

Interim Helicopter Point-in-Space Visual Segment Criteria

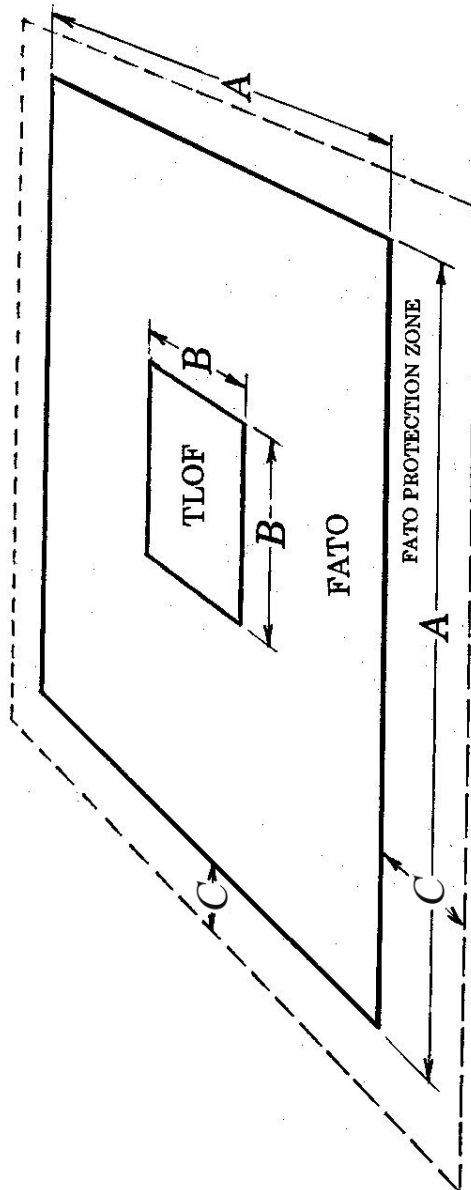
1.0 Definitions

1.1 Final Approach and Takeoff Area (FATO)

A defined area over which the final phase of the approach to a hover, or a landing, is completed and from which the takeoff is initiated. This area was called the "takeoff and landing area" in previous publications.

AC 150/5390-2A

1/20/94



RECOMMENDED FATO/TLOF MINIMUM DIMENSIONS

Based On The Design Helicopter

- A--FINAL APPROACH AND TAKEOFF AREA (FATO)
1.5 x OVERALL LENGTH
- B--TOUCHDOWN AND LIFT-OFF AREA (TLOF)
1.5 x UNDERCARRIAGE LENGTH OR WIDTH
NORMALLY CENTERED IN THE FATO
- C--SAFETY AREA
0.33 x ROTOR DIAMETER
NOT LESS THAN 10 FEET (3 m)

Figure 2-3. FATO/TLOF relationship

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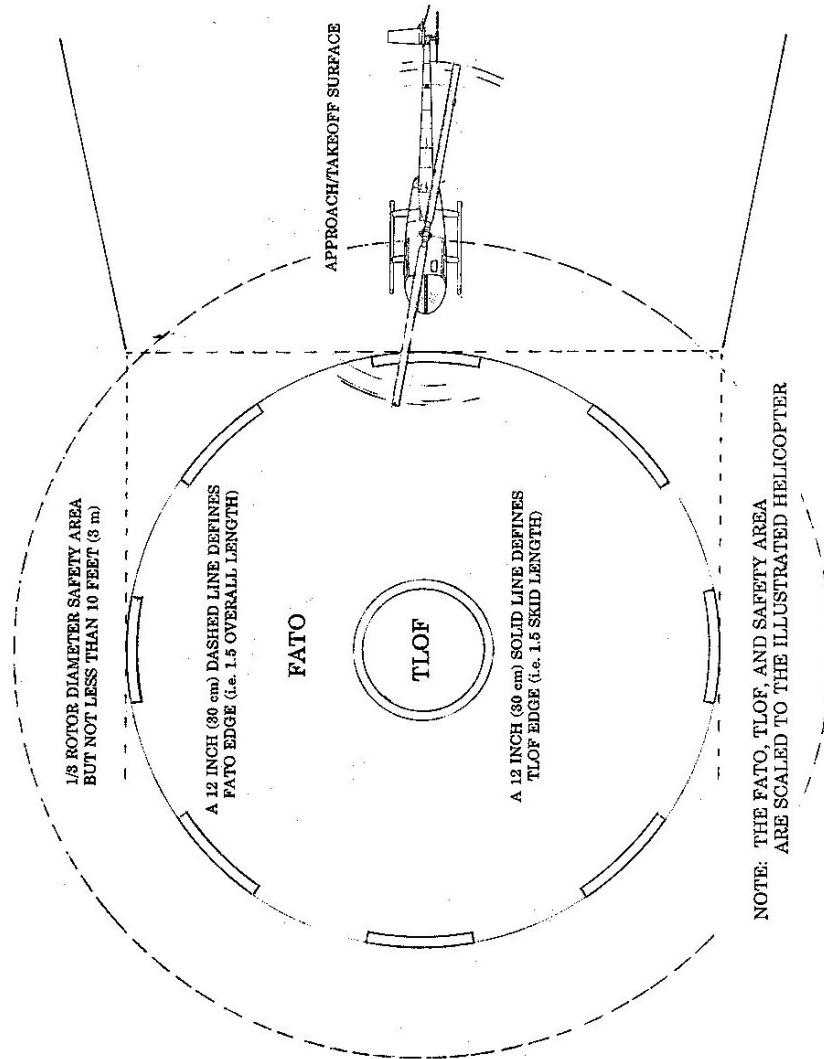


Figure 2-7. Marking paved heliports

1.2 Touchdown and Liftoff Area (TLOF)

A load bearing, generally paved area, normally centered in the FATO, on which the helicopter lands or takes off. The TLOF is frequently called a helipad or helideck. This area was called the "FATO" in previous publications.

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2.0 VISUAL SEGMENT. (MAP WITHIN 10,500 FEET OF HELIPOINT)

The purpose of the visual segment on a PinS approach procedure to a landing area within 10,500 feet of the MAP is to provide a measure of obstruction protection/identification along the track from the MAP to the heliport. The segment is based on the premise that the pilot will maintain level flight at MDA until the helicopter is in the position to initiate a 6° (OPTIMUM) descent to the heliport. Identify this point as an ATD fix from the MAP. The course from the MAP to the heliport must be within 30° of the final approach course.

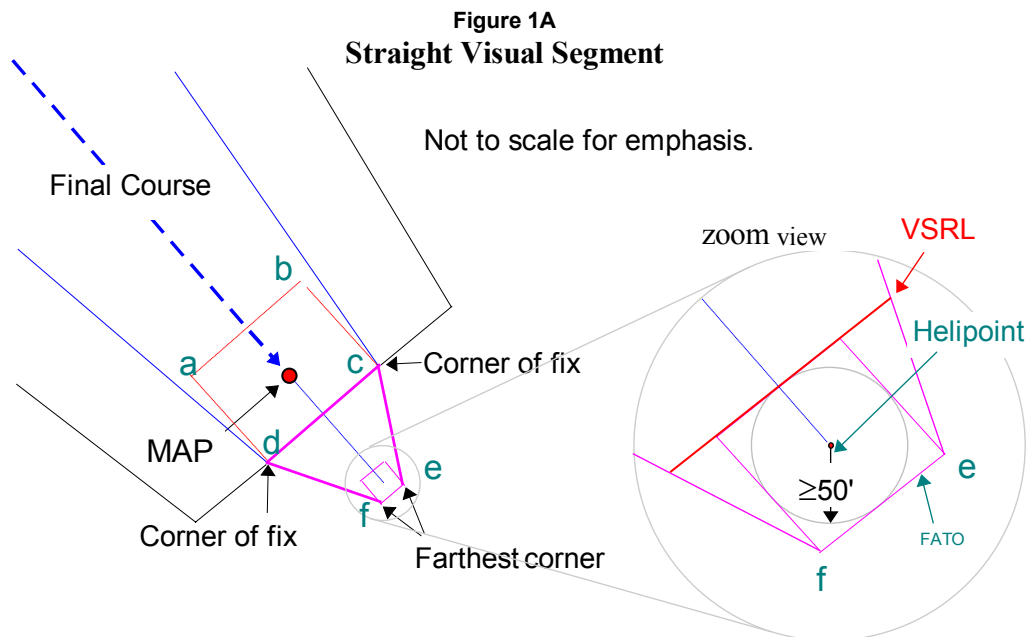
2.1 Area.

2.1.1 Length.

The area considered for obstacle identification begins at the MAP earliest position and extends to the end of the FATO or 50 feet beyond the heliport, whichever is farther. The MINIMUM distance from MAP to heliport is 2,600 feet.

2.1.2 Width.

2.1.2.1 Visual segment course continuation of final course. Construct lines (c-e, d-f) from the corners of the MAP fix error box closest to the heliport to the farthest corners of the FATO. See Figure 1A.

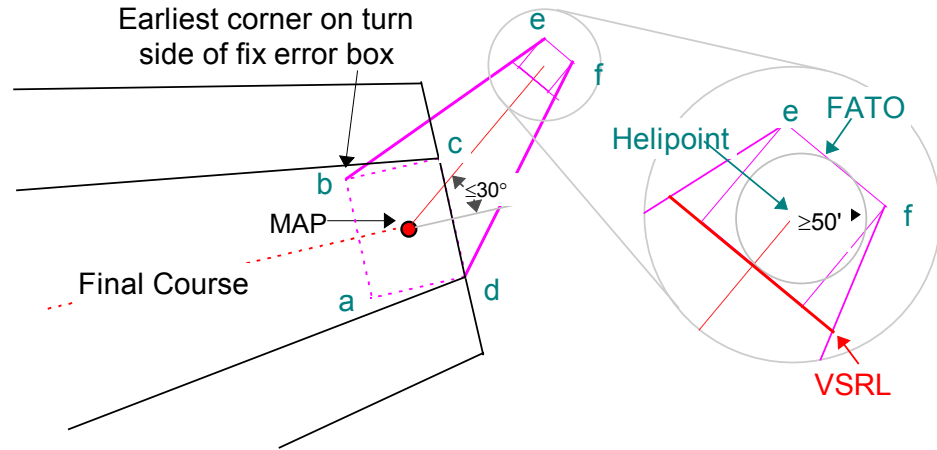


2.1.2.2 Visual segment course deviating up to 30° from final course. Connect the turn side earliest corner (b) of the MAP fix error box to the farthest corresponding corner (e) of the FATO. Connect the non-turn side corner (d) of the fix error box closest to the heliport to the farthest FATO corner (f). See figure 1B.

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Figure 1B
Visual Segment With Turn at MAP

Scale exaggerated for emphasis.



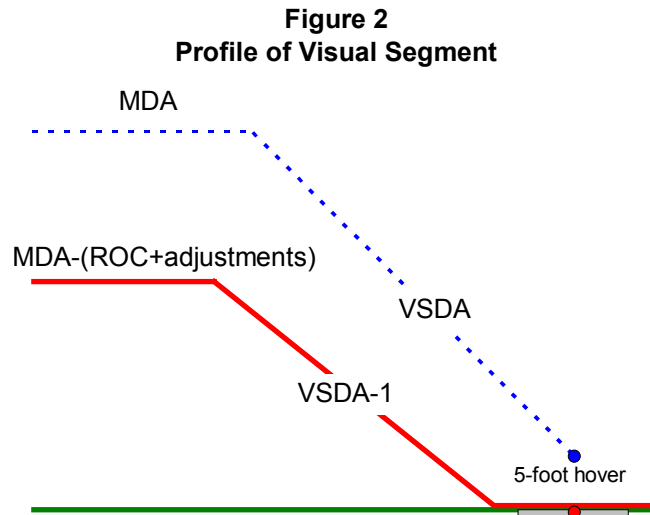
2.2 Visual Segment Descent Angle (VSDA).

The VSDA is a developer specified angle extending from the a point 5 feet directly above the helipoint to the MDA. The VSDA must cross MDA between the helipoint and the MAP. MAXIMUM VSDA is 7.5°, OPTIMUM is 6.0°, and the MINIMUM is 4.5°. VSDA's greater than 7.5° requires Flight Standards Service approval considering specific helicopter equipment and capabilities, pilot training, and demonstrated capability.

2.3 Visual Segment OIS.

The VSRL is a line perpendicular to the visual track, located 50 feet from the helipoint or at the leading edge of the FATO, whichever is farther. The OIS begins as a level surface at helipoint elevation. At the VSRL, it extends upward in the direction of the MAP at a 1° less than the specified VSDA to the point it reaches an altitude equal to MDA minus ROC and adjustments. When the MAP is beyond this point, the OIS becomes a level surface to the plotted position of the MAP. Obstacles are measured shortest distance to the VSRL. Obstacles should not penetrate the OIS. When obstacles penetrate the OIS, take one of the following actions in the listed sequence.

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- 2.3.1** Remove or adjust obstacle location and/or height to eliminate the penetration, or
- 2.3.2** Raise the VSDA to achieve an OIS angle that clears the obstacle (7.5° MAXIMUM without Flight Standards Service approval), or
- 2.3.3** Identify the obstacle with the greatest penetration. Raise the MDA the amount of penetration and round to the next highest 20-foot increment. If feasible, have penetrating obstacles marked and lighted. Depict all penetrating obstacles on the approach chart, or
- 2.3.4** Raise the VSDA aiming point up to 10 feet above the heliport, mandate training on descent to high hover, annotate the chart “**VISUAL SEGMENT DESCENT PLANNED TO xx FOOT HOVER**”, or
- 2.3.5** Raise the VSDA aiming point up to 20 feet above the heliport provided the height is consistent with the helicopters’ ability to hover out of ground effect, multi-engine helicopter required, mandate training on descent to high hover, annotate the chart “**VISUAL SEGMENT DESCENT PLANNED TO xx FOOT HOVER.**”
- 3.0** **POINT-IN-SPACE VISUAL TRANSITION AREA** (MAP MORE THAN 10,500 FEET TO HELIPORT)

The purpose of the visual segment on a PinS approach procedure to a landing area more than 10,500 feet from the MAP is to provide a measure of obstruction protection/identification to allow a safe transition from IFR to VFR flight. Annotate PinS approaches more than 10,500 feet from MAP to heliport with the note: "PROCEED VFR TO THE LANDING SITE."

3.1 **AREA**

The visual segment is a level surface within a radius of 10,500 feet of a point at the intersection of the final approach course extended and the latest edge of the MAP fix displacement box. Its elevation is equal to $MDA - (ROC + Adjustments)$. This

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surface should not be penetrated. EXCEPTION: When an MDA that does not provide obstacle clearance in this area is MANDATORY for mission completion, the surface may be penetrated if the penetrating obstacles are charted and included in required training.

Figure 3
PinS to Heliport > 10,500 feet from MAP

