APA-CDM/TF TASK LIST

(Updated 29 April 2021)

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/1	Update group of expert names and contact details	Group of Expert States	8 December 2017	**Completed**	Prepared and posted as IP/02 at ICAO APAC Meeting Webpage
1/2	Examine available guidance material for clear definition of what is A-CDM and what is not	Secretariat	Ongoing	**Completed**	To be included in Draft Implementation Plan
1/3	Check with ICAO HQ whether APA-CDM/TF Participants can be provided with a copy of Draft Doc 9971 3rd Edition	Secretariat	28 April 2017	**Completed**	For use only on APA-CDM/TF work.
1/4	Conduct survey of State A-CDM implementation status	India/CANSO/Group of Experts/Secretariat	Before November 2017	**Completed**	Results of Survey to be analyzed by APA-CDM/TF/2
1/5	Offline analysis of ICAO Doc 9971 Part 3, when available, and report recommendations to APA-CDM/TF/2	China/Group of Experts	APA-CDM/TF/2	**Completed**	Gap analysis between Doc 9971 and any identified needs.
1/6	Review the effectiveness of existing A-CDM programmes in the APAC Region	CANSO/IATA	Ongoing	**Completed**	Dependent on the development of a set of metrics
1/7	Develop a set of metrics for measurement of effectiveness of A-CDM implementation	CANSO/IATA/ Group of Experts/	APA CDM/TF/4	**Completed**	Incorporated in Draft APAC A-CDM Implementation Plan
2/1	Re-circulate A-CDM implementation survey questionnaire to non-respondent States, seek clarification from States where information provided was unclear, and make the questionnaire (i.e. in MS Word file) available in the webpage for APA-CDM/TF/2	Secretariat/CANSO	15 December 2017	**Completed**	Survey questionnaires and supplementary questionnaires had been sent to States.

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
2/2	Finalize the interim report of the survey results incorporating information provided by States who have not responded to survey questionnaire and additional clarifications received from States	India/CANSO/Group of Experts/Secretariat	28 February 2018	**Completed**	Presented in APA-CDM/TF/3 meeting.
2/3	First draft of Asia/Pacific Regional A-CDM Implementation Plan	India/Singapore/CANSO/IATA/ Group of Experts	31 March 2018	**Completed**	First draft of Asia/Pacific Regional A-CDM Implementation Plan presented in APA-CDM/TF/3 meeting.
3/1	Interoperability Milestones: 1. Develop Interoperability Operational Concept 2. Identify minimum A-CDM milestones for interoperability with cross-border ATFM; and 3. Prepare Operational Scenarios for FIXM Extension;	Hong Kong, China/India/Singapore/Thailand/CANSO/IATA/Group of Experts	APA-CDM/TF/4	**Completed**	Developed FIXM v4.1 Extension based on A-CDM operational scenarios developed under the SWIM in ASEAN Demonstration project
3/2	Coordinate with SWIM TF for inclusion of A-CDM attributes in FIXM Extension	Thailand/Secretariat	31 August 2018	**Completed**	SWIM TF Chair and Task Leaders web-conference planned for August 2018
3/3	Examine availability of A-CDM-specific MET information for inclusion by reference in A-CDM Plan.	Secretariat	APA-CDM/TF/4	**Completed**	Reference is made to the *Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to support Air Traffic Management Operations* and included in the Asia/Pacific A-CDM Implementation Plan
3/4	Provide examples of A-CDM guides, AIP Supplement, AIC for notification of	Republic of Korea, Hong Kong China, other States that have	28 February 2019	**Completed**	ROK has provided Incheon A-CDM Operational

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
	A-CDM operational trial/ implementation	implemented A-CDM			Manual
3/5	Provide examples of A-CDM performance measurement	States that have implemented A-CDM	28 February 2019	**Completed**	
3/6	Finalize Asia/Pacific Regional A-CDM Plan	India/Singapore/Thailand/CANSO /IATA/Group of Experts	APA-CDM/TF/4	**Completed**	Informal face-to-face meeting was held from 4 to 8 March 2019. DRAFT Asia/Pacific Regional A-CDM Implementation Plan submitted to the APA-CDM/TF/4 for endorsement.
4/1	Develop frequently asked questions as live document	CANSO/IATA	September 2020	~~**In progress**~~ **Completed**	APA-CDM/TF/6 WP/05
4/2	Develop new survey questionnaire based on APAC A-CDM Implementation Plan	CANSO/India/Hong Kong, China	APA-CDM/TF/5	**Completed**	State Letter AN 3/3 – AP109/20 (AGA) dated 12 May 2020
4/3	Analysis of the completed survey	CANSO/India/Hong Kong, China	APA-CDM/TF/5	**Completed**	APA-CDM/TF/5 WP/09
4/4	Interoperability of A-CDM with ATFM in collaboration with ATFM/SG Experts and SWIM TF	Hong Kong China/Thailand/Singapore/India/ CANSO/IATA	APA-CDM/TF/5	**Completed**	APA-CDM/TF/5 WP/06 Continue in Tasks 5/2 & 5/3.
5/1	Develop a monitoring framework and monitor the progress of achieving the performance expectations as per Asia/Pacific A-CDM Implementation Plan and review the expectations as needed, in consultation with ATFM/SG	India to lead CANSO	Framework: November 2020 Progress Monitoring Report: APA-CDM/TF/6	**Completed**	TOR item 3 APA-CDM/TF/6 WP/06 States to report to APAC Office A-CDM implementation status as per A-CDM Implementation

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
					Monitoring Framework in a periodic basis.
5/2	Develop joint operational procedure guidance for the integration of ATFM and A-CDM operations, focusing the integration between A-CDM and "cross-border" ATFM in collaboration with Experts from ATFM/SG and SWIM TF.	Hong Kong China to lead China, India, Republic of Korea, Thailand, Group of Experts, CANSO	APA-CDM/TF/6	**In progress**	APA-CDM/TF/6 WP/03 Task to be carried out by the APANPIRG technical body assigned ongoing responsibility for oversight of A-CDM.
5/3	Identify any other data attributes which are necessary to support the A-CDM and ATFM integrated operations (from A-CDM perspective), in addition to the ones already included in the current version of the FIXM v4.1 Extension in collaboration with Experts from ATFM/SG and SWIM TF.	Thailand to lead Hong Kong China, India, Group of Experts, CANSO	APA-CDM/TF/6	**To be commenced**	Task to be carried out by the APANPIRG technical body assigned ongoing responsibility for oversight of A-CDM.
5/4	Update the Asia/Pacific A-CDM Implementation Plan	India to lead Thailand, CANSO	Editorial Changes: November 2020 Other Changes: APA-CDM/TF/6	**Completed**	APA-CDM/TF/6 WP/07

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A-CDM Frequently Asked Questions (FAQs)

First Edition, 2 July 2021

This FAQs Material was developed by the APA-CDM/TF and approved by the AOP/SG/5 Meeting and published by ICAO Asia and Pacific Office, Bangkok

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Introduction

For any organization(s) that are planning and executing an A-CDM implementation many questions will arise. These can range from very high-level questions like *"who shall lead the project", "what are benefits of A-CDM for me"* to details on *"how to update the TOBT when a flight is delayed" etc*.

Many of the questions that will arise can be "answered" in various A-CDM guidance materials and plans, e.g. ICAO Doc 9971 [1] and the Asia Pacific Airport Collaborative Decision Making (A-CDM) Implementation Plan [2] as well as documents from EUROCONTROL[3], CANSO [4], and IATA [5]. In addition, the ICAO Asia and Pacific Office, Bangkok has made available specific A-CDM Procedure materials provided by States via this link https://www.icao.int/APAC/Pages/eDocs.aspx that also may facilitate answers.

Nevertheless, it has been evidenced that many questions from organizations and stakeholders are yet frequently asked. To help with capturing these questions and provide uniform answers the Asia Pacific A-CDM Task Force meeting No. 4 agreed to *"Develop frequently asked questions as live document".* This document presents a compilation of Frequently Asked Questions (FAQs) on A-CDM.

The intention is to make this as a "living" document" as such it shall be updated based on new FAQ inputs from A-CDM implementers and stakeholders. In order to facilitate this, questions can be sent to the ICAO Asia and Pacific Office, Bangkok e-mail address apac@icao.int.

Structure of the FAQ

In the following sections, the FAQs are structured by a specific topic they are "most" applicable to. Therefore, based on the FAQs currently presented in the document, the following structure is applied:

- **Implementation Related FAQs** – these are questions and answers that relate to the planning and execution of an A-CDM implementation
- **Procedural Related FAQs** – these are questions and answers that relate to the procedural character.
- **Technical Related FAQs** – these are questions and answers that relate to the technical aspects of the solution and various systems that enables an A-CDM implementation.

Implementation Related FAQs

Q01: Is A-CDM necessary at a small single-runway airport? What size of an airport would render A-CDM necessary?

A01: There are different size-based models that provide guidance as to when an airport should *explore the needs* for A-CDM process. In Asia-Pacific, the regional *Seamless ANS Plan (v3.0, 2019)* recommends that all international aerodromes consider implementing A-CDM with integration to ATFM.

It is important to note, however, that A-CDM is a process designed to address inefficiencies and sub-optimized operations at the airport. Thus, a needs analysis that looks beyond just the level of traffic demand should be carried out to determine the needs for A-CDM. Common problems A-CDM is designed to alleviate include, inter alia, turnaround inefficiencies, punctuality problems, lack of information transparency, congestions and inefficiencies in the movement areas (taxiways, runways), and lack of good coordination among airport stakeholders. Even if an airport is small, if these problems exist, a level of A-CDM process may be useful.

Q02: Is it fair to say that information sharing will benefit any reasonably busy airport, while the full A-CDM process including TOBT/TSAT enforcement will only benefit extremely busy airport?

A02: Information sharing among stakeholders will most probably benefit *any* airport, not just busy ones. The open sharing of information across stakeholders will create common situational awareness and enables smooth inter-unit collaboration, thereby improving operations at the airport.

However**, Information Sharing in itself is not A-CDM** which is important to remember. Implementation of TOBT and TSAT, related procedures, and various levels of system support is equal to A-CDM, which will require specific information sharing to take place. I.e. implementation of TOBT and TSAT (best-planned best-served principles) will drive the need for information sharing in an A-CDM context. The information sharing needs are very specific and serves very specific purposes.

Q03: In engaging stakeholders for A-CDM implementation, how can we balance between problems to be solved with wishes of the stakeholders?

A03: The focus on “why A-CDM” in the initial stakeholder engagement is closely linked to looking at the wishes of A-CDM stakeholders. By getting all stakeholders to the same table and discuss their needs, A-CDM *strategic objectives* can be established. The strategic objectives should provide concrete and measurable goals in the A-CDM implementation process, e.g. “to reduce average taxi-out time by 3 minutes within 2023”, and should be based on the most pressing challenges agreed upon by stakeholders involved in the process.

Q04: Who should take the lead in A-CDM implementation, Airport Operator or ANSP?

A04: Most A-CDM implementation projects to date have been led by airport operators, and with active support by all A-CDM stakeholders. However there is not a single model that definitively says which entity should be the lead in the implementation process as it very much depends on the local environment and arrangements. There are cases where the airport operator and the ANSP *together* lead the implementation; such as the case in Singapore with the A-CDM project being a joint one between Changi Airport Group (CAG) and Civil Aviation Authority of Singapore (CAAS).

Regardless of which entity takes the initial lead, it is important that the airport operator(s), the ANSP, the airline operators and ground handlers are deeply involved in the implementation process early on. A-CDM implementation is not simply a system installation project, but requires changes (sometimes significant) to operational procedures to be performed by operational personnel.

Q05: Is it necessary to concurrently implement ATFM operations and system for A-CDM process to be successful?

A05: ***A-CDM and ATFM are independent processes, and do not need to be concurrently implemented*** for them to be successful. Inherently, they are designed to tackle different issues. A-CDM, on the one hand, is designed to address inefficiencies and sub optimized operations at the airport. ATFM, on the other hand, is designed to ensure a proper balance of demand and an optimized use of available capacities in the airport and airspace.

However; ***once implemented, both A-CDM and ATFM should be integrated*** through mutual data exchange between the systems. By mutually exchange information across the systems, high level of flight information accuracy can be ensured, which will enable a high level of operational efficiency both at the airport and at the airport/airspace/network levels depending on how ATFM is implemented.

Q06: What tools are commonly used for education of front-line operators?

A06: Training should be carried at 2 levels; one to provide high-level conceptual understanding of A-CDM, and the other to provide in-depth knowledge on operational procedures and support system functionalities.

1. High-level training courses on A-CDM are offered by many training institutions, international organizations and vendors. ICAO Regional Offices, IATA, and CANSO have sponsored region-specific workshops in various locations over the years. Check with training institutions and regional offices of ICAO / IATA / CANSO to find out about training courses in your areas.
2. In-depth operational training should be conducted by each organization after the procedures have been developed. ATFM and A-CDM system providers can support this by providing the training on both system functionalities and its application in the ATFM / A-CDM procedures. How this is done in practical terms needs to address in procurement agreement with ANSPs and airport operators.

Procedural Related FAQs

Q07: When a flight departs from or going to A-CDM airports, the flight time may be adjusted while airborne due to various reasons. How will the change in flight time be handled?

A07: One of the data elements to be exchanged in the A-CDM process is the *Estimated Landing Time (ELDT).* The ELDT can be updated several times during a flight's lifecycle, with revised estimations based on the flight plan, Actual Take-Off Time (ATOT) from the outstation, and en-route progress from surveillance system or airline's information. Updated ELDT may then trigger an update to *Estimated In-Block Time (EIBT)*, which in turn may be ground for an update to *Target Off-Block Time (TOBT)* and *Target Start-up Approval Time (TSAT)* of the next outbound flight.

Having the behaviors of the flight while airborne trigger information updates to be shared with all the airport stakeholders is at the core of A-CDM process. With common updates shared, airport operations can be adjusted in preparation for the flight accordingly.

Q08: How to enhance stakeholders' trust in the time elements provided such as TOBT?

A08: TOBT, along with TSAT, are two cornerstone data elements in the A-CDM process and should therefore be properly implemented.

If there is an apparent lack of trust in the TOBT, its root cause must be investigated. Reliabilities in TOBT and TSAT should be analyzed as part of the implementation process, and stakeholder engagement to explain the importance and proper handling of TOBT/TSAT – among other data elements – should be carried out comprehensively. Time should be allowed and support provided for all relevant personnel to familiarize themselves with these A-CDM elements in their operations.

Q09: Is TOBT allowed to be earlier than EOBT?

A09: Yes but this has to be carefully discussed and agreed as part of the A-CDM procedural development.

Preferably and for regional and global harmonization, TOBT updates which are more than 10min before EOBT shall be ignored or rejected (by users and the CDM system).

A TOBT should not be more than 10min before the EOBT and the corresponding TSAT should not be earlier than the TOBT. Start-up can be requested up to 5 min earlier than the TSAT, which results in the flight departing a total of 15 min before the flight plan EOBT.

Q10: When is TSAT made available to the pilot?

A10: If the pilot has not received TSAT earlier by other means, it recommended that it be made available from ATC at the latest at TOBT - 5 min

In order to initiate the start-up procedure, the pilot should be informed about the TSAT with sufficient notice. By doing so, the pilot would be aware of any start-up delay and take action as required.

Q11: When does the ATC issue the start-up clearance?

A11: Start-up clearance should be given by ATC in accordance with TSAT.

By ATC closely respecting the pre-departure sequence, the pilot knows he/she can rely on the TSAT being accurate. Also, it results in better predictability for the network

Q12: What happens when the pilot does not call ready or for start-up when he/she should?

A12: This item records the CDM process in case the flight fails to comply with the target ready and start-up time.

The TOBT and TSAT should be respected. When a TOBT / TSAT proves to be unrealistic the pilot will not be able to call for start-up. The target times should reflect the actual estimated ready times.

In case the TOBT / TSAT has not been met, the flight may be removed from the pre-departure sequence (TSAT removed) and the TOBT may be deleted or declared invalid.

If a new TOBT is provided, the flight will be re-sequenced and the stakeholders are informed about the new TSAT and TTOT.

Q13: What happens if the aircraft isn't off-blocks following ASAT

A13: A monitoring mechanism of the actual pushback event should be in place in a full A-CDM implementation.

In case the aircraft if not off-blocks by ASAT+5 min, the flight should be excluded from the pre-departure sequence until a new reliable TOBT is provided, resulting in a new TSAT.

However it should be mandatory for an A-CDM airport to protect any flight held at gate by ATC after ASAT (e.g. due to ramp congestion etc.)

Monitoring pushback/taxi clearance compliance enforces execution of the gate, taxiway and runway occupancy according to the planned sequence.

Q14: Procedures published in the AIP?

A14: It is important that the procedures for the provision of TOBT / TSAT / TTOT in the CDM implementation are formally agreed and covered by official documents. The National AIP is one such document.

The AIP provides a recognized AIS channel, in which published procedures are readily available to all interested parties.

Q15: Can A-CDM procedures to be applied in case of adverse conditions?

A15: In simple terms the answer is "*yes*" and in general the approach should be that procedures for handling adverse conditions should be integrated with A-CDM processes.

In an ideal scenario the an adverse condition should not lead to reduced use or even a temporary interruption of A-CDM processes, where A-CDM should in fact provide the backbone for operations on the basis of accurate status information for each aircraft.

However, applying A-CDM procedures with procedures developed to handle adverse conditions will require thorough analysis on how they inter-relate and provide benefits.

Technical Related FAQs

Q16: What is the most accurate source of at-gate milestones e.g. AIBT, AOBT?

A16: When available, automated Visual Docking and Guidance System (VDGS) that collects at-gate data (e.g. AIBT, AOBT) should be the most accurate source of information. However, if such a system is absent, there are other means of obtaining at-gate information ranging from surface surveillance system (A-SMGCS based on cooperative surveillance info from MLAT or ADS-B) to manual input by official observers or data operators. The accuracy levels of these alternative solutions will depend on their implementations and technical requirements & capabilities.

Q17: Use of docking guidance system or other display

A17: If a DGS or other display is available and it is configurable, then the TOBT and TSAT values should be displayed on such system. The time format (UTC, local times) should also be displayed

Q18: Alert to TWR/Apron ctrl at start-up clearance issue if TTOT outside Slot Tolerance Window

A18: For regulated flights, the A-CDM / TWR system should alert TWR/Apron Control at start-up clearance and pushback clearance in case the TTOT would be outside the STW.

This function would assist the TWR controller in his/her mission to ensure adherence to the STW.

Q19: Is the provision of TSATs exclusive to the pre-departure sequencer / A-CDM system or can the TWR provide TSAT values manually, when needed?

A19: If the TWR cannot comply with the TSAT, due to unforeseen local conditions or failure of the pre-departure sequencer to issue realistic TSATs, the system should support the provision of a manual TSAT by TWR

Q20: Auto generation of TOBT in the CDM platform?

A20: It is recommended that the A-CDM Stakeholders are provided a TOBT value that is based upon the ELDT of the inbound flight. For the purpose of this description, a distinction is made between **proposed_TOBT, auto_TOBT and TOBT.**

Before the inbound flight is airborne:

- **A default proposed_TOBT = SOBT** is advised only until the flight plan has been filed. **After flight plan filing, the default for proposed_TOBT should be EOBT**.

After the inbound flight is airborne:

- When the inbound flight is airborne, **the proposed_TOBT value should be automatically calculated based on the ELDT (TOBT = ELDT + EXIT + Turnaround Time)** in order to account for any inbound delay. The dynamic recalculation of the proposed_TOBT as soon as the parameter values change (e.g. ELDT, EXIT, Turnaround Time) is desired.

- Furthermore, the proposed_TOBT should be based upon the ELDT as follows:
  - If ELDT + EXIT + Turnaround Time < EOBT + OBT_upd_param then proposed_TOBT should be set to EOBT as the earliest value.
  - In case ELDT + EXIT + TurnaroundTime > EOBT + OBT_upd_param then proposed_TOBT should be set to ELDT + EXIT + TurnaroundTime.

It will be a local decision if the proposed_TOBT is automatically copied to the TOBT field (auto_TOBT) or if an action is required from the "TOBT responsible person".

Note: OBT_upd_param is recommended to be set to 15min.

Automatically calculating the TOBT based on the ELDT makes the stakeholders (e.g. Ground Handler and Stand & Gate Management) aware of the earliest possible off-block time. Should the inbound flight be delayed, the Ground Handler would know from the EIBT when it can expect the flight and can thereafter update the TOBT taking into account the estimated turnaround time.

An automatic TOBT will reduce the workload for the entity responsible for the management of TOBTs. The early availability of such a TOBT is also an advantage for the local TSAT calculation.

Q21: What is the minimum support infrastructure/systems needed for the initial implementation of A-CDM?

A21:

This question is almost impossible to answer when not knowing more precisely what is required to be "A-CDM compliant" in the APAC region. If you look what is required in Europe versus what is required in APAC the answer will be different. Same applies for the US.

However, at the core of A-CDM it will require you to establish the use of Target Off Block Times (TOBTs) and Target Start-up Approval Times (TSATs) and procedures around how this shall work. A solution or solutions with specific features will also be needed to support the procedures as well as information inputs. This is done in Europe as well as in APAC. The US model does almost the same but due to division of responsibility between ramp and air traffic control it is slightly adapted. To elaborate on this further here is more details related to the TOBTs and TSATs:

The TOBT:

- **Automatic/Proposed TOBT:** To be able to establish the TOBT well in advance of the actual departure (e.g. 3 hours prior EOBT) of an aircraft one will need a system that can calculate this based on information updates that are triggered at certain milestones (this related to milestones 1, and 3-6 in the Milestone Approach). To drive automatic updates of the Proposed TOBT one will need information updates related to the Estimated Landing Time (ELDT) at various stage of the arriving flight. The ELDTs are typically derived from an ATFM system, ATM automation system and AMAN system depending on which phase of the flight the arrival aircraft is. This information can also come from the aircraft operators' system who also, sometimes, has ELDT information about the arrival flights. Once landed accurate Actual Landing and In-block Times can be obtained from e.g. an A-SMGCS or Aircraft Communications Addressing and Reporting System (ACARS) (ON and IN messages). Important to point out is also that if automatic calculations of proposed TOBT are done one need to have the Estimated Taxi-in times established as part of the A-CDM solution/system.

- **No Automatic/Proposed TOBT:** If the TOBT only needs to be established once the actual (physical) aircraft is at the gate there is no real need for a system to automatically calculate TOBTs as this can be put in manually into a system by either the Airline or designated Ground Handler. The drawback of this is that one loses certain level of early predictability, as there is no information about the arrival flight. For example, if the arrival flight is 30 minutes late this will not be reflected in the EIBT, TOBT, TSAT and TTOT.

So, in short related to the TOBT: the earlier one starts the predictions and calculations of TOBTs the more information inputs are needed (from various external systems) that then need to be processed by the A-CDM solution. With automated calculations of TOBT the requirement for Estimated Taxi In-times are also necessary or it will not work.

The TSAT:

- To be able to establish the TSAT (and Target Take-Off Times (TTOTs)) one will, with most certainty, need a function to facilitate these calculations. This function is usually referred to as a Pre-Departure Sequencer (PDS) or a Departure Manager (DMAN) that can vary in how advanced it is in terms of how the TSAT and TTOT are calculated based on various parameters. Important to note is that the PDS or DMAN function can be an integral part of the A-CDM solution/system or a standalone system that exchanges the key information with an A-CDM system. Both set-ups works and are implemented around the globe. One key-decision to make as part of the definition phase is how this "A-CDM architecture" will look like and determine who has the responsibility to define and develop or procure the system or systems.

The following list provides some of the inputs that are used to be able to calculate TSATs and TTOTs:

Parameter/information Inputs	Required or Optional
TOBT	Required
Estimated Taxi Out Times (EXOT)	Required
Runway configurations	Required
Departure Rates	Required
ATFM CTOT	Optional
Aircraft type/Wake turbulence category	Optional
Arrival flights (taking ELDT/ALDT into account)	Optional
Airborne restrictions (closed fixes, minutes or miles in trail restrictions)	Optional
Runway closures and other closures (e.g. taxi ways etc.)	Optional
Standard Instrument Departures (SIDs)	Optional
Routing from A-SMGCS	Optional

NOTE – the basic principle is that the more parameters and information inputs that are taken into account the more advanced the PDS/DMAN will have to be, but with that more accurate TSATs and TTOTs will be calculated, which should result in better pre- and departure sequencing. How advanced the PDS or DMAN has to be must be assessed based on the airport traffic density, taxi patterns, congestion, traffic operations, mix and flow, etc.

References

Ref No	Document Name & Edition
1	Manual on Collaborative Air Traffic Flow Management (Doc 9971), Third Edition, 2018
2	Asia Pacific Airport Collaborative Decision Making (A-CDM) Implementation Plan, Edition 1, 2019
3	EUROCONTROL A-CDM Implementation Manual, Version 5, March 2017
4	Airport Collaborative Decision-Making: Optimisation through Collaboration, CANSO
5	IATA Recommendations for A-CDM Implementation

FRAMEWORK FOR MONITORING A-CDM IMPLEMENTATION [NAME OF STATE/ADMINISTRATION]

QUESTIONNAIRE BASED ON

ICAO ASIA PACIFIC AIRPORT COLLABORATIVE DECISION MAKING (A-CDM) IMPLEMENTATION PLAN

Overall A-CDM Implementation Status of [Airport Name]

1. What is the phase of A-CDM Implementation at your Airport? *(Select one)*

[A]	Not yet started	☐
[B]	Initiation Phase	☐
[C]	Implementation Phase	☐
[D]	Trial Phase	☐
[E]	Operations & Monitoring Phase	☐

Please add free text / comments, if needed:

2. Is the A-CDM implementation enforcing operation with TOBT and TSAT?

[A]	Yes	☐
[B]	No	☐
[C]	Only TOBT	☐
[D]	Only TSAT	☐

Please add free text / comments, if needed:

3. Which of the following A-CDM enabling elements are being implemented to support A-CDM operations?

[A]	Information sharing	☐
[B]	Milestone Management	☐
[C]	Variable Taxi Times	☐
[D]	Pre-Departure Sequencing	☐
[E]	A-CDM in adverse conditions	☐
[F]	Integration with Air Traffic Flow Management (ATFM) system	☐

Please add free text / comments, if needed:

Stakeholders' Involvement

4. Which stakeholders are involved in the A-CDM project and process?

[A]	Airport operator	☐
[B]	Airline operators	☐
[C]	Ground handlers	☐
[D]	Air Navigation Service Provider	☐
[E]	Network Operations/ATFM unit	☐
[F]	Other (Provide details)	☐

Please add free text / comments, if needed:

5. Which stakeholders are having access to A-CDM Information?

[A]	Airport operator	☐
[B]	Airline operators	☐
[C]	Ground handlers	☐
[D]	Air Navigation Service Provider	☐
[E]	Network Operations/ATFM unit	☐
[F]	Other (Provide details)	☐

Please add free text / comments, if needed:

A-CDM Procedures & Compliance

6. Do you have procedures in place for A-CDM operations at your airport?

   [A] Yes, procedures are in place for all stakeholders ☐
   [B] We are in the process of formulating procedures ☐
   [C] Not yet started formation of the procedures ☐
   [D] We have some other plans. Please provide brief: ☐

   Please add free text / comments, if needed:

7. Are roles & responsibilities for each stakeholder clearly defined in the local A-CDM procedures? (Select one)

   [A] Yes ☐
   [B] No ☐

   Please add free text / comments, if needed:

8. Which of the below mentioned Key Performance Indicators (KPI) w.r.t. TOBT are monitored?

   [A] TOBT input participation rate ☐
   [B] TOBT Accuracy ☐
   [C] KPI related to TOBT are not being monitored ☐

   Please add free text / comments, if needed:

9. Is TSAT Compliance monitored? (Select one)

   [A] Yes ☐
   [B] No ☐
   [C] Sometimes. (Provide brief) ☐

   Please add free text / comments, if needed:

10. Is ATC using TSAT for approving startup to aircraft? (Select one)

    [A] Yes ☐
    [B] No ☐
    [C] Sometimes. (Provide brief) ☐

    Please add free text / comments, if needed:

11. Does local policy require the aircraft to report/be ready for start-up/pushback within certain minutes prior to or after the confirmed TOBT, irrespective of TSAT? (Select one)

    [A] Yes ☐
    [B] No ☐

    If "Yes" please fill in how many minutes:

12. Does local policy mandate the Pilots to request start/pushback clearance within certain minutes prior to or after TSAT? (Select one)

    [A] Yes ☐
    [B] No ☐

    If "Yes" please fill in how many minutes:

13. Does local policy require the departure clearance to be requested within certain minutes prior to or after TOBT/TSAT? (Select one)

[A] Yes ☐
[B] No ☐

If "Yes" please fill in how many minutes:

14. What are the A-CDM performance indicators commonly agreed upon amongst stakeholders for A-CDM performance monitoring?

[A] Turnaround compliance ☐
[B] In-Block Time accuracy ☐
[C] Off-Block Time accuracy ☐
[D] Average taxi out time ☐
[E] Gate/Bay/Stand occupancy time ☐
[F] Gate/Bay/Stand allocation and passenger gate freezing time ☐
[G] Gate/Bay/Stand allocation accuracy ☐
[H] Number of bay conflicts per day ☐
[I] Slot adherence ☐
[J] Emission from aircraft, on ground ☐
[K] Number of aircraft queueing in high demand periods ☐
[L] Number of aircraft compliant with ATFM slot (CTOT) ☐
[M] Other (Provide details) ☐

Please add free text / comments, if needed:

System Functions

15. How is the TOBT input for the A-CDM system is updated:

[A] Manually by Aircraft Operator / GHA ☐
[B] Automatically by system, considering ELDT and MTTT ☐
[C] By a mix of both the above ☐
[D] By some other way. Please provide brief. ☐

Please add free text / comments, if needed:

16. How is VTT (Variable Taxi Time) considered in the System?

[A] Fixed Taxi Times between runways and bays ☐
[B] Dynamic Taxi Times by considering live ground movements, changes at airfield and/or traffic flows. ☐
[C] Both the above ☐
[D] Not available ☐

Please add free text / comments, if needed:

17. Does the A-CDM implementation include a predeparture sequencing (PDS)?

[A] Yes ☐
[B] No ☐
[C] PDS will be implemented at a later stage ☐

Please add free text / comments, if needed:

18. How is the PDS implemented as part of the overall A-CDM solution? (Select one)

[A] PDS feature is in-built in A-CDM system ☐
[B] PDS is generated by an external system ☐

Please add free text / comments, if needed:

19. Which of the following **required** milestones captured/calculated in the A-CDM System?

[A]	ATC Flight Plan Activated	☐
[B]	Aircraft Landed	☐
[C]	Aircraft is in-block	☐
[D]	TOBT Updated	☐
[E]	TSAT Issued	☐
[F]	Aircraft is off-block	☐
[G]	Take-off time	☐

Please add free text / comments, if needed:

20. Which of the following **optional** milestones captured/calculated in the A-CDM System?

[A]	CTOT Allocation	☐
[B]	Take-off from Outstation	☐
[C]	FIR Entry	☐
[D]	Final Approach	☐
[E]	Ground Handling Starts	☐
[F]	Boarding Starts	☐
[G]	Aircraft Ready	☐
[H]	Start Up Requested	☐
[I]	Start Up Approved	☐

Please add free text / comments, if needed:

21. How are TOBT and TSAT shared with Flight Crew?

[A]	VDGS / A-VDGS / Airside Display Board	☐
[B]	Web interface / Mobile application	☐
[C]	Ground personnel communicate TOBT and TSAT to flight crew	☐
[D]	ATC communicates the TSAT	☐
[E]	Other means. Provide details.	☐

Please add free text / comments, if needed:

ATFM Integration

22. Is there a plan to integrate Local A-CDM with ATFM? (Select one)

[A] Yes ☐
[B] No ☐
[C] To be decided ☐
[D] Not applicable (ATFM is not operational) ☐

Please add free text / comments, if needed:

23. Does your A-CDM system exchange information with the ATFM system? (Select one)

[A] Yes ☐
[B] No ☐
[C] Under planning ☐

Please add free text / comments, if needed:

24. Is the A-CDM system integrated with ATFM system for data exchange? (Select one)

[A] Yes ☐
[B] No ☐
[C] Will be integrated later ☐

Please add free text / comments, if needed:

25. Is CTOT considered in the calculation of TSAT? (Select one)

[A] Yes ☐
[B] No ☐
[C] Will be implemented at a later date ☐

Please add free text / comments, if needed:

Interoperability

26. Is reference model like FIXM been adopted in Data Exchange? (Select one)

[A] Yes ☐
[B] No ☐
[C] Planned for later ☐

Please add free text / comments, if needed:

FRAMEWORK FOR MONITORING A-CDM IMPLEMENTATION

ICAO APAC A-CDM QUESTIONNAIRE BASED ON APAC A-CDM IMPLEMENTATION PLAN

STATE / ADMINISTRATION:

#	NAME OF THE AIRPORT	*Airport 3*	*Airport 2*	*Airport 1*
1	**What is the phase of A-CDM Implementation at your Airport?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			
2	**Is the A-CDM implementation enforcing operation with TOBT and TSAT?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			
3	**Which of the following A-CDM enabling elements are being implemented to support A-CDM operations**			
	Information Sharing	Yes/No	Yes/No	Yes/No
	Milestone Management	Yes/No	Yes/No	Yes/No
	Variable Taxi times	Yes/No	Yes/No	Yes/No
	Pre-Departure Sequencing	Yes/No	Yes/No	Yes/No
	A-CDM in Adverse Conditions	Yes/No	Yes/No	Yes/No
	Integration with Air Traffic Flow Management System	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			
	Stakeholders' Involvement			
4	**Which stakeholders are involved in the A-CDM project and process?**			
	Airport operator	Yes/No	Yes/No	Yes/No
	Airline operators	Yes/No	Yes/No	Yes/No
	Ground handlers	Yes/No	Yes/No	Yes/No
	Air Navigation Service Provider	Yes/No	Yes/No	Yes/No
	Network Operations/ATFM unit	Yes/No	Yes/No	Yes/No
	Other (Provide details)	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			
5	**Which stakeholders are having access to A-CDM Information?**			
	Airport operator	Yes/No	Yes/No	Yes/No
	Airline operators	Yes/No	Yes/No	Yes/No
	Ground handlers	Yes/No	Yes/No	Yes/No
	Air Navigation Service Provider	Yes/No	Yes/No	Yes/No
	Network Operations/ATFM unit	Yes/No	Yes/No	Yes/No
	Other (Provide details)	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

	A-CDM Procedures & Compliance			
6	**Do you have procedures in place for A-CDM operations at your airport?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			
7	**Are roles & responsibilities for each stakeholder clearly defined in the local A-CDM procedures?**	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

8	**Which of the below mentioned Key Performance Indicators (KPI) w.r.t. TOBT are monitored?**			
	TOBT input participation rate	Yes/No	Yes/No	Yes/No
	TOBT Accuracy	Yes/No	Yes/No	Yes/No
	KPI related to TOBT are not being monitored	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

9	**Is TSAT Compliance monitored?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

10	**Is ATC using TSAT for approving startup to aircraft?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

11	**Does local policy require the aircraft to report/be ready for start-up/push-back within certain minutes prior to or after the confirmed TOBT, irrespective of TSAT?**	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

12	**Does local policy mandate the Pilots to request start/pushback clearance within certain minutes prior to or after TSAT?**	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

13	**Does local policy require the departure clearance to be requested within certain minutes prior to or after TOBT/TSAT?**	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

14	**What are the A-CDM performance indicators commonly agreed upon amongst stakeholders for A-CDM performance monitoring?**			
	Turnaround compliance	Yes/No	Yes/No	Yes/No
	In-Block Time accuracy	Yes/No	Yes/No	Yes/No
	Off-Block Time accuracy	Yes/No	Yes/No	Yes/No
	Average taxi out time	Yes/No	Yes/No	Yes/No
	Gate/Bay/Stand occupancy time	Yes/No	Yes/No	Yes/No
	Gate/Bay/Stand allocation and passenger gate freezing time	Yes/No	Yes/No	Yes/No
	Gate/Bay/Stand allocation accuracy	Yes/No	Yes/No	Yes/No
	Number of bay conflicts per day	Yes/No	Yes/No	Yes/No
	Slot adherence	Yes/No	Yes/No	Yes/No
	Emission from aircraft, on ground	Yes/No	Yes/No	Yes/No
	Number of aircraft queueing in high demand periods	Yes/No	Yes/No	Yes/No
	Number of aircraft compliant with ATFM slot (CTOT)	Yes/No	Yes/No	Yes/No
	Other (Provide details)	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

	System Functions

15	**How is the TOBT input for the A-CDM system is updated?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

16	**How is VTT (Variable Taxi Time) considered in the System?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

17	**Does the A-CDM implementation include a predeparture sequencing (PDS)?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

18	**How is the PDS implemented as part of the overall A-CDM solution?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

19	**Which of the following <u>required</u> milestones captured/calculated in the A-CDM System?**			
	ATC Flight Plan Activated	Yes/No	Yes/No	Yes/No
	Aircraft Landed	Yes/No	Yes/No	Yes/No
	Aircraft is in-block	Yes/No	Yes/No	Yes/No
	TOBT Updated	Yes/No	Yes/No	Yes/No
	TSAT Issued	Yes/No	Yes/No	Yes/No
	Aircraft is off-block	Yes/No	Yes/No	Yes/No
	Take-off time	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

20	**Which of the following optional milestones captured/calculated in the A-CDM System?**			
	Turnaround compliance	Yes/No	Yes/No	Yes/No
	In-Block Time accuracy	Yes/No	Yes/No	Yes/No
	Off-Block Time accuracy	Yes/No	Yes/No	Yes/No
	Average taxi out time	Yes/No	Yes/No	Yes/No
	Gate/Bay/Stand occupancy time	Yes/No	Yes/No	Yes/No
	Gate/Bay/Stand allocation and passenger gate freezing time	Yes/No	Yes/No	Yes/No
	Gate/Bay/Stand allocation accuracy	Yes/No	Yes/No	Yes/No
	Number of bay conflicts per day	Yes/No	Yes/No	Yes/No
	Slot adherence	Yes/No	Yes/No	Yes/No
	Emission from aircraft, on ground	Yes/No	Yes/No	Yes/No
	Number of aircraft queueing in high demand periods	Yes/No	Yes/No	Yes/No
	Number of aircraft compliant with ATFM slot (CTOT)	Yes/No	Yes/No	Yes/No
	Other (Provide details)	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

21	**How are TOBT and TSAT shared with Flight Crew?**			
	VDGS / A-VDGS / Airside Display Board	Yes/No	Yes/No	Yes/No
	Web interface / Mobile application	Yes/No	Yes/No	Yes/No
	Ground personnel communicate TOBT and TSAT to flight crew	Yes/No	Yes/No	Yes/No
	ATC communicates the TSAT	Yes/No	Yes/No	Yes/No
	Other means. Provide details.	Yes/No	Yes/No	Yes/No
	Please add free text / comments, if needed:			

	ATFM Integration

22	**Is there a plan to integrate Local A-CDM with ATFM?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

23	**Does your A-CDM system exchange information with the ATFM system?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

24	**Is the A-CDM system integrated with ATFM system for data exchange?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

25	**Is CTOT considered in the calculation of TSAT?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			
	Interoperability			

26	**Is reference model like FIXM been adopted in Data Exchange?**	SELECT	SELECT	SELECT
	Please add free text / comments, if needed:			

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA PACIFIC AIRPORT COLLABORATIVE DECISION MAKING (A-CDM) IMPLEMENTATION PLAN

Second Edition, 2 July 2021

This Guidance Material was developed by the APA-CDM/TF and approved by the AOP/SG/5 Meeting and published by ICAO Asia and Pacific Office, Bangkok

RECORD OF AMENDMENTS

AMENDMENTS				AMENDMENTS			
No.	Date applicable	Date entered	Entered by	No.	Date applicable	Date entered	Entered by

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SCOPE OF THE PLAN

The Need for Regional Guidance and A-CDM Implementation Plan

1.1 The phenomenal growth of air traffic for the past one and a half decades has caught the whole aviation world by surprise. Asia Pacific region has accounted for more than 30 percent of the global air transport market. Considering the fleet acquisition of aircraft operators in Asia Pacific (APAC) Region, this figure is expected to grow further.

1.2 The traffic growth vis-a-vis airport infrastructure has prompted ICAO to devise various methods like promulgation of new procedures, regulations, sharing of information and collaborative approach in all fields to mitigate the issues being faced by the aviation community in this region.

1.3 All stakeholders in aviation especially aircraft operators, airport operators and air navigation service providers (ANSPs) are consistently assessing their operations to minimize their carbon footprints.

1.4 ICAO APAC Region conducted the first ever seminar in conjunction with the First Meeting of the Asia Pacific Airport Collaborative Decision Making Task Force (APA-CDM/TF) to collate, compile and analyse the issues being faced by stakeholders. During this Task Force meeting, a consensus was arrived at, to complete a survey on status of A-CDM implementation at airports by the States.

1.5 The Second APA-CDM/TF meeting analysed the survey data and it was observed that many States have not initiated the process of implementing A-CDM at many airports.

1.6 It has also been observed that wherever implementation process and / or the procedures being followed are not harmonised wherein the possibility of confusion exist among the users particularly aircraft operators, Air Traffic Control (ATC), airport operators and Ground Handling Agents (GHA).

1.7 This has necessitated ICAO APAC Office to harmonise the process of implementation, sharing of data, terminologies, data formats etc.

1.8 This document has been developed by the experts nominated by States, CANSO and IATA to foster harmonized and interoperable A-CDM implementation in the Asia Pacific Region.

1.9 The document also elucidates the performance measurement mechanism to understand the gap between the intended A-CDM implementation and results so obtained. This process will enable the planners to make necessary course correction to improve the system.

1.10 Several airports within the Asia Pacific Region have implemented A-CDM to some varying degree and more airports are in the process of planning to implement A-CDM. While there will be differences across A-CDM airports to take into account local constraints and requirements, certain key A-CDM processes e.g. terminologies, start-up procedures, can be harmonised to prevent confusion among stakeholders. States should recognise the importance of harmonisation in key A-CDM processes. This is a crucial step towards the eventual local implementation of A-CDM. Subsequently, there is a need for States to work together to ensure system interoperability between Air Traffic Flow Management (ATFM) and A-CDM implementations in the Asia Pacific Region.

1.11 A-CDM can further optimise operations at the airport by taking into consideration ATFM programmes. In a scenario where local and regional networks of A-CDM and/or ATFM units are set up and connected, key stakeholders will be able to exchange useful departure and arrival information to further improve predictability of events (as compared to standalone A-CDM or ATFM) to enhance the planning and overall situational awareness for all CDM partners. The implementation of

an integrated ATFM and A-CDM network will complement each other and together create a seamless air traffic environment. This would improve flight and ATM efficiency throughout the three phases of flight (arrival, turnaround and departure), benefiting all CDM partners.

PLAN DEVELOPMENT AND OBJECTIVES

Asia Pacific Seamless ANS Plan

2.1 The Asia Pacific Seamless ANS Plan includes background information and performance expectations for implementation of A-CDM in the Asia Pacific Region.

2.2 The Plan prioritizes the implementation of the Global Air Navigation Plan (GANP) Aviation System Block Upgrades (ASBUs), with ASBU modules categorized as Critical ASBU Upgrades, Recommended ASBU Upgrades or ASBU Elements that may not be Universally Implemented. The ACDM-B0/1-2 [Airport CDM Information Sharing (ACIS) - Integration with ATM Network function] and ACDM-B1/1-2 [Airport Operations Plan (AOP) - Airport Operations Centre (APOC)] ASBU modules are listed as Critical and Recommended ASBU Upgrades, respectively. ICAO GANP and APAC Seamless ANS Plan have details on ASBUs.

APANPIRG/27 Decision on Establishment of APA-CDM Task Force

2.3 Noting the benefits that accrue by the implementation of A-CDM at high density aerodromes and the implementation challenges faced by the region, APANPIRG/27 adopted the proposal to establish an A-CDM Task Force to support and assist in the implementation of A-CDM in the APAC Region. The text of the Decision is reproduced below:

> **Decision APANPIRG/27/2: Establishment of A-CDM Task Force**
>
> That, an Asia/Pacific Airport Collaborative Decision Making Task Force (APA-CDM/TF) is established in accordance with the Terms of Reference (ToR) at **Appendix A to AP ANPIRG27 /WP/6**.

2.4 Following APANPIRG Decision 27/2 the ICAO APAC Office through its letter Ref.: AN 3/3 — AP107/16 (AGA) dated 20 September 2016 requested States/Administrations to nominate experts/advisors having knowledge in Airport collaborative Decision Making (A-CDM) to the APA-CDM/TF.

2.5 The second task force meeting analysed the A-CDM survey data and observed that many States have not initiated the process of implementing A-CDM at many airports. *The Decision of the Task Force/2 is as under:*

> *5.21 A Regional A-CDM implementation plan would be drafted offline by the APA-CDM Expert Group, led by India supported by Singapore and CANSO and would include the development of a minimum suite of A-CDM milestones for Regional application.*

2.6 IATA also contributed in the development of this plan.

DGCA Conference's Action Item 54/12 on Harmonization of A-CDM Practices

2.7 Noting the experience of States/Administrations gained from the implementation of A-CDM and recognizing a collaborative approach in the implementation of A-CDM would lead to the optimization of airport operations which contributes towards achieving seamless ATM in the APAC Region, the 54th Conference of the Asia/Pacific Director Generals encouraged States/ Administrations to:

- work towards harmonization of A-CDM practices in APAC Region and to participate in the ICAO Asia/Pacific A-CDM/TF; and
- implement A-CDM taking into account the cross-border ATFM operations.

EXECUTIVE SUMMARY

Airport - Collaborative Decision Making Task Force

3.1 In accordance with Decision APANPIRG/27/2: Establishment of A-CDM Task Force, the ICAO Asia Pacific Airport - Collaborative Decision Making Task Force (APA-CDM/TF) was formulated and the first APA-CDM/TF meeting was held in April 2017. Taking reference to survey data collected from States/Administrations in Asia Pacific Region regarding the status of A-CDM implementation and the discussion deliberated in the second APA-CDM/TF meeting for the need of harmonisation on A-CDM in Asia Pacific Region, especially for the process of implementation, data sharing, terminologies, data formats and framework of interoperability with other related systems. APA-CDM/TF Expert Group was tasked to develop this APA-CDM Implementation Plan as a reference to States/Administrations for implementation of A-CDM in Asia Pacific Region.

3.2 The APAC A-CDM Implementation Plan shares insights in the following areas for assisting States in planning and implementation of A-CDM in different stages.

A-CDM Phases

3.3 A-CDM project activities could be grouped into the following three phases:

- Initiation;
- Implementation; and
- Operation and Monitoring.

3.4 In the Initiation Phase, it is required to define the need and complete relevant analysis in order to make a decision for the implementation of A-CDM.

3.5 In the Implementation Phase, variety among A-CDM projects in different airports is expected due to the involvement of a broad mix of stakeholders with relatively unique operational requirements. However, the following key considerations are interpreted as commonalities among A-CDM projects:

- Clear definition of roles and responsibilities among stakeholders;
- Establishment of A-CDM Project Management Team;
- Stakeholders' access to A-CDM data;
- Aim to achieve an effective and efficient turnaround process; and
- Development of continuous improvement culture.

3.6 In the Operation and Monitoring Phase, focus will remain on continuous improvement and development of the A-CDM system to optimize the utilization of airport infrastructure. It is crucial to define key performance indicator measurements related to TOBT and TSAT for evaluating effectiveness of A-CDM implementation.

Harmonization Framework

3.7 It is understandable that each individual airport can maintain its unique requirements in implementing A-CDM. To certain extent, the need for harmonization on the following aspects is also anticipated. Relevant reference and guidance have been laid out in the APAC A-CDM Implementation Plan.

- A-CDM terminologies and definition;
- Roles and responsibilities of A-CDM stakeholders;
- Standardization of A-CDM procedures; and
- Commonality in milestone approach.

Interoperability of A-CDM with other systems

3.8 Making reference to the ICAO Aviation System Block Upgrades (ASBU) framework, it is considered necessary to link up relevant ASBU modules and elements related to A-CDM, such as NOPS-B0, ACDM-B0, ACDM-B1, FICE-B1, the application of Common aeRonautical Virtual Private Network (CRV) and System-Wide Information Management (SWIM) for carrying regional FIXM Extension etc. There should be a project framework for integration/interoperation of A-CDM with other air traffic management (ATM) systems, especially for ATFM platform, in accordance with the ASBU roadmap. A good practice for development and implementation of interoperability among A-CDM and ATFM platforms should incorporate considerations of relevant milestones involved, open standards for sharing data with systems across border, alignment of compliance criteria in A-CDM and ATFM, and coordinated timing for data exchange matched with data availability timeline.

Research and Future Development

3.9 A-CDM has its roots in Europe and is the foundation for Single European Sky ATM Research (SESAR) concept for the use of better data and technology to make aircraft and airport operations more efficient. However, not all regions have a centric ATM network as Europe so the processes would be different in Asia Pacific Region. As air traffic management evolves and additional concepts are being introduced by the industry, changes and adjustments to A-CDM are anticipated. To assist in making the implementation of A-CDM more successful, it is recommended that a regional ATFM environment be established e.g. via a distributed multi-nodal ATFM network, which would enable a certain degree of harmonization and provide consistency for stakeholders.

3.10 Moreover, States/Administrations should also take into consideration of performance expectation dates, which are mapped with APAC Seamless ANS Plan and Regional Framework for Collaborative ATFM expectations, provided in the APAC A-CDM Implementation Plan while planning for implementation of A-CDM at their airports.

ABBREVIATIONS AND ACRONYMS

ACARS	Aircraft Communications Addressing and Reporting System
A-CDM	Airport Collaborative Decision Making
ACGT	Actual Commence of Ground Handling Time
ACISP	A-CDM Information Sharing Platform
ACZT	Actual Commencement of De-icing Time
ADIT	Actual De-icing Time
AEGT	Actual End of Ground Handling Time
AEZT	Actual End of De-icing Time
AFTN	Aeronautical Fixed Telecommunication Network
AGHT	Actual Ground Handling Time
AIBT	Actual In-Block Time
AIC	Aeronautical Information Circular
AIDX	Aviation Information Data Exchange
AIP	Aeronautical Information Publication
AIRM	ATM Information Reference Model
AIXM	Aeronautical Information Exchange Model
ALDT	Actual Landing Time
AMAN	Arrival Manager
AMHS	ATS Messaging System
AMQP	Advanced Message Queuing Protocol
ANSP	Air Navigation Service Provider
AO	Aircraft Operator
AOBT	Actual Off-Block Time
AODB	Airport Operational Database
AOM	Airspace Organization and Management
AOP	Airport Operations Planning
APOC	Airport Operations Centre
APAC	Asia Pacific
API	Application Programming Interface
ARDT	Actual Ready Time
ARZT	Actual Ready for De-icing Time
ASAT	Actual Start-up Approval Time
ASBT	Actual Start Boarding Time
ASCII	American Standard Code for Information Interchange
A-SMGCS	Advanced-Surface Movement Guidance and Control System
ASRT	Actual start-up request time
ATC	Air Traffic Control

ATCO	Air Traffic Controller
ATFM	Air Traffic Flow Management
ATFMU	Air Traffic Flow Management Unit
ATM	Air Traffic Management
ATOT	Actual Take-Off Time
ATS	Air Traffic Services
ATTT	Actual Turnaround Time
AXIT	Actual Taxi-In Time
AXOT	Actual Taxi-Out Time
BOBCAT	Bay of Bengal Cooperative Air Traffic Flow Management System
CDM	Collaborative Decision Making
CHG	Modification Message
CONOPS	Concept of Operations
CRACP	Cross Region ATFM Collaborative Platform
CRV	Common aeRonautical Virtual Private Network
CRV/OG	CRV Operations Group
CTOT	Calculated Take Off Time
DATM	Digital ATM
DCB	Demand and Capacity Balancing
DCL	Datalink Departure Clearance
DMAN	Departure Manager
DLA	Delay Message
ECZT	Estimated Commencement of De-Icing Time
EDIT	Estimated De-icing Time
EET	Estimated Elapsed Time
EEZT	Estimated End of De-Icing Time
EIBT	Estimated In-Block Time
ELDT	Estimated Landing Time
EOBT	Estimated Off Block Time
ERZT	Estimated Ready for De-icing Time
ETA	Estimated Time of Arrival
ETOT	Estimated Take-Off Time
ETTT	Estimated Turnaround Time
EXIT	Estimated Taxi-In Time
EXOT	Estimated Taxi-Out Time
FDPS	Flight Data Processing System
FF-ICE	Flight and Flow Information for the Collaborative Environment
FIR	Flight Information Region

FIXM	Flight Information Exchange Model
GDP	Ground Delay Program
GHA	Ground Handling Agent
HMI	Human Machine Interface
IATA	International Air Transport Association
ICD	Interface Control Document
ICT	Information and Communication Technology
IP	Internet Protocol
KPI	Key Performance Indicator
MTF	Major Traffic Flow
MTTT	Minimum Turnaround Time
NARAHG	North Asia Regional ATFM Harmonization Group
NOPS	Network Operations
OCC	Operations Control Center
PDS	Predeparture Sequencing
RMS	Resource Management System
SESAR	Single European Sky ATM Research
SIBT	Schedule In-Block Time
SLA	Service Level Agreement
SMAN	Surface Manager
SOBT	Scheduled Off-Block Time
SQL	Structured Query Language
STD	Scheduled Time of Departure
SWIM	System Wide Information Management
TLDT	Target Landing Time
TMA	Terminal Control Area
TOBT	Target Off-Block Time
TSAT	Target Start-up Approval Time
TLDT	Target Landing Time
TTOT	Target Take-Off Time
UML	Unified Modeling Language
VDGS	Visual Docking Guidance System
VTT	Variable taxi time
W3C	World Wide Web Consortium
XML	eXtensible Markup Language

OVERVIEW OF A-CDM

5.1 Airport collaborative decision-making (A-CDM) is a set of processes developed from the general philosophy of collaborative decision-making (CDM) in aviation and is applied to the operations at aerodromes.

5.2 A-CDM can optimize airport operations, by enhancing the turnaround process and improving flight predictability through real time data exchange for all A-CDM stakeholders. A-CDM also potentially helps to improve gate/aircraft stand management, reduce apron, taxiway and holding point congestion. A-CDM involves implementing a set of operational procedures supported by sharing of timely and accurate information amongst A-CDM stakeholders. Overall, A-CDM is about making more efficient use of existing capacity and resources, as well as potentially better recovery from disruptions. A-CDM can, in some cases reduce operating cost attributed to fuel burn, which contributes to environmental benefits.

5.3 Any implementation of A-CDM must be based on assessment of current operational constraints and the value an A-CDM implementation will generate to mitigate such constraints and / or improve current operations. There is a set of essential elements as well as best practices to consider when implementing A-CDM that will simplify and harmonize the implementation. However, each implementation must be based on careful engagement across all airport stakeholders, primarily the Airport Operator, Aircraft Operators, Ground Handling Agents, Air Navigation Service Provider and Air Traffic Flow Management Unit (if any).

5.4 Prior to A-CDM, the stakeholders worked on the basis of ***"first come first served"*** in the start-up sequence of aircraft. A-CDM works on the premise of ***"best planned best served"***, whereby ATC will optimise the predeparture sequence, by generating Target Start-up Approval Times (TSAT), using Target Off-Block Times (TOBT) submitted by Aircraft Operators or their delegate (e.g. Ground Handling Agents). It is a collaborative approach amongst all the A-CDM stakeholders and the success is ultimately dependent on the accuracy of TOBTs which are managed by Aircraft Operators.

5.5 To aid the generation of accurate TOBTs and TSATs in the A-CDM process, timely and accurate information updates are very important. The key information needed is ELDT, EIBT, ALDT and AIBT from the arriving flight that is linked to the departing flight. Timely update of this information is related to the A-CDM milestones.

A-CDM IMPLEMENTATION GUIDANCE

Overview of A-CDM Phases

6.1 A-CDM project activities may be grouped into three phases as illustrated in Figure 1:

- Initiation;
- Implementation; and
- Operation and monitoring.

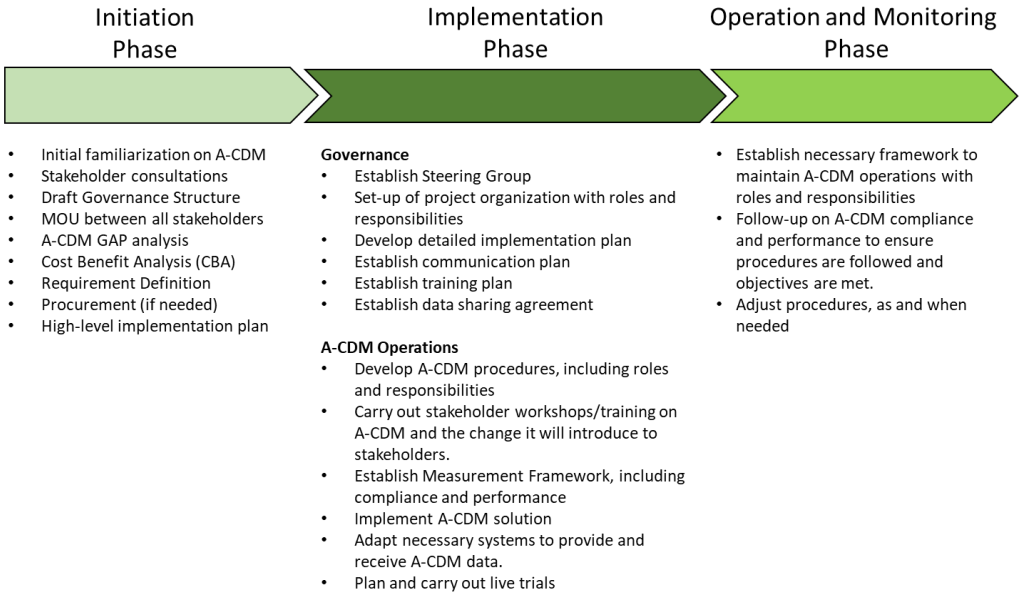

Figure 1 - Phases of A-CDM Project

6.2 The initiation phase is about defining the need, including gap analysis, making the cost and benefit analysis, and ultimately getting a decision to go ahead to invest in the implementation phase.

6.3 The project implementation phase is to undertake the activities to successfully carry out the A-CDM project, which is different from many other implementation projects due to its multi-stakeholders' involvement and impact on operations.

6.4 The operations phase is about when A-CDM is up and running. A-CDM with its procedures and supporting systems and sharing of information will be up and running 24/7 – 365 in most cases. This will also require the necessary efforts and tasks to make it successful.

6.5 This plan focuses on highlighting some of the most critical activities to consider in the implementation phase.

Key Considerations for A-CDM Implementation Phase

6.6 A-CDM Steering Group comprising of all relevant stakeholders, which is a minimum of the Airport Operator, Ground Handling Agents, ANSP and Aircraft Operators, should be set up before any implementation, with the responsibility to agree on the A-CDM processes, procedures, performance framework, data sharing and common definitions. Generally, this is initiated by the Airport Operator.

6.7 The A-CDM Steering Group should define clear roles and responsibilities in the implementation phase for the A-CDM stakeholders, i.e. "**who**" is doing "**what**" and "**when**" in the implementation project. This is not to be confused with the "roles and responsibilities" of the stakeholders in the A-CDM process, which is something different and addressed in the "Harmonization Framework" section.

6.8 A-CDM Project Management Team should be established and involve all A-CDM stakeholders during design and implementation of A-CDM project.

6.9 Ensuring early engagement with stakeholders and instilling a collaborative culture will support the success of an A-CDM implementation. This process should create clarity across A-CDM stakeholders on the objectives of the implementation, and the expectations from each party. With clear and agreed objectives across all key stakeholders, A-CDM implementation should yield projected benefits and will prevent sub-optimal operations or limited return on investment for the airport.

6.10 As A-CDM is a change in procedures, it can also be a huge cultural and behavioural change for all A-CDM stakeholders that should not be underestimated. In order to address this challenge, appropriate communication and training plans should be put in place to facilitate the understanding and impact of A-CDM for each stakeholder.

6.11 Local A-CDM Operational Procedures should be developed in collaboration with the stakeholders. These procedures need to detail at a minimum "roles and responsibilities", i.e. "**who** is doing **what**, **when** and **how**" in the A-CDM process. During this work, implementers should look to other A-CDM procedure manuals and related materials to leverage experience gained and lessons learnt. Examples can be found at ICAO APAC Website under e-Documents at https://www.icao.int/APAC/Pages/eDocs.aspx. The section "Harmonization Framework" also outlines particular parts that should be considered to ensure harmonization.

6.12 The implementation should be in a phased approach, including trials, with a minimum of disturbance to A-CDM stakeholders' operations.

6.13 A framework of reviews to track progress of A-CDM implementation should be created by the A-CDM steering group. This framework aims to ensure that the implementation phase timelines and objectives are met.

6.14 Performance framework to measure key performance indicators should be established as early as possible in the implementation phase.

6.15 Wherever ATFM is operational, it is desirable to integrate with local A-CDM to achieve optimal situational awareness for all stakeholders.

Stakeholder Access to A-CDM Data

6.16 A-CDM requires airport stakeholders to exchange timely operational information which enables collaboration in the efficient management of operations at an airport.

6.17 Data exchanges via the common interfaces should support the entire data related to A-CDM elements and milestones. Full scope messaging will provide context to enhance situational awareness.

6.18 Aviation Information Data Exchange (AIDX) could be utilized for data exchange of A-CDM data among stakeholders using commercial flight identification (outside the ATM domain). AIDX is an eXtensible Markup Language (XML) messaging standard for exchanging flight data among airlines, airports, ground handlers and other third party data consumers.

6.19 The adoption of an open source technology for an A-CDM Information Sharing Platform (ACISP) is encouraged in order to reduce the license cost to A-CDM stakeholders wishing to implement data exchange via the common Application Programming Interface (API).

Achieving an Effective and Efficient Turnaround Process

6.20 The turnaround process encompasses the complete management of an aircraft from the arrival at an airport to the departure (from AIBT to AOBT) that needs to be effective and efficient in order to contribute to a successful A-CDM implementation.

6.21 The A-CDM turnaround process involves stakeholders, operational services, data points and algorithms that are instrumental to successful turnaround of an aircraft.

6.22 To ensure good interaction amongst stakeholders, the understanding, management and ownership of TOBT is of utmost importance. This will improve performance of the turnaround.

6.23 A departure sequence capability should be introduced that produces Target Start-up Approval Times (TSATs) and Target Take Off Times (TTOTs). This is to deliver transparency, better recovery and improvements to Calculated Take-Off Time (CTOT) compliance. The capability should evolve with the A-CDM implementation and the "Operation and Monitoring" phase.

6.24 The Variable Taxi Times (VTTs) are of utmost importance for the A-CDM processes to work, including producing automated updates to Estimated In Block Times (EIBTs) as well as the Target Start-up Approval Times (TSATs) and Target Take Off Times (TTOTs). The practical implementation of VTTs can vary from static values (e.g. fixed taxi times from runways to gates) to highly dynamic VTTs that take ground movement patterns, changes at the airfield and changes to traffic flows due to weather into account. How advanced and dynamic, the VTTs need to be considered in the implementation where the complexity of traffic patterns and airport layout are factors to be considered. The more accurate the VTTs are, the better the overall predictions and sequencing of traffic will be.

6.25 The Minimum Turn-Round Time (MTTT) is also very important for the A-CDM processes to work. It comes into play to help calculating Target Off Block Times (TOBTs) based on Estimated In Block Times (EIBTs) or Actual In Block Times (AIBTs). The MTTTs will depend on factors such as aircraft type, possibly type of stand, airline procedures, destination etc. The values and implementation of MTTTs should be discussed in close cooperation with the Airline Operators to ensure accurate values are used. MTTTs not presentative of the operations will result in less accurate TOBTs as well as TSATs and TTOTs, as long as TOBTs are not manually controlled by the Airline Operator or Ground Handling Agents.

Building a Continuous Improvement Culture

6.26 A-CDM implementation involves the interaction of multiple stakeholders, processes and systems. A culture of continuous improvement amongst all stakeholders will benefit all involved.

6.27 Following its implementation, the environment at an airport will change and may require adjustments in the A-CDM processes.

6.28 After A-CDM implementation, it is important that focus remains on continuous improvement and developing the overall A-CDM system to ensure optimized utilization of airport infrastructure. The project should be able to support a suitable improvement mechanism.

6.29 A-CDM stakeholders should be able to monitor improvements from an A-CDM implementation. This should consist of:

a) Exchange of experience at regular intervals.

b) Ad-hoc meetings before any major release of new software or update of the A-CDM implementation (procedural or functional). Ideally, this should be supported by a consensus achieved by discussion amongst impacted stakeholders.

c) ICAO Asia/Pacific Office can be approached to solicit views on new implementations or improvement opportunities.

6.30 Where ATFM exists, the Airport-CDM and ATFM should collaborate to improve airport operations especially for capacity planning and impact of performance degradation at other airports.

Measure Effectiveness of A-CDM Implementation

6.31 With the implementation of A-CDM, there will be a change from current operating procedures as it introduces two new time elements, namely Target Off Block Times (TOBTs) and Target Start-up Approval Times (TSATs) and the procedures around these time elements. More specifically the operational changes relates to:

- The management, including input and updates as needed, of Target Off Block Times (TOBTs) for either the aircraft operator or the ground handler.
- The management, including input and updates as needed, of TSATs for the Air Navigation Service Provider (ANSP)
- The start-up and push back procedures.

6.32 It is very important that the impacts of these procedure changes are measured, so that the effectiveness of the A-CDM implementation can be assessed. This will allow all stakeholders to effectively monitor how the A-CDM procedures are complied with and identify where improvement can be made, which is just as important as getting A-CDM implemented in the first place.

6.33 Key performance indicators (KPIs) related to TOBT and TSAT are required to assess the effectiveness of an A-CDM implementation.

6.34 Other KPIs may be used as supplement for monitoring the performance of the A-CDM.

Measurements of TOBT

6.35 Achieving inputs and updates of TOBT as accurate as possible is one of the first steps in the A-CDM implementation. The Aircraft Operators or Ground Handling Agents will need to provide TOBT for all the departing flights to enable the A-CDM procedures to flow efficiently and effectively. Without TOBT, there will be no predictability of departure readiness and TSAT will not be available.

6.36 The following measurements are related to TOBT.

Table 1 - Measurement of TOBT

Name of indicator	**TOBT input participation rate**
Value of Indicator	Allows the A-CDM project team to see the amount of participation from airlines/ground handling agents in TOBT inputs before proceeding to measure the accuracy and use TOBT for pre-departure sequencing.
Data requirement	Manual TOBT updates/inputs
Formula	Track number of TOBT inputs from each airline and ground handling agent through different time references before departure, e.g. at TOBT-10mins, -20min and -40mins
Indicator Forms	Participation rate in TOBT inputs and when does it occur
Tips/Warning	It is important to achieve a high % of participation in order for the A-CDM concept to work. A-CDM with low participation rate will lead to questions on fairness when TSAT is used for pushback and eventually the collaborative concept may fail. To improve participation rate, more A-CDM awareness workshops or compliance measures may be required.
System requirements	Data analysis tool of the A-CDM portal if available or TOBT input records

Table 2 - Accuracy of TOBT

Name of indicator	**TOBT Accuracy**
Value of Indicator	Allows airlines/ground handling agents to understand whether their TOBT submission workflow/process is effective in achieving an accurate TOBT. Allows the A-CDM project team to assess whether the TOBT quality is acceptable and can be used to generate TSAT. It also gives a general indication of compliance rate for TOBT submission.
Data requirement	• TOBT • Actual Ready Time (ARDT) and/or Actual start-up request time (ASRT)
Formula	• Compare TOBT against ARDT and/or ASRT • Compare TOBT against AOBT
Indicator Forms	• Accuracy of TOBT • TOBT compliance rate
Tips/Warning	Low TOBT accuracy with high TOBT participation rate indicates that the airline/ground handling may have to improve their internal workflow/process for updating of TOBT. How to measure the accuracy of the TOBT depends on the procedures applied for the A-CDM implementation. To be able to measure the TOBT accurately, it is highly recommended that pilot shall call ready

Name of indicator	**TOBT Accuracy**
	within a window of the TOBT and that ATC indicates this time via an ARDT or ASRT.
System requirements	• Data analysis tool of the A-CDM portal if available or TOBT input records • AOBT from appropriate source ARDT and/or ASRT from an Electronic Flight Strip system or alternative means.

Note: *Some European airports benchmark their TOBT compliance at 80%.*

Measurement of TSAT

6.37 A Pre-Departure Sequencer/Departure Manager solution might be used for pre-departure sequencing in the A-CDM implementation, which should be generating an optimal TSAT to achieve the best sequence to maximize runway throughput and regulate traffic to holding point. However, if ATC or pilots are not adhering to the TSAT, the benefits will not be achieved.

6.38 TSAT compliance plays an important role in achieving the objective of reducing taxi-out time and also shows the level of commitment to TSAT in the A-CDM procedures.

Table 3 - Measurement of TSAT

Name of indicator	**TSAT Compliance**
Value of Indicator	Allows the A-CDM project team to assess whether ATC is following the TSAT for pushback and also pilots' adherence to the TSAT procedure.
Data requirement	• TSAT • Actual Start-up Approval Time (ASAT) • AOBT
Formula	• Compare ASRT and/or ASAT against TSAT • Compare AOBT against TSAT
Indicator Forms	• TSAT compliance rate
Tips/Warning	If the compliance level is low, it may mean either the A-CDM procedures are not followed by ATC/Pilots or ATC did not enforce TSAT compliance or the TOBT submitted by airlines/ground handling agents is not up to desired accuracy. How to measure the compliance to the TSAT depends on the procedures applied for the A-CDM implementation. To be able to measure the compliance it is highly recommended that pilot request within a window of the TSAT and that ATC indicates this time via an ASRT. ATC shall also give the start-up approval within the given TSAT window and indicate this via an ASAT.

Name of indicator	**TSAT Compliance**
System requirements	• Data analysis tool of the A-CDM portal if available or TSAT records from DMAN/PDS • AOBT from appropriate source • ASRT and/or ASAT from an Electronic Flight Strip system or alternative means.

Note: *Some European airports benchmark their TSAT compliance at 80%.*

HARMONIZATION FRAMEWORK

A-CDM Terminologies and Definition

7.1 As more and more airports adopt A-CDM, it is important that implementations strive for harmonization with respect to certain areas. This relates to certain procedures, roles and responsibilities as well as having common understanding of terminologies.

7.2 Groups with limited interaction often develop their own semantic references; airport stakeholders are not an exception as they may use different terminologies to cover the same reality. A lack of common definitions and understanding of terms across the stakeholder community can exacerbate misunderstanding and contribute to the lack of common situational awareness.

7.3 As an example, “arrival time” to an air traffic controller (ATCO) could mean at the point of touchdown, whereas for an airline or ground handling agencies “arrival time” may be understood as the time when an aircraft is at the gate. This disparity in a common definition of terms leads to a lack of shared awareness and clarity of the operational picture, which can lead to confusion and result in increased inefficiencies.

7.4 As A-CDM brings stakeholders together as part of the procedures and collaboration, it is of highest importance to implement common acronyms and definitions that are agreed and understood by all. To ensure harmonization not only at the local airport level in an A-CDM implementation but at the regional APAC level the following A-CDM definitions are highly recommended to be adopted as part of an A-CDM implementation.

7.5 These acronyms and definitions are aligned with overarching ICAO definitions, where applicable, as well as EUROCONTROL A-CDM acronyms and definitions.

Table 4 – A-CDM Acronyms and Definitions

Acronyms	Definition	Explanation
ACGT	Actual Commence of Ground Handling Time	The time when ground handling on an aircraft starts, can be equal to AIBT (to be determined locally)
ACZT	Actual Commencement of De-icing Time	The time when de-icing operations on an aircraft starts
ADIT	Actual De-icing Time	The actual time that the de-icing activity takes. Metric AEZT – ACZT
AEGT	Actual End of Ground Handling Time	The time when ground handling on an aircraft ends.
AEZT	Actual End of De-icing Time	The time when de-icing operations on an aircraft end
AGHT	Actual Ground Handling Time	The total duration of the ground handling of the aircraft. Metric AEGT - ACGT
AIBT	Actual In-Block Time	The time that an aircraft arrives in-blocks.
ALDT	Actual Landing Time	The time that an aircraft lands on a runway.
AOBT	Actual Off-Block Time	Time the aircraft pushes back /vacates the parking position.
ARDT	Actual Ready Time	When the aircraft is ready for start-up/push back or taxi immediately after clearance delivery, meeting the requirements set by the TOBT definition
ARZT	Actual Ready for De-icing Time	The time when the aircraft is ready to be de-iced
ASAT	Actual Start Up Approval Time	Time that an aircraft receives its start-up approval

Acronyms	Definition	Explanation
ASBT	Actual Start Boarding Time	Time passengers are entering the bridge or bus to the aircraft
ASRT	Actual Start Up Request Time	Time the pilot requests start up clearance
ATOT	Actual Take-Off Time	The time that an aircraft takes off from the runway.
ATTT	Actual Turnaround Time	Time taken to complete turnaround. Metric AOBT – AIBT
AXIT	Actual Taxi-In Time	Time taken to taxi to stand after landing Metric AIBT – ALDT
AXOT	Actual Taxi-Out Time	Time taken from pushback to take-off Metric ATOT – AOBT
CTOT	Calculated Take-Off Time	A time calculated and issued by the appropriate air traffic management unit as a result of tactical slot allocation, at which a flight is expected to become airborne
ECZT	Estimated Commencement of De-icing Time	The estimated time when de-icing operations on an aircraft are expected to start
EDIT	Estimated De-icing Time	Metric EEZT – ECZT
EEZT	Estimated End of De-icing Time	The estimated time when de-icing operations on an aircraft are expected to end
EIBT	Estimated In-Block Time	The estimated time that an aircraft will arrive in-blocks. **NOTE –** This can sometimes be referred to as Estimated Time of Arrival (ETA) by Aircraft Operator. It is important to clarify the ETA in relation to EIBT and ELDT.
ELDT	Estimated Landing Time	The estimated time that an aircraft will touch-down on the runway. **NOTE –** This can sometimes be referred to as Estimated Time of Arrival (ETA) by ATC. It is important to clarify ETA in relation to EIBT and ELDT.
EOBT	Estimated Off-Block Time	The estimated time at which the aircraft will start movement associated with departure; also associated with the time filed by aircraft operator in the flight plan
ERZT	Estimated Ready for De-icing Time	The estimated time when the aircraft is expected to be ready for de-icing operations
ETOT	Estimated Take-Off Time	The estimated take off time taking into account the EOBT plus EXOT.
ETTT	Estimated Turnaround Time	The time estimated by the AO/GHA on the day of operation to turn-round a flight taking into account the operational constraints
EXIT	Estimated Taxi-In Time	The estimated taxi time between landing and in-block
EXOT	Estimated Taxi-Out Time	The estimated taxi time between off-block and take off. This estimate includes any delay buffer time at the holding point or remote de-icing prior to take off
MTTT	Minimum Turnaround Time	The minimum turnaround time agreed with an AO/GHA for a specified flight or aircraft type
SIBT	Schedule In-Block Time	The time that an aircraft is scheduled to arrive at its first parking position.

Acronyms	Definition	Explanation
SOBT	Schedule Off-Block Time	The time that an aircraft is scheduled to depart from its parking position; associated with airport slot allocated **NOTE –** this is typically referred to as Scheduled Time of Departure (STD) by the Aircraft and Airport Operators.
TOBT	Target Off-Block Time	The time that an Aircraft Operator or Ground Handling Agent estimates that an aircraft will be ready, all doors closed, boarding bridge removed, push back vehicle available and ready to start up / push back immediately upon reception of clearance from the control tower.
TSAT	Target Start-up Approval Time	The time provided by ATC taking into account TOBT, CTOT and/or the traffic situation that an aircraft can expect start-up / push back approval.
TLDT	Target Landing Time	Targeted Time from the Arrival management process at the threshold, taking runway sequence and constraints into account. It is not a constraint but a progressively refined planning time used to coordinate between arrival and departure management processes. Each TLDT on one runway is separated from other TLDT or TTOT to represent vortex and/ or SID separation between aircraft
TTOT	Target Take-Off Time	The Target Take Off Time taking into account the TOBT/TSAT plus the EXOT. Each TTOT on one runway is separated from other TTOT or TLDT to represent vortex and/ or SID separation between aircraft

Roles and Responsibilities of A-CDM stakeholders

7.6 This section outlines the general responsibilities of the A-CDM stakeholders as part of the A-CDM process and procedures. It is recommended that any implementer tries to adopt this approach as far as practically feasible. However, it is recognised that local airport rules etc. might prohibit this.

7.7 The **Aircraft Operator** is generally responsible for:

- Providing the Flight Plan and any subsequent updates, i.e. DLA/CHG messages.
- Managing and providing TOBT either themselves or through their authorised GHA.
- Ensuring the flight crew is aware of the channels where TOBT and TSAT information can be obtained, as it is dependent on local procedures.
- Ensuring that their flight crew are aware of start-up and pushback procedures.
- Any change in registration or type of aircraft of ARR/DEP flights, the same should be provided to A-CDM system either directly or through a connected system (like AODB, CHG/FPL message)

7.8 The **Ground Handling Agent**, when authorised by aircraft operator, is responsible for providing information as mentioned in the responsibilities listed above for the Aircraft Operator

7.9 The **Airport Operator** is generally responsible for:

- Providing flight schedule information and any changes therein;
- Providing aircraft parking stand and gate planning/allocation and any changes therein; and
- Overall coordination of the A-CDM process during implementation and operations, including monitoring of performance of A-CDM operations.

7.10 The **Air Navigation Service Provider** (ANSP) is generally responsible for:

- Providing runway-in-use and planned runway-in-use;
- Providing expected runway capacity, and minimum arrival/departure separation;
- When applicable, providing flow control restrictions, e.g. Minutes in Trail and/or Miles in Trail; and
- Ensuring that start-up is issued in accordance with TSAT

7.11 ELDT can be collected from different sources, such as airlines, ANSP and ATFM. In the arrival phase of the flight, ANSP is normally the source for providing the latest updates on ELDT.

7.12 The role of the ANSP can vary in the context of A-CDM in relation to how the pre departure sequencing is handled. There are two different scenarios as follows:

(a) If pre departure sequencing capability available (e.g. a DMAN already installed in the ATC TWR): the ANSP should make arrangements to integrate pre departure sequencing tool's output with A-CDM system.

(b) If pre departure sequencing capability not available: the ANSP should provide appropriate procedures and requirements to generate pre departure sequence.

7.13 The **Air Traffic Flow Management Unit (ATFMU)**, when established, is generally responsible for:

- Balancing of Demand and Capacity;
- Receiving relevant A-CDM data from airports;
- Coordination of Calculated Take Off Times (CTOTs/ATFM slots); and
- Provision of updated ATFM restrictions

7.14 In cases where de-icing is applied, **the De-icing Operator** is generally responsible for:

- Providing the de-icing status of the aircraft
- Prediction of the Estimated De-icing Times such as ECZT, EEZT

Standardization of A-CDM Procedures

7.15 Since the introduction of A-CDM, there have been many airports that have adopted the A-CDM philosophy. The expansion of implementations has led to some differences in procedures and processes. These differences may create problems for stakeholders. A harmonized approach can reduce workload. Although these differences do not constitute a compromise to safety, they create unnecessary additional layers of complexity.

7.16 Standardisation of certain A-CDM procedures to drive efficiency and overall performance is necessary. On the other hand, individual airport may have its unique implementation plan and should have the flexibility to layout its local processes and procedures, which are adapted to its own environment and operational need. However, there are a number of standards that could be applied globally (e.g. TOBT/TSAT procedures and compliance windows). The operations of stakeholders need to be standardized wherever possible, as the burden of differing processes may bring in inefficiency, confusion and costs.

7.17 The way in which procedures and processes are designed needs to incorporate input from A-CDM stakeholders. This should be a collaborative approach, which ultimately all the stakeholders agree to.

7.18 Non-compliance of procedures should be discussed by the steering group, to remove the difficulties faced by the A-CDM Stakeholders.

Target Off Block Time (TOBT) and Target Start-up Approval Times (TSAT)

7.19 The Target Off Block Time (TOBT) and Target Start-up Approval Time (TSAT) are critical to the A-CDM process. Based on an accurate prediction of aircraft readiness for departure, the TOBT, from Aircraft Operator, or appointed/designated Ground Handling Agents, ATC can plan the optimal pre-departure sequence and TSAT at which aircraft are dispatched from the parking stands. This dynamic mechanism between the prediction of when all ground handling activities will end, i.e. at the defined TOBT and the allocation of TSAT, are the core pillars of A-CDM. This is also what it referred to as “Best planned, best served” principles.

7.20 TOBT is defined as “The time that an Aircraft Operator or Ground Handling Agent estimates that an aircraft will be ready, all doors closed, boarding bridge removed, push back vehicle available and ready to start up / push back immediately upon reception of clearance from the control tower.”

7.21 TOBT can be predicted by tracking the flight events, so-called Milestones, that occur prior to landing and during the turnaround process. In order to achieve TOBT accuracy, close coordination of turnaround activities and sharing of operational information among different stakeholders are needed.

7.22 TOBT is the most important timing of the turnaround process and this timing is essential for the calculation of TSAT.

7.23 The TOBT should be confirmed/input at least “X1” minutes prior to the SOBT/EOBT and available for all stakeholders [**X1 is preferably 30-40**].

7.24 TSAT is defined as “the time provided by ATC taking into account TOBT, CTOT and/or the traffic situation that an aircraft can expect start-up / pushback approval”. In order to determine the TSAT an A-CDM implementation should consist of departure management capability (including VTT), such as Pre-Departure Sequencer or Departure Manager.

7.25 The TSAT should be published at least "X2" minutes prior to the TOBT and available for all stakeholders [**X2 is preferably 30-40**].

Sharing of TOBT and TSAT

7.26 Sharing of the TOBT and TSAT information to flight crew is fundamental for a successful A-CDM implementation. Dependent on the local procedures and total system solution this information sharing may be done in multiple ways. How it is done needs to be agreed with the stakeholders. Examples of how to share the TOBT and TSAT to the flight crew are:

- VDGS / A-VDGS (preferred)
- Mobile application available to flight crew
- Airport Operator or Ground Handler designated role communicates TOBT and TSAT directly to flight crew.
- Aircraft Operator or Ground Handler communicates the TOBT and TSAT.
- ATC communicate the TSAT when pilot reports ready for start-up and pushback (only applicable when Pilot reports to ATC ready at TOBT)

A-CDM Start-up Procedures

7.27 Currently, airports that have fully adopted A-CDM processes, exhibit differences in their requirements for when pilots should be ready for start-up and pushback, and report ready for start-up and pushback. These differences may cause confusion, in particular to pilots who operate several airports.

7.28 The operating procedure related to Start-up and Pushback in the A-CDM process must clearly define the requirement of the time at which pilot should initiate call for start-up.

7.29 Irrespective of the TSAT, the aircraft should report/be ready for start-up/pushback at TOBT +/- "X3" minutes [**X3 is preferably 5**].

7.30 Pilots should request start-up/pushback clearance at the TSAT +/- "X4" minutes [**X4 is preferably 5**].

7.31 ATC will approve start-up/pushback or advise the pilots of the current/updated TSAT.

7.32 Any time the TOBT or TSAT cannot be met, or an earlier departure is required, the TOBT should be updated expeditiously by Aircraft Operator or/Ground Handling Agent.

7.33 Departure clearance should be requested via Data Link Departure Clearance (DCL) at TOBT/TSAT +/- X5 minutes (X5 is defined by the local airport authority). If DCL is not available, departure clearance should be requested via RTF/Clearance Delivery at TOBT/TSAT +/- X5 minutes.

Milestone Approach

7.34 The Milestone approach is defined to:

(a) Start and end the A-CDM process for any flight that is defined to be part of the A-CDM process and;

(b) Update information about the flight at certain points during the inbound, turnaround or outbound phase.

7.35 In the A-CDM Process, 16 milestones are defined as per the EUROCONTROL Manual. It is important to note that not all 16 have to be used for a successful A-CDM implementation at an airport but some are required and some are optional. Ultimately, which milestones are used is dependent of the local A-CDM rules, procedures and data availability.

7.36 The Figure 2 depicts all the 16 milestones as they occur in relation to the flight phases, i.e. inbound, turn around and outbound. Please note that the figure does not show how the milestones occur in relation to time. Another important note is that Milestones 1 and 2 are related to the outbound flight from the A-CDM airport and not related to the inbound flight coming to the A-CDM airport.

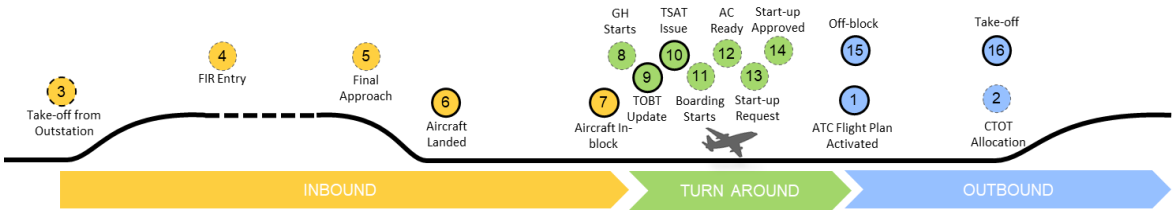

Figure 2: 16 Milestones of A-CDM in relation to the Flight Phases

7.37 The Table 5 provides a comprehensive overview of the milestones including:

- What the purpose of the milestone is;
- How the Milestone is triggered;
- What data needs to be provided;
- A-CDM Actions;
- Example of system(s) that can provide the data; and
- Whether the Milestone is required or optional.

Table 5: Overview of the 16 A-CDM Milestones

Milestone	Purpose of the Milestone	Milestone is triggered by	Data Elements	A-CDM Actions	Example of system(s) that typically has this data (and should share it)	Required/ Optional
MS1 ATC Flight Plan Activated	• Starts the A-CDM process for a flight • To check the data consistency between Airport Slot and Airline's flight plan data (EOBT vs SOBT, aircraft registration and aircraft type)	• ATC flight plan is submitted by Aircraft Operator (this happens typically at EOBT-3hrs but can also be later)	• Schedule Time of departure and arrival for the flight (STD/SOBT and ETA/SIBT) • Flight Plan EOBT • Gate/Stand	• Calculate: ELDT, EIBT, TOBT, TSAT, TTOT • Present/Disseminate: ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• TWR Flight Data Processing System • ACC Flight Data Processing System • AODB/RMS	• Required
MS2 CTOT Allocation	• To allow early awareness of departure delay if there are en-route/destination airport constraints Note 1: Multi-Nodal ATFM Trial currently issues CTOT at latest time of EOBT-1.5hrs Note 2: BOBCAT CTOT is available at EOBT-2hrs	• CTOT issued by relevant ATFM Unit/cross-border ATFM nodes	• CTOT	• Calculate: TSAT BASED on CTOT • Present/Disseminate: ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, CTOT	• ATFM System or similar capability	• Required for a fully integrated A-CDM – ATFM solution but not for a local A-CDM implementation
MS3 Take-off from Outstation	• To provide an ELDT at early stage by using FPL EET + ATOT. • To revise system generated TOBT, TSAT and TTOT if required • Allow early awareness of deviation from scheduled in-block time for resource planning.	• Take-off from up-station	• ELDT	• Re-calculate: EIBT, TOBT, TSAT, TTOT • Present/Disseminate: ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• ACC Flight Data Processing System • ACARS	• Optional
MS4 FIR Entry	• To estimate ELDT and prompt alert if potential gate conflict is anticipated. • To revise system generated TOBT	• Aircraft crosses a defined fix on FIR boundary or enters the FIR.	• ELDT	• Re-calculate: EIBT, TOBT, TSAT, TTOT • Present/Disseminate: ELDT, EIBT, EOBT,	• ACC Flight Data Processing System • Extended AMAN • ACARS	• Optional

Milestone	Purpose of the Milestone	Milestone is triggered by	Data Elements	A-CDM Actions	Example of system(s) that typically has this data (and should share it)	Required/ Optional
	• Allow early awareness of deviation from scheduled in-block time for resource planning.			SOBT, TOBT, TSAT, TTOT		
MS5 Final Approach	• To provide a highly accurate and stable ELDT/TLDT as landing sequence is confirmed • To revise system generated TOBT • Allow for awareness of deviation from scheduled in-block time for resource planning.	• Aircraft enters the TMA	• TLDT or ELDT	• Re-calculate: EIBT, TOBT, TSAT, TTOT • Present/Disseminate: TLDT/ELDT, EIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• ACC Flight Data Processing System • AMAN • ACARS	• Optional
MS6 Aircraft Landed	• To revise system generated TOBT • Allow for awareness of deviation from scheduled in-block time for resource planning.	• Aircraft touches down on runway	• Actual Landing Time (ALDT)	• Re-calculate: EIBT, TOBT, TSAT, TTOT • Present/Disseminate: ALDT, EIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• ACC Flight Data Processing System • AMAN • ACARS	• Required
MS7 Aircraft In-Blocks	• To revise system generated TOBT	• Aircraft arriving at the parking stand	• Actual In-Block Time (AIBT)	• Re-calculate: TOBT, TSAT, TTOT • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• A-SMGCS • Docking System • ACARS • AODB	• Required
MS8 Ground Handling Starts	• To revise system generated TOBT Note: For a normal turnaround flight MS8 and MS7 occur at the same time. MS8 and MS7 will not be the same for flights which are on the first operation of the day/are delayed/have been long term parked.	• Actual start of turnaround activities	• AGHT	• Re-calculate: TOBT, TSAT, TTOT • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• Same as MS7	• Optional

Milestone	Purpose of the Milestone	Milestone is triggered by	Data Elements	A-CDM Actions	Example of system(s) that typically has this data (and should share it)	Required/ Optional
MS9 TOBT Update	• Confirm and take control of TOBT • To check the feasibility of TOBT vs SOBT/EOBT.	• TOBT confirmation/update into A-CDM portal from EOBT-"X1" minutes Note: "X1" is need to be determined locally to fit the operations at the airport. Recommended to be 30 to 40 minutes.	• TOBT	• Re-calculate: TSAT, TTOT • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, TSAT, TTOT	Manual input via: • A-CDM Portal • Mobile Apps • Airline/GHA systems	• Required
MS10 TSAT Issue	• To allow decision making based TOBT and TSAT values • Create a stable pre-departure sequence	• At TOBT – "X2" minutes, TSAT will be published Note: "X2" is need to be determined locally to fit the operations at the airport. Recommended to be 30 to 40 minutes.	• TSAT	• Re-calculate: TTOT • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• A-CDM/PDS	• Required
MS11 Boarding Starts	• To check if boarding has started as expected.	• Actual start for Boarding of passengers	• ASBT	• Re-calculate: - • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, TSAT, TTOT	• AODB/RMS • Manual input in A-CDM Portal	• Optional
MS12 Aircraft Ready	• Post analysis to measure aircraft readiness against the TOBT • Automate removal of TOBT and TSAT based if rules are not followed based on local procedures	• The call from the pilot to ATC to report ready within "X3" minutes of TOBT Note: The value of "X3" is based on local procedures. "X3" is highly recommended to be +/5 minutes	• Actual Ready Time (ARDT)	• Re-calculate: - • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, ARDT, TSAT, TTOT	Manual input in • Electronic Flight Strip System • A-CDM portal/HMI	• Optional
MS13 Start Up Request	• To measure pilot's adherence to TSAT. • Automate removal of TOBT and TSAT based if rules are not followed based on local procedures	• The call from the pilot to ATC to request pushback/start-up clearance within "X4" minutes of TSAT. Note: The value of "X4" is based on local procedures. "X4" is highly recommended to be +/5 minutes	• Actual Start-up Request Time (ASRT)	• Re-calculate: - • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, ARDT, ASRT, TSAT, TTOT	Manual input in • Electronic Flight Strip System • A-CDM portal/HMI	• Optional

Milestone	Purpose of the Milestone	Milestone is triggered by	Data Elements	A-CDM Actions	Example of system(s) that typically has this data (and should share it)	Required/ Optional
MS14 Start Up Approved	• To measure ATC's adherence to TSAT • Automate removal of TOBT and TSAT based if rules are not followed based on local procedures	• The call from ATC to pilot to give clearance for push and start clearance within "X5" minutes of TSAT. Note: The value of "X5" is based on local procedures. "X5" is highly recommended to be +/5 minutes	• Actual Start-up Approve Time (ASAT)	• Re-calculate: - • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, TOBT, ARDT, ASRT, TSAT, ASAT, TTOT	Manual input in • Electronic Flight Strip System • A-CDM portal/HMI	• Optional
MS15 Off Block	• To check if the aircraft has gone off blocks as per TSAT • Update Target Take-Off Time (TTOT) generated by DMAN/PDS if required	• Aircraft commence pushback	• Actual Off Block Time (AOBT)	• Re-calculate: TTOT • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, AOBT, TTOT	• A-SMGCS • Docking System • ACARS • Manual input	• Required
MS16 Take Off	• End of A-CDM process and relevant stakeholders are updated with the take-off information. • Flight is removed from the A-CDM process	• Aircraft lift-off the runway	• Actual Take-Off Time (ATOT)	• Re-calculate: - • Present/Disseminate: ALDT, AIBT, EOBT, SOBT, AOBT, ATOT	• A-SMGCS • ACARS	• Required

A-CDM Performance Indicators

7.38 In order to measure the performance of A-CDM, the post-implementation performance needs to be compared against the same performance indicators that were utilised before implementation.

7.39 Measurement of A-CDM performance is an iterative process and the feedback mechanism is an integral part of it.

7.40 Measurement of A-CDM performance can be better realized based on commonly agreed indicators.

7.41 Table 6 below provides examples of A-CDM performance indicators for reference.

Table 6 – Examples of A-CDM Performance Indicators

Strategic Performance Indicator	Performance Driver	Performance Indicator	Performance Measurement	Milestone Measurement	Stakeholders
1) Improve punctuality and reduce delays	Turnaround punctuality	Turnaround compliance	➢ (ARDT - AIBT) - MTTT > or = 5 minutes (%) ➢ (ARDT - AIBT) - (SOBT – SIBT) > or = 5 minutes (%) ➢ AOBT – ARDT > or = 5 minutes (%)		Aircraft Operator Airport
	Arrival punctuality	In Block Time accuracy	➢ ALDT – ELDT (minutes) ➢ ALDT - ELDT > or = 5 minutes (%) ➢ AIBT - SIBT > or = 15 minutes (%) ➢ AIBT – EIBT (minutes) ➢ AXIT – EXIT (minutes) ➢ # of missed approaches, go arounds per day per RWY (Include explicit times for the missed approaches for each runway)	@ Milestones 3, 4 and 5 @ Milestones 3, 4 and 5 @ Milestones 3, 4, 5 and 6 @ Milestones 3, 4, 5 and 6	Aircraft Operator Airport
	Departure punctuality	➢ Off Block accuracy (lag) ➢ Reduce departure delays	➢ AOBT - SOBT > or = 15 minutes (%) ➢ ATOT - TTOT > or = 5 minutes (%) ➢ Measure delay @ AOBT-SOBT (minutes) ➢ AXOT - EXOT (minutes)	@ Milestones 4,5,6,7,9,10,12, 13,14,15 @ Milestones 4,5,6,7,9,10,12, 13,14,15	Aircraft Operator Airport ATFM

Strategic Performance Indicator	Performance Driver	Performance Indicator	Performance Measurement	Milestone Measurement	Stakeholders
	Reduce taxi out delay in minutes	➢ Average taxi out time in minutes across a 12 month period ➢ Taxi-out time against benefit baseline (lead) ➢ Taxi-out time accuracy (lag)	➢ Taxi-out delay (minutes) to benefit baseline (minutes and fuel) ➢ Average (ATOT – AOBT) – benefit baseline (minutes) ➢ Taxi Out Time delay converted to fuel consumption on a flight by flight basis based on # engines and engine type	@ Milestone 15	ATC Aircraft Operator Airport
2) Optimise Airport Infrastructure	Improvement in the gate/bay/stand Utilisation % Time	Overall gate/bay/stand actual occupation time	➢ Compare the overall actual gate/bay/stand occupation time with scheduled gate/bay/stand occupation time (minutes deviation) per flight ➢ Measure ARDT - AIBT per gate/bay/stand per flight by aircraft type	N/A	Airport Aircraft Operators
	Improvement in the gate/bay/stand Utilisation % Usage	➢ Gate/bay/stand usage ➢ Assess gate/bay/stand delay (lag)	➢ Measure # of turns (rotations) on each gate/bay/stand per day by Aircraft type ➢ AOBT - SOBT (minutes) ➢ AOBT - SOBT > or = 15 minutes (%) ➢ Average TSAT – TOBT > or = 15 minutes (%)	@ Milestones 9, 10, 12, 13, 14, 15	Airports
3) Gate /Bay / Stand Management	Reduce the number of late gate/bay/stand changes (e.g. 10 minutes before ALDT)	➢ Gate/bay/stand allocation and passenger gate/bay/stand freezing time (lag) ➢ Gate/bay/stand allocation accuracy (lag) ➢ Gate/bay/stand/bay conflicts (lag)	➢ # of late gate/bay/stand changes within [(ALDT- 10 min) to ALDT] ➢ Number of gate/bay/stand changes after landing [ALDT to AIBT] ➢ # of bay conflicts per day	@ Milestones 4, 5, 6, 7	Airports

Strategic Performance Indicator	Performance Driver	Performance Indicator	Performance Measurement	Milestone Measurement	Stakeholders
4) Strategic Slot Management	Increase the # of flights that meet strategic slot compliance	Airport strategic slot adherence	➢ AIBT - SIBT -/+ 30 minutes (%) ➢ AOBT- SOBT -/+ 30 minutes (%)	N/A	Aircraft Operators Airports
5) Reduce emissions	Reduce emission from engines on ground	Emission from engines on ground (lead)	➢ Taxi-out delay (minutes) to benefit baseline (minutes and Co2)	N/A	ATC Aircraft Operators Airports
6) Congestion	Reduce number of aircraft moving simultaneously on the manoeuvring area	➢ Number of aircraft queueing on sequence in high demand periods	➢ Queue length (ATOT-AOBT) over a 15 min period, per hour over a 24 hour period	N/A	ATC Aircraft Operators Airports
7) ATFM Slot adherence	Increase ATFM slot adherence	Number of aircraft compliant with ATFM slot (CTOT)	➢ ATOT – CTOT	@ Miletone16	

INTEROPERABILITY OF A-CDM WITH OTHER SYSTEMS

8.1 This section, referring to the ICAO Aviation System Block Upgrades (ASBU) framework, links the ASBU modules and elements related to Airport Collaborative Decision Making (A-CDM) and outline a project framework to integrate/interoperate A-CDM with other systems of Air Traffic Management (ATM) in accordance with the time frame of ASBU Block 1 modules and elements.

Interactions between A-CDM and Other Systems

8.2 In the global aviation network, each airport is a node serving other aviation entities to achieve the safe, secure and efficient interoperability of ATM systems as a whole. The ASBU framework underpins and realizes such principle with a systems engineering approach to set the target implementation time frames for sets of operational improvements, referred to as 'modules', including A-CDM, Air Traffic Flow Management (ATFM) and various enablers of ATM efficiency and effectiveness.

8.3 There are two Blocks of A-CDM incorporating four ASBU elements relevant to the scope of guidance in this document: ACDM-B0/1 – *Airport CDM Information Sharing (ACIS)*, ACDM-B0/2 – *Integration with ATM Network Function*, ACDM-B1/1 – *Airport Operations Plan (AOP)* and ACDM B1/2 – *Airport Operations Centre*. The Block 0 elements combine and reconcile efforts of aviation entities in-and-around an airport to achieve an effective and efficient turnaround process. As the upgrade from Block 0, Block 1 elements will pave the way towards a cross-border network of collaborative ATFM, the node-based decision making process at airports will be enhanced by sharing up-to-date relevant information and by taking into account the preferences, available resources and the requirements of the stakeholders at the airport.

8.4 To achieve the aims of Block 1 A-CDM elements, the implementation phase of Block 0 elements should be ideally interoperable-by-design so that A-CDM is not only a local system serving an airport but also a node with adequate capabilities and features for integration with domestic air traffic flow management and interoperability with other systems of the cross-border net-centric airspace.

8.5 To effectively formulate and develop the implementation phase of A-CDM, the following ASBU modules and elements as well as their interactions with A-CDM should be studied in depth and incorporated gradually, where relevant, into an A-CDM implementation:

(a) Air Traffic Flow Management (ATFM) under NOPS B0/1-5 and NOPS B1/1-10.

(b) System Wide Information Management (SWIM) over the Common aeRonautical Virtual Private Network (CRV) under SWIM-B2/1-5.

(c) Flight Information Exchange Model (FIXM) under FICE-B0/1 and B2/1-9.

8.6 Appendix 1 provides more information about the ASBU modules and elements interacting with A-CDM. Full details are available on the ICAO GANP Portal at https://www4.icao.int/ganpportal/ASBU.

Systems View of A-CDM and Other Systems

8.7 In the contemporary context of ATM systems, 'system' has moved beyond the equipment for Communications, Navigation, Surveillance and ATM (CNS/ATM) and 'interoperability' has moved beyond the computerisation interfaces documented by the Interface Control Document (ICD). In the most general sense, system means a configuration of parts joined together by a web of relationships e.g. a man-made system encompassing actors and machines as well as the interoperability between equipment and procedures. The systems engineering approach can be extended, beyond the

formulation of high level requirements of ASBU modules and elements, deep down for the development and implementation of the ASBU elements selected by individual aviation entities concerned including airport authorities and air navigation services providers.

8.8 Being holistic in flavour, efforts of systems engineering can harmonise and entail outcomes of all specialties and actors to enable a successful system which achieves users' satisfaction. To address specific operational needs of A-CDM and ATFM at a region, sector or airport, systems engineering efforts would be needed to mix and match the adoption of evolving operational concepts and the acquisition of numerous emerging technologies such as Demand and Capacity Balancing (DCB), Linked Arrival Management and Departure Management (AMAN/DMAN), Flight and Flow Information for the Collaborative Environment (FF-ICE), AIXM, FIXM, CRV, SWIM, etc.

8.9 Before implementation of the selected solutions, systems engineering principles can be used to tackle domain-specific problems and evaluate trade-offs between innovations and risks. Harmonising with the global wheel of ASBU, systems engineering practice can be followed to orchestrate the complete development of various CNS/ATM systems by applying a set of life-cycle building blocks and aligning technologies to meet targets of ASBU.

8.10 Under the systems view, A-CDM can be implemented as a specific application of CDM in the airport environment and ATFM facilities are being developed in an ecosystem with a domestic and cross-border network of many advanced, legacy and aged systems that airports are physical nodes inside virtual ATFM nodes on the network. Appendix 2 provides use cases for interoperability of A-CDM with other systems, especially for ATFM.

Project Framework for Integration/Interoperation of A-CDM with ATFM Systems

8.11 In line with the timeframe of ICAO ASBU, the outcomes from Block-0 implementations of A-CDM and ATFM could be leveraged to ensure the interoperability of equipment, procedures and practices among the pioneering aviation authorities and administrations in the Asia Pacific Region. This will set the guidelines and successful templates for all aviation entities to join the roadmap.

8.12 A good practice for development and implementation of A-CDM initiatives should:

(a) Utilize ATFM measures e.g. CTOT from NOPS-B0 (ATFM) and various milestones from ACDM-B0 e.g. (list to be advised) to collectively improve the efficiency and effectiveness of air traffic services and airport operations;

(b) Contribute to regional and sub-regional efforts for the standardisation of flight and flow data as well as the development of Implementation Guidelines and Interface Control Documents for ASBU Block 1 Implementations;

(c) Collaborate among stakeholders on development aligning with A-CDM-B1 module's aim for integration of A-CDM with ATFM;

(d) Leverage the solid foundation established from ACDM-B0 and NOPS-B0 modules and take A-CDM into consideration when developing ATFM techniques and algorithms for network operations in multi-nodal and/or harmonised settings;

(e) Explore the performance improvement through the application of CRV and SWIM for regional FIXM Extension to pave the way for the acquisition of full data-driven ATFM and A-CDM facilities;

(f) Realise the potential of FIXM for richer content exchanges, as promulgated in ASBU FICE-B1 module, between automated systems of A-CDM and the ATFM network in the APAC region; and

(g) Establish the systems engineering plan that holistically covers conceptualisation, development, acquisition and implementation of the abovementioned ASBU Block 1 initiatives and trials to bring fruitful outcomes to aviation users of the systems.

8.13 Beyond the document-based interoperability of equipment interfaces, regional and/or sub-regional coordination should be made to develop model-based interfaces for computerisation between A-CDM, ATFM and ATC systems, with the following steps:

(a) Make agreements between the A-CDM and ATFM communities on the choice of '**Milestones**' for developing interoperable procedures between A-CDM and ATFM.

(b) Compromise the '**Compliance**' of flights meeting both A-CDM milestones and ATFM measures.

(c) Develop and materialise Concept of Operations (CONOPS) for Interoperability between A-CDM and ATFM processes.

(d) Identify data items and the 'Timeline' of their exchanges needed to realise the CONOPS and develop the common operating procedures for processing and utilizing the data items.

(e) Research and develop model-based '**Interfaces**' to enable the automation of data processing and information utilization.

(f) Develop and implement operational trial projects to verify and validate the interoperable elements and components.

(g) Articulate the outcomes of trial to develop reference models with reusable elements and components so as to minimise the redesign efforts of Members.

(h) Complete formal adoption of the reference models e.g. FIXM Extension into the ICAO documents.

8.14 Instead of a big bang implementation, the steps suggested above should be performed in an iterative manner, via forums and working groups among experts from members of APA-CDM/TF and ATFM/SG. The incremental approach has to bridge in-depth studies of integration/interoperation between A-CDM and ATFM as well as to foster close liaison for developing A-CDM and ATFM network operations in more collaborative manner.

CURRENT SITUATION

A-CDM Task Force Survey Outcome

Overview of Survey Results

9.1 The Survey Questionnaire was sent out to 39 States (including USA) and 2 SAR (Hong Kong, China and Macao, China). 15 APAC States/Administrations (Australia, Bhutan, China, Hong Kong China, Fiji, India, Japan, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Thailand, USA and Viet Nam) responded to Survey Questionnaire.

9.2 The percentage of States/Administrations responding to survey questionnaire was 38.5%.

9.3 At the time of the survey the APAC Seamless ATM Plan, Version 2.0, September 2016, included the expectation that all high-density aerodromes (aerodromes with more than 100,000 aircraft movements per annum) should operate an A-CDM system serving the Major Traffic Flow (MTF) and busy city pairs.

9.4 Based on 2015 ICAO data, the 51 busiest Asia/Pacific aerodromes were (Page 41 of APAC Seamless ATM Plan, Rev. 2.0 refers, in alphabetical order):

1. Australia (Sydney, Melbourne, Brisbane);
2. China (Beijing, Shanghai Pudong and Hong Jiao, Guangzhou, Hong Kong, Xi'an, Shenzhen, Chengdu, Kunming, Hangzhou, Chongqing, Xiamen, Wuhan, Zhengzhou, Changsha, Nanjing, Qingdao, Urumqi, Dalian, Guiyang, Tianjin, Haikou, Sanya);
3. India (New Delhi, Mumbai, Chennai, Bangalore);
4. Indonesia (Jakarta, Surabaya, Bali, Makassar);
5. Japan (Haneda, Narita, Fukuoka, Osaka, Sapporo, Naha);
6. Malaysia (Kuala Lumpur);
7. New Zealand (Auckland);
8. Philippines (Manila);
9. Republic of Korea (Incheon, Jeju, Gimpo);
10. Singapore (Changi);
11. Thailand (Suvarnabhumi, Don Mueang);
12. United States (Honolulu); and
13. Viet Nam (Ho Chi Minh, Hanoi).

9.5 The percentage of States/Administrations responding to survey questionnaire, where A-CDM was recommended to be implemented, was about 85%.

9.6 With the high percentage in response rate of approximately 85%, the survey was considered to be finalized.

9.7 A summary of A-CDM survey is presented in **Table 7** that includes respondents, what airports are part of the current implementation scope and by what year.

Important Notes

9.8 Bhutan and Pakistan have no plans for A-CDM as it is deemed by the States that their airports will not implement A-CDM. Therefore, they are not considered as part of the survey results.

9.9 Philippines indicated implementation of extended ATFM but not how that specifically relates to what airport/airports. Due to ambiguous replies to the survey questions, these replies are not included as part of the survey results.

9.10 Survey replies from USA were not included in the report as those airports are outside APAC Region.

9.11 The legend for the **Table 7** is as follows:

- A Year value of "0" indicates that no data was provided by the respondent
- Green marked airports indicates that implementation is completed.
- Yellow marked Administrations/airport indicates they are not included in the Survey results in this version of the document.

Table 7: Summary of A-CDM Survey (Updated at APA-CDM/TF/4)

Administration	Airport	Year Implemented/Planned
Australia	**Brisbane**	2019
	Sydney	2020
	Perth	2020
	Melbourne	2020
Bhutan	**No info**	0
China	**Kunming Changshui**	2014
	Beijing Capital	2017
	Shanghai Hongqiao	2013
	Shanghai Pudong	2016
	Chengdu Shuangliu	2017
	Guangzhou Baiyun	2016
	Xi'an Xianyang	2017
	Shenzhen Baoan	2016
Hong Kong, China	**HKIA**	2017
Fiji	**Nadi**	2018
India	**Bengaluru**	2013
	Delhi	2013
	Mumbai	2015
	Kolkata	2018 (APA-CDM/TF/4)
	Chennai	2018 (APA-CDM/TF/4)
	Shamshabad	0
	Jaipur	2019 (APA-CDM/TF/4)
	Ahmedabad	2019 (APA-CDM/TF/4)
	Trivandrum	2019 (APA-CDM/TF/4)
	Guwahati	2019 (APA-CDM/TF/4)
Japan	**Chitose (Sapporo)**	2018
	Narita	2020
	Haneda	2020
Malaysia	**Kuala Lumpur**	2021 (APA-CDM/TF/4)
New Zealand	**Wellington**	2015
	Auckland	2016
	Christchurch	2019
Pakistan	**No info**	0
Philippines	**Manila**	2022 (APA-CDM/TF/4)
Singapore	**Changi**	2016

Administration	Airport	Year Implemented/Planned
ROK	**Incheon**	2017
	Gimpo	2020 (APA-CDM/TF/4)
	Gimhae	2020 (APA-CDM/TF/4)
	Jeju	2020 (APA-CDM/TF/4)
Thailand	**Suvarnabhumi**	2020 (APA-CDM/TF/4)
	Don Muang	2020 (APA-CDM/TF/4)
Vietnam	**Tan Son Nhat**	2020
	Noi Bai	2020
	Da Nang	2021

Notable Issues

9.12 The implementation of A-CDM in the APAC region is moving forward and already up to date 16 airports have implemented A-CDM according to response from the member states. According to the survey, 16 more will implement A-CDM by the end of 2021. However, some respondents have indicated very aggressive time plans in relation to where they are in the process. Their responses indicate some underestimation of the complexity and time actually needed to implement A-CDM.

9.13 The responses to the survey indicate some areas where further investigations might be needed, or where more clear guidance material and also training would be of help. These areas are:

- **Relationship between the A-CDM conceptual elements and milestones**. These are discrepancies in the responses indicating that the implementation of milestones and their purpose might not be fully understood.

- **How to measure the success of an A-CDM implementation.** All respondents indicated very clear objectives related to implementation A-CDM but at the same time not all have established how to measure that these objectives are achieved – this holds true for some of the airport that have already implemented A-CDM as well.

- **Getting all stakeholders engaged as well as managing an A-CDM project**.

PERFORMANCE IMPROVEMENT PLAN

10.1 A-CDM-related performance expectations at A-CDM program airports are illustrated in **Table 8** to map with APAC Seamless ANS Plan and Regional Framework for Collaborative ATFM expectations.

10.2 APAC States/Administrations should consider performance expectation dates provided in the **Table 8** while planning for implementation of A-CDM at their airports.

Table 8 - A-CDM-related performance expectations mapped to relevant APAC Seamless ANS Plan and Regional Framework for Collaborative ATFM expectations						
GANP	**Seamless ANS Plan, V 3.0, Nov. 2019**		**Regional Framework for Collaborative ATFM**		**APA-CDM Implementation Plan (proposed)**	
ASBU	Performance Expectation	Timeframe	Performance Expectation	Timeframe	Performance Expectation	Timeframe
ACDM-B0/1: Airport CDM Information Sharing (ACIS) Description: This element represents the first collaboration step among stakeholders involved in aerodrome operations. It consists in the definition of common specific milestones for flight events occurring during surface operations. The stakeholders involved have to, based on accurate operational data, achieve the agreed milestones. Maturity level: Ready for implementation **ACDM-B0/2**: Integration with ATM Network Function Description: This element consists in feeding arrival information from the network into A-CDM and at the same time to coordinate specific departure milestones. The involved stakeholders have to, based on accurate operational data, achieve the agreed milestones. Maturity level: Ready for implementation	7.3 All international aerodromes should operate an A-CDM system for Airport CDM Information Sharing (ACIS) integrated with the ATM network function consistent with ACDM-B0/1 – 2 (Priority 1).	PARS Phase II (expected implementation by 07 November 2019)	7.17 ATFM, AMAN/DMAN and A-CDM systems should be integrated through the use of common fixes, terminology and communications protocols to ensure complementary operations. *FIXM version 3.0 or later, extended where necessary is the agreed format for exchange of ATFM information in the Asia/Pacific Region.*	Phase 1B 25 May 2017	1. Local A-CDM procedures, supported by systems supporting the exchange of TOBT and TSAT between aircraft operators and the ATC Control Tower, should be implemented	**Phase 1 – Local A-CDM** ***As soon as practicable, preferably before November 2020***
					2. All A-CDM Airports should establish variable taxi-times for all combinations of gate or apron and runway holding points	***As soon as practicable, preferably before November 2020***
					3. Where implemented, pre-departure sequencing procedures and systems should be integrated with A-CDM.	***As soon as practicable, preferably before November 2020***
			7.24 Tactical ATFM at ATFM Program Airports should be implemented using: i. Ground Delay Programs (CTOT); or ii. Minutes in trail (MINIT) or miles in trail (MIT) or other ATFM measures specified in ICAO Doc 9971 – *Manual for Collaborative ATFM*	Phase 1B, 25 May 2017	1. A-CDM and ATFM system should be integrated by: a) ATFM systems taking TOBT and/or TTOT into account when determining CTOT (if applicable); and b) A-CDM systems taking CTOT into account when determining TSAT;	**Phase 2 Domestic Integration** ***Preferably before November 2022***

Table 8 - A-CDM-related performance expectations mapped to relevant APAC Seamless ANS Plan and Regional Framework for Collaborative ATFM expectations						
GANP	**Seamless ANS Plan, V 3.0, Nov. 2019**		**Regional Framework for Collaborative ATFM**		**APA-CDM Implementation Plan (proposed)**	
ASBU	Performance Expectation	Timeframe	Performance Expectation	Timeframe	Performance Expectation	Timeframe
			7.25 All States should ensure that local ATC procedures and, where available, CDM processes facilitating compliance with received CTOT are implemented. *Note 1: At controlled aerodromes, CTOT compliance should be facilitated through the cooperation of the aircraft operator and the issuance of ATC clearances. As a minimum, CTOT should be made available to the relevant ATC tower and the aircraft operator;* *Note 2: For flights departing aerodromes where an ATC service is not provided, CTOT information should be made available to the aircraft operator and the first ATS unit providing services to the flight.* *Note 3: States planning to implement ground delay programs should ensure adequate time is provided for local procedure development and promulgation at aerodromes where CTOT will be applied.*		-	
			7.26 CTOT for individual aircraft should, where necessary, be revised, cancelled, suspended or de-suspended.	Phase 1B 25 May 2017	4. TSAT issued for individual aircraft should, where necessary, be revised.	**Phase 1 – Local A-CDM** ***Preferably before November 2020***
			Distributed multi-nodal ATFM information distribution capability utilizing FIXM version 3.0 (or	Phase 2, 8 November 2018	**N/A**	

Table 8 - A-CDM-related performance expectations mapped to relevant APAC Seamless ANS Plan and Regional Framework for Collaborative ATFM expectations						
GANP	**Seamless ANS Plan, V 3.0, Nov. 2019**		**Regional Framework for Collaborative ATFM**		**APA-CDM Implementation Plan (proposed)**	
ASBU	Performance Expectation	Timeframe	Performance Expectation	Timeframe	Performance Expectation	Timeframe
			later) should be implemented, including: i. Sharing of ADP and dynamically updated demand and capacity data for all ATFM program airports, and for en-route airspace supporting the busiest city pairs and high density major traffic flows; ii. Slot allocation information for all flights subject to ATFM programs, including as a minimum CTOT, CTO and CLDT information; iii. Authorized user functions for slot amendment, cancellation or suspension (ATFMU), and slot-swapping (aircraft operator and ATFMU); and iv. Automated slot compliance monitoring and reporting, supplemented where necessary by authorized inputs by ATFMU, ATSU or airspace operator.			
			Full interoperability of cross border ATFM, A-CDM, AMAN, DMAN, ATM automation and airspace user systems should be implemented, utilizing FIXM 3.0 (or later), to provide seamless gate-to-gate collaborative ATFM operations.	Phase 2, 8 November 2018	Exchange A-CDM information with Cross Border ATFM for seamless gate-to-gate collaborative ATFM operations	**Phase 3 – Cross-boundary network ATFM integration.**

Table 8 - A-CDM-related performance expectations mapped to relevant APAC Seamless ANS Plan and Regional Framework for Collaborative ATFM expectations						
GANP	**Seamless ANS Plan, V 3.0, Nov. 2019**		**Regional Framework for Collaborative ATFM**		**APA-CDM Implementation Plan (proposed)**	
ASBU	Performance Expectation	Timeframe	Performance Expectation	Timeframe	Performance Expectation	Timeframe
						Preferably before November 2025
			7.36 Ground Delay Programs utilizing CTOT should be applied to: i. aircraft destined for constrained ATFM Program Airports, that have not yet departed; and ii. aircraft planned to operate through constrained airspace where tactical ATFM measure CTO at RFIX or AFIX is in place, that have not yet departed.	Phase 2, 8 November 2018	**N/A.**	
ACDM-B1/1: Airport Operations Plan (AOP):	7.18 All international aerodromes should operate an A-CDM system integrated with the ATM network, and an AOP and where practicable an APOC consistent with ACDM-B1/1 – 2.	Seamless PARS Phase III (expected implementation by 03 November 2022)	-	-	Develop and implement collaborative Airport Operations Plan (AOP)	***Preferably before November 2023***
ACDM-B1/2: Airport Operations Centre (APOC)	7.18 All international aerodromes should operate an A-CDM system integrated with the ATM network, and an AOP and where practicable an APOC consistent with ACDM-B1/1 – 2.	Seamless PARS Phase III (expected implementation by 03 November 2022)			-	-

RESEARCH AND FUTURE DEVELOPMENT

The Evolution of A-CDM

11.1 A-CDM has its roots in Europe and is the foundation for many European SESAR concepts for use of better data and technology to make aircraft and airport operations more efficient. Wider potential for success lies in integrating the networks. Connectivity and data sharing amongst a constellation of A-CDM airports will ultimately deliver optimal performance. The wider benefits of A-CDM should be considered in addition to local enhancements.

11.2 The evolution of A-CDM, and the manner in which the implementation process is introduced throughout the world, should be given due consideration. The most replicated model of A-CDM is the European version, interfacing with EUROCONTROL. However, not all regions have such a centric ATM network, so the processes may be different in other regions. To assist in making the implementation of A-CDM more successful, it is recommended that a regional ATFM environment be established e.g. via a distributed multi-nodal ATFM network, which would enable a certain degree of harmonization and provide consistency for stakeholders.

11.3 One of the most important aspects of A-CDM from a global perspective is the architecture that interfaces airports with a central airspace management system. A model for exchanging information between A-CDM and ATFM should be kept in mind during A-CDM implementations.

11.4 The industry is seeing other facets of airspace management using A-CDM concepts to provide the required data to fulfil continuity between major traffic flows, and high density aerodromes. This will create other hybrid type A-CDM processes that are best suited for regional requirements. One such concept that has been developed in Southeast Asia is known as the Distributed Multi-Nodal ATFM Network. Some regional requirements like data exchange amongst different ATFM applications may require appropriate system design and adaptation, but the primary purpose remains to mitigate airborne flow constraints that contribute to overflow in ATC sector capacities, which result in unanticipated en-route delays.

11.5 As air traffic management evolves, and additional concepts are introduced by the industry, changes and adjustments to A-CDM may be required. This will most certainly contribute to the complexities of data exchange. However, the industry must not lose sight of harmonizing A-CDM.

A-CDM and ATFM in Asia/Pacific Region

Distributed Multi-Nodal ATFM and A-CDM

11.6 The third Meeting of the APANPIRG ATM Sub-Group (ATM/SG/3), held in Bangkok Thailand from 3 – 7 August 2015, endorsed *Asia/Pacific Framework for Collaborative Air Traffic Flow Management (The Framework)* and its companion document – *Asia/Pacific Regional Air Traffic Flow Management Concept of Operations (CONOPS)*. Both documents, aligned with *Doc 9971 Manual on Collaborative Air Traffic Flow Management (ATFM)*, provide guidance and a common regional framework for regional ATFM development and harmonization.

11.7 The core concept of *The Framework* is the Distributed Multi-Nodal ATFM Network, envisaging the regional cross-border ATFM as interconnected States and/or sub-regional groups operating in an interoperable, multi-FIRs, multi-States, cross-border collaborative ATFM network, using common information, terminology and communication protocols for information exchange and sharing.

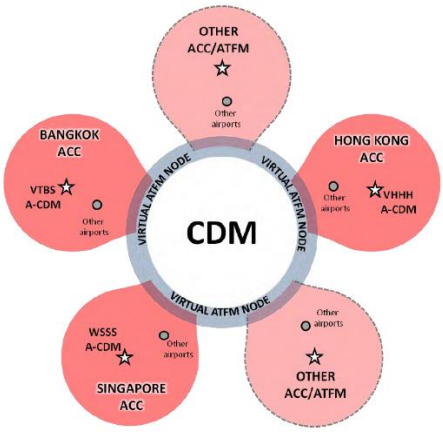

Figure 3 - Concept of A-CDM within a multi-nodal ATFN network

11.8 FIXM 3.0 (or later) was adopted as the agreed ATFM information exchange model. A minimum set of ATFM information was identified to be added into the FIXM Extension for ATFM information distribution and sharing in the region.

11.9 Based on *the Framework*, each State will develop ATFM capability according to its needs and requirements, and the overarching goal of seamless ATM across the Asia/Pacific Region. Under the concept of the Multi-Nodal ATFM Network, each State/Administration will form a node of the multi-nodal network, and should be led by an agreed ANSP as the "Node Leader".

11.10 Within an ATFM node, there may be a number of airport operators with access to the Node arranged by the Node Leader, facilitating their participation in the cross-border ATFM initiatives, while the Node Leader should ensure the Node is ready and able to participate in the Regional Cross Border ATFM process.

11.11 The A-CDM allows the exchange of information for inbound and outbound flights and links the local A-CDM process to ATFM services, strengthening the link between the airport and ATFM services. The ATFM will be benefited from the A-CDM information regarding the flights' departure while the A-CDM system will also be benefited from the information of the arriving flights from the ATFM system. The information exchange between A-CDM and ATFM will further improve the predictability.

11.12 In line with *the Framework*, the A-CDM development, implementation and integration with ATFM/ATM within a Node should be coordinated between the airport authorities and the Node Leader.

11.13 The adoption of the communication protocols for A-CDM information exchange depends on the scope of the communication, the agreed communication protocols stipulated in *the Framework* should be adopted if the communication is for cross-border, while any protocols considered appropriate by the stakeholders within a Node of the Multi-Nodal ATFM Network could be adopted if the communication is within a Node. The Aviation Information Data Exchange (AIDX), for example, is the most commonly used information exchange format for A-CDM application in some regions, and could be one of the optional formats for the information exchange between A-CDM and the Node in the Asia/Pacific region.

11.14 The A-CDM development in parallel with the ATFM development in the region required the identification of the minimum set of A-CDM data attributes for local A-CDM implementation, as well as the data attributes necessary for the integration between A-CDM and ATFM.

The Multi-Nodal ATFM Operational Trial Project

11.15 The Multi-Nodal ATFM Operational Trial Project was evolved from a Tripartite CDM project by Hong Kong China, Singapore and Thailand in 2012. Up to now, there are 11 States/Administrations participated in the Project.

11.16 The Project was planned to be executed in 3 Phases. In Phase I, which was completed in 2016, the Project focused on the airport capacity and demand balancing by using the Ground Delay Program (GDP) as the ATFM measure. In Phase II, which has been started in late 2017, the airspace capacity and demand balancing has been taken into consideration. The Project expected to be integrated into the global ATFM network in its Phase III.

North Asia Regional ATFM Harmonization Group (NARAHG)

11.17 The Northeast Asia Regional ATFM Harmonization Group (NARAHG) was jointly established by China, Japan and the Republic of Korea in 2014. In 2015, the NARAHG launched a Project to develop the Cross Region ATFM Collaborative Platform (CRACP).

11.18 The CRACP is one of the solutions for ATFM information exchange in cross-border ATFM networks. A desktop computer with CRACP application software forms a CRACP Terminal, which is installed in end-user's ATFM unit and is networked through Internet as in Stage 1 of the Project. The information exchanged between CRACP Terminals covers those required by ATFM/CDM process in the ATFM phases of pre-tactical, tactical and Post Operation Analysis.

11.19 The A-CDM systems, developed by China, Japan and ROK, respectively, have no connection with the CRACP at the moment.

FIXM version 4.1 Extension Data Attributes

11.20 FIXM version 4.1 was released in December 2017 and the validation of FIXM version 4.1 Extension was completed in April 2018.

11.21 Based on the operational scenarios developed for the SWIM in ASEAN Demonstration, additional data attributes required to be exchanged among stakeholders involving in A-CDM operation and to support the integration between ATFM and A-CDM were identified. Considering that these data attributes are flight-specific, FIXM would be the appropriate information exchange model to support the aforementioned operations. Consequently, the FIXM version 4.1 Extension was further developed to include these data attributes.

11.22 **Table 9** shows the list of data attributes currently included in the FIXM version 4.1 Extension developed.

Table 9: FIXM version 4.1 Extension Data Attributes

Estimated	Calculated	Target	Actual
		TOBT	AOBT
		TSAT	
	CTOT	TTOT	
ETO	CTO		ATO
ELDT	CLDT		

Other	
Trajectory	**Aircraft Track**
• ETO • CTO • ATO • Flight level or Altitude • Waypoint	• Ground speed • Bearing • Flight level or Altitude • Position (Designator or Latitude/Longitude or Relative Point) • Time over position

11.23 A system-to-system interconnection test between Singapore and Thailand to validate the exchange of developed FIXM version 4.1 Extension was successfully conducted in March/April 2019 using the Flight Information Update use case, involving the distribution of ATFM and A-CDM related data attributes, designed based on the AMQP (Advanced Message Queuing Protocol) messaging protocol.

Participation of MET organisations in CDM

Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to support Air Traffic Management Operations

11.24 An ad-hoc group under ICAO APAC Meteorological Requirements Task Force (MET/R TF) developed the *Asia/Pacific Regional Guidance for Tailored Meteorological Information and Services to support Air Traffic Management Operations*. This guidance document, approved by APANPIRG/29, is available on the ICAO Asia/Pacific Regional Office eDocuments web-page at:

https://www.icao.int/APAC/Pages/eDocs.aspx

11.25 This guidance aims to foster States' implementation and enhancement of meteorological (MET) information and services for air traffic management within the Asia/Pacific region and captures most of the necessary processes from preparatory to operational phases.

Participation of MET organisations in CDM

11.26 MET CDM is a process involving the development within aeronautical meteorological services of an understanding of the effects of weather on ATM to support an accurate prediction of arrival/departure rates and en-route airspace capacity and configuration. The expected role of a MET organization in CDM is to provide necessary meteorological information at and around relevant aerodromes and air routes, and within relevant airspace, in a timely manner. Rapid identification of the possible cause of adverse weather conditions affecting ATM operations, and airport or airspace capacity, allows both ATM and MET organizations to take immediate action in a collaborative manner to mitigate the impact.

11.27 Future development of A-CDM should include development of the capability for MET organizations to actively participate in A-CDM processes, including the collaborative information exchange processes to support timely and relevant MET information supporting A-CDM.

APPENDICES

Appendix 1 – Relationships between A-CDM and ASBU Modules

Introduction

1. This appendix supplements the technical description of "Interoperability of A-CDM with Other Systems" to facilitate the formulation and development of the Implementation Phase of A-CDM and provides links to full details of Aviation System Block Upgrades (ASBU) elements in the ICAO document "Aviation System Block Upgrades – The Framework for Global Harmonization".

A-CDM in the Global Aviation Network

2. In the global aviation network, each airport is a node serving other aviation entities to achieve the safe, secure and efficient interoperability of Air Traffic Management (ATM) systems as a whole. The ASBU framework underpins and realizes such principle with a systems engineering approach to set the target implementation time frames for sets of operational improvements including Airport Collaborative Decision Making (A-CDM), Air Traffic Flow Management (ATFM), and various enablers of ATM efficiency and effectiveness.

3. The ASBU elements in ACDM, combines and reconciles efforts of aviation entities in-and-around an airport to achieve an effective and efficient turnaround process. This process involves stakeholders, operational services, data points and algorithms that are instrumental to successful turnaround of an air aircraft. The performance of participating flights is usually measured by their compliance with the 'milestones' - the progress of a flight from the initial planning to the take off. The prime aim is to get the aircraft airborne as quick as reasonably practicable.

4. As the upgrade will pave the way towards a cross-border network of collaborative ATFM that the node-based decision making process at the airport will be enhanced by sharing up-to-date relevant information and by taking into account the preferences, available resources and the requirements of the stakeholders at the airport. With this advancement in interoperability, the collaborative Airport Operations Planning (AOP) and Airport Operations Centre (APOC) will enhance the planning and management of the Airport operation and allow full integration with ATM.

A-CDM with Air Traffic Flow Management

5. According to the ICAO Standards and Recommended Practices (SARPs) Annex 11 Chapter 1: "ATFM has the objective of ATFM contributing to a safe, orderly and expeditious flow of air traffic by ensuring the air traffic control capacity is utilized to the maximum extent possible, and that the traffic volume is compatible with the capacities declared by the appropriate Air Traffic Services authority."

6. Building up from ASBU NOPS elements, ATFM is used to manage the flow of traffic in a way that minimizes delays and maximizes the use of the entire airspace. Collaborative ATFM can regulate traffic flows involving departure slots, smooth flows and manage rates of entry into airspace along traffic axes, manage arrival time at waypoints or flight information region (FIR)/sector boundaries and re-route traffic to avoid saturated areas.

7. With the improvements under ASBU NOPS elements, ATFM can be integrated with airspace organization and management (AOM) to accommodate the use of free routings. The ATFM algorithms and techniques can be enhanced to:

(a) regulate traffic flows involving departure slots, smooth flows and
(b) manage rates of entry into airspace along traffic axes,

(c) manage arrival time at waypoints, flight information region or sector boundaries,
(d) reroute traffic to avoid saturated areas, and
(e) address system disruptions including crisis caused by human or natural phenomena.

8. According to the ICAO Manual on Collaborative Air Traffic Flow Management (Doc 9971), it is a general rule that "ATFM is needed whenever airspace users are faced with constraints on their operations, and in areas where traffic flows are significant".

9. However, as limited by the current capabilities of most ATFM facilities, the ATFM process is commonly applied to regulating traffic flows (or balancing demand of airspace users) by means of ground delay program, level capping, airspace flow program, minimum departure, miles in trial, minutes in trial, etc. Some of these ATFM measures may counteract the benefits of the A-CDM turnaround process. In the worst case, passengers are delayed inside fuselage the aircraft has been off-block to taxiway or is airborne amid 'flow control'.

10. In a nut shell, when delays of flight operations cannot be avoided, collaborative decisions must be made orderly and timely to balance the impacts on airports and airspaces for the sake of all aviation entities and stakeholders in an open and fair manner.

A-CDM with System Wide Information Management

11. The ASBU SWIM elements will create the aviation intranet to enable node-based A-CDM sharing up-to-date relevant information with other aviation entities including domestic, cross-border and regional AFTM units so that the preferences, available resources and the requirements of the stakeholders at the airport can be taken into account with a process of collaborative decision-making (CDM) by all parties concerned. The implementation of system-wide information management (SWIM) services provides the infrastructure and essential applications based on standard data models and internet-based protocols to maximize interoperability when interfacing systems for A-CDM, ATFM and other ATM functions.

12. The goal of SWIM is to realize a global network of ATM nodes, including the aircraft, providing or using information. Aircraft operators with operational control centre facilities will share information while the individual user will be able to do the same using other applications. The support provided by the ATM network will in all cases be tailored to the needs of the user concerned, e.g. A-CDM and ATFM.

13. In the Asia Pacific Regions, the current implementation of the Common aeRonautical Virtual Private Network (CRV) enables a cross-border, high-speed and secured communication network, which serves as a key enabler for implementation of a number of seamless ATM initiatives. The implementation and operation of CRV network is overseen by the ICAO CRV Operations Group (CRV/OG), while several civil aviation authorities are working on the data implementation and SWIM over CRV.

A-CDM with Cross-Exchange of Structured Information

14. Relevant ASBU element(s) addresses the need for information integration and supports a new concept of ATM information exchange fostering access via the SWIM services. This includes the cross-exchange of common elements with the initial introduction of the ATM Information Reference Model (AIRM), which integrates and consolidates ATM information in a transversal way. Key exchange models include:

(a) Flight Information Exchange Model (FIXM) for flight and flow information and aircraft performance-related data,

(b) ICAO Meteorological Information Exchange Model (IWXXM) for information related to weather, and

(c) Aeronautical Information Exchange Model (AIXM) for digital format of the aeronautical information that is in the scope of Aeronautical Information Services (AIS) in accordance with the ICAO SARPs Annex 15.

15. The data interoperability between A-CDM and ATFM can be assured by the use of FIXM found on the concept of flight object and the widely adopted eXtensible Markup Language (XML). This common model of structured information for flight object will effectively enable ground-ground exchanges before departure, under relevant ASBU element(s), such as FICE.

16. Coordination with SWIM and ATFM are being made for inclusion of A-CDM attributes in the FIXM Extensions tailored for airports in the Asia Pacific Region.

A-CDM under Network-centric Collaborative Decision-Making

17. Merging the synchronized outcomes from a range of ASBU elements, SWIM would be required to support the implementation of collaborative decision-making (CDM).

18. By SWIM-enabled applications of CDM for more complex situations, ATM will be able to offer/delegate to the users the optimization of solutions to flow problems. It will let the user community take care of competition and their own priorities in situation when the network or its nodes (airports, sector) does no longer provide actual capacity commensurate with the satisfaction of the schedules.

Appendix 2 – Use Cases for Interoperability of A-CDM with Other Systems

Introduction

1. This appendix provides use cases to highlight ways that A-CDM can be implemented as a local system serving an airport as well as a node with adequate interfacing capabilities for integration and interoperation with air traffic flow management (ATFM) and other systems of the cross-border net-centric airspace.

2. In the context of System Wide Information Management (SWIM), "interoperability" means the ability of information and communication technology (ICT) systems and of the business processes they support to exchange data and to enable the sharing of information and knowledge. The interoperability of A-CDM can range from close integration of specialized computer systems in-and-around an airport implementation and loose coupling of service-based automation systems in a regional net-centric airspace.

3. To achieve effective and efficient sharing of information, a user interface is needed to allow quick and easy viewing and input of information taking into consideration heavy airport and air traffic control (ATC) workload scenarios.

4. To facilitate automated interactions, a system interface is needed to demark a shared boundary across which two or more of these different systems and their software applications to communicate, exchange data, and use the information that has been exchanged.

5. The interfacing capability of an A-CDM implementation can be categorized by the following use cases and options according to their degree of integration and spectrum of interoperability.

Use Case 1 - Interfaces of Standalone A-CDM Platform

6. In an operation without A-CDM, information about key airside processes is typically sourced from multiple different systems leading to gaps and inefficiencies. With A-CDM, a common platform collates data from the airport and ATC systems and presents it to operational stakeholders in a format that helps them make more informed decisions.

7. In general, an A-CDM web portal can be used as a specially designed website that brings information from diverse sources in a uniform way so that stakeholders will access information about the key airside processes through the web portal. It is then incumbent on the stakeholders themselves to update their plans, resourcing decisions and working practices to make best use of the information and optimize performance accordingly.

8. The web portal essentially facilitates a common milestone process that corresponds to significant events across each of the airside processes to enable and ensure a level of consistency across the airport and its airside entities that are adopting an A-CDM information sharing function. The successful completion of each milestone triggers operational decisions for stakeholders concerned with future events in the process.

9. In addition to the web portal as user interface, an A-CDM platform may offer application programming interface (API) for other systems to automatically receive and send A-CDM information. These system interfaces may have an inter-system messaging capability based on proprietary communications protocols or various de facto engineering standards.

10. Through its system interfaces, an A-CDM platform can extract process-information about airport and flight operations. Then, the A-CDM algorithms can combine and evaluate the information collected. With both the user and system interfaces, the A-CDM will share the updated information and milestones (including pre-departure sequence and related estimated times) to optimize the flow of outbound traffic.

11. Options of interfacing automated systems for A-CDM may include:

(a) Dedicated data links may be used between the A-CDM platform and each of its partnering systems for conveying milestones and messaging on one-to-one basis.

(b) The A-CDM platform may be connected to the Aeronautical Fixed Telecommunication Network (AFTN) for sharing information with destination airports, air traffic control units, air traffic flow management units and the wider air transport network.

(c) A cloud-based solution may be used to enable economies of scale by providing a common platform to multiple airports as a single A-CDM implementation and link the A-CDM implementation to other systems with a great range of interoperability allowing access by service-oriented APIs, web service, and the like based on open standards and industry good practices.

12. The deployment of a standalone A-CDM platform can reduce the exposure of existing critical systems like the Airport Operations Database (AODB) and Flight Data Processing System (FDPS) to the risks of corruption when introducing the new A-CDM. Moreover, existing systems can continue to follow their specific roadmaps for upgrade or replacement with minimum dependencies on the evolving A-CDM functions.

13. However, the lack of network-wide interoperability cannot automatically validate information in multiple disparate systems, while manual cross-checks are required to identify and resolve discrepancies on each system concerned. With more systems interacting with a standalone A-CDM implementation, the risks of errors and delays in the net-centric CDM process will be increased.

Use Case 2 - Net-centric Interfaces of A-CDM

14. Under the initiatives of Aviation System Block Upgrades (ASBU), SWIM suggests the use of service-oriented architecture (SOA) to realize the concept of information-centric and net-centric air traffic management (ATM) operations. As one of the prime objectives of net-centric CDM, airport integration with ATFM Unit shares more precise and detailed information about airside processes and an optimized departure sequence by taking into account both aerodrome and airspace slots as well as other prevailing operational circumstances such as weather changes and military aviation activities.

15. Several options for network connectivity and system interoperability are available for interfacing A-CDM via ATFM into the global aviation network.

16. An A-CDM platform may connect to an ATFM Unit via a dedicated AFTN connection, but the interoperability between A-CDM and ATFM is constrained by the text-based communications characteristics of AFTN.

17. An A-CDM platform may connect to an ATFM Unit via a peer-to-peer data link that can support internet protocol based (IP-based) communications according to the interface control document (ICD) agreed between the A-CDM platform and the ATFM Unit. The ATFM Unit will act a broker or agency to optimize the flow of air traffic in and out the airports, which participate in the A-CDM platform. The interface between A-CDM and ATFM may use communication protocols, which

are different from that of the global aviation network, so the ATFM Unit has to provide data conversion as well as align interactions between network actors.

18. The Unified Modeling Language (UML), as a developmental modeling language, can be used to provide a standard way for visualizing the design of system interfaces for SWIM-enabled applications as well as showing the structure of the data to be exchanged.

19. The use of Flight Information eXchange Model (FIXM), which is a UML model, will ensure both syntactic interoperability and semantic interoperability.

20. For specifying data formats and communication protocols, eXtensible Markup Language (XML) or Structured Query Language (SQL) standards are among the tools of syntactic interoperability. These tools are also useful for lower-level data formats, such as ensuring alphabetical characters are stored in a same variation of ASCII or a Unicode format (for English or international text) in all the communicating systems including ATS Messaging System (AMHS).

21. Beyond the ability of two or more computer systems to exchange information, semantic interoperability is the ability to automatically interpret the information exchanged meaningfully and accurately in order to produce useful outcomes as defined by the end users of both systems. To achieve semantic interoperability, both A-CDM and ATFM must refer to a common information exchange model, such as FIXM. Based on unambiguously defined content in all information exchange requests, what is sent from donor/owner is the same as what is understood at the requester/receptor.

22. Other open standards are expected to be applied at all levels of the SWIM framework, which include the World Wide Web Consortium (W3C) specifications (World Wide Web Consortium (W3C), 2013) and the standards for network layer exchange.

23. An A-CDM platform may connect to an ATFM Unit based on the implementation specifications of SWIM which may be defined on a local, sub-regional, regional and/or global scale conforming to open standards. The A-CDM milestones, together with process information for improving the milestones and related estimated times, are exchanged via the SWIM infrastructure based on information management standards. The seamless interoperable data exchange and services will benefit the global aviation network as a whole.

Use Case 3 - A-CDM Interfaces for Cross-border ATFM

24. In practice, an A-CDM implementation should establish a roadmap for maintaining and improving its interfacing capability based on the most cost-effective solutions at the time to serve its users and stakeholders. A system-view approach with reference to the above options and the ICAO ASBU roadmap could be a reasonable choice.

25. Under the systems view, A-CDM can be implemented as a specific application of CDM in the airport environment and ATFM facilities are being developed in an ecosystem with a cross-border network of many advanced, legacy and aged systems that airports are physical nodes inside virtual ATFM nodes on the network. An example of multi-nodal ATFM network, as illustrated in Figure A2-1, is being developed for the Southeast Asian sub-region and its adjacent Flight Information Regions (FIRs).

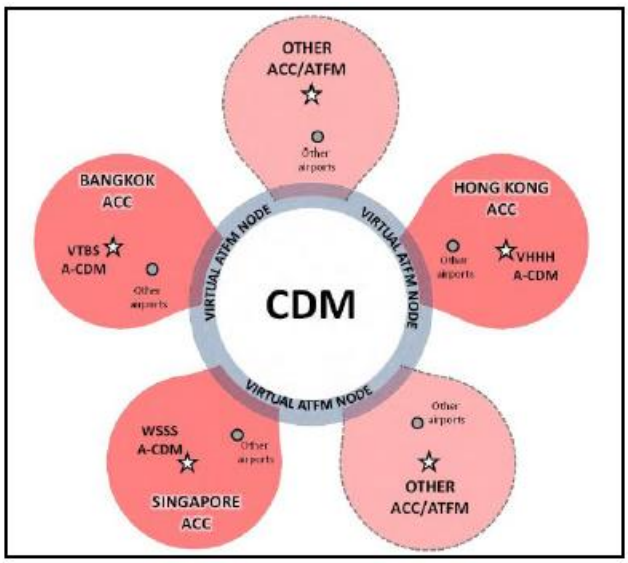

Figure A2-1 - Concept of A-CDM within a multi-nodal ATFM network

26. A mature ATFM network should provide a platform for airport operators and air traffic management units to collaboratively apply the most effective and efficient ATFM measures with considerations of the A-CDM milestones in a timely manner. One example would be the use of Calculated Take-Off Time (CTOT) from BO-NOPS (ATFM) and various milestones from B0-ACDM e.g. Target Off-Block Time (TOBT) and Target Start-up Approval Time (TSAT).

27. Targeting a common goal through the systems view, the systems engineering (an interdisciplinary field of engineering and engineering management) should be applied to holistically tackle both technical and operational complexities of A-CDM, in particular when A-CDM being involved in cross-border ATFM. Data exchange schemes in compliance with FIXM and SWIM would be part of the practical solutions. Service orientation is a means for integration across diverse systems. Ultimately, the silo effect caused by islands of A-CDM and ATFM systems can be eliminated.

28. System-wide predictability and situation awareness of air traffic will be the fruit results from interoperable A-CDM and ATFM based on common data models, i.e. FIXM. In long run, the continuous improvement of predictability based on the concepts and tools of data analytics will not only be useful for planning, strategic and pre-tactical phases of AFTM but also help accurate decision making for operations related to A-CDM and the tactical phase of ATFM. The roles and interactions for integrated A-CDM and ATFM is summarized in **Table A2-1**.

Table A2-1: A-CDM roles within the ATFM Operational Phases

	Planning	Strategic	Pre-Tactical	Tactical	Post-Ops
Time Frame	Continual	< 6 months > 1 day	1 day prior	Day of operations	Day After
ATFM Role	Strategic ATFM planning	Strategic DCB planning	AFTM Daily Coordination and Next Day Planning	Tactical ATFM	Post-Ops Analysis
ATC Role				Tactical ATC	
A-CDM Role			A-CDM Planning	A-CDM Operations	A-CDM Performance Analysis

29. With a view to delivering both the airport-based and network-based roles/functions, SWIM-compliant "enterprise services" can be applied to organizing distributed resources into an integrated solution that breaks down information silos and maximizes business agility. The service-oriented nature of SWIM modularizes ICT resources, creating the loosely coupled business processes of A-CDM and ATFM that integrate information across net-centric systems.

30. Being mutually dependent, a well-designed service-oriented architecture critically relies on the availability of business process solutions that are relatively free from the constraints of the underlying ICT infrastructure, because this enables the greater agility that businesses are seeking.

31. An SWIM-enabled application provides end users with more accurate and comprehensive information and insight into processes. It also offers the flexibility to access the service in the most suitable form and presentation factor, whether through the web browser or through a rich client. Dynamic applications are what enable businesses to improve and automate manual tasks, to realize a consistent view of customers and partner relations, and to orchestrate business processes that comply with internal mandates and external regulations.

32. Although SWIM is the external enabler entity of ATM and the benefits of SWIM arise from the end-user applications that make use of it and not SWIM itself, it can bring benefits by allowing end-user applications from the simple to the most complicated to make full use of the complete ATM data. For a simple start on local scale to interface an A-CDM platform with ATFM, existing infrastructures built on open standards can usually be reused without great changes, although some harmonization issues will need to be addressed.

33. To institute SWIM as "enterprise services", systems engineering can help an A-CDM implementation to design and manage complex systems over their life cycles. The systems engineering process begins by discovering the real problems that need to be resolved, and identifying the most probable or highest impact failures that can occur – systems engineering involves finding solutions to these problems across the interdisciplinary domains of ATM. The outcome of such efforts will be an engineered system for integrated A-CDM and ATFM with a combination of SWIM-enabled components that work in synergy to collectively perform the net-centric CDM.

Appendix 3 - Examples of A-CDM guides, AIP Supplement, AIC for notification of A-CDM operational trial / implementation

Note:- Examples are posted in ICAO APAC Website e-Documents and can be accessed at

https://www.icao.int/APAC/Pages/eDocs.aspx

Appendix 4 - References

1. Manual on Collaborative Air Traffic Flow Management (Doc 9971), Third Edition, 2018

2. EUROCONTROL A-CDM Implementation Manual, Version 5, March 2017

3. Airport Collaborative Decision-Making: Optimisation through Collaboration, CANSO

4. IATA Recommendations for A-CDM Implementation

DRAFT Terms of Reference

AIR TRAFFIC FLOW MANAGEMENT STEERING GROUP (ATFM/SG)

1. Having considered relevant documents such as the *Manual on Collaborative Air Traffic Flow Management* (Doc 9971), regional air traffic data and the Asia/Pacific Region city pairs and associated airspace and ATS routes and aerodromes experiencing the most significant traffic demand, and noting the Asia/Pacific Seamless ATM Plan provisions for structural airspace capacity increasing measures, develop an Asia/Pacific Regional ATFM Framework which addresses ATFM implementation and ATFM operational issues in the Asia/Pacific Region;

2. Identify, research and recommend appropriate guidance regarding:

   a. capacity assessment and adjustment mechanisms;

   b. regular review for all aerodromes and ATC sectors where traffic demand is expected to reach capacity, or is resulting in traffic congestion;

   c. mechanisms for ATFM data gathering, collation and sharing between States, International Organizations and ICAO, which may include;

      i. capacity assessments, including factors affecting capacity such as special use airspace status, runway closures and weather information;

      ii. traffic demand information which may include flight schedules, flight plan data, repetitive flight plan data as well as associated surveillance updates of flight status; and

      iii. ATFM Daily Plan;

   d. compliance by airspace and aerodrome users with ATFM and A-CDM measures; and

   e. any other guidance relevant to the Regional ATFM Framework and Asia/Pacific A-CDM Implementation Plan.

3. Maintain an overview of CDM/ATFM and A-CDM programs being conducted within the Region, with a view to facilitating their coordination and alignment, and to promote;

   a. harmonized procedures;

   b. Implementation of the performance expectations of the Regional ATFM Framework and Asia/Pacific A-CDM Implementation Plan;

   c. Interoperability of A-CDM with ATFM

4. Review the effectiveness of existing and planned ATFM and A-CDM programs in the Asia and Pacific Region, and make specific recommendations ~~regarding ATFM~~, including any adjacent airspace affecting the Asia and Pacific Regions, and research and recommend appropriate mechanisms for the on-going review of such programs.

5. The Group coordinates closely with other relevant bodies such as ~~the Airport Collaborative Decision Making Task Force (APA CDM/TF),~~ Airport Operations and Planning Sub-Group, the Meteorological Requirements Working Group (MET R/ WG and System-Wide Information Management Task Force (SWIM/TF).

6. The Group reports to the ATM Sub-Group.

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DRAFT

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA PACIFIC GUIDANCE FOR ESTABLISHMENT OF NATIONAL PROCEDURE FOR RECORDING AND REPORTING WILDLIFE STRIKES TO AIRCRAFT

First Edition, 2 July 2021

This Guidance Material was developed by the AP-WHM/WG and approved by the AOP/SG/5 Meeting and published by ICAO Asia and Pacific Office, Bangkok

RECORD OF AMENDMENTS

AMENDMENTS				AMENDMENTS			
No.	Date applicable	Date entered	Entered by	No.	Date applicable	Date entered	Entered by

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ACRONYMS AND ABBREVIATIONS

ANSP	Air Navigation Service Providers
APAC	Asia and Pacific
ATC	Air Traffic Controllers
IBIS	ICAO Bird Strike Information System
DNA	Deoxyribonucleic Acid
PANS	Procedures for Air Navigations
WHM	Wildlife Hazard Management
WHMP	Wildlife Hazard Management Programme
……	……

1. INTRODUCTION

1.1 The presence of wildlife on, or in the vicinity of an aerodrome poses a serious threat to aircraft operational safety.

1.2 In accordance with 9.4.1 of the ICAO Annex 14 Aerodromes, Volume I (Note, 9.4.1 and 9.4.2) Aerodrome Design and Operations, the wildlife strike hazard on, or in the vicinity of, an aerodrome shall be assessed through:

a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft;

b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and

c) an ongoing evaluation of the wildlife hazard by competent personnel.

1.3 Furthermore, the wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database (9.4.2 of ICAO Annex 14 Aerodromes, Volume I Aerodrome Design and Operations refers).

1.4 PANS –Aerodrome 6.3.1 (page II-6-2) states an effective Wildlife Hazard Management Programme (WHMP) depends on accurate and reliable data. Reviewing and analysing wildlife strikes and wildlife observations will help quantify avian hazards at the aerodrome and its vicinity and indicate the effectiveness of current wildlife strike prevention methods.

1.5 Generally, the more information that is recorded about a wildlife strike incident the better. As a minimum, the data required on the ICAO wildlife strike reporting form should be collected as fully as possible. If some data items are not available (e.g. altitude of strike) then as much information as possible should be collected and due account taken of the missing data during subsequent analyses. All wildlife hazard management programs need to be monitored to see if they are working effectively and whether they need to be modified, extended or improved. The only effective way to do this is by collecting data on the strikes including at the aerodrome concerned. Other measures, for example counting the wildlife on the airside, provide useful additional information, but are not a direct measure of the strike risk at the aerodrome.

1.6 All strikes should be reported, whether or not they cause damage to the aircraft and report whatever wildlife species was involved. It is important that airport managers do not penalise staff for reporting wildlife strikes. Even though strikes to large jet airliners from small species such as swallows or sparrow-sized birds are unlikely to cause significant damage to an aircraft, staff should report them.

1.7 Similarly, the total number of strikes at an aerodrome should never be used as a measure of strike risk or of the performance of the wildlife controllers. Staff must be encouraged to report all sightings and strikes of wildlife. Collection of information on wildlife around the 13 km range refer to (6.3.5.2 of PANS Aerodromes (page II – 6-4) from the aerodrome reference point is of utmost importance and relevance to wildlife hazard management. The main risk arises from strikes with large species, especially birds that form flocks. A risk assessment process that combines potential strike frequency with likely severity needs to be adopted to properly assess the risk. Such a process cannot work effectively unless all strikes are reported.

1.8 A properly trained and equipped wildlife controller should be present on the airfield for at least 15 minutes prior to any aircraft departure or arrival. Thus, if aircraft are landing or taking of at intervals of less than 15 minutes there should be a continuous presence on the airfield throughout daylight hours. The controller should not be required to undertake any duties other than wildlife control during this time. Note that for aerodromes with infrequent aircraft

movements, 15 minutes may not be long enough to disperse all hazardous wildlife from the vicinity of the runway. In this case the controller should be deployed sufficiently in advance of the aircraft movement to allow full dispersal to be achieved.

1.9 At night, active runways and taxiways should be checked for the presence of wildlife at regular intervals and the dispersal action taken as needed.

2. SCOPE AND PURPOSE OF THE DOCUMENT

2.1 Purpose of the Document

2.1.1 The purpose of this document is to provide guidance to regulators, aerodrome operators, aircraft operators and Air Navigation Service Providers (Air Traffic Controllers) to fulfil the requirements stipulated by ICAO Annex 14 Volume I as described in paragraphs 1.2 and 1.3 above including the materials that are not provided in PANS-Aerodromes (Doc 9981) and Airport Services Manual (Doc 9137), Part 3 – Wildlife Hazard Management and Annex 19 Safety Management.

3. RECORDING WILDLIFE STRIKES

3.1 Record all suspected and confirmed strikes

3.1.1 As time progresses and traffic numbers increase, aircraft manufacturers use quieter aircraft that are larger in size and while wildlife populations increase. Accordingly, greater effort is required to control and monitor wildlife activities on and in the vicinity of aerodromes. Every strike must be reported to the relevant authorities, actions taken and communicated to all relevant stakeholders (Annex 14, Volume I 9.4.1 b) & 9.4.2 refer).

3.2 Record all strikes reported by Pilot and ATC irrespective of ground confirmation

3.2.1 Aerodrome operators should ensure all strikes reported by airlines/pilots and ATC are logged. In this sense, aerodromes should consider the adoption of smart devices to collate data onto a robust system capable of easy data access and ability to draw speedy conclusions with the help of analytical tools.

3.2.2 The cost of downtime for inspection and repair of aircraft following wildlife damage or suspected wildlife damage is significant. The additional costs and disruption as a result of aborted flights, rescheduling of aircraft passengers and air cargo, transfer of passengers to alternative means of transport, overnight accommodation at the expense of the aircraft operator and the deleterious effects on connecting flight schedules that can be significant and damaging to airline operating budgets and the passenger experience which are also major factors in the cost of a bird strike. Therefore, suspected strikes must be treated with greater significance.

3.3 Report all carcass on the runway as suspected strikes

3.3.1 Trained and competent staff who should be able to detect and record the presence of wildlife and assess the wildlife hazard and expel hazardous wildlife by using active/passive measures or interventions. It is recommended that the training syllabus for aerodrome staff engaged in wildlife control activities include an element of ecology and biology knowledge, to enable them to make reliable and accurate identifications of wildlife both from observations and post-strike during the collection and analysis of wildlife remains. The management of unidentifiable remains/carcass (including blood smears on aircraft components) should also be addressed in the management program and sent to relevant organizations for deoxyribonucleic acid (DNA) analysis.

4. STANDARD SPECIES NOMENCLATURE ACROSS SPECTRUM FOR REPORTING PURPOSES

4.1 Wildlife species vary greatly across the Asia and Pacific (APAC) Region. Even within a given area, there can at times be several 'common' names for a particular species and so it's important to set up a wildlife library of standard names for all wildlife species.

5. STANDARD FORM FOR MONITORING AND RECORDING OF WILDLIFE ACTIVITY

5.1 Ideally, aerodrome wildlife controllers should record the following at least every 30 minutes (if air traffic is sufficiently infrequent that wildlife patrols are more than 30 minutes apart, an entry should be made for each patrol carried out): however patrols will depend and vary on the number of movements, and surrounding habitat. For example, if there has been frequency of rain which might significantly increase presence of insects in the airfield which will lead to more wildlife activity. In such instance's patrols must be customized accordingly.

i) Areas of the aerodrome patrolled,

ii) Numbers, location and species of wildlife seen,

iii) Action taken to disperse the wildlife, and

iv) Results of the action.

5.2 More general information such as the name of the wildlife controller on duty, time on and off duty, weather conditions etc. should be recorded at the start of a duty period. Refer to the standard form below with recommended fields.

5.3 A standard form for monitoring and recording of wildlife activity should be developed. A suggested set of fields should include the below Additional fields which are relevant to aerodromes can be added.

i) **General Information:**

1. Date of Recording
2. Time of Activity
3. Zone on aerodrome where activity was spotted
4. Sky Condition when Activity is noted
5. Wind Direction at time of activity
6. Weather Condition at time of activity
7. Grid number (if aerodrome grid map is Available)
8. Previous 24 hrs. weather conditions (like rain, or hail)

ii) **Wildlife Related**

1. Name of Wildlife Species
2. Number of the Species Observed
3. Activity Species is doing at time of observation
4. Altitude at which species was observed
5. Direction of flight of species (if relevant)
6. Start Time of Activity

7. End Time of Activity
8. Dispersal required
9. Type of method used for dispersal
10. Action due to dispersal

iii) **Supplemental Information**

1. Runway in Use
2. Scaring Device used (Type)
3. Time of Scaring device used
4. Number of Pyrotechnics used if used
5. Number of wildlife monitoring personnel on shift at time of Activity
6. Proof of Activity – Photographs

6. AERODROME WILDLIFE SAFETY RISK ASSESSMENT

Note: Please refer to Airport Services Manual (Doc 9137), Part 3 – Wildlife Hazard Management, Chapter 3

7. DATA MODELLING AND ANALYSIS

7.1 Aerodrome operators should adopt data modelling and analysis to derive useful information and conclusions from the collected data. Some sample reports from a wildlife data modelling and analysis application is available in **Attachment 1**.

8. CONTINUAL MONITORING: RECORDING AND REPORTING OF WILDLIFE STRIKE

8.1 Continual Monitoring Program for Wildlife Hazards

8.1.1 When an aerodrome completes an assessment of wildlife strike hazards, it should consider implementing a continual monitoring program. A continual monitoring program is a best management practice. Recurrent wildlife monitoring to be outlined in the programme.

8.1.2 The goal of systematic, long-term wildlife hazard monitoring in an airport environment is to identify changes to wildlife composition, numbers, attractants, travel corridors and the general airport environment in a timely manner that can affect the presence or behavior of wildlife.

8.1.3 Continual monitoring allows the aerodrome operator to regularly determine trends in wildlife, and target mitigation practices to reduce the possibility of strikes, thus positively effecting safety. The aerodrome can use this information to quickly and efficiently implement mitigation techniques and evaluate the efficacy of its mitigation program. Ultimately, the frequent hazard identification and adaptable mitigation will reduce the likelihood of wildlife strikes. Additionally, continual monitoring will help decrease the time, effort, personnel hours, and money spent on mitigation because hazards will be identified before they pose a high risk.

8.2 Continual Monitoring Report:

8.2.1 As part of a continual monitoring program, an aerodrome should consider preparing periodic (an annual/half annual) report to summarise the efficacy of its wildlife mitigation program, including:

i) Identification of the wildlife species observed and their numbers, locations, local movements, and daily and seasonal occurrences.

ii) Identification and location of features on and near the aerodrome that attract wildlife.

iii) Description of wildlife hazards to aircraft operators.

iv) Description of wildlife strikes during the year.

v) Discussion of any significant modifications on or near the aerodrome property.

vi) Summary/Analysis of ATC and aerodrome "event logs" or wildlife management, patrol, monitoring data logs.

vii) Periodic report can be compared with the airlines monitoring report for any gaps.

8.3 Reporting wildlife sighting – Process for Aerodrome/Airline Personnel (on-ground)

8.3.1 Process for reporting of wildlife sighting by aerodrome/airline personnel is shown in **Figure 1**.

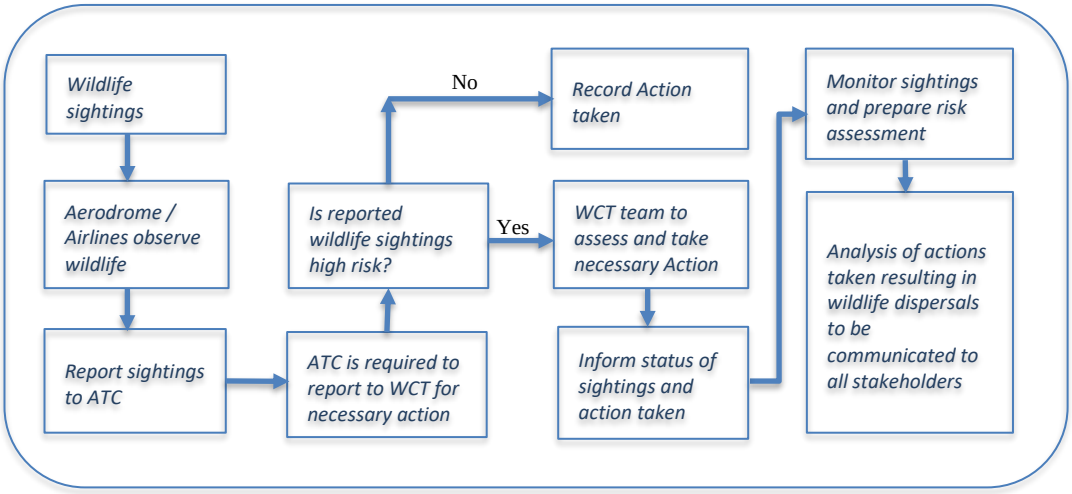


Figure 1: Reporting wildlife sighting – Process for Aerodrome/Airline Personnel

8.3.2 It is recommended that:

- Use of technology smart application to enable users to just click on location to record species and number for effective wildlife hazard management.
- In addition, the recording system should reflect standard global names of wildlife species and information of the standard reporting form (refer to 5.3)

8.4 Reporting wildlife sightings – Process for Aircrew in-flight

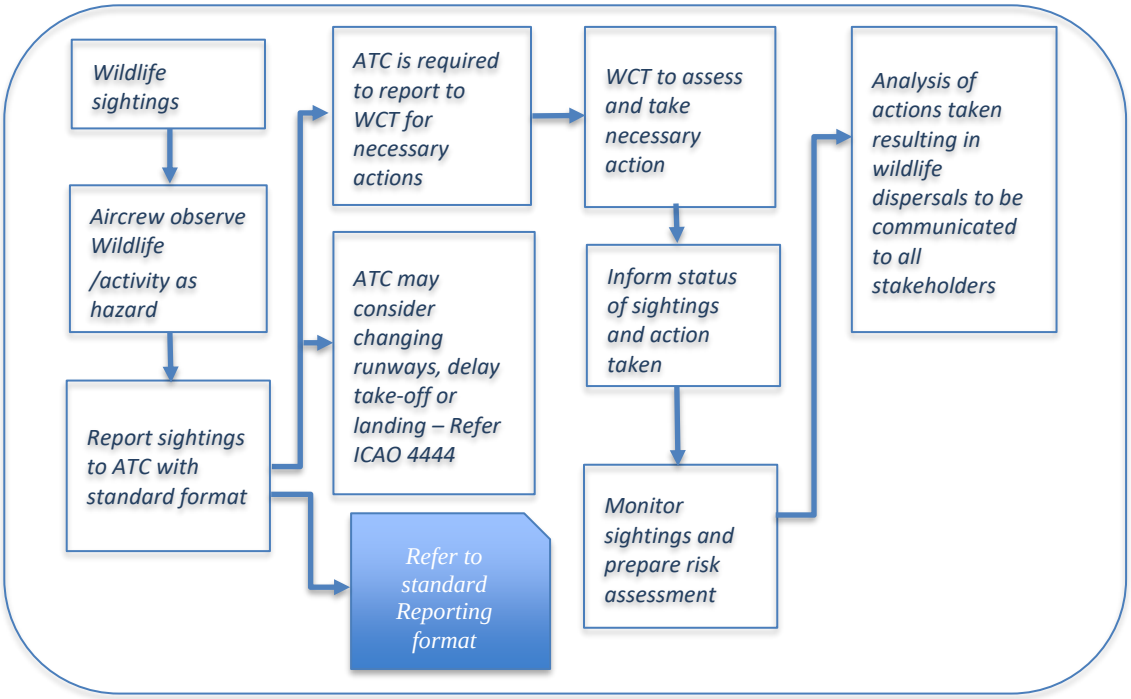


Figure 2: Reporting wildlife sightings – Process for Aircrew in-flight

8.5 Reporting of Confirmed and Suspected Strike Process

Confirmed Strikes

8.5.1 Any reported collision between a bird or other wildlife and an aircraft for which evidence in the form of a carcass, remains or damage to the aircraft is found (including blood smears or feathers or may include in-flight 'smell' through air-conditioning). Any bird/wildlife found dead on an airfield where there is no other obvious cause of death (e.g. struck by a car, flew into a window etc.).

Unconfirmed strikes or Suspected Strikes

8.5.2 Any reported collision between a bird or other wildlife and an aircraft for which no physical evidence is found.

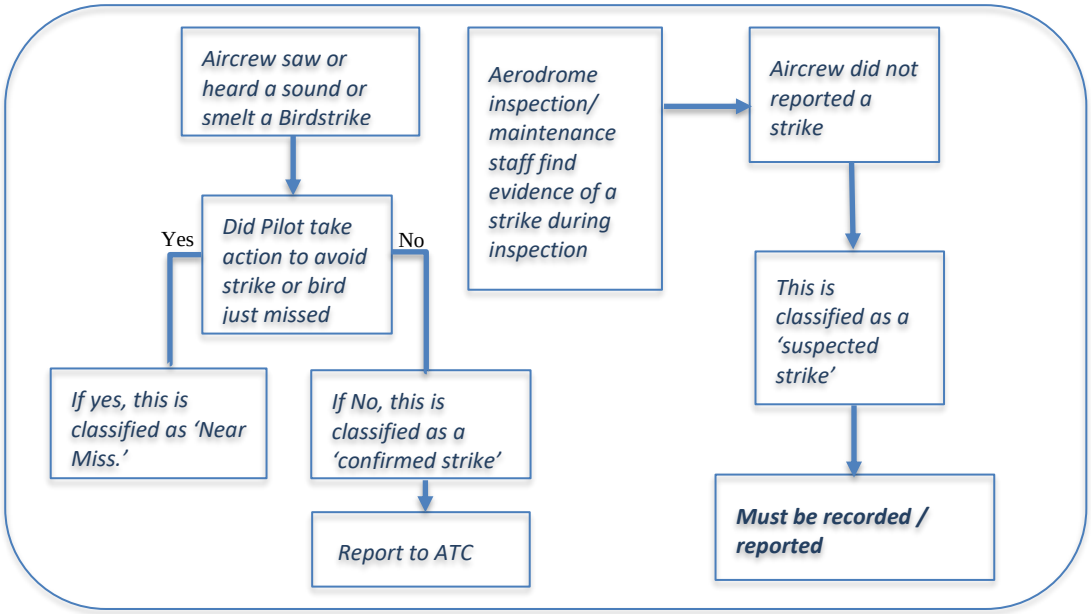


Figure 3: Reporting of Unconfirmed or Suspected Strike Process

8.6 Wildlife Location Determination Process

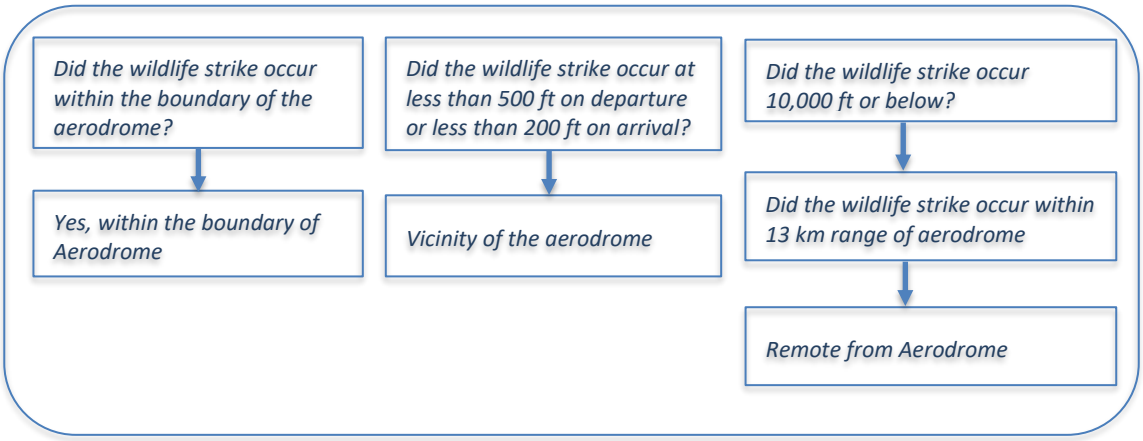


Figure 4: Wildlife Location Determination Process

8.7 Wildlife Incident Reporting Criteria

8.7.1 The reporting forms (paper or electronic format) used by the aerodrome operator or other stakeholders at the aerodrome for reporting wildlife strikes, should contain at least the information provided in *Appendix 2 (Wildlife Incident Reporting Criteria) to Chapter 6 of Part II of the PANS-Aerodromes*. It is recommended that Paper forms should be avoided.

8.8 Common Understanding of Terms

8.8.1 It is crucial to standardise the use of various terms and ensure a common understanding among stakeholders, including pilots, air traffic controllers, airport wildlife hazard controllers and other parties. These terms include description of bird size (large/medium/small), number of birds, etc. These parameters must be determined and understood by all releveant stakeholders.

8.9 Risk Assessment

8.9.1 In the report, it would also be useful to include the wildlife actions or type of activities, e.g. flying, standing on ground, roosting, hovering, etc if observed, at the time of the report. The information will be useful for risk level analysis, which is related to the type of activities, size, number, whether in flocks, etc.

8.9.2 Please refer to *Airport Services Manual (Doc 9137), Part 3 – Wildlife Hazard Management, Chapter 3,* for carrying out the risk assessment of the wildlife strike hazards.

8.10 Real-time Reporting Format

8.10.1 Aviation frontline personnel including pilots, ATC and aerodrome wildlife management staff constantly face time pressure in their jobs. They are required to make decisions based on the available information in a timely manner. Therefore, it is crucial to standardise the format of real-time wildlife reporting to minimise the time for transmitting the information and subsequent clarifications.

8.10.2 In Doc 4444 PANS-ATM Para. 7.5.2, temporary hazards including birds on the ground or in the air are regarded as essential information on aerodrome conditions. PANS-ATM Para. 7.5.3 has the following procedure:

Essential information on aerodrome conditions shall be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources. The information shall be given in sufficient time for the aircraft to make proper use of it, and the hazards shall be identified as distinctly as possible.

8.10.3 As a minimum, the following items could be considered when formulating the real-time reporting format:

i) Date and UTC Time;

ii) Altitude of aircraft (for pilot reports only);

iii) Location of sight/strike;

   a) With reference to prominent features on ground or in the air;

   b) Aerodrome zoning to be applied for ATC and aerodrome personnel.

iv) Movement and altitude of birds;

v) Number of wildlife – with a standardized categorization; and

vi) Size of wildlife – with a standardized categorization.

8.10.4 It is recognised that the frontline personnel may face various workload at the time of wildlife sighting and strike. Therefore, flexibility for fewer items may be allowed during the first reporting, but the personnel involved should supplement missing information at the earliest opportunity and submit as much information as they can including attaching photos, if required. Below is a detailed Sample Reporting Format of a wildlife Strike Form.

8.10.5 Standardized wildlife strike reporting forms are available in Manual on the ICAO Bird Strike Information System (Doc 9332-AN/909) for use by States/Administrations.

9. WILDLIFE STRIKE REPORTS TO ICAO

9.1 Effective analysis of wildlife strike data is particularly important. For example, separating strikes that occur on the aerodrome (under 200 feet on approach and 500 feet on climb out using the ICAO definition) from those that occur further out in the approaches helps to define those strikes that are likely to be influenced by the aerodrome bird management programme. Similarly, separating strikes with species that are over 100g in weight (i.e. those more likely to cause damage), and giving greater emphasis to strikes with flocks all help to identify trends in the real wildlife strike risk at the aerodrome. So, for example, an aerodrome with an increasing rate of wildlife strikes is not necessarily becoming a more risky place to fly. If the increase in strikes is due to an increase in incidents with small species, whilst the rate of strikes with large species and flocks is falling, then this is indicative of both better wildlife control and better reporting of strikes.

9.2 The wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database (9.4.2 of ICAO Annex 14 Aerodromes, Volume I (Note, (.4.1 & 9.4.2) Aerodrome Design and Operations refers).

9.3 Ideally, States should submit wildlife strike reports to ICAO in the format of either ECCAIRS.e5f files or the standard ICAO ECCAIRS Excel-based form available at http://www.icao.int/ibis. –(IBIS is currently under review)

9.4 The reports should be sent to the following email addresses: wildlife@icao.int, icaohq@icao.int, aoi@icao.int, and iaa@icao.int

10. DETAILS OF REPORTING

10.1 Aerodrome operations staff may conduct numerous wildlife activity monitoring inspections throughout the day, to build up a more complete understanding of wildlife patterns around the Airport. Extensive reporting functionality in compliance with ICAO and regional civil aviation authorities, allows wildlife data to be drilled down, so that aerodromes can better understand their most prevalent species, locate high wildlife traffic areas, wildlife attractants, seasonal distributions and patterns. Adopt adequate hazard management plans to mitigate the risk by better understanding the environment.

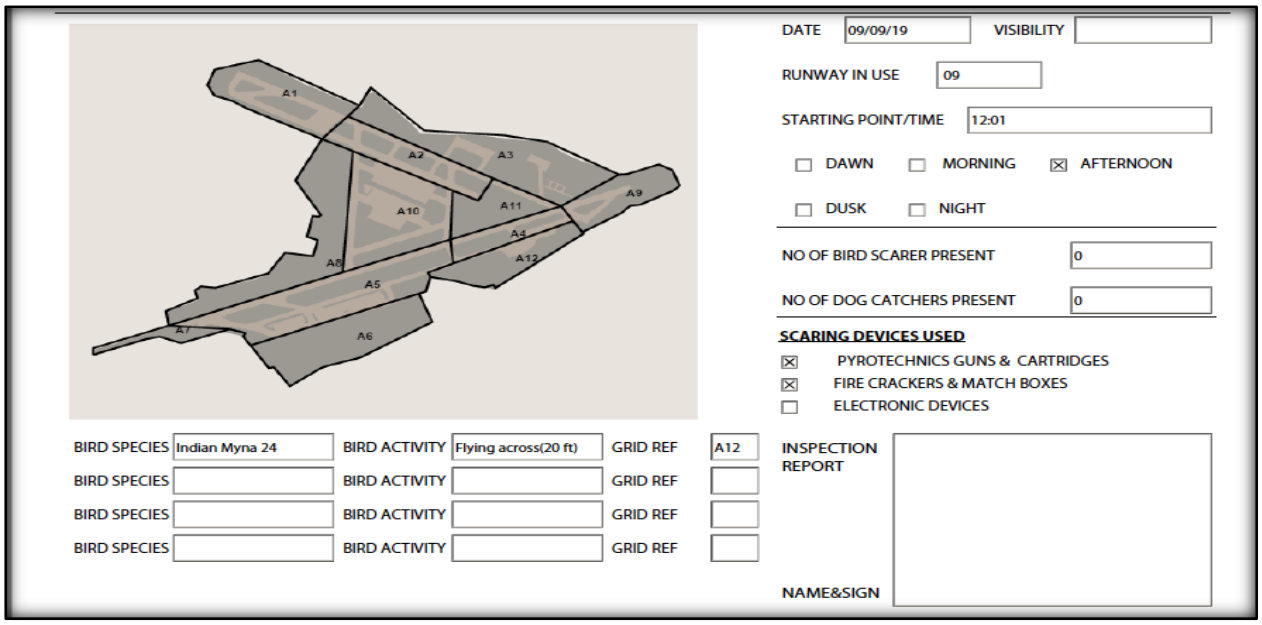
10.2 Example of reports for Activity and Strike is provided in **Attachment 1**.

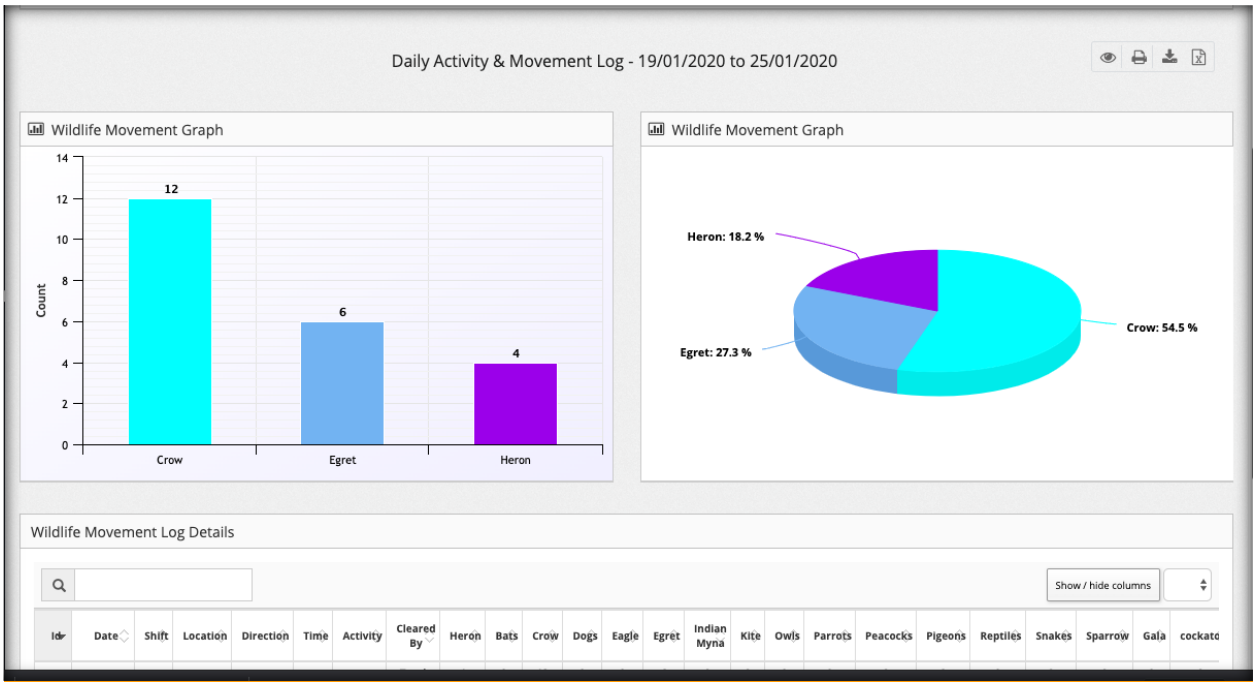
Attachment 1

Analysis of Activity and Strike

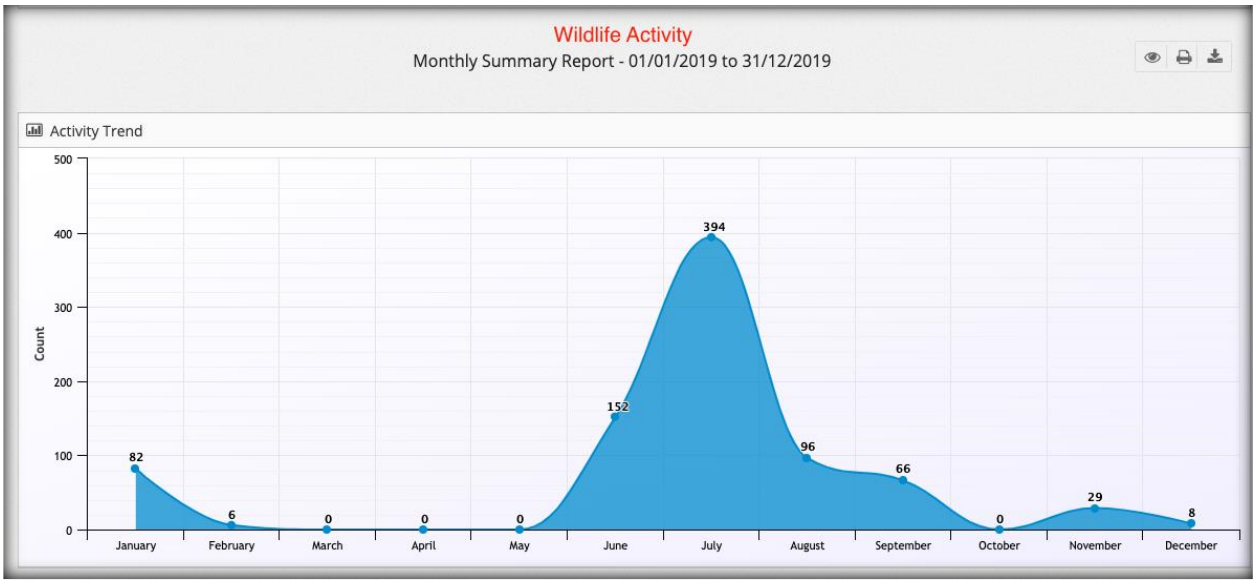
Sample Reports

1. Daily Activity Reports

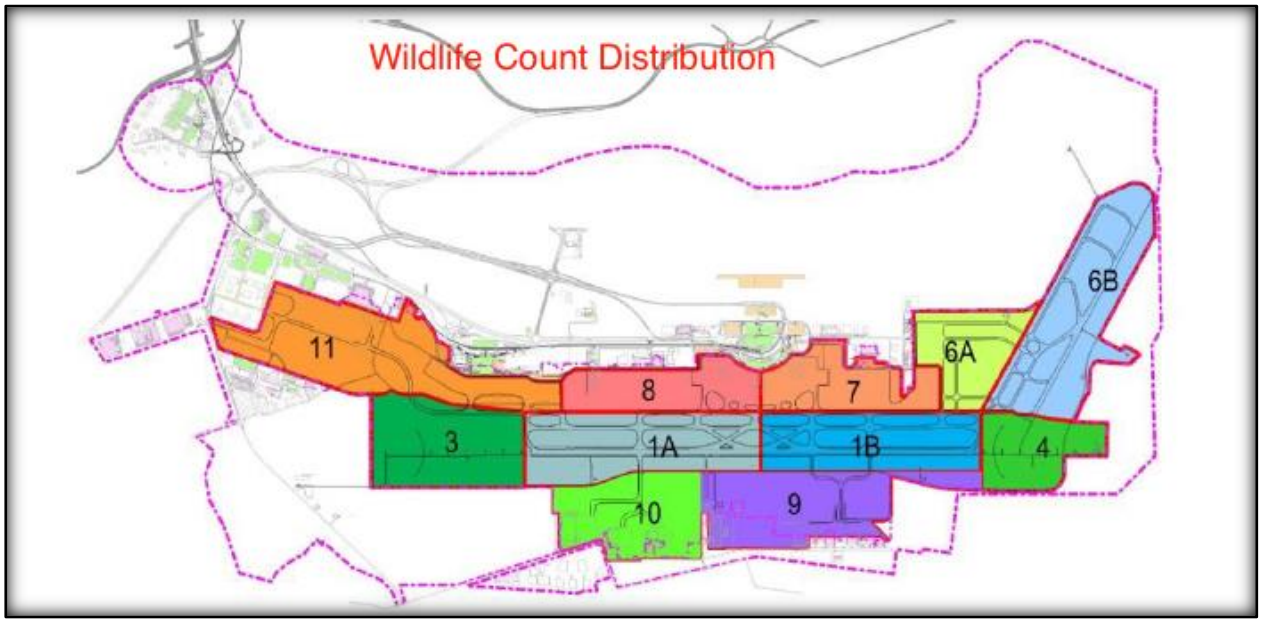




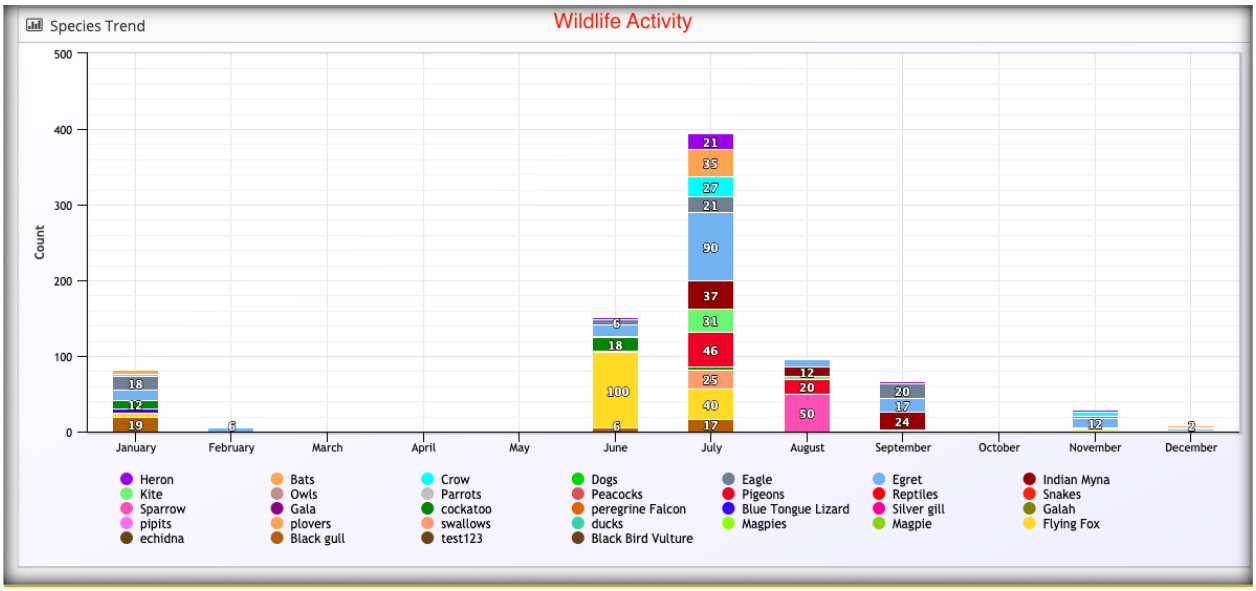
2. Monthly Activity Report (Weekly can be seen as well)



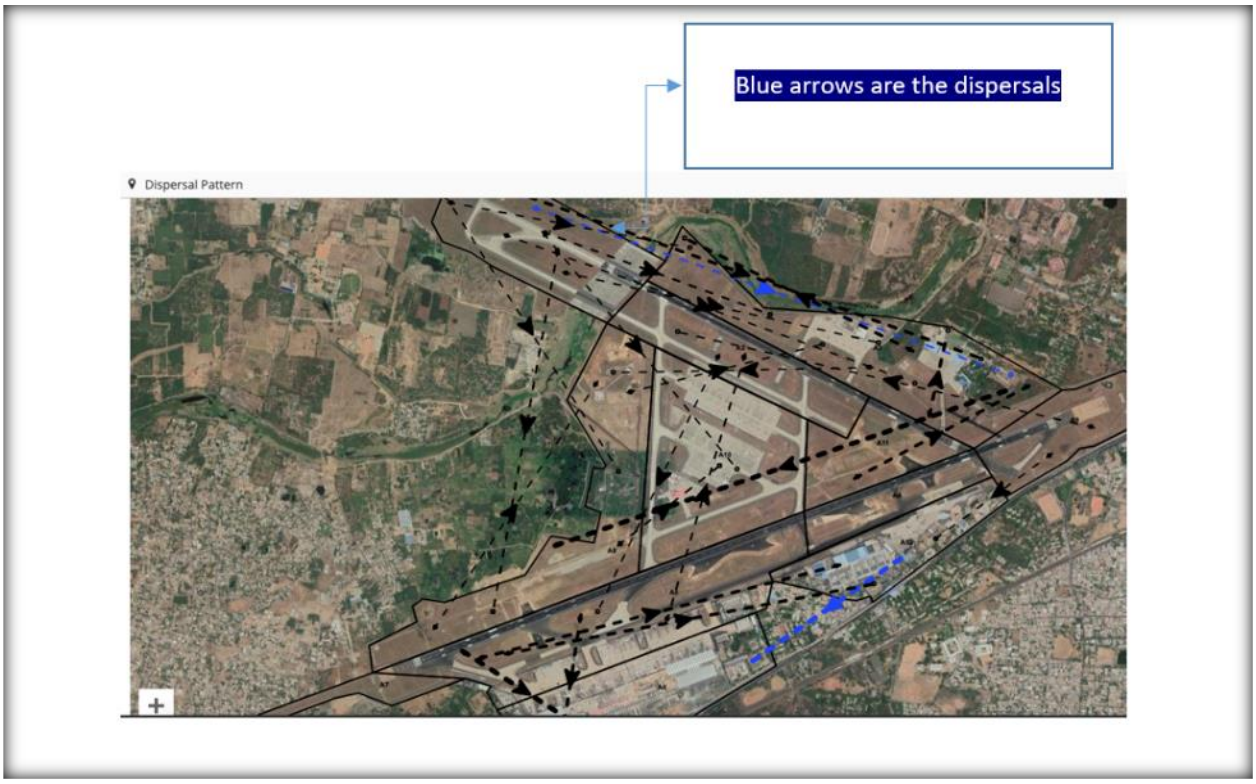
3. Wildlife Count Distribution



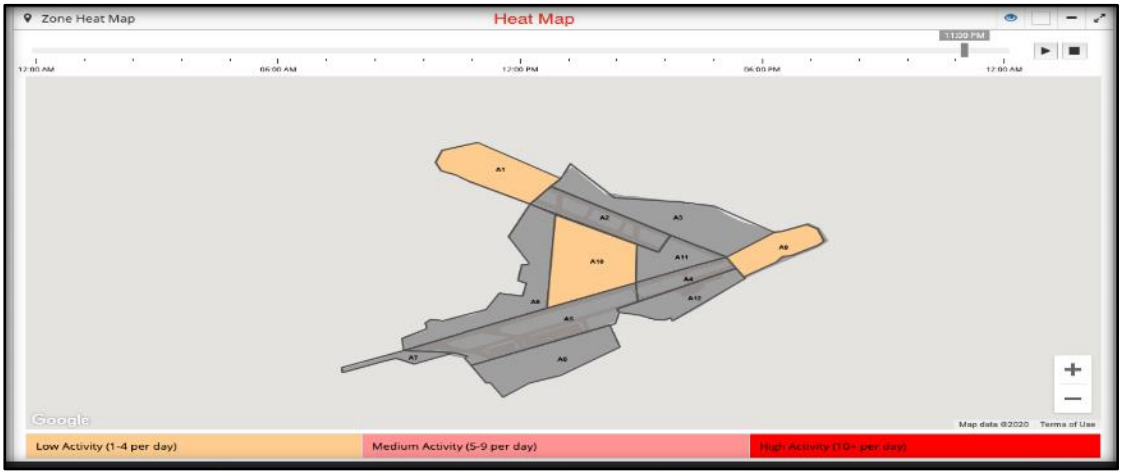
4. Species Trend



- Activity Maps
- Dispersal Maps
- Dispersal Patterns

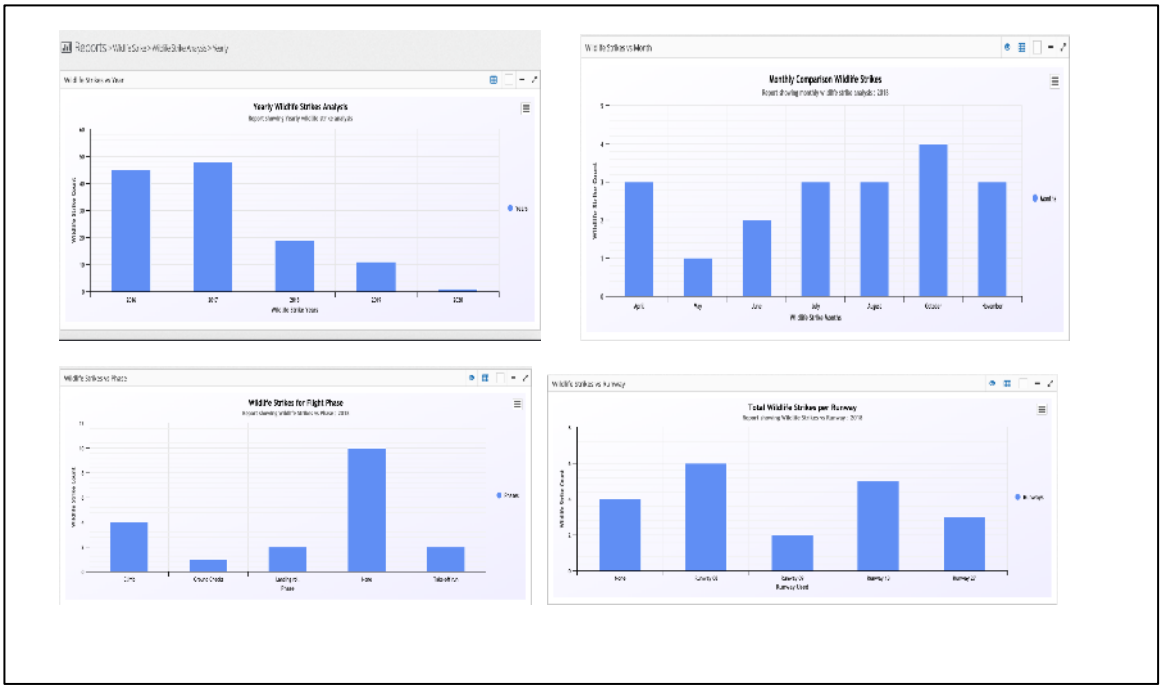


5. Zone Heat Maps

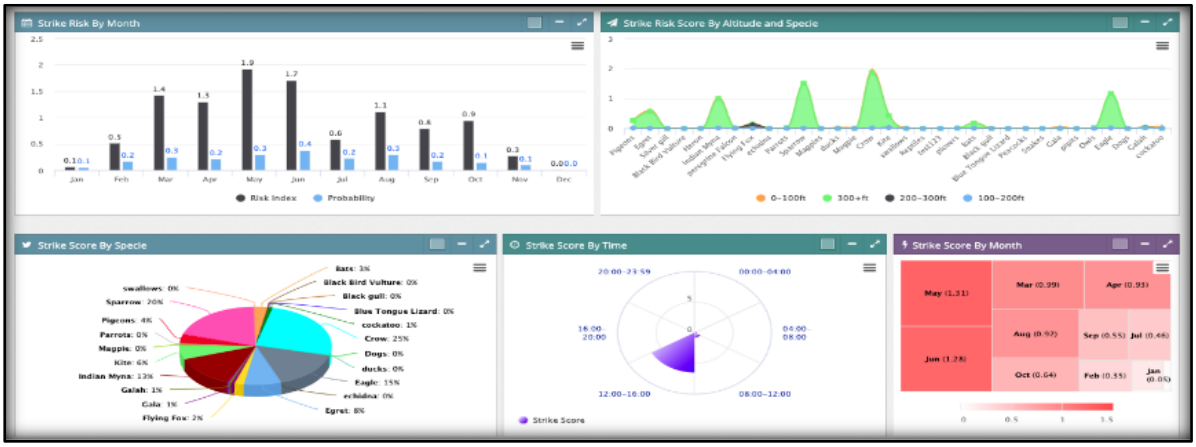


6. Wildlife Strike Data

- Year to Year Analysis
- Strikes Per Month
- Wildlife Strike vs Phase of Flight
- Wildlife Strike Vs Runways Used
- Wildlife Strikes per Light Conditions
- Designated Wildlife Strikes Per Runway Used
- Wildlife Strikes at Flight Altitudes
- Wildlife Strike per Species (High Risk Species)



7. Wildlife Probability Report



REFERENCES

1. ICAO Annex 14 Aerodromes, Volume I – Aerodrome Design and Operations
2. Procedures for Air Navigation Services - Aerodromes (Doc 9981)
3. ICAO Airport Services Manual (Doc 9137), Part 3 – Wildlife Hazard Management
4. World Birdstrike Association – Recommended Practices No1. Standards for Aerodrome Bird/wildlife Control, Standard 4 Logging Wildlife Management Activities
5. Australian Airports Association – Wildlife Hazard Management at Airports
6. Advisory Circular – Protocol for the conduct and Review of Wildlife Hazard Assessments and Wildlife hard Management Plans

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA PACIFIC GUIDANCE FOR EVALUATION OF AERODROME WILDLIFE HAZARD MANAGEMENT PROGRAMM

First Edition, 2 July 2021

This Guidance Material was developed by AP-WHM/WG and approved by the AOP/SG/5 Meeting and published by ICAO Asia and Pacific Office, Bangkok

RECORD OF AMENDMENTS

AMENDMENTS				AMENDMENTS			
No.	Date applicable	Date entered	Entered by	No.	Date applicable	Date entered	Entered by

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1. INTRODUCTION

1.1 Wildlife populations in and around the vicinity of aerodromes are constantly changing in response to land use, national and local management policies, and environmental factors such as climate changes. In addition, wildlife might adapt or habituate to control strategies that were once effective, adopting new behavioural patterns of feeding, resting and nesting on or near the aerodrome. New wildlife control technologies might become available, or established products or techniques might be withdrawn or banned. Finally, there might be changes to wildlife control and management personnel at an aerodrome.

1.2 Once a Wildlife Hazard Management Programme (WHMP) is in place, aerodromes should develop a process for ongoing review of the WHMP to provide safety assurance that the programme is fully effective and correctly implemented. An evaluation should be completed on an annual basis but also must include an on-going review process to ensure that the programme is always current and fully functional at all times. If there is an external agency being used for the evaluation of WHMP The outsourcing evaluation should consider the general workings of the programme with a view to efficiency and effectiveness and follow respective country legislation on management of wildlife habitat and species.

2. EVALUATION PROCESS

2.1 Periodic evaluations of an aerodrome's WHMP including the activities undertaken for its implementation are critical because of the dynamic nature of wildlife hazards and control technologies. The foundation for these evaluations is the maintenance of consistent records of wildlife control activities and the submission of accurate and timely wildlife strikes and wildlife-related incident reports.

2.2 The following should be considered in the evaluation of an aerodrome WHMP:

1) Comprehensive periodic evaluation should be prepared and compiled by an appropriately qualified wildlife control team/or outsourced agency who has full knowledge of the programme and the standards required for effective delivery. This report would nominally be prepared annually. The completed report along with all conclusion and recommendations should be considered by the aerodrome wildlife committee and the senior management responsible for delivery of the programme.

2) The wildlife manager (or appropriate professional) tasked with performing the annual evaluation should seek feedback from staff on general effectiveness and observations on all aspects of the programme during evaluation. The evaluation seeks areas for improvement. Staff are often best positioned to provide valuable feedback on the plans. Feedback should be sought from WHMP team and staff, Runway Safety Team of the Aerodrome, Airline personnel (in particular aircraft engineers and pilots), Pilot Association(s), Air traffic control, Ground handlers and other parties as required.

3) A wildlife survey is a valuable tool for aerodromes to ensure that WHMP are effective, meets all national and international regulations and standards requirements including environmental protection. The survey should ideally be completed formally on an annual basis by a qualified independent professional/organisation. Evaluation of all operational, practical, procedural and technical aspects of wildlife management will form part of this survey.

4) It is extremely important that accurate statistics are gathered and interpreted by a competent person (who understands WHM) to ensure that aerodromes can have effective control measures in a timely fashion. Reference should be made to previous

statistical activity and strike data over the last five years and recommendations and action points raised accordingly. In case there is no 5 years available data, any available data can be used. Particular attention should be placed on the quality and accuracy of aerodrome wildlife species activities, incidents and strikes statistics and how these statistics are interpreted so that trends are measured, and mitigation measures immediately put into place.

5) A comprehensive review of all control procedures and practices should be undertaken to ensure that effective control measures are in place and are correctly followed and documented. The Wildlife survey should include seasonal migration.

6) A full equipment audit shall be undertaken annually or biannually to establish serviceability and effectiveness to support wildlife management and also consideration of new technologies or equipment.

7) A systematic review of rotational control procedures and the perceived effectiveness of the process should be done. Particular attention shall be paid to emerging/existing species of concern to identify the most important risk and prepare proper control measures to reduce the risk.

8) Where possible, aerodromes should have a dedicated Wildlife Control Team, internal or outsourced organisation, that will ensure advances in the field of wildlife management and habitat management; whether that is scientific, procedural or proven improved control techniques, are reflected in the aerodrome's WHMP of aerodrome also to be reviewed.

9) Wildlife activity monitoring on and in the aerodrome and 13 km range can contribute greatly to ensuring that control measures are effective. As a part of the aerodrome's safety management system (SMS) the WHMP should include interfaces with the SMS including, but not exclusively, a commitment in part to educate people. A plan for sharing information with other local aerodromes is a useful process of mutual benefit where control measures are compared and evaluated.

10) Maintain a record of, and annually summarise, all training that WHMP team have received. Include attendance at conferences, course, workshops, self-study courses, and specialized on the-job training.

11) An evaluation of all reports and records to ensure these meet appropriate standards as accurate information that can be understood and that will be of value in the evaluation process must be provided.

12) A full check of all WHMP documentation, paying particular attention to following:

i. Recording of wildlife activities like, feeding, resting patterns, and analysis of this information;
ii. Identification of wildlife species of concern;
iii. Nuisance species reports, pest wildlife;
iv. Protected species, endangered species register;
v. Was displacement measures used? What precise methodology and how effective this was/wasn't?
vi. Monthly alert reports;
vii. Wildlife Control Unit's survey records - analysis;
viii. Identify and record aerodrome wildlife hot spots (on/off aerodrome) and potential high risk or near miss records; must require further analysis to remove the high risk.

ix. Analysis of wildlife dispersal technique records;
x. Analysis of reported wildlife strikes and incidents (over last 5 years) reports;
xi. Analysis of unconfirmed wildlife strike e.g. carcases found;
xii. Analysis of the quality of all records in particular daily logs to ensure best practice is established and this information can be reported back into the plan in a timely fashion.

3. WHMP Evaluation Checklists

Note:- The following checklists are developed based on guidance provided in Section 9.2 Wildlife Hazard Management Programme Evaluation provided in Airport Services Manual (Doc 9137), Part 3 – Wildlife Hazard Management.

3.1 An evaluation of a WHMP should seek to determine the effectiveness and future outcomes of the WHMP, not simply a compliance 'tick the box. This said, the most basic level of WHMP evaluation should be to respond affirmatively or negatively to the questions contained in **Table 1**. If the answers to the questions below are negative or unclear, measures should be established to address these negatives to mitigate the identified risks.

Table 1: Basic checklist for evaluation of WHMP

S. No	Description	Response (Yes/No/NA)	If No/N/A Why	Comments
1	Are wildlife management roles, tasks and responsibilities adequately established at the aerodrome?			
2.	Is the "wildlife manager or coordinator" considered in the WHMP?			
3	Is there a reporting process in place to alert the different stakeholders about the presence of strikes with wildlife?			
4	Are the wildlife management personnel aware of the species that pose a risk to air traffic and about attractive areas for wildlife at the aerodrome and in its vicinity?			
5	Are wildlife observations and strikes recorded and reported in the correct format?			
6	Does the WHMP include an appropriate wildlife risk assessment conducted by competent personnel?			
7	Are habitat management measures and measures of dispersion and extraction of wildlife undertaken at the aerodrome?			
8	How Is the effectiveness of these measures measured?			
9	Is there regular WHM meetings with external stakeholders?			
10	Is the local wildlife committee effective?			
11	Is there support from local councils and external stakeholders towards WHM?			
12	Is training on wildlife management given to personnel involved in wildlife management duties (at all different levels)?			
13	Is there regular review of evaluation of the WHMP being performed?			

3.2 Once the base for WHMP is established, complexity can be increased by asking more specific questions as per **Table 2** to determine the degree of compliance.

Table 2: Advance checklist for evaluation of WHMP

S. No	Description	If No/NA why?	Comments
1	Has a land use plan been established with regard to effective land use on and off the aerodrome, as it pertains to the WHMP?		
2	What ecological measures are implemented to reduce wildlife attractiveness on and off the aerodrome		
3	Are there illegal garbage dumps been identified around the aerodrome?		
4	If yes, within what distance are they?		
5	What mitigation steps have been taken to reduce risk of attracting wildlife to the garbage dumps?		
6	Is the aerodrome perimeter fencing suitable to prevent hazardous wildlife incursions?		
7	Which repellent methods are implemented at the aerodrome?		
8	Have any repellent methods which work on certain species been identified?		
9	Are aerodrome personnel employed and trained specifically to control and disperse wildlife at the aerodrome?		
10	What is the wildlife strike rate at the aerodrome over the last five years (with or without damage to the aircraft)?		
11	Is there a procedure to regularly collect information about wildlife on, and in the vicinity of, the aerodrome, both dead and living?		
12	Has a procedure for the positive identification of wildlife remains been established?		
13	How many reports from pilots were related to intrusions of wildlife, other than birds, over the last five years?		
14	Do the pilot reported strikes match the reported strikes at your aerodrome?		
14	Has a list of wildlife attractants at, and in the vicinity of, the aerodrome been identified?		
15	What mitigation steps have been taken to reduce risk of wildlife towards the attractants?		

4. Performance Measurement of WHMP

4.1 The most rigorous and systematic method to know how well wildlife is being managed at the aerodrome would be to use a performance measurement mechanism. Performance indicators (parameters used for monitoring and assessing performance) are select metrics that are most closely aligned with the ultimate goal of reducing wildlife risks, and will help to assess if the wildlife hazard is adequately managed by the aerodrome operator.

4.2 Performance indicators should be metrics obtained and measured in a simple way, and which are clear about what they measure. They can be primary (lagging) or secondary (leading) indicators.

4.3 Lagging indicators are typically reactionary oriented, easy to measure but hard to improve or influence (e.g. number of wildlife strikes), while leading indicators are typically proactive oriented, hard to measure and easy to influence (e.g. number of repellent activities).

4.4 Although there has generally been a tendency to use lagging indicators (number of wildlife strikes related to aircraft movements, percentage of strikes resulting in damage or effect on flight, etc.) as measures of the effectiveness of a WHMP, leading indicators are good indicators. Leading indicators show how personnel are performing their tasks and how the system is prepared to prevent the worst events (incidents and accidents) from happening, through good safety practices, correct use of procedures, etc.

4.5 Performance measurement matrix indicators and targets for different components of the WHMP that may be considered by aerodrome operators is provided in **Table 3**.

Table 3: Performance Measurement Matrix

S. No	Performance Measurement	Performance Indicators	Performance Target
1.	WHM Programme	Review at least once a year and revise based on the learnings from wildlife management	● Status and reporting of wildlife strike and activity. ● Update on wildlife/bird movement and wildlife/bird strike data half yearly ● Adopt probability to forecast strikes by analysis based on previous strike history, activity reporting and number of flights.
2.	Habitat Management	Review at least once a year based on the wildlife and environment.	● Review status and reporting of habitat measures must be as required and at least annually
3.	Airport Environment Management Committee meeting	Minimum two AEMC (Airport Environment Management Committee) stakeholders comprising of CAA, ATC, WCT, Council/local country Municipality meetings in a year	● Prepare planned actions from the meeting outcomes ● Monthly follow up to be recorded based on the planned actions

S. No	Performance Measurement	Performance Indicators	Performance Target
4.	Airport Wildlife Assessment Survey	Aerodrome wildlife assessment survey to be conducted every 2 years	Survey reports to be shared with stakeholders including proposed resolution and adoption plans
5.	Public Awareness Program	1. On Airport 2. Off Airport	Meeting minutes and records to be maintained and published.
6.	Equipment for control of wildlife activities	Maintain check lists of equipment/pyrotechnics	Serviceability records of individual equipment is to be maintained. Inventory control of usage of pyrotechnics, understand which pyrotechnics work for which species.
7.	Competency of staff	Ensure staff are adequately resourced with proper wildlife hazard management training and experience.	Records of recruitment to be maintained.
8.	Training	Specialised and refresher courses must be conducted by ICAO recognised authority.	● Minimum 2/3 training/workshops to WHM team (local) in a year ● Records to be maintained and updated. ● Ensure staff are well versed in new techniques and share knowledge.
9.	Wildlife Strikes (ground)	Number of reported wildlife strikes at airports per 10,000 aircraft movements	Reduce the number of wildlife strikes - need to determine the reduction by number or percentage
10.	Wildlife runway incursion	Number of runway incursions by animal at airport per 10,000 aircraft movements	Reduce the number of incursions by wildlife – need to determine the number or percentage
12.	Wildlife Documentation Audit	Annual audit to be conducted by relevant wildlife management authorities recognised by ICAO.	Consolidated report/ record to be available to Safety department and Wildlife Hazard management team
13.	Annual report	Annual report to contain all WHM related data and analysis	Sharing of report with airport stakeholders
14.	Adoption of technology for wildlife hazard management	Manual paper forms will not be accepted. Ensure new technology like wildlife reporting application tools are adopted to save time and reduce manual and excel analysis, adopt automated reporting tools which are more cost effective	Adopt a simple smart WHM tool.
15.	Wildlife strike Incident Reporting	Report to airlines regarding wildlife control measures engaged by the aerodrome after wildlife strike incident	Maintain data recording of the presence of wildlife and action taken

5. REFERENCES

1) Airport Services Manual (Doc 9137), Part 3 - Wildlife Hazard Management

2) World Birdstrike Association Recommended Practices No. 1 Standards for Aerodrome

TERMS OF REFERENCE OF
WILDLIFE HAZARD MANAGEMENT WORKING GROUP (WHM/WG)
(Proposed amendment of TOR approved by AOP/SG/5)

Objective:

To assist States to establish a National Wildlife Hazard Management Committee and an ~~Airport~~ Aerodrome Wildlife Hazard Management Programme.

Scope of works:

To meet the above objectives the Working Group shall carry out the following tasks:

1) Develop a model TOR for National Wildlife Hazard Management Committee;
2) Monitor the establishment of a National Wildlife Hazard Management Committee by the States.
3) Assist in conducting workshop/seminar on Global and Regional Guidance on WHM;
4) Develop Asia Pacific Regional Guidance on ~~Airport~~ Aerodrome Wildlife Hazard Management Programme, as needed;
5) Share the best practices on the measures adopted by member States/Administrations to prevent wildlife strike hazards at or in the vicinity of aerodromes;
6) Develop a performance measurement metrics to evaluate the effectiveness of the implementation of the ~~Airport~~ Aerodrome Wildlife Hazard Management Programme by the aerodrome operator; and
7) Be consistent with ICAO Annex 14, Volume I – Aerodrome Design and Operations, PANS-Aerodromes (Doc 9981), Doc 9137 Airport Services Manual, Part 3 – Wildlife ~~Control and Reduction~~ Hazard Management, ICAO Bird Strike Information System (Doc 9332) and other requirements where applicable.
8) Analysis of the regional problems/issues in wildlife hazard management fields.
9) To support States with limited resources (human and financial) to enhance their capacity in Wildlife Hazard Management through workshops and technical assistance, as needed

Composition:

The Working Group would be composed of subject matter experts nominated by APAC States / Administrations and International Organization satisfying the criteria:

(1) Minimum 3 years of work experience in CAA Aerodrome Regulatory Department or in International Organizations or Aerodrome Operations at international airports in wildlife hazard management field;

(2) Familiar with Annex 14 and related guidance materials; and

(3) The nominated expert will continue to be a member for a minimum of three consecutive years.

States in other ICAO regions and industry partners with experience in wildlife hazard management may also be invited to participate in the Working Group.

Conduct of the work and timeframe:

As far as practicable, the work would be carried out through electronic correspondences and web-conferences. Minimum face-to-face meetings would be planned.

Time frame:

The Working Group would complete its work by September ~~2021~~ 2023.

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AP-WHM/WG TASK LIST
[Status Update – 21 May 2021]

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/1	Develop a Generic Composition of National Wildlife Hazard Management Committee	AP-WHM/WG/1	AP-WHM/WG/1	Completed	AP-WHM/WG/1-WP/06
1/2	Develop a Generic Terms of Reference of National Wildlife Hazard Management Committee	AP-WHM/WG/1	AP-WHM/WG/1	Completed	AP-WHM/WG/1-WP/06
1/3	Develop survey questionnaire to analyze the State's problem/issues/deficiencies on wildlife hazards management including ICAO USOAP CMA WHM PQs	Sri Lanka, India, WBA	By the end of June 2019	Completed	
1/4	Send survey questionnaire to States/Member Administrations	Secretariat	By the end of July 2019 (giving 4 months of time for the completion of the Survey Questionnaires by States)	Completed	State Letter T 11/5.6 – AP069/19 (AGA) dated 18 July 2019
1/5	Analyze the State's problem/issues on wildlife hazards management based on completed survey questionnaires and present the report to AP-WHM/WG/2	Sri Lanka, India, WBA	AP-WHM/WG/2	Completed	AP-WHM WG/2-WP/11 Continued in Task 2/5
1/6	Present a case study on airport wildlife strike hazard assessment and implementation of mitigation measures	Thailand, India	AP-WHM/WG/2	Completed	AP-WHM WG/2 – WP/05 from Thailand

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/7	Request papers from ACI, CANSO, IFALPA, IFATCA and IATA to present their views on wildlife strike hazards at the Second Meeting of AP-WHM/WG	Secretariat	AP-WHM/WG/2	Completed	AP-WHM WG/2 – WP/03 from ACI and WP/04 from IFALPA
1/8	Develop a Generic Composition of Airport Wildlife Hazard Management Committee and its TOR	Nepal, Bhutan, Lao PDR	By the end of July 2019	Completed	Decision AOP/SG/3-6 Posted in ICAO APAC Website under e-Documents
1/9	Develop a Regional Guidance on Development and Implementation of Airport Wildlife Hazard Management Programme	Australia, Fiji, India, WBA, AAPA	December 2020 (Initial Draft) AP-WHM WG/3 (~~Final~~ Interim Draft) AP-WHM/WG/4 (Final document)	In progress	AP-WHM WG/2 – WP/07 from Fiji AP-WHM WG/3 – WP/08 (WBA, Australia, Fiji, India and AAPA)
1/10	Encourage States to use IBIS electronic format or ECCAIRS to submit wildlife strike reports to ICAO	Bangladesh, Bhutan, Cambodia, Fiji, India, Lao PDR, Maldives, Nepal, Philippines, Sri Lanka, Thailand Secretariat	From 1st June 2019	Completed	State Letter T 11/5.6 – AP043/20 (AGA) dated 2 March 2020 AP-WHM WG/2-WP/02

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/11	Develop guidance for establishment of national procedure for recording and reporting wildlife strikes to aircraft	Philippines, Sri Lanka, Nepal, WBA, IFALPA USA, Secretariat	Initial Draft by the end of December 2019 Final Draft by AP-WHM/WG/2 Review by December 2020	Completed Completed ~~In Progress~~ Completed	AP-WHM WG/2 – WP/08 from WBA AP-WHM WG/3 – WP/05 (WBA, Nepal, Philippines, Sri Lanka and IFALPA)
1/12	Develop procedures for the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations	Philippines, Sri Lanka, Nepal, WBA, IFALPA Secretariat	Initial Draft by the end of December 2019 Final Draft by AP-WHM/WG/2 Review by December 2020	Completed Completed ~~In Progress~~ Completed	AP-WHM WG/2 – WP/10 from WBA Continued in Task 2/6 for remaining work AP-WHM WG/3 – WP/05 (WBA, Nepal, Philippines, Sri Lanka and IFALPA)
1/13	Develop performance measurement indicators/metrics to evaluate the effectiveness of the implementation of Airport Wildlife Hazard Management Programme	Bangladesh, India, Thailand, WBA	Initial draft by the end of December 2019 and final draft by AP-WHM/WG/2	Completed	AP-WHM WG/2 – WP/06 from India Continued in Task 2/7

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
2/1	Monitor the establishment of a National Wildlife Hazard Management Committee by the States [Scope of work – 2 as per ToR]	Secretariat – Issue State Letter based on AOP/SG/3 Conclusion.	July 2020	Ongoing	State Letter Ref.: A 3/3 – AP-104/19 (AGA) dated 17 September 2019 Report of the Survey analysis (AP-WHM WG/3 – WP/04 from WBA) 11 among 23 respondent States established NWHMC.
2/2	Assist in conducting workshop/seminar on Global and Regional Guidance on WHM [Scope of work – 3 as per ToR]	Australia, ACI ICAO/ACI Regional Workshop on WHM – ACI to take the lead	TBC in 2021 AWHMP – 18 May 2021 Reporting and recording data on wildlife strikes and observed wildlife – July 2021 Wildlife safety risk assessment – 14 Sep. 2021	Ongoing Completed Planned Planned	Possible timing: Australian Aviation Wildlife Hazard Group (AAWHG) Forum in September 2021 in Adelaide, Australia ICAO/AAWHG WHM Webinar on 18 May 2021 (WHMP)

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
2/3	Share the best practices on the measures adopted by member States/Administrations to prevent wildlife strike hazards at or in the vicinity of aerodromes a) Submission of best practices to Secretariat/ICAO APAC Office b) Review and select/consolidate the best practices for posting in ICAO APAC Website c) Publish the best practices in ICAO APAC Website	 All States/Administrations Expert Group composed of the Chairman, Australia, Fiji, New Zealand, USA and WBA Secretariat	 By December ~~2020~~ 2021 Before ~~AP-WHM/WG/3~~ AP-WHM/WG/4 ~~June 2021~~ July 2022	Ongoing	
2/4	Re-send survey questionnaire to States/Administrations that did not provide responses in Task 1/4	Secretariat COSCAPs and PASO to assist in collection of responses	June 2020 (2 months for States/ Administrations to respond)	Completed	Mark questions for responses by CAA and aerodromes State Letter Ref.: T 11 /5.6 – AP122/20 (AGA) dated 4 June 2020

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
2/5	Based on the survey questionnaire responses: a) Compile the results of the survey questionnaire and the problems / issues faced by States b) Conduct needs analysis and present the recommendations on the prioritized actions to provide assistance to States as required, including future tasks for the WHM WG	WBA Australia, China, Fiji, Indonesia, Malaysia, Nepal [Lead], New Zealand, Pakistan, Thailand, WBA	October 2020 ~~AP-WHM/WG/3~~ AP-WHM/WG/4	Completed	Report of the Survey analysis (AP-WHM WG/3 – WP/04 from WBA)
2/6	Develop a standardised real-time reporting format for aircrew in flight for transmitting the sighting of wildlife presence.	Australia, Philippines, Sri Lanka, Nepal, WBA, IFALPA [WBA to take the lead]	AP-WHM/WG/3 AP-WHM/WG/4 (Draft format)	Partially completed	AP-WHM WG/3 – WP/05 (WBA, Nepal, Philippines, Sri Lanka and IFALPA)
2/7	Review performance measurement indicators/metrics presented in WP/06 (AP-WHM/WG/2)	Australia, USA, ACI, WBA	September 2020	Completed	AP-WHM WG/3 – WP/08 (WBA, Australia, Bangladesh, India, Thailand and ACI)
3/1	Draft a template on State's action plan for establishment and implementation of WHMP	WBA, Australia, IFALPA, ACI, Thailand	December 2021		
3/2	IBIS Webinar/Workshop (Tentative) in conjunction with AP-WHM/WG/4	ICAO WHM Expert Group Members	AP-WHM/WG/4		

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GENERIC AERODROME CERTIFICATION SPECIFIC OPERATING REGULATIONS

VERSION 1.0 – 2 JULY 2021

Introductory Notes

This generic document was developed by the ICAO Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG) and approved by AOP/SG/5 and published by ICAO Asia and Pacific Office, Bangkok for reference by States in the Asia/Pacific Region. When referring to this generic document, States are expected to customize the content in accordance with the States' legislations, regulations and situations.

ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and Guidance Materials shall take prevalence in the event of any conflict between the aforementioned provisions and this generic document.

Enquiries and feedbacks regarding this generic document can be made to ICAO APAC Office at apac@icao.int.

CIVIL AVIATION AUTHORITY

GENERIC AERODROME CERTIFICATION SPECIFIC OPERATING REGULATIONS

Foreword

This manual is a [CAA] safety programme document. It contains processes determined to be necessary in supporting operational safety at aerodromes in the [State]. This manual is being issued under the authority of the Director General of [CAA].

Copies are available at the office of:

[Post holder]
[Address]

This document may be amended from time to time as necessary, and the Director General of [CAA] will provide such amendment service.

The term "Head" as referred to in this manual describes the most senior [CAA] officer responsible for certification, registration and continuing safety oversight functions and surveillance of aerodromes, heliports and air navigation services. The incumbent official holding this position reports directly to the Director General, [Civil Aviation Authority (CAA)].

Comments from staff members of [CAA], stakeholders, (or members of the) concerned aviation industry users and public about the contents of this manual are welcome. Clarifications or inquiries can be directed to:

Head of Aerodrome Standards
[Office]
[Address]
[Telephone]:
[Email]:

Amendments

Record of amendment			
Number	Date Applicable	Date Entered	Entered by:

Record of corrigenda			
Number	Date Applicable	Date Entered	Entered by:

Revision History

Revisions to this Document shall be made by authorised personnel only. After inserting the revision, enter the required data in the revision sheet below. The *'Initials'* has to be signed off by the personnel responsible for the change.

Rev No.	Revision Date	Revision Details	Initials

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CHAPTER 1 – AERODROME CERTIFICATION MODEL REGULATIONS

A. Introduction

In this chapter describes the requirement for aerodromes to operate with an Aerodrome Certificate in accordance with the [State regulation].

B. Aerodrome Certification Model Regulations

The aerodrome certification model regulations in this chapter are divided into five sections:

Section 1 — General
Section 2 — Aerodrome Certification
Section 3 — Aerodrome Manual
Section 4 — Obligations of the Aerodrome Operator
Section 5 — Exemptions

SECTION 1 – GENERAL

1.1 Introduction

1.1.1 These regulations are intended to apply to land aerodromes.

1.1.2 Provisions for the use of military aerodromes by civil aircraft have to be address in [State regulations].

MODEL REGULATIONS

1.2 Application

Sections 1 to 5 inclusive apply to land aerodromes.

1.3 Definitions

The terms described in this subsection have the following meanings whenever they appear in these regulations:

Aerodrome. A defined area on land (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome certificate. The certificate to operate an aerodrome issued by the appropriate authority under Section B of these regulations subsequent to the acceptance/approval of the aerodrome manual.

Aerodrome facilities and equipment. Facilities and equipment, inside or outside the boundaries of an aerodrome, that are constructed or installed and maintained for the arrival, departure and surface movement of aircraft.

Aerodrome manual. The manual that forms part of the application for an aerodrome certificate pursuant to these regulations, including any amendments thereto accepted/approved by the [CAA].

Aerodrome operator. In relation to a certificated aerodrome, means the aerodrome certificate holder.

Apron. A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fueling, parking or maintenance.

Certified aerodrome. An aerodrome whose operator has been granted an aerodrome certificate.

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Marker. An object displayed above ground level in order to indicate an obstacle or delineate a boundary.

Marking. A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.

Maximum carrying capacity. In relation to an aircraft, means the maximum passenger-seating capacity, or the maximum payload, permitted under the aircraft's certificate of type approval.

Maximum passenger-seating capacity. In relation to an aircraft, means the maximum number of seats for passengers permitted under the aircraft's certificate of type approval.

Movement area. That part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

Obstacle. 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; or

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.

Obstacle free zone (OFZ). The airspace above the inner approach surface, inner transitional surfaces, and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes.

Obstacle limitation surfaces. A series of surfaces that define the volume of airspace at and around an aerodrome to be kept free of obstacles in order to permit the intended aeroplane operations to be conducted safely and to prevent the aerodrome from becoming unusable by the growth of obstacles around the aerodrome.

Runway strip. A defined area including the runway and stopway, if provided, intended:

a) to reduce the risk of damage to aircraft running off a runway; and

b) to protect aircraft flying over it during take-off or landing operations.

Safety management system. A systematic approach to managing safety including the necessary organizational structure, accountabilities, policies and procedures.

Taxiway strip. An area including a taxiway intended to protect an aircraft operating on the taxiway and to reduce the risk of damage to an aircraft accidentally running off the taxiway.

Unserviceable area. A part of the movement area that is unfit and unavailable for use by aircraft.

Work area. A part of an aerodrome in which maintenance or construction works are in progress.

1.4 Standards and practices

Any reference in these regulations to aerodrome standards and practices is a reference to the Standards and Recommended Practices (SARPs) in the latest version of Annex 14 Volume I to the Convention on International Civil Aviation, and the [State regulations] and practices as amended from time to time.

SECTION 2 – AERODROME CERTIFICATION

2.1 Introduction

2.1.1 This section includes model regulations covering the requirement for aerodrome certification; application for issuance of an aerodrome certificate; grant of the certificate; endorsement of conditions in the certificate; duration of the certificate; surrender of the certificate; transfer of the certificate; grant of an interim certificate and amendment of the certificate.

2.1.2 The specifications in ICAO Annex 14, Volume I, unless otherwise indicated in a particular context, apply to all aerodromes open to public use in accordance with the provisions of Article 15 of the Convention on International Civil Aviation (reference Annex 14, Volume I, Chapter 1, 1.2.2). [State] is responsible to ensure safety and order at all aerodromes open to public use. Aerodromes used for international operations shall not be exempted from the requirement.

2.1.3 Before granting an aerodrome certificate, the [CAA] has ensured that the aerodrome manual accurately describes the facilities, services and equipment at the aerodrome and that it contains all the details and information as set out in Section 3 of these regulations. The [CAA] also has ensured that the aerodrome facilities and equipment conform to the standards and practices specified in 1.4. The [CAA] has ensured the aerodrome will offer a safe environment for the operation of the aircraft it is intended for and that the aerodrome operator has the necessary competence and experience to operate and maintain the aerodrome properly.

2.1.4 If there are deviations from the standards and practices specified in regulation 1.4, the [CAA] may, after the aerodrome operator conducted aeronautical studies and/or safety risk assessments to the satisfaction of [CAA] to ensure safety (if and where permitted by the standards and practices), decide to grant a certificate subject to certain conditions and procedures to be complied with by the aerodrome operator. Some guidance material on accepting non-compliances in aerodromes is included in Appendix III.

2.1.5 An aerodrome operator may voluntarily choose to surrender the aerodrome certificate. There should however be a provision for adequate notice to be given to the [CAA] for the processing of the request and the cancelling of the certificate.

2.1.6 Transfer of an aerodrome certificate from one operator to another may be agreed upon and effected by the [CAA]. The [CAA] must be satisfied that the proposed transferee will be able to properly operate and maintain the aerodrome.

2.1.7 An amendment to an aerodrome certificate are required if there is a change in the ownership or management structure, a change in the use, operation or boundaries of the aerodrome or if the aerodrome operator requests an amendment.

MODEL REGULATIONS

2.2 Requirement for an aerodrome certificate

2.2.1 The operator of an aerodrome used for international operations shall, in accordance with the [State regulation], be in possession of an aerodrome certificate.

2.2.2 The operator of an aerodrome for which an aerodrome certificate is not required may nevertheless apply for an aerodrome certificate.

2.3 Application for an aerodrome certificate

2.3.1 [State regulation] stipulates that an application for a certificate of aerodrome shall be made to the [DG/CEO] in the form and manner as may be determined by the [DG/CEO];

2.3.2 The Applicant shall submit but not limited to:

a) Completed application form [Appendix II]**;**
b) Aerodrome Manual;
c) Aerodrome Emergency Plan;
d) Safety Management System (SMS) Manual;
e) Wildlife Hazard Management Plan; and
f) Aerodrome Disabled Aircraft Removal Plan (ADARP).

2.3.3 The [CAA] may require other documentation to facilitate the assessment of application.

2.3.4 The application for the certificate of aerodrome shall be accompanied by the prescribed fee specified in the [State regulations].

2.3.5 The interval between application and grant of a certificate may depend upon matters within or outside the control of the Applicant and no undertaking can be given that the [CAA] will be able to reach a decision within a particular time period.

2.4 Grant of an aerodrome certificate

2.4.1 Before granting an aerodrome certificate, the [CAA] must be satisfied that:

a) the applicant employs the necessary competence and experience staff to operate and maintain the aerodrome;

b) the aerodrome manual and other required documents prepared and submitted with the application contains all the relevant information;

c) the aerodrome facilities, services and equipment are in accordance with the standards and practices specified in [Directive/Manual etc.];

d) the aerodrome operating procedures make satisfactory provision for the safety of aircraft; and

e) an acceptable safety management system (SMS) is in place at the aerodrome.

2.4.2 The [CAA] may refuse to grant an aerodrome certificate to an applicant. In such cases, the [CAA] must notify the applicant, in writing, of its reasons no later than [.....] days after making that decision.

2.5 Endorsement of conditions on an aerodrome certificate

After successful completion of the processing of the application and the inspection of the aerodrome, the [CAA] when granting the aerodrome certificate, will endorse the conditions for the type of use of the aerodrome and other details as shown in Appendix IV.

2.6 Duration of an aerodrome certificate

An aerodrome certificate shall remain in force until it is suspended or cancelled or, alternatively, an aerodrome certificate shall be valid for [.....] years or until it is suspended or cancelled, whichever is earlier.

2.7 Surrender of an aerodrome certificate

2.7.1 An aerodrome certificate holder must give the [CAA] not less than [.....] days written notice of the date on which the certificate is to be surrendered in order that suitable promulgation action can be taken.

2.7.2 The [CAA] will cancel the certificate on the date specified in the notice.

2.7.3 If the aerodrome is to be closed to all traffic, the aerodrome operator shall take sufficient safety measures such as removal of windsocks and markings, the provision of closed markings, unserviceability markers and such other visual aids as necessary.

2.7.4 The Aeronautical Information Services shall be advised by the certificate holder to take appropriate action regarding the closure of the aerodrome.

2.8 Transfer of an aerodrome certificate

2.8.1 Aerodrome Certificate shall not be transferable to any person without the prior consent in writing of the [CEO/DGCA], and any purported transfer of an Aerodrome Certificate shall be void and of no effect.

2.8.2 The [CAA] may give its consent to and provide a process of transfer of an aerodrome certificate to a transferee when:

a) the current holder of the aerodrome certificate notifies the [CAA], in writing, at least [.....] days before ceasing to operate the aerodrome, that the current holder will cease to operate the aerodrome as of the date specified in the notice;

b) the current holder of the aerodrome certificate notifies the [CAA], in writing, of the name of the transferee;

c) the transferee applies to the [CAA], in writing, within [.....] days before the current holder of the aerodrome certificate ceases to operate the aerodrome for the aerodrome certificate to be transferred to the transferee; and

d) the requirements set out in 2.3.1 are met in respect of the transferee.

2.8.3 If the [CAA] does not consent to the transfer of an aerodrome certificate, it shall notify the transferee, in writing, of its reasons no later than [.....] days after making that decision.

2.9 Interim aerodrome certificate (Only applicable to CAAs that will issue interim aerodrome certificate)

2.9.1 The [CAA] may issue an interim aerodrome certificate to the applicant referred to in 2.2 or the proposed transferee of an aerodrome certificate referred to in 2.7.1 authorizing the applicant or transferee to operate an aerodrome if the [CAA] is satisfied that:

a) an aerodrome certificate in respect of the aerodrome will be issued to the applicant or transferred to the transferee as soon as the application procedure for the grant or transfer of an aerodrome certificate has been completed; and

b) the grant of the interim certificate is in the public interest and is not detrimental to aviation safety.

2.9.2 An interim aerodrome certificate issued pursuant to 2.8.1 shall expire on:

a) the date on which the aerodrome certificate is issued or transferred; or

b) the expiry date specified in the interim aerodrome certificate;

whichever is earlier.

2.9.3 These regulations apply to an interim aerodrome certificate in the same manner as they apply to an aerodrome certificate.

2.10 Amendment of an aerodrome certificate

2.10.1 The [CAA] may, provided that the requirements of 2.4.1, 3.6 and 3.7 have been met, amend an aerodrome certificate when:

a) there is a change in the ownership or management of the aerodrome;

b) there is a change in the use or operation of the aerodrome;

c) there is a change in the boundaries of the aerodrome; or

d) the holder of the aerodrome certificate requests an amendment.

SECTION 3 – AERODROME MANUAL

3.1 Introduction

3.1.1 Purpose and scope of the aerodrome manual.

The aerodrome manual is a fundamental requirement of the certification process. It contains all the pertinent information concerning the aerodrome site, facilities, services, equipment, operating procedures, organization and management including the safety management system. The information presented in the aerodrome manual should demonstrate that the aerodrome conforms to the certification standards and practices and that there are no apparent shortcomings which would adversely affect the safety of aircraft operations. The manual is a reference document and provides a checklist of aerodrome certification standards to be maintained and the level of airside services at the aerodrome. Information provided in the aerodrome manual will enable the [CAA] to assess the suitability of the aerodrome for the aircraft operations proposed and to judge an applicant's fitness to hold a certificate. It is a basic reference guide for conducting site inspections for granting an aerodrome certificate and for subsequent safety inspections. The aerodrome manual is a reference document agreed between the aerodrome operator and the [CAA] with respect to the standards, conditions and the level of service to be maintained at the aerodrome.

3.1.2 Structure and contents of the aerodrome manual.

For the purpose of uniformity and to facilitate the [CAA] review and acceptance/approval of the aerodrome manual, the regulations should set out the structure and content of the aerodrome manual. Examples of the particulars to be included in the aerodrome manual as schedules of the aerodrome certification regulations are given in Appendix I to this manual. The applicant for an aerodrome certificate is entirely responsible for the accuracy of the information provided in the aerodrome manual.

3.1.3 The aerodrome manual — a living document.

The aerodrome manual is subject to amendment in order to ensure that it provides current and accurate information. The aerodrome certificate holder should therefore be made responsible for the amendment of the manual and for notifying the [CAA] of any such amendments. The content of an aerodrome manual should be treated with due respect to the confidentiality requirements of individual States.

MODEL REGULATIONS

3.2 Preparation of the aerodrome manual

3.2.1 [State Regulations] requires an applicant for an Aerodrome Certificate to submit an Aerodrome Manual which shall:

a) contain information and instructions relating to the matters specified in the [directive/manual etc.]; and

b) contain all such other information and instructions as may be necessary to enable the aerodrome operating staff to perform their duties.

c) be typewritten or printed, and signed by the aerodrome operator;

d) have a system for recording the currency of pages and amendments thereto, including a page for logging revisions; and

e) be organized in a manner that will facilitate the preparation, review and acceptance/approval process.

3.3 Location of the aerodrome manual

3.3.1 The aerodrome operator must provide the [CAA] with a complete and current copy of the aerodrome manual.

3.3.2 The aerodrome operator must keep at least one complete and current copy of the aerodrome manual at the aerodrome and one copy at the operator's principal place of business if other than the aerodrome.

3.3.3 The aerodrome operator must make the copy referred to in 3.2.2 available for inspection by authorized [CAA] personnel.

3.4 Information to be included in the aerodrome manual

3.4.1 The aerodrome operator must include the following particulars in an aerodrome manual, under the following parts:

Part 1. General information set out in Part 1 of the schedule of these regulations (see Appendix I) on the purpose and scope of the aerodrome manual; the legal requirement for an aerodrome certificate and an aerodrome manual as prescribed in the [State regulations]; conditions for use of the aerodrome; the aeronautical information services available and the procedures for their promulgation; the system for recording aircraft movements and the obligations of the aerodrome operator as specified in Section 4 of these regulations.

Part 2. Particulars of the aerodrome site as set out in Part 2 of the schedule of these regulations.

Part 3. Particulars of the aerodrome required to be reported to the aeronautical information service as set out in Part 3 of the schedule of these regulations.

Part 4. The aerodrome operating procedures and safety measures as set out in Part 4 of the schedule of these regulations. This may include references to air traffic procedures such as those relevant to low visibility operations. Air traffic management procedures are normally published in the air traffic services manual with a cross-reference to the aerodrome manual.

Part 5. Details of the aerodrome administration and the safety management system as set out in Part 5 of the schedule of these regulations.

3.4.2 If, under 5.2.1 the [CAA] exempts the aerodrome operator from complying with any requirement set out in 2.3.1, the aerodrome manual must show the identifying number given to that exemption by the [CAA] and the date the exemption came into effect and any conditions or procedures subject to which the exemption was granted.

3.4.3 If a particular is not included in the aerodrome manual because it is not applicable to the aerodrome, the aerodrome operator must indicate in the manual the reason for non-applicability of the particular.

3.5 Amendment of the aerodrome manual

3.5.1 The aerodrome operator shall make such amendment or addition to the aerodrome manual, whenever necessary, in order to:

a) maintain the accuracy of the information in the manual.

b) ensuring the safe and efficient operation of aircraft at the aerodrome; or

c) ensuring the safety of air navigation.

3.5.2 To maintain the accuracy of the aerodrome manual, the [CAA] may issue a written directive to an aerodrome operator requiring the operator to alter or amend the manual within […] days in accordance with that directive.

3.6 Notification of changes to the aerodrome manual

The aerodrome operator must notify the [CAA], as soon as practicable, of any amendment made to the aerodrome manual.

3.7 [CAA] acceptance/approval of the aerodrome manual

The [CAA] shall accept/approve the aerodrome manual and any amendments thereto, provided these meet the requirements of the preceding regulations in this section.

SECTION 4 – OBLIGATIONS OF THE AERODROME OPERATOR

4.1 Introduction

4.1.1 The grant of an aerodrome certificate obliges the aerodrome operator to ensure the safety, regularity and efficiency of operations at the aerodrome, to allow [CAA] authorized personnel access to the aerodrome to carry out safety audits, inspections and testing and to be responsible for notifying and reporting as prescribed.

MODEL REGULATIONS

4.2 Compliance with standards and practices

The aerodrome operator shall comply with the standards and practices specified in 1.4 and with any conditions endorsed in the certificate pursuant to regulations 2.5 and 5.2.1.

4.3 Competence of operational and maintenance personnel

4.3.1 The aerodrome operator shall employ an adequate number of qualified and skilled personnel to perform all critical activities for aerodrome operation and maintenance.

4.3.2 If the [CAA] or any other competent authority of the government requires competency certification for the personnel referred to 4.2.1, the aerodrome operator shall employ only those persons possessing such certificates.

4.3.3 The aerodrome operator shall implement a programme to upgrade or maintain the competency of the personnel referred to 4.2.1.

4.4 Aerodrome operation and maintenance

4.4.1 Based on [Directive/Manual etc.], the aerodrome operator shall operate and maintain the aerodrome in accordance with the procedures set out in the aerodrome manual.

4.4.2 To ensure the safety of aircraft, the [CAA] may give written directives to an aerodrome operator to alter the procedures set out in the aerodrome manual.

4.4.3 The aerodrome operator should ensure proper and efficient maintenance of the aerodrome facilities.

4.4.4 The aerodrome certificate holder shall coordinate with the ATS provider in order to be satisfied that appropriate air traffic services are available to ensure the safety of aircraft in the airspace associated with the aerodrome. The coordination shall cover other areas related to safety such as aeronautical information service, air traffic services, designated meteorological authorities, and security.

4.5 Aerodrome operator's safety management system

4.5.1 The aerodrome operator shall establish a safety management system for the aerodrome describing the structure of the organization and the duties, powers and responsibilities of the officials in the organizational structure, with a view to ensuring that operations are carried out in a demonstrably controlled way and are improved where necessary.

4.5.2 The aerodrome operator shall oblige all users of the aerodrome, including fixed-base operators, ground handling agencies and other organizations that perform activities independently at the aerodrome in relation to flight or aircraft handling, to comply with the requirements laid down by the aerodrome operator with regard to safety at the aerodrome. The aerodrome operator shall monitor such compliance.

4.5.3 The aerodrome operator shall require all users of the aerodrome, including fixed-base operators, ground handling agencies and other organizations referred to 4.5.2, to cooperate in the programme to promote safety at, and the safe use of, the aerodrome by immediately informing it of any accidents, incidents, defects and faults which have a bearing on safety.

4.6 Aerodrome operator's internal safety audits and safety reporting

4.6.1 The aerodrome operator shall arrange for an audit of the safety management system, including an inspection of the aerodrome facilities and equipment. The audit shall cover the aerodrome operator's own functions. The aerodrome operator shall also arrange for an external audit and inspection programme for evaluating other users, including fixed-base operators, ground handling agencies and other organizations working at the aerodrome as referred to 4.5.2.

4.6.2 The audits referred to 4.6.1 shall be carried out every [.....] months, or less, as agreed with the [CAA].

4.6.3 The aerodrome operator shall ensure that the audit reports, including the report on the aerodrome facilities, services and equipment, are prepared by suitably qualified safety experts.

4.6.4 The aerodrome operator shall retain a copy of the report(s) referred to 4.6.3 for a period to be agreed with the [CAA]. The [CAA] may request a copy of the report(s) for its review and reference.

4.6.5 The report(s) referred to in 4.6.3 shall be prepared and signed by the persons who carried out the audits and inspections.

4.7 Access to the aerodrome

4.7.1 Personnel so authorized by the [CAA] may inspect and carry out tests on the aerodrome facilities, services and equipment, inspect the aerodrome operator's documents and records and verify the aerodrome operator's safety management system before the aerodrome certificate is granted or renewed and, subsequently, at any other time, for the purpose of ensuring safety at the aerodrome.

4.7.2 An aerodrome operator shall, at the request of the person referred to 4.7.1, allow access to any part of the aerodrome or any aerodrome facility, including equipment, records, documents and operator personnel, for the purpose referred to 4.7.1.

4.7.3 The aerodrome operator shall cooperate in conducting the activities referred to 4.7.1.

4.8 Notifying and reporting

4.8.1 An aerodrome operator shall adhere to the requirement to notify and report to the [CAA], air traffic control and pilots within the specified time limits required by these regulations.

4.8.2 *Notification of inaccuracies in aeronautical information service (AIS) publications.*

An aerodrome operator shall review all Aeronautical Information Publications (AIPs), AIP Supplements, AIP Amendments, Notices to Airmen (NOTAMs), Pre-flight Information Bulletins and Aeronautical Information Circulars issued by AIS on receipt thereof and immediately after such reviews shall notify AIS of any inaccurate information contained therein that pertains to the aerodrome.

4.8.3 *Notification of changes to the aerodrome facilities, equipment and level of service planned in advance.*

An aerodrome operator shall notify AIS unit and the [CAA], in writing, at least [.....] days before effecting any change to the aerodrome facility or equipment or the level of service at the aerodrome that has been planned in advance and which is likely to affect the accuracy of the information contained in any AIS publication referred to 4.8.2.

4.8.4 *Issues requiring immediate notification.*

Subject to the requirements of 4.8.5, an aerodrome operator shall give AIS and shall arrange for air traffic control and the flight operations unit to receive immediate notice detailing any of the following circumstances of which the operator has knowledge:

a) obstacles, obstructions and hazards:

1) any projections by an object through an obstacle limitation surface relating to the aerodrome; and

2) the existence of any obstruction or hazardous condition affecting aviation safety at or near the aerodrome;

b) level of service:

reduction in the level of service at the aerodrome as set out in any of the AIS publications referred to in regulation 4.8.2;

c) movement area:

closure of any part of the movement area of the aerodrome; and

d) any other condition that could affect aviation safety at the aerodrome and against which precautions are warranted.

4.8.5 *Immediate notification to pilots.*

When it is not feasible for an aerodrome operator to arrange for the air traffic control and the flight operations unit to receive notice of a circumstance referred to in 4.8.4 in accordance with that regulation, the operator must give immediate notice direct to the pilots who may be affected by that circumstance.

4.9 Special inspections

An aerodrome operator shall inspect an aerodrome, as circumstances require, to ensure aviation safety:

a) as soon as practicable after any aircraft accident or incident within the meaning of these terms as defined in Annex 13 to the Convention on International Civil Aviation;

b) during any period of construction or repair of the aerodrome facilities or equipment that is critical to the safety of aircraft operation; and

c) at any other time when there are conditions at the aerodrome that could affect aviation safety.

4.10 Removal of obstructions from the aerodrome surface

An aerodrome operator shall remove from the aerodrome surface any vehicle or other obstruction that is likely to be hazardous.

4.11 Warning notices

When low flying aircraft, at or near an aerodrome, or taxiing aircraft are likely to be hazardous to people or vehicular traffic, the aerodrome operator shall:

a) post hazard warning notices on any public way that is adjacent to the manoeuvring area; or

b) if such a public way is not controlled by the aerodrome operator, inform the authority responsible for posting the notices on the public way that there is a hazard.

SECTION 5 – EXEMPTIONS

MODEL REGULATIONS

5.1 The [CAA] may exempt, in writing, an aerodrome operator from complying with specific provisions of these regulations.

5.2 Before the [CAA] decides to exempt the aerodrome operator, the [CAA] shall take into account all safety related aspects.

5.3 An exemption is subject to the aerodrome operator complying with the conditions and procedures specified by the [CAA] in the aerodrome certificate as being necessary in the interest of safety.

5.4 When an aerodrome does not meet the requirement of a standard or practice specified in 1.4, the [CAA] may determine, after the aerodrome operator conducted aeronautical studies and/or safety risk assessments to the satisfaction of [CAA] to ensure safety, only if and where permitted by the standards and practices, the conditions and procedures that are necessary to ensure a level of safety equivalent to that established by the relevant standard or practice.

5.5 Deviation from a standard or practice and the conditions and procedures referred to in regulation 2.5 shall be set out in an endorsement on the aerodrome certificate.

Appendices

Appendix I Schedule of the Aerodrome Certification Regulations — Particulars to be included in an Aerodrome Manual

PART 1 - GENERAL

General information, including the following:

a) purpose and scope of the aerodrome manual;

b) the legal requirement for an aerodrome certificate and an aerodrome manual as prescribed in the national regulations;

c) conditions for use of the aerodrome — a statement to indicate that the aerodrome shall at all times, when it is available for the take-off and landing of aircraft, be so available to all persons on equal terms and conditions;

d) the available aeronautical information system and procedures for its promulgation;

e) the system for recording aircraft movements; and

f) obligations of the aerodrome operator.

PART 2 - PARTICULARS OF THE AERODROME SITE

General information, including the following:

a) a plan of the aerodrome showing the main aerodrome facilities for the operation of the aerodrome including, particularly, the location of each wind direction indicator;

b) a plan of the aerodrome showing the aerodrome boundaries;

c) a plan showing the distance of the aerodrome from the nearest city, town or other populous area, and the location of any aerodrome facilities and equipment outside the boundaries of the aerodrome; and

d) particulars of the title of the aerodrome site. If the boundaries of the aerodrome are not defined in the title documents particulars of the title to, or interest in, the property on which the aerodrome is located and a plan showing the boundaries and position of the aerodrome.

PART 3 - PARTICULARS OF THE AERODROME REQUIRED TO BE REPORTED TO THE AERONAUTICAL INFORMATION SERVICE (AIS)

3.1 General Information

a) the name of the aerodrome;

b) the location of the aerodrome;

c) the geographical coordinates of the aerodrome reference point determined in terms of the World Geodetic System — 1984 (WGS-84) reference datum;

d) the aerodrome elevation and geoid undulation;

e) the elevation of each threshold and geoid undulation, the elevation of the runway end and any significant high and low points along the runway, and the highest elevation of the touchdown zone of a precision approach runway;

f) the aerodrome reference temperature;

g) details of the aerodrome beacon; and

h) the name of the aerodrome operator and the address and telephone numbers at which the aerodrome operator may be contacted at all times.

3.2 Aerodrome Dimensions and Related Information

General information, including the following:

a) runway — true bearing, designation number, length, width, displaced threshold location, slope, surface type, type of runway and, for a precision approach runway, the existence of an obstacle free zone;

b) length, width and surface type of strip, runway end safety areas, stopways;

c) length, width and surface type of taxiways;

d) apron surface type and aircraft stands;

e) clearway length and ground profile;

f) visual aids for approach procedures, *viz*. approach lighting type and visual approach slope indicator system (PAPI/APAPI and T-VASIS/AT-VASIS); marking and lighting of runways, taxiways, and aprons; other visual guidance and control aids on taxiways (including runway holding positions, intermediate holding positions and stop bars) and aprons, location and type of visual docking guidance system; availability of standby power for lighting;

g) the location and radio frequency of VOR aerodrome checkpoints;

h) the location and designation of standard taxi routes;

i) the geographical coordinates of each threshold;

j) the geographical coordinates of appropriate taxiway centre line points;

k) the geographical coordinates of each aircraft stand;

l) the geographical coordinates and the top elevation of significant obstacles in the approach and take-off areas, in the circling area and in the vicinity of the aerodrome. (This information may best be shown in the form of charts such as those required for the preparation of aeronautical information publications, as specified in Annexes 4 and 15 to the Convention);

m) pavement surface type and bearing strength using the Aircraft Classification Number — Pavement Classification Number (ACN-PCN) method;

n) one or more pre-flight altimeter check locations established on an apron and their elevation;

o) declared distances: take-off run available (TORA), take-off distance available (TODA), accelerate-stop distance available (ASDA), landing distance available (LDA);

p) disabled aircraft removal plan: the telephone/telex/facsimile numbers and e-mail address of the aerodrome coordinator for the removal of a disabled aircraft on or adjacent to the movement area, information on the capability to remove a disabled aircraft, expressed in terms of the largest type of aircraft which the aerodrome is equipped to remove; and

q) rescue and fire-fighting: the level of protection provided, expressed in terms of the category of the rescue and fire-fighting services, which should be in accordance with the longest aeroplane normally using the aerodrome and the type and amounts of extinguishing agents normally available at the aerodrome.

Note.— The accuracy of the information in Part 3 is critical to aircraft safety. Information requiring engineering survey and assessment should be gathered or verified by qualified technical persons.

PART 4 - PARTICULARS OF THE AERODROME OPERATING PROCEDURES AND SAFETY MEASURES

4.1 Aerodrome Data and Reporting

Particulars of the procedures for reporting any changes to the aerodrome information set out in the AIP and procedures for requesting the issue of NOTAMs, including the following:

a) arrangements for reporting any changes to the CAA and recording the reporting of changes during and outside the normal hours of aerodrome operations;

b) the names and roles of persons responsible for notifying the changes, and their telephone numbers during and outside the normal hours of aerodrome operations; and

c) the address and telephone numbers, as provided by the CAA, of the place where changes are to be reported to the CAA.

4.2 Control of Airside Access

Particulars of the procedures that have been developed and are to be followed in coordination with the agency responsible for preventing unlawful interference in civil aviation at the aerodrome and for preventing unauthorized entry of persons, vehicles, equipment, animals or other things into the *movement area,* including the following:

a) the role of the aerodrome operator, the aircraft operator, aerodrome fixed-base operators, the aerodrome security entity, the CAA and other government departments, as applicable; and

b) the names and roles of the personnel responsible for controlling access to the aerodrome, and the telephone numbers for contacting them during and after working hours.

4.3 Aerodrome Emergency Plan

Particulars of the aerodrome emergency plan, including the following:

a) plans for dealing with emergencies occurring at the aerodrome or in its vicinity, including the malfunction of aircraft in flight; structural fires; sabotage, including bomb threats (aircraft or structure); unlawful seizure of aircraft; and incidents on the airport covering “during the emergency” and “after the emergency” considerations;

b) details of tests for aerodrome facilities and equipment to be used in emergencies, including the frequency of those tests;

c) details of exercises to test emergency plans, including the frequency of those exercises;

d) a list of organizations, agencies and persons of authority, both on- and off-airport, for site roles; their telephone and facsimile numbers, e-mail and SITA addresses and the radio frequencies of their offices;

e) the establishment of an aerodrome emergency committee to organize training and other preparations for dealing with emergencies; and

f) the appointment of an on-scene commander for the overall emergency operation.

4.4 Rescue and Fire-Fighting

Particulars of the facilities, equipment, personnel and procedures for meeting the rescue and fire-fighting requirements, including the names and roles of the persons responsible for dealing with the rescue and fire-fighting services at the aerodrome.

Note.— This subject should also be covered in appropriate detail in the aerodrome emergency plan.

4.5 Inspection of Movement Area and Obstacle Limitation Surface

Particulars of the procedures for the inspection of the aerodrome movement area and obstacle limitation surfaces, including the following:

a) arrangements for carrying out inspections, including runway friction and water-depth measurements on runways and taxiways, during and outside the normal hours of aerodrome operations;

b) arrangements and means of communicating with air traffic control during an inspection;

c) arrangements for keeping an inspection logbook, and the location of the logbook;

d) details of inspection intervals and times;

e) inspection checklist;

f) arrangements for reporting the results of inspections and for taking prompt follow-up actions to ensure correction of unsafe conditions; and

g) the names and roles of persons responsible for carrying out inspections, and their telephone numbers during and after working hours.

4.6 Movement Area Maintenance

Particulars of the facilities and procedures for the maintenance of the movement area, including:

a) arrangements for maintaining the paved areas;

b) arrangements for maintaining the unpaved runways and taxiways;

c) arrangements for maintaining the runway and taxiway strips; and

d) arrangements for the maintenance of aerodrome drainage.

4.7 Hazardous Meteorological Condition

Particulars of the procedures for the prevention and mitigation of harmful consequences of adverse weather conditions, such as ice, frost, freezing rain, strong winds, rain, snow, fog and low visibility. The particulars include:

a) procedures and criteria for suspension of runway operations; and

b) coordination with the meteorological service provider in order to be advised of any significant meteorological conditions.

4.8 Visual Aids and Aerodrome Electrical Systems

Particulars of the procedures for the inspection and maintenance of aeronautical lights (including obstacle lighting), signs, markers and aerodrome electrical systems, including the following:

a) arrangements for carrying out inspections during and outside the normal hours of aerodrome operation, and the checklist for such inspections;

b) arrangements for recording the result of inspections and for taking follow-up action to correct deficiencies;

c) arrangements for carrying out routine maintenance and emergency maintenance;

d) arrangements for secondary power supplies, if any, and, if applicable, the particulars of any other method of dealing with partial or total system failure; and

e) the names and roles of the persons responsible for the inspection and maintenance of the lighting, and the telephone numbers for contacting those persons during and after working hours.

4.9 Aerodrome Works Safety

Particulars of the procedures for planning and carrying out construction and maintenance work safely (including work that may have to be carried out at short notice) on or in the vicinity of the movement area which may extend above an obstacle limitation surface, including the following:

a) arrangements for communicating with air traffic control during the progress of such work;

b) the names, telephone numbers and roles of the persons and organizations responsible for planning and carrying out the work, and arrangements for contacting those persons and organizations at all times;

c) the names and telephone numbers, during and after working hours, of the aerodrome fixed-base operators, ground handling agents and aircraft operators who are to be notified of the work;

d) a distribution list for work plans, if required.

4.10 Apron Management

Particulars of the apron management procedures, including the following:

a) arrangements between air traffic control and the apron management unit;

b) arrangements for allocating aircraft parking positions;

c) arrangements for initiating engine start and ensuring clearance of aircraft push-back;

d) marshalling service; and

e) leader (van) service.

4.11 Apron Safety

Procedures to ensure apron safety, including:

a) protection from jet blasts;

b) enforcement of safety precautions during aircraft refuelling operations;

c) apron sweeping;

d) apron cleaning;

e) arrangements for reporting incidents and accidents on an apron; and

f) arrangements for auditing the safety compliance of all personnel working on the apron.

4.12 Airside Vehicle Control

Particulars of the procedure for the control of surface vehicles operating on or in the vicinity of the movement area, including the following:

a) details of the applicable traffic rules (including speed limits and the means of enforcing the rules); and

b) the method of issuing driving permits for operating vehicles in the movement area.

4.13 Wildlife Hazard Management

Particulars of the procedures to deal with the danger posed to aircraft operations by the presence of birds or mammals in the aerodrome flight pattern or movement area, including the following:

a) arrangements for assessing wildlife hazards;

b) arrangements for implementing wildlife control programmes; and

c) the names and roles of the persons responsible for dealing with wildlife hazards, and their telephone numbers during and after working hours.

4.14 Obstacle Control

Particulars setting out the procedures for:

a) monitoring the obstacle limitation surfaces and Type A Chart for obstacles in the take-off surface;

b) controlling obstacles within the authority of the operator;

c) monitoring the height of buildings or structures within the boundaries of the obstacle limitation surfaces;

d) controlling new developments in the vicinity of aerodromes; and

e) notifying the CAA of the nature and location of obstacles and any subsequent addition or removal of obstacles for action as necessary, including amendment of the AIS publications.

4.15 Removal of Disabled Aircraft

Particulars of the procedures for removing a disabled aircraft on or adjacent to the movement area, including the following:

a) the roles of the aerodrome operator and the holder of the aircraft certificate of registration;

b) arrangements for notifying the holder of the certificate of registration;

c) arrangements for liaising with the air traffic control unit;

d) arrangements for obtaining equipment and personnel to remove the disabled aircraft; and

e) the names, role and telephone numbers of persons responsible for arranging for the removal of disabled aircraft.

4.16 Low-Visibility Operations

Particulars of procedures to be introduced for low-visibility operations, including the measurement and reporting of runway visual range as and when required, and the names and telephone numbers, during and after working hours, of the persons responsible for measuring the runway visual range.

4.17 Handling of Hazardous Materials

Particulars of the procedures for the safe handling and storage of hazardous materials on the aerodrome, including the following:

a) arrangements for special areas on the aerodrome to be set up for the storage of inflammable liquids (including aviation fuels) and any other hazardous materials; and

b) the method to be followed for the delivery, storage, dispensing and handling of hazardous materials.

Note.— Hazardous materials include inflammable liquids and solids, corrosive liquids, compressed gases and magnetized or radioactive materials. Arrangements for dealing with the accidental spillage of hazardous materials should be included in the aerodrome emergency plan.

4.18 Protection of Sites for Radar and Navigational Aids

Particulars of the procedures for the protection of sites for radar and radio navigational aids located on the aerodrome to ensure that their performance will not be degraded, including the following:

a) arrangements for the control of activities in the vicinity of radar and navaids installations;

b) arrangements for ground maintenance in the vicinity of these installations; and

c) arrangements for the supply and installation of signs warning of hazardous microwave radiation.

Note 1.— In writing the procedures for each category, clear and precise information should be included on:

— when, or in what circumstances, an operating procedure is to be activated;

— how an operating procedure is to be activated;

— actions to be taken;

— the persons who are to carry out the actions; and

— the equipment necessary for carrying out the actions, and access to such equipment

Note 2.— If any of the procedures specified above are not relevant or applicable, the reason should be given.

4.19 Reporting of Runway Surface Conditions

Particulars of the procedures to comply with the new global reporting format for runway surface conditions in compliance with PANS-Aerodromes (Doc 9981).

PART 5 - AERODROME ADMINISTRATION AND SAFETY MANAGEMENT SYSTEM

Aerodrome administration

Particulars of the aerodrome administration, including the following:

a) an aerodrome organizational chart showing the names and positions of key personnel, including their responsibilities;

b) the name, position and telephone number of the person who has overall responsibility for aerodrome safety; and

c) airport committees.

Safety management system (SMS)

Particulars of the safety management system established for ensuring compliance with all safety requirements and achieving continuous improvement in safety performance, the essential features being:

a) the safety policy, insofar as applicable, on the safety management process and its relation to the operational and maintenance process;

b) the structure or organization of the SMS, including staffing and the assignment of individual and group responsibilities for safety issues;

c) SMS strategy and planning, such as setting safety performance targets, allocating priorities for implementing safety initiatives and providing a framework for controlling the risks to as low a level as is reasonably practicable keeping always in view the requirements of the Standards and Recommended Practices in Volume I of Annex 14 to the Convention on International Civil Aviation, and the national regulations, standards, rules or orders;

d) SMS implementation, including facilities, methods and procedures for the effective communication of safety messages and the enforcement of safety requirements;

e) a system for the implementation of, and action on, critical safety areas which require a higher level of safety management integrity (safety measures programme);

f) measures for safety promotion and accident prevention and a system for risk control involving analysis and handling of accidents, incidents, complaints, defects, faults, discrepancies and failures, and continuing safety monitoring;

g) the internal safety audit and review system detailing the systems and programmes for quality control of safety;

h) the system for documenting all safety-related airport facilities as well as airport operational and maintenance records, including information on the design and construction of aircraft pavements and aerodrome lighting. The system should enable easy retrieval of records including charts;

i) staff training and competency, including the review and evaluation of the adequacy of training provided to staff on safety-related duties and of the certification system for testing their competency; and

j) the incorporation and enforcement of safety-related clauses in the contracts for construction work at the aerodrome.

Appendix II Sample Application Form for an Aerodrome Certificate

Note: Another example is available in the Appendix of Generic Aerodrome Certification Procedure. CAAs are expected to compare the two samples and prepare the application form that best suits the needs.

[CAA]

APPLICATION FOR AERODROME CERTIFICATION

[Xxxxx]/CERT/APL1

New Application	
Renewal	

1. Particulars of Applicant

1.1 Name* : _____

1.2 Address : _____

_____

_____

1.3 Position : _____

1.4 Telephone :_____ **Fax** : _____

1.5 Is the Applicant the Owner of the Aerodrome Site? **YES / NO**

If NO, provide:

[a] Details of Rights Held in Relation to the Site;
[b] The period and/or dates Applicant holds these rights; and
[c] Name and address of the owner of the site and written evidence to show permission has been obtained for the site to be used by the applicant as an aerodrome.

Note:
**Name of person[s], company or club designated as Aerodrome Operator and that will be responsible for giving effect to the conditions of the aerodrome certificate.*

2. Particulars of The Aerodrome site

2.1 Name of Aerodrome : _____

2.2 State :_____ **District** :_____

Lot No. : _____ **Plan No.** : _____

2.3 Geographical Coordinates of the ARP : Latitude : _____

Longitude : _____

2.4 Ground Elevation Aerodrome [meters] : _____

3. Aerodrome Operations

3.1 Is the aerodrome to be used by Public Transport Aircraft? **YES / NO**

3.2 Aerodrome operational hours : _____hours

If not 24-hour operations, state;

[a] Opening time : _____

[b] Closing time : _____

3.3 Type of aircraft to be operated at the aerodrome:

[a] Aeroplanes **YES / NO**

[b] Helicopters **YES / NO**

[c] Microlights **YES / NO**

[d] Others (specify) : _____

3.4 The heaviest type of aircraft in reference to item 3.3:

[a] Aircraft type : _____

[b] Maximum Total Weight Authorized (kilograms) : _____

3.5 Expected number of movement per calendar month of heaviest aircraft type.
[One movement is one take-off or one landing]

_____ per month

3.6 Is aircraft fuelling expected to take place at the aerodrome? **YES / NO**

4. OBSTACLE CONTROL

4.1 Obstacle Limitation Surfaces

[a] Approach Slope : _____%

[b] Take-off Slope : _____%

[c] Transitional Slope : _____%

4.2 Is there a Controlled Area gazetted, under Civil Aviation Act 1969 Section IV, for the aerodrome? **YES / NO**

If YES, state

[a] Gazetted reference : _____ [b] Date of gazetted : _____

5. AIR TRAFFIC MANAGEMENT

5.1 Is the aerodrome located within controlled airspace? **YES / NO**

If YES, state

[a] Vertical Limits (feet) : _____

[b] Lateral Limit : _____

(In Reference to ARP)

5.2 Is Air Traffic Control service with licensed Air Traffic Controllers be provided at the aerodrome? **YES / NO**

[a] AFIS **YES / NO**

[b] NOTAM **YES / NO**

5.3 In reference to item 5.3, who is responsible to provide the services?

[a] AFIS : _____

[b] NOTAM : _____

6. LOCAL AUTHORITIES APPROVAL

6.1 Before submitting this application, the Local Authorities, should be consulted and their approval obtained.

[a] Local Authorities for land-use? **YES / NO**

[b] Certificate of Fitness? **YES / NO**

[c] Fire and Rescue Services Department approval? **YES / NO**

[d] Environmental Impact Assessment? **YES / NO**

7. DOCUMENTATION

7.1 Applicant shall submit together with this application form, the following:

[a] Aerodrome Manual;

[b] Aerodrome Emergency Plan (AEP);

[c] Safety Management Systems Manual (SMS);

[d] Aerodrome Wildlife Hazard Management Plan (AWHMP);

[e] Aerodrome Disabled Aircraft Removal Plan (ADARP);

All Document must be submitted in 1 hardcopy and softcopy (.pdf)

8. DETAILS TO BE SHOWN ON AERODROME CERTIFICATE

Aerodrome Name :_____

Aerodrome Operator : _____

9. CERTIFICATION

I hereby:-

[a] Apply for a certificate to operate the aerodrome (on behalf of the aerodrome operator above shown*)

[b] Certify that the foregoing information is correct in every respect and no relevant information has been withheld.

**Delete if not applicable*

....
[Signature of Applicant] [Company stamp]

Name :_____

Position : _____

Date : _____

INFORMATION

[a] Before certificate of aerodrome is granted, the Authority will require to be satisfied that the physical conditions on the manoeuvring area and its environs are acceptable, that the scale of equipment and services are adequate, and that the aerodrome is organized, staffed and other arrangements sufficient to ensure the safe operations of the aerodrome. The requirements are set out in detail in the ICAO Annex 14 and the relevant [directive/manual etc.] published and issued by the [CAA].

[b] Completed application form together with the necessary documentation required for the certification shall be submitted to [CAA] at the following address:

Office]
[Address]
[Telephone]:
[Email]:

Appendix III Accepting Non-compliances in Aerodromes

[Please refer to the *Generic Procedures for Accepting Non-compliances in Aerodromes*]

Appendix IV Sample Aerodrome Certificate*

[Please refer to the Appendix to *Generic Aerodrome Certification Procedure*.]

References

1. Civil Aviation Safety Regulations 1998 – Part 139, Australia
https://www.legislation.gov.au/Details/F2021C00238/Html/Volume_4#_Toc63852638

2. Civil Aviation Rules – Part 139, New Zealand
https://www.aviation.govt.nz/rules/rule-part/show/139

3. Title 14, Code of Federal Regulations, Part 139 (14 CFR Part 139), Federal Aviation Administration (FAA)
https://www.faa.gov/airports/airport_safety/part139_cert/
https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=8313bccee050ec81d7e8fb3377331177&rgn=div5&view=text&node=14:3.0.1.1.14&idno=14

4. Easy Access Rules for Aerodromes (Regulation (EU) No 139/2014)
https://www.easa.europa.eu/document-library/easy-access-rules/easy-access-rules-aerodromes-regulation-eu-no-1392014

5. AC 139.C-01 on Aerodrome Manual – by Civil Aviation Safety Authority Australia (CASA)
https://www.casa.gov.au/rules-and-regulations/current-rules/advisory-circulars

6. Aerodrome Manual Template and Guide – by CASA
https://www.casa.gov.au/standard-page/aerodrome-manual-template-and-self-check

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GENERIC ORGANIZAION STRUCTURE OF THE AERODROME REGULATORY UNIT

VERSION 1.0 – 2 JULY 2021

Introductory Notes

This generic document was developed by the ICAO Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG) and approved by AOP/SG/5 and published by ICAO Asia and Pacific Office, Bangkok for reference by States in the APAC Regions. When referring to this generic document, States are expected to customize the content in accordance to the States' legislations, regulations and situations.

ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and Guidance Materials shall take prevalence in the event of any conflict between the aforementioned provisions and this generic document.

Enquiries and feedbacks regarding this generic document can be made to ICAO APAC Office at apac@icao.int.

CIVIL AVIATION AUTHORITY

GENERIC ORGANIZATION STRUCTURE OF THE AERODROME REGULATORY UNIT

Foreword

This manual is a [CAA] safety programme document. It contains processes determined to be necessary in supporting operational safety at aerodromes and heliports in the [State]. This manual is being issued under the authority of the Director General of Civil Aviation, [CAA].

Copies are available at the office of:

[Post holder]
[Address]

This document may be amended from time to time as necessary, and the Director General of [CAA] will provide such amendment service.

The term "Head", as referred to in this manual describes the most senior CAA officer responsible for certification, registration and continuing safety oversight functions and surveillance of aerodromes and heliports. The incumbent official holding this position reports directly to the Director General, [CAA] through senior managerial officers e.g. Deputy Director General, depending on the organizational structure.

Comments from staff members of [CAA], stakeholders, (or members of the) concerned aviation industry users and public about the contents of this manual are welcome. Clarifications or inquiries can be directed to:

Head of Aerodrome Standards
[Office]
[Address]
[Telephone]:
[Email]:

Amendments

Record of amendment			
Number	Date Applicable	Date Entered	Entered by:

Record of corrigenda			
Number	Date Applicable	Date Entered	Entered by:

Revision History

Revisions to this Document shall be made by authorised personnel only. After inserting the revision, enter the required data in the revision sheet below. The *'Initials'* has to be signed off by the personnel responsible for the change.

Rev No.	Revision Date	Revision Details	Initials

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Chapter 1 – Regulatory Authority

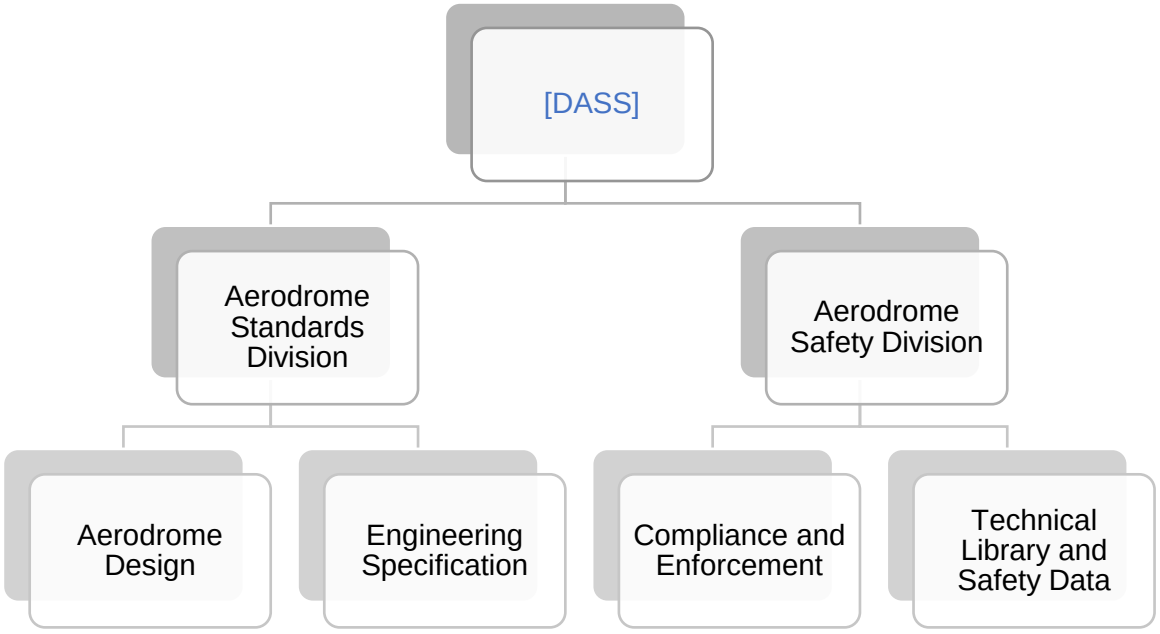
1.1 Organization

1.1.1 The primary responsibility of the [CAA] with respect to regulations and operations of aerodromes in [State] is to ensure that:

a) the aerodromes under the jurisdiction of the Authority offer a safe operational environment in accordance with the Convention on International Civil Aviation; and

b) the obligation of [State] under Article 38 of the Convention to notify ICAO of differences between its national regulations and practices and the International Standards contained in Annex 14 is met. It is also recommended that differences between the Recommended Practices contained in the Annex 14 and the [State]'s national regulations and practices be notified to ICAO.

1.2 A typical organizational structure of a [DASS] is given below.



1.3 Methodology in determining the number of Inspectors

1.3.1 [DASS] has developed and established the methodology in determining aerodrome inspector needs to carry out all safety oversight related task, including review and revision of regulations, training of technical staff, development of guidance material, issuance of approvals, conducting of surveillance and resolution of identified safety concerns. Basically, the number of inspectors required are derived from the following formula:

[TOTAL MAN-DAYS REQUIRED FOR ALL RESPONSIBILITIES] divided by [TOTAL WORKING DAYS PER YEAR]

1.3.2 The details in determining aerodrome inspector needs are as follow:

(Remarks: The following calculation serves as an example only. [CAA] using this generic document should derive the requirement by themselves.)

	OBLIGATIONS	INSP	DAYS	TOTAL
1	Aerodrome Certification	5	100	500
2	Notifications to AIS and other organizations	2	50	100
3	Safety Audit	5	50	250
4	Compliance and enforcement	5	50	250
5	Aerodrome Design	3	50	150
6	Consultation and Investigation	3	50	150
7	Technical Library & Safety Data	2	50	100
8	General Task	3	50	150
Total Man-Days				1650
Total [2020] Calendar Year Working Days			205	/
INSPECTOR REQUIRED				**8.05**

Note.— e.g. If 1 person completes a task in 1 day, that means the effort is 1 manday. If 5 people complete a task in 1 day, that means 5 mandays. If 5 people complete the task in 2 days that means 10 mandays. E.g.:

a) Certification of Aerodrome:
- *Number of days required : 20 days*
- *Number of airports per year : 5 airports*
- *Number of personnel required : 5 Inspectors*

Number of Man-Days = 500 MD

b) Safety Audit:
- *Number of days required : 10 days*
- *Number of airports per year : 5 airports*
- *Number of personnel required : 5 Inspectors*

Number of Man-Days = 250 MD

.....

1.3.3 Depending upon the level of aviation activity, the number of aerodromes and the volume of work, the functions of the sections under each division may be combined and even the functions of the two divisions may be combined.

1.4 Functions and Responsibilities of the [DASS]

1.4.1 General Task

These general tasks and responsibilities include the following:

a) reviewing ICAO State letters on the subject of aerodromes, preparing responses thereto and taking action thereon;

b) developing and continuing to review Civil Aviation Regulation for Aerodromes and other national standards and practices for aerodrome design, operation and maintenance, and engineering specifications;

c) developing and issuing directives, rules, advisory circulars and guidance material relating to aerodrome standards and practices;

d) reviewing plans and designs for new aerodromes or the further development of, or modification to, existing aerodromes, submitted to the Authority for approval, to ensure that the requirements of the national regulations, standards and the ICAO SARPs are complied with; and

e) advising the aerodrome inspectors, as required, on aerodrome standards and practices.

1.4.2 Aerodrome certification

These tasks and responsibilities include:

a) receiving, recording, reviewing and processing, in cooperation with the Flight Operations Division of the [CAA] if necessary, the expressions of interest received from an intending applicant for an aerodrome certificate;

b) receiving, recording, reviewing and processing, in cooperation with the Flight Operations Division of the [CAA] if necessary, the formal application for an aerodrome certificate, including the initial inspection covering the review of the aerodrome manual, on-site verification, inspection and testing of aerodrome particulars, facilities and equipment, including aeronautical studies;

c) grant or refusal of an aerodrome certificate;

d) estimating, recording and collecting the cost of the services from applicants;

e) receiving, recording, reviewing and processing applications for the transfer of an aerodrome certificate;

f) grant or refusal of the transfer of an aerodrome certificate;

g) receiving, recording, reviewing and processing applications for the surrender of an aerodrome certificate;

h) cancelling or suspending an aerodrome certificate;

i) grant of an interim aerodrome certificate; and

j) reviewing the factors requiring the amendment of an aerodrome certificate and issuing the required amendments.

1.4.3 Notifications to Aeronautical Information Services (AIS) and Other Organizations

These tasks and responsibilities include:

a) notifying AIS of the certification status of an aerodrome and providing the particulars of the aerodrome described in the Aerodrome Manual for promulgation by the AIS;

b) reviewing any amendments to aerodrome manuals and notifying AIS of the changes to be made in the AIS publications;

c) coordinating with AIS in the review of any notification received from an aerodrome operator for promulgation by AIS, such as notification of:

i) inaccuracies in AIS publications;
ii) changes in aerodrome facilities, equipment and level of services planned in advance;
iii) obstacles, obstructions and hazards;
iv) closure of any part of the manoeuvring area;
v) immediate reduction in the level of service at the aerodrome and any other conditions that could affect the safety at or near the aerodrome and warrant precautions to be taken; and

d) coordinating with other agencies and service providers such as aeronautical information service, air traffic services, designated meteorological authorities, and security.

1.4.4 **Safety audits**

1.4.4.1 These tasks and responsibilities include:

a) periodic or special on-site audits of the aerodrome safety management system including verification of the aerodrome, and data published in the AIP and inspection of the aerodrome facilities, equipment and operating procedures; and

b) review of the aerodrome operator's daily audits and special safety audit reports and actions thereon.

1.4.4.2 Periodic inspections are therefore required to ensure that aerodrome certificate holders meet their obligations under the terms of the certificate and the requirements of the accepted/approved aerodrome manual.

1.4.4.3 The frequency of inspections may correspond to the class of the aerodrome as categorized by the [CAA] but at least [.....] a year for international airport and once in every [.....] years for domestic airport. Other aerodromes will be subject to inspection from time to time as determined by the [CAA].

1.4.4.4 The tasks and responsibilities associated with periodic inspections are described in 1.4.4.2 These tasks may be carried out in the following phases:

a) *Pre-inspection briefing* with aerodrome management, including coordination with air traffic control tower personnel.

b) *Administrative inspection* of the aerodrome safety management system, including such items as:

i) current NOTAMs;
ii) medical and RFF training records;
iii) aviation fuel suppliers safety records;
iv) fuelling agents certificates and fire safety training records;
v) documentation of the annual review of the aerodrome emergency plan, including full-scale emergency exercises; and

vi) the aerodrome operator‘s records of the safety audits of fixed-base operators, ground handling agents and other agencies engaged in airside activities.

c) *Movement area inspection* including:

i) the inspection and checking of runways and taxiways in order to ascertain the condition of pavements, markings, lighting, signs, shoulders, strips and runway end safety areas;

ii) checking for potentially hazardous conditions if construction work is in progress, such as excavations, trenches, stockpiled material, inadequate construction area markings, construction equipment in the movement area and inadequate marking and lighting of temporary thresholds;

iii) checking ground vehicle operations in the movement area to verify that only authorized vehicles have access to the area and that the required procedures are being followed, the vehicles are properly marked and the drivers know and use the proper communication terminology;

iv) checking that the public is protected against unauthorized entry to the movement area and against jet or propeller blast;

v) checking for wildlife hazards and wildlife attractants; and

vi) checking landing direction indicators and wind direction indicators.

d) *Rescue and fire-fighting* including:

i) the checking of training records;

ii) random testing of the knowledge of firefighters;

iii) checking that the equipment is in position, is functional and meets the category requirements;

iv) conducting a time response drill;

v) checking the alarm system; and

vi) checking and examining proximity suits, other protective clothing and fire-fighting and rescue tools and supplies in the inventory.

e) *Fuel facilities* including the examination of the inspection records by qualified and authorized personnel, particularly checking that the aerodrome fire-fighting standards are adequately covered in the inspection checklist, and spot checking, including fuel sampling, for compliance with the applicable requirements.

f) *Night inspections* including the evaluation and checking for compliance with the standards related to:

i) runway, taxiway and apron lighting and signage;
ii) pavement markings;
iii) aerodrome beacons;

iv) wind direction indicator lighting;
v) obstacle lighting and the marking; and
vi) lighting of construction areas.

g) *Post inspection briefing* with the aerodrome management, including the determination of appropriate enforcement action for non-compliance with the regulations.

1.4.5 **Other safety functions**

These tasks and responsibilities may include:

a) evaluation of full-scale airport emergency exercises to identify problems and deficiencies;

b) the provision of guidance at the design and construction stages of aerodrome projects, particularly complex projects or where there is significant work that may impact compliance with the regulations;

c) final inspection of completed projects involving complex or significant work to identify problems or deficiencies that need to be corrected in order to comply with the requirements of the regulations;

d) the organization of, and participation in, aerodrome safety seminars and other training programmes to promote a safety culture.

1.4.6 **Compliance and enforcement**

1.4.6.1 It is the responsibility of aerodrome operators to comply with the requirements of the aerodrome certification regulations. Aviation safety at aerodromes depends primarily on voluntary adherence to these requirements by the aerodrome operators. Promoting compliance with the regulations through education, training and counselling is therefore of primary importance, and only when these efforts have failed should formal enforcement action be taken. Sanctions can be administrative or legal depending on the severity of the violation of the regulations and its impact on aviation safety. It is recognized that States may have their own policies for enforcement of their regulations.

1.4.6.2 Administrative action in the form of a warning letter or correction letter may be considered appropriate when legal action is deemed unnecessary. Administrative enforcement action is intended to bring the violation to the attention of the aerodrome operator, to document corrective action and to require future compliance. Such actions are warranted when the violation does not result in a significant unsafe condition, is not caused by incompetence or lack of required qualifications on the part of the aerodrome operator, is not deliberately caused, the attitude of the operator is constructive and positive towards compliance with the regulations and there is no history of such a violation by the operator.

1.4.6.3 Formal legal enforcement action may be warranted to prevent future violations of the regulations. Such action may include the issuance of cease-and-desist orders and injunctions and the imposition of sanctions after the act to deter violations. Such sanctions may include revocation, suspension or amendment of the certificate. Legal enforcement actions are pursuant to appropriate statutory provisions in the civil aviation legislation of a State.

1.4.6.4 In determining the appropriate type and measure of sanction to be applied, the factors to be considered may include the nature of the violation, whether it was deliberate or inadvertently caused; the potential or actual hazard to aviation safety created by the violation; the aerodrome operator's level of responsibility; records of previous violations; the operator's attitude toward the violation, including whether the operator voluntarily disclosed the violation and whether action was taken to correct it; the impact of the proposed sanction on the violator and its value as a deterrent to other operators in similar situations.

1.4.6.5 Certificate-related legal sanctions can have a significant impact on air services and may also have other repercussions. Since the public interest and aviation safety are the principal objectives of aerodrome certification regulations, recourse to the imposition of sanctions may be warranted only after all other means of resolving safety violations have failed to ensure compliance.

1.4.6.6 Suspension of an aerodrome certificate may be considered if:

a) the aerodrome operator's safety management system is found to be inadequate;

b) it is in the interest of operational safety;

c) all other means for timely correction of the unsafe condition or ensuring safe aircraft operations have not yielded the required results;

d) the technical proficiency or qualifications of the aerodrome operator to perform the duties to meet the critical safety requirements in accordance with the regulations are found inadequate;

e) the operator resists or is unwilling to take action to correct or mitigate the condition affecting aviation safety; or

f) the operator wilfully fails to perform an already agreed upon corrective action and suspension of the certificate is the last resort to avoid unsafe operations in the aerodrome movement area.

1.4.6.7 Revocation of an aerodrome certificate may be warranted if the aerodrome operator:

a) is incapable or unwilling to carry out corrective action or has committed/repeated serious violations;

b) has demonstrated a lack of responsibility, such as deliberate and flagrant acts of non-compliance or falsification of records jeopardizing aviation safety; or

c) has made it convincingly clear that the continued operation of the aerodrome will be detrimental to the public interest.

1.5 Technical Library and Records.

1.5.1 To enable [DASS] personnel to keep abreast of the subject of aerodrome design, specifications, operation and maintenance, it is essential to establish a properly organized and administered technical library. The library should contain all documents issued by ICAO relating to the design, operation and maintenance of aerodrome facilities and equipment, and all national standards, rules, orders, advisory circulars and guidance material. Additionally, the standards and other relevant documentation

issued by other States which are commonly used as reference material, and important textbooks and magazines on the subject should also be kept in the technical library. It is important that the documents in the library be promptly amended to keep them current.

1.5.2 [DASS] will need to maintain files for each aerodrome in the State including certified aerodromes. The file for each certified aerodrome should contain records from the expression of interest stage to the issuance or refusal of the certificate, and the file should remain open thereafter for further documentation and correspondence on the subject. Additionally, an aerodrome certificate register should be maintained for each aerodrome as well as a reference log of the date of issue of important letters, forms and certificate numbers.

1.5.3 Close liaison should be maintained with the Accident Investigation and Prevention Unit of the State to obtain data on aircraft accidents and incidents at or near aerodromes for use by [DASS] staff in their continuing work.

1.6 Duties and Responsibilities of Aerodrome Inspectors

1.6.1 Qualification

a) Aerodrome inspectors may be an engineer (civil or electrical) or air traffic controller or AFF personnel with minimum [numbers] years experience in aerodrome planning, operation or maintenance and should possess a sound knowledge of the national legislation, standards and practices, and ICAO Annex 14, all relevant manuals published by ICAO. Airport management experience and knowledge of modern safety management systems are desirable qualifications.

b) The [CAA] may also consider hiring persons with other qualifications, experience and knowledge suitable for carrying out the duties of aerodrome inspector, subject to any conditions that the [CAA] may have regarding the person‘s qualifications, experience and knowledge. Such persons may have airport management or flight operations. Training in the appropriate elements of aerodrome engineering relevant to aerodrome inspection should be an essential requirement.

c) Training in the appropriate fields as specified in Training Programme should be an essential requirement.

1.6.2 Inspector Training

[Note:- Please also refer to Generic Training Programme and Training Plan for Aerodrome Inspectors]

The training objective is to provide the aerodrome inspector with a basic knowledge of aerodrome operations which will enable him/her to administer the regulatory function. Such knowledge may be acquired through a combination of formal training courses and on-the-job training. The minimum training that must be completed prior to issuance of an aerodrome inspectors credential includes all of the following courses offered by any institution recognized by the [CAA]:

a) ICAO Annex 14 Vol. I Course;

b) Aerodrome Certification Course;

c) Safety Management System (SMS) Course; and

d) On-Job-Training Aerodrome Inspectors Training.

1.6.3 Duties and responsibilities of Director of [DASS]:

Duties and responsibilities of Director of Aerodrome Standards as a Management Position:

a) to administer the overall activity and functions of the Division;

b) to adopt the SARPs of ICAO Annexes into [State regulation] as required;

c) to implement [State regulation] and the ICAO SARPs;

d) to examine changes in ICAO requirements for incorporation into national requirements, or the filing of appropriate differences;

e) to verify and ensure the quality of the services provided by the aerodrome operator as per ICAO SARPs and Standards established by ASD;

f) to review Policy and Procedures, Manuals, Directives, Aerodrome Circulars, Guidance Materials and exemption procedures;

g) to check and monitor the fitness of movement area, manoeuvring area, equipment, fire- fighting facilities, signage, marking and lighting systems;

h) to monitor the Obstacle Limitation Surface (OLS) at the vicinity of the airport;

i) to monitor safety management system at the airside area;

j) to monitor the surveillance programme;

k) to monitor the implementation of training programme;

l) to develop and conduct in house training and OJT for the inspectors;

m) to form an aerodrome certification team to issue, renew, cancel, suspend of aerodrome certificates to aerodrome operators as per regulations;

n) to detail assignment for the inspectors for different checks, inspection;

o) to review observations and reporting findings;

p) to recommend for enforcement against the aerodrome operator if any; and

q) to perform any other duties assigned by the [CAA].

1.6.4 Duties and Responsibilities of Aerodrome Inspectors

a) Aerodrome inspectors will report to the Director of Aerodrome Standards, through the appropriate departmental Head and will be responsible for carrying out the functions as described. Adequate on-the-job training should be provided

before entrusting the whole spectrum of aerodrome inspection duties to an inspector.

b) Duties and responsibilities of an aerodrome inspectors are divided into the following disciplines:

i) Aerodrome Operations Officer;
ii) Engineering (Electrical & Civil) Officer;
iii) Standards and Policy Officer; and
iv) Fire Fighting Rescue Officer.

Aerodrome Operation and Engineering Officer

c) The duties of Aerodrome Operation and Engineering officer should include but not be limited to:

Verification of the aerodrome data in the Aerodrome Manual including details of:

i) the location of the aerodrome;
ii) the name and address of the aerodrome operator;
iii) the movement area;
iv) aeronautical ground lighting;
v) the runway declared distances available;
vi) ground services;
vii) notices of special conditions and procedures, if any;
viii) exemptions; if any
ix) obstacle limitation chart (If Available);
x) aerodrome/facility directory; and
xi) aerodrome layout plan.

On-site verification and audits of aerodrome operating procedures including:

i) the overall aerodrome safety management system;
ii) the aerodrome emergency plan and periodic aerodrome emergency exercises;
iii) inspection and maintenance of aeronautical ground lighting;
iv) promulgation of changes to published aerodrome information;
v) the prevention of unauthorized entry to the aerodrome, particularly the movement area and protection of the public against jet or propeller blast;
vi) the operators daily inspection of the aerodrome;
vii) the planning and carrying out of aerodrome construction and maintenance work including compliance with construction safety requirements;
viii) apron management and parking control;
ix) the control of vehicles operating on or in the vicinity of the movement area;
x) wildlife hazard management;
xi) the monitoring of obstacle limitation surfaces and notification;
xii) the removal of disabled aircraft;
xiii) the protection of radar and navigational aids;
xiv) low-visibility operations;
xv) drivers use proper terminology and possess airside driving permit;
xvi) vehicles are properly marked; and
xvii) check traffic and wind direction indicators.

If construction is in progress, check for the following:

i) adherence to construction safety plan requirements;
ii) potentially hazardous conditions to the movement area such as excavations, trenches or stockpiled material or presence of FOD‘s;
iii) adequate construction area marking and lighting
iv) marking of temporary runway thresholds;
v) construction equipment in the movement area; and
vi) observe ground vehicle operations.

on-site checking and testing of aerodrome facilities and equipment including:

i) aeronautical ground lighting systems including flight check records;
ii) standby power;
iii) the dimensions and surface conditions and strengths of runways, taxiways, stopways, runway end safety areas, runway and taxiway strips, shoulders and aprons;
iv) landing direction indicators and wind direction indicators, aerodrome markings and markers;
v) guidance signs and warning signs in the movement area;
vi) aerodrome maintenance equipment;
vii) disabled aircraft removal plan;
viii) wildlife control equipment;
ix) the presence of obstacles in obstacle limitation surfaces;
x) runway visual range measuring equipment;
xi) the presence of dangerous lights; and
xii) runway surface friction measuring equipment;

Night Inspection

During this phase of the inspection, the Inspector shall:

i) evaluate runway/taxiway and apron lighting and signage, pavement marking; and
ii) inspect OLS marking & lighting and construction areas on or adjacent to movement areas for adequate marking and lighting.

Rescue and Firefighting (RFF) Officer

d) The duties of RFF Inspectors should include but not be limited to:

i) check for acceptability of the RFFS curriculum and training records;
ii) randomly question fire-fighters in the subject areas to determine validity of the training program and general knowledge of the job;
iii) perform a walk-around inspection to determine if the aircraft rescue firefighting equipment is operational and meets the category with the required agents;
iv) make a check of RFFS vehicle maintenance records;
v) at the RFFS station check the alarm and communication system for serviceability;
vi) examine proximity suits, other protective clothing and equipment for condition and availability;
vii) check SOP of a RFFS;
viii) check of records of live fire drills; and
ix) sufficient RFFS personnel are available to operate the required RFFS vehicles.

Standards and Policy Officer

e) The duties of Standards and Policy Officer should include but not be limited to:

i) safety assessments and aeronautical studies at aerodromes:

in cooperation with aerodrome operator and other specialists as required, organize safety assessments at aerodromes and conduct aeronautical studies, if and were permitted by the [State regulations], standards and practices.

ii) review and update the Audit PQs and inspection checklist;
iii) review and update the provisions and requirements on Standards to ensure those provisions and requirements are developed and established in accordance with ICAO SARPs and guideline of Annex 5, 14 & 19 and others related documents;
iv) develop Policy and Procedures, Manuals, Directives, Aerodrome Circulars, Guidance Materials and exemption procedures;
v) prepare audit or inspection reports; and
vi) assist to review and provide comments on draft new or amendment to the related ICAO SARPs.

f) General duties for all inspectors

All other functions relating to the certification/Inspection of aerodromes including:

i) receiving and processing of expressions of interest and applications for aerodrome certificates;
ii) evaluating all certification document including aerodrome manual;
iii) processing requests for the amendment, transfer or surrender of certificates or requests for interim certificates;
iv) reporting to AIS;
v) initiating NOTAMs and determining appropriate enforcement action in the event of non-compliance with the regulations;
vi) ensure proper directives, charts, advisory circulars, and other appropriate information, are available while conducting the inspection; and
vii) determine the status of follow-up actions in correcting all previously listed deficiencies.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GENERIC AERODROME INSPECTOR HANDBOOK

VERSION 1 – 2 JULY 2021

Introductory Notes

This generic document was developed by the ICAO Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG) and approved by AOP/SG/5 and published by ICAO Asia and Pacific Office, Bangkok. When referring to this draft generic document, States are expected to customize the content in accordance to the States' legislations, regulations and situations.

ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and Guidance Materials shall take prevalence in the event of any conflict between the aforementioned provisions and this generic document.

Enquiries and feedbacks regarding this generic document can be made to ICAO APAC Office at apac@icao.int.

Generic Aerodrome Inspector Handbook

Version 1, 2 July 2021

This is a CAA safety programme document. It contains processes determined to be necessary for supporting operational safety elements at aerodromes in [STATE], and for ensuring the effective safety oversight of aerodrome related activities by officers of CAA.

This manual is issued under the authority of the Director General for Civil Aviation, CAA.

This manual may be amended from time to time, and Director General of Civil Aviation will provide such amendment service.

Copies of this manual are available from the Chief, Directorate of Aerodrome Safety and Standard [DASS], CAA. Comments about the content are welcome from staff members of CAA or members of the aviation industry. Any requests for issue of the document or comments or requests for clarification should be directed to:

Chief, [DASS] Civil Aviation Authority of [STATE]
[ADDRESS]

Phone : xxxxxxxx
Fax : xxxxxxxx
Email : xxxxxxxx

FOREWORD

The Civil Aviation Authority of the [STATE] is responsible under [CIVIL AVIATION ACT], for the regulation of civil aviation activities, including activities in the aerodrome sector of the air transportation industry, within the Republic of the [STATE].

This handbook for aerodrome inspectors is one in a series of manuals that have been adopted by CAA to meet the responsibilities devolved from the Civil Aviation Act or the Civil Aviation Authority Act [as applicable] to ensure the safety regulation of aerodrome matters. This manual describes how staff will implement the procedures specified for conducting certification and surveillance of domestic and international aerodromes throughout the nation.

The information contained within this Aerodrome Inspector Handbook has been developed to be in conformity with ICAO standards and recommended practices and the applicable [STATE] legal requirements including the Civil Aviation Regulations [CAR], the [ANNEX 14] and the Manual of Aerodrome Regulatory Procedures.

I expect CAA officers will comply with the specified processes and activities that are provided in this document. It is important that the CAA is able to demonstrate consistency, equity and leadership in its day to day regulatory activity to the aviation industry, and compliance with our own published procedures is one way that we can demonstrate effective discharge of our functions and obligations to industry participants and the travelling public.

Users of this document are invited to pass advice of errors, inconsistencies or suggestions for improvements to Chief, [DASS].

Director General

Date: _____

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Note:

Finalization of this distribution list is subject to the completion of organizational structure and staffing arrangements. The distribution list is provided as an example only and is to be completed when appropriate.

AMENDMENT RECORD

Record of amendment			
Number	**Date Applicable**	**Date Entered**	**Entered by:**

Record of corrigenda			
Number	**Date Applicable**	**Date Entered**	**Entered by:**

RECORD OF REVISION

The revision listed below have been incorporated in this copy of the Inspector Handbook.

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CHAPTER - 1 About this manual

1.1. Objective

1.1.1. This handbook provides information and guidance for activities by Aerodrome Inspectors conducting CAA safety oversight functions. It provides guidance for Inspectors involved in system safety audits of aerodromes. Specific procedures associated with aerodrome certification can be found in the [Generic Aerodrome Certification Procedure].

1.1.2. This handbook establishes various actions required to be undertaken by Aerodrome Inspectors so that aerodrome operations within [STATE] are maintained in accordance with:

- relevant aviation legislation that impacts on safe aerodrome operations, and specifically that which addresses aerodromes - Civil Aviation Regulations [CAR];
- Manual of Aerodrome Standards [MAS];
- Annex 14 to the Convention on International Civil Aviation, Aerodromes, Volume I (ICAO Annex 14 Volume I); and
- any other directive issued by the CAA relevant to civil aerodromes.

Note: In this document ICAO Annex 14 Volume I is considered as [MAS].

1.2. Applicability

1.2.1. This handbook contains information for safety audit processes to be adopted for:

a) Certified aerodromes;

b) Uncertified/registered aerodromes; and

c) any other aerodrome specified by the CAA;

1.2.2. Responsibility for the development, implementation and maintenance of aerodrome standards rests with the CAA. Specifically designated CAA Aerodrome Inspectors are accountable for the ongoing tasks required to ensure that the contents of this handbook are being effectively implemented in order to satisfy the following objectives;

a) verify the effective implementation of aerodrome standards;

b) monitor the level of compliance with the provisions of [CAR].

c) determine the adequacy and effectiveness of the handbook through the establishment of legislation, regulations, inspections and audits;

d) ensure all persons who are assigned aerodrome audit duties or responsibilities are trained and instructed to carry out such duties;

e) ensure that violation of standards are investigated; and

f) review and re-evaluate aerodrome standards and controls immediately following an act of violation and on a periodic basis.

1.2.3. Appropriate legislation

1.2.3.1. The legal authority governing the implementation of this handbook derives from [CAR] [XXX] that empowers the Director General with authority to issue certificates for aerodromes. The Civil Aviation Regulations governing Aerodromes [CAR], contains details of the mandatory requirements associated with [STATES] aerodromes.

1.2.4. Under the CAR [XXXX], an aerodrome operator is obligated to allow the Director General or his authorized representative access to any aerodrome to carry out safety inspections or evaluations.

1.2.5. Power of access to aerodrome for inspections under CAR [XXX] provides that:

a) The operator of an aerodrome must allow CAA to inspect and conduct tests on aerodrome facilities, equipment, services or operating procedures and inspect the aerodrome operator's documents and records and verify the Aerodrome Safety Management System at the aerodrome for the purpose of aviation safety;

b) The aerodrome operator must allow access for personnel authorized by CAA to any part of the aerodrome, or any aerodrome facilities, equipment, records, documentation or records for the purpose referred to in paragraph (1) above; and

c) CAA must give reasonable notice to the operator about the tests to be conducted and carry out the tests at a reasonable time.

1.3. Overview and concepts

1.3.1. The system described in this handbook covers the following basic elements;

a) Conduct of surveys by CAA of various airports and other aviation stakeholders to determine aerodrome requirements;

b) Setting of operational standards by the CAA through the requirement for, and approval of, aerodrome certificate (AC);

c) Voluntary compliance(internal quality assurance) by the holders of aerodrome certificates;

d) Surveillance, including the detection of non-conformity with standards, conducted by the CAA;

e) Investigation and reporting of non-compliance by the CAA;

f) Notification of violations to stated aerodrome operation requirements by the CAA to aerodrome operators;

g) Enforcement action by CAA in case of non-compliance with requirements by aerodrome operators;

h) Surveillance and detection of non-conformity with aerodrome regulatory requirements as applied within [STATE], conducted by foreign governments, airlines, and ICAO under the Universal Safety Oversight Audit Programme (USOAP).

1.3.2. Under the [civil air regulations] there is a requirement for specified entities to develop and submit an aerodrome manual to the CAA. Aerodrome manuals describe in detail how operators implement the various standards required of them. If an aerodrome manual is accepted by the CAA, it is an indication that, at the time, information and processes contained within the manual were to the standards required to be met by the operator, and that the aerodrome certificate holder is expected to consistently maintain compliance with the mandatory safety requirements. The contents of the manual form the basis for any audit or inspection conducted by the CAA.

1.4. Definitions

1.4.1. Within the contents of this handbook, certain terms are referred to that have a specific technical meaning. A list of these terms and the definition of their technical meanings is included at **Appendix 1**.

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CHAPTER - 2 Authority and responsibility

2.1. CAA responsibilities

2.1.1. The organizational structure of the CAA

The organizational structure of the CAA is shown on the following organization chart (See next page).

2.1.2. Tasks and responsibilities of the [DASS]

The tasks and responsibilities of the [DASS] include, but are not limited to:

a) Receiving, recording, reviewing and processing an expression of interest received from an intending applicant for an aerodrome certificate;

b) Receiving, recording, reviewing and processing a formal application for an aerodrome certificate including the initial inspection review of the aerodrome manual, on-site audit and verification, inspection and testing of aerodrome particulars, facilities and equipment including aeronautical studies;

c) Certifying that aerodromes subject to the regulations will achieve an acceptable level of safety when operated and maintained in accordance with an approved Aerodrome Manual;

d) Grant or refusal of an aerodrome certificate;

e) Receiving, recording, reviewing & processing applications for the registration of an aerodrome;

f) Grant or refusal for registration of an aerodrome;

g) Receiving, recording, reviewing & processing applications for the surrender of an aerodrome certificate;

h) Cancelling or suspending an aerodrome certificate; and

i) Approval of persons to conduct aerodrome safety inspections.

2.1.3. Aerodrome Inspectors/Auditors Code of Conduct

2.1.3.1. As the leader of or as a participant in a CAA audit team, each individual auditor is required to comply with a code of conduct that directs his/her actions during the entire process of the audit. These rules of conduct for each individual auditor are as follows;

a) To exercise in all loyalty, discretion and conscience the functions entrusted to them as a member of the CAA aerodrome safety oversight audit team;

b) To discharge these functions to the best of their ability;

c) To conduct themselves with integrity, impartiality and honesty;

d) To abide by the rules, procedures and guidance prescribed in this handbook;

e) Not to misuse their official position as part of the CAA aerodrome safety oversight audit team;

f) Not to receive benefits of any kind from a third party which might reasonably be seen to compromise their personal judgment or integrity;

CAA ORGANIZATIONAL STRUCTURE

[STATE ORGANIZATION CHART]

g) To avoid giving cause for resentment and abstain from conduct which would reflect adversely on the CAA; and

h) Not to disclose any information of a confidential nature related to the findings of the audit to any other party other than those identified in this handbook.

2.1.4. Auditor Feedback

2.1.4.1. Following the conclusion of an audit and the compilation of the audit report, each individual auditor is required to complete and submit an Auditor Feedback Form (see Appendix 3) providing his/her observations on the conduct of the audit. These forms will be utilized to provide a qualitative assessment on the audit process so as to identify areas of improvement for future audits. The assessment will be carried out by the Chief, [DASS].

2.1.4.2. If an individual auditor or group of auditors has reason to believe that they are under any pressure to act illegally, improperly or in an unethical manner, or are asked to take any action that is in contravention of the procedures laid out in this Handbook, they shall report this matter in writing to the Director General CAA through the Chief, [DASS] without delay.

2.1.5. Aerodrome Inspector powers and authority

2.1.5.1. Aerodrome Inspectors carry formal authorizations, to be produced if required, enabling them to exercise their powers in accordance with all the elements of [CAR]. These powers include the ability:

a) to inspect any part of any aerodrome;

b) to investigate and test the effectiveness of aerodrome practices and procedures;

c) to require an aerodrome operator, aerodrome manager or occupier of land outside the aerodrome occupied for business purposes in connection with the aerodrome to provide information relevant to inspections, surveys, tests and investigations;

d) to enter on any land or in any buildings, access to which is necessary, for the purpose of inspecting an aerodrome; and

e) to record an operation, procedure or installation in written, photographic or other electronic form.

2.1.5.2. The above powers apply equally to air navigation installations. Furthermore, Aerodrome Inspectors are allowed to take into restricted zones of airports, and use, any equipment necessary to their duties, including but not limited to cameras, video recorders and tape recorders. These powers may be exercised when CAA Aerodrome Inspectors are conducting audits, surveys and inspections.

2.2. Aerodrome Certificate holder's responsibilities

2.2.1. Tasks and responsibilities of the aerodrome operator:

The tasks and responsibilities of the aerodrome operator include:

a) The aerodrome operator shall arrange for internal audits of the safety management system, including inspections of the aerodrome facilities and equipment.

b) The aerodrome operator shall ensure that the internal audit reports, including the report on the aerodrome facilities, services and equipment, are prepared by suitably qualified safety personnel.

c) The aerodrome operator shall retain a copy of the report(s) referred to in paragraph (b) above for a period to be agreed with the CAA. The CAA may request a copy of the report(s) for its review and reference.

d) The report(s) referred to in paragraph (b) above must be prepared and signed by the persons who carried out the audits and inspections.

e) The aerodrome operator shall maintain a procedure for preventive action to ensure that potential causes of problems that have been identified within the system are remedied;

f) The aerodrome operator shall maintain a process to capture staff suggestions for improvement, followed by management review and possible implementation of those suggestions;

g) The aerodrome operator shall maintain an internal quality audit programme to audit the aerodrome certificate holder's organization for conformity with the procedures in its manual and achievement of the goals set out in it.

2.2.1.2. Each certified aerodrome operator will incorporate an internal audit process to provide factual information for management to make appropriate decisions in accordance with the aerodrome manual. This internal audit should be able to;

a) Determine the compliance or non-compliance of the audit elements with specified requirements;

b) Determine the effectiveness of the implemented standards in meeting the specified objectives; and

c) Provide the audited organization with the opportunity to improve the operational standard and overall performance.

2.2.1.3. The aerodrome operator's audit process will be contained in an internal quality audit programme that shall;

a) Specify the frequency and the scope(s) of the audits taking into account the nature of the activity to be audited;

b) Ensure audits are carried out by trained auditing personnel who are independent of those having direct responsibility for the activity being audited;

c) Ensure the results of audits are recorded and reported to the personnel responsible for the activity being audited and the manager responsible for internal audits;

d) Require preventive or corrective action to be taken by the personnel responsible for the activity being audited if problems are found by the audit; and

e) Ensure follow up audits to review the effectiveness of any preventive or corrective actions taken are regularly carried out.

2.2.2. Corrective Action

2.2.2.1. The procedure for corrective action shall specify how;

a) to correct an existing problem;

b) to follow up a corrective action to ensure the action is effective; and

c) management will measure the effectiveness of any corrective action.

2.2.3. Preventive Action

2.2.3.1. The procedure for preventive action shall specify how;

a) to correct a potential problem;

b) to follow up a preventive action to ensure the action is effective;

c) to amend any operational procedure as a result of a preventive action; and

d) management will measure the effectiveness of any preventive actions taken.

2.2.4. Management Review

2.2.4.1. The procedure for management review shall;

a) specify the frequency of management reviews of the quality assurance system taking into account the need for the continuing effectiveness of the system;

b) identify the responsible manager who shall review the operational standards; and

c) ensure the results of the review are evaluated and recorded.

2.2.5. Tests

2.2.5.1. Each aerodrome certificate holder shall test its level of compliance with standards, the objective of which is to determine the effectiveness of both the processes and systems involved and the individual performance of staff members tasked with carrying out those processes in the system.

2.2.6. Records

2.2.6.1. Each aerodrome certificate holder shall maintain records to demonstrate the achievement of quality operational standards. Most of the records will be normal business processes and statistical information, however such records should include:

a) Training reports and training records of all members of the organization, including management;

b) Incident and occurrence reports;

c) Internal audit reports;

d) External audit reports;

e) Recurrent testing reports;

f) Equipment testing and servicing reports;

g) Proposals for change;

h) Records of work improvement coordination meetings and outcomes; and

i) Management review meetings and reports.

CHAPTER - 3 Aerodrome manual

Note – Also see Generic Aerodrome Certification Procedure, Chapter 4.

3.1. Requirement for aerodrome operation

3.1.1. The general requirement for certain aviation entities and service providers to develop aerodrome manuals and submit them to the CAA for formal review derives its authority from the [Civil Aviation Act XXXX]. Additionally, the [Civil Aviation Regulations governing Aerodromes] [CAR] specifically requires certain aerodromes to be certified by CAA.

3.1.2. Aerodromes must be certified if:

a) international operations are conducted: or

b) *domestic operations are conducted by aircraft certified to carry more than [##] passengers; or

c) *the aerodrome is open to public use and has a published instrument approach procedure.

**Note to CAA – Please refer to State's legislation and policy to determine if these sub-items are appropriate. The Standards and Recommended Practices regarding aerodrome certification are available in Annex 14, Volume I, Paragraph 1.4.*

3.1.3. Certified aerodromes must have a current acceptable aerodrome manual to describe aeronautical data and other information specific to each particular aerodrome.

3.2. Aerodrome manuals

3.2.1. Submission of aerodrome manuals

3.2.1.1. An aerodrome manual is required to be submitted to CAA as a component of a formal application for certification.

3.2.2. Acceptance of aerodrome manuals

3.2.2.1. Upon receipt of a submitted aerodrome manual, the Chief, [DASS], has authority to accept, reject or require modification to the submitted aerodrome manual. Notification to the aerodrome operator of any disapproval or requirement for modification will be made in writing to the operator. Where an aerodrome manual is acceptable and the other elements of certification have been complied with, an aerodrome certificate will be issued.

3.2.2.2. An accepted aerodrome manual also provides a basis for on-going surveillance of aerodromes and aerodrome operators by CAA Inspectors after initial certification has been achieved.

3.2.3. Amendment of aerodrome manuals

3.2.3.1. Whenever necessary to retain currency or if directed by the CAA, an aerodrome operator shall amend the aerodrome manual and provide copy of the amendment(s) to CAA. The Chief, [DASS], has authority to accept, reject or require modification of the submitted aerodrome manual amendment.

3.2.3.2. Acceptance will result in an amended aerodrome manual. Notification to the aerodrome certificate holder of that acceptance, or rejection, or requirement for change to the amendment as a result of a submitted amendment or adjustment will be made in writing to the operator as soon as is practicably possible, and wherever possible prior to the proposed effective date of implementation of the proposed amendment or adjustment.

CHAPTER - 4 Aerodrome safety oversight

4.1. Aerodrome safety oversight

4.1.1. Aerodrome safety oversight in the broad sense means the total scope of activity conducted by CAA to assess that aerodrome operations are conducted to a level that is as safe as is reasonably practicable. Aerodrome certification and registration involves, but is not limited to, initial entry (via a permission from CAA in the form of a certificate or entry of data onto a formal registration list), continuing oversight action by way of audits and/or inspections, education activity and, where necessary, enforcement action (ranging from warnings to action to suspend or cancel certificates) as well as the imposition of fines.

4.1.2. Aerodrome safety oversight is a CAA function and is additional to any internal audit conducted by an individual aerodrome operator.

4.1.3. In this manual the safety oversight activity is limited to inspection and audit processes as they may be applied to certification, registration and surveillance activity by CAA. Although enforcement is mentioned, staff will be required to undertake specific additional actions when a need for certificate action (suspension or revocation) is determined or a decision to impose a fine is taken, such procedure should be contained within the CAA Enforcement Manual.

4.2. Safety oversight audit

4.2.1. Distinct differences between the aims and objectives of audits and inspections

There are distinct differences between the aims and objectives of audits and inspections, and the methodologies used to conduct each of them. An audit is a systematic and independent comparison of the way in which an aerodrome standard is being implemented, against the way in which the published procedures say it should have been implemented. See Fig 4-1 Overview of Audit Activities. An inspection is basically the act of observing a particular aerodrome operation, action, facility, equipment or document to verify whether the established procedures and requirements are followed, and whether the required standard of performance is achieved.

Audits are more comprehensive, focusing on system issues, and are more complex and time consuming than inspections. Inspections, by comparison, are more specifically focused on specific integral parts of aerodrome operations and are usually of shorter duration. Each of the two types needs to be planned for and a schedule created that allows for the regular conduct of both.

4.2.2. Safety Oversight Auditors and Inspectors

Aerodrome safety oversight audits and inspections shall only be carried out by CAA authorized and certified personnel. These personnel will have undergone audit training and be in possession of competency certificates in the conduct of aerodrome audits issued by the CAA. Staff appointed as CAA Aerodrome Inspectors will be required to possess the necessary qualifications and experience to serve as aviation safety lead auditors. Those without the necessary qualifications or experience may carry out audits and inspections only under the supervision of a person who is appropriately qualified and experienced.

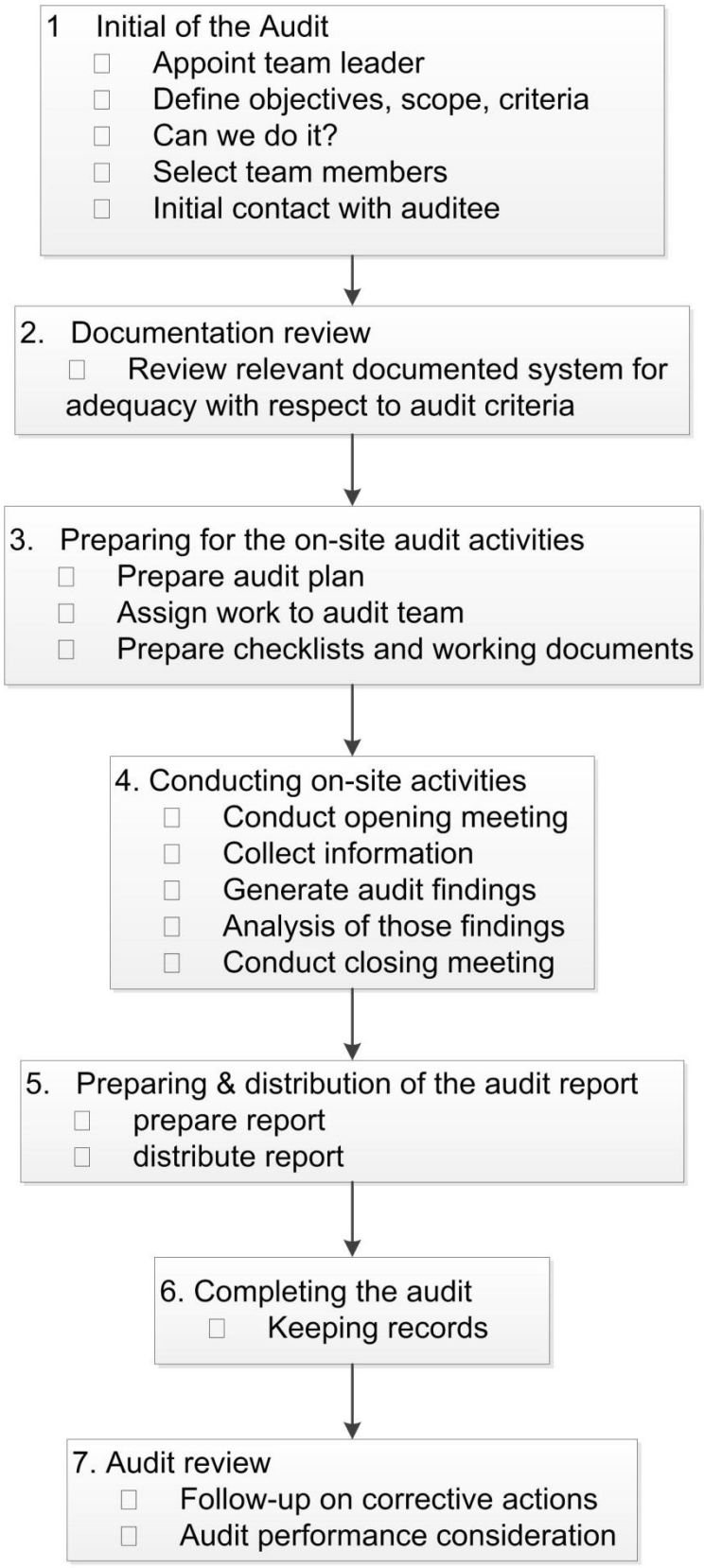

Fig. 4-1 Overview of Audit Process and Activities

4.2.3. Scheduling Audits/Inspections

4.2.3.1. The Chief, [DASS], is responsible for scheduling inspections and audits of all aerodrome certificate holders and other aerodrome operators.

4.2.3.2. The selection of the aerodrome and the frequency of the inspections and audits will be at the discretion of the Chief, [DASS], subject to the following;

a) In normal circumstances each nominated aerodrome certificate holder will be the subject of audit at least once (1) per calendar year;

b) In normal circumstances each registered aerodrome operator will be subject to audit at least once every two years;

Note – Applicable only when a State has "registered" but uncertified aerodromes.

c) Other aerodromes will be subject to inspection from time to time as determined by the Chief, [DASS];

d) In the intervening period between scheduled audits, inspections of relevant parts of aerodrome operations may take place, e.g. Inspectors may attend at aerodrome emergency exercises;

e) In certain situations, or following the occurrence of an accident/incident, or at the discretion of the Director General, additional full or partial audits may be scheduled in addition to any other action that may take place.

4.2.4. Notifying Audits/Inspections

4.2.4.1. The Chief, [DASS] shall notify in writing each selected aerodrome operator that an audit has been planned for that facility or service provider (See Appendix 4).

4.2.4.2. Every notification shall include;

a) The dates of the intended audit;

b) The details of the CAA auditors;

c) Scope of activities to be covered under the audit;

d) List of persons to be made available to the audit team for interview;

e) Deadlines for the submission of the pre-audit questionnaire (if applicable); and

f) Request for essential documentation, as specified by the CAA that may be required to be reviewed prior to the actual audit.

4.2.5. Roles of Auditors

4.2.5.1. All auditors (including the audit leader) are responsible for:

a) complying with the CAA aerodrome audit procedures;

b) clarifying audit requirements if necessary;

c) planning and preparing for the audit;

d) carrying out the audit,

e) documenting observations;

f) reporting the audit results;

g) recording findings in the CAA aerodrome audit database;

h) ensuring corrective and preventative actions are followed up for effective completion;

i) safeguarding all documents relating to the audit;

j) maintaining confidentiality and treating privileged information with discretion;

k) cooperating with and supporting the audit leader.

4.2.6. Roles of Audit Leader

4.2.6.1. In addition to the roles of an auditor, the audit leader has additional responsibility for:

a) liaison with the aerodrome certificate holder regarding the date and time of the audit;

b) ensuring travel and accommodation is booked, if required;

c) assigning responsibilities to team members;

d) preparation of the audit timetable;

e) ensuring team members are adequately prepared

f) resolving any issues regarding written programmes and manuals before the audit;

g) carrying out the opening meeting;

h) leading and supporting the audit team throughout the audit;

i) raising and resolving issues with the aerodrome certificate holder during the audit;

j) ensuring findings are soundly based, and properly recorded;

k) coordinating preparation of the audit report;

l) writing the draft and final audit/inspection report;

m) ensuring adequate preparation for the exit meeting;

n) carrying out the exit meeting; and

o) presenting findings, identifying causal factors, and negotiating corrective and preventive actions;

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CHAPTER - 5 Aerodrome safety system audit

Note – See Generic Aerodrome Certification Procedure, Chapter 5 for information on different types of audit/inspection and off-site or on-site verification activities.

5.1. System safety audit process

5.1.1. Three (3) stages to an audit,

a) Preparation for the audit;

b) Conduct of the audit on-site; and

c) Recording of findings, reporting and follow-up.

5.1.2. Preparation for Audit/Inspection

5.1.2.1. As mentioned in Section 4.2.1, there are distinct differences between audits and inspections. However, many of the processes for the two remain essentially the same, albeit that an audit is far more detailed.

5.1.2.2. There are four (4) phases to the preparation for an audit or inspection, namely:

a) Identification and review of all pertinent documentation, including receipt and review of pre-audit questionnaire;

b) Development of checklists;

c) Preparation of audit timetable.

d) Confirmation of audit arrangements with the aerodrome certificate holder being audited.

5.1.3. Review of Documentation

5.1.3.1. With regard to the essential documentation that needs to be reviewed, this depends on the aerodrome certificate holder being audited and the scope of their operations. Generally speaking, the following documents need to be reviewed before each audit is carried out;

a) The aerodrome documents for the entity being audited; e.g. Aeronautical data, Aerodrome Operations procedures, AEP Manual, SMS Manual;

b) Appropriate regulatory and other legislative texts; e.g. Manual of Standards for Aerodromes;

c) Operating manuals and/or standard operating procedures;

d) Site plans and descriptions of the aerodrome certificate holders operations;

e) Log books on facilities and equipment;

f) Flight schedules;

g) Previous audit or inspection reports; and

h) Information contained in the pre-audit questionnaire.

5.1.3.2. The purpose of this review is to determine the status of the documentation as it relates to the entity being audited, and to identify key areas that need to be observed and analyzed during the actual audit. Particular attention should be paid to previously identified items of non-compliance from previous reports. This review will also assist in

the preparation of checklists to be used by the audit team during the actual conduct of the audit.

5.1.3.3. The pre-audit questionnaire may provide an opportunity to gather useful information about the entity being audited. This questionnaire shall be developed by the audit leader and transmitted to the aerodrome certificate holder in accordance with the requirements of this handbook. See Appendix 5 for a pre-audit questionnaire for an airport operator.

5.1.4. Preparation of Checklists

5.1.4.1. The use of checklists is to provide a structure to the audit that allows for consistent and standardized conduct of audits. Standardizing the conduct of audits guarantees objectivity, impartiality and credibility. In addition, this will also provide a degree of transparency for all stakeholders subject to audit.

5.1.4.2. Checklists will be prepared by Team Leader and distributed to the members of the audit team in advance of the audit in order that they are fully prepared. Generic checklists have been developed and are included in this handbook, and they are applicable to each category of aerodrome (such as certified aerodromes, registered aerodromes and heliports). However, the operational details may vary from one aerodrome to any other, so checklists specific to that aerodrome operator need to be developed prior to the audit.

5.1.5. Preparation of Audit Timetable

5.1.5.1. An integral part of the preparation phase of an audit is the development of the audit timetable. This is done by the audit team leader once the notification process has been completed and all necessary documentation has been received and reviewed.

5.1.5.2. When determining the audit timetable, the audit leader will take into consideration the following elements;

a) Determine the principal persons needed to be interviewed; (e.g. Fire Chief, Apron Supervisor, SMS Manager);

b) Determine the sequence of the audit, including meetings, interviews, document / record review, observations of facilities and operations, and discussions with operational staff;

c) Estimate the time needed to complete each anticipated activity;

d) Make allowances for travelling between areas being audited (if necessary);

e) Schedule entry and exit meetings;

f) Make allowances for peak, off-peak, and out of normal hours observations of activities, facilities and equipment;

g) Allow for review of operational documentation not received prior to the audit; and

h) Allow time for delays and unforeseen occurrences.

5.1.6. Confirmation of Audit Arrangements

5.1.6.1. Prior to the scheduled date of the audit, the audit leader should confirm to the aerodrome certificate holder the date(s) and location of the audit, and the availability of senior management and key staff identified in the preparation of the timetable. It is highly desirable to forward the audit timetable to the aerodrome operator to assist in their preparation for the audit.

5.1.7. On-site conduct of Audits and Inspections

5.1.7.1. The purpose of the conduct phase of the audit is to gather information and then compare that gathered information to the information contained within the approved documentation which establishes the standards for operation of the entity being audited. In this case:

a) [Civil Air Regulations governing Aerodromes];

b) Aerodrome standards to which the aerodrome certificate holder may be subject; and

c) The aerodrome manual and other documents of the entity being audited.

5.1.7.2. Information can be gathered by:

a) Observations;

b) Review of documentation; and

c) Formal and informal interviews.

5.1.8. Entry meeting

5.1.8.1. The first action taken when commencing an audit is the conduct of an entry meeting. The purpose of the entry meeting is to:

a) Establish communication between the audit team and representatives of the aerodrome certificate holder;

b) Ensure there is clear understanding of the purpose of the audit;

c) Explain how the audit will be carried out;

d) Brief the auditee about expectations for support for the audit team;

e) Clarify and confirm the audit timetable; and

f) Resolve any other matters of concern.

5.1.8.2. A sample of the typical agenda items for an opening meeting can be found at Appendix 6.

5.1.9. Evidence of conformity

5.1.9.1. Observations of operational equipment, activities and procedures form the main source of evidence that the aerodrome is conforming to regulatory requirements or otherwise. Verifiable evidence is necessary to provide the true measure of compliance or non-compliance with required standards and procedures. Checklists for the inspectors' guidance can be found in **Appendix 7**. Evidence provides the verification that written procedures are in fact implemented.

5.1.9.2. Additionally evidence by assessment of each facility, equipment or procedure through observations and discussions to determine compliance with requirements and documentation plus implementation assists to establish compliance with mandatory obligations.

5.1.9.3. If non conformities are found, look for facts to establish proof and make a formal record (copy of relevant document, checklist notes, photos etc.).

5.1.9.4. Exercise discretion when making observations in the workplace. The presence of an auditor (often accompanied by a senior person within the organization) can have a

disrupting impact on the workflow in what may be a potentially hazardous environment. Take care to ensure the presence of the auditor does not create an abnormal situation that could lead to errors or omissions being made by those being observed. Do not do anything that could disrupt the workflow, or refocus staff away from their primary tasks.

5.1.9.5. Where appropriate, watch as technical processes are performed, and observe the work practices of those involved. Observe the facilities and equipment that are being used, the work instructions provided, and the working environment. Talk to the people in the workplace. Establish how many people are involved, and if they have duties other than those they perform in support of aerodrome operations.

5.1.9.6. Identify reporting actions for identified or perceived problems. Also identify what the actual documentation process is and whether it conforms to the required process. If deficiencies are seen, discuss them with the management representatives away from the workplace.

5.1.9.7. Make use of the checklists developed for the audit to structure and record the observations.

5.1.10. Interviewing

5.1.10.1. Another principal element of the audit is the interview of selected staff members from the aerodrome certificate holder. The position and job function of the interviewee will determine the type and scope of questions to be put to the interviewee. It is always best to interview the most senior representative available first, (manager can have a viewpoint/overview of all operations) and follow this with interviews of other managers and key personnel identified in the audit plan. This can extend to individual staff members if necessary, but normally an informal conversation at their workplace would achieve the same result.

5.1.10.2. Establish how the senior person expects the aerodrome certificate holder to operate from an aerodrome operation perspective. Identify any changes that have been made, or are being planned. Gain knowledge of other issues that may be affecting the organization, for example, changes in the scope of work carried out, industrial relations (union, agreement) etc. Establish how the senior person satisfies him or herself that the entity is in compliance with the approved aerodrome documents. Determine how identified or perceived problems are recorded and handled.

5.1.10.3. Ask open questions based on the checklists. If necessary, and depending on the information received, adjust the depth of examination. Try to avoid asking questions that can be answered with a simple ‘yes” or ‘no’. Try to focus on what is occurring now, not what might occur in the future as the audit relies on verifiable evidence.

5.1.10.4. Formal interviews need to be carefully structured. The objective of the formal interview is to meet the main representatives of the aerodrome certificate holder and discuss existing measures. Interviews are usually preceded by on-site observations so the auditor is already aware of the situation and has perhaps already noticed discrepancies or exceptional performance. Any discrepancy must be mentioned to the audited party during subsequent interviews. The location of the interview is important. The selection of the person’s office is usually the best option, as interviewing him/her in his/her natural environment might make it easier to establish a climate of trust and reduce possible tension. The auditor is the one who, as a rule, travels to meet the interviewee. This is preferable to having individuals meet in the auditor’s office and helps avoid the impression of an interrogation.

5.1.11. Recording of Audit Findings

5.1.11.1. Findings are the result of an observed action once it has been compared to the required approved documentation. An observation of a documented requirement or an implemented requirement will indicate whether compliance with required procedures is achieved or not. A non-compliance is classified as a finding, and it should be accompanied by a request for corrective action. Findings are not opinion, but statements of facts as observed by the auditor. As such they must be backed up by proof, or other evidence of non-compliance, such as a photograph or the completed checklist, explanation of deficiency, or a statement of findings by the auditor.

5.1.11.2. Audit findings shall be classified into different categories, as follows:

a) Non-compliance Level 1 finding, defined as a finding with the regulations, requirements, standards, aerodrome procedures and manuals, the terms of an approval or certificate which lower standard or has the potential to result in loss of life, serious injury or damage to facilities, and require immediate corrective action. The risk shall be assessed in accordance with, [Reference to provision on SMS]. Risks associated with Category A finding are considered unacceptable.

b) Non-compliance Level 2 finding, defined as finding with the regulations, requirements, standards, aerodrome procedures and manuals, the terms of an approval or certificate which could lower standard or has the potential to cause significant safety problems., and which requires corrective action to be completed within an agreed time frame. Risks associated with Level 2 finding are considered tolerable but will require mitigations to become acceptable.

c) Not Applicable (NA), being an element or item on a check list that does not apply to the entity being audited although a standard may exist, (e.g. de-icing facility).

d) Not Confirmed (NC), being an element whose compliance with required documentation could not be verified during the audit for whatever reason, (e.g. lack of time, absence of key personnel).

e) Observations are comments intended to identify possible improvement or trends toward non-compliances. Comments are not binding on the auditee and are made for consideration.

5.1.11.3. It is important that the senior management of organizations being audited are made aware of the results of the audit, including the specific findings. Obviously Level 1 finding needs to have priority. Therefore, it is necessary to conduct a post audit or exit meeting where these findings can be communicated. It may not be necessary to inform the aerodrome certificate holder of everything that may be included in the final written report, as the audit team may need time to reflect upon their observations before concluding a finding, so the onus is on providing the aerodrome operator with an initial explanation of the major findings. Additionally, all issues of concern may be communicated to the auditee's staff during the audit as they arise.

5.1.12. Exit meeting

5.1.12.1. The objectives and activities of the post audit, or exit, meeting are to;

a) Review the purpose of the audit and how it was carried out;

b) Record attendance at the meeting;

c) Present the major audit findings;

d) Request comments or explanations on any of the findings;

e) Confirm corrective actions (if possible) and agree time frames for their implementation;

f) Advise what to expect in the final audit report together with time frame for delivery; and

g) Identify, and where possible resolve, any other issues of concern.

5.1.13. Audit/Inspection Reports

5.1.13.1. The audit report formally documents the compliance performance of the aerodrome operator by recording matters of non-compliance with mandatory regulatory standards and other safety-related obligations. The report must accurately record all that took place during the audit, should reflect the tone of the audit and contain no surprises.

5.1.13.2. It is the responsibility of the team leader to coordinate the development of the audit report. The team leader must sign the report.

5.1.13.3. While each report will contain factually varying information, it is important that the reports should be similarly structured and formatted to allow for comparison and analysis and to ensure that each audit completed conforms to a consistent standard. A standardized report format is contained in Appendix 9.

5.1.13.4. Audit reports generally will not include recommendations to address findings. The responsibility for proposing and implementing appropriate remedial activities rests with the aerodrome operator.

5.1.13.5. The audit or inspection report shall also specify a time frame for the organization being audited or inspected to respond to the findings made in the report.

5.1.13.6. It is the responsibility of the team leader to ensure that the completed audit or inspection report is sent/delivered to the aerodrome operator within [XX] weeks from the on-site audit or inspection exit meeting. This period must be adhered to.

5.1.14. Corrective Actions

Note – Also see Paragraph 5.5 of Generic Aerodrome Certification Procedure.

5.1.14.1. On receipt of an audit or inspection report, the organization concerned is required to submit a Corrective Action Plan (CAP) within an agreed period.

5.1.14.2. The CAP is a written confirmation by the aerodrome certificate holder detailing the measures they intend to implement, to address all of the findings of non-compliance. The CAP must incorporate actions that at least will remedy the deficiency in the short term and prevent a future recurrence.

5.1.14.3. Failure to compile a CAP, or failure to comply with the deadline for submission of the CAP, or failure to implement the measures outlined in the CAP may result in enforcement action, including possible sanctions against an aerodrome certificate and/or imposition of a fine.

5.1.14.4. Every CAP generated as a result of findings communicated to an aerodrome certificate holder, following an inspection or audit, must contain, as a minimum;

a) The recommendations/elements in need of improvement;

b) Planned corrective action;

c) Identification of the person(s) responsible for implementing and finalizing the corrective action; and

d) Time frame for completion.

5.1.14.5. Where the CAA has not received advice that corrective action has been taken by the due date, the aerodrome operator is to be advised that it is overdue, and that the CAA expects the matter to be resolved within ten (10) days. If a formal notice has not been received with satisfactory closing action, within the ten (10) day period, the aerodrome certificate holder should be advised in writing by the audit leader that, unless immediate action is taken to close the findings, then action may be taken against the aerodrome certificate holder in accordance with regulatory provisions.

5.1.14.6. In cases where the aerodrome certificate holder being audited or inspected does not implement action regarding the findings made by the audit team because it disagrees with any of them, it should direct a formal written notice of disagreement to [CAA] with [XX] days after receiving the audit report, laying down the reasons for the disagreement. [CAA] may review this and determine subsequent action in accordance with the regulatory requirements and the best interests of safety for the industry within the [STATE].

5.1.14.7. The team leader is responsible to ensure that a follow-up audit or inspection takes place as necessary after the actions mentioned in the CAP have been advised as completed, in order to ensure that the stated corrective action has taken place within the agreed time frame, and that the corrective action has been successful in ensuring compliance with the aerodrome standards and/or other regulatory obligation.

5.1.14.8. The Chief, [DASS], is responsible for maintaining a database of audit and inspection findings. Each team leader is to enter their respective results onto this database, and review the contents on a regular basis to ensure that timeframes are being respected and overdue actions are identified.

5.1.15. Audit Records

5.1.15.1. All documents relevant to the audit or inspection should be retained and placed on the aerodrome certificate holder's file after completion of the audit. These should include, where applicable, the following;

a) A copy of the initial notification of the audit;

b) The audit timetable;

c) Completed checklists;

d) All notes made during the audit by the audit team;

e) Records of any interviews;

f) Records of entry and exit meetings;

g) A copy of the Corrective Action Plan (CAP);

h) Results of follow-up activities to ascertain compliance;

i) Post Audit feedback form from operator (See Appendix 9)

5.1.15.2. It is the responsibility of the Chief, [DASS] to establish and maintain an audit database that will contain all the findings gained from the audits and inspections of all aerodrome certificate holders. This database will be utilized by CAA to monitor the constant surveillance on all aerodrome certificate holders and registered aerodrome operators, and in the development of audit and inspection schedules and timetables.

5.2. Guidance for Inspection

5.2.1. Evaluation of Aerodrome Data

5.2.1.1. Purpose

The purpose to provide guidance and information to aerodrome inspectors to use when checking or evaluating aerodrome data required to be published in the Aeronautical Information Publication.

5.2.1.2. References

a) [CAR XXXX] or [MAS]

b) Checklist reference**:**

1) Appendix C.5 Aerodrome Certification Manual Contents Checklist (Form [AGA CHECKLIST]) Part 3

2) Appendix C.5 Aerodrome Certification Manual Contents Checklist (Form [AGA CHECKLIST]) Part 4.1 Aerodrome Reporting

3) AIH Appendix 7A – Aerodrome Manual Checklist, Part 3

5.2.1.3. Guidance and Procedures

a) General Information

1) Paragraph …. of [MAS] contains a complete list of aerodrome data to be originated and included by the Aerodrome Operator in the Aerodrome Manual. The information must be available to the operator prior to initial certification.

2) Before being sent to the Aeronautical Information Services for publication in the AIP, the Authority must be satisfied that the information is adequate. It must be ensured that all parties in the data chain including the data originator, the data provider and the data publisher have quality systems for maintaining the integrity of aeronautical data.

3) Any proposed changes by the Aerodrome Operator to published information in the AIP must be checked and approved by the Authority before being sent to AIS for publication.

b) Checklist

1) Part 3 of Aerodrome Certification Manual Contents Checklist (Form [AGA CHECKLIST]) contained in Appendix C.5 of the [MAS] relating to aerodrome data and aerodrome reporting procedures must be completed by the Aerodrome Inspector when assessing aerodrome data during initial certification and during inspection for certificate renewal. Subpart 4.1 of Part 4 Aerodrome Reporting of the same Checklist could also be used in evaluating reporting procedures during surveillance inspections. AIH Appendix 7A – Aerodrome Manual Checklist, Part 3 can also be utilized.

c) Evaluation

The AI must determine if:

1) There is a system to forward any new data or variation of existing data to the aeronautical information service;

2) There is a quality system for protecting aeronautical data from the point of origination in the data chain to the next intended user;

3) There is a system for prompt notification of changes to variable and permanent data.

Note: Information requiring engineering survey and assessment should be gathered for verification by qualified technical person.

Examples of temporary data are limitations and warnings such as temporary runway or taxiway closure, temporary obstacles, runway surface condition reports, system failures and bird hazards. Examples of variable data are runway declared distances, hours of operation, visual aids and such facilities as rescue and firefighting. Examples of permanent data are aerodrome reference point, runway strength, runway dimensions and layout, elevations and permanent obstacle.

5.2.2. Evaluation of Aerodrome Physical Characteristics

5.2.2.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating the aerodrome physical characteristics of an aerodrome.

5.2.2.2. Reference

a) Relevant provisions in [CAR]

b) Checklist reference/s:

1) AIH Appendix 7B-2: Physical Characteristics, Visual Aid and Aerodrome Facilities FORM AGA-ATI-0002;

2) AIH Appendix 7C-1: On-site verification Checklist; and

3) AIH Appendix 11: Aerodrome Surveillance Checklist.

5.2.2.3. Guidance and Procedures

a) General Information.

1) Prior to initial certification, the aerodrome designs and drawings must be evaluated by appropriate aerodrome standards inspectors, who would ensure that they meet requirements before initial approval is given by the Authority and in case of construction activities, prior to commencement of aerodrome construction work.

2) Details relating to the physical characteristics in approved designs/drawings must be consistent with what is to be provided in the aerodrome manual and on site.

3) After initial certification and where a change to the physical characteristics of the airside facilities is proposed by the Aerodrome Operator, such a proposal must be processed in accordance with the procedure in the [MAS] MOWP, [MAS] and SMS requirement on management of change.

4) Changes to physical characteristics of airside facilities at an aerodrome may include but not limited to:

i) Construction, realignment, or alteration of the manoeuvring area;

ii) Construction, realignment or alteration of apron.

b) Checklist.

AIH Checklist, Physical Characteristics, Visual Aid And Aerodrome Facilities FORM AGA-ATI-0002 presented in Appendix 7B-2 and Appendix C.5 Aerodrome Certification Manual Contents Checklist (Form [AGA CHECKLIST]) Part 4.5 relating to aerodrome movement area, must be completed prior to initial certification and during the inspection for certificate renewal.

c) Evaluation

1) During initial certification inspection, the AI must check the dimensions and surface conditions of runway(s), runway shoulders, runway strip(s), runway end safety areas, stopway(s) and clearways, taxiway(s), taxiway shoulders, taxiway strips and aprons.

2) **Pavement.**

[To be developed]

3) Safety Areas.

The AI should:

i) Determine if there are any hazardous ruts, depressions, humps or variations from the normal smooth surface.

ii) Check to ensure no object is located in a safety area, except objects that must be in the safety areas because of their functions (such as runway lights, signs, or navigational aids). These objects must be constructed on frangibly mounted structures of the lowest practical height.

iii) Determine if the base for any equipment in safety areas flushes with surrounding ground and equipment and NAVAIDs mounted on frangible couplings.

iv) Check to ensure that manhole and handhole covers are at grade level and can support vehicles and aircraft. Check to ensure that mounts for light fixtures are at grade level.

v) Check for surface variation and other damage caused by rodents or other animals.

vi) Take note of any objects that are not frangible or not at grade level. Also note extraneous equipment and objects, such as construction equipment, and surface variations that would cause damage to an aircraft or impede emergency response vehicles.

vii) The AI must determine if all unpaved areas available for aeroplanes, including loading aprons and parking areas, are maintained to meet the required conditions; if the safety areas and runway strips are maintained to the required conditions. Unusual aerodrome conditions caused by seasonal variations, such as, mud, water, etc., are evaluated on a case-by-case basis. The AI may have the vehicle operator drive in portions of the safety areas to evaluate surface conditions, provided conditions allow it.

5.2.3. Evaluation of Obstacles

5.2.3.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating obstacle limitation surfaces associated with aerodromes.

5.2.3.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Doc. 9137 Part 6 (Control of Obstacles).

c) Checklist reference/s:

1) Relevant checklists in [MAS], if applicable

2) AIH Appendix 7A: Aerodrome Manual Checklist, Section 13

3) AIH Appendix 7B-1: Obstacle Restriction Form AGA-ATI-0001

4) AIH Appendix 7C-1: On-site Verification Checklist 4.13

5) AIH Appendix 7C-13: Obstacle Control 4.13

6) AIH Appendix 11: Aerodrome Surveillance Checklist, Area of Inspection, Aerodrome Operations III (vi), (xi), (xii)

5.2.3.3. Guidance and Procedures

a) General Information

1) It is required that a number of imaginary surfaces be established around the vicinity of aerodromes operated under [MAS] x. These surfaces must be free of penetration by any object including structures, vegetation (e.g. tree) and terrains.

2) The aerodrome operator is required to establish a process for monitoring the airspace around their aerodromes to ensure that they are free from these objects. Aerodrome operators are also required to report new or on-going construction around aerodrome to the Authority who is statutorily responsible for determining whether such construction would constitute a hazard to air navigation and subsequently providing aviation height clearance.

3) In determining whether an object constitutes a hazard to air navigation, an inspector must apply the ultimate aerodrome development approach in his evaluation. In the ultimate aerodrome development approach, the obstacle limitation surface of the ultimate aerodrome layout as provided in the aerodrome master plan is taken into account in determining whether or not a permanent obstacle would constitute a hazard. Temporary obstacles may be evaluated based on existing aerodrome development only.

b) Checklist

Checklists listed in 5.2.3.2 e) (i, ii, iii & iv) relating to obstacle limitation surfaces, would normally have to be completed during initial certification and certificate renewal inspections. Checklist in Appendix 7-11 may be used during surveillance and other special-purpose inspections. As circumstances warrant, depending on the objective and scope of the inspection, the checklist should be tailored to meet specific needs.

c) Evaluation

The AI must determine that:

1) All fixed and mobile objects, as defined in the manual of standards (or amend as appropriate) within the aerodrome operators authority are either marked or lighted or removed, unless determined to be unnecessary by an aeronautical study or the shielding principle, where applicable.

2) There are no objects extending above the obstacle protection surface for visual approach slope indicator system and that the approach light plane is free of infringements.

3) The operator has conducted an obstacle survey to produce a chart and if follow-up surveys are conducted whenever significant changes occur. The Chart shall show a plan view of the entire aerodrome and its environs to the outer limit of the conical surface where established), together with profile views of all obstacle limitation surfaces. Each obstacle should be identified in both plan and profile with its description and height above the datum, which should be specified on the chart.

4) Electronic and visual aids which are obstacles are frangibly designed and constructed and mounted on frangible couplings (marking may be omitted if the obstacle is lighted by high intensity obstacle lights).

5) The operator has established a programme of regular and frequent visual inspection, of all areas around the aerodrome including a daily observation of all obstacle lights both on and off the aerodrome and corrective action in the case of light failure, in order to be sure that any construction activity or natural growth (i.e. trees) likely to infringe any of the OLS is discovered before it may become a problem.

5.2.4. Evaluation of Visual Aids for Navigation

5.2.4.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating visual aids for navigation.

5.2.4.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Doc. 9157 Part 4 (Visual Aids).

c) Checklist reference/s:

1) Relevant checklists in [MAS]

2) AIH Appendix 7A: Aerodrome Manual Checklist, Part 2, 3 & Part 4, Section 6

3) AIH Appendix 7B-1: Obstacle Restriction Form AGA-ATI-0001

4) AIH Appendix 7B-2: Physical Characteristics, Visual Aid and Aerodrome Facilities Form AGA-ATI-0002

5) AIH Appendix 7C-6: Visual Aids and Aerodrome Electrical Systems

6) AIH Appendix 7-11: Aerodrome Surveillance Checklist, Area of Inspection, IC Operational Area (iii)

7) AIH Appendix 7-11: Aerodrome Surveillance Checklist, Area of Inspection; III. Aerodrome Operations (x)

5.2.4.3. Guidance and Procedures

a) General Information

1) It is required that all aerodromes operated under [CAR] x.x.xxx; x.x.xxx; x.x.xxx and [MAS] x.x; x.x; xx be provided with visual aids. The type of aids to be provided would depend on traffic density, visibility condition and complexity of the aerodrome layout.

2) Where a change to the configuration and specification of visual aids at an aerodrome is proposed by the Aerodrome Operator, such a proposal shall be processed in accordance with the procedures**.**

3) Proposed change to visual aids at an aerodrome may arise from:

i) Construction, realignment, or alteration of the manoeuvring area;

ii) Construction, realignment or alteration of the apron;

iii) Change status from Visual Flight Rules (VFR) to Instrument Flight Rules (IFR); and

iv) Change in time of use from daylight operation only to day and night operations.

b) Checklist

Checklists listed in 5.2.4.2 e relating to Visual Aids, would normally have to be completed during initial certification and certificate renewal inspections. AIH Appendix 7-11: Aerodrome Surveillance Checklist, Area of Inspection; III. Aerodrome Operations (x) may be used when evaluating alterations made to an airside visual aids arising from the factors listed in 3) above. The checklist is to be used during surveillance inspection and other special- purpose inspections. As circumstances warrant, depending on the objective and scope of the inspection, the checklist should be tailored to meet specific needs.

c) Evaluation

1) **Markings**.

The AI must determine if:

i) The status of markings with respect to correct color-coding, peeling, blistering, chipping, fading, and obscurity due to rubber buildup are adequate or not.

ii) All runway hold position markings are clearly visible.

iii) During and after construction projects, new markings for compliance with [Manual of Standards for Aerodromes].

iv) If the markings have glass beads, the reflectivity of glass beads is adequate at night.

v) Road holding position marking is provided at runway/road intersections.

vi) There are non-standard marking or markings that are obscured, faded or deteriorating.

2) **Signs.**

The AI must determine if:

i) Signs are easy to read, in accordance with color standards, retro-reflective, and that all lighted signs are working and not obscured by vegetation, dirt, dust, etc.

ii) Signs are frangibly mounted and concrete bases are properly.

iii) Sign panels are not missing or damaged, that they have the correct legend and arrow orientation, and that they are not cracked or broken.

iv) During and after construction projects, new signs are in compliance with specifications in the [MAS] x.x.

v) During periods of darkness, signs are properly illuminated, if mandatory instruction signs are illuminated with the associated runway lighting system, check signs for correct operations; that they are on the correct circuits, they do not flicker and that they follow the intensity setting of the runway or taxiway lights.

vi) There is non-standard sign or any sign that is not functioning, is faded or damaged.

3) **Lighting.**

The AI must determine if:

i) The following are operable, if installed, and that vegetation or deposits of foreign material do not obscure the light fixture.

- Runway and taxiway lights, including approach lighting and visual approach slope indicator system;
- Taxiway centerline or edge markers (i.e. reflectors);
- Stop bars and no-entry bar;
- Intermediate holding position lights;
- De-icing/anti-icing facility exit lights;

- Runway guard lights (both elevated and in-pavement, if installed);
- Apron floodlighting;
- (Advanced) visual docking guidance system;
- Aircraft stand manoeuvring guidance lights; and
- Runway status lights.

ii) The following are operable, if installed:

- Apron lights and floodlights used in construction to ensure they do not cause glare or confusion to pilots and air traffic controllers;
- Obstruction lights; and
- Lighting in fuel storage areas within the aerodrome.

iii) Note all fixtures missing and lights that are not working or appear dim.

iv) Note any missing or broken light fixture lenses.

v) Runway and taxiway lights and runway threshold lights are the proper color and are oriented correctly.

vi) The aerodrome has an operational wind direction indicator to provide aerodrome surface wind direction information. If the aerodrome is open to flight operations during hours of darkness, the required wind direction indicators must be lighted. [MAS] x.x.x.x provides specification for the construction of a circular band around a wind cone. The segment circle must be clear of vegetation and be seen easily from the air.

vii) An aeronautical beacon has been installed to specification where conditions necessitate such installation.

viii) Performance level objectives for approach and runway lighting in a precision approach lighting system are in accordance with specification. Particular attention should be paid to situations where two or more consecutive lights are missing.

ix) Road holding position light is provided at runway/road intersections.

x) There is a visual docking guidance system which provides alignment and stopping position guidance, where marshaling services is not provided.

5.2.5. Evaluation of Visual Aids for Denoting Obstacles

5.2.5.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating visual aids denoting obstacles.

5.2.5.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Doc. 9157 Part 4 (Visual Aids)

c) Checklist reference/s:

1) AIH Appendix 7B-2: Physical Characteristics, Visual Aid and Aerodrome Facilities Form AGA-ATI-0002.

5.2.5.3. Guidance and Procedures

a) General Information

1) It is required that the operators of aerodromes regulated under [CAR] x.x.xxx and [MAS] x.x.x.x should establish a mechanism for continually monitoring existing obstacles around their aerodromes tor the purpose of ensuring among others, that markings and lights fitted to these obstacles are maintained in serviceable condition.

2) CAA must ensure that operators carry out a regular inspection or visual monitoring of their obstacle limitation surfaces around airport to ensure that serviceable marking and lighting are in place and the height of such structures have not been increased without approval.

b) Checklist

The checklist in 5.2.5.2 e) may be used during other special-purpose inspections to the extent applicable

c) Evaluation

The AI must:

1) Determine if marking and lighting are in accordance with specification in [MAS] x.xx.x and [MAS] x.xx.x

2) Determine, if wind direction indicator, apron floodlighting and other tall structures within the airside are fitted with obstacle light and if obstacle lights are operable. Check the operator's Aerodrome Manual (AM) for a list of lighted obstructions.

3) Check to see if construction is underway on or near the aerodrome that could affect aircraft operations, check for any vegetation, especially, trees, that may penetrate the obstacle limitation surfaces.

4) Check to ensure that construction equipment, especially tall cranes being used at construction sites, are not an obstruction.

5) Determine if obstructions are properly marked and lighted.

6) Report any obstruction light that is missing, inoperative or damaged, and any object that appears to be an obstruction and is not properly marked or lit.

5.2.6. Evaluation of Visual Aids for Denoting Restricted Use Area

5.2.6.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating visual aids denoting restricted use areas.

5.2.6.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Doc. 9157 Part 4 (Visual Aids)

c) Checklist reference:

1) AIH Appendix 7C-8: Aerodrome Works Safety 4.8

5.2.6.3. Guidance and Procedures

a) General Information

1) It is required that aerodrome operators establish procedures for temporary and permanent movement area closures and safety precautionary measures to be taken during routine and major construction work on the airside of an aerodrome.

2) Safety precautionary measures for major construction work in an aerodrome airside are to be incorporated in a work safety plan which must be approved by the Authority before the commencement of such work. A template work safety plan is provided in [MAS] xx.xx and xx.xx. Aerodrome Inspectors should use the template as guidance when reviewing an operator's plan**.**

3) Where circumstances necessitate the imposition of restriction on the use of a runway that would result in a reduction in the length of the runway, the Aerodrome Operator is required to ensure that runway threshold is displaced using appropriate specification of markings and light if applicable.

4) Where an aerodrome certificate is suspended or withdrawn by the Authority or voluntarily surrendered by the operator, the Authority shall carry out inspection to ensure that appropriate measures have been taken to prevent inadvertent use of the runway, taxiway or aerodrome as the case may be.

b) Checklist

The checklist in 5.2.6.2 e) is to be used by inspectors while inspecting aerodrome works, to review a draft work safety plan submitted by the operator to the Authority for approval and can also be used for inspection after withdrawal or voluntary surrender of an aerodrome certificate.

c) Evaluation

The AI must determine if:

1) Procedures have been established for temporary and permanent movement area closures, for reduction of declared distances or displacement of threshold. Where threshold have been displaced, displaced threshold marking and lighting should be evaluated.

2) Procedures have been established by the aerodrome operator for briefing of contractors for avoiding damage to existing utilities or other underground facilities. When a complex construction project is in progress, the AI shall inquire about the existence of and adherence to the safety plan. Additional information is available in (Insert Advisory Circular on work safety plan).

3) Procedures have been established by the aerodrome operator for avoiding damage to existing utilities, such as the review of appropriate utility plans prior to construction.

4) Each construction area, construction equipment construction roadway, NAVAID area, and unserviceable area, is marked, and lighted if appropriate, in an acceptable manner.

5) Procedures are in place to repair any accidental damage to existing utilities.

5.2.7. Evaluation of Electrical Systems

5.2.7.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating electrical systems.

5.2.7.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Doc. 9157 Part 5 (Electrical Systems)

c) Checklist reference/s:

1) Relevant checklist in [MAS], if applicable

2) AIH Appendix 7A: Aerodrome Manual Checklist, Part 4, Section 6

3) AIH Appendix 7B-2: Physical Characteristics, Visual Aid and Aerodrome Facilities Form AGA-ATI-0002, No.2 Aerodrome Facilities

4) AIH Appendix 7C-6: Visual Aids and Aerodrome Electrical Systems

5.2.7.3. Guidance and Procedures

a) General Information

1) It is required that electrical systems provided at aerodromes are of adequate design to facilitate the steady operation of aerodrome lighting system.

2) The capacity of power supply and design of electrical systems at an aerodrome are dependent on the type of operation at the aerodrome and the category of lighting supported.

3) A proposed change by an aerodrome operator from a VFR to IFR or day only to 24-hour operation would require an inspection of the aerodrome electrical system before a determination is made.

b) Checklist

The Checklist listed in 5.2.7.2 e) relating to power supply and electrical systems, would normally have to be completed during initial certification and certificate renewal inspections.

c) Evaluation

The AI must determine if:

1) Adequate primary and secondary power supply are available at the aerodrome for the safe functioning of visual and non-visual aids. Check, if steady power supply is assured through availability of automatic switchover system and see, if the switchover requirement for the category of operation, specified in the [MAS] is met.

2) Adequate precautions have been put in place against system failure. Examples of such precautions are: interleaving of circuits supplying the runway lighting system, phasing of the supply to approach lighting system.

3) There is a monitoring and intensity control panel for airfield lighting, where applicable and control is from one point i.e. the control tower supported by a back- up control point in the event of failure of the panel in the control tower.

5.2.7.4. Aerodrome Operational Services, Equipment and Installations

5.2.7.5. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating aerodrome operational services equipment and installations including aerodrome rescue and firefighting service, aerodrome emergency planning, apron management service and Aerodrome Fencing.

5.2.7.6. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Doc. 9137 Part 1 (Rescue and Fire Fighting)

c) ICAO Doc. 9137 Part 7 (Aerodrome Emergency Planning)

d) CAA Advisory Circular No… (Aerodrome Emergency Planning)

e) Checklist reference

1) Relevant checklists in [MAS]

2) AIH Appendix 7B-3: Rescue and Fire-Fighting FORM AGA-ATI-0003

3) AIH Appendix 7C-4: Rescue and Fire-Fighting

4) AIH Appendix 11: Aerodrome Surveillance Checklist, II. ARFF

5) AIH Appendix 7A: Aerodrome Manual Checklist, Part 4, Section 3

6) AIH Appendix 7C-3: Aerodrome Emergency Plan

7) AIH Appendix 11: Aerodrome Surveillance Checklist, III. Aerodrome Operations (iii)

8) AIH Appendix 7A: Aerodrome Manual Checklist, Part 4, Section 14

9) AIH Appendix 7C-14: Removal of Disabled Aircraft

10) AIH Appendix 7A: Aerodrome Manual Checklist, Part 4, Section 10

11) AIH Appendix 7C-10: Apron Safety Management

12) AIH Appendix 11: Aerodrome Surveillance Checklist, III. Aerodrome Operations (vii)

13) AIH Appendix 7B-3: Rescue And Fire-Fighting FORM AGA-ATI-0003, Question no.16 (Fencing)

14) AIH Appendix 7C-4: Rescue and Fire-Fighting

15) AIH Appendix 7C-5: Inspection of the Movement Area by the Aerodrome Operator

16) AIH Appendix 7C-7: Maintenance of the Movement Area

17) AIH Appendix 7C-12: Wildlife Hazard Management

18) AIH Appendix 11: Aerodrome Surveillance Checklist, IC. Operational Area, (i)

5.2.7.7. Guidance and Procedures

a) General Information

1) It is required that the level of rescue and firefighting service provided at an aerodrome be adequate to support the designated firefighting category of the aerodrome.

2) During initial certification, the evaluation of rescue and fie fighting service at the aerodrome should be based strictly on the dimensions of the longest aeroplane planned for the aerodrome, that is, the aeroplane overall length and fuselage width.

3) A provisional aerodrome emergency plan should be available before commencement of flight operations at the aerodrome. The aerodrome operator should be allowed some time to constitute an emergency committee that would test the emergency plan. The aerodrome emergency plan must be tested not later than nine (9) months.

b) Checklist

The checklist presented listed in 5.2.7.6 h) (ii) (iii) relating to rescue and firefighting, would normally have to be completed during initial certification and certificate renewal inspections. The same applies to 5.2.7.6 h) (xv-xvii), (xvi) and (xi) for Apron safety, Apron management service and Disable Aircraft Removal respectively.

Other checklists are available for special purpose inspections and should be further tailored to meet specific needs. Checklist in 5.2.7.6 h) (vii) can be used for evaluating emergency exercises (partial and full scale). Checklist in 5.2.7.6 h) (xxiii) can be used to check adequacy or otherwise of the surface movement guidance and control systems at the aerodrome Checklists in 5.2.7.6 h) (iii) (xvii) and can be used in evaluating an operators disable aircraft removal plan during surveillance inspection while checklist in 5.2.7.6 h) (xiv) (xv) can be used for assessing apron management service.

c) Evaluation

1) Aerodrome Emergency Plan

The AI must determine if:

i) The operator should also be encouraged to include procedures for response to other utility failures in addition to electrical power failure such as fuel spills, hazardous materials, natural gas, water and sewage.

ii) It is written in sufficient detail to give adequate guidance to all concerned

parties.

iii) The certificate holder has made adequate provisions for the agencies and personnel addressed in the AEP to participate in the development of the plan. Look for agency listing, or letters addressing meetings/reviews, and coordination.

iv) The plan contains procedures for notifying facilities, agencies, and personnel of the location of an aircraft accident on the aerodrome, the number of persons involved, and any other necessary information as soon as it is available. At the discretion of the AI, conduct a communications test of the emergency plan notification procedures of mutual aid agencies to evaluate the timeliness and telephone numbers listed in the emergency plan and contact the mutual aid agency listed to verify telephone number currency.

v) [Water rescue – to be developed]

vi) All aerodrome personnel having duties and responsibilities under the AEP are familiar with their assignments and are properly trained. Randomly questions personnel in the AEP to determine validity of the training programme and to ensure that all aerodrome personnel having duties and responsibilities under the plan are familiar with their assignments and are properly trained. Testing, written or oral may be used if determined to be necessary by the AI.

vii) The AEP is reviewed with all participating agencies in the preceding 12 months. An annual review of the AEP may consist of the aerodrome operator conducting a tabletop exercise or a review meeting with a representative of each of the agencies with which the plan was coordinated or after a full-scale or partial emergency has been carried out. Look for letters addressing tabletop exercise, Full-scale and partial exercises AEP review meetings and AEP revisions. During pre-inspection preparation, look for letters concerning annual review in the aerodrome files.

viii) The aerodrome operator has conducted a full scale exercise of its AEP in the preceding 2 years.

ix) During pre-inspection preparation, look for letters concerning full scale exercise of the AEP. Examine any record of critique. The full-scale aerodrome exercise must involve, to the extent practicable, all mutual aid participants, a reasonable amount of equipment specified in the AEP, and include a summary report and/or critique. Aerodromes which have experienced an aircraft accident and exercised a substantial portion of their AEP related to, or as would respond to, an air carrier accident can substitute this accident for the full-scale exercise. If such a substitution is made, the certificate holder should conduct a critique of their performance during the accident response.

x) For the purpose of this requirement, the biennial exercise may be conducted within the calendar month it is due. For example, if the last biennial exercise was held on August 4, 1990, the next biennial exercise is due by August 31, 1992. Unique or special cases may affect the need to vary the schedule slightly, and where supportable justification exists, a reasonable extension may be approved. For example: the biennial is due

in April, but the county is planning a much larger exercise for June in which the aerodrome will play an important part and gain the same benefit.

xi) The purpose of this biennial exercise is to test the effectiveness of AEP through a response of the aerodrome and its mutual aid for a disaster at the aerodrome. It should also be used to familiarize emergency mutual aid personnel with the location of staging areas and other aerodrome facilities.

xii) For these reasons the full-scale exercise should be conducted at the aerodrome. However, at the discretion of the AI, the drill may be conducted on property adjoining or adjacent to the aerodrome (such as for a water rescue exercise) if the AEP can still be properly exercised.

xiii) The AI should determine the adequacy of facilities in the Emergency Operations centre and the mobile command post. The communication equipment in these facilities should be tested for adequacy and serviceability. The AI should rely on guidance in the Advisory circular on Aerodrome Emergency in determining if human factor principle has been taken into account in preparing the Aerodrome Emergency Plan.

xiv) When possible, aerodrome managers should be encouraged to participate in off-aerodrome disaster exercises involving downed aircraft and provide their expertise and resources.

xv) AIs are encouraged to attend the full-scale exercise of the AEP whenever possible.

2) Rescue and Firefighting Service: Determination of Fire Category

The AI must determine if:

i) The aerodrome category shall be determined from the Aerodrome Standards Manual and shall be based on the longest aeroplanes normally using the aerodrome and their fuselage width. To categorize the aeroplanes using the aerodrome, first evaluate their overall length and second, their fuselage width. If, after selecting the category appropriate to the longest aeroplane's overall length, that aeroplane's fuselage width is greater than the maximum width for that category, then the category for that aeroplane shall actually be one category higher. Guidance on categorizing aerodromes for rescue and firefighting purposes and on providing rescue and firefighting equipment and services is given in [MAS] Attachment A, Section 5.3 and in the Aerodrome Services Manual, Part 1. During anticipated periods of reduced activity, the level of protection available shall be no less than that needed for the highest category of aeroplane planned to use the aerodrome during that time irrespective of the number of movements.

ii) The following examples illustrate the method for determination of the aerodrome category.

Example 1

Aircraft	Overall Length	Fuselage wdth	Category
Tupolev Tu-154	47 m	3.45	7
B 707-320	46.61	3.55	7

The longest aeroplanes are categorized by evaluating, from Table 9-1, Annex 14 first their over-all length and second, their fuselage width. The aerodrome in this case would be category 7.

3) Extinguishing Agents.

The AI must determine if:

i) ARFF vehicle discharge capacities and agent capacities meet [MAS] xx.x.x.

ii) The amounts of water for foam production meet the requirement in [MAS] xx.x.x.

iii) The amount of water and foam concentrate separately provided on vehicles for foam productions are adequate.

iv) The quantity of foam in reserve is adequate.

v) The discharge rates of foam solution are adequate.

vi) There is a means of supplementary water supply for expeditious replenishment.

vii) Water tanker(s) or other suitable means is acceptable.

4) Emergency Rescue and Firefighting Vehicles

The AI must determine if:

i) The aerodrome is equipped with ARFF vehicles meeting the aerodrome firefighting category during flight operations. ARFF equipment required to meet the category must be listed in the AM.

ii) Each required ARFF vehicle is equipped with appropriate radio communications, beacon, and is marked in colors to contrast with the background and optimize daytime/nighttime visibility.

iii) Each required vehicle is operationally capable of performing the required functions. Technically, a required ARFF vehicle is inoperative during preventive maintenance if it cannot meet response requirements. At aerodromes which do not have extra ARFF equipment, maintenance must be scheduled during periods when aircraft operators are not operating. Notification to CAA and airlines would be expected when ARFF equipment required to meet Category requirements breaks down and cannot be immediately repaired.

5) Rescue Equipment.

The AI must determine if Rescue equipment commensurate with the level of fire protection is provided in accordance with [MAS] xx.x.x and ICAO Doc 9137

Part 1 Table 5-2.

6) Personnel

The AI must determine if:

i) Sufficient ARFF personnel are available to operate the required ARFF vehicles taking into account the requirement specified in CAA guidance document.

ii) Training requirement is available incorporating initial and recurrent training, and covering the subject areas enumerated in the ASM has been developed and is being implemented. Training programme shall include initial and recurrent training and training in human performance and team coordination.

iii) Training records are maintained and readily available and the records indicate that all ARFF personnel have participated in live-fire drill and pressure-fed fuel fires. "live-fire drill" has the same meaning as "simulated aircraft fire."

iv) All ARFF personnel are equipped in a manner needed to perform their duties.

v) Such equipment shall include protective coat, protective trousers, protective helmet, gloves and respiratory equipment. This requirement does not apply to ARFF vehicle driver/operators unless they are expected to man handlines or effect rescue operations. The ARFF vehicle driver/operator shall have protective equipment readily accessible.

vi) All personnel assigned to rescue duties have been given first aid and cardiopulmonary resuscitation (CPR) training. At least two full time members per shift of the aerodrome rescue and firefighting service or other on-aerodrome personnel should be trained to an emergency medical treatment level.

7) Response Time.

The AI must determine if:

i) At least one required ARFF vehicle achieves a response time not exceeding 3 minutes to any point of each operational runway. Any other vehicles should arrive no more than one minute after the first responding vehicles. At the option of the AI, a discharge of water may be used in lieu of other agents for a timed response. However, a demonstration of the discharge of the agents not used in the response drill is to be conducted for at least one required response vehicle before the conclusion of the inspection to insure the adequate capability.

ii) During the certification inspection, the AI should request that a refractometer test be conducted by ARFF personnel on at least one required response vehicle with a foam proportioning system. By observing the preparation for and performance of this test the following will be achieved.

iii) Get an indication of ARFF personnel knowledge of the vehicle and its systems. In some cases, ARFF personnel may have a refractometer but not know how to use it. In those cases be prepared to conduct a refractometer test and provide some basic training. If the ARFF

department does not conduct periodic refractometer test advise them to do so. Other refractometer procedures may be used. Be sure to read manufacturer's instructions.

iv) Gain some indication of the maintenance level for the foam proportioners and, therefore, vehicle systems. If the results of the refractometer test indicate a foam mixture that is to lean or rich, advise the ARFF officer in charge that the system needs to be checked to determine if the proportioning device is adjusted properly.

v) ARFF response drills may be conducted at night or during inclement weather. However discretion shall be used to ensure that safety is not derogated. If there is a question as to whether or not a drill can be conducted safely, it should be postponed until later. When conducting the timed response, the AI should keep in mind that the times given in [MAS] xx.x.x and [MAS] xx.x.x are based on a direct path on dry pavement under good weather conditions. If the drill is conducted at night or in other than dry conditions, the times may be adjusted at the discretion of the AI to allow for the adverse condition.

vi) It shall be at the AIs discretion as to the location from which he/she conducts the response drill on the aerodrome.

vii) The alarm system is acceptable. The timing for the response requirement begins upon activation of the first alarm signal to the RFF unit responsible for ARFF at the aerodrome. This will normally be ATC activating whatever alarm system is used by the aerodrome. The signal may be audible (klaxon, telephone ring, siren, etc.), visual (dormitory illumination, strobe light, etc.), or a combination. The RFF unit is usually the fire house where the vehicles and crews are stationed. It is important that the timing begin with the activation of the first alarm signal and include any message passing, crew assembly, coordination, and other processes which occur as part of the response. If there are problems with meeting the response time it may be that the alarm enters the fire station at the wrong point, and that the system needs to be changed to modify or eliminate time consuming communications, coordination, etc.

8) Emergency Access Roads.

The AI must determine if all designated emergency access roads are maintained for all weather conditions. Emergency access roads are those required to meet ARFF requirements. Roads constructed specifically for use by emergency vehicles must be considered as an emergency access road. Additionally, service roads that are located in the safety area must be considered by the aerodrome operator as an emergency access road and maintained during all weather conditions.

9) Fire Station

The AI must determine if adequate shelter is provided to protect RFF vehicles from the harmful effects of exposure to the sun.

10) Communication and Alerting Systems.

The AI must determine if:

i) A discrete communication system links all the fire stations within the aerodrome, the control tower and rescue and fire fighting vehicles.

ii) An alerting system links all the fire stations within the aerodrome, the control tower and rescue and fire fighting vehicles. The alerting system should be such that it can be operated from the fire station.

11) Disabled Aircraft Removal Plan.

The AI must determine if:

i) The aerodrome operator has developed a disabled aircraft removal plan. The plan should be developed in consultation with aircraft owners and operators. The extent of the plan will depend on user aircraft weights and sizes and the density of air traffic at the aerodrome.

ii) The plan provides for permission to disturb the accident site to be obtained from Aircraft Accident and Incident Investigation Board (AAIIB). Where a disabled aircraft has been involved in an accident, notwithstanding this general rule, the aircraft may be moved where necessary to preserve life or to prevent additional hazard to persons or property. A claim for damages could follow an attempts to move a crashed aircraft if it was proven the act of moving worsened the damage. Therefore, the invariable rule is that only aircraft owner, operator or his appointed representatives should control the aircraft removal operation.

iii) The plan includes:

- Nominated person or organization authorized to act on their behalf at the aerodrome owner or operators using the aerodrome to avoid delay.
- Nominated representative of the aerodrome operator to coordinate the aircraft removal operation. All major users of the aerodrome will be informed of the aerodrome management's preparations and capabilities, as well as policies regarding disabled aircraft removal. The officer assigned responsibility to coordinate this plan should be made known to all aircraft owners or operators.
- A list of equipment available on or near the aerodrome on demand.
- A list of additional equipment available from nearby aerodromes on request.
- A list of nominated agents acting on behalf of each aircraft operator at the aerodrome.
- A statement of the aircraft operator arrangements for the use of pooled specialist equipment.
- A list of local contractors (with names and telephone numbers) with suitable removal equipment for hire.

12) Apron Management Service.

The AI must determine if:

i) Responsibility for marshalling service, leader van service, gate and parking allocation, start up, push back and taxi clearances, control of vehicles on the apron, maneuvering areas are clearly and unambiguously assigned.

ii) A written agreement exist between both parties defining method of coordination and points of transfer of responsibilities, where coordination between air traffic service unit and apron management unit is required.

iii) Adequate aircraft stand clearances and apron safety lines have been provided in accordance with manual of standards. Apron safety lines include wing tip clearance lines and service road boundary lines.

13) Fencing.

The AI must determine if:

i) The aerodrome operator has appropriate safeguards against inadvertent entry to the movement area by unauthorized persons or vehicles. These safeguards may consist of a combination of natural barriers, fencing and warning signs which are effective in deterring personnel or vehicles from inadvertently entering the movement area.

ii) The aerodrome operator has provided reasonable protection of persons and property from aircraft blast. This includes persons who are required to use airstairs; and public areas adjacent to air carrier ramps and movement areas.

5.2.8. Evaluation of Operational Services- Wildlife Strike Management

5.2.8.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating wildlife strike hazard management programmes at aerodromes.

5.2.8.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) ICAO Annex 14 Vol I Chapter 9 **or equivalent national reference** (Wildlife Strike Hazard Reduction)

c) ICAO Doc. 9137 Part 3 – Wildlife Hazard Management

d) CAA Advisory Circular No ……..: Establishment of Wildlife Hazard Management at Aerodromes by Aerodrome Operators

e) Checklist reference

1) AIH Checklist Appendix 7B-4: Wildlife Hazard Management Form AGA-ATI-0004

2) AIH Appendix 7C-12: Wildlife Hazard Management

3) AIH Appendix 11: Aerodrome Surveillance Checklist, III. Aerodrome Operations, (viii)

5.2.8.3. Guidance and Procedures

a) General Information

It is required that aerodromes exposed to wildlife hazard analyse the level of risk posed by the existing hazards to enable a determination of the need for a wildlife hazard management plan. It is not anticipated that such a determination can always be reached before the commencement of initial operations at the aerodrome. Data collection on bird activity in the vicinity of the aerodrome and subsequent analysis may take sometime after aerodrome operations begin before a meaningful conclusions can be drawn concerning wildlife management programme to be implemented, where applicable. However it is anticipated that a procedure for monitoring bird activity and of recording and reporting bird strike be established and incorporated in the Aerodrome Manual before approval of the Manual is given by the Authority.

b) Checklist

Checklist listed in 5.2.8.2 f) relating to wildlife hazard management, would normally have to be completed during initial certification and certificate renewal inspections and surveillance .AIH checklist in Appendix 11: Aerodrome Surveillance Checklist, III. Aerodrome Operations, (viii) can be used for other special purpose inspection relating to wild life hazard management.

c) Evaluation

The AI must determine that:

1) the aerodrome operator has adequate procedures to take immediate measures to alleviate wildlife hazards whenever they are detected. During the movement area inspection, the AI should be on the lookout for wildlife of a size or in numbers capable of triggering the conduct of an ecological study. If the AI feels that wildlife activity on or in the vicinity of the aerodrome constitutes a wildlife hazard, the conduct of an ecological study must be addressed in the corrective plan of action. The ATC shall also be consulted concerning wildlife hazards.

2) if records of reported strike are maintained and transmitted to CAA for onward transmission to ICAO.

3) procedures are established by the aerodrome operator for the conduct of a wild life risk assessment

4) if a Wildlife Hazard Management Plan is in effect, the AI must review the following:

i) Its effectiveness in dealing with the wildlife hazard.

ii) Indications that the existence of the wildlife hazard, described in the ecological survey, should be reevaluated.

iii) Personnel with responsibilities in the Wildlife Hazard Management Plan are adequately trained.

iv) Procedures outlined in the Plan, such as inspections prior to air carrier operations, are carried out.

v) Status of habitat modification projects or changes in land us identified in the Plan.

5.2.9. Evaluation of Operational Services - Ground Servicing of Aircraft

5.2.9.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when evaluating aircraft ground servicing operations.

5.2.9.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) Checklist reference/s

1) Relevant checklists in [MAS], if applicable

2) AIH Appendix 7A: Aerodrome Manual Checklist, Part 4, Section 10

3) AIH Appendix 7C-10: Apron Safety Management

4) AIH Appendix 11: Aerodrome Surveillance Checklist, III. Aerodrome Operations (ix) (Refueling and Defueling)

5.2.9.3. Guidance and Procedures

a) General Information

1) It is required that aerodrome operators have qualified personnel who are familiar with safety precautionary measures which should be in place during the fueling and defueling of aircraft by fueling companies.

2) The scope of inspection by aerodrome inspectors should cover both the facilities of the fueling companies at the operational base and an the actual aircraft fueling on the apron.

b) Checklist

The checklist in 5.2.9.2 e) are to be used during initial certification and certificate renewal inspections. Likewise, 5.2.9.2 e) (iii) checklist relating to aircraft fueling and defueling can be used for special purpose inspection relating to handling and storage of aviation fuel.

1) Evaluation

The AI must determine that:

i) Fire extinguishing equipment are positioned sufficient close to areas designated for ground servicing of aircraft.

ii) Extinguishing agents bear serviceability tags and the dates on tags.

iii) An efficient means is available for quickly summoning rescue and firefighting service in the event of a fire or major fuel spill. Apron management unit and ARFF service are connected on a designated frequency. Where apron management unit is not available, check if airline or ground staff or aerodrome personnel who have responsibilities on the apron are familiar with the frequency on which to reach RFF service.

5.2.10. Evaluation of Operational Services- Ground Vehicle Operations

5.2.10.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when inspecting and evaluating ground vehicle operations

5.2.10.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) Checklist reference/s:

1) AIH Appendix 7C-11: Airside Vehicle Control

2) AIH Appendix 11: Aerodrome Surveillance Checklist, IC. Operational Areas, (ii), III Aerodrome Operations, (xiv)

5.2.10.3. Guidance and Procedures

a) General Information

Each employee, tenant, or contractor, who operates a ground vehicle on any portion of the airside of an aerodrome is required to be familiar with and complies with the aerodrome's airside driving rules and procedures. In order to comply with this section, the aerodrome operator shall develop an appropriate driver's training programme for aerodrome personnel, tenants, contractors and others who operate on, or have access to movement areas. The programme shall be consistent with the guidance provided by the Authority on Aerodrome Vehicle Operations and shall be approved by the Authority before being put to use.

b) Checklist

The checklist listed in 5.2.10.2 d) (i) relating to airside vehicle control, would normally have to be completed during initial certification and certificate renewal inspections. The checklist in 5.2.10.2 d) (ii) can be used for surveillance and other special purpose inspection relating to ground vehicle operations. The checklist may be further tailored to meet specific needs.

c) Evaluation

The AI must determine that:

1) Roads located on the movement areas and safety areas are restricted to only those vehicles necessary for aerodrome operations. During the course of the inspection, be on the lookout for unnecessary operations of vehicles on or adjacent to movement areas.

2) Vehicles authorized in the movement area include ARFF vehicles, ambulances, mowers, aerodrome operations and maintenance vehicles, fuel trucks catering vehicles, toilet service vehicles etc.

3) Procedures for these vehicles to cross the runway or taxiway such as two-way communications with the Control Tower or escort have been established for continued operations. Vehicles must be radio equipped or escorted. These procedures need to be clearly addressed in the Aerodrome Manual.

4) For aerodromes with Control Tower in operation, each vehicle operating on the movement areas is controlled by two-way radio, escort vehicle with two-way radio.

5) For aerodromes without Control Tower in operation, adequate procedures are established to control ground vehicles through prearranged signals or other procedures.

6) Look for distribution of aerodrome procedures/training curriculum or permit process to control applicable tenants. At aerodromes with a SMGCS Plan, requirements should also be included in the driver training as applicable.

5.2.11. Aerodrome Maintenance

5.2.11.1. Purpose

The purpose is to provide guidance and information to aerodrome inspectors to use when inspecting and evaluating aerodrome maintenance programmes and their levels of implementation at aerodromes.

5.2.11.2. Reference

a) Relevant provisions in [CAR], [MAS]

b) Advisory Circular No xxx (Movement Area Maintenance)

c) ICAO Doc. 9137 Part 2 (Pavement Surface Condition)

d) ICAO Doc. 9137 Part 9 (Pavement Maintenance Practices)

e) Checklist reference/s:

1) AIH Appendix 7C-5: Inspection of the Movement Area by the Aerodrome Operator

2) AIH Appendix 7C-6: Visual Aids and Electrical Systems

3) AIH Appendix 7C-7: Maintenance of the Movement Area

4) AIH Appendix 11: Aerodrome Surveillance Checklist, IA. Physical Characteristics, (iii)

5) AIH Appendix 11: Aerodrome Surveillance Checklist, IB. Apron (i)

5.2.11.3. Guidance and Procedures

a) General Information

1) It is required that the frictional characteristic of runway pavements be periodically determined by the aerodrome operator using a continuous friction measuring device with self-wetting features for the purpose of the monitoring pavement friction characteristics and taking prompt preventive maintenance action.

2) The regulation obligates operators to include in their operations manual, maintenance programmes for paved and unpaved movement areas, runway strips and aerodrome drainage.

3) Although the subject of maintenance in the [MAS] xx.xx is presently limited to safety critical areas such as pavement and visual aids, the Aerodrome Inspectors should, for the purpose of promoting efficiency and regularity of aeronautical operations encourage operators to include maintenance programmes for other aspects, namely terminal facilities including passenger loading bridges, elevators, travelators, lifts, conveyor belts, chillers, Flight information displays, etc. Guidance for the development of maintenance programmes for these areas is contained in ICAO Doc 9137 Part 9 on Aerodrome Maintenance Practices.

b) Checklist

The checklist presented in 5.2.10.6 g) relating to Maintenance, would normally have to be completed during initial certification and certificate renewal inspections. The checklist in 5.2.10.6 g) (iv) (v) is to be used during surveillance inspections and other special purpose inspections relating to Airport Pavement Friction Assessment.

c) Evaluation

The AI must determine that:

1) Preventive maintenance procedures have been established for pavements, visuals aids power supply drainage and buildings and specialized vehicles such as rescue and fire fighting vehicles. Check procedures for calibration of VASIS. These procedures should also be addressed in the AM.

2) Maintenance procedures are being implemented. Check maintenance records for airfield lighting, power supply and RFF vehicle and compare with sample maintenance schedules.

3) Debris, rubber deposit removal and friction measurement programmes have been developed. See when the last friction measurement was conducted and review result against minimum requirement. If the friction measuring equipment is owned and operated by aerodrome operator's personnel, check if personnel have been trained on the use of the equipment and if the equipment is calibrated as required before use.

4) The pavements are free of debris and surface irregularities (cracks depressions or other distress features). The AI should use his judgement to determine when a pavement distress is significant to constitute a finding.

5) Marking and lighting systems on the aerodrome are well maintained. Maintenance action shall includes: cleaning, replacing, or repairing any faded, missing, or nonfunctional item of marking or lighting; keeping each item clearly visible; and ensuring that each item provides an accurate reference (this includes alignment of fixtures) to the user. If the aerodrome operator owns a standby generator for movement area lighting, inquire about testing procedures. The AI should consider a test operation of the generator if periodic testing procedures do not appear to be adequate.

6) There are adequate spares for replacement of any electrical fixture that may become defective.

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CHAPTER - 6 Aerodrome safety review

6.1. General

In this Handbook, an aerodrome safety review refers to actions undertaken by an [DASS] Aerodrome Inspector regarding an evaluation of the impacts of specified changes at an airport on the continuing safety of existing operations.

An aerodrome safety review may be undertaken by an individual, team or group depending on the scope of impact and the specialist aviation knowledge required for an evaluation. The Chief, [DASS] will specify formal working and leadership arrangements for team or group activities.

6.2. Safety Review requirement

When a proposal is made which will involve a significant change to aerodrome physical characteristics, facilities or equipment, CAA shall initiate an aerodrome safety review.

The scope of an aerodrome safety review will generally be restricted to events associated with planned changes. Events associated with unplanned changes or emergency situations will be dealt with by use of appropriate alternative procedures to ensure safety is properly considered and to determine if continuing operations may be permitted.

6.3. References

The [CAR] refers to matters that need to be considered in regard to aerodrome safety reviews. These references include but are not limited to:

a) Matters to be notified regarding certified and registered aerodromes:

x.x.xxx Notice of changes in physical condition of aerodrome

x.x.xxx Notice of changes in information published in AIP

x.x.xxx Physical characteristics of movement area

x.x.xxx Notice of changes in physical condition of aerodrome (Registered)

x.x.xxx Notice of changes in information published in AIP

b) CAA empowered to issue direction to aerodrome operator:

x.x.xxx Amendments of Aerodrome Manual

x.x.xxx Aerodrome Manual procedures

c) Aerodrome operator to notify CAA:

x.x.xxx Notice of changes in physical condition of aerodrome

d) Aerodrome operator to comply with standards:

x.x.xxx Physical characteristics of movement area

x.x.xxx Applicable standards for registered aerodromes

6.4. Safety review action plan

6.4.1. Aerodrome safety reviews may only be conducted, or supervised, by certified CAA personnel. Such CAA personnel shall be deemed to be certified if they have

successfully completed an ICAO safety management system course, or a CAA equivalent training course.

6.4.2. Other CAA aviation specialist staff or external experts may be consulted for comment and advice during an aerodrome safety review to any extent necessary in the opinion of the Chief, [DASS].

6.4.3. Aerodrome safety reviews shall be conducted in accordance with the methodology for an aeronautical study as provided for in the CAA Manual of Regulatory Procedures, Chapter 9.

6.4.4. The Division Chief, [DASS] is responsible for scheduling aerodrome safety reviews, and for the nomination of an appropriate Aerodrome Inspector and/or review group. When a group activity is considered necessary, the Chief, [DASS], will nominate the group leader.

6.4.5. The nominated Aerodrome Inspector or Group Leader of the Review Team is responsible for conducting the review and providing a report that includes all appropriate recommendations to ensure satisfactory on-going operational safety.

6.4.6. The conduct of an aerodrome safety review should be timed so that outputs can be communicated effectively to all stakeholders prior to any changes coming into effect.

6.4.7. The outputs of an aerodrome safety review should include, but not limited to:

a) A statement summarizing the proposal under consideration;

b) The changes that will be generated as a result of the proposal;

c) Alternatives to the proposal that were considered, and reasons for selection of the proposal over the alternatives;

d) Whether or not a site visit was made;

e) Any non-conformity with mandatory standards;

f) Listing of hazards identified;

g) Listing of risks associated with non-compliances or hazards;

h) Safety analysis of each risk together with its ranking in priority order from highest to lowest;

i) Summary analysis of the proposal; and

j) Recommendations on the proposal.

6.4.8. The Aerodrome Inspector or Team Leader responsibilities include:

a) Record activities undertaken during the review;

b) Formulate conclusions;

c) Recommend resulting action requirements; and

d) Draft reports on safety review conducted.

6.4.9. The Chief, ARCID responsibilities include:

a) Review the draft safety review report;

b) Make recommendations to Chief, [DASS]; and

c) Direct the Aerodrome Inspector/Team Leader if additional activity is required.

6.4.10. The Chief, [DASS], is responsible to:

a) If in agreement with the recommendations, refer them to the Director General for formal approval before initiating action as necessary; and

b) If not in agreement, refer the issues back to the Aerodrome Inspector/Team Leader with instruction for additional activity.

6.5. Aerodrome Safety Review work flow process

6.5.1. The process of work undertaken in an aerodrome safety review will broadly follow that which is used in an aeronautical study, and is described in Fig 6-1 below.

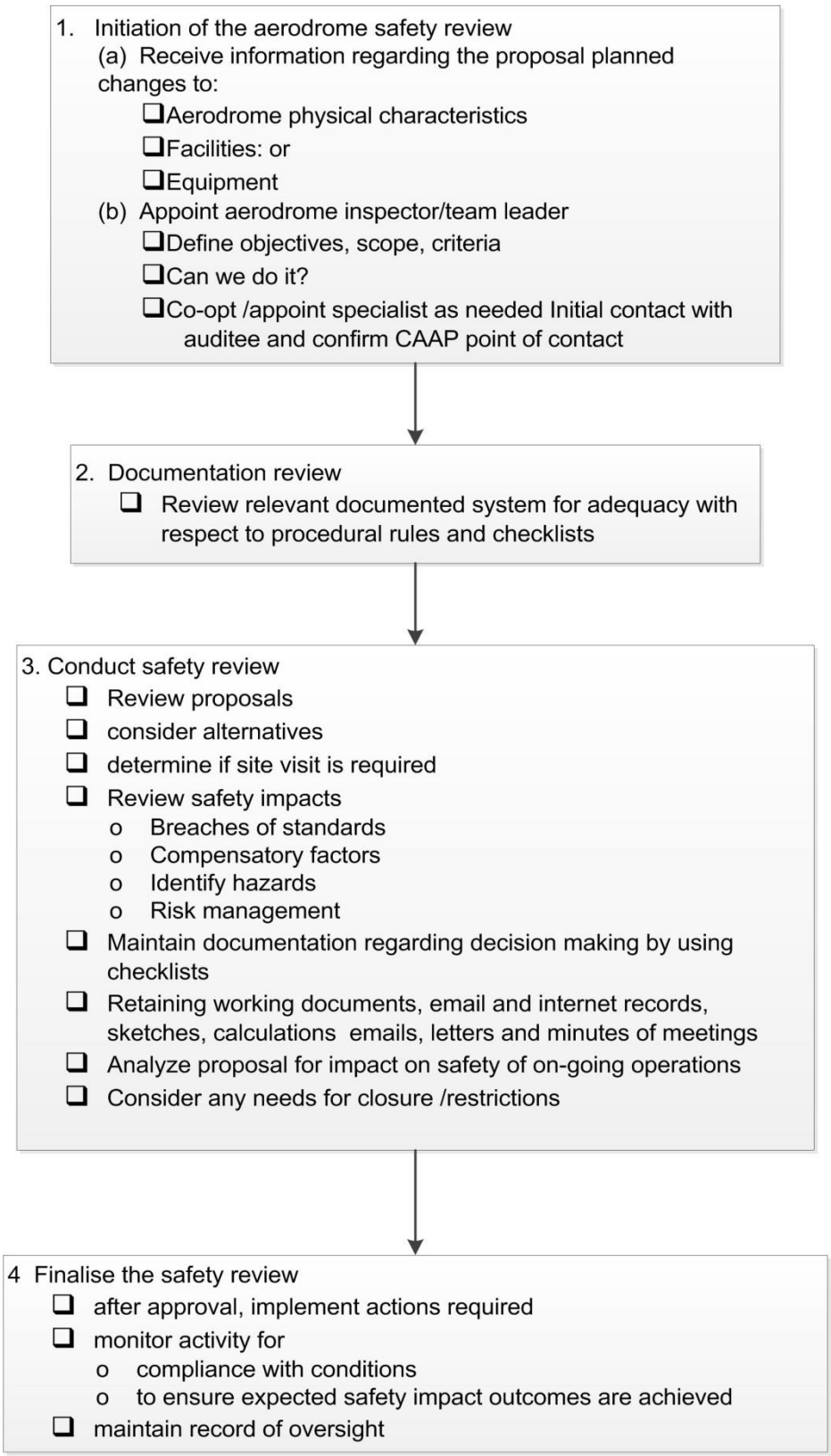

Fig 6-1 Aerodrome Safety Review

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CHAPTER - 7 Regulatory enforcement

[Please refer to Generic Aerodrome Certification Procedure Manual]

CHAPTER - 8 COMPETENCE OF PERSONNEL AT CERTIFIED AERODROMES

Note: Please refer to section 8.6 for a relevant reference material.

8.1. General

8.1.1. This chapter is details on the existing regulatory requirements regarding the appointment of specific aerodrome safety, maintenance, operational and management personnel. It also establishes a framework to obtain formal CAA acceptance of the person prior to the individual taking up responsibilities and accountabilities of the position.

8.1.2. Pursuant to [CAR] x.x.xxx, an operator shall ensure that there are an adequate number of qualified and skilled personnel to perform activities for aerodrome operation and maintenance.

8.1.3. It is emphasized that such qualifications and number of personnel are established: firstly, prior to certification of an aerodrome; and secondly, during any change to Aerodrome Post Holders at an aerodrome which is already certified.

8.2. KEY POST HOLDERS AT A CERTIFIED AERODROME

8.2.1. General

8.2.2. An aerodrome will have a number of key management personnel. The following are positions which shall be referred to as Aerodrome Post Holders in relation to Aerodrome Certification are as follows:

a) Accountable Manager (or Airport Director)

b) Head of Aerodrome Safety and Compliance (responsible for safety management and compliance with the regulatory requirements);

c) Head of Aerodrome Operations;

d) Head of Aerodrome Maintenance;

e) Head of Aerodrome Emergency Services (Chief Fire Officer)

8.3. PERSONNEL REQUIREMENTS AT A CERTIFIED AERODROME

8.3.1. An Aerodrome Operator under the certification process and prior to the grant of an Aerodrome Certificate and on an on-going basis shall engage, employ or contract: Aerodrome Post Holders to include the following:

a) **Airport Manager/ General Manager -** a senior person who has the authority within the Aerodrome Operator's organization to ensure that all activities undertaken by the organization can be financed and carried out in accordance with the requirements prescribed by the Regulations;

b) **Head of Aerodrome Safety and Compliance** - a person who shall be the responsible individual and focal point person for the development and maintenance of an effective safety management system and compliance with the regulations;

c) **Head of Aerodrome Operations –** a senior person who is responsible for ensuring that the aerodrome and its operation comply with the requirements of these Regulations. Such nominated person or persons shall be ultimately responsible to the Accountable Manager;

d) **Head of Aerodrome Maintenance** – a senior person who is responsible for ensuring that the aerodrome's maintenance programmes for safety critical infrastructure comply with the requirements of these Regulations. Among the maintenance responsibilities include the pavements, visual aids and electrical systems;

e) **Head of Aerodrome Emergency Services (CFO)** – a senior person who is responsible for ensuring that the aerodrome's emergency services comply with the requirements of the Regulations. Such nominated person or persons shall be ultimately responsible to the Accountable Manager; and sufficient and appropriately qualified personnel to manage, operate and maintain the aerodrome and its services and facilities, taking into account the structure of the organization and the number of personnel employed, in accordance with the requirements of these Regulations.

8.3.2. The Aerodrome Operator should inform the Authority prior to any changes of Aerodrome Post Holders.

8.3.3. The Aerodrome Operator shall update its Aerodrome Manual including the organizational structure with respect to the accepted Aerodrome Post Holders.

8.3.4. Where the Authority has prescribed a competency certification requirement or medical standards for operations or maintenance personnel, the Aerodrome Operator shall employ only those persons possessing such certificates or meeting such medical and fitness requirements.

8.3.5. The Aerodrome Operator shall implement a programme to maintain the competency of the safety critical personnel including training.

8.4. CRITERIA FOR ASSESSMENT OF AERODROME OPERATION POST HOLDERS

8.4.1. During the assessment process which under normal circumstances will be conducted during an on-site verification of aerodrome manual. CAA will inquire the post holders capabilities in areas that includes:

a) understanding and knowledge the roles and responsibilities of the operator and regulatory authority, the regulatory framework and specifically Safety Management System requirements;

b) information from the nominated person concerning his knowledge on work area;

c) enforcement methodology of the CAA;

d) the roles and responsibilities of the Aerodrome Post Holder;

e) competence requirement of the nominated person in relation to present personal status and experience presented in their curriculum vitae or equivalent documentation;

f) discussion concerning depth of knowledge and understanding of the applicable legislation and regulations;

g) understanding of aviation in general and for the specific nominated post, how operators/activities at the aerodrome;

8.4.2. Details of criteria for assessment of aerodrome operation post holders at a certified aerodrome are provided as Appendix 7D.

8.5. OBLIGATIONS OF AERODROME OPERATOR ON COMPETENCE OF OPERATIONAL PERSONNEL

8.5.1. An aerodrome operator is required to ensure that all technical and operational personnel are competent and skilled in their areas of jurisdiction.

8.5.2. It is also imperative that the aerodrome operator provides continuous and relevant training to acquaint all personnel with the current operational practices and remain competent on their responsibilities in line with the regulatory requirements

8.6. REFERENCE (Not to be included in States' own inspector handbook)

8.6.1. The Asia/Pacific Regional Guidance on Aerodrome Operations Personnel Competency Requirement Framework has been developed to assist States in the area. The regional guidance can be downloaded at ICAO APAC Website under "eDocuments" followed by "AGA". Link: https://www.icao.int/APAC/Pages/eDocs.aspx.

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APPENDICES

APPENDIX - 1: Definitions

For the purposes of this Handbook, the following terms and words have the following meanings;

Aerodrome. A defined area on land, including any building, installations and equipment, intended to be used either wholly or in part for the arrival, departure, and surface movement of aircraft.

Aerodrome Beacon. Aeronautical beacon used to indicate the location of an aerodrome from the air.

Aerodrome Certificate. The certificate to operate an aerodrome issued by the CAA under the provisions of [CAR] for the operation of an aerodrome.

Aerodrome Elevation. The elevation of the highest point of the landing area.

Aerodrome Facilities and Equipment. Facilities and equipment, inside or around the boundaries of an aerodrome, that are constructed or installed and maintained for the arrival, departure, and surface movement of aircraft.

Aerodrome Manual. The manual that forms part of the application for an aerodrome certificate pursuant to [CAR], as amended from time to time.

Aerodrome Operator. The holder of an aerodrome certificate issued under the Civil Aviation Regulations governing Aerodromes.

Aerodrome or Airport Tenant. Any enterprise that is resident at an aerodrome and offers services and products at that aerodrome.

Aerodrome Reference Point. The designated geographical location of an aerodrome.

Aeronautical Study. A study of an aeronautical problem to identify possible solutions and select a solution that is acceptable without degrading safety.

Apron. A defined area on an aerodrome intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fueling, parking or maintenance.

Apron Management Service. A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Aircraft Operator. A national or foreign aircraft operator.

Aircraft stand. A designated area on an apron intended to be used for parking an aircraft.

Airside. The movement area of an airport, adjacent terrain and buildings or portions thereof, access to which is controlled.

Apron passenger vehicle. Any vehicle used to convey passengers between aircraft and terminal buildings.

Audit. A systematic, independent and documented process for obtaining compliance status of the facility with mandatory regulatory requirements including aerodrome standards.

Auditor. A person with competence to conduct audits at national level.

Audit criteria. Legislation and CAA approved standards, policies, procedures or requirements.

Audit evidence. Records, statements of fact or other information, which are relevant to the audit criteria and are verifiable.

Audit Finding. Results of the collected audit evidence as compared against audit criteria.

Audit Programme. A set of one or more audits planned for a specific time frame and directed towards a specific purpose

Note: An audit programme includes all activities necessary for planning, organizing and conducting audits.

Audit Plan. A description of the activities and arrangements for an audit.

Certified Aerodrome. An aerodrome whose operator has been granted an aerodrome certificate by the Authority.

Director General means the Director General of the Civil Aviation Authority of the [STATE] (CAA).

Deficiency. A failure to comply with mandatory requirements.

Frangible Object. An object of low mass designed to break, distort or yield on impact so as to present the minimum hazard to aircraft.

General Aviation. An aircraft operation other than a commercial air transport operation.

Human Factors Principles. Principles which apply to design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

Human performance means human capabilities and limitations which have an impact on the safety, security and efficiency of aeronautical operations.

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure, and surface movement of helicopters.

International Airport. An airport designated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

Lighting System Reliability. The probability that the complete lighting installation operates within the specified tolerances and that the system is operationally usable.

Movement Area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft consisting of the maneuvering area and the apron(s).

Maneuvering Area. That part of an aerodrome to be used for the take-off, landing, and taxing of aircraft, excluding aprons.

Marker. An object displayed above ground level in order to indicate an obstacle or delineate a boundary.

Marking. A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extended above a defined surface intended to protect aircraft in flight.

Obstacle Free Zone (OFZ). The airspace above the inner approach surface, inner transitional surfaces and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than a low-mass and frangibly mounted one required for air navigation purposes.

Obstacle Limitation Surfaces (OLS). A series of surfaces that define the volume of airspace at and around an aerodrome to be kept free of obstacle in order to permit the intended aircraft operations to be conducted safely and to prevent the aerodrome from becoming unusable by the growth of obstacles around the aerodrome.

Record. Any writing, drawing, map, tape, film, photograph or other means by which information is preserved.

Runway. A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

Runway Strip. A defined area including the runway and stopway intended:

a) to reduce the risk of damage to aircraft running off a runway. and

b) to protect aircraft flying over it during take-off or landing operations.

Runway Visual Range (RVR). The range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center line.

Shoulder. An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.

Safety Management System (SMS). A system for the management of safety at aerodromes including the organization structure, responsibilities, procedures, processes and provisions for the implementation of aerodrome safety policies by an aerodrome operator, which provides for the control of safety at, and the safe use of the aerodrome. SMS is a systematic, explicit and comprehensive process for managing safety risks.

Runway End Safety Area (RESA). An area symmetrical about the extended centerline and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning a runway.

Taxiway strip. An area including a taxiway intended to protect an aircraft operating on a taxiway and to reduce the risk of damage to an aircraft accidentally running off the taxiway.

Unserviceable Area. A part of the movement area that is unfit and unavailable for use by aircraft.

Work Area. A part of an aerodrome in which maintenance or construction works are in progress.

Wildlife hazard. A potential for a damaging aircraft collision with birds or animals on or near an aerodrome.

APPENDIX - 2: Amendment of this Manual

1. This manual is issued as a controlled document. Each page is uniquely identifiable and amendments will be made from time to time to reflect necessary changes. All copies of the handbook are numbered and issued in accordance with the distribution list. All copy holders are responsible for the safe custody and maintenance of their numbered copy of the handbook.
2. The Chief, [DASS] (See Organizational structure diagram in Chapter 2.1.1) is responsible for the development, issue and control of amendments to this handbook. Individual handbook copy holders indicated on the distribution list are responsible for insertion of all amendments.
3. Within thirty days of the issue of an amendment, confirmation will be provided to the Chief, [DASS] that the required amendment action has been accomplished by the return of the amendment control page, signed and dated by the individual amending an issued Inspector Handbook.
   a) Each handbook issued must show the amendment number and the date, as described in the list of effective pages.
   b) All amendments will be shown in the Record of Amendment.
4. Minor changes (e.g. telephone number, typographical errors) can be accommodated by 'pen and ink' if so indicated in any amendment documentation issued by Chief, [DASS] prior approval. All such changes will be incorporated accordingly. Distribution of the changes will be the same as described above and a record of these changes will be shown in the Record of Amendments. However, minor changes will generally be collated over a period of three to six months and actioned by a formal amendment.

APPENDIX - 3: Auditor Feedback Form

1. General Conduct of the Audit

Audit Component	Answers and Comment (If "Yes", provide explanation)	
1. Did the team experience difficulties working together? If so what aspects could be improved? Were there any individual auditors who did not function as part of the team? If so, who were they?	[ ] Yes [ ] No	
2. Did the audit team leader function effectively as a team leader? Were the functions of the team adequately and fairly distributed?	[ ] Yes [ ] No	
3. Was all the documentation used by the team the current version? Were there adequate copies of all documents, manuals and guidance material made	[ ] Yes [ ] No	
4. Were there any major impediments to the successful conclusion of the audit? If 'yes', were they resolved or not? If answer to Q4 is yes, describe how impediments were resolved.	[ ] Yes [ ] No	

2. Preparation for the Audit

Audit Component	Answers and Comment (If "Yes", provide explanation)	
1. Did you experience any difficulties with travel arrangements, such as air tickets, hotels, allowances etc.?	[ ] Yes [ ] No	
2. Were all the documents required from the audited organization supplied on time prior to the audit? If no, was there a reason for this?	[ ] Yes [ ] No	
3. Were the pre-audit questionnaire fully completed and submitted in sufficient time before the audit? Did the answers help, or were they of limited use? How best can this be improved?	[ ] Yes [ ] No	
4. Were there any scheduling problems with the audited organization, or failures in communication with the audited organization?	[ ] Yes [ ] No	
5. Did you have sufficient time to review all the documentation prior to the actual audit?	[ ] Yes [ ] No	
6. Was the audit timetable realistic and achievable?	[ ] Yes [ ] No	

3. Conduct of the Audit

Audit Component	Answers and Comment (If "Yes", provide explanation)	
1. Was the entry briefing of value? Did it sufficiently deliver the scope and objectives of the audit to the audited organization? If not, why?	[ ] Yes [ ] No	
2. Did you experience any difficulties in communicating with representatives of the audited organization, and if so, why?	[ ] Yes [ ] No	
3. Did you experience any lack of cooperation or reluctance on the part of the audited organization during the audit?	[ ] Yes [ ] No	
4. Were there any incidents during the audit that require management attention? If so please describe.	[ ] Yes [ ] No	
5. Was the guidance material provided current and adequate?	[ ] Yes [ ] No	
6. Were the checklists current and adequate?	[ ] Yes [ ] No	
7. Did the exit briefing cover all the findings of the team?	[ ] Yes [ ] No	
8. Did the audited organization respond positively or negatively to the findings in the briefing?	[ ] Yes [ ] No	

4. Reporting and Other Issues

Audit Component	Answers and Comment (If "Yes", provide explanation)	
1. Did you experience any difficulties with the preparation of the audit report? If so, what aspects need improving?	[ ] Yes [ ] No	
2. Were there any other issues that need to be brought to the attention of senior Management? Describe them.	[ ] Yes [ ] No	
3. Are there any areas of the audit process that require revision or could be done better? If so, please describe.	[ ] Yes [ ] No	
4. Are there any areas in the Civil Aviation Regulations Part 12 (aerodromes) or any other supplied guidance material that warrants revision or amendment?	[ ] Yes [ ] No	

APPENDIX - 4: Audit Notification Letter to Aerodrome Operator

Address information

Dear Sir,

Civil Aviation Authority of the [STATE] (CAA) Aerodrome
Audit

As part of the CAA safety oversight of aerodrome safety, an audit of your organization is required and has been scheduled during the week commencing mm/dd/yyyy.

The demonstrated performance of organizations (personnel, equipment, information, facilities, etc.) as observed during these audits is the prime means used by the CAA when establishing the approval of, and continuing compliance for, certificated and registered aerodromes, as well as providing an indicator for the frequency and scope of future surveillance programmes.

Audit Reference Number

All enquiries relating to this audit should refer to Aerodrome Audit Reference Number nnn.

Objective

The objective of the audit is to assess your organization's aerodrome safety compliance in respect to aviation legislation and safety standards specified by the CAA.

Documents, records, equipment and facilities

Documents and records will be sampled, and a physical inspection of the relevant procedures, equipment or facilities is likely to be carried out. To facilitate this process would you please have available any of the following that may be relevant to the audit:

- Local training records;
- Personnel competency records for individual aerodrome Officers;
- Recurrent testing procedures and records;
- Operations Manuals and/or Standard Operating Procedures (SOPs);
- Records of meetings and decisions taken regarding safety matters; and
- Management must be available for interview.

Access to key staff associated with aerodrome operations and management will also be required.

Personnel

At the commencement of the audit the Senior Executive of the aerodrome should be present and available. The person responsible within your organization for quality assurance is welcome to attend.

The requirements for their ongoing presence throughout the audit will be discussed at that time. If for any reason a senior person is unavailable to attend this audit then please contact the Audit Leader.

Confirmation of date and time

The audit leader for this audit will be Mr Nnn NNnnnn and he will contact you directly to confirm the audit dates. Any audit enquiries should be addressed directly to him.

Yours faithfully

Name
Chief, ,
[DASS]
Date: _____

APPENDIX - 5: Aerodrome Pre-Audit Questionnaire

AERODROME PRE-AUDIT QUESTIONAIRE AIRPORT OPERATOR:

Name of Airport: _____

Name of Airport Manager _____ Contact #_____

Name of Head of Operations _____ Contact #_____

Part 1 - Airport

S/N	QUESTION	ANSWERS BY AIRPORT OPERATOR
1.1	Does the airport have an approved aerodrome manual?	
1.2	Who is responsible within the airport management for the maintenance of this manual?	
1.3	Who is responsible for coordinating the implementation of the contents of the manual at the airport?	
1.4	Has the airport established procedures for the amendment of this manual, and if so, where are these measures described.	
1.5	When was the manual last amended?	
1.6	List ground handling agencies, and their functions, at the airport. e.g. airlines, ground service providers and fuel organizations	
1.7	Is there any document on Airport Emergency Procedures?	
1.8	Who are the officers responsible for its implementation?	
1.9	Is there any Aerodrome plan?	
2.0	Is there any Aerodrome development programme in place?	
2.1	Any Safety Management Systems in place?	
2.2	Who monitors implementation?	
2.3	Any Quality Management System in place?	
2.4	How effective is the system?	
2.5	Does the airport have a copy of the Manual of Standards for Aerodromes?	
2.6	Is it being implemented?	
2.7	Have you received the Audit checklist and other relevant documentation manual?	

APPENDIX - 6: Suggested agenda items for an Opening Meeting

a) Welcome
b) Introduction of the auditors and interviewees from the audited sectors
c) Presentation of the audit team members (if not already done)
d) Presentation of the audit approach
e) Presentation of the audit context
f) If appropriate, mention the previous audit
g) Review of objectives and the field of application of the audit
h) Brief presentation of the audit methodology while insisting on its standardized nature
i) Presentation of the audit sequence: discussions, visits (ask if it is possible to take photos), consulting of documents
j) Auditor's code of ethics: non-argumentative, non-intrusive, non-accusatory, confidentiality assured
k) Presentation of the advantages of the audit (progress and improvements in the aerodrome programme)
l) Presentation of the audit plan with possible last-minute changes
m) Confirmation of the date and time of all discussions and of the final meeting
n) Clarification of any unclear aspects of the audit plan
o) Resolution of material aspects: Confirmation of the availability of the necessary equipment and installations
p) Clarification of any unclear aspect of the aerodrome certificate holders aerodrome programmes or pre-audit questionnaire
q) Answer the questions of the representatives from the different services responsible for aerodrome operations.
r) Record of attendees
s) Audit termination
t) Conclusion

APPENDIX - 7: Aerodrome Audit Checklists

A system safety audit is the usual means for a regulatory organization to assess initial and on-going compliance of a service provider with the minimum mandatory obligations that are associated with activity in the aviation industry. These checklists pertain to aerodrome operations, and encompass the full gamut of activity required by CAA for initial audit of a complex airport to determine if a certificate can be issued. The checklists may need to be reviewed at subsequent surveillance audits or inspections depending on the scope and depth of regulatory oversight activity that is planned to occur.

It is important to consider [at least] the following when verifying a process:

a) The adequacy of the available Infrastructure and how it supports the process.

b) How does the auditee monitor the performance of the process and determine the need for, and implement, any improvements?

c) Has the organization assigned a responsible and competent person to ensure the process remains adequate and the documentation is current?

d) Is there a competent person who has the appropriate authority to change the process?

e) Are the people involved adequately trained?

When identifying a non-compliance with the regulations standards and mandatory obligations, look beyond the immediate occurrence and ask:

a) Why?

b) Who?

c) When?

d) What led to this? What's the history?

e) What are the broader factors involved, and how do they inter-relate in the chain of events leading to the conditions that allowed the non-compliance to exist?

For a certification audit the required elements are to be tested for conformity with mandatory obligation imposed by [CAR] and the safety specifications of the [STATE] (and ICAO Annex 14 Volume 1, if appropriate).

Within the checklists, status of individual items may be 'Yes' , 'No', 'Not Applicable', (NA), for remarks: the entry may be 'Satisfactory' (S), 'Not Satisfactory' (NS), and/or description of observation/s.

Appendix 7A: Aerodrome Manual Checklist

This checklist is a tool for inspectors in evaluating the initial submission of an aerodrome manual by the aerodrome operators. This checklist is in accordance with the ICAO format for aerodrome manual detailed in ICAO Document 9774-Manual on Aerodrome Certification as referenced in the [ANNEX 14]([MAS]) and ICAO Doc. 9981 (PANS-Aerodromes).

The checklist is organized as follows:

PART 1	GENERAL INFORMATION
PART 2	AERODROME SITE INFORMATION
PART 3	AIS INFORMATION
PART 4	AERODROME OPERATING PROCEDURES
PART 5	AERODROME ADMINISTRATION

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
FIRST PAGE:				
Signature	**1.**	The aerodrome manual must be signed by the most senior officer who is responsible and directly accountable for general management of the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Foreword	**2.**	A general statement indicating the importance of the manual and that the contents are binding on staff.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3.	The foreword also provides a convenient mechanism for the manual to be signed by the most senior officer responsible for the general management of the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
PART 1: GENERAL INFORMATION				
Conditions of use	**4.**	Airport operates 24 hours per day for take-off and landing of aircraft and when it is so available it shall be so under equal terms and conditions to all persons and operators.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Aeronautical Information	**5.**	All data relating to the aeronautical aspect of this aerodrome are published in the Republic of the [STATE] Aeronautical Information Publication.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	6.	The Airside Safety Manager is responsible for complete and correct promulgation of data to AIS section of the CAA in accordance with procedures described in [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Recording Aircraft Movements	**7.**	All data relating to the recording of aircraft movements is collected and recorded by Air Traffic Control.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8.	The Tower Team Leader is responsible for complete and correct collection recording and reporting to the Airport General Manager in accordance with procedures described in [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Obligation of the Aerodrome Operator	**9.**	**[MAS] Appendix 1- Part 1.4** a) Comply with mandatory standards and practices;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10.	b) Employ an adequate number of qualified and skilled staff;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11.	c) Operate the aerodrome in accordance with the procedures set out in the Aerodrome Manual;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12.	d) Have an acceptable aerodrome safety management system;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13.	e) Arrange for audit of the safety management system and the management of airport organizations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14.	f) Permit access to authorized ATO officers for inspection and testing purposes related to ensuring safety at the aerodrome;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15.	g) Make required notifications to the CAA, ATC or pilots;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	16.	h) Conduct special inspections as necessary;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17.	i) Remove obstructions on the aerodrome that are likely to be a hazard; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18.	j) Erect warning signs if low flying or taxying aircraft are likely to be hazardous to people or vehicles.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
PART 2: AERODROME SITE INFORMATION				
Aerodrome Plan	**19.**	**DOC 9774 Appendix 1 - Part 2** a) A plan of the aerodrome showing the main aerodrome facilities for the operation of the aerodrome including, particularly, the location of each wind direction indicator;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20.	b) A plan of the aerodrome showing the aerodrome boundaries;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21.	c) A plan showing the distance of the aerodrome from the nearest city, town or other populous area, and the location of any aerodrome facilities and equipment outside the boundaries of the aerodrome; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22.	d) Particulars of the title of the aerodrome site. If the boundaries of the aerodrome are not defined in the title documents particulars of the title to, or interest in, the property on which the aerodrome is located and a plan showing the boundaries and position of the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
Aerodrome Land Titles	**23.**	Parcellary Plan/s	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
PART 3: AIS INFORMATION				
Aerodrome Dimensions - Runway	**24.**	**Doc 9774 Appendix 1 - Part 3.2** True bearing, designation number, length, width, displaced threshold location, slope, surface type, type of runway and, for a precision approach runway, the existence of an obstacle free zone	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Strip	**25.**	length, width and surface type of strip, runway end safety areas, stop ways.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Taxiway	**26.**	length, width and surface type of taxiways	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Apron	**27.**	apron surface type and aircraft stands	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Clearway	**28.**	clearway length and ground profile	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- visual aids for approach procedures	**29.**	approach lighting type and visual approach slope indicator system (PAPI/APAPI and T-VASIS/AT-VASIS); marking and lighting of runways, taxiways, and aprons; other visual guidance and control aids on taxiways (including runway holding positions, intermediate holding positions and stop bars) and aprons, location and type of visual docking guidance system; availability of standby power for lighting.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Radio frequency of VOR	**30.**	the location and radio frequency of VOR aerodrome checkpoints	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- standard taxi routes	**31.**	the location and designation of standard taxi routes	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
- geographical coordinates	**32.**	the geographical coordinates of each threshold	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33.	the geographical coordinates of appropriate taxiway center line points	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	34.	the geographical coordinates of each aircraft stand	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	35.	the geographical coordinates and the top elevation of significant obstacles in the approach and take-off areas, in the circling area and in the vicinity of the Aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- pavement surface type and bearing strength	**36.**	pavement surface type and bearing strength using the Aircraft Classification Number — Pavement Classification Number (ACN-PCN) method.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- pre-flight altimeter check locations	**37.**	one or more pre-flight altimeter check locations established on an apron and their elevation	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- declared distances	**38.**	take-off run available (TORA), take-off distance available (TODA), accelerate-stop distance available (ASDA), landing distance available (LDA)	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- disabled aircraft removal plan	**39.**	the telephone/telex/ facsimile numbers and e-mail address of the aerodrome coordinator for the removal of a disabled aircraft on or adjacent to the movement area, information on the capability to remove a disabled aircraft, expressed in terms of the largest type of aircraft which the aerodrome is equipped to remove.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- rescue and fire-fighting	**40.**	the level of protection provided, expressed in terms of the category of the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
		rescue and fire-fighting services, which should be in accordance with the longest aeroplane normally using the aerodrome and the type and amounts of extinguishing agents normally available at the Aerodrome.		
AIP Data - Aerodrome diagram	**41.**	**[MAS] Chapter x.x.x.x** a) layout of runways, taxiways and apron(s);	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	42.	b) nature of the runway surfaces;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	43.	c) designations and length of runways;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	44.	d) designations of the taxiways, where applicable;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	45.	e) location of illuminated and non-illuminated wind direction indicators;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	46.	f) location of the aerodrome reference point;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	47.	g) the direction and distance to the nearest town;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	48.	h) location of terminal buildings; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	49.	i) location of helipads	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Aerodrome operation	**50.**	a) name, address, telephone and facsimile numbers of the aerodrome operator; including after-hours contacts;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	51.	b) aerodrome usage, public or private;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	52.	c) aerodrome charges, where notification is desired	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Aerodrome location	**53.**	a) name of aerodrome;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	54.	b) World Aeronautical Chart number, if known;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	55.	c) latitude and longitude, based on the aerodrome reference point;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	56.	d) magnetic variation;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	57.	e) time conversion-universal time coordinated (UTC) plus local time difference;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	58.	f) aeronautical location code indicator, if known;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	59.	g) aerodrome elevation;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	60.	h) currency of Type A charts, if provided	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Movement area	**61.**	a) aerodrome reference code number;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	62.	b) runway bearings - in degrees magnetic;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	63.	c) runway length and surface type;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	64.	d) runway pavement strength rating;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	65.	e) runway and runway strip width;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	66.	f) runway slope;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	67.	g) runway declared distances, and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	68.	h) elevation of the midpoint of runway threshold, for instrument runways	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Lighting systems	**69.**	a) lighting systems for runways;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	70.	b) approach lighting system;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	71.	c) visual approach slope indicator system;	[ ] Yes [ ] No	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
			[ ] N/A	
	72.	d) lighting systems for taxiways; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	73.	e) any other lighting systems	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Navigation aids	**74.**	Details of any navigation aid provided by the aerodrome Operator	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Rescue and fire-fighting services	**75.**	The category of aerodrome-based rescue and fire-fighting services provided by CAA or the aerodrome operator	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Ground services	**76.**	a) fuel suppliers and their contact details, including after hours;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	77.	b) automatic weather information broadcast if provided by aerodrome operator; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	78.	c) any other services available to pilots	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Special procedures	**79.**	Include any special procedures unique to the aerodrome, which pilots need to be advised.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
- Notices	**80.**	Include important cautionary or administrative information relating to the use of the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
PART 4: AERODROME OPERATING PROCEDURES				
Sec 1: Aerodrome Reporting	**81.**	**Doc 9774 Appendix 1 - Part 4.1** a) arrangements for reporting any changes to the CAA and recording the reporting of changes during and outside the normal hours of aerodrome operations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	82.	b) the names and roles of persons responsible for notifying the changes, and their telephone numbers during and outside the normal hours of aerodrome operations; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	83.	c) The address and telephone numbers, as provided by the CAA, of the place where changes are to be reported to the CAA.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 2: Access to Aerodrome Movement Area	**84.**	**Doc 9774 Appendix 1 - Part 4.2** a) The role of the aerodrome operator, the aircraft operator, aerodrome fixed-base operators, the aerodrome security entity, the CAA and other government departments, as applicable; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	85.	b) The names and roles of the personnel responsible for controlling access to the aerodrome, and the telephone numbers for contacting them during and after working hours.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 3: Aerodrome Emergency Plan	**86.**	**Doc 9774 Appendix 1 - Part 4.3** a) plans for dealing with emergencies occurring at the aerodrome or in its vicinity, including the malfunction of aircraft in flight; structural fires; sabotage, including bomb threats (aircraft or structure); unlawful seizure of aircraft; and incidents on the airport covering “during the emergency” and “after the emergency” considerations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	87.	b) details of tests for aerodrome facilities and equipment to be used in emergencies, including the frequency of those tests;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	88.	c) details of exercises to test emergency plans, including the frequency of those exercises;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	89.	d) a list of organizations, agencies and persons of authority, both on- and off-airport, for site roles; their telephone and facsimile numbers, e-mail and SITA addresses and the radio frequencies of their offices;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	90.	e) the establishment of an aerodrome emergency committee to organize training and other preparations for dealing with emergencies; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	91.	f) The appointment of an on-scene commander for the overall emergency operation.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 4: RFFS	**92.**	**Doc 9774 Appendix 1 - Part 4.4** Particulars of the facilities, equipment, personnel and procedures for meeting the rescue and fire-fighting requirements, including the names and roles of the persons responsible for dealing with the rescue and fire-fighting services at the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 5: Inspection of the Aerodrome Movement Area and Obstacle Limitation Surface by the Aerodrome Operator	**93.**	**Doc 9774 Appendix 1 - Part 4.5** a) arrangements for carrying out inspections, including runway friction and water-depth measurements on runways and taxiways, during and outside the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
		normal hours of aerodrome operations;		
	94.	b) arrangements and means of communicating with air traffic control during an inspection;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	95.	c) arrangements for keeping an inspection logbook, and the location of the logbook;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	96.	d) details of inspection intervals and times;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	97.	e) inspection checklist;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	98.	f) arrangements for reporting the results of inspections and for taking prompt follow-up actions to ensure correction of unsafe conditions; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	99.	g) The names and roles of persons responsible for carrying out inspections, and their telephone numbers during and after working hours.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 6: Visual Aids, Electrical Systems and Lighting	**100.**	**Doc 9774 Appendix 1 - Part 4.6** a) Arrangements for carrying out inspections during and outside the normal hours of aerodrome operation, and the checklist for such inspections;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	101.	b) Arrangements for recording the result of inspections and for taking follow-up action to correct deficiencies;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	102.	c) Arrangements for carrying out routine maintenance and emergency	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
		maintenance;		
	103.	d) Arrangements for secondary power supplies, if any, and, if applicable, the particulars of any other method of dealing with partial or total system failure; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	104.	e) The names and roles of the persons responsible for the inspection and maintenance of the lighting, and the telephone numbers for contacting those persons during and after working hours.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 7: Maintenance of The Movement Area	**105.**	**Doc 9774 Appendix 1 - Part 4.7** a) Arrangements for maintaining the paved areas;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	106.	b) Arrangements for maintaining the unpaved runways and taxiways;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	107.	c) Arrangements for maintaining the runway and taxiway strips; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	108.	d) Arrangements for the maintenance of aerodrome drainage.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 8: Aerodrome Works Safety	**109.**	**Doc 9774 Appendix 1 - Part 4.8** a) Arrangements for communicating with air traffic control during the progress of such work;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	110.	b) The names, telephone numbers and roles of the persons and organizations responsible for planning and carrying out the work, and arrangements for contacting those persons and organizations at all times;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	111.	c) The names and telephone numbers, during and after working hours, of the aerodrome fixed-base operators, ground handling agents and aircraft operators who are to be notified of the work;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	112.	d) A distribution list for work plans, if required.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 9: Aircraft Parking Control	**113.**	**Doc 9774 Appendix 1 - Part 4.9** a) Arrangements between air traffic control and the apron management unit;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	114.	b) Arrangements for allocating aircraft parking positions;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	115.	c) Arrangements for initiating engine start and ensuring clearance of aircraft push-back;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	116.	d) Marshaling service; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	117.	e) Leader (van) service.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 10: Apron Safety Management	**118.**	**Doc 9774 Appendix 1 - Part 4.10** a) Protection from jet blasts;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	119.	b) Enforcement of safety precautions during aircraft refueling operations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	120.	c) Apron sweeping;	[ ] Yes [ ] No	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
			[ ] N/A	
	121.	d) Apron cleaning;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	122.	e) Arrangements for reporting incidents and accidents on an apron; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	123.	f) Arrangements for auditing the safety compliance of all personnel working on the apron.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 11: Airside Vehicle Control	**124.**	**Doc 9774 Appendix 1 - Part 4.11** a) Details of the applicable traffic rules (including speed limits and the means of enforcing the rules); and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	125.	b) The method of issuing driving permits for operating vehicles in the movement area.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 12: Wildlife Hazard Management	**126.**	a) arrangements for assessing wildlife hazards	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	127.	b) Arrangements for implementing wildlife control programmes; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	128.	c) The names and roles of the persons responsible for dealing with wildlife hazards, and their telephone numbers during and after working hours.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 13: Obstacle Control	**129.**	**Doc 9774 Appendix 1 - Part 4.13** a) Monitoring the obstacle limitation surfaces and Type A Chart for obstacles in the take-off surface;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	130.	b) Controlling obstacles within the authority of the operator;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	131.	c) Monitoring the height of buildings or structures within the boundaries of the obstacle limitation surfaces;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	132.	d) Controlling new developments in the vicinity of aerodromes; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	133.	e) Notifying the CAA of the nature and location of obstacles and any subsequent addition or removal of obstacles for action as necessary, including amendment of the AIS publications.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 14: Removal of Disabled Aircraft	**134.**	**Doc 9774 Appendix 1 - Part 4.14** a) The roles of the aerodrome operator and the holder of the aircraft certificate of registration;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	135.	b) Arrangements for notifying the holder of the certificate of registration;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	136.	c) Arrangements for liaising with the air traffic control unit;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	137.	d) Arrangements for obtaining equipment and personnel to remove the disabled aircraft; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	138.	e) The names, role and telephone numbers of persons responsible for arranging for the removal of disabled aircraft.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 15: Handling of Hazardous Materials	**139.**	**Doc 9774 Appendix 1 - Part 4.15** a) Arrangements for special areas on the aerodrome to be set up for the storage of inflammable liquids (including aviation fuels) and any other hazardous materials; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	140.	b) The method to be followed for the delivery, storage, dispensing and handling of hazardous materials.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 16: Low Visibility Operations	**141.**	**Doc 9774 Appendix 1 - Part 4.16** Particulars of procedures to be introduced for low-visibility operations, including the measurement and reporting of runway visual range as and when required, and the names and telephone numbers, during and after working hours, of the persons responsible for measuring the runway visual range.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 17: Protection of Radar & Navigation Aids	**142.**	**Doc 9774 Appendix 1 - Part 4.17** a) Arrangements for the control of activities in the vicinity of radar and navaids installations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	143.	b) Arrangements for ground maintenance in the vicinity of these installations; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	144.	c) Arrangements for the supply and installation of signs warning of hazardous microwave radiation.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Section 18: Snow and Ice Control, and Hazardous Meteorological Condition	**145.**	PANS-Aerodromes (Doc 9981) A) At aerodromes subjected to snow and icing conditions: a) A snow and ice control plan, including the means and procedures used as well as the responsibilities and criteria for closing and reopening the runway;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	146.	b) a formal coordination for snow and ice removal between the aerodrome operator and ATS	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	147.	B) For other hazardous meteorological situations that may occur at the aerodrome (such as thunderstorms, strong surface winds and gusts, sandstorms): a) Procedures describing the actions that have to be taken and defining the responsibilities and criteria for suspension of operations on the runway;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	148.	b) a formal coordination with the meteorological service provider in order to be advised of any significant meteorological conditions;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Section 19: Reporting of Runway Surface Conditions	**149.**	PANS-Aerodromes (Doc 9981) a) Procedure for assessing and reporting runway condition code (RWYCC) for each third of the runway in the prescribed format; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	150.	b) Procedure for reporting significant changes to RWYCC without dealy.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
PART 5: AERODROME ADMINISTRATION				
Sec 1: Organization Contacts & Structure	**151.**	**Doc 9774 Appendix 1 - Part 5** a) an aerodrome organizational chart showing the names and positions of key personnel, including their responsibilities;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	152.	b) The name, position and telephone number of the person who has overall responsibility for aerodrome safety; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	153.	c) Airport committees.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 2: Exemptions, Directions, Approvals	**154.**	Are there exemptions applied at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Sec 3: Aerodrome Safety Management System	**155.**	**Doc 9774 Appendix 1 - Part 5** a) the safety policy, insofar as applicable, on the safety management process and its relation to the operational and maintenance process;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	156.	b) The structure or organization of the SMS, including staffing and the assignment of individual and group responsibilities for safety issues;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	157.	c) SMS strategy and planning, such as setting safety performance targets, allocating priorities for implementing safety initiatives and providing a framework for controlling the risks to as low a level as is reasonably practicable keeping always in view the requirements of the Standards and Recommended Practices in Volume I of Annex 14 to the Convention on International Civil Aviation, and the national regulations, standards, rules or orders;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	158.	d) SMS implementation, including facilities, methods and procedures for the effective communication of safety messages and the enforcement of safety requirements;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	159.	e) A system for the implementation of, and action on, critical safety areas which require a higher level of safety management integrity (safety measures programme);	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	160.	f) measures for safety promotion and accident prevention and a system for risk control involving analysis and handling of accidents, incidents, complaints, defects, faults, discrepancies and failures, and continuing safety monitoring;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	161.	g) The internal safety audit and review system detailing the systems and programmes for quality control of safety;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	162.	h) The system for documenting all safety-related airport facilities as well as airport operational and maintenance records, including information on the design and construction of aircraft pavements and aerodrome lighting. The system should enable easy retrieval of records including charts;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

PARTICULARS	NO.	DETAILS	STATUS	REMARKS
	163.	i) Staff training and competency, including the review and evaluation of the adequacy of training provided to staff on safety-related duties and of the certification system for testing their competency; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	164.	j) The incorporation and enforcement of safety-related clauses in the contracts for construction work at the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7B: Technical Inspection Checklist (Aerodrome Infrastructure and Ground Aids)

Note:- Please insert relevant Articles/reference to National Regulations, Standards, Advisory Circulars, Aerodrome Manual etc. as relevant

Appendix 7B-1: OBSTACLE RESTRICTIONS FORM AGA-ATI-0001

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
1.1 OBSTACLE RESTRICTIONS			
STD&RP A14 Vol.I,4.1,4.2,4.3.1,4.3.2 GM Doc9137,P6,1.1.3 Doc9981,P1,2.4.5	1. Are the OLS surfaces defined?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are objects infringing the OLS?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are obstacles that penetrate the OLS appropriately marked or lit?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are the OFZ surfaces defined, when required?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Are objects penetrating the OFZ and is frangible?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are the objects near the following areas comply with the OLS requirements? • Runway • Runway strip • Clearway • Stopway • RESA • Taxiway • Taxiway strip • Pre-threshold area • Radio altimeter operating area	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Are fixed objects, temporary and permanent, which extends above the OLS but are permitted to remain or objects which are present on the movement area regarded as obstacles explicitly marked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Are there procedures for monitoring the obstacle limitation surfaces and Type A Chart for obstacles in the take-off surface?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. controlling obstacles within the authority of the operator;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. monitoring the height of buildings or	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	structures within the boundaries of the obstacle limitation surfaces	[ ] N/A	
	11. controlling new developments in the vicinity of aerodromes; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. notifying the CAA of the nature and location of obstacles and any subsequent addition or removal of obstacles for action as necessary, including amendment of the AIS publications.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. And the procedure for monitoring building developments (in relation to the height of buildings and other structures) within the horizontal limits of the obstacle limitation surfaces?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. And if the aerodrome has instrument approach procedures, the procedures for monitoring for new objects or building developments in any other areas nominated by the instrument procedure designers?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. And the arrangements with CAA, local planning authorities and other relevant organizations in relation to the approval of building developments that may infringe the obstacle limitation surfaces?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Including the process for asking CAA to assess proposed obstacles? (If applicable to the aerodrome)	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7B-2: PHYSICAL CHARACTERISTICS, VISUAL AID AND AERODROME FACILITIES FORM AGA-ATI-0002

No.	Reference	Audit Area	Actual	Standard	Remarks
1)	STD A14 Vol.I,C3,C5 GM Doc9157,P1,C5 Doc9157,P4	**Aerodrome Physical Characteristics and visual aids**			
	STD A14 Vol.I,3.1 GM Doc9157,P1,5.1	a) Runway			☐S ☐ NS
	RP A14 Vol.I,3.1.5,3.1.6,Att.A,11 GM Doc9157,P1,2.2	• Runway Threshold Location			☐S ☐ NS
	RP A14 Vol.I,C3,3.1.7-3.1.9 GM Doc9157,P1,C3	• Runway length			☐S ☐ NS
	RP A14 Vol.I,3.1.10 GM Doc9157,P1,5.1.1-5.1.3	• Runway Width			☐S ☐ NS
	STD& RP A14 Vol.I,3.3.1-3.3.12 GM Doc9157,P1,App.4	• Runway turn pads			☐S ☐ NS
	RP A14 Vol.I,3.1.11,3.1.12 GM Doc9157,P1,2.1.15-2.1.18 Doc9643,C4,4.3	• Spacing for parallel runways			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	RP A14 Vol.I,3.1.13-3.1.16 GM Doc9157,P1,5.1.4–5.1.7	• Runway longitudinal slope			☐S ☐ NS
	RP A14 Vol.I,3.1.17 GM Doc9157,P1,5.1.8,5.1.9	• Runway sight distance			☐S ☐ NS
	RP A14 Vol.I,3.1.19,3.1.20 GM Doc9157,P1,5.1.12,5.1.13 Doc9157,P3,5.2.6.2	• Transverse slopes on runways			☐S ☐ NS
	STD& RP A14 Vol.I,3.1.22-3.1.27,Att.A,5 GM Doc9137,P2,1.2,1.3 Doc9157,P1,5.1.16–5.1.24 Doc9157,P3,C5	• Runway surface			☐S ☐ NS
	RP A14 Vol.I,C3,3.1.21 GM Doc9157,P1,5.1.15	• Runway bearing strength			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,C3,3.2 GM Doc9157,P1,5.2 Doc9981,P1,App.toC4,2.3	b) Runway shoulders			☐S ☐ NS
	STD A14 Vol.I,C3,3.2.1 GM Doc9157,P1,5.2.1-5.2.8 Doc9981,P1,App.toC4,2.3.1	• Characteristics of runway shoulders			☐S ☐ NS
	STD A14 Vol.I,C3,3.2.5,3.2.6 GM Doc9157,P1,5.2.11,5.2.12	• Surface of runway shoulder			☐S ☐ NS
	RP A14 Vol.I,C3,3.2.2 GM Doc9157,P1,5.2.8 a) c)	• Width of runway shoulder			☐S ☐ NS
	RP A14 Vol.I,C3,3.2.3 GM Doc9157,P1,5.2.9	• Slopes on runway shoulder			☐S ☐ NS
	RP A14 Vol.I,C3,3.2.4 GM Doc9157,P1,5.2.10	• Strength of runway shoulder			☐S ☐ NS
	STD A14 Vol.I,5.2.2-5.2.7,5.2.9	c) Runway Markings			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	GM Doc9157,P3,8.3.3.1 c)				
	RP A14 Vol.I,7.3	• Pre-Threshold area (a chevron marking)			☐S ☐ NS
	STD A14 Vol.I,5.2.3	• Runway centerline markings			☐S ☐ NS
	STD A14 Vol.I,5.2.3.3	➢ Length			☐S ☐ NS
	STD A14 Vol.I,5.2.3.2	➢ Dist. of 1st stripe			☐S ☐ NS
	STD A14 Vol.I,5.2.3.4	➢ Width			☐S ☐ NS
	STD A14 Vol.I,5.2.2	• Runway designation markings			☐S ☐ NS
	STD A14 Vol.I,5.2.4.8 RP A14 Vol.I,5.2.4.7 GM Doc9157,P4	• Runway transverse stripe markings			☐S ☐ NS
	STD A14 Vol.I,5.2.4.8	➢ Width			☐S ☐ NS
		➢ Length			☐S ☐ NS
	STD A14 Vol.I,5.2.7	• Runway side-stripe markings			☐S ☐ NS
	RP A14 Vol.I,5.2.7.5	➢ Width			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,5.2.5	• Runway aiming point markings			☐S ☐ NS
		➢ No. of stripes			☐S ☐ NS
		➢ Dimensions & lateral spacing's			☐S ☐ NS
	STD A14 Vol.I,5.2.6	• Runway touch down zone markings			☐S ☐ NS
		➢ Distance between thresholds			☐S ☐ NS
	STD A14 Vol.I,5.2.6.4	➢ Rectangular dimension			☐S ☐ NS
	STD A14 Vol.I,5.2.6.4	➢ Longitudinal spacing			☐S ☐ NS
	STD A14 Vol.I,5.2.4	• Runway threshold markings			☐S ☐ NS
		➢ Length			☐S ☐ NS
		➢ Width			☐S ☐ NS
		• Runway end markings			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Length			☐S ☐ NS
	STD A14 Vol.I,5.2.4.9,5.2.4.10	• Temporary displaced threshold markings			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		➢ Width			☐S ☐ NS
		➢ Arrowheads			☐S ☐ NS
	STD A14 Vol.I,3.7 A14 Vol.I,Att.A,2 Doc9157,P1,3.3,5.6	d) Stopway			☐S ☐ NS
	GM A14 Vol.I,Att.A,2	• Dimensions of stopways			☐S ☐ NS
		➢ Dist. Before the runway strip			☐S ☐ NS
	STD A14 Vol.I,3.7.1 GM Doc9157,P1,5.6.1	➢ width			☐S ☐ NS
	STD A14 Vol.I,3.7.4 GM Doc9157,P1,5.6.4,5.6.5	• Surface of stopway			☐S ☐ NS
	RP A14 Vol.I,3.7.2 GM Doc9157,P1,5.6.2	• Stopway slopes and slope changes			☐S ☐ NS
	RP A14 Vol.I,3.7.3	• Bearing strength of stopway			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,3.5.1-3.5.6,Att.A,10 GM Doc9157,P1,5.4 Doc9981,P1,App.toC4,3	e) RESA			☐S ☐ NS
	STD& RP A14 Vol.I,3.5.3,3.5.4 GM Doc9157,P1,5.4.4-5.4.7	• Length			☐S ☐ NS
	STD A14 Vol.I,3.5.5,3.5.6 GM Doc9157,P1,5.4.8,5.4.9	• width			☐S ☐ NS
	RP A14 Vol.I,3.5.10 GM Doc9157,P1,5.4.13	• Downward longitudinal slope			☐S ☐ NS
	RP A14 Vol.I,3.5.11 GM Doc9157,P1,5.4.15	• Transverse slope			☐S ☐ NS
	STD A14 Vol.I,3.6,Att.A,2 Doc9157,P1,5.5	f) Clearway			☐S ☐ NS
	RP A14 Vol.I,3.6.1 GM Doc9157,P1,5.5.1	• Location of clearways			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	RP A14 Vol.I,3.6.2- 3.6.5 GM Doc9157,P1,5.5.2,5.5.3	• Dimensions of clearways			☐S ☐ NS
	RP A14 Vol.I,3.6.2 GM Doc9157,P1,5.5.2	➢ Length of Clearway			☐S ☐ NS
	RP A14 Vol.I,3.6.3	➢ Width of clearway			☐S ☐ NS
	RP A14 Vol.I,3.6.4,3.6.5 GM Doc9157,P1,5.5.4–5.5.6	• Slopes on clearways			☐S ☐ NS
	RP A14 Vol.I,3.6.6 GM Doc9157,P1,5.5.7	• Objects on clearways			☐S ☐ NS
	STD A14 Vol.I,3.4,Att.A,9 GM Doc9157,P1,5.3 Doc9981,P1,App.toC4,2.5	g) Runway Strip			☐S ☐ NS
	STD A14 Vol.I,3.4.2 GM Doc9157,P1,5.3.2	• Runway strip length			☐S ☐ NS
	STD& RP A14 Vol.I,3.4.3-3.4.5 GM	• Runway strip width			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	Doc9157,P1,5.3.3-5.3.5				
	RP A14 Vol.I,3.4.13 GM Doc9157,P1,5.3.17	• Longitudinal slope on graded area of runway strip			☐S ☐ NS
	RP A14 Vol.I,3.4.14 GM Doc9157,P1,5.3.18,5.3.19	• Longitudinal Slope Changes on Graded Area of Runway Strip			☐S ☐ NS
	STD A14 Vol.I,3.4.10 GM Doc9157,P1,5.3.15,5.3.16	• Surface of graded area of runway strip			☐S ☐ NS
	STD A14 Vol.I,3.8,4.3 GM Doc9157,P1,5.3.19	• Radio Altimeter Operating Area			☐S ☐ NS
	RP A14 Vol.I,3.4.15,3.4.16 GM Doc9157,P1,5.3.20-5.3.23	• Runway Strip Transverse Slope			☐S ☐ NS
	RP A14 Vol.I,3.4.8,3.4.9 GM Doc9157,P1,5.3.12-5.3.16	• Grading of Runway Strips			☐S ☐ NS
	STD& RP A14 Vol.I,3.4.6-3.4.7 GM Doc9157,P1,5.3.7 Doc9981,App.1toC2,2.1,App.toC4 ,2.5.2	• Objects on runway strips			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	RP A14 Vol.I,3.4.17,3.4.18 GM Doc9157,P1,5.3.24–5.3.26	• Runway strip strength			☐S ☐ NS
	STD A14 Vol.I,3.9 GM Doc9157,P2,C1 Doc9981,P1,App.1toC2,2,2.1 b) 4),App.toC4,4	h) Taxiways			☐S ☐ NS
	RP A14 Vol.I,3.9.4 GM Doc9157,P2,Table1-1,1.2.8,1.7.5,1.7.6 Doc9981,P1,App.toC4,4.1.2	• Taxiway width			☐S ☐ NS
	RP A14 Vol.I,3.9.7	• Taxiway edge clearance			☐S ☐ NS
	RP A14 Vol.I,3.9.5 GM Doc9157,P2,1.2.9,1.2.10 Doc9981,App.toC4,4.2	• Taxiway curves			☐S ☐ NS
	RP A14 Vol.I,3.9.8 GM Doc9157,P2,Table1-1	• Taxiway Longitudinal Slope			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	RP A14 Vol.I,3.9.11 GM Doc9157,P2,Table 1-1	• Taxiway Transverse Slope			☐S ☐ NS
	STD A14 Vol.I,Fig 5-6 GM Doc9981,App.1toC.2,2,2.1 d) 1) ii)	i) Taxiway Markings			☐S ☐ NS
	STD A14 Vol.I,5.2.8	• Taxiway centerline marking			☐S ☐ NS
	STD A14 Vol.I,5.2.10	• Runway holding position markings			☐S ☐ NS
	STD A14 Vol.I,5.2.10	➢ Markings for Pattern A			☐S ☐ NS
	STD A14 Vol.I,5.2.10	➢ Markings for Pattern B			☐S ☐ NS
	STD A14 Vol.I,5.2.11	• Intermediate holding position markings			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Length of lines and gaps			☐S ☐ NS
		• Taxiway edge markings			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Spacing of two yellow lines			☐S ☐ NS
	GM Doc9157,P2,2.5	• Holding bay markings			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		• Taxiway pavement strength limit markings			☐S ☐ NS
		➢ Height			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Line width			☐S ☐ NS
		➢ Spacing			☐S ☐ NS
	STD A14 Vol.I,3.10 GM Doc9157,P2,1.6 Doc9981,P1,App.toC4,8	j) Taxiway shoulders			☐S ☐ NS
	STD A14 Vol.I,3.10.1 GM Doc9157,P2,1.6.2,Table1-1	• Width of Taxiway shoulders			☐S ☐ NS
	STD A14 Vol.I,3.10.2 GM Doc9157,P2,1.6.4 Doc9981,P1,App.toC4,8.2	• Surface of Taxiway shoulders			☐S ☐ NS
	STD A14 Vol.I,3.11 GM Doc9157,P2,1.6	k) Taxiway strips			☐S ☐ NS
	STD A14 Vol.I,3.11.2 GM Doc9157,P2,1.6.2,Table1-1	• Width of taxiway strip			☐S ☐ NS
	STD	• Width of graded			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	A14 Vol.I,3.11.4 GM Doc9157,P2,1.7.15	area of taxiway strip			
	RP A14 Vol.I,3.11.5,3.11.6 GM Doc9157,P2,1.6.4	• Slope of Taxiway Strip			☐S ☐ NS
	RP A14 Vol.I,3.11.5 GM Doc9157,P2,1.6.4	• upward transverse slope			☐S ☐ NS
	RP A14 Vol.I,3.11.5 GM Doc9157,P2,1.6.4	• downward transverse slope			☐S ☐ NS
	RP A14 Vol.I,3.11.6 GM Doc9157,P2,1.6.4	• Upward slope			☐S ☐ NS
	RP A14 Vol.I,3.11.3 GM Doc9157,P2,1.6	• Objects on taxiway strip			☐S ☐ NS
	RP A14 Vol.I,3.10 GM Doc9157,P2,1.4,1.4.4 Doc9981,P1,App.toC4,7	• Taxiways on bridges (minimum width)			☐S ☐ NS
	RP A14 Vol.I,3.9.7 GM	• Taxiway minimum separation distances			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	Doc9157,P2,1.2.12-1.2.20 Doc9981,P1,App.toC4,5,6				
	RP A14 Vol.I,3.9.15-3.9.18 GM Doc9157,P2,1.3,1.3.1-1.3.4	• Rapid exit taxiway			☐S ☐ NS
	STD A14 Vol.I,3.12 GM Doc9157,P2,C2	l) Holding Bays, Runway-Holding Positions, Intermediate Holding Positions and Roar-Holding Positions.			☐S ☐ NS
	STD A14 Vol.I,3.12.2,3.12.5 GM Doc9157,P2,2.1.2 RP A14 Vol.I,3.12.1,3.12.4	Provision of a Holding Bay, Runway-holding Position, Intermediate Holding Position and Road-holding Position			☐S ☐ NS
	STD&RP A14 Vol.I,3.12.2-3.12.5,3.12.9 GM Doc9157,P2,2.4	Location of Holding Bay, Runway-holding Position, Intermediate Holding Position or Road-holding Position			☐S ☐ NS
	STD A14 Vol.I,3.12.6-3.12.8,Table3-2 GM Doc9157,P2,2.4.3–2.4.8,Table2-1	Distance from Runway-holding Position, Intermediate Holding Position or Road-holding Position to Runway Centerline			☐S ☐ NS
Note: Please refer to ACI Apron Marking and sign handbook for additional references					

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,3.13 GM Doc9157,P2,C3	m) Aprons			☐S ☐ NS
	RP A14 Vol.I,3.13.1 GM Doc9157,P2,C3	• Location of apron			☐S ☐ NS
	RP A14 Vol.I,3.13.6 GM Doc9157,P2,3.4.4	• Clearance distances on Aircraft stands			☐S ☐ NS
	RP A14 Vol.I,3.13.4,3.13.5 GM Doc9157,P2,3.2.6.2	• Slopes on Aprons			☐S ☐ NS
	RP A14 Vol.I,9.5.1 c) GM Doc9476,3.4.9	• Apron road			☐S ☐ NS
	RP A14 Vol.I,5.2.13 GM Doc9157,P4,2.3	n) Apron markings			☐S ☐ NS
	RP	• Apron taxi			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	A14 Vol.I,5.2.13.6–5.2.13.12 GM Doc9157,P4,2.3.5–2.3.11,2.3.13–2.3.14	guideline markings			
		• Apron edge markings			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Spacing			☐S ☐ NS
		➢ Edge of gravel, grass or other natural surface aprons			☐S ☐ NS
	STD A14 Vol.I,5.2.14 GM Doc9157,P2,2.3.20	• Apron Safety Line (Parking clearance line)			☐S ☐ NS
		➢ Width of red line			☐S ☐ NS
		➢ Width of yellow or white line			☐S ☐ NS
		➢ The word “PARKING CLEARANCE”			☐S ☐ NS
		• Aircraft type limit line			☐S ☐ NS
		➢ Comprising strip length			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Spacing			☐S ☐ NS
		➢ Distance of			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		designator from the line			
		➢ Height of letters & numbers			☐S ☐ NS
		➢ Marking intervals			☐S ☐ NS
		• Parking weight limit line			☐S ☐ NS
		➢ Comprising strip length			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Spacing of strips			☐S ☐ NS
		➢ Distance of designator from the line			☐S ☐ NS
		➢ Height of letters & numbers			☐S ☐ NS
		➢ Marking intervals			☐S ☐ NS
		• Leased area line			☐S ☐ NS
		• Equipment clearance line			☐S ☐ NS
		➢ Length of stripe			☐S ☐ NS
		➢ Width of each stripe			☐S ☐ NS
		➢ Gap distance			☐S ☐ NS
		➢ Designation of “EQUIPMENT CLEARANCE”			☐S ☐ NS
		➢ Height of letters & numbers			☐S ☐ NS
		➢ Distance of designator from			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		the line			
		• Equipment storage markings			☐S ☐ NS
		➢ Designation of "EQUIPMENT STORAGE"			☐S ☐ NS
		➢ Height of letters & numbers			☐S ☐ NS
		➢ Distance of designator from the line			☐S ☐ NS
		➢ Marking intervals			☐S ☐ NS
		• Apron service road markings			☐S ☐ NS
	RP A14 Vol.I,5.2.13	• Aircraft parking position markings			☐S ☐ NS
		➢ Primary positions			☐S ☐ NS
		➢ Secondary positions			☐S ☐ NS
	RP A14 Vol.I,5.2.13.6 GM Doc9157,P4,2.3.5,2.3.6	• Lead-in line			☐S ☐ NS
		➢ Lead-in lines to primary aircraft parking position			☐S ☐ NS
		➢ Lead-in lines to secondary parking position			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		• Taxi lead-in line designation			☐S ☐ NS
		➢ parking position number designation			☐S ☐ NS
		➢ aircraft type limit designation			☐S ☐ NS
		➢ aircraft weight limit designation			☐S ☐ NS
		• Pilot turn line			☐S ☐ NS
		➢ Line length			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ aircraft type designation			☐S ☐ NS
		➢ Offset distance of designation from the lead-in line			☐S ☐ NS
		• Primary aircraft parking position markings			☐S ☐ NS
		➢ Alignment line width			☐S ☐ NS
		➢ Stop line width			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		• Marshaller stop line			☐S ☐ NS
		➢ aircraft type designation			☐S ☐ NS
		• Pilot stop line			☐S ☐ NS
		➢ Line length			☐S ☐ NS
		➢ Offset distance from the alignment line			☐S ☐ NS
		➢ aircraft type designation			☐S ☐ NS
		• Alignment line			☐S ☐ NS
		➢ 1m long section of the alignment line			☐S ☐ NS
		• Secondary aircraft parking position markings			☐S ☐ NS
		• Keyhole marking			☐S ☐ NS
		➢ Diameter of the keyhole			☐S ☐ NS
		➢ Alignment line length			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Distance of designator from the alignment line			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		➢ Height of letters and numbers			☐S ☐ NS
		• Triangle marking			☐S ☐ NS
		➢ Side length of triangle			☐S ☐ NS
		➢ Alignment line length			☐S ☐ NS
		➢ Distance of designator from the alignment line			☐S ☐ NS
		➢ Height of letters and numbers			☐S ☐ NS
	RP A14 Vol.I,5.2.13.6,5.2.13.7 GM Doc9157,P4,2.3.10	• Lead-out line			☐S ☐ NS
		➢ Stripe length			☐S ☐ NS
		➢ Width			☐S ☐ NS
		➢ Intervals			☐S ☐ NS
		➢ Distance of 1st arrow from the alignment line (if arrow indicators are inserted)			☐S ☐ NS
		• Designation markings			☐S ☐ NS
		• Aircraft parking position designation			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		➢ Position designation for fixed wing a/c			☐S ☐ NS
		➢ Aerobridge position			☐S ☐ NS
		• Designation characters for taxi and apron markings			☐S ☐ NS
		• Tug operator guidance marking			☐S ☐ NS
		• Aircraft push-back lines			☐S ☐ NS
		➢ Comprising stripe length			☐S ☐ NS
		➢ Width of stripes			☐S ☐ NS
		➢ Intervals of stripes			☐S ☐ NS
		• Tug parking position lines			☐S ☐ NS
		➢ Line width			☐S ☐ NS
		➢ Shape			☐S ☐ NS
		➢ Height of shape “U”			☐S ☐ NS
		➢ Width of shape “U”			☐S ☐ NS
		• Tow bar disconnect markings			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		➢ Line length			☐S ☐ NS
		➢ Line width			☐S ☐ NS
		• Push-back limit markings			☐S ☐ NS
		➢ Line Length & gap			☐S ☐ NS
		➢ Line width			☐S ☐ NS
		➢ Line spacing			☐S ☐ NS
		• Push-back alignment Bars			☐S ☐ NS
		➢ Comprising stripe length			☐S ☐ NS
		➢ Stripe width			☐S ☐ NS
		➢ Intervals			☐S ☐ NS
		➢ Total Alignment desired direction			☐S ☐ NS
		• Passenger path markings			☐S ☐ NS
		➢ Width of the passenger pathway			☐S ☐ NS
	STD A14 Vol.I,5.2.15	• Road holding position marking			☐S ☐ NS
	STD&RP A14 Vol.I,5.2.17.1,5.2.17.2, 5.2.17.4, App.3	Information Marking			☐S ☐ NS
	STD A14 Vol.I,5.4	Movement Area Guidance Signs (MAGS)-Signs			☐S ☐ NS
		• Introduction			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD& RP A14 Vol.I,5.4.2,5.4.2.12,5.4.2.13 GM Doc9157,P4,12.4	• mandatory instruction signs			☐S ☐ NS
	STD A14 Vol.I,5.4.3,5.4.3.25 GM Doc9157,P4,12.5	• information signs			☐S ☐ NS
	STD&RP A14 Vol.I,5.4.2,5.4.3,5.4.3.34-5.4.3.37,App.4	• Naming of taxiway location signs			☐S ☐ NS
	STD&RP A14 Vol.I,5.4.2.8-5.4.2.11, 5.4.3.14-5.4.3.24 GM Doc9157,P4,12.6	• Dimensions, location and lettering			☐S ☐ NS
	STD A14 Vol.I,5.4.3.14				☐S ☐ NS
	STD A14 Vol.I,App.4	• Sign size and location distances, incl. runway exit signs			☐S ☐ NS
	STD&RP A14 Vol.I,5.4.1.3-5.4.1.11 GM Doc9157,P4,2.1.5	• Structural requirements			☐S ☐ NS
	STD A14 Vol.I,5.4.1.7,App.4,4	• Illumination			☐S ☐ NS
	STD A14 Vol.I,5.4.2	• Mandatory Instruction Signs			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	GM Doc9157,P4,12.4				
	STD&RP A14 Vol.I,5.4.2.1-5.4.2.7 GM Doc9157,P4,12.4	• Runway designation signs			☐S ☐ NS
	STD A14 Vol.I,5.4.2.9 GM Doc9157,P4,12.4.7	• Category I, II or III Runway designation signs			☐S ☐ NS
	STD A14 Vol.I,5.4.2.11,5.4.2.12 GM Doc9157,P4,12.4.6,12.4.7	• Runway holding position sign			☐S ☐ NS
	STD A14 Vol.I,5.4.2.10,5.4.2.12,Fig.5-30 GM Doc9157,P4,12.4.9	Aircraft NO ENTRY sign			☐S ☐ NS
	STD A14 Vol.I,5.4.7 GM Doc9157,P4,12.4.10	• Vehicle STOP signs			☐S ☐ NS
	STD A14 Vol.I,5.2.10.2 GM Doc9157,P4,12.4.7	• Runway/Runway intersection signs			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,5.4.3	• MAGS with information / Information Signs			☐S ☐ NS
		• Taxiway location signs			☐S ☐ NS
		• Direction signs			☐S ☐ NS
		• Destination signs			☐S ☐ NS
	STD A14 Vol.I,5.4.3.29	• Take-off Run Distance Available sign			☐S ☐ NS
	STD A14 Vol.I,5.4.3.16	• Runway exit signs			☐S ☐ NS
	STD A14 Vol.I,5.2.16	• Mandatory Instruction markings			☐S ☐ NS
	STD A14 Vol.I,5.1.1	a) Wind Direction Indicators			☐S ☐ NS
	STD A14 Vol.I,5.1.1.1	• Requirements			☐S ☐ NS
	RP A14 Vol.I,5.1.1.3-5.1.1.5	• Characteristics			☐S ☐ NS
	RP A14 Vol.I,5.1.4.1-5.1.4.3,Att.A,17 GM Doc9157,P4,C3	b) Ground Signals			☐S ☐ NS
		• Signal Areas			☐S ☐ NS
		• Ground Signals in Signal Area			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,C7	c) Visual Aids denoting Restricted Use Areas			☐S ☐ NS
	STD A14 Vol.I,7.1	• Closed runways and taxiways or parts thereof			☐S ☐ NS
	STD A14 Vol.I,7.2	• Non-load-bearing surfaces			☐S ☐ NS
	RP A14 Vol.I,7.3	• Pre-threshold area			☐S ☐ NS
	STD A14 Vol.I,7.4	• Unserviceable areas			☐S ☐ NS
	STD A14 Vol.I,7.4.3	• Works Limit markers			☐S ☐ NS
	STD A14 Vol.I,C6 GM Doc9157,P4,C15	d) Obstacle Markings			☐S ☐ NS
	STD A14 Vol.I,6.1 GM Doc9157,P4,C15	Objects to be marked and/or lighted			☐S ☐ NS
	STD&RP A14 Vol.I,6.1.1	Objects within the lateral boundaries of the obstacle limitation surfaces			☐S ☐ NS
	RP A14 Vol.I,6.1.2	Objects outside the lateral boundaries of the obstacle limitation surfaces			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		e) Marking of temporary and transient obstacles			☐S ☐ NS
	STD A14 Vol.I,6.2.2	f) Marking of Vehicles			☐S ☐ NS
	STD& RP A14 Vol.I,5.3.3.3-5.3.3.5	g) Aerodrome Beacons			☐S ☐ NS
	STD A14 Vol.I,5.3.5.24 GM Doc9157,P4,8.3	h) Precision approach path indicator (PAPI) system			☐S ☐ NS
2.)		**Aerodrome Facilities**			
	STD A14 Vol.I,C8 GM Doc9157,P5,C3,5.9.4	a) Power Supply			☐S ☐ NS
		• Primary Source			☐S ☐ NS
		• Secondary Power Supply			☐S ☐ NS
	STD&RP A14 Vol.I,8.1.4,Table8-1,8.1.15 GM Doc9157,P5,3.4.5,3.4.6	• Switch-over time limits			☐S ☐ NS
	RP A14 Vol.I,8.1.11 GM Doc9157,P5,3.3	• Requirement for Secondary Power Supply			☐S ☐ NS
	STD & RP A14 Vol.I,5.3	b) Aerodrome Lighting			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
		• Portable Lighting			☐S ☐ NS
	GM Doc9157,P6	• Light fixtures and supporting structures			☐S ☐ NS
		• Elevated and inset lights			☐S ☐ NS
	STD A14 Vol.I,5.3.1.4-5.3.1.6	➢ Elevated lights			☐S ☐ NS
	STD&RP A14 Vol.I,5.3.1.7,5.3.1.8 GM Doc9157,P4,9.1	➢ Inset lights (pavement lights)			☐S ☐ NS
	STD A14 Vol.I,5.3.1.9-5.3.1.12,Att.A,16 GM Doc9157,P4,C19	• Light intensity and control			☐S ☐ NS
		➢ Lighting Systems if Provided			☐S ☐ NS
		➢ Intensity			☐S ☐ NS
	STD A14 Vol.I,10.5,10.5.2 GM Doc9137,P9,C2	• Maintenance performance of aerodrome lighting			☐S ☐ NS
	STD A14 Vol.I,6.2.1.1 GM Doc9157,P4,15.4	• Obstacle Lighting			☐S ☐ NS

No.	Reference	Audit Area	Actual	Standard	Remarks
	STD A14 Vol.I,Table 6-2	➢ Low intensity			☐S ☐ NS
	STD A14 Vol.I,Table 6-3	➢ Medium intensity			☐S ☐ NS
	STD A14 Vol.I,Table 6-3	➢ High intensity obstacle lights			☐S ☐ NS
	RP A14 Vol.I,5.1.1.5	• Illuminated Wind Direction Indicator			☐S ☐ NS
	STD A14 Vol.I,5.3.4	• Approach lighting systems			☐S ☐ NS
	STD&RP A14 Vol.I,5.3.4.2-5.3.4.9	➢ Simple approach lighting system			☐S ☐ NS
	STD&RP A14 Vol.I,5.3.4.10-5.3.4.21	➢ Precision approach Category I lighting system			☐S ☐ NS
	STD&RP A14 Vol.I,5.3.4.22-5.3.4.39	➢ Precision Approach Category II and III Lighting System			☐S ☐ NS
	STD A14 Vol.I,9.8	Surface Movement Guidance Control System (SMGCS)			☐S ☐ NS

Appendix 7B-3: RESCUE AND FIRE-FIGHTING FORM AGA-ATI-0003

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
1.3 RESCUE AND FIRE-FIGHTING			
	GENERAL		
STD A14 Vol.I,9.2.1	1. Is there a rescue and firefighting service provided at certified and registered aerodromes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.44	2. Are there sufficient trained and competent personnel designated to be readily available to ride the rescue and fire fighting vehicles and to operate the equipment at maximum capacity?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD&RP A14 Vol.I,9.2.3-9.2.7	**LEVEL OF PROTECTION**		
STD A14 Vol.I,9.2.5 GM Doc9137,P1,2.1.2, Table 2-1 Doc9774,App.1,P3,3.2 (q)	3. Is the level of protection provided at an aerodrome for rescue and firefighting determined from [MAS] and based on the longest aeroplane normally using the aerodrome and its maximum fuselage width?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.11.3	4. Is the changes in the level of protection	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	normally available at an aerodrome for rescue and firefighting notified to the appropriate Air Traffic Service (ATS) unit and Aeronautical Information Service (AIS) unit to enable those units to provide the necessary information to arriving and departing aircraft?		
STD A14 Vol.I,9.2.8-9.2.25	**EXTINGUISHING AGENTS**		
RP A14 Vol.I,9.2.8 GM Doc9137,P1,2.2.1	5. Are both principal and complementary agents provided at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.9 GM Doc9137,P1,2.2.2	6. Is the principal extinguishing agent meet either of the following? (a) a foam meeting the minimum performance Level A; or (b) a foam meeting the minimum performance Level B; or (c) a foam meeting the minimum performance Level C; or (d) a combination	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	of these agents; except that the principal extinguishing agent for aerodromes in categories 1 to 3 should preferably meet a performance Level B or C foam.		
RP A14 Vol.I,9.2.10 GM Doc9137,P1,8.2.4	7. Does the RFFS using dry chemical powder as complementary extinguishing agent suitable for extinguishing hydrocarbon fires?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD&RP A14 Vol.I,9.2.14, 9.2.15 GM Doc9137,P1,2.3.4	8. Is the quantity of foam concentrates separately provided on vehicles for foam production in proportion to the quantity of water provided and the foam concentrate selected?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Is the amount of foam concentrate provided on a vehicle sufficient to produce at least two loads of foam solution?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD&RP A14 Vol.I,9.2.18,Table 9-2,9.2.20,Table 9-2 GM Doc9137,P1,2.5.1,2.5.2, Table 2-3	10. Is the discharge rate of the foam solution and complementary agent not less than the rates shown in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.19	11. Does the complementary agents comply with the appropriate specifications of the International Organization for Standardization (ISO)? Note: - Guidance on complementary agents is given in ISO Publication 7202 (Powder)	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	RESPONSE		
RP A14 Vol.I,9.1.5	12. Are the RFF service provided with an up-to-date map of its response area, including the access roads?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.27 GM Doc9137,P1,2.7.1	13. Does the rescue and firefighting service able to achieve a response time not exceeding three minutes to any other part of the movement area, in optimum visibility and surface	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	conditions?		
RP A14 Vol.I,9.2.33 GM Doc9137,P1,17.2.1	14. Is there a system of preventive maintenance of rescue and fire fighting vehicles employed to ensure the effectiveness of the equipment and compliance with the specified response time throughout the life of the vehicle?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	EMERGENCY ACCESS ROADS		
RP A14 Vol.I,9.2.34 GM Doc9137,P1,3.2.1	15. Is there an emergency access roads provided on an aerodrome where terrain conditions permit their construction so as to facilitate achieving minimum response times?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Was the need for convenient access to outside areas taken into account where fencing is established?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP	17. Are the	[ ] Yes	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
A14 Vol.I,9.2.35 GM Doc9137,P1,3.2.2	emergency access roads capable of supporting the heaviest vehicles which will use them and be usable in all weather conditions?	[ ] No [ ] N/A	
	18. Are roads within 90 m of a runway designed, constructed and maintained to prevent surface erosion and to prevent transfer of debris to an aircraft pavement surface?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.36 GM Doc9137,P1,3.2.3	19. Are there edge markers placed at intervals of about 10 m when the surface of the road is indistinguishable from the surrounding area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	FIRE STATIONS		
RP A14 Vol.I,9.2.37,9.2.38 GM Doc9137,P1,2.8.1,2.8.2	20. Are all rescue and firefighting vehicles housed in a fire station?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	21. Is the fire station located so that the access for rescue and firefighting vehicles into the runway area is direct and clear, requiring a minimum number of turns?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	COMMUNICATIONS AND ALERTING SYSTEM		
RP A14 Vol.I,9.2.39 GM Doc9137,P1,2.9.1	22. Is there a discrete communication system provided linking a fire station with the control tower, any other fire station on the aerodrome and rescue and firefighting vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.40 GM Doc9137,P1,2.9.2	23. Is there an alerting system for rescue and firefighting personnel provided at all fire stations on the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. Is the alerting system capable of being operated from	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	any fire station on the aerodrome and the aerodrome control tower?		
	RESCUE AND FIREFIGHTING VEHICLES		
RP A14 Vol.I,9.2.41 GM Doc9137,P1,2.10.1,Table 2-5	25. Are the minimum number of rescue and firefighting vehicles provided at an aerodrome in accordance with [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	PERSONNEL		
RP A14 Vol.I,9.2.44 GM Doc9137,P1,10.1.2	26. Are there sufficient trained and competent personnel designated readily available to ride the rescue and firefighting vehicles and to operate the equipment at maximum capacity?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.42	27. Are all RFFS personnel trained to properly perform their duties in an efficient manner and participate in live fire drills commensurate with the type of	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	aircraft type of rescue and firefighting equipment in use at the aerodrome, including pressure fed fuel fires?		
RP A14 Vol.I,9.2.45 GM Doc9137,P1,10.1.2 Doc9981,P1,App.1toC2, 2.2 b) 1)	28. Is there a task resource analysis completed in determining the minimum number of rescue and firefighting personnel required and the level of staffing documented in the Aerodrome Manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.46	29. Are all responding RFFS personnel provided with protective clothing and respiratory equipment to enable them to perform their duties in an effective manner?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Att.A,18.1.4 GM Doc9137,P1,1.2.4	30. Is there a grid map of the aerodrome and its immediate vicinity provided for the use of the aerodrome services concerned?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	31. Is the grid map conspicuously posted in the control tower and fire station, and available on the rescue and fire fighting vehicles and such other supporting vehicles required to respond to an aircraft accident or incident?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Att.A,18.4.1 GM Doc9137,P1,2.10.3	32. Are there suitable rescue equipment and services available at an aerodrome where the area to be covered by the service includes water, swampy areas or other difficult environment that cannot be fully served by conventional wheeled vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Att.A,19.1	33. Are the authorities responsible for the operation of vehicles on the movement area ensure that the operators are properly qualified?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	This includes, as appropriate to the driver's function, knowledge of: a) the geography of the aerodrome; b) aerodrome signs, markings and lights; c) radiotelephone operating procedures; d) terms and phrases used in aerodrome control including the ICAO spelling alphabet; e) rules of air traffic services as they relate to ground operations; f) airport rules and procedures; and g) specialist functions as required, for example, in rescue and firefighting.?		

Appendix 7B-4: WILDLIFE HAZARD MANAGEMENT FORM AGA-ATI-0004

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
1.4 WILDLIFE HAZARD MANAGEMENT			
STD A14 Vol.I,9.4 GM Doc9137,P3	1. Does the aerodrome operator have a problem of wildlife/bird strikes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.3 GM Doc9137,P3,9.1.5	2. Are there any measures taken for reducing wildlife/bird strikes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4 GM Doc9137,P3,4.3,4.4,5.3	3. Does a serviceability inspection include: a) The condition of aerodrome fencing, particular in critical areas;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	b) Climatic or seasonal considerations, such as the presence of birds at certain times of the year, or related to the depth of water in drainage ponding areas;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	c) Possible shelter provided by aerodrome infrastructure such as buildings, equipment and gable markers;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	d) Wildlife hazard mitigating procedures incorporated in the environmental management procedures for the aerodrome;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	e) Off-airport attractors like animal sale yards, picnic areas, aeration facilities and waste disposal or landfill area, and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	f) Use of harassment procedures where appropriate?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,9.10.1 Generic Aerodrome Manual,P4.2,4.5	4. Does the serviceability inspection check damaged fences, open gates, and signs of attempted entry by either animals or humans?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4 GM Doc9137,P3,9.1 Doc9981,P2,C6	Does the aerodrome operator has a procedure describing the actions taken for discouraging the presence of wildlife, including: • Who is in charge of those actions and what their training is;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	• How and when these actions are carried out, including reporting and filing of these actions;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	• What equipment is used to conduct these actions;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	• Analyzes of the aerodrome vicinity and the preventive actions to be taken subsequently to discourage wildlife;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	• Monitoring of these actions, including, where applicable, the conduct of appropriate wildlife assessments; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	• Coordination with ATS.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,9.4.1 GM Doc9137,P3,9.1.3	Does the aerodrome operator has a procedure to: a. Record and analyze the incidents involving animals;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	b. Collect the animals' remains;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	c. Monitor the corrective actions to be taken subsequently; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	d. Report to CAA incidents involving wildlife	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.1.1.2,9.1.3	5. Does the aerodrome operator monitor and record, on a regular basis, the presence of birds or animals on or in the vicinity of the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are the monitoring personnel suitably trained for this purpose?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.4.12, Generic Aerodrome Manual,P4.13	7. Where regular monitoring confirms existence of a bird or animal hazard to aircraft operations, or when CAA so directs, is the aerodrome operator produce a bird or animal hazard management plan, which would be included as part of the Aerodrome Manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9981,P2,6.3.5,6.3.7	8. Does a comprehensive wildlife management plan including coordination among the aviation regulatory authority, airport operator, aircraft operators and the surrounding communities implemented to successfully deal with land-use issues?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9137,P3,2.7.1	9. If directed by the CAA, is the WHMP prepared by a suitably qualified person such as an ornithologist or a biologist, etc.?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.1	10. Does the WHMP address: a) hazard assessment, including monitoring action and analysis;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	b) pilot notification;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	c) liaison and working relationships with land use planning authorities;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,4.3	d) on-airport bird and animal attractors which provide food, water or shelter;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	e) suitable harassment methods; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	f) an ongoing strategy for bird and animal hazard reduction, including provision of appropriate fencing?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.2	11. Does the bird and animal hazard management plan reviewed for effectiveness, on a regular basis, at least as part of each technical inspection?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,8	12. Where the presence of birds or animals is assessed as constituting an ongoing hazard to aircraft, does the aerodrome operator notify the CAA in writing, and include a warning notice for publication in the AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,8.3	13. Where a bird or animal hazard is assessed as acute, of short term or seasonal nature, are	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	additional warning given to pilots by NOTAM?		
GM Doc9137,P3,9.1.6 Doc9981,P2,6.3.7.1	14. Do airport operators, local government units (LGUs), and other stakeholders assist in identifying and managing wildlife issues at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.1	15. Does the wildlife strike hazard on, or in the vicinity of, an aerodrome assessed through: (a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(c) an ongoing evaluation of the wildlife hazard by competent personnel?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.2 GM Doc9137,P3,2.5.4 (c)	16. Are wildlife strike reports collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.3	17. Is an action taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft?	[ ] Yes [ ] No [**P**] N/A	☐S ☐ NS
GM Doc9981,P2,6.3.7.4	18. Does a bird/wildlife strike control program describe a process for liaison with non-airport agencies and local landowners, etc., to ensure that airport operator is aware of developments that may contribute to creating additional bird hazards in the infrastructure, vegetation, land use and activities in the airport vicinity (e.g. crop harvesting, seed	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	planting, ploughing, establishment of land or water features, hunting, etc., that might attract birds/wildlife)?		
STD A14Vol.I,9.4.34	19. Does the appropriate authority take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Invite relevant external stakeholders to quarterly Runway Safety meetings to assist with wildlife management at off airport sites?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.1.1.6 (d)	21. Is the operator maintaining records?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.4.12	22. Is the staff aware of safety requirements related to bird and animals hazards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.1.3	23. Are bird and animal hazard related incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C: On-site Verification Checklist

Note:- Please insert relevant Articles/reference to National Regulations, Standards, Advisory Circulars, Aerodrome Manual etc. as relevant

Appendix 7C-1: AERODROME REPORTING

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9774,App.1-4.1 Doc9981,P1,App.1toC2,3.1 a) Generic Aerodrome Manual,P4.1	**4.1 AERODROME REPORTING**		
STD A14 Vol.I,2.1.1	1. Are aerodrome-related aeronautical data determined and reported in accordance with the accuracy and integrity requirements set forth in the Manual of Standards for Aerodromes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.13.4	2. Is there an established quality system procedure to maintain the data quality?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,2.9.2	3. Is there a procedure for monitoring the conditions of the movement area and operational status of related facilities such as: (a)construction or maintenance work; (b)rough or broken surfaces on a runway, a taxiway or an apron; (c)water on a runway, a taxiway or an apron; (d)other contaminants on a runway, taxiway or apron; (e)other temporary hazards, including parked aircraft; (f) failure or irregular operation of part or all of the aerodrome visual aids; and (g)failure of the normal or secondary power supply?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.9.1	4. Is there an arrangement to provide the appropriate aeronautical information service unit information regarding condition of the movement area and the operational status of related facilities?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,2.9.2	5. Is there an arrangement to provide the appropriate air traffic service unit information regarding the condition of the movement area and the operational status of related facilities that has significance to aircraft operation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.9.1	6. Does the arrangement ensure timely provision of such information to arriving and departing aircraft?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.9.1	7. Does the arrangement ensure that the above-mentioned information is kept up to date?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.9.1	8. Does the arrangement ensure any changes on the above information are reported immediately to the appropriate authority?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9981,P1,2.4.4	9. Whenever a change to the aerodrome physical characteristics, facilities or equipment is proposed, does the aerodrome operator has a procedure for evaluating the impact of this change on the safety of the existing operation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.9.4 GM Doc9981,P2,C2	10. Does the aerodrome operator have means or arrangement to ensure that the personnel assessing and reporting runway surface conditions are	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	trained and competent to meet criteria set by CAA?		
STD A14 Vol.I,2.9.5-2.9.7 GM Doc9981,P2,C2	11. Is the runway surface condition reported through a runway condition code (RWYCC) and described using the following terms? DRY STANDING WATER WET	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD&RP A14 Vol.I,2.9.9,2.9.10,10.2.3,10.2.4,10.2.8 GM Doc9981,P2,C2 Cir355	12. Is there a procedure or arrangement to notify the relevant aerodrome users when the friction level of a paved runway or portion thereof is less than the minimum friction level?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD&RP A14 Vol.I,2.9.9,2.9.10,10.2.3,10.2.4,10.2.8 GM Doc9981,P2,C2 Cir355	13. Does the procedure or arrangement ensure that the notification specifies the location or portion of the runway with which the friction level is below the minimum?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.1	14. Is there a procedure or arrangement to report to CAA infringements or potential infringements of the OLS?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.1	15. Does the procedure or arrangement ensure that information on new obstacles is passed on to pilots through NOTAM?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
Generic Aerodrome Manual ,P4.1	16. Does the procedure or arrangement ensure that the following information is included when reporting new obstacle? (a)the nature of the obstacle (for instance structure or machinery); (b)distance and bearing of the obstacle from the start of the take-off end of the runway if the obstacle is within the take-off area, or else from the ARP; (c)height of the obstacle in relation to the aerodrome elevation; and if it is a temporary obstacle, the time it exists as an obstacle.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.1 GM Doc9774,App.1-4.1	17. Are the particulars of the procedures for reporting any changes to aerodrome information or for requesting the issuance of a NOTAM included in the aerodrome manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9981,P1,2.4.3.3,Att.toC8,5.13 c)	18. Is there an arrangement or means to report significant objects found during inspection, such as parts which may have fallen from aircraft, or the remains of birds which may have been struck by an aircraft, immediately to Air Traffic Control, where appropriate, and to the CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. Does the arrangement include details of coordination with ATC during normal and outside the normal hours of operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Is there an arrangement to report changes (temporary or permanent) in the published aerodrome information including additional changes to current permanent NOTAMs to NOTAM Office?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Is there an arrangement to report changes (temporary or permanent) in the published runway information including further changes to information contained in current permanent NOTAMs to ATC or the NOTAM office?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22. Is there an arrangement to report changes in the level of	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	protection that is normally available at the aerodrome for rescue and firefighting to NOTAM Office?		
	23. Is there an arrangement to report aerodrome works, including time-limited works that require more than 10 minutes to re-instate to serviceable order, affecting runways or the obstacle limitation surfaces to ATC or the NOTAM Office?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. Is there an arrangement to report to the NOTAM office information regarding unserviceable portions of the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	25. Is there an arrangement to report to ATC or the NOTAM office outages or failures beyond the specified limits in aerodrome lighting?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Is there an arrangement to report to ATC or the NOTAM office outages or failures beyond the specified limits in obstacle lighting?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	27. In the event of an obstacle light outage, does the arrangement ensure that the notification or reporting is done immediately if such obstacle light has been determined by CAA as being a requirement for aircraft operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	28. Does the arrangement ensure that a NOTAM action is initiated to advise pilots of such light outage?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	29. Does the arrangement ensure that the aerodrome operator liaise with the owner of the obstacle light to effect a speedy repair?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. For obstacles located outside the obstacle limitation surface area of the aerodrome, is there coordination arrangement to ensure that the owners of the lights establish a program monitor and report to CAA or ATC obstacle light failures?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	31. Is there an arrangement to report temporary obstacles to aircraft operations to NOTAM office?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	32. Is there an arrangement to report temporary obstacles to aircraft operations to ATC?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	33. Is there an arrangement to ensure that the aerodrome operator report to ATC or the NOTAM office any significant increase in, or concentration of birds or animals on or in the vicinity of the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	34. Is there an arrangement to report changes in excess of 0.05% of the published gradient data to NOTAM office?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	35. Is there an arrangement to report to the ATC or the NOTAM office any emergence of new obstacles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	36. Is there a procedure or arrangement to report to the ATC or the NOTAM office the unserviceability and return to service of a radio navigation aid or landing aid owned by the aerodrome operator?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	37. Is there a procedure or arrangement to report to NOTAM office or ATC any other significant event which affects the safety of aircraft using the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	38. Is there a procedure or arrangement to report to ATC changes	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	resulting in obstruction of the OLS?		
	39. Is there an arrangement to ensure reports are carried out as expeditiously as possible to ATC and subsequent NOTAM issued as appropriate?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	40. Is there a procedure for reporting time-limited NOTAM?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	41. Is there a procedure for reporting permanent NOTAM?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	42. Is there a procedure for making changes to aerodrome information published in AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	43. Is there an arrangement or procedure to report in writing to CAA-AIS changes to AIP information which does not have an immediate impact on the safety of aircraft operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	44. Is there an arrangement to ensure information regarding certification status of the aerodrome is reported directly to CAA-AIS by the aerodrome operator?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	45. Does the arrangement ensure that reports when reporting changes for NOTAM action includes the following: (a) aerodrome name; (b) the aerodrome facility affected and details of unserviceability; (c) reason for change; (d) start time and expected end time of the unserviceability; and (e) daily duration or time schedule of the unserviceability, where applicable?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	46. Is there a process or procedure for checking the accuracy of NOTAM?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	47. Are there procedures or arrangements for keeping records of reports made for NOTAM action or for changes in the AIP information?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	48. Does the record/logbook shows details of all reports and subsequent NOTAM or changes to AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	49. Are copies of reports and NOTAMS kept with the logbook?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	50. Are the names of persons making the reports and his contact details included in the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	51. Are the names of the reporting officers responsible for reporting changes and his contact details during and after working hours included in the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	52. Did the aerodrome operator appoint a suitably trained person/s as the nominated reporting officer/s?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	53. Is the nomination/s of the reporting officer notified in writing to the NOTAM office and CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	54. Are persons other than employees of the aerodrome operator appointed as aerodrome reporting officers have appropriate training and experience?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	55. Does the reporting officer possess the following attributes? (a) a sound knowledge of the physical characteristics of the aerodrome movement area, the aerodrome obstacle limitation surfaces,	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	aerodrome markings, lighting and ground signals and essential aerodrome safety equipment; (b) an understanding of the aerodrome information included in AIP; (c) the ability to carry out a serviceability inspection of (d) procedures the aerodrome; (e) a knowledge of the aerodrome emergency procedures; and (f) a knowledge of the NOTAM system and the ability to carry out aerodrome reporting.		

Appendix 7C-2: ACCESS TO THE AERODROME MOVEMENT AREA

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,2.9 GM Doc9774,App.1-4.2 Doc9981,P1,App.1toC2,3.1 b)	**4.2 ACCESS TO THE AERODROME MOVEMENT AREA** *Particulars of the procedures that have been developed and are to be followed in coordination with the agency responsible for preventing unlawful interference in civil aviation at the aerodrome and for preventing unauthorized entry of persons, vehicles, equipment, animals or other things into the movement area, including the following:*		
Generic Aerodrome Manual,P4.2	1. the roles of the aerodrome operator, the aircraft operator, aerodrome fixed-base operators, the aerodrome security entity and other government departments, as applicable.	☐ Yes ☐ No ☐ N/A	☐S ☐ NS
	2. the names and roles of the persons who are responsible for controlling access to the movement area and the telephone numbers for contacting them during and after working hours.	☐ Yes ☐ No ☐ N/A	☐S ☐ NS
	3. particulars of information about preventing the unauthorized entry of persons, vehicles, equipment, plant or animals, or other things that may endanger aircraft safety, into the movement area.	☐ Yes ☐ No ☐ N/A	☐S ☐ NS
	4. Does it include details of the arrangements for controlling airside access?	☐ Yes ☐ No ☐ N/A	☐S ☐ NS
	5. aerodromes catering for air transport operations, a fence or other suitable barrier are provided around the movement area of the aerodrome.	☐ Yes ☐ No ☐ N/A	☐S ☐ NS
STD A14 Vol.I,9.10	**Facilities**		
	6. Does aerodrome operators comply with regulations for providing a fence or suitable barriers to aerodromes and off-aerodrome ground installations and facilities, including sewers, ducts and tunnels as well as the requirements for the lighting of security fences and barriers?	☐ Yes ☐ No ☐ N/A	☐S ☐ NS
	7. Does the physical control measures in place in accordance with the aerodrome manual?	☐ Yes ☐ No ☐ N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	8. Are adequate and suitable staff and resources available?	□ Yes □ No □ N/A	☐S ☐ NS
	Procedures		☐S ☐ NS
	9. Are the arrangements for controlling airside access in accordance with the aerodrome manual?	□ Yes □ No □ N/A	☐S ☐ NS
	10. Is the staff aware of safety requirements related to unauthorized entry?	□ Yes □ No □ N/A	☐S ☐ NS
	11. Are any conditions or exemptions complied with?	□ Yes □ No □ N/A	☐S ☐ NS
	Product Check		☐S ☐ NS
	12. Was airside control observed to be effective and in accordance with the manual?	□ Yes □ No □ N/A	☐S ☐ NS
	Feedback		☐S ☐ NS
	13. Are unauthorized entry incidents noted, reported and followed up?	□ Yes □ No □ N/A	☐S ☐ NS
	List of documents checked. If yes, what are the documents checked?	□ Yes □ No □ N/A	☐S ☐ NS

Appendix 7C-3: AERODROME EMERGENCY PLAN (AEP)

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,9.1 GM Doc9137,P7 Doc9774,App.1-4.3 Doc9981,P1, App.1toC2,3.1 c) Generic Aerodrome Manual,P4.3	**4.3 AERODROME EMERGENCY PLAN** *Particulars of the aerodrome emergency plan, including the following:*		
STD A14 Vol.I,9.1.1	1. Is there an Aerodrome Emergency Plan (AEP) in place that commensurate to an aircraft operating in the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.12	2. Does the AEP contain procedures for periodic testing of the adequacy of the plan and for reviewing the results in order to improve its effectiveness? The currency and adequacy of the AEP must be reviewed at least once every twelve (12) months.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.13 GM Doc9137,P7,13.5.1	3. Is the plan tested by conducting: (a) a full-scale aerodrome emergency exercise at intervals not exceeding two years and partial emergency exercises in the intervening year to ensure that any deficiencies found	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	during the full-scale aerodrome emergency exercise have been corrected? or (b) a series of modular tests commencing in the first year and concluding in a full-scale aerodrome emergency exercise at intervals not exceeding three (3) years? and (c) reviewed thereafter, or after an actual emergency, so as to correct any deficiency found during such exercises or actual emergency?		
Generic Aerodrome Manual,P4.3	4. Has the aerodrome operator established and chaired an Aerodrome Emergency Committee (AEC)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does the AEC includes representatives of agencies on and off the aerodrome that would be likely to be asked to assist in an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the manual contain details of the	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	members of the aerodrome emergency committee and contact details for each member?	[ ] N/A	
	7. Does it contain a description of the role of each emergency service organization involved in the plan?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Is the AEC responsible for the development of the AEP which includes procedures for coordinating the responses of assisting agencies?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.13 a)	9. Does the plan ensure that a full scale emergency exercise must be carried out at least once every two years, commensurate with the size and scale of operations at the airport, unless the emergency plan was activated for a major emergency within the two (2) year period?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does the manual include that a partial exercise is to be conducted in the intervening year?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P7,2.2 Doc9774,App.1-4.3	11. Does the AEP include organizational and procedural arrangements for responding to at least the following situations:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	• aircraft emergencies; • local standby and full emergency; • sabotage including bomb threats; • unlawfully seized aircraft; • disabled aircraft; • hazardous material incident; • building fire and natural disaster; • public health emergencies; or • medical emergency.		
GM Doc9137,P7,2.2.3	12. Does the manual clearly defines the activation sequence including call out arrangements for Local Standby and Full Emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.5 e) GM Doc9137,P7,7.1.1	13. Is a grid map of the aerodrome and its vicinity provided with detailed location of primary and secondary access gates?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Are the grid maps made available to all responding agencies?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. Does the plan includes the responsibility of the AEC to ensure that the level and availability of emergency equipment	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	and services are adequate for the aerodrome?		
STD A14 Vol.I,9.1.14	16. Does the plan includes ready availability and coordination of appropriate specialist agencies able to respond to an emergency where an aerodrome is located close to water and/or swampy areas and where a significant portion of approach or departure operations takes place over those areas?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.15	17. Does the plan include the establishment, testing and assessment at regular intervals of a predetermined response for the specialist rescue services at those aerodromes located close to water and/or swampy areas, or difficult terrain?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.16	18. Does the plan include an assessment of the approach and departure areas within 1000 m of the runway threshold to	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	determine the options available for intervention?		
STD A14 Vol.I,9.1.3	19. Does the plan coordinate the response or participation of all existing agencies which, in the opinion of the appropriate authority, could be of assistance in responding to an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Does the plan ensure that records and reviews of exercises including real emergencies are kept and retained for at least three (3) years?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Does the Disabled Aircraft Removal Plan (DARP) prepared by aerodrome operators ensure continuity of airport operation as part of AEP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.3.1	22. Is a DARP plan for the removal of an aircraft disabled on, or adjacent to, the movement area established at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Does the DARP designate a coordinator to implement the plan, when necessary?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
RP A14 Vol.I,9.3.2	24. Is the plan based on the characteristics of the aircraft that normally operates at the aerodrome, and include among other things: a) a list of equipment and personnel on, or in the vicinity of, the aerodrome which would be available for such purpose; and b) an arrangement for the rapid receipt of aircraft recovery equipment kits available from other aerodromes.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,2.10.1,2.10.2,9.3.1, 9.3.2	25. Does the plan ensure that the information concerning the capability to remove an aircraft disabled on or adjacent to the movement area is published in the AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Is the aerodrome emergency plan commensurate with the scale and type of aircraft operations, the surrounding geography and other activities conducted at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	27. With the assistance of the AEC, does the aerodrome certificate holder planned for the worse type of emergency situations	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	that might conceivably occur with respect to size, location, timing and weather?		
	28. The off-aerodrome responding agencies will have been established to deal with most, if not all, emergency situations occurring in the community. Therefore, does the aerodrome emergency procedures have the highest degree of similarity with the procedures used in the community generally?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.1.6	29. Does the plan observe Human Factors principles to ensure optimum response by all existing agencies participating in emergency operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. On a larger aerodrome, is there Medical Subcommittee established to delegate the preparation of the medical plan?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	31. Does the medical sub-committee plan the deployment of medical personnel called to an aircraft emergency;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	32. Does the medical sub-committee develop procedures for triage, emergency treatment and movement of casualties; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Does the medical sub-committee nominate a	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	coordinator of crash site medical resources?	[ ] N/A	
	34. Are the facilities used in the responses by the various agencies including communications systems tested at intervals not exceeding one year?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.1.7,9.1.8 GM Doc9137,P7,App.2,1 c)	35. Is there a fixed emergency operation center and a forward mobile command post available for use in an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	36. Is there a establishment and manning of emergency operations centres and mobile command posts, and for communication between them?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	37. Is the fixed emergency operations center (EOC) part of the aerodrome facilities and be used to co-ordinate and direct the overall response to the emergency.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	38. The location and staffing of the emergency operations center clearly identified in the plan.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	39. Is the forward mobile command post easily recognizable structure capable of being moved rapidly to the scene of an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	40. Is the aerodrome emergency plan clearly set out the discrete roles of the emergency	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	operations center (EOC) and the forward command post, highlighting the physical location of the emergency coordinator?		
STD A14 Vol.I,9.1.10	41. Is there a person to assume control of the emergency operations center *(Responsible Official)* and, when appropriate, another person *(Incident Commander)* the command post *(Incident/Mobile Command Post).?*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.1.11	42. Is there an adequate communication systems linking the command post and the emergency operations center with each other and with the participating agencies in accordance with the plan and consistent with the particular requirements of the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	43. Area the details of the command, control and coordination of the emergency service organizations observed during an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P7,3.4.1	44. As soon as any police presence is established at the scene of an aerodrome emergency or exercise, is the senior police officer required to assume overall	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	coordination of the agencies responding to the emergency?		
	45. Is the person who initially assumes coordination of the situation hand over to police when they arrive?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P7,4.2.5	46. Is the police responsible for guarding any aircraft wreckage on behalf of Aircraft Accident Investigation and Inquiry Board (AAIIB)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	47. And the arrangements to return the aerodrome to operational status after an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	48. And arrangements for reviewing actual emergencies or exercises as soon as practicable to assess the plan's adequacy and take corrective action?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	49. And keeping records of each review for at least 3 years?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	50. And arrangements to ensure that the exercise tests the coordination of the emergency services and the adequacy of the procedures and facilities provided for in the plan?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	51. Does the manual observe human factor principles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	52. Are the current membership and contact arrangements for the Aerodrome Emergency	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	committee updated?		
	53. Is the frequency of meetings in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	54. Are all of the necessary participating/responding agencies adequately represented?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	55. Are copies of the AEP distributed in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	56. Is the staff aware of safety requirements for emergency planning?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	57. CAA staff may/may not attend AEP exercises. If it is considered necessary to attend, the check should be done as an observation exercise. In other cases, the following product check can be conducted from records kept by the operator.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	58. Was the exercise planned in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	59. Date of last exercise?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	60. Did the appropriate agencies attend?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	61. Was an appropriate objective tested?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	62. Were appropriate	[ ] Yes	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	amendments made to the AEP?	[ ] No [ ] N/A	
	63. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-4: RESCUE AND FIRE-FIGHTING

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,9.2 GM Doc9137,P1 Doc9774,App.1,-4.4 Doc9981,P1,Att.CtoC2,5.4 Generic Aerodrome Manual,P4.4	**4.4 RESCUE AND FIRE-FIGHTING** *Particulars of the facilities, equipment, personnel and procedures for meeting the rescue and firefighting requirements, including the names and roles of the persons responsible for dealing with the rescue and fire-fighting services at the aerodrome.*		
STD A14 Vol.I,9.2.1	1. Are all aerodromes provided with rescue and firefighting service taking into account the aerodrome location and surrounding terrain?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.2	2. When an aerodrome is located close to water or swampy areas, or difficult terrain, are there any special rescue services and firefighting equipment appropriate to the hazard and risk available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.44 GM Doc9137,P1,10.1.2	3. During flight operations, are there sufficient trained and competent personnel designated to be readily available to ride the rescue and fire fighting vehicles and to operate the equipment at maximum capacity?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are these personnel deployed in a way that ensures minimum response times is achieved and continuous agent	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	application at the appropriate rate is fully maintained?		
	5. Are there considerations given for personnel to use hand lines, ladders and other rescue and firefighting equipment normally associated with aircraft rescue and firefighting operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.5 GM Doc9137,P1,2.1.2,Table 2-1 Doc9774,App.1-3.2 (q)	6. Is the level of protection provided at the aerodrome for RFFS categorized appropriately based on the longest aeroplane normally using the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.7	7. During periods of reduced activity, is there a provision that the level of protection for RFFS available at the aerodrome will be no less than that needed for the highest category of aeroplane planned to use the aerodrome during that time, irrespective of the number of movements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,2.11.3 GM Doc9137,P1,16.1.3	8. Are changes in the level of protection normally available at an aerodrome for rescue and firefighting notified to the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	appropriate Air Traffic Service (ATS) unit and Aeronautical Information Service (AIS) unit to enable those units to provide the necessary information to arriving and departing aircraft?		
RP A14 Vol.I,2.11.4 GM Doc9137,P1,16.1.2	9. Are the changes expressed in terms of the new category of level of protection available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.8 GM Doc9137,P1,2.2.1	10. Are both principal and complementary agent provided at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.10 GM Doc9137,P1,2.2.3 a)	11. Is the RFFS using dry chemical powders as complementary extinguishing agent suitable for extinguishing hydrocarbon fires?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.11,Table 9-2 GM Doc9137,P1,2.3.1,Table 2-3	12. Are the amounts of water for foam production and complementary agents on the RFFS vehicles in accordance with the aerodrome category in table 14-2?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD&RP A14 Vol.I,9.2.14,9.2.15 GM Doc9137,P1,2.3.4	13. Is the quantity of foam concentrates separately provided on vehicles for foam production in proportion to the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	quantity of water provided and the foam concentrate selected?		
	14. Is the amount of foam concentrate provided on a vehicle sufficient to produce at least two loads of foam solution?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD&RP A14 Vol.I,9.2.12,9.2.13 GM Doc9137,P1,2.3.7	15. At aerodromes where operations by aeroplanes larger than the average size in a given category are planned, are the quantities of water recalculated and the amount of water for foam production and the discharge rates for foam solution increased accordingly?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.2.19 GM Doc9137,P1,8.2.4	16. Are the complementary agents provided comply with the appropriate specifications of the International Organization for Standardization (ISO)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.16 GM Doc9137,P1,3.1.1	17. Are there provision for supplementary water supplies for the expeditious replenishment of rescue and fire fighting vehicles at the scene of an aircraft accident?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.26	18. Are the rescue equipment commensurate with the level of aircraft	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	operations shall be provided on the rescue and fire fighting vehicle(s)?		
STD A14 Vol.I,9.2.27 GM Doc9137,P1,2.7.1	19. Was the operational objective of the rescue and firefighting service achieved a response time not exceeding three minutes to any point of each operational runway, in optimum visibility and surface conditions?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.32 GM Doc9137,P1,2.7.3	20. Does any vehicles, other than the first responding vehicles, required to deliver the amounts of extinguishing agents ensuring continuous agent application arrives no more than four minutes from the initial call?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.33 GM Doc9137,P1,2.10.4,17.2.1	21. Is there a preventive maintenance system of RFFS vehicles to ensure effectiveness and compliance with the specified response time throughout the life of the vehicle?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.34 GM Doc9137,P1,3.2.1	22. Are there adequate emergency access roads provided on the aerodrome where terrain conditions permit their construction so as to	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	facilitate achieving minimum response times?		
	23. Is there a provision of ready access to approach areas up to 1,000 meters from the threshold, or at least within the aerodrome boundary?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. Where fencing is established, is the need for convenient access to outside areas were taken into account?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.35 GM Doc9137,P1,3.2.2	25. Is the emergency access road capable of supporting the heaviest vehicles in all weather conditions?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Are the emergency access roads within 90 m of a runway designed, constructed and maintained to prevent surface erosion and to prevent transfer of debris to an aircraft pavement surface?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	27. Are sufficient vertical clearance provided from overhead obstructions for the largest vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.36 GM Doc9137,P1,3.2.3	28. Are there edge markers in place at intervals of about 10 m when the surface of the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	road is indistinguishable from the surrounding area?		
RP A14 Vol.I,9.2.37,9.2.38 GM Doc9137,P1,2.8.1,2.8.2	29. Can the fire station house all the vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. Is the fire station located with direct and clear access into the runway area requiring minimum number of turns?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.39 GM Doc9137,P1,2.9.1	31. Is there a discrete communication system provided linking the fire station with the control tower, any other fire station on the aerodrome and rescue and firefighting vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.2.40 GM Doc9137,P1,2.9.2	32. Is there an alerting system for rescue and firefighting personnel provided at all fire stations on the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Is the alerting system capable of being operated from any fire station on the aerodrome and the aerodrome control tower?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

<table>
<tr><th rowspan="2">REFERENCE</th><th rowspan="2">QUESTIONS</th><th colspan="2">REVIEW BY AERODROME INSPECTOR/S</th></tr>
<tr><th>STATUS</th><th>REMARKS</th></tr>
<tr><td>RP
A14 Vol.I,9.2.41
GM
Doc9137,P1,2.10,Table 2-5</td><td>34. Is the number of vehicles meets the
<table><tr><th>erodrome category</th><th>Number of RFFS vehicles</th></tr><tr><td>1</td><td>1</td></tr><tr><td>2</td><td>1</td></tr><tr><td>3</td><td>1</td></tr><tr><td>4</td><td>1</td></tr><tr><td>5</td><td>1</td></tr><tr><td>6</td><td>2</td></tr><tr><td>7</td><td>2</td></tr><tr><td>8</td><td>3</td></tr><tr><td>9</td><td>3</td></tr><tr><td>10</td><td>3</td></tr></table>Table 14-3 Number of RFFS vehicles
requirements in accordance with table 14-3?</td><td>[ ] Yes
[ ] No
[ ] N/A</td><td>☐S ☐ NS</td></tr>
<tr><td>STD
A14 Vol.I,9.2.42</td><td>35. Are all RFFS personnel appropriately trained and have participated in live fire drills?
• Initial fire-fighter requirements?
• Continuing training?
• Pressure fed fuel fires?</td><td>[ ] Yes
[ ] No
[ ] N/A</td><td>☐S ☐ NS</td></tr>
<tr><td>RP
A14 Vol.I,9.2.45
GM
Doc9137,P1,10.1.2,10.5.1</td><td>36. Was a Task Resource Analysis (TRA) conducted to determine the minimum number of firefighting personnel?</td><td>[ ] Yes
[ ] No
[ ] N/A</td><td>☐S ☐ NS</td></tr>
<tr><td>STD
A14 Vol.I,9.2.43</td><td>37. Are the RFFS personnel training program include training in human performance, including team coordination?</td><td>[ ] Yes
[ ] No
[ ] N/A</td><td>☐S ☐ NS</td></tr>
<tr><td>STD
A14 Vol.I,9.2.46</td><td>38. Are all RFFS personnel provided with proper personal protective</td><td>[ ] Yes
[ ] No
[ ] N/A</td><td>☐S ☐ NS</td></tr>
</table>

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	clothing and respiratory equipment to enable them to perform their duties in an effective manner?		
Generic Aerodrome Manual,P4.4	39. Does the manual include the names and roles of the persons responsible for dealing with the rescue and fire-fighting services at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	40. Does the manual include procedures for meeting the needs of a RFFS, including the information on facilities, equipment, personnel and vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	41. Is the operator maintaining records in accordance with the aerodrome manual and/or Fire Service Manual SOPs?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,18.1.4	42. Are adequate and suitable staff and resources available including grid map in each vehicle?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	43. Are the current procedures specified in the manual able to be verified?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	44. Procedures for testing equipment provided?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	45. Is the communication system tested in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	46. Do field inspections of RFFS facilities and records confirm on-going compliance with existing procedures?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	47. Are RFFS-related hazards, incidents and accidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	48. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-5: INSPECTION OF THE MOVEMENT AREA BY THE AERODROME OPERATOR

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9774,App.1-4.5 Doc9981,P1,App.1toC2,3.1 e),P2,C3 Generic Aerodrome Manual,P4.5	**4.5 INSPECTION OF THE MOVEMENT AREA BY THE AERODROME OPERATOR** *Particulars of the procedures for the inspection of the aerodrome movement area, including the following:*		
STD A14 Vol.I,2.9.3 Generic Aerodrome Manual ,P4.5	1. Does the operator of a certified aerodrome require an arrangement for aerodrome serviceability inspections to be carried out at least 2 times each day including one inspection during hours of darkness, and additionally after a natural phenomena such as severe wind or rain storm, earthquake, or when requested by air traffic control or by CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is serviceability inspections which are subject to CAA agreement and the frequency of inspections may be reduced to not less than 2 per week at aerodromes with low numbers of traffic movements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. At aerodromes restricted to VFR operations, is the serviceability inspection conducted before the first aircraft movement during daylight hours?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	4. Does the notification of changes in the published aerodrome information or any other occurrence or emergency affecting the availability of the aerodrome and safety of aircraft using the aerodrome are being reported?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. When carrying out serviceability inspections, are checklists used for reporting any changes in the aerodrome information or for request of issuance of NOTAMs included in the aerodrome manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. During an inspection, are there arrangements and means of communication with ATC regarding significant objects found in the movement areas?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Does the serviceability inspection include the following surface conditions: (a) ponding of water; (b) pavement cracking or spalling; (c) rubber build up; (d) surface irregularities; (e) damage caused by spillage of corrosive fluids;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	(f) pipe drain faults particularly in fine grain non cohesive sub grades, in high rainfall areas; (g) scour or erosion ditches; (h) termite mounds or other ground obstacles obscured by long grass; (i) soft ground, particularly in combination with surface roughness and slipperiness; and (j) any other sign of pavement distress which has the potential to develop quickly into a hazardous situation.		
	8. Does the serviceability inspection include checking the following conditions of aerodrome markings, lightings, WDIs, and ground signals? (a) loss of visibility of markers and markings; (b) use of incorrect markers and markings; (c) any disturbance to level and alignment of lights; (d) visual light intensity consistency	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	check (does a light stand out less bright than others in the same system?) (e) discolored or dirty lenses; (f) outage lamps, incorrect lamps fitted, or lamps fitted wrongly; (g) the condition of the frangibility of light bases; (h) exposed edges around footings and other aerodrome installations; (i) damage to wind indicator assembly or mounting; and (j) damage to wind indicator sleeve fabric, or loss of conspicuous color.		
	9. Does the serviceability inspection also include the following? (a) foreign objects, such as aircraft fastening devices and other parts; (b) mechanics tools, small items of equipment and personal items; (c) debris, such as sand, loose rocks, concrete, wood, plastic, pieces of tire and mud; and (d) with particular	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	vigilance during and after construction activity, any debris or material which may have been generated by vehicle movement, spillage, storage other extraneous activity.		
Generic Aerodrome Manual ,P4.5.5	**Wildlife on, or in the vicinity of, the movement area**		☐S ☐ NS
	10. Does a serviceability inspection checklist include wildlife on or in the vicinity of the movement area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Does a serviceability inspection checklist for wildlife include the following? (a) the condition of aerodrome fencing, particularly in critical areas; (b) climatic or seasonal considerations, such as the presence of birds at certain times of the year, or related to the depth of water in drainage ponding areas; (c) possible shelter provided by aerodrome infrastructure such as buildings, equipment and gable markers; (d) wildlife hazard mitigating procedures incorporated in the environmental management	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	procedures for the aerodrome; (e) off-airport attractors like animal sale yards, picnic areas, aeration facilities and waste disposal or landfill areas, and (f) use of harassment procedures where appropriate		
Generic Aerodrome Manual ,P4.5.6	**Currency of NOTAMs**		
	12. Does a serviceability inspection checklist include any outstanding NOTAMs which are current?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual ,P4.5.5	**Aerodrome Fencing**		☐S ☐ NS
	13. Does a serviceability inspection include checking of damaged fences, open gates and signs of attempted entry by either animals or humans?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.10.1,9.10.2	14. Is there a fence or other suitable barrier provided in the aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft and to deter the inadvertent or premeditated access of an unauthorized person onto a non-public area of the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.10.3	15. Are there means of protection provided to deter the inadvertent or premeditated	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	access of unauthorized persons into ground installations and facilities essential for the safety of civil aviation located off the aerodrome?		
STD A14 Vol.I,9.10.4	16. Is the fence or barrier located so as to separate the movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft from areas open to public access?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.10.5	17. When greater security is thought necessary, is there a cleared area provided on both sides of the fence or barrier to facilitate the work of patrols and to make trespassing more difficult?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.10.5	18. Is there a consideration given to the provision of a perimeter road inside the aerodrome fencing for the use of both maintenance personnel and security patrols?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,9.11	**Security Lighting** 19. Where it is deemed desirable for security reasons, is a fence or other barrier provided for the protection of international and domestic aerodromes and its facilities illuminated at a	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	minimum essential level?		
RP A14 Vol.I,9.11	20. Is there a Consideration given by the aerodrome operator in locating the lights so that the ground area on both sides of the fence or barrier, particularly at access points, is illuminated?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.5.8	21. Does the aerodrome operator maintain aerodrome inspection records in the form of logbooks or similar for recording the date and time of each aerodrome serviceability inspection?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22. Are records retained for at least 2 years and kept in a secured location?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.5.7	23. Are there arrangements for reporting the results of each inspection and any action taken to ensure correction of unsafe conditions? and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.5.2	24. Are the names and roles of persons responsible for carrying out inspections, and their telephone numbers during and after working hours provided?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.5	**Obstacles Infringing the take-off, approach and transitional surfaces** 25. Does the aerodrome	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	operator have procedures in place and equipment available to enable inspection personnel to identify objects protruding through the OLS? Equipment should include appropriate instrumentation, such as: a) a hand held clinometer; b) 'sighting plane' installations; or c) formal survey equipment.		

Appendix 7C-6: VISUAL AIDS AND AERODROME ELECTRICAL SYSTEMS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,C5,C8 GM Doc9157,P4,P5 Doc9774,App.1-4.6 Generic Aerodrome Manual,P4.8	**4.6 VISUAL AIDS AND AERODROME ELECTRICAL SYSTEMS**		
STD A14 Vol.I,5.3.1.1	***Lights which may endanger the safety of aircraft*** 1. Are non-aeronautical ground light near an aerodrome which might endanger the safety of aircraft extinguished, screened or otherwise modified so as to eliminate the source of danger.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.2	2. Are there Laser emissions which may endanger the safety of an aircraft ? 3. Are the following protected zones established around the aerodrome, to protect the safety of aircraft against the hazardous effects of laser emitters? — a laser-beam free flight zone (LFFZ) — a laser-beam critical flight zone (LCFZ — a laser-beam sensitive flight zone (LSFZ).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.3	4. Lights which may cause confusion (a) Does a non-aeronautical ground light which, by reason of its intensity, configuration or color, might prevent, or cause confusion in, the clear interpretation of aeronautical ground lights must be extinguished, screened or otherwise modified so as to eliminate such a possibility. In particular, attention must be directed to a non-aeronautical ground light visible from the air within the areas described hereunder: i.) Instrument runway — code number 4: within the areas before the threshold and beyond the end of the runway extending at least 4 500 m in length from the threshold and runway end and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	750 m either side of the extended runway center line in width. ii.) Instrument runway — code number 2 or 3: as in a), except that the length should be at least 3000 m. iii) Instrument runway — code number 1; and non-instrument runway: within the approach area.		
STD A14 Vol.I,5.3.1.1	5. Are existing or proposed non-aeronautical ground light in the vicinity of an aerodrome, notified to the relevant CAA office for a safety assessment?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9157,P6	**Light fixtures and supporting structures** 1. Are all aerodrome light fixtures and supporting structures of minimum weight? 2. If yes to question no.1, are they frangible? 3. Does it follow the standards for visual aids stipulated while being fit for the function, and frangible and are made in accordance with the provisions of [MAS] and the Aerodrome Design Manual, Part 6 (in preparation).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.4	Elevated approach lights 4. Are elevated approach lights and the supporting structures frangible except that, in that portion of the approach lighting system beyond 300 m from the threshold:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.4 a)	5. Are the height of a supporting structure exceeds 12 m, the frangibility requirement shall apply to the top 12 m only; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.4 b)	6. Does supporting structure surrounded by non-frangible objects, only that part of the structure that extends above the surrounding objects is frangible.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.5	7. Does approach light fixture or supporting structure not in itself sufficiently conspicuous were appropriately marked.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.6	Elevated lights 8. Does elevated runway, stopway and	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	taxiway lights must be frangible and sufficiently low to preserve clearance for propellers and the engine pods of jet aircraft. In general, they shall not be more than 360 mm above the ground.	[ ] N/A	
	9. Are elevated lights, in general, are preferable to inset lights, because they provide a larger aperture from which light signals can be seen is used in all cases except: a) where the use of inset lights is specified in this Chapter, or b) where it is not practicable to use elevated lights. Note:- Elevated lights are not practicable on pavements where aircraft or vehicles travel or in areas subject to significant jet blast.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.7	Surface lights or Inset lights 10. Does inset lights, also known as in-pavement lights must not: a.) Be constructed with sharp edges;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	b.) project more than 25 mm above the surrounding surface at locations where the lights will not normally come into contact with aircraft wheels, such as threshold lights, runway end lights and runway edge lights; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	c.) project more than 13 mm above the surrounding surface at locations which will normally come into contact with aircraft wheels, such as runway centerline lights, touch down zone lights and taxiway centerline lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.7	11. Are Light fixtures inset in the surface of runways, stop ways, taxiways and aprons designed and fitted as to withstand being run over by the wheels of an aircraft without damage either to the aircraft or to the lights themselves?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.8	12. Does the maximum surface temperature attained by an inset lights exceeded the 160°C during a 10-minute period of exposure. Note. — Guidance on measuring the temperature of inset lights is given in the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	Aerodrome Design Manual, Part 4.		
	13. Does the color for elevated light units casing in accordance with the standard color.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3,Light intensity and control note	**Light intensity and control** Note.— In dusk or poor visibility conditions by day, lighting can be more effective than marking. For lights to be effective in such conditions or in poor visibility by night, they must be of adequate intensity. To obtain the required intensity, it will usually be necessary to make the light directional, in which case the arcs over which the light shows will have to be adequate and so orientated as to meet the operational requirements. The runway lighting system will have to be considered as a whole, to ensure that the relative light intensities are suitably matched to the same end. (See Attachment A, Section 16, and the Aerodrome Design Manual (Doc 9157), Part 4).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.10	1. Are the following lighting system provided and equipped with an intensity control for aerodromes with ATS: a) approach lighting system; b) approach slope guidance system; c) runway edge, threshold and end lights; d) runway centerline lights; e) runway touchdown zone lights; f) taxiway centerline lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are the following systems capable of being varied for intensity 5 or 6 stages intensity: (a) approach lighting systems (b) visual approach slope indicator systems; (c) high intensity runway edge, threshold and end lights; (d) runway centerline lights; (e) runway touchdown zone lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the intensity capable of being varied in at least 3 stages for medium intensity runway edge, threshold and end lights	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the runway equipped with both high and medium intensity runway edge lighting?	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
		[ ] N/A	
	5. Is the medium intensity system provided with 3 the lowest intensity stages?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.1.9	6. Does the intensity of runway lighting adequate for the minimum conditions of visibility and ambient light in which use of the runway is intended, and compatible with that of the nearest section of the approach lighting system when provided? NOTE.— While the lights of an approach lighting system may be of higher intensity than the runway lighting, it is good practice to avoid abrupt changes in intensity as these could give a pilot a false impression that the visibility is changing during approach.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.10	7. Does high-intensity lighting system provided and suitable intensity control incorporated to allow for adjustment of the light intensity to meet the prevailing conditions?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.10	8. Is there a separate intensity controls or other suitable methods provided to ensure that the following systems, when installed, can be operated at compatible intensities for? *a) approach lighting system;* *b) runway edge lights;* *c) runway threshold lights;* *d) runway end lights;* *e) runway centerline lights;* *f) runway touchdown zone lights; and* *g) taxiway centerline lights.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.17	TAXIWAY LIGHTS: 1. Are the Taxiway centerline lights provided with a main beam average intensity of the order of 50 cd or less and 3 stages of intensity control to be normally sufficient?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	2. Are the Taxiway centerline lights provided with a main beam average intensity of the order of 100 cd or greater will normally require more than3 stages of intensity control?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are Taxiway edge lights provided with a separate intensity control and installed on the same electrical circuit as the low or medium intensity runway edge lights, and to be controlled by the runway light control.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the Intensity control reduced from each successive stage to an order of 25-33% based on the fact that a change of the magnitude is required for the human eye to detect that a change has occurred?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Is the 6 stages of intensities have the following order of: 100%, 30%, 10%, 3%, 1% and 0.3%?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are lightings provided at an aerodrome with intensity setting but ATS does not provide 24 hour coverage and the operator leaves the lights turned on all night.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Does lighting systems operated by ATS monitored automatically so as to provide an immediate indication of: (a)those lighting systems that are on; (b)the intensity of each lighting system; (c)any fault in a lighting system; and (d)such information is to be automatically relayed to the operator position.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Does runway lighting intensity adequate for the minimum conditions of visibility and ambient light in which use of the runway is intended, and compatible with that of the nearest section of the approach lighting system.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Generic Aerodrome Manual,P4.8.5	**Maintenance performance of aerodrome lighting (Visual aids)**		
	1 Is the aerodrome has a system of preventive maintenance level objective for aerodrome lightings detailed in their manual?	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	2 Are there lights in the aerodrome where its main beam average intensity is less than 50% of value specified in the appropriate figure in [MAS], which is considered to be unserviceable? 3 Are there light units where the designed main beam average intensity is above the value shown in [MAS], and the 50% value is related to the design value?	[ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.2	3. Does a system of preventive maintenance of visual aids employed to ensure lighting and marking system reliability? *Note: Guidance on preventive maintenance of visual aids is given in the Airport Services Manual (Doc 9137), Part*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.3	4. Does the system of preventive maintenance employed for a precision approach category II or III and must include at least the following checks? (a) visual inspection and in-field measurement of the intensity, beam spread and orientation of lights included in the approach and runway lighting systems; (b) control and measurement of the electrical characteristics of each circuitry included in the approach and runway lighting systems; and (c) control of the correct functioning of light intensity settings used by air traffic control.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS ☐S ☐ NS
STD A14 Vol.I,10.5.4	5. Does in-field measurement of intensity, beam spread and orientation of lights included in approach and runway lighting systems for a precision approach runway category II or III and must be undertaken by measuring all lights, as far as practicable, to ensure conformance with the applicable specification of [MAS] (Aeronautical Ground Light Characteristics)	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.5	6.Does measurement of intensity, beam spread and orientation of lights included in approach and runway lighting systems for a precision approach runway category II or III	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	be undertaken using a mobile measuring unit of sufficient accuracy to analyze the characteristics of the individual lights.	[ ] N/A	
STD A14 Vol.I,10.5.6	7. Is the frequency on the measurements of lights for a precision approach runway category II or III based on traffic density, the local pollution level, the reliability of the installed lighting equipment and the continuous assessment of the results of the in-field measurements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Does measurements of lights intensity in accordance with [MAS] for in-pavement lights and other lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.7	9. Is the system of preventative maintenance employed for a precision approach runway category II or III and have its objective that, during any period of category II or III operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Are all approach and runway lights serviceable and in any event at least? (a) 95% of the lights are serviceable in each of the following particular significant elements: i. precision approach category II and III lighting system, the inner 450 m; ii. the runway centerline lights; iii. the runway threshold lights; iv. the runway edge lights; (b) 90% of the lights are serviceable in the touchdown zone lights; (c) 85% of the lights are serviceable in the approach lighting system beyond 450 m; (d) 75% of the lights are serviceable in the runway end lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Are unserviceable lights permitted in such a way as to alter the basic pattern of the lighting system adjacent to another unserviceable light except in a barrette or crossbar where two adjacent unserviceable lights may be permitted.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.8	12. Is there a system of preventative maintenance employed for a stop bar which is provided at a runway holding position used in conjunction with a runway intended for operations in runway	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	visual range conditions less than a value of 350		
STD A14 Vol.I,10.5.8	, and must have the following objectives: *(a)* no more than two lights will remain unserviceable; and *(b)* two adjacent lights will not remain unserviceable unless the light spacing is significantly less than that specified	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.9	13. Is there a system of preventative maintenance employed for a taxiway intended for use in runway visual range conditions less than a value of 350m and have its objective that no two adjacent taxiway centerline lights are unserviceable?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,10.5.10	14. Is there a system of preventative maintenance employed for a precision approach runway category I have its objective during any period of category I operations all approach and runway lights are serviceable, and that in any event at least 85% of the lights are serviceable in each of the following: (a) precision approach category I lighting system; (b) the runway threshold lights; (c) the runway edge lights; and (d) the runway end lights. 15. Are unserviceable lights permitted adjacent to another unserviceable light unless the light spacing is significantly less than that specified.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
STD A14 Vol.I,10.5.11	16. Is there a system of preventative maintenance employed for a takeoff in runway visual range conditions of less than a value of 550m and have its objective that during any period of operations all runway lights are serviceable and that in any event? (a) at least 95% of the lights are serviceable in the runway centerline lights (where provided) and in the runway edge lights; and (b) at least 75% of the lights are serviceable in the runway end lights.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A [ ] Yes	☐S ☐ NS ☐S ☐ NS ☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	17. Are unserviceable lights permitted adjacent to another unserviceable light.	[ ] No [ ] N/A	
STD A14 Vol.I,10.5.12	18. Is there a system of preventative maintenance employed for a runway meant for takeoff in runway visual range conditions value of 550m or greater and have its objective that during any period of operations all runway lights are serviceable and that in any event at least 85% of the lights are serviceable in the runway edge lights and runway end lights. 19. Are unserviceable lights permitted adjacent to another unserviceable light	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
STD A14 Vol.I,10.5.13	20. Is there an arrangement from the appropriate authority to restricts construction or maintenance activities in the proximity of aerodrome electrical systems during low visibility procedures?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Commissioning of lighting systems 1. Is there a formal process by which the performance of the lighting system is confirmed which includes series of procedures designed to determine the suitable performance and accuracy of information provided by any visual aid in conformity with specifications and CAA standards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the commissioning process confirmed by a qualified person? (a) For ground check of compliance with electrical specifications and CAA standards: engineer or airfield power technician with qualifications, training and experience satisfactory to CAA. (b) For flight checking of compliance with operational specifications: a person or organization approved by CAA i.e. Flight Inspection and Calibration Group (FICG) as having the competency to conduct commissioning flight checks.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	3. Are all aerodrome lighting systems commissioned before they are notified as available for normal operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the verification of vertical and horizontal angles of light signals changes included in the ground check for a visual approach slope indicator system and performed by a person having civil engineering or surveying qualification and experience?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does commissioning of the following lighting systems, in addition to the ground check includes flight checks of: (a) approach lighting system; (b) runway lighting system for instrument runways; (c) visual approach slope indicator system (e.g. VASI / PAPI) (i) used by jet propelled aeroplanes engaged in air transport operations; or (ii) installed on CAA direction, in accordance with 9.8.1.1(b);	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Is there a requirement for a flight check test that may be waived by CAA, for a visual approach slope indicator system specified in [MAS], that is provided for temporary use only, for example due to a temporary displaced threshold, or during works in progress?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Does the aerodrome operator submitted a duly certified ground check and flight check reports to CAA.? Note: If satisfied with the reports, CAA will approve the issue of a permanent NOTAM. Information for a visual approach slope indicator system to be included in the permanent NOTAM includes: a. runway designation; b. type of system, and for AT-VASIS and PAPI systems, the side of runway, as seen by approaching pilot, that the aid is installed; c. where the axis of the system is not parallel to the runway centerline, the angle of	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	displacement and the direction of displacement, i.e. left or right; d. approach slope; and e. minimum eye height over threshold, for the on-slope signal.		
	8. Does the aerodrome operator utilized a duly certified ground check as sufficient evidence of compliance with standards to initiate a permanent NOTAM.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does ground checking and/or the flight checking of a lighting system specified in Paragraph 9.1.15.4, conducted after commissioning following substantial changes to the system or on receipt of adverse reports on the performance of the system from pilots or aircraft operators. substantial changes to the system include: a) removal and replacement of 50% or more of the light fittings, at the same time, of an approach or runway lighting system; b) removal and replacement of one or more light units of a PAPI system; and c) removal and replacement of two or more light units, at the same time, of an AT-VASIS system. *Note: Before a runway is opened for night use, the status of obstacles need to be assessed for obstacle lighting purposes, particularly if the obstacles are within 3 km of the aerodrome.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.2.1	**Emergency lighting** 1. Are there sufficient emergency lights conveniently available for installation on at least the primary runway in the event of failure of the normal lighting system, at an aerodrome provided with runway lighting and without a secondary power supply. *Note: Emergency lighting may also be useful to mark obstacles or delineate taxiways and apron areas.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.2.2	2. Are the emergency lights installed on a runway conform to the configuration required for a non-instrument runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.2.3	3. Is the color of the emergency lights conformed to the color requirements for	[ ] Yes	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	runway lighting, except that, where the provision of colored lights at the threshold and the runway end is not practicable, all lights may be variable white or as close to variable white as practicable.	[ ] No [ ] N/A	
	Section 9.3 Obstacle Lighting		
STD A14 Vol.I,6.1 note	1. Does lighting of obstacles intended to reduce hazards to aircraft by indicating the presence of the obstacles and necessary to reduce operating limitations which may be imposed by an obstacle.?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. For obstacles, within the limits of the obstacle limitation surfaces of an aerodrome, Does the aerodrome operator has a sole responsibility for the provision and maintenance procedure for obstacle lighting on natural terrain or vegetation, where determined necessary for aircraft operations at the aerodrome 3. For object or a proposed object in which, CAA determines that intrudes into navigable airspace requires, or will be required to be provided with obstacle lighting, Does the owner of the building or structure responsible for the provision and maintenance of obstacle lighting on a building or structure?	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
RP A14 Vol.I,5.3.5.42,6.1.1.1,6.1.1.2,6.1.1.4,6.1.1.6,6.1.1.7,	4. Are obstacle lights provided for? (a) a runway intended to be used at night: (i) if the object extends above the take-off climb surface within 3000 m of the inner edge of the take-off climb surface; (ii) if the object extends above the approach or transitional surface within 3000 m of the inner edge of the approach surface; (iii) if the object extends above the applicable inner, conical or outer horizontal surfaces; (iv) if the object extends above the obstacle protection surface of the T-VASIS or PAPI installed at the aerodrome;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	(v) a vehicle or other mobile objects, excluding aircraft, on the movement area, except aircraft service equipment and vehicles used only on aprons; (vi) obstacles in the vicinity of taxiways, apron taxiways or taxilanes, except that obstacle lights are not to be installed on elevated ground lights or signs in the movement area		
	5. Are obstacle lights provided for objects outside the obstacle limitation surfaces of an aerodrome, if the object is or will be more than 110 m above ground level?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the owner of a tall buildings or structures below the obstacle limitation surfaces, or less than 110 m above ground level, may, of their own volition, provide obstacle lighting to indicate the presence of such buildings or structures at night	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Is obstacle lighting used during the day in lieu of obstacle marking, where provision of obstacle marking is impracticable	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Types of obstacle lighting and usage		
STD A14 Vol.I,6.2.1.2	1. The types of obstacle lights are the following: 1) Low-intensity - Types A, B, C , D and E; 2) Medium-intensity -Types A, B and C; and 3) High-intensity - Type A and B. Note: - For guidance on the specifications of the types of obstacle lights is given in [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of obstacle lights		
STD A14 Vol.I,6.2.3.10	1. Is obstacle lights (for one or more low-, medium- or high-intensity) located as close as practicable to the top of the object to be lighted?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,6.2.3.10 note,6.2.3.11	2. For the case of Chimney or other structure of like function: c) Are the combination of low-, medium-, and/or high-intensity obstacle lights (top lights) located below the top (nominally	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	1.5 m to 3 m), so as to minimize contamination by smoke, etc.		
STD A14 Vol.I,6.2.3.12	3. Is tower or antenna structure provided with high intensity obstacle lights by day? 4. Is high intensity obstacle light provided on a structure that has an appurtenance such as a rod or antenna extending greater than 12 m above the structure? 5. If practicable, Is high intensity obstacle light located on the top of the appurtenance? 6. If not practicable, Is high intensity obstacle light located at the highest practicable point?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,6.2.3.13	7. Are extensive object or a group of closely spaced objects to be lighted: *a) penetrating a horizontal OLS or located outside an OLS, the top lights shall be so arranged as to at least indicate the points or edges of the object highest in relation to the obstacle limitation surface or above the ground, and so as to indicate the general definition and the extent of the objects; and* *b) penetrating a sloping OLS, the top lights shall be so arranged as to at least indicate the points or edges of the object highest in relation to the obstacle limitation surface, and so as to indicate the general definition and the extent of the objects. If two or more edges are of the same height, the edge nearest the landing area shall be marked.*	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
STD A14 Vol.I,6.2.3.15	for an extensive object or a group of closely spaced objects 8. Are low-intensity obstacle lights used and spaced at longitudinal intervals not exceeding 45 m? 9. Are medium-intensity lights used and spaced at longitudinal intervals not exceeding 900 m?	[ ] Yes [ ] No	☐S ☐ NS
RP A14 Vol.I,6.2.3.14	10. Are additional obstacle lights placed on the highest part of the object, When the obstacle limitation surface is sloping and the highest point above the obstacle limitation surface is not the highest point of the object?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14	When the top of the obstacle is more than 45 m above the level of the surrounding ground		

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
Vol.I,6.2.3.26,6.2.3.15 a)	or the elevation of the tops of nearby buildings (when the obstacle is surrounded by buildings),		
	11. Is the top light provided with a medium intensity lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Are additional low intensity lights provided at lower levels to indicate the full height of the structure and additional lights are to be spaced as equally as possible, between the top lights and ground level or the level of tops of nearby buildings, as appropriate. The spacing between the lights is not to exceed 45 m?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,6.2.3.16	13. Does high-intensity obstacle lights, Type A, and medium-intensity obstacle lights, Types A and B, located on an object that will flash simultaneously.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	NATURAL OBSTACLES 1. Are there any natural obstacles at the airport?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. As assessed by CAA where obstacle lights are to be provided, Is the installation in accordance with the standards when the obstacle is located within the approach area? Or outside the approach area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the airport have pictures of these obstacles or records of its location for proper assessment during the inspection?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Since terrain and vegetation are considered natural obstacles and extensive, is there any corrective action done by the airport for its resolution?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does natural obstacles such as terrain and vegetation that are normally extensive and assessed by CAA on an individual case basis provided with an obstacle lights on the following conditions:		

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	(a) if the obstacle is located within the approach area, the portion of the obstacle which is within the approach area is to be treated in the same manner as man-made obstacles for the provision of obstacle lights; (b) if the obstacle is located outside the approach area, it is to be marked by sufficient number of lights on the highest and most prominent features, so placed that the obstacle can be readily identified.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
	TEMPORARY OBSTACLES 1. If the aerodrome has night operations or during poor visibility conditions and temporary obstacles are present in the approach area or movement area, are these obstacles marked with permanent or temporary red obstacle lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If installed are these lights properly arranged to clearly mark the height, limits and extent of the obstacle?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of low intensity obstacle lights		
STD A14 Vol.I,Table 6-1,6-2	1. Are the low intensity obstacle lights complying all the characteristics? **(**a) fixed lights showing red; (b) a horizontal beam spread that results in 360° coverage around obstacle; (c) a peak intensity of 100 cd minimum; (d) a vertical beam spread (to 50% of peak intensity) of 10°; (e) a vertical distribution with 100 cd minimum at +6° and +10° above the horizontal; and (f) not less than 10 cd at all elevation angles between –3° and +90° above the horizontal.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Table 6-2	2. Are low intensity obstacle lights use to indicate taxiway obstacles or unserviceable area in the movement area meeting the requirements of [MAS]	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	provision 9.3.6.2 in terms of 10 cd minimum (peak intensity)?		
	Characteristics of medium intensity obstacle lights		
STD A14 Vol.I,Table 6-3	1. Are the medium intensity obstacle lights meeting all the characteristics?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Table 6-1	2. Are medium intensity obstacle lights in the correct standard frequency of flashes which is between 20 and 60 flashes per minute?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Table 6-1,6-3	3. Are medium intensity obstacle lights meeting the peak effective intensity of 2,000 ±25% cd?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are medium intensity obstacle lights complying with the following vertical distribution? a.) vertical beam spread is to be 3°minimum (beam spread is defined as the angle between two directions in a plane for which the intensity is equal to 50% of the lower tolerance value of the peak intensity);	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(b) at -1°elevation, the intensity is to be 50% minimum and 75% maximum of lower tolerance value of the peak intensity; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(c) at 0° elevation, the intensity is to be 100% minimum of the lower tolerance value of the peak intensity.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,Table 6-1	5. If this flashing white light is used in day time in lieu of obstacle marking and to indicate temporary obstacles in the vicinity of the aerodrome, does it meeting the correct peak effective intensity in accordance with 9.3.7.4 of the [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	Characteristics of high intensity obstacle lights		
STD A14 Vol.I,Table 6-1,6-2	1. Are high intensity obstacle lights flashing white lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the effective intensity of a high intensity obstacle lights located on an object other than a tower supporting overhead wires or cables varies dependently on the following background luminance: (a) 200,000 ±25% cd effective intensity at a background luminance of above 500 cd/m² (day); (b) 20,000 ±25% cd effective intensity at a background luminance of between 50-500 cd/m² (dusk or dawn); (c) 2,000 ±25% cd effective intensity at a background luminance of below 50 cd/m² (night).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the effective intensity of a high intensity obstacle lights located on a tower supporting overhead wires or cables varies dependently on the following background luminance: (a) 100,000 ±25% cd effective intensity at a background luminance of above 500 cd/m² (day); (b) 20,000 ±25% cd effective intensity at a background luminance of between 50-500 cd/m² (dusk or dawn); and (c) 2,000 ±25% cd effective intensity at a background luminance of below 50 cd/m² (night).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are high intensity obstacle lights Type A, Medium-intensity obstacle lights, Types A and B, located on an object other than a tower supporting overhead wires or cables flashes	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	simultaneously at a rate between 40-60 flashes per minute.?		
	Floodlighting of Obstacles		
	1. Where installation of normal obstacle lights is deemed impracticable or undesirable for aesthetic or other reasons, Is the floodlighting of obstacles used at the airport?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is there a document from CAA to show for the non-installation of floodlighting of obstacles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does floodlighting of obstacles used a.) in the structure that is skeletal as a substantially solid surface or cladding with satisfactory reflectance properties are required; or b.) there is high background lighting level?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does floodlighting of obstacles in accordance with the standards set forth in 9.3.9.3 of the [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. If floodlighting of obstacles is used, is it reflecting the minimum level of luminance as indicated in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are light fittings in accordance with the standards set forth in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	On-going availability of obstacle light		☐S ☐ NS
	1. Does the aerodrome operator ensure that all obstacle lights provided are in working condition when they are required to be on?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the airport have a pro-active maintenance program for obstacle lights to minimize light outages?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the aerodrome operator established a monitoring program for obstacle lights located within the	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	obstacle limitation surface area of the aerodrome that is in accordance with the standards set forth in [MAS]?	[ ] N/A	
	4. Does the aerodrome operator established a procedure specified in [MAS] that in the event obstacle light outage, where obstacles located within the obstacle limitation surface area of the aerodrome	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	For obstacles located outside the obstacle limitation surface area of an aerodrome 5. Does the owners of the lights need to establish a program to monitor the lights and report light failure?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are obstacle light failure reported immediately to CAA or ATC and appropriate NOTAM to warn pilots of light outages in this regard properly issued?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Aerodrome Beacons		
STD A14 Vol.I,5.3.3.3	1. Is the airport provided with an aerodrome beacon? 2. If yes, Are the criteria in determining operational necessity for the provision of aerodrome beacon in accordance with the standards set forth in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.3.4	3. Is the aerodrome beacon located on or adjacent to the aerodrome in an area of low ambient background lighting?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.3.5	4. Is the aerodrome beacon is shielded by obstacles nor dazzling to a pilot making an approach to land.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	At international aerodromes or aerodromes in built-up areas: 5. Does the Aerodrome beacon complied with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.3.6	**At other locations:** 6. Does the Aerodrome beacon show white flashes or other colors?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.3.6	7. Does the Aerodrome beacon light frequency of total flashes comply with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	8. Does the Aerodrome beacon complied with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does the Aerodrome beacon light intensity distribution in accordance with requirement ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does the Aerodrome beacon light effective intensity of color flashes in accordance with requirement?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Is the facility published in AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.1.1.5	**Illuminated Wind Direction** 1. If the aerodrome has night operation, is there a lighted wind direction indicator?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If a WDI is provided in the vicinity of a runway threshold specifically to provide surface wind information for pilots engaged in instrument straight-in approach and landing operations, Is the Aerodrome beacon light provided appropriately lighted?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is the floodlighting of the WDI in accordance with the standards ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the floodlighting of the WDI aimed and shielded in accordance with the standards ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. If maintaining more than one WDI, are all lighted especially when there are night Operations? 6. Is the control of lighting for these WDIs in accordance with the standards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Is the WDI lighting control incorporated in the runway lighting system to automatically energize the lighting of the wind direction indicator?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Does WDI provided with a uniform intensity setting irrespective of the	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	intensity setting of the runway lighting, where the electricity supply is provided from a runway lighting circuit?	[ ] N/A	
STD A14 Vol.I,5.3.4	**Approach Lighting System**		
	Simple approach lighting system		
	1 Does the airport provided with a simple approach lighting system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2 If yes, is it properly coordinated with CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.2	3 Is simple approach lighting system (SALS) complied with the requirements set forth in [MAS]? a) distance of not less than 420 m from the threshold; and b) row of lights forming a crossbar 18 m or 30 m in length at a distance of 300 m from the threshold.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.3	4 Does crossbar lights forming in a horizontal straight line at right angles to, and bisected by, the line of the centerline lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.3	5 Are crossbar lights properly spaced so as to produce a linear effect except that, when a crossbar of 30 m is used, gaps may be left on each side of the centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.3	6 Do crossbar gaps kept to a minimum to meet local requirements and each shall not exceed 6 m?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.4	7 Are the lights forming the centerline placed at longitudinal intervals of 60 m, except that, when it is desired to improve the guidance, an interval of 30 m may be used.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.4	8 Does the innermost light located either 60 m or 30 m from the threshold, depending on the longitudinal interval selected for the centerline lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.4.5	9 Does the aerodrome capable of providing centerline lights extending for a distance of 420 meters from the threshold? If it is not possible:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	10 Does the aerodrome complied with the requirements?		
	11 Does the system (SALS) complied with the requirements ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.6 b)	12 Is there an ILS Antenna protruding through the plane of the lights treated as an obstacle properly marked and lighted?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.7	13 Does a simple approach lighting system show fixed lights and the color of the lights is readily distinguishable from other aeronautical ground lights	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.7	14 Are centerline lights consists of: (a) a single source; or (b) a barrette at least 3 m in length. Note: - 1. When the barrette as in b) is composed of lights approximating to point sources, a spacing of 1.5 m between adjacent lights in the barrette has been found satisfactory. Note: - 2. It may be advisable to use barrettes 4 m in length if it is anticipated that the simple approach lighting system will be developed into a precision approach lighting system. Note: - 3. At locations where identification of the simple approach lighting system is difficult at night due to surrounding lights, sequence flashing lights installed in the outer portion of the system may resolve this problem	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.4.8	15 Does the lights show at all angles in azimuth to a pilot on base leg and final approach for a non-instrument runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.4.8	16 Does the intensity of the lights adequate for all conditions of visibility and ambient light for which the system was provided?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17 Does a simple approach lighting system as specified to serve a non-instrument runway where the code number is 3 or 4 and intended for use at night, except when the runway is used only in conditions of good visibility and sufficient guidance is provided by other visual aids?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18 Does a simple approach lighting system as specified to serve a non-precision	[ ] Yes	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	approach runway where the code number is 3 or 4 and intended for use at night, except when the runway is used only in conditions of good visibility and sufficient guidance is provided by other visual aids?	[ ] No [ ] N/A	
	Precision approach Category I lighting system		
	1. Does a precision approach Category I lighting system provided to serve a Category I precision approach runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If provided, does it conform to all the standards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,5.3.4.12	3. Are the lights forming the centerline placed at longitudinal intervals of 30 m with the innermost light located 30 m from the threshold?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.16	4. Are the lights uniformly spaced at intervals not exceeding 1.5 meter and the Barrettes lights have at least 4 meters in length?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.11	5. Does the lights forming the crossbar in a horizontal straight line at right angles to, and bisected by, the line of the centerline lights.?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.11	6. Does the lights of the crossbar properly spaced to produce a linear effect, except that gaps may be left on each side of the centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.11	7. Does These gaps kept to a minimum to meet local requirements and each shall not exceed 6 m.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Does the system (PALS CAT I) complied with the requirements ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.13 b)	9. Are there ILS Antenna protruding through the plane of the lights (PALS CAT I) treated as an obstacle properly marked and lighted?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.14 b)	10. Does the centerline lights for a precision approach category I approach lighting system composed of barrettes in lieu of the point source lights ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.18	11. Does the centerline lights for a precision approach category I approach lighting	[ ] Yes	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	system consist of barrettes is supplemented by a flashing light, except where such lighting is considered unnecessary taking into account the characteristics of the system and the nature of the meteorological conditions?	[ ] No [ ] N/A	
	12. Does the flashing light characteristics and electrical circuit of these lighting system complied with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Does the centerline lights for a precision approach category I approach lighting system complied with the?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.20	If additional crossbars of lights are used 14. Is the outer ends of crossbar lights lie on two straight lines parallel to the line of the centerline lights or converge to meet the runway centerline 300 m from the threshold.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.14	15. Are the centerline and crossbar lights of a precision approach Category I lighting system are installed with a fixed lights showing variable white. Is the centerline light position consist of either? (a) a single light source in the innermost 300 m of the centerline, two light sources in the central 300 m of the centerline and three light sources in the outer 300 m of the centerline to provide distance information; or (b) a barrette.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
STD A14 Vol.I,5.3.4.15	16. Does the serviceability level of the approach lights specified as a maintenance objective can be demonstrated? 17. Is the centerline light position consist of either? (a) a single light source ; (b) a barrette.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS ☐S ☐ NS
	Precision Approach Category II and III Lighting System		
	1. Does a precision approach Category II and III lighting system provided to serve a Category II or III precision approach runway.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	2. If it is implicit for the provision of PALS CAT II and CAT III, Is the airport provided with a touchdown zone lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does a precision approach Category II and III lighting system comply with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the serviceability level for approach lights comply with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.23	5. Are the lights forming the centerline lights for Category II and III lighting system placed at longitudinal intervals of 30 m with the inner light located 30 m from the threshold.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the provision for precision approach Category II and III lighting system comply with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.25	7. Are crossbar lights provided with a distance of 150 m from the threshold to fill in the gaps between the centerline and side row lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.26	8. Are crossbar lights provided at distance of 300 m from the threshold and primarily to extend on both sides of the centerline lights to a distance of 15 m from the centerline.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does the provision comply with the requirements for precision approach Category II and III lighting system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does the provision in (a) and (b) comply with the requirements for precision approach Category II and III lighting system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.29 b)	11. If an ILS antenna is present and protruding through the plane of the lights, it is to be treated as an obstacle. Being such is it marked and lighted accordingly?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Does the provision specified in [MAS] 9comply with the requirements for precision approach Category II and III lighting system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,5.3.4.31	13. Does a precision approach Category II and III center lighting system which is beyond 300 m from the threshold consist of the following? (a) a barrette as used on the inner 300 m: or (b) two light sources in the central 300 m of the centerline and three light sources in the outer 300 m of the centerline; and all of which shall show variable white.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.32	14. Does PALS CAT II and CAT III center light located beyond 300 m from the threshold consist of either of the following: (a) a barrette; or (b) a single light source: and all of which shall show variable white.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.33	15. Are the Barrettes lights uniformly spaced at intervals not exceeding 1.5 meters and have a length of 4 meters long?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.34	16. Are barrette lights beyond 300 m supplemented by a flashing light If the centerline is beyond 300 m from the threshold and consists of barrettes lights, except where such lighting is considered unnecessary by CAA taking into account the characteristics of the system and the nature of the meteorological conditions	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.35	17. Does each flashing light 18. flash twice a second in sequence beginning with the outermost light and progressing to the innermost light?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.35	19. Does the design of these lights electrical circuitry operated independently of the other lights in the approach lighting system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.36	20. Are side row barrettes lights fixed lights showing red? 21. Does the length of a side row barrette and spacing between its lights equal to those of the touchdown zone light barrettes.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.4.37	22. Does the centerline and crossbar lights of a precision approach Category II and III lighting system are installed to be fixed lights showing variable white?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	23. Are the lights forming the crossbars are to be uniformly spaced at intervals of not more than 2.7 m?		
STD A14 Vol.I,5.3.4.38	24. Does the intensity of the red light compatible with the intensity of the white light?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5	**Visual Approach Slope Indicator Systems**		
	1. Does the airport provided with a Visual Approach Indicator System (VASI)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the provision comply with the requirements for precision approach visual approach slope indicator system? (a) The runway is used by jet-propelled airplanes engaged in air transport operations. (b) CAA directs that visual approach slope guidance be provided, because it has determined that such a visual aid is required for the safe operation of aircraft.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	In making a determination of a visual approach slope guidance. *3.* Does the airport provided with a Visual Approach Indicator System (VASI) taking into account the following CAA requirement stipulated in [MAS] 9.8.1.2 (a),(b),(c) and (d) ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the airport provided with other visual or non-visual aids?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does the airport install a visual approach slope indicator, when serious hazards exist and/or a substantial number of aeroplanes not equipped for ILS use?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the airport provided with a visual approach slope indicator, for temporary use only, for example due to a temporary displaced threshold, or during works in progress?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.2	7. Is the aerodrome provided with a standard visual approach slope indicator that consist of the following? (a) T-VASIS and AT-VASIS conforming to the specifications contained; and	[ ] Yes [ ] No	☐S ☐ NS

	(b) PAPI and APAPI systems conforming to the specifications.	[ ] N/A [ ] Yes [ ] No [ ] N/A	☐S	☐ NS
STD A14 Vol.I,5.3.5.3	8. Is the aerodrome provided with a PAPI, T-VASIS or AT-VASIS, where the code number is 3 or 4 when one or more of the conditions specified.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
STD A14 Vol.I,5.3.5.5	9. Is the aerodrome provided with a PAPI or APAPI where the code number is 1 or 2 when one or more of the conditions specified exist.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
STD A14 Vol.I,5.3.5.6	10. Is the aerodrome provided with a PAPI, where the runway threshold is temporarily displaced from the normal position and one or more of the conditions specified exist?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	11. Is the aerodrome provided with a APAPI system, where the code number is 1 or 2 and the runway threshold is temporarily displaced from the normal position with one or more of the conditions specified i?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	12. Does the standard installation for Visual Approach Indicator System (VASI) in accordance with the provisions stipulate?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	13. Does the aerodrome provided with a double-sided PAPI, where a T-VASIS is to be replaced by a PAPI?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	14. Does the aerodrome provide with more than one visual approach slope indicator system? 15. For the purpose, to avoid confusion, Does the aerodrome provide the same type of approach slope indicator system used on all runways of similar reference code number?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	16. Is the determination for the installation of T-VASIS or PAPI in accordance with the choice between the aerodrome operator and airline operators using the runway?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	17. Is the use of the VASI into service of the airport appropriately commissioned and approved by CAA?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	Obstacle protection surface		
STD A14 Vol.I,5.3.5.42	1. Is the aerodrome established the obstacle protection surface, when it is intended to provide a visual approach slope indicator system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.44	2. Are new objects or extensions of existing objects permitted above an obstacle protection surface except when, in the opinion of the appropriate authority, the new object or extension would be shielded by an existing immovable object?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.45	3. Are there any existing objects above an obstacle protection surface? 4. If yes to Q no. 3, Does this objects properly removed except when, in the opinion of the appropriate authority, the object is shielded by an existing immovable object, or after aeronautical study it is determined that the object would not adversely affect the safety of operations of aeroplanes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.46	5. Does one or more following measures specified in [MAS] 9.8.2.5 (a),(b),(c),(d) and (e) properly employed, where an aeronautical study indicates that an existing object extending above an obstacle protection surface (OPS) adversely affect the safety of operations of aeroplanes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	T-VASIS and AT-VASIS		
	1. Does the airport provided with a T-Visual Approach Slope Indicator System (T-VASIS)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are they arranged in a pattern seen by the pilot varies according to his position (up or down, left or right) relative to the desired approach path?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does it provides the pilot with visual cues about his or her actual descent path relative to the desired descent path, when installed in the aerodrome runway strip?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.7	4. Are T-VASIS consist of twenty light units symmetrically disposed about the runway centerline in the form of two wing bars of four light units each,	[ ] Yes [ ] No	☐S ☐ NS

	with bisecting longitudinal lines of six lights, and laid out as shown in [MAS]?	[ ] N/A		
STD A14 Vol.I,5.3.5.8	5. Does AT-VASIS consist of ten light units arranged on one side of the runway in the form of a single wing bar of four light units with a bisecting longitudinal line of six lights?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
STD A14 Vol.I,5.3.5.9	6. Are the following conditions in [MAS] present for light units when constructed and arranged in such a manner for the pilot of an aeroplane during approach ?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
STD A14 Vol.I,5.3.5.9	7. Are there no lights units visible from the fly-up light units, when on or above the approach slope?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
STD A14 Vol.I,5.3.5.9	8. Are there no lights units visible from the fly-down light units, when on or above the approach slope?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	Siting a T-VASIS or AT-VASIS		☐S	☐ NS
	1. Does the siting of a T-VASIS or AT-VASIS complied with the requirements stipulated in [MAS] provision?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	2. Does the characteristics of the TVASIS light units in accordance with the [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	3. Does the approach slope and elevation settings of light beams of the TVASIS light units in accordance with the [MAS] ? and must be such that:	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	4. Does the light unit sited not closer than 15 m from the edge of the runway?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	5. Does the airport have light unit sited closer than 15 m from the edge of the taxiway? 6. If yes, is it properly coordinated with CAA?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	7. Does the aerodrome operator ensure that the immediate surround of each unit is kept free of grass? 8. Are tall grasses in front of the light unit immediately removed which could provide conflicting light signals? 9. Does power mowing operations	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	being conducted for grasses growing near the box on any side of light units which could result damages of lights?		
	Precision Approach Path Indicator (PAPI) / Abbreviated PAPI (APAPI) System		
STD A14 Vol.I,5.3.5.24	10. Are PAPI lighting system consist of a row, also termed 'wing bar', equally spaced sharp transition multi-lamp (or paired single lamp) units?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.24	11. Is the system located on the left side of the runway, as viewed by an aircraft approaching to land, unless it is impracticable to do so?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.25	12. Is the APAPI system consist of a wing bar of two sharp transition multi-lamp (or paired single lamp) units? 13. Is the system located on the left side of the runway unless it is physically impracticable to do so?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.28	14. Does the PAPI system sited and adjusted so that a pilot making an approach complied with the requirements specified?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.27	15. Does the wing bar of an APAPI constructed and arranged in such a manner that a pilot making an approach with the requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Does the aerodrome provided a PAPI and installed on the right side, where it is impracticable to install the PAPI on the left side of the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,5.3.5.26 a)	17. Is the order of the light units arranged in the reversed form and the on-slope indication is still given by the two units nearest the runway showing red?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. Does the aerodrome provide with a double-sided PAPI? If provided, does the indications light to be seen by the pilot symmetrical?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. Are the following requirements specified applicable to the siting of a PAPI?	[ ] Yes	☐S ☐ NS

		[ ] No [ ] N/A		
	20. Are the following characteristics of the PAPI light units in accordance with the requirements specified	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	21. Are the requirements for the approach slope and elevation setting of light units in accordance With the requirements ?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	22. Does the optimum distance of a PAPI wing bar from the runway threshold is determined in accordance with the requirements ?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	23. Is the distance of the PAPI units from the threshold modified from the optimum after consideration of the following:? (a) the remaining length of runway available for stopping the aircraft; and, (b) obstacle clearance.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	24. Is the final location of the PAPI units determined by the relationship between the approach angle, the difference in levels between threshold and the units, and the minimum eye height over the threshold (MEHT)?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	25. Is the angle M used to establish the MEHT of arc less than the setting angle of the unit which defines the lower boundary of the on-slope indication, i.e. unit B, the third unit from the runway?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	26. Does the aerodrome has installed a PAPI on a runway not equipped with an ILS?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	27. Is distance D1 determined to ensure that the lowest height at which a pilot will see a correct approach path indication provides the wheel clearance over the threshold in accordance with the requirement?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	28. Does the aerodrome has installed a PAPI on a runway equipped with an	[ ] Yes	☐S	☐ NS

	ILS? 29. Does the calculation of distance D1 provide the optimum compatibility between the visual and non-visual aids for the range of eye-to-antenna heights of the airplanes regularly using the runway?	[ ] No [ ] N/A		
	30. Are PAPI units installed with the minimum practicable height above ground, and not normally more than 0.9 m?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	31. Are all units of a wing bar ideally lie in the same horizontal plane to allow for any transverse slope, small height differences of no more than 50 mm between light units are acceptable?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	32. A lateral gradient not greater than 1.25% can be accepted provided it is uniformly applied across the units?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	33. Does the procedure for establishing the distance of the PAPI wing bar from the runway threshold conform in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(a) Decide on the required approach slope. The standard approach slope is 3°.			
	(b) On runways where no ILS is installed, refer to [MAS] to determine the aeroplane eye-to-wheel group and the wheel clearance to be provided at the threshold. The MEHT, which provides the appropriate wheel clearance over the threshold, is established by adding the approach configuration eye-to-wheel height of the most demanding amongst the aircraft regularly using the runway to the required threshold wheel clearance.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(c) The calculation of the nominal position of the PAPI is made on the assumption that the PAPI units are at the same level as the runway centerline adjacent to them, and this level, in turn, is the same as that of the runway threshold. The nominal distance of the PAPI is derived by multiplying the required MEHT by the cotangent of the angle M in [MAS].	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(d) Where there is a difference in excess of 0.3 m between the elevation of the runway threshold and the elevation of unit B at the nominal distance from the threshold, it will be	[ ] Yes [ ] No	☐S	☐ NS

	necessary to displace the PAPI from its nominal position. The distance will be increased if the proposed site is lower than the threshold and will be decreased if it is higher. The required displacement is determined by multiplying the difference in level by the cotangent of the angle M.	[ ] N/A		
	e.) Where a PAPI is installed on a runway equipped with an ILS, the distance D1 must be equal to that between the threshold and the effective origin of the ILS glide path, plus a correction factor for the variation of eye-to-antenna heights of the aeroplanes concerned. The correction factor is obtained by multiplying the average eye-to-antenna height of those aeroplanes by the cotangent of the approach angle. The PAPI is then aimed at the same angle as the ILS glide slope. Harmonization of the PAPI signal and the ILS glide path to a point closer to the threshold may be achieved by increasing the width of the PAPI on course sector from 20' to 30'. However, the distance D1 must be such that in no case will the wheel clearance over the threshold be lower than specified in column (3) of [MAS].	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	Runway Lightings			
	1. Is the airport runway edge lighting system of the following type complied with the requirements specified of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	2. Is the airport provided with a Runway edge lights for a runway intended for use at night or for a precision approach runway intended for use by day or night. Unless otherwise determined by CAA, edge lights shall also be installed on a runway intended to be used for take-off by day with an RVR of 800 meters or less?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	3. Is the airport provision for Runway edge lighting meets the following operational requirements: (a) for every runway intended for use at night, omnidirectional lights meeting the characteristics requirements of [MAS] shall be provided to cater for both visual circling after an instrument approach to circling minima, and circuits in VMC;	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	(b) for a precision approach runway, in addition to (a) above, unidirectional lights meeting the characteristics requirements of [MAS], shall also be provided.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	4. Is the airport Runway edge lights placed along both sides of the runway, in two parallel straight rows equidistant from the centerline of the runway, commencing one-light spacing from the threshold and continuing to one-light spacing from the runway end.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	5. Is the airport Runway edge lights longitudinal spacing complied with the requirements stipulated in [MAS]? (a) for an instrument runway, intervals of not greater than 60 m (+0 / -5 m);	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(b) for a non-instrument runway, intervals not greater than 100m (+0/ - 10m) m , or 60 m +0 / -5 m if there is an intention to upgrade the runway to an instrument runway at some time in the future.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(c) for non-precision instrument runways intended to be used in visibility conditions of 1.5 km or greater, where existing edge lights are spaced at 90 m ±10 m, it is acceptable to retain this spacing until the next replacement or improvement of the edge lighting system. (This situation typically arises from an existing non-instrument runway being upgraded to a non-precision instrument runway, but without re-installing the runway edge lights to the 60 m +0 / -5 m standard.)	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	6. Does the provision of runway edge lights complied with the requirements stipulated in [MAS]? (a) within 600 m of the threshold, lights may be spaced irregularly, but not omitted, and	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(b) more than 600 m from the threshold, lights may be spaced irregularly or omitted, but no two consecutive lights may be omitted;	[ ] Yes [ ] No	☐S	☐ NS

	provided that such irregular spacing or omission does not significantly alter the visual guidance available to a pilot using the runway.	[ ] N/A	
	7. Are runway edge lights omitted for precision approach runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Are inset runway edge lights provided in place of elevated lights, where a runway edge light cannot be omitted?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does runway edge light aligned with a light on the opposite side of the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does runway edge lights placed along the edges of the area declared for use as the runway or outside the edges of the area at a distance of not more than 3 m. *Note: - Existing edge lights located beyond 3 m from the edge of runway as a result of a reduction in the declared runway width do not need to be relocated until they are being replaced.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Is the runway edge lights placed as if the runway is 30 m in width, If the width of a runway is less than 30 m in width, and in accordance with Paragraph 9.9.5.1?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Does the row of high intensity light units place closer to the runway centerline, if a runway is provided with both low or medium intensity and high intensity runway light units? 13. Are the two rows of light unit's parallel, separated by a distance of at least 0.5 m.?	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Are low intensity and medium intensity runway edge lights fixed omnidirectional lights and show variable white?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	15. Are Elevated omni-directional lights have light distribution that is uniform for the full 360° horizontal coverage?	[ ] Yes [ ] No [ ] N/A		
	16. Does the photometric characteristics of the inset lights are to be as close as practicable to those of the elevated lights, where elevated lights are impracticable and inset lights are used?	[ ] Yes [ ] No [ ] N/A		
	17. Does the minimum light intensity for low intensity runway edge lights in accordance with [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	18. Does the main beam, between 0º and 7º above the horizontal, have a minimum average intensity of not less than 100 cd, and a maximum average intensity of not more than 200 cd.?	[ ] Yes [ ] No [ ] N/A		
	19. Are low intensity runway edge lights have a single intensity for all lights in the same runway lighting system?	[ ] Yes [ ] No [ ] N/A		
	20. Does the minimum light intensity for medium intensity runway edge lights in accordance with 9.10.2, Figure 9.10-14?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	21. Does the main beam, between 0º and 7º above the horizontal, have a minimum average intensity of not less than 200 cd, and a maximum average intensity of not more than 600 cd?	[ ] Yes [ ] No [ ] N/A		
	22. Are high intensity runway edge lights fixed unidirectional lights with the main beam directed towards the threshold?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	23. Are high intensity runway edge light beam coverage toed in towards the runway as follows:		☐S	☐ NS
	(a) 3.5° in the case of a 30-45 m wide runway	[ ] Yes [ ] No [ ] N/A		
	(b) (b) 4.5° in the case of a 60 m wide runway.	[ ] Yes [ ] No		

		[ ] N/A	
	24. Are runway edge lights fixed lights showing variable white except for those located within 600 m from the runway end?	[ ] Yes [ ] No [ ] N/A	
	25. Do runway edge lights between the beginning of the runway and the displaced threshold show red in the approach direction?	[ ] Yes [ ] No [ ] N/A	
	26. Is the section of lights 600m or one third of the runway length, whichever is the lesser, at the remote end of the runway from which take-off is started yellow, unless otherwise directed by CAA?	[ ] Yes [ ] No [ ] N/A	
	27. Does the minimum light intensity for high intensity runway edge lights show variable white and in accordance with [MAS]		☐S ☐ NS
	(a) Figure 9.10-15 for 30 m to 45 m wide runways; and	[ ] Yes [ ] No [ ] N/A	
	(b) Figure 9.10-16 for 60 m wide runways. The minimum light intensity for high intensity runway edge lights that show yellow is the standard set out in Figure 9.10-15 or Figure 9.10-16, whichever is applicable, multiplied by 0.4?	[ ] Yes [ ] No [ ] N/A	
	28. Is the minimum light intensity for high intensity runway edge lights show yellow is the standard set out in Figure 9.10-15 or Figure 9.10-16, whichever is applicable, multiplied by 0.4?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	29. Is separate high intensity runway edge light fittings provided with back-to-back, or bi-directional light fittings and must be used with the correct toe-in angle built in, on a runway where high intensity edge lights are intended to be used from either direction?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. Are runway threshold lights provided on a runway that is equipped with	[ ] Yes	☐S ☐ NS

	runway edge lights, except on a non-instrument or non-precision approach runway where the threshold is displaced and wing bar lights are provided. (See [MAS])	[ ] No [ ] N/A	
	31. Are runway threshold lights located in a straight line at right angles to the centerline of the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	32. Does the provision for the location of runway threshold lights include the following conditions: (a) when the threshold is at the extremity of a runway, as near to the extremity as possible and not more than 3 m outside; or (b) when the threshold is a displaced threshold, at the displaced threshold with a tolerance of ± 1 m.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Are threshold lighting consist of: (a) on a non-instrument or non-precision approach runway, at least 6 lights; (b) on a precision approach runway category I, at least the number of lights that would be required if the lights were spaced at intervals of 3 m between the rows of runway edge lights; and (c) on a precision approach runway category II or III, lights uniformly spaced at intervals of 3 m between the runway edge lights.	[ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A [ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	34. Are the lights prescribed in [MAS] shall be either: (a) equally spaced between the rows of runway edge lights; or	[ ] Yes [ ] No [ ] N/A [ ] Yes	☐S ☐ NS

	(b) symmetrically disposed about the runway centerline in two groups, with the lights uniformly spaced in each group and with a gap between the groups equal to the gauge of the touchdown zone marking or lighting, where such is provided, or otherwise not more than half the distance between the rows of runway edge lights.	[ ] No [ ] N/A	
	35. Is the aerodrome provided with wing bar lights on a non-instrument or non-precision approach runway where the threshold is displaced and threshold lights are required, but not provided?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	36. If directed by CAA due to a need for increased conspicuity, Does the aerodrome provided a wing bar lights for a precision approach runway? (See [MAS])	[ ] Yes [ ] No [ ] N/A	
	37. Are wing bar lights installed symmetrically disposed about the runway centerline at the threshold in two groups? and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	38. Does each wing bar formed by a group of at least five lights extending at least 10m outward from, and at right angles to, the runway centerline with the innermost light of each wing bar in the line of the runway edge lights?	[ ] Yes [ ] No [ ] N/A	
	39. Does runway threshold and wing bar lights have the following characteristics:		☐S ☐ NS
	(a) the lights must be fixed unidirectional lights showing green in the direction of approach over not less than 38° or more than 180° of azimuth;	[ ] Yes [ ] No [ ] N/A	
	(b) the light distribution in the direction of approach must be as close as practicable to that of the runway edge lights;	[ ] Yes [ ] No [ ] N/A	
		[ ] Yes	

	(c) the intensity of the green lights must be in the range of 1 to 1.5 times the intensity of the runway edge lights.	[ ] No [ ] N/A	
	40. Does runway threshold lights on a precision approach runway in accordance with the specifications of [MAS] .?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	41. Does threshold wing bar lights on a precision approach runway in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	42. Does runway threshold lights on a precision approach runway fixed lights showing green in the direction of approach and in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	43. Does wing bar lights on a precision approach runway must be fixed lights showing green in the direction of approach and in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	44. Does the aerodrome provided with Runway Threshold Identification Lights (RTIL) ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	45. Is the aerodrome provided with an Runway Threshold Identification Lights (RTIL, where a runway threshold is difficult to locate from the air such as in the case of a displaced threshold or an aerodrome with complex runway/taxiway layout in the vicinity of the threshold?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	46. Does the aerodrome provided with a runway threshold identification lights , during the day, to mark a temporarily displaced threshold of a runway serving international jet propelled aeroplanes conducting air transport operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	47. If an aerodrome is provided with a Runway threshold identification lights:		☐S ☐ NS

	48. Does one light unit positioned on each side of the runway, equidistant from the runway centerline, on a line perpendicular to the runway centerline.?	[ ] Yes [ ] No [ ] N/A	
	49. Does the location of the light units have a distance from 10 m to 15 m outside each line of runway edge lights, and in line with the threshold?	[ ] Yes [ ] No [ ] N/A	
	50. Are each light unit have a minimum of 10 m from the edge of taxiways?	[ ] Yes [ ] No [ ] N/A	
	51. Does the elevation of both light units within 1 m of a horizontal plane through the runway centerline, with the maximum height above ground not exceeding 1 m?	[ ] Yes [ ] No [ ] N/A	
	52. Does Runway threshold identification lights have the following characteristics? (a) be white flashing lights;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(b) be synchronized, with a normal flash rate of 60-120 per minute;	[ ] Yes [ ] No [ ] N/A	
	(c) have a minimum range in bright sunlight of approximately 7 km; and	[ ] Yes [ ] No [ ] N/A	
	(d) the beam axis of each light unit shall be aimed 15° outward from a line parallel to the runway centerline and inclined at an angle of 10° above the horizontal.	[ ] Yes [ ] No [ ] N/A	

	(e) the light shall be visible only in the direction of approach to the runway.		
	53. Does Runway threshold identification lights installed on the following conditions?		☐S ☐ NS
	(a) at the threshold of a non-precision approach runway when additional threshold conspicuity is necessary or where it is not practicable to provide other approach lighting aids; and	[ ] Yes [ ] No [ ] N/A	
	(b) where a runway threshold is permanently displaced from the runway extremity or temporarily displaced from the normal position and additional threshold conspicuity is necessary	[ ] Yes [ ] No [ ] N/A	
	For temporarily displaced threshold lights for use at night: 54. Does the aerodrome provided with a temporarily displaced threshold lights for use at night to identify the new threshold location when the threshold of a runway is temporarily displaced?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	55. Does the location for Temporarily displaced threshold lights provided on each side of the runway and must consider the following?		
	(a) in line with the displaced threshold:	[ ] Yes [ ] No [ ] N/A	
	(b) at right angles to the runway centerline; and	[ ] Yes [ ] No [ ] N/A	
	(c) with the innermost light on each side aligned with the row of runway edge lights on that side of the threshold.	[ ] Yes [ ] No [ ] N/A	
	56. Does the aerodrome contain the following characteristics for temporarily displaced threshold lights:		

	(a) each side must consist of 5 lights except that 3 lights per side is sufficient if the runway width is 30 m or less; (b) the lights must be spaced at 2.5 m apart; (c) the innermost light of each side must be a fixed omnidirectional light showing green in all angles of azimuth; (d) the outer 4 or 2 lights, as appropriate, of each side must be fixed unidirectional lights showing green in the direction of approach, over not less than 38° or more than 180° of azimuth; (e) the light distribution in the direction of approach must be as close as practicable to that of the runway edge lights; (f) the light intensity must be as close as practicable to 1.5 times, and not less than, that of the runway edge lights.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	57. Does Runway lighting with a displaced threshold take into account the following:		☐S	☐ NS
	(a) If the part of runway located before a displaced threshold is available for aircraft use, i.e. for take-offs toward and through the displaced threshold, and landings from the opposite direction, runway edge lights in this part of runway must: (i) show red in the direction of approach to the displaced threshold; and (ii) show white in the opposite direction, or yellow as appropriate for a precision approach runway. (b) The intensity of the red runway edge lights required under paragraph 9.9.15.8 (a) (i) must not be less than one-quarter, and not more than one half, that of the white runway edge lights.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	(c) Runway edge lights may be bi-directional light fittings or separate light fittings installed back to back. (d) If the portion of runway before a displaced threshold is closed to aircraft operations, all the runway lights thereon must be extinguished.		
	58. Are the lights visible only in the direction of approach to the runway	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	59. Are Runway end lights provided on a runway equipped with runway edge lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	60. Is the airport provided with a Runway end lights that is located in a straight line at right angles to the runway centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	61. Does the aerodrome complied with the provision of runway end lights as specified in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	62. Are runway end lights installed in fixed unidirectional lights showing red towards the runway? 63. Are the Runway end lights consisting of six lights? Are the lights installed either: (a) spaced at equal intervals between the rows of runway edge lights; or (b) symmetrically disposed about the runway centerline in two groups with the lights uniformly spaced in each group and with a gap between the groups not more than half the distance between the rows of runway edge lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	For a precision approach runway category III: 64. Does the spacing between runway end lights exceed 6 m, except between the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	two innermost lights if a gap is used?		
	65. Are Low intensity and medium intensity runway end lights have the following characteristics: (a) the lights must be fixed unidirectional showing red in the direction of the runway over not less than 38° or more than 180° of azimuth; (b) the intensity of the red light must not be less than one-quarter, and not more than one-half, that of the runway edge lights; (c) the light distribution in the direction of the runway must be as close as practicable to that of the runway edge lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	66. Does the following conditions present for Low intensity and medium intensity runway end lights to be installed as inset lights: (a) the runway is also equipped with high intensity runway end lights; or (b) it is impracticable for elevated lights to be installed.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	67. Is the airport installed with a bidirectional light fittings may be used or separate light fittings installed back to back, If the runway end coincides with the runway threshold?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	68. Does Runway end lights installed on a precision approach runway category III have the following characteristics:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(a) the lights must be inset, fixed unidirectional showing red in the direction of the runway; (b) the minimum light intensity must be in accordance with [MAS]	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(c) the spacing between runway end lights, except between the two innermost lights if a gap is used, shall not exceed 6m.		
	69. Are Runway end lights on a precision approach runway in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Runway turning area edge lights / turn pad light		☐S ☐ NS
	1. Is the edge of the turning area provided with blue edge lights if the runway is provided with edge lights, Where an aircraft turning area is provided on a runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are Runway turning area edge located not less than 0.6 m, and not more than 1.8 m, outside the edge of the turning area.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is the blue edge light located where the turning area commences, If the beginning of the splay into a runway turning area is more than 10 m from the previous runway edge light	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does turning area edge lights provided to mark any change of direction along the side of the turning area.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does an equally spaced blue edge lights provided along a side with spacing not exceeding 30 m, when a side of the turning area is longer than 30 m?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does a Runway turning area edge lights have the same characteristics as taxiway edge lights and in accordance with provision of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Are Runway turn pad lights have been: (a) be provided for continuous guidance on a runway turn pad intended for use in runway	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	visual range conditions less than a value of 350 m, to enable an aeroplane to complete a 180-degree turn and align with the runway centerline. (b) be provided on a runway turn pad intended for use at night; (c) normally be located on the runway turn pad marking, except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking; (d) on a straight section of the runway turn pad marking, be spaced at longitudinal intervals of not more than 15 m; (e) on a curved section of the runway turn pad marking, not exceed a spacing of 7.5 m; (f) be unidirectional fixed lights showing green with beam dimensions such that the light is visible only from aeroplanes on or approaching the runway turn pad; and (g) be in accordance with the specifications of [MAS], as appropriate		
	Stopway lights		
	1. Are Stopway lights provided on a stopway that is intended for use at night?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are stopway lights uniformly spaced and not more than that of the runway edge lights, with the last pair of lights located at the stopway end.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are stopway lights placed along the full length of the stopway and in two parallel rows that are equidistant from	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	the centerline and coincident with the rows of the runway edge lights? 4. Are stopway lights provided across the end of a stopway on a line at right angles to the stopway axis as near to the end of the stopway as possible and, in any case, not more than 3 m outside the end? 5. Does stopway lights contain the following characteristics?		
	(a) the lights must be fixed and unidirectional showing red in the direction of the runway, and not visible to a pilot approaching to land over the stopway; and (b) the light distribution in the direction of the runway must be as close as possible to that of the runway edge lights;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Runway Centerline Lights		
	1. If the aerodrome uses the 30 m spacing option for the provision of runway center line lights, does the implementation of requirements which specify related maintenance objectives and which call for a demonstration of conformance with them?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are Runway centerline lights provided on a precision approach runway Category II or III, and on a runway intended to be used for take-off with an operating minimum RVR lower than 400 m? Note: - Provision of runway centerline lights on a precision approach runway Category I where the width between the runway edge lights is greater than 50 m is recommended.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are Runway centerline lights located along the centerline of the runway, except that the lights may be uniformly offset to the same side of the runway centerline by not more than 60 cm, where it is not practicable to locate them along the centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are Runway centerline lights located from the threshold to the end at	[ ] Yes	☐S ☐ NS

	longitudinal spacing of approximately 15 m. Where the serviceability level of the runway centerline lights specified as maintenance objectives in [MAS], as appropriate, can be demonstrated, and the runway is intended for use in RVR conditions exceeding 350 m, the longitudinal spacing may be increased to approximately 30 m.? *Note: - Existing centerline lighting where lights are spaced at 7.5 m need not be replaced.*	[ ] No [ ] N/A	
	For maintenance of runway marking purposes: 5. Are runway centerline lights have been offset of not more than 0.6 m from the true runway centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does offsetting of runway center line lights in accordance with the provision stipulated in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Are Runway centerline lights of inset type, fixed lights showing variable white from the threshold to a point 900 m from the runway end. From 900 m to 300 m from the runway end, the light pattern is to be alternate red and variable white lights? 8. Are lights for the last 300 m before the runway end, show red? 9. Is the color of the lights show alternate red and white lights extend from the midpoint of the runway length to 300 m from the runway end, For runways less than 1800 meters in length?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does the light intensity and distribution of runway centerline lights in accordance with: (a) [MAS], for 30 m spacing;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(b) [MAS], for 15 m spacing.		
	11. Does Centerline guidance for take-off from the beginning of a runway to a displaced threshold provided by: (a) an approach lighting system if its characteristics and intensity settings afford the guidance required during take-off and it does not dazzle the pilot of an aircraft taking off; or (b) runway centerline lights; or (c) barrettes of at least 3 m in length and spaced at uniform intervals of 30 m, as shown in [MAS], designed so that their photometric characteristics and intensity setting afford the guidance required during take-off without dazzling the pilot of an aircraft taking off.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Runway touchdown zone lights		
	1. Are Runway touchdown zone lights provided in the touchdown zone of a runway intended for precision approach Category II or III operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does Runway touchdown zone lights extend from the threshold for a distance of 900 m, except that for runways less than 1800 m in length and the system shall be shortened so that it does not extend beyond the mid-point of the runway? 3. Are the lightings is to consist of a series of transverse rows of lights, or barrettes symmetrically located on each side of the runway centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is each barrette of Runway touchdown zone lights consisting of three light	[ ] Yes [ ] No	☐S ☐ NS

	units at 1.5 m apart? 5. Does the innermost light of each barrette located equal to the lateral spacing of the touchdown zone marking? 6. Do the barrette lights dimensions comply with the requirement of [MAS]?	[ ] N/A	
	7. Is the first pair of barrettes located at 60 m from the threshold and subsequent barrettes are spaced longitudinally either 30 m or 60 m apart? *Note: - To allow for operations at lower visibility minima, it may be advisable to use a 30 m longitudinal spacing between barrettes.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Are Runway touchdown zone lights installed in inset form, fixed unidirectional lights showing variable white?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does Runway touchdown zone lights in accordance with [MAS] 9	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Simple Touchdown Zone Lights		
	1. Is a Simple Touchdown Zone Lights provided at the aerodrome, where the approach angle is greater than 3.5º and/or the Landing Distance Available combined with other factors increases the risk of an overrun, Except for [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does Simple Touchdown Zone Lights installed with a pair of lights located on each side of the runway centerline 0.3 meters beyond the upwind edge of the final Touchdown Zone Marking? 3. Is the lateral spacing between the inner lights of the two pairs of lights equal to the lateral spacing selected	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	for the Touchdown Zone Marking? 4. Does the spacing between the lights of the same pair not more than 1.5 m or half the width of the touchdown zone marking, whichever is greater (See Figure 9.9-3)?		
	5. Are Simple Touchdown Zone lights installed on a runway without TDZ markings in which such position provides the equivalent TDZ information?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does a Simple Touchdown Zone Lights installed in a fixed unidirectional lights showing variable white, aligned so as to be visible to the pilot of a landing aeroplane in the direction of approach to the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Does a Simple Touchdown Zone Lights are supplied with power on a separate circuit to other runway lighting so that they may be used when other lighting is switched off?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Rapid exit taxiway indicator lights		
	1. Is the aerodrome provided with a Rapid exit taxiway indicator lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If yes, Does RETIL installed on a runway intended for use in runway visual range conditions less than 350 meters and/or where traffic density is heavy, unless directed otherwise by CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are set of rapid exit taxiway indicator lights installed on the same side of the runway as the associated rapid exit taxiway? 4. Does each set of lights is located 2 meters apart and the light nearest to the runway centerline is displaced 2 meters from the centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	5. Are set of rapid exit taxiway indicator lights for each exit when displayed not to overlap, where more than one rapid exit taxiway exists on a runway?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	6. Are Rapid exit taxiway indicator lights show fixed unidirectional yellow lights, aligned so as to be visible to the pilot of a landing aeroplane in the direction of approach to the runway?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	7. Does the light intensity and distribution of rapid exit taxiway indicator lights in accordance with: (a) [MAS] for runways with 30 m centerline light spacing; or (b) [MAS] for runways with 15 m centerline light spacing, as appropriate.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	8. Does Rapid exit taxiway indicator lights is supplied with a power on a separate circuit to other runway lighting so that they may be used when other lighting is switched off?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	Installation and Aiming of Light Fittings			
	1. Are the following points in the installation and aiming of light fittings followed; (a) the lights are aimed so that there are no deviations in the main beam pattern, to within 1/2° from the applicable standard specified in this chapter; (b) horizontal angles are measured with respect to the vertical plane through the runway centerline; (c) when measuring horizontal angles for lights other than runway centerline lights, the	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	direction towards the runway centerline is to be taken to be positive; (d) vertical angles specified are to be measured with respect to the horizontal plane.		
	Runway lead-in lighting systems		
	1. Is the aerodrome provided with a Runway lead-in lighting system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If yes, Does the provision of Runway lead-in lighting system is desired to provide visual guidance along a specific approach path, for reasons such as avoiding hazardous terrain or for purposes of noise abatement?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does runway lead-in lighting system consist of groups of lights positioned so as to define the desired approach path and so that one group must be sighted from the preceding group?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the interval between adjacent groups not to exceed approximately 1600 m? *Note: - Runway lead-in lighting systems may be curved, straight or a combination thereof.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does a runway lead-in lighting system extend from a point as determined by the appropriate authority, up to a point where the approach lighting system, if provided, or the runway or the runway lighting system is in view?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are each group of lights for a runway lead-in lighting system consist of at least three flashing lights in a linear or cluster configuration?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	7. Does the system is augmented by steady burning lights where such lights would assist in identifying the system?		
	8. Is the flashing lights and the steady burning lights showing a white color?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does the flashing lights in each group flash in sequence towards the runway.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Runway status lights		
	1. Is the aerodrome provided with a Runway status lights? 2. If yes, Does the provision of RELs and THLs in accordance with provision stipulated in 9.11.2.1 and 9.11.2.3?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does RELs consist of at least five light units and spaced at a minimum of 3.8 m and a maximum of 15.2 m longitudinally, depending upon the taxiway length involved, except for a single light installed near the runway centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does an RELs illuminate as an array at each taxiway/runway intersection where they are installed less than 2 seconds after the system determines a warning is needed.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Do RELs illuminate as an array at each taxiway/runway intersection where they are installed less than 2 seconds after the system determines a warning is needed?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the intensity and beam spread of RELs in accordance with the specifications of *Note: - Consideration for reduced beam width may be required for some REL lights at acute angled runway/taxiway intersections to*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	ensure the RELs are not visible to aircraft on the runway.		
	7. Does a THLs consist of two rows of fixed in pavement lights showing red facing the aircraft taking off?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Do THLs illuminate as an array on the runway less than 2 seconds after the system determines a warning is needed?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does RELs and THLs installed to be automated to the extent that the only control over each system will be to disable one or both systems?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Taxiway Lighting		
	1. Is the aerodrome provided with a taxiway centerline lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does Taxiway centerline lights provided on a taxiway and apron intended for use in runway visual range conditions less than a value of 350 m (precision approach Category II or III) in such a manner to provide continuous guidance between the runway centerline and aircraft stands?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is taxiway centerline lights used on a rapid exit taxiway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is taxiway centerline lights provided on an exit taxiway, taxiway and apron in all visibility conditions where specified as components of an advanced surface movement guidance and control system in such a manner as to provide continuous guidance between the runway centerline and aircraft stands?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Provision of taxiway edge lights		
	1. Are taxiway edge lights provided at the edges of runway turn pads, taxiways,	[ ] Yes [ ] No	☐S ☐ NS

	aprons and holding bays intended for use at night and not provided with centerline lights?	[ ] N/A	
	2. Are taxiway edge lights provided at apron edges especially during night time and are these following requirements may occur include, but are not limited to: (a) aprons where taxi guidelines and aircraft parking position marking are not provided; (b) aprons where apron floodlighting provides inadequate illumination at the edge of the apron; and (c) where the edge of the apron is difficult to distinguish from the surrounding area at night.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Taxiway markers		
	1. Is the aerodrome used reflective taxiway edge markers instead of taxiway centerline or edge lights, or to supplement taxiway lights ,for code letter A or B taxiways?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is the aerodrome apron taxiway provided with a taxiway lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are taxiway lights provided for taxying aircraft which do not need to alternate between taxiway centerline and edge lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are taxiway edge lights used to supplement taxiway centerline lights and where additional guidance is required to delineate taxiway edges?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Control of lights on taxiways		
	1. Is intensity control provided for taxiway	[ ] Yes	☐S ☐ NS

	lights, at an aerodrome with Air Traffic Service and taxiway lights with an average intensity within the main beam of more than 20 candela, to allow adjustment of the lighting to suit ambient conditions?	[ ] No [ ] N/A	
	2. Are taxiway lights designed to allow taxiways in use to be lit and those not in use to be unlit and If it is desired to illuminate only standard taxi routes during certain period of operations, for example during low visibility operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is there an interlocked provided for runway forming part of a standard taxi-route with runway lighting and taxiway lighting, the lighting systems in order to preclude the possibility of simultaneous operation ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of taxiway centerline lights		
	1. Are taxiway centerline lights located on the taxiway centerline marking, except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Spacing of taxiway centerline lights		
	1. Is the longitudinal spacing of taxiway centerline lights on a straight section of taxiway complied with the requirements of the values specified in Table 9.12-1 below?		
	Type General Last 60 m before a runway or apron Taxiways used in conjunction with a non-instrument, non-precision, or a precision approach Category I runway 60 m 15 m Taxiways used in conjunction with a precision approach Category II runway 30 m 15 m Taxiways used in conjunction with a precision approach Category III runway 15 m 7.5 m	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is the last light of taxiway center line lights more than 1 m outside the line of	[ ] Yes	☐S ☐ NS

	runway edge lights, for the case of entry taxiway?	[ ] No [ ] N/A	
	3. Are the taxiway centerline lights continuing on from the preceding straight section at a uniform distance from the outside edge of the taxiway? 4. Are the lights spaced at intervals such that a clear indication of the curve i?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of taxiway centerline lights on other exit taxiway		
	1. Are taxiway centerline lights on exit taxiways, other than rapid exit taxiways have the ff;		
	(a) start at the tangent point on the runway; (b) have the first light offset 1.2 m from the runway centerline on the taxiway side; and (c) be spaced at uniform longitudinal intervals of not more than 7.5 m. *Note: - See [MAS] for offset runway and taxiway centerline lights*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of taxiway centerline lights on rapid exit taxiway		
	1. Does the location of taxiway centerline lights on a rapid exit taxiway must have the following:		
	(a) start at least 60 m before the tangent point; (b) on that part of taxiway marking parallel to the runway centerline, be offset 1.2 m from the runway centerline on the taxiway side; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(c) continue at the same spacing to a point on the centerline of the taxiway at which an aeroplane can be expected to have decelerated to normal taxiing speed. *Note: - See [MAS] for offset runway and taxiway centerline lights.*		
	2. Is taxiway centerline lights for a rapid exit taxiway spaced at uniform longitudinal intervals of not more than 15 m if the runway has centerline lighting installed, otherwise the spacing may be up to a maximum of 30 m?		☐S ☐ NS
	Characteristics of taxiway centerline lights		
	1. Are taxiway centerline lights have an inset fixed lights showing green with beam dimensions such that the light is visible only from aeroplanes on or in the vicinity of the taxiway on: (a) a taxiway other than an exit taxiway; and (b) a runway forming part of a standard taxi-route.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does taxiway centerline lights on exit taxiways, including rapid exit taxiways inset fixed lights (See Figure 9.12-1): (a) showing green and yellow alternately, from the point where they begin to the perimeter of the ILS critical area or the lower edge of the inner transitional surface, whichever is farther from the runway; and (b) showing green from that point onwards; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(c) The first light in the exit centerline shall always show green and the light nearest to the perimeter shall always show yellow.		
	3. Where it is necessary to denote the proximity to a runway	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does taxiway centerline lights have a fixed lights showing alternating green and yellow from the perimeter of the ILS critical/sensitive area or the lower edge of the inner transitional surface, whichever is farthest from the runway, to the runway and continue alternating green and yellow until? (a) their end point near the runway centerline; or (b) in the case of the taxiway centerline lights crossing the runway, to the opposite perimeter of the ILS critical/sensitive area or the lower edge of the inner transitional surface, whichever is farthest from the runway.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Where the taxiway centerline lights are used for both runway exit and entry purposes: 6. Does the color of the lights viewed by a pilot of an aircraft entering the runway is to be green? 7. Does the color of the lights viewed by a pilot of an aircraft exiting the runway is to be green and yellow alternately?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Where higher intensities are required, from an operational point of view:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Are the taxiway centerline lights on rapid exit taxiways intended for use in runway visual range conditions less than a value of 350 m in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	10. Is the number of levels of brilliancy settings for these lights the same as that for the runway centerline lights?		
	11. Does taxiway centerline lights in accordance with the specifications of [MAS], where taxiway centerline lights are specified as components of an advanced surface movement guidance and control system and where, from an operational point of view, higher intensities are required to maintain ground movements at a certain speed in very low visibilities or in bright daytime conditions?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Beam dimensions and light distribution of taxiway centerline lights		
	1. Does the beam dimensions and light distribution of taxiway centerline lights be such that the lights are visible only to pilots of aircraft on, or in the vicinity of, the taxiway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is care necessary to limit the light distribution of the green taxiway centerline lights on or near a runway, or in the vicinity of a threshold so as to avoid possible confusion with the runway threshold lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does taxiway centerline lights comply with the specifications set out in [MAS] or, whichever is applicable, On a taxiway intended for use in conjunction with a non-instrument, non-precision or a precision approach Category I or II runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does taxiway centerline lights comply with the specifications set out in [MAS], whichever is applicable, on a taxiway that is intended for use in conjunction with a precision approach Category III runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of Taxiway Edge Lights		
	1. Are taxiway edge lights provided at the edges of a runway turn pad, holding bay or apron intended for use at night and on a taxiway not provided with taxiway centerline lighting and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	intended for use at night.		
	2. Are Taxiway edge lights located outside the edge of the taxiway, being: (a) equidistance from the centerline except where asymmetric fillets are provided; and (b) as close as practicable to 1.2 m from the taxiway edge, but no further than 1.8 m, or nearer than 0.6 m.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Where a taxiway intersects a runway, are the last taxiway edge lights aligned with the line of runway edge lights, and must not encroach beyond the line of runway edge lights into the area outlined by the runway edge lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are taxiway edge lights provided on a runway forming part of a standard taxi route and intended for taxiing at night if the runway is not provided with taxiway centerline lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of Taxiway Edge Lights		
	1. Are taxiway edge lights fixed omnidirectional lights showing blue and the lights must be visible: (a) up to at least 75° above the horizontal; and (b) at all angles in azimuth necessary to provide guidance to the pilot of an aircraft on the taxiway.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. At an intersection, exit or curve, 3. Are the lights shielded, as far as is practicable, so they cannot be seen where they may be confused with other lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the intensity of blue taxiway edge lights at least 2 cd from 0° to 6° vertical and 0.2 cd at any vertical angle from 6°	[ ] Yes [ ] No	☐S ☐ NS

	to 75°?	[ ] N/A	
	Provision of runway guard lights		
	1. Is the aerodrome provided with a runway guard lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does a runway guard lights Configuration A provided at each runway/taxiway intersection when the runway is intended for use in: (a) runway visual range conditions less than a value of 550m where a stop bar is not installed; and (b) runway visual range conditions of values between 550m and 1200m where the traffic density is heavy.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. If directed by CAA, are runway guard lights Configuration A used at each runway/taxiway intersection associated with a runway intended for use in : (a) runway visual range conditions between 550m and 1200m where the traffic density is medium or light.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Pattern and location of runway guard lights		
	1. Which are the two standard configurations of runway guard lights the aerodrome use: (a) Configuration A (or Elevated Runway Guard Lights) has lights on each side of the taxiway, and (b) Configuration B (or In-pavement Runway Guard Lights) has lights across the taxiway.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. As part of runway incursion prevention measures:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	Are runway guard lights, Configuration A or B, provided at each taxiway/runway intersection where runway incursion hot spots have been identified, and used under all weather conditions during day and night.?		
	3. Is configuration A runway guard lights located on both sides of the taxiway, at the runway holding position closest to the runway, with the lighting on both sides: (a) equidistant from the taxiway centerline; (b) not less than 3 m, and not more than 5 m, outside the edge of the taxiway; and (c) at a distance from the runway centerline not less than that specified for a take-off runway in [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is configuration B runway guard lights located across the entire taxiway, including fillets, holding bays, etc. at the runway holding position closest to the runway: (a) with the lights spaced at uniform intervals of 3 m; and (b) at a distance from the runway centerline not less than that specified for a take-off runway in [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Is configuration B runway guard lights not colocated with a stop bar installation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of runway guard lights		
	1. Are configuration A runway guard lights consist of two pairs of elevated lights showing yellow, one pair on each side of the taxiway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the requirements for runway		

	guard lights characteristics contain the following:		
	(a) the centerline of lights in each pair shall be separated by a horizontal distance that is not less than 2.5 times, and not more than 4 times, the radius of the individual lantern lens; (b) each light shall be provided with a visor to minimize extraneous reflection from the optical surfaces of the lanterns; (c) the visors and the face of the light fitting surrounding the lantern lens shall be black to minimize reflection and provide enhanced contrast; (d) where additional isolation of the signal is required from the background, a black target board must be provided around the sides and top of the face of the light fitting. (e) Some other device or design, e.g. specially designed optics, must be used in lieu of the visor.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are configuration B runway guard lights consist of inset lights showing yellow spaced at intervals of 3 m across the taxiway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the light beam has a unidirectional and aligned so as to be visible to the pilot of an aeroplane taxiing to the holding position?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does the performance of Configuration A runway guard lights complied with the following: (a) the lights in each pair are to be illuminated alternately at between 30 and 60 cycles per minute;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(b) the light suppression and illumination periods of each light in a pair are to be of equal and opposite duration; (c) the light beams are to be unidirectional and aimed so that the beam centers cross the taxiway centerline at a point 60 m prior to the runway holding position; (d) the effective intensity of the yellow light and beam spread are to be in accordance with the specifications in [MAS]. Where runway guard lights are intended for use during the day, the (e) intensity in yellow light and beam spreads of lights of Configuration A should be in accordance with the specifications in [MAS]. *Note: - The optimum flash rate is dependent on the rise and fall times of the lamps used. Runway guard lights, Configuration A, installed on 6.6 ampere series circuits have been found to look best when operated at 45 to 50 flashes per minute per lamp.*		
	6. Is the intensity in yellow light and beam spreads of lights of Configuration A in accordance with the specifications in [MAS], where runway guard lights are specified as components of an advanced surface movement guidance and control system where higher light intensities are required?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Does the performance of Configuration B runway guard lights complied with the following: (a) adjacent lights are to be alternately illuminated and alternate lights are to illuminate in unison; (b) the lights are to be illuminated between 30 and 60 cycles per minute and the light suppression and illumination periods are to be equal and opposite in each light;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	Note: - The optimum flash rate is dependent on the rise and fall times of the lamps used. Runway guard lights, Configuration A, installed on 6.6 ampere series circuits have been found to look best when operated at 45 to 50 flashes per minute per lamp. Runway guard lights, Configuration B, installed on 6.6 ampere series circuits have been found to look best when operated at 30 to 32 flashes per minute per lamp. (c) the light beam is to be unidirectional and aligned so as to be visible to the pilot of an aeroplane taxiing to the holding position. (d) the effective intensity of the yellow beam and beam spread are to be in accordance with the specifications in [MAS]. (e) Where runway guard lights are intended for use during the day, the intensity in yellow light and beam spreads of lights of Configuration B shall be in accordance with the specifications in [MAS]. *Note: - The optimum flash rate is dependent on the rise and fall times of the lamps used. Runway guard lights, Configuration B, installed on 6.6 ampere series circuits have been found to look best when operated at 30 to 32 flashes per minute per lamp.*		
	8. Is the intensity in yellow light and beam spreads of lights of Configuration B shall be in accordance with the specifications in [MAS], where runway guard lights are specified as components of an advanced surface movement guidance and control system where higher light intensities are required?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Control of runway guard lights		
	1. Are runway guard lights electrically connected such that all runway guard lights protecting a runway can be turned on when the runway is active,	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	day or night?		
	Provision of Intermediate Holding Position Lights		
	1. Is the airport provided with an Intermediate holding position lights at each intermediate holding position marking?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are intermediate holding position lights provided at an intermediate holding position intended for use in runway visual range conditions less than a value of 350 m, except where a stop bar has been installed.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are intermediate holding position lights provided at an intermediate holding position where there is no need for stop-and-go signals as provided by a stop bar?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Pattern and Location of Intermediate Holding Position Lights		
	1. Are intermediate holding position lights consist of 3 inset lights, spaced 1.5 m apart, disposed symmetrically about, and at right angles to, the taxiway centerline, located not more than 0.3 m before the intermediate holding position marking or the taxiway intersection marking, on a taxiway equipped with centerline lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are the intermediate holding position lights consisting of 1 elevated light on each side of the taxiway, located in line with the taxiway edge lights and the intermediate holding position, with prior CAA approval, on a taxiway equipped with edge lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of Intermediate Holding Position Lights		
	1. Are Inset intermediate holding position lights have the following characteristics: (a) be fixed, unidirectional lights showing yellow;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(b) be aligned so as to be visible to the pilot of an aircraft approaching the holding position; and (c) have light distribution as close as practicable to that of the taxiway centerline lights.		
	2. Are elevated intermediate holding position lights have the following characteristics: (a) be fixed, unidirectional lights showing yellow; and (b) have light distribution as close as practicable to that of the taxiway edge lights	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Stop bars		
	1. Is the aerodrome provided with a stop bar? 2. Does a stop bar provided at every runway holding position serving a runway when it is intended that the runway will be used in runway visual range conditions less than a value of 350m, unless: (a) appropriate aids and procedures are available to assist in preventing inadvertent incursions of traffic onto the runway; or (b) operational procedures exists to limit, in runway visual range conditions less than a value of 550m, the number of: (i) aircraft on the maneuvering area on one at a time; and (ii) vehicles on the maneuvering area to the essential minimum.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are stop bar provided at every runway holding position serving a runway when it is intended that the runway will be used in runway visual range conditions between values of 350 m and 550 m, unless:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(a) appropriate aids and procedures are available to assist in preventing inadvertent incursions by aircraft and vehicles onto the runway; and (b) operational procedures exist to limit, in runway visual range conditions less than a value of 550 m, the number of: (i) aircraft on the maneuvering area to one at a time; and (ii) vehicles on the maneuvering area to the essential minimum. Where there is more than one stop bar associated with a taxiway/runway intersection, only one shall be illuminated at any given time.		
	4. Is the control mechanism for stop bars meets the operational requirements of the Air Traffic Service at that aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Are stop bars provided at an intermediate holding position to supplement markings with lights and to provide traffic control by visual means?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of stop bars		
	1. Are stop bars provided at every runway holding position serving a runway and: (a) be located across the taxiway on, or not more than 3 m before, the point at which it is intended that traffic approaching the runway stop; (b) consist of inset lights spaced at uniform intervals of no more than 3 m apart across the taxiway; (c) be disposed symmetrically about, and at right angles to, the taxiway centerline	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does a pair of elevated lights, with the same characteristics as the stop bar lights, provided abeam the stop bar, located at a distance of at least 3 m from the taxiway edge sufficient to	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	overcome the visibility problem and where a pilot may be required to stop the aircraft in a position so close to the lights that they are blocked from view by the structure of the aircraft?		
	Characteristics of Stop Bars		
	1. Are stop bar lights unidirectional and show red in the direction of approach to the intersection or runway holding position?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Where the additional lights specified in [MAS] are provided: 3. Are these lights have the same characteristics as the lights in the stop bar, and visible to approaching aircraft up to the stop bar position?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the intensity and beam spread of the stop bar lights in accordance with the applicable specifications in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does a selectively switchable stop bars installed in conjunction with at least three taxiway centerline lights (extending for a distance of at least 90 m from the stop bar) in the direction that it is intended for an aircraft to proceed from the stop bar?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the lighting circuit for stop bars designed so that: (a) stop bars located across entrance taxiways are selectively switchable; (b) stop bars located across taxiways used as exit taxiways only are switchable selectively or in groups; (c) when a stop bar is illuminated, any taxiway centerline lights immediately beyond the stop bar are to be extinguished for a distance of at least 90 m; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(d) stop bars are interlocked with the taxiway centerline lights so that when the centerline lights beyond the stop bar are illuminated the stop bar lights are extinguished and vice versa. *Note: - Care is required in the design of the electrical system to ensure that all of the lights of a stop bar will not fail at the same time. Guidance on this issue is given in the Aerodrome Design Manual (Doc 9157), Part 5.*		
	7. Where stop bars are specified as components of an advanced surface movement guidance and control system and where, from an operational point of view: 8. Does a higher intensity settings for stop bars required to maintain ground movements at a certain speed in very low visibilities or in bright daytime conditions? 9. Are the intensity in red light and beam spreads of stop bar lights shall be in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	No - entry Bars		
	1. Is the aerodrome provided with a No – entry bar?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If yes, Does a No – entry bar provided across a taxiway which is intended to be used as an exit only taxiway to assist in preventing inadvertent access of traffic to that taxiway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are no-entry bars located across the taxiway at the end of an exit only taxiway where it is desired to prevent traffic from entering the taxiway in the wrong direction	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are no-entry bars consist of unidirectional lights spaced at uniform intervals of no more than 3 m showing	[ ] Yes [ ] No	☐S ☐ NS

	red in the intended direction(s) of approach to the runway?	[ ] N/A	
	5. Does a pair of elevated lights added to each end of the no-entry bar where the in-pavement no entry bar lights might be obscured from a pilot's view, for example, by rain or any climatic conditions, or where a pilot may be required to stop the aircraft in a position so close to the lights that they are blocked from view by the structure of the aircraft?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does the intensity in red light and beam spreads of no-entry bar lights in accordance with the specifications in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Where no-entry bars are specified as components of an advanced surface movement guidance and control system and where, from an operational point of view: 8. Does a higher intensity settings for stop bars required to maintain ground movements at a certain speed in very low visibilities or in bright daytime conditions? 9. Are the intensity in red light and beam spreads of no-entry bar lights shall be in accordance with the specifications of [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does the lighting circuit for stop bars designed so that: (a) no-entry bars are switchable selectively or in groups; (b) when a no-entry bar is illuminated, any taxiway centerline lights installed beyond the no-entry bar, when viewed towards the runway, shall be extinguished for a distance of at least 90 m; and (c) when a no-entry bar is illuminated, any stop bar installed between the no-entry bar and the runway shall be extinguished.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Taxiway edge markers		

	1. Are taxiway edge markers provided on a taxiway where the code number is 1 or 2 and taxiway centerline or edge lights or taxiway centerline markers are not provided?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	2. Are taxiway edge markers installed at least at the same locations as would the taxiway edge lights had they been used?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	3. Are taxiway edge markers show retro-reflective blue color?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	4. Is the surface of a taxiway edge marker as viewed by the pilot must be a rectangle with a height to width ratio of approximately 3:1 and a minimum viewing area of 150 cm²?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	5. Is taxiway edge markers of lightweight, frangible and low enough to preserve adequate clearance for propellers and for the engine pods of jet aircraft?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	Taxiway centerline markers			
	1. Are taxiway centerline markers used on sections of the taxiway as a supplement to taxiway edge markers or taxiway edge lights, e.g. on curves or intersections? 2. If yes, are taxiway centerline markers spaced greater than the spacing for centerline lights?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	3. Does taxiway centerline markers provided on a taxiway where the code number is 1 or 2 and taxiway centerline or edge lights or taxiway edge markers are not provided.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	4. Does taxiway centerline markers provided on a taxiway where the code number is 3 or 4 and taxiway centerline lights are not provided if there is a need to improve the guidance provided by the taxiway centerline marking?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	5. Are taxiway centerline markers installed at least at the same location as would taxiway centerline lights had	[ ] Yes [ ] No	☐S	☐ NS

	they been used?	[ ] N/A	
	6. Are taxiway centerline markers located on the taxiway centerline marking except that they may be offset by not more than 30 cm where it is not practicable to locate them on the marking?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of taxiway centerline markers		
	1. Does taxiway centerline markers show retro-reflective green?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the marked surface of taxiway centerline markers as viewed by the pilot rectangular shape and have a minimum viewing surface of 20 cm^2?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are taxiway centerline markers able to withstand being run over by the wheels of an aircraft without damage either to the aircraft or to the markers themselves.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Photometric characteristics of taxiway lights		
	1. Does the average intensity of the main beam of a taxiway light is calculated by: (a) establishing the grid points in accordance with the method shown in [MAS]; (b) measuring the light intensity values at all grid points located within and on the perimeter of the rectangle representing the main beam; (c) calculating the arithmetic average of the light intensity values as measured at those grid points.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the maximum light intensity	[ ] Yes	☐S ☐ NS

	value measured on or within the perimeter of the main beam more than three times the minimum light intensity values so measured?	[ ] No [ ] N/A	
	Installation and aiming of light fitting		
	1. Does the following points followed in the installation and aiming of light fittings: (a) the lights are aimed so that there are no deviations in the main beam pattern, to within ½° from the applicable standard specified in this Chapter; (b) horizontal angles are measured with respect to the vertical plane through the taxiway centerline; (c) when measuring horizontal angles for lights other than taxiway centerline lights, the direction towards the taxiway centerline is to be taken to be positive. (d) vertical angles specified are to be measured with respect to the horizontal plane.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Apron Floodlighting		
	1. Is the aerodrome provided with apron flood lighting in accordance with ICAO apron floodlighting standard??	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is the aerodrome have an existing floodlighting system on an apron currently used by larger aeroplanes which does not meet the specifications?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Provision of apron floodlighting		
	1. Are apron floodlighting provided on an apron, or part of an apron and on a designated isolated aircraft parking position intended for use at night.?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Location of apron floodlighting		
	1. Are apron floodlighting located so as to provide adequate illumination on all the apron service areas that are	[ ] Yes [ ] No	☐S ☐ NS

	intended for use at night?	[ ] N/A	
	2. Does apron flood lighting provided to an apron taxiway that is not provided with taxiway lighting? 3. 4. Does the provision of apron flood lighting in accordance with either 9.15.4.3(b) or 9.15.4.4(b)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Are apron floodlights located and shielded so that there is a minimum of direct or reflected glare to pilots of aircraft in flight and on the ground, air traffic controllers, and personnel on the apron?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Does an aircraft parking position receive, as far as practicable, apron floodlighting from two or more directions to minimize shadows? *Note:- For apron floodlighting purpose, an aircraft parking position means a rectangular area subtended by the wing span and overall length of the largest aircraft that is intended to occupy that position.*	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Does apron floodlighting poles or pylons penetrate the obstacle limitation surfaces?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of apron floodlighting		
	1. Does the apron floodlighting distributed across the phases of a three-phase power supply system to avoid a stroboscopic effect and to minimize the chance of an illuminated rotating object such as a propeller appearing stationary, at major aerodromes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the spectral distribution of apron floodlights colors used for aircraft marking connected with routine servicing, and for surface and obstacle marking, can be correctly identified? 3. Are Monochromatic lights must use?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the average illuminance of an apron intended for larger aeroplanes be	[ ] Yes [ ] No	☐S ☐ NS

	(a) at an aircraft parking position: (aircraft stand) (i) for horizontal illuminance – 20 lux with a uniformity ratio (average to minimum) of not more than 4 to 1; and (ii) for vertical illuminance – 20 lux at a height of 2 m above the apron in the relevant parking direction, parallel to the aeroplane centerline; (b) at other apron areas: (i) horizontal illuminance at 50 per cent of the average illuminance on the aircraft parking position with a uniformity ratio (average to minimum) of not more than 4 to 1.	[ ] N/A	
	5. Does the average illuminance of an apron intended to be used only by smaller aeroplanes be at least as follows: (a) at an aircraft parking position: (aircraft stand) (i) for horizontal illuminance – 5 lux with a uniformity ratio (average to minimum) of not more than 4 to 1; and (ii) for vertical illuminance – 5 lux at a height of 2 m above the apron in the relevant parking direction, parallel to the aeroplane centerline; (b) at other apron areas: (i) horizontal illuminance graded to a minimum of 1 lux at the apron extremities or 2 lux for apron edge taxiways which do not have taxiway lights.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Is a dimming control provided to allow the illuminance of an aircraft parking position on an active apron that is not required for aircraft use to be reduced to not less than 50 per cent of its normal values?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	7. Does apron floodlighting for aprons used by larger aeroplanes have the following: (a) be included in the aerodrome secondary power supply system; and (b) be capable, following a power interruption of up to 30 seconds, of being re-lit and achieving not less than 50 per cent of normal illuminance within 60 seconds.	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	8. Does auxiliary floodlighting provided to immediately provide at least 2 lux of horizontal illuminance of aircraft parking positions If existing floodlights cannot meet the requirement of paragraph 9.15.4.6? 9. Does auxiliary floodlighting remain on until the main lighting has achieved 80 per cent of normal illuminance?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	Provision of visual docking guidance systems			
	1. Is the aerodrome provided visual docking guidance system?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	2. Does a visual docking guidance system provided at an apron aircraft parking position equipped with a passenger loading bridge, where the characteristics of the passenger loading bridge require precise positioning of an aircraft./ and other alternative means, such as marshallers, are not practicable?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	3. Do the provisions of all new and/or replacement visual docking guidance system comply with this Section, when existing installations are to be replaced due to obsolescence, facility upgrade, change of apron layout, change of passenger loading bridge, change of aircraft category, change of operational requirements, or similar reasons?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	Characteristics of visual docking guidance systems		
	1. Is the system provide both azimuth and stopping guidance?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the azimuth guidance unit and the stopping position indicator adequate for use in all weather, visibility, background lighting, and pavement conditions for which the system is intended, both by day and night, and must not dazzle the pilot.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the azimuth guidance unit and the stopping position indicator be design such that? (a) a clear indication of malfunction of either or both is available to the pilot; and (b) they can be turned off.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the azimuth guidance unit and the stopping position indicator located in such a way that there is continuity of guidance between the aircraft parking position markings, the aircraft stand Maneuvering guidance lights, if present, and the visual docking guidance system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does the accuracy of the system adequate for the type of loading bridge and fixed aircraft servicing installations with which it is to be used?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Is the system usable by all types of aircraft for which the aircraft parking position is intended, preferably without selective operation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Does the system provide an identification of the selected aircraft type to both the pilot and the system operator as a means of ensuring that the system has been set properly, If selective operation is required to prepare the system for use by a	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	particular type of aircraft?		
	Azimuth Guidance Unit - location		
	1. Does the azimuth guidance located on or close to the extension of the parking position centerline ahead of the aircraft so that its signals are visible from the cockpit of an aircraft throughout the docking maneuver and aligned for use at least by the pilot occupying the left seat?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is the systems acceptable with azimuth guidance aligned for use by the pilots occupying both the left and right seats?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Azimuth Guidance Unit - characteristics		
	1. Is the azimuth guidance provide unambiguous left/right guidance which enables the pilot to acquire and maintain the lead-in line without over controlling?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. When azimuth guidance is indicated by color change: 3. Is the color green used to identify the centerline and red for deviations from the centerline?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Stopping Position Indicator - location		
	1. Is the stopping position indicator located in conjunction with, or sufficiently close to, the azimuth guidance unit so that a pilot can observe both the azimuth and stop signals without turning the head?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the stopping position indicator usable at least by the pilot occupying the left seat.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is the systems with stopping position indicator usable by the pilots occupying both the left and right seats acceptable?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Stopping Position Indicator - characteristics		
	1. Is the stopping position information provided by the indicator for a	[ ] Yes [ ] No	☐S ☐ NS

	particular aircraft type for the anticipated range of variations in pilot eye height and/or viewing angle?	[ ] N/A	
	2. Is the stopping position indicator show the stopping position of the aircraft for which the guidance is being provided? 3. Does it provide closing rate information to enable the pilot to gradually decelerate the aircraft to a full stop at the intended stopping position?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the stopping position indicator provide closing rate information over a distance of at least 10 m?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	When stopping guidance is indicated by color change: 5. Is color green used to show that the aircraft can proceed and red to show that the stop point has been reached except that for a short distance prior to the stopping point a third color may be used to warn that the stopping point is close.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Parking position identification sign		
	1. Is parking position identification sign provided at an aircraft parking position equipped with a visual docking guidance system?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is parking position identification located to be clearly visible from the cockpit of an aircraft prior to entering the parking position	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is parking position identification sign consisting of a numeric or alphanumeric inscription, in black on a yellow background? 4. Is the identification sign illuminated by a continuous line of green light outlining the inscription, when a parking position is to be used at night.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Notification of type of aircraft docking guidance systems		
	1. Does the information on particular types of installed visual docking	[ ] Yes	☐S ☐ NS

	guidance systems to be found in operation at aerodromes published in the AIP for use by pilots?	[ ] No [ ] N/A	
	2. Does the aerodrome operator notify CAA of the details of their aircraft docking guidance system intended for use for International operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the visual docking guidance system information recorded in the Aerodrome Manual. The information to be provided is to include:	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(a) type of visual docking guidance system; (b) descriptive information, including illustrations where appropriate, for any type of installed system; and (c) parking positions at which the system is installed	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does notification about the details of visual docking systems made to AIS in accordance with Chapter 5, Aerodrome Information for AIP and Chapter 10, Operating Standards for Certified Aerodromes.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Closed runway or taxiway		
	1. Does all aerodrome lighting extinguished, when a runway or taxiway, or portion thereof is closed and lightings is to be electrically isolated or disabled, to prevent inadvertent activation of the lights? 2. Does it contain the following criteria for lighting associated with closed and unserviceable areas? (a) the cover is firmly attached to the ground, so that it cannot be unintentionally dislodged; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(b) the cover, and its means of attachment to the ground, do not pose a hazard to aircraft, and do not constitute an object that is not lightweight and frangible.		
	3. Are unserviceability lights placed across the entrance to the closed area at intervals not exceeding 3 m, where a closed runway, taxiway, or portion thereof, is intercepted by a useable runway or taxiway which is used at night?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are the lights placed at intervals sufficiently close so as to delineate the unserviceable area and, in any case, must not be more than 7.5 m apart?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Characteristics of unserviceability lights		
	5. Unserviceability lights are to be steady red lights	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. The lights are to have an intensity sufficient to ensure conspicuity considering the intensity of the adjacent lights and the general level of illumination against which they would normally be viewed. In no case is the intensity to be less than 10 cd of red light.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Vehicle warning lights		
	1. Is the aerodrome provided with a vehicle warning lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If yes, Are vehicle warning lights, as required by [MAS], provided at an aerodrome to indicate to pilots and others the presence of moving vehicles or equipment on the movement area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are vehicle warning light or lights mounted on the top of the vehicle to provide 360° visibility?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are the lights show a color amber/yellow/orange, and be flashing or rotating of a type acceptable to	[ ] Yes [ ] No	☐S ☐ NS

	CAA?	[ ] N/A	
	For emergency or security vehicles not dedicated to aerodrome use: 5. Are vehicle warning lights comply with the local traffic code acceptable for on aerodrome operation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Works limit lights		
	1. Is the aerodrome provided with a works limit lights ?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If yes, are works limit lights provided to indicate to persons associated with the works organization the limit of the works area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are works limit lights portable, amber/yellow/orange lights of a standard type commercially available as works warning lights?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Road holding position lights / Road and Car Park Lighting		
	1. Is the aerodrome provided with a road holding position lights / road and car park lighting?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. If yes, are road holding position lights provided at each road-holding position serving a runway when it is intended that the runway will be used in runway visual range conditions less than a value of 350 m?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are road-holding position light provided at each road-holding position serving a runway when it is intended that the runway will be used in runway visual range conditions of values between 350 m and 550 m?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are road-holding position light located adjacent to the holding position marking 1.5 m (±0.5 m) from one edge of the road, i.e. left or right as	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	appropriate to the local traffic regulations?		
	5. Does road-holding position light comprises: (a) a controllable red (stop)/green (go) traffic light; or (b) a flashing-red light.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are road-holding position unidirectional and aligned so as to be visible to the driver of a vehicle approaching the holding position?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Is the intensity of the light beam adequate for the conditions of visibility and ambient light in which the use of the holding position is intended, but shall not dazzle the driver?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Is the flash frequency of the flashing-red light between 30 and 60 flashes per minute?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. CAA regulate the lighting of roads and car parks, other than ensuring compliance with [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Where road and car park lighting is required on an aerodrome; 11. Does aerodrome operator consult with the relevant local road authority.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Monitoring, Maintenance and Serviceability of Aerodrome Lighting		
	1. Does the aerodrome operator monitor and maintain all lights and lighting systems associated with the aerodrome visual ground aids, both day and night, on a continuing basis for correctness and so that they are easily seen?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is monitoring of lighting systems such as T-VASIS, PAPI and approach lighting carried out in accordance with the frequencies and procedures set out in the Aerodrome Manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	3. Are other aerodrome lights monitored during the daily serviceability inspections and they must be switched on for this purpose?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	4. Are grass areas around lights maintained such that the lights are not in any way obscured? 5. Are lights kept free from dirt so as not to degrade their color and conspicuousness and damage to lights, including loss or degradation of light be made good?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	Reporting of aerodrome lighting outage			
	1. Does the aerodrome operator immediately fixed any aerodrome light outages detected?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	2. Does the aerodrome operator notify the NOTAM office, when lighting system is out of service?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	3. Is appropriate NOTAM to warn pilots of light outages in this regard properly issued?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	4. Does the operator of an aerodrome have a process of assessing aerodrome lighting outages? 5. If yes, does it conform with the provisions stipulated in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	6. Are the following conditions for flashing or occulting light is deemed to be on outage when?	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS
	(a) the light ceases to flash or occult; or (b) the frequency and/or duration of flash is outside the specified range by a factor of 2 to 1 or greater; or	[ ] Yes [ ] No [ ] N/A	☐S	☐ NS

	(c) within a 10 minute period, more than 20% of flashes fail to occur.		
	7. Are the following conditions for lighting system considered to be on outage when?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	(a) in the case of a lighting system comprising less than 4 lights (e.g. intermediate holding position lights or runway threshold identification lights), any of the lights are on outage; (b) in the case of a lighting system comprising 4 or 5 lights (e.g. wind direction indicator lights or runway guard lights), more than 1 light is on outage; (c) in the case of a lighting system comprising 6 to 13 lights (e.g. threshold lights), more than 2 lights are on outage, or 2 adjacent lights are on outage; (d) in the case of a lighting system comprising more than 13 lights, more than 15% of the lights are on outage, or two adjacent lights are on outage.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. For a T-VASIS: Do the outage standards take into account both the number of outage lamps within a light unit, and also the number of light units within the T-VASIS system. The standards are:		
	(a) A T-VASIS light unit is deemed on outage when 3 or more lamps in the electrical (day) circuit are on outage, or when any of the lamps in the electrical (night) circuit is on outage. (b) A T-VASIS system is deemed on outage when: (i) bar units — more than 2 light units or two adjacent light units are on outage; (iii) fly-up units — more than 1 light unit are on outage; (iii) fly-down units — more than 1 light unit are on outage.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	(c) An AT-VASIS system is deemed on outage when: (i) bar units — more than 1 light unit is on outage, or (ii) fly-up units — any light unit is on outage, or (iii) fly-down units — any light unit is on outage. (d) Whenever a red filter has deteriorated such that it does not produce the correct color light beam, is missing or is damaged, all the lamps within the affected light unit must be extinguished until the red filter is rectified. The affected light unit is included as an outage light unit when applying (b) or (c) above.		
	9. For a PAPI: Do the outage standards take into account both the number of lamps on outage within a light unit, and also the number of light units within the PAPI system? The standards are: (a) A PAPI light unit is deemed on outage when more than 1 lamp in a 3-or more lamp light unit is on outage, or any lamp in a less-than-3-lamp light unit is on outage. (b) Whenever a red filter has deteriorated such that the correct color is not showing, is missing or is damaged; all the lamps associated with that filter must be extinguished until the red filter is rectified. The affected lamps are included in outage when determining (a) above.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Visual Aids for Denoting Restricted Use Area		
	1. Does an aerodrome operators develop and implement procedures to mark permanent and temporary movement area closures and meet location and characteristic specifications?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Surface movement guidance and control system (SMGCS)		
	1. Does aerodrome operators comply with the regulations for the provision of a surface movement guidance and control system (SMGCS) and that	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

	signs shall be provided to convey a mandatory instruction, information on a specific location or destination on a movement area?		
	2. At aerodromes where selective switching of stop bars and taxiway centre line lights is used for surface movement guidance and control system (SMGCS), Does the implementation of the requirements in accordance with standards?At aerodromes where selective switching of stop bars and taxiway centre line lights is used for surface movement guidance and control system (SMGCS), Does the implementation of the requirements in accordance with standards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does an aerodrome's surface movement guidance and control system (SMGCS) is designed to assist in the prevention of inadvertent incursions of aircraft and vehicles onto an active runway or taxiway, and collisions on any part of the movement area?Does an aerodrome's surface movement guidance and control system (SMGCS) is designed to assist in the prevention of inadvertent incursions of aircraft and vehicles onto an active runway or taxiway, and collisions on any part of the movement area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-7: MAINTENANCE OF THE MOVEMENT AREA

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol. I, C10 GM Doc 9774, App.1-4.7 Generic Aerodrome Manual,P4.6	**4.7 MAINTENANCE OF THE MOVEMENT AREA** *Particulars of the facilities and procedures for the maintenance of the movement area, including:*		
	1. Does the aerodrome manual contain particulars of the procedures for the routine maintenance of movement area surfaces and drainage systems to ensure that their performance will not be degraded?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is there a maintenance programme, including preventive maintenance where appropriate established by the aerodrome operator to maintain facilities in a condition which does not impair the safety, regularity or efficiency of air navigation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. If yes, do the facilities include such items as pavements, visual aids, fencing, drainage systems, electrical systems and buildings?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the maintenance programme include the arrangements for the maintenance of paved and/or unpaved runways and associated, shoulders and safety areas?		☐S ☐ NS
	5. Does it include the arrangements for the maintenance of paved and or unpaved taxiways and associated shoulders?		☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	6. Does it include the arrangements for the maintenance of associated runway and taxiway strips?		☐S ☐ NS
	7. Is the operator maintaining record in accordance with their aerodrome manual?		☐S ☐ NS
	8. Does the design and application of the maintenance programme observe Human Factors principles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Are adequate and suitable staff and resources available? • no. of personnel • qualification standards/ experience/competency • list of trainings	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Pavements 10. Are paved runway, taxiway and apron surfaces kept clear of objects or debris that may cause damage to aircraft structures or engines, or impair the operation of aircraft systems?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Is the surface of a runway maintained in a condition such as to prevent formation of harmful irregularities?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Is the paved runway maintained in a condition so as to provide surface friction characteristics at or above the minimum friction level specified by CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Is the runway surface friction characteristics for	[ ] Yes	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	maintenance purposes periodically measured with a continuous friction measuring device using self-wetting features and documented? 14. Is the frequency of these measurements sufficient to determine the trend of the surface friction characteristics of the runway?	[ ] No [ ] N/A	
	15. When runway surface friction measurements are made for maintenance purposes using a self-wetting continuous friction measuring device, does the performance of the device meet the standard set or agreed by CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Are personnel measuring runway surface friction required in 13 above trained to fulfil their duties?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Is corrective maintenance action taken to prevent the runway surface friction characteristics for either the entire runway or a portion thereof from falling below a minimum friction level specified by CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. If the runway surface is visually assessed, as necessary, under natural or simulated rain conditions for ponding or poor drainage and where required, are corrective maintenance action taken?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. When a taxiway is used by turbine-engined aeroplanes, is the surface of the taxiway shoulders maintained so as to be free of any loose	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	stones or other objects that could be ingested by the aeroplane engines?		
	Removal of contaminants 20. Are standing water, mud, dust, sand, oil, rubber deposits and other contaminants removed from the surface of runways in use as rapidly and completely as possible to minimize accumulation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Does the aerodrome operator ensure that chemicals are not use that may have harmful effects on aircraft or pavements, or chemicals which may have toxic effects on the aerodrome environment?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Visual aids (Marking)		☐S ☐ NS
	22. Is there a system of preventive maintenance of visual aids employed to ensure lighting and marking system reliability?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Runway Surface Friction		☐S ☐ NS
	23. Does the operator carry out runway friction measurement/assessment?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. What is the equipment used for the measurement/assessment	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	25. Is the equipment compatible with approved Continuous Friction Measuring Equipment (CFME)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Is the purpose of measurement/assessment well defined?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	27. Is the CFME checked/calibrated in accordance with the manufactures' operating instructions before use?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	28. What is the periodicity of assessment and is it in line with the recommended interval?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	29. What is the assessment speed? (65km/hr, 96km/hr recommended)	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. What friction values are obtained during the last measurement	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	31. If values in 30 above are below the maintenance planning level, have appropriate measures been taken (corrective maintenance action)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	32. If values in 30 above are below the minimum friction level, have appropriate measures been taken? (NOTAM action indicating runway slipperiness)	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Is runway friction assessment conducted following any significant maintenance activity, such as runway resurfacing?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	34. Is the friction value for the resurfaced runway in agreement with the recommended design objective level?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	35. Are personnel operating the CFME properly trained in its operation and maintenance?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	36. Does the run pattern for a	[ ] Yes	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	runway with TDZ markings planned so as to include one run either side of the centerline to pass through the center of the painted TDZ markings?	[ ] No [ ] N/A	
	37. Are records of all runway surface friction assessment kept?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	38. Does the runway friction assessment results/records format conform to recommended format?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	39. Does the aerodrome operator maintain runways with sealed, asphalt or concrete surfaces, in accordance with the surface texture standards specified by State [or in Chapter 2 of Doc 9137, Part 2 – Pavement Surface Conditions]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	40. Does the Aerodrome Technical Inspection of runway surfaces confirm that the texture standard is being met?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	41. Under dry conditions, is the condition of a runway pavement generally assessed using a self-wetting continuous friction measuring device? Are the evaluation tests of runway surface friction characteristics made on clean surfaces of the runway when first constructed or after resurfacing?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	42. Are friction measurements taken at intervals that will ensure identification of runways in need of	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	maintenance or special surface treatment before the surface conditions deteriorate further? Is the time interval between measurements depend on factors such as aircraft type and frequency of usage, climatic conditions, pavement type, and maintenance requirements?		
	43. When conducting friction tests using a self-wetting continuous friction measuring device, there is a drop in friction with an increase in speed. However, as the speed increases, the rate at which the friction is reduced becomes less. The macrotexture of the surface affects the relationship between friction and speed. Therefore, a speed high enough to reveal these friction/speed variations shall be used. It is desirable, but not mandatory; to test the friction characteristics of a paved runway at more than one speed.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	44. If the measured friction level falls below the relevant Maintenance planning level values in [MAS], does the aerodrome operator initiate appropriate corrective maintenance action to improve the friction?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	45. If the measured friction level falls below the relevant minimum friction level values in [MAS], does the aerodrome operator promulgate by NOTAM, that the runway pavement falls	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	below minimum friction level when wet? Additionally, is corrective maintenance action taken without delay? This requirement applies when friction characteristics for either the entire runway or a portion thereof are below the minimum friction level.		
	Deterioration of Runway Grooves 46. When a runway pavement surface has been grooved, does the aerodrome operator periodically check the condition of the runway grooves in accordance with the guidance provided in CAA Advisory Circular No. …[e.g. US Federal Aviation Administration (FAA) advice set out in the FAA Advisory Circular AC 150/5320-12D]? "The FAA AC 150/5320-12D states that when 40 per cent of the grooves in the runway are equal to or less than 3 mm in depth and/or width for a distance of 457 m, the effectiveness of the grooves for preventing hydroplaning will have been considerably reduced. The aerodrome operator shall take immediate corrective action to reinstate the 6 mm groove depth and/or width".	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Surface Irregularities 47. Does the aerodrome operator maintain the surface of paved runways in a condition such as to preclude excessive bouncing, pitching, vibration or other difficulties with control of aircraft?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	48. Does the aerodrome operator ensure that paved runway surfaces are maintained so that standing water is neither formed nor retained? Are "Birdbath" depressions repaired at the earliest opportunity?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Drainage characteristics of the movement area and adjacent areas 49. Does the aerodrome operator ensure that accumulation of rubber deposits will not reduce the drainage capacity which can result in impaired safety? 50. When grooving are used, is the condition of the grooves regularly inspected to ensure that no deterioration has occurred and that the grooves are in good condition?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Standards for Natural and Gravel Surface Runways 51. Are the surfaces of natural and gravel surface runways and runway strips maintained to the physical standards outlined in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	52. Has the operator provided sufficient and adequate equipment? • list of equipment	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	53. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-8: AERODROME WORKS SAFETY

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc 9774, App.1-4.8 Generic Aerodrome Manual, P4.9	**4.8 AERODROME WORKS SAFETY** *Particulars of the procedures for planning and carrying out construction and maintenance work safely (including work that may have to be carried out at short notice) on or in the vicinity of the movement area which may extend above an obstacle limitation surface, including the following:*		
	1. Does the operator of a certified aerodrome arrange aerodrome works so as not to create any hazard to aircraft or confusion to pilots?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the aerodrome manual include particulars of the procedures for planning and safely carrying out aerodrome works?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Are provisions of safety precautions adhered to when aerodrome works are carried out, without aerodrome closure?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are aerodrome works carried out in the following manner: • method of working plan; and • short term maintenance/time-limited works.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. When a temporary displaced threshold is required for more than 300 m, is the matter referred to the CAA for assessment?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Method of Working Plans 6. For aerodrome used by aircraft of more than 5,700 kg maximum take-off weight, is there a Method of Working Plan (MOWP) prepared for aerodrome works?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Are arrangements for carrying out those works set out in the MOWP?	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
		[ ] N/A	
	8. Is the MOWP prepared in accordance with [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. In the preparation of the MOWP, does the aerodrome operator consult the following? • commercial air transport operators using the aerodrome; • Air Traffic Control; and • Aerodrome Rescue and Fire Fighting Service.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Does the aerodrome operator give a copy of the MOWP, and for any alteration thereof, to CAA as soon as possible after the MOWP is prepared or altered?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Are aerodrome works, for which a MOWP is required, carried out in accordance with the arrangements set out in the authorized MOWP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. When the aerodrome is closed to aircraft operations while aerodrome works are being carried out, does the aerodrome operator give reasonable notice of intention to close the aerodrome to the following entities? • CAA; • Commercial Air Transport Operators; and • All organizations and persons likely to be affected.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Does the operator give notice of closure at least 14 days before it takes place?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. For emergency aerodrome	[ ] Yes	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	works carried out to repair unforeseen damage to part of the maneuvering area, or to remove an obstacle, or if the works do not require any restrictions to aircraft operations, where practicable, are NOTAMs issued, indicating the time and date of the commencement of the works, as early as possible, but preferably not less than 48 hours before commencement of the works?	[ ] No [ ] N/A	
	Time-Limited Works 15. Are aerodrome works carried out as time-limited works, if normal aircraft operations are not disrupted, the movement area can be restored to normal safety standards in no more than 30 minutes, including the removal of any obstacle created by those works?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Does the time-limited works include the following? • maintenance of markings and lights; • grass mowing; • rolling surfaces; • sweeping pavements; • minor repairs to pavements; and • surveys and inspections.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Does a person commence time-limited works that require more than 10 minutes to restore normal safety standards to the movement area and remove obstacles, unless a NOTAM has been issued not less than 24 hours before the commencement, giving the date and time of	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	commencement and the time required to restore normal safety standards?		
	Restrictions on Time-Limited Works 18. Does time-limited works are carried out at night or if visibility is less than 5 kilometers? if yes are they authorized by Air Traffic Control at a controlled aerodrome or can normal safety standards can be promptly restored so as to allow an aircraft operation to take place without delay?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Restoration of Normal Safety Standards 19. Are Time-limited works stopped and normal safety standards restored when required to allow an aircraft operation to take place?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Are reasonable measures taken to complete the restoration of normal safety standards not less than 5 minutes before the scheduled or notified time of an aircraft operation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Resumption of Aerodrome Works 21. Are Works that have been stopped to allow the restoration of normal safety standards are resumed under the following conditions? : • if stopped for an aircraft arrival, immediately after the arrival, if the safety of the aircraft is not endangered by the resumption; or • if stopped for an aircraft departure, 15 minutes after the departure has taken place; or	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	• if stopped for an aircraft arrival that does not take place; 30 minutes after the time scheduled or notified for the arrival (when a new estimated time of arrival (ETA) is established).		
	Management and control of aerodrome works 22. Does the aerodrome operator ensure that aerodrome works are carried out in accordance with the standards of aerodrome work safety?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Is there a person appointed by the aerodrome operator in writing as a works safety officer for the purpose of ensuring the safe conduct of aerodrome works? • appointment	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. Does the aerodrome operator has qualification or attribute requirements for a works safety officer, in accordance with [MAS] • duties of works safety officer	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	25. Is the works safety officer required to be present at all times if aerodrome works are being carried out and the aerodrome is open to aircraft operations? For time limited work, a dedicated safety officer is not required if one of the persons conducting the work activity is competent to be a work safety officer	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Does the aerodrome operator takes all reasonable measures to ensure that the works organization carries out aerodrome works in a manner	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	that will ensure the safety of aircraft operations? • MOWP • safety arrangements/requirements with works organization		
	27. Are Persons, vehicles, plant and equipment required for carrying out aerodrome works issued relevant permits to enter the movement area or remain on it for the purpose of carrying out those works?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	28. Are access to works areas only along routes shown in the MOWP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	29. Are Procedures for entering works areas stated in the MOWP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Markers, Markings and Lights 30. Are Aerodrome markers, markings and lights required for, or affected by, aerodrome works installed, altered or removed in accordance with the appropriate standards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	31. Are parts of the movement area that are unserviceable as a result of aerodrome works being carried out marked and lit in accordance with the appropriate standards?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	32. Are all obstacles created as a result of aerodrome works being carried out marked and lit in accordance the appropriate standards in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Are vehicles and plant used in carrying out aerodrome works	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	marked in accordance with [MAS] (Marking of vehicles)?	[ ] N/A	
	34. Are vehicles and plant used in carrying out aerodrome works at night lit in accordance with [MAS] (Monitoring, maintenance and serviceability of aerodrome lighting)?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Communication Equipment 35. At a controlled aerodrome, is the vehicle used by a works safety officer while supervising aerodrome works equipped with a radio for two-way communication with Air Traffic Control?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	36. For the purpose of communication with Air Traffic Control, is the vehicle used by a works safety officer given a call sign?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	37. Any vehicle or plant that is not marked or lit; or equipped with a two-way radio, is there a direct supervision from the works safety officer, or is it used only within the limits of appropriately marked and lit work areas?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Completion 38. On the completion of aerodrome works and the restoration of normal safety standards to the movement area, does aerodrome operator initiate cancellation any NOTAM to advise of those works?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Runway Pavement Overlays 39. Is there a provision for a temporary ramp between the new and the old runway surfaces at the end of an overlay work session, when the runway is to be returned	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	to an operational status, left with an abrupt vertical surface of more than 25 mm?		
	40. Is there a provision where the longitudinal slope of the temporary ramp described in [MAS] or paragraph 10.4.1 of Annex 14, Volume I, measured with reference to the existing runway surface or previous overlay course: a) 0.5 to 1.0 per cent for overlays up to and including 5 cm in thickness? and b) not more than 0.5 per cent for overlays more than 5 cm in thickness?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
RP A14 Vol.I,10.4.2	41. Where practicable, is the direction of pavement overlay proceeding from one end of the runway toward the other end so that based on runway utilization most aircraft operations will experience a down ramp?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	42. Where practicable, is the entire width of the runway overlaid during each work session? Where the entire width of the runway cannot be overlaid during a work session, is the central two-third width of the runway overlaid? In this case, is a temporary transverse ramp of between 0.8 and 1.0 per cent provided between the edge of the new overlay surface and the existing runway surface or previous overlay course when the difference in level exceeds 25 mm?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	43. Before a runway being overlaid is returned to a temporary operational status, is a runway centerline marking conforming to the specifications in [MAS] provided? 44. Additionally, is the location of any temporary threshold identified by a 3.6 m wide transverse stripe?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	45. Is the overlay constructed and maintained above the minimum friction level specified in [MAS]?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Works on Runway Strips 54. Are works on runway strips carried out in the shortest possible time? 55. Where undertaken within 23 m of the edge of the runway or runway shoulder: (a) are works undertaken only on one side of the runway at any one time?; (b) is the works area at any one time must not exceed 9 square meters, except for machine cut trenches, not exceeding a width of 100 mm and length of 280 m?; (c) are materials such as gravel, signs and lights, etc. left within this part of the runway strip, must not exceed one half meter in height above ground. Any material likely to be affected by propeller wash or jet blast, must be removed?; and (d) Do plant and vehicles vacate this area when the runway is in use?.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	56. Where works are undertaken on a runway strip between 23	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	m from the edge of the runway or runway shoulder and the edge of the graded runway strip, do similar restriction applied within this area of the runway strip in accordance with [MAS]?	[ ] N/A	
	57. Where works are to be undertaken in the vicinity of navigational or landing aids located within the runway strips, does the aerodrome operator ensure that care must be taken to in order that neither the works nor vehicles or plant associated with the works, may affect the performance of the aids?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Method of Working Plans 58. Does he MOWP presented in sections in the following sequence? (a) title page (b) works information (c) restrictions to aircraft operations (d) restrictions to works organization (e) administration (f) authority (g) drawings (h) distribution list.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Title Page 59. Is the MOWP given a reference number, consisting of the code used to identify the aerodrome in the AIP, the last two digits of the year and the number given to the MOWP by the aerodrome operator?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	60. Is the MOWPs issued in relation to the same aerodrome numbered consecutively in the order of their issue?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	61. Is the MOWP number, the date of issue, and the date and number of any amendment set out in the top right hand corner of the title page?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	62. Does the title indicate the location of the work and does it give a short description of the project, for instance "[*name* Aerodrome]: Runway 07/25 repairs"?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	63. Does the date of approval of the MOWP, the date of commencement and the date of expiry of the MOWP, and the date of completion of the set out on the title page?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	64. Does the title page include a list of the sections of the MOWP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Works Information 65. Does the works information of MOWP contain the following: (a) an outline of the full scope of the works and state which aerodrome facilities are affected? (b) planned date and time of commencement, the duration of each stage and the time of completion; (c) the following sentence: "The actual date and time of commencement will be advised by a NOTAM, to be issued not less than 48 hours before work commences"?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Restrictions to aircraft operations and issue of NOTAMs 66. Does this section of the MOWP in a form that allows	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

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	its separate issue to aircraft operators and permits those operators to have easy reference to the information as it affects them?		
	67. Does this section of the MOWP state each restriction and each aircraft type affected by that restriction?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Work Stages 68. Are any restrictions to aircraft operations on the maneuvering area, or in the approach and take-off areas listed and shown on drawings of each stage of the works?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	69. When complex works are being undertaken, is a table showing the restrictions applicable to each stage of the works and for each type of aircraft operation included?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	70. Does the table outline the various work stages with start and completion dates and have a remarks column to list details of special restrictions and the issue of NOTAMs for the information of a pilot before a flight?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Emergencies and Adverse Weather 71. Does the MOWP outline details, if any, of special arrangements to be made during works if emergencies or adverse weather conditions occur?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	NOTAMs 72. Does the full text of all planned NOTAMs associated with the aerodrome works included?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Restrictions to Works Organizations	[ ] Yes	☐S ☐ NS

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	73. Does the MOWP provide any restrictions on the organization carrying out of aerodrome works and requirements for the restoration of normal safety standards?	[ ] No [ ] N/A	
	Personnel and Equipment 74. When personnel and equipment are required to vacate the movement area for certain operations, does the MOWP specifically mention of this fact be made, for example: "All personnel and equipment will clear runway strip 11/29 for all operations by aircraft larger than B737"?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Access 75. Does the MOWP identify the routes to and from the works area and the procedures for entering the works areas within the movement area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	76. Are the particulars of routes to and from the works area shown in drawings attached to the MOWP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Aerodrome Markers, Markings and Lights 77. Are details of arrangements for the installation, alteration and removal of aerodrome markers, markings and lights in the work areas and other areas affected by the aerodrome works shown in drawings attached to the MOWP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Protection of Electrical Services 78. Does the MOWP set out procedures for ensuring that electrical services and control cables are not damaged?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	Special Requirements 79. Does the MOWP provide details of any special requirements arising during or on completion of aerodrome works, for example, arrangements for leaving pavement surfaces swept and clean before evacuation of the works area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Administration 80. Does the MOWP provide the name of the Project Manager appointed by the aerodrome operator and the means of contact, including the means outside normal working hours?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	81. Does the MOWP provide the names of the works safety officer or officers appointed by the aerodrome operator and the means of contact, including the means outside normal working hours?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	82. Does the MOWP provide the name of the works organizer (where appropriate) and the means of contact, including the means outside working hours?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Authority 83. Do each MOWP contain the following statement: “All works will be carried out in accordance with the MOWP”?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	84. Do each MOWP set out its expiry date, and any alteration of that date?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	85. Do each MOWP signed by the aerodrome operator or the project manager?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Drawings 86. Are drawings, which provide a	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	visual reference for each stage of the works attached in the MOWP? Does the drawings contain specific details such as works area, restrictions to aircraft, location of radio navigational aids, exact location of visual ground aids and markings, details of the height and location of critical obstacles, location of temporary taxiways, access routes, storage areas for material and equipment, and the location of electrical services and control cables which may be disturbed during the works?	[ ] N/A	
	Distribution List 87. Does the distribution list of the MOWP include at least the following persons and organizations? (a) the project manager; (b) the works safety officer; (c) the aerodrome security manager, if any; (d) the works organizer; (e) the CAA aerodrome inspector; (f) ATC and the Rescue and Firefighting Service Unit for the aerodrome; (g) the air transport aircraft operators using the aerodrome at which the aerodrome works are to be carried out; and (h) fixed-base operators using the aerodrome at which the aerodrome works are to be carried out.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
			☐S ☐ NS
	Works Safety Officer 88. Are the responsibilities of the	[ ] Yes	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	Works Safety Officer provided in the aerodrome manual?	[ ] No [ ] N/A	
	Reportable occurrences and reporting procedures 89. Are works related incidents noted and reported?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	90. Are follow-up action being taken after the incident has occurred?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Aerodrome occurrence records 91. Does the aerodrome operator establish and maintain Aerodrome Occurrence Reports for any accident, serious incident, incident, serious injury or any occurrence or event that has a bearing on the safety of aerodrome operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Aerodrome accident/incident investigations 92. In the event of an accident or serious incident, does the aerodrome operator carry out its own investigations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	93. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-9: APRON MANAGEMENT

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol.I,9.5 GM Doc 9137,P8,C10 Generic Aerodrome Manual,P4.10	**4.9 APRON MANAGEMENT** *Particulars of the apron management procedures, including the following:*		
	1. Is there an appropriate apron management service in the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the apron management unit regulate movement with the objective of preventing collisions between aircraft, and between aircraft and obstacles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the aerodrome operator regulate entry of aircraft into, and coordinate exit of aircraft from, the apron with the aerodrome control tower?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the aerodrome operator ensure safe and expeditious movement of vehicles and appropriate regulation of other activities?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. When the aerodrome control tower does not participate in the apron management service, are there procedures established to facilitate the orderly transition of aircraft between the apron management unit and the aerodrome control tower?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Is the apron management unit provided with radiotelephony communications facilities?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Are persons and vehicles operating on an apron restricted to the essential minimum when low visibility procedures are in effect?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Is priority given to an emergency vehicle responding to an emergency over all other surface movement traffic?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does a vehicle operating on an apron give way to an emergency vehicle; an aircraft taxiing, about to taxi, or being pushed or towed; and to other vehicles in accordance with local regulations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
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	10. Does the apron management unit visually monitor the aircraft stand to ensure that the recommended clearance distances are provided to an aircraft using the stand?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Are traffic management control procedures in place when a single unit takes over the responsibility for aircraft and vehicles at a pre-determined handover point between the apron and the maneuvering area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Is the handover point clearly indicated on the ground and on aeronautical charts, for the benefit of aircraft vehicle operators?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Does the apron management unit assume responsibility for managing and coordinating all aircraft traffic on the apron, issuing verbal instructions on an agreed radio frequency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Does the apron management unit manage all apron vehicle traffic and other apron activities in order to advise aircraft of potential hazards within the apron area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. If an apron management service is not provided, does the aerodrome operator ensure the safety of aircraft operations on apron areas, considering the movement of vehicles? If an apron management service is not provided, does the aerodrome operator ensure the safety of aircraft operations on apron areas, considering the movement of vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Is there an arrangement between the apron management unit and the aerodrome control unit with regard to start-up and taxi clearance of departing aircraft to the handover point?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Does the apron management service maintain close communication with the aerodrome control service?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. Does the apron management service take responsibility for aircraft stand allocation, dissemination of movement information to aircraft	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	operators by monitoring ATC frequencies?		
	19. Does the apron management service update basic information continuously on aircraft arrival times, landings and take-offs?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Does the apron management unit ensure that the apron area is kept clean by airport maintenance?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Does the apron management service ensure that established aircraft clearance distances are available at the aircraft stand?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22. Is there a marshalling service?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Is there a leader van service?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-10: APRON SAFETY MANAGEMENT

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc 9137,P8,10.6 Doc 9774, App.1-4.10 Doc 9981,P2,C7 Generic Aerodrome Manual, P 4.11	**4.10 APRON SAFETY MANAGEMENT** *Particulars of the apron management procedures, including the following:*		
	1. Where apron congestion is a problem, does the aerodrome operator include in the aerodrome manual particulars of the procedures for aircraft parking control to ensure the safety of aircraft during ground maneuvering?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Has the aerodrome operator developed appropriate apron safety procedures that are useful components of congestion mitigation measures?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the aerodrome operator have written arrangements with relevant organizations such as the airlines, ground handlers and caterers in regard to the apron safety procedures?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Are there arrangements for monitoring on a regular basis the safety compliance of all personnel working on the apron?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does aerodrome operator ensure that organizations performing activities at the aerodrome comply with the aerodrome safety requirements?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Are there procedures for aircraft docking, ground servicing, engine start and push back operations in place?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	7. Are the procedures for aircraft docking, ground servicing, engine start and push back operations in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Are the aircraft and tug operator guidance markings in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Are there means and procedures for protection from jet blast?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Are there provisions of blast protection structures?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Are the provisions for blast protection in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Is the staff aware of safety requirements relating to clearances and blast?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Are suitable staffs available to control monitor and/or supervise apron safety activities?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Are there procedures to protect aircraft from FOD?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. Do the apron safety management procedures ensure that people engaged in apron activities are provided with appropriate equipment such as communications and high visibility garments?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Do the apron safety management procedures ensure that people involved are appropriately trained and experience?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Does the aerodrome operator ensure that other organizations operating in the apron follow apron safety	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	management procedures?		
	18. Are there arrangements for safety precautions during aeroplane refueling operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. Is there a fire extinguishing equipment suitable for at least initial intervention in the event of a fuel fire and a means for quickly summoning the rescue and firefighting service in the event of a fire or major fuel spill?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Is there an available and sufficient number of personnel trained to use the fire extinguishing equipment available for use in the event of fuel fire or major fuel spill during ground servicing of aircraft?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. When aircraft refueling operations take place while passengers are embarking or disembarking, are the ground equipment positioned so as to allow the use of a sufficient number of exits for expeditious evacuation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22. When aircraft refueling operations take place while passengers are embarking or disembarking, are the ground equipment positioned so as to allow a ready escape route from each of the exits to be used in an emergency?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Does the aerodrome operator ensure the apron is swept to remove debris?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. Does the aerodrome operator ensure the apron is clean of hazardous contamination?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-11: AIRSIDE VEHICLE CONTROL

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD A14 Vol. I, 9.7 GM Doc 9137,P8,C19 Doc 9774, App.1-4.11 Doc 9981, P2, C9 Generic Aerodrome Manual,P4.12	**4.11 AIRSIDE VEHICLE OPERATION** *Particulars of the procedure for the control of surface vehicles operating on or in the vicinity of the movement area, including the following:*		
	1. details of the arrangements for controlling airside access for vehicle and personnel: • maneuvering areas authorized by ATC • apron as authorized by relevant designated authority	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. maintain a permit system for approval of airside vehicle operations.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is there a procedure for the issuance of airside permit? Is it implemented?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Have the drivers complied with issuance requirements before been issued with permits?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. vehicles and ground equipment operating airside must be maintained in a sound mechanical and roadworthy condition, so as to prevent avoidable breakdowns and spillage of fuels, lubricants and hydraulic fluids.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. established speed limits for vehicles on the movement area and a regime to enforce them.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. vehicles must not be driven under an aircraft or within 3 m of any part of an aircraft except when required for the servicing of aircraft.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. vehicles operating on the movement area by day must be marked in accordance with [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. vehicles operating on the movement area at night, or in conditions of poor visibility, must display dipped headlights and must be lit	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	with vehicle warning lights.		
	10. Are vehicles marked/ lit and approvals attached in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. drivers operating vehicle on the airside must be trained and competent to do so and comply with instructions issued by the aerodrome controller when on the maneuvering area and the appropriate authority when operating on the apron.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. any person operating vehicles and ground equipment, must: • hold an appropriate license to operate; • comply with instructions conveyed by markings and signs; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. comply with all mandatory instructions conveyed by light signals.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. drivers operating vehicles and ground equipment holding an appropriate license.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. driver of a radio equipped vehicle shall establish satisfactory two-way communications with the aerodrome controller before entering the maneuvering area, and/or apron if required, and maintain a continuous listening watch on the assigned frequency while on the maneuvering area (and/or apron).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Does the operator have a training programme (initial and recurrent) for drivers?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Is the curriculum for drivers training adequate as par CAA regulations and guidance materials on ground vehicle operation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. Do drivers display their driver's permit before being allowed into the airside?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. Are drivers with expired permits prevented from entering the airside?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Are vehicles operating on the maneuvering areas fitted with R/T or closely escorted by an R/T equipped vehicle?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Are the drivers informed	[ ] Yes	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	about runway incursion, airfield safety and security?	[ ] No [ ] N/A	
	22. Are drivers knowledgeable of the terms used on the Aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Are the drivers conversant with the ground vehicle rules and regulations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. Are drivers periodically tested to ensure currency in fitness and competence?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	25. Are drivers authorized to drive on the movement area familiar with runway configuration/safety area, taxiway configuration, runway lightings, airfield signage, airfield markings and aerodrome NAVAIDS?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Are drivers capable of sending or receiving a radio messages correctly?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	27. Do drivers operating on the movement areas understand and use the terms and phrases used in the air traffic control?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	28. Are drivers operating on the movement areas familiar with speed limits, authorized routes, roles relating to rights of way of aircraft and vehicles, and authorized parking areas, traffic lights and warning signs?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	29. Are there an enforcement procedure in the event of violation of airside driving rules?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. If yes, is it implemented?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	31. Are enforcement records maintained?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	32. Are accident/incident records maintained?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Are unauthorized entry incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	34. Are adequate and suitable staff and resources available to test drivers, issue permits and monitor driving?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	35. Is the staff aware of safety requirements related to airside vehicles?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	36. Are copies of driving rules available and in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	37. And the names, telephone numbers and roles of the persons who are responsible for airside vehicle control provided in the Manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	38. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-12: WILDLIFE HAZARD MANAGEMENT

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
STD A14 Vol.I,9.4 GM Doc 9137,P3 Doc 9774, App.1-4.12 Doc 9981, P2, 6 Generic Aerodrome Manual, P4.13	**4.12 WILDLIFE HAZARD MANAGEMENT** *Particulars of the procedures to deal with the danger posed to aircraft operations by the presence of birds or mammals on or in the vicinity of the aerodrome or movement area, including the following:*		
GM Doc9137,P3,2.2.3,7.1 Doc9981,P2,6.3.8	1. Does the aerodrome operator monitor and record, on a regular basis, the presence of birds or animals on or in the vicinity of the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Are the monitoring personnel suitably trained for this purpose?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.4.11-2.2.4.17	3. Where regular monitoring confirms existence of a bird or animal hazard to aircraft operations, or when CAA so directs, has the aerodrome operator developed a Wildlife Hazard Management Plan (WHMP), which would be included as part of the Aerodrome Manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9981,P2,6.3.5,6.3.7	4. Does a comprehensive wildlife management plan including coordination among the aviation regulatory authority, airport operator, aircraft operators and the surrounding communities implemented to successfully deal with land-use issues?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.3	5. If directed by the CAA, is the WHMP prepared by a suitably qualified person such as an ornithologist or a biologist, etc.?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.2.4	6. Does the WHMP address:	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	• hazard assessment, including monitoring action and analysis; • pilot notification; • liaison and working relationships with land use planning authorities; • on-airport bird and animal attractors which provide food, water or shelter; • suitable harassment methods; and • an ongoing strategy for bird and animal hazard reduction, including provision of appropriate fencing?	[ ] N/A	
GM Doc9137,P3,9.3,9.4.2,9.4.3 ,9.4.5,9.4.6 Doc9981,P1,App1toC2,2.3	7. Is the wildlife hazard management plan reviewed for effectiveness, on a regular basis, at least as part of each technical inspection?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,8.5	8. Where the presence of birds or animals is assessed as constituting an ongoing hazard to aircraft, does the aerodrome operator notify the CAA in writing, and include a warning notice for publication in the AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,8.3	9. Where a bird or animal hazard is assessed as acute, of short term or seasonal nature, are additional warnings given to pilots by means of NOTAM?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.4.10.1 Doc9981,P2,6.3.7.1	10. Do airport operators, local government units (LGUs), and other stakeholders assist in identifying and managing wildlife issues at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	11. Invite relevant external stakeholders to quarterly Runway Safety meetings to assist with wildlife management at off airport sites?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.1 GM Doc9137,P3,2.4.10.1,2.5.4 (a)	12. Does the wildlife strike hazard on, or in the vicinity of, an aerodrome assessed through: (a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft; (b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and (c) an ongoing evaluation of the wildlife hazard by competent personnel?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.2 GM Doc9137,P3,2.5.4 (c)	13. Are wildlife strike reports collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.2 GM Doc9137,P3,2.5.4 (b)	14. Is an action taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9981,P2,6.3.7.4	15. Does a bird/wildlife strike control program describe a process for liaison with non-airport agencies and local landowners, etc., to ensure that airport operator is aware of developments that may contribute to creating additional bird hazards	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	in the infrastructure, vegetation, land use and activities in the airport vicinity (e.g. crop harvesting, seed planting, ploughing, establishment of land or water features, hunting, etc., that might attract birds/wildlife)?		
STD A14 Vol.I,9.4.4 GM Doc9137,P3,2.4.7.1,2.4.11, 4.2.1.4,4.2.1.5	16. Does the appropriate authority take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Are there local ordinances issued banning pigeon raising, establishment of animal sanctuaries, etc. near the airport?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. Are there MOU, MOA, LOU, LOA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. Where the elimination of existing sites is not possible, Does the appropriate authority ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.1.5.4	20. Are the names and roles of the persons responsible for dealing with wildlife hazards and their telephone numbers available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.2	21. Does the WHMP contain particulars of the procedures to deal with the danger to	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	aircraft operations caused by the presence of birds or animals on or near the aerodrome?		
GM Doc9137,P3,1.3.5	22. And the arrangements for the removal of any bird or animal hazard?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.3	23. Is the operator maintaining records?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,9.4.2	24. Are bird strikes reported?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
STD A14 Vol.I,7.1.1 GM Doc9137,P3,9.1.3.5	25. Are adequate and suitable staff and resources available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.1.2	26. Are the equipment available in accordance with the WHMP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,5.3	27. Is harassment carried out in accordance with the WHMP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9148	28. Is environmental management undertaken in accordance with the WHMP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,2.2.3	29. Are the airport wildlife control personnel formally trained, competent and equipped for detection and dispersal tasks?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9981,P2,2.2.4.5	30. Are bird and animal hazard related incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
GM Doc9137,P3,9.2.1	31. List of documents presented during the audit:		

Appendix 7C-13: OBSTACLE CONTROL

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
GM Doc 9137,P6 Doc 9774,App.1-4.13 Doc 9981,P1,2.4.5 Generic Aerodrome Manual,P4.14	**4.13 OBSTACLE CONTROL** *Particulars setting out the procedures for:*		
	1. Is there an obstacle as a fixed or mobile object on the following: (a) stands on, or stands above, the specified surface of an obstacle restriction area which comprises the runway strips, runway end safety areas, clearways and taxiway strips; or (b) any object that penetrates the obstacle limitation surfaces (OLS), a series of surfaces that set the height limits of objects, around an aerodrome; or (c) stands outside an OLS and has been assessed as being a hazard to air navigation.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Is the Obstacle data requirements for the design of instrument procedures is determined in liaison with flight procedure designers	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is there an objects, except for approved visual and navigational aids, located within the obstacle restriction area of the aerodrome without the specific approval of CAA	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Is the equipment and installations required for air navigation purposes are to be of minimum practicable mass and height, frangibly designed and mounted, and sited in such a manner as to reduce the hazard to aircraft to a minimum.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	5. Is the Obstacles on the obstacle restriction area taken into account when determining the obstacle clear approach or take-off surfaces	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Is the following OLS established for a non-instrument runway and a non-precision approach runway and a precision approach runway category I: (a) conical surface; (b) inner horizontal surface; (c) approach surface; (d) transitional surface; and (e) take-off climb surface if the runway is meant for take-off.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. Is the following obstacle limitation surfaces established for a precision approach runway category I: (a) inner approach surface; (b) inner transitional surfaces; and (c) balked landing surface.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Is the heights and slopes of the surfaces (For non-instrument runways) shall not be greater than, and their other dimensions not less than, those specified in [MAS] .	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Is the heights and slopes of the surfaces (For non-precision runways) shall not be greater than, and their other dimensions not less than, those specified in [MAS], except in the case of the horizontal section of the approach surface.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Is the approach surface shall be horizontal beyond the point at which the 2.5 % slope intersects: (a) a horizontal plane 150 m above the threshold elevation; or	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	(b) the horizontal plane passing through the top of any object that governs the obstacle clearance altitude/height (OCA/H); whichever is the higher		
	11. Is the heights and slopes of the surfaces (For precision runways) shall not be greater than, and their other dimensions not less than, those specified in Table … of [MAS], except in the case of the horizontal section of the approach surface.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Is the approach surface shall be horizontal beyond the point at which the 2.5 % slope intersects: (a) a horizontal plane 150 m above the threshold elevation; or (b) the horizontal plane passing through the top of any object that governs the obstacle clearance limit; whichever is the higher.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Is the following OLS must be established for a precision approach runway category II or III: (a) outer horizontal surface, if so directed by CAA; (b) conical surface; (c) inner horizontal surface; (d) approach surface; (e) inner approach surface; (f) transitional surface; (g) inner transitional surface; (h) balked landing surface; and (i) take-off climb surface if the runway is meant for take-off.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Is the physical dimensions and slopes of the OLS surfaces, for approach runways, determined using Table … of [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	15. Is the following obstacle limitation surface shall be established for a runway meant for take-off: (a) take-off climb surface.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Is the dimensions of the surface shall be not less than the dimensions specified in [MAS], except that a lesser length may be adopted for the takeoff climb surface where such lesser length would be consistent with procedural measures adopted to govern the outward flight of aeroplanes.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Is the physical dimensions of the take-off climb OLS surfaces for take-off runways is determined using [MAS].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. Is the operational characteristics of aeroplanes for which the runway is intended to examined to see if it is desirable to reduce the slope specified in [MAS] when critical operating conditions are to be catered to. If the specified slope is reduced, corresponding adjustment in the length of the take-off climb surface shall be made so as to provide protection to a height of 300 m.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	19. If no object reaches the 2 % (1:50) take-off climb surface, new objects shall be limited to preserve the existing obstacle free surface or a surface down to a slope of 1.6 % (1:62.5).	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Where two OLS surfaces overlap, is the lower surface used as the controlling OLS.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Is the aerodrome operator monitor the OLS applicable to the aerodrome and report to CAA any infringement or	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	potential infringement of the OLS.		
	When a new obstacle is detected, is the aerodrome operator ensure that the information is passed on to pilots, through NOTAM, in accordance with the standards for aerodrome reporting procedures set out in 4.1 of Generic Aerodrome Manual.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22. Are the information on any new obstacle include the following: (a) the nature of the obstacle (for instance structure or machinery); (b) distance and bearing of the obstacle from the start of the take-off end of the runway if the obstacle is within the take-off area, or else from the ARP; (c) height of the obstacle in relation to the aerodrome elevation; and if it is a temporary obstacle, the time it exists as an obstacle.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Under [CAR], are any object which extends to a height of xxx m or more above local ground level are notified to CAA.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	24. If a proposed object or structure is determined to be an obstacle, is the details of the proposal is referred to CAA to determine whether it will be a hazard to aircraft operations.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	25. In Shielded Obstacle. Is the new obstacle is shielded by an existing obstacle is assessed as not imposing additional restrictions to aircraft operations.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	26. Is there a marking and lighting of obstacles? (a) Aerodrome Operator may direct that obstacles be	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	marked and or lit and may impose operational restrictions on the aerodrome as a result of an obstacle. (b) If directed by CAA, lighting and/or marking of obstacles, including terrain, must be carried out in accordance with the standards set out in [MAS]		
	27. For Temporary and transient obstacles. Is the Temporary obstacles and transient (mobile) obstacles, such as road vehicles, rail carriages or ships, in close proximity to the aerodrome and which penetrate the OLS for a short duration are referred to CAA whether they will be a hazard to aircraft operations.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	28. For Fences or levee banks. Is the fence or levee bank that penetrates the OLS be treated as an obstacle.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	29. Is there a hazardous objects below the OLS where CAA has identified an object which does not penetrate the OLS to be a hazard to aircraft operations. Is the Aerodrome Operator require the object to be either: (a) removed, if appropriate; or (b) marked and/or lit.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	30. Is there objects which do not project through the approach surface but which will nevertheless adversely affect the optimum siting or performance of visual or non-visual aids shall, as far as practicable, be removed.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	31. Is there an aeronautical study prepared that, endanger aeroplanes on the movement area or in the air within the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	limits of the inner horizontal and conical surfaces regarded as an obstacle and shall be removed in so far as practicable.		
	32. Is Aerodrome operators establish procedures to monitor the OLS and the critical obstacles associated with any additional requirements and have them included in the Aerodrome Manual if provided.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	33. Is there a Type A chart that identifies information on all significant obstacles within the take-off area of an aerodrome up to 10 km from the end of the runway.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	34. Is there a Type A chart prepared for each runway that is used for international operations.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	35. Is the obstacle data collected and the manner of presentation of the Type A chart are in accordance with the standards and procedures set out in [CAR]-ANS [or ICAO Annex 4].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	36. Where no significant obstacle exists within the take-off flight path area, as specified by [CAR]-ANS [or ICAO Annex 4], a Type A chart is not required but is there a statement included in the Aerodrome Manual.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	37. At aerodromes with no international operations but used by aircraft above 5,700 kg engaged in air transport operations, Is the decision to prepare Type A charts, or discrete obstacle information instead of a Type A chart, is a matter for the aerodrome operator to be made in	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	conjunction with the relevant airline.		
	38. Where a Type A chart has been prepared, or updated, is a copy of the chart is given to CAA.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	39. Where a Type A chart has been prepared and issued, is the take-off area monitored and any changes to the Type A chart information must immediately be communicated to all users of the Type A chart.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	40. Is a distribution list of current Type A chart holders maintained in the Aerodrome Manual.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	41. Is a Type A chart updated when the number of changes to the chart and notified through NOTAM or separate advice, reaches a level which CAA considers excessive.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	42. Is a Type B chart provides obstacle data around the aerodrome.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	43. Is the Type B chart prepared in accordance with the standards and procedures set out in [CAR]-ANS [or ICAO Annex 4], may be provided.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	44. Is the decision to prepare a Type B chart be made in consultation with CAA.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	45. Where required, the obstacle data to be collected and the manner of presentation of the Type B chart is in accordance with the standards and procedures set out in [CAR]-ANS [or ICAO Annex 4].	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	46. Is the Obstacle Limitation Surfaces (OLS) identify the lower limits of the aerodrome airspace above which objects	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	become obstacles to aircraft operations, and reported to CAA.		
	47. Is the OLS comprises following: (a) outer horizontal surface; (b) conical surface; (c) inner horizontal surface; (d) approach surface; (e) inner approach surface; (f) transitional surface; (g) inner transitional surface; (h) balked landing surface; and (i) take-off climb surface.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	48. Is there a new obstacle located in the vicinity of an existing obstacle assessed and deemed be shielded may be considered as not being a hazard to aircraft.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	49. When assessing existing obstacle shields by an obstacle, Is the aerodrome operator guided by the principles of shielding detailed in [MAS]	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	50. Is the new obstacle assessed as not imposing additional restrictions to the following: (a) when located between the inner edge end and the critical obstacle, the new obstacle is below a plane sloping downwards at 10% from the top of the critical obstacle toward the inner edge; or (b) when located beyond the critical obstacle from the inner edge end, the new obstacle is not higher than the height of the permanent obstacle; and (c) where there is more than one critical obstacle within the approach and take-off climb area, and the new obstacle is located between two critical obstacles, the height of the	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	new obstacle is not above a plane sloping downwards at 10% from the top of the next critical obstacle.		
	51. Is the new objects or extensions of existing objects shall not be permitted above an approach surface within 3, 000 m of the inner edge or above a transitional surface except when, the new object or extension would be shielded by an existing immovable object.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	Is the new objects or extensions of existing objects shall not be permitted above a take-off climb surface except when, the new object or extension would be shielded by an existing immovable object.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-14: REMOVAL OF DISABLED AIRCRAFT

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
STD&RP A14 Vol.I,2.10,9.3 GM Doc9774,App.1-4.13 Doc9137,P8,C14 Doc9137,P5 Generic Aerodrome Manual,P4.15	**4.14 REMOVAL OF DISABLED AIRCRAFT** *Particulars of the procedures for removing a disabled aircraft on or adjacent to the movement area, including the following:*		
	1. Is there a plan for the removal of an aircraft disabled on, or adjacent to, the movement area established for an aerodrome, and a coordinator designated to implement the plan, when necessary?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the aerodrome has plans for the rapid availability and deployment of salvage and removal equipment between aerodromes, and the protection of evidence, custody and the removal of aircraft in accordance with ICAO Annex 13?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Is the disabled aircraft removal plan based on the characteristics of the aircraft that may normally be expected to operate at the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	4. Is there a list of equipment and personnel on, or in the vicinity of, the aerodrome which would be available for such purpose?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Are there arrangements for the rapid receipt of aircraft recovery equipment kits available from other aerodromes?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Is there an information concerning the capability to remove an aircraft disabled on or adjacent to the movement area published in the AIP?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. the names, role and telephone numbers of persons responsible for arranging for the removal of disabled aircraft	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Does the manual contain particulars of the procedures for removing an aircraft that is disabled on or near the movement area?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Does it include details of the roles of the aerodrome operator and the holder of the aircraft's certificate of registration?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. And the arrangements for telling the holder of the certificate of registration?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	11. And the arrangements for liaising with air traffic control and the CAA?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. And the arrangements for obtaining equipment and persons to remove the aircraft?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. And the names and roles of the persons who are responsible for arranging for the removal of an aircraft which is disabled, and the telephone numbers for contacting them during and after working hours?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. Is the operator maintaining records in accordance with the aerodrome manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Are adequate and suitable staff and resources available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	17. Are the arrangements for contacting the certificate of registration in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	18. Are the arrangements for liaising with ATC and CAA in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	19. Are the arrangements for obtaining equipment and persons to remove the aircraft in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	20. Is the staff aware of safety requirements during aircraft removal?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	21. Are any conditions or exemptions complied with?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	22. If observed, was the removal in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	23. Are disabled aircraft removal incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-15: HANDLING OF HAZARDOUS MATERIALS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9774,App.1-4.15 Generic Aerodrome Manual,P4.16	**4.15 HANDLING OF HAZARDOUS MATERIALS** *Particulars of the procedures for the safe handling and storage of hazardous materials on the aerodrome, including the following:*		
	1. arrangements for special areas on the aerodrome to be set up for the storage of inflammable liquids (including aviation fuels) and any other hazardous materials; and	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. the method to be followed for the delivery, storage, dispensing and handling of hazardous materials.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the manual contain particulars of the procedures for the safe handling of hazardous materials on the aerodrome?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does it include the names, telephone numbers and roles of the persons who are to receive and handle hazardous materials?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	5. And the arrangements for special areas on the aerodrome to be set up for the storage of flammable liquids (including aviation fuels) and other hazardous materials?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. And the methods to be followed for the delivery, storage, dispensing and handling of these materials?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. Is the operator maintaining records in accordance with the aerodrome manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Are adequate and suitable staff and resources available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Are the persons who receive and handle hazardous materials the same as identified in the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	11. Are the procedures for delivery, storage, dispensing and handling of these materials in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Is the staff aware of safety requirements related to hazardous materials?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Are any conditions or exemptions complied with?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Are the arrangements for special areas for storage of hazardous materials in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. Are the materials stored correctly?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Are hazardous material related incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-16: LOW-VISIBILITY OPERATIONS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9137,P8,6.6 Doc9774,App.1-4.16 Generic Aerodrome Manual,P4.17	**4.16 LOW-VISIBILITY OPERATIONS** *Particulars of procedures to be introduced for low-visibility operations, including the measurement and reporting of runway visual range as and when required, and the names and telephone numbers, during and after working hours, of the persons responsible for measuring the runway visual range.*		
	1. Does the manual contain the measurement and reporting of runway visual range as and when required?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. Does the manual contain the names and telephone numbers, during and after working hours, of the persons responsible for measuring the runway visual range?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. Does the manual contain particulars of the procedures for aerodrome operators staff involved in ground activities for low visibility operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does it include the arrangements for: the alerting procedures, airside access restrictions and checks of lighting installations and signs?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does aerodrome operators restrict the operation of personnel and vehicles on an apron during low visibility operations? Does aerodrome operators restrict the operation of personnel and vehicles on an apron during low visibility operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. Where RVR is determined manually, does the manual contain information about: - Measurement methods, reporting procedures, observation positions and personnel requirements including training to be undertaken?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. And the names and contact details for the persons responsible?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	8. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Is the operator maintaining record in accordance with the aerodrome manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Are adequate and suitable staff and equipment available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Are visibility measurement arrangements along the runways in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Are procedures for minimizing vehicular traffic carried out in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	13. Are arrangements for runway inspections during 'low vis' periods is in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Is the staff aware of safety requirements related to low visibility operations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. Are appropriate signs, gates and warning signs in place for low vis ops in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Are low visibility operationally related incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-17: PROTECTION OF SITES FOR RADAR AND NAVIGATIONAL AIDS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc9774,App.1-4.16 Generic Aerodrome Manual,P4.18	**4.17 PROTECTION OF SITES FOR RADAR AND NAVIGATIONAL AIDS** *Particulars of the procedures for the protection of sites for radar and radio navigational aids located on the aerodrome to ensure that their performance will not be degraded, including the following:*		
	1. arrangements for the control of activities in the vicinity of radar and navaids installations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2. arrangements for ground maintenance in the vicinity of these installations;	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3. arrangements for the supply and installation of signs warning of hazardous microwave radiation.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4. Does the manual contain particulars of the procedures for the protection of radar and nav-aids located on the aerodrome to ensure that their performance will not be degraded?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	5. Does it include the arrangements for the control of activities near radar and navigational aid installations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	6. And the arrangements, made in consultation with the provider of the navigational aid installation, for the supply and installation of signs warning of hazardous microwave radiation?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	7. And the arrangements for ground maintenance near these installations?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	8. List of documents checked. If yes, what are the documents checked?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	9. Is the operator maintaining records in accordance with the aerodrome manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	10. Are adequate and suitable staff and resources available?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	11. Are activities near radar and navaids controlled in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	12. Is ground maintenance near these facilities carried out in	[ ] Yes [ ] No	☐S ☐ NS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
	accordance with the manual?	[ ] N/A	
	13. Is the staff aware of safety requirements related to radar and navaids?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	14. Are all conditions or exemptions complied with?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	15. Are appropriate signs warning of microwave radiation hazards supplied and installed in accordance with the manual?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	16. Are radar and navaid related incidents noted, reported and followed up?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-18: SNOW AND ICE CONTROL, AND HAZARDOUS METEOROLOGICAL CONDITIONS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc 9981 Generic Aerodrome Manual, P4.18	**4.18 SNOW AND ICE CONTROL, AND HAZARDOUS METEOROLOGICAL CONDITIONS**		
	A) At aerodromes subjected to snow and icing conditions: 1) Does aerodrome operator have a snow and ice control plan, including the means and procedures used as well as the responsibilities and criteria for closing and reopening the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2) Does aerodrome operator have a formal coordination for snow and ice removal between the aerodrome operator and ATS?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	B) For other hazardous meteorological situations that may occur at the aerodrome (such as thunderstorms, strong surface winds and gusts, sandstorms): 1) Does the aerodrome operator have procedures for hazardous meteorological situations that may occur at the aerodrome (such as thunderstorms, strong surface winds and gusts), describing the actions that have to be taken and defining the responsibilities and criteria for suspension of operations on the runway?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2) Does the aerodrome operator have a formal coordination with the meteorological service provider in order to be advised of any significant meteorological conditions?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7C-19: REPORTING OF RUNWAY SURFACE CONDITIONS

REFERENCE	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS
GM Doc 9981 Generic Aerodrome Manual, P4.19	**4.18 REPORTING OF RUNWAY SURFACE CONDITIONS**		
	1) Does the aerodrome operator have procedure for assessing and reporting runway condition code (RWYCC) for each third of the runway in the prescribed format?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	2) Does the aerodrome operator have procedure for reporting to ATC the significant changes to RWYCC without delay?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	3) Does the aerodrome operator have procedure for initiating SNOWTAM?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
	4) Are personnel assessing and reporting runway surface conditions trained and competent to perform their duties?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

Appendix 7D: CRITERIA ON COMPETENCE OF AERODROME PERSONNEL

Note:- Please also refer to Asia/Pacific Regional Guidance On Aerodrome Operations Personnel Competency Requirement Framework.

POSITION	ASSESSMENT CRITERIA
AIRPORT MANAGER / GENERAL MANAGER	**Performance Criteria**
	a) Full control of the human resources required for the operations authorized to be conducted under the operations approval certificate (e.g. Aerodrome Certificate)
	b) Full control of the financial resources required for the operations authorized to be conducted under the operations approval certificate (e.g. Aerodrome Certificate)
	c) Final authority over operations authorized to be conducted under the operations approval certificate (e.g. Aerodrome Certificate)
	d) Direct responsibility for the conduct of the organization's affairs
	e) Final responsibility for all safety issues
	Knowledge Criteria
	a) Knowledge and understanding of the documents that prescribe relevant aerodrome safety standards
	b) Understanding of the requirements for competence of aerodrome management personnel, so as to ensure that competent persons are in place
	c) Knowledge and understanding of safety, quality, and security management systems related principles and practices, and how these are applied within the organization
	d) Knowledge and understanding of the key issues of risk management within the aerodrome operational aspects
	e) CAA regulatory framework
	f) State Safety Programme and Aerodrome SMS
	g) Aerodrome Certification Process
	h) CAA Regulatory Oversight Process
	i) CAA Enforcement Procedure
HEAD OF SAFETY AND COMPLIANCE	**Performance Criteria**
	a) Responsible individual and focal point for the development and maintenance of an effective safety management system;
	b) Ensure that processes needed for the SMS are established, implemented and maintained
	c) Reportable directly to the Accountable Manager on the performance of the SMS and on any need for improvement
	d) Ensure safety promotion throughout the organization
	e) The role of the safety manager should be to:

POSITION	ASSESSMENT CRITERIA
	i. facilitate hazard identification, risk analysis, and management; ii. monitor the implementation and functioning of the safety management system, including the necessary safety actions; iii. manage the safety reporting system of the aerodrome; iv. provide periodic reports on safety performance; v. ensure maintenance of safety management documentation; vi. ensure that there is safety management training available, and that it meets acceptable standards; vii. provide advice/mitigation measures on safety matters; and viii. initiate and participate in internal occurrence/accident investigations.
	Knowledge Criteria
	a) Practical experience and expertise in aerodrome operations, maintenance or similar area
	b) Knowledge of the Aerodrome Manual
	c) Comprehensive knowledge of the applicable requirements in the area of aerodromes
	d) CAA Regulatory framework
	e) Aerodrome SMS and State Safety Programme (SSP)
	f) CAA Aerodrome Certification Process
	g) Knowledge of CAA Technical Guidance Material
	h) Knowledge of [ANNEX 14]([MAS]) and related ICAO Documents (Aerodromes)
	i) Managing Findings and Recommendations (F&R), preparation and implementation of corrective action plan (CAP) from the certification/continuing surveillance of j) aerodrome
	k) Implementation of Aerodrome emergency plan
	l) Implementation of Wildlife Hazard Management
	m) Aerodrome Projects Management
	n) Aerodrome Engineering
	o) CAA Regulatory Oversight Process
HEAD AERODROME OPERATIONS	**Performance Criteria**
	a) Ensure that aerodrome certificating requirements are met, and that the aerodrome operates in accordance with certificate conditions and regulatory requirements
	b) Accountable for day-to-day aerodrome operations
	c) Ensure an understanding by the aerodrome management of the certification requirement for and status of the Aerodrome Manual
	d) Responsible for the management of the operational services and maintenance of the aerodrome
	e) Analyze auditing findings and inspections to the CAA, and initiate actions

POSITION	ASSESSMENT CRITERIA
	f) Use feedback from auditing and inspections to recommend appropriate changes to movement areas
	g) Safety management procedures and ensure implementation
	h) Monitor airside planning and development for compliance
	i) Develop proactive working relationships with aerodrome users/third parties
	j) Ensure that aerodrome certification requirements are met, and that the aerodrome operates in accordance with certificate conditions and statutory requirements.
	Knowledge Criteria
	a) Practical experience and expertise in aerodrome operations or maintenance (or similar area) respectively
	b) Comprehensive knowledge of the applicable requirements in the area of aerodromes
	c) Appropriate level of knowledge of safety and quality management
	d) Knowledge of the Aerodrome Manual
	e) CAA Regulatory Framework
	f) Safety Management System/State Safety Programme
	g) CAA Aerodrome Certification Process
	h) Aerodrome Projects
	i) CAA Regulatory Oversight Process
	j) CAA Enforcement Procedure
HEAD AERODROME MAINTENANCE	**Performance Criteria**
	a) Ensure that aerodrome certification requirements are met, and that the conditions of the aerodrome facilities are accurately reported (Aerodrome Manual/AIP) in accordance with the regulatory requirements
	b) Ensure aerodrome facilities are commensurate with the types and frequency of aircraft in accordance with legislative requirements
	c) Ensure that maintenance policies, procedures and training are compatible with the aerodrome operational requirements
	d) Ensure understanding of regulatory requirements related to electrical systems
	e) Ensure understanding of regulatory requirements related to aeronautical ground lighting and other visual aids such as markings and signage
	f) Ensure understanding of regulatory requirements related to aerodrome pavements
	g) Ensure understanding of role as related to aerodrome reporting systems to include hazard identification, defect identification and reporting of safety critical information to the aerodrome Air Traffic Service Unit
	h) Ensure basic understanding of aerodrome wildlife hazard management

POSITION	ASSESSMENT CRITERIA
	i) Ensure understanding of requirement for corrective and preventive maintenance programme of the aerodrome facilities, equipment and installations
	j) Ensure understanding of competency standards and evaluation programme for maintenance staff maintaining safety critical assets or working in safety critical areas (including both technical and operational competencies as necessary)
	k) Ensure understanding of [MAS] : Aerodrome Maintenance
	Knowledge Criteria
	a) Qualified in the role with appropriate education, experience and/or certification
	b) Practical experience and expertise in aerodrome maintenance
	c) Comprehensive knowledge of the applicable requirements in the areas of electrical systems, aeronautical ground lighting and pavements
	d) Knowledge of the Aerodrome Manual operational requirements
	e) Knowledge of applicable ICAO guidance materials such as the Aerodrome Design Manual
	f) CAA Regulatory Framework (Act CAP 80 and Regulations) g) Safety Management System/State Safety Programme
	h) CAA Aerodrome Certification Process (Part IV of the Regulations)
	i) Aerodrome Projects
	j) CAA Regulatory Oversight Process
	k) CAA Enforcement Procedure
	l) Process for the reporting and follow-up of accidents, incidents and emergencies on the aerodrome
HEAD AERODROME EMERGENCY SERVICES	**Performance Criteria**
	a) Ensure that aerodrome certificating requirements are met, and that the aerodrome operates in accordance with the regulatory requirements in the provision of Aerodrome Emergency Services
	b) Ensure emergency fire and rescue facilities are compatible with sizes, types and frequency of aircraft in accordance with regulatory requirements
	c) Ensure that rescue and firefighting policies, procedures and training meet regulatory requirements and are commensurate with aerodrome operations
	d) Ensure that procedures for auditing driver training programmes are to established standards
	e) Ensure the use of communication protocols and procedures is in accordance with regulations
	f) Assess the feasibility of continuing aerodrome operations in an emergency situation
	g) Ensure appliances and equipment meet all regulatory requirements

POSITION	ASSESSMENT CRITERIA
	h) Establish an effective Command & Control System
	Knowledge Criteria
	a) Qualified in the role with appropriate education, experience and/or certification
	b) Practical experience and expertise in aerodrome AES
	c) Comprehensive knowledge of the applicable regulatory requirements in the areas of Aerodrome Emergence Services and aerodromes
	d) Knowledge of [MAS] and ICAO document
	e) Knowledge of the Aerodrome Manual
	f) CAA Regulatory Framework
	g) Safety Management System/State Safety Programme
	h) CAA Aerodrome Certification Process
	i) CAA Regulatory Oversight Process
	j) CAA Enforcement Procedure
	k) Process and procedure for the reporting and follow-up of accidents, incidents and emergencies on the aerodrome

Appendix 7E: ASSESSMENT OF OPERATIONS AND MAINTENANCE PERSONNEL CHECKLIST

Note:- Please also refer to Asia/Pacific Regional Guidance On Aerodrome Operations Personnel Competency Requirement Framework.

QUESTIONNAIRE	Review by Aerodrome Inspectors	
	Status	Remarks
1. Does the officer possess basic qualifications to carry out assigned responsibilities?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
2. Does the officer have the required knowledge and experience on the job (OJT) to perform the responsibility at the expected level of competence?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
3. Does the officer have the required tools and equipment to carry out the operation in line with job specification?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
4. Does the officer have a job description?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
5. Is there a personnel roster that indicates satisfactory workload for each officer?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
6. Are the officers adequately and regularly trained to discharge the responsibility optimally?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
7. In demonstrating operations and maintenance competence, is the knowledge, skills and experience required to inspect aerodrome movement area, obstacle limitation surface, marking, signs and lights, for conducting or supervising aerodrome works, for using the portable radio and completing the NOTAM forms displayed?.	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS

QUESTIONNAIRE	Review by Aerodrome Inspectors	
	Status	Remarks
8. Are the officers' refresher trainings at such duration/interval to guarantee currency on the job?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
9. Does the officer have adequate knowledge of the working documents available for the performance of his duties?	[ ] Yes [ ] No [ ] N/A	☐S ☐ NS
Inspectors Remarks:		

Name of Inspector: _____ **Signature:** _____ **Date:** _____

Appendix 7F: COMPETENCY CHECKLIST FOR AERODROME TECHNICAL PERSONNEL

Note:- Please also refer to Asia/Pacific Regional Guidance On Aerodrome Operations Personnel Competency Requirement Framework.

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	**REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)**
	1. Reporting Officer Has the reporting officer possesses the following attributes? a) sound knowledge of the physical characteristics of the aerodrome movement area, the aerodrome obstacle limitation surfaces, aerodrome markings, lighting and ground signals and essential aerodrome safety equipment; b) an understanding of the aerodrome information included in AIP; c) the ability to carry out a serviceability inspection of the aerodrome; d) a knowledge of the aerodrome emergency procedures; and e) a knowledge of the NOTAM system and the ability to carry out aerodrome reporting procedures.	[ ] Yes [ ] No [ ] N/A	
	2. Airside Drivers Does the airside drivers operating vehicles and ground equipment, hold an appropriate license to operate in entering the movement area?	[ ] Yes [ ] No [ ] N/A	
	3. Airside Drivers Is the driver of a vehicle on the movement area appropriately trained for the tasks to be performed and comply with instructions issued by:	[ ] Yes [ ] No [ ] N/A	

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	**REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)**
	a) the aerodrome controller when on the maneuvering area; and b) the appropriate authority when operating on the apron?		
	4. Aerodrome Technical Inspectors Is operator of a certified aerodrome ensure that a person or persons with appropriate technical qualifications and experience conducts an aerodrome technical inspection? In particular: a) the movement area, other pavements and drainage is inspected by a person who has a recognized degree, diploma or certificate in civil engineering or appropriate technical experience; and b) the lighting and electrical facilities is inspected by a person who has a recognized degree, diploma or certificate in electrical engineering or a licensed electrician; and c) the obstacle limitation surfaces is inspected by a person who: d) is technically qualified or experienced in surveying; and e) has a sound knowledge and understanding of the standards and survey procedures for obstacle limitation surfaces.	[ ] Yes [ ] No [ ] N/A	
	5. Aerodrome Safety Inspectors Does a person apply to CAA for approval to conduct aerodrome safety inspections as Aerodrome Safety Inspectors? CAA approve a person if the person has: a) a recognized degree, diploma or certificate in civil	[ ] Yes [ ] No [ ] N/A	

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	**REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)**
	engineering, surveying or a related field and a sound knowledge of the parts of these Regulations and the standards, practices and procedures that are applicable to the operation and maintenance of aerodromes; or b) other qualifications, knowledge and experience that CAA considers suitable for conducting an aerodrome safety inspection; and c) the capability, if the approval is given, to perform properly the aerodrome safety inspection function.		
	6. Wildlife Personnel Is the wildlife personnel responsible for preparing a WHMP a suitably qualified person such as an ornithologist or a biologist?	[ ] Yes [ ] No [ ] N/A	
	7. Persons Involved with Aerodrome Safety Functions Are persons involved with aerodrome safety functions possess essential competencies which include: a) inspect and report on the physical characteristics and conditions of the aerodrome; b) inspect and report on aerodrome lighting systems; c) inspect and report on the OLS; d) initiating a NOTAM; e) use of radio, and f) supervise the safety of aerodrome works?	[ ] Yes [ ] No [ ] N/A	
	8. Work Safety Officer Is works safety officer for the aerodrome works has not been	[ ] Yes [ ] No [ ] N/A	

REFERENCE NO.	QUESTIONS	REVIEW BY AERODROME INSPECTOR/S	
		STATUS	REMARKS (Include reference to documentation or reason for non-compliance/non-applicability)
	trained, in accordance with aerodrome standards, to perform the works safety officer's functions?		

APPENDIX - 8: Suggested Agenda Items for an Exit Meeting

- Welcome
- Thanks for the co-operation of the auditee staff and assistance to the audit team
- Re-state the purpose scope and reason for the audit
- Presentation of the audit context
- If appropriate, mention the previous audit
- Review of objectives of the audit
- Brief review of the audit methodology while emphasizing its standardized nature
- Presentation of the audit findings:
  - Positive aspects to be highlighted
- Listing of the findings but without discussion of the evidence
- Stress that the exit meeting is not the place for discussion, just presentation to alert the auditee.
- Next steps:
  - Audit draft report to be finalized (when) and copied to auditee
  - Auditee then has the opportunity to review and discuss any contentions issues with Team Leader
- Final report to follow within (time/date/event)
- After final report, CAP is expected which will address short term remedial action as well as long term preventative action
- Record of attendees
- Conclusion

APPENDIX - 9: Standard Audit Report Format

AUDIT REPORT FOR
XXX ORGANIZATION

[Insert Table of contents]

1. INTRODUCTION

1.1. Airport/Organization Information

Airport Visited: _____ International Airport
Dates of Audit: dd to dd mm yy
Team Members: Mr. H. O. Exceptional, Audit Leader
Mr. A.N. Other, Team Member
Mr. A.N. Other, Team Member
Mr. A.N. Other, Team Member

1.2. Audit Scope & Objectives

1.2.1. The audit was designed to assess compliance with the (*insert procedures, regulations, manual etc*.) of _____ International Airport/Organization.

1.3. Identity & Administrative Information of Audited Organization

1.3.1. The management of XXX International Airport, representing the aerodrome operator, was:

- Mr A. O. Boss, General Manager
- Mr T Isee, Aerodrome Operations Office
- M B Karful, Safety Manager

1.4. Documents Reviewed

1.4.1. The following documents were reviewed prior to, and during, the audit:

- *List the documents*
- *List the documents*
- *List the documents*

1.5. Person Contacted & Interviewed

1.5.1. The following persons were interviewed and questioned during the audit;

- Mr. A. M. Manager — XXX Airport Director, FAAN
- Ms. A. N Other — Chief, RFFS, XXX Airport

1.6. Opening Meeting

1.6.1. An opening meeting was carried out on _Date_ at Location. This briefing was conducted by the CAA Audit Team Leader, Mr. XXXXX and attended by:

List the persons in attendance.

1.7. Closing Meeting

1.7.1. A closing meeting was carried out on _Date_ at Location. This was conducted by the NCAA Audit Leader, Mr. XXXXX and attended by:

List the persons in attendance.

1.8. Distribution of Report

1.8.1. This final report will be sent to _____ Manager, Airport Director for XXX International Airport. It is the responsibility of Mr. Manager to ensure that distribution of the report conclusions and findings are disseminated amongst appropriate personnel from the audited Organization.

1.9. **Confidential Nature of the Report**

1.9.1. This report and all the information contained therein should be regarded as confidential and not for general dissemination.

2. EXECUTIVE SUMMARY

A short explanation of the main activities of the audit and the principal findings.

3. SUMMARY OF FINDINGS

A summary of all the findings in order of priority.

4. BACKGROUND

4.1. The audit was undertaken in accordance with the requirements of the [DASS] of CAA which establishes the various processes and procedures required to be undertaken by the different Organizations and persons to whom this programme applies, in order to satisfy the needs of ensuring that aviation practices within the [STATE] are maintained in accordance with the requirements of the CAA.

4.2. This airport/ Organization has been the subject of previous audits on XXXX *(date(s)).*

5. OBSERVATIONS & FINDINGS

5.1. Describe each finding as a result of an observed condition.

5.1.1. **Finding:** Describe the deficiency and the corrective action required by the audited Organization together with reference to mandatory requirement and associated evidence of non-conformity.

5.1.2. Status: Assign category of finding

5.1.3. Timing: Agreed deadline for rectification

5.2. **Observation:** Record comments

When drafting findings following an audit or inspection, the following guidelines should be used:

- Do not wait until the last moment to draft the documents; the draft findings must be filled in as the observations are made to maintain a satisfactory level of objectivity.
- The final report of the audit must be drafted as quickly as possible after the audit is completed.
- Every formulation must be clear, concise and comprehensive.
- Sentences should be short.
- The classification of recommendations must be carried out with objectivity and candour.

5.3. **Findings Form**

Regulatory Requirement/ Reference:			Finding Number:
Finding/s:			
Type of Finding:	☐ Non-compliance (Finding) Level 1 *	■ Non-compliance (Finding) Level 2**	
Evidences:			
Auditor/s:			
Corrective Action Plan:			
Target Date:		Auditee/Person Responsible:	

* ***Non-compliance (Finding) Level 1:*** *Any non-compliance is detected with the regulations, requirements, standards, aerodrome procedures and manuals, the terms of an approval or certificate which lower standard or has the potential to result in loss of life, serious injury or damage to facilities.*

** ***Non-compliance (Finding) Level 2:*** *Any non-compliance is detected with the regulations, requirements, standards, aerodrome procedures and manuals, the terms of an approval or certificate which could lower standard or has the potential to cause significant safety problems.*

6. CORRECTIVE ACTION PLAN

6.1. List all the corrective action required by the audited Organization in the Corrective Action Plan form in order of priority as classified by Section 5.1.11 of the Handbook. (See Table 1).

Table 1: AUDIT/INSPECTION CORRECTIVE ACTION PLAN

DOCUMENT REFERENCE	FINDINGS	FINDINGS CATEGORY	CORRECTIVE ACTION (BY THE AERODROME OPERATOR)	PERSON RESPONSIBLE	AGREED TARGET DATE

APPENDIX - 10: Post audit feedback form

Item	Activity	Comments/Remarks
1.	Post audit opening	
2.	Conduct of auditors	
3.	Documentation	
4.	Comment on findings	
5.	Quality of the audit report	
6.	General	

Notes:…….

APPENDIX - 11: Aerodrome Surveillance Checklist

AREA OF INSPECTION		REFERENCES	OBSERVATIONS	FINDING CATEGORY
I.	**PHYSICAL CHARACTERISTICS:**			
A	**RUNWAY :**			
i	ORIENTATION OF ALL RUNWAY(S)			
ii	SURFACE CONDITION (DEPRESSION, POT HOLE, RUTTING):			
iii	SURFACE FRICTION/RUBBER DEPOSIT/ DATE OF LAST FRICTION TEST WITH COEFFICIENT VALUE:			
iv	SLOPES:			
v	VISUAL MARKINGS (TDZ, AIMING POINT, THR,C/L,SIDE STRIP , DESIGNATION, RET/ TWY LINKS ETC) :			
vi	BASIC STRIP (FLUSHING , GRADING , OBSTACLE):			
vii	LIGHTINGS (THR, END, TDZ,C/L , RETIL):			
viii	SIGNAGES (INFORMATION / MANDATORY INSTRUCTION) :			
ix	APPROACH LIGHTS (SIMPLE/ CAT-I/II/III)			
x	VASIS, such as, PAPI (DATE OF LAST SURVEY):			
xi	RESA :			
xii	ANY OTHER OBSERVATION :			
B	**APRON :**			
i	SURFACE CONDITION (DEPRESSION, POT HOLE, RUTTING):			
ii	VISUAL MARKINGS (BREAK AWAY POINT,EDGE ,VEHICULAR LANE , TAXI LANE ,SAFETY LINE , EQPT PARKING AREA ETC) :			
iii	LIGHTS : EDGE , FLOOD LIGTS ETC.:			
iv	ILLUMINATION LEVEL ON APRON (IN LUX):			
v	SIGNAGES (INFORMATION / MANDATORY INSTRUCTION) :			
vi	PARKING STAND IDENTIFICATION / VISUAL DOCKING GUIDANCE			

AREA OF INSPECTION		REFERENCES	OBSERVATIONS	FINDING CATEGORY
	SYSTEM (VDGS) / AEROBRIDGE ETC. :			
vii	EQUIPMENT PARKING AREA :			
viii	FOD COLLECTION SYSTEM :			
ix	ANY OTHER OBSERVATION :			
C	**OPERATIONAL AREA :**			
i	AERODROME PERIMETER FENCING:			
ii	NORMAL AND EMERGENCY ACCESS ROUTES:			
iii	SIGNAL AREA .WIND DIRECTION INDICATOR (WDI):			
iv	ISOLATED PARKING STAND:			
v	OBS. LIGHTS OF OBSTRUCTIONS / OBSTACLES:			
vii	AERODROME RREFERENCE POINT (ARP) & ITS MAINTENANCE:			
vii	DRAINAGE:			
ix	HOLDING POSITION MARKING (TWY , ROAD ETC):			
x	DEMARCATION OF LOCALIZER & GLIDE PATH SENSITIVE / CRITICAL AREAS :			
xi	ANY OTHER OBSERVATION :			
D	**TAXIWAYS** :			
i	MARKINGS (C/L, EDGE):			
ii	LIGHTS: EDGE, CENTER LINE (IF AVBL.), STOPBARS, GUARD LIGHTS ETC :			
iii	SURFACE CONDITION:			
iv	STRIP:			
v	SIGNAGES (INFORMATION / MANDATORY INSTRUCTION)			
vi	ANY OTHER OBSERVATION :			
II.	**ARFF :**			
i	CATEGORY :			
ii	EQUIPMENTS OF RESCUE & FIRE FIGHTING :			
iii	EXTINGUISHING AGENTS :			

AREA OF INSPECTION		REFERENCES	OBSERVATIONS	FINDING CATEGORY
iv	STANDARD OPERATING PROCEDURES (SOPs) :			
v	TRAININGS/ DRILL (FULL SCALE & TABLE TOP EMERGENCY EXERCISE) :			
vi	COMMUNICATION SYSTEMS :			
vii	RESCUE RESOURCES , EXTINGUISHING AGENTS, WATER STORAGE :			
viii	HYDRANT SYSTEM :			
ix	MAINTENANCE OF RECORDS(LOG BOOKS, VEHICLE, DRILL ETC) :			
x	ANY OTHER OBSERVATION :			
	AERODROME INFORMATION:			
i	DATE OF PUBLICATION :			
ii	ADEQUACY OF INFORMATION :			
iii	CURRENT NOTAMs/SNOWTAMs :			
iv	OPERATIONAL RESTRICTIONS, IF ANY :			
v	ANY OTHER OBSERVATION :			
III.	**AERODROME OPERATIONS :**			
i	AERODROME MANUAL : (CHANGE IN PERSONNEL, CONTACT NUMBERS, PROCEDURES, NAVAIDS, ETC.)			
ii	SOPS FOR OPERATIONS AND MAINTENANCE :			
iii	AIRPORT EMERGENCY PLAN :			
iv	DISABLED AIRCRAFT REMOVAL PLAN			
v	OBSTACLE REGULATION & CONTROL PROCEDURES :			
vi	COORDINATION BETWEEN ATM & AERODROME OPERATIONS :			
vii	WILD LIFE CONTROL MECHANISM :			
viii	AERODROME EMERGENCY MANAGEMENT COMMITTEE (AEMC) MEETING & ACTION ITEMS :			
ix	CONSTRUCTION/ DEVELOPMENT ACTIVITIES :			
x	CONTROL & COMPLIANCE OF OBSTACLES, DATE OF LAST SURVEY CARRIED :			

AREA OF INSPECTION		REFERENCES	OBSERVATIONS	FINDING CATEGORY
xi	AERODROME CHARTS : GRID MAP , ZONING MAP, TYPE A & B, DATE OF PUBLICATION,: HOTSPOT LOCATION			
xii	CERTIFICATION COMPLIANCE SYSTEM & AVAILABILITY OF EQUIPMENTS FOR STNDARDISATION :			
xiii	STAND BY POWER SUPPLY FOR ESSENTIAL SERVICES :			
xiv	FOLLOW ME / OPS. JEEP :			
xv	ANY OTHER OBSERVATION :			
IV.	**SAFETY MANAGEMENT SYSTEM :**			
i	SAFETY MANAGEMENT MANUAL :			
ii	SAFETY MANAGER AND SYSTEMS FOR IMPLEMENTATION :			
iii	STATUS OF IMPLEMENTATION :			
iv	COMPLIANCE OF SMS :			
v	SAFETY DATA REPORTING AND RECORDING SYSTEM (VOLUNTARY AND MANDATORY REPORTING)			
vi	SAFETY PROMOTION (TRAINING, SEMINAR, WORKSHOP)			
vii	ANY OTHER OBSERVATION :			
V.	**RUNWAY SAFETY TEAM (RST)**			
i	COMPOSITION, TOR			
ii	MINUTES OF RST MEETINGS			
iii	HOT SPOTS (RUNWAY INCURSION ISSUES); RUNWAY CONDITION REPORTING (RUNWAY EXCURSIONS)			
iv	ANY OTHER OBSERVATION :			
VI.	**AVAILABILITY & ADEQUACY OF TRAINED MANPOWER FOR AERODROME OPERATIONS :**			
i	AERODROME OPERATIONS :			
ii	ARFF :			
iii	MAINTENANCE :			
iv	ANY OTHER OBSERVATION :			
VII.	**ATC :**			
i	SERVICES PROVIDED / UNIT :			
ii	COMMUNICATION FACILITIES : VHF, TELEPHONE, DSC , FIRE ALARM , AERODROME BEACON, LIGHT GUN, ETC. :			

AREA OF INSPECTION		REFERENCES	OBSERVATIONS	FINDING CATEGORY
iii	AVAILABILITY OF RELEVANT ICAO DOCS, ATS CIRCULARS, AICS, NOTAMS, DGCA- CARS :			
iv	DISPLAY OF LANDING, INSTRUMENT APPROACH , AERODROME CHARTS, GRID MAP ETC. :			
v	AVAILABILITY OF UPDATED DOCS REGARDING : AEP , BOMB THREAT, SEARCH & RESCUE, AIR SAFETY CIRCULARS TO DEAL WITH THE SITUATION IN THE EVENT OF AIRCRAFT INCIDENT / ACCIDENT ETC. :			
vi	DISPLAY OF THE LIST OF MEDICAL PRECTIONERS, WHO SHOULD BE AVAILABLE IN CASE OF AN EMERGENCY, TOGETHER WITH THEIR ADDRESSES & TELEPHONE NUMBERS IN THE CONTROL TOWER :			
vii	RWY LIGHTING AND REMOTE STATUS INDICATOR OF NAV. AIDS :			
viii	ANY OTHER OBSERVATION :			
VIII.	**COMMUNICATION/NAVIGATION FACILITIES :**			
i	NAV FACILITIES (NDB/DVOR/MSSR/ILS)			
ii	SERVICEABILITY / RELIABILITY STATUS OF NAVIGATIONAL AIDS:			
iii	SERVICEABILITY / RELIABILITY STATUS OF AIR GROUND COMMUNICATION FACILITIES (VHF,HF ETC), INTER UNIT COMMUNICATION :			
iv	GROUND / AIR CALIBRATION STATUS OF NAVIGATION AID DVOR , ILS, SMR , ASMGCS :			
v	CHECK QUALITY OF RECORDING :			
vi	ANY OTHER OBSERVATION :			
IX.	**METEOROLOGY :**			
i	FACILITIES – CLASS I/ II/III :			
ii	SERVICES PROVIDED AND THEIR ADEQUACY :			
iii	MET REPORTS :			
iv	TIMELY DISSEMINATION :			
v	ANY OTHER OBSERVATION :			

AREA OF INSPECTION	REFERENCES	OBSERVATIONS	FINDING CATEGORY
REMARKS :			
LIST OF OBSERVATION :			
	SIGNATURE OF INSPECTING OFFICER :		

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GENERIC TRAINING PROGRAMME AND TRAINING PLAN FOR AERODROME INSPECTORS

VERSION 1.0 – 2 July 2021

Introductory Notes

This generic document was developed by the ICAO Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG) approved by AOP/SG/5 and published by ICAO Asia and Pacific Office, Bangkok for reference by States in the Asia/Pacific Region. When referring to this generic document, States are expected to customize the content in accordance to the States' legislations, regulations and situations.

ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and Guidance Materials shall take prevalence in the event of any conflict between the aforementioned provisions and this generic document.

Enquiries and feedbacks regarding this generic document can be made to ICAO APAC Office at apac@icao.int.

[Name and Address of Civil Aviation Authority]

TRAINING POLICY & TRAINING PROGRAMME FOR [CAA] TECHNICAL STAFF/INSPECTORS

FIRST EDITION, 2 JULY 2021

PREFACE

[Name of the Civil Aviation Authority] being a regulatory body has to ensure the competency of its workforce. Hence [CAA] is committed to provide training or take other actions to reach the established level of competency, and evaluate the effectiveness of these actions. This policy document provides an overview of various training requirement of [CAA Technical Staff/Inspectors] at all level. The training as envisaged would enable the Technical Staff/Inspectors to understand the context, duties and responsibilities, relevant regulatory provisions and make them familiar with the relevant ICAO documents.

This policy document of the [CAA] provides common guidelines regarding various trainings to enhance the skills and competency of Technical Staff/Inspectors/inspectors. The policy document sets forth the authority and procedural methods to execute various trainings of [CAA Technical Staff/Inspectors] at all level.

[Head or CAA /DGCA]

[Place, date month and year]

RECORD OF AMENDMENTS

AMENDMENTS				AMENDMENTS			
No.	Date applicable	Date entered	Entered by	No.	Date applicable	Date entered	Entered by

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TRAINING POLICY FOR [CAA TECHNICAL STAFF/INSPECTORS]

1. INTRODUCTION

1.1. International aviation standards require that a civil aviation authority provide its safety inspectors with comprehensive training to ensure the competency of its inspector workforce.

1.2. [Name of the Civil Aviation Authority] is a regulatory body responsible for the safety oversight of aircraft operations in the country. [CAA] is committed to establish and control the competencies of its Technical Staff/Inspectors. For this purpose [CAA] is committed to provide training or take other actions to reach the established level of competency, and should evaluate the effectiveness of these actions. The [CAA] should ensure that Technical Staff/Inspectors of [CAA] are competent to carry out the tasks assigned to them and have the necessary qualification, experience and training to perform their respective functions.

1.3. In order to ensure that the Technical Staff/Inspectors in [CAA] are qualified, have operational or technical work experience and their training is compatible with the activities they are required to carry out, [CAA] has prepared this Training Policy.

2. OBJECTIVE

Objective of this Policy is to provide an overview of various training requirement of [CAA Technical Staff/Inspectors] at all level. The training as envisaged would enable the Technical Staff/Inspectors to understand the context, duties and responsibilities, relevant regulatory provisions and make them familiar with the relevant ICAO requirements and materials. The training imparted would ensure to meet the vision of CAA – 'Endeavour to promote safe and efficient air transportation through regulation and proactive safety oversight system' vision of Safety Regulator

3. TRAINING PROGRAM

Each [Division /Section /Unit] should prepare its training programme for its Technical Staff/Inspectors as per this training policy.

3.1 The training program for Technical Staff/Inspectors should contain primarily the following trainings:

3.1.1 **Initial/ Induction Training:** The newly inducted Technical Staff/Inspectors should be provided an induction training to enable Technical Staff/Inspectors to get a general understanding about the organisation, its vision, mission and acquire necessary competencies required for performing their job.

3.1.2 **On-the -job Training:** After Completion of Initial Induction Training, the newly inducted Technical Staff/Inspectors would be provided on-the-job training to enable them to handle their responsibilities independently. An inspector has to undergo corresponding OJT training for a given job/ function before independently performing that job/ function.

3.1.3 **Recurrent Training:** Technical Staff/Inspectors would be provided recurrent training to maintain/upgrade the competency level and also for updating their

awareness to relevant regulations/developments etc. This training should be conducted at least once in two years.

3.1.4 **Specialized/Technical Training:** (one-time courses taken any time – ongoing process): [CAA] should nominate Technical Staff/Inspectors for technical and developmental courses as applicable.

4. INITIAL/ INDUCTION TRAINING

4.1 Initial/Induction Training course should be conducted for each newly inducted Inspectors in [CAA]. There should be 3 modules.

Module-I should be organised by the [Training division of the CAA]. The purpose of this Module is to familiarize Technical Staff/Inspectors with the organization setup business and applicable national legislations and functioning of the organization.

Modules II & III should be structured and conducted in the concerned area [e.g. PEL , AGA, AIG, OPS etc.] by the concerned Section /Division / Unit.

The generic Topics/Contents for Induction Module is placed at **Appendix 'A'**.

4.2 Newly recruited Technical Staff/Inspectors are required to complete the Initial Training course within the stipulated time frame in order to start On-the-job Training (OJT) for their respective areas of posting. This should enable them to be more useful in providing assistance to senior Technical Staff/Inspectors at the preparatory level of work.

4.3 ON-THE-JOB TRAINING

4.3.1 On-the-Job Training entails the completion of three levels of training for each technical job function. The three levels encompass the study of reference materials, task observation, and task performance, as further defined below. An OJT trainer must validate all Levels (I, II, and III) of performance. The OJT training process follows a logical progression of three levels as shown in the table below:

Level	**Trainee**	**Trainer**
Level I – Knowledge	Study	Discuss
Level II – Understanding	Observe	Demonstrate
Level III – Performance	Perform	Evaluate

4.3.2 Level-I training (Knowledge) is typically a self-study effort on the part of the trainee with guided discussion and validation conducted by the OJT trainer afterwards. The time allowed for this should be appropriate to the complexity of the task and the amount of material to be studied.

Levels II and III involve the actual performance of the task. Level I training typically involve a review of all reference materials applicable to the job tasks for which training has been identified. Level I training may be satisfied through classroom training or other delivery methods.

Level II Training (Task Observation) involves observation of the performance of specific job tasks. This training typically involves the trainee observing and/or assisting the OJT trainer in the performance of those specific job tasks for which the trainee should be held accountable. Level II training may be satisfied through appropriate training that provides the opportunity for the trainee to observe and/or assist the trainer performing the task.

Level III Training (Task Performance) involves the application of knowledge and skills to the performance of specific job tasks. Typically, the trainee performs the job task under the observation of a qualified OJT trainer. The trainer assesses the performance of the task and indicates on the trainee's OJT training plan when Level III performance is achieved.

4.3.3 Each division responsible for concerned area [e.g. PEL, AGA, AIG, ANS, OPS etc.] should frame their own OJT Plan based on these guidelines. In order to ensure the responsibility of oversight of an individual Technical Staff/Inspector, concerned division should maintain record of OJT of its inspector/ officer to indicate that the inspector/ officer has been successfully trained on a particular task. Before assigning an inspector/ officer to perform a job task, the appropriate officials within the Division should confirm that the inspector/ officer has completed sufficient training to perform the task.

5 RECURRENT TRAINING

5.1 [CAA Technical Staff/Inspectors] require continuous development of their competencies related to their respective responsibilities. This should be accomplished through periodic training such as recurrent training or continuation training. To ensure that [CAA Technical Staff/Inspectors] maintain proficiency and keep current on aircraft and equipment, techniques, procedures and new developments in their respective areas of expertise, it is essential that they receive periodic recurrent training.

5.2 The Recurrent Training course may share content with the Initial Training course, but varies in emphasis from one to other, as the Initial Training course provides a fuller treatment across all subject area. The Recurrent Training course focuses on changes from year to year in regulations, guidance material as well as significant events occurring in the industry and the local environment from time to time.

6 SPECIALISED TRAINING

6.1 For Technical Staff/Inspectors to upgrade their knowledge at par with international standards and for efficient functioning, [CAA] should periodically develop programmes under special training programmes/schemes in association with international organisations, such as, ACI, EASA, IATA, US FAA and regional cooperative programmes, such as, Cooperative Development of Operational Safety and Continuous Airworthiness Programmes (COSCAPs), Flight Procedure Programme (FPP) etc.

6.2 The purpose of specialized training is to upgrade the knowledge and competency of [CAA Technical Staff/Inspectors] at par with international standards and for efficient functioning. Duration of training is based on the course and the hosting organization.

7. PREPARATION OF ANNUAL TRAINING PLAN

Each Division /Section /Unit of the concerned area [e.g. PEL, AGA, AIG, ANS, OPS etc.] should establish and maintain Individual Training Plans that sets out the training to be provided

to each of their Technical Staff/Inspectors annually and all the proposals may be consolidated at organization level. For prioritising the trainings, all concerned area [e.g. PEL , AGA, AIG, ANS, OPS etc.] should categorically list their priority requirements as 'mandatory training' in their training plan. The training plan of the CAA should be finalised in consultation with all the concerned area [e.g. PEL, AGA, AIG, ANS, OPS etc.] their Representatives. Final proposal may be submitted to [head of organization /CAA] for in-principle approval and accordingly administrative and logistic should be made available /planned. Approved training Calendar for the year should be shared with each concerned Unit / Section/ Division [e.g. PEL, AGA, AIG, ANS, OPS etc.] and also uploaded on the website of [CAA].

8. TRAINING RESPONSIBILITIES

It is the responsibility of the CAA to arrange/provide trainings in accordance with training programme and plan.

9. PROCESS FOR CONDUCTING VARIOUS TRAININGS:

Each concerned Section /Unit/Division [e.g. PEL, AGA, AIG, ANS, OPS etc.] should submit the proposal for individual training as per approved calendar before 30 days of the planned commencement of the training.

10. REVIEW OF TRAINING PROGRAM

Each concerned Section /Unit/Division [e.g. PEL, AGA, AIG, ANS, OPS etc.] is expected to periodically review the Training Program and carry out revisions so that the training of Technical Staff/Inspectors is continuously updated to keep abreast of the latest developments taking place in the aviation field. One of the methods is to analyse the feedback received after training which may be considered for revision of policies, syllabus, and curriculum. The organization may develop the Training Evaluation Form if found necessary.

11. TRAINING FILES AND RECORDS

11.1 All training completed by Technical Staff/Inspectors should be documented in his or her training file. Technical Staff/Inspectors who complete a formal external or in-house training course would receive a Certificate of Completion to be added to their training file.

11.2 On completion of training each Technical Staff/Inspector should submit a feedback report. The data/feedback would be considered while formulating next training programme.

Appendix A

GENERAL INDUCTION TRAINING: CAA TECHNICAL STAFF/INSPECTORS

Sl. No.	Name of the course	Duration	Trainer
	Module I		
	Phase I		
1.	Overview of [Civil Aviation Authority] ❖ Vision ❖ Functions ❖ History ❖ Organization structure ❖ Role ❖ [Directorates /Sections /Division /units]	2 sessions	[CAA senior executive]
2.	Overview of International Civil Aviation Organisation ❖ Chicago Convention ❖ ICAO ❖ Contracting States ❖ ICAO SARPS & Annex management	2 sessions	[CAA senior executive]
3.	General Information on Legislations & Regulations ❖ National level Act & Rules (Hierarchy of regulations) ❖ Delegation of powers ❖ Advisory circulars ❖ Introduction to Civil Aviation Regulations (CAR)	2 sessions	[CAA senior executive]
4.	Overview of CAA each division /unit /section/ directorate: ❖ Functions & Duties ❖ CAA regional setup ❖ Interaction with other Directorates. ❖ Procedure Policy. ❖ Certificates / Approvals granted by each Directorate	16 sessions	[CAA senior executive]
5.	State Safety Oversight system	4 sessions	[CAA senior executive]
6.	State Safety Programme and National Aviation Safety Plan	2 sessions	[CAA senior executive]
7.	Basic Aircraft Accident Investigation	2 sessions	[CAA senior executive]

Sl. No.	Name of the course	Duration	Trainer
8.	Auditing Techniques & Procedures	2 sessions	[CAA senior executive]
9.	Enforcement ❖ Types ❖ Enforcement policy & Procedure	2 sessions	[CAA senior executive]
10.	Personnel ethics, Inspector ethics, conduct and credentials	2 sessions	[CAA senior executive]
11.	Basic IT Module ❖ Introduction to MS Office - MS Word, Mail Merge, MS Power Point, MS Excel etc ❖ Working with internet and Cyber Security	6 sessions	IT expert from industry
	Phase II		
12.	General Administration ❖ General government rules ❖ Conduct & Office procedures	1 week	Any other Specialised institute
	Phase III		
13.	Management/ Personality Development Training.	1 week	Any Specialised Institute

INDUCTION TRAINING OF CAA TECHNICAL STAFF/INSPECTORS: MODULE II

1. The format and duration for the courses should be dictated by the scope of the content. However, for the Inspector's role, the initial course after basic induction should be a minimum of 8 weeks. That should include OJT, participating at an increasing level of involvement, in at least 3 inspections plus an assessed inspection before being cleared to operate without supervision. All courses should include a pass/fail written and oral examination.

2. It is very important that stakeholders must have confidence in the Aerodrome Inspectors, therefore the assessment inspection must be performance oriented with a minimum performance expectation. If that expectation is not met then additional training should be undertaken until CAA is satisfied or termination/transfer procedures are to be considered.

3. During all of the training sessions employ best teaching/training practice using recognized ways of effective training such as:

   a. using only suitably qualified and experienced trainers;
   b. the use of suitable audio-visual material;
   c. "guest" experts from specific disciplines to supplement CAA in house trainers;
   d. workshops and case studies; existing material that has been tested and tried, for example the ICAO SMS/SSP course case studies/exercises.

4. Each training session is for 90 min.

Sl. No.	Name of the course	Duration	Trainer
	Phase -1		
1	Overview of the State's Safety Oversight Obligations ❖ Critical elements of a safety oversight system ❖ ICAO Annexes & state obligations ❖ State Safety Programme ❖ Safety Management Systems (SMS)	02 session	CAA Senior executive/ instructor or Any other specialised institute
2	A) Annex 14 part I (Aerodrome Design and Operations) ❖ Aerodrome data ❖ Physical characteristics: Runways, taxiways, clearways, stop ways, holding bays ❖ Obstacle restriction and removal: Obstacle limitations surface and requirements ❖ Visual aids for navigation: Indicators and signaling devices, markings, signs and markers ❖ Aeronautical ground lights ❖ Aerodrome operational services, equipment and installations B) PANS-Aerodromes	12 session	CAA Senior executive/ instructor or Any other specialised institute

Sl. No.	Name of the course	Duration	Trainer
3	Annex 14 part II (Heliports) ❖ Heliport data ❖ Physical characteristics ❖ Obstacle: Obstacle limitation surfaces and sectors, Obstacle limitation requirements ❖ Visual aids: Indicators, Markings and Markers ❖ Aeronautical ground lights ❖ Heliport services: Rescue and fire fighting	06 session	CAA Senior executive/ instructor or Any other specialised institute
	Phase -2		
4	ICAO Doc 9137 (Airport Services Manual) ❖ Rescue and fire-fighting ❖ Pavement surface conditions ❖ Bird control and reduction ❖ Removal of disabled aircraft ❖ Control of obstacles ❖ Airport emergency planning ❖ Airport operational services ❖ Airport maintenance practices	08 session	CAA Senior executive/ instructor or Any other specialised institute
5	ICAO Doc 9157 (Aerodrome Design Manual) ❖ Overview of runways, Taxiways, Aprons and holding bays ❖ Pavements: Procedures for Reporting Aerodrome Pavement Strength, Evaluation of Pavements, Methods for Improving Runway Surface Texture ❖ Visual aids: Markings and markers, Lightings, Signs ❖ Electrical systems: Introduction, Electricity Supplies, Electrical circuits for Aerodrome Lighting and Radio Navigation Aids, underground Electrical	12 session	CAA Senior executive/ instructor or Any other specialised institute
	Phase -3		
6	ICAO Doc 9184(Airport Planning Manual) ❖ Master Planning- Introduction, Preplanning Considerations, Airport Site Evaluation and Selection , Runways and taxiways, apron, Airport Operations and Support Facilities ❖ Land Use and Environmental Control- General, Environmental impacts associated with aviation	04 session	CAA Senior executive/ instructor or Any other specialised institute

Sl. No.	Name of the course	Duration	Trainer
	activities, Environmental consequences and control measures ❖ Guidelines for Consultant/ Construction Services- Introduction, Task Identification, selection, preparation, administration and construction		
7	Aerodrome Maintenance ❖ Pavements ❖ Runway pavements overlay ❖ Visual aids	04 session	CAA Senior executive/ instructor or Any other specialised institute
8	Technical analysis ❖ Friction testing and rubber removal on runway ❖ PCR analysis / strength assessment ❖ Aeronautical study / Risk assessment	06 session	CAA Senior executive/ instructor or Any other specialised institute
9	Auditing of Aerodromes ❖ Role and responsibilities of aerodrome inspector ❖ Auditing principles, techniques, Procedures ❖ Auditing of rescue and fire-fighting ❖ Auditing of an airport's SMS	06 session	CAA Senior executive/ instructor or Any other specialised institute
	Phase -4		
10	Aerodrome Certification ❖ Procedure manual ❖ Aerodrome manual assessment ❖ Exemptions ❖ SMS manual assessment ❖ Issuance and renewal of operating certificate/ licence	10 session	CAA Senior executive/ instructor or Any other specialised institute
11	Surveillance inspection ❖ Inspection check list ❖ Inspection report ❖ Action Taken Report (ATR) review and disposal ❖ Observations and physical inspection ❖ Periodic review of pending observations in ATR	02 session	CAA Senior executive/ instructor or Any other specialised institute
12	Aerodrome Inspections ❖ Airfield: Pavement, markings, lightings and obstructions ❖ Rescue and fire-fighting	06 session	CAA Senior executive/ instructor or Any other specialised institute

Sl. No.	Name of the course	Duration	Trainer
	❖ Training programme: Review, records and documentation ❖ Training of airfield drivers ❖ Fuelling facilities ❖ Runway incursion prevention ❖ Debris		
13	Wildlife management ❖ Wildlife Strike Hazard ❖ Reporting wildlife strikes ❖ Hazard Assessment ❖ Database and records management ❖ Regulations, policies and compliances	06 session	CAA Senior executive/ instructor or Any other specialised institute

Module III- On- Job Training

SL NO.	SUBJECTS	DURATION	TRAINER
1.	2 Nos of inspection for initial issue of aerodrome license (01 for observation, 01 under supervision) Or 3 Nos of surveillance inspection (01 for observation, 02 under supervision)	As per surveillance inspection plan	CAA Aerodrome inspector

Specialised training

SL NO.	SUBJECTS	DURATION	TRAINER
1.	Advanced audit techniques	02 session	CAA Senior executive/ instructor or Any other specialised institute
2.	Safety Oversight Inspections	02 session	CAA Senior executive/ instructor or Any other specialised institute
3.	Aviation quality management system	02 session	CAA Senior executive/ instructor or Any other specialised institute
4.	Safety Management System	02 session	CAA Senior executive/ instructor or Any other specialised institute
5.	Aerodrome operations	02 session	CAA Senior executive/ instructor or Any other specialised institute
6.	RFF	02 session	CAA Senior executive/ instructor or Any other specialised institute
7.	Wildlife Management	02 session	CAA Senior executive/ instructor or Any other specialised institute
8.	Aeronautical studies / risk assessment	02 session	CAA Senior executive/ instructor or Any other specialised institute
9.	Electrical systems	02 session	CAA Senior executive/ instructor or Any other specialised institute
10.	Signs, Marking and Lighting	02 session	CAA Senior executive/ instructor or Any other specialised institute
11.	Obstacle Limitation Surfaces	02 session	CAA Senior executive/ instructor or Any other specialised institute

Recurrent training

SL NO.	SUBJECTS	DURATION	TRAINER
1.	State letters for amendments in Annex 14 part 1 and part 2	02 session	CAA Senior executive/ instructor or Any other specialised institute
2.	Airport Certification	02 session	CAA Senior executive/ instructor or Any other specialised institute
3	Safety Management System	02 session	CAA Senior executive/ instructor or Any other specialised institute
4	State Safety Program Implementation	02 session	CAA Senior executive/ instructor or Any other specialised institute
5	Safety Oversight Inspections	02 session	CAA Senior executive/ instructor or Any other specialised institute
6	ARFF Operation	02 session	CAA Senior executive/ instructor or Any other specialised institute

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GENERIC SURVEILLANCE PROGRAMME BY AERODROME OPERATORS

VERSION 1.0 – 2 JULY 2021

Introductory Notes

This generic document was developed by the ICAO Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG) and approved by the AOP/SG/5 and published by ICAO Asia and Pacific Office, Bangkok for reference by States in the Asia/Pacific Region. When referring to this generic document, States are expected to customize the content in accordance to the States' legislations, regulations and situations.

ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and Guidance Materials shall take prevalence in the event of any conflict between the aforementioned provisions and this generic document.

Enquiries and feedbacks regarding this generic document can be made to ICAO APAC Office at apac@icao.int.

CIVIL AVIATION AUTHORITY

GENERIC SURVEILLANCE PROGRAMME AT AERODROMES

Foreword

This manual is a [CAA] safety programme document. It contains processes determined to be necessary in supporting operational safety at aerodromes in the [State]. This manual is being issued under the authority of the Director General of [CAA].

Copies are available at the office of:

[Post holder]
[Address]

This document may be amended from time to time as necessary, and the Director General of [CAA] will provide such amendment service.

The term "Head" as referred to in this manual describes the most senior [CAA] officer responsible for certification, registration and continuing safety oversight functions and surveillance of aerodromes, heliports and air navigation services. The incumbent official holding this position reports directly to the Director General, [Civil Aviation Authority (CAA)].

Comments from staff members of [CAA], stakeholders, (or members of the) concerned aviation industry users and public about the contents of this manual are welcome. Clarifications or inquiries can be directed to:

Head of Aerodrome Standards
[Office]
[Address]
[Telephone]:
[Email]:

Amendments

Record of amendment			
Number	**Date Applicable**	**Date Entered**	**Entered by:**

Record of corrigenda			
Number	**Date Applicable**	**Date Entered**	**Entered by:**

Revision History

Revisions to this Document shall be made by authorised personnel only. After inserting the revision, enter the required data in the revision sheet below. The *'Initials'* has to be signed off by the personnel responsible for the change.

Rev No.	Revision Date	Revision Details	Initials

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Chapter 1 – Introduction

1.1 Purpose

1.1.1 The purpose of this document is to ensure safety of the existing facilities and maintain systematic records and a process to notify the concerned departments/divisions/sections to rectify the deficiencies which do not conform to all the specifications contained in the [Directive/Manual etc.].

1.2 Background

1.2.1 While some hazardous aerodrome conditions develop virtually instantaneously, others are gradual. It is important that the aerodrome operator have an aerodrome safety surveillance self-inspection program that monitors specific aerodrome conditions in order to identify unsatisfactory conditions for prompt corrective actions. The programs vary in scope and effectiveness from verbal instructions and unscheduled and unrecorded inspections to very comprehensive inspection programs with multiple daily schedules and widely distributed responsibilities.

1.2.2 The self-inspection program is a key component of an aerodrome operator's aerodrome certification program.

1.2.3 The operator of certified aerodrome is required regularly to conduct scheduled, continuous surveillance, periodic and special inspections, and a daily safety self-inspection to ensure that prompt corrective action is taken to eliminate unsafe conditions on the aerodrome. The specific requirements of the inspection program at each certified aerodrome are addressed in the aerodrome certification manual. This guideline suggests components, responsibilities and items for regularly scheduled, continuous surveillance, periodic condition and special inspections, and checklists for use during any of these aerodrome safety inspections. This guidance can be modified as necessary to meet specific local situations.

1.2.4 Responsibilities

a) **Safety Self-Inspection.** Self-inspection is a primary responsibility of the Aerodrome Operator. Primary attention should be given to such operational items as pavement areas, safety areas, markings, signs, lighting, aircraft rescue and firefighting, fuelling operations, navigational aids, ground vehicles, obstacles, public protection, wildlife hazard management and construction. Inspection of areas that have been assigned to individual air carriers, fixed base operators, or other tenants can be made the responsibility of the user. However, the certificate holder is ultimately responsible for operating the aerodrome safely.

b) **Recommended Inspection Frequency**

1) **Regularly scheduled inspection.** The aerodrome should be inspected daily preferably during times when aircraft activity is minimal in order to minimise the impact on aerodrome operations. Part of this inspection should be done during the hours of darkness at those aerodromes that is open after dark. In accordance with ICAO Annex 14, Volume I, Section 2.9.3, movement area shall be inspected at least once daily where the aerodrome reference code number is 1 or 2, and at least twice daily where the aerodrome reference code number is 3 or 4. With reference to PANS-Aerodromes (Doc 9981), Part II, Chapter 3, Section 3.3.1, the frequency and

detail of inspections may be increased from the minimum specified in Annex 14 , depending on the traffic expected and the type of inspection being performed.

[Note: States are reminded to replace the references to ICAO provisions with national regulations.]

2) **Continuous surveillance inspection.** Those activities and facilities that have been identified to require continuous surveillance should be inspected any time personnel are in the movement area. Hazardous conditions can occur at any time and in a short period of time. [CAA] may approve a schedule of inspection as per the need of the situation at the particular aerodrome.

3) **Periodic condition inspection.** Periodic condition inspection of activities and facilities can be conducted on a regularly scheduled basis but less frequently than daily. The time interval could be weekly, monthly, or quarterly, depending on the activity or facility.

4) **Special inspection.** Special inspections of activities and facilities should be conducted after receipt of a complaint or when an unusual condition or unusual event occurs on the aerodrome, such as a significant meteorological event or an accident or incident. Special inspections should also be conducted at the end of construction activity to ensure that there are no unsafe conditions present related to the construction activity. A special inspection should be conducted prior to construction personnel leaving the aerodrome in the event that corrective actions are necessary. Special inspections should be documented on the appropriate portions of the regularly scheduled inspection checklist.

5) **Inspection Records.** An effective safety self-inspection program includes procedures for reporting and correcting deficiencies. This means that the aerodrome operator should have a work order system in place so that deficiencies can be corrected in an expeditious manner.

   i) The operator should issue a Notice to Airmen (NOTAM), as appropriate, through AIS Division reporting deficient conditions that could have an immediate and critical impact on the safety of aircraft operations. When corrective actions have been taken, the NOTAM should be cancelled.

   ii) For even the smallest aerodrome, it is desirable to use a safety self-inspection checklist that constitutes a written record of conditions noted, and acts as a check on follow-up actions taken. The scheduled use of a dated checklist will assure the regularity and thoroughness of safety inspections and follow-up. The checklist can be an important administrative tool for aerodrome management. It can provide a snapshot of the condition of the aerodrome, indicating trends, defining problem areas, indicating systems that are beginning to deteriorate and helping to define budgetary requirements. It is most desirable to use a format (see examples, **Appendices 1–5**) in which each inspected area of the aerodrome complex is positively noted. Retain the checklist until indicated actions are completed. However, the regularly scheduled inspection checklist should be the basic log documenting that safety inspection responsibilities are being met.

iii) The inspection records should be kept for a minimum of [.....] years as agreed with the [CAA].

c) **Follow-up.** The aerodrome operator should follow up on complaints or requests for corrective action and on all deficient items or problem areas noted during the daily inspection. Determine which problems require immediate attention and treat those with highest priority, including developing appropriate NOTAM notification.

Chapter 2 – Inspection Techniques

2.1 Inspectors should vary the pattern of the inspection. Fixed inspection patterns, while easy to learn, do not provide for an adequate inspection. The use of such fixed inspection patterns can lead to complacency and to the possibility of missing items that are in need of correction.

2.2 When conducting an inspection on a runway and when there is time to do only one pass on that runway, inspection personnel, whenever practical, should drive towards the direction of landing aircraft with high intensity flashing beacon and headlights in the day and at night. This practice will enable self-inspection personnel to see approaching aircraft and improve visibility of the vehicle to pilots. However, it is recommended that a runway inspection be done in both directions. Inspection personnel should also inspect the stub taxiways between the runway and parallel taxiway as these areas are commonly overlooked.

Chapter 3 – Knowledge and Equipment for Self-Inspection

Note:- Please also refer to the APAC Regional Guidance on Aerodrome Operations Personnel Competency Requirement Framework.

3.1 Aerodrome personnel who conduct safety self-inspections (referred to as inspectors) should receive training in at least the following areas:

1) aerodrome familiarization, including aerodrome signs, marking, and lighting;
2) ICAO Annex 14 Vol. 1 and national regulations;
3) ICAO PANS-Aerodromes (Doc 9981);
4) Safety Management System (SMS);
5) Radio Telephony;
6) Obstacle Limitation Surfaces;
7) Pavement design, drainage system;
8) Aerodrome Manual and Aerodrome Emergency Plan;
9) Notice to Airmen (NOTAM/SNOWTAM) notification procedures;
10) Procedures for pedestrians and ground vehicles in movement areas and safety areas;
11) Aerodrome inspection procedures and techniques; and
12) Discrepancy reporting procedures.

3.2 Inspectors should know the location and types of aerodrome facilities, rules and regulations and be familiar with the Aerodrome Certification Manual.

3.3 Inspectors should have a vehicle equipped with:

1) A two-way ground control radio capable of communicating with the Aerodrome Control Tower on controlled aerodromes;

2) A beacon for night time (or inclement weather conditions) inspections; and

3) A beacon and/or checkered flag for daytime inspections.

3.4 Inspectors should know and use correct radio communication phraseology, procedures and techniques, as specified in the Aeronautical Information Publication (AIP).

3.5 Inspectors should be supplied with checklists covering the various inspection areas (sample aerodrome safety self-inspection checklists are contained in Appendices 1–5). While format of checklists varies, it is important to develop a checklist that is useful for the aerodrome and its operation. If certain inspectors will be responsible for only certain items, separate checklists pertinent to those areas may be developed. A sketch of the aerodrome should accompany the checklist so that the location of problems can be marked for easy identification.

3.6 Inspectors should review the most recently completed checklist from the previous inspection cycle prior to beginning the inspection, so as to identify any unsatisfactory item for enhanced awareness.

3.7 If construction is in progress, inspectors should be familiar with the safety plan for the project.

3.8 Inspectors should be familiar with the aerodrome certification manual requirements.

Chapter 4 – Components of a Safety Self-Inspection Program

4.1 A successful safety self-inspection program has four components:

a) A regularly scheduled inspection of physical facilities (which must be conducted once or twice daily at aerodromes certified under [State regulations] and with reference to Section 1.2.4 of this document). If the aerodrome is open after dark, there should also be a night time inspection of lighting;

b) Continuous surveillance inspection of certain aerodrome activities, such as fuelling operations, construction, airfield maintenance, aircraft turn-around operation, etc.;

c) A periodic condition inspection program for such things as surveying approach slopes, obstacles, etc.; and

d) Special inspections during unusual conditions or situations, such as changing weather or days of unusually high number of aircraft operations.

Chapter 5 – Regularly Scheduled Inspection

5.1 The regularly scheduled inspection consists of specific observations of aerodrome physical facilities on at least once or twice daily, as specified in Section 1.2.4. This inspection should concentrate on the areas described in this section, which are also included in **Appendix 1-A**. If deficiencies exist, the inspector should indicate the deficient item and identify its location on an aerodrome sketch, providing dimensions and depths, as necessary. If appropriate, the inspector should take photographs to document the condition.

5.1.1 **Pavement Areas.** The condition of pavement surfaces is an important part of aerodrome safety. Pavement inspection should be conducted daily before flight operations commence to ensure pavement surfaces are clear. As a minimum, a daily inspection should be performed of all paved areas that are the responsibility of the aerodrome operator. During the pavement inspection, the inspector should:

1) Check the pavement lips—the area between full-strength pavement and shoulders or paved shoulders and safety areas—to assure that they are no greater than necessary to allow water to drain off the pavement. A lip height no greater than [1 1/2] inches is usually sufficient to allow proper drainage.

2) Determine if there are any cracks wide enough to cause directional control problems for an aircraft. Report and monitor these cracks.

3) Determine if there are any holes that could cause directional control problems for an aircraft. (any hole that cannot be covered by a [5]-inch circle, and the side slope at any point in the hole that exceeds [3] inches in depth and is [45] degrees or greater, is a discrepancy. If the hole cannot be covered by a [5]-inch circle but the side slope at any point in the hole that exceeds 3 inches in depth or is less than [45] degrees, it may be a discrepancy if it is determined to be a surface variation that could impair directional control of an air carrier aircraft.)

4) Check the condition of pavement areas for cracks, scaling, sapling, bumps, low spots, and for debris that could cause foreign object damage to aircraft.

5) Check for vegetation growth along runway and taxiway edges that may impede drainage from the pavement surface.

6) Check for vegetation growth in cracks.

7) Report and monitor any cracks, holes, variations and vegetation that can cause loss of aircraft directional control or may cause pavement damage, including damaged caused by damming or ponding water.

5.1.2 **Safety Areas (runway strip including runway end safety area and taxiway strips).** The inspector should know the dimensions of the runway and taxiway safety areas at the aerodrome. The dimensions of the safety areas should be documented in the aerodrome manual. During the safety area inspection, the inspector should:

1) Determine if there are any hazardous ruts, depressions, humps or variations from the normal smooth surface.

2) Check to ensure no object is located in a safety area, except objects that must be in the safety areas because of their functions (such as runway lights, signs,

or navigational aids). These objects must be constructed on frangibly mounted structures of the lowest practical height. The frangible point must be no higher than 3 inches above grade.

3) Determine if the base for any equipment in safety areas is at grade level and equipment and NAVAIDs mounted on frangible couplings.

4) Check to ensure that manhole and handhole covers are at grade level and can support vehicles and aircraft. Check to ensure that mounts for light fixtures are at grade level.

5) Check for surface variation and other damage caused by rodents or other animals.

6) Report any objects that are not frangible or not at grade level. Also report extraneous equipment and objects, such construction equipment, and surface variations that would cause damage to an aircraft or impede emergency response vehicles.

5.1.3 **Markings.** Aerodrome markings provide important information to pilots during take-off, landing, and taxiing. To avoid confusion and disorientation, aerodrome markings should be in compliance with [directive/manual etc.]. The inspector should know the appropriate markings required at the aerodrome. During the marking inspection, the inspector should:

1) Check markings for correct color-coding, peeling, blistering, chipping, fading, and obscurity due to rubber build up.

2) Check to see if all runway holding position markings are clearly visible.

3) During and after construction projects, check new markings for compliance with [directive/manual etc.] marking standards.

4) If the markings have glass beads, check markings during periods of darkness to determine if the reflectivity of glass beads is adequate at night.

5) Report and monitor any nonstandard marking or markings that are obscured, faded or deteriorating.

5.1.4 **Signage.** Signs provide important information to pilots while taxiing. To avoid pilot confusion and disorientation, aerodrome signs should be in accordance with [directive/manual etc.]. The inspector should know the appropriate signage standards and specifications at the aerodrome and

1) Check signs to ensure they are easy to read, in accordance with colour standards, retro-reflective, and that all lighted signs are working and not obscured by vegetation, dirt, etc.

2) Check signs to ensure they are frangible mounted and concrete bases are properly maintained at grade level.

3) Check to see that sign panels are not missing or damaged, that they have the correct legend and arrow orientation, and that they are not cracked or broken.

4) During and after construction projects, check new signs for compliance to [directive/manual etc.].

5) During periods of darkness, check signs to ensure they are properly illuminated. Ensure mandatory instruction signs are illuminated with the associated runway lighting system. Check signs for correct operations; that they are on the correct circuits, they do not flicker and that they follow the intensity setting of the runway or taxiway lights.

6) Report and monitor any nonstandard sign or any sign that is not functioning, is faded or damaged.

5.1.5 **Lighting.** At night and during periods of low visibility, lighting is important for safe aerodrome operations. Inspection of lighting is best accomplished during periods of darkness in order to evaluate lighting systems when they provide the primary visual aid for pilots. The inspection should concentrate on the lighting owned by the aerodrome operator. However, the inspector should observe any lighting owned or operated by others and report any observed problems immediately to the appropriate responsible owner. During the lighting inspection, the inspector should:

1) Check to ensure that the following are operable, if installed, and that vegetation or deposits of foreign material do not obscure the light fixture.

– Runway and taxiway edge lights;
– Apron edge lights;
– Runway centre line and touchdown zone lights;
– Taxiway centre line lights or centre line reflectors;
– Runway threshold/end lights; and
– Runway guard lights (both elevated and in-pavement, if installed).

2) Check that the following are operable, if installed:

– Ramp lights and floodlights used in construction to ensure they are properly shielded);
– Obstacle
– lights; and
– Lighting in fuel storage areas.

3) Report all fixtures missing and lights that are not working or appear dim.

4) Report any missing or broken light fixture lenses.

5) Ensure that runway and taxiway lights and runway threshold lights are the proper color and are oriented correctly.

6) Check that lights function properly through the manual or radio control features, and that photocell controls function properly.

7) Check the lights for proper alignment, aiming and correct changes in intensity, for correct height, erosion around the bases and the height of frangibility.

5.1.6 **Navigational Aids (NAVAIDs).** The inspection of NAVAIDs should concentrate on the visual navigational aids owned by the aerodrome operator. During the inspection of NAVAIDs, the inspector should:

1) Determine if the segmented circle is clear of vegetation and that it can be seen easily from the air.
2) Determine if the aerodrome rotating beacon is visible and working properly.
3) Check the wind cone(s) to ensure that it swings freely, the cone fabric is not faded or frayed, and, if lighted, that all lights are operating.
4) Determine if the Runway End Lights (RENLs) are flashing in proper sequence and mounted on frangible couplings.
5) Check Visual Glide Slope Indicators (VASIs, PLASIs, or PAPIs) to ensure that their lights are working and mounted on frangible couplings.
6) Determine if the Approach Lighting systems are functioning properly.
7) Report and monitor any NAVAID that is malfunctioning, inoperable or misaligned, damaged or missing.

5.1.7 **Obstacles.** The inspection of obstacles should concentrate on a visual check of construction underway on or near the aerodrome that could affect aircraft operations. This also includes checking for any vegetation, especially, trees that may penetrate the obstacle limitation surfaces. During the inspection of obstacles, the inspector should:

1) Check to ensure that construction equipment, especially tall cranes being used at construction sites, are not an obstacle. If construction is found and thought to create an obstacle, the aerodrome operator should determine if proper notification to [CAA] or Aerodrome Layout Plan review, has been provided.
2) Determine if obstacles are properly marked and lighted.
3) Direct any person proposing construction near a public-use aerodrome infringing the obstacle limitation surfaces to [CAA] or Civil Aviation Office immediately.
4) Report and monitor any obstacle light that is missing, inoperative or damaged, and any object that appears to be an obstacle and is not properly marked or lit.

5.1.8 **Fuelling Operations.** The daily inspection on aircraft fuelling operations should concentrate on a quick inspection for the most common problems concerning compliance with local fire safety codes at fuel storage areas and with mobile fuelers. The inspection should also include security, fire protection, general housekeeping, and fuel dispensing facilities and procedures. A more detailed fuelling operation inspection should be scheduled quarterly (see Quarterly Fuelling Operations under Periodic Condition Inspection). During the daily inspection of aircraft fuelling operations, the inspector should:

1) Determine if the fuelling operator is permitting any unsafe fuelling practices or is in violation of local fire code, such as failure to bond aircraft with the mobile fuellers during fuelling operations or fuelling personnel smoking while fuelling aircraft.

2) Check to ensure that the appropriate signs for the fuel farm are installed and that all gates are locked except when the facility is occupied by an authorized user.

3) Report and monitor any unsafe fuelling practices and violation of local fire codes.

5.1.9 **Construction.** The inspector should be familiar with the aerodrome's construction safety procedures and guidance during aerodrome construction. During the construction inspection, the inspector should:

1) Determine if stockpiled material and construction materials are properly stored to keep them from being moved by wind, jet blast, or prop wash, and is not left in safety areas or movement area.

2) Check all construction adjacent to movement areas to ensure areas are identified with conspicuous marking and lighting.

3) Determine if construction equipment (such as bulldozers, cranes, etc.) are marked and lighted and parked clear of the safety areas.

4) Ensure construction barricades are properly positioned to define the limits of construction and hazardous areas and, if barricades are lighted, check to ensure lights are working properly and are positioned correctly.

5) Check to ensure that debris and foreign objects are continuously being picked up around construction areas.

6) Check for open trenches in the safety areas or adjacent to movement areas.

7) Check operation of lighting in areas adjacent to construction daily before the construction crews depart for the day. In particular, ensure that mandatory instruction signs remain lit with the associated runway lights, even on taxiways that have been closed for construction.

8) Check NOTAMs daily during construction projects to ensure they accurately reflect the conditions on the aerodrome.

9) Verify that closed taxiways or runways are properly marked and lighted.

10) Report and monitor any dangerous condition created by construction activity, including damage to signs, lights, markings and NAVAIDS or equipment and supplies left in movement areas and safety areas.

5.1.10 **Rescue and Fire Fighting.** During the inspection of rescue and firefighting (RFF) capabilities, the inspector should:

1) Check the status of RFF response, including the availability of equipment, fire fighters and extinguishing agent. Ensure that such RFF capabilities comply with the approved Aerodrome Certification Manual and that the aerodrome's fire category is still appropriate for air carrier aircraft served.

2) Ensure alarm and emergency notification communication systems are operable.

3) Determine the adequacy of available fire extinguishing agents.

4) Check for construction or maintenance activity on the movement area that could affect RFF response routes. Ensure that the RFF Department has been notified if construction or maintenance activity could affect emergency response routes.

5) Report and monitor any RFF vehicle, equipment or extinguishing agent that is not available or inoperative; any RFF personnel that are not available; and any changes to aircraft that may require a change to RFF capabilities. Notify aerodrome authority and [CAA] if RFF vehicles is inoperative and cannot be replaced immediately, as specified under Aerodrome.

6) Manual and issue a NOTAM regarding non-availability of any rescue and firefighting capability, as specified under Aerodrome Manual.

5.1.11 **Public Protection.** During the public protection inspection, check gates, fencing, locks, and other safeguards are in place and functioning properly to prevent inadvertent entry to movement areas by unauthorized persons and vehicles and offer protection from jet blast. Report and monitor any safeguards that are damaged or missing. In accordance with the aerodrome's security plan, report unauthorized persons or vehicles in the movement area.

5.1.12 **Wildlife Hazard Management.** During the wildlife hazard inspection, the inspector should check for evidence of birds or animals on the runways, taxiways, aprons, and ramps or other signs that wildlife problems may have developed - such as large flocks of birds on or adjacent to the aerodrome. Wildlife hazards found during the daily self-inspection should be properly documented. All dead wildlife found and all wildlife aircraft strikes should be reported to the [CAA] on form specified in table x.x of Aerodrome Manual. Additionally, the inspector should check fencing and gates for wildlife accessibility and should ensure that wildlife control equipment is available and operational.

Chapter 6 – Continuous Surveillance Inspection

6.1 Continuous surveillance inspection consists of general observation of activities for compliance with regulations, procedures, etc., as well as abnormalities with physical facilities that are readily apparent. This is performed any time inspection personnel are on the movement area. Continuous surveillance of aerodrome physical facilities and activities should cover at least the areas described in this section, which are also included in **Appendix 1-B**.

6.1.1 **Ground Vehicles.** During the continuous surveillance inspection of ground vehicles, the inspector should:

1) Determine if vehicle drivers are following the aerodrome's procedures and arrangements for the orderly operations of ground vehicles (including mowing machines or other maintenance vehicles in the safety areas). Extra attention should be paid to ground vehicle activity during construction and other special events.

2) Ensure that prior entering the airside, the permitted driver has a valid Airside Driving Permit (ADP) & Airside Vehicle Permit (AVP) are issued to vehicles that complied with the required standards and condition of the vehicle.

3) Report and monitor any vehicle operator that is not complying with the aerodrome's vehicle procedures and arrangements.

4) Report any ground vehicle accident observed and any ground vehicle signs and markings that are damaged, missing or obscured.

6.1.2 **Fuelling Operations.** The inspector should:

1) Emphasize fire and explosion hazards inherent in aircraft refuelling.

2) Ensure proper bonding is being used, deadman controls are not blocked, and no smoking prohibitions are being observed, and aircraft are not being fuelled inside hangars.

3) Check for proper parking of mobile fuellers to ensure these vehicles are at least 3 m (10 feet) apart and 15 m (50 feet) from buildings.

4) Check for fuel leaks or spills in the fuel storage area and around mobile fuellers.

5) Determine if the fuel farm is free of flammable materials, including litter and vegetation.

6) Report and monitor any of unsafe fuelling conditions discussed above and other obvious violations of local fire code and aerodrome fuel fire safety procedures.

6.1.3 **Construction.** The Inspector should check construction projects to ensure that the contractor is following the construction safety plan. During the continuous surveillance inspection of construction activity, the inspector should check for, and report, any of the following conditions:

1) Unauthorized use of runways, taxiways, and aprons by construction personnel and equipment.

2) Conditions that may result in runway incursions and other irregularities. This includes ensuring that construction areas are delineated appropriately with barricades, cones, markings, etc.

3) Construction equipment is not operated in NAVAID critical areas unless coordination with NAVAID department/division/section of the aerodrome has been accomplished.

4) Perimeter gates are left open and unattended, unlocked or construction vehicles and personnel are not following access and escort procedures.

5) Construction vehicles not properly marked or missing appropriate flags and/or beacons.

6) Foreign object debris on haul roads adjacent to movement areas that can be tracked onto taxiways, aprons, and ramp areas.

7) Confusing or missing signs, markings or lighting that could potentially confuse or mislead pilots.

8) Barricades and lighting are in place and operational.

6.1.4 **Public Protection.** Pay special attention to public protection during construction and special events. During the continuous surveillance inspection of safeguards used to protect the public, the inspector should check for, and report, any of the following conditions:

1) Unauthorized personnel, vehicles, and animals, particularly in areas aircraft passengers and the general public are present on the air carrier ramp and other portions of the movement area, i.e, remote aircraft parking locations.

2) Inoperable or blocked gates, particularly those that would impede access by aircraft rescue and firefighting equipment.

3) Open or unlocked gates and missing or damaged signs posted to prevent unauthorized access to the airfield.

4) Damaged or missing jet blast fences.

6.1.5 **Wildlife Hazard Management.** During the continuous surveillance inspection of wildlife hazards, the inspector should check for, and report, any of the following conditions:

1) Birds or animals, such as dogs, deer, etc., on or adjacent to the runways, taxiways, aprons, and ramps to determine if there is a potential wildlife hazard problem.

2) Potential hazard created by birds on or adjacent to the aerodrome.

3) Wildlife strikes and carcasses found on the runways. Report these to the [CAA] on form specified in Aerodrome Manual.

6.1.6 **Foreign Object Debris (FOD).** The inspector should continuously check for, and remove any FOD in movement areas, aircraft parking areas, loading ramps, and any adjacent areas.

Chapter 7 – Periodic Condition Inspection

7.1 Periodic condition inspections consist of specific checks of physical facilities on a regularly scheduled basis (but less frequently than daily). Checks may require use of equipment (e.g., Walker Bar to measure VASI glide slope angles or transit to survey approach slopes, or continuous friction measurement equipment) or checking specific features of physical facilities. Periodic inspection of aerodrome physical facilities and activities should cover at least the areas described in this section, which are also included in **Appendix 1-C**.

7.1.1 **Pavement Areas.** The inspector should check pavement surfaces for rubber build up, polishing, or other items affecting friction.

7.1.2 **Markings.** The inspector should:

1) Check pavement markings to ensure they are correct and clearly visible. Markings on concrete and faded asphalt should be outlined with a black border.

2) Determine if markings are visible at night; especially examine for rubber build up in the touchdown zone areas.

7.1.3 **Signs.** The inspector should check sign faces for peeling and for fading or faded colors.

7.1.4 **Quarterly Fuelling Inspections.** [directive/manual etc.] are required to establish fire safety standards for safe fuelling operations and conduct quarterly inspections of the fuelling facilities. Sample quarterly inspection checklists for fuel storage areas and mobile fuellers are included in **Appendix 1-E & 1-F**. Typical fire safety standards to inspect quarterly are listed below. Aerodromes certified under [State regulations] are required to maintain a record of this inspection for at least [.....] months.

1) **Fuel storage areas and loading/unloading stations.** The inspector should:

– Check fuel storage areas for adequate fencing and security to prevent unauthorized access or tampering.

– Check for “No Smoking” signs that are clearly visible.

– Check fuel storage areas for materials such as trash or vegetation that could contribute to the spread of fire. Also check for equipment, functions or activities that could be ignition sources.

– Note if fuelling equipment appears to be in good operating condition and free of fuel leaks.

– Check piping for reasonable protection from damage by vehicles if piping is above ground.

– Check fuel storage areas for at least two accessible and serviceable fire extinguishers.

– Check for explosion proof equipment, switches and wiring that is reasonably protected from heat, abrasion or impact, which could cause an ignition source.

– Check for piping, filters, tanks and pumps being electrically bonded together and interconnected to an adequate grounding/earthing rod.

– Check loading stations for deadman control features.

– Look for a boldly marked emergency cut off capable of stopping all fuel flow with one physical movement. The emergency cut off should be located outside the probable fuel spill area near the route that normally is used to leave the spill area or to reach the fire extinguishers.

2) **Mobile fuellers.** At least once every [.....] months, inspect all fuel trucks to ensure they meet fire safety standards. The inspector should:

– Note if mobile fuellers appear to be in good operating condition and free of fuel leaks.

– Check mobile fuellers for parking at least 15 m (50 feet) from a building and at least 3 m (10 feet) from each other.

– Check for flammability labels on all sides. Lettering should be at least 3 inches high. Also check for hazardous materials placards on all sides.

– Check the cab for a “No Smoking” sign and the presence of smoking equipment. Ashtrays and cigarette lighters are not to be provided.

– Check for two fire extinguishers, accessible from each side of the mobile fueller. Fire extinguishers should be charged, sealed and tagged from the last fire extinguisher inspection.

– Check emergency fuel cut offs to ensure they are boldly marked and operable. There should be an emergency fuel cut off accessible from each side.

– Check electrical equipment, switches, wiring and tail light lens covers for explosion proof construction and reasonable protection from heat, abrasion or impact which could be an ignition source.

– Check for serviceable bonding wires and clamps.

– Check nozzles for deadman control feature.

– Check the vehicle exhaust system for exhaust leaks and for adequate shielding if it extends under the fuel tank portion of the vehicle.

7.1.5 **Navigational Aids.** Periodically check the aiming of REILs and Visual Glide Slope Indicators.

7.1.6 **Lighting.** The inspector should:

1) Determine that power generator and circuit resistance tests are being conducted.

2) Ensure lights with adjustable optical systems are checked for proper aiming.

7.1.7 **Obstacles**. The inspector should:

1) Check to ensure there are no overhead power lines in the aircraft parking areas.

2) Annually survey trees and other structures near the aerodrome that could affect glide path angles, approach light lanes, or intruding Obstacle Limitation Surfaces.

7.1.8 **Rescue and Fire Fighting.** The inspector should:

1) Periodically determine if the aerodrome rescue and firefighting service is capable of meeting response times.

2) Ensure that recurrent training and hot-fire drills are being conducted.

3) Check to ensure the availability of adequate entry tools.

Chapter 8 – Special Inspections

8.1 Special inspections occur after receipt of a complaint or as triggered by an unusual condition or event. A special inspection should be conducted after an accident or incident. Depending upon circumstances, special inspections may include the inspection of any of the specific facilities or activities under the other three components. A special inspection of aerodrome physical facilities and activities should cover at least the areas described in this section, which are also included in **Appendix 1-D**.

8.1.1 **Pavement Areas.** After a rain or thunderstorm, the inspector should check the pavement areas for ponding and edge damming.

8.1.2 **Markings and Signs.** The inspector should:

1) Determine if markings are visible at night especially when the pavement is wet following a rain.

2) After construction or maintenance operations, ensure that pavement markings are correct.

8.1.3 **Safety Areas.** The inspector should:

1) Ensure that the storm sewer system is checked to verify that inlets are not clogged and drainage channels are free of debris. Note any standing water.

2) Ensure all inlet covers are in place and sewer covers are at grade level.

3) Conduct a special inspection before reopening a runway or taxiway following any construction or maintenance that has been performed in or around that safety area.

4) Any time an aircraft has left the pavement and entered a safety area, check to ensure that no ruts or holes have been made by the aircraft tires or by personnel and equipment during the recovery operation.

5) Check for construction and maintenance activities to ensure that no hazardous conditions have been created.

6) Physically drive or walk the safety areas to check for any discrepancies.

8.1.4 **Construction.** The inspector should:

1) Ensure that construction areas are barricaded and lighted properly.

2) Check construction equipment to ensure that they are parked within the pre-arranged areas.

3) Conduct night inspections to ensure that barricades, warning lighting, and reflectors are adequate to keep aircraft away from the construction area.

4) Check the location of construction material and stockpiles to ensure that they are outside of safety areas and do not block any signs.

5) Check any movement areas adjacent to construction areas or movement areas traversed by construction vehicles to ensure there is no FOD present.

6) Check movement areas around construction sites for potentially confusing marking, lighting, and signs that could cause pilot confusion or result in a runway incursion.

8.1.5 **Surface Movement Guidance and Control Systems (SMGCS).**

1) For operations below 1,200 feet runway visual range, the inspector should conduct an initial inspection of stop bar lights, runway guard lights, taxiway centre line lights, and taxiway edge lights installed on the low visibility routes in accordance with the aerodrome's SMGCS plan.

2) SMGCS lighting systems that are not electronically monitored should be periodically inspected every 2 to 4 hours for during operations below 1,200 feet to 600 feet. For operations below 600 feet, these inspections should take place every 2 hours. Such inspections should be detailed in the aerodrome's SMGCS plan.

Chapter 9 – Condition Reporting

Alert users of the aerodrome to any unsafe conditions that exists and that could affect their operations. Ensure appropriate NOTAMs are issued for unsafe conditions that are identified during an inspection but cannot be corrected immediately. After reporting NOTAMs to the AIS, follow-up to ensure that the NOTAMs were processed and transmitted.

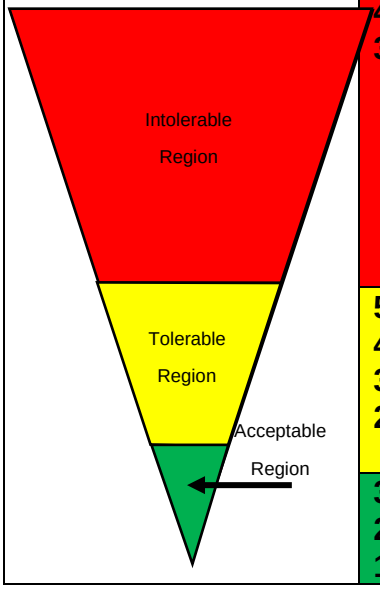
On receipt of an inspection report, the organization concerned is required to submit a Corrective Action Plan (CAP) within an agreed period. The CAP is a written confirmation by the concerns division/Department detailing the measures they intend to implement, to address all of the findings of non-compliance.

The CAP must incorporate actions that at least will remedy the deficiency in the short term and prevent a future re-occurrence.

Table 9-1 Safety Risk Assessment Matrix (Risk Index)

Risk probability	Risk Severity				
	Catastrophic (A)	Hazardous (B)	Major (C)	Minor (D)	Negligible (E)
Frequent (5)	5A	5B	5C	5D	5E
Occasional (4)	4A	4B	4C	4D	4E
Remote (3)	3A	3B	3C	3D	3E
Improbable (2)	2A	2B	2C	2D	2E
Extremely Improbable (1)	1A	1B	1C	1D	1E

Table 9-2 Safety Risk Tolerability Matrix

Suggested Criteria	Assessment Risk Index	Suggested Criteria [Acceptability/ Action Required]
	**5A, 5B, 5C** **4A, 4B,** **3A**	Unacceptable under the existing circumstances. [Do not permit any operation until sufficient control measures have been implemented to reduce risk to an acceptable level.]
	5D, 5E **4C, 4D, 4E** **3B, 3C, 3D** **2A, 2B, 2C**	Acceptable based on risk mitigation. It may require management decision.
	3E, **2D, 2E** **1A, 1B, 1C, 1D, 1E**	Acceptable

Chapter 10 – Categorization of Deficiency and Deadline for Correction

As the ultimate purpose of inspection/surveillance is to identify the safety hazards; assess the safety risk and rectify the deficiencies as required, it is practical here to utilize the safety risk probability table and safety risk severity table of Safety Management System Manual of aerodrome to find the level of probability and severity of the risk associated with the deficiency. The risk arising out of the deficiency is then assessed using the safety risk assessment matrix (risk index) Table 9-1 above. After getting the risk index, it is checked against the safety risk tolerability matrix Table 9-2 above and the outcome will be referred to Safety Review Board. If it is in the Intolerable Region, then the issue is immediately put forward as a top priority to the [CAA] for immediate action. If it falls under the tolerable region and deficiency can be rectified within the expertise and budget of aerodrome, then it will be rectified within three to six months, depending on the nature of deficiency. However, if it is not within the capacity, then aerodrome will coordinate with the [CAA] to rectify the same within one or two fiscal year, as the case may be.

Appendices

Appendix 1 Suggested Aerodrome Safety Self-Inspection Checklists

An aerodrome safety self-inspection checklist should cover the condition of the facilities and equipment on the aerodrome for it to be a part of a good safety inspection program. The checklist should be developed so that it is useful for the aerodrome and its operation. A *sketch of the aerodrome* is highly recommended to readily identify the location of problems found during the daily inspection.

The suggested checklists consist of a listing of facilities and equipment and a series of conditions that are inspected.

The blank squares indicate the conditions to be evaluated for each facility. A check (√) in one of these squares would indicate that the condition of the facility and equipment was found to be satisfactory. On the other hand, an "x" in one of these squares would indicate that the condition of the facility and equipment was found to be unsatisfactory.

When an unsatisfactory condition is found:

1. An — "x" for each applicable square should be entered;

2. A note provided in the Remark/Action Taken section;

3. The location of the condition should be identified in the aerodrome sketch; and

4. Appropriate follow-up action including NOTAMs should be initiated. Corrective action should be documented on either the self-inspection checklists or on a separate work order system.

Appendix 1-A Aerodrome Safety Self-Inspection Checklist

DATE : DAY : √
Satisfactory

Day Inspector/Time : Night Inspector/Time : X
Unsatisfactory

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Pavement Areas	Pavement lips over 3”				
	Hole – 5” diam. 3” deep				
	Cracks/heaves				
	FOD: gravel/debris/sand				
	Rubber deposits				
	Ponding/edge dams				
Safety Areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases				
	Unauthorized objects				
Markings	Clearly visible/standard				
	Runway markings				
	Taxiway markings				
	Holding position markings				
	Glass beads				
Signs	Standard/meet Sign Plan				
	Obscured/operable				
	Damaged/retroreflective				
Lighting	Obscured/dirty/operable				
	Damaged/missing				
	Faulty aim/adjustment				
	Runway lighting				
	Taxiway lighting				
	Pilot control lighting				
Navigational Aids	Rotating beacon operable				
	Wind indicators				
	RENLs/VGSI systems				
Obstacles	Obstacle lights operable				
	Cranes/trees				
Fueling Operations	Fencing/gates/signs				
	Fuel marking/labelling				
	Fire extinguishers				
	Frayed wires				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
	Fuel leaks/vegetation				
Construction	Barricades/lights				
	Equipment parking				
	Material stockpiles				
	Confusion signs/markings				
Aircraft Rescue and Fire Fighting	Equipment/crew availability				
	Communications/alarms				
	Response routes affected				
Public Protection	Fencing/gates/signs				
	Jet blast problems				
Wildlife Hazards	Wildlife present/location				
	Complying with WHMP				
	Dead birds				

Comments/Remarks : _____

Airfield Map on Reverse Side

Appendix 1-B Continuous Surveillance Checklist

DATE : _____ DAY : _____ √ Satisfactory

TIME : _____ INSPECTOR : _____ X Unsatisfactory

FACILITIES	CONDITIONS	√	REMARKS/ACTION TAKEN
Ground Vehicles	Rules/Procedures Followed		
Fueling Operations	Fire/Explosion Hazards		
	Signing/No smoking		
Construction	Safety Plan		
	Runway Incursions		
	Runway & Taxiway Use		
	FOD		
Public Protection	Unauthorized Persons		
	Unauthorized Vehicles		
	Gates clear		
Wildlife Hazards	Birds/Animals		
Miscellaneous	Pedestrians in Movement Areas		
	Passenger Load/Unload		
	Debris in Movement Area		
Additional Remarks			

Airfield Map on Reverse Side

Appendix 1-C Periodic Condition Inspection Checklist

DATE : _____ DAY : _____ √ Satisfactory

TIME : _____ INSPECTOR : _____ X Unsatisfactory

FACILITIES	CONDITIONS	√	REMARKS/ACTION TAKEN
Pavement Areas	Rubber Deposits		
	Polishing		
Markings and Signs	Visible		
	Standards		
Fueling Operations	Physical Facilities		
	Mobile Fuelers		
	Fire Extinguishers		
	Fuel Marking/Labelling		
	Frayed Wiring		
Navigational Aids	RENLs/VGSI Aiming		
Lighting	Power Generator Check		
	Circuit Resistance Test		
	Aim/Adjustment		
Obstacles	Surveyed Trees/Structures		
	Overhead Power Lines		
Aircraft Rescue and Fire Fighting	Response Times		
	Live Fire Drills		
	Training		
Additional Remarks			

Airfield Map on Reverse Side

Appendix 1-D Special Inspection Checklist

DATE : _____ DAY : _____ √ Satisfactory

TIME : _____ INSPECTOR : _____ X Unsatisfactory

FACILITIES	CONDITIONS	√	REMARKS/ACTION TAKEN
Pavement Areas	Ponding/Edge Dams		
Markings and Signs	Visible after rain		
	Standards after Construction		
Safety Areas	Drainage		
	Reopening Runways		
	Reopening Taxiways		
Construction	Barricades		
	Construction Lights		
	Equipment Parking		
SMGCS	SMGCS Lighting		
Additional Remarks			

Airfield Map on Reverse Side

Appendix 1-E Quarterly Inspection – Mobile Fuelers

Inspector : _____ Fueling Agent : _____ Date : _____

S – Satisfactory **U – Unsatisfactory** **R – Remarks Below**	**Jet A Fuelers**			**100LL Fuelers**			**Other Fueler**		
	S	U	R	S	U	R	S	U	R
No smoking sign in cab									
Flammability Signs/Haz Mat Placards all sides									
Bonding Cables and Clips functional									
Deadman Control for all nozzles									
2 Fire Extinguishers – Proper type/Inspected									
Emergency Shutoffs operable and marked									
No Fuel Leaks – Hoses/Gaskets/Valves									
Vehicle Exhaust System – Shielded/Leak free									
No evidence of Smoking – No ashtray in cab									
Vehicle Parking – 10' apart/50' from buildings.									
Explosion proof electrical/Light lens intact									
Ignition Sources (Clothing, Shoes, Matches)									
							No of Mobile Fuelers		
Proper Fueling Procedures Observed							Jet A _____ 100 LL _____ Other _____		
Fueling Personnel Meet Training Requirements									
Fueling Personnel Training Records maintained									

Remarks : _____

Appendix 1-F Quarterly Inspection – Fuel Storage Areas

Inspector : _____ Fueling Agent : _____ Date : _____

S – Satisfactory U – Unsatisfactory R – Remarks Below	Jet A Section			100LL Section			Other _____		
	S	U	R	S	U	R	S	U	R
Fencing/Locks/Signs									
Piping protected from vehicles									
No Smoking signs posted									
Deadman Controls for loading stations									
2 Fire Extinguishers – Inspected/Accessible									
Boldly Marked Emergency Cutoffs – Location									
No Fuel Leaks									
Bonding wire/clips at loading stations/operable									
Piping/Pumps bonded and grounded									
No vegetation or materials to spread fire									
No evidence of Smoking									
Hoses in good condition									
Explosion Proof Electrical Equipment									

Remarks : _____

_____

_____

_____

_____

_____

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GENERIC AERODROME MANUAL

VERSION 1.0 – 2 JULY 2021

Introductory Notes

This generic document was developed by the ICAO Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG) approved by AOP/SG/5 and published by ICAO Asia and Pacific Office, Bangkok for reference by States in the APAC Region. When referring to this generic document, States are expected to customize the content in accordance to the States' legislations, regulations and situations.

ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and Guidance Material shall take prevalence in the event of any conflict between the aforementioned provisions and this generic document.

Enquiries and feedbacks regarding this draft generic document can be made to ICAO APAC Office at apac@icao.int.

GENERIC AERODROME MANUAL

Version 1.0, 2 July 2021

In this document colour coded texts are used with following significance:

Black:	Standard text with no changes usually needed
Blue:	Guidelines related to the relevant section. Not to be included in the actual aerodrome manual.
Green:	Text specific to an individual aerodrome, should be modified.
Figures:	Only for illustration purpose, States may insert applicable figures.

(Insert Airport Name)

Aerodrome Manual

[Enter Date and Current Version no.]

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FOREWORD

This manual has been prepared in part to satisfy obligations imposed on an aerodrome operator under [Legislation and/or Regulation], and is to be regarded as the Aerodrome Manual for {Name} Airport.

It also contains details of essential operating procedures that may not be entirely safety related, but nevertheless are required to satisfy other legal, operational requirements, and common legal obligations.

The manual has been structured to allow other documents such as the Airside Vehicle Control Handbook and Airport Emergency Plan etc. to be directly incorporated. These will continue to be amended and published separately but should be regarded as annexes to, but components of, the Aerodrome Manual and should be read in conjunction with it.

The Civil Aviation Authority of (State) requires the Aerodrome Operator to operate and maintain (Name) Airport in accordance with the procedures set out in the Aerodrome Manual.

It is essential that the procedures documented in this manual are an accurate reflection of current practices. If staff becomes aware of a divergence from these procedures, or if compliance with these procedures is impossible or impracticable for any reason, they must advise their supervisor or the airport safety manager immediately. Additionally, staff is encouraged to query these procedures if the intended results can be achieved in a safer, more cost effective, efficient or reliable manner.

To avoid unnecessary duplication, most procedures make reference to other technical manuals and publications. Supervisors should ensure they have a copy of each relevant publication available for reference by staff that is responsible for implementing a procedure.

(Signature)

(Name) Airport Manager/CEO/Director DD//MM/YY

SEAL

CHECKLIST OF CURRENT PAGES

Page	Revision	Date

NOTIFICATION OF AMENDMENT TO THE AERODROME MANUAL:

The (Responsible Person) of the aerodrome shall:

1. Alter or amend the aerodrome manual, whenever necessary, in order to maintain the accuracy of the information in the manual.

2. If no amendment, review the contents of Aerodrome manual at least once a year to ensure that it is up-to-date.

3. Ensure that each copy of the manual is numbered and a list of Manual holders is maintained by person responsible for the issue of amendments.

4. An amendment page is made available for recording the amendments numbers, date of incorporation, signature of persons amending and affecting the changes, in the front of each volume along with reason for changes.

5. Make amendments by additional or replacement pages on which the amended material is clearly identified.

6. Submit the proposed amendments in the Aerodrome Manual to CAA for its acceptance/ approval at least (xxx) days prior to the effective date.

7. After acceptation/ approval from CAA, distribute the final copies of Aerodrome Manuals per the distribution list.

8. The replaced or pages no more required should be destroyed.

RECORD OF REVISION

Issue No.	Revision No.	Effective Date	Revised By	Reason

MASTER CONTACT LIST

This list must include at least all people involved with operational aspects of the aerodrome such as

CHIEF EXECUTIVE OFFICER

[Name] Work Hour: xxx xxx xxxx email
After Hour: xxx xxx xxxx

AIRPORT MANAGER

[Name] Work Hour: xxx xxx xxxx email
After Hour: xxx xxx xxxx

MANUAL CONTROLLER

[Name] Work Hour: xxx xxx xxxx email
After Hour: xxx xxx xxxx

REPORTING OFFICER

[Name] Work Hour: xxx xxx xxxx email
After Hour: xxx xxx xxxx

NOTAM OFFICE [NOF]

[Name] Work Hour: xxx xxx xxxx email
After Hour: xxx xxx xxxx

ELECTRICAL CONTRACTOR

[Name] Work Hour: xxx xxx xxxx email
After Hour: xxx xxx xxxx

SEARCH AND RESCUE (SAR)

Bangkok Search and Rescue Co-ordination Center
TEL: (+66) 2 285 5450 and (+66) 2 285 5451
FAX: (+66) 2 286 2925
Email:

AIRCRAFT ACCIDENT INVESTIGATION COMMITTEE OF (State)

AAIC TEL: (+66) 2 286 0594 and (+66) 2 285 5451
FAX: (+66) 2 287 3186 / EMAIL

DISTRIBUTION LIST

Control Number	Holder of Copy	Remarks

SUPPORTING OPERATIONAL DOCUMENTS

The Aerodrome Manual may consist of more than one document. If this applies, then list these documents in this section.

Example:

Supporting Documents

1. Airport Emergency Plan
2. Airport Safety Management Manual
3. Airport Security Programme
4. Airport Safety Self-Inspection
5. Airside Vehicle Handbook
6. Disabled Aircraft Removal Plan

ABBREVIATIONS AND SYMBOLS

Example: (Add as many as possible)

AAE	Above aerodrome elevation
AAS	Airport Advisory Service
ACN	Aircraft classification number
AIS	Aeronautical Information Services
ALR	Aircraft loading rating
APAPI	Abbreviated precision approach path indicator
Aprx.	Approximately
ARP	Aerodrome reference point
ASDA	Accelerate stop distance available
ATS	Air traffic services
C	Degrees Celsius
cd	Candela
DME	Distance measuring equipment
EWH	Eye to wheel height
FOD	Foreign object debris
ft	Foot
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GS	Glide slope
HIAL	High intensity approach lighting
ICAO	International Civil Aviation Organization
IFR	Instrument flight rules
ILS	Instrument landing system
MOWP	Method of Work Plan
PERCOW	Permit to commence work

AERODROME CERTIFICATE COPY

Insert current Aerodrome Certificate

Example:

SAMPLE AERODROME CERTIFICATE*

CIVIL AVIATION AIRPORT CERTIFICATE

_____

CERTIFICATE NO.

_____

NAME OF AIRPORT

_____

LATITUDE/LONGITUDE

This airport certificate is issued by the Minister pursuant to Part III of the *Canadian Aviation Regulations* under authority of the *Aeronautics Act* and authorizes the operator named in the approved Airport Operations Manual to operate this airport.

The Minister may suspend or cancel this airport certificate at any time where the airport operator fails to comply with the provisions set forth in the Act, the Regulations or for other grounds as set out in the Act.

This certificate is subject to any conditions established by the Minister pursuant to Section 302.03(3) of the Regulations and set out in the approved Airport Operations Manual.

This airport certificate is not transferable and shall remain in effect until transferred, suspended or cancelled.

_____

MINISTER OF TRANSPORT

_____

CERTIFICATE DATE OF ISSUE

Aerodrome Manual Approval Letter

{File reference} Date:

{Applicant's name}
{Aerodrome name}
{Aerodrome address}

Dear {Sir/ Madam},

Approval/ Acceptance of Aerodrome manual (Name of aerodrome)

This has reference to your letter {number} dated {dd/mm/yyyy} submitting application for aerodrome certificate to operate {name of aerodrome} along with Aerodrome Manual [Version / Edition number].

The submitted Aerodrome Manual is accepted / approved [use the word in local legislation / regulation] on the following conditions:

Body of the text along with conditions, if any.

Example of Conditions:

- All proposed amendments shall be submitted to CAA at least [XX] days prior to the intended effective date
- CAA may issue direction requiring an amendment to be made to the aerodrome manual as CAA sees fit. In such case, [Aerodrome] shall submit the amendment to CAA within [XX] days of the issue date of CAA's direction.

If you have any queries regarding this certificate or any other aerodrome-related matters please contact this Authority.

Yours faithfully,

{Signature}

{Name}
Director General
(The CAA Name)

Part 1 – General Information

1.1 Purpose and Scope

The purpose of the Aerodrome Manual is to provide

1.1.1 Confirmation of an aerodrome operator's ability to comply with the aviation legislation applicable to aerodrome operations. It contains detailed information regarding the aerodrome site, facilities, services, equipment, operating procedures, organization and management for (Name) Airport.

1.1.2 A reference document for:

a. Use by staff and contractors of an aerodrome operator in their activities to operate and manage the tasks and business of the airport.
b. Use by officers of CAA (State) in audit and inspection activities related to (Name) Airport.

1.2 Legal Requirement

1.2.1 As the operator of an aerodrome servicing air transport operations, (Name) Airport is required by (Regulation reference) to hold an Aerodrome License or Aerodrome Certificate.

1.2.2 The requirement for an Aerodrome Manual is prescribed in The Requirements of Civil Aviation Authority of (State) (Requirement reference). A copy of this manual shall be provided to the CAA (State).

1.3 Conditions of Use

(Name) Airport operates (Specify Operating Hours and conditions e.g. visibility) for take-off and landing of aircraft and when it is so available it shall be available under equal terms and conditions to all persons and operators (Requirement reference). The airport reference code is (Specify).

1.4 Aeronautical Information

All data relating to the aeronautical aspect of this aerodrome are published in the Aeronautical Information Publication (State Name). The (Position Holder) is responsible for complete and correct promulgation of data to Aeronautical Information Services Department (AIS) of the CAA in accordance with procedures described in this manual.

1.5 Recording Aircraft Movements

All data relating to the recording of aircraft movement is collected and recorded by (Name & Designation of Responsible Person). The (Airport Unit) is responsible for complete and correct collection recording and reporting to the (Airport Responsible Person) in accordance with procedures described in this Manual.

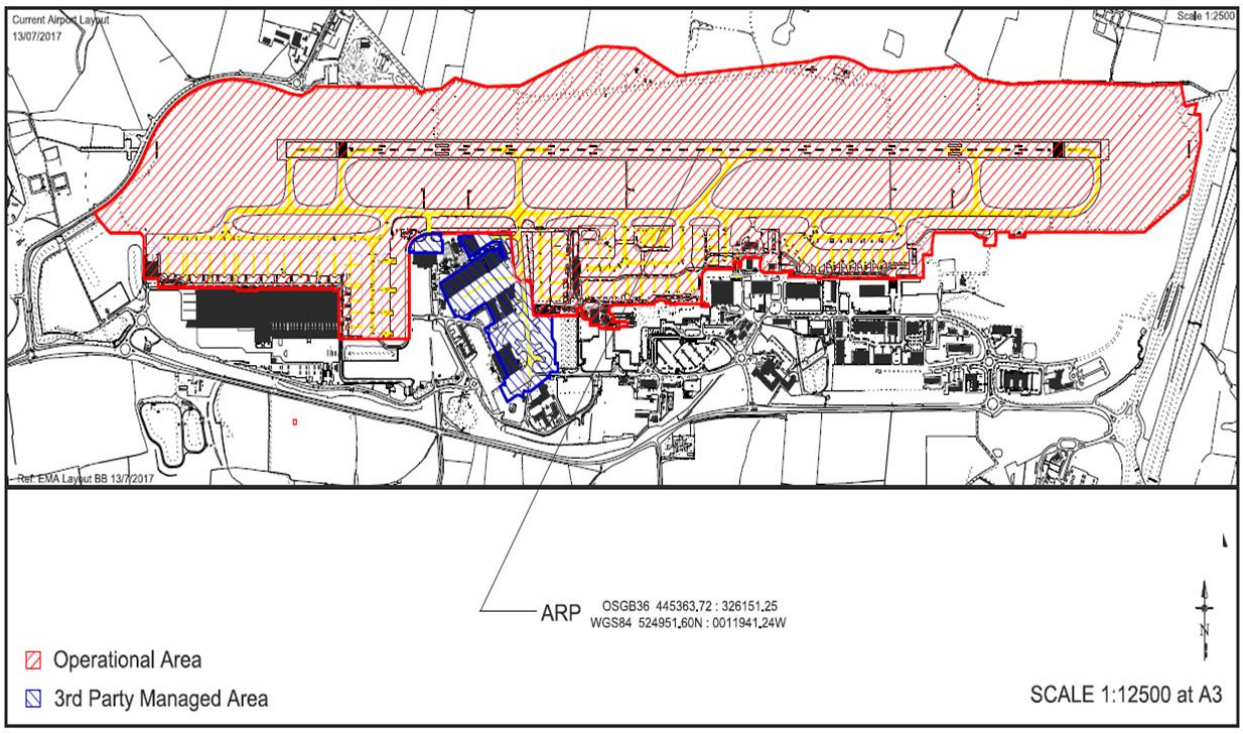
1.6 Obligation of the Aerodrome Operator

The operator of a certified/ licensed aerodrome is to comply with the Aerodrome Manual approved by the CAA (State). The area certified under the Public Aerodrome Operating Certificate is shown as (Figure X) below.

The owner or operator of an aerodrome shall ensure that all users of the aerodrome, including ground-handling agencies, fixed-base operators, and other organizations that perform activities independently at the aerodrome in relation to flight or aircraft handling, comply with the safety requirements of the aerodrome. The owner or operator of the aerodrome will monitor such compliance through the (Name) Airport Safety Management System.

Figure X: (Name) Airport Operational Area and 3rd Party Managed Area

Remarks: All figures may be organized together at the end of the Aerodrome Manual for easy reference and amendment



1.6.1 Compliance with standards and practices

The (xyz) aerodrome shall comply with the standards, and practices specified in regulation (Reference from state regulation) and with any conditions endorsed in the aerodrome certificate pursuant to regulations (Reference to applicable State requirement)

1.6.2 Competence of operational and maintenance personnel

The (xyz) aerodrome shall employ an adequate number of qualified, where required, certified and skilled personnel to perform all critical activities for aerodrome operation and maintenance. The competency of these personnel shall be kept relevant at all times and enhanced by implementing an appropriate programme

1.6.3 Aerodrome operation and maintenance

The (xyz) airport shall operate and maintain the aerodrome in accordance with the procedures set out in the accepted/ approved aerodrome manual. (XYZ) airport shall ensure proper and efficient maintenance of the aerodrome facilities and ensure the coordination to cover areas of aeronautical information service, air traffic services, designated meteorological authorities, and aviation security.

1.6.4 Aerodrome operator's safety management system

The (xyz) aerodrome shall establish a safety management system for the aerodrome describing the structure of the organization and the duties, powers and responsibilities of the officials in the organizational structure.

1.6.5 Aerodrome operator's internal safety audits and safety reporting

The (xyz) aerodrome shall arrange for internal as well as external audit of the safety management system, including an inspection of the aerodrome facilities and equipment and all its functions. These audits shall be carried out every [xx]months/ year or as agreed with the CAA and records/ reports shall be retained for a period of [xx] years.

1.6.6 Access to the aerodrome

In accordance with [regulation], some personnel may be authorized by the CAA to inspect and carry out tests on the aerodrome facilities, services and equipment, inspect the aerodrome operator's documents and records and verify the aerodrome operator's safety management system before the aerodrome certificate is granted or renewed and, subsequently, at any other time, for the purpose of ensuring safety at the aerodrome. (XYZ) aerodrome shall cooperate with the personnel so authorized by the CAA.

1.6.7 Notifying and reporting

(XYZ) aerodrome shall adhere to the requirement to notify and report to the CAA, air traffic control and pilots within the specified time limits required by the regulations.

a) Notification of inaccuracies in aeronautical information service (AIS) publications.

b) Notification of changes to the aerodrome facilities, equipment and level of service planned in advance.

c) Issues requiring immediate notification on obstacles, obstructions and hazards, level of service, closure of any part of the movement area of the aerodrome.

1.6.8 Removal of obstructions from the aerodrome surface

(XYZ) aerodrome operator shall remove from the aerodrome surface any vehicle or other obstruction that is likely to be hazardous.

1.6.9 Warning notices

The (XYZ) aerodrome shall post hazard warning on any public area that is adjacent to the manoeuvring area for low flying aircraft, at or near an aerodrome, or taxiing aircraft are likely to be hazardous to such people or vehicular traffic.

Part 2 – Aerodrome Site Details

2.1 Aerodrome Site Details

2.1.1 Aerodrome Plan

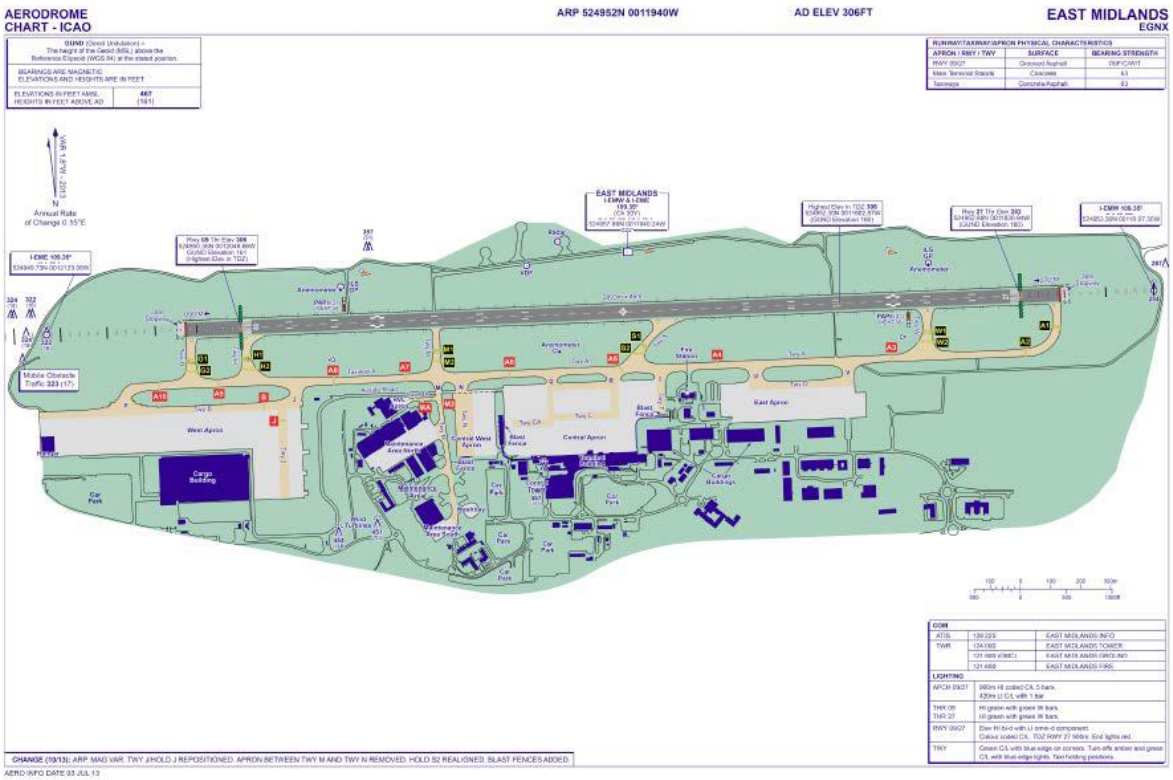
The Aerodrome Plan indicates

- The main aerodrome operational facilities and location of wind direction indicators; (Picture 1, 2 & 3)
- The distance of the aerodrome to the nearest city, town, and the location of off-airport facilities (Picture 5)
- The airport boundaries (Picture 4)

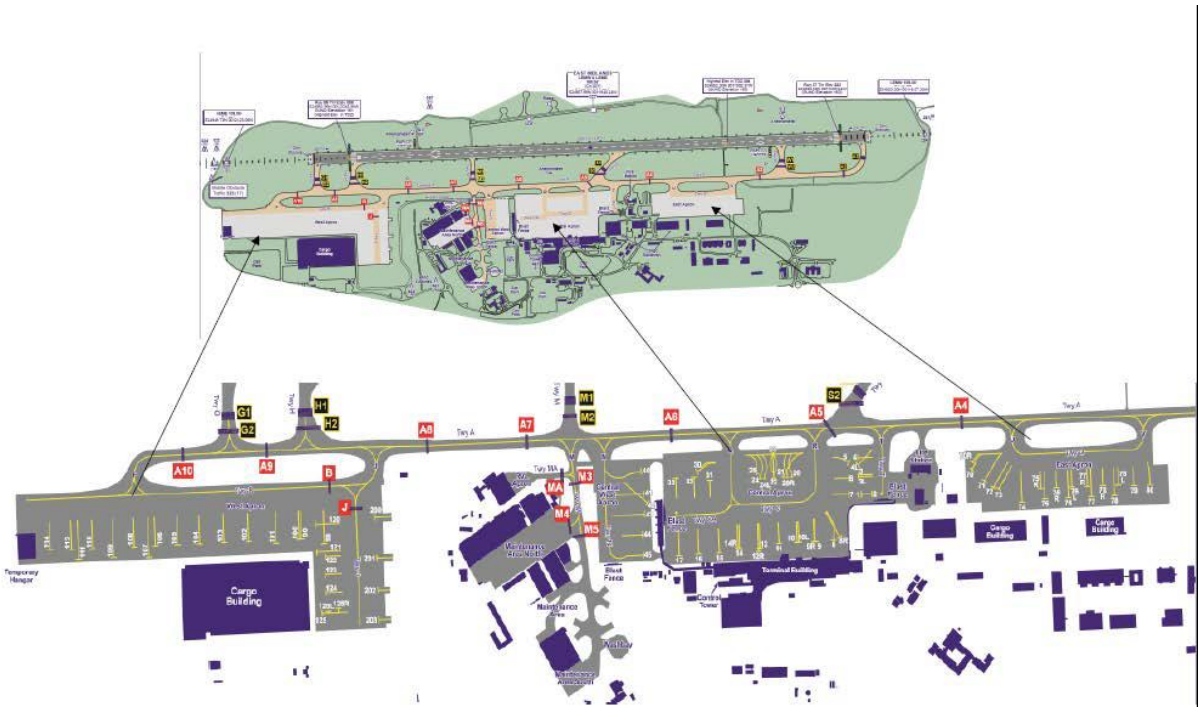
The following pictures are examples. Your airport plans may be more or less than the examples. It depends on the actual physical characteristics of your airport.

Picture 1: Facilities, Visual & Non-Visual Aids, and Wind Direction Indicators

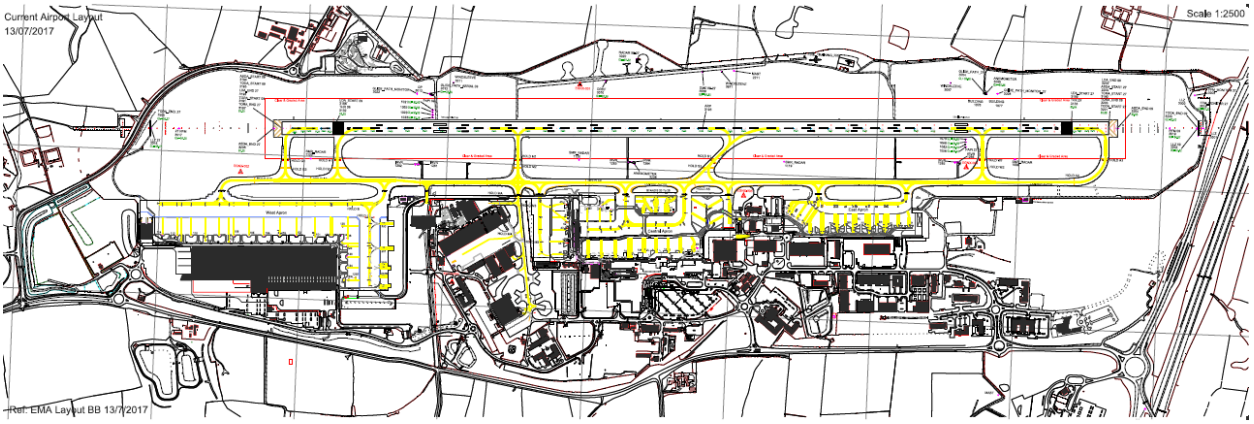
Remarks: All pictures may be organized together at the end of the Aerodrome Manual for easy reference and amendment



Picture 2: Layout of Runways, Taxiways, and Aprons



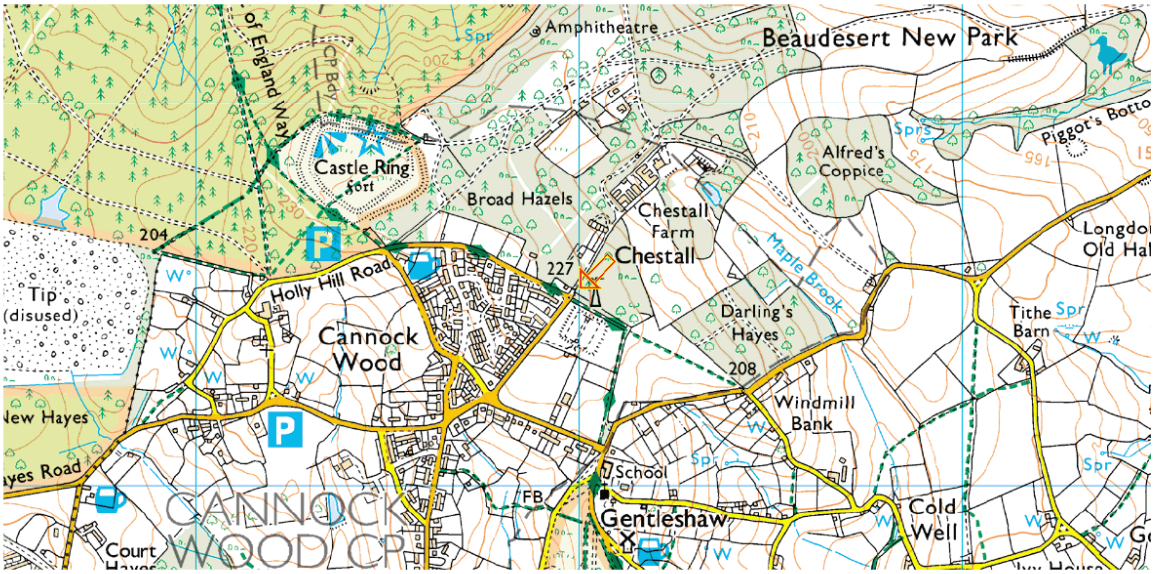
Picture 3: Details of the Physical Characteristics of the Runway Environment



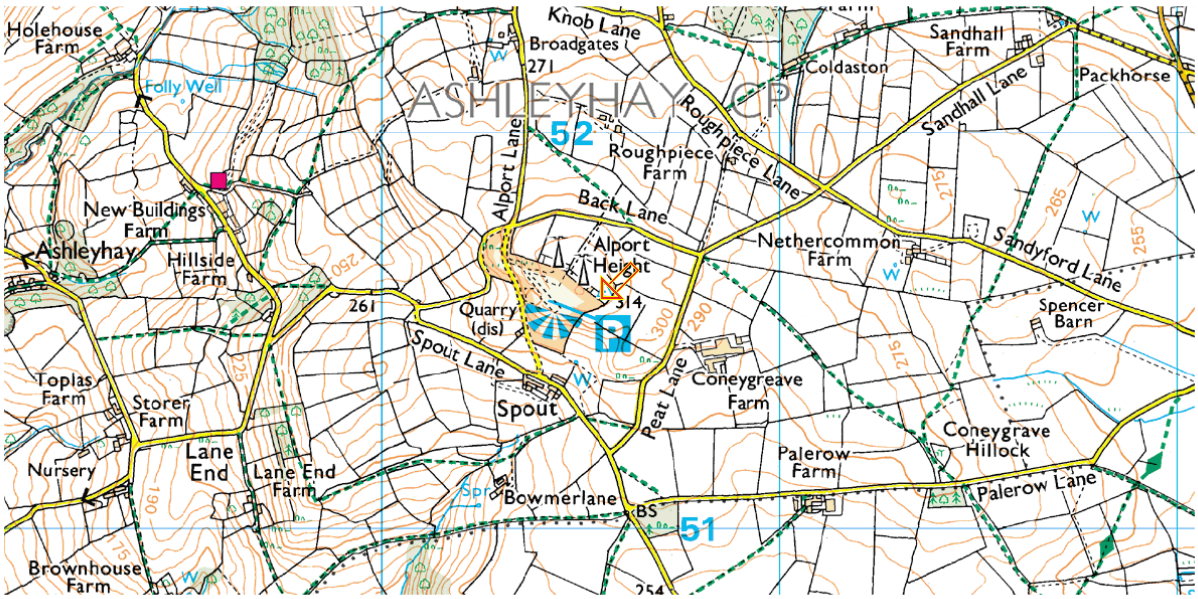
Picture 4: Plan Showing the Distance from Nearest Town/Populous Area

Picture 5: Plan Showing the Location of EMA Aerodrome Facilities and Equipment outside the Boundaries of the Aerodrome

Gentleshaw N52:42:36.9000 W1:55:38.8000



Alport N53:03:38.1000 W1:32:44.2000



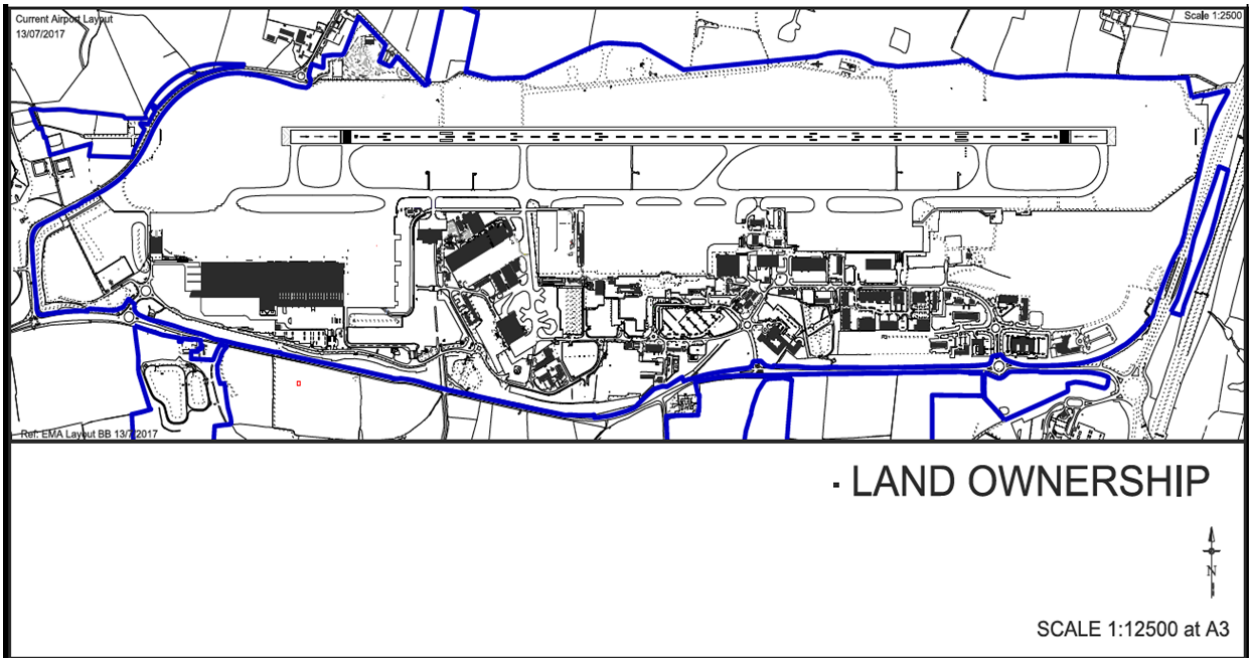
2.1.2 **Aerodrome Land Titles**

Title to properties associated with the aerodrome site are as shown in the table below.

Title Deed No.	Map Sheet No.	Province

Title Deed No.	Map Sheet No.	Province

Figure X: Boundary and Land Ownership



Part 3 – Aerodrome Dimensions &AIS Information

The accuracy of the information in this part is critical to aircraft safety. Therefore, the information published in this section requires engineering survey and assessment. The information should be gathered or verified by qualified technical persons.

3.1 General Information

1	Name of Aerodrome	(Insert Name: ICAO Code)
2	Aerodrome Location	
3	Geographical Coordinates of the Aerodrome Reference Point (WGS-84)	
4	Aerodrome Elevation and Geoid Undulation	
5	Elevation of Each Threshold and Geoid Undulation	
6	Elevation of the Runway End and Significant High and Low Points along the Runway	
7	Highest Elevation of the Touchdown Zone of a Precision Approach Runway	
8	Aerodrome Reference Temperature	
9	Details of the Aerodrome Beacon	
10	Name of Aerodrome Operator, the Address, and the Telephone Number of the Airport that may be Contacted at All Time	

3.2 Aerodrome Dimensions and Related Information

Runway							
Designation No.	True Bearing	Dimension (Length x Width)	Displaced Threshold Location	Slope	Surface Type	Type of RWY	OFZ

Runway				
	Designation	Length	Width	Strength (PCN)
Strip				
RESA				
Stopway				

Taxiway			
Designation	Dimension	Surface Type	Strength (PCN)

Apron					
Names	Width	Length	Surface Type	No. of Aircraft Stands	
				With Aerobridge	Without Aerobridge

Clearway			
RWY Designation	Length (m)	Width (m)	Ground Profile
Stopway			
RWY Designation	Length (m)	Width (m)	Ground Profile

Approach and Runway Lighting									
RWY Designation	**APCH LGT Type LEN INTST**	**THR LGT Color WBAR**	**VASIS (MEHT) PAPI**	**TDZ LGT LEN**	**RWY Center Line LGT Length, Spacing, Color, INTST**	**RWY Edge LGT LEN, Spacing Color INTST**	**RWY End LGT Color WBAR**	**SWY LGT Length Colour**	**Remarks**

Other Lighting, Secondary Power Supply		
1	Use of Aircraft Stand ID Signs, TWY Guide Lines and Visual Docking/Parking Guidance System of Aircraft Stand	
2	ABN/IBN Location, Characteristics, and Hours of Operation	ABN:(Aerodrome Beacon) IBN: (Identification Beacon)
3	LDI Location and LGT Anemometer Location and LGT	Wind Cone:
4	TWY Edge and Center Line Lighting	Edge: Center Line:
5	Secondary Power/Switch-Over Time	
6	Remarks	

VOR Aerodrome Checkpoints	
Location	**Radio Frequency**

Location and Designation of Standard Taxi Routes
Please depict the airport taxiway system, locations, and taxiway number. The airfield layout may be included in this part or other part of the manual. Example: The airfield layout, depicting the (Name) Airport Taxiway System (location and designation) is contained in (Please Specify location) of this manual.

Geographical Coordinates			
Runway Threshold	**LAT.**	**LONG.**	**ELEV.**
Taxiway Centerline Points	**LAT.**	**LONG.**	
Aircraft Stands	**LAT.**	**LONG.**	

Obstacles					
In Approach/Take-off Areas			**In Circling Areas and at AD**		**Remarks**
RWY/Area Affected	Obstacle Type Elevation Marking/LGT	Coordinates	Obstacle Type Elevation Marking/LGT	Coordinates	

Obstacles are best depicted by chart.

Pre-Flight Altimeter Check	
Locations	**Elevation**
Please specify apron and coordinates of the apron in WGS-84.	Please specify the elevation of Pre-Flight Altimeter Check in WGS-84.

At least one point in the airport.

Declared Distances				
RWY Designation No.	**TORA**	**TODA**	**ASDA**	**LDA**

Please make a note that NOTAM and ATIS will be promulgated in case of temporary reduction in available declared distances. The reduction in available declared distances should be assessed by a competent and qualified personnel such as an airport engineer or an airport operations personnel. The qualified personnel shall be trained or educated in the area related to declared distances such as airport design or other courses.

Example:

Any temporary reduction in available declared distances will be assessed by (Competent Qualified Personnel) and promulgated via NOTAM and ATIS.

Disabled Aircraft Removal Plan		
Name of Coordinator	**Telephone/Telex/Facsimile Numbers and E-mail Address**	**Capability for Removal of Disabled Aircraft**
		Specify types of aircraft

Procedures relating to disabled aircraft removal are contained within (Please Specify).

Rescue and Fire Fighting
Category of Rescue and Fire-Fighting Services
(Specify ARFF Category) The level of staffing requirement post TRA carried out on (date) is (Insert No.) Other details of Rescue and Fire-Fighting are contained within document (Please Specify).

Part 4 – Aerodrome Operating Procedures

4.1 Aerodrome Reporting

Particulars of the procedures for reporting any changes to the aerodrome information set out in AIP and procedures for requesting the issue of NOTAMs according to CAA (State) (Requirements) and reporting of accident or incidents to (Authority name) as per (Requirement).

4.1.1 Purpose

Explain the purpose of aerodrome data and reporting. The main purpose of this section is to ensure that the aerodrome data are reported in time and accurately.

Example:

The aim of these procedures is to ensure that CAA (State) and AIS are notified of any changes in the physical condition of the airport and of new obstacles that may affect the safety of aircraft operations. With the timely notification, the information can be disseminated to airmen in a timely manner.

4.1.2 Responsibility

Specify responsibility of personnel related to aerodrome reporting. These persons may be included but not limited to the airport manager and aerodrome reporting officer or any other post delegated with this responsibility.

Example:

a. (Airport Manager) has overall responsibility for ensuring that procedures are established and resources provided to report changes to aerodrome physical characteristics, the OLS, or any other change that may affect the safety of aircraft operations are adequate.
b. (Airside Operations Supervisor) is responsible for documenting reporting procedures and for advising AIS of permanent changes to airport information. He is also responsible for advising CAA of any significant changes to aerodrome information that may occur and for reporting the day-to-day serviceability of the airport and notifying temporary changes to published aeronautical information to ATC and the NOF.
c. (Airside Operations Officer) is responsible for implementing the reporting procedures documented in this manual.

4.1.3 Reporting Procedures

Specify aerodrome reporting procedures. The procedures should start when a hazard is identified and include the consideration of the types of promulgation. The NOTAM issuance, AIP supplement and AIP amendment procedures shall follow the current CAA requirements. The established procedures must show that the airport can promulgate the information accurately in a timely manner.

Example:

a. Any situation that may have an immediate effect on the safety of aircraft operations will be reported in the first instance to ATC by radio or telephone. The designated ATC responsible for verbal reports is:

   (Insert the responsible contact person and details of communication methods)

   Such situation then will be reported to (Designated Person) to consider whether it needs to be issued as NOTAM or AIP.
   (Insert the designated person responsible for issuing NOTAM of the airport and his/her contact details e.g. radio or telephone number)

b. The (Designated Person) considers the given information using the procedures specified in (Specify SOPs). If it is required to issue NOTAM or AIP Supplement, the designated person will do so.

4.1.4 NOTAM and SNOWTAM

Specify NOTAM procedures. The procedures shall clearly specify the responsible persons of the aerodrome and others. The aerodrome operator shall include the address and telephone numbers of people responsible for NOTAM. The name and contact list can either be referred to *Master Contact List* or specified in this section.

[Applicable with effect from 4 November 2021]

Specify SNOWTAM procedures for issuing runway condition report when the runway is wholly or partly contaminated by standing water, snow, slush, ice or frost, or is wet associated with the clearing or treatment of snow, slush, ice or frost.

Example:

a. The information about matters of an urgent nature affecting the safety of aircraft operations according to (NOTAM Regulations reference) will be issued as a NOTAM.

b. The criteria for issuing SNOWTAM to disseminate a runway condition report.

c. The (Designated Person) will fill a NOTAM/SNOWTAM Requisition Form attached in Annex (N). The form is submitted to:

(Insert Responsible Person, Address, and Contact Details)

d. The (Designated Person) checks the NOTAM/SNOWTAM once it is issued.

e. If the information in the NOTAM/SNOWTAM is correct, make a record in NOTAM Logbook. If the information in the NOTAM/SNOWTAM is incorrect, contact (Responsible Person) to make a correction.

4.1.5 AIP

Specify AIP Supplement and procedures. The procedures shall clearly specify the responsible persons of the aerodrome and other. The aerodrome shall include the address and telephone number whose AIP Supplement and AIP Amendment are submitted to. The contact information can either be referred to *Master Contact List* or specified in this section.

Example:

AIP constitutes the basic information source for permanent information and long duration temporary changes. The (Designated Person) is responsible for AIP Supplement and Amendment. If there is a temporary change for duration of at least 90 days but not exceeding one year, the (Designated Person) requests for AIP Supplement. The AIP Supplement also can be used to promulgate the temporary change for duration less than 90 days but requires supplement texts or pictures. AIP Amendment Requisition and AIP Supplement Requisition are contained as Annex (N) and Annex (N) in this Aerodrome Manual. The requisition form will be submitted to:

(Insert Responsible Person, Address, and Contact Details)

4.1.6 Incident Reporting

Specify accident/incident reporting procedures to pilots and air traffic service providers as well as Search and Rescue Coordination Center and Accident/ Serious incidents investigating authority (XYZ) in case of accident/serious incident. The reporting procedures shall be inconsistent with the reporting procedures in the aerodrome safety management system.

Example:

a. Any significant object found on the movement area will be immediately reported to:

(Insert Designated Person and Contact Information)

b. (Designated Person or the Founder of the Object) will immediately advise(ATC), and then attempt to identify the object through various operators in airside. (ATC) may choose to alert the pilot of the aircraft or the station manager that may have involved.

c. All incidents are to be recorded in the (Name of Record). Where necessary an addition written Incident Report will be raised. (Airport Responsible Person) gathers accident and incident information. The information shall be reported to the (Airport Manager).

d. The (Airport Manager) will determine if an (Accident/Incident Report) needs to be submitted to (CAA and/or AAIC) in accordance with [legislation / regulations / mandatory occurrence reporting scheme]. The (Airport Manager) will initiate and coordinate internal investigations into aviation incidents relevant to the Airport.

4.1.7 Records of Aerodrome Reporting

Specify the method the aerodrome operator checks and records the changes to the aerodrome data.

Example:

All actions regarding the issuance of NOTAM and changes in AIP will be recorded in NOTAM and AIP Logbook. The log books are available with (Responsible person) in AIS section and is maintained by his staff.

4.2 Control of Airside Access

Particulars of the procedures that have been developed and are to be followed to prevent unauthorized entry into the airside.

4.2.1 Purpose

Explain the purpose of this section. The main purpose of this section is to prevent unauthorized entry into the airside.

Example:

The aim of these procedures is to assist the safety of aircraft operations by only permitting access onto the airside to authorized and certified person, vehicles, and equipment.

4.2.2 Responsibility

Explain responsibility of personnel related to the control of airside access including airport manager, aerodrome security entity, air traffic service provider, airport operations, airport tenants, aerodrome fixed-based operator, and government agencies.

Example:

a. (Airport Manager) has overall responsibility for ensuring that procedures are established and resources are provided for aviation security and for the control of airside access to the airport.

b. (Airport Security Supervisor) is responsible for developing an Airport Security Program He is also responsible for obtaining approval prior to any physical change of the airside/landside barrier.

c. (Airport Operations Officers) are responsible for carrying out day-to-day surveillance of airside areas.

d. (Air Traffic Service Provider) has responsibility for control of vehicles on the manoeuvring area by giving clearances. No person or vehicle may enter this area without ATC approval.

e. (Security Service) are contracted by (Name) Airport. They are responsible for guarding the airside access gate and patrol the airside perimeter. They are also responsible to satisfy security regulations required by the Aerodrome.

f. (Aircraft Operators and Airport Tenants) are responsible for controlling access to restricted areas via any part of their building or leased areas. They are required to establish and enforce procedures to prevent unauthorized airside access via these areas

4.2.3 Security Restricted Area and Access Points

Describe the aerodrome security restricted area and access points. The security restricted area and access points shall be depicted in pictures. The access gates for pedestrians and vehicles, as well as any emergency access gates, shall be identified.

Example:
(Describe the aerodrome security restricted area and access points)

4.2.4 Preventing Unauthorized Entry of Persons, Vehicles, Equipment, Animals, and Other Things into the Movement Area

Describe methods used by the aerodrome to prevent unauthorized entry of persons, vehicles, equipment, animals, and other things into the movement area in normal and emergency situations. The methods used can be physical deterrents or measurement. Physical deterrents may include fence and padlock. Measurement may include security pass. Information in this section can be referred to the Airport Security Program.

Example:

a. The aerodrome is fenced with (chain link security fencing/ security wall). The airport security will inspect for unauthorized entry into the movement area.

b. All gates are to be manned, kept closed and locked at all times except for authorized entry. In case the security guard is not present, the gate shall be locked. The key to the gate will be kept with (Responsible person).

c. Floodlighting and security cameras are installed on the fence to allow detection of unauthorized access during night time or low visibility condition.

d. A joint force of airport personnel and local police will patrol aerodrome surroundings.

Note: Airport Security Programme (Name, Version, date) contains all the details regarding the Control of Airside Access.

4.2.5 Method of Monitoring and Recording Unauthorized Entry

Describe the method of monitoring and recording of unauthorized entry. The designated entity at aerodrome shall keep record of all unauthorized entry, root causes and recommended mitigation.

Example:

a. The aerodrome will ensure that only trained, qualified and authorized persons, vehicles and equipment are allowed to acquire airport security pass. The procedures to acquire a security pass are specified in the (Specify document such as Airport Security Programme or SOPs for Airport Security Pass Issuance).

b. (Name) Airport has a test programme to ensure that all security ID holders will aware of unauthorized persons in the security restricted area. In case unauthorized person, vehicle or equipment is detected, the security ID holder shall inform an airport security officer without delay.

c. Security guards are assigned to every security access points. All accesses to the airport movement area are recorded. If an unauthorized person, vehicle or equipment remains in the movement area, an airport security guard will find and lead them out of the airport movement area. The incident will be reported to (Responsible Person / Police) for investigation.

4.2.6 Coordination with the Agency Responsible for Preventing Unlawful Interference in Civil Aviation at the Aerodrome

Please specify the coordination with the agency responsible for preventing unlawful interference in civil aviation at the aerodrome when an act of unlawful interference is detected.

Example:

a. The aerodrome has established the Airport Security Committee. The members include:

(Specify Committee Members)

The responsibility of the committee is defined in the Airport Security Committee.

b. In case an airport security guard detects an unlawful act, the security guard will inform a local police, an immigration officer or a custom officer via (Specify Communication Method) for law enforcement.

4.3 Aerodrome Emergency Plan

Specify particulars of Aerodrome Emergency Plan (AEP) both on and off airport to ensure that the airport is well prepared to response to an emergency involving aircraft, not involving aircraft, and compound emergency.

Remarks: The AEP could be a part of the Aerodrome Manual, or it could form a separate document. If designed to be a separate document, it is still subject to acceptance/approval by CAA and any other control as CAA would exercise on an Aerodrome Manual.

4.3.1 Purpose

Explain the objectives of aerodrome emergency plan. The main purpose of the emergency plan is to minimize the effects of an emergency, particularly in respect of saving lives and maintaining aircraft operations. The aerodrome emergency plan sets forth the procedures for coordinating the response of different aerodrome agencies (or services) and of those agencies in the surrounding community that could be of assistance in responding to the emergency.

Example:

The aim of an AEP is minimize the effects of an emergency, particularly in respect of saving lives and maintaining aircraft operations by providing a timely and coordinated response for rescue and operation recovery from an airport emergency. The primary purpose of this section is to document the responsibilities of all responding parties and background information in relation to the AEP.

4.3.2 Responsibility

Explain responsibility of personnel responsible to plan, maintain, revise, and implement the Aerodrome Emergency Plan.

Example:

a. The Airport Manager has overall responsibility for establishing a plan to coordinate the response if an emergency occurs at the airport. He is responsible to chair AEP Committee.

b. The AEP Committee is responsible for developing and maintaining the AEP.

c. The Aerodrome Safety Manager is responsible for coordinating the activities in AEP.

4.3.3 Plans for Dealing with Emergencies Occurring at the Aerodrome

Define emergency plans for each emergency that may occur in the airport. The emergency plan shall consider physical characteristics and environment in vicinity of the airport. The plans shall include actions to be taken by all responding parties, e.g. airport, RFFS, off-airport fire services, civil defence agency, ATC, airlines, aircraft maintenance organizations, police, accident investigator, etc.

Example:

The (Name) Aerodrome Emergency Plan involves the emergencies that may occur at the airport. It includes accidents involving aircraft, accident not involving aircraft and other accidents/incidents. The plan contains these following scenarios:

a. Aircraft Accident on the Airport
b. Aircraft Accident off the Airport
c. Incident - Aircraft in Flight
d. Incident – Aircraft on Ground
e. Structural Fires
f. Sabotage
    i) Aircraft
    ii) Structure
g. Unlawful Seizure of Aircraft
h. Natural Disaster
i. Dangerous Goods
j. Medical Emergencies
k. Other scenarios as required e.g. aircraft accident at difficult environment (water, swampy areas, etc.) in the immediate vicinity of the airport, land transport disruption, etc.

The details of each scenario are contained within the AEP.

4.3.4 Tests for Aerodrome Facilities and Equipment to be Used in Emergencies

Explain how the aerodrome conduct tests for facilities and equipment to be used in emergencies. This section also covers the handling centers established during an emergency and frequencies of the tests. The airport may use checklists for tests for facilities and equipment. The tests need to be done using proper techniques. The result of the tests shall be recorded. The checklists can either be a part of AEP or in a separate document. (In case it is already included in other section, delete this para)

Example:

a. Procedures and checklists for testing of aerodrome facilities and equipment are contained within "(Name of a manual or procedures)"

b. Frequencies of tests

c. Testing of physical areas of the emergency plan are included within the Airport's exercise regime, detailed within the AEP. (N0)

4.3.5 A List of Organizations, Agencies and Persons of Authority, both on- and off-airport, and Their Contact Information

Lists all organizations and authorities involved in an emergency response both on and off airport and details of contacts. The lists can be referred to the Airport Emergency Plan. The details of contacts must be up to date.

Example:

The AEP contains a list of organizations, agencies and persons of authority, both on- and off-airport, and their contact information. The contact information will be checked and updated once every (Frequency).

4.3.6 Aerodrome Emergency Committee

An airport shall establish an Aerodrome Emergency Committee. The committee should have both internal and external stakeholders. Each airport should consider the members of this committee based on a local management.

Example:

The Aerodrome Emergency Committee is the main forum to develop, distribute, review and amend the Airport Emergency Plan (AEP) for (Name) Airport. This committee will endorse any amendments to the AEP.

The Committee meets every [X] months and as soon as possible after the activation of AEP or a full scale / partial emergency exercise to carry out its functions and will be comprised of a group of core member such as;

a. Aerodrome operator
b. Airlines representatives
c. ATC Senior Staff
d. Chief of RFFS
e. Department of Health Senior Officer
f. Senior representatives from major hospitals

g. State Emergency Service Representatives
h. Ambulance Service senior representatives
i. Chief of Metropolitan Fire Brigade or Services
j. Police Service senior staff
k. Representatives of other responding parties, as required

4.3.7 Appointment of an On-Scene Commander

The airport shall appoint an on-scene commander when an emergency occurs. Each type of emergency may have a different on-scene commander. For example, an airport rescue and firefighting commander may be appointed to be an on-scene commander in the event of fire. An airport security may be appointed to be an on-scene commander in the event of unlawful interference, or airport medical services may be appointed to be an on-scene commander in medical emergency.

Example:

Safety-Related Emergency

Once an accident has occurred, the initial direction and control of rescue and firefighting operations are the responsibility of the airport rescue and firefighting service officer in charge. Rescue and Fire Fighting personnel will be the first to arrive at the accident site; therefore, for a certain period of time this officer will be in command. Once the on-scene commander arrives, the on-scene commander will assume command as outlined in the airport emergency plan. The transition of authority and command responsibility needs to be established previously in the emergency plan and exercised accordingly.

Security-Related Emergency

In case the incident/accident is security-related, the initial direction and control of the situation is the responsible of the airport security service officer in charge. The airport security service officer will be the first to response and in command until the on-scene commander assume command as outlined in the airport emergency plan. The transition of authority and command responsibility needs to be established previously in the emergency plan and exercised accordingly.

4.3.8 Airport Emergency Exercises

Details types and frequencies of airport emergency exercises. The exercises may include but not limited to daily exercise, tabletop exercise, partial emergency exercise, and full-emergency exercise.

Example:

To ensure that the plan is functional and that all agencies are familiar with their roles and responsibilities, and exercise program will be developed by the Airport Emergency Planning Committee. The airport emergency exercise comprises of:

a. Initial Training on the AEP for New Employees

b. Recurrent Training on the AEP for Current Employees

c. Full Scale Emergency Exercise – At least once every two years

d. Partial Emergency Exercise – At least once every year that a full-scale exercise is not held

e. Tabletop Exercise – At least every six months, except during that six-month period when a full-scale exercise is held

.

4.4 Rescue and Fire Fighting

4.4.1 Purpose

This section should cover particulars of aerodrome rescue and firefighting including facilities, personnel, and procedures of the airport operator. The facilities, personnel, and procedures should be prepared based on the aerodrome category specified in (State Regulation Reference). This aerodrome manual should define a responsible person for rescue and firefighting of the airport. The airport can also refer to the *Master Contact List*.

Example:

The rescue and firefighting services is provided with the objective to save lives in the event of accident or incident occurring at, or in the immediate vicinity of, the aerodrome. The facilities of the rescue and firefighting are to be directed at all times for attending at and dealing with an aircraft incident occurring on, or in the immediate vicinity of, the aerodrome.

4.4.2 Responsibility

Explain responsibility of persons who are responsible for ensuring all equipment is available and the appropriate level of protection is available, including the requisite amount of extinguishing agents, to achieve the rated category of the RFF.

Example:

a. Airport Manager is responsible for providing resources for rescue and firefighting to meet the CAA standard.

b. The Chief of RFFS is solely responsible for ensuring all equipment is available and the appropriate level of protection is available, including the requisite amount of extinguishing agents, to achieve the rated category of the RFF.

4.4.3 ICAO Aircraft Rescue and Fire Fighting Category

Explain the aircraft rescue and firefighting category of the aerodrome. The criteria for determining the ARFF Category is in (State Regulation Reference)

Example:

The Rescue and Fire Fighting Service assessed category for the aerodrome shall be Category (#) as determined from Requirements of Civil Aviation Authority of (Country) specification.

4.4.4 Reduction of Category

Explain the airport procedures for the reduction of category if the airport cannot maintain the level of protection.

Example:

In case that the facilities and inventory of the rescue and firefighting fell below Category (#), the Aerodrome will take the following measures:

ARFF Vehicles: The Aerodrome has a mutual aid agreement with (Name). (Name) will lend an ARFF vehicle to (Name) Airport. The specification of the ARFF vehicle shall meet [national requirements on aerodrome certification / ICAO Annex 14].

Consumables: The Aerodrome has an agreement with (Name) to supply the fire extinguisher agent when the airport runs out of the required stock level. According to the agreement, the (Name) will supply the agent within (#) days.

In the event that category cannot be maintained, the matter is to be referred immediately to the Airport Manager and a NOTAM raised to indicate the varied level of coverage available.

4.4.5 Facilities and Inventory

Explain the facilities that the airport prepares for aircraft rescue and fire fighting. The airport should prepare these facilities based on the ARFF Category specified in (State Regulation Reference). The facilities include at least a fire fighting station, ARFF vehicles, tools, equipment, and fire extinguishing agents. These facilities can either be listed in this section or in an aerodrome emergency plan.

Example:

An inventory of all equipment and extinguishing agents held by the Rescue and Fire Fighting Service are included:

a. Response Time

The response time of RFFS is not exceeding [two / three] minutes to any point of each operational runway, and [three] minutes to any other part of the movement area, in optimum visibility and surface conditions. The response time meets the requirement specified in [CAA Requirements].

b. Fire Fighting Station

(Name) Airport has (No. of Stations) stations located at (Specify) to ensure the rescue and fire fighting vehicles meets the response time as specified in paragraph 4.4.5 a.

(Describe the Fire Station including the characteristic of fire station, number of parking space for RFF vehicles, storerooms for RFF equipment and stock amount of water and extinguishing agents)

c. Aircraft Rescue and Fire Fighting Vehicles

(Name) Airport has (No. of ARFF Vehicles) ARFF vehicles. The ARFF vehicles stationed in the airport is to Requirement of Civil Aviation Authority of (Country name & regulation). The specifications of each vehicle are in (Specify) which forms a part of this manual.

d. Tools and Equipment

(Name) Airport provides aircraft rescue and firefighting tools and equipment for (ARFF category) as the following;

The table below shows ARFF tools and equipment for each ARFF category.

Remarks: Similar to plans, long tables may be organized in the Appendices for easy document control.

Equipment scope	*Equipment item*	*Airport category*			
		1-2	3-5	6-7	8-10
Forcible entry tools	Prying tool (hooligan, biel type)	1	1	1	2
	Crowbar 95 cm	1	1	1	2
	Crowbar 1.65 m	1	1	1	2
	Axe, rescue large non wedge type	1	1	1	2
	Axe, rescue small non wedge or aircraft type	1	2	2	4
	Cutter bolt 61 cm	1	1	2	2
	Hammer 1.8 kg – lump or club type	1	1	2	2
	Chisel cold 2.5 cm	1	1	2	2
A suitable range of rescue/cut-in equipment including powered rescue tools	Hydraulic/electrical (or combination) portable rescue equipment	1	1	1	2
	Powered rescue saw complete with minimum 406 mm diameter spare blades	1	1	1	2
	Reciprocating/oscillating saw	1	1	1	2
A range of equipment for the delivery of firefighting agent	Delivery hoses 30 m lengths x 50 and 64 mm diameters	6	10	16	22
	Foam branches (nozzles)	1	1	2	3
	Water branches (nozzles)	1	2	4	6
	Coupling adaptors	1	1	2	3
	Portable fire extinguishers				
	CO^2	1	1	2	3
	DCP	1	1	2	3
Self-contained breathing apparatus – *sufficient to maintain prolonged internal operations* *Note: Ideally one BA set per crew member.*	Breathing apparatus (BA) set complete with facemask and air cylinder				
	BA spare air cylinder				
	BA spare facemask				
Respirators	Full faced respirators complete with filters	One per responding firefighter			

Equipment scope	*Equipment item*	*Airport category*			
		1-2	3-5	6-7	8-10
A range of ladders	Extension ladder, rescue and suitable for critical aircraft	-	1	2	3
	Ladder general purpose – rescue capable	1	1	1	2
Protective clothing	Firefighting helmet, coats, over trousers (complete with braces), boots and gloves as a minimum	One set per operational firefighter plus a percentage of reserve stock			
Additional items for personal protection	Protective goggles	1	1	2	3
	Flash hoods	One per operational firefighter			
	Surgical gloves	1 box	1 box	1 box	1 box
	Blanket fire resisting	1	1	2	2
Rope lines	Rope line rescue 45 m	1	1	2	2
	Rope line general use 30 m	1	1	2	2
	Rope line pocket 6 m	One per operational firefighter			
Communication equipment	Portable transceivers (hand held and intrinsically safe)	1	2	2	3
	Mobile transceivers (vehicle)	One for each fire vehicle			
A range of hand-held/portable lighting equipment	Hand-held flashlight (intrinsically safe)	1	2	4	4
	Portable lighting – spot or flood (intrinsically safe)	1	1	2	3
A range of general hand tools	Shovel overhaul	1	1	2	2
Rescue tool box and contents		1	1	2	3
	Hammer, claw 0.6 kg				
	Cutters, cable 1.6 cm				
	Socket set				
	Hacksaw, heavy duty complete with spare blades				
	Wrecking bar 30 cm				
	Screwdriver set – slotted and Phillips heads				
	Pliers, insulated Combination 20 cm Side cutting 20 cm Slip joint – multi-grip 25 cm				
	Seat belt/harness cutting tool				
	Wrench, adjustable 30 cm				

Equipment scope	*Equipment item*	*Airport category*			
		1-2	3-5	6-7	8-10
	Spanners, combination 10 mm – 21 mm				
First aid equipment	Medical first-aid kit	1	1	2	3
	Automated External Defibrillator (AED)	1	1	2	3
	Oxygen Resuscitation Equipment (ORE)	1	1	2	3
Miscellaneous equipment	Chocks and wedges – various sizes				
	Tarpaulin – lightweight	1	1	2	3
	Thermal imaging camera	-	-	1	2

e. Fire Extinguishing Agent

(Name) Airport prepares the following fire extinguishing agent.

Fire Extinguishing Agent	Quantity

4.4.6 Personnel

Details about ARFF personnel including administration and minimum training requirements.

Example:

ARFF response is available for all scheduled air carrier operations only during (Specify Operating Hours). There are (No. of Shifts) shifts including (Specify Shifts) each shift has (No. of ARFF Personnel) people. ARFF personnel have completed training and keep currency in the topics required by Requirement of Civil Aviation Authority of (Country name & regulation).

4.4.7 Procedures for Meeting the Rescue and Fire-Fighting Requirements

Specify procedures related to rescue and fire fighting. The details of this section can be referred to the Airport Emergency Plan or related SOPs.

Example:

Procedures defining the RFF response to an emergency on the airport have been issued as Standard Operating Procedures (SOP). These are published separately to the Aerodrome Manual as Annex (N) and comprise a part of this Manual.

4.5 Inspection of Movement Area

Particulars for Inspection of Movement Area by an aerodrome operator or aerodrome owner.

4.5.1 Purpose

Define the objectives of aerodrome inspection of movement area. The objective should focus on ensuring the aerodrome standards are met. Therefore, the airport can operate safely.

Example:

The aim of these procedures is to ensure that the movement area, related facilities, and the obstacle limitation surfaces (OLS) are regularly inspected to ensure CAA safety standards are maintained.

4.5.2 Responsibility

Explain responsibility of persons who have roles and responsibilities in aerodrome inspection. These persons may include, but not limited to, an airport manager, an airport operations services, an airport maintenance services, and etc.

Example:

a. (The Airport Manager) has overall responsibility for ensuring that procedures are established and resources provided for the airport inspections in order to ensure that CAA standards are met.

b. (The Airport Operations Supervisor) has responsibility for ensuring that daily serviceability inspections are satisfactorily carried out and that appropriate actions/reporting takes place as a result of those inspections.

c. (The Operations Officers) are responsible for carrying out daily serviceability inspections of the movement area and the OLS.

d. (The Maintenance Supervisor) has the responsibility for ensuring that signs and lighting inspections are carried out in accordance with the inspection and maintenance schedules as well as supervise the maintenance works for corrections.

e. (The Airport Maintenance Officer) is responsible for carrying out and recording the inspection and maintenance of all airport lighting systems.

4.5.3 Inspection of Movement Area

Specify types and period of movement area inspection. The inspections should include Regularly Scheduled Inspection, Periodic Condition Inspection, and Special Inspection.

Example:

(Name Airport) has three types of inspection including Regularly Scheduled Inspection, Periodic Condition Inspection, and Special Inspection.

a. Regularly Scheduled Inspection

The airport conducts daily visual inspection. The inspector observes the general conditions of facilities in movement area and their functionality.

b. Periodic Condition Inspection

Periodic condition inspection has similar topics as regularly scheduled inspection but in a more detail. The inspection may require tools or equipment. The inspection is conducted every [X] days/weeks.

c. Special Inspection

Special inspection will be conducted after receipt of the complaint or when unusual condition or unusual event occurs.

4.5.4 Inspection Procedures and Communicating with Air Traffic Control during Aerodrome Inspection

Define the communication procedures between an inspector and the air traffic controller to ensure the quick communication and safe operations. The airport should show the inspection procedures to ensure the safety of a movement area inspection as well.

Example:

For safety of the inspector and aircraft operations, (Name Airport) establishes communication and inspection procedures. The communication procedures between the inspector and air traffic control include:

a. Before inspection, the inspector will contact ATC for clearance. The inspector will only conduct an inspection in compliance with ATC clearance and when it is safe to conduct the inspection.

b. When driving a vehicle or on foot on the movement area all inspecting personnel shall keep a continuous lookout and radio listening watch for

aircraft. While operating on the manoeuvring area, all persons must maintain continuous two-way communication with ATC.

c. Driving vehicle in the airside requires training. The driver must pass the test before the airside driving license is grated. Keep caution and give way to aircraft at all time.

d. When the ATC informs the driver to clear the runway, the driver will leave the runway without delay and stay outside a runway strip.

e. The inspector will immediately inform the ATC once the inspection is finished and the inspection left the runway.

For inspection of other area beside the runway, refer to procedures a to c above.

4.5.5 Particulars, Frequencies, and Time of Aerodrome Inspection

Specify details and criteria for inspection of movement area including Regularly Scheduled Inspection, Periodic Condition Inspection, and Special Inspection.

a. Regularly Scheduled Inspection

Regularly Scheduled Inspection should cover pavement, runway strip, RESA, marking, signs, airfield lights, navigational aids, obstacles, fueling station, construction, public protection, and wildlife hazards.

Example:

The Aerodrome Operations Service inspects the airport at least (Times) a day when aircraft activity is minimal in order to minimize the impact on airport operations. At least one inspection will be done during the hours of darkness.

(Please specify inspection schedule)

i) Pavement Areas
The pavement areas shall be smooth. There shall be no cracks, scaling, bumps, low spots, debris and any other abnormality. No holes or pavement lips/ level differences that exceed 3 inches in depth. No vegetation growth that may impede drainage.

ii) Runway Strip and Runway End Safety Areas
(Explain runway strip and RESA dimensions). Runway strip and RESA must be smooth, no ruts, no humps and no object except equipment or installation for air navigation or for aircraft safety purposes which must be at that location. The objects in runway strip and RESA must be frangible.

iii) Markings

Marking in airside shall be correct and clearly visible. The airport will check marking for peeling, blistering, chipping, fading, and obscured. Obsolete marking shall be properly removed although masking by black paint may be accepted as a temporary measure.

iv) Signs

Signs provide important information to pilots while taxiing. Signs shall not cause confusion to pilots. Signs should not be blocked by objects or vegetation.

v) Lighting

The airport conducts a visual inspection to ensure that the airfield lighting is operable and vegetation or deposits of foreign material do not obscure the light fixture. The lights shall be the proper color and are oriented correctly.

vi) Navigational Aids

(Name) Airport navigational aids include aerodrome beacon, wind direction indicator and PAPIs [include those aids in your airport]. The airport safety inspector will check the aerodrome beacon is visible and working properly, wind direction indicator swings freely, the cone is not faded, properly lighted at night and PAPIs are operable.

vii) Obstructions

(Name) Airport concentrates on a visual check of manmade and natural obstacles. The airport also determines if obstructions are properly marked and lighted. If the airport finds an obstacle, the airport shall inform CAA and AIS immediately.

viii) Fueling Operations

The daily inspection on aircraft fueling operations should concentrate on a quick inspection for the most common problems concerning compliance with local fire safety codes. In (Name) Airport, this responsibility lies with the aircraft fueling operator. The airport will randomly inspect the fueling operator from time to time.

ix) Construction

During a construction, the airport safety inspector will check the construction area that

- Stockpiled materials and construction materials are properly stored

- Construction areas are marked and lighted but without causing glare or confusion to pilots and air traffic controllers
- Barricades are installed
- No FODs
- No dangerous condition created by construction activity
- No attraction to wildlife is caused

x) Public Protection (Remarks: It could be the responsibility of security officers instead depending on the aerodrome.)
During the public protection inspection, check gates, fencing, locks, and other safeguards are in place and functioning properly to prevent inadvertent entry to movement areas by unauthorized persons and vehicles.

xi) Wildlife Hazard Management
(Name) Airport inspects the areas on airport and the areas in its vicinity to minimize and manage the attractions to wildlife. The airport will check for evidence of birds and animals that may have developed. All dead wildlife found and all wildlife aircraft strikes should be investigated and reported to CAA. The airport records the area that birds and animals present, routes, and other information specified in wildlife reporting form.

b. Continuous Condition Inspection

Continuous Condition Inspection should cover ground vehicles, fueling operations, construction, public protection, wildlife hazard management, and foreign object debris.

Example:

The airport users in the movement area can inspect the movement area any time. Hazardous conditions can be reported to (Position) for immediate actions. The continuous condition inspection includes;

i) Ground Vehicles

Vehicle drivers shall follow the airport's procedures and arrangements for the orderly operations of ground vehicles. Vehicles in movement area shall be properly painted. The drivers of vehicles shall be trained properly.

ii) Fueling Operations

Fueling operations shall be observed to ensure that the service provider follows the procedures approved by the airport.

iii) Construction

Unauthorized access to airside and FOD shall be inspected to ensure safety of aircraft.

iv) Public Protection

Gates and fences shall be inspected to prevent unauthorized entry.

v) Wildlife Hazard Management

People in the airside shall monitor wildlife activity. Wildlife activity shall be reported wildlife activity to the airport operations immediately.

vi) Foreign Object Debris

FOD shall be clear of the movement area as soon as it is found. A person who finds aircraft parts will immediately inform (Responsible Person).

c. Periodic Condition Inspection

Periodic Condition Inspection should cover pavement areas, markings, signs, quarterly fuel storage area and loading/unloading stations, mobile fuelers, navigation aids, lightings, and obstructions.

Example:

The Aerodrome Operations conducts a Periodic Condition Inspection of activities and facilities on a regularly scheduled basis but less than daily. The time interval can be weekly, monthly, or quarterly, depending on the activity or facility.

i) Pavement Areas

(Name) Airport measures runway friction by self-wetting continuous friction measuring equipment. The CAA's runway friction standard will be referenced.

(Airport Operations) will report (Airport Operations Supervisor) when rubber buildup at the touchdown zone makes the friction fall below the maintenance planning level. The (Airport Operations Supervisor) will initiate runway cleaning. In case the friction fall below the minimum friction level, (Airport Operations Supervisor) shall immediately report to (Airport Manager), who shall then report the issue to CAA and AIS without delay.

ii) Markings

(Airport Operations) Check pavement markings to ensure they are correct and clearly visible. Markings on concrete and faded asphalt

should be outlined with a black border. The marking shall remain visible at night.

iii) Signs

(Airport Operations) should check signs face for peeling and for fading or faded colors. Contacts and electrical circuit shall be inspected to ensure that the signs are still functional.

iv) Quarterly Fuel Storage Areas and Loading/Unloading Stations

(Airport Operations) will inspect fuel storage area and loading/unloading stations for fire safety. Tools and equipment shall be in good and safe conditions. Signs and placards shall be installed as required by hazardous material standards.

v) Mobile Fuelers

(Airport Operations) will inspect conditions of the fuelers, warning signs and placards and parking area as well as signs and placards on the vehicles.

vi) Navigational Aids

(Responsible Person) will arrange a flight check every [X] months for PAPI, NDB and DME to ensure their serviceability.

vii) Lighting

(Name) Airport conducts power generator and circuit resistance tests every [X] weeks / months. The airfield lights are checked for proper functions every [X] days / weeks.

viii) Obstructions

(Name) Airport will conduct an obstacle survey on airport and in vicinity of airport. The airport will take immediate actions when an obstacle is found.

ix) Aircraft Rescue and Fire Fighting

(Name) Airport determines every [X] weeks/months if the aircraft rescue and firefighting equipment is capable of meeting response times and live-fire drills are being conducted every [X] months. Fire fighting and rescue tools are available and in good conditions.

d. Special Inspection

An airport should conduct a special inspection after receiving a complaint or unusual event such as a heavy rain or an aircraft accident occurs.

Example:

The Aerodrome Operator will conduct a special inspection after receipt of a complaint or when an unusual condition or event occurs on the airport, such as a significant meteorological event, incident, or accident. Special inspections will also be conducted at the end of construction activity. Each special inspection will be documented in (Log). The checklists will be different based on each special inspection. (Airport Operations Supervisors) will determine the items in the checklist.

4.5.6 Inspection Checklist

(Develop inspection checklists as appropriate for your airport)

4.5.7 Reporting the Results of Inspections

Specify an airport procedure for reporting the results of inspections to related parties such as ATC, airport operations supervisor, airport manager, etc. The reporting procedures should consider the urgency of the results. The airport should track the corrective actions.

Example:

a. In case there is a non-compliance that has a serious effect on safety of aircraft and it cannot be fixed, the (position) will immediately report to (ATC) and his/her supervisor. (Airport Operations) will request issuing NOTAM if needed. Some parts of the airport may be closed when necessary.

b. If there is a hazard that does not have an effect on safety of aircraft, the (position) will report to (position) for corrections.

c. Hazards and noncompliance items shall be recorded and marked on airport grid map. If the hazards or noncompliance items cannot be removed immediately, the (Airport Operations) shall properly mark the hazard for follow up actions by (Airport Maintenance).

d. Inspection findings shall be reported to (Airport Operations Supervisors) for corrections.

e. (Airport Operations Supervisor) shall record the results in Airport Inspection Results and Monitoring Form contained in Annex[X].

f. (Airport Operations Supervisor) monitors and tracks correctives actions until the hazards or noncompliance items are removed.

4.5.8 Keeping an Inspection Logbook, and the Location of the Logbook

Details on how the airport keeps record of the inspection, duration of the record keeping, and storage place.

Example:

The results of the airport inspection will be maintained at (Specify Place) for [XX e.g.12] months from the date of inspection. (Responsible Person) is responsible for maintaining the record.

4.6 Movement Area Maintenance

Particulars about the maintenance of paved area, unpaved runway and taxiway, (if any), runway and taxiway strips, RESA, and drainage system.

4.6.1 Purpose

Explain the purpose of movement area maintenance. The main objective is to ensure that airport facilities are well maintained for safe operations of aircraft. If the airport is not well maintained, it may cause hazard to aircraft.

Example:

The aim of movement area maintenance is to maintain paved area, unpaved area and drainage system in a good condition to ensure safety of aircraft operations.

4.6.2 Responsibility

Define responsibility of each person related to movement area maintenance including airport manager, airport maintenance, and airport operations.

Example:

a. The Airport Manager is responsible for overseeing movement area maintenance to ensure the safe conditions of airport facilities and the safety of aircraft operations. The Airport Manager also has a responsibility to provide an adequate number of personnel, tools and equipment.

b. (Airport Maintenance) is responsible for supervising maintenance staffs to ensure that preventive maintenance and corrective maintenance are completed and in the conditions required by the [Requirement of Civil Aviation Authority of (Country name)].

c. (Airport Operations) is responsible for movement area and OLS inspection and coordination with (Airport Maintenance).

4.6.3 Maintenance of Paved Area

Explain the characteristics of airport paved area, pavement standards, and maintenance procedures. The area can be depicted by pictures or lists.

Example:

(Name) Airport (Specify Paved Area) are paved by [asphalt /concrete]. Aprons are paved by [Portland Concrete]. The airport will maintain paved areas to meet the following conditions:

- Pavement lips/ level differences shall not exceed three inches
- No holes that cannot be covered by a 5-inch circle, and the side slope at any point in the hole that exceeds 3 inches in depth and is 45 degrees or greater
- No cracks wide enough to cause directional control problems for an aircraft
- No contaminations or FOD
- No vegetation growth in cracks or along the runway

Non-standard conditions and hazardous conditions shall be recorded and reported to ATS. NOTAM may be issued if needed. Pavement maintenance methods and procedures are contained in (Specify) which comprised a part of this manual.

4.6.4 Maintenance of Unpaved Runway or Taxiway

An airport with unpaved runway or unpaved taxiway is required to specify a method to maintain unpaved runway or unpaved taxiway. In case there is no unpaved runway or taxiway, the airport shall define “The airport does not have unpaved runway and taxiway”.

Example:

(Name) Airport does not have unpaved runway and taxiway.

4.6.5 Maintenance of Runway and Taxiway Strip

Specify the methods used to maintain the runway strip, taxiway strip, landscape area, and cut grass in the airport.

Example:

a. Runway and Taxiway Strips Maintenance

Grasses in runway and taxiway strips shall not exceed [10] centimeters in height. The airport will mow grasses in the strip according to landscape maintenance programme.

b. Unpaved Areas outside Runway and Taxiway Strips

Grasses outside runway and taxiway strips shall be maintained at [10-20] centimeters in height to make it less attractive to wildlife. Trees in the vicinity of the airport shall not become obstacles.

c. Cut Grass

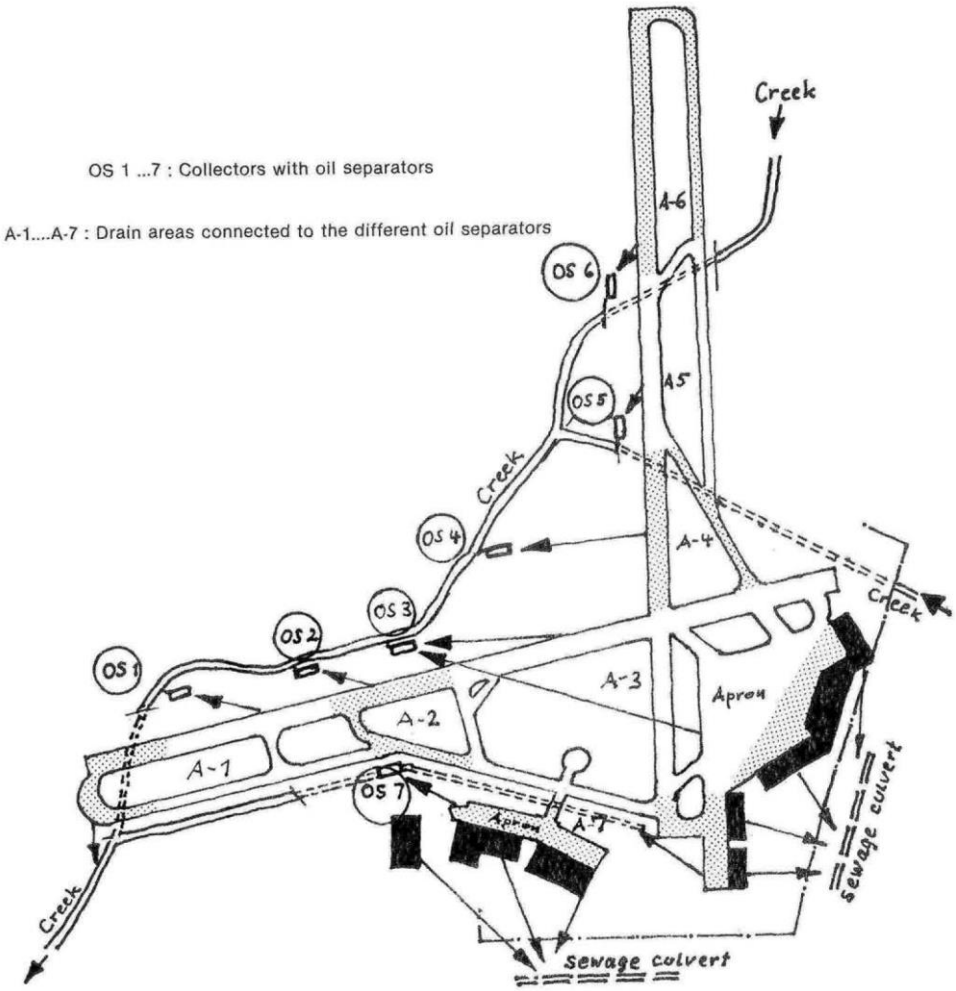
Cut grasses shall be collected and move away from runway strip and composted.

4.6.6 Maintenance of Aerodrome Drainage

Describe an aerodrome drainage system either in texts or by pictures. Explain procedures for maintenance of aerodrome drainage system. The maintenance procedures should cover cleaning, inspecting, and clearing of drainage, fuel separation, and tap water if applicable.

Example:

(Name) Airport has a drainage system and water flow as shown in the picture.



Drainage System Maintenance

a. The airport regularly patrols drainage systems in the airport especially before rainy season and in rainy season. Vegetation and object impeding water flow will be clear immediately.

b. The airport will mow grasses in the drainage system to facilitate flow of water.

c. The airport dredges the drainage ever two years.

d. The airport tests water pumps in the airport to ensure they are functional all the times.

4.7 Hazardous Meteorological Conditions

Airport operations can be disrupted by adverse weather. Therefore, an airport need to prepare to prevent and mitigate harmful consequences of adverse weather conditions. Adverse weather conditions are categorized into seven groups including ice, frost, freezing rain, strong winds, rain, snow, and fog or low visibility. An airport shall set up procedures in this part according to its local geography and atmosphere.

4.7.1 Purpose

Define the purpose the airport establishes procedures for hazardous meteorological conditions. The purpose of the procedures should focus on safeguarding an airport and aircraft operations.

Example:

The aim of these procedures is to ensure that the aircraft using the (Name) Airport can be operated safely during adverse weather conditions.

4.7.2 Responsibility

Define responsibility of each person related to adverse weather operations. Responsible persons may include but not limited to an airport manager, an airport operation, a meteorological service provider, an air traffic service provider, a fixed-base operator and a ground handling agent.

Example:

a. The Airport Manager has overall responsibility to provides procedures related to hazardous meteorological conditions for the airport and ensures that the procedures are implemented.
b. (Airport Operations) is responsible for inspecting other tenants in airside to ensure the compliance to the rules. The airport operations also conduct runway friction measurement, runway condition report, runway safety inspection and aircraft tie-down and GSE tie-down inspection.
c. (Meteorological Service Provider) is responsible to report hazardous meteorological conditions including the start and the end of the conditions to ATS unit as stated in the agreement between the ATS unit and meteorological service provider.
d. (Air Traffic Service Provider) is responsible to warn all operators in airside about hazardous meteorological conditions. The ATS unit also is responsible to initiate hazardous meteorological procedures.
e. A Fixed-Base Operator and a Ground Handling Agent are responsible for carrying out hazardous meteorological procedures required by the airport and tying down aircraft and GSE in its responsibility.

4.7.3 Procedures and Criteria for Suspension of Operations on the Runway

a. Disseminating Hazardous Meteorological Warning

i) Meteorological Service Provider informs ATS unit, both in verbal and writing, when forecasting or detecting hazardous meteorological conditions. The hazardous meteorological conditions are in an agreement between (Name) Airport and the meteorological service provider.

ii) ATS unit informs pilots via (Communication Channel) and the operators in airside via (Communication Channel).

iii) All operators received hazardous meteorological warning shall follow hazardous meteorological condition procedures.

b. Strong Winds

i) When there is a strong wind warning, the airport maintenance and contractors will cover material stack and tie down GSE to ensure that there are no loose objects.

ii) (Aircraft Owners) shall tie down their aircraft and position aircraft heading to a safe direction.

iii) (GSE Owners) ties their GSE to ensure that GSEs are safe.

iv) (Airport Responsible Person) is responsible for patrolling the airside especially the areas with high risk to have FODs. In case an FOD is found, a corrective action shall be done immediately. If a corrective action is not possible, the (Responsible Person) will inform ATS unit immediately. GSE accidents and incidents shall be reported to the owners of the GSEs and to an airport safety officer.

c. Thunder Storms

i) When there is a thunder storm warning on or in vicinity of the airport, (Airport Responsible Person) assesses the risk to airport operations. If the result of risk assessment is high, ceases all airport operations and finds shelters.

ii) ATS unit reports the latest runway condition report and friction to pilots. ATS unit may request (Airport Responsible Person) to measure the depth of standing water center. The results will be reported to the ATS unit.

4.7.4 Coordination with the Meteorological Service Provider in order to be Advised of Any Significant Meteorological Conditions

(Name Airport) has an agreement with (Meteorological Service Provider). The agreement comprises a part of this manual (Annex).

4.8 Visual Aids and Aerodrome Electrical System

Particulars for aerodrome visual aids and electrical system. The details in this section should include visual inspection as outlined in para 4.5.5 and maintenance of aviation lights, obstacle lights, signs, markings, and aerodrome electrical system.

4.8.1 Purpose

Define the purpose of this section. The main purpose of visual aids and aerodrome electrical system should be to ensure an availability of the system. The details in this section should show the capability of an airport to maintain visual aids and electrical system.

Example:

The aim of these procedures is to detail the arrangements for the inspection and maintenance of airport lighting, signs, markers and electrical systems.

4.8.2 Responsibility

Explain responsibility of persons who have roles and responsibilities in the maintenance of visual aids and aerodrome electrical system. These persons may include, but not limited to, an airport manager, an airport maintenance services, and etc.

Example:

a. The Airport Manager has overall responsibility for the provision of airport lighting facilities and electrical equipment.

b. (The Airport Lighting Team Leader) is responsible for ensuring that appropriate maintenance and technical inspections of airport lighting facilities are carried out and recorded in accordance with the standards and the requirements of this manual.

c. (Airport Maintenance Officer) is responsible for preventive and corrective maintenance of visual aids and aerodrome electrical system.

4.8.3 Visual Aids and Aerodrome Inspections

Visual Aids Operating Manual contains information in this section. An aerodrome operator may refer to the manual.

Example:

Visual aids and aerodrome inspections in business hours and outside business hours are detailed in approved Visual Aids Operating Manual as specify in (Annex).

The checklists for visual aids and aerodrome inspections has been set up according to the manufacturer's manual and modified to suit with the airport circumstances. The checklists for visual aids and aerodrome inspections are contained in (Annex).

4.8.4 Standby Generation

Visual Aids Operating Manual contains information in this section. An aerodrome operator may refer to the manual.

Example:

Standby generation inspections and maintenance methods are contained in Visual Aids Operating Manual as specify in (Annex).

The checklists for standby generation inspections and maintenance methods have been set up according to the manufacturer's manual and modified to suit with the airport circumstances. The checklists for visual aids and aerodrome inspections are contained in (Annex).

4.8.5 Maintenance Procedures

Visual Aids Operating Manual contains information in this section. An aerodrome operator may refer to the manual.

Example:

The maintenance of visual aids and electrical system procedures comprises of preventive and corrective maintenance. The details of the maintenance procedures are in compliance with approved Visual Aids Operating Manualas contained in (Annex).

4.8.6 Fault Reporting System and Record Keeping

Visual Aids Operating Manual contains information in this section. An aerodrome operator may refer to the manual.

Example:

Fault Reporting System and Record Keeping are detailed in approved Visual Aids Operating Manual as contained in (Annex).

4.9 Aerodrome Works Safety

Particulars for aerodrome work safety including working plan, method of working plan, conduct of aerodrome work, and commence of work. This should also cover an urgent work on maneuvering area and area in adjacent.

4.9.1 Purpose

The purpose of Aerodrome Work Safety is to demonstrate that an aerodrome can safely manage work in progress in airside. Works in the airside should have a minimum impact on aircraft operations and functions of navigation aids.

Example:

The aim of these procedures is to describe the arrangements for the planning and safe conduct of works that affect the movement area or OLS.

4.9.2 Responsibility

Explain responsibility of persons who have roles and responsibilities in aerodrome work safety. These persons may include, but not limited to, an airport manager, an airport maintenance services, and etc.

a. (The Airport Manager) has overall responsibility to ensure operational safety aspects of aerodrome works meet the Requirement of Civil Aviation Authority of (Country name & regulation).

b. (Airport Maintenance) has a responsibility to ensure that Method of Working Plan (MOWP) is provided and executed.

c. (Airport Operations) has responsibility to supervise safety of airside especially during construction. The (Airport Operations) also checks Method of Working Plan and ensure the safety of aircraft operations.

d. (The Project Manager) is responsible for detailed works planning and coordination and ensuring that works are carried out in accordance with the MOWP.

4.9.3 Works Planning

Aerodrome Works can be divided into works that requires a working plan and works that do not require a working plan. A working plan should include movement area closure, markings, issuance of airport circular (to advise the airport community) and issuance of NOTAM (if needed).

Example:

(Name) Airport divides works into two categories.

a. Airport works that do not require a Method of work plan (MOWP)

i) Works that can be completed within 10 minutes and will not disrupt normal aircraft operations are permitted without a NOTAM. Time limited works in this category include grass mowing outside runway / taxiway strip, pavement rolling and sweeping, minor repairs to pavements, maintenance of markings, markers and lights, surveys and inspections.

With ATC agreement, only personnel with hand tools are allowed to work inside the runway strip during aircraft operations under any of the following conditions:

1) At all times except during air transport jet operations.
2) At all times for maintenance including grass mowing (operations must be within 2 meters of the markers when inside the runway strip).
3) Ground surveys associated with Navaid flight calibration flights (Navaid calibration).

ii) Time limited works requiring more than 10 minutes but no more than 30 minutes, are advised by NOTAM which states the nature of the unserviceability, and the length of time required to terminate work and restore the works area to normal safety standards. The NOTAM is issued at least 24 hours prior to the proposed work to minimize disruption to aircraft flight planning. Unserviceability markings/ markers will be displayed if required.

iii) Works that require more than 30 minutes to restore to normal safety standards will be subject of a MOWP except for emergency repairs.

b. Airport works that require a MOWP.

All scheduled airport works, other than time limited or emergency works, will require a MOWP, and an appropriate NOTAM. In general, these are works that require partial or complete runway or taxiway closures, or will cause significant disruption to aircraft parking arrangements on aprons.

4.9.4 Method of Working Plan

Explain method of working plan, NOTAM issuance, coordination meeting, and distribution of working plan.

Explain construction management including ground vehicles, access route, and stock piles to avoid hazardous condition.

Explain site security and security control of a contractor.

Example:

a. The MOWP document provides formal advice to the aviation industry and other involved parties of the planned arrangements for the conduct of airport works. In particular, it advises of restrictions placed on aircraft operations and the works organizer as a consequence of the works.

   A MOWP will be prepared for works that will have a major operational impact, or cause disturbance to operations over an extended period.

   In planning the works, the Project Officer/Manager must consult with organizations that may be affected. The extent and formality of the consultation process will depend on factors such as the complexity and physical scope of the work and likely extent of disruption to normal aircraft operations.

   The Project Officer/Manager will consult with CAA when necessary to identify operational impacts and the measures necessary to ensure an acceptable level of aviation safety.

   After consultation the Project Officer/Manager will determine the restrictions to works and to aircraft operations. The draft MOWP is referred to the Operations Section for final comment.

   Each MOWP is to be signed as approved by the Airport Manager (or in his absence by the Airside Safety Manager).

   The MOWP format will be as specified in the CAA Directions Relating to Aerodrome Works. The topics in MOWP are included:

   1. Works Information
   2. Restrictions to Aircraft Operations
   3. Restrictions to Works Organization

4. Administration
5. Drawing
6. Distribution Lists
7. Signature of Approval Person

The MOWP is to be issued at least two weeks prior to the scheduled commencement of work, using the standard distribution list included at the end of this Section.

b. Conduct of Aerodrome Work

i) Airport works that do not require a MOWP.

1) Maintenance staffs or contractors accessing to the movement area shall be granted a permit to work in a movement area. The work permit will show times of works, precise areas in which work may be done, the routes to be followed, the R/T procedures, and the reporting procedure to be followed on completion of work.

2) Personnel and vehicles associated with the works in the airside shall have a permit from the airport. The airport rules shall be followed while working and driving in the airside.

3) Personnel and vehicles shall receive a clearance from ATC before accessing into the movement area.

4) The airport does not allow construction or maintenance during low visibility operations. During low visibility operations, maintenance staffs and contractors shall stop works and exit from the airside.

ii) Airport works that require a MOWP.

The airport will ensure that people associated with works requiring a MOWP follow the 4.9.4 (b) i) and also implement these followings;

1) Contractors shall submit MOWP and execute the approved MOWP.

2) Personnel and vehicles in the airside shall have permits from the airport.

3) (Airport Responsible Person) has a responsibility to supervise aerodrome work safety. (Airport Responsible Person) shall:

- Ensure the safety of aircraft operations and the day-to-day safe conduct of works in accordance with provisions of the MOWP.

- Ensure that the Works are notified by NOTAM and that the text of each NOTAM is exactly as set out in the MOWP.
- Supply ATC, on a daily basis, with all information necessary to ensure the safe conduct of Works.
- Discuss with the Works Organizer, Project Manager on a daily basis (and if required with the Airport Operations Supervisor/ Airside Safety Manager also), any matters necessary to ensure the safe conduct of Works in relation to operational safety.
- Ensure that unserviceable portions of the movement area, temporary obstructions, and the limits of the Works area are correctly marked and lit in accordance with the MOWP.
- Ensure that vehicles and plant engaged on aerodrome works comply with the obstacle marking and lighting standards or alternatively are directly under escort.
- Ensure that vehicles, plant equipment and materials not directly in use on the Works, are parked or stored outside the movement area, and do not obstruct the approach, takeoff or transition OLS, or interfere with radio navigational and landing aids.
- Ensure that access routes are in accordance with the MOWP.
- Direct the immediate removal of vehicles, plant and personnel from the movement area where necessary to ensure the safety of aircraft operations.
- Ensure that the movement area is safe for normal aircraft operations following removal of markers, vehicles, plant equipment and personnel from the Works area.
- Ensure that floodlighting or any other lighting required for works is shielded so as not to cause glare or confusion to pilots and air traffic controllers.
- Immediately on completion of the works, the Works Safety Officer is to ensure that the Reporting Centre is advised formally of the date of completion and time of cancellation of any associated NOTAM.

4) The contractor shall nominate a work safety officer for each project to coordinate with the airport and ensure that MOWP is executed.

5) The work safety officer shall report any hot work and abnormality to the (Airport Responsible Person).

6) The (Airport Responsible Person) will record a daily log of the construction work.

4.9.5 Permit to Commence Work

Specify an airport permission to commence works that may have significant effects on airport serviceability such as airport electrical system or navigation aids.

Example:

In addition to a MOWP, some airport works may also cause disruption (or potential disruption) to the supply of essential engineering services. The Project Officer/Manager shall issue a PERCOW (Permit to commence work) that specifies conditions that must be observed to ensure the maintenance of essential services.

4.9.6 Communication with Air Traffic Service Unit

Workers in an airside shall be equipped with two-way radio communication. They shall be able to communicate with an ATC or airport operations at all time.

Example:

a. The contractors shall have two-way radio communication ready to communicate with ATC at all time.
b. The contractors shall establish a communication network to ensure that safety information from the ATC can be transmitted to all concerned contractor staff in a timely manner.
c. The contractors shall strictly follow ATC instructions at all times.

4.9.7 Working Plan Distribution

Aerodrome owner or aerodrome operator shall distribute a working plan to stakeholders in the airside. The stakeholders may include air carriers, ground handlers, air traffic service provider, airport rescue and firefighting, CAA, airport operations, or other related parties.

Example:

Organization	Telephone Number		Fax
	Operating Hours	Outside Operating Hours	

4.10 Apron Management

4.10.1 Purpose

Define the purpose of apron management focusing on efficiency of apron operations and safety of aircraft. Parked aircraft should have an adequate space as specified in [CAA regulation].

Example:

The aim of these procedures is to provide for the orderly and safe allocation of aircraft parking bays at (Name) Airport. Parking bays have been designed and marked to ensure that appropriate separation distances are maintained and that aircraft refueling and servicing activities can be undertaken without interference to adjacent parked aircraft.

4.10.2 Responsibility

Explain responsibility of persons who have roles and responsibilities in apron management. These persons may include, but not limited to, an airport manager, airport operations, and etc.

Example:

a. The Airport Manager has overall responsibility for implementing procedures for aircraft parking control and ensure that the airport standard meets the Requirement of Civil Aviation Authority of (Country name & regulation)

b. (Airport Operations Supervisor) is responsible for creating a manual and SOPs associated with apron management.

c. (Airport Operations) is responsible for the day-to-day allocation of aircraft parking bays, slot allocation, record aircraft parking information, coordination with other agencies, and supervision of parking procedures.

d. (Ground Handling Agent or Fixed-Base Operator) is responsible for apron services.

e. (Air Traffic Service Unit) is responsible for giving instruction to pilots and coordinating between pilots and airport staffs when airport services are requested.

4.10.3 Aircraft Parking Areas

Describe aircraft parking areas by texts or pictures. Define capability of each parking areas according to the largest aircraft that the parking areas can accommodate. Characteristics of each stand should be determined whether it is remote or contact parking.

Example:

(Name) Airport has parking areas with aerobridge and without aerobridge. The layout of apron has shown below.

(Insert apron layout)

Each stand can accommodate:

Apron No.	Size/Type of Aircraft	(Contact/Remote)	International/ Domestic	MARS Stand	Remarks

4.10.4 Communication between Air Traffic Control and the Apron Management Unit

Explain communication procedures between air traffic service provider and apron control.

Explain:

a. When an aircraft operator request to land or take off at (Name) Airport, the airport will check apron availability and inform the aircraft operator via (ATS Unit).

b. When an aircraft arrives, (Airport Responsible Person) assigns parking position via (Communication Method) and record in (Specify).

c. (ATS Unit) gives parking instruction to the pilot via (Specify). The Airport – Air Traffic Services Provider Agreement is contained in (Specify) which comprise a part of this manual.

4.10.5 Allocating Aircraft Parking Positions

Describe aircraft stand allocation and aerobridge services (if applicable). Describe procedures when there is a change in stand allocation.

Explain:

a. (Airport Responsible Person) prepares a daily allocation plan according to the Standard Times of Arrival and Departure, Flight No., and the intended aircraft type.

b. (Airport Responsible Person) requests the following real-time information from airline and/or ATC to fine tune the daily allocation plan:

i) Estimated Time of Arrival and Estimated Time of Departure
ii) Flight No.
iii) Aircraft Type

c. (Airport Responsible Person) considers;

i) If the parking bay can accommodate the aircraft, the aircraft can be parked in the stand.
ii) If the parking bay cannot accommodate the aircraft, the airport operator will (Specify the Airport Procedures).

d. If there is an aerobridge, the airport will ensure that:

i) A driver of an aerobridge shall be trained. The training program will be in accordance with the manufacturer manual.
ii) The driver will be on position [15] minutes prior to ETA/Estimated In-bound Time (EIBT).
iii) The marshaller gives signal to the aircraft for docking.
iv) When the aircraft parked in position, aircraft technician will ensure the aircraft is properly chocked, then the aerobridge / passenger steps will be contacted to the aircraft.

4.10.6 Initiating Engine Start and Aircraft Push-back

Explain procedures for initiating engine start and aircraft push-back. It may include aircraft self-maneuvering in an aircraft stand.

Example:

a. When ground services are finished and aircraft is ready for pushback, the pilot shall contact a ATC ground control for a clearance to initiate engine start and pushback. Before engine start or pushback, the pilot shall turn on anti-collision lights.

b. If the aircraft need to be towed to another stand or other area, the mechanics will be responsible for coordinating with ATC ground control for the clearance. The anti-collision lights shall be turned on from start of push-back / towing until chock in.

4.10.7 Marshalling Procedures

Define a marshalling method such as VDGS or marshaller. The procedures employed by an airport shall comply with (State Regulation Reference).

Example:

a. (Name) Airport has marshaling services. The airport (has/ does not have) VDGS.

b. A marshaller shall be trained, checked and qualified to ensure that the signal given to pilots is correct. A qualified marshaller shall have a valid license for operating an aerobridge ready to be inspected at all time.

c. A marshaller shall equipped with:
   i) Proper personal protective equipment (PPE) including ear protection, reflective vest and safety shoes.
   ii) Marshalling wands or marshalling paddles

d. A marshaller shall inspect the safety of the aircraft stand before aircraft parking.

e. A marshaller shall maintain eye contact with the pilot-in-command during docking.

4.10.8 Follow-me Procedures

Explain criteria and procedures of follow-me to ensure that the follow-me can operate safely.

Example:

a. (Name) Airport provides follow me services for low visibility operations, lost communication, pilots who are not familiar with the airport or other safety related matters.

b. The drivers shall be suitably trained and have a valid airside driving license. The vehicle used for follow me service shall be equipped with a two-way radio.

c. Procedures;
   i) When a follow-me vehicle is requested, the driver will drive the car to the aircraft.
   ii) The [pilot or mechanic / follow-me driver] requests a clearance to ATC.
   iii) After ATC provides the clearance, the follow-me vehicle will lead the aircraft to its stand. [Pilot or mechanic / follow-me driver] report ATC when the follow-me service is completed.

4.11 Apron Safety

Particulars for apron safety including protection from jet blasts, aircraft refueling operations, apron sweeping, apron cleaning, incident and accident reports, and safety compliance monitoring.

4.11.1 Purpose

The aim of apron safety is to ensure the safety of ground handling operations and minimize risks and hazards of ground operations accident and incident.

Explain:

(Name) Airport manages apron safety to minimize ground operations risks, injuries, loss of life and property and disruption to airport operations.

4.11.2 Responsibility

Define responsibility of persons involving in apron safety such as an airport manager, airport operations, ground handling operators, fixed-base operators, and etc.

Example:

a. The Airport Manager has overall responsibility to ensure safety in apron as required by CAA.

b. (Airport Operations) has responsibility to set up procedures relating to apron safety and supervise operations in apron to ensure the compliance of ground operations.

c. (Ground Handling Agents and Fixed-Base Operators) is responsible for establishment of company's operating manuals in compliance with the minimum standards specified by the airport.

4.11.3 Protection from Jet Blasts

Specify airport's procedures for protection from jet blasts.

Example:

To prevent jet blasts and propeller wash during take-off and landing of the aircraft, the airport set up (Procedures) as contained in (Specify).

Ground handling or fixed-base operator personnel shall be trained in apron safety and attain recurrent training every year.

4.11.4 Aircraft Refueling Operations

Specify airport's procedures aircraft refueling operations.

Example:

Air carriers, ground handling operators, fixed-base operator, and fuel handling agent have responsibility to comply with the airport refueling standards set forth by the airport, contained in [airport document / circular / notice].

4.11.5 Apron Sweeping

Specify airport's procedures for apron sweeping.

Example:

Prior to take-off and landing of aircraft, (Airport Responsible Person) will inspect FOD. (Ground Handling or Fixed-Base Operator Responsible Person) shall inspect apron area prior to aircraft parking. In case there are FOD in large quantities, upon receiving the report, (Airport Responsible Person) will sweep the apron area. (Airport Responsible Person) and (Air Carrier Responsible Person) will joint inspect apron area once sweeping is finished.

4.11.6 Apron Cleaning

Specify airport's procedures for apron cleaning.

Example:

(Name) Airport will clean the apron when requested by users in airside or when a daily airport inspection results in the need of cleaning. The airport will use a proper cleaning agent suitable for types of contaminations.

An aircraft fueling agent is responsible for prevention of spillage and cleaning of such spillage. Spillage shall be contained in a limited area and not contaminate water drainage or water body. Cleaning shall be done immediately. If the fueling agent cannot clean the spillage, the airport will take over the action. The expenses caused by such spillage shall be charged to the fueling agent.

Ground handling agents, fixed-base operator, and air carriers using the airport shall make sure that the apron is clean from FODs or contaminations after the aircraft leave the apron.

4.11.7 Incident and Accident Reports

Specify airport's procedures for incident and accident reports.

Example:

Any accident and incident shall be reported through the airport safety management system. The person causing the incident and accident or the witness shall also report their supervisors immediately.

The Accident and Incident Reporting Form in Annex (#) shall be used. The person causing the incident and accident or the witness shall give detailed information to (Airport Responsible Person) without hesitation.

For immediate hazards or accident / incident requiring immediate follow-up actions, airport staff shall call [airport operation centre] at [phone number] without delay.

4.11.8 Safety Compliance Monitoring

Specify airport's procedures for safety compliance monitoring to ensure ground operations' safety and compliance to standard. An airport shall establish safety compliance monitoring period based on air traffic volume.

Example:

For safety operations in the apron, the airport will set up a minimum standard for ground handling operations. The airport randomly inspects the ground handling procedures to ensure the compliance to the safety standards.

Non-compliances shall be reported to (Airport Operations Officer) and via the airport safety report system. The airport may cease a non-compliance operation that may be harmful.

4.12 Airside Vehicle Control

Particulars for airside vehicle control including applicable traffic rules, driving permits, and enforcement.

4.12.1 Purpose

The aim of airside vehicle control is to prevent accident/incident involving vehicles / equipment, to ensure the safety of ground handling operations and minimize risks and hazards of ground operations.

Example:

The purpose of the Airside Vehicle Control Handbook (the Handbook) is to ensure the safe airside operation of vehicles on (Name) Airport. The Handbook is compiled as Annex (#) to this Manual and forms part of it. However, it is issued as a separate document to this manual.

4.12.2 Responsibility

Define responsibility for persons involving in airside vehicle control. This may include an airport manager, airside operations, airport security, airport safety and other related people.

Example:

a. The Airport Manager has overall responsibility for the development and implementation of procedures and provision of resources for the control of persons and vehicles entering and operating on the airside of (Name) Airport.

b. The Airport Operations Supervisor is responsible for ensuring that the provisions of the Handbook are implemented, for conducting audits of Approved Issuing Authorities, and authorizing in writing the appointment of Approved Issuing Officers. The Airport Operations Supervisor also is responsible for carrying out instruction, testing and maintaining records of persons approved for an Authority to Drive in Airside (ADA).

c. The Airport Security Officer is responsible for screening personnel entering and exiting airside.

d. Companies wishing to operate a vehicle airside on (Name) Airport are responsible for complying with the Handbook while driving in the airside.

4.12.3 Applicable Traffic Rules

Explain how an airport enforce driving rules. The enforcement may also include privilege to drive in airside, airside driving traffic rules, types of airside driving permits, and training topics.

Example:

Companies and persons requiring access to airside for aviation business purposes must obtain sufficient copies of the Airside Vehicle Control Handbook to provide one for each airside driver. This is the regulatory document for drivers and provides the basis for testing applicants for an Authority to Drive Airside.

The airside operation of each vehicle must be approved by the issue of an Authority for Use in Airside (AUA), which must be displayed on the vehicle. For this purpose, the term vehicle includes any motorized equipment used in aircraft servicing or maintenance.

Each driver must be approved to operate a vehicle airside on (Name) Airport by the issue of an Authority to Drive in Airside (ADA). The ADA will specify the areas where a driver is authorized to operate:

(Specify Categories of Permits)

Approved Issuing Authorities are required to nominate Approved Training Officers for endorsement by the Airport Operations Supervisor. Applicants for an Authority to Drive Airside are to be trained and tested by Approved Training Officers for their

knowledge of:

(Specify topics included in Airside Driving Training)

The Airport Operations Supervisor will audit each Approved Issuing Authority in relation to the above items to ensure that an adequate training course is provided and that records are maintained to demonstrate a uniform standard of training and testing is being provided.

In addition to the above, Approved Issuing Authorities are expected to provide company and equipment/plant specific training and other items such as aircraft towing and pushback procedures to the concerned drivers.

4.12.4 Enforcement

Explain how an airport inspect and enforce its traffic rules. Penalties for violations should be identified in this section.

Example:

a. (Airport Responsible Person) will randomly inspect vehicles and driving activities for noncompliance.

b. Operations Officers will log any breaches of the airside driving rules, and report them to the owner of vehicles so that appropriate action may be initiated against offending drivers. The (Airport Responsible Person) will report the breaches of the airside driving rules to the Airport Manager.

c. Breaches that constitute an incident require submission of an Incident Report form provided in the Airport Safety Management Manual.

d. A demerit point system is in place for breaches of the Airside Vehicle Control Handbook driver rules. Demerit points are held for a period of [two] years. An Authority to Drive in Airside will be withdrawn for a period of [one] month if a driver accumulates more than [12] demerit points. Subsequent accumulation of an additional [12] demerit points may result in permanent withdrawal of an Authority to Drive in Airside.

e. Demerit points scale

Violations	Points
Exceeding Speed Limit	
4 - 9 Km/h	2
10 - 14 Km/h	3
15 - 19 Km/h	4
More than20 Km/h	6
Failing to give way to an aircraft	4
Driving contrary to any other rules in the Airside Vehicle Control Handbook	3
Minor Accident[1]	3
Major Accident[1]	Immediate Suspension

[1] Regardless of driving history, the airport will consider the severity of an accident.

4.13 Wildlife Hazard Management

Particulars for wildlife hazard management including wildlife hazard mitigation, reporting wildlife hazard, wildlife hazard assessment, and wildlife control measurement.

4.13.1 Purpose

Define a purpose of wildlife hazard management. The purpose normally focuses on prevention and mitigation of wildlife hazards. However, the environment should be in mind when manage wildlife hazards.

Example:

The aim of this procedure is to minimize the hazard to aircraft operations created by the presence of birds and/or animals on or in the vicinity of the airport with the environment in mind.

4.13.2 Responsibility

Define responsibility for persons involving in wildlife hazard management. This may include an airport manager, airside operations, airport maintenance, and etc.

Example:

a. The Airport Manager has overall responsibility for the bird and animal hazard management program for (Name) Airport to minimize accident and incident rates.

b. (Airport Operations) is responsible for the implementation of the bird and animal hazard management program.

c. (Airport Maintenance) is responsible for wildlife habitat modification.

4.13.3 Reporting Wildlife Hazard

Define events requiring wildlife hazard report using CAA's wildlife hazard reporting form.

Example:

The airport will report wildlife hazard to the Civil Aviation Authority when these events occur.

a. A strike between wildlife and aircraft has been witnessed.

b. Evidence or damage from a strike has been identified on an aircraft.

c. Bird or other wildlife remains, whether in whole or in part, are found:

i) Within 75 meters of a runway centerline or within 150 meters of a runway end unless another reason for the animal's death is identified or suspected.
ii) On a taxiway or anywhere else on or off the airport that there is reason to believe that it was the result of a strike with an aircraft.

d. The presence of birds or other wildlife on or off the airport had a significant negative effect on a flight

4.13.4 Wildlife Hazard Assessment

Explain wildlife hazard assessment methods. In case an airport has EIA or EIA Monitoring, an airport may use wildlife hazard management in the study. In addition, an airport shall collect statistics of wildlife control measurements for improvements. The expert advice from an ornithologist will be useful.

Example:

a. The airport collects wildlife data and wildlife attractants in vicinity of the airport. The data includes types, number, food sources, wildlife habitats, bodies of open water and reproduction sites.

b. A daily survey of wildlife is conducted during daily movement area inspection. The airport surveys the area in airport and its vicinity three times a year. The daily survey and seasonal survey results will be recorded and reported.

c. A yearly wildlife hazard assessment will be contained in EIA Monitoring. The details in the report will cover the followings:

i) Analysis of the event or circumstances that prompted the study.
ii) Identification of the wildlife species observed and their numbers, locations, local movements, and daily and seasonal occurrences.
iii) Identification and location of features on and near the airport that attract wildlife.
iv) Description of the wildlife hazards to air carrier operations.
v) Recommended actions for reducing identified wildlife hazards to air carrier operations.

d. The results of the assessment will be passed to the airport ornithologist for analysis and presented in term of Risk Matrix.

e. The airport assesses the effectiveness of wildlife hazard management plan to improve the techniques used in wildlife hazard management plan.

4.13.5 Wildlife Hazard Management Program (WHMP)

An airport should establish Wildlife Hazard Management Program based on wildlife hazard management assessment. Wildlife Hazard Management Plan should include habitat modification, harassment, lethal method, and other measurements as necessary. The Plan shall take into account the expert advice from an ornithologist.

Example:

The airport establishes a wildlife hazard management plan based on wildlife hazard assessment derived from EIA Monitoring Report.

The airport has four wildlife hazard mitigation measurements which are habitat modification, harassment techniques, wildlife removal and aircraft flight schedule modification. The details of these techniques are contained in (Name) Airport Wildlife Hazard Management Plan.

4.14 Obstacles Control

Particulars for aerodrome obstacles control, obstacle monitoring, and obstacle reporting. Obstacles are both natural and manmade.

4.14.1 Purpose

Specify the purpose of obstacle control on airport and in vicinity. The control of obstacles protects an aircraft using an aerodrome.

Example:

The aim of these procedures is to ensure that suitable provision is made to monitor and control the erection of temporary and permanent structures that may adversely impact aircraft operations.

4.14.2 Responsibility

Define responsibilities of persons involving in obstacles control such as an airport manager and airport operations.

Example:

a. The Airport Manager has overall responsibility for establishing procedures to monitor and notify the presence of obstacles to CAA, and to control the erection of temporary and permanent structures in the vicinity of the airport.

b. (Airport Responsible Person) are responsible for day-to-day monitoring of the OLS and PANS-OPS to detect unapproved obstacles, report to the Airport Manager and to take measures to have them removed or lowered to a safe operational height.

4.14.3 Administration of Obstacle Control

Explain how an airport monitor and control obstacles on and in vicinity of airport, control of construction works, and report to CAA.

Example:

a. Visual inspections of obstacles will be conducted during daily airport inspection by (Responsible Person)

b. If a temporary obstacle is found, (Responsible Person) will:

   i) Immediately inform an air traffic service unit.

   ii) If the obstacle is in airport perimeter, the airport will immediately remove it. If not, (Responsible Person) will negotiate with the owner of the obstacle to lower or remove the obstacle.

iii) If the negotiation fail, the airport will:

1) Report to a local authority to help with negotiation
2) Inform and consult with air traffic service unit to find a mitigation method if the obstacle is in Take Off or Approach Surface, or the Obstacle Free Zone (for airports with precision CAT II or III approaches). The airport may reduce a declare distance if necessary.
3) If the obstacle is outside of Take Off or Approach Surface, or the Obstacle Free Zone (for airports with precision CAT II or III approaches), (Airport Responsible Person) issues NOTAM and liaise with ATC to limit certain types of operations.

iv) The airport will cancel the NOTAM and inform ATS when the obstacle is removed.

c. (Airport Responsible Person) will assess and inspect an object in OLS as soon as it is reported. If the object is an obstacle, the (Responsible Person) will issue NOTAM and report CAA immediately.

4.15 Removal of Disabled Aircraft

Details removal of disabled aircraft. Normally, an aircraft owner or air carrier has a responsibility to remove disabled aircraft. However, an airport may intervene when the aircraft owner cannot remove the disabled aircraft in a timely manner. Therefore, an airport should prepare tools, equipment, and materials necessary for removal of disabled aircraft. An airport may own or make a contract with another airport or suppliers in order to have a quick support. A disabled aircraft removal plan can be incorporated in an Aerodrome Emergency Plan.

An airport may also have the removal plan in this manual. The contents of the plan shall comprise of:

- Purpose
- Responsibility
- The roles of the aerodrome operator and the holder of the aircraft certificate or registration
- Arrangements for notifying the holder of the certificate of registration
- Arrangements for liaising with the air traffic control unit
- Arrangements for obtaining equipment and personnel to remove the disabled aircraft
- The names, role and telephone numbers of persons responsible for the removal of disabled aircraft

4.15.1 Purpose

Example:

The aim of the Disabled Aircraft Removal Plan is to provide for an efficient, coordinated response to quickly and safely remove a disabled aircraft that has caused temporary closure of a runway, taxiway, or affected the OLS.

The details of disabled aircraft removal are contained in the (Name) Airport Aircraft Disabled Removal Plan which comprise a part of the (Name) Airport Emergency Plan. The plan covers:

- The roles of the aerodrome operator and the holder of the aircraft certificate or registration
- Arrangements for notifying the holder of the certificate of registration
- Arrangements for liaising with the air traffic control unit
- Arrangements for obtaining equipment and personnel to remove the disabled aircraft
- The names, role and telephone numbers of persons responsible for the removal of disabled aircraft

4.16 Handling of Hazardous Materials

4.16.1 Purpose

Define the purpose of the procedures related to handling of hazardous materials to ensure safe delivering, handling, storing, and disposing of hazardous materials.

Example:

The aim of these procedures is to ensure the safe handling of hazardous materials or dangerous goods on airport, including:

- Explosives
- Gases
- Flammable Liquids
- Flammable Solids
- Oxidizing Substances and Organic Peroxides
- Toxic Substances and Infectious Substances
- Radioactive Materials
- Corrosive Substances
- Miscellaneous Dangerous Substances and Articles

The procedures are intended to ensure both public safety and the continued safety of aircraft operations.

4.16.2 Responsibility

Define responsibilities of persons involving in Handling of Hazardous Materials such as an airport manager, airport operations, air carriers, fueling operators, etc.

Example:

a. The Airport Manager has overall responsibility for establishing procedures to ensure the safe handling of hazardous materials at the Airport by providing appropriate storage area, qualified personnel, and resources for handling of hazardous materials.
b. The Chief of RFFS has the responsibility to provide immediate response to handle accidents and incidents involving hazardous materials that take place in the movement area.
c. The Senior Operations Officer is responsible for supervising overall procedures including storing, transporting, and disposing of hazardous materials.
d. Ground handling operators and fixed-base operators involving in fueling operations are responsible for safety inspection of their fueling facilities and equipment and establishment of their safety procedures for storing and dispensing of fuel.

4.16.3 Hazardous Materials Storage Area

An airport should designate a specific area to store flammable liquids, aviation fuel, and other hazardous materials. [Department of Industrial Works] has set up requirements for hazardous materials storage.

Example:

a. Flammable Liquids

Flammable Liquids shall be stored only in designated and approved storage units. No one shall store flammable liquids with in the airport property without a permission from the airport.

b. Any Other Hazardous Materials

Other hazardous materials shall be stored in the area approved by the airport. The storage area shall meet the requirements of the [Department of Industrial Works].

4.16.4 Methods to be Followed for the Delivery, Storage, Dispensing and Handling of Hazardous Materials

Explain methods to be followed for the delivery, storage, dispensing and handling of hazardous materials according to the requirements of the Department of Industrial Works. The methods should also include emergency procedures when there is a leakage.

Example:

a. Delivery of Hazardous Materials

i) Drivers shall ensure that hazardous materials are properly secured and covers or tarps are securely lashed before moving off. Hazardous materials shall be delivered by a vehicle designed to safely deliver the specific types of hazardous materials.

ii) Packages with orientation markings (i.e. arrows) must be secured in a manner that will keep the package in the correct position (arrows up) throughout the transportation process.

iii) Sources of ignition, such as smoking and open flames, are prohibited where hazardous material is delivered.

iv) The vehicle's parking brake must be engaged during the loading/unloading process.

b. Storage

i) Hazardous materials shall be stored in the area approved by the airport.

ii) Hazardous materials shall be segregated as required by the [Department of Industrial Works].

c. Handling of Hazardous Materials

i) Hazardous Material Incident

1) Contact (Airport Rescue and Fire Fighting)

2) Do not come in contact with the substance

3) Identify the chemical/s and hazards involved – check Material Safety Data Sheet (MSDS). Use the information on the physical and chemical properties of the material to derive response and/or evacuation procedures.

4) Raise the alarm – evacuate non-contaminated persons from the area. Isolate contaminated individuals and treat as per MSDS. Isolate affected persons and keep on site.

5) Assist the emergency response personnel and provide the MSDS if the chemical is known.

6) Ensure that hazardous materials will not spill into water or drainage.

7) Clean up the area and refill the emergency kit.

ii) Disposal of Hazardous Materials

1) Hazardous chemical waste, absorbent materials, waste water, expired chemicals, contaminated containers, contaminated pallets, and other contaminated objects shall be disposed of properly. The disposal methods are specified in MSDS. The airport may contract a certified company for disposal of hazardous materials.

2) Contaminated containers can be disposed or reused if treated properly.

4.17 Low Visibility Operations

Particulars for low visibility operations, runway visual range measurement, runway visual range report, and low visibility procedures. Low visibility procedures only applicable for an airport with Cat II and III Approach and/or Low Visibility Take-off. An airport may state that this is not applicable in case an airport does not have Cat II and Cat III Approach and/or Low Visibility Take-off.

4.17.1 Purpose

Specify a purpose of low visibility operation procedures at an airport. The purpose should mainly focus on safeguarding of aircraft operations and people in the airside.

Example:

The aim of these procedures is to provide pilots with information relevant to aircraft departures / arrivals in conditions of low visibility at the Airport.

4.17.2 Responsibility

Define responsibilities of persons involving in low visibility operations such as an airport manager, airport operations, airport security, and etc.

Example:

a. The Airport Manager has overall responsibility for ensuring that low visibility procedures are developed and sufficient resources are available.
b. (Airport Operations) is responsible for carrying out Runway Visibility Range measurement when requested by ATS.
c. (Airport Security) is responsible for controlling the access to airside when low visibility procedure is activated. Unauthorized person shall not allow to access the airside under low visibility operations.

4.17.3 Measurement and Reporting of Runway Visual Range

Explain runway visual range measurement and reporting procedures.

Example:

a. Runway Visual Range Measurement
   i) (Airport Responsible Person) measures Runway Visual Range by counting the runway edge lights. (Airport Responsible Person) will park a truck at a designated point and stand on the truck.
   ii) (Airport Responsible Person) counts the runway edge lights and convert the number of runway edge lights to the Runway Visual Range.

iii) The airport will have two (Airport Responsible Persons) counting the runway edge light. The number used for conversion shall be the arithmetic mean of the results from the (Airport Responsible Persons).

iv) The airport may use a pilot report for the runway visual range conversion. The following table will be used to converse visibility to the runway visual range.

Lighting Elements in Operations	RVR/CMV = Reported Meteorological Visibility multiplied by:	
	Day	Night
High intensity approach and runway lighting	1.5	2.0
Any type of lighting installation other than above	1.0	1.5
No lighting	1.0	N/A

A conversed runway visual range shall not be used if it is below 800 meters or if there is a more precise measurement method available at the airport at that time.

v) (Name) Airport will multiply meteorological visibility by 1.0 during the day and 1.5 during the night.

b. Runway Visual Range Report

i) The (Airport Responsible Person) will report runway visual range below (Specify) meters to ATS via telephone or radio.

ii) (Airport Responsible Person) will report the following conditions to ATS:

1) Low Visibility Condition Warning is a warning visibility before activating low visibility operations. RVR for Low Visibility Condition Warning is (Specify) meters but not below (Specify) meters.
2) Low Visibility Condition Phase A is a visibility that Low Visibility Procedure is activated. RVR for Low Visibility Condition Phase A is (Specify) meters but not below (Specify) meters.
3) Low Visibility Condition Phase B is a visibility below (Specify) meters.

iii) ATS will inform all operators in the airside the low visibility conditions via (Specify). The report includes the measured runway visual range.

iv) All operators in the airside shall activate their low visibility procedures when informed by the ATS.

4.17.4 Low Visibility Procedures

Explain low visibility procedures including low visibility warning, information distribution, Low Visibility Phase A, Low Visibility Phase B, and cancellation of low visibility procedures.

Example:

a. Low Visibility Warning

i) ATS informs all operators in the airside.

ii) (Airport Security) limits airside access to authorized person only.

iii) (Airport Operations) coordinates with contractors or airport maintenance staffs in maneuvering area for evacuation to safe area and secure the area.

iv) (Airport Rescue and Fire Fighting) prepares for emergency response.

v) (Airport Operations) inspects runway and runway lights. Any unserviceable lights or hazards shall be reported to (Airport Maintenance) or (Responsible Person) for corrective maintenance. The hazards shall be reported to ATS.

vi) (Airport Maintenance) shall fix the hazard conditions as soon as possible.

vii) Air carriers, ground operators and personnel associated with airside operations inform their subordinates about low visibility condition warning. They may continue their duties. Vehicles with siren lights may stay in the airside, but vehicles without siren lights shall not be in the airside. The drivers shall drive carefully, turn on low beam and siren at all times.

b. Low Visibility Phase A

i) ATS activates low visibility procedures and informs all operators in the manoeuvring area to cease operations and evacuate from the maneuvering area until the low visibility operation ends. Runway lights shall be turned on. Runway and taxiway crossing shall be limited.

ii) (Airport Security) limits the number of personnel accessing to the airside. Only personnel who has a duty in the airside during the low visibility operation is allowed to access.

iii) (Airport Operations) informs passengers in the terminal about low visibility operations and possibility of a delay. Follow-me vehicles shall be ready to operate when requested. (Airport Operations) shall inspect ground vehicles to ensure that the drivers turn on low beam and siren.

iv) (Airport Rescue and Fire Fighting) prepares for emergency response.

v) Air carriers, ground operators and personnel associated with airside operations inform their subordinates about low visibility condition warning. They may continue their duties. Vehicles with siren lights may stay in the airside, but vehicles without siren lights shall not be in the airside. The drivers shall drive carefully, turn on low beam and siren at all times. Runway and taxiway crossing shall be kept to a minimum, done with cautions and only when receive ATC clearance. Workers shall not remain in maneuvering area.

c. Low Visibility Phase B

i) ATS activates Low Visibility Procedures Phase B and informs all operators to evacuate from the maneuvering area. ATS may use the same procedures as Low Visibility Phase B.

ii) (Airport Security) limits the number of personnel accessing to the airside. The (Airport Security) will not allow anyone except people associated with aircraft operations to access the airside.

iii) (Airport Operations) informs passengers in the terminal about low visibility operations and possibility of a delay. Follow-me vehicles shall be ready to operate when requested. (Airport Operations) shall inspect ground vehicles to ensure that the drivers turn on low beam and siren. The (Airport Operations) will coordinate evacuation of all vehicles with no siren.

iv) (Airport Rescue and Fire Fighting) prepares for emergency response.

v) Air carriers, ground operators and personnel associated with airside operations inform their subordinates to ***ceases all operations***. Only allow vehicles with siren in the airside. Airside drivers shall turn on low beam and siren at all times. All operators shall limit their operations to minimum. All people in the maneuvering area shall be evacuate. Do not tow an aircraft except ATC clearance is granted and a follow me vehicle is available.

d. Cancellation of Low Visibility Operations

i) When meteorological service provider or (Airport Responsible Person) observe that RVR become normal or improve from Phase B to Phase A, inform the ATS.

ii) ATS announce cancellation or changes the level of Low Visibility Procedures to all operators.

4.18 Protection of Site for Navigation Aids

Particulars of the procedures should be provided for the protection of sites for radar and radio navigational aids located on aerodrome to ensure that their performance will not be degraded. The procedures should also include control of activities in the vicinity of radar and navigation aids installations, ground maintenance in the vicinity of these installations, and supply and installation of signs warning of hazardous microwave radiation.

4.18.1 Purpose

Define objectives of the procedures for the protection of sites for radar and radio navigational aids. The purpose should focus on controlling works in vicinity of navigation aids and protecting people and equipment from radiation.

Example:

The aim of these procedures is to ensure there will be no interference to the operation of navigation aids at the Airport caused by the erection of structures, or work activities within the vicinity of a navigation aid or associated cabling.

4.18.2 Responsibility

Define responsibilities of persons involving in protection of sites for navigation aids including an airport manager, airport maintenance, airport operations, and etc.

Example:

a. The Airport Manager has overall responsibility for establishing procedures to ensure that activities under his direct or indirect control do not have an adverse impact on the safe operation of radar and Navaids.

b. The Works Project Manager, or any other staff member controlling any work activity on the airport, is responsible for informing airport operations about effects on cables associated with the facilities.

c. Airport Operations is responsible for advising ATC of any works proposals that may affect the operation of radar or Navaids on the airport.

4.18.3 Arrangements for the Control of Activities in the Vicinity of Radar and Navaids Installations

Explain arrangements for the control of activities in vicinity of radar and navigation aids including communicating with ATC and work safety in the area to ensure safety and performance of navigation aids.

Example:

a. The Airport Manager's nominees with responsibility for airport works are required to give prior notification to ATC of:
   i) Work activities in the vicinity of radar and Navaids on the Airport which might affect the signals to and from those facilities; and
   ii) Proposed excavation work within 3m of cables associated with the facilities.

b. This advice may be either verbal or provided formally during the planning stage of a MOWP or PERCOW.

c. The Airport Manager will prepare a Permit to Commence Work (PERCOW) or a Method of Works Plan MOWP) for any activity that may affect aircraft operations by causing interference with a radar or Navaid, or its signal to aircraft. Planning for such work will include input from ATC.

d. ATC is to establish any restrictions necessary. A copy of any MOWP or PERCOW issued for such works is to be forwarded to ATC for comment.

e. The Works Project Manager and WSO will ensure that all persons involved in works on the airport understand and comply with the restrictions imposed to protect the radar, Navaids, and their associated cables. This applies to staff, sub-contractors, and any other organization required to carry out work at the airport.

f. (Name) Airport installed fence and lock at VOR/DME and NDB stations to prevent unauthorized pedestrians interfering radio signal.

4.18.4 Arrangement for Ground Maintenance in the Vicinity of these Installations

Explain arrangement for ground maintenance in vicinity of radar and radio navigation aids to prevent hazards and degraded performance of navigation aids.

Example:

a. (Name) Airport maintains the area around navigational aids to ensure there is no obstacles to radio signal. The airport conducts the area inspection at the same time with daily inspection and periodic maintenance program.

b. (Airport Staffs) accessing the maintenance area shall follow airside access procedures.

c. (Airport Maintenance) is responsible for preventive and corrective maintenance of navigational aids and the surrounding areas.

4.18.5 Arrangements for Supply and Installation of Signs Warning of Hazardous Microwave Radiation

(Name) Airport inspects warning signs on the fences surrounding the navigational aids. The signs shall be visible and shall not be blocked by vegetation. (Name) Airport also installs markers for ILS critical area. The markers are made of a material that do not interfere with radio navigational aids.

SECTION 4.19 REPOERTING OF RUNWAY SURFACE CONDITION

Refer to Part 5 Section 1 of this Manual for the contact details of those persons identified as having responsibility for implementing the procedures detailed in this Section

4.19.1 Purpose

The aim of these procedures is to ensure that the aerodrome staff is equipped enough to meet the requirement of new global reporting system and format for assessing and reporting runway surface conditions applicable as of 05 November 2021.

4.19.2 Responsibilities

a) The (Airport Manager) has the overall responsibility for ensuring that procedures are established and trainings & resources are provided for assessment and reporting of percentage of coverage and depth of contaminant for each third of runways in order to ensure that CAA standards are met.

b) The (Airport Shift Supervisor) has the responsibility for ensuring that, when required, runway surface assessment are satisfactorily carried out and that appropriate actions/ reporting takes place as a result of those assessments and as per reporting protocol. He is also responsible for collection of data, production of RCR, dissemination of information to ATS/AIS, and timely updating of RCR. He is also responsible for coordination with other stakeholders such as ATS, Meteorology, airlines and aircraft operators.

c) The (AIS Officer) is responsible for publication and updating of RCR report in SNOWTAM format as given in Appendix A to this section.

4.19.3 Legislation, Standards and Technical References

Regulation (XYZ) requires the aerodrome operator to assess aerodrome surface conditions and disseminate such information through the relevant SNOWTAM/ATS/AIS.

As per Regulation (XYZ.1) the aerodrome operator is expected to Develop procedures for the collection of data, production of RCR, dissemination of information to ATS/AIS, and updating of RCR.

Regulation (XYZ.2) requires aerodrome operator has to identify personnel who would be responsible for GFR related tasks and these personnel are adequately trained.

This section is based on the CAA guidance material (Aerodrome Advisory Circular xx/yy dated --/--/2021)

4.19.4 Runway Surface Condition Reporting

4.19.4.1 (RCR assessor) evaluates the runway surface conditions whenever water, snow, slush, ice or frost are present on an operational runway and assigns a runway condition code (RWYCC) along with a description of the runway surface for use by the flight crew for aeroplane performance calculations.

(RCR assessor) shall report RWYCC for each third of the runway assessed and shall ensure that the assessed information is provided to the AIS/ATS in the correct format and subsequently must report significant changes without any delay to AIS/ATS.

The information so reported shall be compliant with the RCR which consists of aeroplane performance calculation section and situational awareness section as outlined in CAA (Aerodrome Advisory Circular xx/yy dated --/--/2021)

(RCR assessor) shall initiate updating RCR when a change in the runway surface condition used in the runway condition report is considered significant. The significant change shall be considered whenever there is any change in the RWYCC, any change in contaminant type, any change in reportable contaminant coverage, any change in contaminant depth and any other information, for example a pilot report of runway braking action, which according to assessment techniques used, are known to be significant. Refer to CAA (Aerodrome Advisory Circular xx/yy dated --/--/2021) for coverage of contaminant and its depth.

Part 5 – Aerodrome Administration and Safety Management System

5.1 Organization Structure

Please Insert Aerodrome Organizational Chart here

5.2 Roles and Responsibility

Please specify roles and responsibility of each key positions in the aerodrome organizational chart. The positions may include an airport director, airport operations manager, building manager, aircraft rescue and fire fighting manager, etc.

Example:

5.2.1 Airport Director

a. Supervise and coordinates with airlines, general aviation, and military tenants use of airport facilities
b. Review airport tenant activities for compliance with terms of leases or other agreements
c. Supervises enforcement of aircraft air and ground traffic and other applicable regulations
d. Confer with airlines, tenants, the Myanmar DCA, and others regarding airport regulations, facilities, and related matters
e. Participates in planning for increased aircraft and passenger volume and facilities expansion
f. Determines and recommends airport staffing requirements
g. Coordinates airport activities with construction, maintenance, and other work done by departmental staff, tenants, public utilities and contractors
h. Manage safety and security of the airport to ensure the compliance with CAA standards
i. Promotes acceptance of airport oriented activities in surrounding communities
j. Promotes air traffic and other businesses to the airport

5.2.2 Airport Operations Manager

a. Enforcing operating and security rules, regulations, and procedures concerning aircraft operations and landside operations
b. Inspecting conditions of airfield lighting, runway, taxiway, and ramp area
c. Inspecting the airport for daily operations readiness
d. Correcting hazardous conditions
e. Coordinating airside and landside activities with maintenance and security personnel

f. Assisting in all emergency calls and disasters
g. Investigating and reporting on complaints and disputed airport operations

5.3 Airport Committees

Please describe all airport committees in this section. The committee(s) should be responsible for safety, security, emergency, facilitation or other committees as necessary. There may be one or more committees depending on the complexity of airport operations.

Example:

Airport committees include;

1. Airport Safety Committee
2. Airport Security Committee
3. Airport Emergency Committee
4. Airport Facilitation Committee
5. Runway Safety Team

The details of each committee are contained in (Specify) and comprise a part of this manual.

5.4 Aerodrome Personnel Qualifications & Procedures

5.4.1 Training Program

Please specify Airport Training Program or Training Methods for all positions involving in airport operations and key management such as airport manager, airport safety personnel, airport operations personnel, airport maintenance personnel, etc. The aerodrome operator may refer to the airport training program as a separate document.

Training program shall indicate that the airport personnel are qualified and be able to safely perform their duties.

5.4.2 Training and Checking Procedures

Please specify the airport training regime, procedures, and assessment processes. The methods used to ensure that continuous assessments and proficiency checks are to take place in roles that applicable.

The roles may include, but not limited to;

- Airport Manager
- Airport Operations
- Airport Maintenance

- Airport Safety
- Airport Security
- Airport Rescue and Fire Fighting

5.5 Exemptions and Deviations

5.5.1 Exemptions

The aerodrome operator shall summarize the current exemptions for the airport that have been issued by the CAA. The table below is an example:

Reference	Period	Description
####	4-May-2003 or until withdrawn	Embraer 120 operations on Taxiway Romeo – Exemption against non-standard width
####	Valid until varied or withdrawn	Dash-8 operations on Taxiway Romeo – Exemption against non-standard width

To have CAA issued exemptions, the aerodrome operator shall conduct an Aeronautical Study and it must be approved by the Director General of the Civil Aviation Authority.

5.5.2 Deviations

In emergency conditions requiring immediate action for the protection of life or property, the aerodrome may deviate from any requirement of CAA, or the Aerodrome Manual, to the extent required to meet that emergency. The aerodrome operator who deviates from a requirement under this section must, within 1 day after the emergency, notify the Civil Aviation Authority of the nature, extent, and duration of the deviation. When requested by the Civil Aviation Authority, the Aerodrome Operator must provide the details of such deviation in writing.

5.6 Safety Management System

Please specify airport safety management system in accordance with CAA's aerodrome manual standard. The particulars of safety management system in this section should be referred to the Airport Safety Management Manual which comprises a part of this manual. Example:

(Name) Airport has a separated manual for airport safety management system. The details in (Name) Airport Safety Management Manual will be in accordance with the requirements of CAA.

Appendices

ABBREVIATIONS

ATC	-	Air Traffic Control
……	-	……

ANNEX

1. Aerodrome Emergency Plan

EXHIBIT

1. Aerodrome Layout Plan

AP-AA/WG TASK LIST (amended in AP-AA/WG/3)

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/1	Develop a survey on States which have not completed the implementation of aerodrome certification for all international aerodromes, with an AGA EI below 75% and/or AOP air navigation deficiencies to establish the requirements for assistance	India to lead Bangladesh, Nepal and Thailand to assist	December 2019	~~Open~~ Closed	From TOR **Conclusion AOP/SG/4-8** agreed to circulate the survey to APAC States / Administrations Circulated through SL AN 3/3 – AP258/20 (AGA) dated 18 December 2020 Interim results presented in AP-AA/WG/3 WP/12 [Continued in Task 3/1]
1/2	Review the status of air navigation deficiencies in the field of AOP (as listed in the APANPIRG air navigation deficiencies database) and assist the concerned State(s) to develop corrective action plans	States COSCAPs to support	Continuous	Open	From TOR
1/3	To assist States which have not completed the implementation of aerodrome certification for all international aerodromes and/or with an AGA EI below 75% in establishing an aerodrome certification process, develop a set of generic documents, such as: (a) specific operating regulations;	Thailand to lead (c & d) Philippines – item (c) Bangladesh – item (d) India – item (e) & (f) Nepal – item (g) Malaysia (lead), India and Nepal – item (a), (b) & (h) Secretariat to support Request support from	January 2020	~~Open~~ Closed – Item (a), (b), (c), (e), (f), (g) & (h) Open - Item (d) and (h)	From TOR Tasks 1/3 (c) and (g) completed and documents are posted on APAC Website https://www.icao.int/APAC/Pages/eDocs.aspx Agreed by **Decision AOP/SG/4-7** SL AN 3/3 – AP257/20 (AGA) dated 18 December 2020 Task 1/3 (a), (b), (e), & (f) completed.

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
	(b) organization structure of the aerodrome regulatory unit; (c) aerodrome certification procedure manual; (d) generic aerodrome inspector handbook with checklists; (e) generic template of the aerodrome manual; (f) training programme and training plan; (g) procedures for accepting non compliances; and (h) surveillance programme.	TCB/IPAV Thailand – item (d) Malaysia (lead), India and Nepal - item (h)	 May 2021 December 2021		 Task 1/3 (h) – A Generic Procedural Manual for Surveillance of Certified Aerodromes by CAA incorporating a sample of surveillance programme and plan yet to be developed
3/1	For the aerodrome assistance survey questionnaire: (a) Recirculate to States / Administration which have yet to respond (b) Conduct analysis and recommend way forward	 Secretariat India and Nepal	 May 2021 December 2021	Open	

Asia/Pacific Aerodrome Assistance Working Group (AP-AA WG)

TERMS OF REFERENCE
(Amendment Proposed by AP-AA/WG/3 and approved by AOP/SG/5 in highlight)

Objective:

The main objective of the establishment of AP-AA WG is to realize the commitment of the "Beijing Declaration" - to certify all aerodromes used for international operations by 2020, fulfil the objectives of the AOP/SG to address identified AOP deficiencies listed in APANPIRG database for their resolution and to improve the AGA EI resulting from USOAP CMA activities.

Scope of works:

To meet the above objective the AP-AA WG shall carry out the following tasks:

(1) Conduct a survey on States which have not completed the implementation of aerodrome certification for all international aerodromes, with an AGA EI below 75%, and/or AOP air navigation deficiencies to establish the requirements for assistance;

(2) Review the air navigation deficiencies in the field of AOP (as listed in the APANPIRG air navigation deficiencies database) and assist the concerned State(s) to develop corrective action plans;

(3) Assist States which have not implemented aerodrome certification, with non-satisfactory aerodrome certification related PQs, and/or aerodrome certification related air navigation deficiencies to establish an aerodrome certification process including developing specific operating regulations, training programme and training plan, guidance material for all technical areas, aerodrome inspector handbook with checklists, procedures for accepting non compliances, and surveillance programme; and

(4) Assist in conducting seminars/workshops/trainings for the aerodrome regulatory and aerodrome operator staff in APAC region; provide experts to deliver presentations at the seminars/workshops in aerodrome certification, implementation of SMS and other technical areas such as aerodrome emergency planning, runway safety, etc.

Composition: The AP-AA WG would be composed of subject matter experts nominated by APAC States/Administrations and International Organizations, familiar with Annex 14 and its guidance materials and in particular on aerodrome certification procedures and ICAO USOAP CMA.

Working Methods: As far as practicable, the work should be carried out through electronic correspondences and web-conferences. Minimum face-to-face meetings would be planned. The AP-AA WG may be assembled on need basis to assist States. Onsite assistance may be provided to States, if required, on cost-recovery basis. The ICAO APAC Office would do necessary coordination. The ICAO COSCAPs will support the implementation of Tasks.

Time frame: The AP-AA WG would ~~be established initially for three years (until 30 September 2021)~~ last until September 2023.

— — — — — — — —

AP-ADO/TF TASK LIST
(updated in AP-ADO/TF/2)

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/1	Identify experts in various AOP fields and maintain a database for the Asia/Pacific Region	States – nomination of experts Secretariat – maintaining database	Continuous	Open	From TOR
1/2	Draft regional guidance for the design and operations of: ~~altiports and small aerodromes in constrained environment~~	~~India – lead~~ ~~Nepal, Thailand, USA to assist~~	~~March 2020~~	~~Open~~	From AP-ADO/TF/1 AP-ADO/TF/2 WP/13
	(a) Altiports; and	Nepal to lead; assisted by China, Fiji, India	December 2021	Ongoing	Modified in AP-ADO/TF/2
	(b) Aerodromes in Constrained Environment	India to lead; assisted by China, Indonesia, Nepal, United States	December 2021	Ongoing	Modified in AP-ADO/TF/2
1/3	- Study and discuss aerodrome SARPs and guidance materials related to aerodrome planning, design and operations including PANS-Aerodromes; and - Provide expert advice and clarification to APAC States on any issues related to the implementation of the requirement specified in the SARPs and guidance materials.	States	Continuous	~~Open~~ Ongoing	From TOR 1st sub-item: AP-ADO/TF/2 WP/05, WP/06, IP/02, IP/03 & IP/04

	ACTION ITEM/PLANNED ACTIVITIES	RESPONSIBLE PARTY	TIME FRAME	STATUS	REMARKS
1/4	- Review and discuss AOP parts of the Asia/Pacific ANP and Seamless ANS Plan; and - Formulate amendment proposals to the APAC ANP Table AOP I - 1 and Table AOP II – 1 as necessary.	States and Secretariat	Continuous	~~Open~~ Ongoing	From TOR 1st sub-item: AP-ADO/TF/2 WP/03 & WP/08
2/1	Conduct seminars / workshops for aerodrome regulatory and aerodrome operator staff in APAC Region	China – GRF Implementation India – GRF Implementation Thailand (Airports of Thailand) – GRF Implementation United States – GRF Implementation	Q3-Q4 2021 Q3-Q4 2021 Q3-Q4 2021 Q4 2021 - Q1 2022	Open	The seminars/ workshops for GRF implementation will involve all stakeholders e.g. CAA, airports, airlines, ANSP, etc. Winter operations are covered by China and United States

Asia/Pacific Aerodrome Design and Operations Task Force (AP-ADO/TF)

TERMS OF REFERENCE
(Amendment Proposed by AP-ADO/TF/2 and approved by AOP/SG/5)

Objective:

The main purpose of the AP-ADO/TF is to achieve some specific deliverables of the AOP/SG through the systematic works of the Task Force.

Scope of works:

To meet the above objective the AP-ADO/TF shall carry out the following tasks:

(1) **Study and discuss** aerodrome SARPs and guidance materials related to aerodrome planning, design and operations including PANS-Aerodromes and provide expert advice and clarification to APAC States on any issues related to the implementation of the requirement specified in the SARPs and guidance materials.

(2) **Review and discuss** AOP parts of the Asia/Pacific ANP and Seamless ~~ATM~~ ANS Plan and formulate amendment proposals to the APAC ANP Table AOP I - 1 and Table AOP II – 1 as necessary.

(3) **Review** provisions of facilities and services at international aerodromes specified in AOP Table of ANP through monitoring the following information published in the AIP and other official documents of the States:

- Obstacle limitation surfaces;
- visual aids;
- rescue and firefighting services and emergency planning;
- ~~measurement~~ assessment and reporting of the runway surface condition;
- preventive maintenance programme;
- runway safety programme including establishment of a runway safety team at international aerodromes.

(4) **Assist in conducting** seminars/workshops/trainings for the aerodrome regulatory and aerodrome operator staff in APAC region;

(5) **Identify** experts in various AOP fields and **maintain** Asia/Pacific database;

(6) **Participate** in ICAO's activities/initiatives in aerodromes, if necessary.

Composition: The Task Force is composed of subject matter experts nominated by APAC States/Administrations and International Organization satisfying the criteria:

(1) Minimum 3 years of experience in Aerodrome Regulatory functions of CAA or in Aerodrome Operations at international airports or in the International Organizations;
(2) Familiar with Annex 14 and its guidance materials, GANP, GASP, APAC Seamless ~~ATM~~ ANS Plan, APAC ANP; and
(3) The nominated expert would continue to be a member for a minimum of three consecutive years.

Additional membership could be invited from other regions, if required.

Working Methods: The Task force will hold at least one face-to-face meeting a year. Video teleconference may be held in lieu of face-to-face meeting when travel restrictions are in place. The work would be carried out through electronic correspondences and web conference as far as practicable.

Time frame: The tenure of the Task Force would ~~be three years (until September 2021)~~ last until September 2023.

Attachment A to WP/09

List of Aerodromes used for International Operations in APAC Region that have yet to be Certified

								Listed in...			
Serial #	Count	Sub-region	State / Admin	ICAO Code	Name of City	Name of Aerodrome	Type	APAC ANP	Doc 7910	AIP AD 1.5	Info Source
1	1	SA	Afghanistan	OAHR	Herat	Herat Intl	UNK	0	1	0	FR24 / FG website
2	2	SA	Afghanistan	OAKB	Kabul	Kabul Intl	RS	1	1	0	
3	3	SA	Afghanistan	OAKN	Kandahar	Kandahar Intl	AS	1	1	0	
4	4	SA	Afghanistan	OAMS	Mazar-e-Sharif	Mazar-e-Sharif	UNK	0	1	0	FR24 / TK website
29	6	SEA	Brunei	WBSB	Brunei	Brunei Intl	RS	1	1	0	
59	7	NA	China	RCYU	Hualien	Hualien	UNK	0	1	0	Airport website
92	8	NA	China	RCMQ	Taichung	Cingcyuangang	UNK	0	1	0	
93	9	NA	China	RCNN	Tainan	Tainan	UNK	0	1	0	Airport website
134	10	SA	India	VICG	Chandigarh		UNK	0	1	0	FR24
139	11	SA	India	VOGO	Goa		UNK	0	1	0	
150	12	SA	India	VOPB	Port Blair		UNK	0	1	0	
151	13	SA	India	VAPO	Pune		UNK	0	1	0	FR24
152	14	SA	India	VISR	Srinagar		UNK	0	1	0	
~~197~~	~~15~~	~~NA~~	~~Japan~~	~~RJAH~~	~~Hyakuri~~		~~UNK~~	~~0~~	~~1~~	~~0~~	~~FR24~~
~~202~~	~~16~~	~~NA~~	~~Japan~~	~~RJNK~~	~~Komatsu~~		~~UNK~~	~~0~~	~~1~~	~~0~~	~~FR24~~
~~218~~	~~17~~	~~NA~~	~~Japan~~	~~RJOS~~	~~Tokushima~~		~~UNK~~	~~0~~	~~1~~	~~0~~	~~Airport website~~
~~222~~	~~18~~	~~NA~~	~~Japan~~	~~RJOH~~	~~Yonago~~	~~Miho~~	~~UNK~~	~~0~~	~~1~~	~~0~~	~~FR24~~
223	19	PAC	Kiribati	PLCH	Kiritimati	Christmas I.	RS	1	1	0	PSIDS 7 Jun 19
224	20	PAC	Kiribati	NGTA	Tarawa	Bonriki Intl	RS	1	1	0	PSIDS 7 Jun 19
225	21	SEA	Lao PDR	VLVT	Vientiane	Wattay Intl	RS	1	1	0	
226	22	SEA	Lao PDR	VLLB	Luangprabang	Luangprabang Intl	RS	1	1	0	COSCAP-SEA 21 Sep 18
227	23	SEA	Lao PDR	VLSK	Kaisonphimvihan	Savannakhet Intl	RS	1	1	0	COSCAP-SEA 21 Sep 18
228	24	SEA	Lao PDR	VLPS	Pakse	Pakse Intl	RS	1	1	0	COSCAP-SEA 21 Sep 18
237	25	SEA	Malaysia	WMKD	Kuantan	Haji Ahmad Shah	RNS	1	1	0	FR24
239	26	SEA	Malaysia	WBKL	Labuan		RNS	1	1	0	FR24
253	27	PAC	Micronesia	PTPN	Pohnpei I.	Pohnpei Intl	RS	1	1	?	FR24
254	28	PAC	Micronesia	PTKK	Weno I.	FM Chuuk Intl	RS	1	1	?	FR24
255	29	PAC	Micronesia	PTYA	Yap I.	Yap Intl	RS	1	1	?	
256	30	PAC	Micronesia	PTSA	Kosrae I.	Kosrae	UNK	0	1	?	FAA IP AOP/SG/2 27 Jun 18
263	31	PAC	Nauru	ANYN	Nauru I.	Nauru intl	RS	1	1	0	
294	32	SEA	Philippines	RPVK	Kalibo, Aklan	Kalibo Intl	RS	1	1	1	Temp. Cert. valid until 28 June 2021
297	33	SEA	Philippines	RPLL	Manila	Ninoy Aquino Intl	RS	1	1	1	CAAP Email 17 Nov 20; Temp. Cert. valid until 29 Oct. 2021
299	34	SEA	Philippines	RPVP	Puerto Princesa City	Puerto Princesa Intl	RS	1	1	1	COSCAP-SEA 21 Sep 18; Temp. Cert. valid until 4 June 2021
300	35	SEA	Philippines	RPSP	Panglao	Bohol-Panglao Intl	RS	1	1	1	FR24 / PfA 6 Oct 20; Temp. Cert. valid until 23 June 2021
322	36	SEA	Thailand	VTSG	Krabi		RS	1	1	1	
324	37	SEA	Thailand	VTPH	Prachuap Khiri Khan	Hua Hin	RS	1	1	1	COSCAP-SEA 21 Sep 18
325	38	SEA	Thailand	VTBU	Rayong	U-Taphao Pattaya Intl	RS	1	1	1	
327	39	SEA	Thailand	VTSM	Surat Thani	Samui	RS	1	1	1	COSCAP-SEA 21 Sep 18
328	40	SEA	Thailand	VTSB	Surat Thani		RS	1	1	1	
329	41	SEA	Timor Leste	WPDL	Dili	Presidente Nicolau Lobato	RS	1	1	0	COSCAP-SEA 21 Sep 18
330	42	SEA	Timor Leste	WPDB	Suai	Commander-in-Chief of the FALINTIL – Kay Rala Xanana Gusmão Intl	RNS	1	1	0	COSCAP-SEA 21 Sep 18
333	43	PAC	Tuvalu	NGFU	Funafuti	Funafuti Intl	RS	1	1	0	

Note:- Post AOP/SG/5 Meeting, on 16 July 2021 Japan provided satisfactory evidences for the certification of all military aerodromes used for international operations and listed them in AIP AD 1.5.

Directory of Aerodromes in the Asia/Pacific Regions
Version 2.10 (18 June 2021)
Summary on RST Establishment

Status of RST Establishment by Sub-regions

	Established	% Established	No info or Not Established	Total
NA	4	2.99%	130	134
SEA	60	61.22%	38	98
SA	26	50.00%	26	52
PAC	5	8.62%	53	58
APAC Total	95	27.78%	247	342

Status of RST Establishment by States / Administrations

	Established	% Established	No info or Not Established	Total
Afghanistan	0	0%	4	4
American Samoa	0	0%	1	1
Australia	4	22%	14	18
Bangladesh	0	0%	3	3
Bhutan	1	100%	0	1
Brunei	0	0%	1	1
Cambodia	0	0%	3	3
China	1	1%	86	87
Cook Islands	0	0%	2	2
DPR Korea	0	0%	2	2
Fiji	1	50%	1	2
French Polynesia	0	0%	1	1
Guam	0	0%	1	1
Hong Kong, China	1	100%	0	1
India	20	74%	7	27
Indonesia	24	71%	10	34
Japan	0	0%	33	33
Kiribati	0	0%	2	2
Lao PDR	0	0%	4	4
Macao, China	1	100%	0	1
Malaysia	18	95%	1	19
Maldives	1	33%	2	3
Marshall Islands	0	0%	1	1
Micronesia	0	0%	4	4
Mongolia	1	50%	1	2
Myanmar	3	100%	0	3
Nauru	0	0%	1	1
Nepal	1	100%	0	1
New Caledonia	0	0%	1	1
New Zealand	0	0%	9	9

Niue	0	0%	1	1
N. Mariana Is.	0	0%	3	3
Pakistan	2	20%	8	10
Palau	0	0%	1	1
Papua New Guinea	0	0%	1	1
Philippines	7	78%	2	9
Rep. of Korea	0	0%	8	8
Samoa	0	0%	1	1
Sinagpore	2	100%	0	2
Solomon Islands	0	0%	2	2
Sri Lanka	1	33%	2	3
Thailand	5	45%	6	11
Timor Leste	0	0%	2	2
Tonga	0	0%	2	2
Tuvalu	0	0%	1	1
Vanuatu	0	0%	2	2
Viet Nam	1	10%	9	10
Wallis et Futuma	0	0%	1	1
Total	95	27.78%	247	342

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>Afghanistan</u>							
Annex 14 Volume I	**Herat International Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Kabul International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Kandahar International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Mazar-e-Sharif Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	American Samoa (US)							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>Bangladesh</u>							
Annex 14 Volume I	**Hazrat Shahjalal International Airport, Dhaka**	**Runway/ Taxiway**	**ICAO mission April 2009**	Runway strip width insufficient (280m strip not available for the full length of runway);	runway strip in accordance with Annex 14, volume I will be provided	CAABD	Runway strip width 280m available for the full length of runway (mitigation measures for storm water drain on the western side strip under process. No obstructions on graded area)	A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14 Volume I	**<u>Brunei Darussalam</u>** **Brunei International Airport**	**Taxiway**	ICAO Mission of April 2011	non provision of enhanced taxiway centre line marking in accordance with Para 5.2.8 of Annex 14, Volume I Objects on taxiway strips; vegetation on pavement joints and maintenance of joints	Both Northern Parallel Taxiway and Southern Parallel Taxiway Centre line have been repainted yellow and enhanced with black borders on each side.	Airport Operator (DCA Aerodrome Division)		A A
		Apron		non provision of ICAO compliant signage in accordance with section 5.4 Annex 14, Volume I	Airfield signages have always been provided at BIA that follow ICAO standards and measurement. Recent replacement of old and faded labels have also been completed in 2018.	Airport Operator (DCA Aerodrome Division)		A
		Rescue and Fire Fighting (RFF):		non provision of direct access for the rescue and fire fighting vehicles from the fire station into the runway;	Duly noted that there is no direct access for fire fighting vehicles to the runway at the moment, but one	Airport Operator (DCA Aerodrome Division)	4th Qtr. 2022	A

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
					will be concluded within the second phase of the Airfield Pavement Rehabilitation Project.			
		Wildlife Hazards:		Establishing a national bird control committee in accordance with APANPIRG Conclusion 18/1.	Aerodrome Division headed by Head of Aerodrome to firstly establish an in-house committee and will cooperate with Regulatory Division	Airport Operator (DCA Aerodrome Division)	4th Qtr. 2021	B
	Brunei International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>China</u>							
Annex 14 Volume I	**Hualien Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Taichung Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Tainan Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of some of the aerodromes used for international operations yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Cook Islands							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 14 June 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Fiji Islands							
Annex 14 Volume I	**Nadi International Airport**	**Runway/ Taxiway**	**ICAO mission June 2010**	Provision of RESA in accordance with Section 3.5 of Annex 14, Volume I requirements;	RESA will be provided	**Airport Operator – Fiji Airports**	ACTION COMPLETED. RESA has been provided at all runways ends. *RWY 09 – 90mx90m *(RWY 27 – 90mx90m *RWY 20 - 90mx90m *RWY 02 – 90mx90m Information published in the State AIP dated 25 March 2021. **[CLOSED]** ~~ACTION TAKEN (PARTIALLY COMPLETED):~~ ~~RESA provided for the runway ends:~~ ~~*RWY 09 – 90mx90m (compliant)~~ ~~*RWY 20 – 90mx90m (compliant)~~ ~~*RWY 02 – 30m x 90m (limited due to the Localizer aerial)~~ ~~*RWY 27 – nil (limited due to sea located at the end of the strip area)~~ ~~Information published in the State AIP~~ ~~For the **non-compliant** RWY 02 and RWY 27, a safety case has been~~	A

							~~presented by the Aerodrome Operator for issue of an Exemption until RESA is able to be provided in 2020.~~ **~~Target date – End of 2020~~**	
Annex 14 Volume I	**Nausori International Airport**	**Runway/ Taxiway**	**June 2010**	Provision of RESA in accordance with Section 3.5 of Annex 14, Volume I requirements.	RESA will be provided	**Airport Operator – Fiji Airports**	ACTION COMPLETED. RESA has been provided at all runways ends. *RWY 10 – 90mx90m *RWY 28 – 90mx90m Information has been submitted for publication in the State AIP by next AIRAC date. ~~ACTION TAKEN (PARTIALLY COMPLETED):~~ ~~RESA provided for runway ends:~~ ~~*RWY 10 – 30mx30m (limited due to airport boundary)~~ ~~*RWY 28 – nil (limited due to public road)~~ ~~Information published in the State AIP~~ **~~A safety case has been presented by the Aerodrome Operator for issue of an Exemption until RESA is able to be provided in 2020.~~** **~~Target date – End of 2020~~**	A

Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.			ACTION COMPLETED. Information published in the State AIP AD 1.5 dated 3 December 2020.	A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Guam (US)							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>India</u>							
Annex 14 Volume I	**Chennai International Airport**	**Runway**	**AGA mission January 2009**	Runway strip is insufficient 300m strip width is not available for the full length of runway 07/25 in accordance with 3.4.3 of Annex 14, Volume I.	280m strip width for full length of runway 07/25 will be made available.	AAI	Work in progress. Due to COVID-19 work is held up. PDC for straightening of B taxiway alone is 30-09-2020.	A
Annex 14, Volume I	**Mumbai International Airport**	**Runway**	**AGA mission January 2009**	Runway strip is insufficient 300m strip width is not available for the full length of runway 09/27 in accordance with 3.4.3 of Annex 14, Volume I.	280m strip width for full length of runway 09/27 will be made available	MIAL	31 Dec 2022. Due to presence of slum in beginning of RWY 09/27 south – RWY strip 280m not available. Due to presence of slum of either side at beginning of RWY 14/32 – RWY strip 280m not available.	A
Annex 14 Volume I	**Chandigarh Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I	**Goa Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I	**Port Blair Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I	**Pune Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14 Volume I	**Srinagar Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of some of the aerodromes used for international operations yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated ~~14 Jun.~~ 2 Aug. 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Japan							
Annex 14 Volume I	**Hyakuri Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Aerodrome Certification by Civil Aviation Safety Authority (CASA) in Japan Civil Aviation Bureau (JCAB)	CASA in JCAB	15th JUL 2021 (**) **[CLOSED]**	A
	Komatsu Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Aerodrome Certification by CASA in JCAB	CASA in JCAB	15th JUL 2021 (**) **[CLOSED]**	A
	Tokushima Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Aerodrome Certification by CASA in JCAB	CASA in JCAB	15th JUL 2021 (**) **[CLOSED]**	A
	Miho Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Aerodrome Certification by CASA in JCAB	CASA in JCAB	15th JUL 2021 (**) **[CLOSED]**	A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of some of the aerodromes used for international operations yet to be published in AIP AD 1.5.	Status of Certification of 4 Aerodromes (Hyakuri, Komatsu, Tokushima, Miho) will be published in AIP AD 1.5	CASA in JCAB	15th JUL 2021 (**) **[CLOSED]**	A

*** Notes:- Post AOP/SG/5 Meeting, on 16 July 2021 Japan provided satisfactory evidences for the certification of all military aerodromes used for international operations and listed them in AIP AD 1.5.*

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>Kiribati</u>							
Annex 14 Volume I	**Christmas Island Airport, Kiritimati**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Bonriki International Airport, Tarawa	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 28 Jun. 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14 Volume I	**<u>Lao PDR</u>** **Wattay International Airport**	**Taxiway**	**ICAO Mission of March 2011**	Provision of runway hold position lights in accordance with Para 5.3.19 of ICAO Annex 14, Volume I	Under consideration by Airports of Laos to purpose for support the budgets and installation		We have planned budgets and installation in 2025	A
		Rescue and Fire Fighting (RFF):		Provision of road holding position sign at all road entrances to a runway;	Completed the design and submit to DCA for Approval		It will be completed in December 2021 ~~Will complete in December 2019~~	A
		Wildlife Hazards:		Establishing a national bird control committee in accordance with APANPIRG conclusion 18/1.	We are repairing plan for establish committee for approval from Ministry		~~Will complete in December 2019~~	B
		Aerodrome Certification	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Aerodrome Certification will be completed in 30th December 2021	A
	Luang Prabang International Airport	**Taxiway**		Provision of runway hold position lights in accordance with Para 5.3.19 of ICAO Annex 14, Volume I on new taxiways	Under consideration by Airports of Laos to purpose for support the budgets and installation		We have planned budgets and installation during 2021 to 2025	A
		Rescue and Fire Fighting (RFF)		Provision of road holding position sign at all road entrances to a runway	Completed the design and submit to DCA for Approval		It will be completed in December 2021	A

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
							~~Will complete in December 2019~~	
		Aerodrome Certification	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Aerodrome Certification will be completed in 29th December 2022	A
	Savannakhet International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Aerodrome Certification will be completed in 28th December 2023	A
	Pakse International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Aerodrome Certification will be completed in 28th December 2024	A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.			We will inform status certification of aerodromes in AIP on 15th July 2021	A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 24 May 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Malaysia							
Annex 14 Volume I	**Kuantan Haji Ahmad Shah Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Coordination among Ministry of Transport, Ministry of Defense and Airport Operator are being conducted to get the aerodrome certified	Ministry of Transport and Ministry of Defense	31 December 2021	A
	Labuan Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Coordination among Ministry of Transport, Ministry of Defense and Airport Operator are being conducted to get the aerodrome certified	Ministry of Transport and Ministry of Defense	31 December 2021	A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of some of the aerodromes used for international operations yet to be published in AIP AD 1.5.	Coordination among CAAM and Airport Operator are being conducted to get all aerodromes used for international operations published in AIP AD 1.5.	CAAM	31 December 2021	A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Marshall Islands							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>Maldives</u>							
Annex 14, Volume I	**Velana International Airport**	**Runway/ Taxiways**	**AGA Mission Report April 2008**	Insufficient runway strip.	Runway strip available	Maldives Airports Company Pvt. Ltd	Apron is still within the runway strip. New master plan work is in progress, new runway construction on-going, estimated date of completion: December 2019. Exemption granted by the State to Aerodrome Operator till December 2019.	U

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Micronesia (Federated States of)							
Annex 14 Volume I	**Pohnpei International Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	FM Chuuk International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Yap International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
	Kosrae Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>Nauru</u>							
Annex 14 Volume I	**Nauru International Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Niue (New Zealand)							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>New Zealand</u>							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Northern Mariana Islands (US)							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Palau							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 18 June 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Philippines							
Annex 14 Volume I	**Kalibo International Airport, Akla**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Temporary Aerodrome Certificate issued with validity from 28 December 2020 to 28 June 2021	A
	Puerto Princesa International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Temporary Aerodrome Certificate issued with validity from 04 December 2020 to 04 June 2021	A
	Bohol-Panglao International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.			Temporary Aerodrome Certificate issued with validity from 23 December 2020 to 23 June 2021	A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.			AD 1.5 – 1 dated 22 April 2021 included all certified aerodromes with validity of the certificates. **[CLOSED]**	A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Mongolia							
Annex 14 Volume I	**Buyant-Ukhaa Airport**	**Taxiway**	**ICAO Mission of July 2011**	provision of runway hold position lights in accordance with Para 5.3.19 of ICAO Annex 14, Volume I.	The runway hold position lights will be provided in accordance with Para 5.3.19 of ICAO Annex 14, Volume I.	Civil Aviation Authority of Mongolia	The RWY hold position marking and mandatory signs were provided to avoid runway incursions on the maneuvering area. Because of the existing International scheduled flights will be transferred to new airport in 2020, the additional runway hold position lights are unrequired to install.	A
		Apron						
		Airfield signage		Provision of ICAO compliant signage in accordance with section 5.4 Annex 14, Volume I and to cut the vegetation in front of the signs.	The signage will be provided in accordance with section 5.4 Annex 14, Volume I. The vegetation in front of the signs will be cut	Civil Aviation Authority of Mongolia	The work on cutting the vegetation in front of the signs was completed in 2017 within the totally 119560 m² area including, taxiway strip, glide path antenna and apron area, as per Aerodrome manual of, in scope of Aerodrome maintenance plan.	A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
							[Note: Partially completed]	

Updated 15 June 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Myanmar							
Annex 14 Volume I	**Yangon International Airport**	**Runway/ Taxiway**	**ICAO mission April 2010**	Provision of RESA in accordance with Section 3.5 of Annex 14, Volume I requirements;	RESA will be provided	Yangon Aerodrome Company Limited	(Risk Assessment conducted by the operator submitted on 10 Aug 2018.) RESA for RWY 21 was completed on 15 Nov 2018. See Annex Pg-3. _____ Revised date- **31 Dec 2021** ~~**31 Dec 2020**~~	A
		Bird Hazard		Establishment of a national bird committee in accordance with APANPIRG Conclusion 18/1.	Establish National Bird Committee	Department of Civil Aviation	Guideline for Wildlife Hazard Management at Aerodromes, DCA-GM-AGA 08 has been developed and published on 29 Oct 2018) Revised date- **30 Nov 2021** ~~**31 Aug 2020**~~	B

Updated 8 June 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14, Volume I	**Nepal** **Tribhuvan International Airport**	**Runway/ taxiways**	**ICAO Mission of February 2008**	Provision of RESA in accordance with section 3.5 of ICAO Annex 14, Volume I.	RESA (240 m) provided on both runway (RWY 02 / RWY 20) ends ~~RESA will be provided~~	Tribhuvan International airport/ CAAN	In effect from 22 April 2021 (Refer to AIP dated 22 April 2021) ~~Estimated Implementation Date is 30/09/2020 (Civil construction works already completed)~~ **CLOSED**	U
				Insufficient runway strip, refer recommendations given in section 3.4 of Annex 14, Volume I.	Provide runway strip as per ICAO recommendations		Construction works to provide sufficient strip towards runway 20 already started with target of completion in 2023. ~~TIA Master Plan Review from Int'l Consulting firm, first phase of construction will to start within 2020.~~	A

Updated 4 May 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**Pakistan** **AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of one of the aerodromes used for international operations yet to be published in AIP AD 1.5.	Nawabshah Airport Certified and incorporated in AIP Pakistan. Page AD 1-5 dated March, 2021.	Directorate of Aerospace and Aerodrome Regulations of PCAA	Completed in November, 2020 **[CLOSED]**	A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	<u>Samoa</u>							
Annex 14 Volume I	**Faleolo International Airport**	**Runway Strip**	**ICAO Mission of Oct. 2015**	Insufficient Runway Strip				A
		Aerodrome Pavements		Lack of maintenance of aerodrome pavements in accordance with Annex 14, 10.2				U
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Solomon Islands							
Annex 14 Volume I	**Honiara International Airport/Henderson Field**	**Runway Strip**	**ICAO Mission of Oct. 2015**	Insufficient Runway Strip				A
		RESA		RESA at both ends of runway not provided				U
		Aerodrome Pavements		Lack of maintenance of aerodrome pavements in accordance with Annex 14, 10.2				U
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

AIR NAVIGATION DEFICIENCIES IN AOP FIELD IN THE ASIA/PACIFIC REGION

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Sri Lanka							
Annex 14 Volume I	**Bandaranaike International Airport**	**Runway/ Taxiway**	**ICAO mission April 2010**	Provision of 280m strip width for the full length of precision approach CAT I runway in accordance with the standard 3.4.3, Annex 14, Volume I; remove obstacles from runway strip; flush the strip with the adjacent runway shoulder.	runway strip in accordance with Annex 14, Volume I will be provided, obstacles from strip will be removed and flush strip with adjacent runway shoulder.	CAASL	AASL has informed that the Runway Safety Team – BIA will carry out the safety study and submit the report by June 2018. Preliminary Report of the Safety Study of AASL was reviewed in April 2018.	A
				Establishment of a national bird committee in accordance with APANPIRG Conclusion 18/1.	National Bird Committee will be established.		1st Draft of TOR of National Bird Control Committee of Sri Lanka has been compiled and ready for ratification.	A

Updated 9 June 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Thailand							
Annex 14, Volume I	**Phuket International Airport**	**Runway**	**AGA mission of July 2009**	RESA to satisfy Section 3.5 of Annex 14, Volume I requirements.	RESA will be provided at the end of both RWY09 and RWY27 to satisfy Section 3.5 of Annex 14, Volume I requirements. Remark: - Dimension of RESA RWY09 is 150x190 m. - Dimension of RESA RWY27 is 150x120 m.	Airports of Thailand Public Company Limited	The construction is expected to be completed in 2022. The construction plan and budget have been approved. Airports of Thailand Public Company Limited already has had the contractor for this construction's project. Currently, the safety assurance and project management documentation is under consideration for approval by the Civil Aviation Authority of Thailand to ensure that the aerodrome can continue to operate safely during the project ~~Currently, the construction plan has been approved. The budget approval is in progress.~~	U
				Runway strip width insufficient (280m runway strip for precision approach runways in accordance	300m runway strip width will be made available. Except 111.4m length at the beginning of	Airports of Thailand Public Company Limited	The construction is expected to be completed by 2022. The construction plan and	A

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
				with Para 3.4.3 of Annex 14, Volume I.	RWY09 (60m strip length before RWY09 threshold plus 51.4m length beyond the threshold), the runway strip width will be extended 150m on the right side of RWY09 centre line and 90.27m on the left side of the runway centre line (due to the marsh near the runway).		budget have been approved. Airports of Thailand Public Company Limited already has had the contractor for this construction's project. Currently, the safety assurance and project management documentation is under consideration for approval by the Civil Aviation Authority of Thailand to ensure that the aerodrome can continue to operate safely during the project. ~~Currently, the construction plan has been approved. The budget approval is in progress.~~	
	Krabi Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Certify the aerodrome in accordance with aerodrome certification requirements	The Civil Aviation Authority of Thailand and Department of Airports	30 November 2021 It is currently under Phase 4 of aerodrome certification. Note - Aerodrome certification is divided into 5 phases as follows: Phase 1 Pre-application; Phase 2 Formal Application; Phase 3 Document Evaluation; Phase 4 Demonstration and	A

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
							Audit; and Phase 5 Certification.	
	Hua Hin Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Certify the aerodrome in accordance with aerodrome certification requirements	The Civil Aviation Authority of Thailand and Department of Airports	30 November 2021 It is currently under Phase 4 of aerodrome certification. Note - Aerodrome certification is divided into 5 phases as follows: Phase 1 Pre-application; Phase 2 Formal Application; Phase 3 Document Evaluation; Phase 4 Demonstration and Audit; and Phase 5 Certification.	A
	U-Taphao Pattaya International Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Certify the aerodrome in accordance with aerodrome certification requirements	The Civil Aviation Authority of Thailand and U-Tapao Airport Authority	30 July 2021 It is currently under Phase 4 of aerodrome certification. Note - Aerodrome certification is divided into 5 phases as follows: Phase 1 Pre-application; Phase 2 Formal Application; Phase 3 Document Evaluation; Phase 4 Demonstration and Audit; and Phase 5 Certification.	A

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Samui Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Certify the aerodrome in accordance with aerodrome certification requirements	The Civil Aviation Authority of Thailand and Bangkok Airways Public Company Limited	30 September 2021 It is currently under Phase 5 of aerodrome certification. Note - Aerodrome certification is divided into 5 phases as follows: Phase 1 Pre-application; Phase 2 Formal Application; Phase 3 Document Evaluation; Phase 4 Demonstration and Audit; and Phase 5 Certification.	A
	Surat Thani Airport	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Certify the aerodrome in accordance with aerodrome certification requirements	The Civil Aviation Authority of Thailand and Department of Airports	30 November 2021 It is currently under Phase 4 of aerodrome certification. Note - Aerodrome certification is divided into 5 phases as follows: Phase 1 Pre-application; Phase 2 Formal Application; Phase 3 Document Evaluation; Phase 4 Demonstration and Audit; and Phase 5 Certification.	A

Updated 4 May 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14 Volume I	**<u>Timor-Leste</u>** **Presidente Nicolau Lobato International Airport, Dili**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	Certification process restarted. AD operator has to correct couple of findings (noncompliance) requested by national regulator (AACTL)	ANATL* as AD operator *National AD and ATS provider	Initial target date was 30/June/2021. However due to COVID pandemic and AD operator budget problem the target date of competition will be probably extended up to 31/December/2021	A
	Commander-in-Chief of the FALINTIL – Kay Rala Xanana Gusmão International Airport, Suai	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.	To be certify for its designed category (3C) the significant safety issue relating to AD strip (local houses and habitants must be relocated!) should be resolved. Currently AD is occasionally in use for domestic general aviation and helicopters only.	Gov. TL and ANATL as AD operator	Estimated date: 31 December 2022	A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.	New TL AIP is published on 25/March/2021.	AACTL	In correlation with AD certification	A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
Annex 14 Volume I	**<u>Tonga</u> Fua'amotu International Airport**	**Runway Strip**	**ICAO Mission of Oct. 2015**	Insufficient Runway Strip				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Tuvalu							
Annex 14 Volume I	**Funafuti International Airport**	**Aerodrome Certification**	Effective from 1 Jan 2021	Aerodrome yet to be certified.				A
Annex 14 Volume I PANS-Aerodromes PANS-AIM	**AIP**	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 16 Dec. 2020

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Vanuatu							
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of aerodromes yet to be published in AIP AD 1.5.				A

Updated 3 June 2021

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
	Viet Nam							
Annex 14, Volume I	**Tan Son Nhat International Airport, Ho Chi Minh City**	**Runway/ Taxiway**	**ICAO mission March 2010**	Provision of RESA in accordance with Section 3.5 of Annex 14, Volume I requirements;	Provide RESA	Airport Operator (ACV)	* RESA for the runway 25L/07R: * CAAV issued Decision No. 1666/QD-CHK dated September 09th 2020 to approve RESA for the runway 25L/07R (90x90m) *** Target date of completion: Completed.** * RESA for the runway 25R/07L: * CAAV issued Decision No. 116/QD-CHK dated January 09th 2021 to approve RESA for the runway 25R/07L (25R: 90x90m; 07L: 160x90m). The information was updated on AIP Viet Nam published on March 30th, 2021. **- Target date of completion: Completed.** **[CLOSED]** ~~WORK IN PROGRESS~~ ~~* RESA for the runway 25L/07R: The runway is being re-designed for upgrading and setting up the RESA.~~ ~~Target date of completion:~~	A

Identification		Deficiencies			Corrective Action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Remarks**	**Description**	**Executing body**	**Target date of completion**	**Priority for action****
							~~End of 2020.~~ ~~* RESA for the runway 25R/07L:~~ ~~Target date of completion: End of 2021.~~ ~~Exemption granted by CAAV to Airport Operator till RESA is able to be provided.~~	
Annex 14 Volume I PANS-Aerodromes PANS-AIM	AIP	**Status of Certification of Aerodromes in AIP**	Effective from 1 Jan 2021	Status of certification of one of the aerodromes used for international operations yet to be published in AIP AD 1.5.	Certify aerodromes used for international operations	CAAV	**WORK IN PROGRESS** – CAAV has checked and recognized that Lien Khuong is a domestic aerodrome used for international operation under the Article 80 of the revised Civil Aviation Law of Vietnam. - CAAV published the status of certification of 13 domestic aerodromes in AIP, AD 1.5 in the AIP Amendment No 03/2020, issued on November 30th 2020 (including Lien Khuong aerodrome). - CAAV is conducting the procedures to certify the aerodromes in Vietnam used for international operations (including Lien Khuong aerodrome). **Target date of completion: End of 2021.**	A

* Priority for action to remedy the shortcoming is based on the following safety assessments:

"U" priority = Urgent requirements having a direct impact on safety and requiring immediate corrective actions. Urgent requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is urgently required for air navigation safety.

"A" priority = Top priority requirements necessary for air navigation safety. Top priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation safety.

"B" priority = Intermediate requirements necessary for air navigation regularity and efficiency. Intermediate priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation regularity and efficiency.

APANPIRG
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AOP/SG WORK PROGRAMME AND TASK LIST

The priorities assigned in the list have the following connotation:
High = Tasks of a high priority on which work should be expedited;
Medium = Tasks of medium priority on which work should be under taken as soon as possible but not to the detriment of the High tasks; and
Low = Tasks of medium priority on which work should be undertaken as time and resources permit but not to the detriment of High and Medium priority tasks.

TOR = Terms of Reference of the AOP Sub-Group

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/1 (14 – 16 June 2017):								
AOP/SG/1/1	APANPIRG 18 Conclusion 18/62 APANPIRG 21 Conclusion 21/54	Safety	AOP Air Navigation Deficiencies Assist States to establish action plans with fixed target dates for resolution of safety related deficiencies	High	1) Monitor resolution of AOP air navigation deficiencies *Please refer to the Task AOP/SG/2/2*	AOP/SG	December 2021	*Moved to Task* AOP/SG/2/2 **[COMPLETED]**
AOP/SG/1/2	APANPIRG 27 TOR of AOP/SG	Safety, Capacity & Efficiency	Assist in and monitor the implementation of Airport Collaborative Decision Making (A-CDM) at aerodromes used for international operations in APAC Region through APA-CDM/TF.	High	Monitor the status of implementation of A-CDM at aerodromes used for international operations	AOP/SG and APA-CDM/TF	Nov. 2021	~~Ongoing~~ **[COMPLETED]** AOP/SG/5-WP/05: - Dissolution of the Task Force and remaining works will be taken care by other APANPIRG Contributory body (ATFM/SG)

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/1/3	APANPIRG 27	Safety	Develop regional guidelines on aerodrome operations personnel competency (AOPC) requirements through AOPC Working Group	Medium	Develop regional guidance material	AOP/SG and AOPC SWG	May 2019	Refer to AOP/SG/4 WP/08 **[COMPLETED]**
AOP/SG/1/4	APANPIRG 27/34	Safety	Monitor States provide updated information about airport´s Obstacle Limitation Surface (OLS) in AIP	High	Monitor OLS of airports through AP-ADO/TF	States, AOP/SG	Continuous	Ongoing
					(Please refer to the Task AOP/SG/2/3)			
AOP/SG/2 (27 - 29 June 2018):								
AOP/SG/2/1	APANPIRG/18 Conclusion 18/1 APANPIRG Conclusion 21/2 RAN meeting –Asia/PAC/3, rec 4/6	Safety	Wildlife strike hazard reduction programme	High	Establish Wildlife Hazard Management Working Group (WHM WG)	AOP/SG, ICAO APAC Office	Continuous	Established AP-WHM/WG. Ongoing AOP/SG/5 -WP/06: – Developed Draft APAC Guidance on Development and Implementation of Aerodrome WHMP
AOP/SG/2/2	Beijing Declaration 2018 APANPIRG APAC ANP, Doc 9673, Volume I		1) Assist States in implementation of ICAO aerodrome certification requirement and resolution of air navigation deficiencies;	High	Establish an Asia/Pacific Aerodrome Assistance Working Group (AP-AA WG) Monitor resolution of AOP air navigation deficiencies	AOP/SG; ICAO APAC Office	31 October 2018 Continuous	Established AP-AA/WG. **[COMPLETED]** Ongoing

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/2/3	TOR of AOP/SG Asia Pacific Air Navigation Plan		(1) Review and monitor provisions of facilities, installations and services at international aerodromes: - visual aids; - rescue and firefighting services and emergency planning; - measurement and reporting by States of the surface condition and unevenness on runway; - preventive maintenance programme; - runway safety programme. (2) Review and monitor the content of the Table AOP I - 1 and, where necessary, after coordination with users and operators, and introduce the respective changes to the APAC ANP and Table AOP II – 1 through the established ICAO procedures.	High	Establish Asia/Pacific Aerodrome Design and Operation Task Force (AP-ADO/TF) Tasks to be carried out by AP-ADO/TF	AOP/SG; ICAO APAC Office	31 October 2018 Continuous Continuous	Established AP-ADO/TF. **[COMPLETED]** Ongoing Ongoing
AOP/SG/3 (24 - 26 June 2019):								
AOP/SG/3/1	55th DGCA Action Item 55/42	Safety	Certification of aerodromes used for international operations by 2020 (Beijing Declaration's Commitment)	High	Monitor the progress of certification and report to DGCA through APANPIRG	AOP/SG through AP-AA/WG	By 2020	Ongoing 304 out of 342 aerodromes have been certified (89%) (AOP/SG/5-WP/09)

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/4 (10 – 13 November 2020):								
AOP/SG/4/1	Draft Conclusion AOP/SG/4-10	Safety	States/Administrations to develop and implement GRF Implementation Action Plan	High	Monitor the GRF Implementation Action Plan developed by States/Administrations	States AOP/SG	28 February 2021	Ongoing AOP/SG/5-WP-12: – 25 States/ Administrations submitted GRF Implementation Action Plan – Developed GRF Implementation Monitoring Tool
AOP/SG/4/2	AOP/SG/4 Report on WP/12	Safety	States to arrange necessary resources to recruit, train and retain qualified and experienced technical staff to effectively perform safety oversight of aerodromes to enhance USOAP Effective Implementation score to at least 75% in AGA area by 2022	High	Provide technical assistance to States with limited resources and low AGA EI	States AP-AA/WG	By 2022	AOP/SG/5-IP/11: – Fiji: iPack – Aerodrome Restart
AOP/SG/4/3	AOP/SG/4 Report on WP/11	Safety	Assist States in certification of aerodromes used for international operations	High	Provide technical assistance to States with aerodromes yet to be certified through Aerodrome Assistance Go-Team and other appropriate methods as agreed with the States concerned	AP-AA/WG assisted by ACI	By 2022	AOP/SG/5-IP/11: – Thailand (ICAO RO/COSCAP-SEA TA for Aerodrome Certification)

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/5 (29 June – 2 July 2021):								
AOP/SG/5/1		Safety, Capacity & Efficiency, ENV	Aerodromes Seminar	Medium	Asia/Pacific Aerodromes Seminar (duration 2 – 3 Days) hosted by States/Industries Theme topic of the Seminar to be proposed by the host in consultation with ICAO	States/ Industries (Supported by the Secretariat)	December 2022	

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NOTES ON THE AMENDMENT OF ABOVE TABLE TO ENDORSE AS AOP/SG WORK PROGRAMME

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

~~Text to be deleted is shown with a line through it.~~ — text to be deleted

New text to be inserted is highlighted with grey shading. — new text to be inserted

~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading. — new text to replace existing text

—END—