FACTSHEET – DEFENCE AERODROME OPERATOR RESPONSIBILITIES TO DESIGNERS OF TERMINAL INSTRUMENT FLIGHT PROCEDURES AT DEFENCE AERODROMES

AIM

This factsheet applies to Defence Aerodrome Operator (AD OPR) organisations.[1] The aim of the factsheet is to assist the AD OPR in understanding the:

- relationship between the CASA 68/24 -*Terminal Instrument Flight Procedures (Military Aerodromes) Instrument*, Letters Of Agreement and Obstacle Letters, that will be received from CASA certified Part 173 design organisations, and
- AD OPR obligations to support the design requirements for Terminal Instrument Flight Procedures (TIFP) at Defence Aerodromes.

This Factsheet does not include design requirements for Obstacle Limitation Surfaces (OLS) nor PANS OPS Surfaces. Information regarding OLS design elements are contained in Section 6 of the *Defence Aviation Safety Design Requirements Manual* (DASDRM)[2], and for PANS-OPS in ICAO Doc 8168.

The Factsheet does not address maintenance or flight-inspection of ground-based radio-navigation aids (NAVAIDS) associated with TIFP. (CASA 68/24 assigns the responsibility for flight-inspection of NAVAIDS (applicable to the civilian TIFP) to the CASA certified Part 173 design organisation.)

Refer to DASA Factsheet – *Defence Aerodrome Obstacle Management* for more detail regarding obligations related to management of aerodrome obstacles and the Obstacle Limitation Surface (OLS).

INTRODUCTION

Aircraft arriving to, operating at or departing from aerodromes require TIFP when flying in instrument meteorological conditions (IMC) when visibility is low. These procedures ensure obstacle clearance and facilitate orderly traffic flow using instrument displays and electronic guidance, rather than visual references.

Terminal Instrument Flight Procedure designers design TIFP for Defence aerodromes to support both civilian and military aviation activities. The TIFP may be designed by CASR Part 173 certified designers (Certified Designer) or by the Defence ANSP (AIS-AF).

Military (State) aircraft are permitted to use both civilian TIFP and military TIFP. However, IAW the Civil Aviation Safety Regulations 1998 (CASR), non-State Aircraft are only permitted to use TIFP designed IAW the CASR Part 173—ie designed by a Certified Designer.

Defence maintains a need for civilian TIFP to support non-state aircraft operations at Defence aerodromes. For example, Defence may contract non-State Aircraft to support military flying training requirements or for the deployment of personnel.

DEFINITIONS

The following definitions aid understanding of technical aspects of this Factsheet.

Term	Definition
Terminal Instrument Flight Procedure (TIFP)	A flight procedure designed for aircraft flying IAW instrument flight rules (ie flight by reference to navigation instruments) to provide safe and efficient aircraft operations. TIFP by design,

[1] The AD OPR Organisation, used in the context of *DASR 139* and this Factsheet is any organisation, operator or its representative with responsibilities for compliance to *DASR 139*. Eg SEG contractors completing OLS surveys.
[2] *DASDRM* Section 6 Chapter 2 covers land-based aerodromes, and Chapter 3 land based heliports.

	provide protection from obstacles during the approach or departure phase of flight to a specified altitude.[3]
Certified Designer	A Certified Designer is the holder of a procedure design certificate. The procedure design certificate is issued by CASA under the CASR Part 173, and certifies that the person/organisation is authorised to carry on design work on a terminal instrument flight procedure as detailed in the certificate.[4]
TIFP Designer	The designer of a Terminal Instrument Flight Procedure. Within this factsheet, the term refers to any TIFP Designer, ie Certified Designers and Military Designers (AIS-AF).
Civilian TIFP	Civilian TIFP are TIFP designed by a CASR Part 173 Certified Designer (eg Airservices Australia, GE Flight Efficiency Services LLC, Global Airspace Solutions Pty Ltd) and published in *civilian* Aeronautical Information Publication (AIP) - *Departure and Arrival Procedures* (DAP).
Military TIFP	Military TIFP are TIFP designed by AIS-AF[5] (or a Certified Designer contracted by AIS-AF) and are published in Defence AIP – ADF Flight Information Publication *Terminal Australia* (TERMA).
PANS-OPS Surface	The 3D surfaces (imaginary) around the runway determined by design requirements for Instrument Flight Procedures (IFP) defined in the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) promulgated by the International Civil Aviation Organization (ICAO) in Doc 8168. The PANS-OPS surface is usually (but not always) above the OLS and is designed to safeguard an aircraft from collision with obstacles when the aircraft's flight may be guided solely by instruments, in conditions of poor visibility, by ensuring the minimum obstacle clearance height to aircraft is maintained.[6]
Visual Segment Surface (VSS)	A PANS-OPS design segment of a straight-in instrument approach procedure, which needs to be monitored and kept clear of any penetrations by obstacles. The purpose of a VSS is to protect the aircraft from ground-based obstacles prior to landing, while the pilot transitions from flying on instruments to using the visual references available at the aerodrome.[7]
Critical Obstacle	A Critical Obstacle (nominated as such by a TIFP Designer) influences the design of the TIFP. The TIFP Designer will provide the AD OPR details of Critical Obstacles including the height and location.[8]
State Aircraft	Aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that Force in the course of duties as such a member); and aircraft used in the military, customs or police services of a foreign country.[9]

BACKGROUND

TIFP Designers use a combination of surveyed obstacle data and minimum obstacle clearance tolerances to determine safe altitudes when designing TIFPs. Unmitigated or unknown obstacles on or near aerodromes may pose hazards to safe flight operations. The Certified Designer is responsible for the ongoing safety of the design,

[3] Definition adapted from *PANSOPS Vol II – ICAO Doc 8168*
[4] Definition adapted from CASR Part 173.
[5] AIS-AF are not a CASR Part 173 Certified Designer. Air Force's Surveillance and Reconnaissance Group is an approved ANSP organisation. Accordingly, AIS-AF are required to comply with DASR ANSP.
[6] Definition adapted from CASA AC139.E-02v1.0 *Plume rise assessments.*
[7] CASA Advisory Circular AC-139-21 v1.1 *Visual segment surface: monitoring requirements and the reporting of obstacles*.
[8] Definition adapted from MOS 139 Chapter 7 Division 2.
[9] DASP Glossary.

but is not able to monitor the obstacles around the aerodrome on a continuous basis. The Certified Designer therefore needs the assistance of the AD OPR to perform this task on their behalf.

For TIFP at civilian aerodromes, the CASR Part 139, Part 173, and associated Manuals of Standards (MOS 139 and MOS 173) provide complementary requirements that result in the Certified Designer and AD OPR collaborating to identify new or changed obstacles and ensure the safety of TIFP design. The AD OPR is required to monitor the protected surfaces (including OLS, PANS OPS surfaces, VSS) and Critical Obstacles and report any changes to the Certified Designer. On receiving notification of a change to any of the protected surfaces or the presence of a new or changed obstacle, the Certified Designer will review the TIFP design and make any necessary adjustments to fulfil their responsibility to ensure the procedure remains safe for use. If necessary, the Certified Designer may withdraw the TIFP.

Defence is not subject to the CASR 1998; as such, Defence Aerodromes are not CASR Part 139 certified. IAW Joint Directive 21/2021, Defence has adopted the Defence Aviation Safety Framework, underpinned by *inter alia* establishment of DASA and the promulgation of DASR. DASR 139 aligns with CASR Part 139 so far as possible, to provide a credible and defensible standard for Defence Aerodrome operations. DASR 139 requires compliance with MOS 139 for various standards—including Aerodrome Serviceability Inspections, Aerodrome Technical Inspections, and OLS and obstacle monitoring[10]—which supports the integrity of TIFP design.

CASA LEGISLATIVE INSTRUMENT 68 of 2024

In 2024, CASA released Legislative Instrument CASA 68/24 to resolve a restriction in the *CASR Part 173* (Part 173) that limits the design and publication of *civilian* TIFP to *CASR Part 139* (Part 139) certified aerodromes.[11] CASA 68/24 permits the CASR Part 173 Certified TIFP designer (Certified Designer) to design and publish civilian TIFP for listed[12] military aerodromes (Defence Aerodromes).

CASA 68/24 provides requirements to Certified Designers for Defence Aerodromes including a requirement to establish an arrangement with Defence AD OPR for OLS and obstacle monitoring. Defence AD OPR AM agreement to the arrangements assists the Certified Designer to fulfil their responsibility to maintain safe TIFP designs that separate aircraft from obstacles. Where such an arrangement (between the Certified Designer and Defence AD OPR) is not established, or continued, the Certified Designer may withdraw the TIFP from use.

LETTERS OF AGREEMENT (LoA) AND OBSTACLE LETTERS

The arrangement, in the form of a Letter of Agreement (LoA), between the AD OPR and the Certified Designer (Airservices Australia or other CASR Part 173 design organisation) places an obligation and responsibility on each party. Stakeholder obligations and responsibilities are detailed below.

CASA 68/24 requires the Certified Designer to provide each aerodrome with an Obstacle Letter.[13] The Obstacle Letter includes information and drawings of the area around the aerodrome, showing the designed approach paths, the circling areas, visual segment surfaces (VSS) and locations of Critical Obstacles taken into account in the design. The Certified Designer must provide an updated letter to the AD OPR for each new TIFP, or change to an existing TIFP, and after a periodic aerodrome review.

STAKEHOLDERS, OBLIGATIONS AND RESPONSIBILITIES

The AD OPR has sole responsibility to monitor the OLS. The AD OPR and the procedure designer/s should work in partnership to monitor PANS-OPS airspace and associated surfaces. The TIFP designer is responsible for the integrity of the technical data related to the TIFP design, but cannot directly monitor for any new or proposed obstacles that present at the relevant aerodrome. Therefore, AD OPR is responsible to monitor any new or proposed obstacles at their aerodrome and in doing so support the TIFP designer to maintain the integrity of any published TIFP.

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[10] Note DASR AMC.139.50.13 requires alignment to the MOS 139 Chap 12 ‘where practical’. See MOS 139 Chap 12 s 12.03 and 12.04, which detail requirements for monitoring and reporting changes to obstacles related to OLS, transitional and PANS-OPS surfaces.

[11] With the exception of Darwin International Airport/RAAF Base Darwin and Townsville Airport/RAAF Base Townsville, Defence aerodromes are **not** CASR Part 139 Certified Aerodromes.

[12] See CASA 68/24 for the ‘listed military aerodromes’.

[13] Obstacles letters will be provided to each aerodrome via the AM Organisation’s nominated representative.

The stakeholders include the AD OPR and Certified Designer. The stakeholders have obligations and responsibilities as follows:

Defence AD OPR

- IAW the arrangements imposed by the LoA and Obstacle Letters, the AD OPR is obligated to:
  - provide to the Certified Designer the current aerodrome OLS survey information and Type A Chart (if one exists). A survey of the VSS should be included in requirements for the aerodrome OLS survey and data provided to the Certified Designer.[14]
    - For any Defence aerodromes where OLS surveys are not current[15], the Defence AD OPR should still provide the most recent OLS survey data to the Certified Designer. The Certified Designer will assess the surveyed data and make any necessary adjustments to the TIFP design, or where necessary, may withdraw the TIFP.
- The AD OPR of a listed military aerodrome, including joint-user aerodromes, must monitor any object or structure that may infringe the aerodrome's OLS and PANS-OPS surfaces associated with instrument approach procedures.
  - Specifically, AD OPR obstacle monitoring procedures should include a check of:
    - the approach, take-off and transitional surfaces and VSS[16] to ensure published aerodrome information is accurate to within 0.05% of the published gradient in the AIS-ERSA
    - the other surfaces associated with the OLS
    - the Critical Obstacles nominated by the designer for any TIFP published for the aerodrome.
- The Defence AD OPR must inform the TIFP Designer of:
  - any change in status of a Critical Obstacle
  - any proposed development that is to be higher than the Critical Obstacles within the area depicted by the designer
  - any new object or structure that is higher than the Critical Obstacles within the area depicted by the designer.
- The Defence AD OPR should document obstacle monitoring procedures in the relevant Aerodrome Manual (IAW DASR 139.50).
- Although the LoA is between the Certified Designer and the Defence AD OPR, the conduct of obstacle monitoring and reporting functions will rely on suitably trained and qualified personnel at the individual Aerodrome level (for example, the Base Airfield Engineering Officer or Aerodrome Reporting Officer).

Certified Designer

- The Certified Designer must provide the AD OPR sufficient diagrams and obstacle data to enable the AD OPR to monitor and report obstacles in the vicinity of an aerodrome (normally before the effective TIFP publication date).
- The Certified Designer will typically provide this information in the form of an 'Obstacle Letter' (subordinate to the LoA), which will include the following details specific to each Aerodrome:
  - designed approach paths

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[14] The Certified Designer (eg Airservices) will provide VSS parameters in the Obstacle letter.

[15] 'Currency' requirements for Defence Aerodromes is IAW DASR AMC1.139.50.13.d.

[16] The Certified Designer will inform the AD OPR if a VSS has been included in the TIFP design. Where a VSS exists, it needs to be monitored by both the aerodrome operator and the procedure designer. If a VSS exists, a survey of the VSS must be included in the OLS survey (conducted as a component of an Aerodrome Technical Inspection)—the Certified Designer will provide the AD OPR with parameters for a VSS survey. See CASA AC 139-21 v1.1 *Visual segment surface: monitoring requirements and the reporting of obstacles* for more information.

- circling areas
- survey parameters for any visual segment surfaces (VSS) associated with the TIFP at the Aerodrome
- locations of Critical Obstacles taken into account in the TIFP design.

- The Certified Designer must provide an updated Obstacle Letter to the AD OPR:
  - for each new TIFP
  - for a change to an existing TIFP
  - after a periodic Aerodrome review.
- The Certified Designer must conduct obstacle assessments against their applicable TIFP.

DASA RESPONSIBILITIES

DASA is available to support Defence AD OPR to clarify AD OPR obligations. DASA will conduct oversight and enforcement of AD OPR for compliance with DASR 139 requirements for obstacle management and associated records during oversight activities.

STEPS FOR MANAGEMENT OF TIFP OBSTACLE MONITORING

Step	Who	Activity	Notes
1	Defence AD OPR	The AD OPR procures an Aerodrome Technical Inspection (ATI) containing key data to inform the Aerodrome Stakeholders.	As part of the ATI requirements (DASR 139.50.13.d and MOS 139 Chapter 12 Division 2) the AD OPR must ensure the following key data elements are provided as a part of the ATI Report: a) an instrument survey of the approach, take-off, transitional surfaces, and VSS associated with approach procedures at the aerodrome b) a check of other applicable surfaces associated with the OLS, and c) a check of the aerodromes operator's monitoring of the instrument approach procedure-Critical Obstacles nominated by the procedure designer for any TIFP published for the aerodrome. Additionally, the ATI must confirm the currency and accuracy of: a) the Type A chart b) the AD OPR's obstacle monitoring procedures c) the distribution list of current Type A chart holders The OLS survey report documents a list of obstacles within the OLS that the AD OPR is required to monitor. The ATI will identify if a new Type A Chart is required.[17]
2	Defence AD OPR	AD OPR provide the following information to the Certified Designer: a) aerodrome information b) the latest survey including: 1. OLS survey 2. obstacles associated with the OLS, and 3. Type A Charts	AD OPR have an obligation to provide the Certified Designer with all relevant aerodrome information to assist in the design and publication of the TIFP charts. The Aerodrome Information includes: a) aerodrome layout; b) threshold locations and elevations (AMSL) c) aerodrome reference point location and elevation d) NAVAIDS and location e) OLS survey f) Type A charts (if one exists) If there is any additional information required by the TIFP Designers, they are obligated to communicate the missing information with the AD OPR.
3	Certified Designer	a) The Certified Designer reviews the data provided by the AD OPR, along with other topographical information available	Prior to publication, IAW CASR Part 173 and MOS 173, the Certified Designer is required to have the TIFP design independently verified by two qualified procedure designers. Additionally, the Certified Designer is to have the TIFP design validated by a CASA pilot.

[17] See MOS 139 Chapter 12 Division 2 for more detail on the contents of ATI.

Step	Who	Activity	Notes
		b) Using the reviewed data the Certified Designer designs, obtains approval and publishes the respective TIFPs.	
4	Certified Designer	The Certified Designer provides the AD OPR with a list of Critical Obstacles associated with the procedure design(s) that the AD OPR is required to monitor. The Certified Designer is to provide diagrams and obstacle data sufficient to enable the AD OPR to fulfil their monitoring and reporting obligations.	The Critical Obstacle information will include the following: a) drawings of the area around the aerodrome showing the design approach paths, the circling areas, survey parameters for VSS associated with approach procedures and locations of the Critical Obstacles b) obstacle number c) type of obstacle d) location e) elevation in feet f) minimum obstacle clearance (MOC)
5	Defence AD OPR	The AD OPR (normally the ARO) identifies the Critical Obstacles and monitors the obstacles on a daily basis as part of the routine aerodrome serviceability inspection.	On receipt of Critical Obstacle(s), the AD OPR updates the obstacle master database and incorporates the revised Critical Obstacles into the daily serviceability inspection regime. The AD OPR must advise the Certified Designer of any change to, or proposal for, an obstacle or structure that would penetrate the OLS or PAN-OPS surface, or affect or exceed the height of a Critical Obstacle.[18]
6	Defence AD OPR	The AD OPR must advise the Certified Designer of any change to the Critical Obstacle(s) and/or change to obstacles (permanent or temporary) that penetrate the OLS or PANS OPS.	The ADOPR should detail the Aerodrome position/role responsible for communicating changes to obstacles to the Certified Designer within the Aerodrome Manual. The Certified Designer will assess the impact on the published TIFP. Note: Any change to runway geometry e.g. runway extension or displaced threshold temporary or permanent must be notified to the Certified Designer. Notification to the Certified Designer should be as early as possible (in planning) and in advance of displacing the threshold.
7	Certified Designer	The Certified Designer reviews the change to the Critical Obstacle(s) or other newly reported obstacles and if it effects the TIFP, the Certified Designer will: a) advise the AD OPR b) issue a NOTAM to either suspended, cancel or adjust the TIFP c) update and reissue the TIFP	Following a review of the advised obstacle(s) changes, the Certified Designer will advise the AD OPR of the outcomes of the review process, and the course of action required.

[18] Refer to the DASA Factsheet – *Defence Aerodrome Obstacle Management* for more information.

Step	Who	Activity	Notes
		d) Certified Designer to advise AD OPR of revised Critical Obstacles that require monitoring.	
8	Certified Designer	The Certified Designer updates the obstacle data and reissues the data to the AD OPR.	The AD OPR must review any changes to TIFP (temporary or permanent) and reflect these changes to the daily serviceability inspections and the AD MAN as applicable.
9		The cycle starts again at Step 1 or Step 5 as required.	

REFERENCES

- CASA 68/24 - Terminal Instrument Flight Procedures (Military Aerodromes) Instrument 2024
- CASR Part 173
- Airservices Australia website – Development at and around airports
- AIS-AF website – Obstacle Assessments
- CASA AC 139-21 Visual segment surface: monitoring requirements and the reporting of obstacles v1.1
- CASA AC 139.C-05 v1.1 Aeronautical Information Reporting and Validation
- CASA AC 139.E-01 v1.0 Reporting of Tall Structures
- CASA AC 139.E-02 v1.0 Plume Rise Assessments
- CASR Part 175 – Aeronautical information management
- CASR Part 139 (Aerodromes) Manual Of Standards 2019
- DASR 139 - Aerodromes
- DASA Factsheet – Defence Aerodrome Obstacle Management
- DASA Factsheet – Aerodrome Design Requirements and Certification Basis
- DASA Factsheet – Information Guide on Interpretation of CASA Part 139 MOS
- DASA Website – Guidance for Non-Certified Aerodromes
- Defence aviation areas regulation
- Defence Aviation Safety Design Requirements Manual, Section 6 – Aerodrome Design Requirements
- Defence Aviation Safety Program (DASP) Policy and Guidance Portal
- National Airports Safeguarding Framework principles and guidelines
    - Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports
    - Guideline F: Managing the Risk of Intrusions into the protected Airspace of Airports