

CASR PART 139 AERODROME MANUAL

Boulia Shire Council



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CASR PART 139 AERODROME MANUAL

0 PREFACE

0.1 AMENDMENT RECORD

Revisions to this manual are dated and a new version number assigned accordingly. In addition to recording the date of change for each section or page of the manual, a summary of the changes made is also recorded.

Version No.	Date	Section & Page	Summary of change(s)
1	10/5/21	Refer to LEP	Initial Version
2	12/8/2024	Refer to LEP	0.2- ARO added Hard copy 1.2-Org Structure- new 2024-new jpg added 1.3.1 Position- Henry Mascarenhas recorded 2.1.2 A/h contacts for ARO and CEO recorded 3.1.1.1 AIP - Henry Mascarenhas recorded 3.1.1.2 NOTAM Group Mgr-Henry Mascarenhas recorded 3.1.5 Record keeping-records officer added-forms held in BSC edms. 3.1.6 Published info- Dir of Works- forms held in BSC edms. 3.2.1 RUS to TSU - Ron Callope-maintained records held BSC edms 3.10.1 Updated DWO to Henry Mascarenhas 3.11.1 Wildlife- added Willie Parsons and Graham Smerdon 3.13.1 Aircraft removal-Ron Callope and phone listed. 4.1 Emergency response-Henry Mascarenahs added 4.2.2 Local Emergency Response; listed Henry Mascarenhas

0.2 DISTRIBUTION LIST

A copy of this manual is retained at the Boulia Shire Council Depot and is made available to CASA for inspection if requested.

Electronic or printed copies and updates of this manual are distributed as follows:

Copy No.	Manual holder	Electronic format	Hard copy
1	Director of Works and Operations (Airport Manager)	x	
2	Foreman (ARO)	x	X
3	Team Leader P&G (ARO)	x	

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Persons printing the manual should be aware that any hard copies are uncontrolled and may not be the most up-to-date version.

0.3 ABBREVIATIONS AND ACRONYMS

ABBREVIATIONS or ACRONYMS	MEANING
ACN	aircraft classification number
ADP	aeronautical data package
AEP	aerodrome emergency plan
ARC	aircraft reference code
ARFFS	aviation rescue and firefighting services
AGL	aeronautical ground lighting
AHD	Australian height datum
AIP	aeronautical information publication
AIS	aeronautical information service
ALARP	as low as reasonably practicable
AMSL	above mean sea level
ARO	aerodrome reporting officer
ARP	aerodrome reference point
ASDA	accelerate-stop distance available
ATC	air traffic control
AT-VASIS	an abbreviated T pattern visual approach slope indicator system
AVDGS	advanced visual docking guidance system
CASA	Civil Aviation Safety Authority
ERSA	En-route Supplement Australia
ft	feet
FOD	foreign object debris
H24	continuous
IFR	instrument flight rules
ILS	instrument landing system
IWDI	illuminated wind direction indicator
LDA	landing distance available
LVP	low-visibility procedures
m	metres
MAG	movement area guidance sign
MOS	Manual of Standards
MOWP	method of working plan
NAIPS	national aeronautical information processing system
NOF	NOTAM Office
NOTAM	notice to airman
OFZ	obstacle free zone
OLS	obstacle limitation surface
OMGWS	outer main gear wheel span
PAL	pilot activated lighting system
PANS-OPS	Procedures for Air Navigation Services - Aircraft Operations
PAPI	precision approach path indicator
PCN	pavement classification number
RESA	runway end safety area
RTIL	runway threshold identification lights
RV	runway visibility
RVR	runway visibility range
RWY	runway
SMS	safety management system

ABBREVIATIONS or ACRONYMS	MEANING
STODA	supplementary take-off distance
RMP	risk management plan
TDZ	touchdown zone
TODA	take-off distance available
TORA	take-off run available
T-VASIS	T pattern visual approach slope indicator system
TWY	taxiway
VASIS	visual approach slope indicator system
VDGS	visual docking guidance system
VFR	visual flight rules
WDI	wind direction indicator

0.4 DEFINITIONS

TERM	DEFINITION
accelerate-stop distance available	the length of the take-off run available plus the length of the stopway if provided
accident	<p>an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:</p> <ul style="list-style-type: none"> • a person is fatally or seriously injured as a result of: <ul style="list-style-type: none"> ◦ being in the aircraft, or ◦ direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or ◦ direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew, or • the aircraft sustains damage or structural failure which: <ul style="list-style-type: none"> ◦ adversely affects the structural strength, performance or flight characteristics of the aircraft, and ◦ would normally require major repair or replacement of the affected component, except for engine failure or damage when the damage is limited to the engine, its cowlings or accessories, or for damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin, or ◦ the aircraft is missing or is completely inaccessible
aerodrome	an area of land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure or movement of aircraft.
aerodrome elevation	the elevation of the highest point of the landing area
aerodrome reference code	<p>refers to the three (3) elements that are nominated by the aerodrome operator, specifically:</p> <ul style="list-style-type: none"> • a code number which is determined by the aeroplane reference field length, and which is applicable to runways • a code letter which is determined by the aeroplane wingspan, and which is applicable to runways, taxiways, aircraft holding bays and parking positions • the OMGS which is applicable to runways and taxiways
aerodrome reference point	the designated geographical location of an aerodrome
AIP responsible person	for an aeronautical data originator, a person appointed by the originator under regulation 175.445 as responsible for the provision of aeronautical data or aeronautical information published in the AIP
air transport operation	<p>a passenger transport operation, or a cargo transport operation, that</p> <p>(a) is conducted for hire or reward, or</p> <p>(b) is prescribed by an instrument issued under regulation 201.025</p> <p>However, an operation conducted for a purpose mentioned in paragraph 206(1)(a) of CAR is</p>

TERM	DEFINITION
	<p>not an air transport operation.</p> <p>206(1)(a) <i>aerial work purposes, being purposes of the following kinds (except when carried out by means of an RPA):</i></p> <ol style="list-style-type: none"> 1. <i>aerial surveying</i> 2. <i>aerial spotting</i> 3. <i>agricultural operations</i> 4. <i>aerial photography</i> 5. <i>advertising</i> 6. <i>balloon flying training</i> 7. <i>ambulance functions</i> 8. <i>carriage, for the purposes of trade, of goods being the property of the pilot, the owner or the hirer of the aircraft (not being a carriage of goods in accordance with fixed schedules to and from fixed terminals)</i> 9. <i>any other purpose that is substantially similar to any of those specified in subparagraphs 1 to 7 (inclusive).</i>
AIS provider	a person who holds a certificate under regulation 175.055 of CASR
apron	a defined area on a land aerodrome to accommodate aircraft for the purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance
apron taxiway	a portion of a taxiway system located on an apron to provide a through taxi route for aircraft across the apron to another part of the taxiway system
Australian height datum	the datum that sets mean sea level as zero elevation
clearway	a defined area at the end of the TORA, on the ground or water under the control of the aerodrome operator, which is selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height
displaced threshold	a threshold not located at the extremity of a runway
holding bay	a defined area where aircraft can be held or bypassed to facilitate efficient surface movement of aircraft
incident	an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation
international aerodrome	an aerodrome: (a) designated by the Department as an international airport in Australia; and (b) identified as a designated international airport in Australia on the Department's website.
instrument runway	one of the following types of runway nominated for the operation of aircraft using instrument approach procedures: (a) non precision approach runway (b) precision approach runway (CAT I) (c) precision approach runway (SA CAT I) (d) precision approach runway (SA CAT II) (e) precision approach runway (CAT II) (f) precision approach runway (CAT III A / B / C)
landing distance available	the length of the runway which is declared available and suitable for the ground run of an aeroplane landing
manoeuvring area	part of the aerodrome used for the take-off, landing and taxiing of aircraft, excluding aprons
method of working plan	a plan to ensure that aerodrome works do not present a hazard to aircraft operations
movement area	that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the aprons
non-homogenous runway surface	a runway surface that has different surface finishes across its full width
non-instrument runway	a runway for the operation of aircraft using visual approach procedures
NOTAM	Notice to Airmen - and is a notice issued by the NOTAM Office containing information or instructions concerning the establishment, condition or change in any aeronautical facility,

TERM	DEFINITION
	service, procedure or hazard, the timely knowledge of which is essential to persons concerned with flight operations
NOTAM authorised persons	for an aeronautical data originator, a person/s appointed under regulation 175.445 by the originator authorised to request the issue, review or cancellation of a NOTAM.
obstacle	fixed (whether temporarily or permanently) and mobile objects, structures and parts of such objects and structures, that: (a) are located on an area provided for the surface movement of aircraft, or (b) extend above a defined surface designated to protect aircraft in flight, or (c) stand outside the defined surfaces mentioned in items (a) and (b) above and that have been assessed as being a hazard to air navigation.
obstacle free zone	the airspace above the inner approach surface, inner transitional surface, baulked landing surface, and that portion of the runway strip bounded by these surfaces, which is not infringed by any fixed obstacle other than a low mass and frangibly mounted one required for air navigation purposes
obstacle limitation surfaces	a series of planes, associated with each runway at an aerodrome, that defines the desirable limits to which objects or structures may project into the airspace around the aerodrome so that aircraft operations at the aerodrome may be conducted safely
PANS-OPS	Doc.8168-OPS/611 Volume II (Procedures for Air Navigation Services – Construction of Visual and Instrument Flight Procedures) approved and published by decision of the Council of the International Civil Aviation Organization, as in force from time to time
pavement classification number	a number expressing the bearing strength of a pavement for unrestricted operations by aircraft with aircraft classification number (ACN) less than or equal to the PCN
runway	a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft
runway end safety area	an area symmetrical about the extended runway centreline and adjacent to the end of the runway strip, primarily to reduce the risk of damage to an aeroplane which undershoots or overruns the runway
runway strip	a defined area, including the runway and stopway, provided to: (a) reduce the risk of damage to aircraft running off a runway, and (b) protect aircraft flying over the runway during take-off or landing operations
scheduled air transport operation	an air transport operation conducted in accordance with a published schedule
secondary power supply	an electrical power supply that: (a) is automatically connected to the relevant load when the primary power source fails, and (b) is derived from: (i) the normal public electrical power supply, but in a way that: (A) supplies power for the aerodrome's functionality from a special substation that is not the normal substation, and (B) supplies the power through a special transmission line that follows a route different from the normal power supply route, and (C) makes extremely remote the possibility of a simultaneous failure of the normal public electrical power supply and the power supply for the aerodrome, or (ii) one or more generators, batteries, or similar devices which deliver a constant, reliable and sufficient supply of electrical power for the relevant aerodrome service
shoulder	an area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface
stopway	a defined rectangular area on the ground at the end of the take-off run available and prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off
take-off distance available	the length of the take-off run available plus the length of the clearway if provided
take-off runway available	the length of the runway declared available and suitable for the ground run of an aeroplane taking off
taxilane	a portion of an apron designated as a taxiway and for use only to provide access to, and egress from aircraft parking positions
taxiway	a defined path on an aerodrome on land, established for the taxiing of aircraft from one part of an aerodrome to another. A taxiway includes a taxilane, an apron taxiway, and a rapid exit taxiway

TERM	DEFINITION
threshold	the beginning of that portion of the runway usable for landing
Type A chart	a chart which contains information on all significant obstacles within the take-off area of an aerodrome up to 10 km from the end of the runway
Type B chart	an obstacle chart which provides obstacle data from around the aerodrome
Y location code	the international code prefix used to identify Australian aerodromes

Reference material

Document type	Title
Regulation	Part 139 of the <i>Civil Aviation Safety Regulations 1998</i>
Regulation	Part 175 of the <i>Civil Aviation Safety Regulations 1998</i>
Manual of Standards	Part 139 (Aerodromes) Manual of Standards 2019

1 AERODROME ADMINISTRATION

1.1 OPERATOR'S STATEMENT

The Boulia Airport Aerodrome Manual has been prepared in accordance with the requirements set out in the *Civil Aviation Safety Regulations 1998 (CASRs)*, and associated *Part 139 (Aerodromes) Manual of Standards 2019 (Part 139 MOS)*.

The contents of this manual describe the systematic approach to the operation and maintenance of Boulia Airport and demonstrates Boulia Shire Council's commitment to managing the aerodrome safely and promoting a positive safety culture.

The aerodrome will be operated and maintained in accordance with the procedures set out in this manual, and in any subsidiary materials that are referenced in this manual, unless a temporary non-compliance or deviation from the procedures is necessary to ensure the safety of aircraft, aircraft operations, or individuals using the aerodrome. If the temporary non-compliance or deviation in the procedures is to take effect on a permanent basis, the manual will be updated. CASA will be advised of a temporary deviation or a change to this manual within 30 days.

At all times when the aerodrome is operating, the aerodrome manual and any subsidiary materials will be accessible by those personnel who have a role of responsibility.

This manual identifies persons from all levels of the organisation that are responsible and accountable for the safe operation of the aerodrome. As the authorisation holder, Boulia Shire Council is committed to ensuring that all individuals understand their responsibilities and accountabilities as defined within this aerodrome manual.

Signed:

A handwritten signature in black ink, appearing to read 'Lynn Moore', written in a cursive style.

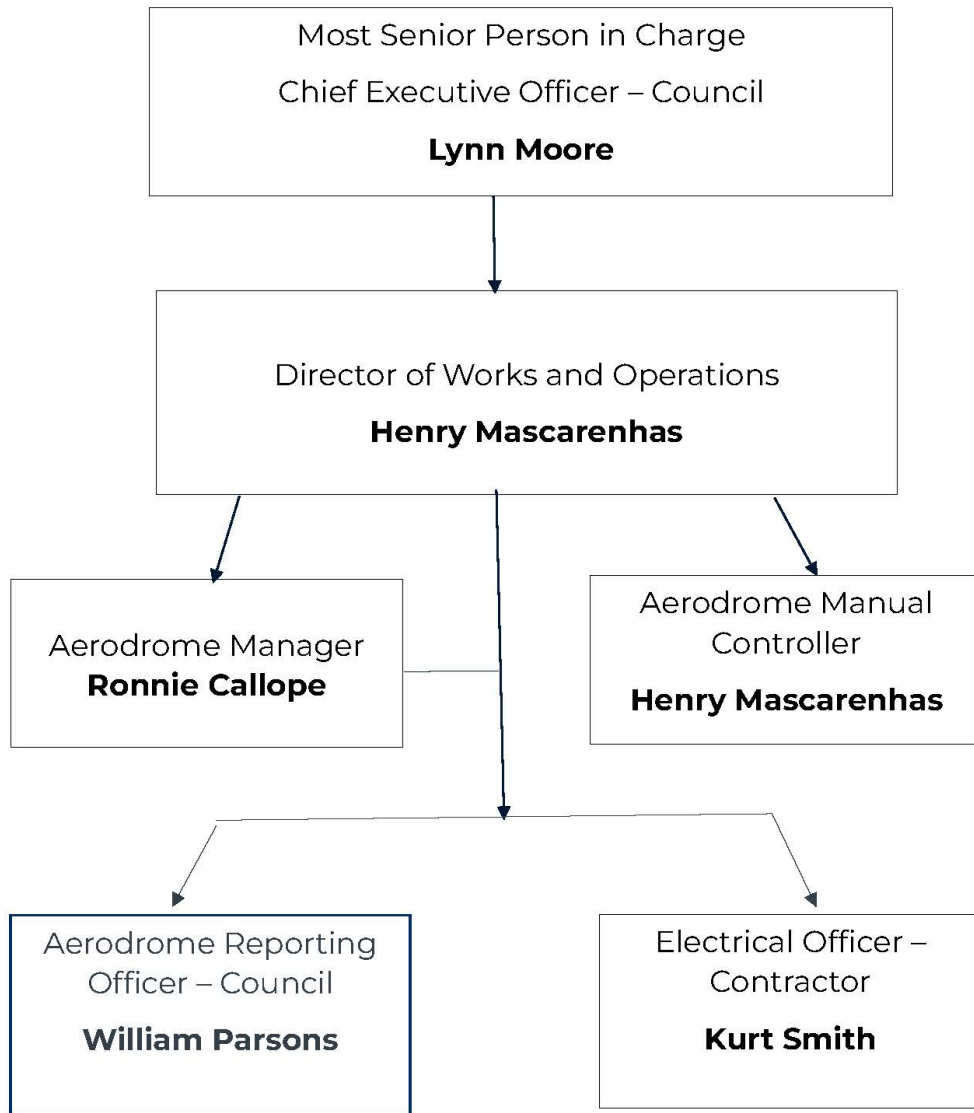
Signature.PNG

Name: Lynn Moore

Position: Chief Executive Officer

1.2 ORGANISATIONAL STRUCTURE

Org Structure YBOU.JPG



2024 Org Chart YBOU.jpg

An organisational chart which clearly identifies all personnel responsible for the management and administration of Boulia Airport is below.

1.3 KEY PERSONNEL

1.3.1 ACCOUNTABLE MANAGER

Position: Accountable Manager

Name: Henry Mascarenhas

Management position: Director of Works and Operations

Responsibilities:

To ensure Boulia Shire Council:

- complies with civil aviation legislation
- operates and maintains the aerodrome safely and with a reasonable degree of care and diligence
- operates and maintains the aerodrome in accordance with the aerodrome manual for the aerodrome.

The accountable manager has a general knowledge of the relevant civil aviation safety legislation and standards that are applicable to the inspection, reporting, operation and maintenance of the aerodrome.

1.3.2 MANAGEMENT POSITIONS (AERODROME OPERATION AND MAINTENANCE)

The management position responsible for the **operation and maintenance** of the aerodrome are as follows:

Boulia Shire Council (Council) has the ultimate responsibility for the maintenance and operation of the aerodrome and has delegated the overall responsibility and management of day-to-day safety, operations and maintenance to the Aerodrome Manager. The Aerodrome Manager works with the Aerodrome Reporting Officers, Foreman and Roads Utilities and Services to ensure works are carried out in compliance with the requirements of Part 139 MOS.

The **Aerodrome Manager** is accountable for the overall operation and maintenance of the aerodrome and the responsibilities of this role include:

- ensuring that the aerodrome facilities and equipment are planned, constructed, installed and maintained in accordance with the Part 139 MOS standards;
- overseeing the maintenance of the aerodrome in accordance with Part 139 MOS;
- ensuring that all personnel are trained in accordance with the Part 139 MOS and that training records are maintained;
- ensuring the removal of infringing obstructions and/or the maintenance of all obstacles below the protected OLS;
- the financial control of allocated funds and staffing;
- the co-ordination of all aerodrome activities;
- Aerodrome Manual control;
- fulfilling the role of NOTAM Group Manager;
- carrying out annual reviews of published information;
- notifying CASA and/or Airservices Australia of any infringements to the OLS or PANS-OPS;

- planning, arranging and notifying relevant personnel of works;
- notification procedures to initiate an emergency response;
- monitoring the function of the emergency response procedures.

The **Aerodrome Reporting Officers** (ARO) are accountable for the ongoing maintenance and serviceability of the aerodrome. They are front-line operators whose job is, primarily, to ensure that the aerodrome remains safe for aircraft operations, in consultation with the Aerodrome Manager.

1.3.3 AERODROME OPERATIONS AND SAFETY FUNCTIONS

The Airport Manager in conjunction with the ARO, is responsible for the operation and safety of the airport. The Airport Manager's responsibilities are listed in Section 1.3.2 above.

1.4 AERODROME MANUAL ADMINISTRATION

This aerodrome manual identifies all elements required by the Part 139 MOS. Information that is not relevant to the aerodrome's operational context or regulatory compliance is marked NOT APPLICABLE or N/A.

All required information is contained in this manual and no subsidiary materials have been adopted.

This manual will at all times be accessible by those persons who have a role in the operation and maintenance of the aerodrome.

1.4.1 MANUAL CONTROL

The following individuals / positions are responsible for reviewing, maintaining, amending and controlling this aerodrome manual:

Individual / Position	Role / Function
Director of Works and Operations	Manual Controller

1.4.2 MANUAL AMENDMENT

To maintain the accuracy of this manual, the aerodrome manual controller(s) will be advised of any changes to the aerodrome's facilities, operating procedures, or of any errors or omissions, so that an amendment can be made.

When an amendment is made, the aerodrome manual controller will update the amendment record in the respective section of this manual.

So that readers can identify information in the manual that has changed, the following procedure has been adopted:

- this manual complies with the Part 139 MOS, Chapter 10.03(2)(c)
- the list of effective pages (LEP) is updated with the section, page and date the change was finalised
- section 0.1 Amendment Record is updated with each new version and details of the change/s.

Within 30 days of any amendment to this manual, written notice of the change and a new

version of the aerodrome manual is provided to CASA.

1.4.3 MANUAL REVIEW

This manual will be reviewed annually as part of the aerodrome manual validation process.

1.5 AUTHORISATIONS

1.5.1 AERODROME CERTIFICATE - CONDITIONS

There are no conditions on the aerodrome certificate issued by CASA.

1.5.2 AERODROME INSTRUMENTS

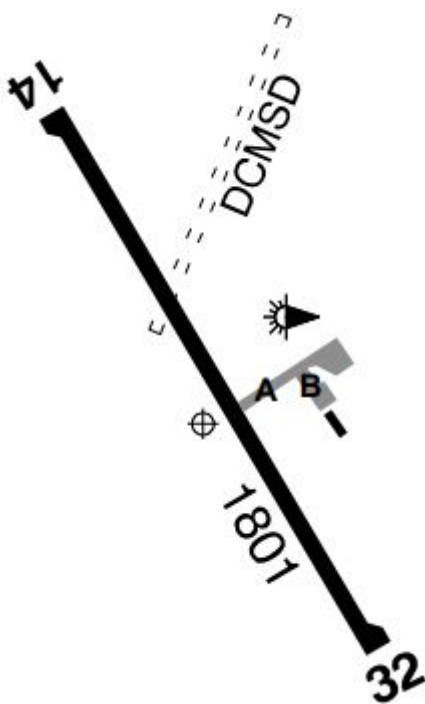
No approvals, determinations, directions, exemptions or other instruments have been issued by CASA.

2 AERODROME INFORMATION

2.1 AERONAUTICAL INFORMATION

2.1.1 AERODROME DIAGRAM

A single aerodrome diagram that clearly illustrates all applicable aerodrome facilities prescribed in subparagraph 5.03(1) of the Part 139 MOS is below.



ERSA Dwg Nov23.JPG

2.1.2 AERODROME ADMINISTRATION STATEMENT

The aerodrome's administration information prescribed in subparagraph 5.03(2) of the Part 139 MOS is recorded below:

DESCRIPTION	DETAILS
Name of aerodrome operator	Boulia Shire Council
Postal address	18 Herbert Street, Boulia QLD 4829
Phone number	(07) 4746 3188
E-mail address	admin@boulia.qld.gov.au
Website	https://www.boulia.qld.gov.au/
Facsimile number (if applicable)	-
OUT OF HOURS CONTACT DETAILS	
Name of out-of-hours contact	Ron Callope 0427 163 773
Phone number	Willie Parsons 0428 725 580

DESCRIPTION	DETAILS
E-mail address	ceo@boulia.qld.gov.au
CEO Mobile	0429 463 188
Aerodrome usage	Public use

2.1.3 AERODROME LOCATION STATEMENT

The aerodrome's location information prescribed in subparagraph 5.03(4) of the Part 139 MOS is below:

Description	Details
Aerodrome name	Boulia Airport
State / Territory	QLD
ARP latitude	225448[S] in WGS84
ARP longitude	1395359[E] in WGS84
Y location code	YBOU
Elevation	542ft
Type A charts (if published)	N/A
Type B charts (if published)	N/A

2.1.4 MOVEMENT AREA INFORMATION - RUNWAYS

2.1.4.1 RUNWAY CODE NUMBER

The code number for each of the runway(s) is recorded below:

Runway	Code Number
14/32	Code 3C

2.1.4.2 RUNWAY BEARING, LENGTH, WIDTH, AND SURFACE TYPE

The bearings, length, width, and surface type(s) of the runway(s) is recorded below:

RUNWAY	RUNWAY BEARING (MAGNETIC)	RUNWAY LENGTH	RUNWAY WIDTH	RUNWAY SURFACE TYPE, OR TYPES (NON-HOMOGENOUS RUNWAYS)
14/32	143 Degrees, 7 Degree Variation East	1801m	30m	BITUM

2.1.4.3 THRESHOLD GEOGRAPHICAL LOCATION & ELEVATION - INSTRUMENT RUNWAYS

The geographical location coordinates, and the elevation of the midpoint of the runway threshold for each instrument runway are recorded below:

RUNWAY THRESHOLD	LATITUDE (WGS84)	LONGITUDE (WGS84)	MIDPOINT ELEVATION
RWY 14	225420.66[S]	1395347.24[E]	536.05ft
RWY 32	225510.79[S]	1395418.86[E]	541.99ft

2.1.4.4 RUNWAY PAVEMENT STRENGTH RATING

The strength rating of the runway(s) pavement is below:

ACN - PCN STRENGTH RATING	RUNWAY 14/32
PCN value	6
Pavement type	F
Pavement subgrade	A
MAX take-off weight	5700kg
MAX tyre pressure value	0.73MPa
Tyre pressure category	
PCN evaluation method	U

2.1.4.5 RUNWAY STRIP LENGTH AND WIDTH

The length and width of the runway strip(s) is below:

RUNWAY	RUNWAY STRIP LENGTH	RUNWAY STRIP WIDTH (GRADED)	RUNWAY STRIP WIDTH (INCLUDING FLYOVER)
14/32	1921m	90m	150m

2.1.4.6 RUNWAY SLOPE

The runway slope details are below:

RUNWAY	RUNWAY SLOPE
14/32	0.15% slope to the SE

2.1.4.7 RUNWAY DECLARED DISTANCES

The declared distances for each runway are below:

TYPES	RUNWAY 14	RUNWAY 32
Take-off run available (TORA)	1801m (5909ft)	1801m (5909ft)
Take-off distance available (TODA)	1861m (6106ft)	1861m (6106ft)
TODA gradient	1.2%	1.6%
Accelerate-stop distance available (ASDA)	1801m (5909ft)	1801m (5909ft)
Landing distance available (LDA)	1801m (5909ft)	1801m (5909ft)

2.1.4.8 INTERSECTION DEPARTURE TAKE-OFF DISTANCES AVAILABLE

Intersection departures are not available.

2.1.4.9 SUPPLEMENTARY TAKE-OFF DISTANCES AVAILABLE (STODA)

As all obstructions are below a gradient of 1.6%, STODA are not needed.

2.1.4.10 ESTABLISHED OLS FOR THE RUNWAY

The code number of the runway(s) OLS is recorded below:

RUNWAY END	ESTABLISHED CODE
14	Code 3
32	Code 3

2.1.4.11 TYPE A CHARTS

A Type A chart is not required and has not been prepared.

2.1.4.12 TYPE B CHARTS

A Type B chart has not been prepared.

2.1.4.13 OBSTACLE-FREE ZONE (OFZ)

An obstacle free zone is not identified.

2.1.4.14 ARRESTOR SYSTEM

An arrestor system is not provided.

2.1.5 MOVEMENT AREA INFORMATION - RUNWAY STRIP AVAILABILITY

The runway strip is not available for take-offs and landings.

- The runway strip width does not meet the required 280m and this non-conformance has been grandfathered in Section 2.7.1 of this manual.

2.1.6 MOVEMENT AREA INFORMATION - TAXIWAYS

Each taxiway designation, code letter, width, and surface type are below:

TAXIWAY NAME	TAXIWAY DESIGNATION	ARC LETTER	TAXIWAY WIDTH	TAXIWAY SURFACE TYPE
ATO Taxiway	A	C	15m	BITUM
GA Taxiway	B	A	7.5m	BITUM

2.1.7 MOVEMENT AREA INFORMATION - APRONS

The aerodrome has no international operations, nor have the parking position designations been provided to Airservices for publication in the AIP. See below for the apron surface type(s):

APRON	APRON SURFACE TYPE
ATO Apron	BITUM
GA Apron	BITUM

2.1.8 VISUAL AIDS - APPROACH AND RUNWAY LIGHTING SYSTEMS

2.1.8.1 APPROACH LIGHTING SYSTEM(S) (ALS)

The aerodrome does not have a runway approach lighting system.

2.1.8.2 RUNWAY THRESHOLD LIGHTS AND WING BARS

The particulars for each runway threshold lights, and wing bars (if provided) are below:

RUNWAY DESIGNATION	THRESHOLD LIGHTS - COLOUR	WING BARS - COLOUR	GEOGRAPHICAL COORDINATES
14	Green/Red		
32	Green/Red		

2.1.8.3 VISUAL APPROACH SLOPE INDICATOR SYSTEM (VASIS)

Visual approach slope indicator system(s) are not provided.

2.1.8.4 TOUCHDOWN ZONE (TDZ) LIGHTING

Touchdown zone lighting is not provided.

2.1.8.5 RUNWAY CENTRELINE LIGHTS

Runway centreline lights are not provided.

2.1.8.6 RUNWAY EDGE LIGHTS

The length, longitudinal spacing, colour and intensity of the runway edge lights are below:

RUNWAY DESIGNATION	LENGTH	LONGITUDINAL SPACING	COLOUR	INTENSITY (cd)
14/32	1801m	60m	White	50+cd (low intensity)

2.1.8.7 RUNWAY END LIGHTS

The colour(s) of the runway end lights are below:

RUNWAY END	RUNWAY END LIGHTS - COLOUR
14	Green/Red
32	Green/Red

2.1.8.8 STOPWAY LIGHTS

The aerodrome does not have stopway lights.

2.1.8.9 STARTER EXTENSION LIGHTING

The aerodrome does not have starter extension lighting.

2.1.8.10 RUNWAY THRESHOLD IDENTIFICATION LIGHTS (RTIL)

The aerodrome does not have RTIL.

2.1.8.11 PILOT ACTIVATED LIGHTING (PAL) SYSTEM

A AFRU+PAL unit is provided at the aerodrome. The AFRU operates on 126.70MHz VHR radio frequency, and requires three one-second pulses to activate.

2.1.9 VISUAL AIDS - OTHER LIGHTING AND SECONDARY POWER SUPPLY

2.1.9.1 AERODROME BEACON

The aerodrome does not have an aerodrome beacon.

2.1.9.2 TAXIWAY LIGHTING SYSTEMS (INCLUDING HOLDING POSITIONS AND STOP BARS)

The lighting systems for taxiways, including taxiway holding positions and stop bars (where provided), are below:

TAXIWAY DESIGNATION	TAXIWAY LIGHTING SYSTEM - EDGE LIGHTS	TAXIWAY LIGHTING SYSTEM - CENTRELINE LIGHTS	TAXIWAY LIGHTING SYSTEM - STOP BARS	TAXIWAY LIGHTING SYSTEM - HOLDING POSITION LIGHTS
ATO Taxiway	Blue	N/A	N/A	N/A

2.1.9.3 APRON LIGHTING SYSTEMS (INCLUDING VDGS)

The lighting system for aprons, including the location and type of VDGS, are below:

APRON	APRON LIGHTING SYSTEMS - PARKING POSITION	APRON LIGHTING SYSTEMS - IDENTIFICATION SIGN	APRON LIGHTING SYSTEMS - TYPE OF VDGS (if provided)
ATO	2 Floodlights	-	-
GA	Floodlight	-	-

2.1.9.4 OTHER MOVEMENT AREA - LIGHTING SYSTEMS

No other movement area lighting systems are provided at the aerodrome.

2.1.9.5 OBSTACLE LIGHTING FOR OLS INFRINGEMENTS

There are no lit obstacles that infringe the aerodromes OLS.

2.1.9.6 SECONDARY POWER SUPPLY (INCLUDING SWITCH-OVER TIME)

A secondary power supply is not provided.

2.1.10 NAVIGATION AIDS

No navigation aids are provided by the aerodrome operator.

2.1.11 AVIATION RESCUE AND FIRE-FIGHTING SERVICES (ARFFS)

An ARFFS is not provided by the aerodrome operator.

2.1.12 GROUND SERVICES

2.1.12.1 FUEL SUPPLIERS

Fuel suppliers and their contact details are below:

FUEL SUPPLIER	FUEL TYPE	CONTACT DETAILS	AFTER HOURS CONTACT DETAILS
Boulia Shire Council	AVGAS	(07) 4746 3188	0427 128 212
Boulia Shire Council	Jet-A1	(07) 4746 3188	0427 128 212

2.1.12.2 WEATHER INFORMATION BROADCASTS

Aerodrome weather information broadcasts are not provided by the aerodrome operator.

2.1.12.3 GROUND-TO-AIR COMMUNICATION SYSTEMS

Aerodrome Frequency Response Units (AFRU) available on VHF 126.7MHz

2.1.12.4 OTHER AVIATION-RELATED SERVICES MADE AVAILABLE TO PILOTS

No other aviation-related services are made available to pilots by the aerodrome operator.

2.1.13 AERODROME OPERATIONAL PROCEDURES - STANDARD TAXI ROUTES

2.1.13.1 STANDARD TAXI ROUTES DETERMINED BY AERODROME OPERATOR

Standard taxi routes have not been determined by the aerodrome operator.

2.1.13.2 STANDARD TAXI ROUTES DETERMINED BY THE ATS PROVIDER

Standard taxi routes have not been determined by the ATS provider.

2.1.14 AERODROME OPERATIONAL PROCEDURES - SPECIAL PROCEDURES

There are no special procedures at the aerodrome that pilots would be reasonably expected to know in the interests of aviation safety.

2.1.15 AERODROME OPERATIONAL PROCEDURES - NOTICES

Cautionary or administrative notices relating to the safe use of the aerodrome are below:

- Significant bird hazard (kite hawks) exists.

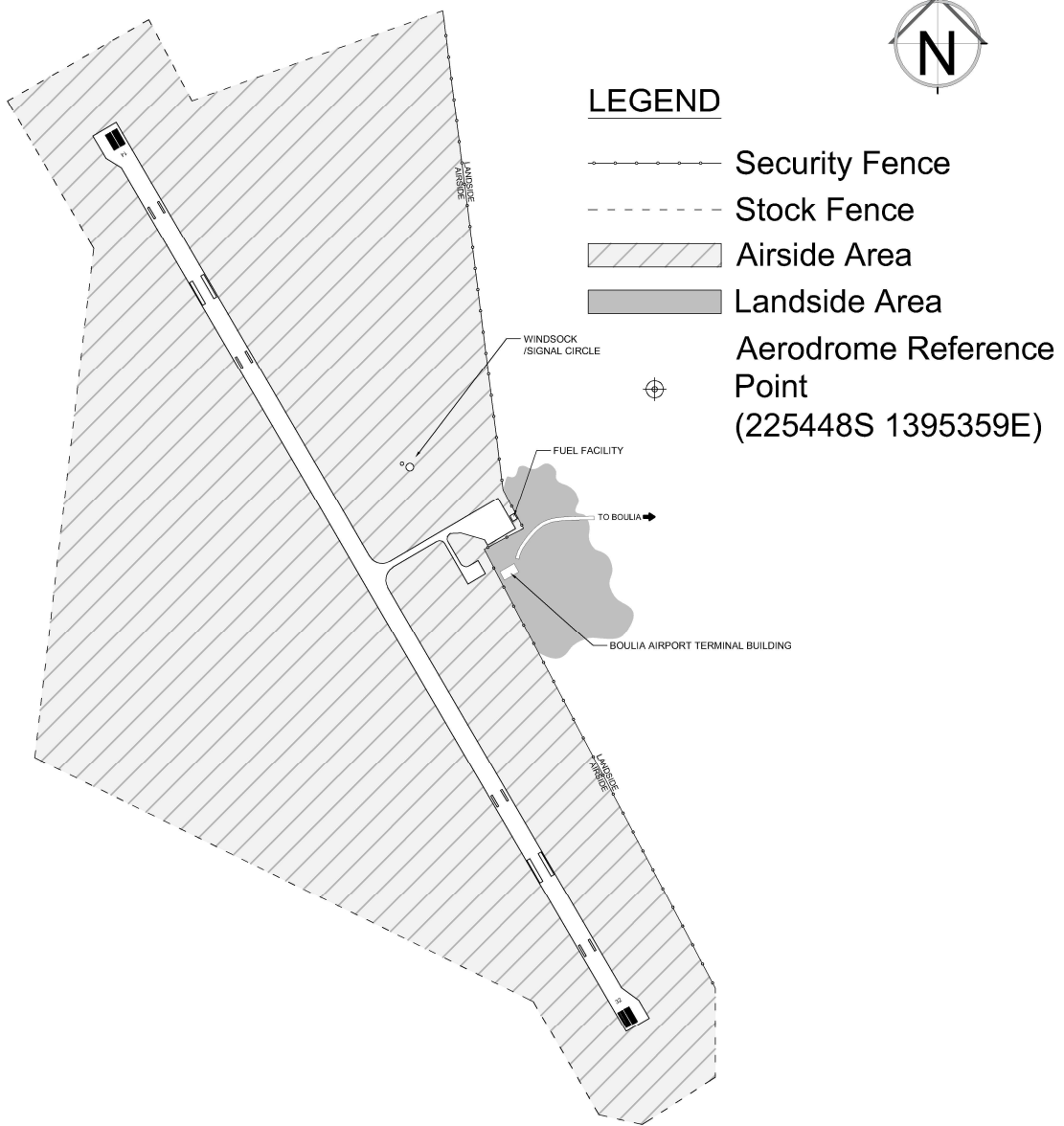
2.1.16 AERODROME OPERATIONAL PROCEDURES - LOW-VISIBILITY PROCEDURES

Low-visibility procedures are not established at the aerodrome.

2.2 AERODROME SITE PLAN

A scaled plan of the aerodrome site that clearly shows all applicable aerodrome facilities prescribed in subparagraph 11.01(2)(a) of the Part 139 MOS is below.

BOULIA AIRPORT (YBOU) - AIRSIDE AND LANDSIDE MAP



Paper Size: A4	Date: 4/3/21		BOULIA SHIRE COUNCIL
Scale: 1:10,000	Drawn: H.J.K		Project: BOULIA AIRPORT (YBOU)
Revision No. A	Approved:		Title: AIRSIDE AND LANDSIDE MAP
Sheet No. 1	Date:		

2.3 SITE PLAN - FACILITIES OUTSIDE THE AERODROME BOUNDARY

Boulia Airport does not own any aerodrome facilities or equipment that is located outside the boundaries of the aerodrome; therefore this subsection is NOT APPLICABLE.

2.4 AERODROME REFERENCE CODE (ARC) NOMINATIONS

2.4.1 RUNWAYS

The aerodrome reference code (ARC) number, letter and OMGWS for each runway is below:

RUNWAY	ARC NUMBER	ARC LETTER	OMGWS
14/32	Code 3	C	6m to < 9m

2.4.2 TAXIWAYS AND TAXILANES

The aerodrome reference code (ARC) letter and OMGWS for each taxiway and taxilane is below:

TAXIWAY / TAXILANE	ARC LETTER	OMGWS
ATO Taxiway	C	6m to 9m
GA Taxiway	A	4.5m

2.4.3 AIRCRAFT PARKING POSITIONS

There is one marked aircraft parking position. This is designed to accommodate Code C aircraft.

2.4.4 HOLDING BAYS (AIRCRAFT)

Aircraft holding bays are not provided; therefore, this is NOT APPLICABLE.

2.5 INSTRUMENT CLASSIFICATION OF EACH RUNWAY

The instrument classification for each runway end is below:

RUNWAY DESIGNATION	INSTRUMENT CLASSIFICATION
RWY 14	Instrument Non-Precision Approach Runway
RWY 32	Instrument Non-Precision Approach Runway

2.6 DEVIATIONS FROM PREFERRED STANDARDS

2.6.1 LOCATION OF RUNWAY THRESHOLD

All runway thresholds are located at the extremity of the runway.

2.6.2 RUNWAY TURN PAD / BYPASS PAD

All runway turn pads are located on the right-hand side of the runway as viewed when looking in the direction of take-off from that runway end.

2.6.3 RUNWAY LONGITUDINAL SLOPE VALUES

The maximum runway longitudinal slope values expressed in subparagraphs 6.06(1) to (6) of the Part 139 MOS have not been exceeded.

2.6.4 RUNWAY TRANSVERSE SLOPE VALUES

The runway transverse slope values expressed in Table 6.08(2) of the Part 139 MOS have not been exceeded.

2.6.5 RUNWAY SURFACES

2.6.5.1 AVERAGE SURFACE TEXTURE DEPTH

The preferred average surface texture depth of 1 mm has been met on all runways.

2.6.5.2 FRICTION VALUES

The aerodrome is not used for scheduled international air transport operations.

2.6.6 LONGITUDINAL SLOPE DESIGN VALUES ON GRADED RUNWAY STRIP

The design longitudinal slope values expressed in subparagraph 6.18(1) of the Part 139 MOS have not been exceeded.

2.6.7 RUNWAY END SAFETY AREA (RESA)

The preferred RESA length as stated in Table 6.26(4) of the Part 139 MOS has not been met on the following runways:

RUNWAY DESIGNATION	ACTUAL RESA LENGTH	REASONS WHY THE PREFERRED RESA LENGTH NOT MET
14/32	60m from runway end	Insufficient land at both ends of the runway.

The actual length of the RESA does not meet the Part 139 MOS requirement of 90m at either end of the runway.

- This non-conformance has been grandfathered in Section 2.7.1 of this manual.

2.6.8 TAXIWAY LONGITUDINAL SLOPE VALUES

The maximum taxiway longitudinal slope values expressed in subparagraphs 6.40(1) and (2) of the Part 139 MOS have not been exceeded.

2.6.9 TAXIWAY TRANSVERSE SLOPE VALUES

The taxiway transverse slope values expressed in Table 6.41(2) of the Part 139 MOS have not been exceeded.

2.6.10 COLOUR OF AERODROME MARKINGS, MARKERS, SIGNALS AND SIGNS

AS Code R13 (signal red) has been used for all aerodrome markings, markers, signals and signs (as applicable).

2.6.11 RUNWAY EDGE LIGHTS ON A REDUCED RUNWAY WIDTH

Runway edge lights are not located more than 3 m from the runway edge.

2.6.12 SPACING OF TAXIWAY EDGE LIGHTS

Due to incorrect installation in early 2000, the spacing of taxiway edge lights on the following taxiway does not comply with section 9.92 of the Part 139 MOS. The limitations and effects are also recorded.

TAXIWAY DESIGNATION	LIMITATION AND EFFECTS
A	Several lights are not directly opposite the light on the other side of the taxiway, and do not meet the Part 139 MOS Specifications

2.7 FACILITIES WITH RETAINED COMPLIANCE

2.7.1 NON-COMPLIANT GRANDFATHERED FACILITIES

At the time of commencement of the Part 139 MOS, the following aerodrome facilities do not comply with the new standards.

These aerodrome facilities / OLS did meet a previous standard that was in place at the time the facility was introduced, last upgraded or replaced.

These facilities will be maintained in accordance with the requirements set out in the Part 139 MOS for the same facility.

FACILITY (GRANDFATHERED)	DESCRIPTION OF NON-COMPLIANCE
Runway Strip	Does not meet required width of 280m.
Shoulders	Shoulders not provided on TWY A as required by Part 139 MOS.
RESA	The RESA is 60m from runway end and does not meet the 90m length required at either end of the runway.

The variations tabled above may not be an exhaustive list, and further variations may be added in future amendments to this Manual.

2.7.2 GRANDFATHERED FACILITIES OPTED-IN

All grandfathered facilities remain grandfathered to a previous standard.

3 AERODROME OPERATING PROCEDURES AND SYSTEMS

3.1 REPORTING AERONAUTICAL DATA AND INFORMATION

This section documents the procedures for:

- providing information to the AIS provider (Airservices) for publication in the Aeronautical Information Package (AIP)
- notifying Airservices of any changes that are required to be made to the information that is published in the AIP
- reporting to the NOTAM Office (NOF) any changes to the condition of the aerodrome facility, or any hazards, that may adversely affect aviation safety
- reporting hazards that may adversely affect aviation safety to ATC
- making the aerodrome reports readily accessible to relevant personnel
- retaining reports for at least 3 years
- maintaining the integrity of information that is published.

3.1.1 PERSONNEL WITH RESPONSIBILITIES - DATA ORIGINATOR

3.1.1.1 AIP RESPONSIBLE PERSON

The nominated AIP responsible person for Boulia Airport is Director of Works and Operations-Henry Mascarenhas.

Their nomination has been provided to Airservices on the Aeronautical Data Originator (ADO) form that is available on the Airservices Australia website.

To meet the requirements of CASR 175.445, Boulia Shire Council ensures that the AIP responsible person has been suitably trained so that they have the knowledge and competence to carry out their responsibilities.

Where a change to the AIP responsible person is required, a new ADO form will be submitted to Airservices informing them of the new appointment. This subsection of the manual will also be updated to reflect the change in nomination.

3.1.1.2 NOTAM AUTHORISED PERSON(S)

Persons who are authorised to request the issue, review, and cancellation of NOTAMs at Boulia Airport are below:

NOTAM AUTHORISED PERSON(S)
Ron Callope
William Parsons

To meet the requirements of CASR 175.445, Boulia Shire Council ensures that these persons have been suitably trained so that they have the knowledge and competence to request the issue, review and cancellation of NOTAMs.

The list of NOTAM authorised persons is recorded in the NAIPS system that Airservices administers.

A NOTAM group manager who is responsible for maintaining and updating the NOTAM group has been nominated and recorded in the NAIPS system.

The NOTAM group manager for Boulia Airport is Henry Mascarenhas.

Where a change to the NOTAM group is required, the NOTAM group manager will update the NAIPS system. This subsection of the manual will also be updated to reflect the change in NOTAM authorised person(s).

3.1.2 CHANGES TO PUBLISHED AERONAUTICAL INFORMATION

The AIP responsible person is authorised to request a change to information that is published in the AIP.

Boulia Shire Council ensures that all requests for a change adhere to Airservices data quality requirements and are in a format that allows Airservices to readily identify the required change(s) to the existing published data or information, including any consequential changes.

As soon as practicable after becoming aware of a change, a request for a change will be made in writing to Airservices at: docs.amend@airservicesaustralia.com

Boulia Shire Council ensures that a statement of any consultation undertaken is provided with the request for change if the data is expected to cause an aviation organisation to make plans for changes to the organisations' operating procedures.

Once the request for a change has been submitted, the Aeronautical Data Package / Section 2 of this manual will be amended to reflect the change in aeronautical information.

Boulia Shire Council endeavours to ensure that long-term changes are planned and incorporated into the AIP. Aeronautical information is updated quarterly. The Airservices document amendment calendar is published on the Airservices website. To best ensure the timely communication of a change to published information, the deadlines for submissions are recorded and monitored by the AIP responsible person.

3.1.3 ADVISING NOTAM OFFICE (NOF) OF CHANGES - AERODROME CONDITIONS / HAZARDS

In the event there is a change to the condition of the aerodrome facility, or there is a hazard to aircraft operations, a NOTAM authorised person will, as soon as possible after the condition or hazard is detected, request the issue of a NOTAM.

To request the issue of a NOTAM, the NOTAM authorised person will complete a NOTAM request form which is available on the Airservices website.

The completed NOTAM request form will be submitted electronically to the NOTAM Office (NOF) at: nof@airservicesaustralia.com

Alternatively, a NOTAM request form will be faxed to the NOF. The fax number for the NOF is: 02 6268 5044

In an emergency or if the matter is urgent, the NOTAM authorised person may phone the NOF to request the immediate issue of a NOTAM. In these circumstances, the NOF can be contacted on: 02 6268 5063.

Urgent reports made by phone will be confirmed as soon as possible by the submission of a NOTAM request form forwarded either by e-mail or facsimile.

On submission of the request to issue a NOTAM, the NOTAM authorised person will obtain a copy of the published NOTAM through NAIPS to check the accuracy of that information which has been published. If an error is discovered, the discrepancy will be reported immediately to the NOF.

NOTAM will normally only be used in the case of operationally significant changes (reportable occurrences) that are required at short notice. The list of reportable occurrences is contained in subsection 3.2.6.1 of this manual.

3.1.4 REPORTING HAZARDS THAT MAY ADVERSELY AFFECT AVIATION SAFETY TO ATC

As the aerodrome is not a controlled aerodrome, hazards that are of an urgent nature and may adversely affect aviation safety for aircraft en-route to the aerodrome will be communicated to Brisbane ATC Centre.

The contact phone number is 07 3866 3868.

3.1.5 RECORD KEEPING - REPORTS

A copy of all NOTAMs requested by Boulia Shire Council Airport are:

Retained by: Council records officer

Stored securely in: The Boulia Shire Council electronic document management system

A copy of all requests for change(s) to published information that are sent to the Airservices docs amend are:

Retained by: Council records officer

Stored securely in: The Boulia Shire Council electronic document management system

Copies of all requests are held on file for a minimum period of three (3) years from the date each request was made.

The AIP responsible person and NOTAM authorised person(s) have access to all reports held on file.

The accuracy and currency of all active NOTAMs requested by Boulia Airport is checked by the aerodrome reporting officer during the serviceability inspection process. Refer to subsection 3.2.4.1 of this manual.

3.1.6 REVIEW OF PUBLISHED INFORMATION

The Director of Works will review, at least once annually, the published aeronautical data and aeronautical information for which the aerodrome is responsible. Documented evidence of each review is:

Retained by: Records Officer

Stored securely in: The Boulia Shire electronic document management system

Boulia Shire Council ensures the records of each review are kept for a minimum period of three (3) years from the date the review was completed.

In the event inaccurate information is identified during the review, the AIP responsible person will notify Airservices immediately.

3.2 AERODROME SERVICEABILITY INSPECTIONS

This section documents the procedures for:

- scheduling, conducting and reporting on the results of routine aerodrome serviceability inspections and additional aerodrome serviceability inspections should the circumstances require them to be conducted
- communicating with ATC during the inspection (if applicable)
- taking prompt follow-up action(s) to ensure the correction of any unsafe conditions
- arranging a technical inspection if an unsafe condition is identified
- maintaining records of inspections.

**Refer to Appendix A for GRF Procedures

3.2.1 POSITIONS WITH RESPONSIBILITIES

The Director of Works and Operations is responsible for managing the aerodrome's serviceability inspections, ensuring that they occur in accordance with the requirements of the Part 139 MOS, and this manual.

The following is a list of personnel authorised to perform the functions of a reporting officer. The authorisation allows them to carry out serviceability inspections at Boulia Airport.

NAME	POSITION	FUNCTION
Ron Callope	Foreman (TSU)	Reporting Officer
William Parsons	Team Leader (P&G)	Reporting Officer

All personnel appointed as reporting officers have been trained so that they can competently carry out their duties at this aerodrome, without the need for supervision.

Boulia Shire Council ensures that all training activities for reporting officers are recorded to verify achieved competencies.

All reporting officers undergo recurrent training every two to five years as is recommended in guidance material published by CASA.

A training schedule has been established and is maintained by the Director of Works and Operations. The training schedule is reviewed regularly to ensure training is completed in a timely manner.

The training records of all reporting officers are:

Maintained by: Records Officer

Stored securely in: The Boulia Shire electronic documents management system

The Foreman (TSU) is responsible for reporting the results of the inspections.

The Director of Works and Operations is responsible for taking follow-up action if an unsafe condition is identified during the inspection.

3.2.2 ROUTINE SERVICEABILITY INSPECTIONS

The aerodrome has scheduled passenger air transport operations. An aerodrome serviceability inspection is carried out on each day that an air transport movement is scheduled. A minimum of two (2) aerodrome serviceability inspections are conducted each week (at least 48 hours apart).

Boulia Shire Council ensures that the aerodrome serviceability inspections are completed before the first passenger air transport operation occurs.

Should the first air transport passenger movement occur before first light, an inspection of the safety critical elements is completed before the first movement occurs.

The safety critical element is wildlife hazards.

Inspections of the remaining items will re-commence and be completed as soon there is sufficient daylight.

3.2.3 *ADDITIONAL SERVICEABILITY INSPECTIONS*

Boulia Airport ensures that the reporting officer conducts additional serviceability inspections immediately any of the following occur:

- following an incident or accident
- a severe wind event, a severe storm or a period of heavy rainfall
- if a hazard to aircraft may be present on the manoeuvring area
- when requested in writing by CASA
- when a pilot or ARFFS provider reports a hazard.

3.2.4 *INSPECTION PROCEDURES*

When conducting a serviceability inspection, the reporting officer will ensure that the vehicle they use to complete the inspection is:

- in a sound mechanical state to prevent a breakdown, unsafe operation, and any spillage of fuel lubricant or hydraulic fluid
- lit in accordance with the requirements set out in subsection 3.5.3 of this manual
- equipped with a VHF radio capable of monitoring the CTAF and / or ATC frequency.

Reporting officers are instructed to maintain a continuous listening watch of the VHF radio at all times when operating on the manoeuvring area.

3.2.4.1 *INSPECTION ITEMS*

When performing each serviceability inspection, aerodrome reporting officers will check:

1. The surface condition of the movement area (which also includes runway and taxiway strips) looking for the following:

- surface irregularities, including cracking or spalling
- pavement deflections, including rutting or slipping
- water pooling or ponding
- build-up of rubber or other contaminants which may reduce runway surface friction
- surface damage caused by the spillage of corrosive fluids or oil
- subsurface leaks or pressure, including broken water mains or inadequate or defective drainage
- scour or erosion ditches within unsealed areas, including step-downs from sealed runway surfaces
- termite mounds, sink holes or other ground obstacles obscured, or not obscured, by grass
- soft ground, particularly in combination with surface roughness and slipperiness
- any other signs of pavement distress which have the potential to develop into a hazard for aircraft.

2. Aerodrome markings, lighting, wind direction indicators and ground signals for the following:

- loss of visibility markers and markings
- incorrect markers or markings
- any disturbance to the correct intensity level and alignment of lights
- discoloured or dirty lenses
- unserviceable lights, incorrectly fitted lights, or lights that are misaligned

- stand-by power equipment, to ensure that it is serviceable including the availability of fuel (if applicable)
- the condition of light bases
- exposed edges around concrete footings and other aerodrome installations within the runway and taxiway strips
- damage to the wind indicator assembly or mounting
- for wind indicators – damage to sleeve fabric or loss of conspicuous colour
- the correct operation of the pilot activated lighting (N/A)
- the correct operation of the broadcast aerodrome weather station (N/A).

3. The cleanliness of the movement area looking for the following:

- foreign objects, for example, aircraft fastening devices and other aircraft parts
- work tools, small items of equipment and personal items
- debris, for example, sand, loose rocks, concrete, wood, plastic, pieces of tyre, mud and any other foreign bodies
- hazards created during and after construction activity, including hazards arising from vehicles and plant travelling over unpaved, wet or contaminated areas.

4. For any obstacles infringing the take-off, approach, transitional and PANS-OPS surfaces that are visible from the aerodrome, specifically:

- the take-off, approach and transitional elements of the OLS
- PANS-OPS airspace, including any critical obstacles that would otherwise affect the safety or integrity of PANS-OPS airspace.

5. For wildlife on, or in the vicinity of, the movement area:

- the condition of aerodrome fencing and the security of access points to the movement area
- monitoring the presence and behaviour of any wildlife on, or likely to be on, the aerodrome, and identifying seasonal and environmental conditions which may act as an attractant
- monitoring evidence of wildlife shelter provided by aerodrome infrastructure, for example, buildings, equipment and gable markers
- checking for off-aerodrome wildlife attraction sources, observable from the aerodrome site, for example, mowing activities, seeding, standing water bodies, uncovered waste disposal, deceased wildlife or offal
- the presence and operating condition of any wildlife hazard mitigating equipment incorporated into the wildlife hazard management procedures for the aerodrome.

6. Where the runway and runway strip surfaces are unrated, an empirical assessment of the runway, and the runway strip if it is available for aircraft operations, will be conducted to confirm their suitability.

7. Aerodrome fencing and signage to:

- identify any damage
- confirm gates are secured
- ensure there has been no attempted entry onto the manoeuvring area by either land-based wildlife or unauthorised persons.

8. Active NOTAMs requested by the aerodrome to ensure they are accurate and current.

9. The aerodrome frequency response unit to verify that it is functioning correctly.

All items and the areas that are to be checked as part of each aerodrome serviceability inspection are identified in a checklist.

The checklist is a subsidiary document to this manual and is available at: the Boulia Shire Council Depot

3.2.5 COMMUNICATING WITH ATC DURING INSPECTION (IF APPLICABLE)

The aerodrome is not a controlled aerodrome; therefore, this subsection is NOT APPLICABLE.

3.2.6 REPORTING INSPECTIONS RESULTS

Boulia Shire Council ensures that any significant object found during the serviceability inspection that could reasonably be expected to have an immediate adverse effect on the safety of an aircraft is reported to ATC in accordance with subsection 3.1.4 of this manual.

At the completion of each aerodrome serviceability inspection, the reporting officer records the following information on the Airport Serviceability Inspection Logbook:

- the date and time the serviceability inspection was completed
- the results of the inspection
- a description of any remedial action taken or scheduled to be taken.

All identified faults that require further corrective action are entered in the logbook.

Any works activities that are required to correct these faults are conducted in accordance with the works protocols set out in section 3.10 of this manual.

When the fault has been rectified, an entry to confirm the corrective action is complete is made in the logbook.

Faults that remain open are subject to regular monitoring.

In the event the aerodrome serviceability inspection identifies a reportable occurrence as prescribed in subsection 3.2.6.1 below, a NOTAM authorised person is to contact the NOF to request the issue of a NOTAM. This request is to be made as soon as possible after it is observed and in accordance with subsection 3.1.3 of this manual.

The NOTAM authorised person has been instructed to provide as much detail as available. Should additional information become known, a revised NOTAM is to be submitted as soon as possible.

3.2.6.1 REPORTABLE OCCURRENCES TO THE NOTAM OFFICE (NOF)

A report to the NOF will be made on identification of the following:

- published runway information – any change (whether temporary or permanent), including changes to current information contained in permanent NOTAMs or in the AIP
- aerodrome works affecting the manoeuvring area or the obstacle limitation surfaces – includes time-limited works that require more than 10 minutes to restore normal safety standards
- aerodrome lighting / obstacle lighting – outage or unserviceability, unless the outage or unserviceability is fixed immediately, or does not meet the required outage limits
- temporary obstacles to aircraft operations, unless the temporary obstacle is removed immediately
- any significant increase in, or concentration of, wildlife hazards on or near the aerodrome

- which constitute a danger to aircraft, unless the wildlife causing the hazard is dispersed immediately
- any change to gradients within the take-off climb area that is due to a new or changed obstacle which results in a change to the gradient of more than 0.05% from the published gradient data for the runway, unless that new or changed obstacle can be removed without delay
- the emergence of new obstacles, unless the new obstacle is removed immediately
- a radio navigation aid or landing aid owned by Boulia Shire Council is unserviceable or has returned to service
- any other event which affects the safety of aircraft using the aerodrome, unless the event is ceased immediately.

3.2.7 PROMPT FOLLOW-UP ACTION TO CORRECT UNSAFE CONDITIONS

In the event the aerodrome serviceability inspection identifies an unsafe condition, the aerodrome reporting officer will:

- immediately report the unserviceability to ATC (if applicable)
- if urgent, advise the NOF via the phone to request the immediate issue of a NOTAM
- mark the unserviceable portion of the movement area so that it is not available by deploying the appropriate markers, markings, and lighting in accordance with the Part 139 MOS
- submit a request to issue a NOTAM (if applicable)
- if issued, verify the accuracy of the NOTAM information published by Airservices
- arrange for a technical inspection as soon as practicable
- arrange for repairs to the affected area ensuring that works requirements are adhered
- confirm the suitability of the repairs and the serviceability of the affected areas before returning to normal operations
- cancel the NOTAM (if applicable)
- advise ATC (if applicable).

3.2.8 TECHNICAL INSPECTION OF IDENTIFIED UNSAFE CONDITION

If any unsafe condition is identified during the serviceability inspection, a technical inspection of the area impacted by the defect or deficiency will be immediately carried out in accordance with section 12.09 of the Part 139 MOS.

When arranging the technical inspection, the Director of Works and Operations will ensure that the person engaged to conduct the inspection has the required technical qualifications and experience, or demonstrable relevant experience, as required by section 12.10 of the Part 139 MOS.

A copy of the person's qualifications and relevant experience will be included in the resulting technical inspection report or maintained as part of the aerodrome manual.

On receipt of the technical inspection report, the recommendations will be reviewed by Director of Works and Operations and agreed corrective actions will be entered into a corrective actions plan. Where a recommendation is not supported, the reasons the recommendation was not supported, will also be documented in the corrective actions plan. A timeframe for implementation will be recorded.

The corrective actions plan will be retained on file at the Boulia Shire Council Depot. The

corrective actions plan will be reviewed regularly and updated by the Director of Works and Operations.

The technical inspection report will be retained for a minimum period of three (3) years at the Boulia Shire Council Depot.

Within 30 days of receiving the technical inspection report, the Director of Works and Operations will send a copy of the report to CASA via e-mail at: aerodromes@casa.gov.au.

3.2.9 MAINTAINING INSPECTION RECORDS

Completed inspection records are:

Filed: Electronically

Stored securely at: The Boulia Shire Council Depot

The results of each aerodrome serviceability inspection are retained for a minimum period of two (2) years from the date the inspection was completed.

3.3 AERODROME LIGHTING

This section documents the procedures for:

- inspecting and maintaining aerodrome lighting, and obstacle lighting that is maintained by Boulia Shire Council
- carrying out routine maintenance and emergency maintenance
- monitoring the supply of secondary and stand-by power (if provided)
- responding to a partial or total power system failure
- taking follow-up action(s) to correct deficiencies
- maintaining records of inspections
- monitoring hazardous lights, lasers, and reflection or glare within the aerodrome boundary.

3.3.1 PERSONNEL WITH RESPONSIBILITIES

The following individuals or positions have responsibilities for each lighting-related activity:

(a) Carrying out lighting inspections

Individual / position: ARO

(b) Maintaining the records of inspections

Individual / position: ARO

(c) Taking follow-up action if unsafe condition identified during inspection

Individual / position: ARO

(d) Operating aerodrome lighting, including switching systems and back-up supply systems

Individual / position: ARO

(e) Performing maintenance on aerodrome lighting

Individual / position: ARO

(f) Monitoring hazardous lights, lasers, reflection or glare within the aerodrome boundary

Individual / position: ARO

3.3.2 AERODROME LIGHTING - INSPECTION AND MAINTENANCE

The reporting officer carries out a visual inspection of aerodrome lighting as part of the routine serviceability inspection process. The lights will be switched on so that their serviceability can be assessed.

The inspection, reporting the results of the inspection, and any follow-up actions that are required, will occur in accordance with the serviceability inspection process outlined in section 3.2 of this manual.

In addition to the serviceability inspection, inspection and maintenance activities for each lighting system will occur in accordance with the table below.

AERODROME LIGHTING SYSTEMS	INSPECTION SCHEDULE	ITEMS TO BE INSPECTED OR CHECKED	MAINTENANCE ACTIVITIES
PAL	4 times/week	Runway, Taxiway, Apron,	Visual check

3.3.3 OBSTACLE LIGHTING MAINTAINED BY AERODROME OPERATOR - INSPECTION AND MAINTENANCE

There is no obstacle lighting maintained by Boulia Airport; therefore, this subsection is NOT APPLICABLE.

3.3.4 PORTABLE RUNWAY LIGHTS - INSPECTION AND MAINTENANCE

No portable runway lights are available for use at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.3.5 MONITORING SECONDARY POWER SUPPLY

A secondary power supply is not available at Boulia Airport; therefore, this subsection is NOT APPLICABLE.

3.3.6 MONITORING STANDBY POWER SUPPLY

Standby power is available at Boulia Airport.

The standby power supply is manually activated.

The availability of standby power is notified in AIP ERSA.

As published in AIP ERSA, the expected activation time is 20 minutes.

The standby power will be manually activated by the ARO as soon as possible after the need

arises.

Manual activation of the standby power supply occurs in accordance with the following procedure:

- The generator is operated using a handle to switch between the on and off positions. The handle/switch is in the external transformer box for the PAL system located on the lighting control box.

The supply of standby power will be monitored by the ARO on a weekly basis. The Boulia Shire Council Plant Pre-start Checklist is completed for the checks and is kept by the ARO.

3.3.7 LIGHTING INSPECTIONS AND CHECKS

In addition to the inspections outlined in subsection 3.3.2, inspection and maintenance activities for each lighting system will occur in accordance with the table below:

AERODROME LIGHTING SYSTEMS	INSPECTION SCHEDULE	ITEMS TO BE INSPECTED OR CHECKED	MAINTENANCE ACTIVITIES
PAL	4 times/week	Runway, Taxiway, Apron, Wind sock	Visual check

Procedures for recording inspection and maintenance activities are included in subsection 3.3.8 of this manual.

Aerodrome lighting inspections carried out as part of the Aerodrome Technical Inspection will be conducted in accordance with section 3.9 of this manual.

Each lighting system and the list of specific elements to be inspected and checked is listed in Section 3.2.4.1 of this manual and the inspection is documented on the checklist available at the Boulia Shire Council Depot.

3.3.8 MAINTAINING LIGHTING INSPECTIONS RECORDS AND FOLLOW-UP ACTIONS

At the completion of each lighting inspection, the ARO records the following information on the Serviceability Inspection Logbook:

- the date and time the inspection was completed
- the person responsible for completing the inspection
- the results of the inspection
- a description of any action taken.

All identified faults that require further corrective action are to be entered into the logbook. Any works activities that are required to correct these faults are to be conducted in accordance with the works protocols set out in section 3.10 of this manual.

When the fault has been rectified, an entry will be made in the logbook confirming the corrective action is complete.

Faults that remain open are to be subject to regular monitoring.

3.3.9 SWITCHING LIGHTS ON AND OFF & INTENSITY SELECTION

The lighting system is operated by the ARO.

The Operating current is measured at 6.8 amps and operates at low intensity.

The procedures for switching lights on and off is as follows:

- The ARO activates the override switch located inside the airport terminal in the power box. This is recorded in the ARO logbook.

3.3.10 BACK-UP ARRANGEMENTS FOR PAL SYSTEM

The pilot-activated lighting (PAL) system has been designed so that, if it fails, it can be manually activated.

A bypass switch has been provided that allows manual activation of the lights. The bypass switch is located in the Boulia Airport Terminal in the airport control room within the power box. The airport terminal and airport control room is only accessible with electronic control keys controlled by the airport staff and the airport reporting officer. The CEO has emergency access only.



BOULIA SHIRE COUNCIL

18 Herbert Street
Boulia Qld 4829

Phone 07 4746 3188
Email: admin@boulia.qld.gov.au

20/2/2024

The Boulia Airport pilot-activated lighting (PAL) system has been designed so that, if it fails, it can be manually activated.

A bypass switch has been provided that allows manual activation of the lights. The bypass switch is located inside the airport terminal in the power box.

Boulia Shire Council Chief Executive Officer for the Boulia Airport has issued written authorisation for manual activation of the lights, if required, to **Ron Callope, Airport Reporting Officer** as the responsible person.

A copy of the authorisation has been retained on file and is available at Boulia Airport Terminal inside the power box, included in the airport manual and Boulia Shire Council electronic document management system.

Ron Callope, Airport Reporting Officer has been issued a key to readily access the manual activation switch at all times when required.



A handwritten signature in cursive script that reads 'Lynn Moore'.

Ms Lynn Moore
Chief Executive Officer
Boulia Shire Council

Boulia Airport has issued written authorisation for manual activation of the lights, if required, to the ARO. A copy of the authorisation has been retained on file and is available at the Boulia Shire Council depot.

The ARO has been issued a key to readily access the manual activation switch at all times when required.

3.3.11 ROUTINE AND EMERGENCY LIGHTING MAINTENANCE

Routine maintenance is carried out in accordance with the following procedures:

- Routine work is carried out by the ARO when an issue is raised during a serviceability inspection.
- Electrical work is carried out by the local electrician when an issue is raised during a serviceability inspection, with a Works Safety Officer present.

Emergency maintenance is carried out in accordance with the following procedures:

- Emergency maintenance work will be carried out by the ARO where suitable, or be completed by the electrician with a Works Safety Officer present

3.3.12 PARTIAL OR TOTAL POWER SYSTEM FAILURE

In the event of a partial or total system failure, the following procedures are to be followed:

- NOTAM to be issued
- Repair work to be organised by the Director of Works and Operations

3.3.13 MONITORING HAZARDOUS LIGHTS, LASERS, REFLECTION OR GLARE

The Director of Works and Operations is to notify CASA in writing immediately when they become aware of any installation, or a proposal to install, or use any installation, equipment or laser, outside the aerodrome boundary that may have lighting or lighting intensity greater than that specified in Figure 9.144(2) of the Part 139 MOS.

Before proceeding to install or use any installation, equipment, or lasers within the boundary of the aerodrome, the Director of Works will report the following proposals to CASA so that a hazard assessment can be undertaken:

- installation of any equipment or lighting which would reflect sunlight (including solar panels, lasers, mirrors, or reflective building cladding)
- lighting that will emit multiple colours from a single source
- lighting that will result in rapid change in light colour
- flashing lights
- lighting that may have a lighting intensity that is greater than that specified in Figure 9.144(2) of the Part 139 MOS.

Boulia Airport will not proceed with any proposal until CASA has assessed, and approved in writing, confirming the installations will not cause a hazard to aircraft operations.

3.3.14 COMMISSIONED LIGHTING SYSTEMS

Boulia Airport has commissioned the following lighting systems:

LIGHTING SYSTEM	DATE COMMISSIONED	COMMISSIONING DOCUMENTATION - INDEPENDENT COMPLIANCE STATEMENT / LABORATORY TEST REPORT	COMMISSIONING DOCUMENTATION - GROUND CHECK REPORT	COMMISSIONING DOCUMENTATION - FLIGHT CHECK REPORT
Runway, Taxiway and Apron Lights	July 2009	Report attached below.	25.10.2009 - attached below.	23.07,2009 - attached below.

AIRSIDE SERVICES PTY LTD

ABN 49117524937



ELECTRICAL GROUND COMMISSIONING REPORT
RWY 14-32

DATE	25/10/2009
AERODROME	BOULIA
CATEGORY	LOW INTENSITY, NON PRECISION INSTRUMENT
OWNER	BOULIA SHIRE COUNCIL
CONTACT	WILLIE PARSONS
PHONE	0427773671
INSPECTED BY	ANDREW COYER
SIGNATURE	

Serial Number	TEST EQUIPMENT
07091789	INSULATION RESISTANCE TESTER
9308970	MULTI METER

COMMENT

*Airside Services Pty Ltd
9/65 Landsborough Avenue
Scarborough QLD 4020*

*Ph: 07 32034266
Mb: 04 27773671*

AIRSIDE SERVICES PTY LTD

ABN 49117524937

ANNUAL TECHNICAL INSPECTION ELECTRICAL

TASK		RESULT	REMARKS
Inspect light fitting EDGE light	Correct lens colour fitted	OK	
	Correct wattage lamp fitted	OK	
	Cables, terminations serviceable	OK	
	Light gaskets serviceable	OK	
	Light fitting level	OK	
	Light fitting in alignment	OK	
Inspect light fitting INSET light	Correct lens colour fitted	OK	
	Correct wattage lamp fitted	OK	
	Cables, terminations serviceable	OK	
	Light gaskets serviceable	OK	
	Light fitting level	OK	
	Light fitting in alignment	OK	
IWI	Light fitting connections/ fittings serviceable	OK	
	Correct lamp wattage fitted	OK	
Aerodrome Lighting Control Cubicle	Cubicle serviceable	OK	
	Wiring system serviceable	OK	
	Fuses/ Circuit breakers serviceable	OK	
	Equipment terminations tight	OK	
	Earthing system serviceable	OK	
	MIT serviceable	OK	
	Confirm lighting system operating correctly	OK	
	Confirm PAL operating correctly	OK	
Obstacle Lighting	Confirm location/ operation of aerodrome obstacle lights	OK	
	Confirm location/ operation of apron flood lighting	OK	
Runway Circuit Voltage		909 volts	
Runway Circuit Current		6.4 amps	
Runway Circuit Insulation Resistance		>1 M Ohms	
IWI Circuit Insulation Resistance		>1 M Ohms	
Apron Flood Circuit Insulation Resistance		>1 M Ohms	

*Airside Services Pty Ltd
9/65 Landsborough Avenue
Scarborough QLD 4020*

*Ph: 07 32034266
Mb: 04 27773671*

Appendix VI

FLIGHT CHECK REPORT - PILOT ACTIVATED LIGHTS

Aerodrome	Boulia	Weather	FINE
Runway/s	14132	Visibility	> 10 KM
Aircraft	VH-MHU	Cloud	SKC
Date	23RD JULY 2008	Time	0900 LOCAL / 2300 UTC
Crew	SERIF A. COYER		

The following aerodrome lighting systems are controlled by the PAL:-

ITEM CHECKED	FINDINGS	REMARKS
	satisfactory / unsatisfactory	
Checks on the Ground		
Manual switch	SATISFACTORY	
Activate from Apron	SATISFACTORY	
Activate from Thresholds	SATISFACTORY	
Vis. of turn-off lights	SATISFACTORY	
Period lights are ON	30 minutes	
Re-activation during last ten-minute warning	SATISFACTORY	
Automatic intensity change	N/A	
Control Tower interface	N/A	
Checks in the Air		
Activate from Cct Area	SATISFACTORY	
Activate from 15 NM	SATISFACTORY	LONGREACH TRACK INBOUND
Vis. of turn-off lights	SATISFACTORY	
Intensity:-		
Correct control of Various lighting	N/A	SINGLE STAGE
Intensity changes	N/A	
Compatibility with Runway Lights	N/A	

I certify that I have flight checked this PAL system, and the system meets the relevant operational requirements.

Signature M.E.A.W.L. Date 23/07/08.
 Name (print) M.E.A. WARREN
 Letter of Competency No. 24

September 2003

Appendix III

FLIGHT CHECK REPORT - AERODROME LIGHTING SYSTEMS

Aerodrome	BOLILIA	Weather	FINE
Runway	14	Visibility	> 10KM
Aircraft	VH-UGU	Cloud	SKC
Date	02 JULY 2009	Time	1730 LCL / 0730 UTC
Crew	SELF / A. COVER		

Not all systems listed on this form will necessarily require checking at a particular aerodrome.

LIGHTING SYSTEM (where provided)	FINDINGS satisfactory / unsatisfactory	REMARKS
Runway Lights		
- Edge		
Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
- Threshold Including RTH and Wing Bars, where provided		
Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
- Runway End		
Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
Visual circling	SATISFACTORY	
Intensity:-		
No of Stages	SINGLE STAGE	
Intensity changes	N/A	L. I. R. L.
Line of Sight	SATISFACTORY	
Taxiway Lights - Edge		
Adequate guidance	SATISFACTORY	
Colour	SATISFACTORY	
Taxiway Lights - C/L		
Adequate guidance	N/A	
Colour	N/A	
Taxiway - Turn Node		
Adequate guidance	SATISFACTORY	
Colour	SATISFACTORY	

September 2003

LIGHTING SYSTEM (where provided)	FINDINGS satisfactory / unsatisfactory	REMARKS
Runway Guard Lights, Intermediate Holding Position Lights, Step Bars		
Clearly visible	SATISFACTORY	
Location & Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
Movement Area Guidance Signs		
Visible	N/A	
Legible	N/A	
Colour	N/A	
Illuminated Wind Direction Indicator		
Conspicuous - Approach	NOT CHECKED	PREVIOUSLY INSTALLED
Conspicuous - Cct area	NOT CHECKED	
Conspicuous - Apron	NOT CHECKED	
Conspicuous - Thresholds	NOT CHECKED	
Truly representative	NOT CHECKED	
No glare	NOT CHECKED	
Apron Floodlights		
Adequate Illumination	NOT CHECKED	PREVIOUSLY INSTALLED
No glare	NOT CHECKED	
Aerodrome Environment		
Obstacle lights	N/A	
Extraneous light	SATISFACTORY	
Aerodrome Beacon:-	Present / Not present	
Visual characteristic	N/A	
Approx. visual range	N/A	
Approach Lights CAT I or CAT II/III (circle the appropriate one)		
Pattern	N/A	
Colour	N/A	
Intensity:-		
No of Stages	N/A	
Intensity changes	N/A	
Compatibility with Runway lights	N/A	
Runway Centreline Lights		
Pattern	N/A	
Colour	N/A	

September 2003

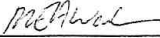
AC 139-04(0): Commissioning of aerodrome lighting systems

LIGHTING SYSTEM (where provided)	FINDINGS satisfactory / unsatisfactory	REMARKS
Intensity:-		
No of Stages	N/A	
Intensity changes	N/A	
Compatibility with other light systems	N/A	
Runway Touchdown Zone Lights		
Pattern	N/A	
Intensity:-		
No of Stages	N/A	
Intensity changes	N/A	
Compatibility with other light systems	N/A	

Remarks:-

(Add additional pages if necessary)

I certify that I have flight checked the aerodrome lighting system/s, and the system/s meets the relevant operational requirements.

Signature  Date 02/07/09
 Name (print) M.E.A. WARDEN
 Letter of Competency No. 24

September 2003

Appendix III

FLIGHT CHECK REPORT - AERODROME LIGHTING SYSTEMS

Aerodrome	BouLIA	Weather	FINE
Runway	32	Visibility	> 10 KM
Aircraft	VH-UQU	Cloud	SKC
Date	02 JULY 2009	Time	1730 LCC / 0730 UTC
Crew	SRE / A. COVER		

Not all systems listed on this form will necessarily require checking at a particular aerodrome.

LIGHTING SYSTEM (where provided)	FINDINGS satisfactory / unsatisfactory	REMARKS
Runway Lights		
- Edge		
Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
- Threshold Including RTIL and Wing Bars, where provided		
Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
- Runway End		
Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
Visual circling		
Intensity:-	SATISFACTORY	
No of Stages	SINGLE STAGE	
Intensity changes	N/A	
Line of Sight	SATISFACTORY	L-I.R.L
Taxiway Lights - Edge		
Adequate guidance	SATISFACTORY	
Colour	SATISFACTORY	
Taxiway Lights - C/L		
Adequate guidance	N/A	
Colour	N/A	
Taxiway - Turn Node		
Adequate guidance	SATISFACTORY	
Colour	SATISFACTORY	

September 2003

LIGHTING SYSTEM (where provided)	FINDINGS satisfactory / unsatisfactory	REMARKS
Runway Guard Lights, Intermediate Holding Position Lights, -Stop Bars		
Clearly visible	SATISFACTORY	
Location & Pattern	SATISFACTORY	
Colour	SATISFACTORY	
Intensity	SATISFACTORY	
Movement Area Guidance Signs		
Visible	N/A	
Legible	N/A	
Colour	N/A	
Illuminated Wind Direction Indicator		
Conspicuous - Approach	NOT CHECKED	PREVIOUSLY INSTALLED
Conspicuous - Cct area	NOT CHECKED	
Conspicuous - Apron	NOT CHECKED	
Conspicuous - Thresholds	NOT CHECKED	
Truly representative	NOT CHECKED	
No glare	NOT CHECKED	
Apron Floodlights		
Adequate Illumination	NOT CHECKED	PREVIOUSLY INSTALLED
No glare	NOT CHECKED	
Aerodrome Environment		
Obstacle lights	N/A	
Extraneous light	SATISFACTORY	
Aerodrome Beacon:-	Present/ Not present	
Visual characteristic	N/A	
Approx. visual range	N/A	
Approach Lights CAT I or CAT II/III (circle the appropriate one)		
Pattern	N/A	
Colour	N/A	
Intensity:-		
No of Stages	N/A	
Intensity changes	N/A	
Compatibility with Runway lights	N/A	
Runway Centreline Lights		
Pattern	N/A	
Colour	N/A	

September 2003

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LIGHTING SYSTEM (where provided)	FINDINGS satisfactory / unsatisfactory	REMARKS
Intensity:-		
No of Stages	N/A	
Intensity changes	N/A	
Compatibility with other light systems	N/A	
Runway Touchdown Zone Lights		
Pattern	N/A	
Intensity:-		
No of Stages	N/A	
Intensity changes	N/A	
Compatibility with other light systems	N/A	

Remarks:-

(Add additional pages if necessary)

I certify that I have flight checked the aerodrome lighting system/s, and the system/s meets the relevant operational requirements.

Signature MEAWL Date 02/07/09
 Name (print) M E. A. WARRA
 Letter of Competency No. 24

September 2003



MODEL F2-1

Low and Medium Intensity Elevated Lights

Applications: Runway Edge (White), Taxiway (Blue), Holding Point (Yellow),
Runway End (Red)



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Thorn Airfield Lighting Pty Ltd

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Australia
Phone: +61 (0) 3 9720 3233
Fax: +61 (0) 3 9720 8233

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Airfield Lighting

TYPE APPROVAL FOR F2-1 FITTINGS OFFERED



Central Office

Aviation House
188 Queen Street
Melbourne Vic.
Box 1839 Q G.P.O.
Melbourne 3001
Telephone (03) 62 0131
Telex 30499 and 30276

In reply quote: M129/15/58

DNT Industries Pty Ltd
36-40 Munster Terrace
NORTH MELBOURNE, VIC. 3051

17 AUG 1968

Attention: Mr S. Cleveland

Dear Sir,

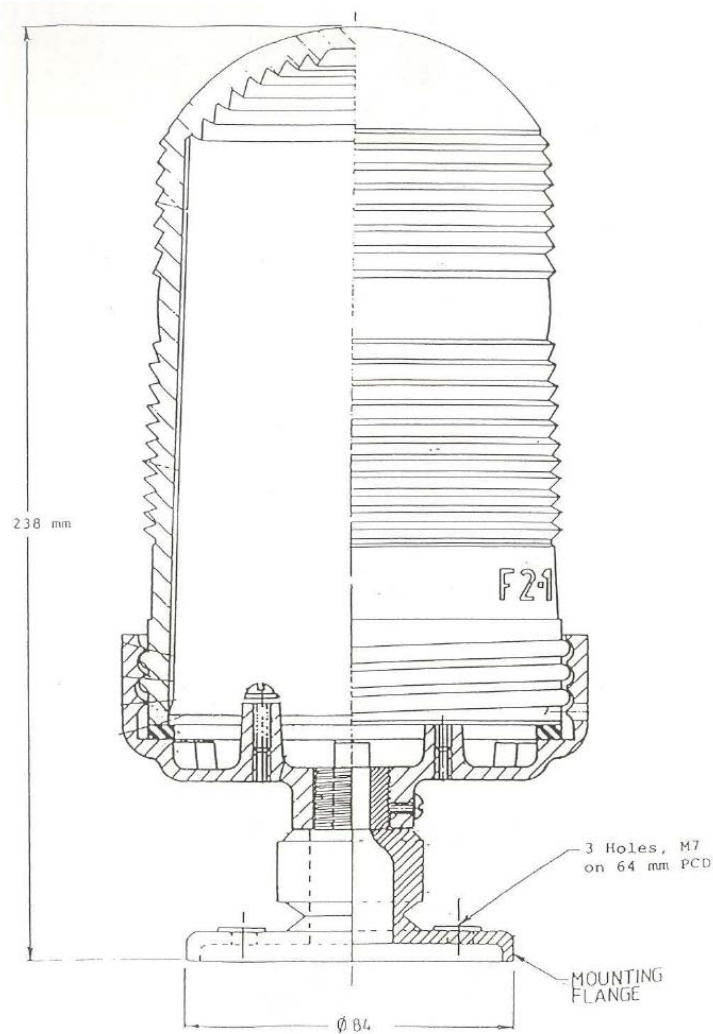
Tests have been performed on a number of Europhane light fittings supplied to us for checking of compliance with Australian Department of Aviation specifications.

To date the following items are approved for supply to the Department:

1. F2-1 . Low intensity elevated light
 - must be complete with P-28 or BA-20 lampholder (as requested) and modified frangible mounting (type V7/1268 - subject to Departmental approval)
 - D of A ident No. of light with P-28 base is V7/1261.
2. F7-4 . High intensity inset light
 - suitable for use as runway centreline, runway end, runway edge and touch-down zone lighting
 - the use of these fittings in groups could also be considered for threshold and approach lighting applications
 - D of A ident No. of light top is V7/1257 and light base is V7/1258.
3. F9-41 . High intensity inset light for threshold lighting
 - D of A ident No. of light tops (3 No required) is V7/1257 and light base is V7/1260.
4. F9-42 . High intensity inset light for approach lighting
 - D of A ident No. of light tops (3 No. required) is V7/1257 and light base is V7/1259.
5. F6-4 . Low intensity inset light
 - for straight taxiway sections (Category II application)
 - for low intensity thresholds



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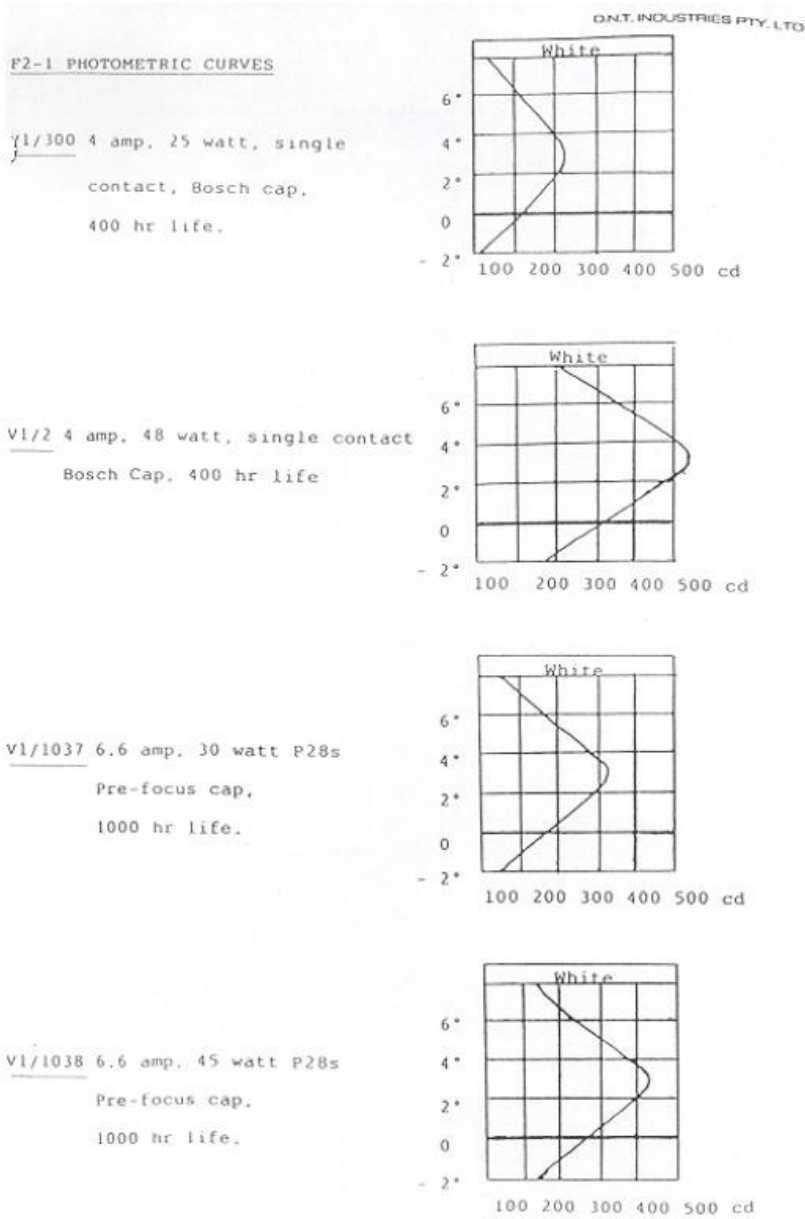
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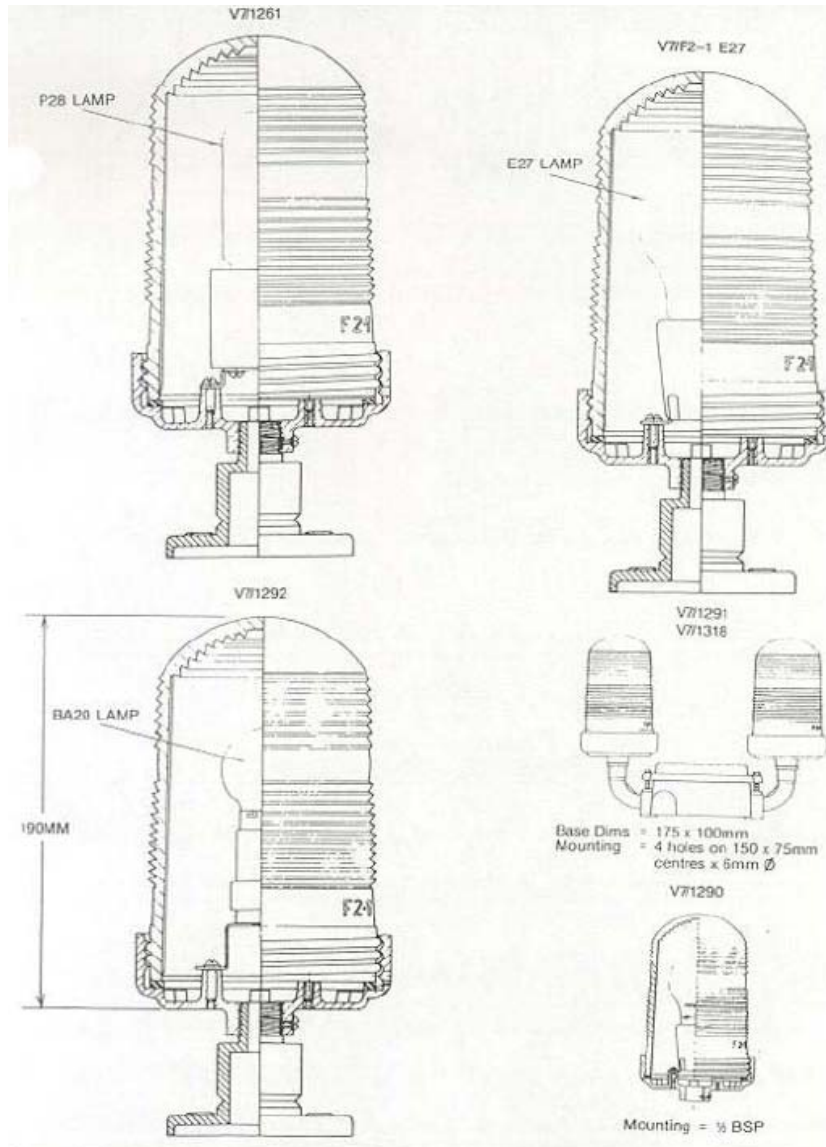
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DESCRIPTION:	F2-1 LOW INTENSITY ELEVATED LIGHT
APPLICATION:	RUNWAY, TAXIWAY, APRON AND HELIPORT EDGE LIGHTING, OBSTACLE LIGHTING
NOTES:	CAN REPLACE V7/913, V7/737, V7/1222 OR V7/92, V7/106, V7/1125, V7/1127 AS LOW INTENSITY OBSTACLE LIGHT WHEN USED WITH E27 LAMPHOLDER.

COMPLETE LIGHT FITTINGS				CODE NO.
F2-1	P28,	CLEAR	RUNWAY EDGE LIGHT	V7/1261
F2-1	P28,	BLUE	TAXIWAY EDGE LIGHT	V7/1296
F2-1	P28,	GREEN	RUNWAY THRESHOLD LIGHT	V7/1297
F2-1	P28,	RED	STOPWAY LIGHT	V7/1298
F2-1	P28,	YELLOW	HOLDING POINT LIGHT	V7/1299
F2-1	P28,	RED/GREEN	RUNWAY THRESHOLD LIGHT	V7/1347
F2-1	BA20,	CLEAR	RUNWAY EDGE LIGHT	V7/1292
F2-1	BA20,	BLUE	TAXIWAY EDGE LIGHT	V7/1292B
F2-1	BA20,	GREEN	RUNWAY THRESHOLD LIGHT	V7/1292G
F2-1	BA20,	RED	STOPWAY LIGHT	V7/1292R
F2-1	BA20,	YELLOW	HOLDING POINT LIGHT	V7/1292Y
F2-1	BA20,	RED/GREEN	RUNWAY THRESHOLD LIGHT	V7/1292RG
F2-1	E27	CLEAR	HELIPORT EDGE LIGHT	V7/F2-1E27CLR
F2-1	E27	BLUE	HELIPORT EDGE LIGHT	V7/F2-1E27BL
F2-1	E27	GREEN	HELIPORT LEAD IN LIGHT	V7/F2-1E27G
F2-1	E27	RED	HELIPORT STOPWAY LIGHT	V7/F2-1E27R
F2-1	E27	YELLOW	HELIPORT EDGE LIGHT	V7/F2-1E27YL
F2-1	E27	RED/GREEN	HELIPORT THRESHOLD LIGHT	V7/F2-1E27RG
F2-1	SINGLE BODY RED		OBSTACLE LIGHT	V7/1290
F22	DOUBLE BODY RED		OBSTACLE LIGHT	V7/1291
F22	DOUBLE BODY CLEAR		OBSTACLE LIGHT (T.M.T.O.L.)	V7/1318

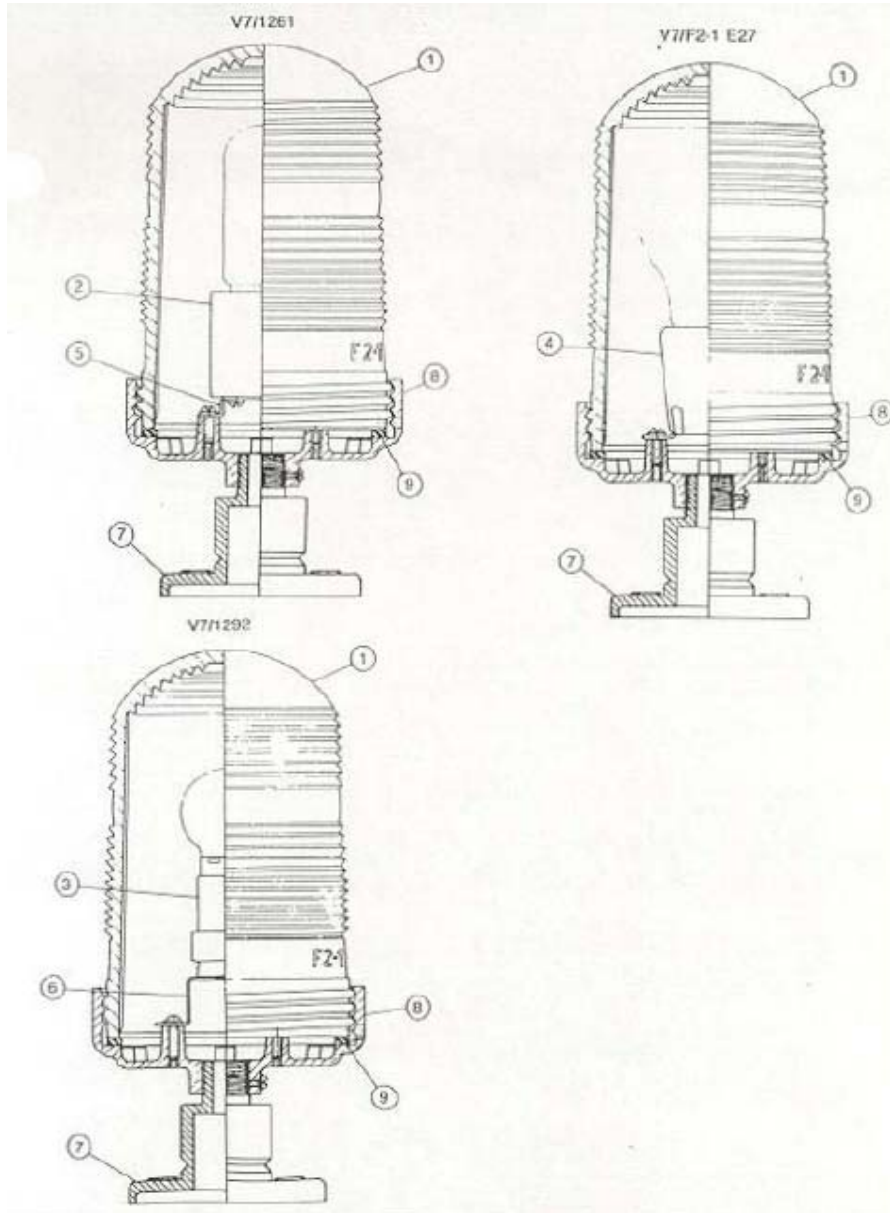
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SPARES & ACCESSORIES

ITEM	DESCRIPTION	CODE NO.
	F2-1 LENS, CLEAR	V7/1262
	F2-1 LENS, BLUE	V7/1265
	F2-1 LENS, GREEN	V7/1263
1	F2-1 LENS, RED	V7/1264
	F2-1 LENS, YELLOW	V7/1266
	F2-1 LENS, RED/GREEN	V7/1284
	F2-1 LENS, RED/WHITE	V7/1284RW
2	LAMPHOLDER, P28	V15/1063
3	LAMPHOLDER, BA20	V15/1214
4	LAMPHOLDER, E27 C/W BRACKET	V15/1200
5	LAMPHOLDER BRACKET, P28	V15/1210
6	LAMPHOLDER BRACKET, BA20	V15/1212
7	FRANGIBLE COUPLING	V7/1268
8	POLYAMIDE BODY	V7/1307
NOT SHOWN	COUPLING LEVELLING GASKET	V7/1030
9	LENS SEALING GASKET	V7/1267
NOT SHOWN	ADJUSTING LEVEL	V7/742
NOT SHOWN	F2-1 180 DEGREE MASK	MASKF2-1
NOT SHOWN	TWO PIN PLUG FOR P28 220MM LONG	V7/1410P28
NOT SHOWN	TWO PIN PLUG FOR BA20 220MM LONG	V7/1410BA20
NOT SHOWN	TWO PIN SOCKET, 1.2M LONG	V7/682
NOT SHOWN	GROUND PLATE	V7/1213
NOT SHOWN	MOUNTING STAKE	V7/STAKE
NOT SHOWN	GROUND SUPPRESSOR PLATE	V7/SUP

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3.3.15 COMMISSIONING A NEW OR UPGRADING / REPLACING AN EXISTING LIGHTING SYSTEM

Boulia Airport will not commission a new aerodrome lighting system, or permit the use of a lighting system that has been replaced or upgraded, until:

- compliance statements from the manufacturer and the supplier, or, a test report from an accredited laboratory (as per subparagraph 9.17(1) of the Part 139 MOS), confirm that light fitting types, models and versions comply with the standard for photometric and other relevant characteristic specified in the Part 139 MOS
- a ground check has been completed by an appropriately qualified person and written evidence has been provided that confirms the lighting system meets the requirements of the Part 139 MOS
- if applicable, a flight check has been completed by a CASA approved person and written evidence has been provided that confirms the lighting system meets the requirements of the Part 139 MOS.

Once full compliance with the Part 139 MOS has been confirmed, a NOTAM authorised person is to request the issue of a NOTAM advising that the lighting system is available. The AIP responsible person is to advise Airservices of the particulars of the lighting system for publication in the AIP.

The Director of Works and Operations will provide a copy of the ground check determination, and the flight check report (if applicable), to CASA via e-mail to: aerodromes@casa.gov.au

All compliance statements / laboratory test reports, ground check, and flight check reports will be retained by the Director of Works and Operations and stored securely at the Boulia Shire Council Depot.

Subsection 3.3.14 of this manual is to be amended to include the particulars of the newly commissioned lighting system(s).

All reports and commissioning records are retained for as long as the lighting system remains in service.

3.4 UNAUTHORISED ENTRY TO AERODROME

This section details how unauthorised persons, vehicles, equipment, mobile plant, animals or other things that may endanger the safety of aircraft, are prevented from entering onto the movement area, including procedures for:

- controlling airside access
- monitoring airside access control points and barriers.

3.4.1 CONTROLLING AIRSIDE ACCESS

As Boulia Airport is a security-controlled aerodrome, persons in security restricted areas are required to display a valid Aviation Security Identification Card (ASIC) or a Visitor Identification Card (VIC) and be escorted by an ASIC holder. All persons not displaying a valid ASIC / VIC are to be challenged and escorted from the secure area.

To prevent unauthorised access by persons, vehicles, equipment, mobile plant, animals and other things that may endanger aircraft safety, a fence has been installed around the perimeter of the airside boundary:

- Type of fence: Steel Chain Mesh with Barbed Wire
- Height of fence: 2m.

Only authorised persons are allowed unescorted access to the movement area and other operational areas of the aerodrome. For those persons not authorised, escorted access is provided as required.

Unmanned airside access gates are:

- Located at: Main entry, North East side and South West side
- Always locked by: Electronic gate, pin lock and pad locks

Restricted access signs are located at regular intervals along the boundary fence, at each airside access gate, and at each building that provides direct access airside. The signs are located such that at least one sign is visible to a person approaching the secure perimeter.

Only authorised vehicles driven by an airside driver are permitted airside, refer to section 3.5 of this manual.

Animals are only permitted airside if caged or restrained.

3.4.2 MONITORING AIRSIDE ACCESS POINTS AND BARRIERS

The reporting officer carries out a visual inspection of the perimeter fence and airside access gates as a part of the aerodrome serviceability inspection process. The inspection, reporting the results of the inspection, and any follow-up action(s) that is required, is to occur in accordance with the process outlined in section 3.2 of this manual.

In the event there is evidence of unauthorised entry by persons or wildlife, or the fence or access gates are compromised, the fence or access gates are to be re-secured where possible, and an airside inspection undertaken immediately to ensure there are no unauthorised persons, or wildlife, on the aerodrome.

Damaged fences or gates will be entered in the logbook, in accordance with the process outlined in subsection 3.2.6 of this manual, and are to be repaired as soon as possible.

3.5 AIRSIDE VEHICLE CONTROL

3.5.1 PERMIT SYSTEM FOR AIRSIDE VEHICLES

A permit system for airside vehicles is not required as the aerodrome does not, in a financial year, have more than 350,000 air transport passenger movements, or more than 100,000 aircraft movements; therefore, this subsection is NOT APPLICABLE.

3.5.2 VEHICLES AND GROUND EQUIPMENT OPERATED AIRSIDE

Boulia Airport ensures that all vehicles and ground equipment operated airside are maintained in a sound mechanical state to prevent a breakdown or unsafe operation, and any spillage of fuel, lubricant or hydraulic fluid.

Boulia Airport requires:

- vehicles operating airside to hold state registration confirming they are maintained in a roadworthy condition
- in the event an airside vehicle does not, or cannot obtain state registration, the owner of the vehicle to provide a statement of vehicle condition from a qualified mechanic prior to accessing the airside for the first time. A vehicle condition statement is valid for a maximum period of 12 months. If the owner still intends for the vehicle to be operated airside, a new vehicle condition statement is required to be presented prior to the end of that 12-month period
- evidence that vehicles comply with lighting and radio requirements (as applicable)
- a certificate of insurance with valid cover for the use of the vehicle within the airside area of the aerodrome.

To ensure the requirements of this manual are achieved, Boulia Airport can inspect or can require an inspection to be carried out on any vehicle or ground equipment that is operating airside.

In the event that an inspection is not carried out, or the inspection identifies an unsafe condition that may create a hazard to aviation safety, the vehicle is to be denied access. If the vehicle is already airside, the operator of the vehicle is to be instructed to remove the vehicle from the airside.

A vehicle that is denied access or has been removed from the airside at the direction of Boulia Airport is not to be authorised to re-enter the airside until an inspection has been completed and a satisfactory vehicle condition statement has been received.

A vehicle access register is kept with the ARO at the Boulia Shire Council Depot.

3.5.3 AIRSIDE VEHICLE LIGHTING REQUIREMENTS

As the aerodrome has scheduled air transport operations or is an international aerodrome, all vehicles, during daylight hours and at night, are to display a flashing or rotating light on the top of the vehicle that complies with the specifications listed in subparagraph 14.05(8) of the Part 139 MOS when moving or operating on:

- a runway / runway strip
- a taxiway / taxiway strip.

All other vehicles operating airside during periods of low visibility, or when on the aprons at night, are to display a light on the top of the vehicle. If a light cannot be suitably placed on the top of the vehicle, additional lights are to be displayed so that the vehicle is visible in all directions.

During daylight hours only, a vehicle directly connected to an aircraft is permitted to display the standard manufacturer-fitted vehicle hazard warning lights, rather than a light on the top of the vehicle.

3.5.4 VEHICLES ON MANOEUVRING AREA

Except for a vehicle that is under escort, all vehicles operating on the runway, runway strip, taxiways and taxiway strips have a VHF receiver capable of monitoring the CTAF. All drivers are to maintain a listening watch through the VHF receiver. Only those persons that hold an Aeronautical Radio Operator Certificate (AROC) are permitted to transmit.

3.5.5 AIRSIDE DRIVERS - TRAINING

As Boulia Airport has scheduled air transport operations with 350,000 or fewer air transport passenger movements / 100,000 or fewer aircraft movements, drivers not under escort and who are operating a vehicle airside, are trained to know and understand the following:

- the terminology used to describe the movement area
- the purpose and location of all airside areas
- hazardous or prohibited areas on the airside
- the significance of aerodrome visual aids and signs.

Training details:

- Training method: ARO Training
- Responsible for records: Director of Works and Operations
- Stored securely at: The Boulia Shire Council Depot

3.5.6 VEHICLES IN PROXIMITY TO AIRCRAFT

Airside drivers must give way to aircraft.

Airside vehicles are to remain clear of the runway, runway strip, taxiway(s), or taxiway strip(s) when they are in use or available to be used by aircraft unless there is a safety-related or operational requirement for vehicles to operate in these areas.

Airside vehicles are not to be driven:

- in a manner likely to endanger the safety of any person or create a hazard to aircraft operations
- under an aircraft, or within 3 m of lateral clearance, or within 1 m of overhead clearance, of any part of the aircraft, except when required for servicing the aircraft
- within 15 m of refuelling aircraft
- when drivers are affected by alcohol or drugs as per CASR Part 99.

All vehicles operated within 15 m of an aircraft's fuel tank filling points and vent outlets during fuelling operations comply with Appendix 1 of Civil Aviation Order 20.9.

3.5.7 MOVEMENT AREA SPEED LIMITS

Speed limits are explained and provided to all drivers during their driver training and / or induction.

Drivers must adhere to the following speed limits:

LOCATION	SPEED LIMIT (km / h)
Perimeter roads	60km/h
Apron	15km/h
Taxiways	25km/h
Runways	25km/h

3.5.8 ESCORT SERVICE PROCEDURES

Third parties are not permitted to provide vehicle escorts airside; therefore, this subsection is NOT APPLICABLE.

3.5.9 MONITORING AND ENFORCING TRAFFIC RULES

The aerodrome reporting officer is responsible for periodically monitoring the operation of vehicles airside in accordance with the following:

- Vehicles are not permitted to be airside without being supervised by the ARO.

Appropriate action is to be taken against drivers who are clearly in breach of displayed signage, markings, or speed limits. This may include withdrawing their authority to operate a vehicle airside.

3.6 AIRCRAFT PARKING CONTROL

3.6.1 AIRCRAFT PARKING CONTROL PERSONNEL

Boulia Airport does not have scheduled international air transport operations, and there is no hazard resulting from apron congestion. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.2 LIAISON WITH ATC - APRON MANAGEMENT

The aerodrome does not have scheduled international transport operations and apron congestion does not create a hazard to aircraft operations. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.3 ALLOCATING AIRCRAFT PARKING POSITIONS

The aerodrome does not have scheduled international transport operations and apron congestion does not create a hazard to aircraft operations. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.4 ENGINE START AND AIRCRAFT PUSH-BACK CLEARANCES

The aerodrome does not have scheduled international transport operations and apron congestion does not create a hazard to aircraft operations. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.5 AERODROME VISUAL DOCKING GUIDANCE SYSTEMS

The aerodrome does not have scheduled international transport operations and apron congestion does not create a hazard to aircraft operations. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.6 MARSHALLING SERVICE

The aerodrome does not have scheduled international transport operations and apron congestion does not create a hazard to aircraft operations. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.7 LEADER (VAN) SERVICE OR FOLLOW-ME SERVICE

The aerodrome does not have scheduled international transport operations and apron congestion does not create a hazard to aircraft operations. Aircraft parking control procedures have not been established at the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.6.8 APRON SAFETY MANAGEMENT PROCEDURES

The reporting officer(s) is responsible for periodically monitoring activities occurring on the

apron to check that:

- no person, vehicle, or equipment is within the potential jet blast area behind the aircraft
- aprons are free from loose stones and other material that may cause FOD
- all equipment is appropriately stored in marked equipment storage areas
- vehicles do not pass behind aircraft that are displaying anti-collision beacons
- tug operators are adhering to the line marking guidance provided
- wheel chocks are appropriately positioned on parked aircraft.

As trends may identify changes to apron safety management procedures, reported incidents and hazards are also reviewed by:

- Position / committee: Director of Works and Operations.

3.6.9 ALTERNATIVE SEPARATION DISTANCES AND APRON MARKINGS

3.6.9.1 REDUCED SEPARATION DISTANCES - VDGS

The aerodrome does not have VDGS; therefore, reduced separation distances are not permitted.

3.6.9.2 AIRCRAFT TYPE DESIGNATOR MARKINGS

All aircraft type designations have been marked in accordance with the list of aircraft type designators published in ICAO Doc 8643, Aircraft Type Designators.

3.6.9.3 ALIGNMENT LINES

An alignment line beyond the stop line has been marked at all aircraft parking positions where a VDGS is not provided.

3.6.9.4 PUSH-BACK OPERATOR GUIDANCE MARKINGS

All push-back vehicle operator guidance markings at the aerodrome are based only on the nose wheel of the aircraft.

3.6.9.5 PASSENGER PATH MARKINGS

All passenger path markings are marked as a series of white transverse lines, 0.5 m wide, at least 2 m long and 0.5 m apart, in accordance with subparagraph 8.76(2)(a) of the Part 139 MOS.

3.6.9.6 MISCELLANEOUS AREA LINE MARKINGS

There are no miscellaneous area line markings displayed on the apron(s).

3.7 AERODROME OBSTACLE CONTROL

3.7.1 OBSTACLE CONTROL PERSONNEL

The following person(s) have responsibilities for obstacle control:

INDIVIDUAL OR POSITION	RESPONSIBILITIES
ARO	monitoring surfaces related to the OLS and terminal instrument flight procedures (PAN-OPS)
Director of Works and Operations	notifying CASA or the procedure designer when a proposed or actual infringement of the prescribed airspace is identified
Director of Works and Operations	implementing obstacle control within the aerodrome boundary
ARO	liaison and facilitation of obstacle control outside the aerodrome boundary

3.7.2 MONITORING TAKE-OFF, APPROACH AND TRANSITIONAL SURFACES

Boulia Airport has established the obstacle limitation surfaces (OLS) for each runway that meet the physical dimensions for approach and take-off runways as set out in Chapter 7 of the Part 139 MOS.

The particulars of each surface are shown on an OLS plan for the aerodrome which is available at the Boulia Shire Council Depot.

The aerodrome reporting officer will visually scan the OLS as part of the aerodrome serviceability inspection in section 3.2 of this manual to identify the emergence of any new or potential obstacles.

A survey that assesses the take-off, approach, and transitional surfaces, is completed as part of the Aerodrome Technical Inspection conducted in accordance with section 3.9 in this manual.

This survey is used to verify the accuracy of published information. On receipt of the survey, the results are compared against the aerodrome's information published in the AIP to ensure that there are no new obstacles, or that the height of existing obstacles has not changed.

3.7.3 PROPOSED OR ACTUAL INFRINGEMENTS - OLS

3.7.3.1 PROPOSED OLS INFRINGEMENTS

If a proposed object or structure is identified as likely to be an obstacle, details of the proposal are to be sent to CASA in writing by the Director of Works and Operations.

On receipt of CASA's written assessment, the relevant planning authority is to be advised of the result of the assessment.

Boulia Airport will follow up with the planning authority to ensure that those obstacles considered an unacceptable risk to aviation safety are not approved, or that those obstacles that are considered acceptable but subject to additional mitigations are appropriately marked and / or lit.

3.7.3.2 ACTUAL OLS INFRINGEMENTS

Boulia Airport will not make a runway available for night use until CASA has determined that any obstacle(s) will not adversely affect the safety of night operations.

For any identified obstacles that have been erected without prior notification and which have not been assessed, the aerodrome reporting officer is to:

- advise ATC immediately (if applicable)
- consider limiting aircraft approach and take-off to the runway
- ensure an immediate request is made to issue a NOTAM
- take immediate steps to have the obstacle removed
- ascertain the height of the obstacle and consider displacing the runway approach threshold. If the threshold is displaced, the published declared distances will be amended, and the new threshold location appropriately marked / lit
- report the infringement to CASA in writing.

The NOTAM authorised person includes the following information in the NOTAM request:

- the nature of the obstacle
- the distance and magnetic bearing of the obstacle from:
 - if the obstacle is within the take-off area – the start of the take-off end of the runway, or
 - the ARP.
- the height of the obstacle in relation to the aerodrome elevation
- if it is a temporary obstacle – the time during which it is a temporary obstacle.

The request to issue the NOTAM is to be made in accordance with the procedures set out in section 3.1 of this manual.

Once the obstacle has been removed, the aerodrome reporting officer is to:

- advise ATC (if applicable)
- re-open, or re-instate the full runway length (if required)
- ensure a request to cancel the NOTAM is made (if issued).

3.7.4 HEIGHT OF INFRINGEMENTS - OLS

There are no buildings, structures, plumes or other developments that infringe the aerodrome OLS; therefore, this subsection is NOT APPLICABLE.

3.7.4.1 HAZARDOUS OBSTACLES

CASA has not assessed any obstacles as being hazardous; therefore, this subsection is NOT APPLICABLE.

3.7.5 MONITORING VISUAL SEGMENT SURFACES AND CRITICAL OBSTACLES

There are no published terminal instrument flight procedures for the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.7.6 PROPOSED OR ACTUAL INFRINGEMENTS - PANS-OPS

There are no published terminal instrument flight procedures for the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.7.7 HEIGHT OF INFRINGEMENTS - PANS-OPS

The aerodrome does not have published terminal instrument flight procedures; therefore, this subsection is NOT APPLICABLE.

3.7.8 OBSTACLE CONTROL WITHIN AERODROME BOUNDARY

Boulia Airport does not permit objects or structures, other than approved visual and navigational aids, to be erected within the obstacle restriction area of the aerodrome without the written approval of CASA.

All proposed fixed objects or structures at the aerodrome, whether temporary or permanent, that sit on or above the movement area, or those that extend above the defined height limits, including the OLS, have been and / or will be reported to CASA in writing.

On receipt of CASA's assessment, Boulia Airport adopts controls appropriate to the recommendations provided by CASA.

3.7.9 OBSTACLE CONTROL OUTSIDE AERODROME BOUNDARY

Boulia Airport has liaised with local government authorities located within the OLS footprint of the aerodrome and requested they forward development proposals for assessment where the proposal may penetrate the OLS or PANS-OPS of the aerodrome.

Assistance has been provided to ensure the local government authority has suitable processes and information to determine which development proposals should be forwarded for assessment.

3.7.10 OBSTACLE LIGHTS SERVICEABILITY MONITORING PROGRAMME

There are no lit obstacles within the OLS area of the aerodrome; therefore, this subsection is NOT APPLICABLE. When temporary obstacles are required to be lit, they will be monitored in accordance with the MOS Part 139.

3.7.11 OBSTACLE LIGHT OUTAGE

There are no lit obstacles within the OLS area therefore, this subsection is NOT APPLICABLE”.

3.7.12 CHARTS PUBLISHED BY THE AERODROME OPERATOR

3.7.12.1 TYPE A CHARTS

Type A charts are not required and have not been prepared; therefore, this subsection is NOT APPLICABLE.

3.7.12.2 TYPE B CHARTS

Type B charts have not been prepared; therefore, this subsection is NOT APPLICABLE.

3.7.12.3 PRECISION APPROACH TERRAIN CHARTS - ICAO

Precision Approach Terrain Charts have not been prepared; therefore, this subsection is NOT APPLICABLE.

3.7.12.4 AERODROME TERRAIN AND OBSTACLE CHARTS - ICAO (ELECTRONIC)

Aerodrome Terrain and Obstacle Charts have not been prepared; therefore, this subsection is NOT APPLICABLE.

3.8 PROTECTION OF COMMUNICATION, NAVIGATION, SURVEILLANCE AND METEOROLOGICAL FACILITIES

3.8.1 CONTROLLING ACTIVITIES NEAR CNS AND MET FACILITIES

There are no CNS or MET facilities located on the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.8.2 SUPPLY AND INSTALLATION OF WARNING SIGNS

There are no communications, navigation and surveillance (CNS) or meteorological (MET) facilities located on the aerodrome; therefore, this subsection is NOT APPLICABLE.

3.9 AERODROME TECHNICAL INSPECTIONS / MANUAL VALIDATIONS

3.9.1 INSPECTION PERSONNEL

The following is a list of individuals or positions, and their responsibilities in the aerodrome technical inspection and reporting process:

INDIVIDUAL OR POSITION	RESPONSIBILITIES
Director of Works and Operations	managing the inspection programme
Director of Works and Operations	planning the aerodrome technical inspections
Director of Works and Operations	reporting inspection results and follow-up action
Director of Works and Operations	receiving and considering inspection reports
Director of Works and Operations	taking follow-up action if defects or deficiencies have been identified

3.9.2 INSPECTION ITEMS AND TIMEFRAMES

Boulia Airport, in a financial year, has less than 10,000 air transport passenger movements and less than 20,000 aircraft movements.

An aerodrome manual validation is carried out in accordance with the following:

VALIDATION REQUIREMENT	FREQUENCY	REQUIRED QUALIFICATIONS AND / OR EXPERIENCE
A check of the approach, take-off, and transitional surfaces to ensure published aerodrome information is accurate to within 0.05% of the published gradient in the AIP-ERSA	The validation is completed annually	The person engaged to conduct the validation is: <ul style="list-style-type: none"> technically qualified or experienced in surveying, or has a sound knowledge and understanding of the standards for obstacle limitation surfaces and can, by appropriate means, validate the accuracy of the current published information in the AIP and have a sound knowledge and understanding of the standards for OLS
A check of the other surfaces associated with the OLS	The validation is completed annually	The person engaged to conduct the validation is: <ul style="list-style-type: none"> technically qualified or experienced in surveying, or has a sound knowledge and understanding of the standards for obstacle limitation surfaces and can, by appropriate means, validate the accuracy of the current published information in the AIP and have a sound knowledge and understanding of the standards for OLS
For an aerodrome with a TIFP, a check of the Boulia Shire Council's monitoring of the instrument approach procedure-critical obstacles nominated by the procedure designer	The inspection is completed annually per MOS 139 s12.11(c)	The person engaged to conduct the validation has sound knowledge and experience of the applicable civil aviation safety legislation
A check of the currency and accuracy of information published in the AIP	The validation is completed annually	The person engaged to conduct the validation has sound knowledge and experience of the applicable civil aviation safety legislation

VALIDATION REQUIREMENT	FREQUENCY	REQUIRED QUALIFICATIONS AND / OR EXPERIENCE
A check of the currency and accuracy of aerodrome operating procedures specified in the aerodrome manual and supporting documents	The validation is completed annually	The person engaged to conduct the validation has sound knowledge and experience of the applicable civil aviation safety legislation
A check that personnel appointed as a reporting officer (a) have been trained and assessed in accordance with Chapter 13, and (b) appear to be generally competent to carry out the required duties in accordance with MOS	The validation is completed annually	The person engaged to conduct the validation has sound knowledge and experience of the applicable civil aviation safety legislation
A check that personnel appointed as a works safety officer (a) have been trained and assessed in accordance with Chapter 13, and (b) appear to be generally competent to carry out the required duties in accordance with MOS	The validation is completed annually	The person engaged to conduct the validation has sound knowledge and experience of the applicable civil aviation safety legislation

3.9.3 QUALIFIED PERSONNEL FOR TECHNICAL INSPECTIONS / MANUAL VALIDATIONS

The Director of Works and Operations, at the time of engaging a person to conduct each element of the technical inspection, is to sight the qualifications and relevant experience of each person(s) to verify that they meet the required qualifications and / or experience as documented in subsection 3.9.2 of this manual.

A person who cannot demonstrate that they have the required technical qualifications and experience, or demonstrable relevant technical experience, will not be permitted to perform the inspection.

A record of qualifications and relevant experience is included in the technical inspection report.

3.9.4 SCHEDULING INSPECTIONS / MANUAL VALIDATIONS AND RECORDING THEIR RESULTS

A calendar is maintained to schedule inspections.

- Person(s) responsible for calendar: Director of Works and Operations
- Location of calendar: Boulia Shire Council Depot.

To allow adequate planning time, a reminder is also set in the calendar three (3) months in advance of the due date.

The calendar is updated when an element of the manual validation is completed, and a new date for the next inspection and a three-month advance reminder is set.

Irrespective of the schedule, an immediate validation is conducted in the event any of the following is detected during an aerodrome serviceability inspection:

- an unsafe condition is identified
- a defect or deficiency in a part of the aerodrome is identified
- incorrect aerodrome information published in the AIP, or a NOTAM, or reported to ATC (if applicable)
- any details in the aerodrome manual that are incorrect or not current

- any procedure in use at the aerodrome, which is not in accordance with, or conflicts with procedures in the aerodrome manual.

The results of each manual validation undertaken are presented in a report.

3.9.5 BRIEFING TECHNICAL INSPECTORS

At the time of engagement, the person(s) conducting the technical inspection will be briefed on the scope of the inspection, including the technical matters and the locations which must be inspected.

The Director of Works and Operations is to advise the person(s) conducting each element of the technical inspection that they are to include in their report:

- any non-compliance with the Part 139 MOS with respect of the aerodrome's facility, equipment, operation, or aerodrome personnel
- any defect or deterioration in any facility, equipment or visual aid which could make the aerodrome unsafe for aircraft operations
- any incorrect aerodrome information:
 - published in the AIP or NOTAMs
 - reported to ATC (if applicable)
- any information in the aerodrome manual which is incorrect or not current
- any procedure, or practice in use at the aerodrome, which is not in accordance with, or conflicts with, procedures in the aerodrome manual.

3.9.6 POST-INSPECTION / VALIDATION CORRECTIVE ACTIONS

As soon as possible after the aerodrome manual validation has been completed, all errors or anomalies identified in the manual are to be corrected by the Director of Works & Operations.

If necessary, consequential corrections to supporting procedures and to the aerodrome information published in the AIP are also to be made.

3.9.7 PROVIDING CASA WITH INSPECTION / VALIDATION REPORTS

Within 30 days of receiving the technical inspection report, a copy of the report is to be provided to CASA:

- By: The Director of Works and Operations
- Via e-mail: aerodromes@casa.gov.au.

Upon receipt of a written request, a copy of the corrective actions plan, including progress made to address the actions, is to be provided within 30 days to the aerodrome inspector making the request:

- By: The Director of Works and Operations.

3.9.8 MAINTAINING RECORDS OF TECHNICAL INSPECTIONS / MANUAL VALIDATIONS

Technical inspection reports are retained for a period of at least three (3) years from the date the report was completed.

- Maintained by: The Director of Works and Operations
- Stored securely at: The Boulia Shire Council Depot.

3.10 AERODROME WORKS SAFETY

Boulia Airport always makes all necessary arrangements to ensure that aerodrome works do not create a hazard to aircraft or cause confusion to pilots.

A works safety officer is to be present to directly oversee works safety at all times when the aerodrome is open and available for aircraft operations.

Aerodrome markers, markings and lights required for, or affected by aerodrome works are installed, altered or removed in accordance with the required standards.

Any part of the movement area that is unserviceable as a result of aerodrome works being carried out is marked and lit. Obstacles created as a result of the aerodrome works are assessed and marked, or lit in accordance with the assessment.

No CNS or MET facilities are provided which could be affected by works.

Where significant displacement of a runway threshold is planned, works planning may require consultation with the surveyor that conducts the annual obstacle surveys.

3.10.1 WORKS SAFETY PERSONNEL

The following persons have specified responsibilities for works:

INDIVIDUAL / POSITION	RESPONSIBILITY
Henry Mascarenhas / Director of Works and Operations	works planning
Ron Callope / Foreman (TSU)	conducting works
Ron Callope / Foreman (TSU)	arrangement and notifications

The following is a list of personnel appointed to perform the functions of a works safety officer (WSO):

NAME	POSITION	FUNCTION
Ron Callope	Foreman (TSU)	Works safety officer
William Parsons	Team Leader (P&G)	Works safety officer

All personnel appointed as a WSO have been trained so that they can competently carry out their duties at this aerodrome, without the need for supervision.

Boulia ensures all training activities for works safety officers are recorded to verify achieved competencies.

All WSOs undergo recurrent training every two (2) to five (5) years as is recommended in guidance material published by CASA, or earlier if deficiencies are identified.

The training records of all WSOs are:

- Maintained by: The Director of Works and Operations
- Stored securely in: Boulia Shire electronic document management system.

3.10.2 PREPARATION OF A METHOD OF WORKING PLAN (MOWP)

Boulia Airport develops a Method of Working Plan (MOWP) for scheduled works unless the:

- works are time-limited works
- aerodrome is closed to aircraft operations during the works and a 14-day written notice period of the impending closure was made
- works are of an emergency nature (to repair unforeseen failure or damage to part of the manoeuvring area, or to remove an obstacle)
- works do not require any restrictions to aircraft operations.

MOWPs are prepared in accordance with the content and sequencing requirements stated in Chapter 16 of the Part 139 MOS.

When preparing a MOWP, and so that the impact of the works is clearly understood, consultations are conducted by [insert position].

The following operators / organisations are consulted:

- air transport operators using the aerodrome
- operators of emergency services aircraft that are likely to operate at the aerodrome
- ATC (if applicable)
- ARFFS (if applicable)
- providers of any communications, navigation, surveillance or meteorological infrastructure or equipment that might be affected by the works (if applicable).

A list of representatives from each operator / organisation listed above, and their contact details, is maintained by: the Director of Works and Operations.

Although a MOWP does not require CASA approval, CASA is to be consulted on any safety issues identified in the preparation of the MOWP.

The name, position, and function of each of WSO will be recorded in the MOWP.

MOWPs will be authorised and signed by either the:

- Accountable Manager
- Project Manager that has written authorisation from the aerodrome operator to sign the MOWP.

Written authorisations will be retained on file.

3.10.3 MOWP NOTIFICATIONS

Unless the works are unforeseen urgent works, the authorised MOWP will be issued not less than 14 days before the works are scheduled to commence by the Director of Works and Operations.

The MOWP is to be issued to:

- air transport operators using the aerodrome
- operators of emergency services aircraft that are likely to operate at the aerodrome
- ATC (not applicable)
- ARFFS (not applicable)
- providers of any communications, navigation, surveillance or meteorological infrastructure or equipment that might be affected by the works (not applicable)

- the WSO
- the project manager
- the works organiser
- the aerodrome security manager (if applicable)
- CASA via e-mail at: aerodromes@casa.gov.au.

A distribution list of all MOWP recipients and their contact details is:

- Maintained by: the Director of Works and Operations
- Stored securely at: Boulia Shire Council Depot.

The following person(s) is responsible for ensuring that all recipients receive the MOWP: Director of Works and Operations.

The MOWP distribution list will be regularly reviewed to ensure it remains current.

In the event a MOWP requires amendment, the amended MOWP will:

- clearly show the information that has changed
- be disseminated to all persons who received the original MOWP
- be issued no later than 48 hours before the change in works commences.

Amendments to the MOWP are the responsibility of: Director of Works and Operations.

A NOTAM providing the time and date of the commencement of the works is to be issued as early as possible, but not less than 48 hours before commencement.

In the event the change in works is due to an unforeseen event and a notification period of at least 48 hours is not possible, a NOTAM is to be requested as soon as possible after the change becomes known, and notification of the change is declared on the AFRU.

3.10.4 COMMUNICATIONS WITH ATC DURING AERODROME WORKS

WSOs that hold an Aeronautical Radio Operator Certificate (AROC) are authorised to transmit on an aeronautical radio frequency. WSOs without an AROC are only authorised to listen to the aeronautical radio frequency, but not transmit.

WSOs will at all times maintain a continuous radio listening watch.

In the event the runway is unserviceable and the WSO does not hold an AROC, unserviceability markings will be used so that a pilot can clearly identify that the runway is unserviceable.

During CTAF operations, WSOs have the contact number for the operations centre for air traffic service to communicate unexpected changes to the availability of the aerodrome.

3.10.5 TIME-LIMITED WORKS (TLW) OR EMERGENCY WORKS

TLW are only to be carried out if:

- a works safety officer(s) is present in the vicinity of the works
- normal operations are not disrupted
- the movement area can be restored to normal safety standards, and
- any obstacles created by those works removed in not more than 30 minutes.

At all times during TLW, the WSO is to maintain a continuous radio listening watch.

In the event TLW have been stopped to facilitate an aircraft movement, normal safety standards are to be restored not less than five (5) minutes before the aircraft movement is to occur.

Where TLW have been stopped for an aircraft movement, TLW is only permitted to resume:

- for an aircraft arrival:
 - immediately after the aircraft arrival provided the safety of the aircraft is not endangered
 - if the aircraft has not arrived, at least 30 minutes after the aircraft was due to arrive.
- for an aircraft departure:
 - a minimum period of 15 minutes must have elapsed between the aircraft's departure and the resumption of TLW.

3.10.6 NOTIFICATIONS OF TLW OR EMERGENCY WORKS

TLW or emergency works with recall times between 10 and 30 minutes are to be advised by NOTAM.

For TLW, the works safety officer is to ensure that a NOTAM has been issued at least 24 hours before the works commence.

The request for a NOTAM is to be made in accordance with section 3.1 of this manual.

The NOTAM authorised person is to include the following information in the NOTAM request:

- date and time of commencement of the works
- time required to restore normal safety standards.

Emergency works on a runway, or runway strip are not to commence until ATC (local tower, or the air traffic service centre) have been notified and the publication of a NOTAM advising the changes to the aerodrome has been verified. The operations centre for air transport operators with scheduled services occurring during the expected duration of emergency works is also be advised of the changes occurring due to the works.

3.10.7 WORKS AT CLOSED AERODROME

To enable works to be completed when the aerodrome is closed, written notice of the intention to close the aerodrome is to be sent, at least 14 days before the aerodrome closure, to:

- air transport operators using the aerodrome
- each other known organisation using the aerodrome which is likely to be affected by the closure
- CASA.

A distribution list of those receiving the written notification will be retained by: Director of Works and Operations.

A copy of the written notice will be retained by: Director of Works and Operations.

At least 14 days before the aerodrome closure, a NOTAM will also be issued in accordance with section 3.1 of this manual, advising when the aerodrome will be temporarily closed.

3.11 WILDLIFE HAZARD MANAGEMENT

3.11.1 WILDLIFE HAZARD PERSONNEL

The following individuals and positions have responsibilities for wildlife hazard management:

INDIVIDUAL / POSITION	RESPONSIBILITIES
Ron Callope / Foreman	Monitoring wildlife hazards
William Parsons / Supervisor P&G	Mitigating wildlife hazards
Graham Smerdon / Rural Lands Protection Officer	Mitigating wildlife hazards

3.11.2 TRAINING OF PERSONNEL

3.11.2.1 TRAINING FOR WILDLIFE HAZARD MONITORING AND REPORTING

At Boulia Airport, all personnel tasked with wildlife hazard monitoring and reporting are trained, so that they can competently:

- conduct wildlife observations and identify high-risk species
- assess wildlife populations and describe their behaviour
- record information
- collect any remains of a wildlife strike on the aerodrome
- attempt to facilitate the identification of:
 - any wildlife involved in a strike event
 - any resulting damage to an aircraft.
- report the outcomes of observations, monitoring and strike collection activities.

The training records of all personnel are kept for a minimum period of three (3) years and are:

- Maintained by: Director of Works and Operations
- Stored securely at: Boulia Shire Council Depot.

3.11.2.2 TRAINING FOR WILDLIFE HAZARD MITIGATION

All personnel engaged in wildlife hazard mitigation are trained, so that they can competently:

- engage in active wildlife management without causing a hazard to aviation safety
- assess the effectiveness of any mitigation measures that are taken.

The training records of all personnel are kept for a minimum period of three (3) years and are:

- Maintained by: Director of Works and Operations
- Stored securely at: Boulia Shire Council Depot

3.11.3 WILDLIFE HAZARD MANAGEMENT PLAN

The type and frequency of aircraft operations does not trigger the requirement for a wildlife hazard management plan, nor does the aerodrome have a high wildlife hazard management risk. A wildlife hazard management plan has not been prepared.

3.11.4 WILDLIFE HAZARD MONITORING

Wildlife hazards at Boulia Airport are monitored as part of the aerodrome serviceability inspection process as shown in section 3.2 of this manual.

In addition to an inspection of the aerodrome boundary fence, and gates, looking for holes or other potential signs of a breach by wildlife, reporting officers will identify and record the following:

- presence and behaviour of wildlife on the aerodrome
- wildlife activity that is visible in the vicinity of or from the aerodrome

- seasonal and environmental conditions which may attract wildlife, such as grasses, standing water, uncovered waste, deceased wildlife (e.g. dead rabbits, mice etc.)
- any additional indicators such as new nests or eggs.

All wildlife observed on the aerodrome and in the vicinity of the aerodrome is recorded in the ARO logbook.

A record of wildlife strikes is also included in the following register:

- Wildlife strike register
- Stored securely at: Boulia Shire Council Depot.

All known or suspected wildlife strikes that occur at or in the vicinity of the aerodrome are reported to the Australian Transport Safety Bureau (ATSB).

To detect changes in wildlife hazards, reported wildlife observations and the wildlife strike register are reviewed every month by: Director of Works and Operations.

3.11.5 WILDLIFE HAZARD ASSESSMENT

Any detected wildlife hazard is assessed for risk to aircraft operations.

The hazard assessment process is completed in accordance with the procedures set out in the aerodrome SMS.

When assessing the risks, the following data is considered:

- wildlife observations
- reported strike events
- reported near miss events
- times of day or year / weather conditions.

Wildlife hazard risk assessments are:

- Maintained by: Director of Works and Operations
- Stored securely at: Boulia Shire Council Depot

3.11.6 WILDLIFE HAZARD MITIGATION

The following measures have been implemented to assist in mitigating wildlife hazards:

- all gates are kept locked and rubbish appropriately stored
- grass heights are monitored to prevent seeding
- open unlined drains are regularly inspected and maintained to prevent water retention
- in the event dead birds and animal carcasses are located they are quickly removed.

In the event a reporting officer(s) detects a source of attraction for wildlife he consults with the Director of Works and Operations on appropriate action to take.

3.11.7 WILDLIFE HAZARD REPORTING (AIP, NOTAM, ATC, UNICOM)

In the event a wildlife risk is identified on or in the vicinity of the aerodrome, and the risk is a serious or imminent threat and cannot be immediately managed, the reporting officer(s) is to:

- notify ATC (if applicable)
- advise pilots via the CTAF / Unicom
- request the immediate issue of a NOTAM.

Known or seasonal hazards are reported in writing to the AIS provider for publication in the AIP-ERSA.

A NOTAM is requested if the hazard is a higher risk than usual, or is of a short term or seasonal nature.

3.11.8 LIAISON WITH LOCAL AUTHORITIES FOR WILDLIFE HAZARD MITIGATION

The following is a list of local authorities that have land within a 13-km radius of the aerodrome:

LOCAL AUTHORITY	CONTACT
Boulia Shire Council	(07) 4746 3188

Boulia Airport engages with the local authorities to ensure that future land uses and development proposals can be carefully considered.

3.12 LOW-VISIBILITY OPERATIONS

Low-visibility operations are not conducted; therefore, this section is NOT APPLICABLE.

3.12.1 LOW-VISIBILITY PERSONNEL

Low-visibility operations are not conducted; therefore, this subsection is NOT APPLICABLE.

3.12.1.1 RUNWAY VISIBILITY (RV) ASSESSMENT PERSONNEL

No persons at Boulia Airport are authorised to conduct runway visibility assessments.

3.12.2 VEHICULAR TRAFFIC IN LOW-VISIBILITY OPERATIONS

Low-visibility operations are not conducted; therefore, this subsection is NOT APPLICABLE.

3.12.3 CNS FACILITIES IN LOW-VISIBILITY OPERATIONS

Low-visibility operations are not conducted; therefore, this subsection is NOT APPLICABLE.

3.12.4 MANOEUVRING AREA INSPECTIONS IN LOW-VISIBILITY OPERATIONS

Low-visibility operations are not conducted; therefore, this subsection is NOT APPLICABLE.

3.12.5 MEASURING RUNWAY VISIBILITY

Low-visibility operations are not conducted; therefore, this subsection is NOT APPLICABLE.

3.12.6 COMMUNICATING VISIBILITY MEASUREMENTS TO ATC OR PILOTS

Low-visibility operations are not conducted; therefore, this subsection is NOT APPLICABLE.

3.12.7 TRANSMISSOMETERS

Transmissometers are not installed at Boulia Airport; therefore, this is NOT APPLICABLE.

3.12.8 LOW-VISIBILITY PROCEDURES (LVP)

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.1 SPECIFIC CIRCUMSTANCES FOR LVP

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.2 NOMINATED RATE OF AERODROME MOVEMENTS

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.3 LVP-RELATED TRAINING AND AUTHORISATION FOR AIRSIDE DRIVERS

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.4 CONTROL OF AIRSIDE OPERATIONS

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.5 WITHDRAWAL OF NON-ESSENTIAL VEHICLES AND PERSONNEL

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.6 SUSPENSION OF VISUAL AND NON-VISUAL AID MAINTENANCE

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.7 SECURING AIRSIDE ACCESS AND PREVENTING ENTRY

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.8 ALERTING OF LVP

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.9 COORDINATING LVP ACTIVITIES WITH ATC

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.10 PHYSICAL CHECKS OF LIGHTING AND WARNING DEVICES

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.11 PROTECTION OF AREAS FOR ILS

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.12 EMERGENCY RESPONSES DURING LVP

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.13 LVP STATUS

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.12.8.14 REVIEW OF LOW-VISIBILITY PROCEDURES

Low-visibility procedures (LVP) have not been established; therefore, this subsection is NOT APPLICABLE.

3.13 DISABLED AIRCRAFT REMOVAL

3.13.1 AIRCRAFT REMOVAL PERSONNEL

The following person(s) have responsibilities for arranging the removal of disabled aircraft:

NAME	ROLE	PHONE NUMBER	AFTER-HOURS PHONE NUMBER
Ron Callope	Foreman	0427 163 773	0427 163 773

3.13.2 AIRCRAFT REMOVAL - AERODROME OPERATOR & AIRCRAFT CERTIFICATE HOLDER

The registered owner or aircraft operator has complete responsibility for removing their aircraft should it become disabled. All airline operators are therefore expected to have aircraft recovery plans which identify any special equipment that may be necessary.

Boulia Airport coordinates the aircraft recovery operation to ensure that the disabled aircraft is removed in a timely and efficient manner.

Removal of damaged aircraft may be subject to clearance of Australian Transport Safety Bureau and other investigating teams.

Although the aircraft owner is responsible, Boulia Airport may, where necessary, initiate salvage action when:

- there is a serious and imminent threat or hazard to other aircraft, vehicles or personnel on the movement area
- the aircraft operator refuses to move a disabled aircraft, or neglects to do so within a reasonable time.

In these instances, Boulia Airport accepts no responsibility for any loss or damage of any kind resulting from this action, and the aircraft operator shall be held responsible for all costs incurred.

Once a runway is negatively impacted (unavailable), or a reduction in operating length is required, a NOTAM is to be issued in accordance with section 3.1 of this manual.

Appropriate visual aids are deployed, when necessary, to mark unserviceable portions of the aircraft movement area by the Director of Works and Operations.

3.13.3 NOTIFYING AIRCRAFT CERTIFICATE HOLDER

The pilot of a disabled aircraft is expected to notify the holder of the aircraft's certificate of registration in the first instance.

If the pilot is not available, or is unable to notify the certificate of registration holder, the required notification is to be issued by the Aerodrome Manager.

If the certificate of registration is not known to Boulia Airport, details are to be obtained from the pilot, if possible, or if available, from the [civil aircraft register](#) on the CASA website.

3.13.4 LIAISING WITH THE ATSB, DEFENCE AND ATC

If the disabled aircraft cannot be immediately removed from the movement area, Boulia Airport will ensure:

- unserviceability markers, markings and lights are displayed as required
- the NOF is notified of the unserviceability, or changes to the runway or taxiway as applicable.

In the absence of a representative from Boulia Airport, the pilot is expected to advise air traffic services of the disabled aircraft closing the runway or airport. As there is no Air Traffic Control at Boulia Airport, this notification is expected to occur on the general area frequency should VHF be available on the ground. Once a representative from Boulia Airport becomes aware of the disabled aircraft, they are to confirm with the pilot that the air traffic services have been notified.

The ATSB will be notified immediately of an occurrence that requires their involvement.

3.13.5 EQUIPMENT AND PERSON(S) TO REMOVE AIRCRAFT

The holder of the aircraft's certificate of registration is expected to provide, by the fastest means possible, any specialised equipment and personnel required to remove a disabled aircraft.

Prior to engaging recovery assistance from Boulia Airport, the aircraft operator is required to indemnify Boulia Airport from any adverse consequence resulting from any activities during the recovery process.

Boulia Airport is to advise the aircraft operator of the contacts of any commercial crane operators that may assist in providing equipment for the removal of disabled aircraft.

3.14 AERODROME SAFETY MANAGEMENT

3.14.1 SAFETY MANAGEMENT SYSTEM (SMS)

As the aerodrome has less than 50,000 air transport passenger movements / less than 100,000 aircraft movements in a financial year, a safety management system has not been prepared or implemented.

3.14.2 RISK MANAGEMENT PLAN

As the aerodrome has less than 25,000 air transport passenger movements / less than 20,000 aircraft movements in a financial year, a risk management plan has not been prepared or implemented.

4 AERODROME EMERGENCY RESPONSE

4.1 EMERGENCY RESPONSE PERSONNEL

The following individuals or positions have responsibilities in an aerodrome emergency response:

INDIVIDUALS / POSITIONS	RESPONSIBILITIES
Ron Callope	Maintaining aerodrome emergency response procedures
Ron Callope	Notifying procedures to initiate an emergency response
Ron Callope	Initiating emergency response actions by aerodrome personnel
Ron Callope	Returning the aerodrome to operational status after an emergency
Henry Mascarenhas	Reviewing the aerodrome emergency response plan

4.2 AERODROME EMERGENCY RESPONSE

4.2.1 AERODROME EMERGENCY PLAN (AEP)

The type and frequency of aircraft operations at Boulia Airport does not trigger the requirement for an aerodrome emergency plan; therefore, this subsection is NOT APPLICABLE.

4.2.2 LOCAL / STATE EMERGENCY RESPONSE PLAN

The aerodrome has emergency response arrangements that meet the requirements of section 24.03 of the Part 139 MOS and are represented in the local / state emergency response plan.

These emergency response arrangements are:

- Maintained by: Henry Mascarenhas
- Available at: Boulia Shire Council Depot.

4.3 AERODROME EMERGENCY PROCEDURES

4.3.1 AERODROME EMERGENCY COMMITTEE

The type and frequency of aircraft operations at Boulia Airport does not trigger the requirement for an aerodrome emergency committee. An aerodrome emergency committee has not been established.

4.3.2 EMERGENCY SERVICE ORGANISATIONS

Descriptions of the roles of each emergency service organisation involved in the Boulia Airport AEP are below:

EMERGENCY SERVICE ORGANISATION	ROLE DESCRIPTION
Boulia Shire Council	Airport Operator
QPS	Law Enforcement
QFRS	Fire and Rescue
QAS	Ambulance Service
Boulia Health Clinic	Health Services
State Emergency Services	Fire and Rescue

4.3.3 LOCAL EMERGENCY PLANNING ARRANGEMENTS

To ensure a coordinated response, the following procedures are followed when liaising with authorised person(s) responsible for local emergency planning arrangements:

The Director of Works and Operations will -

- meet with planning representatives to discuss and evaluate the emergency response arrangements under the state emergency management legislation and airport emergencies.
- arrange an initial visit of the airport to familiarise planning personnel with the airport airside areas and to demonstrate the location and operation of the following:
 - aerodrome access points; and
 - aerodrome assembly areas; and
 - aerodrome emergency facilities and equipment; and
 - any hazardous storage facilities at the aerodrome, including fuel.

The emergency planning representatives will also be made aware of any aerodrome or aviation-specific emergency procedures to be followed.

4.3.4 NOTIFICATION AND INITIATION OF EMERGENCY RESPONSE

Notification of an emergency will be made without delay.

To ensure agencies respond appropriately, it is important that all known information about the emergency is relayed as accurately as possible. The following information is to be relayed as applicable:

- exact location of the incident (including location details and map references etc.)
- nature of the incident

- type of aircraft
- estimated time of arrival of the aircraft involved and the runway to be used (if applicable)
- number of persons on board (including passengers and crew)
- presence of hazardous materials including dangerous goods
- any other relevant information.

To assist responding emergency agencies, location details and / or maps of the aerodrome and its immediate vicinity have been provided. The location details and / or maps show:

- primary and secondary access points
- emergency assembly areas
- aerodrome hazards.

The location details and / or maps are available at: Boulia Shire Council Depot.

4.3.5 ACTIVATION, CONTROL AND COORDINATION OF EMERGENCY RESPONDERS

Boulia Airport does not have any aerodrome-based emergency responders; therefore, this subsection is NOT APPLICABLE.

4.3.6 AERODROME EMERGENCY FACILITIES

Boulia Airport does not have emergency facilities available; therefore, this subsection is NOT APPLICABLE.

4.3.7 ACCESS AND MANAGEMENT OF ASSEMBLY AREAS

The procedures for access and the management of assembly areas are described below:

- Assembly Area has been marked on site outside of the airport main gates. Access is provided through either a vehicle gate or a man-gate.

The Airport Manager / ARO will -

- Stage and coordinate emergency service responders at the assembly area referred to in Section 4.3.4.
- Facilitate aerodrome access via the primary access point referred to in Section 4.3.4.
- Escort emergency services' vehicles and personnel to a position 100m upwind of the accident site until the QPS arrives to take control of the emergency response. Due to the possibility of aircraft movements, no emergency response vehicles should proceed to the emergency site without an escort.
- Arrange for non-emergency personnel to be kept landside.
- keep the movement area clear of all vehicles, equipment and personnel not directly involved in the emergency response to minimise any damage to the movement area and to preserve the accident site.

4.3.8 RESPONSE TO A LOCAL STAND-BY EVENT

As Boulia Airport is an uncontrolled airport, the procedures to respond to a local stand-by event are not required; therefore, this subsection is NOT APPLICABLE.

4.3.9 INITIAL RESPONSE TO FULL EMERGENCY

The procedures for the initial response by airport personnel to a full emergency event at, or in the immediate vicinity of the aerodrome are described below:

Council procedures:

- Activate co-ordination centre if required.
- Coordinate urgent provision of shade for the triage area in consultation with SES.

Aerodrome Manager procedures:

- Notify and liaise with Police.
- Undertake the role of Liaison Officer for the site control point.
- Coordinate review of emergency response procedures.

ARO procedures:

- call 000 and report incident.
- advise the Aerodrome Manager.
- arrange for the gate to be manned.
- contact ATSB and follow up with written report.
- call in NOTAM, then initiate markers in signal area and on runway.
- establish an initial Forward Command Post.
- if first on the scene, co-ordinate emergency services until the arrival of Police.
- set up aerodrome-based communications.
- brief and update emergency responders.
- provide escort to crash site.
- keep the movement area clear of all vehicles, equipment and personnel not directly involved in the emergency response to minimise any damage to the movement area and to preserve the accident site.
- assist with site safety and security.
- maintain a listening watch for aircraft in the vicinity.
- provide assistance to survivors as directed by emergency services.
- assist response agencies and investigation teams as requested.
- recovery of the Aerodrome to full serviceability.
- maintain a log of events and observations.

4.4 READINESS OF EMERGENCY FACILITIES, ACCESS POINTS & ASSEMBLY AREAS

The arrangements for keeping aerodrome emergency facilities, access points and assembly areas in a state of readiness are described below:

- Council routinely performs the maintenance in the general area, ensuring that the assembly areas are clear of obstructions, and that the gates are functioning correctly.
- The ARO monitors the assembly and access areas at the time the serviceability inspections are done to ensure they are in a suitable state for use.

4.5 EMERGENCY RESPONDER PREPAREDNESS

4.5.1 SITE INDUCTIONS FOR EMERGENCY RESPONDERS

To ensure local emergency responders are familiar with the aerodrome and its immediate surrounds, familiarisation tours are conducted.

During these tours, emergency responders are:

- shown the location and operation of:
 - aerodrome access points (including routes to get to the access points)
 - aerodrome assembly areas
 - aerodrome emergency facilities and equipment.
- made aware of hazardous storage facilities and materials at the aerodrome
- made aware of procedures to be followed when responding to an incident, including airside driving hazards.

4.5.2 EMERGENCY RESPONSE TRAINING

The aerodrome does not have an AEP; therefore, this subsection is NOT APPLICABLE.

4.5.3 EMERGENCY EXERCISES

The aerodrome does not have an AEP; therefore, this subsection is NOT APPLICABLE.

4.6 POST-EMERGENCY RETURN TO OPERATIONAL STATUS

Aircraft operations will only be resumed when:

- circumstances permit aircraft to operate safely
- the airport movement area is secured
- there is no interference to emergency response activities
- all stakeholders are aware that the emergency response has been formally stood down, or a plan has been established to recommence operations while phases of the emergency response have not been finalised.

If the aerodrome has been closed due to the occurrence of an emergency, normal aircraft operations are not to resume until there are adequate aerodrome personnel available to support the resumption of operations, and trained aerodrome personnel have:

- conducted an inspection of the movement area making sure that the runway and taxiway surfaces are free of hazards that may cause damage to aircraft
- provided confirmation that the movement area is serviceable and safe to resume normal aircraft operations
- ensured that areas which remain closed are suitably marked and lit to distinguish their unserviceability
- completed an assessment that any operational equipment on or near the aerodrome as part of the emergency response does not infringe the prescribed airspace (OLS or PANS-OPS)
- if a displaced threshold is required, all components of the OLS will be assessed based on the displaced threshold location

- ensured the accuracy of information published in NOTAM.

Where the emergency is confined, operations are only able to resume under restricted conditions. Boulia Shire Council ensures all hazards are identified and appropriately assessed prior to the commencement of restricted operations. No consideration of CNS or MET facilities is necessary as none are provided.

The ATSB is to be consulted as they may require the preservation of evidence which may affect the return of part, or all of the movement area, to service.

4.7 REVIEWS OF AERODROME EMERGENCY PLAN (AEP)

The aerodrome does not have an AEP; therefore, this subsection is NOT APPLICABLE.

4.8 MONITORING LOCAL EMERGENCY PLANNING ARRANGEMENTS

Procedures pertaining to the function of the aerodrome in local emergency planning arrangements are to be reviewed with local emergency responders at least once every two (2) years.

Documented evidence of each review is:

- Retained by: Director of Works & Operations.
- Stored securely at: Boulia Shire Council Depot.

5 APPENDICES

5.1 APPX. A - GRF CIRCULAR AMENDMENT



Australian Government
Civil Aviation Safety Authority

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**MULTI-PART
ADVISORY CIRCULAR**

AC 91-32 and AC 139-22 v1.0 Global reporting format – Runway surface condition

Project number: AS 18/05

File ref: D23/529803

February 2024

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Global reporting format – Runway surface condition

Advisory circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Advisory circulars should always be read in conjunction with the relevant regulations.

Audience

This advisory circular (AC) applies to:

- aerodrome operators
- airlines
- air transport operators
- pilots
- air traffic service providers
- aeronautical information service providers.

Purpose

This AC provides guidance on implementation of the Global Reporting Format (GRF). The GRF provides an internationally harmonised and standardised method of assessing and reporting runway surface conditions which impact on flight operations. The GRF was developed by the International Civil Aviation Organization (ICAO) to enable an improved flight crew assessment of take-off and landing performance and help mitigate the risk of runway excursions.

For further information

For further information, contact CASA's Personnel Licensing, Aerodromes and Air Navigation Standards (telephone 131 757).

Status

This version of the AC is approved by the Branch Manager, Flight Standards.

Version	Date	Details
v1.0	February 2024	Initial AC.

Unless specified otherwise, all subregulations, regulations, Divisions, Subparts and Parts referenced in this AC are references to the *Civil Aviation Safety Regulations 1998 (CASR)*.

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Acknowledgement of country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and their continuing connection to land, water and community, and pays respect to elders past, present and emerging.

Artwork: James Baban.

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1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this AC are listed in the table below.

Acronym	Description
AC	advisory circular
AFM	aircraft flight manual
AIREP SPECIAL	special air-report
AIS	Aeronautical Information Service
ATC	air traffic control
ATIS	automatic terminal information service
ATS	air traffic services
CA/GRS	certified air/ground radio service
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
FIS	flight information service
FMS	Flight Management System
GRF	Global Reporting Format
ICAO	International Civil Aviation Organization
MCDU	Multi-Function Control and Display Unit
NOTAM	Notice to Airmen
NTSB	National Transport Safety Board
RCAM	runway condition assessment matrix
RCR	runway condition report
RWYCC	runway condition code
SIGMET	Information concerning en route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations
SPECI	Aviation Special Weather (in aeronautical meteorological code)
TAF	aerodrome forecast
UNICOM	universal communications

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Acronym	Description
WHS	Work, health and safety

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below. Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this AC and the civil aviation legislation, the definition in the legislation prevails.

Term	Definition
Aeronautical information service (AIS)	A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.
air traffic control (ATC)	Air Traffic Services in its capacity as a provider of air traffic control services.
air traffic service (ATS)	A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control (ATC) services such as area control service, approach control service or aerodrome control service.
automatic terminal information service (ATIS)	The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts during the hours when the unit responsible for the [air traffic] service is in operation.
CA/GRS	An aerodrome radio information service that provides aircraft operating in the vicinity of an aerodrome with the services and information specified in Chapter 22 of the Part 139 Manual of Standards (MOS).
contaminant	Matter present on the surface of a runway including, compacted snow, dry snow, frost, ice, slush, standing water, wet ice or wet snow.
Contaminated runway	A runway is contaminated if more than 25% of the surface area required for a take-off or landing is covered by any of the following: (a) water or slush more than 3 mm deep; (b) loose snow more than 20 mm deep; (c) compacted snow or ice.
Dry runway	A runway is dry if the surface area required for a take-off or landing: (a) has no visible moisture; and (b) is not contaminated.
FIS	A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights
NOTAM	A notice issued by the NOTAM Office containing information or instructions concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to persons concerned with flight operations
reduced braking action	Based on pilot observations that braking deceleration and directional control is worse than expected.

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Term	Definition
runway	A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
Runway condition assessment matrix (RCAM)	A matrix for assessing the runway condition code from a set of observed runway surface conditions and the pilot in command's report on braking action.
Runway condition code (RWYCC)	The number used in a runway condition report to describe the runway surface condition.
Runway condition report (RCR)	A comprehensive standardised report relating to runway surface conditions, and their effect on aeroplane landing and take-off performance.
Runway surface condition descriptors	See definition of 'contaminant' above.
SIGMET	A concise description of the occurrence or expected occurrence, in an area over which area meteorological watch is maintained, of specified phenomena which may affect the safety of aircraft operations
Slippery wet runway	A wet runway where the surface friction characteristics of a significant portion of the runway show that the runway is degraded.
SNOWTAM	A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.
SPECI	SPECI are non-routine aerodrome reports issued whenever one or more observed meteorological elements meet specified criteria significant to aviation
Special Air-Report (AIREP Special)	An AIREP containing the report of special meteorological conditions, i.e. SIGMET phenomenon, or any other MET phenomenon which is likely to affect the safety or efficiency of other aircraft.
Wet runway	A runway is wet if the surface area required for a take-off or landing: (a) is not dry; and (b) is not contaminated.
UNICOM	A non-air traffic control communication facility operated to provide an advisory service to enhance the value of information normally available at a non-controlled aerodrome.

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1.3 References

Legislation

Legislation is available on the Federal Register of Legislation website <https://www.legislation.gov.au/>

Document	Title
Volume 5 of CASR	Dictionary
Part 121 of CASR	Australian air transport operations—larger aeroplanes
Part 135 of CASR	Australian air transport operations—smaller aeroplanes
Part 172 of CASR	Air Traffic Service Providers
Part 175 of CASR	Aeronautical information management
Part 91 Manual of Standards	Part 91 (General Operating and Flight Rules) Manual of Standards 2020
Part 139 Manual of Standards	Part 139 (Aerodromes) Manual of Standards Amendment Instrument 2020 (No. 1)

International Civil Aviation Organization documents

International Civil Aviation Organization (ICAO) documents are available for purchase from <http://store1.icao.int/>

Many ICAO documents are also available for reading, but not purchase or downloading, from the ICAO eLibrary (<https://elibrary.icao.int/home>).

Document	Title
Annex 3	Meteorological Service for International Air Navigation
Annex 6 Part I	International Commercial Air Transport — Aeroplanes
Annex 8	Airworthiness of Aircraft
Annex 11	Air Traffic Services
Annex 14 Volume I	Aerodrome Design and Operations
Annex 15	Aeronautical Information Services
Doc 9981	PANS-Aerodromes
Doc 10066	PANS-Aeronautical Information Management
Doc 4444	PANS-Air Traffic Management
Doc 10064	Aeroplane Performance Manual
Doc 9137	Airport Services Manual Part 2 — Pavement Surface Conditions Part 8 — Airport Operational Services Part 9 — Airport Maintenance Practices

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Document	Title
Circular 355	Assessment, Measurement and Reporting of Runway Surface Conditions

Advisory materialCASA's advisory materials are available at <https://www.casa.gov.au/publications-and-resources/guidance-materials>

Document	Title
AC 91-02	Guidelines for aeroplanes with MTOW not exceeding 5 700 kg - suitable places to take off and land
AC 139.C-03	Serviceability Inspections
AC 139.C-06	Skid resistance of aerodrome pavements

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2 Introduction

Runway safety, particularly runway excursions, remains one of the top aviation safety priorities of the International Civil Aviation Organization (ICAO). The Flight Safety Foundation shared these concerns and indicated that the third most common landing excursion risk factor is ineffective braking action, due to contamination on the runway such as snow, ice, slush or water. This trend was also confirmed by the main aircraft manufacturers.

Figure 1 is from a USA National Transport Safety Board (NTSB) investigation into a runway excursion in Jacksonville, Florida USA in 2019. The investigation determined that the probable cause was 'an extreme loss of braking friction due to heavy rain and the water depth on the ungrooved runway, which resulted in viscous hydroplaning'.



Figure 1. Runway Excursion (source: US NTSB report - DCA19MA143)

To address the issue, the ICAO Friction Task Force developed a new global reporting system for assessing and reporting runway surface conditions, known as the Global Reporting Format (GRF).

The GRF provides uniformity and consistency in the assessment and reporting of runway surface conditions when contamination, mainly due to adverse weather conditions, is present. It is also used to correlate the reported runway surface condition and aircraft performance data. Assessing and reporting the condition of the movement area and, in particular, the runway surface is necessary to provide the flight crew with the information needed for safe operation of the aeroplane. The runway condition report (RCR) is used for reporting assessed information.

According to ICAO Annex 14 Volume I:

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'movement areas are exposed to a multitude of climatic conditions and consequently a significant difference in the condition to be reported. The runway condition report (RCR) describes a basic methodology applicable for all these climatic variations and is structured in such a way that States can adjust them to the climatic conditions applicable for that State or region'.

These harmonised procedures are reflected in a runway condition assessment matrix (RCAM) (see Appendix A) which correlates the runway condition code (RWYCC) and runway surface description with downgrade assessment criteria related to aeroplane deceleration or directional control observation and pilot reporting of aircraft braking action which the flight crew should expect for each value of the RWYCC. The introduction of the RCR based on the runway surface description and RWYCC, in conjunction with new or existing aeroplane performance data, establishes a clear link between the observation, reporting and accounting of runway surface conditions in aeroplane performance.

The intent of the RCR is to put into place a common language between all runway safety participants and is based on the impact of runway surface conditions on aeroplane performance. Therefore, it is necessary that all participants, from aerodrome operators to pilots and aeroplane operators, have been given appropriate training.

Training content for both aerodrome personnel and pilots may be based on information in this AC, among other sources. An outline of the suggested training for aerodrome personnel and pilots can be found in Appendix D and E of this document.

2.1 GRF implementation in Australia

2.1.1 Weather conditions in Australia

2.1.1.1 Australia has relatively benign weather conditions but does experience wet seasons, tropical storms, thunderstorms and extensive periods of rain. However, there are a relatively small number of certified aerodromes which may experience frost or snow conditions. Therefore, the majority of runway, or contaminated runway reporting, will be in relation to 'wet' or 'standing water'. There is also another category of runway surface friction reporting which is 'slippery wet' runways; however, this runway description is not defined as contaminated but has runway surface friction impacted through one or more of factors (e.g. rubber deposits, surface polishing) and water, usually rain. We have implemented the ICAO runway surface conditions associated with the GRF but have separated them into: 'dry' and 'wet' surface conditions; 'slippery wet' surface conditions; and 'snow' and 'ice' surface conditions. This allows an aerodrome operator, or pilots and aircraft operators, to quickly be able to locate the regulatory requirements for reporting the relevant runway surface conditions applicable.

2.1.2 Mandatory RCR elements

2.1.2.1 The RCR has an aeroplane performance calculation section and a situational awareness section. Australia has determined the core runway surface condition reporting elements from the aeroplane performance section of the RCR. Situational awareness is more beneficial in colder climates where there can be significant levels and different types of contaminants on the movement area than to Australia. Figure 2 shows the effect and impact of water on the runway during aeroplane operations.

Note: If, due to runway surface conditions, the width of runway available is less than the published width, or the runway length available is reduced, CASA expects a separate runway NOTAM to be issued.

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Figure 2. Aircraft operations on a wet runway

- 2.1.2.2 According to ICAO, in the data-gathering process, almost all runway information can typically be gathered from visual observations, with the exception of 'slippery wet' runways. If information is gathered from measuring devices or instruments, ICAO states they must be calibrated and operated within their limitations and in compliance with standards set or agreed by the State. Automated systems are becoming available to provide a remote indication of runway surface conditions, while others are still under development. At present, these systems are not in widespread use, and systems that provide an accurate indication of braking action seem a long way off. This unavailability strongly affects the related implementation and communication process.
- 2.1.2.3 Australia does not require aerodrome operators to install sophisticated measuring or modelling equipment; however, aerodrome operators may wish to employ this technology to offset the number of aerodrome personnel required to conduct inspections, assessment and reporting during and after weather events. The most labour-intensive aspect of runway surface assessment and reporting is as a wet runway becomes completely dry.
- 2.1.2.4 Aerodrome operators need to gather relevant data, process the related information using manual systems and make information available to users using conventional methods. This requires a considerable amount of time in addition to the need to obtain access to runways, which is often difficult, particularly at busy aerodromes. It is not necessarily safe to require aerodrome personnel to access an active or operational runway and take numerous measurements. It is for this reason, and to keep the assessment and reporting system simple, that Australia has decided to implement the RWYCC, surface description elements of the RCR and some percentage and depth reporting.
- 2.1.2.5 Additionally, at controlled aerodromes air traffic controllers (ATCs) are trained under the Part 172 MOS to determine if the runway is completely dry or wet in selection of the runway to be used. Therefore, if there is an agreement in place between the aerodrome operator and ATC

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(under the auspices of Airservices Australia), then ATC can conduct the assessment and reporting for wet and dry runways but only during the control tower hours of operation. In any case, ATC generally provide automated broadcasts via the Automatic Terminal Information Service (ATIS) and not directly to each pilot.

- 2.1.2.6 The elements of the RCR adopted by Australia are:
- runway designator number
 - RWYCC for each runway third
 - runway surface condition description for each runway third
 - percentages of runway thirds are to be reported for 'slippery wet' runways
 - if 25% or less of a runway third has 'standing water' or is 'otherwise contaminated', it is to be assigned a RWYCC of 5 and surface description of WET (noting that ICAO treats these surface conditions the same as a DRY runway)
 - if the depth of standing water or other contaminants are available, they are to be reported.
- 2.1.2.7 The ICAO RCR format does not require 'RWY' to be inserted in front of the runway number, however a string of numbers separated by obliques may be confusing to pilots from a human factor's perspective. Additionally, automated NOTAM processing systems may benefit from being able to search on the keyword 'RWY' to filter the most safety critical NOTAMs. Therefore, the RCR in Australia includes 'RWY' preceding the runway number.
- 2.1.2.8 Under the ICAO GRF, the RWYCC for 'slippery wet' runways is '3' however the surface condition is described as 'WET', the same as for a normal rain affected runway with a braking condition of 'GOOD'. From a human factor's perspective, a pilot with an aeroplane Flight Management System (FMS) not capable of direct inputting of the RWYCC number, may not be able to discern the difference between a 'WET' and 'slippery wet' runway simply based on the surface description, if unfamiliar with the meaning of the RWYCCs. Additionally, a pilot may be unaware that the braking action had deteriorated from 'GOOD' to 'MEDIUM'. Therefore, in Australia, we require the RCR to include the full runway surface description of 'SLIPPERY WET' for these conditions along with the relevant RWYCC of 3.
- 2.1.2.9 Introduction of the GRF by ICAO also included amendments to the definitions of contaminated, dry and wet runways. These changes will require amendments to the relevant definitions in the CASR Dictionary. Until the CASR Dictionary can be amended the current definitions are still consistent with Australia's implementation. The CASR definition of contaminated runway is:
- contaminated:** a runway is **contaminated** if more than 25% of the surface area required for a take-off or landing is covered by any of the following:
- (a) water or slush more than 3 mm deep;
 - (b) loose snow more than 20 mm deep;
 - (c) compacted snow or ice.
- Australia requires reporting of thirds of runways (33.33%) when they are contaminated which meets the trigger of 25% under the current definition. Water and slush depth is consistent with the RCR values and aerodrome operators will report depth of snow if it is available, noting this will be a rare circumstance for aerodromes in Australia. Loose snow is not referred to in the RCR but rather dry or wet snow. Pilots need to take into account the reported runway surface conditions, including contaminants, and associated impact on landing and take-off performance.

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2.1.3 Applicability of GRF to all certified aerodromes

- 2.1.3.1 Prior to the introduction of the GRF, MOS Parts 121 and 135 for air transport operations, required pilots to take into account the Aircraft Flight Manual (AFM) or aircraft manufacturers' data in relation to **runway surface condition** for take-off and landing performance. Part 121 MOS has specific requirements for landing on dry, wet, or contaminated runways. Part 91 MOS for general operations also requires pilots to take into account the AFM or the manufacturer's data in relation to take-off and landing performance and now also requires **runway surface conditions**, if known, to be taken into account.
- 2.1.3.2 Due to the need for all pilots to be informed of runway surface conditions, the applicability of the GRF is to all certified aerodromes. It should be noted that Part 91 operations also occur at aerodromes that are not certified, where RCRs are unavailable, therefore, under Part 91 MOS, runway surface conditions only need to be taken into consideration if they are available.

2.1.4 Runway serviceability inspections

- 2.1.4.1 Under Part 139 MOS the aerodrome operator is required to carry out a serviceability inspection 'after a severe wind event, a severe storm or a period of heavy or prolonged rainfall'. These are the most likely weather conditions to cause runways to become contaminated with standing water or snow. It is important to note that aerodrome personnel are not required to carry out serviceability inspections if the weather conditions cause a work, health and safety (WHS) hazard, for example, lightning in the area and WHS procedures require all aerodrome and aircraft personnel to vacate the movement area.
- 2.1.4.2 Aerodrome serviceability inspections are also required to be carried out due to meteorological conditions that may cause the RWYCC to change e.g., from '5' to '2' or if the runway surface contaminant changes, for example, from 'wet' to 'standing water'. This situation is representative of runway surface conditions deteriorating. These inspections are only required when aeroplane operations are scheduled, advised in advance by the aeroplane operator, or known to be in progress at the aerodrome.
- 2.1.4.3 For any nonweather-related aerodrome serviceability inspections a check must also be carried out for visible dampness (to indicate a 'wet' runway), standing water, snow, slush, ice, or frost on an operational runway. However, it is unlikely that these runway surface conditions or contaminants will be present on a runway without a preceding weather event.

2.1.5 Ponding and poor drainage of water on runways

- 2.1.5.1 It is important to note, in accordance with the Part 139 MOS, that the design of runway and taxiway transverse slopes are such that water is not permitted to pond or pool, thus reducing the likelihood of standing water. Additionally, as part of the GRF standards introduced by ICAO, aerodrome operators should visually assess a runway under natural or simulated rain conditions for ponding or poor drainage and take corrective maintenance action. The requirement under the Part 139 MOS is for the aerodrome operator to carry out a serviceability inspection 'after a severe wind event, a severe storm or a period of heavy or prolonged rainfall'. This then provides an appropriate opportunity for an aerodrome operator to later undertake corrective maintenance action if pooling, ponding or poor drainage of water is observed following such a weather event. However, it is not expected that the aerodrome operator will be required to undertake a runway surface overlay, resurfacing or replacement, but rather maintenance action should be taken to address the formation of depressions or surface irregularities that allow water to pond.

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2.2 Aircraft operator and pilot

- 2.2.1 The RWYCC reflects the runway braking capability as a function of the surface conditions. With this information, the flight crew can derive, from the performance data provided by the aeroplane manufacturer, normally through the AFM, the necessary stopping distance of an aircraft on the approach under the prevailing conditions, or the required take-off distance.
- 2.2.2 Aeroplane performance can be impacted whenever the coverage of any water-based contaminant on any runway third exceeds 25%. The intent of the assessment and reporting procedures is to communicate the runway surface conditions impacted by any contamination to the aeroplane operators in a way consistent with the effect on aeroplane performance.
- 2.2.3 The flight crew needs information relevant for the safe operation of the aircraft, as far as it is relevant to the conditions of the runway surface, obtained using the RCR.
- 2.2.4 The RCR contains all the necessary information for the determination of the relevant runway condition for the performance assessment by the flight crew. This information is required at several stages of the flight, in particular during dynamic weather event conditions. The flight crew may need updates throughout the flight.

Note: The flight crew's ability to receive the RCR in the various phases of flight is dependent upon the technology made available to them and, as a consequence, such ability will vary between aeroplane operators.

- 2.2.5 Pilots can use the RWYCC to determine their aircraft's performance by correlating the code with performance data provided by their aircraft's manufacturer. This can be performed, using an On-board Performance Tool, or equivalent, for example, Multi-Function Control and Display Unit (MCDU) as shown in Figure 3; or using performance manuals. This will help pilots to correctly carry out their landing and take-off performance calculations for wet or contaminated runways. For aeroplanes, where Flight Management Systems (FMS) are not GRF-capable, landing and take-off distance safety factors for wet and contaminated runways can be used. These are included in the AFM specific to the aeroplane or generic performance tables. For further information regarding factored landing distances, refer to [AC 91-02 - Guidelines for aeroplanes with MTOW not exceeding 5 700 kg - suitable places to take off and land](#).

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Figure 3. Honeywell MCDU with braking action, associated RWYCC and landing distance factor

2.3 Aerodrome operator

- 2.3.1 It is recognised that information provided by the aerodrome’s personnel assessing and reporting runway surface condition is crucial to the accuracy and effectiveness of the RCR. A misreported runway condition alone should not lead to an accident or incident. Operational margins should cover for a reasonable error in the assessment, including unreported changes in the runway condition. A misreported runway condition can mean that the margins are no longer available to cover for other operational variance, such as unexpected tailwind, high and fast approach above threshold or long flare.
- 2.3.2 It is important to follow standard procedures when providing assessed information on the runway surface conditions to ensure that safety is not compromised when aeroplanes use wet or contaminated runways. Personnel should be trained in the relevant fields of competence. A sample training syllabus is provided at Appendix D for 'Runway Surface Condition Assessment and Reporting'.
- 2.3.3 The methodology of the RCR is that the aerodrome operator assesses the runway surface conditions whenever water, snow, slush, ice or frost are present on an operational runway. From this assessment, a RWYCC is assigned and reported which can be used by the flight crew for aeroplane performance calculations. This format, based on the type, depth and coverage of contaminants, is the best assessment of the runway surface condition by the aerodrome operator.
- 2.3.4 Visually inspecting the runway to assess the surface condition is the core method for determining an RWYCC. However, an overall assessment does imply more than just this activity is required. Continuously monitoring the development of the situation and prevailing weather condition is essential to ensuring safe flight operations. Other information that might influence the assessment result includes the control and deceleration of the inspection vehicle, pilot reports of runway braking action, friction readings (continuous friction measuring device or decelerometer), weather forecast, etc. Due to the interaction between all these factors, it is not possible to define a precise method for determining how they affect the RWYCC to be reported.
- 2.3.5 Aerodrome personnel should use their best judgement and experience to determine an RWYCC that best reflects the prevailing situation. Reporting, in compliance with the RCR, commences

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when a significant change in runway surface condition occurs due to water, snow, slush, ice or frost.

2.3.6 Reporting of the runway surface condition should continue to reflect significant changes until the runway is no longer contaminated. A change in the runway surface condition used in the runway condition report is considered significant whenever there is:

- any change in the RWYCC
- any change in contaminant type
- any other relevant information, for example pilot reports of reduced runway braking action is known to be significant.

Note: If an aerodrome operator is unable to issue a RCR for a runway affected by 'standing water', is otherwise contaminated, or parts of the runway are 'slippery wet', then the aerodrome operator always has the safe option available to close the entire runway or parts of it, which then doesn't require a RCR to be issued.

2.4 Air traffic services

2.4.1 For controlled aerodromes when the runway is wet (RWYCC 5), the assessed information shall be reported by RCR and disseminated via ATC only. Assessment and reporting for WET and DRY conditions will be provided by the aerodrome operator to ATC at controlled aerodromes unless there is an agreement in place between the aerodrome operator and ATC for ATC to provide the assessment and report. There is significant workload for aerodrome personnel to assess and report a wet runway as it is drying, therefore it is preferable that there is an agreement with ATC to report these conditions. Additionally, ATCs have the best vantage point from the control tower to assess when a runway is completely dry as shown in Figure 4.



Figure 4. View from control tower during wet runway operations

2.4.2 The purpose of reporting to ATC is so that this information can be passed on to pilots using standard phraseology or communicating the RCR via automated means such as on the ATIS.

2.4.3 Pilots must inform ATC, via AIREP, whenever runway conditions are not as good as currently reported. If ATCs receive an AIREP SPECIAL concerning braking action that is found not to be

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as good as that reported for a runway. For example, a 'WET' runway normally has a braking action of 'GOOD' but if two or more consecutive pilots report it as 'MEDIUM'; this indicates a 'SLIPPERY WET' runway, they will forward the AIREP without delay to other pilots and the aerodrome operator. This is a prerequisite for using the AIREP for downgrading purposes when assessing the RWYCC.

- 2.4.4 When ATC report a runway as being wet or thirds being wet, the RCR is made using the active runway number which may be the higher rather than the lower runway number i.e. if runway 30 is in use, ATC will report runway 30 instead of runway 12 which is used in the NOTAM.

2.4.5 Flight information service

- 2.4.5.1 Under ICAO's PANS-Aerodromes, the aerodrome operator is required to disseminate 'contaminated' runway surface reports to AIS and ATS. This can be accommodated for aerodromes with air traffic control services; however some aerodromes do not have ATC present 24/7 and some have no ATC service at all. The intention of providing 'contaminated' runway reports to AIS and ATS is to ensure pilots receive these reports as part of their pre-flight planning or via the control tower. At aerodromes that are non-controlled, pilots can receive 'contaminated' runway reports through provision of a flight information service (FIS) by ATS.
- 2.4.5.2 ICAO's Annex 11 describes the scope of FIS which includes 'information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water'. Additionally, FIS broadcasts can include 'significant runway surface conditions and, if appropriate, braking action'. Therefore, affected pilots will receive a RCR for 'contaminated' or 'slippery wet' runways through provision of FIS if they are airborne, similarly to provision of SIGMETs, SPECIs and Amended TAFs.

2.5 Aeronautical information management

- 2.5.1 Any 'SLIPPERY WET' or contaminated runway is to be reported by the aerodrome operator to the AIS (NOTAM Office) using the RCR. The required reporting format is in Section 3.2 of this AC. The RCR should continue to be reported until the complete runway surface condition is 'DRY', including changes to the RWYCC or runway surface description. While PANS-Aerodromes expects a RCR to be issued when the runway is dry, Australia only requires the RCR NOTAM to be cancelled which indicated to pilots that the complete runway has returned to normal dry conditions.
- 2.5.2 Due to technical limitations with Australia's NOTAM system (National Aeronautical Information Processing System (NAIPS)), SNOWTAM cannot currently be issued within Australia. A RCR NOTAM will be issued with the relevant and necessary runway surface condition elements in Field E). For further information refer to paragraph 3.2.2.

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3 Runway surface condition assessment and reporting

3.1 Assessment

3.1.1 Assigning a RWYCC

- 3.1.1.1 The RCAM supports the classification of runway surface conditions according to their effect on aeroplane braking performance using a set of criteria identified and quantified based on the best industry knowledge, built on dedicated flight testing and in-service experience. The agreed thresholds at which a criterion changes the classification of a surface condition are intended to be reasonably conservative, without being excessively pessimistic.
- 3.1.1.2 In ICAO Doc 9981 PANS-Aerodromes, the RCAM in Table II-2-5 is a combination of Table II-2-3 (Assigning a runway condition code (RWYCC)) and Table II-2-4 (Correlation of runway condition code and pilot reports of runway braking action).
- 3.1.1.3 Therefore, Tables II-2-3 and II-2-4 provide the means for aerodrome operators to initially assign a RWYCC and to downgrade it if the runway surface condition deteriorates and/or subsequent pilot reports are received that indicate the braking action is less than that normally associated with the RWYCC. We have split Table II-2-3 into WET and DRY conditions, which are the predominant weather-related impacts on runway surface condition and winter conditions of, for example frost and snow, which impact very few aerodromes in Australia.
- 3.1.1.4 A RWYCC is initially assigned based on the runway surface condition and its description (refer Part 139 MOS Section 12.04A). Figures 5 to 8 below outline the process to be followed to assess a runway third, assign a RWYCC and report runway surface conditions.

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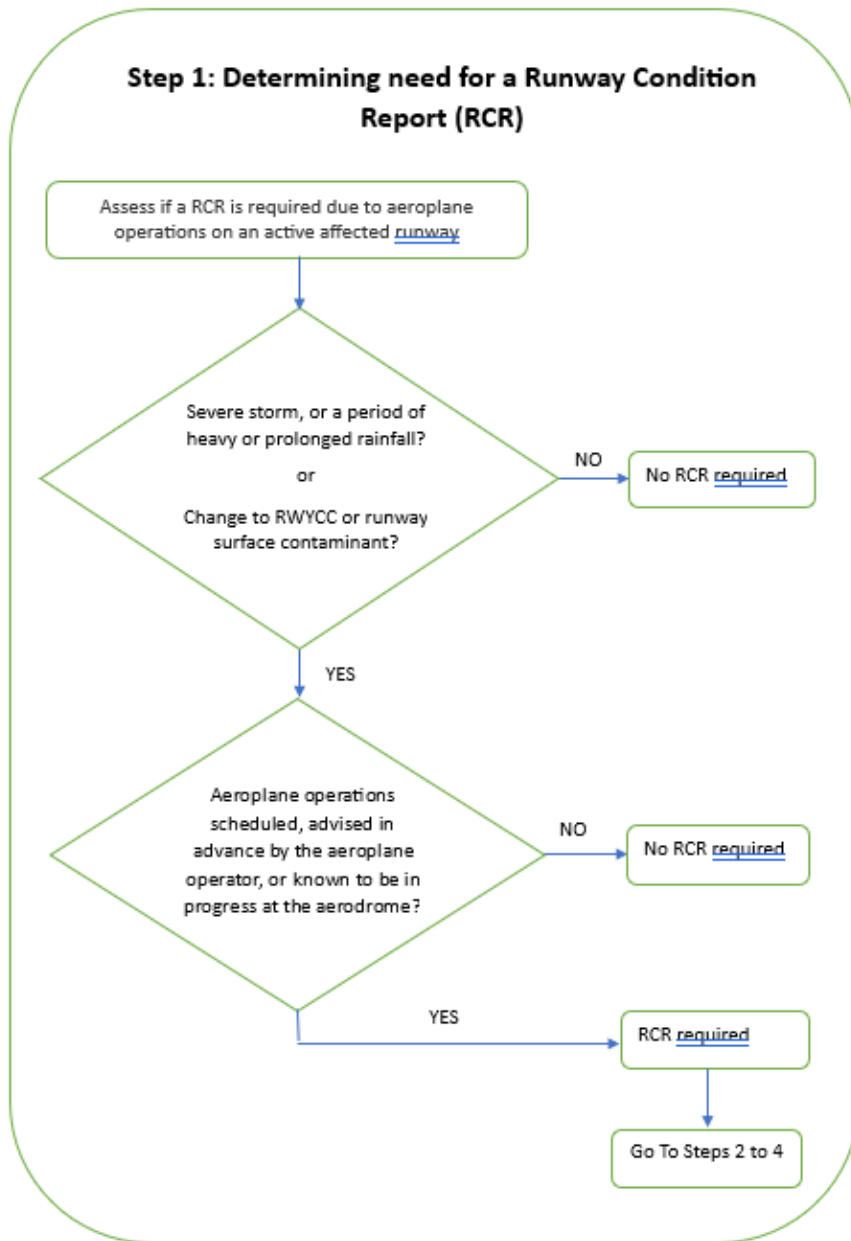


Figure 5. Process for determining if RCR is required

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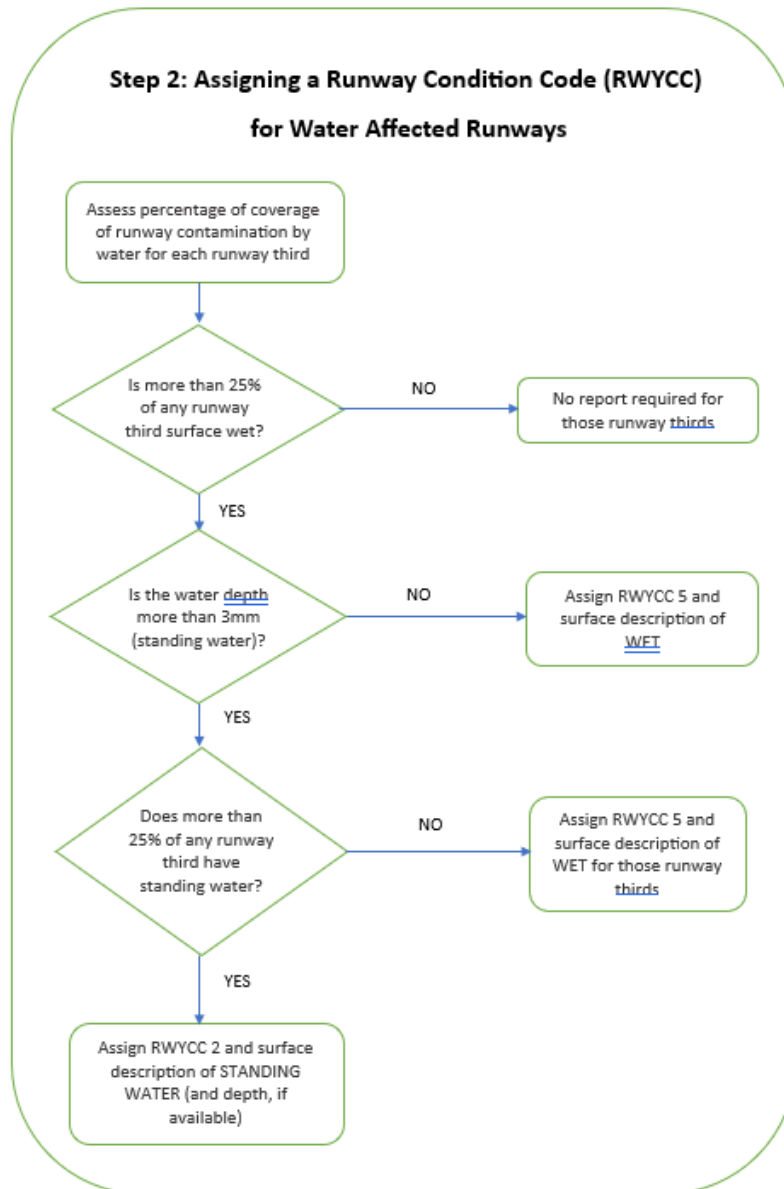


Figure 6. Process for assigning a RWYCC for water affected runways

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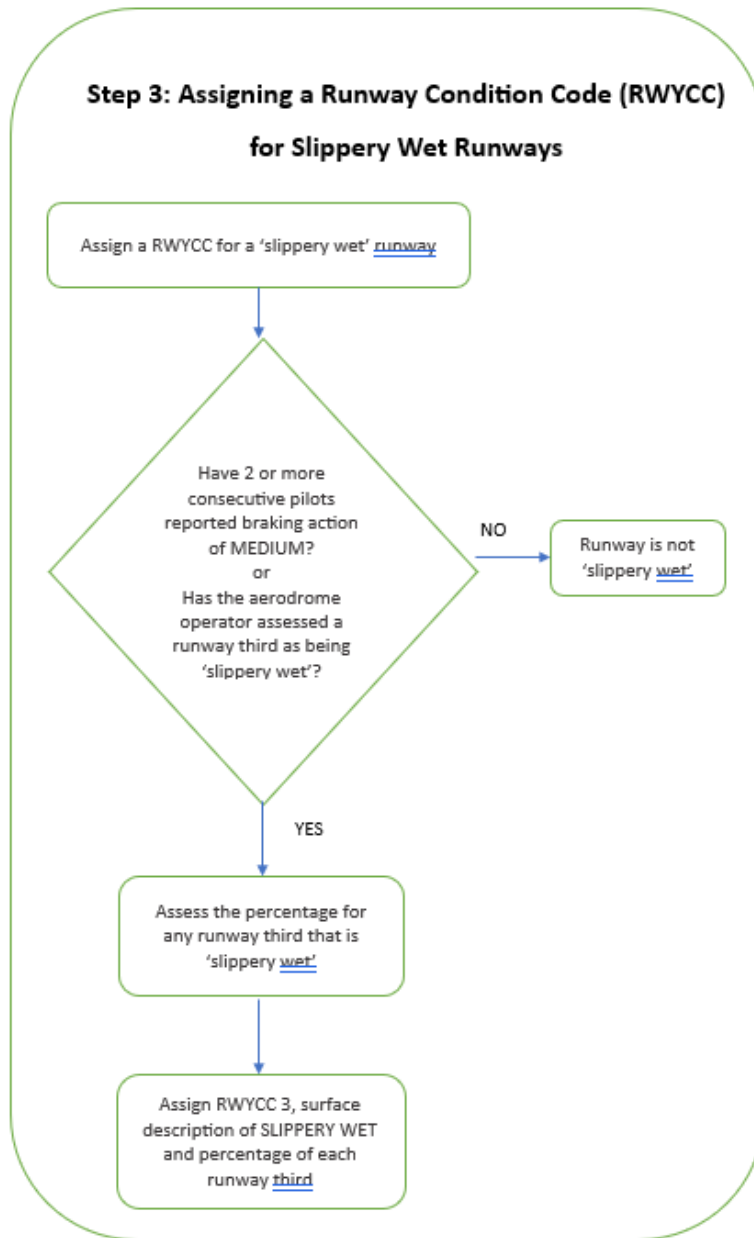


Figure 7. Process for assigning a RWYCC for a 'Slippery Wet' runway

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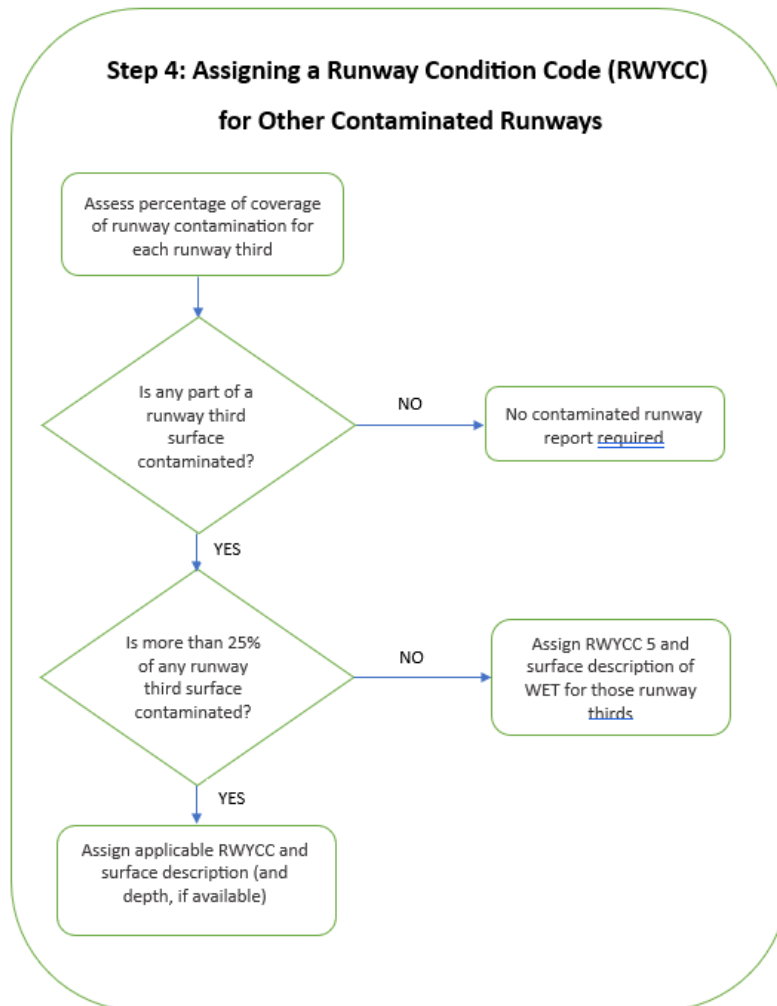


Figure 8. Process for assigning a RWYCC for other 'Contaminated' runways

3.1.2 Wet and dry runways

- 3.1.2.1 Due to the prevalence of 'wet only' conditions in Australia, the RWYCC assignment tables in Part 139 MOS Section 12.04A have been split into two sections for the convenience of aerodrome operators i.e. 'dry, wet, slippery wet and standing water' and 'other contaminants'.
- 3.1.2.2 In order to create an RCR, aerodrome operators must first assign a RWYCC. This is done by assessing the surface condition description of the runway and allocating the corresponding

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code number in accordance with Table 1 below. For example, a runway with 'standing water' on it would be allocated an RWYCC of '2'.

Table 1. Using a runway surface description to assign a RWYCC (WET and DRY only)

For a runway surface description	Applicable RWYCC
DRY	6
WET (The runway surface is covered by any visible dampness or water up to and including 3 mm depth)	5
WET ("slippery wet" runway)	3
STANDING WATER (depth of more than 3 mm)	2

3.1.2.3 Once the RWYCC has been determined, the aerodrome operator needs to make an assessment of which thirds of the runway have been affected. Australia does not require an aerodrome operator to purchase sophisticated and expensive equipment to determine runway thirds. There may be natural infrastructure markers associated with a runway such as taxiway or runway intersections with the affected runway and, in any case, certified aerodrome operators are required to establish obstacle limitation surfaces (OLS) for their runways so should be able to **approximate** the thirds of a runway length. Figure 9 provides an example.

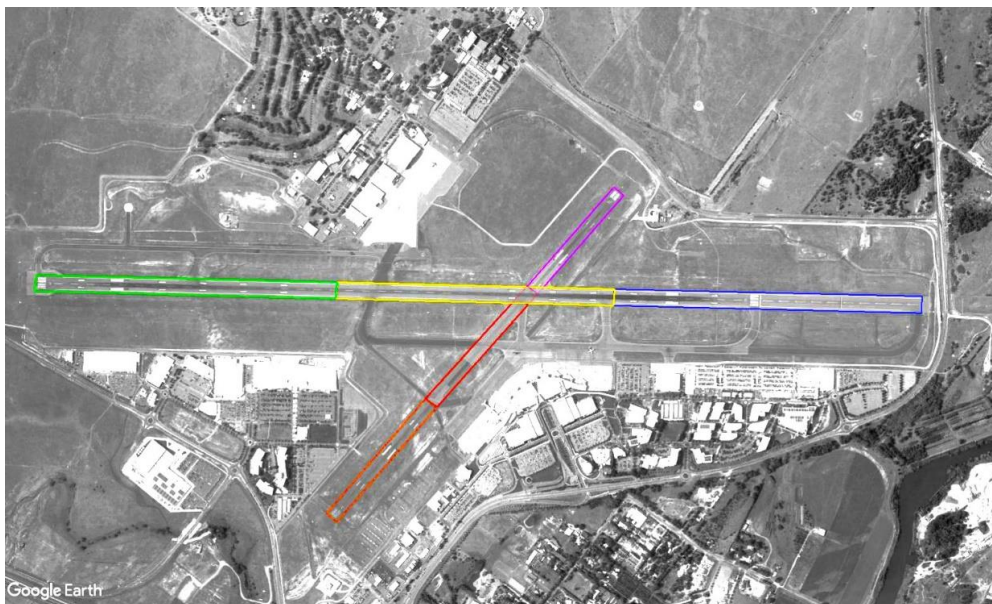


Figure 9. Depiction of Runway Thirds

3.1.2.4 If a runway third has 25% or less standing water on its surface it is to be reported as RWYCC 5 and runway surface of description of 'WET'. This indicates to pilots that the surface is not contaminated but that it isn't completely dry either (refer Figure 10 below).

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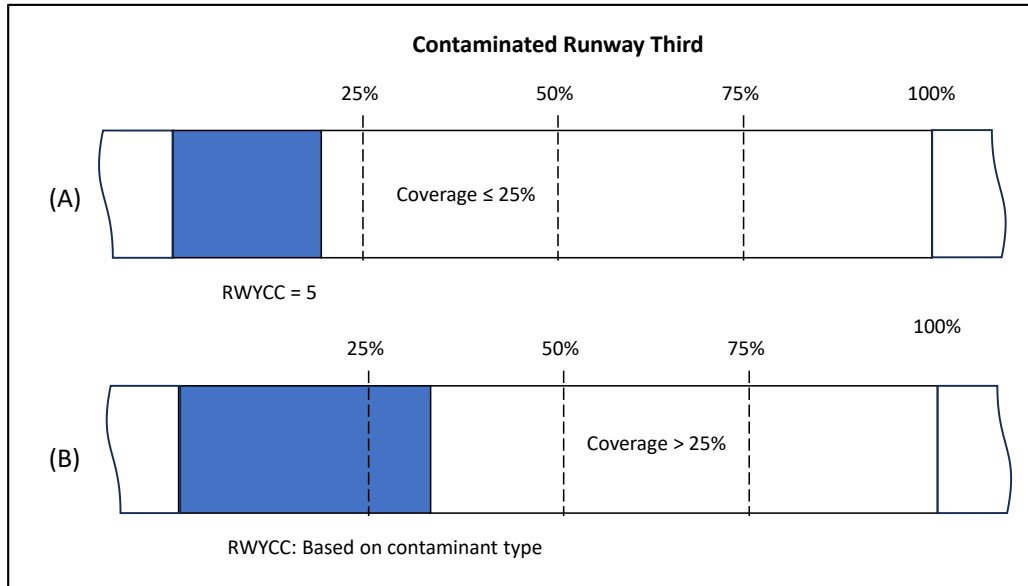


Figure 10. Depiction of 25% of a Contaminated Runway Third

3.1.2.5 Report the depth of the standing water if this data is available. When a runway is not in use and there is previous instances of water pooling or ponding following periods of rain, the aerodrome operator could measure the depth of water and record it in their aerodrome manual. This would facilitate easier reporting of it during the next occasion when water is pooling and an RCR is required to be provided.

3.1.3 'Slippery wet' runways

3.1.3.1 The surface friction characteristics of a runway, or a portion of it, can become degraded due to rubber deposits (e.g. in the touchdown zone), surface polishing, poor drainage or other factors. The determination that a runway is 'slippery wet' stems from various methods. These methods may be used in isolation or in combination. They may include periodic friction assessment and surface texture evaluation or using a continuous friction measuring device which are available to the aerodrome operator. Other ways for the aerodrome operator to become aware that a runway is 'slippery wet' is by receiving 2 or more consecutive pilot reports or relayed reports from ATC of a reduced braking action for a 'wet' runway that is 'MEDIUM' instead of 'GOOD'.

3.1.3.2 If ATC receive an AIREP by voice communications concerning braking action that is found not to be as good as that reported, they will forward the AIREP to the aerodrome operator, as well as other pilots. This is a prerequisite for using the AIREP for downgrading purposes when assessing the RWYCC. The distribution of AIREPs to aerodrome operators should be subject to an agreement between ATC and the aerodrome operator or between the aircraft operator and the aerodrome operator.

3.1.3.3 AIREPs may be generated by automated systems processing aeroplane data recorded during the deceleration phase. Such reports are less subjective than those generated based on the flight crew's perception alone and may provide additional information. It is therefore encouraged to discriminate between the two types of report origins.

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- 3.1.3.4 Various methods are available to aerodrome operators to assess runway surface friction. Appendix C provides guidance to aerodrome operators on various methods to assess changes to the surface friction characteristics of runways.
- 3.1.3.5 As with wet and contaminated runways, a 'slippery wet' runway is required to be assessed in thirds. Due to the particular hazards associated with the reduced surface friction the percentage of each runway third is to be reported in increments of 25% (i.e. 25%, 50%, 75% or 100%).

Note: Reporting runway condition as 'slippery wet' does not remove the aerodrome operator's Part 139 MOS responsibility to maintain runways with sealed, concrete or asphalt surfaces in accordance with the surface texture or friction standards and to take corrective action.

3.1.4 Other contaminated runways

- 3.1.4.1 There are a limited number of certified aerodromes in Australia that may experience conditions in winter leading to 'frost' or 'snow' on a runway. These will be rare events and there will be a likelihood that these contaminants will not be present on a runway for long periods of time. Even so, an RCR must be issued if there are aeroplanes scheduled to operate, or known to the aerodrome operator to be operating, during these conditions. Due to the limited use of the RCR in these circumstances the Part 139 MOS Section 12.04A table for assigning the RWYCC has been separated for ease of use by affected aerodromes. Refer to Table 2 below to assign a RWYCC for other contaminated runways.
- 3.1.4.2 Other contaminated runways are also required to be reported in thirds of a runway, along with the depth of the contaminant if available.
- 3.1.4.3 If a runway third has 25% or less contaminants on its surface it is to be reported as RWYCC 5 and runway surface of description of 'WET'. This indicates to pilots that the surface is not contaminated but that it isn't completely dry either.

Table 2. Using a runway surface description to assign a RWYCC for other contaminants

For a runway surface description	Applicable RWYCC
<ul style="list-style-type: none"> FROST SLUSH (up to and including 3 mm depth) DRY SNOW (up to and including 3 mm depth) WET SNOW (up to and including 3 mm depth) 	5
<ul style="list-style-type: none"> COMPACTED SNOW (Outside air temperature minus 15 degrees Celsius and below) 	4
<ul style="list-style-type: none"> DRY SNOW (more than 3 mm depth) WET SNOW (more than 3 mm depth) DRY SNOW ON TOP OF COMPACTED SNOW (any depth) WET SNOW ON TOP OF COMPACTED SNOW (any depth) COMPACTED SNOW (outside air temperature above minus 15 degrees Celsius) 	3
<ul style="list-style-type: none"> SLUSH (more than 3 mm depth) 	2

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For a runway surface description	Applicable RWYCC
<ul style="list-style-type: none"> ICE 	1
<ul style="list-style-type: none"> WET ICE WATER ON TOP OF COMPACTED SNOW DRY SNOW OR WET SNOW ON TOP OF ICE 	0

3.1.5 Downgrading a RWYCC

3.1.5.1 Initial assignment of a RWYCC is based on the runway surface description. Table 3 below allows an aerodrome operator to downgrade a RWYCC based on 2 or more consecutive pilot reports of a braking action less than that allocated for the RWYCC. The pilot reports can be provided by ATC to the aerodrome operator or directly from the pilot.

Table 3. Correlation of runway condition code and pilot reports of runway braking action

Pilot report of runway braking action	Description	RWYCC
N/A		6
GOOD	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	5
GOOD TO MEDIUM	Braking deceleration OR directional control is between good and medium.	4
MEDIUM	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	3
MEDIUM TO POOR	Braking deceleration OR directional control is between medium and poor.	2
POOR	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	1
LESS THAN POOR	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	0

3.1.5.2 Downgrading the RWYCC is an integral part of the assessment process and is essential to making relevant reports of the prevailing runway surface conditions. When all other

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observations, experience and local knowledge indicate to trained aerodrome personnel that the primary assignment of the RWYCC does not accurately reflect the prevailing conditions, a downgrade or upgrade can be made. The only RWYCCs which can be upgraded are '1' (ICE) and '0' (WET ICE, WATER ON TOP OF COMPACTED SNOW or DRY SNOW OR WET SNOW ON TOP OF ICE) which are runway surface conditions unlikely to occur in Australia.

3.1.5.3 Wet runways

- 3.1.5.4 RWYCCs are initially assigned based on the runway surface description. Therefore, a 'wet' runway would be assigned a RWYCC of 5 which indicates a braking action of 'GOOD', however, if an aerodrome operator becomes aware (through ATC or pilot reports of braking action) that the braking action is not what is expected of a 'wet' runway e.g. during an ongoing heavy storm then the initial RWYCC can be downgraded using Table 3 - Correlation of runway condition code and pilot reports of runway braking action.
- 3.1.5.5 Additionally, there may be circumstances (e.g. during extremely heavy rainfall periods) when a 'slippery wet' runway may have even worse braking action than 'MEDIUM'. Table 3 allows for downgrading of the RWYCC, for example, from '3' to '2', based on braking actions reported by the pilot or relayed by ATC.

Example:

A RWYCC of 5 is assigned for a 'wet' runway. The aerodrome operator receives multiple reports from ATC that pilots are reporting a braking action of 'GOOD to MEDIUM'. The aerodrome operator can then downgrade the RWYCC to 4 and provide a new RCR to ATC. Note that, if there is an agreement in place between the aerodrome operator and ATC, ATC can report the reduced RWYCC on the ATIS, or to pilots.

3.1.5.6 Contaminated runways

- 3.1.5.7 For runways with 'Standing Water' or 'otherwise contaminated' the same methodology can be used to downgrade a RWYCC. If the reported braking action is not what is expected after the initial assessment, then the RWYCC can be downgraded using Table 3.

Example:

A RWYCC of 2 is assigned for a runway with 'Standing Water'. The aerodrome operator receives multiple reports from ATC or from pilots reporting a braking action of 'POOR'. The aerodrome operator must then downgrade the RWYCC to 1 and issue a new RCR.

3.2 Reporting**3.2.1 RCR — elements**

- 3.2.1.1 The RCR includes:
- aerodrome location indicator
 - date and time of assessment
 - lower runway designation number (at controlled aerodromes this will be the runway designator for the runway number broadcast on the ATIS)

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- RWYCC for each runway third
- If 25% or less of a runway third has standing water or is otherwise contaminated it is to be assigned a RWYCC of 5 and surface description of WET
- percentage coverage of each runway third for slippery wet runways
- contaminant depth, if available
- surface description for each runway third.

3.2.1.2 The sources of information for each element of the RCR are in Table 4 below:

Table 4. Runway condition report (RCR) - Aeroplane performance calculation section

Information	Source
Aerodrome location indicator.	AIP-ERSA.
Date and time of assessment.	UTC/Local time.
Lower runway designation number.	Actual runway.
RWYCC for each runway third.	Assignment based on runway surface description.
Percentage coverage of runway third.	Visual observation for each runway third.
Depth of contaminant for each runway third.	Visual observation for each runway third, confirmed by measurements when appropriate.
Runway surface description for each runway third.	Visual observation for each runway third.

3.2.2 RCR — format

3.2.2.1 The format of the information to be included in RCR is as follows:

- a. Aerodrome Y-code location indicator
Format: nnnn
Example: YXXX
- b. Date and time of assessment: date and time (UTC or local time)
Format: MMDDhhmm
Example: 07152357
- c. Lower runway designation number: a two- or three-character number identifying the runway for which the assessment is carried out and reported
Format: RWY nn[L] or nn[C] or nn[R] or nn
Example: RWY 09L

Note: At controlled aerodromes the runway designation number will be the runway designator for the runway number broadcast on the ATIS.
The ICAO RCR format does not require 'RWY' to be inserted in front of the runway number, however due to the infrequent usage expected in Australia, a string of

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Global reporting format – Runway surface condition

numbers separated by obliques may be confusing to pilots from a human factor's perspective. Additionally, automated NOTAM processing systems may benefit from being able to search on the key word 'RWY'.

- d. RWYCC for each runway third: a one-digit number identifying the RWYCC assessed for each runway third. The codes are reported in a three-character group separated by a "/" for each third. The direction for listing the runway thirds shall be in the direction as seen from the lower designation number.
- Format: n/n/n
Example: 5/5/2
- e. Percentage coverage of a SLIPPERY WET runway separated by an oblique stroke "/" For runway thirds that are not affected they are reported as 'NR' for 'not reported'.
- Format: nn/nn/nn
Example: 25/NR/NR
- f. Depth of STANDING WATER or contaminant (if available) separated by an oblique stroke "/" For runway thirds that are not affected they are reported as 'NR' for 'not reported'.
- Format: nn/nn/nn
Example: 05/07/NR
- g. Surface description for each runway third: to be reported in capital letters. The condition type is reported by any of the following condition type descriptions for each runway third and separated by an oblique stroke "/".
- Format: aaa/aaa/aaa
Example: WET/WET/STANDING WATER

3.2.3 RCR reporting

- 3.2.3.1 ICAO has produced a Runway Condition Assessment Worksheet to assist aerodrome operators to assess and record runway surface conditions. The Runway Condition Assessment Worksheet for wet runways is reproduced at Appendix B and the editable or printable version is available on ICAO's website:
- [RCA Worksheet_wet_condition_041218.cdr \(icao.int\)](#)
- An additional 'winter' worksheet is also available:
- [RCA Worksheet_041218.cdr \(icao.int\)](#)
- 3.2.3.2 Figure 11 below summarises the reporting of RCRs to ATC, AIS or to pilots.

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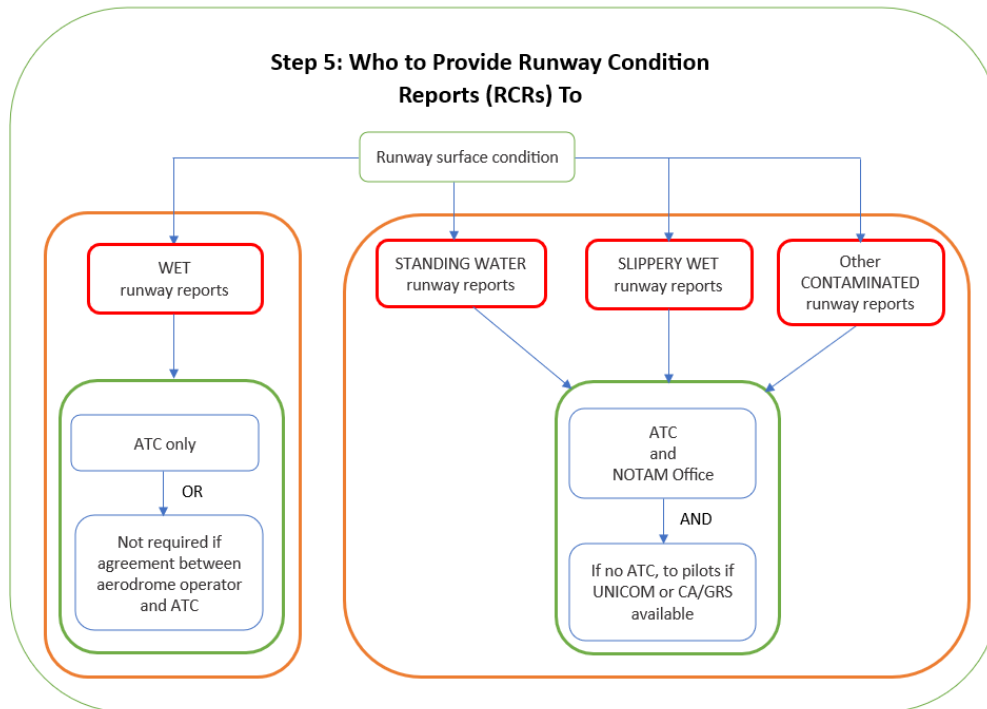


Figure 11. Summary of provision of RCRs

3.2.4 Wet or standing water reports

- 3.2.4.1 Runways that are 'wet' only need to be reported to ATC, and not to AIS (refer Table 5). This is only the case when ATC are present in the control tower as some towers do not operate 24 hr/7 days a week. If there is an agreement in place between the aerodrome operator and ATC (Airservices Australia), then ATC can conduct the assessment and reporting for wet runways only, during the control tower hours of operation.
- 3.2.4.2 ATC can provide the RCR via the ATIS or through voice communications to pilots using standard phraseologies.
- 3.2.4.3 An ATIS presents a very important means of transmitting information, relieving operational personnel from the routine duty of transmitting runway conditions and other relevant information to the flight crew. In addition to normal operational and weather information, the following information about the runway surface condition should be mentioned whenever the runway is not dry (RWYCC 6):
 - a. operational runway in use at time of issuance
 - b. RWYCC for the operational runway, for each runway third in the operational direction; and
 - c. Surface condition description, for each third
- 3.2.4.4 When transmitting information on runway surface conditions by ATIS to flight crews, the sections are referred to as the first, second or third part of the runway. The first part always means the

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first third of the runway as seen in the direction of landing or take-off. This is different to reporting to AIS which is the lower runway number being reported first, as operational direction will not necessarily be known by the aerodrome operator.

- 3.2.4.5 'Standing water' RCRs are to be provided to both ATC and AIS in the format prescribed in paragraph 3.2.2.
- 3.2.4.6 Some aerodromes have UNICOM services or CA/GRS and in these cases, if possible, the aerodrome operator should provide the 'Standing Water' RCR directly to the pilot, as well as AIS.
- 3.2.4.7 Figures 12 and 13 demonstrate a complete information string prepared for 'wet' or 'standing water' runway condition reports:

WET ONLY RUNWAY:

The diagram shows a runway divided into three segments. Each segment is labeled 'WET' and 'RWYCC = 5'. The runway numbers 16 and 34 are shown at the ends of the segments.

ATIS:
MELBOURNE TERMINAL INFORMATION CHARLIE, EXPECT INSTRUMENT APPROACH, RUNWAY 34, SURFACE CONDITION CODE 5, 5, 5, WET, WET, WET, WIND 325 DEGREES/15 KNOTS etc

ATC:
RUNWAY 34 SURFACE CONDITION CODE 5, 5, 5, WET, WET, WET

Note: NOTAMs are not issued for WET runways. RCRs are provided via the ATIS or ATC. Additionally, at controlled aerodromes the RCR will not necessarily be the lower runway number designator, but the direction of the runway in use.

Figure 12. WET runway reporting format

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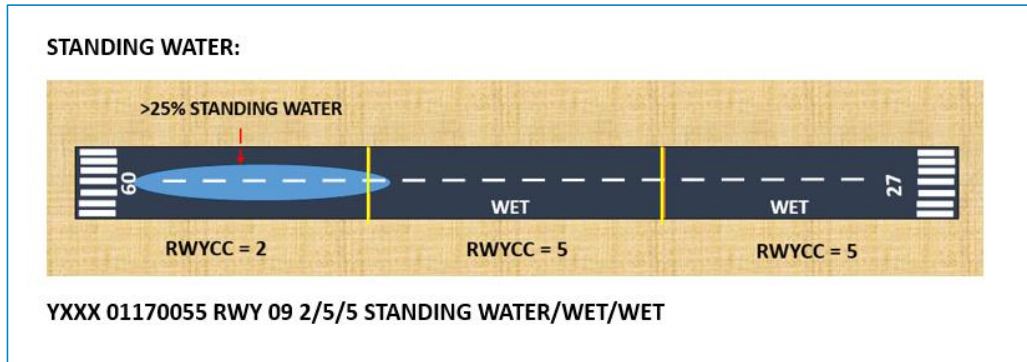


Figure 13. STANDING WATER runway reporting format

3.2.4.8 Figure 14 demonstrates a complete information string prepared for 'standing water' runway condition reports, when depth of 'standing water' is available:

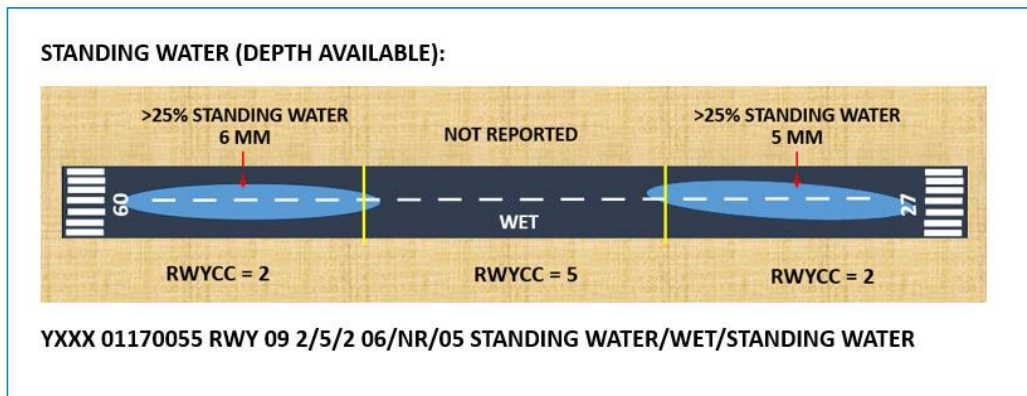


Figure 14. STANDING WATER runway (depth available) reporting format

Figure 15 demonstrates a complete information string prepared for 'standing water' runway condition reports, when 25% or less of any runway third has 'standing water':

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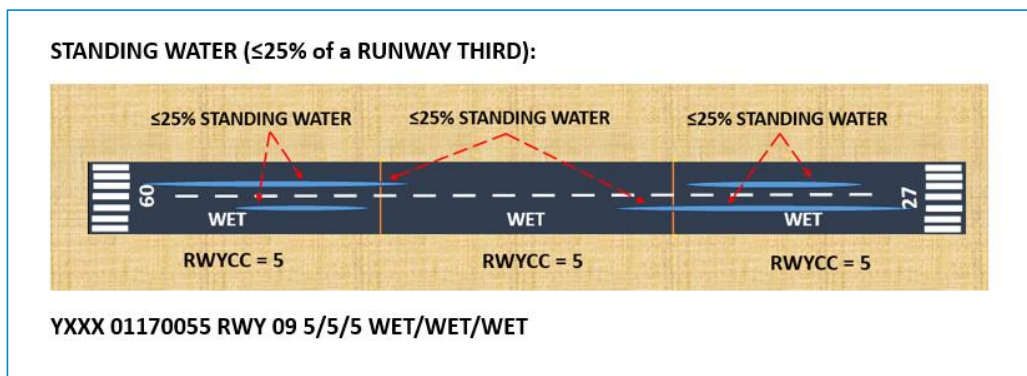


Figure 15. STANDING WATER runway (with 25% or less of a runway third) reporting format

Table 5. Reporting Runway Surface Conditions (Wet only)

RWYCC	Runway surface description	Report made available to
5	WET	(a) ATC (if available); or (b) not required if agreement between aerodrome operator and ATC.
2	STANDING WATER	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.

3.2.5 'Slippery wet' runway reports

3.2.5.1 As discussed in paragraph 3.1.2.5, 'slippery wet' runways are particularly hazardous to aircraft operations due to the nature of the runway surface providing less than the required or expected surface friction.

Note: In Australia, runway surface description 'SLIPPERY WET' will be included in the RCR to provide additional safety awareness of the risk to operations on a wet runway with a braking action of 'MEDIUM'.

3.2.5.2 'Slippery wet' RCRs are to be provided to both ATC and AIS in the format prescribed in paragraph 3.2.2. Some aerodromes have UNICOM services or CA/GRS and in these cases, if possible, the aerodrome operator should provide the RCR directly to the pilot, as well as AIS. Refer to Table 7 for reporting requirements of 'slippery wet' runways.

3.2.5.3 The percentage of a runway third is to be assessed and reported as shown in Table 6:

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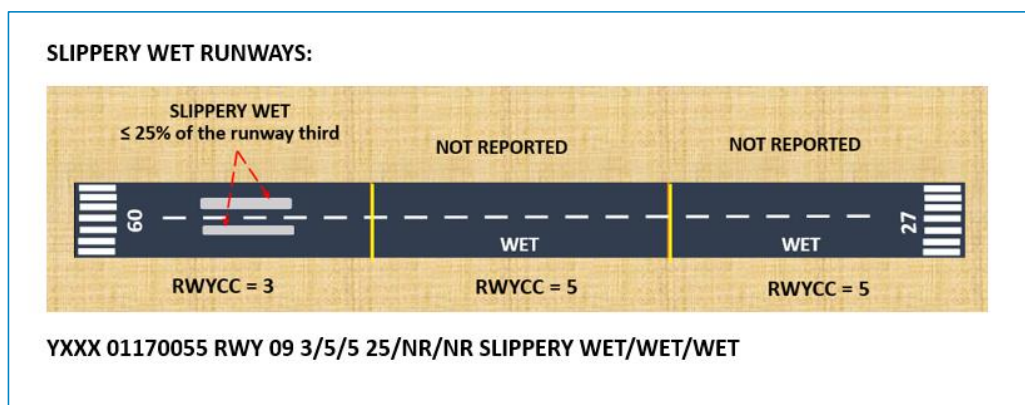
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Table 6. Assessing and reporting percentages of a runway third (Slippery wet only)

Assessed per cent	Reported per cent
10 - 25	25
26 - 50	50
51 - 75	75
76 - 100	100

3.2.5.4 Figure 16 demonstrates a complete information string prepared for 'slippery wet' runway condition reports, along with percentage coverage:



Note: The percentage reported of a runway third for SLIPPERY WET runways is the total percentage for the runway third i.e. 25%, 50%, 75% or 100%.

Figure 16. SLIPPERY WET runway (with percentages of runway thirds) reporting format

Table 7. Reporting Runway Surface Conditions (Slippery wet only)

RWYCC	Runway surface description	Report made available to
3	SLIPPERY WET	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.

3.2.6 Other contaminated runway reports

3.2.6.1 The remaining contaminated runway RCRs are to be provided to both ATC and AIS in the format prescribed in paragraph 3.2.2. Some aerodromes have UNICOM services or CA/GRS

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and in these cases, if possible, the aerodrome operator should provide the RCR directly to the pilot, as well as AIS. Refer to Table 8 for reporting requirements of 'other contaminated' runways.

3.2.6.2 Figure 17 demonstrates a complete information string prepared for 'frost' runway condition reports:

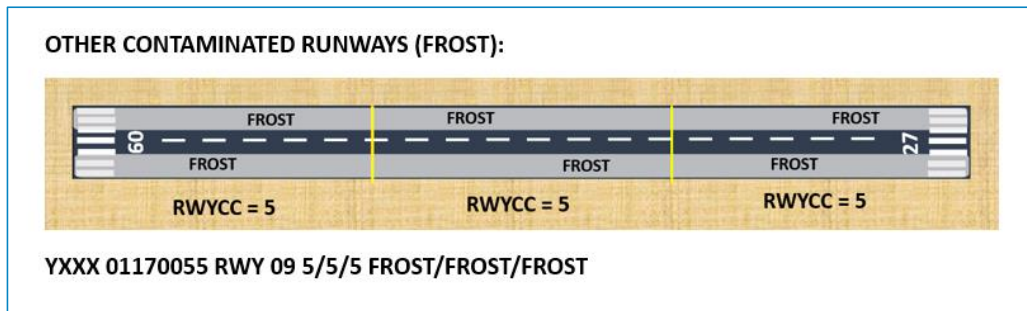


Figure 17. Contaminated runway (FROST) reporting format

3.2.6.3 Figure 18 demonstrates a complete information string prepared for 'snow' runway condition reports:

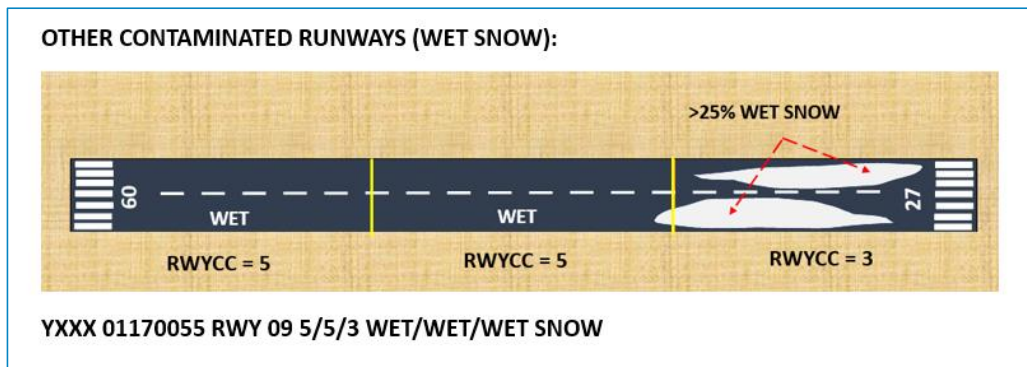


Figure 18. Contaminated runway (WET SNOW) reporting format

3.2.6.4 Figure 19 demonstrates a complete information string prepared for 'snow' runway condition reports, when depth of snow is available:

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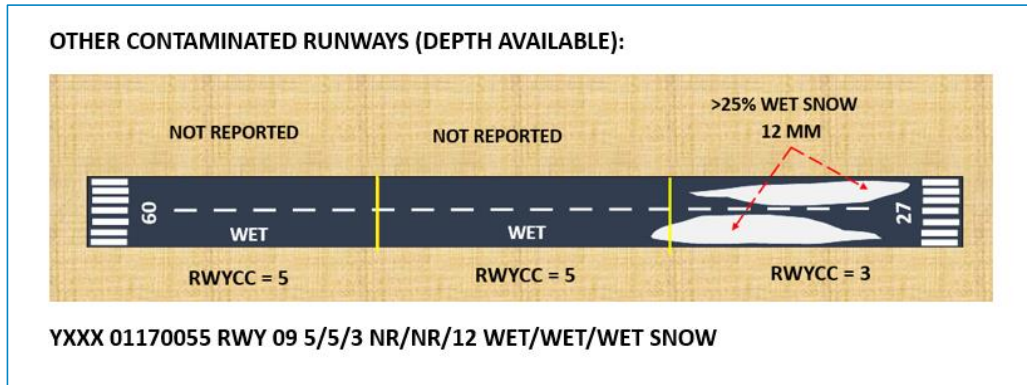


Figure 19. Contaminated runway (with depth of contaminant available) reporting format

3.2.6.5 Figure 20 demonstrates a complete information string prepared for 'snow' runway condition reports, when 25% or less of any runway third has 'snow':

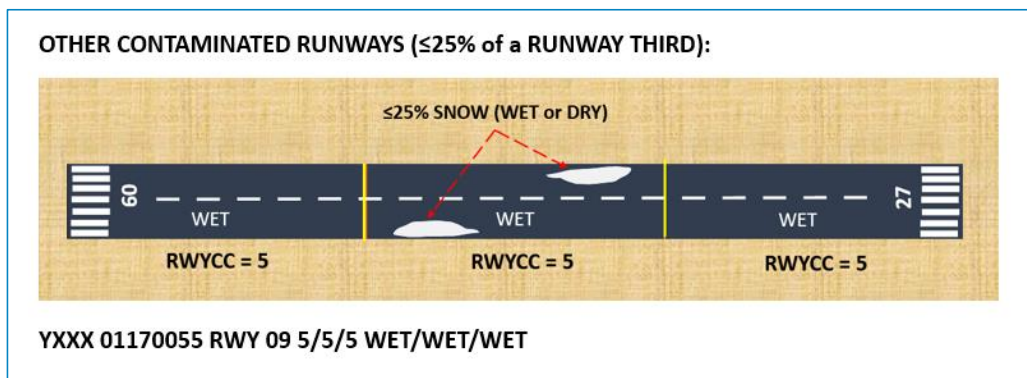


Figure 20. Contaminated runway (with 25% or less of a runway third) reporting format

Table 8. Reporting Runway Surface Conditions (Other contaminants)

RWYCC	Runway surface description of:	Report made available to
5	FROST Up to and including 3 mm depth: SLUSH DRY SNOW WET SNOW	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.

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RWYCC	Runway surface description of:	Report made available to
4	-15°C and Lower outside air temperature: COMPACTED SNOW	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.
3	DRY SNOW or WET SNOW (any depth) ON TOP OF COMPACTED SNOW More than 3 mm depth: DRY SNOW WET SNOW Higher than -15°C outside air temperature: COMPACTED SNOW	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.
2	More than 3 mm depth: SLUSH	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.
1	ICE	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.
0	WET ICE WATER ON TOP OF COMPACTED SNOW DRY SNOW or WET SNOW ON TOP OF ICE	(a) the NOTAM Office, and ATC (if available); and (b) if ATC is not available — pilots, but only where the aerodrome operator has available UNICOM, or CA/GRS.

3.2.7 Displaced thresholds

- 3.2.7.1 For runways with displaced thresholds, the thirds of the runway to be reported are thirds of the take-off run available (TORA). Also as stated in paragraph 2.4.4, when ATC provide the RCR they report the runway direction in use as indicated on the ATIS. Figure 21 depicts reporting of runways with displaced thresholds:

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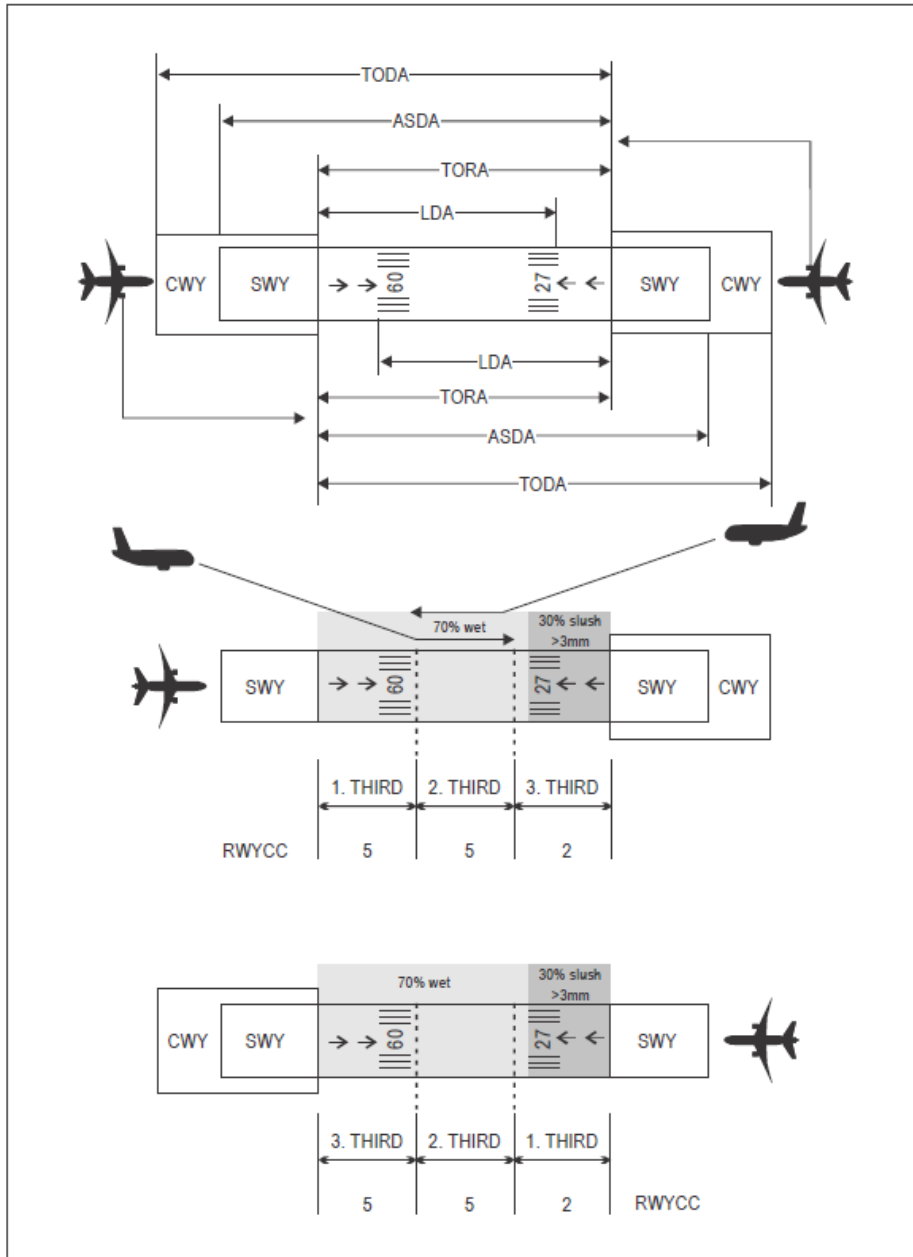


Figure 21. Reporting of RWYCC for runway thirds from ATS to flight crew on a runway with displaced threshold (ICAO Cir 355)

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Appendix A

Runway Condition Assessment Matrix (RCAM)

Assessment criteria		Downgrade assessment criteria	
Runway Condition Code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	<ul style="list-style-type: none"> DRY 	-	-
5	<ul style="list-style-type: none"> FROST WET (runway surface is covered by any visible dampness or water up to and including 3 mm depth) <p>Up to and including 3 mm depth:</p> <ul style="list-style-type: none"> SLUSH DRY SNOW WET SNOW 	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4	<p>-15°C and Lower outside air temperature:</p> <ul style="list-style-type: none"> COMPACTED SNOW 	Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	<ul style="list-style-type: none"> WET ("slippery wet" runway) DRY SNOW or WET SNOW (any depth) ON TOP OF COMPACTED SNOW <p>More than 3 mm depth:</p> <ul style="list-style-type: none"> DRY SNOW WET SNOW <p>Higher than -15°C outside air temperature¹:</p> <ul style="list-style-type: none"> COMPACTED SNOW 	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<p>More than 3 mm depth of water or slush:</p> <ul style="list-style-type: none"> STANDING WATER SLUSH 	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR

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Assessment criteria		Downgrade assessment criteria	
1	<ul style="list-style-type: none"> ICE 	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0	<ul style="list-style-type: none"> WET ICE WATER ON TOP OF COMPACTED SNOW DRY SNOW or WET SNOW ON TOP OF ICE 	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

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Appendix B Runway Condition Assessment Worksheet - Wet runway surface conditions

Runway Condition Assessment Worksheet

Aerodrome
 Date/Time (UTC) of assessment (MMDDhhmm)
 Lower Runway Designator
 Initials

Is more than 25% of any runway third surface wet or contaminated?

Yes - assign Runway Condition Codes for each third and complete RWY Condition Report (Blue Box)
 No - No report created:

Note: RWYCC 6/6/6 for all runway thirds may be used to indicate that the runway is no longer wet

1st RWY Third	2nd RWY Third	3rd RWY Third
For coverage 25% or less enter Code 6: - Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right	For coverage 25% or less enter Code 6: - Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right	For coverage 25% or less enter Code 6: - Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right
Dry 6	Dry 6	Dry 6
Wet (Damp) 5 Wet 3 <small>(Slippery wet runway) (Below Min Friction) (Level Classification)</small> % Cov. 25/50/75/100	Wet (Damp) 5 Wet 3 <small>(Slippery wet runway) (Below Min Friction) (Level Classification)</small> % Cov. 25/50/75/100	Wet (Damp) 5 Wet 3 <small>(Slippery wet runway) (Below Min Friction) (Level Classification)</small> % Cov. 25/50/75/100
Standing water 2 <small>>3mm</small> % Cov. 25/50/75/100 Depth: 4mm Assessed depth (mm): <small>For Standing water 4mm depth has to be reported as Minimum</small>	Standing water 2 <small>>3mm</small> % Cov. 25/50/75/100 Depth: 4mm Assessed depth (mm): <small>For Standing water 4mm depth has to be reported as Minimum</small>	Standing water 2 <small>>3mm</small> % Cov. 25/50/75/100 Depth: 4mm Assessed depth (mm): <small>For Standing water 4mm depth has to be reported as Minimum</small>

Situational Awareness Section / Notes:

TWY _____ Poor
 Apron _____ Poor
 Other _____

State approved

CFME Braking coefficient

MU not to be transmitted in RWY Condition Report

Adjusted RWYCC

ONLY if Downgrade/ Upgrade Assessments used

Downgrade/ Upgrade Criteria

AIREP CFME Other

RCR

Aerodrome / Date & Time / RWY / RWYCC / % Coverage / Depth in mm

Contaminant Type 1st third / Contaminant Type 2nd third / Contaminant Type 3rd third

Plain language remarks: _____

Replace RWY with n.m. if applicable

Figure 22. Runway Condition Assessment Worksheet - Wet runway surface conditions

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Appendix C Assessment methods for monitoring runway surface friction characteristics

Table A1: Assessment methods for monitoring trend of change to surface friction characteristics

Inspection method	Assessment results	Rubber build-up	Geometry change	Polishing
Visual – macrotexture	Visual assessment will only give a very crude assessment of the macrotexture. Extensive rubber build-up can be identified.	X		
Visual – microtexture	Visual assessment will give a very crude assessment of the microtexture and to what degree the microtexture has been filled and covered by rubber.	X		
Visual – runway geometry (ponding)	Visual assessment during a rain storm and subsequent drying process of the runway will reveal how the runway drains and if there have been any changes to runway geometry causing ponding. Depth of any pond can be measured by a ruler or any other appropriate depth measurement method/tool.		X	
By touch – macrotexture	Assessment by touch can differentiate between degree of loss of texture but not quantifying it.	X		
By touch – microtexture	Assessment by touch can identify if microtexture has been filled in/covered by rubber build-up.	X		
Sand (glass) patch method (MTD)	Measure a volume – Mean Texture Depth (MTD). The sand (glass) patch method is not identical to the grease smear method. There is at present no internationally accepted relationship between the two methods.	X		
Laser – stationary (MPD)	Measure a profile – Mean Profile Depth (MPD). There is no established relationship between MTD and MPD. The relationship must be established for the laser devices used and the preferred volumetric measurement method used.	X		
Laser – moving (MPD)				

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Inspection method	Assessment results	Rubber build-up	Geometry change	Polishing
Friction measurement – controlled applied water depth	<p>A friction measurement is a system output which includes all the surface friction characteristics and characteristics of the measuring device itself. All other variables than those related to the surface friction characteristics must be controlled in order to relate the measured values to the surface friction characteristics.</p> <p>The system output is a dimensionless number which is related to the surface friction characteristics and as such is also a measure of macrotexture. (The system generated number needs to be paired with other information (assessment methods) to identify which surface friction characteristics significantly influence the system output.)</p> <p>It is recognized that there is currently no consensus within the aviation industry on how to control the uncertainty related to repeatability, reproducibility and time stability. It is paramount to keep this uncertainty as low as possible, consequently ICAO has tightened the Standards associated with use of friction measurement devices, including training of personnel who operate the friction measuring devices.</p>	X		X
Friction measurement – natural wet conditions	Friction measurements performed under natural wet conditions during a rain storm might reveal if portions of a runway are susceptible to ponding and/or to fall below State set criteria.	X	X	X
Modelling of water flow and prediction of water depth	Emerging technologies based on the use of a model of the runway surface describing its geometrical surface (mapped) and paired with sensor information of water depth allow real-time information and thus a complete runway surface monitoring, and anticipation of water depths.		X	

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Appendix D Training Syllabus - Runway surface condition assessment and reporting

D.1 Aerodrome operators

- D.1.1 This appendix provides an example of a syllabus for training aerodrome operator personnel using the global reporting format. The examples are provided to support Part 139 MOS requirements for runway surface condition inspection, assessment and reporting.
- D.1.2 Online courses are also available for aerodrome personnel through ICAO, in association with the Airports Council International (ACI): [The New Global Reporting Format for Runway Surface Conditions \(icao.int\)](#)

D.2 Example list of subjects for training aerodrome operators on runway surface condition reporting

D.2.1 General

- D.2.1.1 Background:
- ICAO SARPs, PANS and guidance (Circular 355)
 - Part 139 MOS - Runway inspection and reporting
 - Multi-Part AC 91-32 and AC 139-22 v1.0 Global reporting format – Runway surface condition
 - Aerodrome Manual procedures for runway inspections and reporting
- D.2.1.2 Effect of friction on aeroplane performance:
- Circular 355 - Chapter 5 Aircraft Operations
 - RWYCC and braking action
 - Landing and take-off distance (dry, wet and contaminated runways)

D.2.2 Assigning RWYCC

- D.2.2.1 Method:
- RWYCC
 - Assessment
 - Runway surface description
 - Runway thirds
 - Contamination definitions
 - Visual assessment and local experience/conditions

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D.2.3 RCR

D.2.3.1 Format and updating:

- Downgrade and upgrade criteria
- Aeroplane performance section
- Timeliness - significant changes
- Pilot report - AIREP Special
- "DRY and WET" or "SNOW and ICE" runway surface conditions

D.2.4 Reporting to

D.2.4.1 ATC:

- ATIS

D.2.4.2 AIM:

- NOTAM format (Field E)

D.2.4.3 Pilots:

- UNICOM
- CA/GRS

D.2.4.4 Coordination with ATC for:

- runway entry
- timing of inspections
- dissemination of results

D.2.5 “Slippery wet” runway

D.2.5.1 Assessment:

- Friction measuring devices
- Friction testing

D.2.5.2 Pilot report:

- Braking action
- Assigning RWYCC

D.2.5.3 AIM:

- "Slippery Wet" NOTAM

D.2.6 Documents and records

D.2.6.1 Recommended documentation:

- Aerodrome manual
- ICAO Circular 355 etc

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Appendix E

Training Syllabus - Contaminated runway operations

E.1 Aircraft operators and pilots

- E.1.1 This appendix provides an example of a syllabus for training flight crew using theGRF. The examples are provided to support Part 139 MOS requirements for runway surface condition inspection, assessment and reporting.
- A.1.1 Online courses are also available for aircraft operators and flight crew through ICAO, in association with the International Air Transport Association (IATA):
[The New Global Reporting Format for Runway Surface Conditions \(icao.int\)](https://www.icao.int)
- E.1.2 Training and actual operations should be based on the fact that the assessment of the runway condition, friction measurement and estimation of braking action are not an exact science. Pilots should understand that the actual safety margins get smaller when conditions get worse and, at the same time, the assessment of the runway condition becomes more difficult in deteriorating weather. Therefore, the RCAM, RWYCCs and braking action are adaptive tools in decision-making rather than operating norms or rules. For example, a calculated 1 m margin in landing distance does not necessarily mean that the landing will be safe; the pilot must use their best judgement, taking different variables into account and cross-checking between sources when making decisions.
- E.1.3 It is also good airmanship to determine how small changes in runway and/or weather conditions affect operations, for instance, how the downgrading of the RWYCC by one level or a predetermined wind change affect operations. It is good crew resource management (CRM) to make some predetermined decisions regarding deteriorating conditions. These “canned decisions” improve situational awareness, help in late-stage decision-making and improve workload management.

Note: Items marked with an asterisk (*) are directly linked to runway surface condition reporting.

E.2 Example list of subjects for training pilots on contaminated runway operations

E.2.1 General

- E.2.1.1 Contamination:
- Definition*
 - Contaminants that cause increased drag and therefore affect acceleration, and contaminants that cause reduced braking action and affect deceleration
 - Slippery when wet: status*

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- E.2.1.2 Contaminated runway
- Runway surface condition descriptors*
 - Operational observations with friction devices*
 - Operator's policy on the use of:
 - reduced take-off thrust
 - runway thirds in take-off and landing performance calculations; and
 - low visibility operations and autoland.
 - Stopway
 - Grooved runway
- E.2.1.3 RWYCCs*:
- RCAM*
 - Differences between those published for aerodromes and flight crew*
 - Format in use*
 - The use of runway friction measurements*
 - The use of temperature*
 - The concept of performance categories and ICAO runway surface condition codes*
 - Interpretation of "slippery wet"
 - Downgrade/upgrade criteria*
 - Difference between a calculation and an assessment*
 - Braking action*
 - Reporting of LESS THAN POOR → no operations
 - Use of aircraft wind limit diagram with contamination
- E.2.1.4 RCR:
- Refer to Doc 10064
- E.2.1.5 Aeroplane performance Manual):
- Availability*
 - Validity*
 - Performance and situational awareness*
 - Decoding*
 - Situational awareness (reference: Doc 10064)*
- E.2.1.6 Aeroplane control in take-off and landing (refer Doc 10064 Aeroplane performance Manual):
- Lateral control:
 - Windcock effect
 - Effect of reversers
 - Cornering forces

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- Crosswind limitations:
 - » Operations if cleared runway width is less than published width
- Longitudinal control:
 - V1 correction in correlation with minimum control speed on ground
 - Aquaplaning
 - Anti-skid
 - Autobrake
- E.2.1.7 Take-off distance:
 - Acceleration and deceleration
 - Take-off performance limitations
 - Take-off distance models
 - Factors involved
 - Reason for using the type and depth of contaminant instead of RWYCC*
 - Safety margins
- E.2.1.8 Landing distance:
 - Model for distance at time of landing
 - Factors involved
 - Safety margins:
 - Minimum equipment list (MEL) does not include any additional margins (e.g. 15%)
- E.2.1.9 ICAO differences in runway reporting:
 - States that do not comply with ICAO*

E.2.2 Flight planning

- E.2.2.1 Flight planning requirements:
 - Dispatch/in-flight conditions
 - MEL/configuration deviation list (CDL) items affecting take-off and landing performance
 - Operator's policy on variable wind and gusts
- E.2.2.2 Landing performance at destination and alternates:
 - Selection of alternates if airport is not available due to runway conditions
 - En-route
 - Destination alternates
 - Number
 - Runway condition

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E.2.3 Take-off

- E.2.3.1 Take-off operations:
- Runway selection
 - Take-off from a wet or contaminated runway

E.2.4 In-flight operations

- E.2.4.1 Landing distance:
- Distance at time of landing calculations
 - Considerations for flight crew (reference: Doc 10064)*
 - Operator's policy
 - Factors involved
 - Runway selection for landing
 - Safety margins
- E.2.4.2 Use of aircraft systems:
- Brakes/autobrakes
 - Difference between friction-limited braking and different modes of autobrakes
 - Reversers
 - Aeroplane as a friction-measuring and/or reporting system

E.2.5 Landing techniques

- E.2.5.1 Procedures for conducting landings:
- Pilot procedures and flying techniques when landing on length-limited runway (reference: Doc 10064)
 - Use of the Engineered Materials Arresting System (EMAS) in case of overrun

E.2.6 Safety considerations

- E.2.6.1 Impacts on safety:
- Possible types of errors*
 - Mindfulness principles necessary for high reliability*

E.2.7 Documents and records*

- E.2.7.1 Recommended documentation:
- Aircraft Flight Manual
 - ICAO Circular 355 etc

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E.2.8 AIREP Specials

Reference: AIP ENR 1.1 Appendix 1

E.2.8.1 Requirements for reporting braking action:

- Assessment of braking action*
- Terminology*
- Possible automated AIREPs* (aeroplane as a friction-measuring and reporting system)
- Air safety reports if flight safety has been compromised.

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5.1.1 APPX. B RUNWAY CONDITION ASSESSMENT

Runway Condition Assessment Worksheet

Is more than 25% of any runway third surface wet or contaminated?

Aerodrome
 Date/Time (UTC) of assessment (MMDDhhmm)
 Lower Runway Designator
 Initials

Yes - assign Runway Condition Codes for each third and complete RWY Condition Report (Blue Box)
 No - No report created

Note: RWYCC 6/6/6 for all runway thirds may be used to indicate that the runway is no longer wet

1st RWY Third <small>For coverage 25% or less enter Code 6</small>		2nd RWY Third <small>For coverage 25% or less enter Code 6</small>		3rd RWY Third <small>For coverage 25% or less enter Code 6</small>	
- Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right		- Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right		- Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right	
Dry <input style="width: 30px;" type="text" value="6"/>		Dry <input style="width: 30px;" type="text" value="6"/>		Dry <input style="width: 30px;" type="text" value="6"/>	
Wet (Damp) <input style="width: 30px;" type="text" value="5"/>	Wet <input style="width: 30px;" type="text" value="3"/> <small>('slippery wet' runway) (Below Min Friction Level Classification)</small>	Wet (Damp) <input style="width: 30px;" type="text" value="5"/>	Wet <input style="width: 30px;" type="text" value="3"/> <small>('slippery wet' runway) (Below Min Friction Level Classification)</small>	Wet (Damp) <input style="width: 30px;" type="text" value="5"/>	Wet <input style="width: 30px;" type="text" value="3"/> <small>('slippery wet' runway) (Below Min Friction Level Classification)</small>
% Cov. 25/50/75/100		% Cov. 25/50/75/100		% Cov. 25/50/75/100	
Standing water <input style="width: 30px;" type="text" value="2"/> >3mm		Standing water <input style="width: 30px;" type="text" value="2"/> >3mm		Standing water <input style="width: 30px;" type="text" value="2"/> >3mm	
% Cov. 25/50/75/100		% Cov. 25/50/75/100		% Cov. 25/50/75/100	
Depth: <input style="width: 40px;" type="text" value="4mm"/> Assessed depth (mm): <input style="width: 100px;" type="text"/>		Depth: <input style="width: 40px;" type="text" value="4mm"/> Assessed depth (mm): <input style="width: 100px;" type="text"/>		Depth: <input style="width: 40px;" type="text" value="4mm"/> Assessed depth (mm): <input style="width: 100px;" type="text"/>	
For Standing water 4mm depth has to be reported as Minimum		For Standing water 4mm depth has to be reported as Minimum		For Standing water 4mm depth has to be reported as Minimum	

Situational Awareness Section / Notes

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State approved
 CFME Braking coefficient

Mu not to be transmitted in RWY Condition Report

Adjusted RWYCC

ONLY if Downgrade/ Upgrade Assessments used

Downgrade/Upgrade Criteria AIREP CFME Other

TWY Poor

Apron Poor

Other _____

RCR

Aerodrome Date & Time RWY RWYCC % Coverage Depth in mm

Contaminant Type 1st third Contaminant Type 2nd third Contaminant Type 3rd third

Plain language remarks _____

Reduced RWY width in m (if applicable)