obstacles: significant obstacles on, in the vicinity and on the approaches of the heliport. Location (distance in metres and bearing from the heliport reference point: Top elevation (nearest to the next higher foot):	
Visual aids: (tick if available) Heliport identification marking _____ Maximum allowable mass marking _____ Maximum allowable D-value marking _____ Final approach and take-off area marking or marker _____ Final approach and take-off area designation marking _____ Aiming point marking _____ Touchdown and lift-off area marking _____ Heliport name marking _____ Touchdown/positioning marking	
Rescue and fire fighting :the level of protection provided at the heliport for aircraft rescue and fire fighting purpose with type and amount of extinguishing agents, equipment and personnel:	
5. HELIPORT/HELIPAD FACILITIES	
Windsock:	
Signal square	
Radio communication	
Terminal building	
Hangars/workshops	
Night flying facilities	

Radio navigation aids
Fuel and oil for aircraft
Medical facilities (first aid and location of nearest hospital)
Personnel to record aircraft movements at the heliport/helipad and to undertake maintenance of the heliport
Reporting methods to appropriate authority on emergencies or heliport unserviceability
Provision of air traffic services
6. PARTICULARS ON NEAREST HELIPORT OR AERODROMES
The nearest aerodrome/heliport in the vicinity: Name: Bearing: Distance (nautical miles)

CERTIFICATE

I hereby certify that the foregoing information is correct in every respect and no relevant information has been withheld.

Date ……. Signature with company seal……

INFORMATION

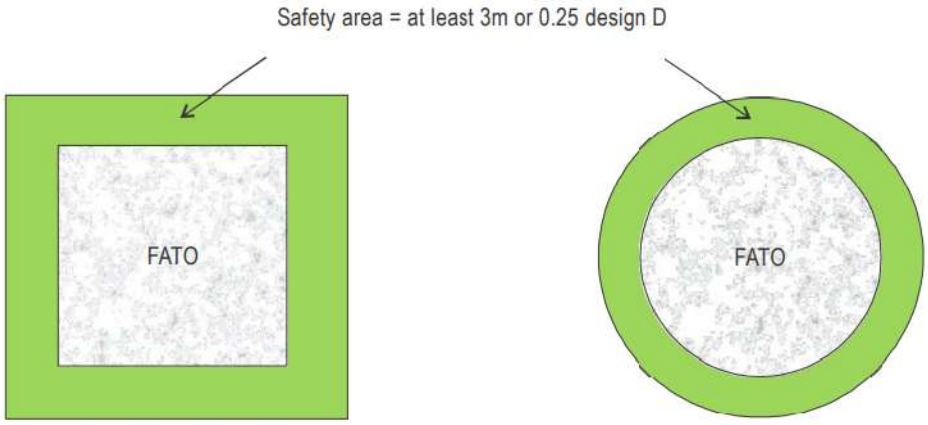
This application for heliport licence should be accompanied with the following

1. Wind distribution data at the heliport for the determination /approval of the runway orientation (obtainable from Tanzania meteorological agency).
2. An area map of scale 1:50 or 1:100 with the heliport area plotted.
3. Surveyed information of the heliport undertaken by a competent surveying organisation.
4. Before a heliport licence is granted the Tanzania Civil Aviation Authority will require to be satisfied that the physical condition on the maneuvering area and in the environs of the heliport are acceptable, that the scale of equipment provided is adequate, and that the heliport is organised staffed and has maintenance and other arrangements sufficient to ensure the safe operation of the heliport an its facilities for the purposes for which the licence application has been made.
5. Appropriate inspection and heliport certification fees including TCAA inspectors visiting fees to cover transport per diem incidental and administrative expenses.

SECOND SCHEDULE

(Made under regulations 22, 24, 25, 29, 30, 32, 36)

Figure 2-1. FATO and associated safety area



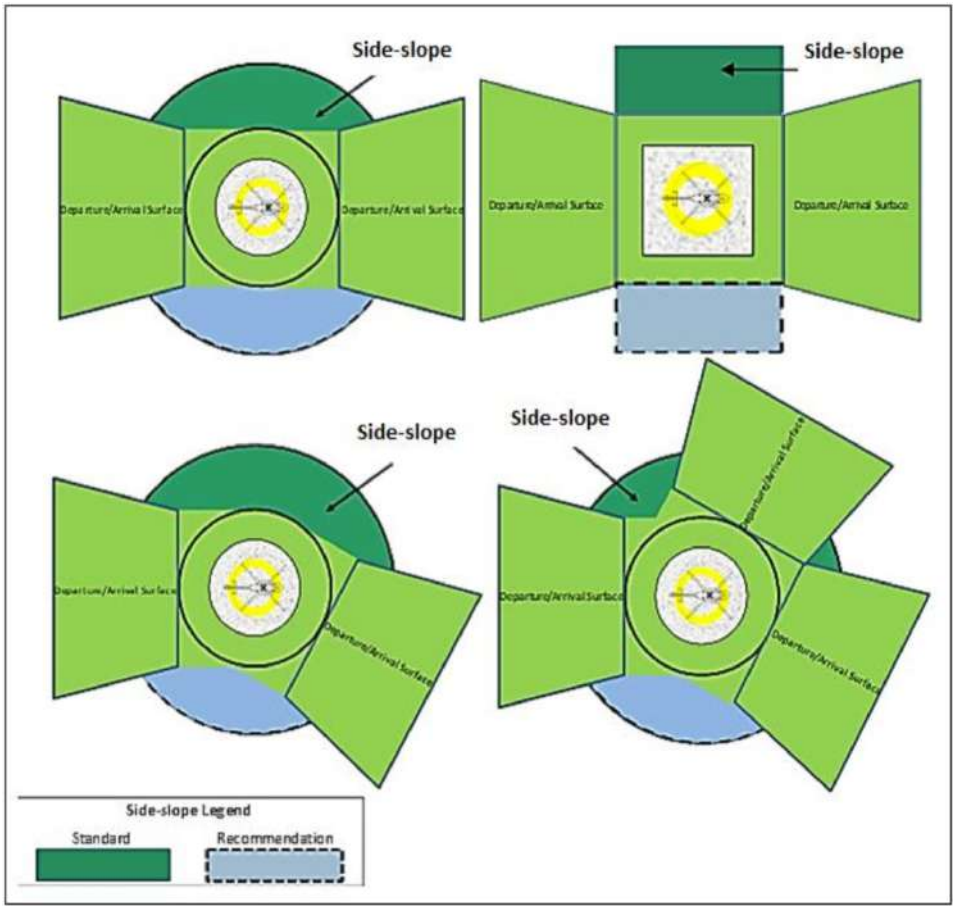


Figure 2-2. FATO simple/complex safety area and side slope protection

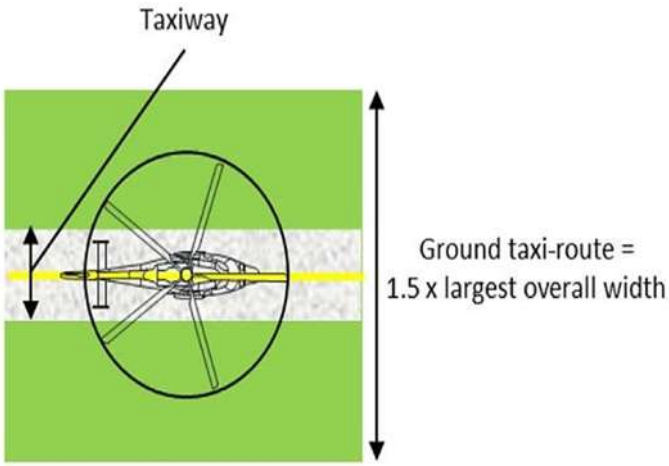


Figure 2-3: Helicopter taxiway/ground taxi-route

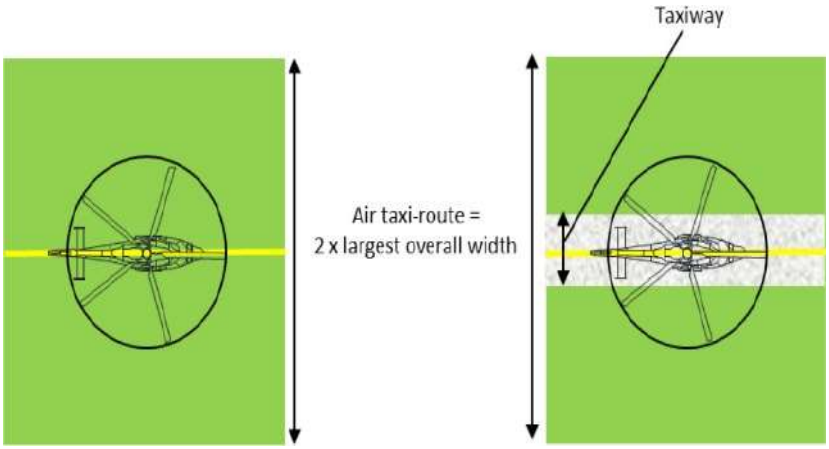


Figure 2-4. Helicopter air taxi-route and combined air taxi-route/taxiway

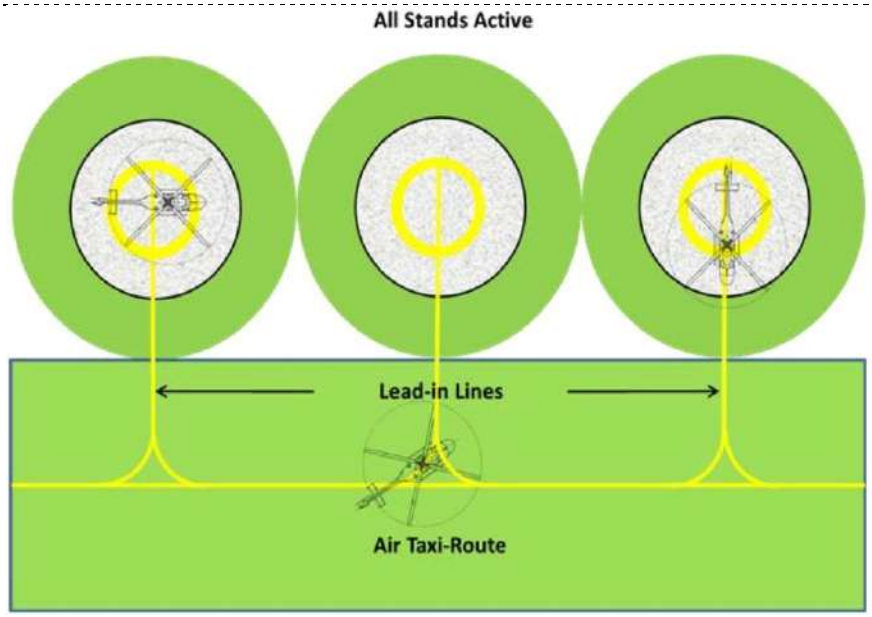


Figure 2-5. Turning stands (with air taxi-routes)— simultaneous use

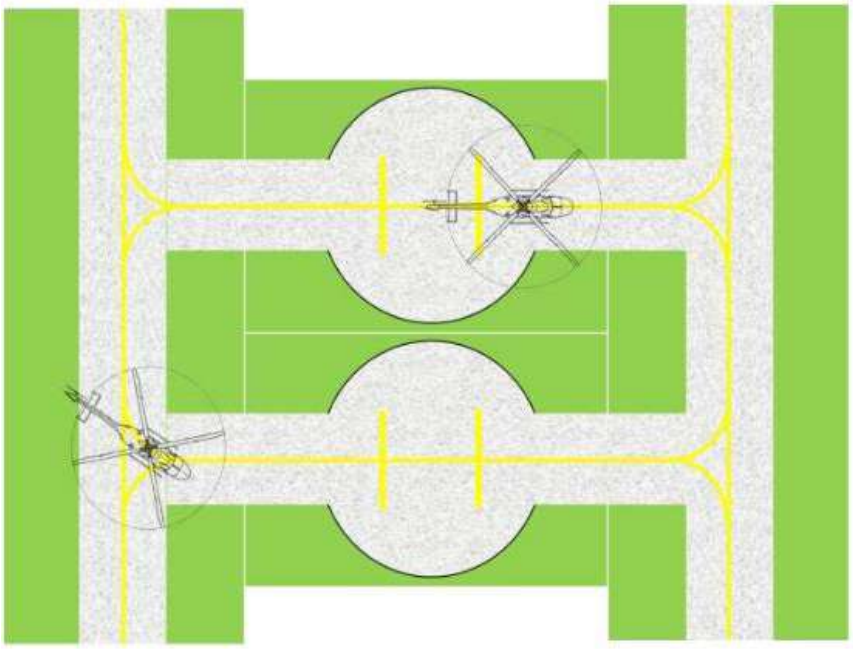


Figure 2-6. Ground taxi-through stands (with taxiway/ground taxi-route)

simultaneous use

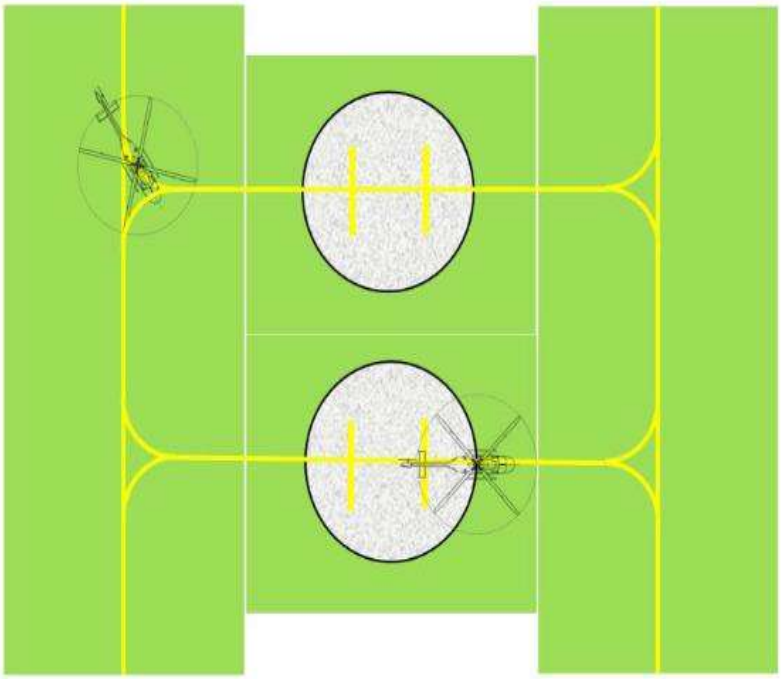


Figure 2-7. Air taxi-through stands (with air taxi-route) simultaneous use

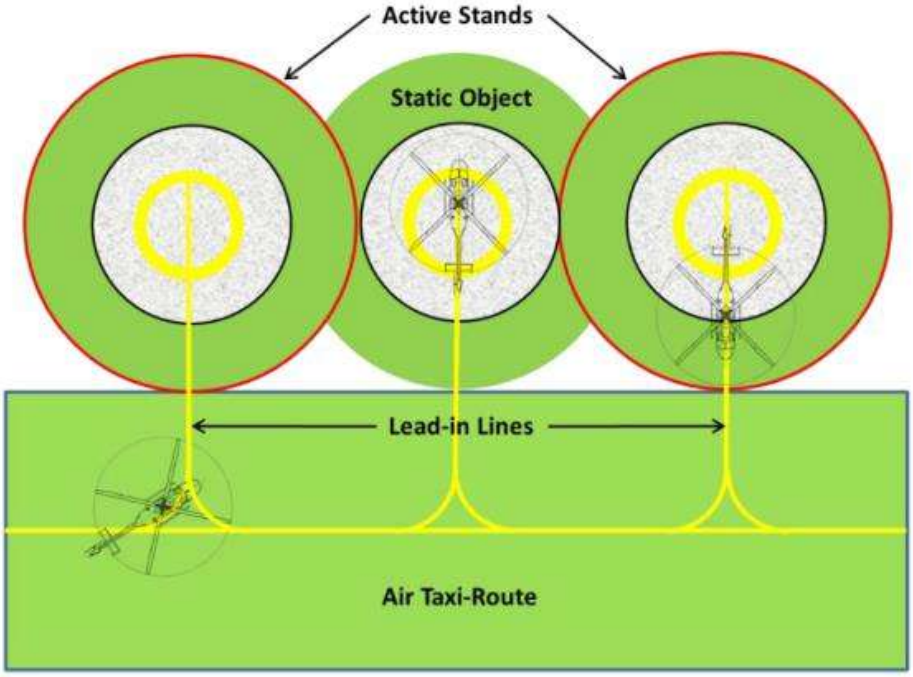


Figure 2-8. Turning stands (with air taxi-routes) non- simultaneous use – outer stands active

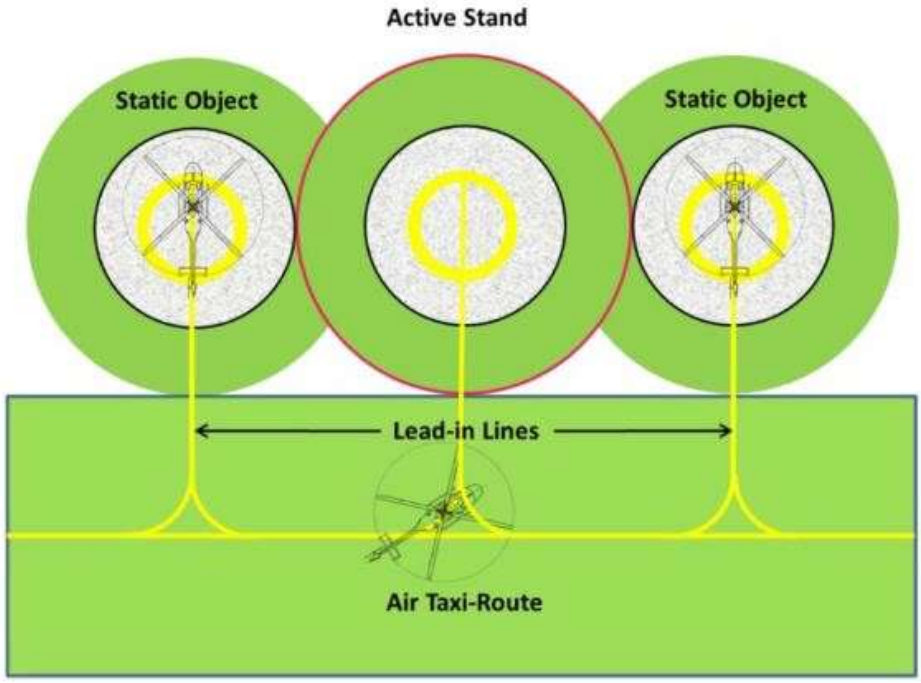


Figure 2-9. Turning stands (with air taxi-route) non-simultaneous use – inner stand active

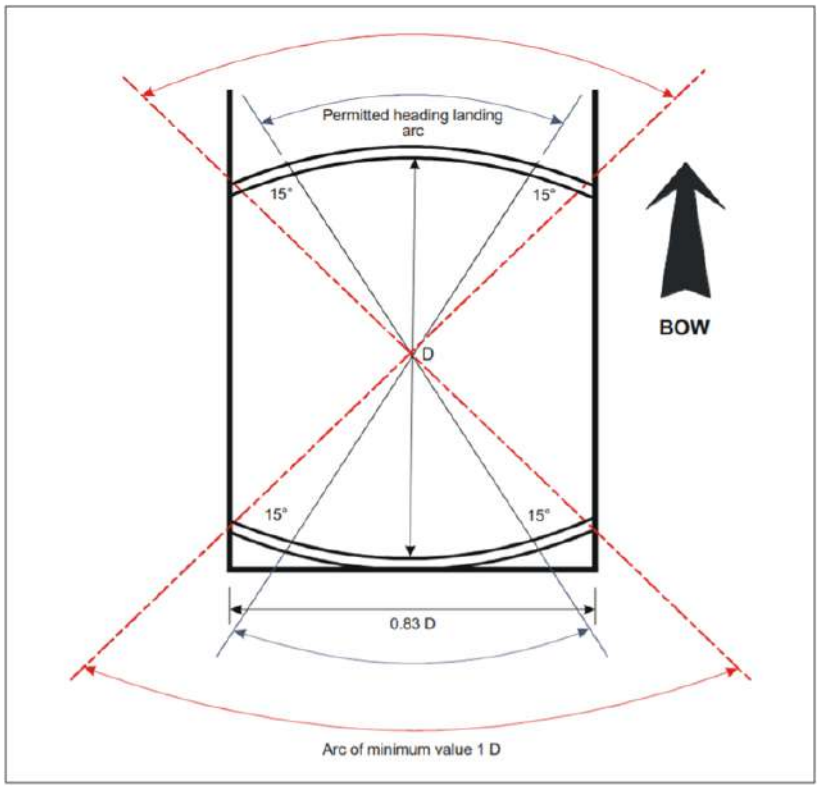


Figure 2-10. Shipboard permitted landing headings for limited heading operations

THIRD SCHEDULE

(Made under regulations (38, 39, 40, 42, 44, 46, 47, 48, 51)

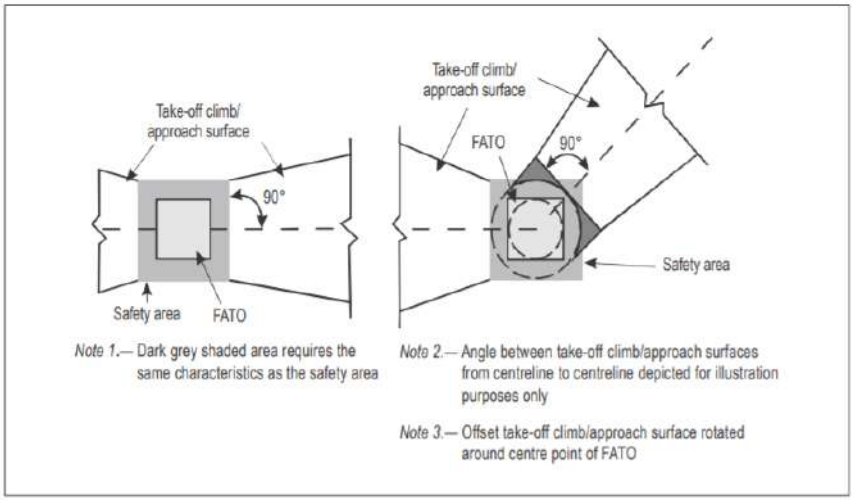


Figure 3-1. Obstacle limitation surfaces — Take-off climb and approach surface

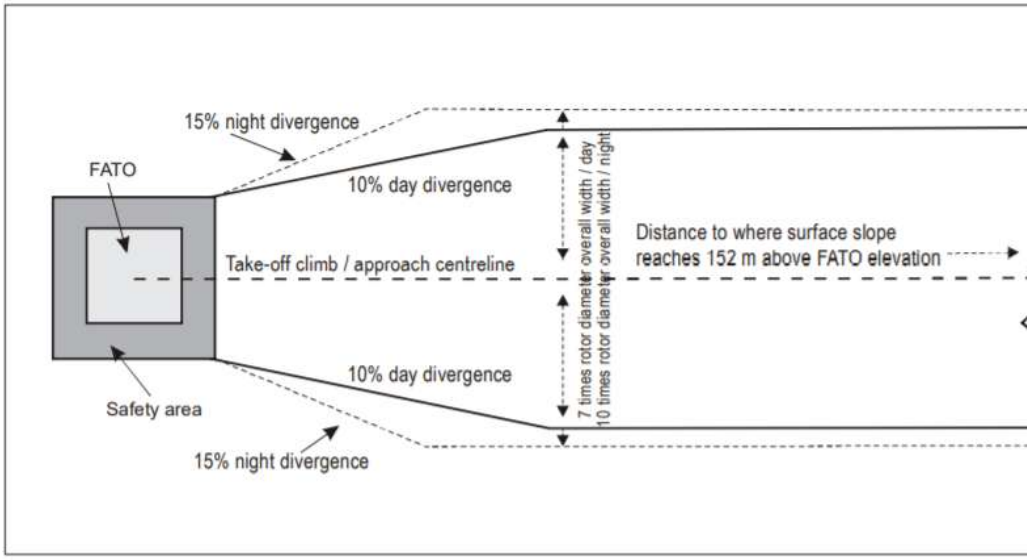
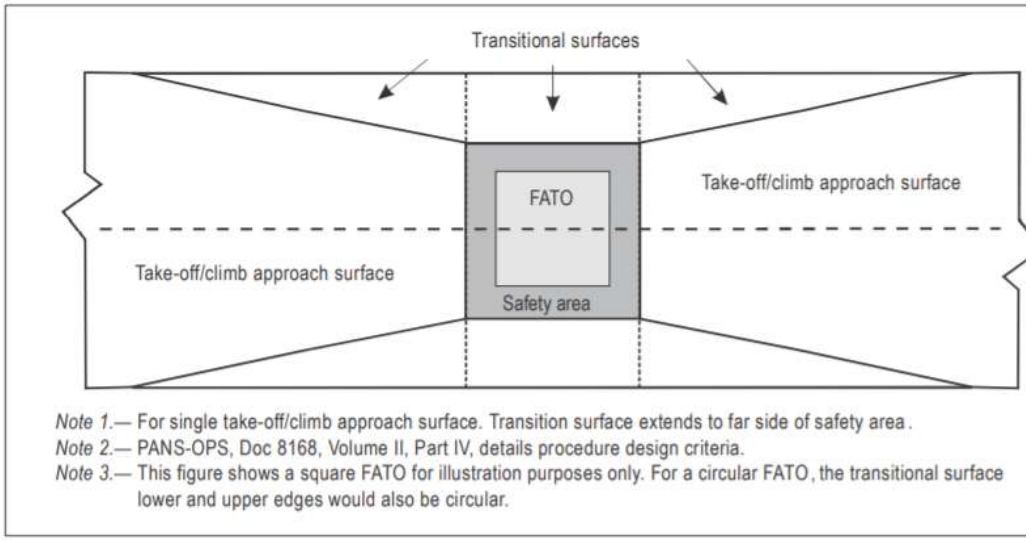


Figure 3-2. Take-off climb/Approach surface width



Note 1.— For single take-off/climb approach surface. Transition surface extends to far side of safety area.
Note 2.— PANS-OPS, Doc 8168, Volume II, Part IV, details procedure design criteria.
Note 3.— This figure shows a square FATO for illustration purposes only. For a circular FATO, the transitional surface lower and upper edges would also be circular.

Figure 3-3. Transitional surface for a FATO with a PinS approach procedure with a VSS

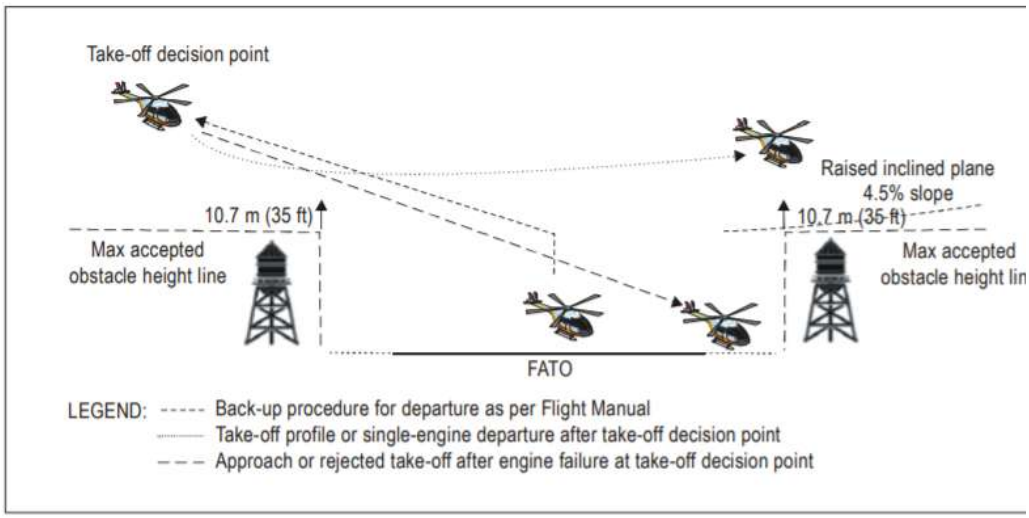


Figure 3-4. Example of raised inclined plane during operations in performance Class 1

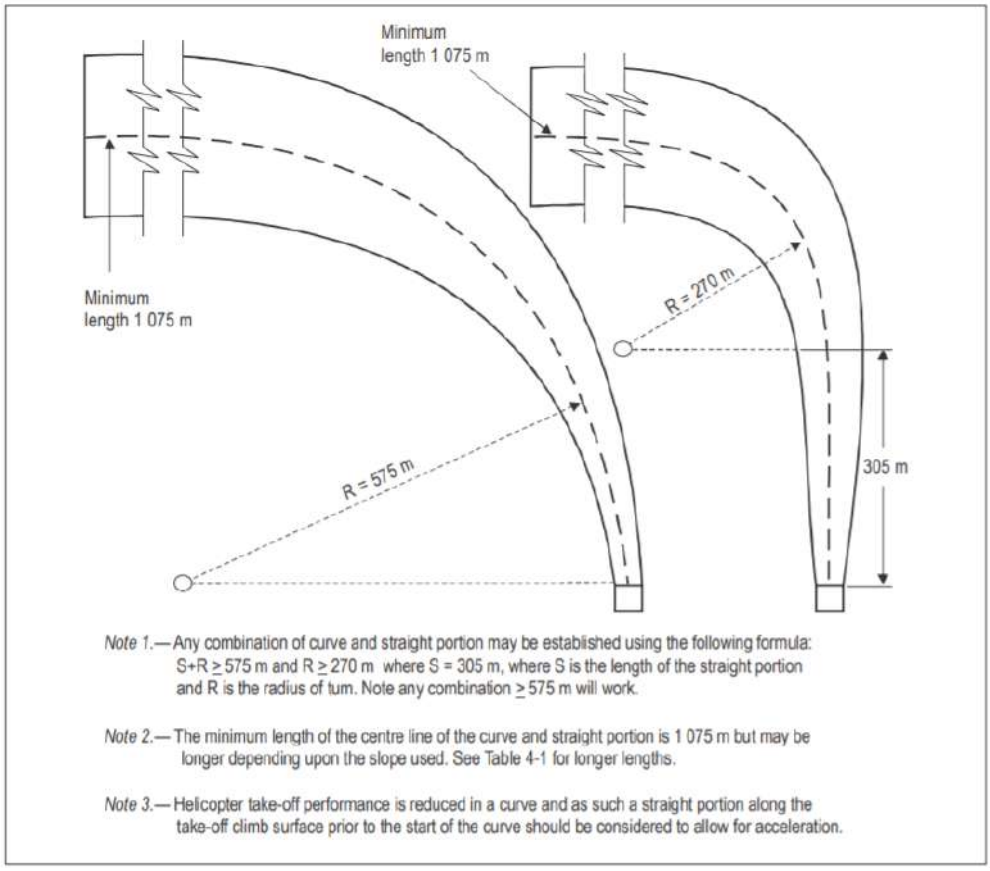
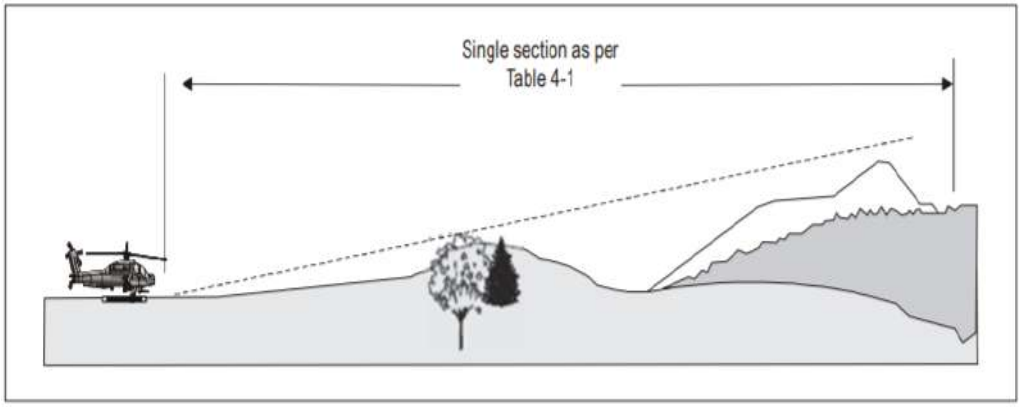
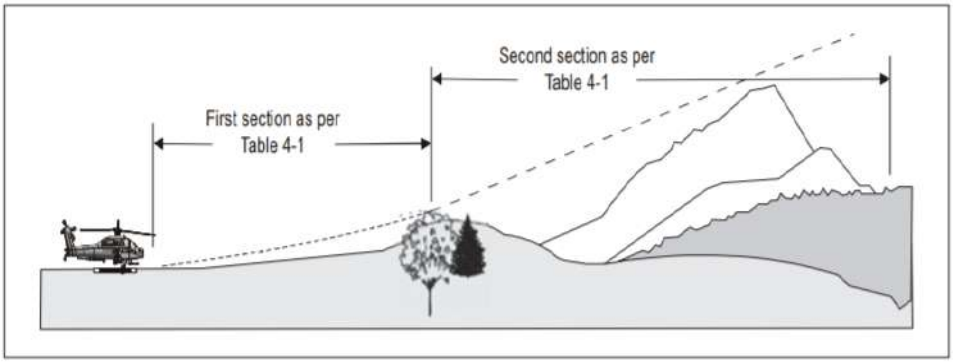


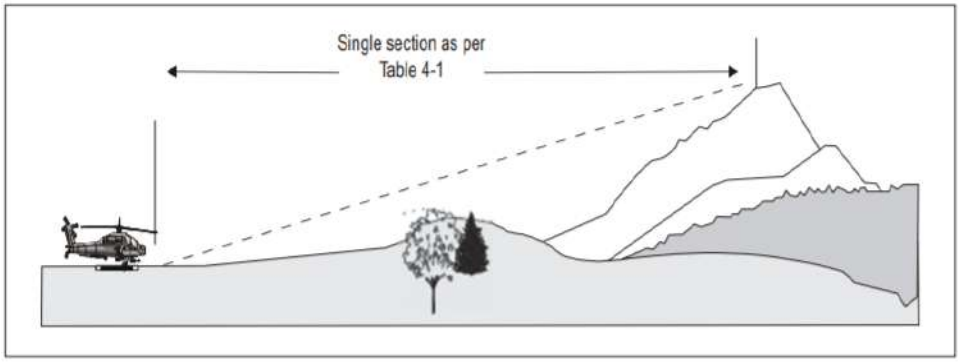
Figure 3-5. Curved approach and take-off climb surface for all FATOs



a) Approach and take-off climb surfaces - "A" slope profile - 4.5% design



b) Approach and take-off climb surfaces - "B" slope profile - 8% and 16% design



c) Approach and take-off climb surfaces - "C" slope profile - 12.5% design

Figure 3-6. Approach and take-off climb surfaces with different slope design categories

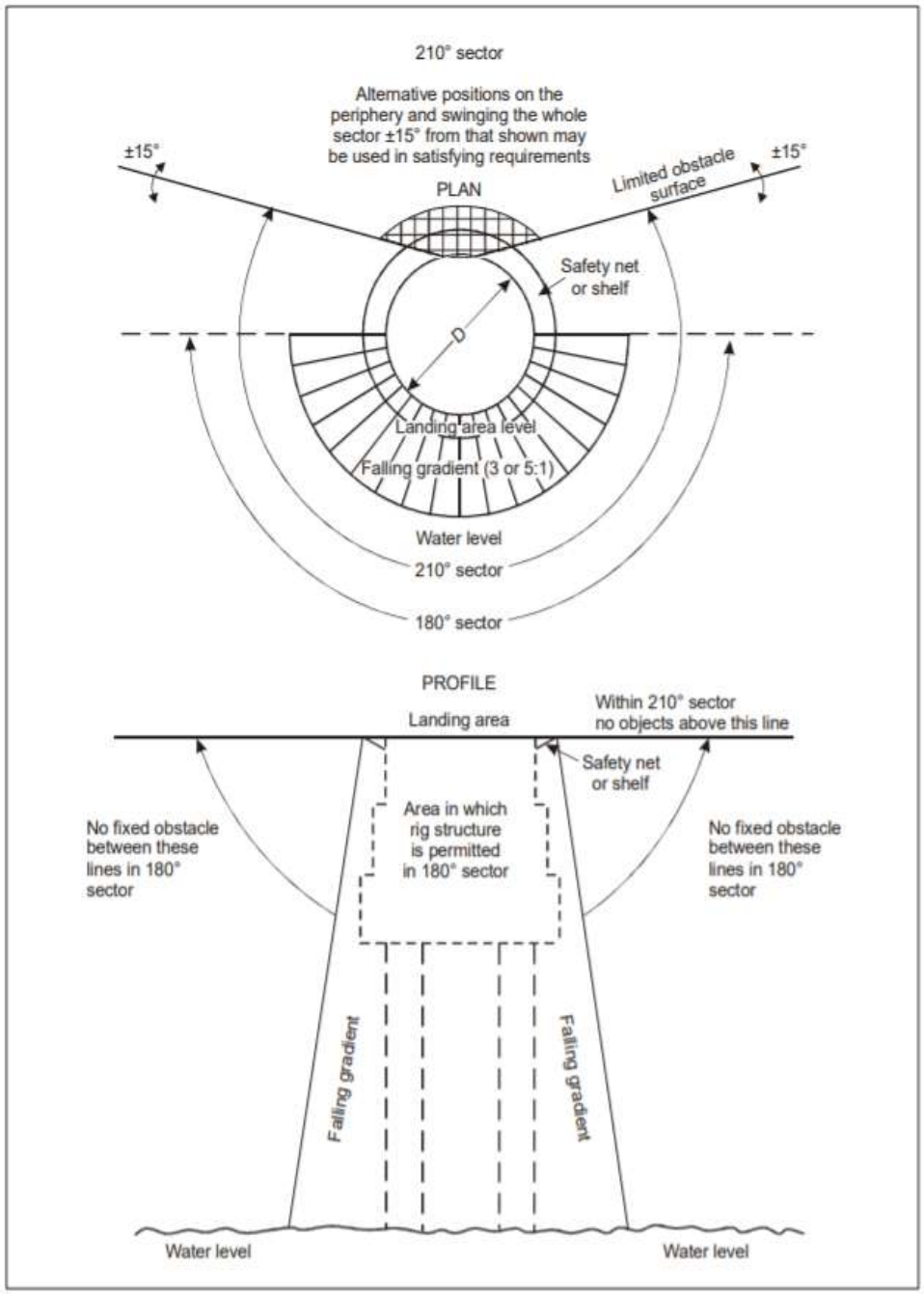


Figure 3-7. Helideck obstacle-free sector

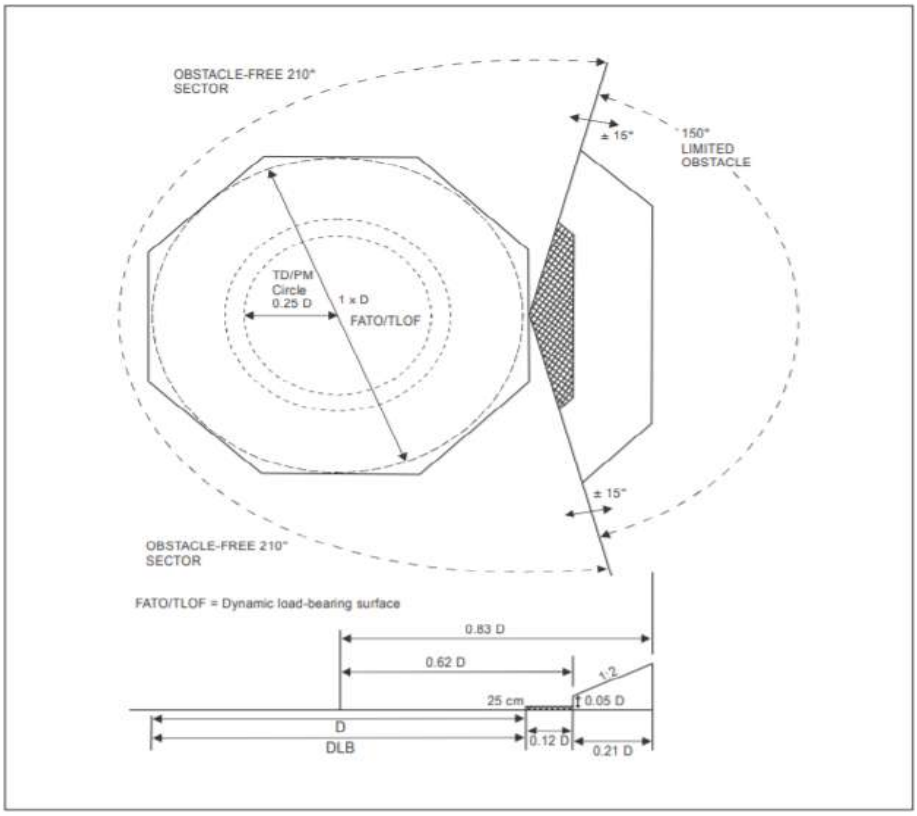


Figure 3-8. Helideck obstacle limitation sectors and surfaces
for a FATO and coincidental TLOF of 1 D and larger

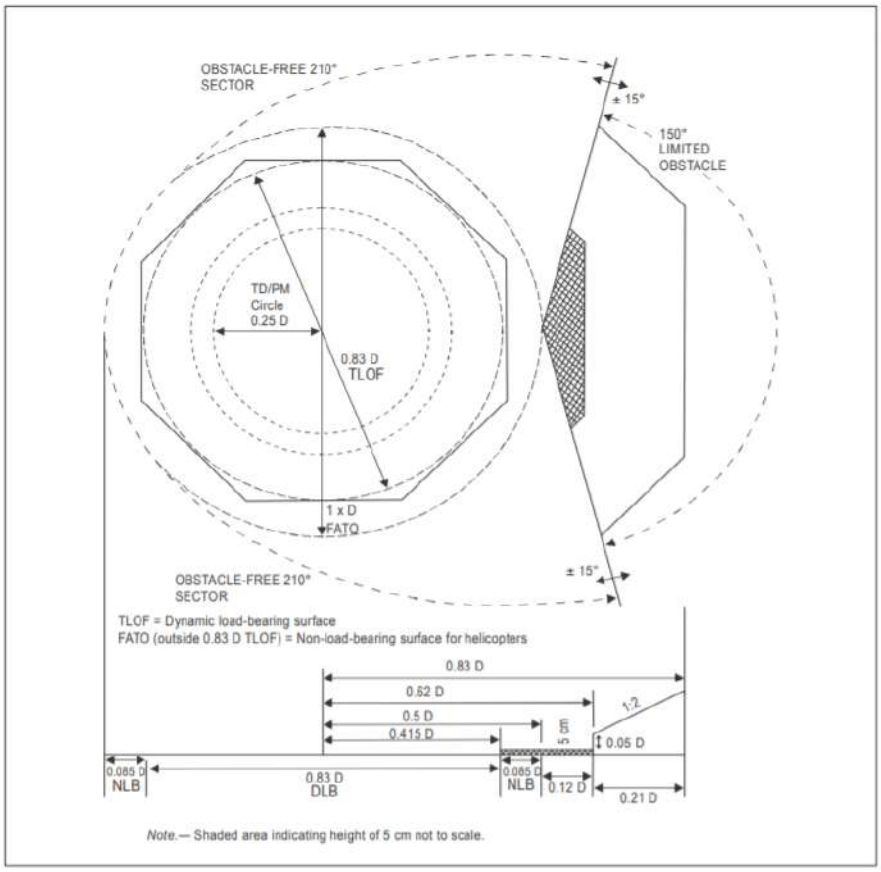


Figure 3-9. Helideck obstacle limitation sectors and surfaces for a TLOF of 0.83 D and larger

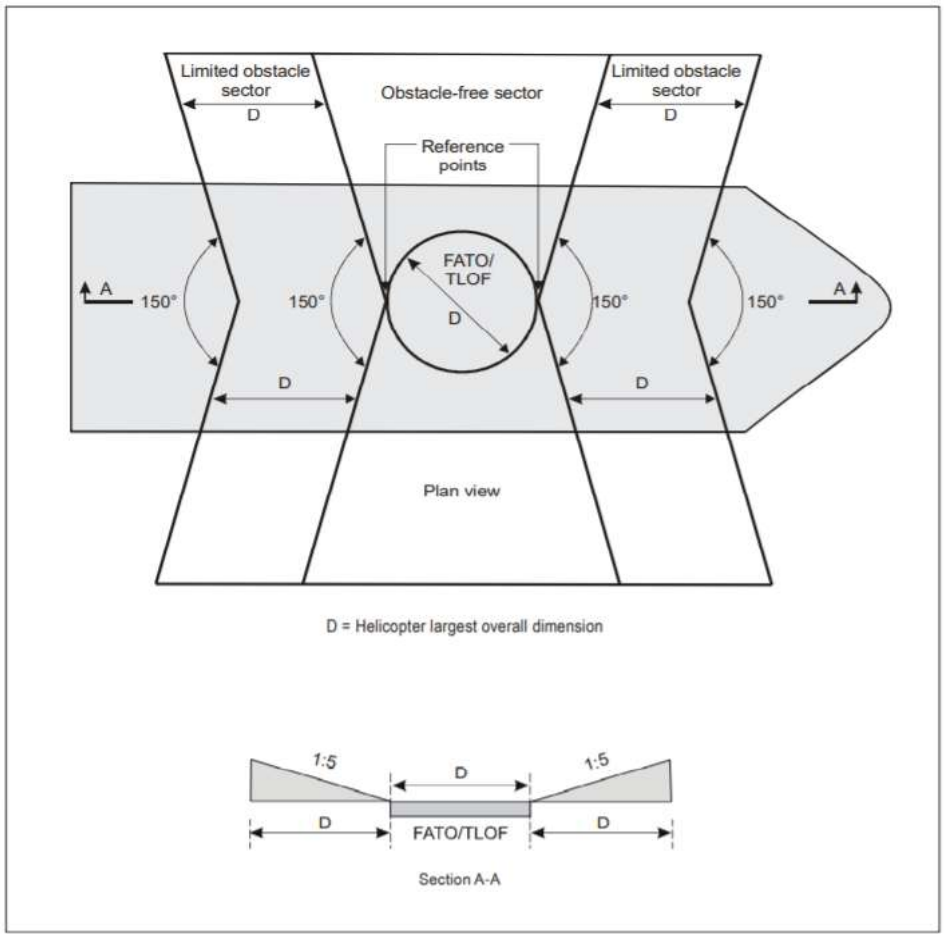


Figure 3-10. Amidship's location — shipboard heliport obstacle limitation surfaces

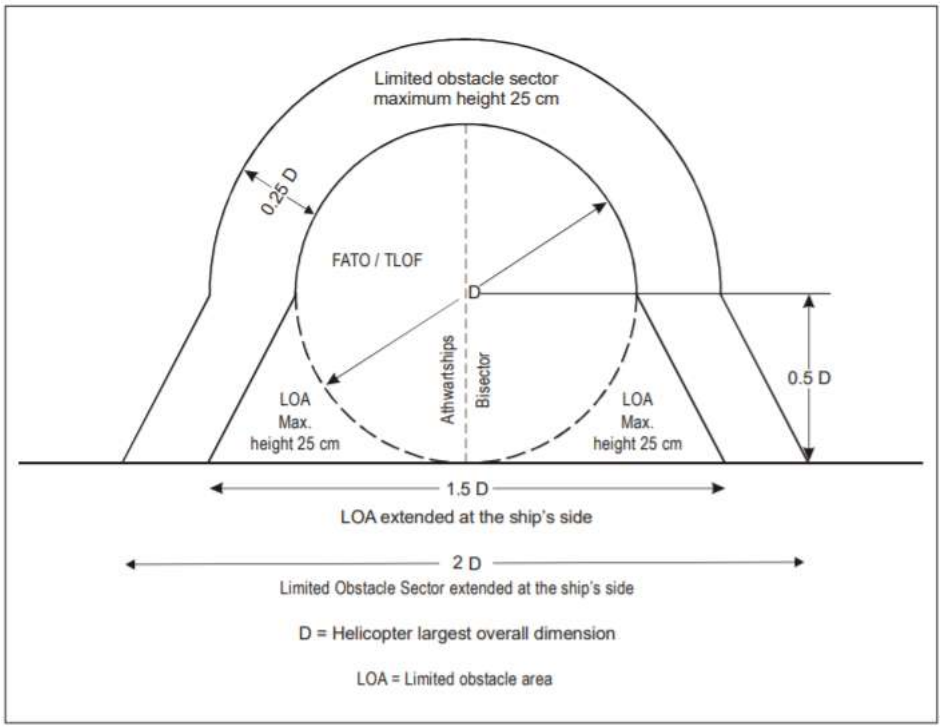


Figure 3-11. Ships-side non-purpose-built heliport obstacle limitation sectors and surfaces

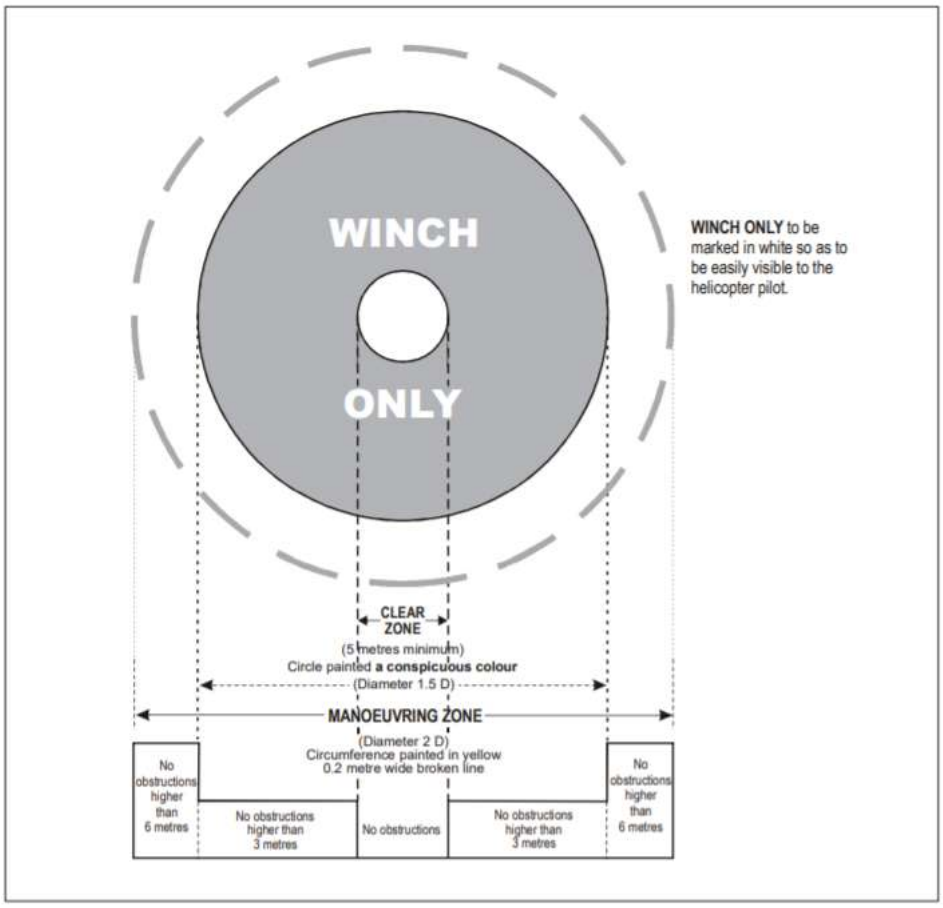


Figure 3-12. Winching area of a ship

GUIDANCE MATERIALS FOR INSTRUMENT HELIPORTS WITH NON-PRECISION AND/ OR PRECISION APPROACHES AND INSTRUMENT DEPARTURES

1. General

Introductory Note 1. — These Regulations contain specifications that prescribe the physical characteristics and obstacle limitation surfaces to be provided for at heliports, and certain facilities and technical services normally provided at a heliport. It is not intended that these specifications limit or regulate the operation of an aircraft.

Introductory Note 2. — The specifications in this schedule describe additional conditions beyond those found in the main sections of these Regulations that apply to instrument heliports with non-precision or precision approaches. All specifications contained within

the main parts of the Heliports regulations are equally applicable to instrument heliports, but with reference to further provisions described in this schedule.

2. Heliport Data

2.1 Heliport elevation

The elevation of the TLOF or the elevation and geoid undulation of each threshold of the FATO (where appropriate) shall be measured and reported to the aeronautical information services authority to the accuracy of:

(a) one-half metre or foot for non-precision approaches; and

(b) one-quarter metre or foot for precision approaches.

Note. — Geoid undulation must be measured in accordance with the appropriate system of coordinates.

2.2 Heliport dimensions and related information

The following additional data shall be measured or described, as appropriate, for each facility provided on an instrument heliport:

Distances to the nearest metre or foot of localiser and glide path elements comprising an instrument landing system (ILS) or azimuth and elevation antenna of a microwave landing system (MLS) in relation to the associated TLOF or FATO extremities.

3. Physical Characteristics

3.1 Surface-level and elevated heliports

Safety areas

A safety area surrounding an instrument FATO shall extend:

(a) laterally to a distance of at least forty-five metres on each side of the centre line; and

(b) Longitudinally to a distance of at least sixty metres beyond the ends of the FATO.

Note. — See Figure S-1.

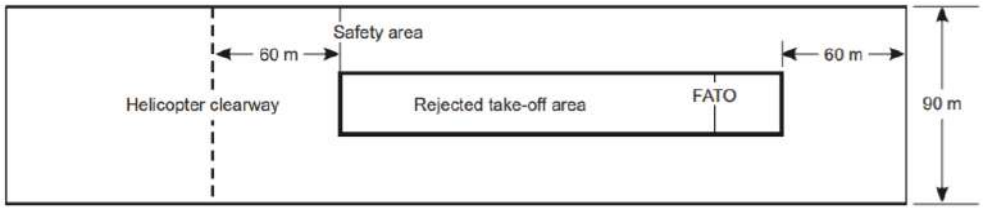


Figure S-1. Safety Area for Instrument FATO

4. Obstacle Environment

4.1 Obstacle limitation surfaces and sectors

Approach surface

Characteristics. The limits of an approach surface shall comprise:

(a) an inner edge horizontal and equal in length to the minimum specified width of the FATO plus the safety area, perpendicular to the centre line of the approach surface and located at the outer edge of the safety area;

(b) two side edges originating at the ends of the inner edge;

(i) for an instrument FATO with a non-precision approach, diverging uniformly at a specified rate from the vertical plane containing the centre line of the FATO;

(ii) for an instrument FATO with a precision approach, diverging uniformly at a specified rate from the vertical plane containing the centre line of the FATO, to a specified height above FATO, and then diverging uniformly at a specified rate to a specified final width and continuing thereafter at that width for the remaining length of the approach surface; and

(c) an outer edge horizontal and perpendicular to the centre line of the approach surface and at a specified height above the elevation of the FATO.

4.2 Obstacle limitation requirements

4.2.1 The following obstacle limitation surfaces shall be established for an instrument FATO with a non-precision or precision approach:

(a) take-off climb surface;

(b) approach surface; and

(c) Transitional surfaces.

Note. — See Figure S-2 to S-5.

4.2.2 The slopes of the obstacle limitation surfaces shall not be greater than, and their other dimensions not less than, those specified in Tables S-1 to S-3.

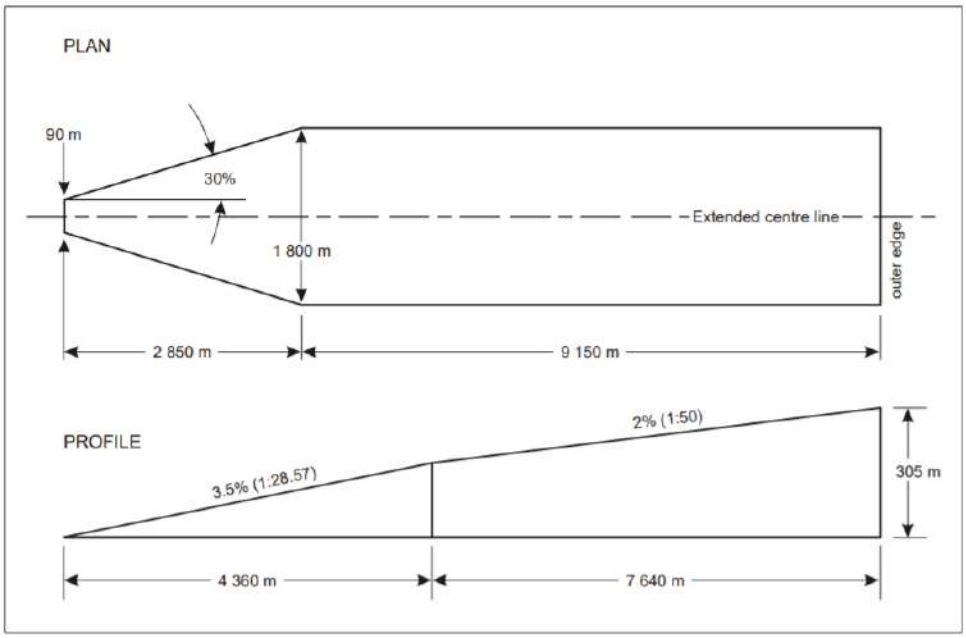


Figure S-2. Take-off climb surface for instrument FATO

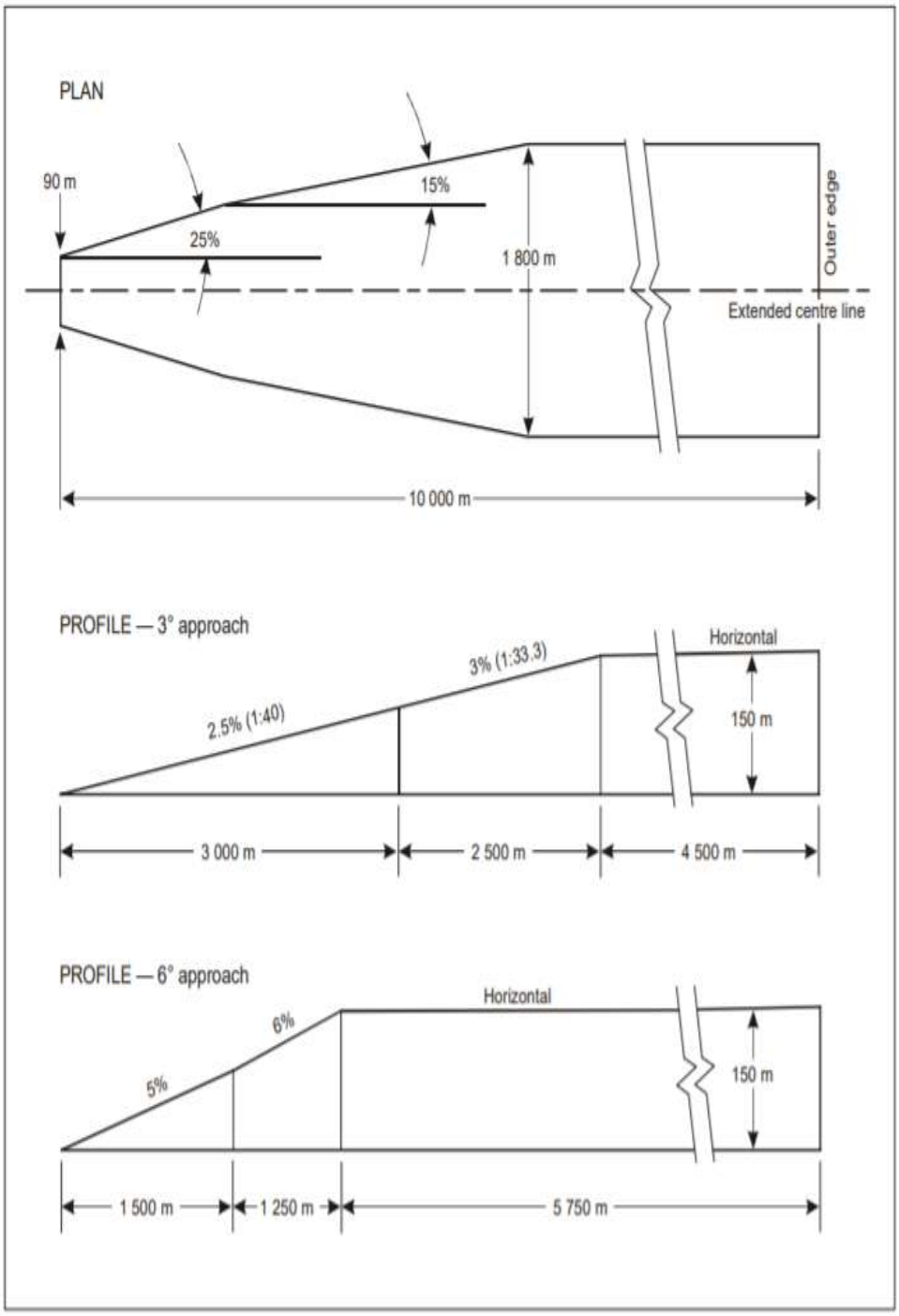


Figure S-3. Approach surface for precision approach FATO

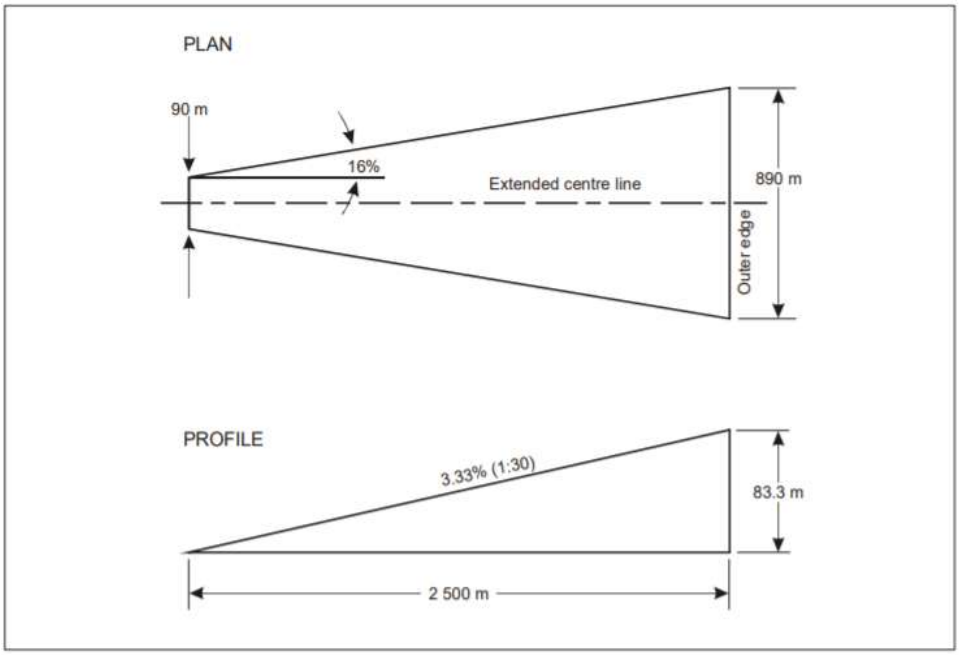


Figure S-4. Approach Surface for non-precision approach FATO

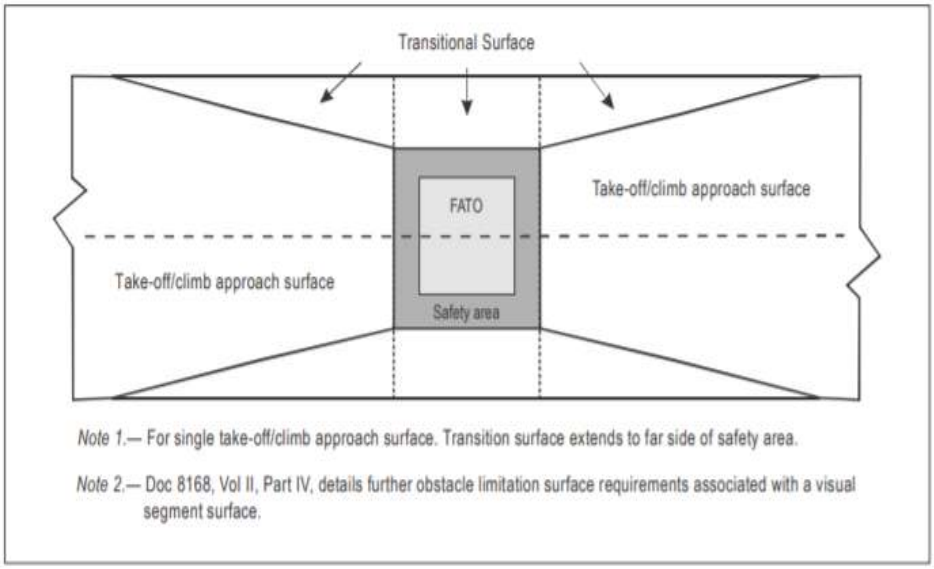


Figure S-5. Transitional surfaces for an instrument FATO with a non-precision or precision approach

Table 5-1. Dimensions and slopes of obstacle limitation surfaces Instrument (non-precision) FATO

Surface and dimensions		
APPROACH SURFACE		Width of safety area boundary
Width of inner edge		
Location of inner edge		
First section		
Divergence	— day	16%
	— night	
Length	— day	2 500 m
	— night	
Outer width	— day	890 m
	— night	
Slope (maximum)		3.33%
Second section		
Divergence	— day	—
	— night	
Length	— day	—
	— night	
Outer width	— day	—
	— night	
Slope (maximum)		—
Third Section		
Divergence		—
Length	— day	—
	— night	
Outer width	— day	—
	— night	
Slope (maximum)		—
TRANSITIONAL		
Slope		20%
Height		45 m

Table S-2. Dimensions and slopes of obstacle limitation surfaces Instrument (precision) FATO

		3° approach Height above FATO			6° approach Height above FATO		
	90 m	60 m	45 m	30 m	90 m	60 m	45 m	30 m
Surface and	(300 ft)	(200 ft)	(150 ft)	(100 ft)	(300 ft)	(200	(150	(100 ft)

dimensions						ft)	ft)	
APPROACH SURFACE Length of inner edge	90 m	90 m	90 m	90 m	90 m	90 m	90 m	90 m
Distance from end of FATO	60 m	60 m	60 m	60 m	60 m	60 m	60 m	60m
Divergence each side to height above FATO	25%	25%	25%	25%	25%	25%	25%	25%
Distance to height above FATO	1 745 m	1 163 m	872 m	581 m	870 m	580 m	435 m	290 m
Width at height above FATO	962 m	671 m	526 m	380 m	521 m	380 m	307.5 m	235 m
Divergence to parallel section	15%	15%	15%	15%	15%	15%	15%	15%
Distance to parallel section	2 793 m	3 763 m	4 246 m	4 733 m	4 250 m	4 733 m	4 975 m	5 217 m
Width of parallel section	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m
Distance to outer edge	5 462 m	5 074 m	4 882 m	4 686 m	3 380 m	3 187 m	3 090 m	2 993 m
Width at outer edge	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m	1 800 m
Slope of first section	2.5%	2.5%	2.5%	2.5%	5%	5%	5%	5%
	(1:40)	(1:40)	(1:40)	(1:40)	(1:20)	(1:20)	(1:20)	(1:20)
Length of first section	3 000 m	3 000 m	3 000 m	3 000 m	1 500 m	1 500 m	1 500 m	1 500 m
Slope of second section	3%	3%	3%	3%	6%	6%	6%	6%
	(1:33.3)	(1:33.3)	(1:33.3)	(1:33.3)	(1:16.66)	(1:16.66) (1.16.66)		(1:16.66)
Length of second section	2500 m	2500 m	2500 m	2500 m	1250 m	1250 m	1250 m	1250 m
Total length of surface	10000 m	10000 m	10000 m	10000 m	8500 m	8500 m	8500 m	8500 m
TRANSITIONAL Slope	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%
Height	45 m	45 m	45 m	45 m	45 m	45 m	45 m	45 m

Table S-3. Dimensions and slopes of obstacle limitation surfaces Straight take-off

Surface and dimensions		*Instrument*
TAKE-OFF CLIMB		
Width of inner edge		90 m
Location of inner edge		Boundary of end of clearway
First section		
Divergence	— day	30%
	— night	
Length	— day	2 850 m
	— night	
Outer width	— day	1 800 m
	— night	
Slope (maximum)		3.5%
Second section		
Divergence	— day	parallel
	— night	
Length	— day	1 510 m
	— night	
Outer width	— day	1 800 m
	— night	
Slope (maximum)		3.5%*
Third Section		
Divergence		parallel
Length	— day	7 640 m
	— night	
Outer width	— day	1 800 m
	— night	
Slope (maximum)		2%

* *This slope exceeds the maximum mass one-engine-inoperative climb gradient of many helicopters which are currently operating.*

5. Visual Aids

5.1 Lights

Approach Lighting Systems

5.1.1 Where an approach lighting system is provided for a non-precision FATO, the system shall not be less than 210 m in length.

5.1.2 The light distribution of steady lights shall be as indicated in Fourth Schedule, Figure 4-12, Illustration 2 except that the intensity shall be increased by a factor of three for a non-precision FATO.

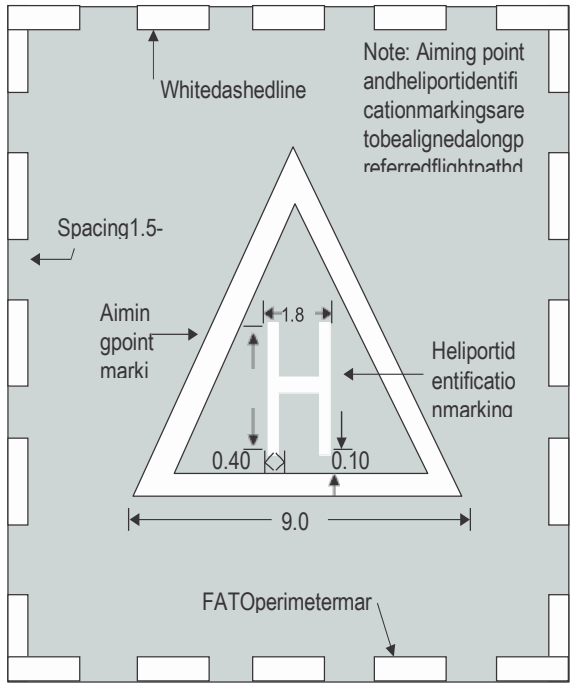
Table S-4. Dimensions and slopes of the obstacle protection surface

SURFACE AND DIMENSIONS	NON-PRECISION FATO	
Length of inner edge	Width of safety area	
Distance from end of FATO	60 m	
Divergence	15%	
Total length	2 500 m	
Slope	PAPI	A[a] – 0.57°
	HAPI	A[b] – 0.65°
	APAPI	A[a] – 0.9°

a. As indicated in the regulations relating to aerodrome design and operations.
b. The angle of the upper boundary of the “below slope” signal.

FOURTH SCHEDULE

(Made under regulations 52, 53, 54, 55, 56, 57, 59, 65, 66, 68, 69, 70, 73, 74, 75)



Note.—The aiming point, heliport identification and FATO perimeter markings

Figure 4-1. Combined heliport identification, aiming point and FATO perimeter marking

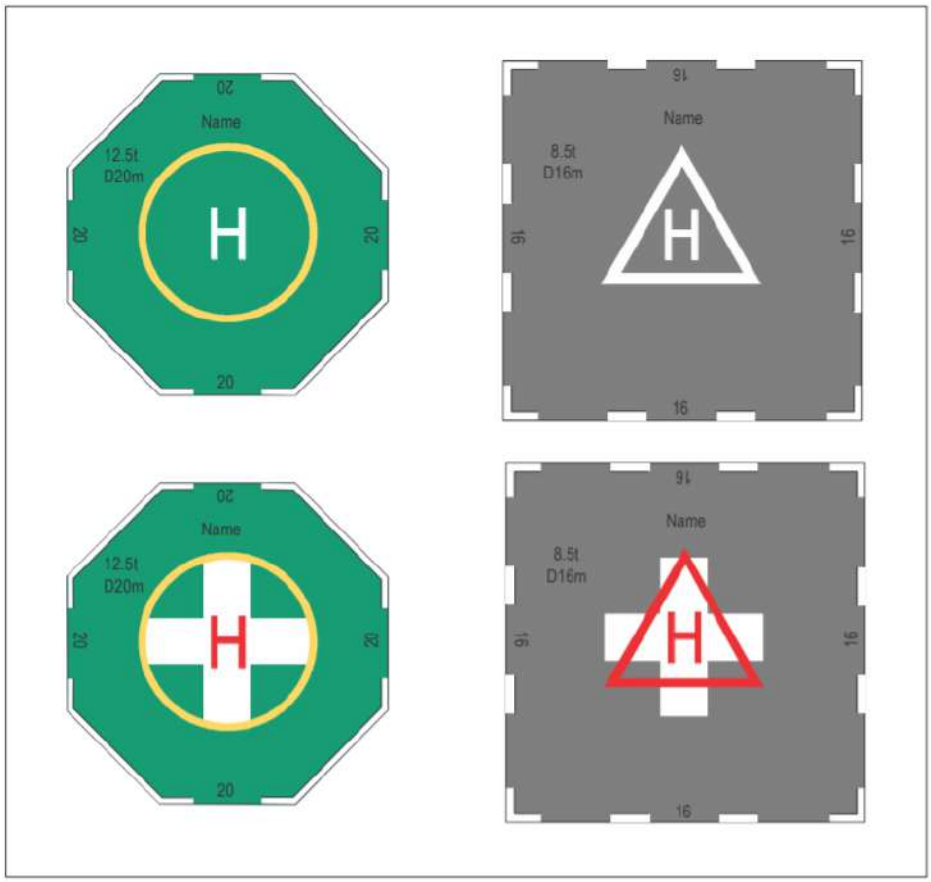


Figure 4-2. Heliport identification markings with TLOF and aiming markings for heliport and hospital heliport

Figure 4-3. FATO designation marking and heliport identification marking for a runway-type FATO

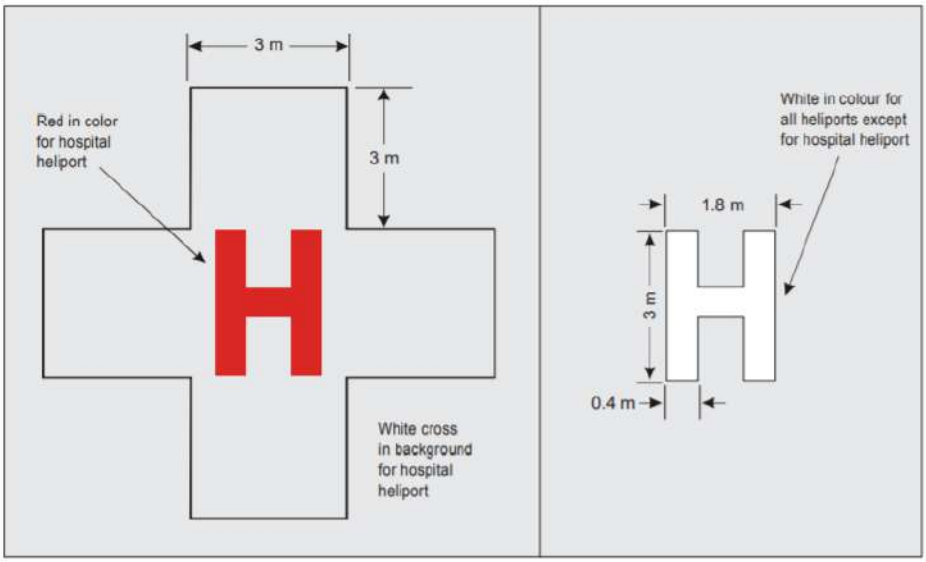


Figure 4-4. Hospital heliport identification and heliport identification marking

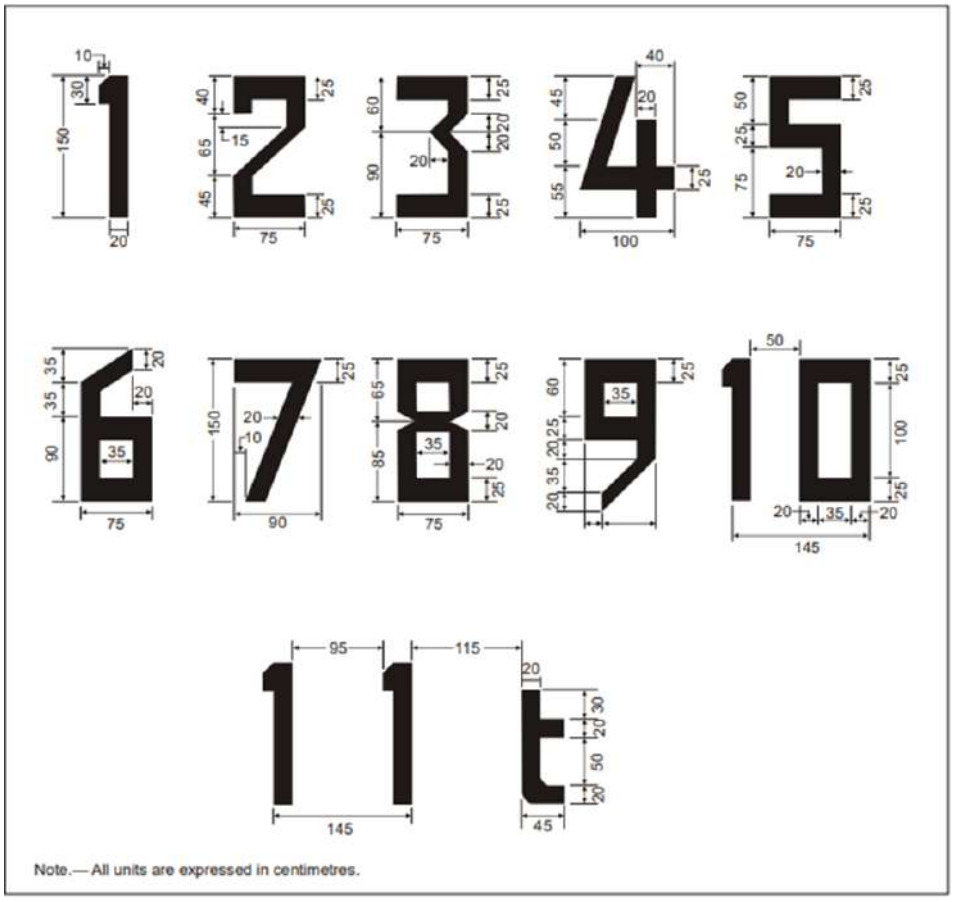


Figure 4-5. Form and proportions of numbers and letters

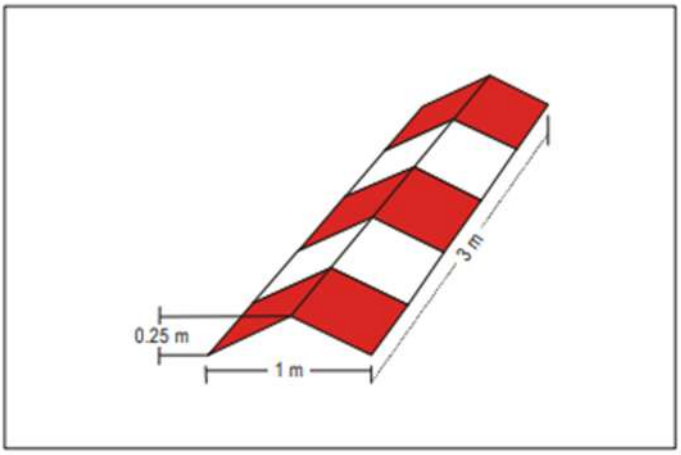


Figure 4-6. Runway-type FATO edge marker

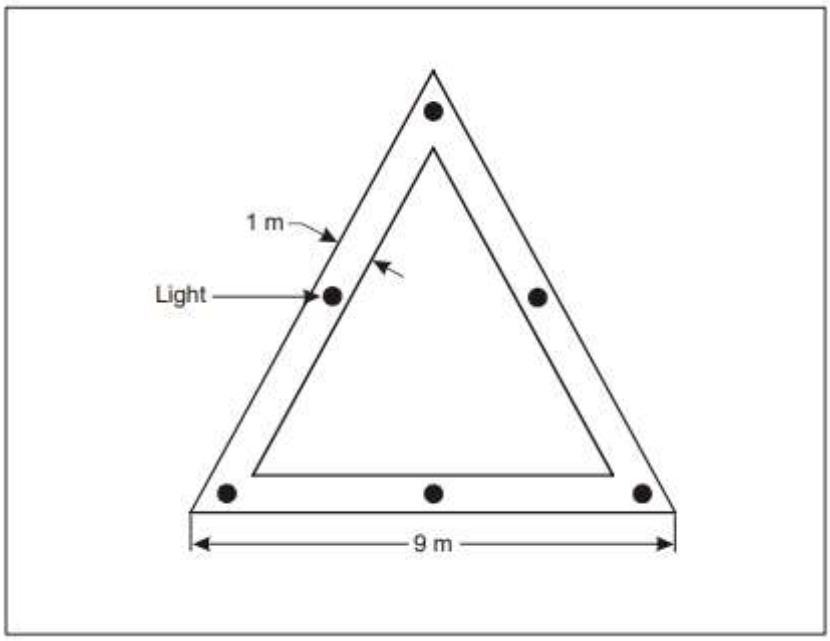


Figure 4-7. Aiming point marking

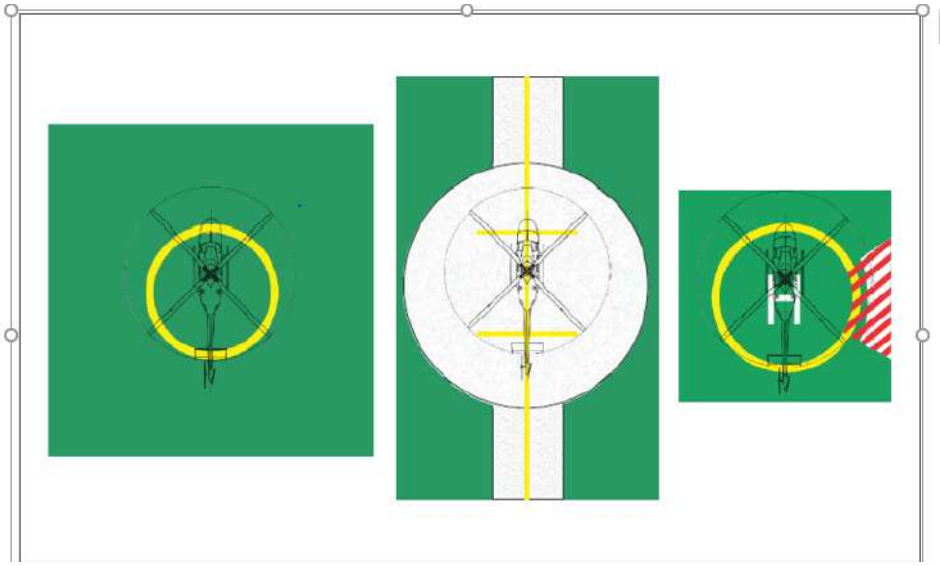


Figure 4-8. Multidirectional TDPC with no limitations (Left)
Unidirectional marking shoulder line with associated centreline (centre)
Multidirectional TDPC with prohibited landing sector marking (right)

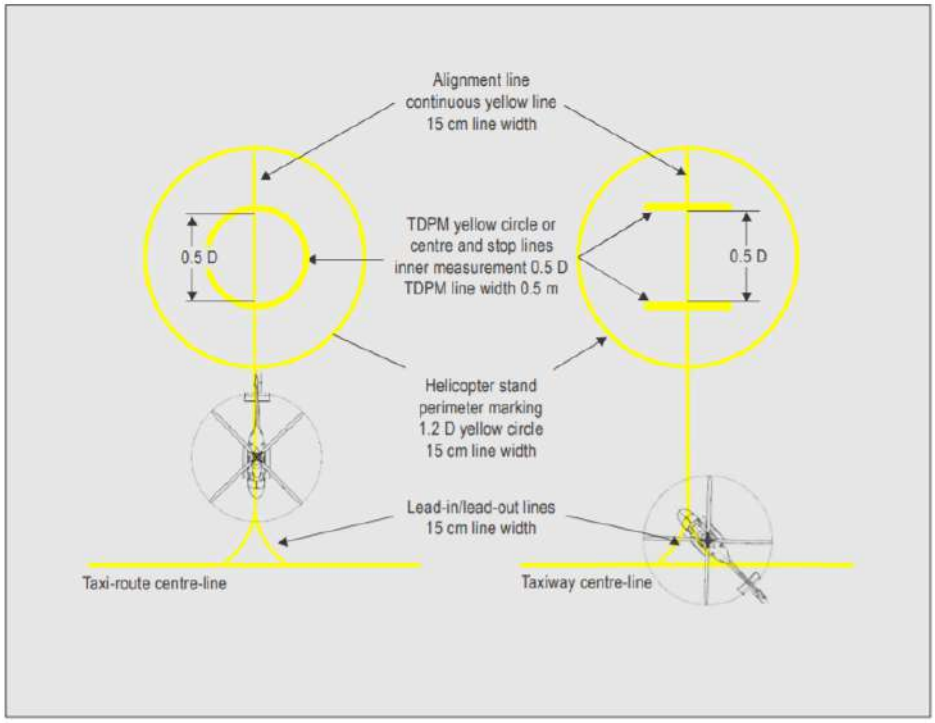


Figure 4-9. Helicopter stand markings

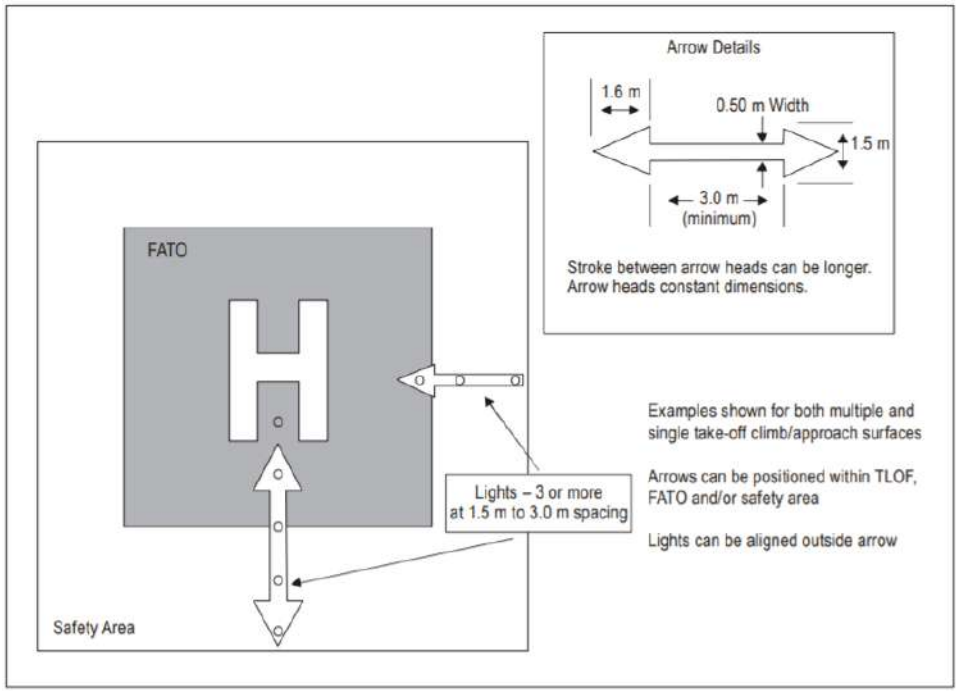


Figure 4-10. Flight path alignment guidance markings and lights

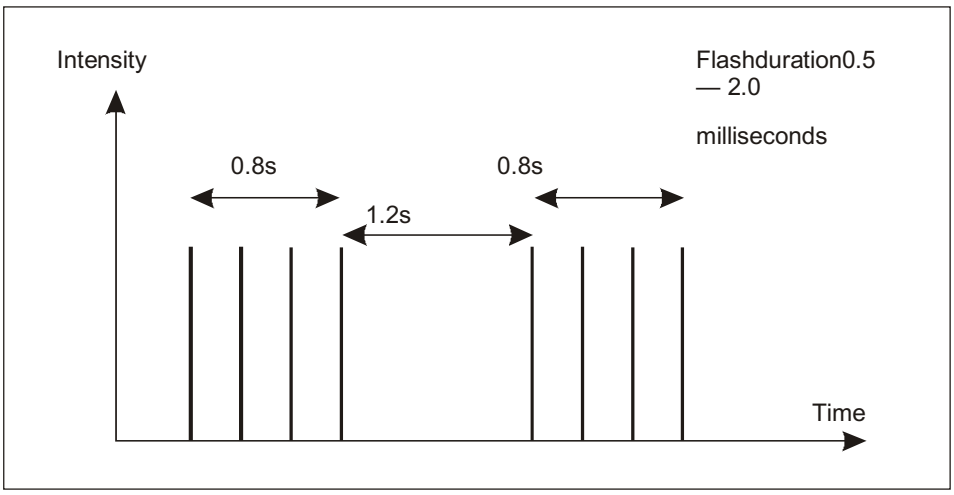


Figure 4-11. Heliport beacon flash characteristics

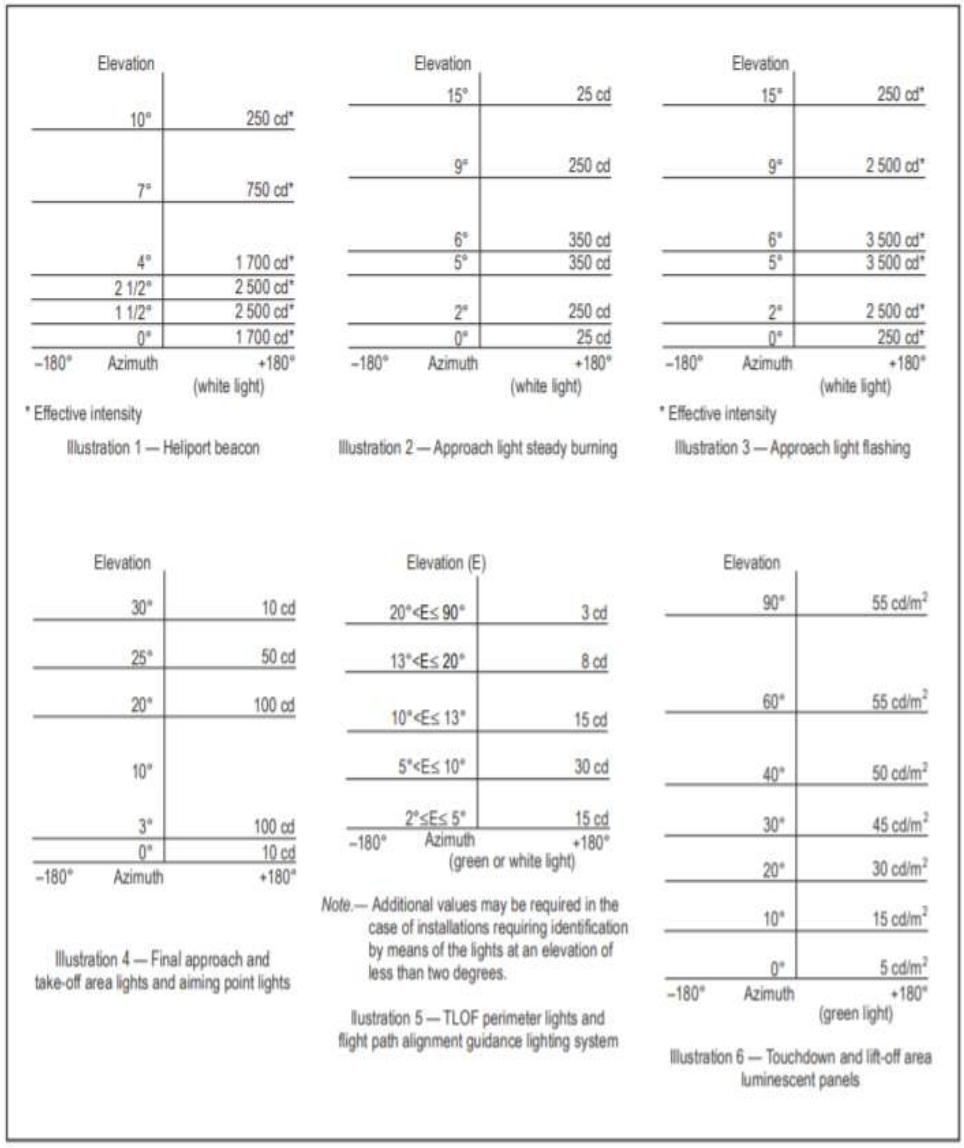


Figure 4-12. Isocandela diagrams

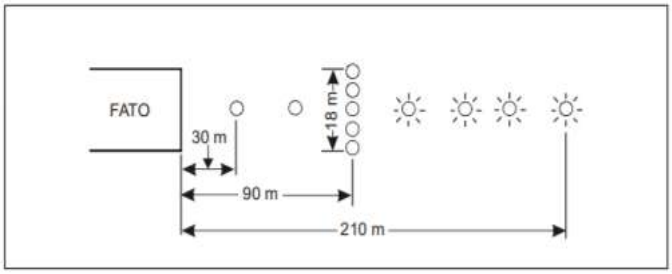


Figure 4-13. Approach lighting system

Dodoma,
15th December, 2023

MAKAME M. MBARAWA,
Minister for Transport