MAG Manchester Airport				Manchester Airport **Aircraft De-icing**		**Risk Rating**	**High – Reviewed Annually**
Reference:	EGCC-I-AOPS-029	**Issue:**	2	**Owner:**	Head of Airfield Operations	**Department:**	Airfield
Issue Date:		**01/08/2025**		**Compliance Date:**	**01/09/2025**	**Planned Review Date:**	**19/06/2026**

1 General Requirements

Aircraft de-icing may be carried out by any competent organisation operating airside by contractual arrangement with airline operators and with a current Ground Handling Licence (GHL).

Aircraft de-icing fluids are pollutants with the potential for considerable environmental damage. Therefore, when de-icing is taking place, it is essential that run-off from airside areas is contained and separated from other drainage.

2 Locations For Airframe De-Icing

Manchester Airport offers the facility for both on-stand and remote pad de-icing. On stand de-icing shall take place whilst the aircraft is made ready for departure at its respective parking stand. Remote pad de-icing is available to approved operators who have acknowledged and understood the procedures which govern this process, and usage of remote pad de-icing has been approved by the Airfield Operations Manager. Operators wishing to operate remote de-icing once approval has been provided, should contact the Airfield Operations Duty Manager on telephone number 0161 489 3331.

De-icing is not permitted on the Western Maintenance Apron.

3 Communications

Handling Agents and De-icing Service Partners MUST inform in advance the Asset Support Team (AST) on telephone number 0161 489 3776 prior to undertaking Aircraft De-icing. If AST is uncontactable for any reason, contact the Engineering & Baggage Duty Manager or the Engineering Shift Team Leader (EBDM/ESTL) on telephone number 0161 4893678 with the same information.

Following the notification of aircraft de-icing, AST will contact the following key stakeholders via email detailing the stands and times aircraft de-icing will take place

Aircraft De-Icing Notification cascade

1, AODM
2, ADM
3, CEDM T3
4, CEDM T1
5, CEDM T2

A separate notification is needed for each 24-hour period and each Terminal or remote stand. This is necessary to ensure the airport's drainage systems can be placed into containment mode to prevent contamination of local watercourses. Failure to do so could result in a pollution incident and pursued under the Airfield Infringement Scheme or result in prosecution by the Environment Agency.

After de-icing has taken place, it is the handling agents' responsibility to ensure that the stand is checked to confirm there is no excess de-icing fluid left which could pose a slip risk. The handling agent should contact AST via 0161 489 3776 to request sweeper attendance.

Similarly, prior to an aircraft arrival, the ground handling agent must complete a pre stand check and request the sweeper via AST on 0161 489 3776 if they would like the stand swept for any residual de-icing fluid.

4 Health & Safety Considerations

Care must be taken when carrying out de-icing to ensure that passengers and staff in the vicinity of the aircraft are not sprayed with de-icing fluids. The timing of the activity should be agreed via the appropriate employee of the ground handling agent and care should be taken to ensure de-icing fluid is not sprayed onto areas such as walkways.

De-icing fluids on aprons can make the surfaces very slippery and care needs to be taken by all those walking in the vicinity of de-icing activities. Handling agents and airline staff must warn passengers to take care when boarding aircraft from a non-airbridge gate, ensuring they remain on designated walkways or demarcated routes where possible Drivers should be aware that braking and steering performance of vehicles might be impaired.

5 Fluid Stocks

ALL De-icing companies MUST keep the Airfield Operations Duty Manager (AODM) updated on fluid stock levels daily and inform the Airfield Duty Manager (ADM) of any operational problems immediately.

Data on the volume of de-icing fluid applied to aircraft must be provided to MAG monthly by email to environment@manairport.co.uk

6 Departure Sequencing Protocol

In winter operations, at Weather State level 2 (DWS2), aircraft de-icing will be subject to the Departure Sequencing Protocol process. Please refer to MA Inclement Weather Plan for further information.

7 Aircraft Remote De-Icing

An aircraft remote de-icing operation replaces on stand aircraft de-icing by enabling a 'taxi through' de-icing area. This increases throughput, enables standardisation and in turn reduced delays during periods of particularly poor weather.

Providers must notify the AODM on telephone number 0161 489 3331 the day prior to their intended use of the remote pad with a list of expected aircraft and times.

7.1 Aircraft Remote De-Icing Pad Handover

When it is determined that a remote de-icing pad is to be used, the following handover process will apply:

- The ATC Watch Manager will hand either Twy Bravo (Between B4 and B5), Twy November Bravo (between November Charlie and Echo) or Twy Juliet (between J1 and J2) to the AODM. The aircraft remote de-icing pads will be classed as 'apron' and not under the direct control of Air Traffic Control (ATC)(.

- The AODM will then arrange for the areas to be inspected. The placement of 'STOP DEICE' signs put in place for the preferred direction of operation are optional depending on operator choice.
- To safeguard taxiway November Bravo for the use as a remote de-icing pad the uncontrolled crossings at the head and rear of stands 80 and 231 should be closed and delineated as closed by Airfield Operations prior to use.
- Once completed the AODM will hand the aircraft remote de-icing pad to the Pad Controller.
- On completion of the use of the aircraft remote de-icing pad, the process will be undertaken in reverse order and handed back to ATC.

7.2 Location

Whilst conducting tail de-icing on A321 aircraft types, de-icing vehicles might infringe the taxiway double white lines. This is accepted during de-icing procedures, but drivers must remain vigilant of all aircraft movements on Taxiway Zulu whilst conducting manoeuvres to the rear of aircraft and maintain the same situational awareness and practices used whilst using uncontrolled taxiway road crossing.

Manchester Airport has three remote de-icing pads.

Maverick:
Taxiway November Bravo between Taxiways November Charlie and Echo.
Iceman:
Taxiway Bravo between holding points Bravo 4 and Bravo 5.
Goose:
Taxiway Juliet between holding points Juliet 1 and Juliet 2.

Remote de-icing pad's Maverick and Goose can only operate in one direction whilst Iceman can operate in either direction. The direction will be determined during the pre-operational brief and may change during a particular day due to prevailing traffic flows.

Maverick must operate in the direction of November Charlie to Echo and Goose in the direction of Juliet 2 to Juliet 1

7.3 De-Icing Pad Layout

The remote de-icing pad can accommodate.
Maverick
1 x aircraft up to and including 757.

Iceman
1 x aircraft up to and including 757.

Goose
1 x aircraft up to and including B777-300ER.

ATC may use adjacent taxiways to hold additional aircraft and/or circulate aircraft around taxiway islands to maximise flow to the de-icing pad.

Taxiway November Bravo, Bravo (Between Bravo 4 and Bravo 5) and Juliet will always remain as a Code E taxiway when the de-icing pad is not in use.

7.4 Pre-Planning

De-icing providers, in collaboration with airline customers, will determine which aircraft are to be de-iced within the pad and enter the appropriate code into Chroma or Avtura. This will be undertaken every evening for the following day to assist the Airline, ATC, Airfield Control and the Ground Handlers by knowing in advance where the aircraft is to be de-iced.

De-icing providers can amend the plan as dynamic scenarios dictate. Communication is extremely important when a change occurs and de-icing providers must amend Chroma but also support with verbal communications to airlines, GHAs, Airfield Control and ATC.

7.5 Aircraft Pushback and Taxi

Aircraft intending to use the remote de-icing pad will inform delivery on 121.705 MHz when reporting ready for start.

When the remote de-icing pad is operating efficiently, ATC will aim to pushback aircraft when the de-icing and standby position in the remote de-icing pad is occupied. This should allow the aircraft to push, start and taxi directly into the standby position (as by this time the standby aircraft will now be engaged in active de-icing). This will ensure a continuous supply of aircraft to the remote de-icing pad.

Aircraft will request taxi clearance to the remote de-icing pad and continue under own power as directed by ATC.

At an appropriate point, ATC will hand the aircraft onto the remote de-icing Pad Controller:

Maverick:
Callsign 'Maverick'
121.625 MHz (Menzies Aviation)
121.760 MHz (AeroMag)

Iceman:
Callsign 'Iceman'
121.540 MHz (Menzies Aviation)
121.735 MHz (AeroMag)

Goose:
Callsign 'Goose'
121.790 MHz (AeroMag)

Aircraft should ensure that their standby frequency is selected as Manchester Ground on 121.855 MHz in case of emergency.

7.6 Entering the Remote De-icing Pad

Aircraft will stop abeam the 'STOP DE-ICE', however, depending on the de-icing provider, a vehicle and RTF may be used as an alternative. Expediency of aircraft movements is paramount to ensure efficiency of the remote de-icing pad is maintained.

The Aircraft Commander will then configure and prepare their aircraft for de-icing. The Aircraft Commander will ideally configure their aircraft whilst holding to taxi onto the de-icing pad.

When safe to do so and the de-icing pad aircraft position is clear, the Commander of the queuing aircraft will taxi their aircraft on to the pad to the designated stop position and set the parking brake.

Using the aircraft registration as the call-sign, the remote de-icing Pad Controller (call sign 'Maverick', 'Iceman' or Goose) will contact the aircraft Commander using the relevant frequency detailed in paragraph 7.5, to confirm that the aircraft parking brake is set, the aircraft is configured for de-icing and to request any details as to specific requirements.

All remote de-icing pad servicing vehicles are to remain in the paint marked Safe Zones whilst aircraft are manoeuvring on the remote de-icing pad. This ensures vehicles remain clear of the Code-C taxiway strip.

NOTE: An electronic signboard may be in place on the Bravo remote de-icing pad which will provide a step by step written instruction to aircrew.

7.7 Operating Within the Remote De-Icing Pad

If for any reason the aircraft, having entered the de-icing pad is not in the correct position on the taxiway, either in relation to the designated 'Stop' position or in relation to the Taxiway Centre Line, the de-icing Pad Controller will ask the aircraft Commander to contact MANCHESTER GROUND on VHF radio on frequency 121.855 MHz to request permission to taxi the aircraft around in order to reposition in the correct position within the remote de-icing pad.

Prior to utilising the de-icing rigs for remote 'engines running' de-icing, a FOD check for loose items will be completed by the driver in addition to ensuring the equipment doors on the de-icing rig equipment bays are securely fastened in the closed position.

Each de-icing rig involved in the de-icing process shall remain in the Safe-Zone, with the de-icing rig positioned so that the de-icing rig faces the flight deck of the aircraft when the aircraft has come to a stop on the remote de-icing pad. The Safe Zone shall be a previously designated and identified area adjacent to the pad. Each de-icing rig will remain in its Safe Zone until instructed to move by the de-icing Pad Controller.

The Pad Controllers vehicle will then enter the taxiway and stop in position with the handbrake applied in front of the aircraft nose, leaving sufficient space to enable the flight crew to clearly see the vehicle. This vehicle position is the required visual method of communication with the aircraft Commander and will prevent the aircraft being inadvertently moved forward during the de-icing process. The de-icing Pad Control vehicle shall remain stationary in front of the aircraft nose throughout the de-icing process and will only vacate the remote de-icing pad when all de-icing rigs and personnel have vacated the taxiway area.

Only when the flight crew have confirmed that the 'aircraft is prepared for spraying' shall the de-icing process commence.

Only when the de-icing Pad Controllers vehicle is in position in front of the aircraft nose, with the parking brake set, shall the de-icing Pad Controller communicate to each de-icing rig via UHF radio to pull forward and position itself adjacent to the leading edge of the aircrafts port and starboard wings.

NOTE: An electronic signboard may be in place on the Bravo remote de-icing pad and would therefore mean a pad controllers vehicle will not be required to position in front of the aircraft.

Before leaving the marked Safe Zone area, each de-icing rig crew will position the MEWP to ensure that the lower surface of the basket floor is elevated to a height to provide 1.5 metres clearance from the upper surface of the aircraft engine. This shall be the minimum height position for the MEWP whilst engaged in de-icing activities on the remote de-icing pad. Only when the de-icing rig re-enters the Safe Zone may the MEWP basket then be lowered below this minimum height position. This MEWP position also provides for a good 360° view whilst the de-icing rig is manoeuvring. Whilst the basket is in the elevated position the de-icing rig speed limiter will also automatically engage.

The route taken into the de-icing pad by each de-icing rig will always be the same route to exit the pad.

Each de-icing rig will manoeuvre and position adjacent to the aircraft airframe strictly in accordance with the 'STOP POSITIONS FOR OPEN BASKET DE-ICING RIGS' diagram, which may be found within the Appendices of this Process.

The de-icing Pad Controller shall advise the aircraft Commander that the de-icing process will now commence.

The aircraft shall be de-iced/anti-iced in accordance with de-icing providers Company Procedures and all supplementary instruction provided by the de-icing Pad Controller.

The de-icing Pad Controller will maintain a constant listening watch on ATC MANCHESTER GROUND Frequency 121.855 MHz, as well as the relevant frequency detailed in paragraph 7.5

UHF radio communication between the de-icing Pad Controller and the de-icing rigs shall be maintained throughout the de-icing process, albeit whilst the de-icing is in progress the radio communication with each de-icing rig will be minimal.

Each de-icing rig engaged in remote de-icing processes is fitted with a mounted anemometer instrument, linked to a digital display mounted within the de-icing rig drivers always cab and visible to the de-icing rig driver. The purpose of the fitted anemometer is to provide additional reference for the de-icing rig driver to ensure that the de-icing rig remains outside of the main engine efflux. The maximum permissible velocity reading on the anemometer display shall be no more than 20 metres/second, which is equal to 45mph or 72kph.

If the de-icing Pad Controller loses clear VHF communications with the Flight Crew, a call to ATC MANCHESTER GROUND on frequency 121.855 MHz will request that remote de-icing is suspended, until such time that VHF communications with the aircraft are re-established. In all cases two UHF and two VHF radios, with an established power supply will be carried in the de-icing Pad Controllers vehicle, in order to provide for 'redundancy' in the case of equipment malfunction.

On completion of the de-icing activity and following confirmation to the de-icing Pad Controller that the aircraft is free from frozen contamination, each de-icing rig will exit the de-

icing pad and return to the Safe Zone positioned so as to be visible to the aircraft Commander, each rig is to be parked with the parking brake applied.
Only when all de-icing rigs have returned to the Safe Zone may the de-icing Pad Controllers vehicle then proceed to the Safe Zone, positioned to be clearly visible to the aircraft Commander, with the parking brake applied.

The de-icing Pad Controller shall immediately pass the required Anti-icing Code via VHF radio using the relevant frequency detailed in paragraph 7.5

Immediately following confirmation of receipt of the Anti-icing Code by the aircraft Commander, the de-icing Pad Controller will then advise the aircraft Commander to contact MANCHESTER GROUND on VHF radio on frequency 121.855 MHz

7.8 Exiting the Remote De-icing Pad

On completion of receipt of the Anti-icing Code the aircraft currently being de-iced will request taxi-clearance via MANCHESTER GROUND on 121.855 MHz for departure, at the earliest convenience. Airline specific checklists will determine order in which this is executed. Manchester ATC will prioritise remote de-icing pad exit taxi clearances to ensure the continual steady flow to the pad.

7.9 Emergency Procedures

If an aircraft in the pad has an emergency on board the aircraft, they will contact ATC ground on 121.855 MHZ immediately and indicate the situation to the Pad controller via continuous flashing of nosewheel/landing lights and subsequently via RT on:

Maverick:
Callsign 'Maverick'
121.625 MHz (Menzies Aviation)
121.760 MHz (AeroMag)

Iceman:
Callsign 'Iceman'
121.540 MHz (Menzies Aviation)
121.735 MHz (AeroMag)

Goose:
Callsign 'Goose'
121.790 MHz (AeroMag)

Aircraft should ensure that their standby frequency is selected as Manchester Ground on 121.855 MHz in case of emergency.

The Pad controller will immediately withdraw all vehicles to a safe distance in case a response is required.

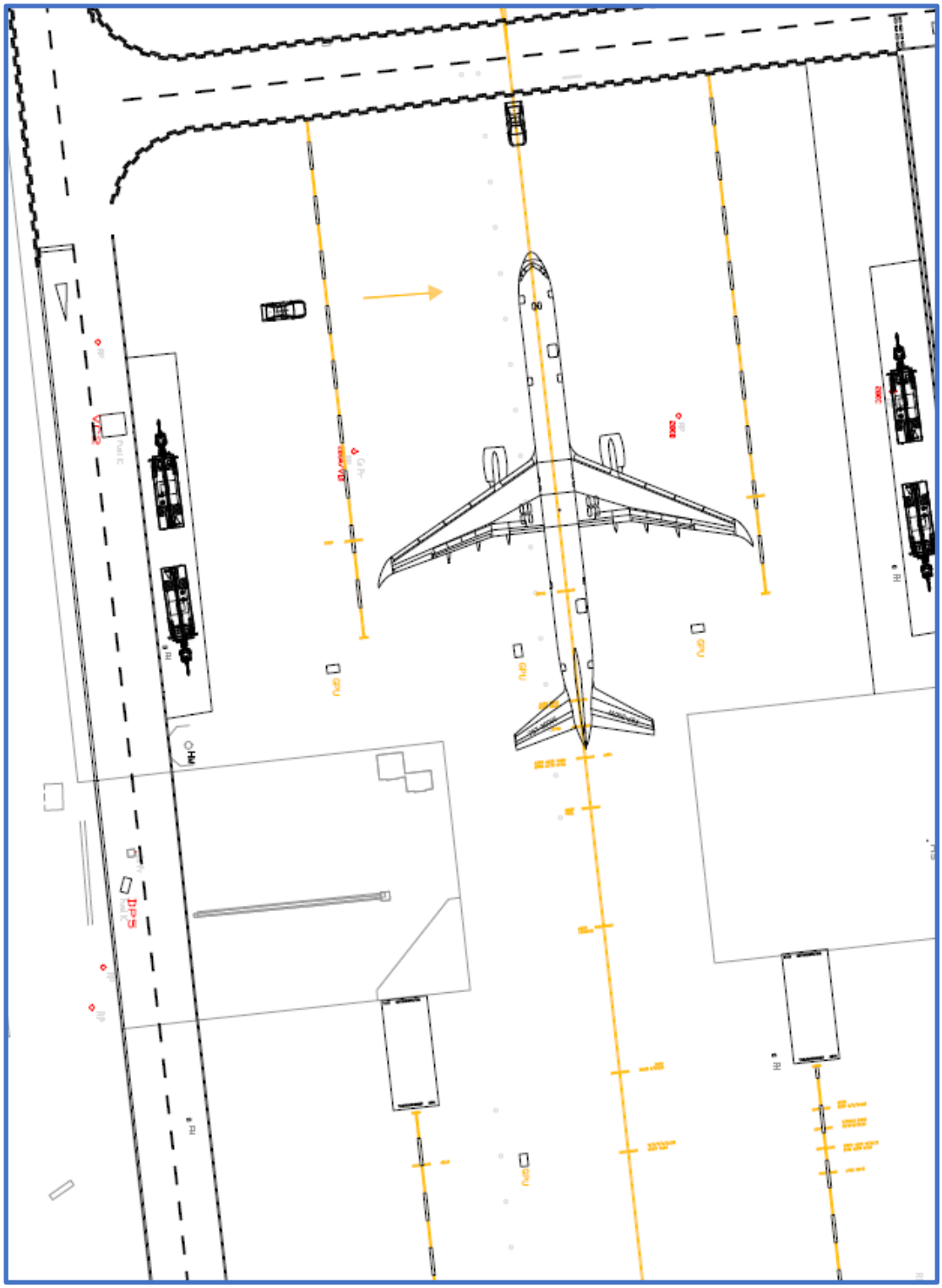
If two-way communication is lost between aircraft and Pad controller, then they will revert to the GMC frequency and communicate via the GMC controller. The Pad controller has a spare radio which will also be set to listen out on 121.855MHz.

7.10 Low Visibility Operations (LVOs)

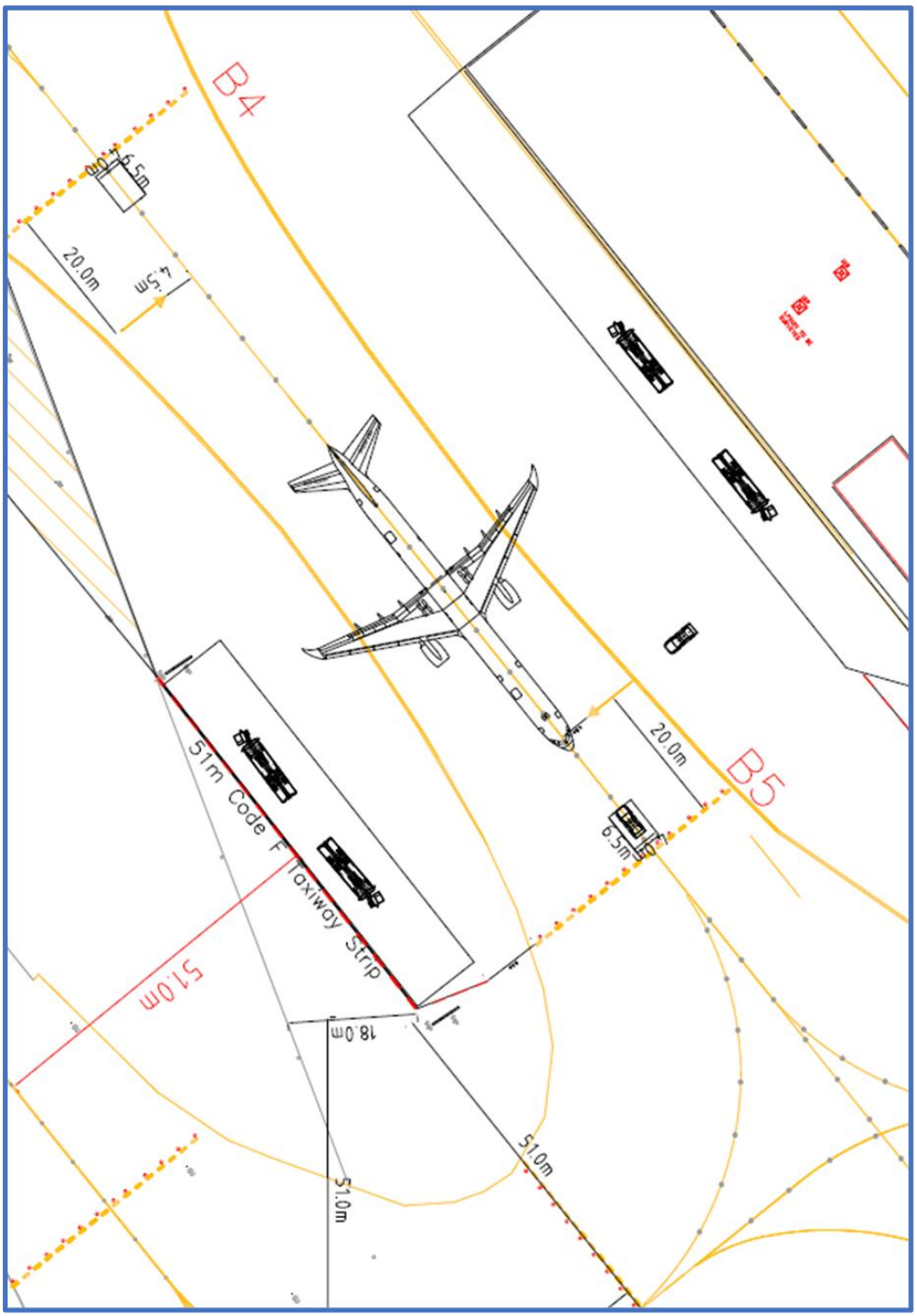
The remote aircraft de-icing pads will be used in LVPs under the discretion of the (AODM)

7.11 Remote De-icing Pad Layout Designs

7.11.1 November Charlie



7.11.2 Bravo (Bravo 4 to Bravo 5)



7.11.3 Juliet (Juliet 2 to Juliet 1)