MOTT MACDONALD

Expansion of Hong Kong International Airport into a Three-Runway System

Procedures for Mitigation of Aircraft Noise

October 2024

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This Submission of Procedures for Mitigation of Aircraft Noise

has been reviewed and certified by

the Environmental Team Leader (ETL) in accordance with

Condition 2.21 of Environmental Permit No. EP-489/2014.

Certified by:

Terence Kong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date 25 October 2024

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By Email

Airport Authority Hong Kong
HKIA Tower, 1 Sky Plaza Road
Hong Kong International Airport
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Attn: Mr. Lawrence M L Tsui, Principal Manager. Environmental Compliance

28 October 2024

Dear Sir,

Contract No. 3102
3RS Independent Environmental Checker Consultancy Services

Verification of Procedures for Mitigation of Aircraft Noise

Reference is made to the ET's submission of Procedures for Mitigation of Aircraft Noise under Condition 2.21 of the Environmental Permit No. EP-489/2014 certified by the ET Leader on 25 October 2024.

We would like to inform you that we have no comment on the captioned submission. Therefore we write to verify the captioned submission in accordance with the requirement stipulated in Condition 1.9 of EP-489/2014.

Should you have any query, please feel free to contact the undersigned at 37290380.

Yours faithfully,
AECOM Asia Co. Ltd.

Roy Man
Independent Environmental Checker

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Acronyms

2RS	Two-runway System
3RS	Three-runway System
AAHK	Airport Authority Hong Kong
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
ANSP	Air Navigation Service Provider
CAD	Civil Aviation Department
CDA	Continuous Descent Approach
DEP	Director of Environmental Protection
Doc	Document
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance
EM&A	Environmental Monitoring and Audit
EP	Environmental Permit
EPD	Environmental Protection Department
FMS	Flight Management System
GPS	Global Positioning System
ha	Hectare
HK	Hong Kong
HKIA	Hong Kong International Airport
I-2RS	Interim Two-runway System
ICAO	International Civil Aviation Organization
ILS	Instrument Landing System
MM	Mott MacDonald
NADP	Noise Abatement Departure Procedure
NEF	Noise Exposure Forecast
NSR	Noise Sensitive Receiver
PANS-OPS	Procedure for Air Navigation Services – Aircraft Operations
QC	Quota Count
RF	Radius-to-Fix
RNP	Required Navigation Performance
RNP-AR	Required Navigation Performance Authorization Required
RWY	Runway
SID	Standard Instrument Departure
T2 Building	Terminal 2 Building

1 Introduction

1.1 Background

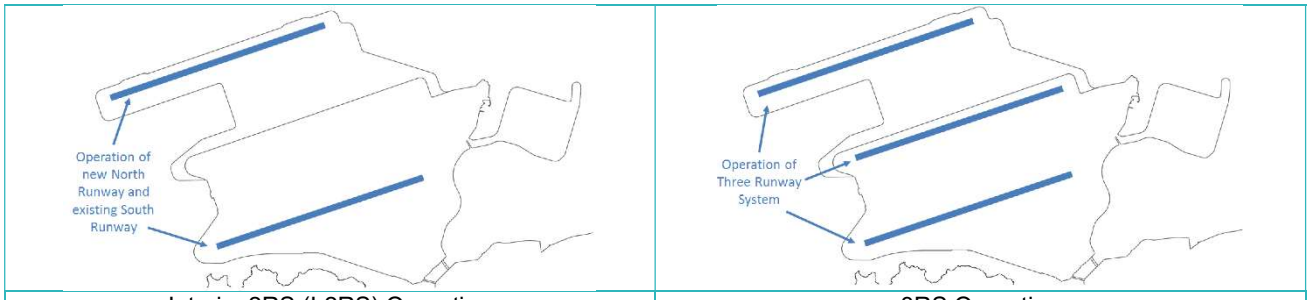
Under the Environmental Impact Assessment Ordinance (EIAO), the Environmental Impact Assessment (EIA) Report and the Environmental Monitoring and Audit (EM&A) Manual (Register No.: AEIAR-185/2014) prepared for the "Expansion of Hong Kong International Airport into a Three-Runway System" (hereafter referred to as the Project or the "3RS Project") have been approved by the Environmental Protection Department (EPD), and an Environmental Permit (EP) (Permit No.: EP-489/2014) has been issued for the Project.

The project is located on a new land formation area immediately north of the original Hong Kong International Airport (HKIA) in North Lantau, covering a permanent footprint of approximately 650 ha. As stated in the approved 3RS EIA Report, the Project primarily comprises:

- New third runway with associated taxiways, aprons and aircraft stands;
- New passenger concourse building;
- Expansion of the existing Terminal 2 (T2) building; and
- Related airside and landside works, and associated ancillary and supporting facilities.

As presented in the approved 3RS EIA Report, the runway operational configuration will be implemented in phases as shown in **Figure 1.1** below. Upon completion of the new third runway and associated taxiways and with operation familiarisation of the runway started on 8 July 2022 and formal commencement of operation started since 25 November 2022, the previous north runway is temporarily closed for modification works. During this interim period as described in the approved 3RS EIA Report, the South Runway and the new third runway (which is designated as the new North Runway) are currently in operation, and this is hereafter referred to as the interim two-runway (I-2RS) operation. Upon completion of all essential infrastructure and facilities, the airport will be operated under the 3RS, which is hereafter referred to as the 3RS operation.

Figure 1.1: Runway Operation Configuration



Interim 2RS (I-2RS) Operation	3RS Operation

The aircraft noise impact assessment completed as part of the approved 3RS EIA Report had assessed the aircraft noise impact associated with the above-mentioned I-2RS and 3RS operation. These covered both the Worst Operation Scenario and Design Capacity Scenario as two assessment scenarios for the 3RS operation in addition to the Interim Phase Scenario for the I-2RS operation. Relevant aircraft noise mitigation measures had been recommended and adopted as operational assumptions in the detailed aircraft noise modelling undertaken for the above-mentioned assessment scenarios.

Taking into account the EIA recommendations and the EP requirements, pursuant to EP Condition 2.21, the Airport Authority Hong Kong (AAHK) is required to prepare and submit the Procedures for Mitigation of Aircraft

Noise for the Project to the Director of Environmental Protection (DEP, or hereafter referred to as the Director) for approval no later than 3 months before the operation of the third runway of the Project. This required submission was made to and approved by the Director in March 2022 for the I-2RS operation. The current submission represents an updated submission under EP Condition 2.21 for the planned 3RS operation requiring approval by the Director.

Mott MacDonald (MM) has been appointed by AAHK as the Consultant to provide consultancy services for the 3RS Project, which include, among others, the preparation of the submission under EP Condition 2.21. The Director-General of Civil Aviation has been consulted in the preparation of this submission in accordance with the requirement sets out under EP Condition 2.21.

1.2 Purpose of this Document

As described above, a submission was made in March 2022 under EP Condition 2.21 for the I-2RS operation. The current document represents an updated submission to present the planned procedures for mitigation of aircraft noise under EP Condition 2.21 required by the Director for the 3RS operation.

1.3 Structure of this Document

Following this introductory section, this Plan is structured as follows:

Section 2 Overview of Aircraft Noise Mitigation Measures

Section 3 Putting the South Runway on Standby

Section 4 West Lamma Channel Departures in East Flow Operation

Section 5 Required Navigation Performance (RNP) Track 6 in West Flow Operation

Section 6 Preferential Runway Use

Section 7 Noise Abatement Departure Procedures in East Flow Operation

Section 8 Continuous Descent Approach from Northeast in West Flow Operation

2 Overview of Aircraft Noise Mitigation Measures

2.1 Introduction

The International Civil Aviation Organization (ICAO) developed the Balanced Approach to Aircraft Noise Management in 2001 and published a relevant ICAO guidance document on the subject in 2004. The Balanced Approach is an internationally agreed approach to managing aircraft noise at large airports. The Balanced Approach involves utilising four different types of measures, including:

1. Reduction of Noise at Source
2. Land-use Planning and Management
3. Noise Abatement Operational Procedures
4. Operating Restrictions

Each of these types of measures aims to tackle noise-related issues from a different dimension and contributes to the overall noise mitigation objectives for an airport.

In Hong Kong, the Civil Aviation Department (CAD) has been implementing a series of aircraft noise mitigation measures and initiatives in accordance with the ICAO's Balanced Approach. These include the following measures as described in Section 7.3.2.5 of the approved 3RS EIA Report:

(i) all noisy jet aircraft which do not comply with the noise standard set out in Chapter 3 of Annex 16 Volume I, Part II to the Convention on International Civil Aviation are not allowed to operate at HKIA since July 2002;
(ii) between midnight and 07:00 am, arriving aircraft are required to land from the southwest, subject to acceptable wind direction and safety consideration since October 1998[1];
(iii) aircraft departing to the northeast of the airport between midnight and 07:00 am are required to use the southbound route via the West Lamma Channel, subject to acceptable operational and safety consideration since October 1998. The application period was revised to 11:00 pm to 07:00 am since January 1999;
(iv) aircraft departing to the northeast are required to adopt the noise abatement take-off procedures stipulated by ICAO so long as safe flight operations permit;
(v) all aircraft on approach to the HKIA from the northeast between 11:00 pm to 07:00 am are encouraged to adopt the Continuous Descent Approach (CDA).

As described in Sections 7.3.2.7 to 7.3.2.10 of the approved 3RS EIA Report, CAD has been exploring additional measures and new initiatives that could be implemented to further reduce the aircraft noise impact arising from the existing operation at HKIA. AAHK had also initiated a detailed study to develop an environmental charges/ incentives scheme as a means of encouraging airlines to use quieter aircraft; actively managed the night flights demand; and also committed to either the provision of, or to pay for, noise insulation measures at all domestic houses/ structures affected by aircraft noise. These additional measures and initiatives, which have been introduced at HKIA and covered all four aspects of measures under the above-mentioned Balanced Approach promulgated by ICAO, are described in the section below.

[1] The implementation time period of the measure has been changed to between 11:00pm and 07:00 am since 16 May 2023.

2.2 Additional Aircraft Noise Mitigation Measures and Incentives Implemented at HKIA

2.2.1 Reduction of Noise at Source - Further Restrictions on Noisy Aircraft Types

Improved aircraft designs through adoption of new technology mean the newer generation aircraft generate less noise. Each aircraft type is certified for their noise performance based on both engine and the airframe noise as per ICAO Annex 16 and Doc 9501.

As described above, CAD has implemented a ban in July 2002 on jet aircraft that do not comply with the noise standards stipulated in Chapter 3 of ICAO Annex 16 Volume I, Part II to reduce aircraft noise at source.

Those aircraft types that marginally comply with Chapter 3 noise standards are also not allowed in scheduled operations into HKIA since the end of March 2014 between 2300 and 0659 hours, and this requirement had been extended to the whole day since October 2014.

To further improve the local noise environment and to alleviate the aircraft noise impact on the local communities, CAD have implemented a further restriction on aircraft that do not comply with the more stringent Chapter 4 of ICAO Annex 16 Volume I, Part II. These aircraft, which have been referred to as Non-chapter 4 Equivalent Aircraft in Aeronautical Information Circular (AIC) 18/18 dated 10 September 2018 and subsequently in AIC 06/23 dated 2 February 2023, have not been allowed to schedule operations at HKIA between 2200 and 0659 hours since March 2019.

2.2.2 Land-use Planning and Management

2.2.2.1 Consideration of Aircraft Noise in planned Comprehensive Development Area in Lok On Pai

Based on the results of the aircraft noise modelling presented for the Worst Operation Scenario and Design Capacity Scenario in the approved 3RS EIA Report, part of the Noise Exposure Forecast (NEF) 25 contours will encroach onto a Comprehensive Development Area site in Lok On Pai. As described in Sections 7.3.4.8 and 7.3.4.14 of the approved 3RS EIA Report, Planning Department has already been informed of the requirement of allowing non-noise sensitive uses only within the NEF 25 contour in their preparation of the planning brief to control the future development in the Comprehensive Development Area site in Lok On Pai through the established planning mechanism and also in the lease.

It is noted that an outline zoning plan (No. S/TM/35) was subsequently published by the Town Planning Board in December 2018 with a requirement to conduct an environmental assessment for any planned developments at the Comprehensive Development Area site in Lok On Pai.

2.2.2.2 Indirect Noise Mitigation Measures provided for affected villages

The approved 3RS EIA Report had identified that after exhausting all practicable direct noise mitigation measures, it is unavoidable that some village houses/ licensed structures in and around Sha Lo Wan and certain village houses/ licensed structures along North Lantau shorelines would still be situated within the NEF 25 contours, though the extent of encroachment would be reduced once the 3RS becomes operational when the south runway could be put on standby at night. In line with the indirect mitigation measures already provided to Sha Lo Wan village at airport opening, AAHK had already delivered its commitment made in Section 7.3.2.10 of the approved 3RS EIA Report to either provide, or to pay for, noise insulation measures at all existing domestic houses/ structures within the other newly affected villages named in Table 7.3.2 of the approved 3RS EIA Report.

2.2.3 Noise Abatement Operational Procedures - Radius-to-Fix Flight Procedures

As described in Section 7.3.2.7 of the approved 3RS EIA Report, CAD has implemented since 2012 a set of departure flight procedures (known as Radius-to-Fix flight procedures) whereby aircraft which are capable to use satellite-based navigation technology, when departing to the northeast from HKIA, can adhere closely to the nominal flight track when making the turn to the West Lamma Channel, thereby keeping the aircraft at a distance away from the areas in the vicinity of the flight paths, and reducing the noise impact on these areas.

CAD has been encouraging airlines with aircraft equipped with the above-mentioned satellite-based navigation technology to adopt the Radius-to-Fix flight procedures. Since the introduction of the Radius-to-Fix (RF) flight procedures in 2012, the proportion of flights adopting the procedures has steadily increase. These RF departure procedures are now being assigned as the default procedure in preference to the basic flight procedures for aircraft departing from Runways 07 during the noise mitigating period between 2300 and 0700 to further increase their utilisation.

2.2.4 Operating Restriction - Noise Quota Count Scheme implemented at HKIA

AAHK had completed the detailed study mentioned in Section 7.3.2.9 of the approved 3RS EIA Report to develop an environmental charges/ incentives scheme as a means of encouraging airlines to use quieter aircraft types. Taking into account the study findings, AAHK introduced and implemented a Noise Quota Count (QC) Pilot Scheme in the Summer Season of 2017 after thorough consultation with the aviation community. AAHK had also managed the night flights demand at HKIA to ensure that the noise contour in the remaining years of the previous two-runway (2RS) operations would not expand into any new Noise Sensitive Receivers (NSRs) on top of the affected villages reported in the approved 3RS EIA Report.

The QC Scheme introduced by AAHK at HKIA has been identified to be a useful tool that encouraged airlines to deploy more quieter aircraft at HKIA. Its implementation has continued in the current I-2RS operation and the Scheme is planned to be continued in the 3RS operation.

As described in the relevant Aeronautical Information Circular (AIC) 20/20 dated 9 October 2020, an additional operating restriction has been introduced at HKIA to restrict the operation of noisier Noise Quota Count 4 (QC4) aircraft between 0100 hours and 0659 hours since the start of the Summer Season of 2021, and the operating restriction has been extended to between 2200 hours and 0659 hours from the start of the Summer Season of 2022.

2.3 3RS EP Requirements

Sections 7.3.3.11 and 7.3.5.3 of the approved 3RS EIA Report have recommended a number of direct noise mitigation measures for the future 3RS operation, including the following which have been summarised in form of an Implementation Schedule in Table 20.1 (see the extract in **Appendix A**) of the approved 3RS EIA Report, and included and listed under EP Condition 2.21, as reproduced in italics below:

(i) putting the existing south runway on standby where possible at night between 2300 hours and 0659 hours;
(ii) requiring departures to take the southbound route via West Lamma Channel during east flow at night between 2300 hours and 0659 hours, subject to acceptable operational and safety consideration;
(iii) assigning a new arrival Required Navigation Performance Track 6 for preferential use in the runway 25 direction between 2300 hours and 0659 hours;
(iv) implementing a preferential runway use programme when wind conditions allow such that west flow is used when departures dominate while east flow is used when arrivals dominate during night-time.

In addition to the direct noise mitigation measures listed above, Section 7.3.5.4 of the approved 3RS EIA Report has also recommended that the existing noise abatement good practices, including the use of noise abatement take-off procedures (also known as Noise Abatement Departure Procedures (NADPs)) and Continuous Descent Approach (CDA), which have been implemented at HKIA since the previous 2RS operation and in the current I-2RS operation, to continue to be applied in the planned 3RS operation. These measures have accordingly been included and also listed under EP Condition 2.21, as reproduced in italics below:

(v) adopting the noise abatement take-off procedures stipulated by International Civil Aviation Organization (ICAO) for aircraft departing to the northeast so long as safe flight operations permit;
(vi) adopting the Continuous Descent Approach (CDA) for all aircrafts on approach to the Hong Kong International Airport (HKIA) from the northeast between 2300 hours and 0700 hours.

Further, EP Condition 2.21 states that *The Permit Holder shall consult the Director-General of Civil Aviation in preparing the procedures.*

As summarised in **Table 2.1** below, three of the above-listed measures, including items (ii), (v) and (vi), have already been implemented in the current I-2RS operation and all of the six measures are planned for the 3RS operation.

Regarding item (iii) of the measures i.e., the arrival Required Navigation Performance (RNP) Track 6, an Aeronautical Information Circular (AIC) 20/23 of 21 August 2023 titled "*Preferential Use of RNP Y (AR) APCH Procedures to Runway 25 at Hong Kong International Airport (HKIA) during noise mitigation period*" (reproduced in **Appendix B**) was issued on 21 August 2023 to promote the increased use of the arrival RNP Track 6 effective from 3 September 2023. AAHK is also considering introducing a relevant incentive scheme at HKIA to promote the increased use of the RNP Track 6. It is expected that the use of the RNP Track 6 may increase progressively as assumed in the approved 3RS EIA Report with airlines increasingly equipping themselves with the necessary capabilities to meet the more stringent requirements[2].

Besides, regarding item (iv) of the measures i.e., the Preferential Runway Use Programme, it can be noted that the existing noise mitigation measure implemented in the current I-2RS operation and the previous 2RS operation mainly relies on preferential use of the 07 runways as specified under Clause 2.3.1 in AD2.21 of the Hong Kong Aeronautical Information Publication (AIP Hong Kong) published by CAD and also described in Section 7.3.3.25 of the approved 3RS EIA Report. For the 3RS operation, relevant aircraft noise modelling undertaken for both the Worst Operation Scenario and Design Capacity Scenario at the 3RS EIA stage were

[2] RNP-Authorization Required ("RNP-AR") capabilities are required for the use of Track 6. In order to perform RNP-AR for using Track 6, the aircraft must have a high level of navigation performance as they need to navigate precisely along the predetermined path over complex terrain; and the flight crew must also meet specific training requirements. In addition, authorization from relevant civil aviation authorities is required.

based on a forecast where the air traffic movements (ATMs) at HKIA would grow beyond the maximum practicable capacity of 420,000 ATMs per year applicable to the I-2RS and previous 2RS operation towards the 607,480 ATMs per year under the Worst Operation Scenario and 620,000 ATMs per year under the Design Capacity Scenario. A number of aircraft noise mitigation measures as mentioned in the 3RS EP would need to be implemented to mitigate the predicted aircraft noise impact.

Specifically, the introduction of the planned Preferential Runway Use Programme (such that west flow is used when departures dominate while east flow is used when arrivals dominate during night-time when wind conditions allow), when identified to be necessary for the 3RS operation, will enable the majority of traffic to arrive from or depart towards the western side of HKIA over water during night-time. As already pointed out under the sub-section on *Control of night flight movement over residential area* in Section 7.3.4.9 of the approved 3RS EIA Report, for arrivals to HKIA in the runway 25 direction, together with increased use of the arrival RNP Track 6 designed for preferential use that will allow suitably equipped aircraft to reduce the portion of their approach path over populated areas, the implementation of the Preferential Runway Use Programme will also reduce the number of arriving aircraft overflying populated residential areas.

The introduction of the Preferential Runway Use Programme will be dependent on a number of factors, inter alia, air traffic growth, night-time schedule demand and patterns, on-time performance of night flights, air traffic control procedures, usage and impact of different tracks, etc. The quarterly reviews of aircraft noise monitoring data, with details presented in Section 3 of the *Aircraft Noise Monitoring Plan* submitted under EP Condition 2.23, will provide data on trends and patterns of aircraft noise. All relevant factors will need to be carefully considered, taking into account the findings of the quarterly reviews, in order to decide when the Preferential Runway Use Programme will be required and can be implemented in the most appropriate manner, with a view to ensuring that the NEF 25 contour would not be encroaching onto any new NSRs. AAHK will closely monitor the situation and provide updates as appropriate.

Table 2.1: Implementation Schedule of Aircraft Noise Mitigation Measures for I-2RS and 3RS

Item	Measure	Description	Implementation Status	
			I-2RS	3RS
i.	South Runway on Standby	Putting existing south runway on standby where possible at night between 2300 and 0659 hours.	Not applicable*	Planned for implementation
ii.	West Lamma Channel Departures	Departures to take southbound West Lamma Channel during east flow at night between 2300 and 0659 hours, subject to acceptable operational and safety considerations.	Under implementation	Planned for implementation
iii.	RNP Track 6	Assigning a new arrival Required Navigation Performance (RNP) Track 6 for preferential use in the runway 25 direction (i.e., west flow) between 2300 hours and 0659 hours.	Not applicable**	Planned for implementation**
iv.	Preferential Runway Use	Preferential runway use programme when wind conditions allow such that west flow is used when departures dominate while east flow is used when arrivals dominate during night-time.	Not applicable	Planned for implementation ***
v.	NADP to the Northeast	Adopting noise abatement departure procedures for aircraft departing to the northeast as long as safe flight operations permit.	Under implementation	Planned for implementation
vi.	CDA from the Northeast	Adopting CDA for all aircraft on approach from the northeast between 2300 and 0700 hours.	Under implementation	Planned for implementation

* South Runway on Standby is not operationally feasible with 2 runways in I-2RS (see Section 2.3.1).

** Taking into account the level of aircraft / aircrew capability and air traffic considerations, the existing RNP Track 6 had been assigned for use in the west flow direction for suitably equipped aircraft only when circumstances permit during the I-2RS operation. To effect the increased use of the RNP Track 6 progressively in the 3RS operation as assumed in the

Item	Measure	Description	Implementation Status	
			I-2RS	3RS
		approved 3RS EIA Report, an Aeronautical Information Circular (AIC) 20/23 of 21 August 2023 (reproduced in **Appendix B**) had been issued to promote the increased use of the RNP Track 6 from 3 September 2023. AAHK is also considering introducing a relevant incentive scheme at HKIA to promote the increased use of the RNP Track 6. It is expected that the use of the RNP Track 6 may increase progressively as assumed in the approved 3RS EIA Report with airlines increasingly equipping themselves with the necessary capabilities to meet the more stringent requirements (see Section 2.3.3).		
		*** The introduction of the Preferential Runway Use Programme will be dependent on a number of factors, inter alia, air traffic growth, night-time schedule demand and patterns, on-time performance of night flights, air traffic control procedures, usage and impact of different flight tracks, etc. The quarterly reviews of aircraft noise monitoring data will provide data on trends and patterns of aircraft noise. All relevant factors will need to be carefully considered in order to decide when the Preferential Runway Use Programme will be required and can be implemented in the most appropriate manner, with a view to ensuring that the NEF 25 contour would not be encroaching onto any new NSRs. AAHK will closely monitor the situation and provide updates as appropriate (see Section 2.3.4).		

Each of the procedures are briefly described in **Sections 2.3.1 to 2.3.6,** with further details set out in **Sections 3** to **8**.

2.3.1 Putting the South Runway on Standby at Night

Putting the South Runway on standby at night will minimise the aircraft noise impact on Sha Lo Wan and other village houses along the Lantau shorelines that would inevitably be situated within the NEF 25 contour given their proximity. As already pointed out in Section 7.3.4.12 of the approved 3RS EIA Report, this measure is not applicable to both the previous 2RS and in the current I-2RS operation as it is operationally not feasible to put the South Runway on stand-by when there are only two runways available in total. Yet, this measure can be effectively implemented when the 3RS operation commences with an extra runway to allow the South Runway to be put on standby, while the remaining two runways will operate during periods of dual runway operation and rotate between operational and maintenance modes during periods of single runway operation.

Section 3 presents details about putting the South Runway on Standby during the 3RS operation.

2.3.2 West Lamma Channel Departures in East Flow Operation

For the current I-2RS operation, relevant requirements are already specified in Section 2.4 of VHHH AD 2.21 of AIP Hong Kong that requires aircraft departing to the northeast of the airport between 2300 and 0700 hours to take a southbound route via the West Lamma Channel, subject to acceptable operational and safety consideration.

This existing noise mitigating procedure will continue to be applied in the 3RS operation, including both basic RNP Standard Instrument Departures (SIDs) as well as the RNP SIDs with Radius-to-Fix (RF) segments as described in Section 2.2.3 above for effecting a better noise environment.

Section 4 presents details about the West Lamma Channel Departure procedure planned for the 3RS operation.

2.3.3 Required Navigation Performance (RNP) Track 6 in West Flow Operation

Currently the RNP Track 6 is already available as the RNP Y Authorization Required (AR) approach for arrival to Runways 25L and 25R in the west flow in I-2RS operation.

As described in Section 2.3 above, to effect the increased use of the RNP Track 6 progressively in the 3RS operation as assumed in the approved 3RS EIA Report, an Aeronautical Information Circular (AIC) 20/23 of 21 August 2023 titled "*Preferential Use of RNP Y (AR) APCH Procedures to Runway 25 at Hong Kong International Airport (HKIA) during noise mitigation period*" was issued on 21 August 2023 to promote the increased use of the RNP Track 6 from 3 September 2023. Specifically, the Hong Kong Air Traffic Control (ATC) will endeavour to preferentially sequence those arrival flights having authorisation to conduct the RNP Y AR approach to HKIA when the Runway 25 direction is in use between the noise mitigation period of 2300 and 0700 hours and meteorological conditions are suitable for adopting RNP AR approach (APCH) procedures from 3 September 2023 in the current I-2RS operation and the planned 3RS operation.

AAHK is also considering introducing an incentive scheme at HKIA to promote the increased use of the RNP Track 6, with a view to progressively increasing the usage of the RNP Track 6 as assumed in the 3RS EIA Report.

Section 5 presents details about the RNP Track 6 for the 3RS operation.

2.3.4 Preferential Runway Use

This procedure provides a scheme where the runway direction in use is decided to preferentially enable the majority of the traffic to arrive from or depart towards the west side of HKIA over waters during night-time when conditions allow, thus minimising the noise impact on populated areas. As described in **Section 2.3** and summarised in **Table 2.1**, all relevant factors will need to be carefully considered, taking into account the findings of the quarterly reviews, in order to decide when the Preferential Runway Use Programme will be required and can be implemented in the most appropriate manner, with a view to ensuring that the NEF 25 contour would not be encroaching onto any new NSRs.

Before the introduction of the Preferential Runway Use Programme, the relevant existing measure implemented in the current I-2RS operation and the previous 2RS operation that mainly relies on preferential use of the 07 runways will continue to be applied in the 3RS operation, with a requirement on preferential use of Runways 07L/07C throughout the night period from 2300 to 0700 hours when wind conditions allow to be specified in Section 2.3 of VHHH AD 2.21 in AIP Hong Kong. The 25 runways may be used if operationally required, e.g., unserviceability of navigation aids, adverse weather conditions, aircraft performance, traffic situations, etc.

Section 6 presents details about the Preferential Runway Use Programme for the 3RS operation.

2.3.5 Noise Abatement Departure Procedures (NADP) in East Flow Operation

Currently, all departures taking off in east flow operation are already required to adopt NADP as prescribed in ICAO's Doc 8168 Procedure for Air Navigation Services – Aircraft Operations (PANS-OPS) at any time around the clock so long as safe flight operations permit. Under these procedures, aircraft are required to reduce their power upon reaching an altitude of 800 feet or above to abate aircraft noise.

This existing noise mitigation procedure, which is detailed in AIP Hong Kong Section "VHHH AD 2.21 Noise Abatement Procedures > 1 ICAO Noise Abatement Departure Procedure RWY 07" for the current I-2RS operation and included as a noise abatement good practice as recommended in Section 7.3.5.4 of the approved 3RS EIA Report, will continue to be applied in the 3RS operation.

Section 7 presents details about the NADP procedure for the 3RS operation.

2.3.6 Continuous Descent Approach in West Flow Operation

Currently all aircraft on approach to HKIA from the northeast between 2300 and 0700 hours are required to adopt the Continuous Descent Approach (CDA) in the I-2RS operation where practicable, subject to the prevailing traffic situation. This existing noise mitigating procedure, which is detailed in AIP Hong Kong Section "VHHH AD 2.21 Noise Abatement Procedures > 2 Noise Mitigating Measures > 2.2 Continuous Descent Approach (CDA) Procedure for RWY 25L/25C" and included as a noise abatement good practice as recommended in Section 7.3.5.4 of the approved 3RS EIA Report, will continue to be applied in the 3RS operation.

Section 8 presents details about the CDA procedure for the 3RS operation.

3 Putting the South Runway on Standby

3.1 Introduction

Putting the South Runway on standby at night is one of the commitments made by AAHK at the 3RS EIA stage and this mitigation measure has been specified under EP Condition 2.21. During the 3RS operation, where possible, the South Runway will be put on stand-by between 2300 and 0700 hours and not normally be made available for operational use. This procedure has no dependency on wind direction therefore it will be applied whether HKIA is operating in the Runway 07 or 25 direction.

The runway, however, can be reactivated in unforeseen circumstances in order to accommodate special requirements and to sustain operation when the other runways are not available, due to aircraft blockages or weather, for example, in very rare occasions. When requested by air traffic control or by the Airfield Department in AAHK, the runway can begin to accept traffic if no maintenance is being performed on the South Runway.

Putting the South Runway on standby where possible at night will minimise the aircraft noise impact on Sha Lo Wan and other village houses along the Lantau shorelines that would inevitably be situated within the NEF 25 contour given their proximity. This measure will be implemented once the 3RS commences operation. When the South Runway is put on standby, the remaining two runways will operate during periods of dual runway operation and rotate between operational and maintenance modes during periods of single runway operation.

3.2 Implementation Details of the Procedure in current I-2RS operation

This procedure is not implemented in the existing I-2RS operation as it is operationally infeasible with only 2 runways available in total.

3.3 Planned Implementation for 3RS Operation

The following actions are being taken for the planned 3RS operation.

3.3.1 Required Procedure Development

The various 3RS runway modes and the opening and closing times of the corresponding runways for each mode have been incorporated in the operations manual. Standard runway opening and closing procedures will apply as per existing procedures for the nightly maintenance closure.

3.3.2 Required Changes to the AIP

Putting South Runway on Standby Mode at night will be incorporated into the updated AIP as one of the noise mitigation measures under Section AD 2.21.

In addition, a runway maintenance schedule for 3RS operation will be published by AAHK's Airfield Department. Such information will be published and updated through an AIP Supplement prior to the commencement of 3RS operation.

4 West Lamma Channel Departures in East Flow Operation

4.1 Introduction

Aircraft on departure typically fly pre-defined tracks called Standard Instrument Departures (SIDs). These are in use at HKIA to allow aircraft to safely and efficiently route away from the airport. SIDs are designed in accordance with ICAO Doc 8168 Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) in terms of obstacle clearance for safety but the alignments of the routes are defined by the local Air Navigation Service Provider (ANSP) which in Hong Kong's case is CAD.

In general, track alignment design takes into consideration many factors including the need to minimise potential aircraft noise impact:

- Terrain and obstacle clearance;
- Efficiency of the routing;
- Maintenance of required separation from other traffic operating to or from other runways or airports;
- Direction of the flight and connection to the desired airways at higher altitudes;
- Avoidance of strategically important infrastructure;
- Avoidance of restricted areas; and
- Potential aircraft noise impact.

Use of the SIDs which route via West Lamma Channel at night by all departing flights while in east flow operation, subject to weather and safety considerations, is an existing noise mitigating procedure which aims at reducing the number of aircraft overflying populated areas.

4.2 Implementation Details of the Procedure in current I-2RS operation

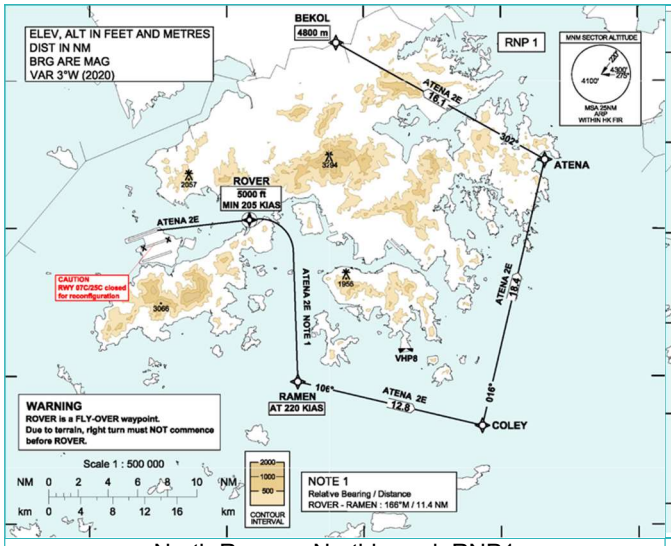
Subject to weather and safety considerations, aircraft departing to the northeast from HKIA between 2300 and 0700 hours are required to use the southbound route via West Lamma Channel. This measure aims to reduce the number of aircraft overlying populated areas.

These procedures are designed to provide noise mitigation from departure flights as the flight paths avoid flying over populated residential areas to the east of HKIA, by requiring all eastbound and northbound flights to, instead of flying over the city via their normal daytime tracks, route away from populated residential areas by initially taking the southbound track via West Lamma Channel before turning east or north over open waters during night-time.

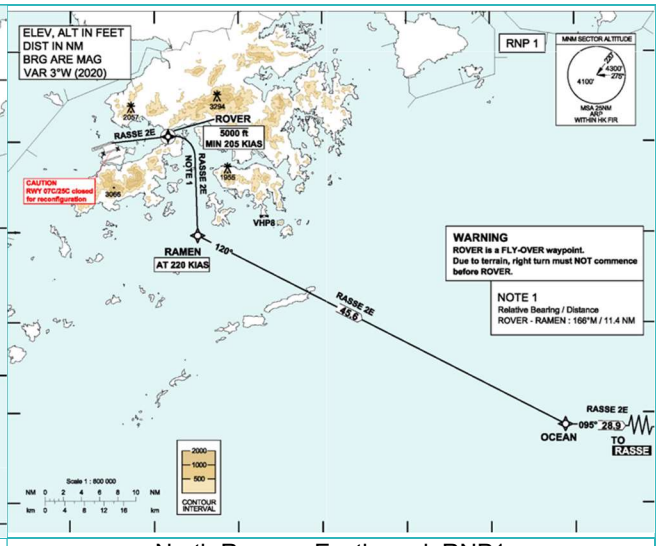
These departure procedures have been designed to track over water and RNP procedures are flown with very high navigational accuracy using GPS signals as lateral guidance. Flights are able to follow the prescribed flight paths very precisely thereby achieving the objective of minimising the aircraft noise impact.

These procedures are currently implemented with the following noise mitigating SIDs for northbound and eastbound flights (see **Figure 4.1** and enlarged plans in **Appendix C**). All flights taking off from HKIA between 2300 and 0700 hours are required to take this track while the airport is in east flow operation.

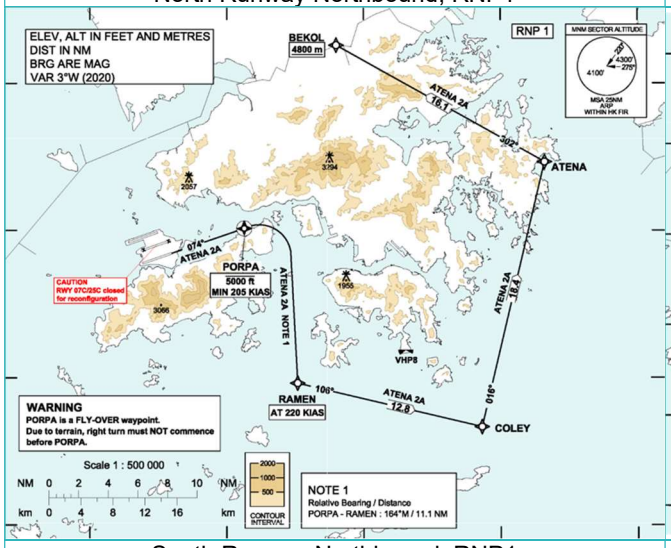
Figure 4.1: Noise Mitigating SID routings during East Flow in current I-2RS operation



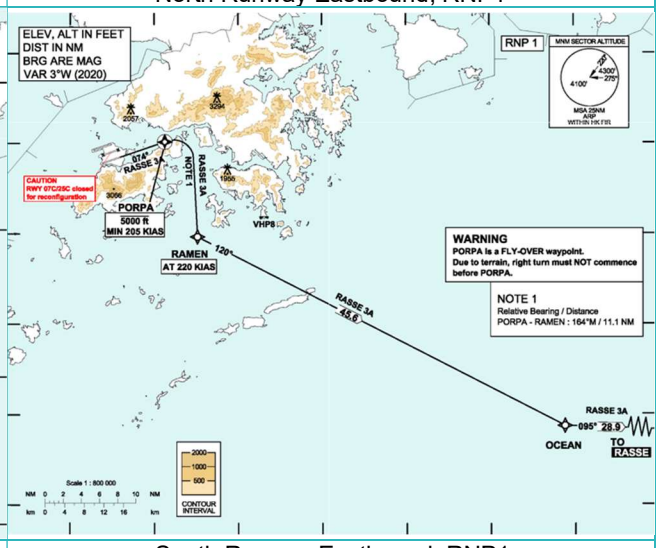
North Runway Northbound, RNP1



North Runway Eastbound, RNP1

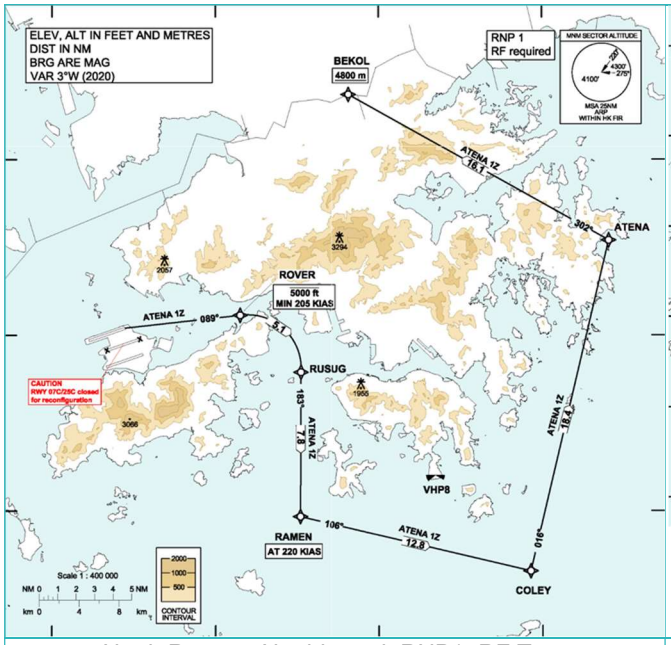


South Runway Northbound, RNP1

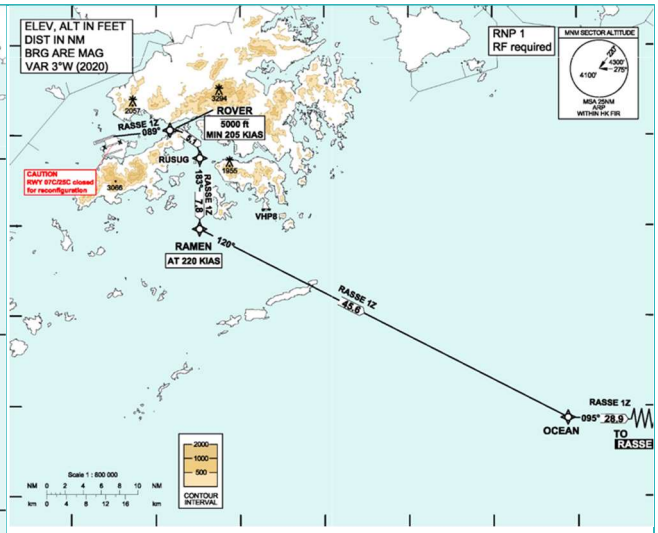


South Runway Eastbound, RNP1

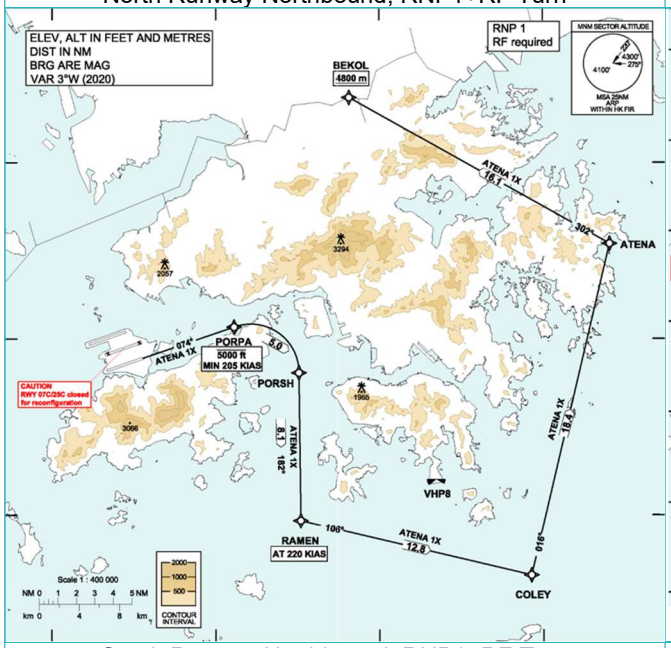
Noise mitigating northbound route via West Lamma Channel Standard RNP1 Procedures	**Noise mitigating eastbound route via West Lamma Channel Standard RNP1 Procedures**



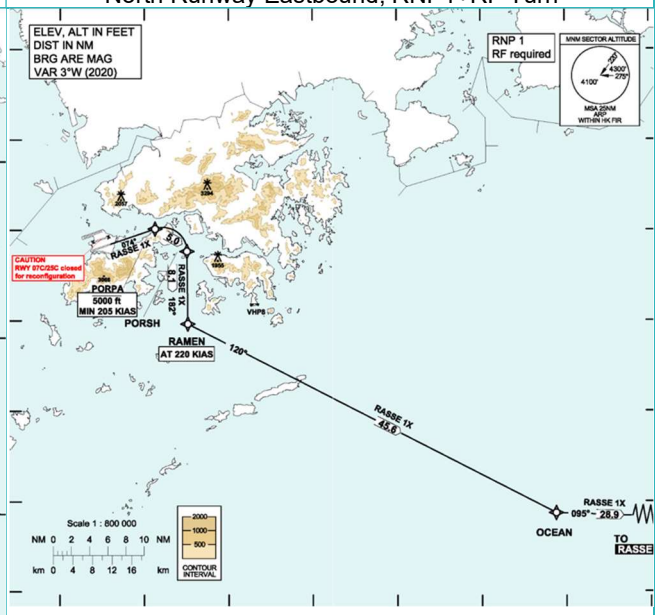
North Runway Northbound, RNP1+RF Turn



North Runway Eastbound, RNP1+RF Turn



South Runway Northbound, RNP1+RF Turn



South Runway Eastbound, RNP1+RF Turn

Noise mitigating northbound route via West Lamma Channel RNP1+RF Turn Procedures

Noise mitigating eastbound route via West Lamma Channel RNP1+RF Turn Procedures

Source: AIP Hong Kong

Enlarged plans are presented in **Appendix C**

Note: Please refer to the latest publications on the Hong Kong Aeronautical Information Services website (https://www.ais.gov.hk/) for operational details and up-to-date information.

Details of the procedure are published in AIP Hong Kong Section “VHHH AD 2.21 Noise Abatement Procedures > 2 Noise Mitigating Measures > 2.4 Noise Mitigating SIDs RWY 07L/07R”.

The procedure charts are in Section “VHHH AD 2.24 Charts Related to an Aerodrome”.

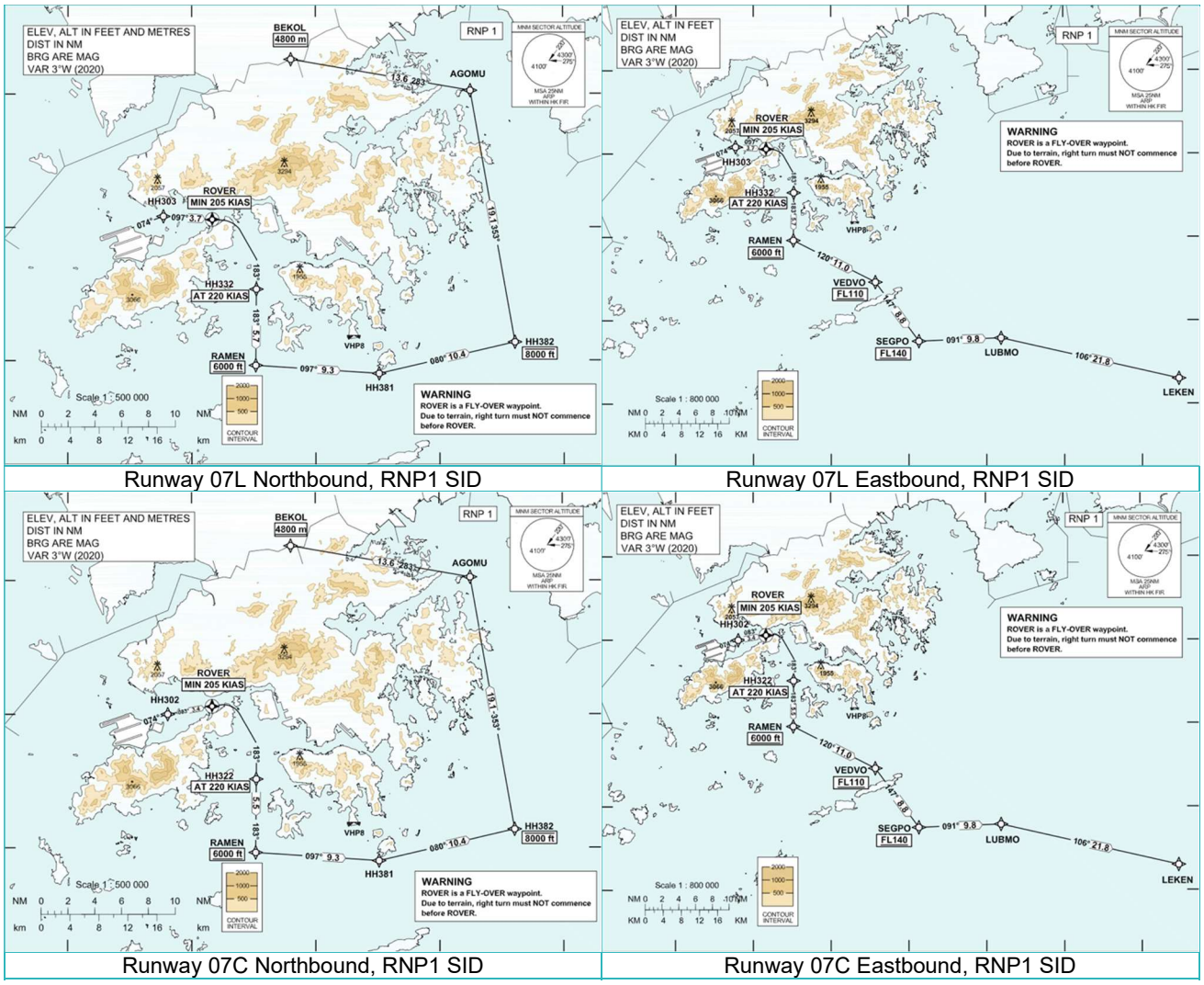
4.3 Planned Implementation for 3RS Operation

The following actions are being taken for the planned 3RS operation.

4.3.1 Required Procedure Development

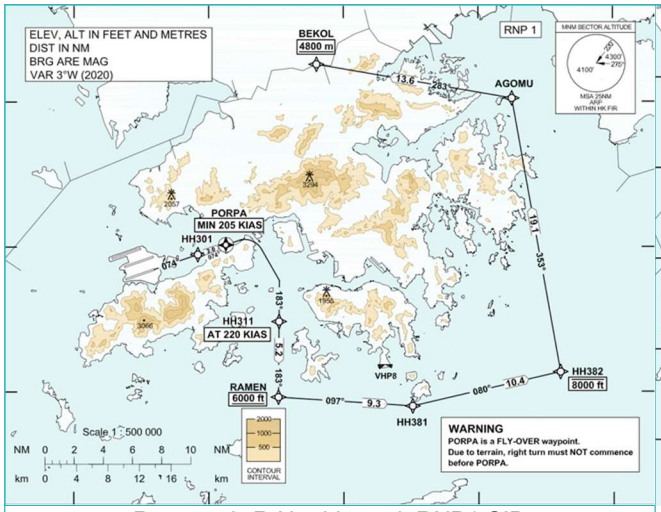
The design of the procedures have been completed for use with all three runways in Runway 07 direction, as illustrated in **Figure 4.2** (also see the enlarged plans in **Appendix D)**. As illustrated with the figures, the existing mitigating procedures will be adapted for use during the 3RS operation.

Figure 4.2: Noise Mitigating SID routings during East Flow in 3RS operation

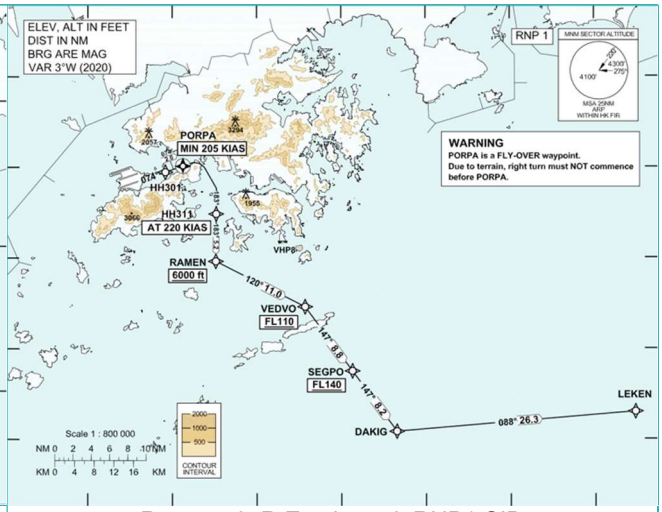


Runway 07L Northbound, RNP1 SID | Runway 07L Eastbound, RNP1 SID

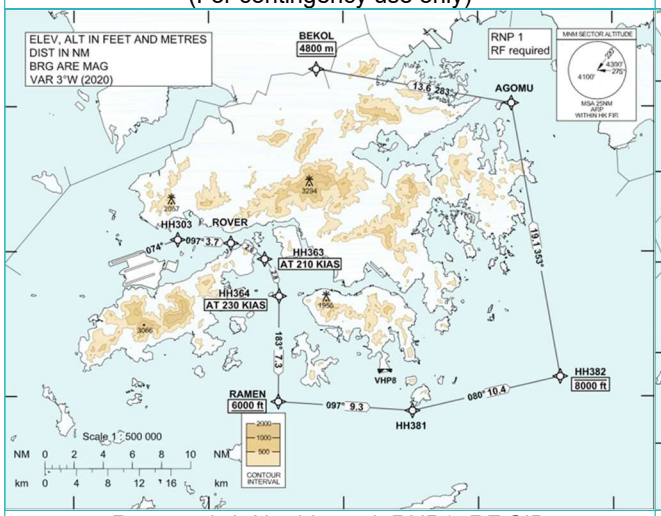
Runway 07C Northbound, RNP1 SID | Runway 07C Eastbound, RNP1 SID



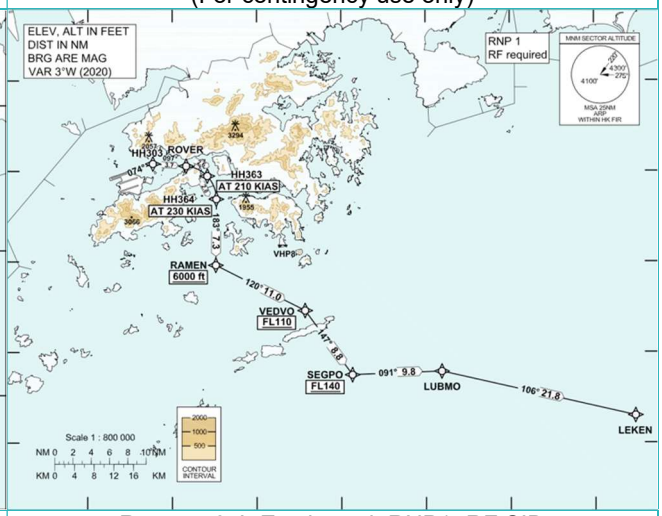
Runway 07R Northbound, RNP1 SID
(For contingency use only)



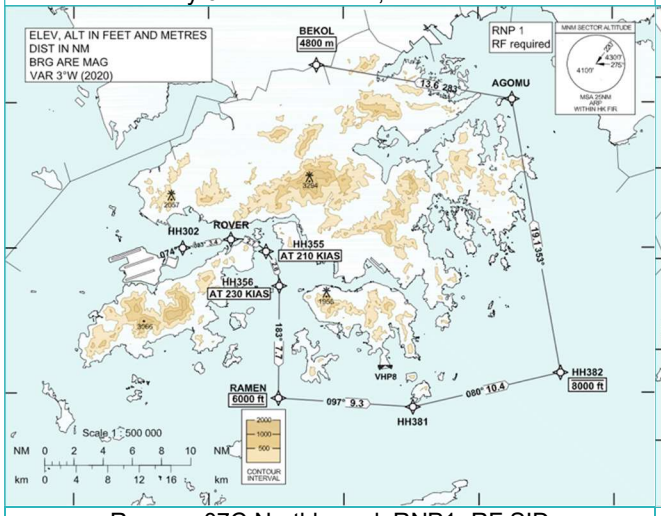
Runway 07R Eastbound, RNP1 SID
(For contingency use only)



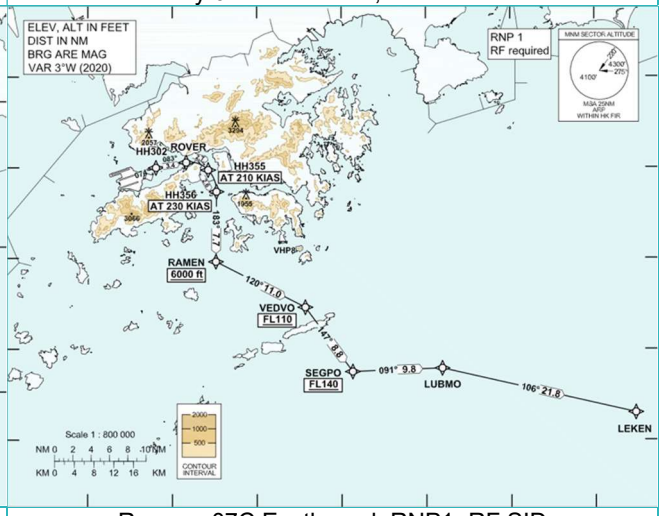
Runway 07L Northbound, RNP1+RF SID



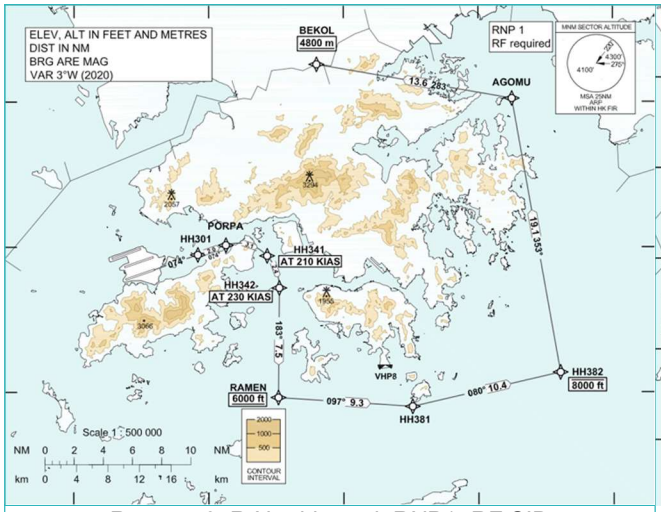
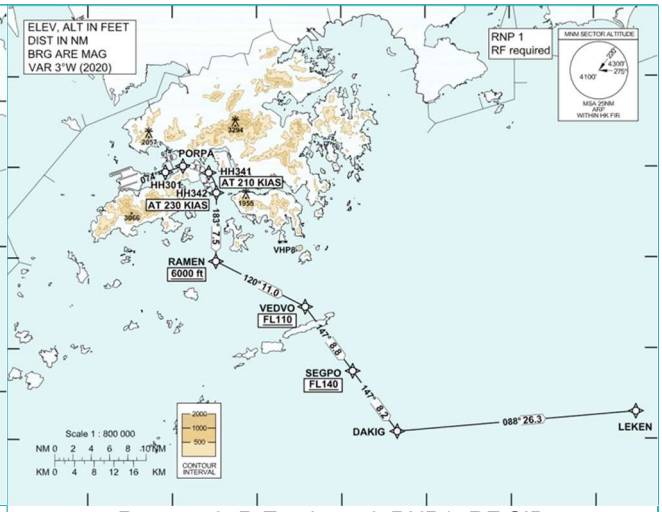
Runway 07L Eastbound, RNP1+RF SID



Runway 07C Northbound, RNP1+RF SID



Runway 07C Eastbound, RNP1+RF SID

	
Runway 07R Northbound, RNP1+RF SID (For contingency use only)	Runway 07R Eastbound, RNP1+RF SID (For contingency use only)
Noise mitigating northbound routes via West Lamma Channel for 3RS	**Noise mitigating eastbound routes via West Lamma Channel for 3RS**
Sources: Charts for Runway 07L/R – AIP Amendment 11/24, AIP Hong Kong Charts for Runway 07C – AIP Supplement 08/24, AIP Hong Kong	Enlarged plans presented in **Appendix D**
Note: Please refer to the latest publications on the Hong Kong Aeronautical Information Services website (https://www.ais.gov.hk/) for operational details and up-to-date information.	

4.3.2 Required Changes to the AIP

The procedures have been published on the Hong Kong Aeronautical Information Services website for advance information to airline operators.

Details in “Section VHHH AD 2.21 Noise Abatement Procedures > 2 Noise Mitigating Measures > 2.4 Noise Mitigating SIDs RWY 07L/07R” will continue to be valid for the 3RS operation. Reference to runway designators will be updated to reflect the planned use of the runways under the 3RS operation. The new procedure charts will be published in “Section VHHH AD 2.24 Charts Related to an Aerodrome”.

An established schedule is in place for the regular publication of new or modified aeronautical information. The worldwide convention is for the required information to be published at least 56 days in advance of the commencement of operation. This publication schedule is adopted by all aeronautical authorities and operators worldwide.

5 Required Navigation Performance (RNP) Track 6 in West Flow Operation

5.1 Introduction

Required Navigation Performance (RNP) is a revolution in the design of flight procedures, including approach procedures which, instead of depending on the instrument landing system or other ground-based navigational aids, utilises satellite positioning services to provide the required navigation guidance. This generally means aircraft are able to fly the designed procedure more precisely with various advantages from the higher navigation accuracy achievable. These advantages stem from the possibility to design tracks with a lesser requirement for terrain clearance which results in a higher degree of flexibility with the track alignment. Tracks also do not need to be designed in a straight line as the guidance signals now come from satellites above rather than a ground-based aid requiring direct line of sight to operate.

Various types of RNP standards are defined to offer different levels of navigation accuracies. The Authorisation Required (AR) is a special type of procedures which offers the highest navigation accuracy. However, in order for an aircraft to fly such a procedure, special authorisation is required from the regulator which will only be granted after the operator is able to demonstrate that it satisfies the various requirements in terms of equipment on-board, maintenance, documentation, pilot training, operating procedures, monitoring programme and a flight operations safety assessment (FOSA). DCA4047A provides more information about making such an application to CAD for flying RNP-AR procedures in Hong Kong.

One of the advantages for RNP procedures is the ability to design tracks that serves as a noise mitigation measure. For HKIA, the RNP Track 6 is a noise mitigating procedure which is available as the RNP Y Authorization Required (AR) APCH for arrival to Runways 25L and 25R in the west flow in I-2RS operation.

These procedures have been refined in the 3RS airspace design to allow them to be optimised further, while keeping the general track alignments consistent with the existing design.

5.2 Implementation Details of the Procedure in I-2RS

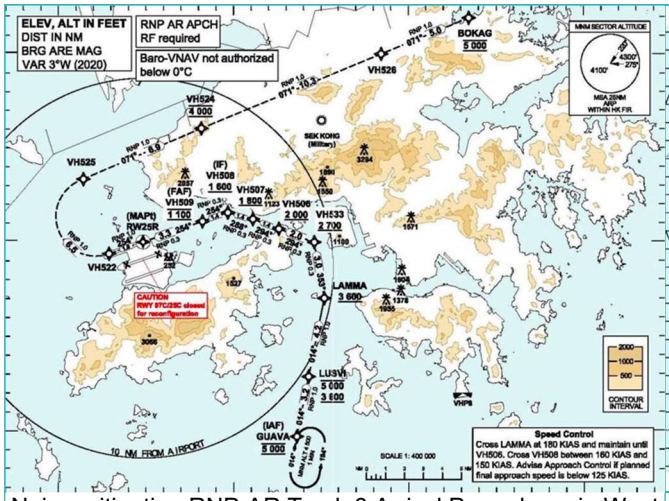
The RNP Y AR APCH procedures introduced at HKIA are designed to provide noise mitigation for arrival flights in west flow operation during night-time as the flight paths route flights over West Lamma Channel and Kap Shui Mun, thus avoid flying over populated areas to the east of HKIA.

These approach procedures have been designed to track over water and RNP-AR procedures are flown with the highest navigational accuracy using GPS signals as lateral guidance. Flights are able to follow the prescribed flight paths very precisely thereby achieving the objective of minimising the aircraft noise impact.

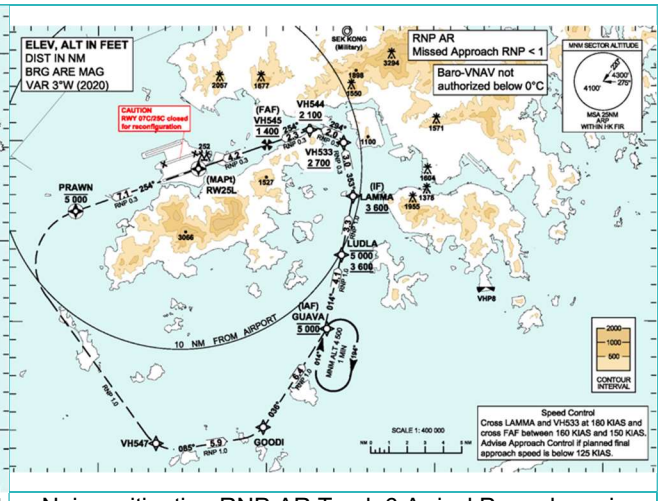
These procedures are currently implemented with the tracks leading to the 2 operational runways in I-2RS as illustrated in **Figure 5.1** (also see **Appendix E** for the enlarged plans). As these are RNP-AR tracks with a set of pre-requisites for the authorisation to be granted for their use, operators are not obliged to fly these procedures but are highly encouraged to do so for those with authorisation. As described in Section 2.3, to effect the increased use of the RNP Track 6 progressively, an Aeronautical Information Circular (AIC) 20/23 of 21 August 2023 titled "*Preferential Use of RNP Y (AR) APCH Procedures to Runway 25 at Hong Kong International Airport (HKIA) during noise mitigation period*" was issued that became effective since 3 September 2023.

AAHK is also considering introducing an incentive scheme at HKIA to promote the increased use of the RNP Track 6, with a view to progressively increasing the usage of the RNP Track 6 as assumed in the 3RS EIA Report.

Figure 5.1: Track 6 RNP-AR Approach routings during West Flow in I-2RS operation



Noise mitigating RNP-AR Track 6 Arrival Procedure via West Lamma Channel for Runway 25R



Noise mitigating RNP-AR Track 6 Arrival Procedure via West Lamma Channel for Runway 25L

Source: AIP Hong Kong

Enlarged plans are presented in **Appendix E**

Note: Please refer to the latest publications on the Hong Kong Aeronautical Information Services website (https://www.ais.gov.hk/) for operational details and up-to-date information.

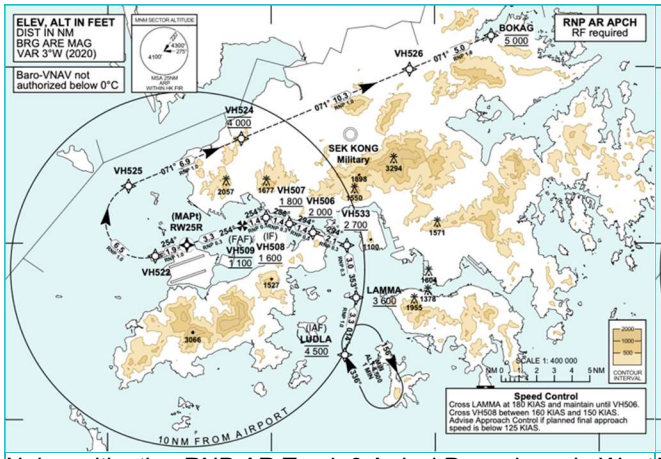
5.3 Planned Implementation for 3RS Operation

The following actions are being taken for the planned 3RS operation.

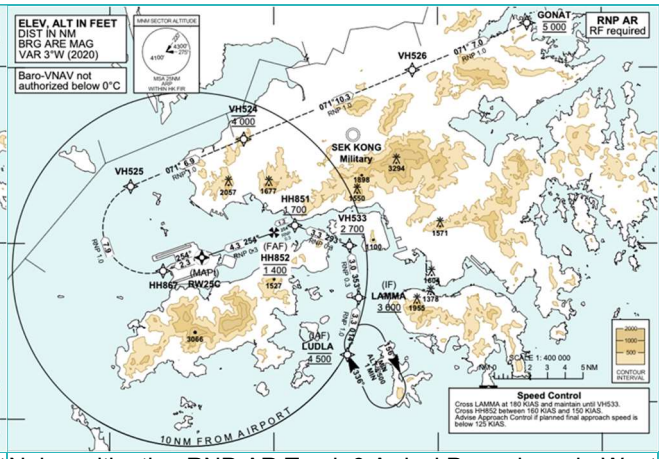
5.3.1 Required Procedure Development

Planned refinement of the procedures for use with all three runways in Runway 25 direction are illustrated in **Figure 5.2** (also see the enlarged plans in **Appendix F)**. As illustrated with the figures, the existing noise mitigating procedures will be adapted for use during the 3RS operation.

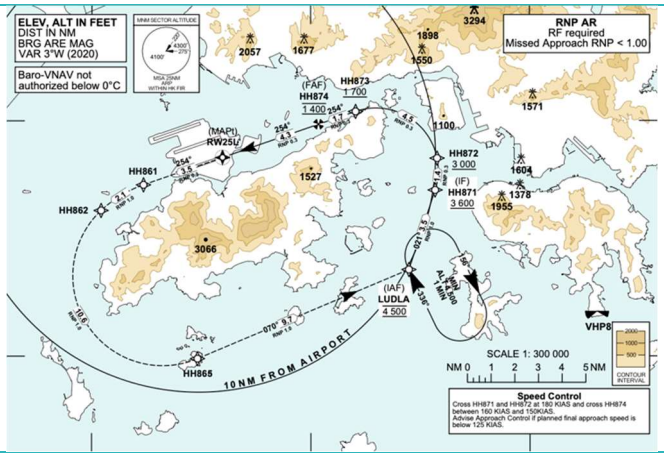
Figure 5.2: Track 6 RNP-AR Approach routings during West Flow in 3RS operation



Noise mitigating RNP-AR Track 6 Arrival Procedure via West Lamma Channel for Runway 25R



Noise mitigating RNP-AR Track 6 Arrival Procedure via West Lamma Channel for Runway 25C



Noise mitigating RNP-AR Track 6 Arrival Procedure via West Lamma Channel for Runway 25L (For contingency use only)

Sources: Enlarged plans are presented in **Appendix F**
Charts for Runway 07L/R – AIP Amendment 11/24, AIP Hong Kong
Charts for Runway 07C – AIP Supplement 08/24, AIP Hong Kong

Note: Please refer to the latest publications on the Hong Kong Aeronautical Information Services website (https://www.ais.gov.hk/) for operational details and up-to-date information.

5.3.2 Required Changes to the AIP

The procedures have been published on the Hong Kong Aeronautical Information Services website for advance information to airline operators.

These procedure charts will be incorporated into the AIP based on the established schedule in place for the regular publication of new or modified aeronautical information. The worldwide convention is for the required information to be published at least 56 days in advance of the commencement of operation. This publication schedule is adopted by all aeronautical authorities and operators worldwide.

6 Preferential Runway Use

6.1 Introduction

This procedure provides a scheme where the runway direction in use is decided to preferentially enable the majority of the traffic to arrive from or depart towards the western side of HKIA over water during night-time when wind conditions allow, thus minimising the noise impact on populated areas. As described in **Section 2.3**, all relevant factors will need to be carefully considered, taking into account the findings of the quarterly reviews, in order to decide when the Preferential Runway Use Programme will be required and can be implemented in the most appropriate manner, with a view to ensuring that the NEF 25 contour would not be encroaching onto any new NSRs.

Before the introduction of the Preferential Runway Use Programme, the existing measure on preferential use of the 07 runways that is implemented in the current I-2RS operation and the previous 2RS operation will continue to be applied in the 3RS operation.

6.2 Implementation Details of the Procedure in current I-2RS operation

Under the current I-2RS operation, the Runway 07 direction is selected as the runway-in-use between 2300 and 0700 hours whenever weather and safety conditions permit. This allows arrival aircraft to land from the southwest over water of the HKIA so as to reduce the number of aircraft overflying populated areas during night-time. ATC will conduct assessments in accordance with the established arrangements to determine the suitability of operating the runways in the 07 direction during night-time. If the operation is in Runway 25 direction and the conditions are determined to be suitable, the runway operation will be changed to the Runway 07 direction accordingly. Where the conditions change within the night and Runway 07 operation cannot be sustained, the runway-in-use will be will be changed back to the Runway 25 direction.

Details of the procedure are published in AIP Hong Kong Section “VHHH AD 2.21 Noise Abatement Procedures > 2.3 Preferential Use of RWY 07L/07R”.

6.3 Planned Implementation for 3RS Operation

Before the introduction of the Preferential Runway Use Programme, the same preferential runway use arrangements as that currently adopted in the I-2RS operation will be implemented from commencement of the 3RS operation. The implementation of the procedure under the 3RS operation will be the same as the existing procedure under I-2RS, with a change in requirement to consider the conditions for all three runways and the dominant traffic flow during night-time between 2300 and 0700 hours.

6.3.1 Required Procedure Development

The existing procedure established for the previous 2RS and the current I-2RS operation that is based on the preferential use of the 07 runways remains applicable as mentioned above.

6.3.2 Required Changes to the AIP

General details in AIP Hong Kong Section “VHHH AD 2.21 Noise Abatement Procedures > 2.3 Preferential Use of RWY 07L/07R” will continue to be valid. References to runway designators will be updated to reflect the planned use of the runways under the 3RS operation.

7 Noise Abatement Departure Procedures in East Flow Operation

7.1 Introduction

Noise Abatement Departure Procedures (NADPs) are procedures applied by aircraft climbing from 800ft through to 3000ft on departure where engine thrust can be varied to change the noise footprint. General guidance materials are available in ICAO Doc 8168 Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) Part III Section 9. There are two implementations named NADP1 and NADP2 for mitigating noise closer to or further away from an airport respectively.

The requirement to adopt NADP procedures is prescribed in the AIP for operators to follow and comply. All operators are required to adopt either NADP 1 or NADP 2 procedures for all departures from the 07 runways (to the northeast).

The procedures are flown by pilots with flight management system (FMS) support. As the procedures require customisation of the aircraft operating parameters, the actual procedure adopted will be administered by individual operators for aircraft types with reference to the guidance in ICAO Doc 8168 PANS-OPS.

7.2 Implementation Details of the Procedure in current I-2RS operation

As specified in Section 1.3 of VHHH AD 2.21 of AIP Hong Kong, all operators are required to adopt either NADP 1 or NADP 2 procedures for all departures to the east of HKIA. Aircraft operators may refer to ICAO Doc 8168 PANS-OPS for details about the implementation of these procedures.

Details of the procedure are published in AIP Hong Kong Section “VHHH AD 2.21 Noise Abatement Procedures > 1 ICAO Noise Abatement Departure Procedure RWY 07”.

7.3 Planned Implementation for 3RS Operation

The following actions are being taken for the planned 3RS operation.

7.3.1 Required Procedure Development

The use of NADP will continue to be a requirement for aircraft operators in the 3RS operation. Aircraft operators will utilize runway data for the 3RS operation and appropriate obstacle data if required in order for them to develop their own NADP procedures with reference to ICAO guidance.

7.3.2 Required Changes to the AIP

General details in AIP Section “VHHH AD 2.21 Noise Abatement Procedures > 1 ICAO Noise Abatement Departure Procedure RWY 07” will continue to apply for all take-offs in the east flow direction during the 3RS operation. No changes are required for the AIP.

8 Continuous Descent Approach in West Flow Operation

8.1 Introduction

Aircraft approach an airport by descending gradually from altitude. When traffic demand permits, the most efficient means of doing so is by flying a Continuous Descent Approach (CDA) in which the engine thrust setting is maintained at a minimum and the aircraft operates in a clean configuration for as long as possible. This allows the aircraft to effectively glide down at a constant rate of descent. This avoids any level segments which require spooling up and down the engines in order to stop and start the descent, which causes a wastage in fuel and produces additional noise from both the engines and the airframe.

During the night-time period with lower traffic demand, there is more flexibility to accommodate CDAs so they are required to be used at night at HKIA for noise abatement purposes where practicable subject to the prevailing traffic situation.

This procedure is facilitated by air traffic control which allow the pilots in the approaching aircraft to execute a CDA in accordance with the parameters as stipulated in the AIP.

8.2 Implementation Details of the Procedure in current I-2RS operation

This is an existing mitigating procedure where traffic situation and weather permit, aircraft on approach between 2300 and 0700 hours are offered CDA approaches by air traffic control. In west flow operation (approaching from the northeast), CDA starts at 8000ft or higher to achieve a continuous descent profile to intercept the Glide Path.

Details of the procedure are published in AIP Hong Kong Section “VHHH AD 2.21 Noise Abatement Procedures > 2 Noise Mitigating Measures > 2.2 Continuous Descent Approach (CDA) Procedure for RWY 25L/25R”.

8.3 Planned Implementation for 3RS Operation

The following actions are being taken for the planned 3RS operation.

8.3.1 Required Procedure Development

While new flight procedures have been developed for the 3RS operation, the existing procedure that requires the use of CDA during west flow operation between 2300 and 0700 hours will continue during the 3RS operation. No development of new procedure is required as the CDA procedure will remain the same as present.

8.3.2 Required Changes to the AIP

Details in Section “VHHH AD 2.21 Noise Abatement Procedures > 2 Noise Mitigating Measures > 2.2 Continuous Descent Approach (CDA) Procedure for RWY 25L/25R” will continue to be valid in general and be updated to include the RWY 25C approach procedures. Reference to runway designators will be updated to reflect the planned use of the runways under the 3RS operation.

Appendices

A. Implementation Schedule as presented in Table 20.1 of the approved 3RS EIA Report

Table A.1: Implementation Schedule as presented in Table 20.1 of the approved 3RS EIA Report

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Implementation Agent	Implementation Stages
7.3.5.3	4.1	**Aircraft Noise Mitigation Measures under Primary Operating Mode** Aircraft noise mitigation measures as listed below shall be implemented to minimise the impact of aircraft noise on NSRs situated near the flight paths or in the vicinity of HKIA: • Putting the existing south runway on standby where possible at night between 2300 and 0659; • Requiring departures to take the southbound route via West Lamma Channel during east flow at night from 2300 to 0659, subject to acceptable operational and safety consideration; • Assigning a new arrival Required Navigation Performance Track 6 for preferential use in the runway 25 direction between 2300 and 0659; and • Implementing a preferential runway use programme when wind conditions allow such that west flow is used when departures dominate while east flow is used when arrivals dominate during night-time.	Airport operation/ Operation Period	AAHK, CAD	Operation

Source: Table 20.1 of approved 3RS EIA Report (or Appendix C of Updated EM&A Manual).

B. Aeronautical Information Circular (AIC) 20/23 dated 21 August 2023

HONG KONG SPECIAL ADMINISTRATIVE REGION
PEOPLE'S REPUBLIC OF CHINA
AERONAUTICAL INFORMATION SERVICE

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PREFERENTIAL USE OF RNP Y (AR) APCH PROCEDURES TO RUNWAY 25 AT HONG KONG INTERNATIONAL AIRPORT (HKIA) DURING NOISE MITIGATION PERIOD

1. Introduction

1.1 In line with the ICAO initiative for the implementation of Performance Based Navigation, Hong Kong Civil Aviation Department (CAD) first published RNP AR APCH procedures in 2010. A number of additional RNP AR APCH procedures have been published since that time, enabling the benefits of RNP AR specification to be realized in terms of shorter arrival paths, avoidance of terrain-rich/built-up areas and enhanced flight management. To date, usage is limited to an on-request basis when traffic permits.

1.2 AIC 04/20 dated 17 January 2020 outlined application procedures by foreign aircraft operators for authorization to conduct RNP AR APCH procedures at HKIA. To date, a number of operators have already been issued with authorization from CAD. The goal is to encourage aircraft operators to achieve a higher percentage of RNP AR capability to realize the early benefits in terms of operational efficiency, track miles, and environmental sustainability.

2. Preferential Approach Sequencing

2.1 To further promote and encourage the usage of RNP AR APCH procedures, with effect from **1500 UTC 3 September 2023**, Hong Kong ATC will endeavor to preferentially sequence those arrival flights having authorization to conduct **RNP Y (AR) APCH** to HKIA, under the following conditions:

i. Between the hours of 1500-2300 UTC daily; and
ii. Runway 25 direction is in use (Note: This does not supersede the preferential use of Runway 07 direction when wind conditions are suitable as per AIP HK VHHH AD 2.21); and
iii. Meteorological conditions are suitable for RNP AR APCH.

2.2 Under such conditions, Hong Kong ATC will ascertain the RNP AR authorization status from the flight crew. Those flights with authorization will be facilitated and assigned the appropriate STAR or radar vectors to GUAVA for the RNP Y RWY 25 (AR) procedure to the runway in use.

2.3 Those flights without RNP AR authorization will be processed via the ILS/LOC or RNP Z (LNAV/VNAV) approach and may be accorded lower priority in sequencing with flights conducting RNP AR APCH, subject to prevailing traffic situation and/or weather conditions.

3. Future Operational Usage of RNP AR APCH

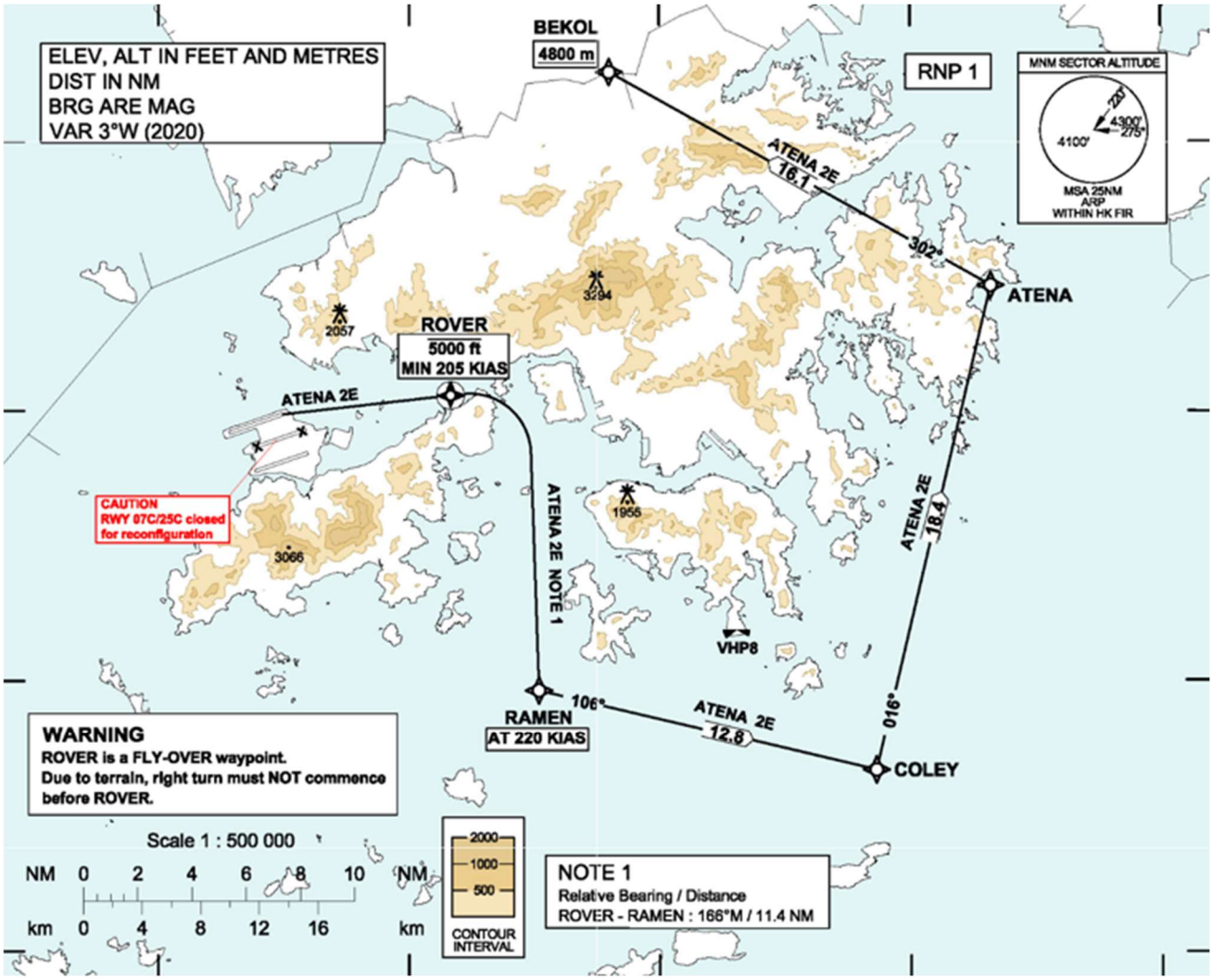
3.1 Aircraft operators, with the appropriate capabilities stated in AIC 04/20, who have not yet sought authorization, are strongly encouraged to submit their applications as soon as possible with a view to achieving the tangible benefits afforded by such procedures together with CAD's commitment to promote and facilitate more extended usage of RNP AR APCH procedures throughout the whole day at HKIA in the coming years.

3.2 Aircraft operators, without the appropriate capabilities stated in AIC 04/20, are strongly encouraged to take into account this AIC in their business plan and expedite their readiness with a view to realizing the said tangible benefits by taking RNP AR APCH procedures.

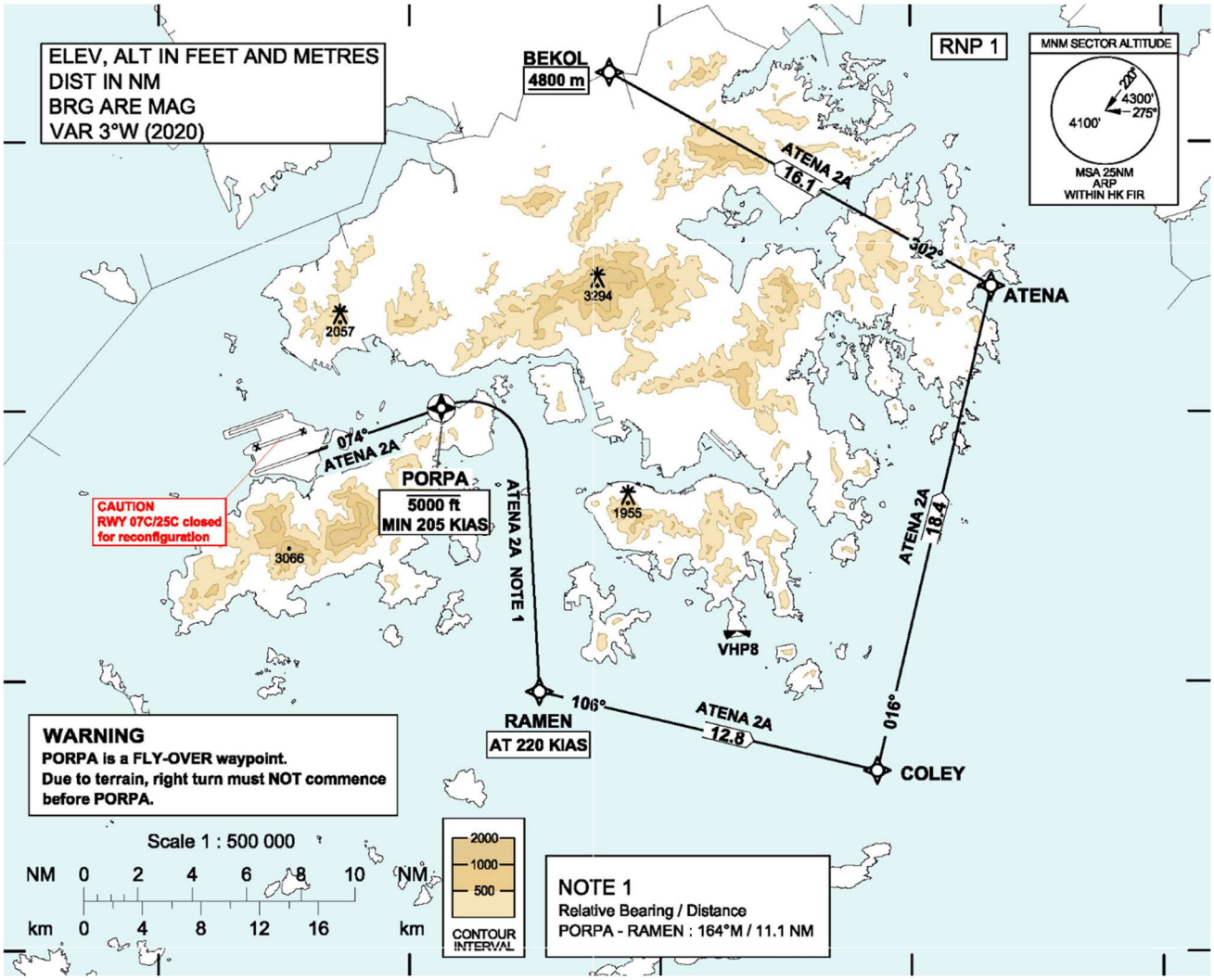
3.3 Enquiries on this circular may be directed to Senior Operations Officer (Operations)1 atmdsooo1@cad.gov.hk.

This Circular is issued for information, guidance and necessary action
by direction of the Director-General of Civil Aviation
Victor LIU

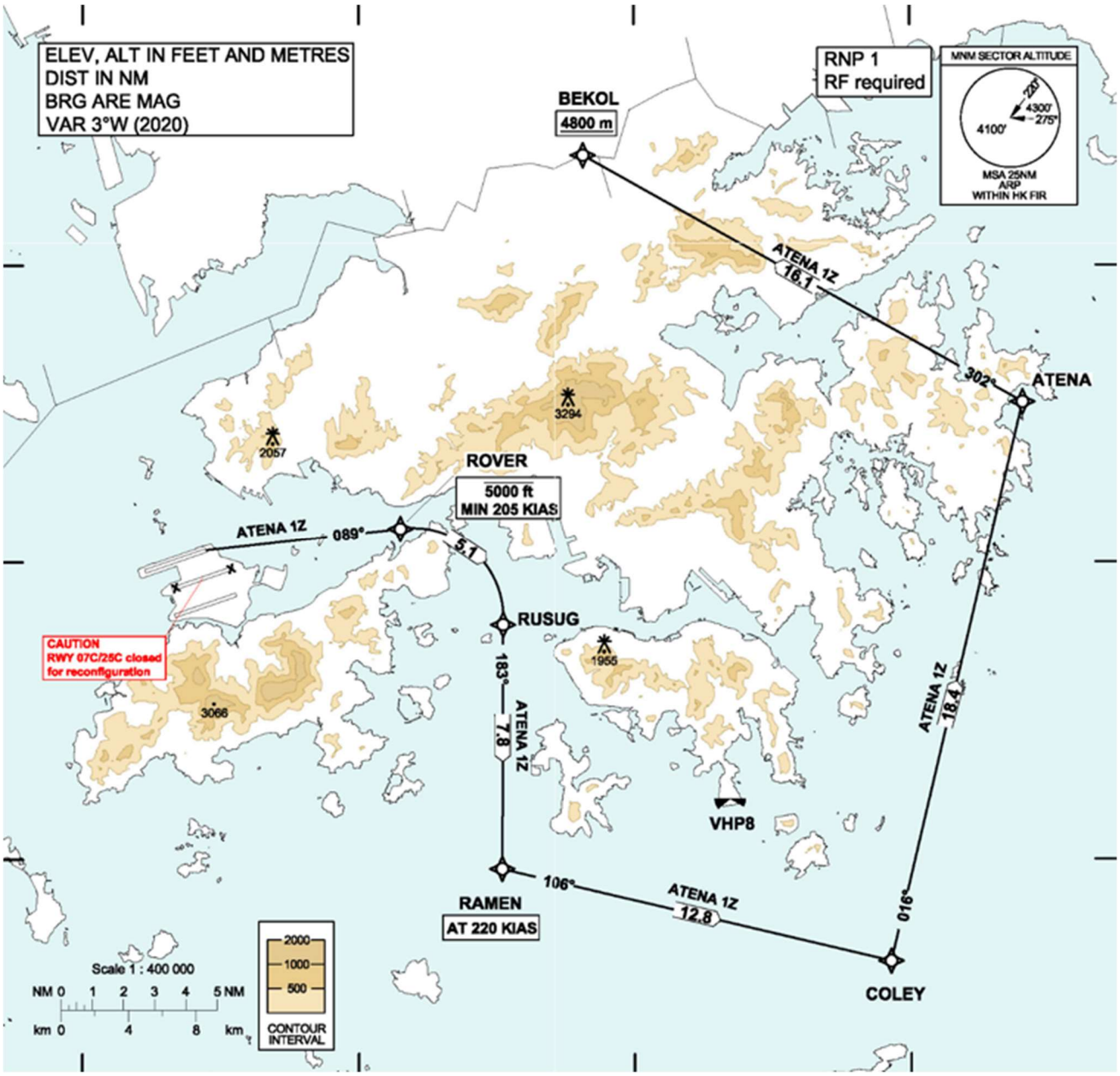
C. Enlarged Plans of Figure 4.1



Runway 07L noise mitigating northbound departure path
via West Lamma Channel for I-2RS



Runway 07R noise mitigating northbound departure path
via West Lamma Channel for I-2RS



Runway 07L noise mitigating northbound departure path
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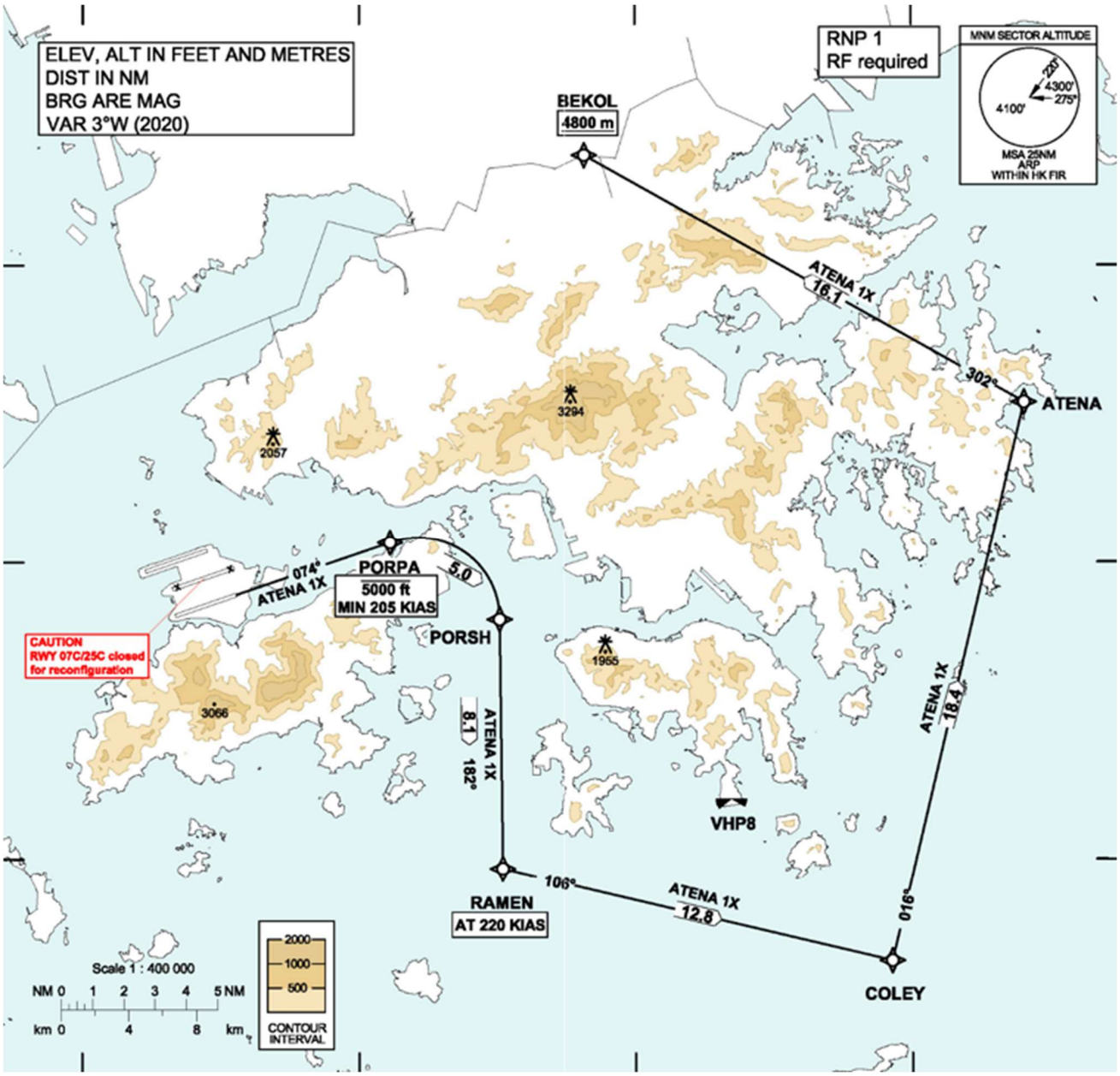

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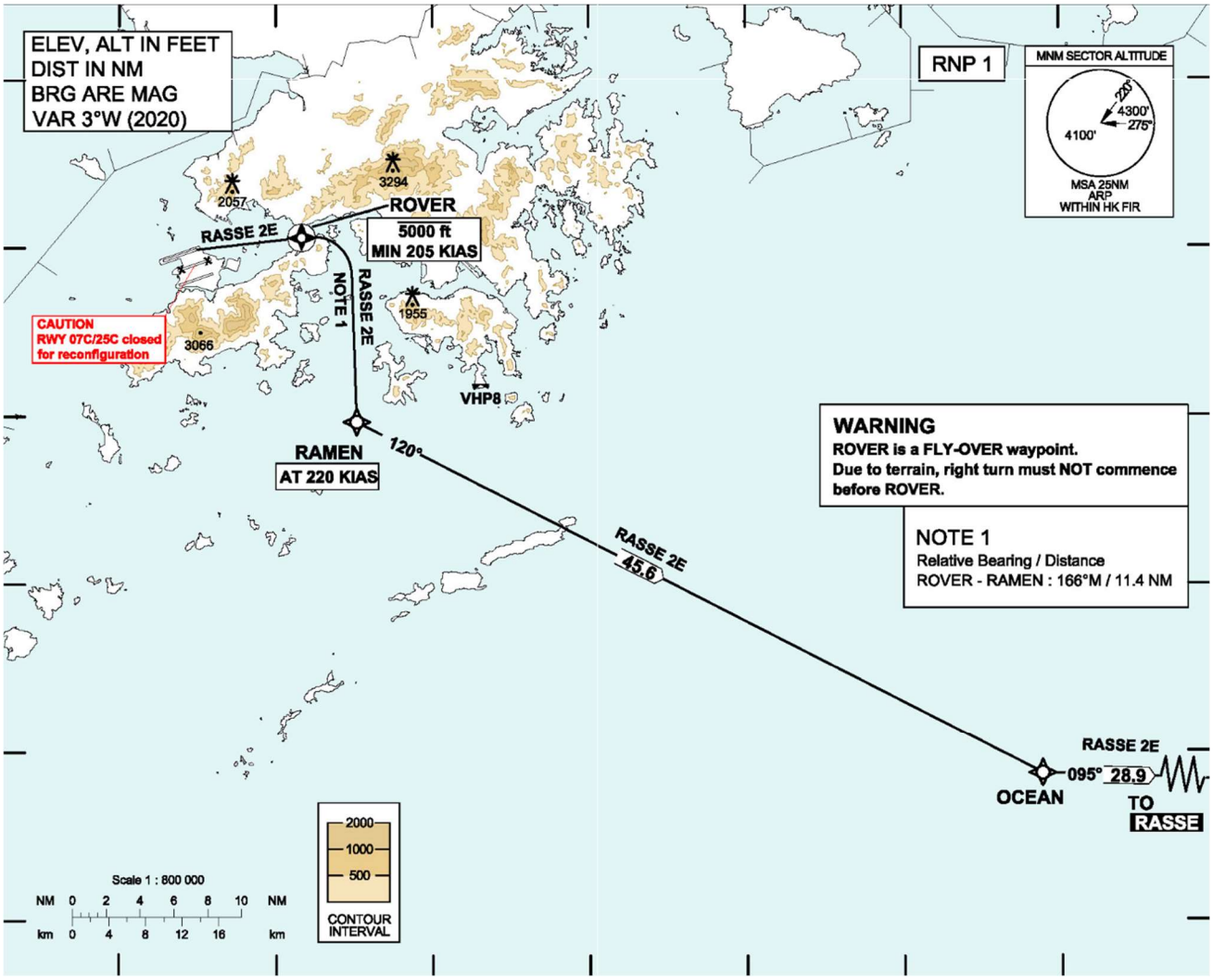
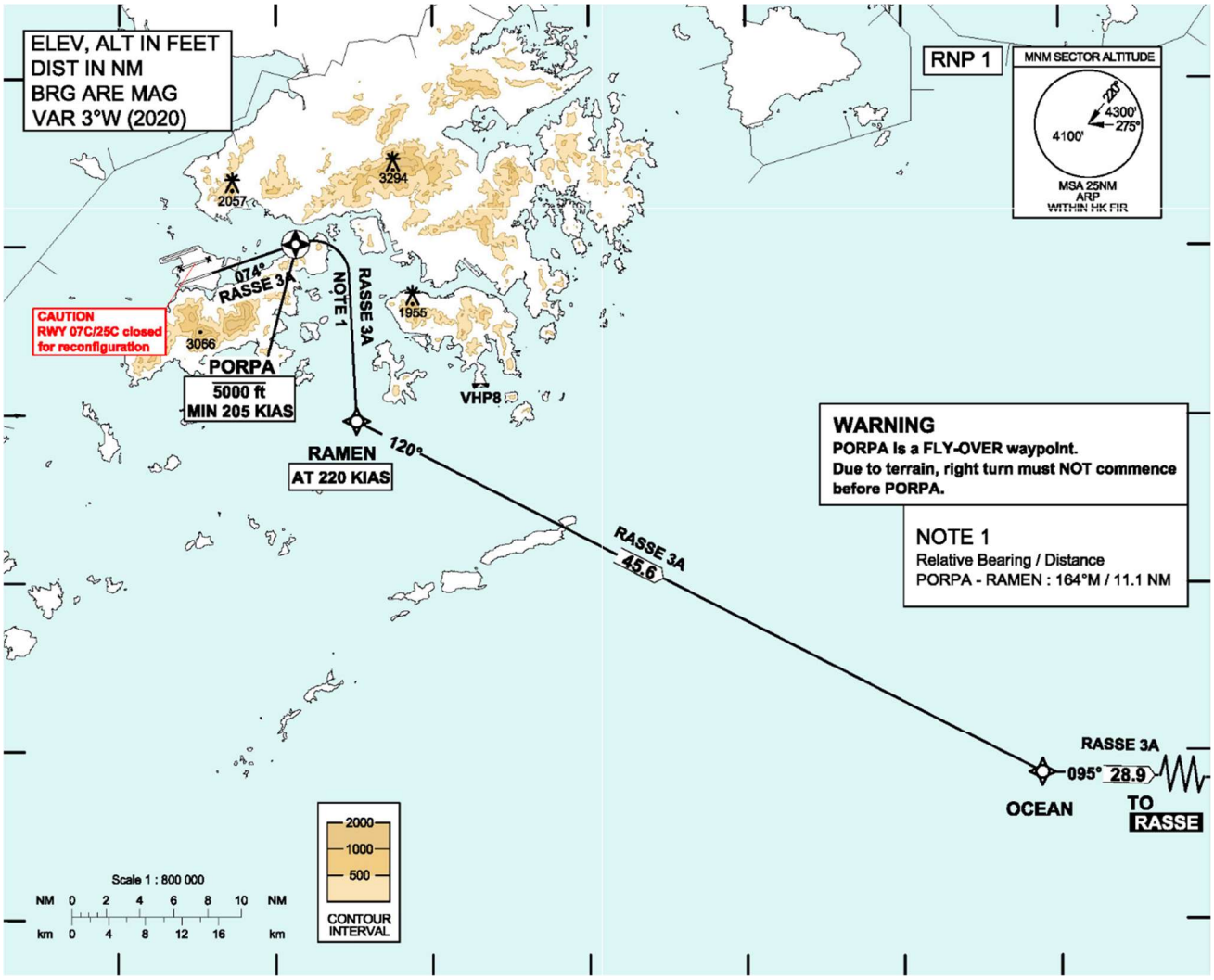


Runway 07L noise mitigating eastbound departure path
via West Lamma Channel for I-2RS



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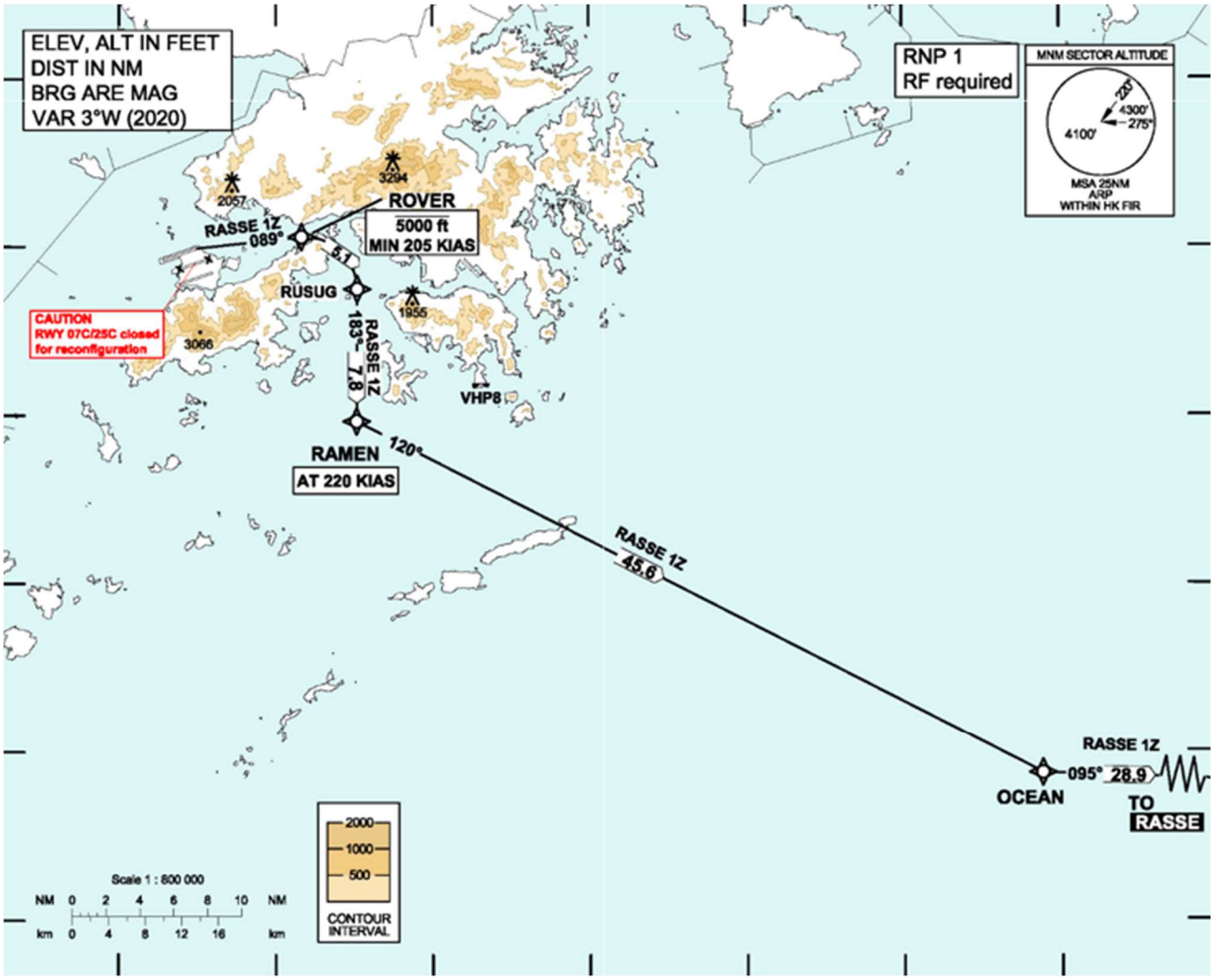

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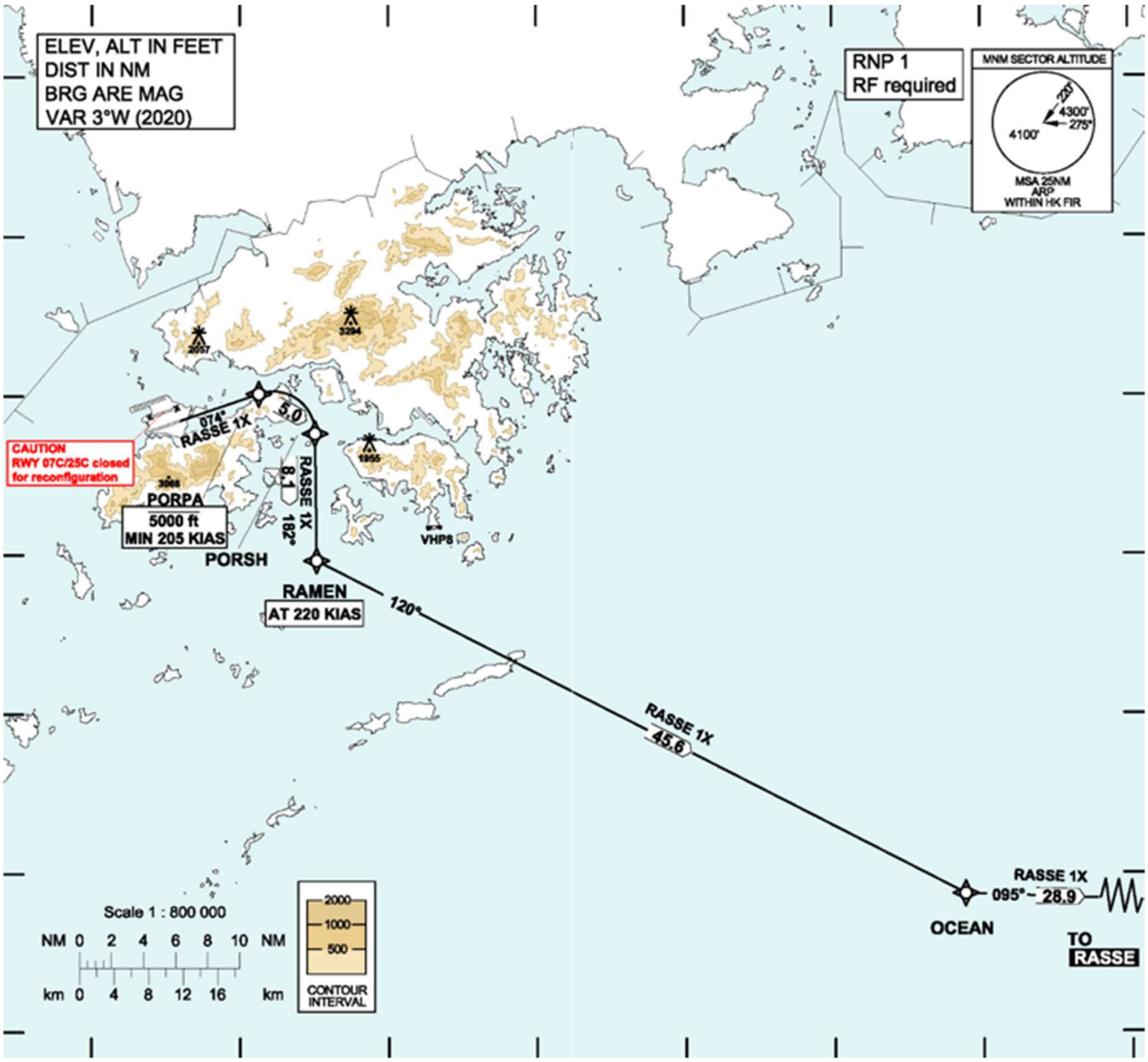

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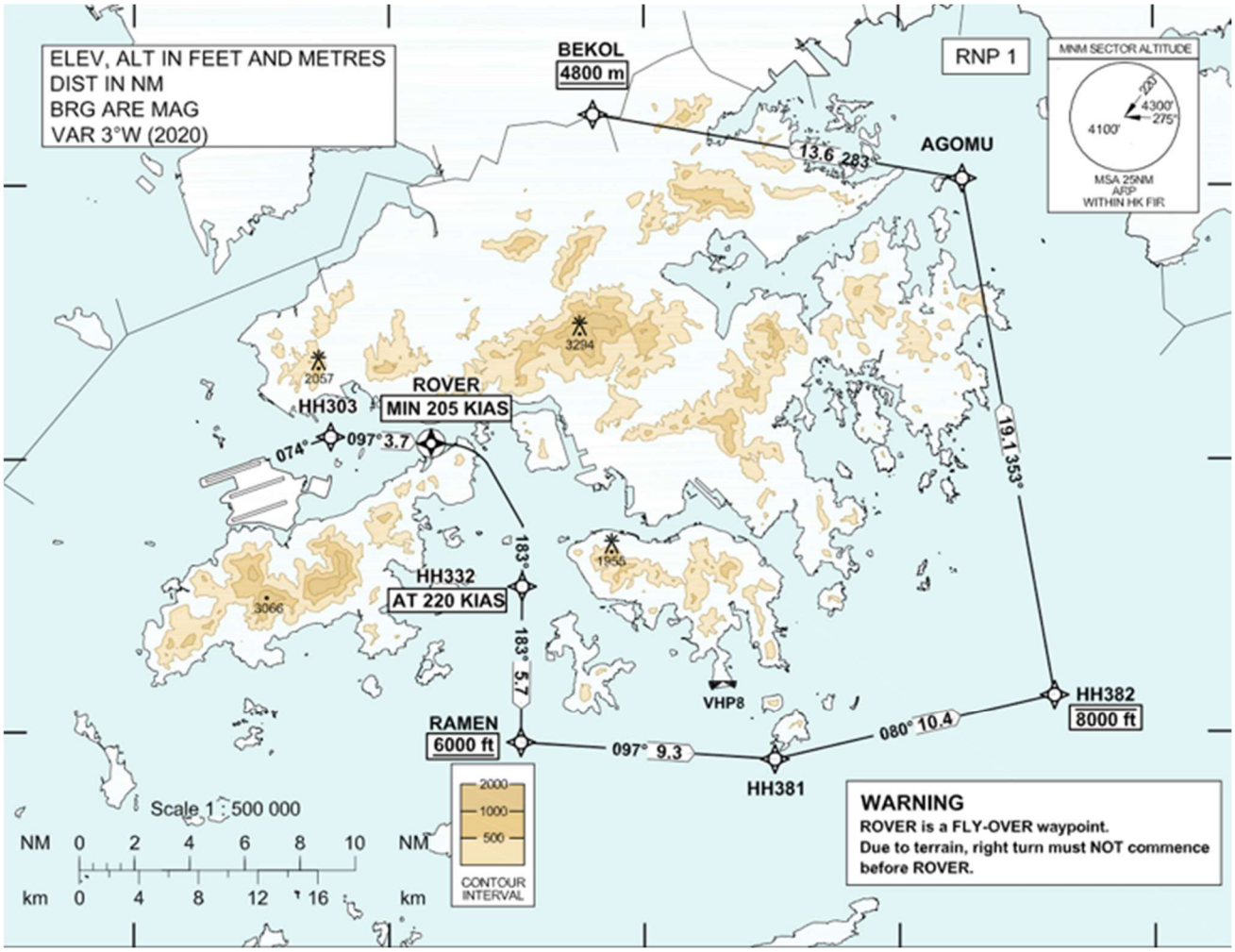
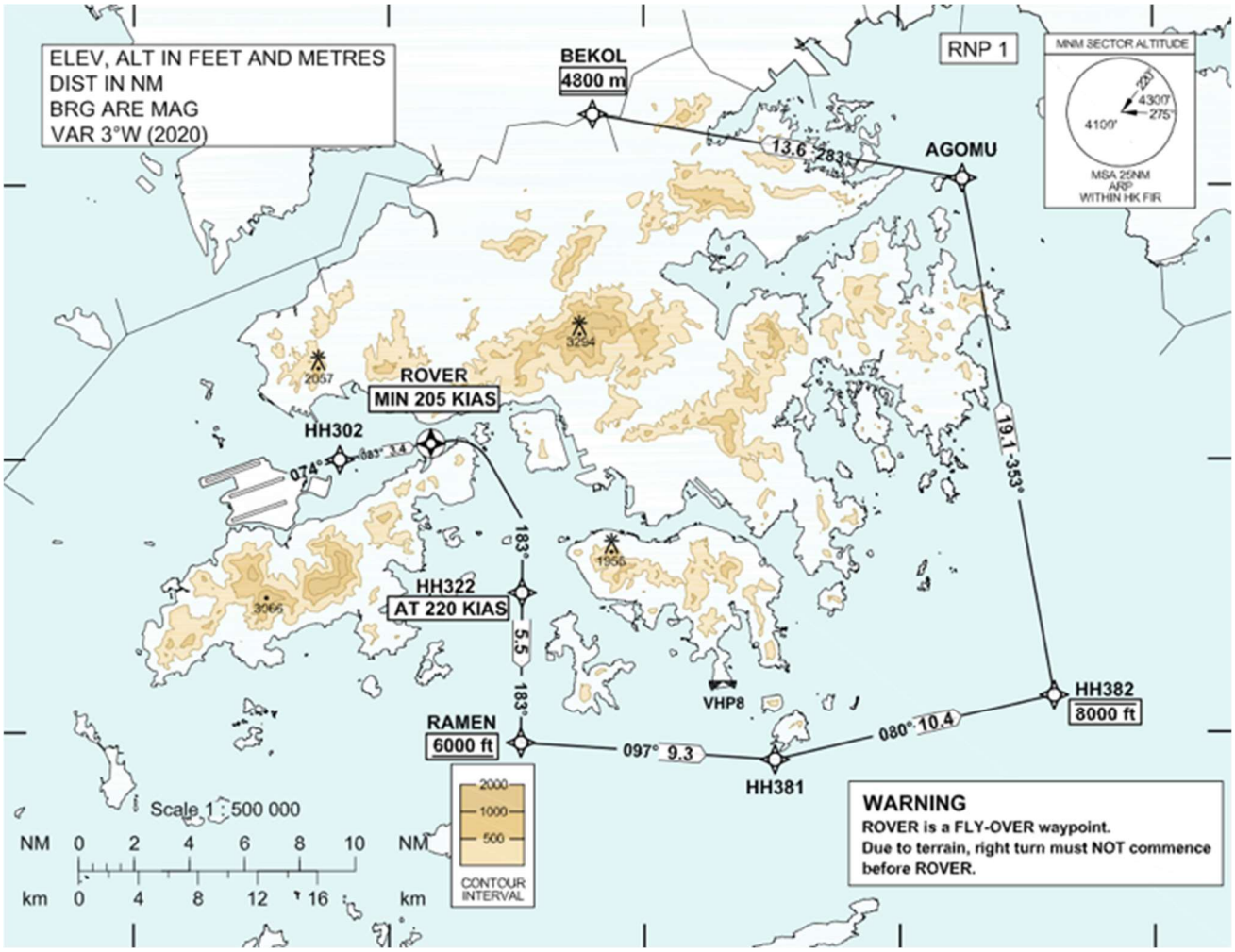
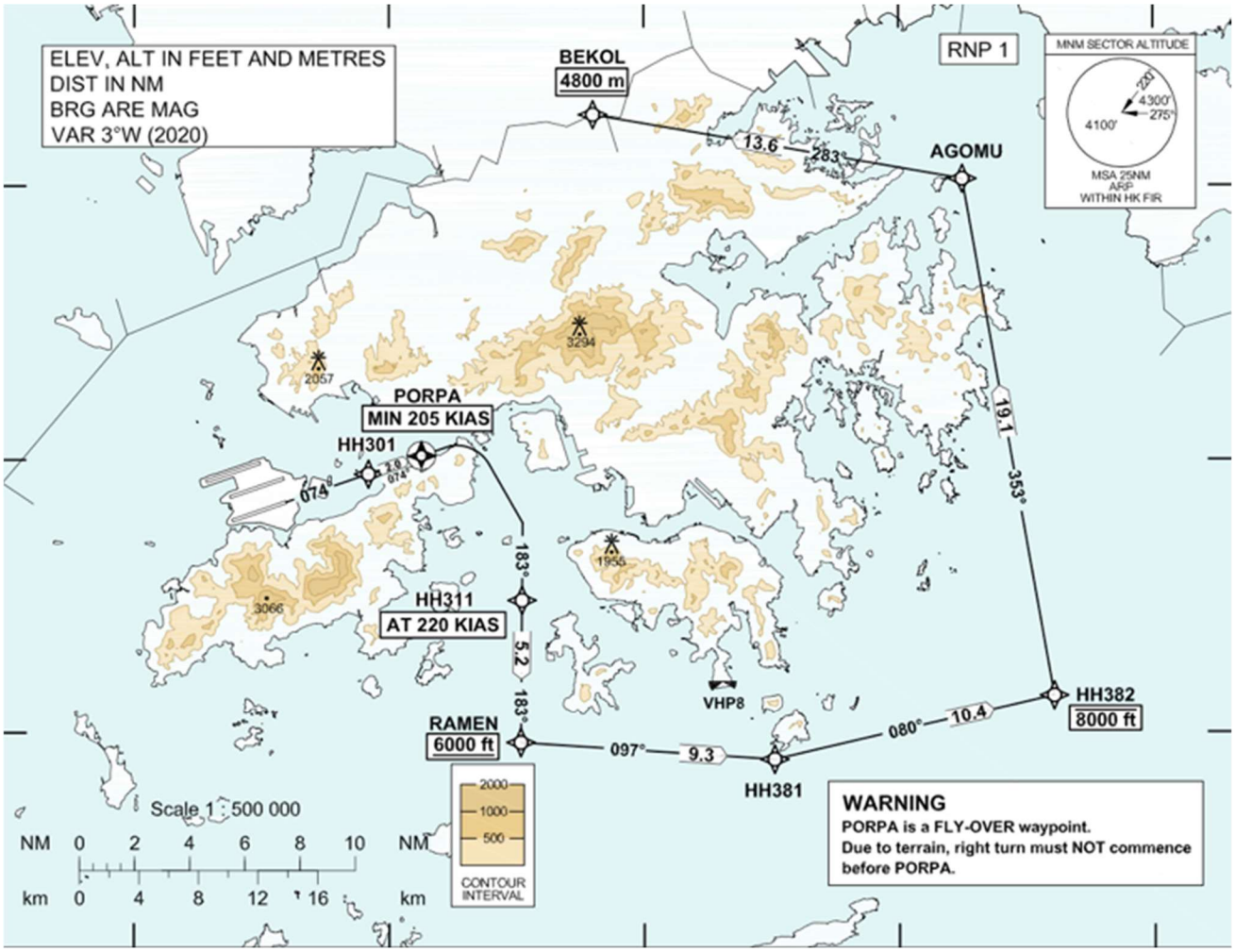
D. Enlarged Plans of Figure 4.2



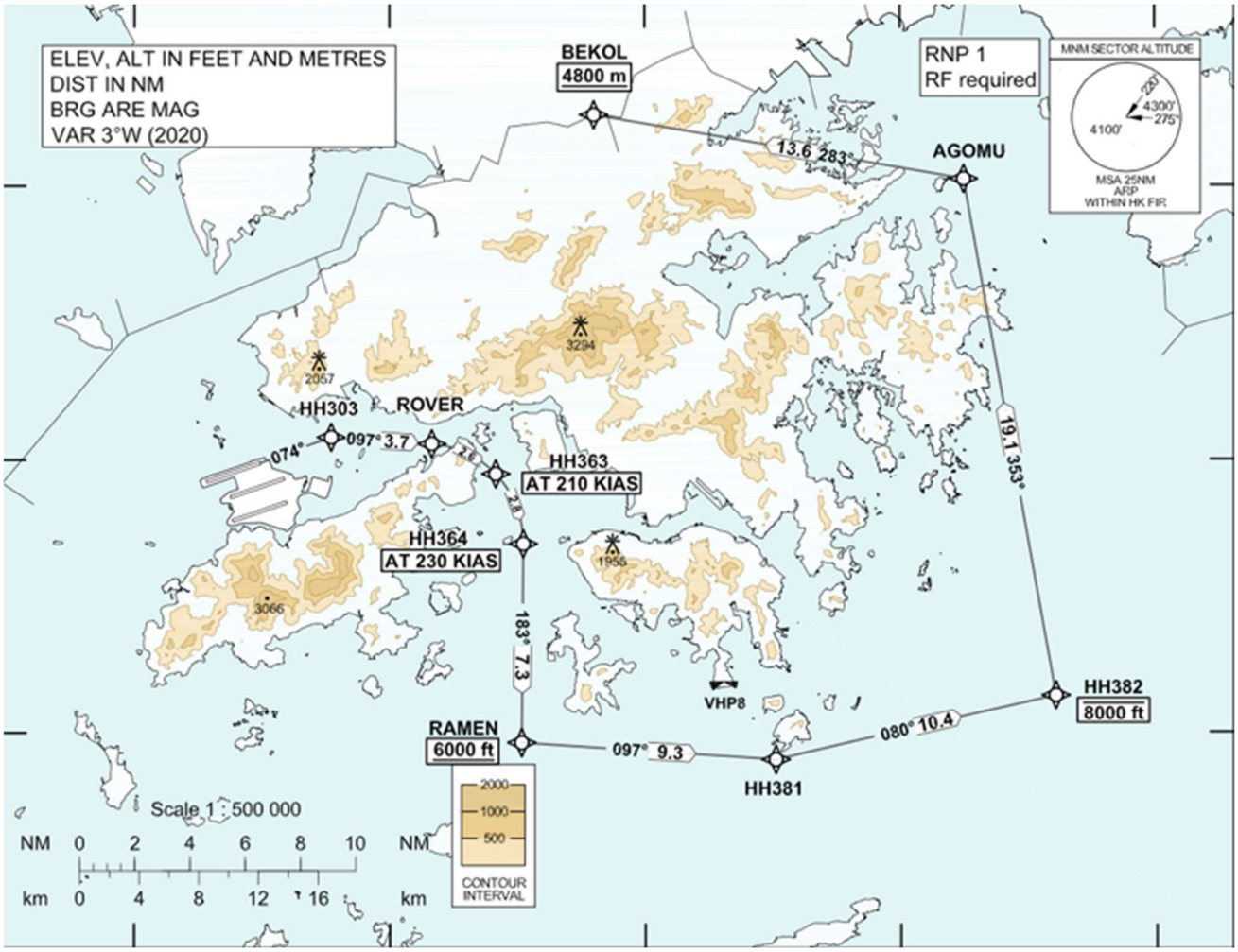
Runway 07L noise mitigating northbound departure path
via West Lamma Channel for 3RS



Runway 07C noise mitigating northbound departure path
via West Lamma Channel for 3RS



Runway 07R noise mitigating northbound departure path
via West Lamma Channel for 3RS (For contingency use only)



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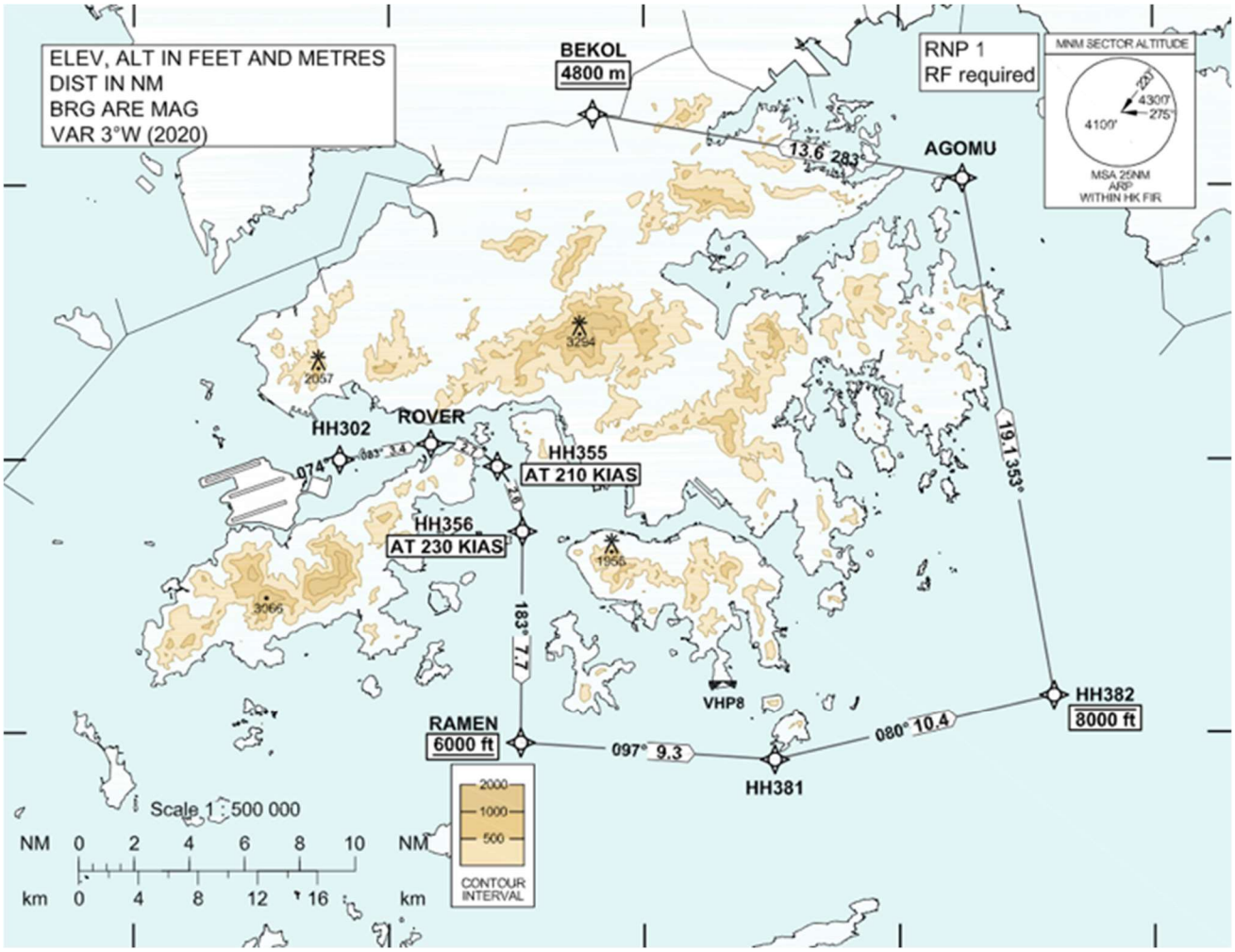

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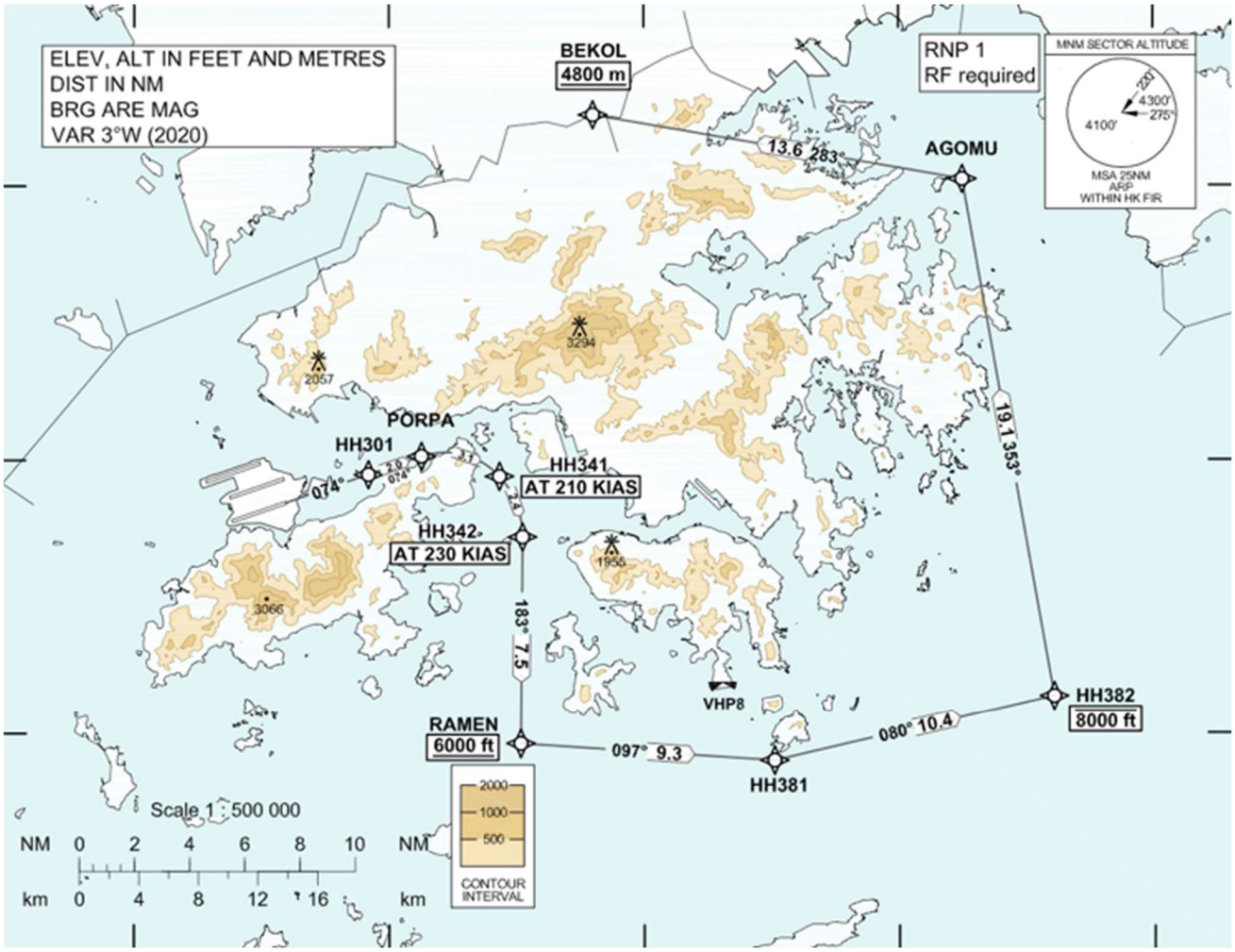

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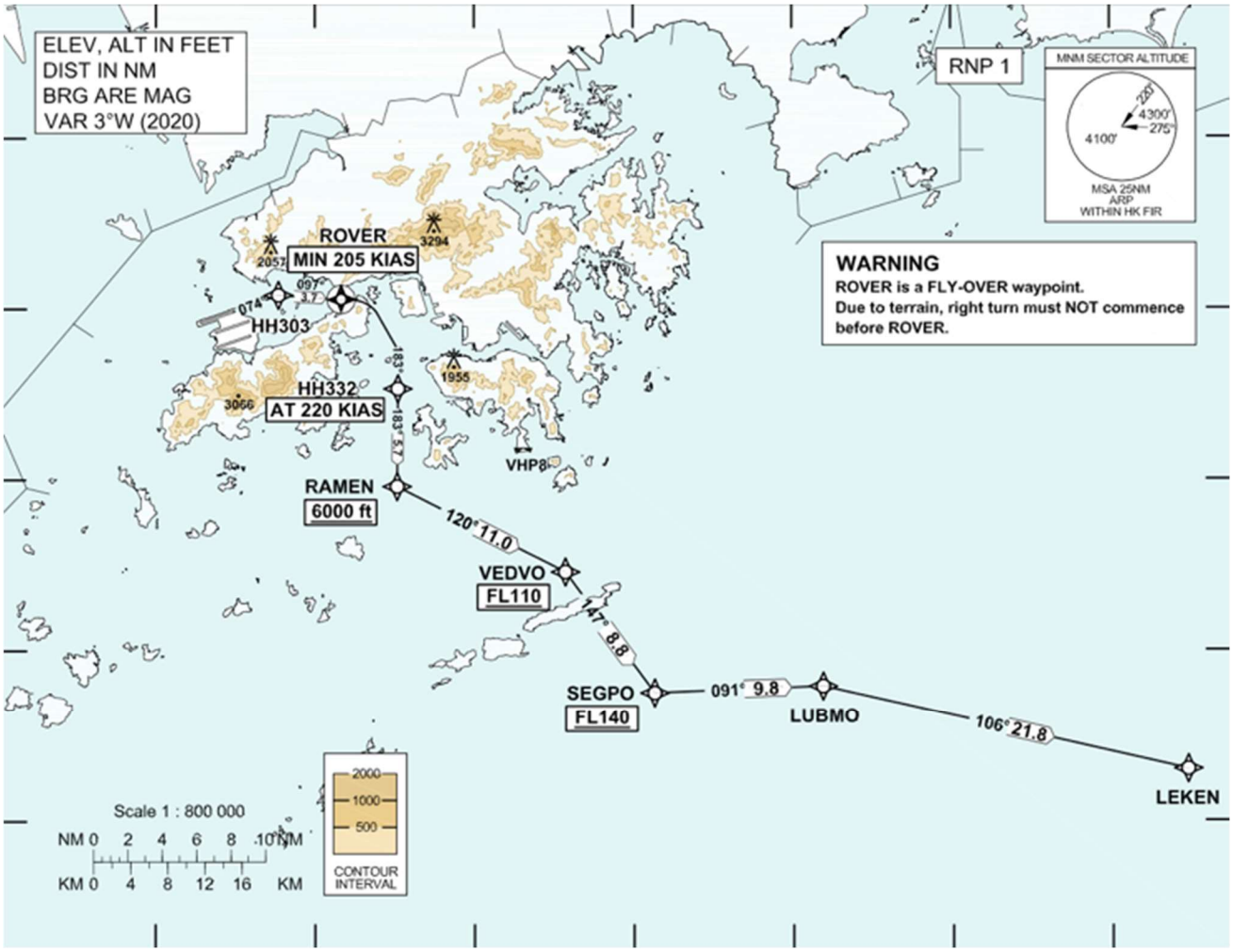

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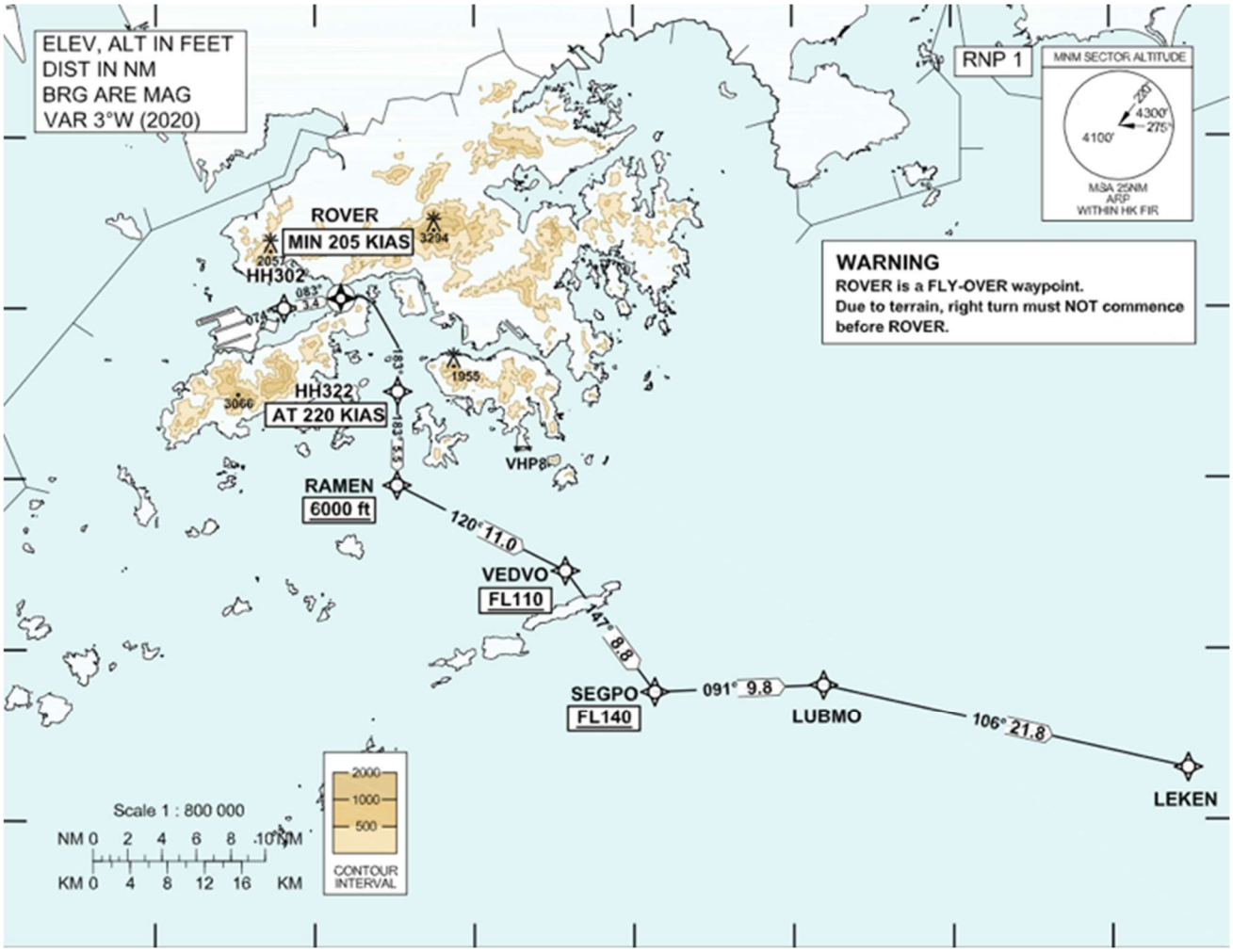

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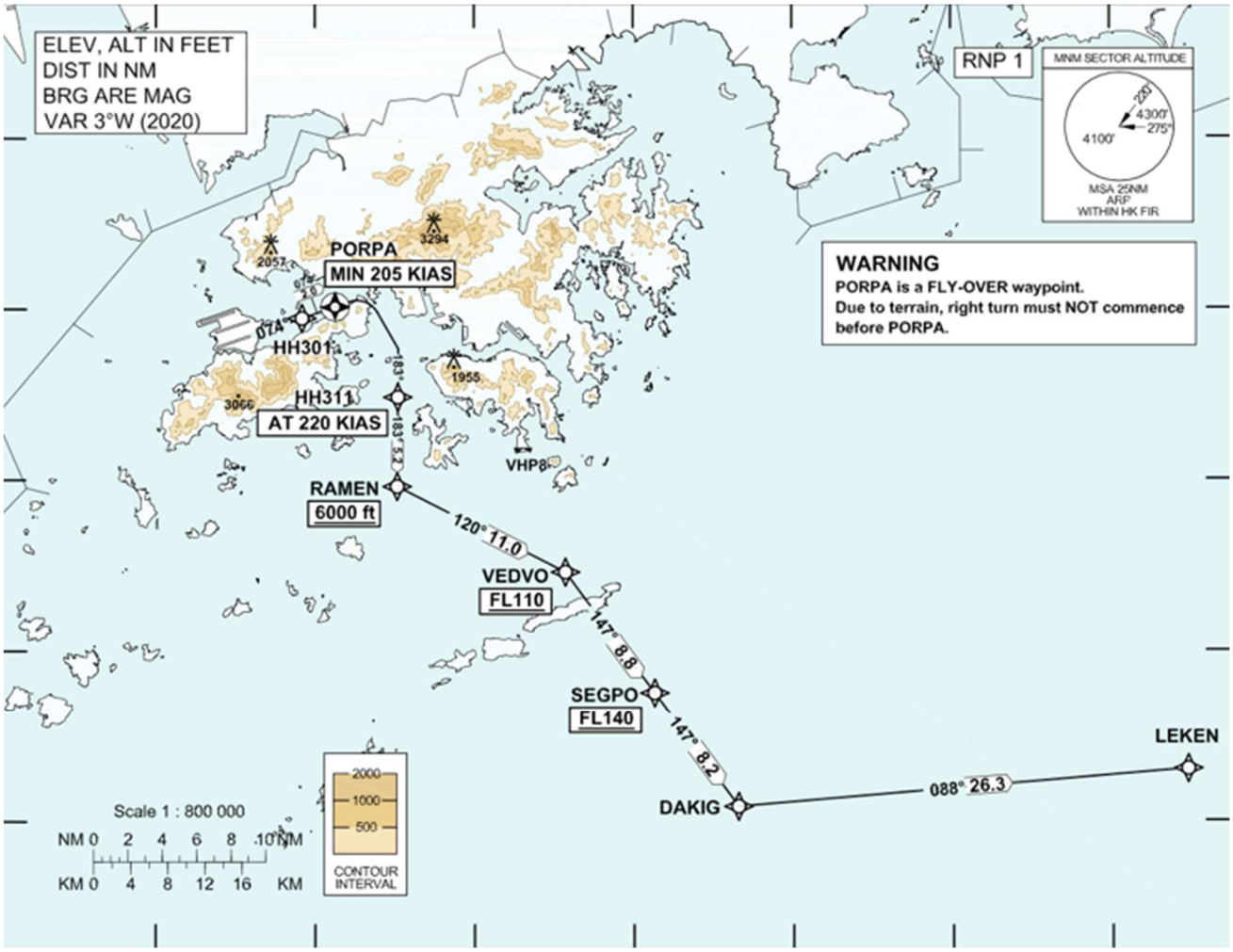

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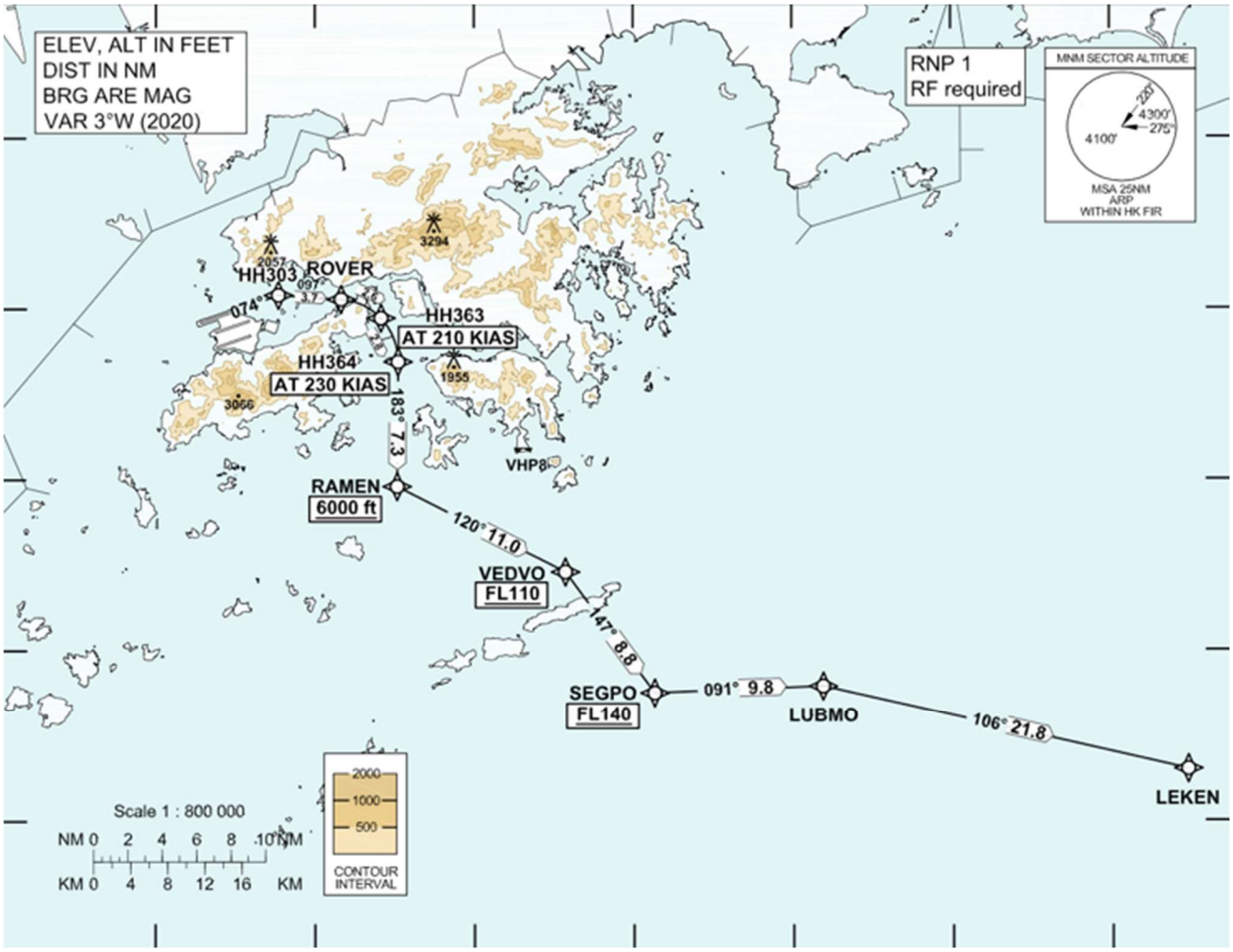

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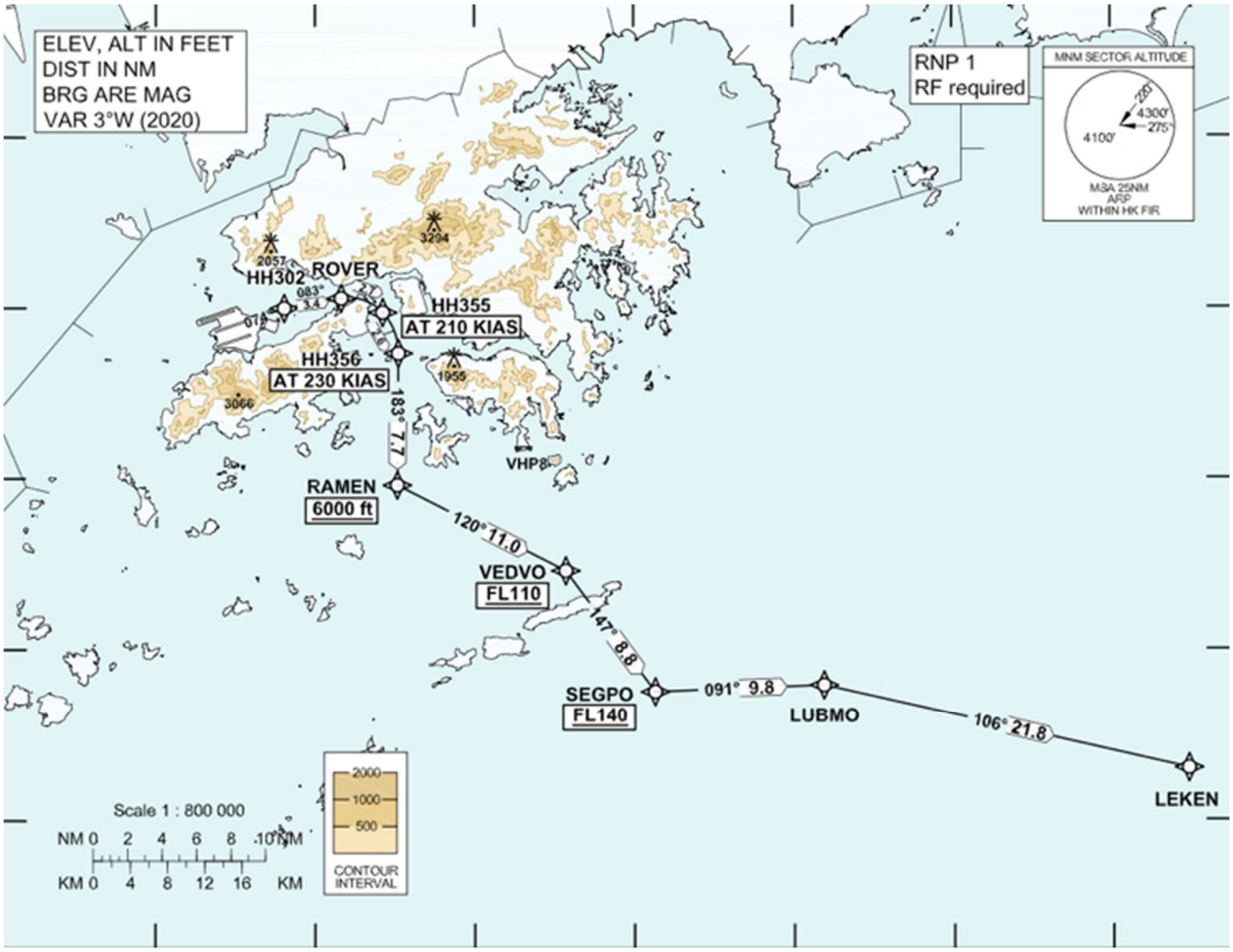

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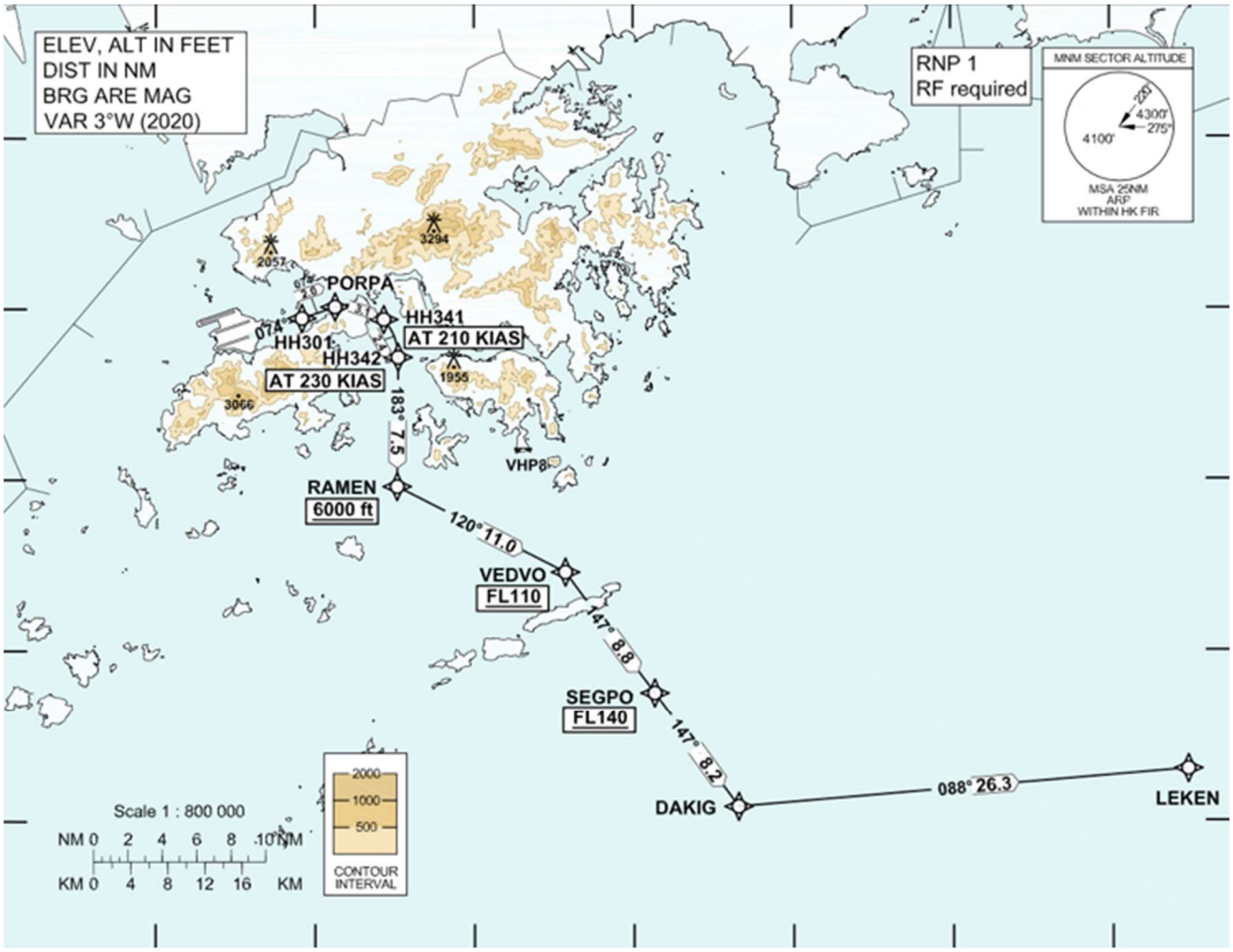

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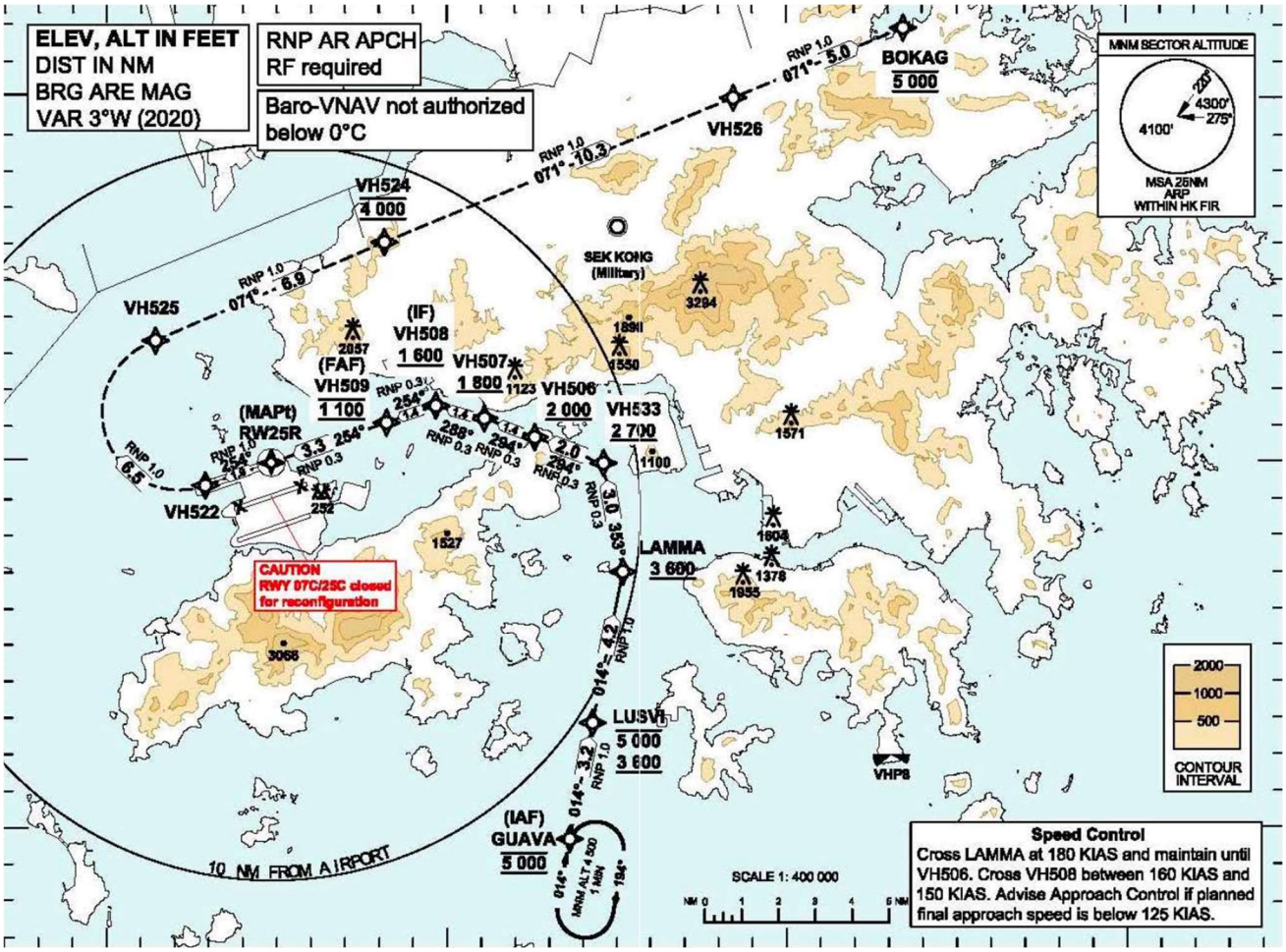
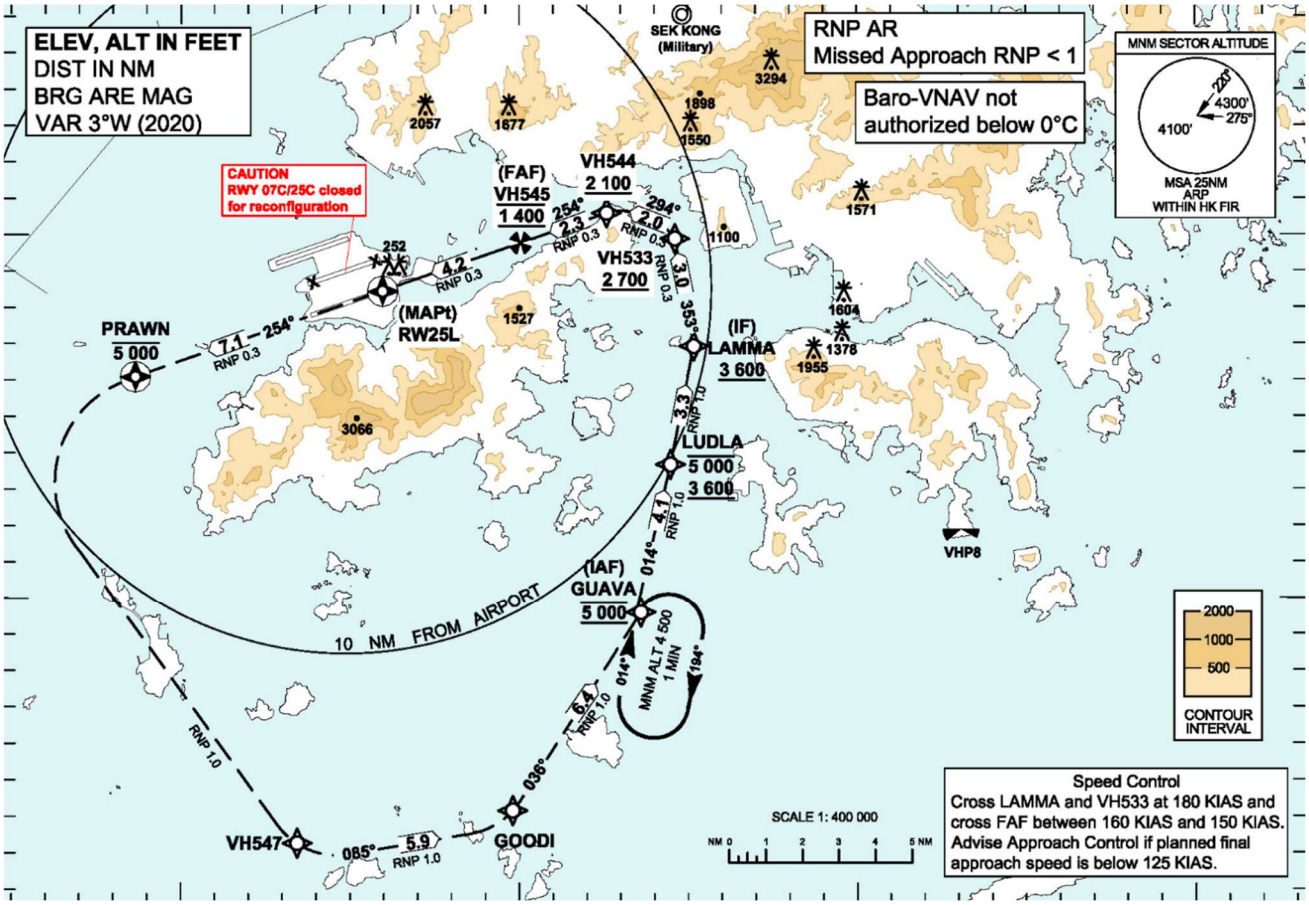
Note: Please refer to the latest publications on the Hong Kong Aeronautical Information Services website (https://www.ais.gov.hk/) for operational details and up-to-date information.

E. Enlarged Plans of Figure 5.1

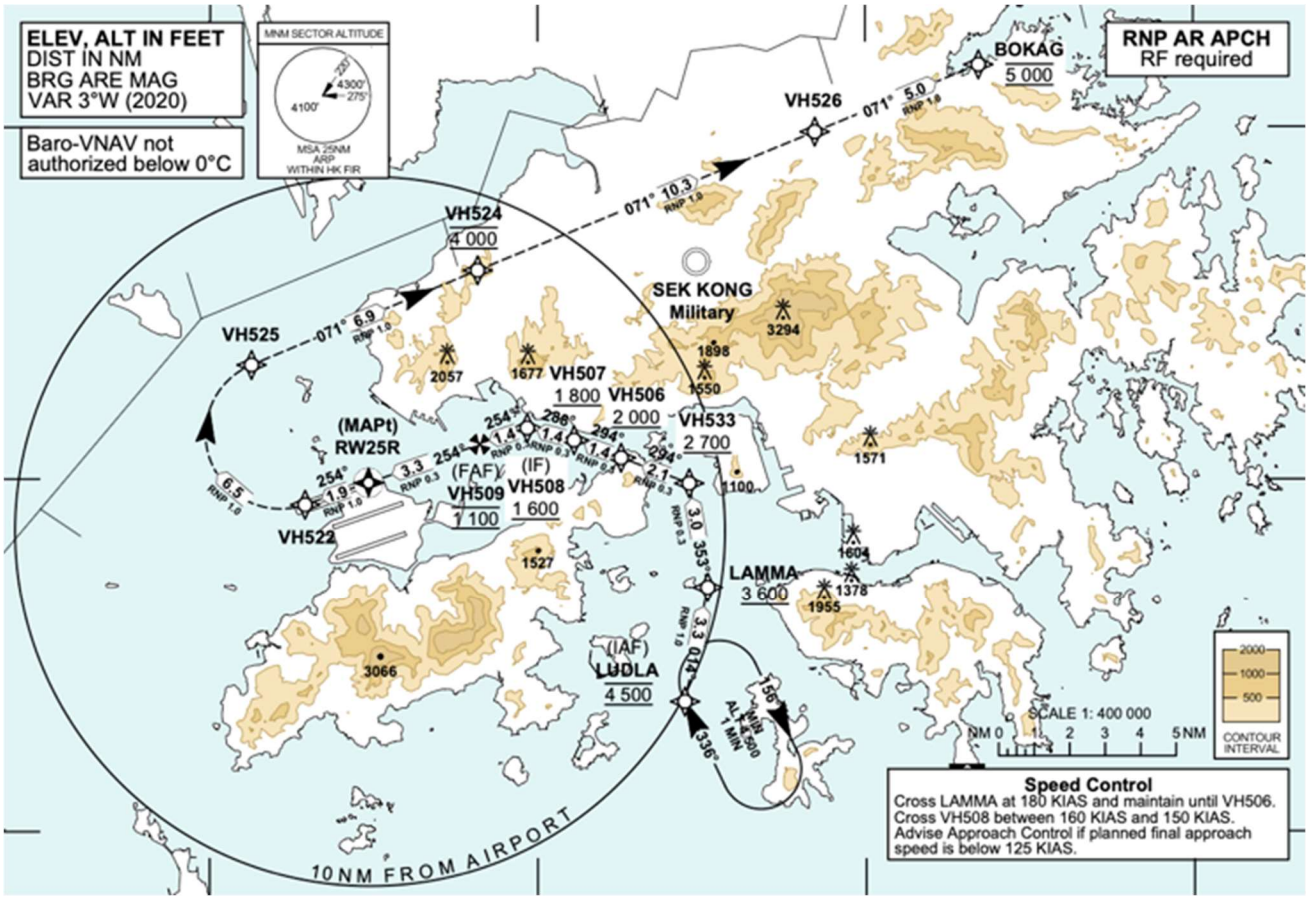


Runway 25R Track 6 RNP-AR Approach path
during West Flow in I-2RS operation



Runway 25L Track 6 RNP-AR Approach path
during West Flow in I-2RS operation

F. Enlarged Plans of Figure 5.2



Runway 25R Track 6 RNP-AR Approach path
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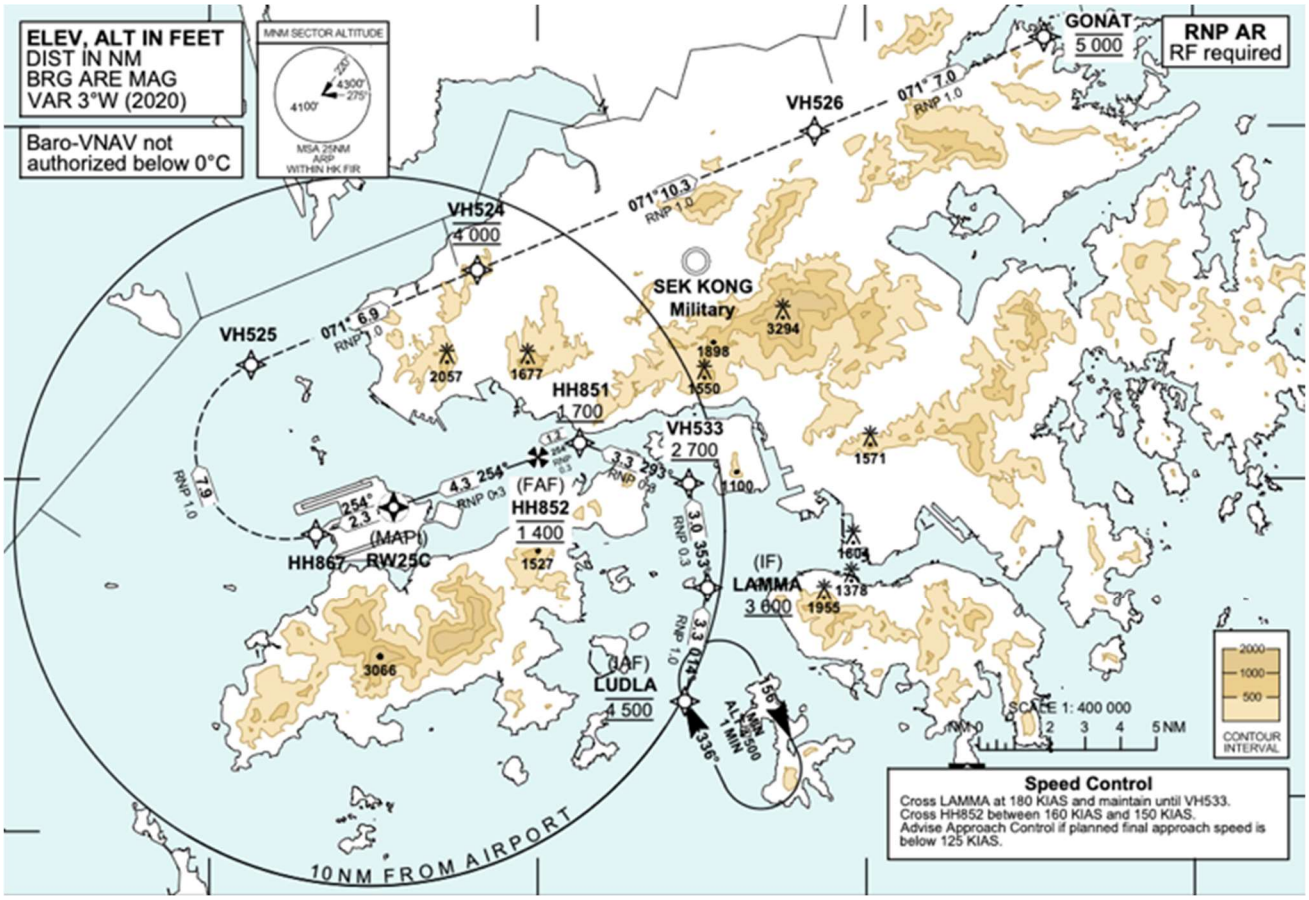

Runway 25C Track 6 RNP-AR Approach path
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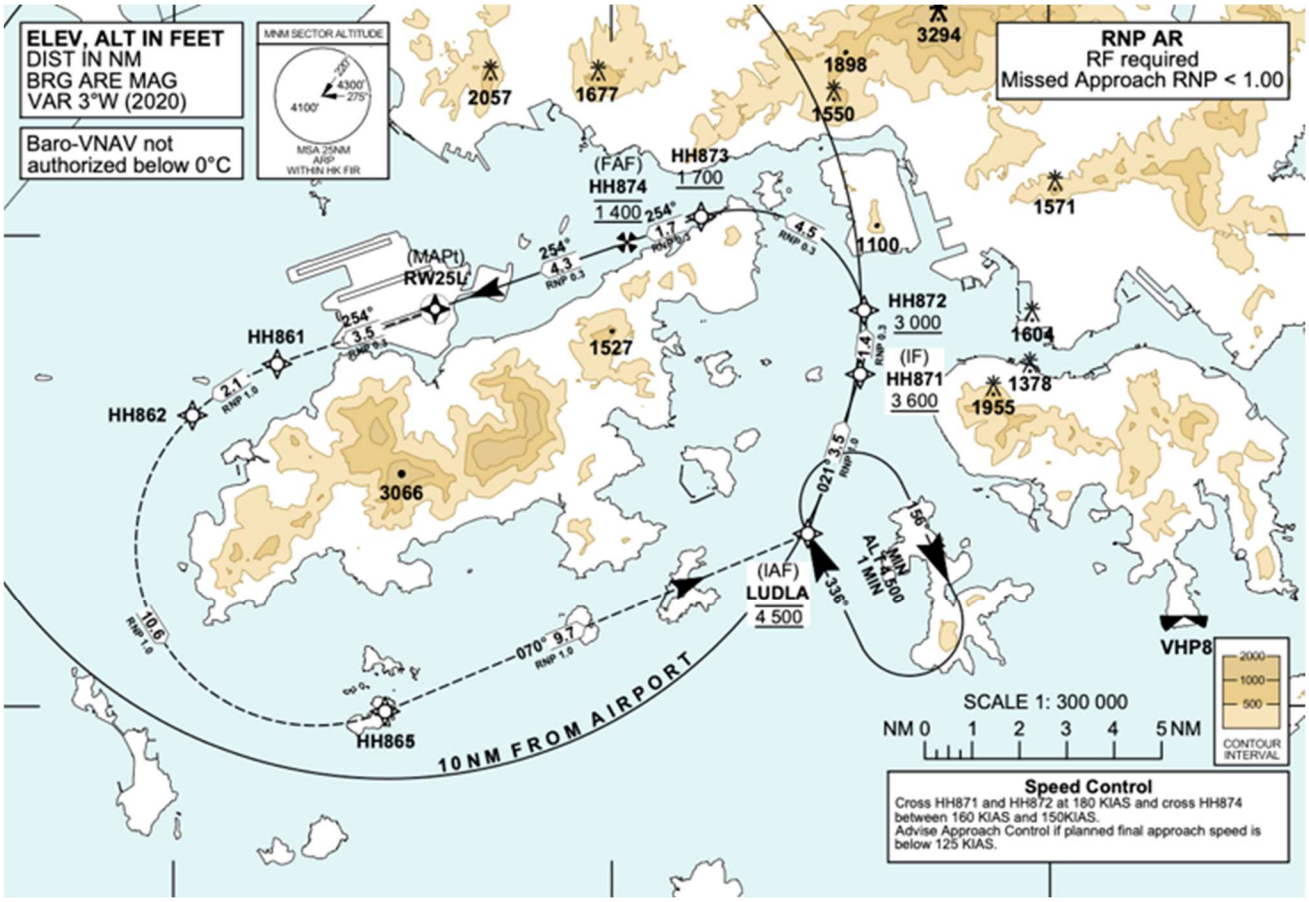

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