SID TRUNCATION REQUEST ACP-2019-66 SUBMISSION DATE: 05/11/2019

Existing SID: MID 4F 3G 3J 3K

Proposed SID: MAXIT 1F 1G MODMI 1J 1K (MID SIDs may or may not be retained in AIP, not flightplannable, restricted circumstances)

SID Truncation Sponsor Details:

	En-Route ANSP	Airport ANSP	Airport Authority
Unit	NATS Swanwick	NATS Heathrow	Heathrow Airport Ltd HAL
Name	[redacted]	[redacted]	[redacted]
Contact details Phone: E mail:	[redacted]	[redacted]	[redacted]

1. Stage 1

1.1 Statement of Need For completeness and ease of reference, insert details of DAP1916

Statement of need DAP1916 ref 3421

Original SoN ref E42305 of 11/10/17 (ACP-2017-66)
In support of the ongoing SID truncation programme, and to avoid ATC confusion with proposed trunc of Gatwick SAM & KENET SIDs to be redesignated as MID (DAP1916 E42304 ACP-2018-24) and based on radar derived height info, the following is proposed:
1. Develop a steeper & truncated version of MID 4F & 3G SIDs to end at new waypt MAXIT (12nm before MID), extend existing ATS route Y803 to MID. SID alt remains 6000ft by MAXIT.
2. Develop a steeper & truncated version of MID 3J & 3K SIDs to end at new waypt MODMI (12nm before MID), adjacent ATS route M185 could be slightly adjusted to connect MODMI to MID. SID alt remains 6000ft by MODMI,
NB all 4 MID SIDs would remain available to accommodate the very few aircraft which cannot already comply with the climb gradient. These would be subject to specific ATC procedures alleviating potential confusion with proposed Gatwick SID truncs to MID.
Unfortunately during switchover between previous airspace change process CAP725 and new process CAP1616 the CAA inadvertently cancelled this item and NATS did not reopen it because the previous planned timeline had not been reworked.
The planned implementation date is now 27 Feb 2020.
The detail supporting the SID gradient changes (a precursor to this truncation) was explained under TAG Farnborough Airport ACP Appendix M, which occurred before the CAA airspace portal existed.
Search the CAA website for "Farnborough airport airspace change proposal" – at time of writing all the information can be found under the second link, the URL of which is
www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/Farnborough-Airport-airspace-change-proposal/

1.2 Date of Assessment Meeting/Teleconference/E mail Confirmation that proposal may be submitted

05 September 2019 (phone call and date of DAP1916 submission, ref 3421)
The truncation is of a steeper version of the SIDs approved in July 2018 but not implemented until a suitable truncation date was identified.

1.3 **Design Principles.** The SID Truncation Design Principles are listed below.

Design Principle	Description
Safety	
DP1 Safety	Safety is always the number one priority.
Environmental	
DP2 NPR - No change to lateral flight paths	None of the proposed changes to definitions of SIDs would result in a change to lateral flight paths, or in the degree of dispersal, affecting the NPR.
DP3 No lowering of vertical flight paths	None of the proposed changes to definitions of SIDs would result in flight paths being lower at a given point along the SID. If the proposed change results in flight paths being higher this is acceptable.
DP4 No increase in noise impact on the ground.	Noise impact to those on the ground: SID truncation will not alter lateral profiles of aircraft using the SID, hence there will be no change to noise impact to people on the ground. If the proposed change results in flight paths being higher, and hence the noise impact is reduced, this is acceptable.
DP5 No detriment in visual impact	SID truncation should not alter lateral profiles of aircraft using the SID, hence there will be no detriment to visual impact resulting from aircraft being lower. If the proposed change results in flight paths being higher, and hence the visual impact is reduced, this is acceptable.
DP6 Reduction of CO_2 emissions	Reduction of CO_2 emissions will be prioritised. The objective of the SID truncation is to ensure that the flight plan route requires less fuel uplift (due to improved flight-plan profile). For some operators this can result in a net reduction in per-flight CO_2 emissions.
Airspace use	
DP7 No change to CAS	SID truncations will require no change to extant controlled airspace.
DP8 Ensure CAS containment	Ensure that the entire truncated SID is enclosed within existing controlled airspace.
DP9 Provide for underperformance	There must be a method to cater for the few flights unable to make the steeper gradient without causing a change to vertical dispersal.
Technical	
DP10 RCF appropriate	Ensure that the radio communications failure (RCF) procedures are appropriate.
DP11 Simplify routes where possible	Avoid creation of additional link routes which are very close to existing routes.
DP12 Minimise technical complexity	Avoid creating situations where flightplanning may become more complex, or where engineering requirements become more complex, as a result of this proposal.

2. Stage 2

2.1 **Options Appraisal.** The option proposed and options discounted (where applicable) are detailed below.

This section describes the options for the truncated SIDs themselves, and the options for onward connectivity from the truncation points to rejoin the ATS route network.
One option from each category is required, in any combination.

Options proposed and why:

SID options:

1. Do nothing
2. Install truncated SIDs, retain existing full-length shallower MID SIDs in AIP, used should underperformance be predicted by a flight (not flightplannable, special coordination, restrictions/ delays may apply)
3. Install truncated SIDs, coordinate the few individual underperforming flights on the truncated SIDs should that situation be predicted, remove the full-length MID SIDs from AIP
4. Hybrid of 2 and 3 (install truncated SIDs, coordinate the few underperformers on these truncated SIDs, retain current MID SIDs in AIP but not flightplannable and not used).

Options for onward connectivity from the truncation points:

5. 2x newly designated ATS link routes
6. No ATS link routes, use flightplannable DCTs instead
7. Extend Y803 to MAXIT-MID, add a new ATS link route MODMI-MID which is extremely adjacent to current M185.
8. Extend Y803 to MAXIT-MID, adjust existing ATS route M185 from OCK-MID to OCK-MODMI-MID.

Options discounted and why:

SID options:

1. Do nothing - no benefit
2. Retain MID SIDs for actual use by predicted underperformers:
   Would cause considerable EFPS logic-based engineering complexities.
   Would cause operator flightplanning confusion, adding to ATC workload to correct.
   Departures in this direction may not be able to use datalink clearances (i.e. may need to use voice for clearances, unlike majority of Heathrow deps), adding to ATC and cockpit workload and potential human errors. Would not meet DP12.

Options for onward connectivity from the truncation points:

5. No justification for 2x newly designated ATS link routes where existing routes can be adapted. Would not meet DP11.
6. Flightplannable DCTs, technically viable but not preferred from an overall flightplanning system complexity point of view. Would not meet DP12.
7. Viable, but poor justification to install a new ATS link route extremely adjacent to M185. Would not meet DP11.

Options progressed:

SID options:

3. (Preferred option) install truncated SIDs as updated SID plate 6-2, withdraw current MID SIDs from plate 6-2. Simplest option, direct "swap". Meets all design principles. Known hereon as *Option 3 Swap*
4. Hybrid – install truncated SIDs as new plate 6-8, retain but not use MID SIDs in plate 6-2. Meets all design principles. Acceptable but leaves SIDs in AIP and FMS databases which would not be used – only partially meets DP12. Known hereon as *Option 4 Hybrid*

Options for onward connectivity from the truncation points:

8. (Preferred option) Extend Y803 to MAXIT-MID, adjust existing ATS route M185 from OCK-MID to OCK-MODMI-MID. Meets all design principles.
   Known hereon as *Option 8 Connectivity*

A combination of *Option 3 Swap* and *Option 8 Connectivity* would meet all the design principles – our preferred combination.
A combination of *Option 4 Hybrid* and *Option 8 Connectivity* would meet all the design principles except partially meeting DP12 – an acceptable combination.

3. Stage 3

3.1 Consultation and Sponsor Confirmation Statement

This proposal has been submitted following consultation with the aerodrome authority. As sponsor/co-sponsor we confirm that that there is no change to track over the ground, no change to vertical profiles, no change to NPRs and no effect on adjacent SIDs.	
NATS NERL Name Colin Wyatt	Aerodrome Name Rachel Thomas (Approval by email, relevant text extract below)
Thank you for providing the recent slide deck for the Heathrow Airspace Governance Group (AGG). Both the Airside Operations Team and the Expansion Airspace Team reviewed the slides and accept the assurance from the slides and the separate assurance from NATS that the implementation of your ACP (specifically the introduction of a new truncated SID following the same lateral track as MID) will have no impact on the Heathrow operation. Consequently the AGG raised no objections to your change	

4. Stage 4

4.1 SID Truncation Change Submission Details

Requirements	**Details To Be Submitted by Sponsor**	
New SID Designator (To be Co-ordinated with SARG)	MAXIT 1F (27R), MAXIT 1G (27L)	MODMI 1J (09R), MODMI 1K (09L)
New 5LNC(s) (if applicable)	MAXIT (confirmed reserved by ICARD)	MODMI (confirmed reserved by ICARD)
Truncation Position	MID R012.2 D12.0	MID R026.7 D12.0
Co-ordinates of Truncation Position (include validation request – see Annex A paragraph 10)	51 14 59.08N 000 33 42.83W	51 14 00.99N 000 29 09.99W
Revised Track / Distance to Truncation Position	No change in track of SID to truncation point **See proposed SID chart amendment in Appendix 2.**	
Navaid coverage (to ensure position is definable)	Based on MID VOR and DME. Fixes are inside the MID published DOC of 60nm. LTMA navaid coverage is good. There are several existing ATS routes in this area, with proven coverage.	
Safety Assessment Details		
Confirmation interacting ATS Routes/SIDs not affected.	NATS ATC experts have assessed the adjacent ATS routes and SIDs and none are affected. Note: The SoN for this proposal partially duplicates the SoN for an older ACP from 2017. Part of this older ACP refers to possible concerns about Gatwick SIDs which were being considered for truncation at MID at that time, potentially causing ATC confusion should two airports both have SIDs ending at the same location with similar names. Since then, these Gatwick SIDs have been truncated, but not at MID as originally planned at the time of our original SoN submission. Thus the potential source of confusion has been designed out, and there remains no interaction issue. This meets DP1.	

RCF Implications: **(1) Describe impacts of proposed change on extant RCF procedures (confirmation that they have been examined and remain fit for purpose, or** **(2) If revised RCF procedures are required, state why, and provide the proposed details with the draft AIP amendment.**	With reference to ENR 1.1 para 3.4.2.4.2.b (extract): i. Maintain for a period of seven minutes, the current speed and last assigned level or minimum safe altitude, if this is higher. The period of seven minutes begins when the transponder is set to 7600 and this should be done as soon as the pilot has detected communications failure. ii. If failure occurs when the aircraft is following a notified departure procedure such as a Standard Instrument Departure (SID) and clearance to climb, or re-routing instructions have not been given, the procedure should be flown in accordance with the published lateral track and vertical profile, including any stepped climbs, until the last position, fix, or waypoint, published for the procedure, has been reached. Then, for that part of the period of seven minutes that may remain, maintain the current speed and last assigned level or minimum safe altitude if this is higher. iii. Following the period of seven minutes, adjust the speed and level in accordance with the current flight plan and continue the flight to the appropriate designated landing aid serving the destination aerodrome. Attempt to transmit position reports and altitude/flight level on the appropriate frequency when over routine reporting points. The MID SIDs are currently 29-31nm in length, taking approximately 7mins from takeoff assuming 250kt. Should any aircraft have an RCF immediately on departure and items ii and iii apply, the pilot would not commence climb until at least MID. This would not change under the truncated MAXIT/MODMI SIDs. They are 12nm shorter at 17-19nm in length, taking approximately 4-4.5mins to fly at 250kt, so should an RCF occur immediately on departure the 7min flight time would still take the flight to at least MID on its flightplan before climb would commence. Therefore the extant text under EGLL AD 2.22 para 6b would apply to the MAXIT/MODMI SIDs (extract): 6.b. All outbound traffic except those operating on UMLAT 1F 1G: Comply with the route and altitude limitations detailed in the allocated Standard Instrument Departure Procedures listed on the relevant chart contained in AD 2-EGLL or ATC clearance issued. After this adopt the appropriate procedures as notified in ENR 1.1, Section 3.4. This text remains fit for purpose and meets both DP1 and DP10.
Airspace Containment confirmation	The newly truncated SIDs will be wholly contained within CAS and terrain clearance is assured. Meets DP1 and DP8.
Adaptation and AIRAC implementation confirmation – provide confirmation that changes have been co-ordinated with the aerodrome for the date proposed.	The target implementation date of AIRAC03-2020 (27/02/2020) has been coordinated with HAL, to align with the Farnborough implementation.
AIP amendments	
Confirmation there is no impact to NPRs.	Editorially the NPR table needs to be updated, due to magnetic variation over time which has become disconnected from the IFP magnetic variation updates. NOTE this was noticed during the research for this proposal, however it is ***not caused by*** this proposal. This editorial update would not affect true tracks, thus there would be no material change to NPRs and no change to flight behaviours. The CAA has been engaged and will manage the appropriate editorial update with the DfT. Meets DP2.
Name change to NPR tables in Aerodrome AD 2.21	Where applicable, change is detailed in the draft AIP amendment.
SID chart amendments	
Revisions to chart	**See Appendix 2**
Any other amendments to SID Chart (include PDF copy of chart showing changes required)	**See Appendix 2**

4.2. **ATS Route Details**

Submit details for New ATS Route in AIP Format.
(See Appendix 1)

These items are based on *Option 8 Connectivity* and will be provided in the appropriate WGS84 spreadsheet format and via the ADQ AURORA portal for ENR3.3 submission.
They are summarized here for ease of reference:

MAXIT connectivity with ATS Route Y803
Start and end position: as published south of MID then extended north to MAXIT
Published Lower Limit between MAXIT and MID to be FL85, lowest useable FL100

MODMI connectivity with ATS Route M185
Start and end position: as published south of MID then adjusted to route via MODMI then OCK – no changes north of OCK.
Published Lower Limit between MODMI and MID to be FL85, lowest useable FL100

MODMI connectivity with ATS Route UM185
Start and end position: as published south of MID and north of OCK then adjusted to route MID – MODMI – OCK –no changes to vertical extents/lowest useable.

5. Options Appraisal

Options:
The SID options and connectivity options can be combined as follows:
SID *Option 3 Swap (preferred)* combined with *Option 8 Connectivity,* or
SID *Option 4 Hybrid* combined with *Option 8 Connectivity*
Either combination would lead to an identical outcome - the MID SIDs truncated by 12nm – and would meet DP6. See full options appraisal table overleaf.

This SID truncation is justified on the basis of fuel saving that may be achieved by some operators.

Currently for flight planning purposes the portions of the SID proposed to be truncated are flight planned to be flown at 6,000ft. However aircraft are generally climbed to higher levels subject to the traffic scenario at the time.
Some Aircraft Operators calculate the fuel required based on the flight plan.

By truncating the SIDs and effectively reducing the 6,000ft level portion of the flight, the calculated fuel required for those operators will be less. Hence after the SID has been truncated the aircraft will be able to fly carrying less 'excess' fuel.

The overall effect will be positive and will fall within the range as described below, and no flights will be penalised as a result of the change.

SID truncations remove excessively conservative assumptions from the fuel planning system. This may provide a fuel uplift planning benefit. Reducing an aircraft's weight means less fuel is needed to get to the destination. To carry more weight (fuel) the aircraft will burn more fuel.
There are factors which we cannot determine because each aircraft's operator and planning system acts differently, and each type/route may also be considered differently.
The uplift benefit (fuel weight reduction) of any individual truncation may be zero, or it may be significant (see options table below).

SID Option 3 Swap (preferred) combined with *Option 8 Connectivity*, or *SID Option 4 Hybrid* combined with *Option 8 Connectivity* – same outcome.			
Group	**Impact**	**Level of Analysis**	**Evidence**
Communities	Noise impact on health and quality of life	Not applicable	Not applicable. The SID truncation will not change the trajectories of flights
Communities	Air quality	Not applicable	Not applicable – The changes are above 1,000ft, and will not change the trajectories of flights
Wider society	Greenhouse gas impact.	Monetise and quantify	This SID truncation does not change the flight trajectory of aircraft. For some flight planning systems It does however reduce the amount of fuel required to be uplifted. Hence depending on flight planning system being used the change can either have zero benefit or a small reduction in fuel uplift. The quantified monetary benefit due to reduce CO2 emissions will fall between 0 and £160 (npv) per flight.
Wider society	Capacity/ resilience	Qualitative	Not applicable –no change
General Aviation	Access	Not applicable	Not applicable –no change
General Aviation/ commercial airlines	Economic impact from increased effective capacity	Not applicable	Not applicable – this concept was not designed with the intention of increasing the capacity of this region of airspace.
General Aviation/ commercial airlines	Fuel burn	Monetise and quantify	SID truncations remove excessively conservative assumptions from the fuel planning system. This may provide a fuel uplift planning benefit. Reducing an aircraft's weight means less fuel is needed to get to the destination. To carry more fuel (weight) the aircraft must burn more fuel. Typically an aircraft burns c.4.5% of its fuel per hour to carry the weight of that same fuel. There are dependencies which we cannot accurately determine because each aircraft's operator and planning system acts differently, and each type/route may also be considered differently. The uplift benefit (weight reduction) of any individual truncation may be zero, or it may be significant. Zero weight benefit - Operators whose flight planning system calculates fuel uplift based on previous experience of how the SID is flown in practice, and based on historic data. For these operators SID truncation will give no benefit in reduced fuel uplift. Significant weight benefit - Operators whose flight planning system calculates fuel uplift based on the most conservative fuel plan, based on the rigorous worst-case assumption that the SID is flown to its lowest possible design-altitude and to its full design-length before climb is issued to a more economical level. An example of a "significant weight benefit" would be for a Boeing 747 using a truncated SID on a 13-hour long-haul flight. Should such a flight follow a conservative fuel plan assumption as described above, a SID truncation of 12nm (the distance between MID and the truncation waypoints) could reduce the fuel uplifted to the aircraft by c.540kg, meaning the aircraft is 0.5 tonnes lighter. Over the course of a 13-hour flight, this lighter aircraft means c.316kg less fuel would be burnt (and saving c.1,005kg of CO2 from being emitted as a consequence). The monetized projected fuel burn saving are in a range between zero and c.£150 (npv) per flight. This was based on the IATA jet fuel price of 615.2USD/tonne converted to 477GBP/tonne (Nov 2019, 1.29$/£) multiplied by 0.316 tonne fuel saved.
Commercial airlines	Training cost	Not applicable	Not applicable
Commercial airlines	Other costs	Not applicable	Not applicable – there are no other costs known which would be incurred by commercial aviation.
Airport/ ANSP	Infrastructure costs	Monetise and quantify	None
Airport/ ANSP	Operational costs	Not applicable	Not applicable – this proposal would not lead to a change in operational costs.
Airport/ ANSP	Deployment costs	Monetise and quantify	Training Costs: negligible – notification via SI Delivery of change under AIRAC process: £5k NPV

Appendix 1: ENR AIP amendments (assuming *Option 8 Connectivity*)
Extension of ATS Route Y803 to MAXIT and adjustment of M185 via MODMI.

This will occur via the AURORA AIS system aero data associated with the Farnborough change package. At time of writing this was in progress between NATS and CAA aero data quality specialists (expected to be finalised Nov 2019). It will cover changes to ENR2.1, ENR3.3, ENR4.4, ENR6.68, ENR6.70.

Extract from Farnborough-related WGS84 sheet, specifically pertinent to Y803, M185, UM185 (ENR3.3), taken from CAA Mapping Specialist sheet v6 (24/10/19)

Route Name Y803 (RNAV)	*if these details form only a part of the route in scope…*		*…Textually describe any omitted portion of route in scope here.*				
no changes from what is published south of MID	No Lat/Long Match	No Lat/Long Match	x				
MID	510314.23N	0003730.01W	x				
(RNAV 5)	> 11.43°	< 191.48°	12 nm	FL 460 / FL 95	Even FL430/ FL100		FL 460/FL 195 Class C, FL 195/FL 95 Class A. London Control (Swanwick) Freq: 132.840 (FL305 and above) Freq: 132.165 (Below FL305 to FL215) Freq: 135.805 (Below FL215 to FL175) Freq: 133.180 (Below FL175)
MAXIT	511459.0800N	0003342.8300W	x				Extremity of Y803.

Route Name M185 (RNAV)	*if these details form only a part of the route in scope…*		*…Textually describe any omitted portion of route in scope here.*				
MID	510314.23N	0003730.01W	x				
(RNAV 5)	> 25.8803°	< 205.9884°	12 nm	FL 245 / FL 85	Odd FL230/ FL90	Even FL240/ FL100	FL 245/FL 195 Class C, FL 195/FL 85 Class A. London Control (Swanwick) Freq: 132.165 (FL215 and above) Freq: 135.805 (Below FL215 to FL175) Freq: 133.180 (Below FL175)
MODMI	511400.99N	0002909.99W	x				
(RNAV 5)	> 18.8554°	< 198.8858°	4.535 nm	FL 245 / FL 85	Odd FL230/ FL90		FL 245/FL 195 Class C, FL 195/FL 85 Class A. London Control (Swanwick) Freq: 132.165 (FL215 and above) Freq: 135.805 (Below FL215 to FL175) Freq: 133.180 (Below FL175)
OCK	511818.17N	0002649.86W	x				Eastbound route only btn OCK and BPK.
			x				
No changes from what is published north of OCK. No changes south of MID							

Route Name UM185 (RNAV)	*if these details form only a part of the route in scope…*		*…Textually describe any omitted portion of route in scope here.*				
MID	510314.23N	0003730.01W	x				
(RNAV 5)	> 25.8803°	< 205.9884°	12 nm	FL 460 / FL 245	Odd FL450/ FL250		Class C London Control (Swanwick) Freq: 132.840 (FL305 and above) Freq: 132.165 (Below FL305)
MODMI	511400.99N	0002909.99W	x				
(RNAV 5)	> 18.8554°	< 198.8858°	4.535 nm	FL 460 / FL 245	Odd FL450/ FL250		Class C Between 5nm south of OCK and OCK Freq: 134.460(FL305 and above) Freq: 132.185 (Below FL305) Between MODMI and 5nm south of OCK Freq: 132.840 (FL305 and above) Freq: 132.165 (Below FL305)
OCK	511818.17N	0002649.86W	x				Intersection with Q3.
No changes from what is published north OCK No changes south of MID							

Appendix 2: EGLL Aerodrome AIP amendments
(assuming either *Option 3 Swap* or *Option 4 Hybrid*)

AD2.21:

Admin changes to ATC Clearance table issued under Heathrow S78(1) noise abatement para 8-a-ii, as Heathrow is a Designated Airport requiring DfT notification by CAA.

DfT contact details: **David Best** and **Jonathan Friel** were both reminded of this (April 2019) and the DfT was originally informed of this need in 2016.

If *Option 4 Hybrid* is approved, the proposed additions are highlighted in red.
If *Option 3 Swap* (preferred) is approved, the "Via Midhurst" text can be entirely deleted, completely replaced by via MAXIT or via MODMI.

Take-off Runway	ATC Clearance	Procedure	Take-off Runway	ATC Clearance	Procedure
27R	Via Woodley	Straight ahead to intercept LON VOR RDL 258 until LON DME 7 then turn right onto QDM 271 to WOD NDB (LON DME 16).	27L	Via Woodley	Straight ahead to intercept LON VOR RDL 258 until LON DME 7 then turn right onto QDM 271 to WOD NDB (LON DME 16).
	Via Chiltern	Straight ahead to be established on BUR NDB QDM 300 by LON DME 4. At LON DME 6 turn right onto QDM 056 to CHT NDB.		Via Chiltern	Straight ahead to be established on BUR NDB QDM 300 by LON DME 3. At LON DME 6 turn right onto QDM 056 to CHT NDB.
	Via Burnham/ UMLAT	Straight ahead to be established on BUR NDB QDM 300 by LON DME 4. At LON DME 7 turn right to follow BUR NDB QDR 358 to abeam BNN VOR (LON DME 16).		Via Burnham/ UMLAT	Straight ahead to to be established on BUR NDB QDM 300 by LON DME 3. At LON DME 7 turn right to follow BUR NDB QDR 358 to abeam BNN VOR (LON DME 16).
	Via Midhurst **/MAXIT**	Straight ahead to intercept LON VOR RDL 258 until LON DME 5 then turn left onto BUR NDB QDR 163. At LON DME 12 turn right onto MID VOR RDL 013 to MID VOR.		Via Midhurst **/MAXIT**	Straight ahead to intercept LON VOR RDL 242 until LON DME 5.5 then turn left onto BUR NDB QDR 163. At LON DME 12 turn right onto MID VOR RDL 013 to MID VOR.
	Via Epsom/ Detling	Straight ahead until LON DME 2 then turn left onto QDM 139 to EPM NDB then left onto DET VOR RDL 273 to abeam Biggin (DET DME 21).		Via Epsom/ Detling	Straight ahead until I-LL DME 1.0 (LON DME 2) then turn left onto QDM 139 to EPM NDB then left onto DET VOR RDL 273 to abeam Biggin (DET DME 21).

Take-off Runway	ATC Clearance	Procedure	Take-off Runway	ATC Clearance	Procedure
09L	Via Woodley	Straight ahead until LON DME 1.5 then turn right onto QDM 283 to WOD NDB (LON DME 16)	09R	Via Woodley	Straight ahead until LON DME 2 then turn right onto QDM 283 to WOD NDB (LON DME 16).
	Via Ockham/ GOGSI	Straight ahead until LON DME 1.5 then turn right onto LON VOR RDL 127 until LON DME 5 then right onto OCK VOR RDL 044. At OCK DME 2 turn right onto OCK VOR RDL 255 by OCK DME 3.		Via Ockham/ GOGSI	Straight ahead until LON DME 2 then turn right onto LON VOR RDL 127 until LON DME 5 then right onto OCK VOR RDL 044. At OCK DME 2 turn right onto OCK VOR RDL 255 by OCK DME 3
	Via Midhurst **/MODMI**	Straight ahead until LON DME 1.5 then turn right onto LON VOR RDL 127 until LON DME 3.5 then turn right onto MID VOR RDL 027 to MID VOR.		Via Midhurst **/MODMI**	Straight ahead until LON DME 2 then turn right onto LON VOR RDL 127 until LON DME 3.5 then turn right onto MID VOR RDL 027 to MID VOR.
	Via Detling	Straight ahead until LON DME 1.5 then turn right onto track 123° MAG. At LON DME 4 turn left to establish on DET VOR RDL 285 by DET DME 34 to DET DME 20.		Via Detling	Straight ahead until LON DME 2 then turn right onto track 123° MAG. At LON DME 4 turn left to establish on DET VOR RDL 285 by DET DME 34 to DET DME 20.
	Via ULTIB	Straight ahead until LON DME 1.5 then turn left onto track 052° MAG to intercept LON VOR RDL 073. At LON DME 10 turn left onto BIG VOR RDL 331 to ULTIB.		Via ULTIB	Straight ahead until LON DME 2 then turn left onto track 052° MAG to intercept LON VOR RDL 073. At LON DME 10 turn left onto BIG VOR RDL 331 to ULTIB.
	Via Brookmans Park	Straight ahead until LON DME 1.5 then turn left onto track 052°MAG to intercept LON VOR RDL 073. At LON DME 10 turn left onto BPK VOR RDL 198 to BPK VOR.		Via Brookmans Park	Straight ahead until LON DME 2 then turn left onto track 052°MAG to intercept LON RDL 073. At LON DME 10 turn left onto BPK VOR RDL 198 to BPK VOR.

Note for CAA **entirely outside** this MID SID truncation: The radials specified in this table are not consistent with those published in the associated SID IFP charts – example 27R Midhurst specifies R258, but the most recent IFP chart (Sept 2019) says R256. This is l kely to have been a magnetic variation issue over time, correctly updated in the IFP charts, but not in this NPR table. From our point of view as SID truncation sponsors, our need is only to update the Midhurst items with MAXIT or MODMI as per the red text, not to correct historic inconsistencies. However we are happy to point them out for formal correction by the appropriate agent.

AD2.22:

Para 6 Loss of Communications Procedures (Departing Aircraft). **NO CHANGE**

AD2.22:

Para 7 Departure Procedures

If *Option 4 Hybrid* approved, update Sub-para a, change 6-**7** to 6-**8** as highlighted in red below *(Not applicable if Option 3 Swap approved, as no additional plate is needed presuming the MAXIT/MODMI SIDs would replace MID SIDs on same plate number 6-2)*:

a) Standard Instrument Departure (SID) procedures for aircraft departing from London Heathrow Airport are detailed at AD 2-EGLL-6-1 to 6-8 and incorporate the Noise Preferential Routes (NPRs) detailed in AD 2.21.

No changes to sub-paras b, c.

New item d (*applies regardless of which Option 3 Swap or Option 4 Hybrid is approved*).
d) Flight crew of aircraft unable to meet SID climb restrictions must inform Heathrow Delivery prior to pushback. Restrictions/delays may apply

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AD2.24 Charts:

If *Option 3 Swap* approved, edit entry at AD 2.EGLL-6-2 to update MID to MAXIT/MODMI
STANDARD DEPARTURE CHART - INSTRUMENT (SID) MAXIT 1F 1G MODMI 1J 1K - ICAO AD 2.EGLL-6-2

If *Option 4 Hybrid* approved, MID SIDs at AD 2.EGLL-6-2 would be retained though not used.
Thus add new SID entry at the appropriate point in the list, presuming the new SID plate number 6-8.

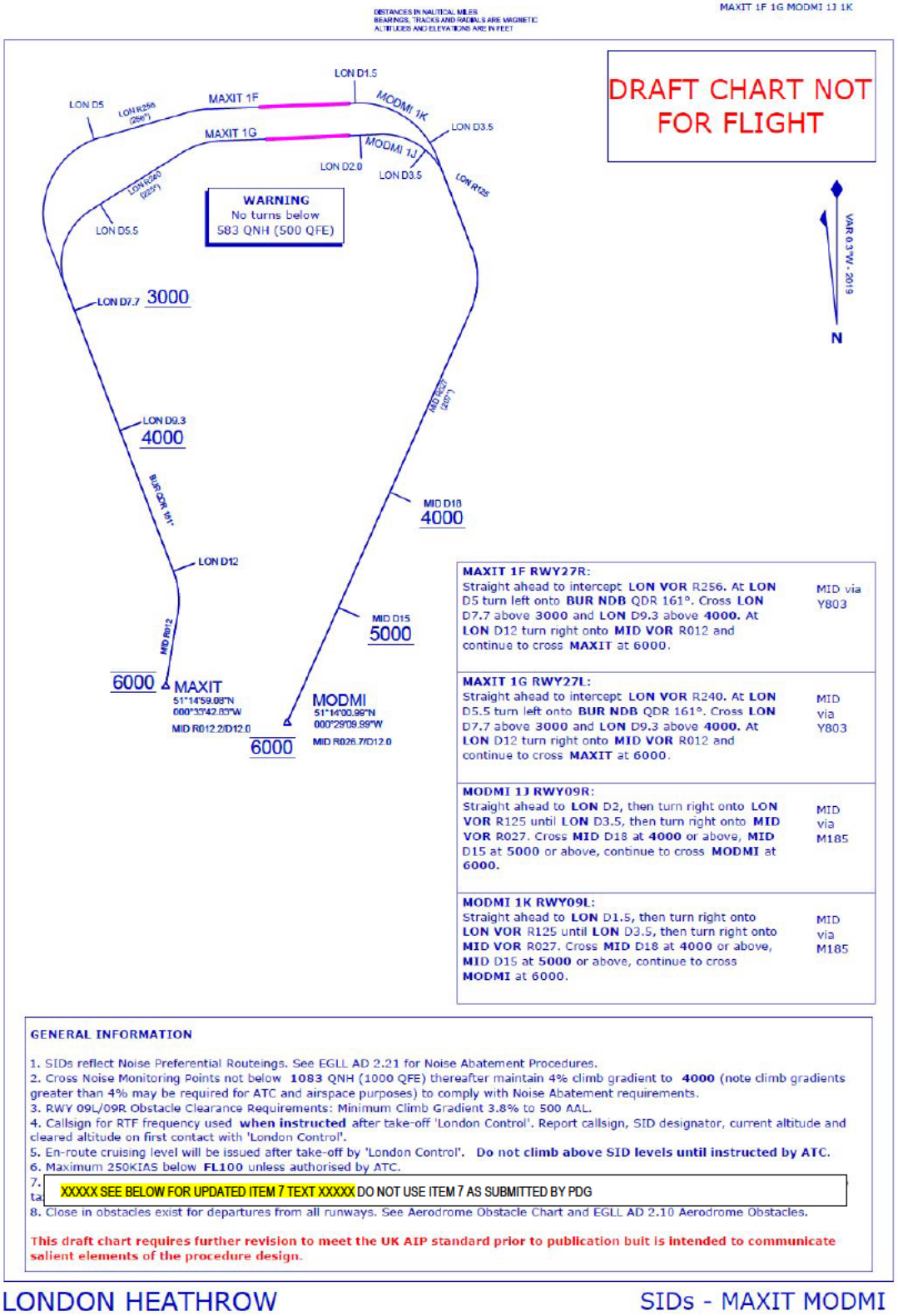
STANDARD DEPARTURE CHART - INSTRUMENT (SID) MAXIT 1F 1G MODMI 1J 1K - ICAO AD 2.EGLL-6-8

SID Plates:
See report submitted by NATS PDG to CAA IFP regulator in August 2019 titled “Report 8.0 Heathrow Gradients” and associated IFP work.

The MAXIT/MODMI sketch is attached on the next page.

If *Option 3 Swap* is approved, **replace** all AD 2.EGLL-6-2 content with MAXIT/MODMI SID plate (next page)

If *Option 4 Hybrid* is approved, **add** new MAXIT/MODMI SID plate (next page), numbered 6-8. **Also retain MID EGLL-6-2** but add **new General Information item**, at the top of the list in EGLL-6-2 all in bold, above the NPR item: **1: Not available for flight planning.** Renumber subsequent items accordingly.



Update item 7 of the PDG draft chart:
7. Flight crew of aircraft unable to meet SID climb restrictions must inform Heathrow Delivery prior to pushback. Restrictions/delays may apply.

What is the **specific mechanism** by which GOGSI/GASGU gradient change gets submitted to AIS, and by whom? It's already been approved via LF ACP Appx M and the IFP was submitted in Aug alongside the MAXIT MODMI package, I'm not sure where we are with IFP approval and the climb gradient evidence for ATC workload is ongoing with Pam. Don't want it to fall between the cracks as it's also crucial to the Farnborough proposal.
Note for Colin, the Item 7 above must apply to Item 6 of the GOGSI GASGU SID plate EGLL-6-6.

SARG Airspace Regulatory Approval use only.

Serial	Design Check	Design Approved/ Not Approved	Verified By
1a	**SID revised track and distance.**	Approved	[redacted]
1b	**Co-ordinates verified.**	Approved	[redacted]
1c	If errors evident, SID revised track and distance entered below.	N/A	N/A
2a	**ATS Route track and distance.**	Approved	[redacted]
2b	**ATS Route terrain clearance assured.**	Approved	[redacted]
2c	If errors evident, ATS Route revised track and distance entered below.	N/A	N/A
3	**Navaid infrastructure** (adequate coverage for new termination point).	N/A	N/A
4	**RCF procedures.**	Approved	[redacted]
5	**Interacting procedures.**	Approved	[redacted]
6	**Airspace Containment.**	Approved	[redacted]
7	**SID chart – proposed changes.**	Approved	[redacted]
8	**SID chart proof from AIS.**	Approved	[redacted]
9	**Final Options Appraisal.**	Approved	[redacted]
10	**Safety Assessment.**	Approved	[redacted]
11	**NPR Tables – proposed changes (if applicable).**	N/A	N/A
12	**SID truncation proposal confirmed as a Level 2c change.**	Approved	[redacted]
13	**DfT advised if changes made to SIDs at designated airports.** **(following approval)**	Approved	[redacted]

Change recommended by:

Name [redacted] (Airspace Regulator (Technical))

Date 20 November 2019

Change referred back to sponsor for the following reason (insert details)

N/A

Change approved by:

Name [redacted]

Signed [redacted]

Appointment Manager Airspace Regulation

Date 20 November 2019