Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road
– Section between HKSAR Boundary and Scenic Hill

Technical Document

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Document Title:

Regular Marine Travel Routes Plan

	PREPARED BY:	INTERNAL REVIEW:		INTERNAL APPROVAL
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SIGNATURE				
DATE	26.6.2013	26/6/2013	26.6.2013	26.6.2013

1.0 CONTENT

CONTENT

2.0 DOCUMENT STATUS

2.1 **Details of Revision:**

Rev.	Rev. Date	Sections	Amendment Source and/or Details
A	26/10/2012	All	For the first submission to the SOR.
B	1/11/2012	All	Incorporated the IEC/ENPO's comments and amended text where necessary.
C	4/2/2013	Section 4.3 & 4.4	Incorporated the IEC/ENPO's comments and amended text where necessary.
D	21/2/2013	Section 4.3 Figure 4	Added a paragraph for routes records management. Amended a travel route to avoid dolphin hotspots above The Brothers.
E	25/4/2013	Section 4.2, Figure 2, 7 & 8	Incorporated comments from the SOR Response Ref No. 214487/(HY/2011/09)/M45/160/B1221.
F	16/5/2013	Section 4.2, 4.3, Figure 2, 6 & 7	Incorporated comments from the IEC Response via email on 7 May 2013.
G	20/6/2013	Section 4.5, Figure 2 & 7	Incorporated comments from the IEC Response via email on 4 June 2013.

3.0 INTRODUCTION

3.1 Purpose

The Regular Marine Travel Routes Plan (the Plan) has been prepared in accordance with Condition 2.9 of the Environmental Permit (EP-352/2009/A) for the Highways Department Contract namely Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill.

The Plan describes the routes taken by the contractor's vessels moving to and from work areas, to minimize risk of collision with the Chinese White Dolphins (CWD) during the construction period. It also presents appropriate controlling measures on the marine traffic to minimize impacts on the CWD.

3.2 Contract Description

Highways Department commissioned the contract "Hong Kong Link Road- Section between HKSAR Boundary and Scenic Hill" (hereinafter called the Contract) with Contract No: HY/2011/09. Dragages -China Harbour-VSL Joint Venture (DCVJV) is awarded to undertake this Contract. The scope of the contract works comprises the following major items:

(i) a dual 3-lane carriageway in the form of viaduct from the HKSAR boundary (connecting with the HZMB Main Bridge) to the Scenic Hill (connecting with the tunnel under separate Contract No. HY/2011/03), of approximately 9.4km in length with a hard shoulder for each bound of carriageway and a utilities trough on the outer edge of each bound of viaducts;

(ii) a grade-separated turnaround facility located near San Shek Wan, composed of slip roads in the form of viaduct with single-lane carriageway bifurcated from the HKLR mainline with an elevated junction above the mainline;

(iii) provision of ancillary facilities including, but not limited to, meteorological enhancement measures including the provisioning of anemometers and modification of the wind profiler station at hillside of Sha Lo Wan, provisioning of a compensatory marine radar, and provisioning of security systems; and

(iv) associated civil, structural, geotechnical, marine, environmental protection, landscaping, drainage and highways electrical and mechanical (E&M) works, street lightings, traffic aids and sign gantries, marine navigational aids, ship impact protection system, water mains and fire hydrants, lightning protection system, structural health monitoring and maintenance management system (SHM&MMS), supervisory control and data acquisition (SCADA) system, as well as operation and maintenance provisions of viaducts, provisioning of facilities for installation of traffic control and surveillance system (TCSS), provisioning of facilities for installation of telecommunication cables/equipments and re provisioning works of affected existing facilities/utilities.

Cinotech Consultants Limited was commissioned by the DCVJV to undertake the EM&A works for the contract and was appointed as the Environmental Team (ET).

4.0 DESGIN OF REGULAR MARINE TRAVEL ROUTES

4.1 Types of Working Vessels

In line with the works progress and serving for different purposes, the following vessels will be used during the construction stage.

(i) Derrick Lighter – 2000 ton

Vessel Details:-
LOA: 42m
Beam: 15m
Airdraft: 38m
Vessel Particular for Platform Erection & Piling Work

(ii) Flat Top Barge – 2000 ton

Vessel Details:-
LOA: 50m
Beam: 15.2m
Airdraft: Max. 15m
Vessel Particular for Platform Erection & Piling Work

(iii) Hopper Barge – 1,000m^3

Details:-
LOA: 47 m
Beam: 8 m
Airdraft: Max. 12m
Vessel Particular for Piling Work

(iv) Floating Concrete Batching Plant – Hang Gong Tong 1602

Details:-
LOA: 76 m
Beam: 23 m
Airdraft: Max. 30m
Vessel Particular for Piling Work

(v) Jack-up

Vessel Particular for Marine GI Work

(vi) Tug Boat

Vessel Particular for Marine Work

(vii) Ro Ro Barge

Vessel Particular for Concrete Delivery

(viii) Connection Boat

Vessel Particular for General Usage and Passengers

4.2 Regular Marine Travel Routes

The existing fairways, including North West Siu A Chau, North Cheung Chau, Western Fairway, Ma Wan Fairway and Kap Shui Mun Fairway will be followed and selected as the major marine travel routes. The Existing Fairway Plan is shown in Figure 1. All the regular routes for working vessels would not go through the dolphin hotspot in Brothers Islands.

The working vessels, i.e. Derrick Lighter, Flat Top, Concrete Batching Plant, Jack-up and Tug Boat, will mainly stay and work along the Works Area at the airport channel and Western Areas. Besides, the South East Quay of the airport island will later develop into the loading and unloading area for construction materials such as ready mixed concrete. The marine routes and works area is illustrated in Figure 2.

During the inclement weather, the working vessels will go to Tuen Mun Typhoon Shelter, Yau Ma Tei Typhoon Shelter or Hei Ling Chau Typhoon Shelter. Please refer to Figure 3 for the marine route.

For disposal of inert materials, DCVJV will deliver the materials to the neighbouring sites of Contracts HY/2010/02 HKBCF Reclamation and HY/2011/03 HZMB Section from Scenic Hill to HKBCF for filling purposes, as the preferred disposal grounds as stipulated in the Contract. Upon the inert waste has been excavated, Hopper Barge will be used to deliver the inert waste. The Marine Route is illustrated in Figure 4.

The precast and prefabricated units will be delivered to Hong Kong from Prefabricated Yard in Xinhui, Guangdong. Please refer to Figure 5 for the detailed marine routing.

The inspection boats will be employed for general usage and passengers travelling to and from different works area, namely WA6, WA4 and WA7. The marine route is shown in Figure 6.

Upon the receipt of DASO permit and approval of Construction Waste Disposal Account, the excavated marine sediment, inert C&D waste, slurry and bentonite will be disposed of to the following locations:-

1. South of Cheung Chau for dredged sediment Type 1 Open Sea Disposal;
2. East Sha Chau for dredged sediment Type 1 - Open Sea Disposal (Dedicated Site) & dredged sediment Type 2 - Confined Marine Disposal;
3. Tuen Mun Area 38 Fill Bank for inert construction waste, excluding slurry and bentonite; and
4. Tseung Kwan O Area 137 Fill Bank for slurry and bentonite.

Hopper barges and tug boats are involved for the disposal. The relevant marine routes are shown in Figure 7 and Figure 8.

4.3 Monitoring

DCVJV will maintain records of the use of the inspection boats under control. Such records will include, inter alia, details, times and purpose of journeys. The person using the works boats authorizing the journey will be required to sign his name and title against the entries. DCVJV will present current log books for inspection by the SOR when so required. The following monitoring measures will be adopted.

i. Barges for transporting public fill or sediment will be equipped with Automatic Identification System (AIS) for track logging of vessels.
ii. Tug boats and hopper barges will be installed GPS System for the purposes of recording the marine travel route during operation.
iii. Derrick lighters, flat top barges, floating concrete batching plants, jack-up platforms and Ro Ro barges will be steered by the tug boats which are installed with GPS. As such, their travel routes can be followed.
iv. Administrative control will be taken, one route will be randomly selected and checked once a month.

DCVJV will search to deploy much suitable working fleets which are equipped with AIS or GPS as possible.

The daily record of marine travel route of offsite working fleets will be collected and filed by the supervising staff for inspection and monitoring purposes. Record shall be submitted upon SOR's request. Warning will be noticed to the captain and his shipping company or material suppliers if vessel track log showed the approved marine travel route is not followed.

All vessels used for the construction of the marine works will comply with all the relevant regulations and requirements of the Marine Department, including:-

(a) The Shipping and Port Control Regulations (Cap.313A);
(b) The Merchant Shipping (Miscellaneous Craft) Regulations (Cap.313F);
(c) The Merchant Shipping (Safety) (Signals of Distress and Prevention of Collisions) Regulations (Cap.369N);
(d) The Dangerous Goods (Shipping) Regulations (Cap 295C);
(e) The Merchant Shipping (Launches and Ferry Vessels) Regulations (Cap 313E);
(f) Merchant Shipping (Local Vessels) Ordinance (Cap.548);
(g) Shipping and Port Control (Works) Ordinance (Cap.313X).

4.4 Precautionary Measures

The main issue with the Chinese White Dolphin is a moving vessel striking and injuring an animal during the period of travel. Information regarding the locations of frequent sighting near the proposed vessel routes indicated that the following would also be needed to minimize the chance of a vessel striking a dolphin.

(a) When entering into a distance of 250m from silt curtains of HY/2011/09 sites, all vessels will travel at a speed no greater than 5 knots, and at a speed no greater than 10 knots for a distance of at least 1.5km away. Vessels can then increase speed after that distance unless other restrictions apply.
(b) If any dolphins are sighted within 250m of a vessel then the vessel will slow to a speed no greater than 5 knots for at least 3 minutes after the last sighting.
(c) Barges for delivering will be selected as large sizes as possible to reduce the number of delivering trips.
(d) Concerning the travelling route for fill materials to the HKLR03 site passing dolphin hotspots, it is agreed that prolonged marine travel route to be adopted – to go further east until pass over proposed marine park in Brothers Island and turn back to HKLR03. The speed will keep below 5 knots when crossing the edge of the proposed marine park. The travel route is illustrated in Figure 4.

4.5 Training

Captains of all working vessels should be required to use regular travel routes, in order to minimize the chance of vessel collision.

Captains of construction vessels working in the West Lantau waters and near the Brothers Islands should undergo training to learn about local dolphins and porpoises. They should be trained to be aware of the protocol for "dolphin friendly" vessel operation. Reference will be made to Code of Conduct for Dolphin Watching Activities available from Agriculture, Fisheries and Conservation Department.

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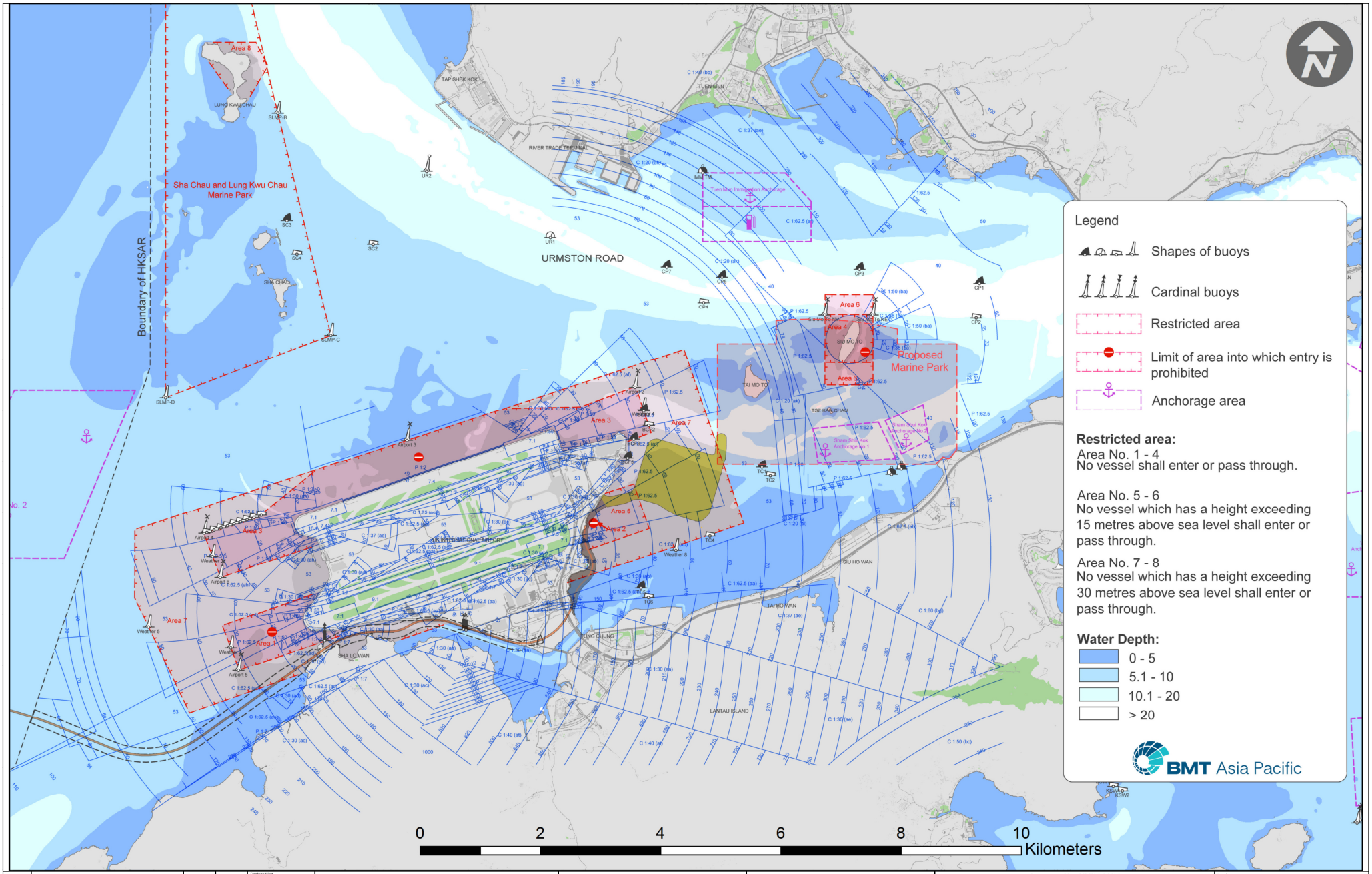

Rev.	Description	Date	Checked
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Designed By: KMN
Drawn By: BJVJ
Approved By: KMN
Date: 12SEP2012

Main Contractor: Dragages - China Harbour - VSL Joint Venture 震嘉-中國港灣-威勝利聯營

Client: 路政署 HIGHWAYS DEPARTMENT

Contractor's Designer: Mott MacDonald YWL Engineering

Project: Contract No. HY/2011/09
Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road
Section Between HKSAR Boundary and Scenic Hill

Figure 1: Existing Fairway Plan

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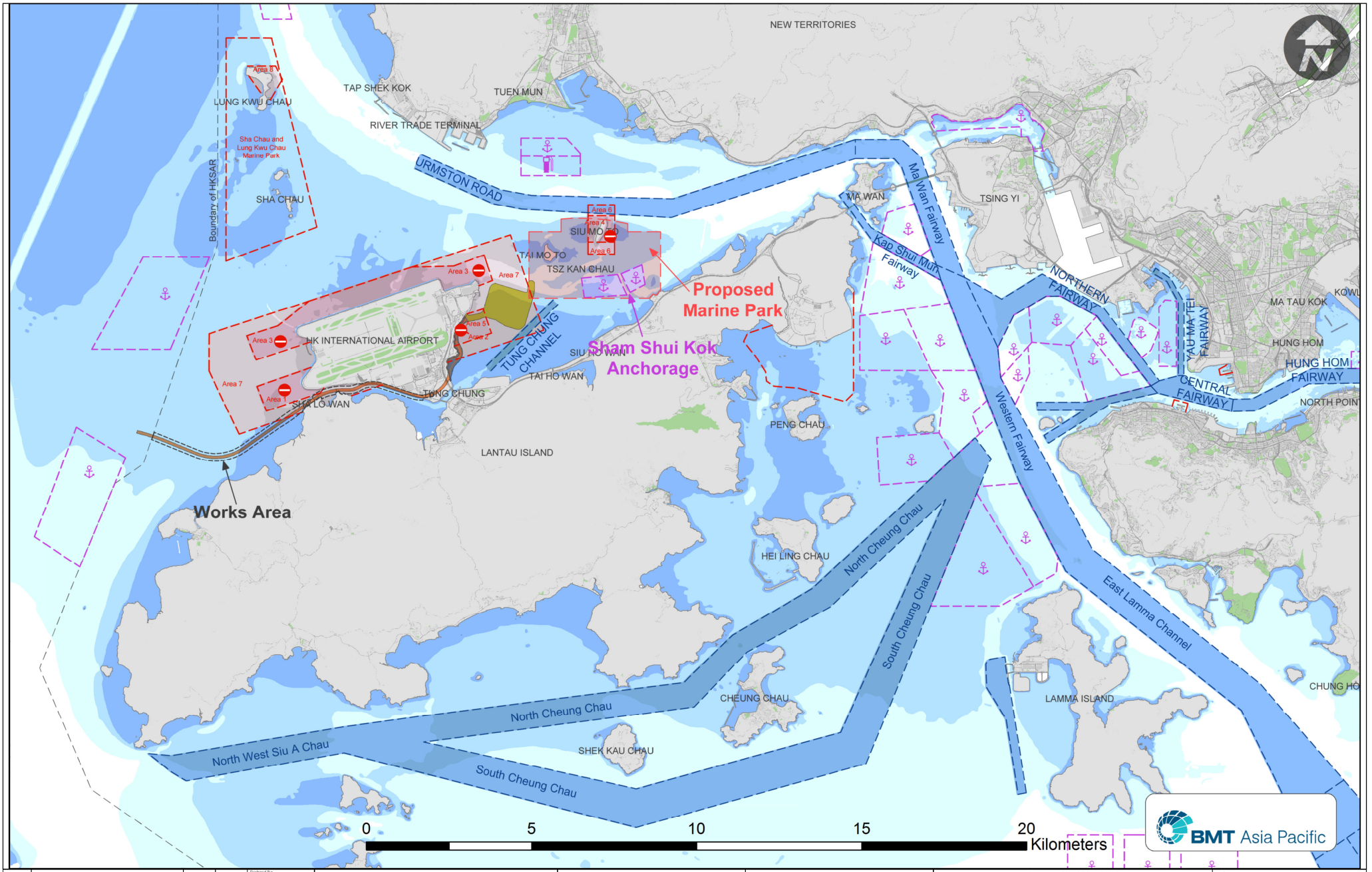

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Figure 1: Existing Fairway Plan

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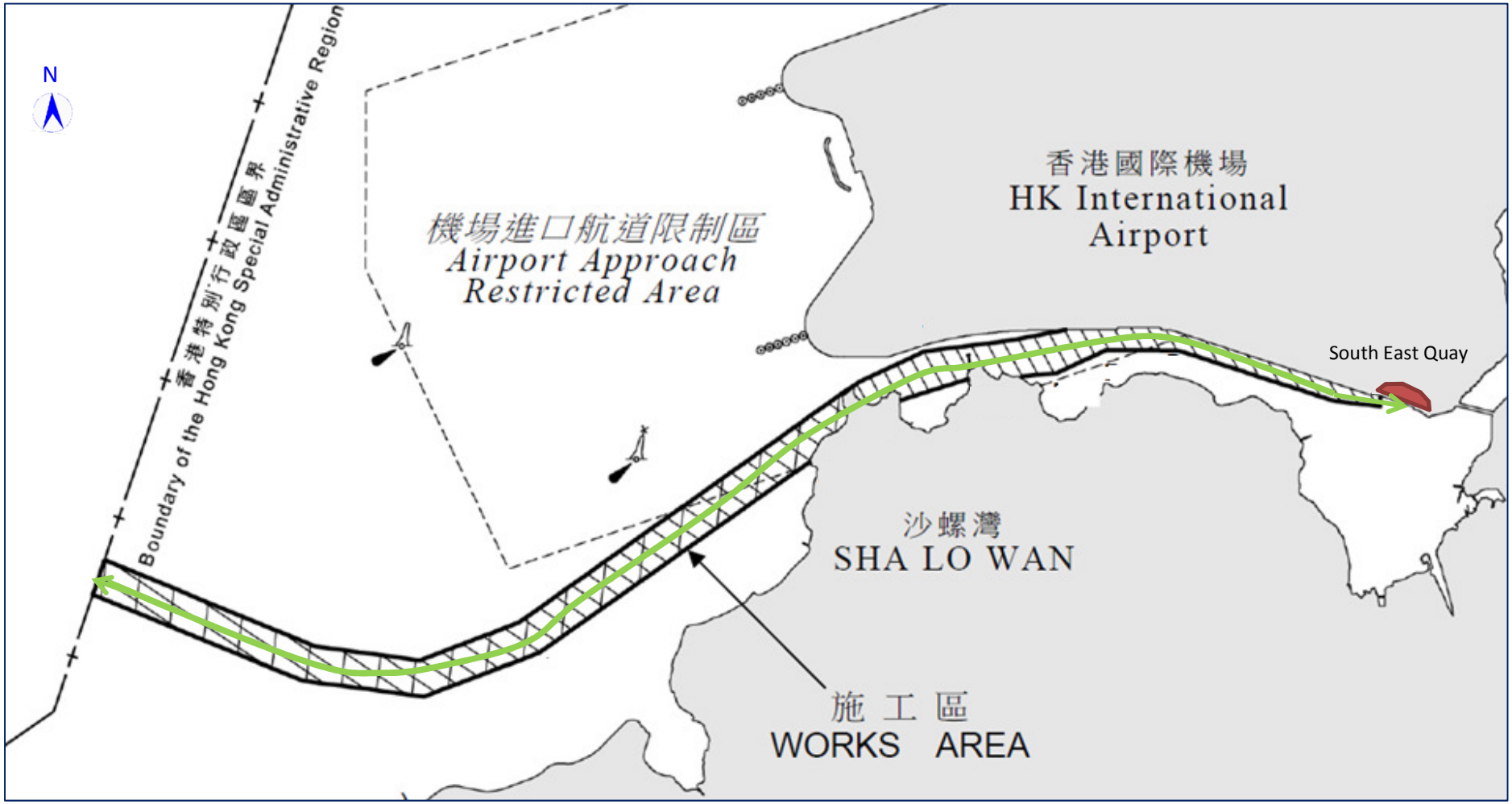

Figure 2: Marine Route and Works Area for the Working Vessels

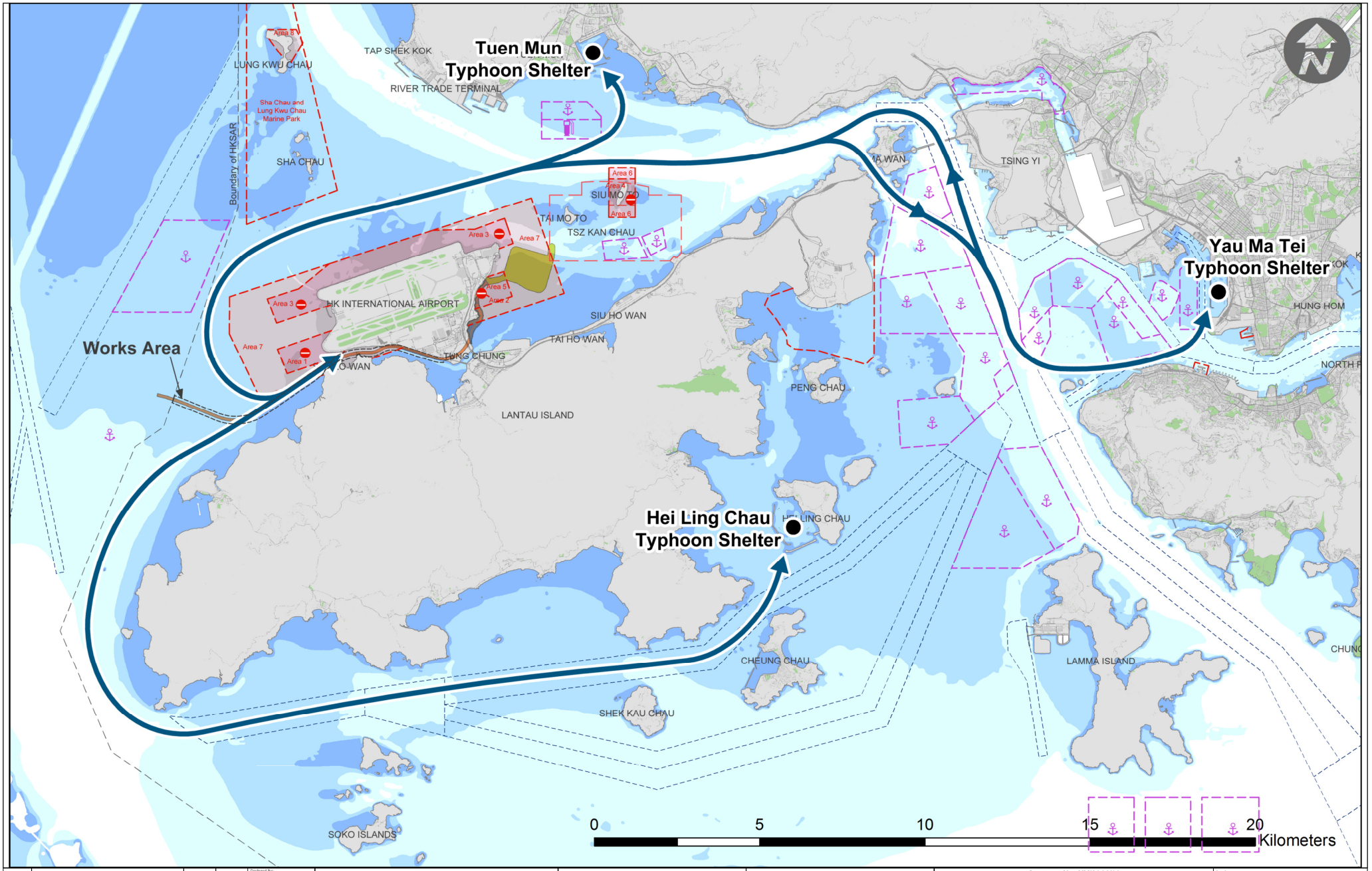

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Figure 3: Marine Route for the Working Vessels during Inclement Weather

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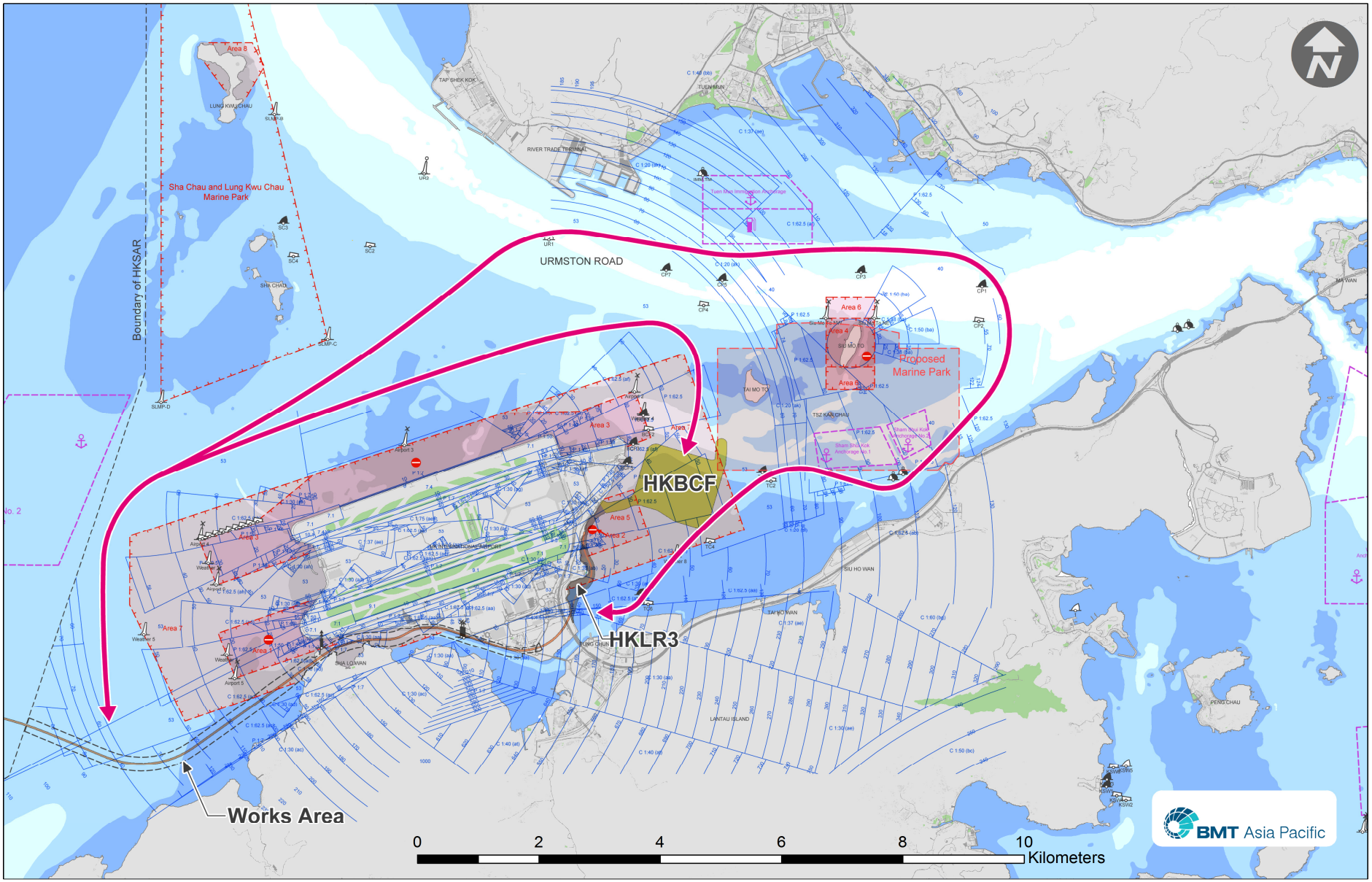

Figure 4: Marine Route for Fill Materials

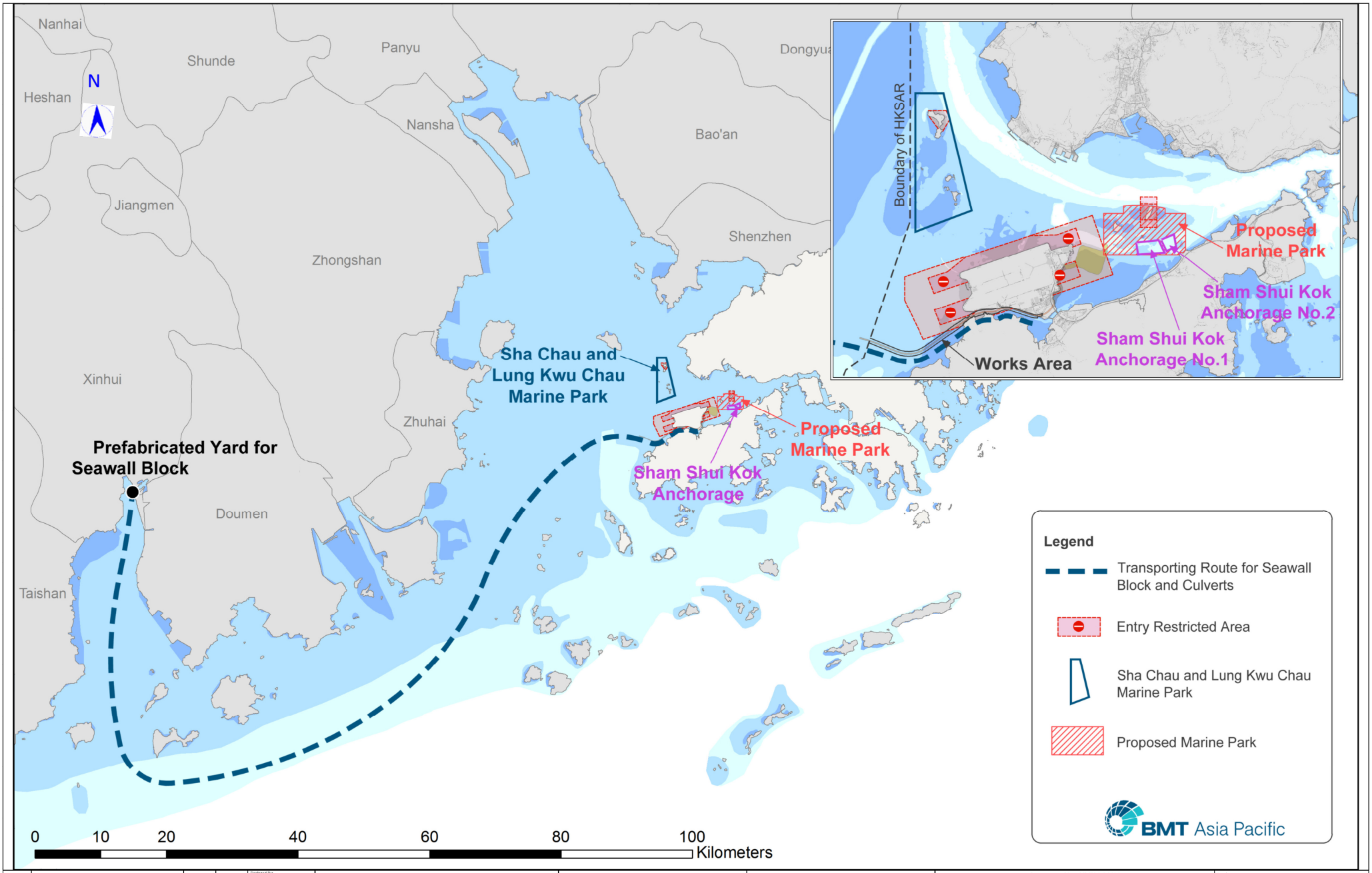

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Figure 5: Marine Route for Precast and Prefabricated Units Delivery

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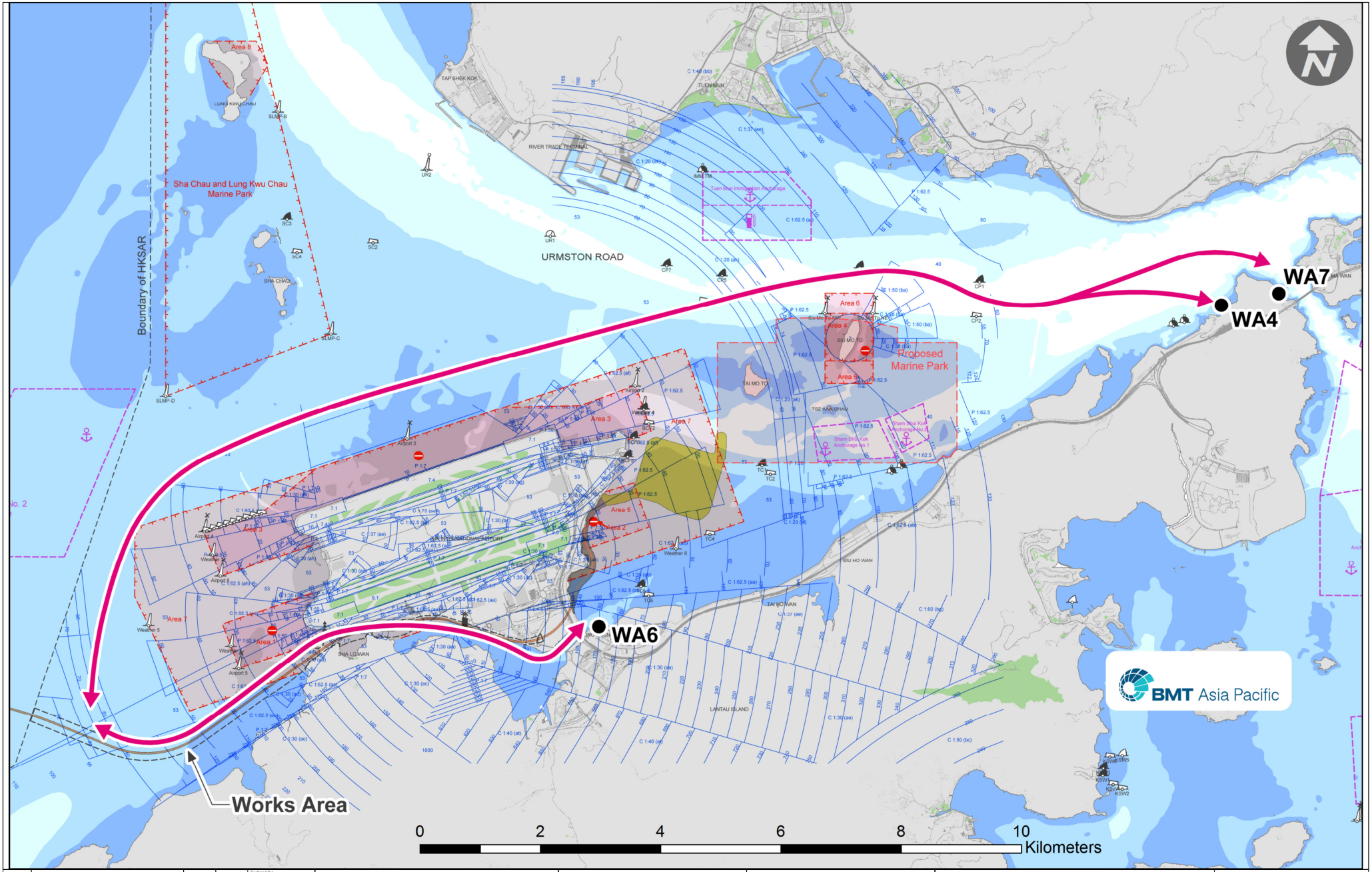

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Figure 6: Marine Route for General Usage and Passenger

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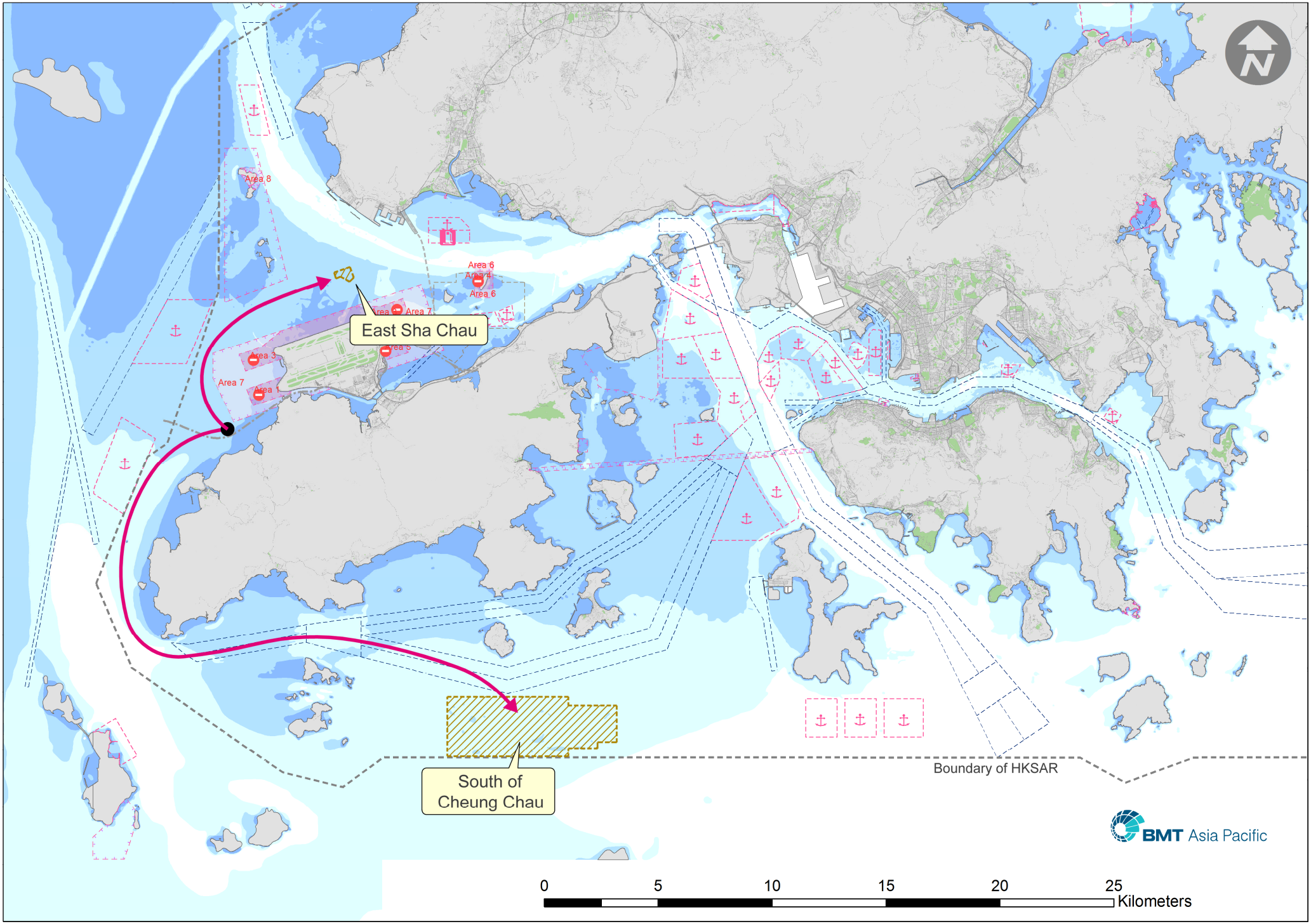

Figure 7: Marine Routes for Excavated Marine Sediment

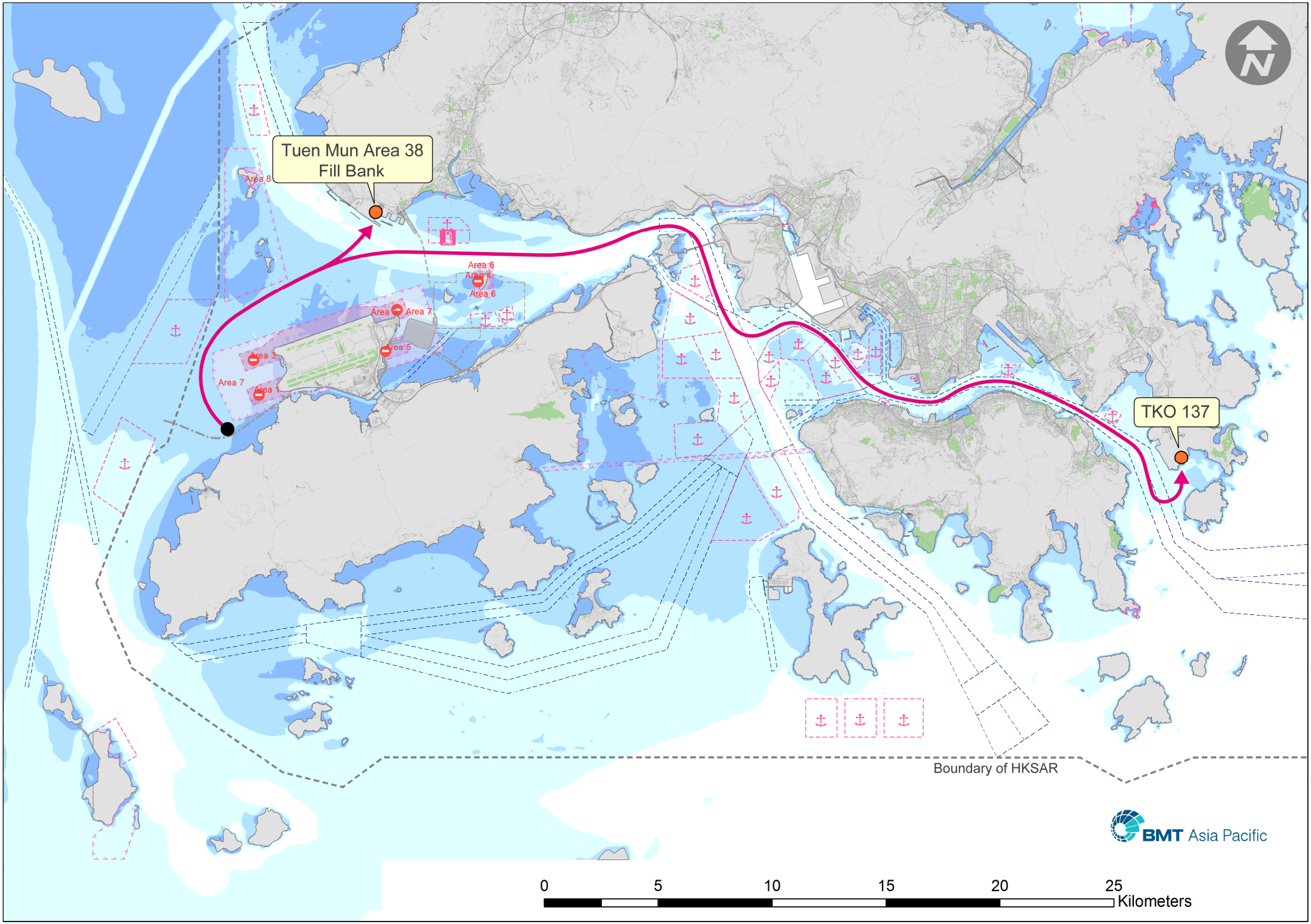

Figure 8: Marine Routes for inert construction waste, slurry and bentonite