



China State Construction Engineering (Hong Kong) Limited.

Regular Marine Travel Routes Plan

Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road Section between Scenic Hill and Hong Kong Boundary Crossing Facilities

Issue Date:	18 July 2014
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TABLE OF CONTENT

1.0 CONTRACT INFORMATION

1.1 Scope of Contract

1.2 Purpose of the RMTR Plan

2.0 DESIGN OF REGULAR MARINE TRAVEL ROUTES

2.1 Types of Working Vessels

2.1.1 Non self propelled working fleets in the vicinity of HKLR site

2.1.2 Self propelled working fleets in the vicinity of HKLR site

2.1.3 Delivery material to HKLR reclamation work site

2.2.4 Restricted Areas and Height Restriction of Hong Kong International Airport

2.2 Design Criteria of Regular Marine Travel Routes (RMTR)

2.3 Selected Regular Marine Travel Routes

3.0 IMPLEMENTATION AND MONITORING

3.1 Supervision Staff

3.2 Method of Implementation and Monitoring

3.3 Precautionary Measures

4.0 SUMMARY AND CONCLUSION



APPENDICES

Appendix A – Marine Travel Routes of Vessels

*Appendix B – Marine Travel Routes for Delivery of Sand Fill/ Rock Fill/ Public Fill
Materials*

Appendix C– Plant List for HY/2011/03

FIGURES

Figure 1 – Airport Height Restriction Plan



1.0 CONTRACT INFORMATION

1.1 Scopes of Contract

1.1.1 This Regular Marine Travel Routes Plan is prepared for Contract HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and Hong Kong Boundary Facilities (“the Contract”) for the Highways Department of HKSAR. The Contract was awarded to China State Construction Engineering (Hong Kong) Limited (“the Contractor”) and BMT Asia Pacific was appointed as the Environmental Team by the Contractor.

1.1.2 The Contract is part of the Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road Project, the Contract works is part of a “Designated Contract” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap 499) and an Environmental Impact Assessment (EIA) Report was prepared for the Contract Register No. AEIAR-144/2009). The current Environmental Permit (EP) EP-352/2009/C was issued on 31 October 2011. These documents are available through the EIA Ordinance Register.

The scope of this Contract (HY/2011/03) includes:

- Reclaim 23 hectares of sea along the east coast of the HKIA,
- Construct 1 kilometre long tunnel with 3 lanes for eastbound carriageway heading to the HKBCF and 4 lanes for westbound carriageway heading to the HZMB Main Bridge from Scenic Hill to the new reclamation,
- Construct an abutment of the viaduct portion of the HKLR at the west portal of Tunnel SHT and associated roadworks at west portal of Tunnel SHT;
- Construct an 1.6 kilometres road dual with 3 lane carriageway with hard shoulder for each bound on the new reclamation along the east coast of the HKIA to connect with the HKBCF
- Modify the existing roads in the HKIA, involving viaducts, at grade roads and tunnels.

1.2 Purpose of the Regular Marine Travel Routes (RMTR) Plan

To describe the design considerations for selection of regular marine travel routes, method of implementation and monitoring as well as precautionary measures to minimize any potential impacts to Chinese White Dolphin during the course of reclamation works and other construction activities of HKLR.

This Regular Marine Travel Routes Plan is prepared to fulfil Condition 2.9 of EP-352/2009/C which states “To minimize the chance of vessel collision and the disturbance to the Chinese white dolphins, the Permit Holder shall deposit with the Director, at least two weeks before the commencement of the construction of the Contract, three hard copies and one electronic copy of a plan showing the regular marine travel routes of vessels moving to and from the Contract work sites. Any subsequent changes to the regular routes shall be verified by the IEC as conforming to the requirements in the EIA Report and deposited with the Director.”

This version has been updated to incorporate marine travel routes from Jiangmen.



2.0 DESIGN OF REGULAR MARINE TRAVEL ROUTES

2.1 Types of Working Vessels

Different construction activities in this Contract involve different types of working vessels, for example:

Laying of silt curtain and geotextile – Derrick lighter, flat top barge and tug boat.

Construction of rock platform and seawall - Derrick lighter, flat top barge, split hopper barge, pelican barge and tug boat.

Reclamation – Derrick lighter, flat top barge, split hopper barge and tug boat.

Disposal of excavated materials - Derrick lighter, flat top barge, split hopper barge and tug boat.

The ship particulars of different types of working ships deployed for the construction under this Contract are attached in Appendix C.

These working fleets can be divided into three main categories:

2.1.1 Non self propelled working fleets in the vicinity of the site

This category includes derrick lighters, flat top barges, crane barges, hopper barge etc. The potential impact to Chinese White Dolphin (CWD) of these working fleets will be low, as they will mainly station within HKLR boundary and the maneuvering or positioning will be carried out in slow speed. Tow, positioning and anchoring will be done by tug boats and anchor boats.

2.1.2 Self propelled working fleets in the vicinity of HKLR site

This category includes tug boats, anchor boats, passenger boats, sampan and pelican barges. Marine traffic disturbance or collision risk due to this fleet category will also be low, as the construction activities are mainly carried out nearby the HKLR site, and most of working fleets will be slow moving (around 5 knots up to maximum 10 knots).

2.1.3 Delivery material to HKLR reclamation work site

This category comprises tug boats, anchor boats and derrick barges. Potential impact of cumulative marine traffic disturbance or collision risk on CWD due to the large sized and slowly moving (around 5 to 10 knots) working fleets with relatively low traffic flow during construction stage are anticipated to be low. Nevertheless, speed limits and regular travel routes will be implemented to control and minimize marine traffic disturbance on CWD.

Typically, all working vessels will adopt the travel route shown in Appendix A every time entering or leaving site. Specifically, material barges for public fill (i.e. split hopper barge & derrick lighter) will adopt the route plan shown in Appendix B while material barges for sand fill and rock fill (i.e. pelican barge) will use the routes in Appendix B.



2.2 Design Criteria of Regular Marine Travel Routes (RWTR)

The design criteria of this RMTR are summarized as follows:

2.2.1 Hotspots of Chinese White Dolphin in Brothers Island

The existing Tung Chung Navigation Channel falls into the proposed Marine Park which cannot be avoided. Therefore, the finalized marine travel route will pass through the south east corner of proposed marine park in Brothers Island therefore precautionary and mitigation measures shall be implemented. The route will shift along the edge of proposed marine park as much as practical. The travelling speed will keep not exceeding 5 knots when crossing the edge of the proposed marine park.

2.2.2 Existing Navigation Channel and Marine Traffic

Existing fairways such as Urmston Road Channel and northern/western fairway will be selected as the main travel routes for delivery of material to HKLR site.

The existing traffic route in the vicinity of HKLR site and Urmston Road Channel is attached Appendix A. Because of the existing volume of marine traffic, the contract related working fleets are required to draw extra attention and safety awareness while passing through this region. The marine travel routes will also be locally adjusted in order to minimize the potential risk of marine traffic incident.

2.2.3 Practice of Navigation Safety

The licensed captain will be the only authorized person to control the working fleets under safe marine operation. The captain will strictly follow all navigation safety requirements and international practices with the aids from navigation instrument and the support from marine traffic control team of Marine Department.

Markers buoys and navigation buoys will be adopted for marine based indicators to demarcate proper navigation channel. These aids will assist the captain to determine the proper travel routes under actual situation and any unexpected incidents.

In addition, since fleet navigation will also be affected by natural constraints such as wind, current, wave, etc., as well as other marine operators such as speed boats, turbo jets, container vessels and river trade vessels, the marine travel routes of contract related working fleets will be adjusted locally to avoid any incident and to ensure safe navigation.

2.2.4 Restricted Areas and Height Restriction of Hong Kong International Airport

According to the Airport Height Restriction and Airport Restricted Area presented in Figure 1, there are seven restricted areas in the vicinity of Hong Kong International Airport where working fleets are not allowed to pass through without authorization. Moreover, the airport height restriction limit will govern the marine travel routes of working fleets for the delivery of reclamation materials to HKLR site.



2.2.5 Reduction of Sediment Plume at Shallow Water Areas

The Contractor will schedule, according to the predicted tides of Hong Kong Observatory all their pelican barges to travel into work site at high tide in order to

- i. reduce sediment plume at shallow water [of the works] areas.
- ii. minimize mooring at Sham Shui Kok.

2.3 Selected Regular Marine Travel Routes

Public fill materials will be obtained from two local fill banks. Materials delivered from Tseung Kwan O Area 137 fill bank will travel westward, passing through Eastern Fairway, Central Fairway, Tathong Channel, Hung Hom Fairway, Northern Fairway and Ma Wan Fairway into the work area. Materials delivered from Tuen Mun Area 38 fill bank will travel directly southward near Sham Shui Kok Anchorage, then via Tung Chung Navigation Channel and enter the work area.

Sand fill and rock fill material will arrive from four quarries in distinct parts of China, namely Ling Ding Yang Zhu Hang Dao Dong Ce Hai Yu, Hui Zhou Hong Hai Wan Sha Chang, Bo Luo Yi He Shi Chang and Jiangmen. Barges carrying materials from all quarries will travel to the work area using the most efficient route as highlighted in Appendix B.

Based on the abovementioned designed criteria, the marine travel routes for different construction activities are designed and presented in the following:

Appendix B: Marine Travel Routes for delivery of Sandfill, Rockfill and Public Fill Materials

The main marine travel routes entering to the HKLR site will be from the north fairway or west. Working fleets with large storing capacity will be deployed so as to minimize the number of trips passing through those ecologically sensitive areas.



3.0 IMPLEMENTATION AND MONITORING

3.1 Supervision Staff

The Project Director will be the ultimate person for minimizing ecological impacts including dolphin monitoring and marine traffic control. The supervising staff including Project Manager, Construction Manager, Site Foreman and the representative of subcontractors and specialists will assist the Project Director onsite to implement all precautionary and mitigation measures approved by the Supervising Officer.

3.2 Method of Implementation and Monitoring

The construction works are divided into onsite and offsite works.

Onsite works include all construction activities such as seawall construction and reclamation within the site area. As the working fleets are mainly stationed within the site boundary and occasionally will be relocated, solely, to suit the work progress, the potential impacts to CWD will be low.

Offsite works mainly comprise the delivery of materials such as sandfill from Pearl River Estuary and public fill from fill banks in Hong Kong.

All barges and other vessels (include tug boat, anchor boat and other self-propelled working fleets) will be equipped with Very High Frequency or/and GPS for track logging of vessels.

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. Graphical plots of all the vessel tracks overlaid on HK base map will be provided at monthly interval to SO, ETL, IEC/ENPO to demonstrate the conformance of the vessel to the proposed route. If any vessel track log showed the approved marine travel route is not followed, formal warning will be issued to the captain and his shipping company or material supplier.

3.3 Precautionary Measures

3.3.1 Considerations of Operation Procedure

The major ecological risk of marine vessel is a moving vessel striking and injuring Chinese White Dolphin during travel and navigation. Information regarding the locations of frequent sighting near the proposed vessel routes indicated that the following would also be required to minimize the chance of a vessel striking marine animals.

Once approaching or leaving the entrance of the silt curtain, all vessels will travel at a speed no greater than 5 knots for a distance of 250m from the silt curtain then at a speed no greater than 10 knots for a distance of at least 1.5km away from the silt curtain. The vessels can then navigate at normal speed after that distance unless other restrictions are imposed.

If any dolphins are sighted within 250m of a vessel then the vessel will slow down to a speed no greater than 5 knots for at least 3 minutes after the last sighting.



These procedures will be applied until current and updated dolphin sighting data is processed by the contract Environmental Team (ET). It is expected that the works and the inclusion of the silt curtain will not change the dolphin activity in this area so it may not necessary to modify the above instructions and possibly the routes in the future.

However, upon required (i.e. when the Environmental Team Leader considered review is necessary based on the CWD monitoring data). If amendment to the regular marine travel routes has been made, new routes will be deposited to EPD.

3.3.2 Skipper Training

The training material will be designed and prepared by the dolphin specialist and be updated time to time during the course of HKLR construction.

The dolphin specialist is responsible to provide training to the trainers of HKLR's main contractor (Train the Trainer Scheme). The training will be given by the dolphin specialist or training personnel approved by IEC/ENPO or AFCD.

All captains and the supervising staff 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 (refer to the Code of Conduct for Dolphin Watching Activities from AFCD).

The training course will be given to the licensed vessel captains by the trainers within three working days after commencement of working onsite and refreshment course will be provided every quarter.

All the relevant training records will be submitted to SO, IEC/ENPO at monthly interval to demonstrate the conformance to the EM&A documents.

The training material and its updates will also be provided to SO and IEC/ENPO for records.

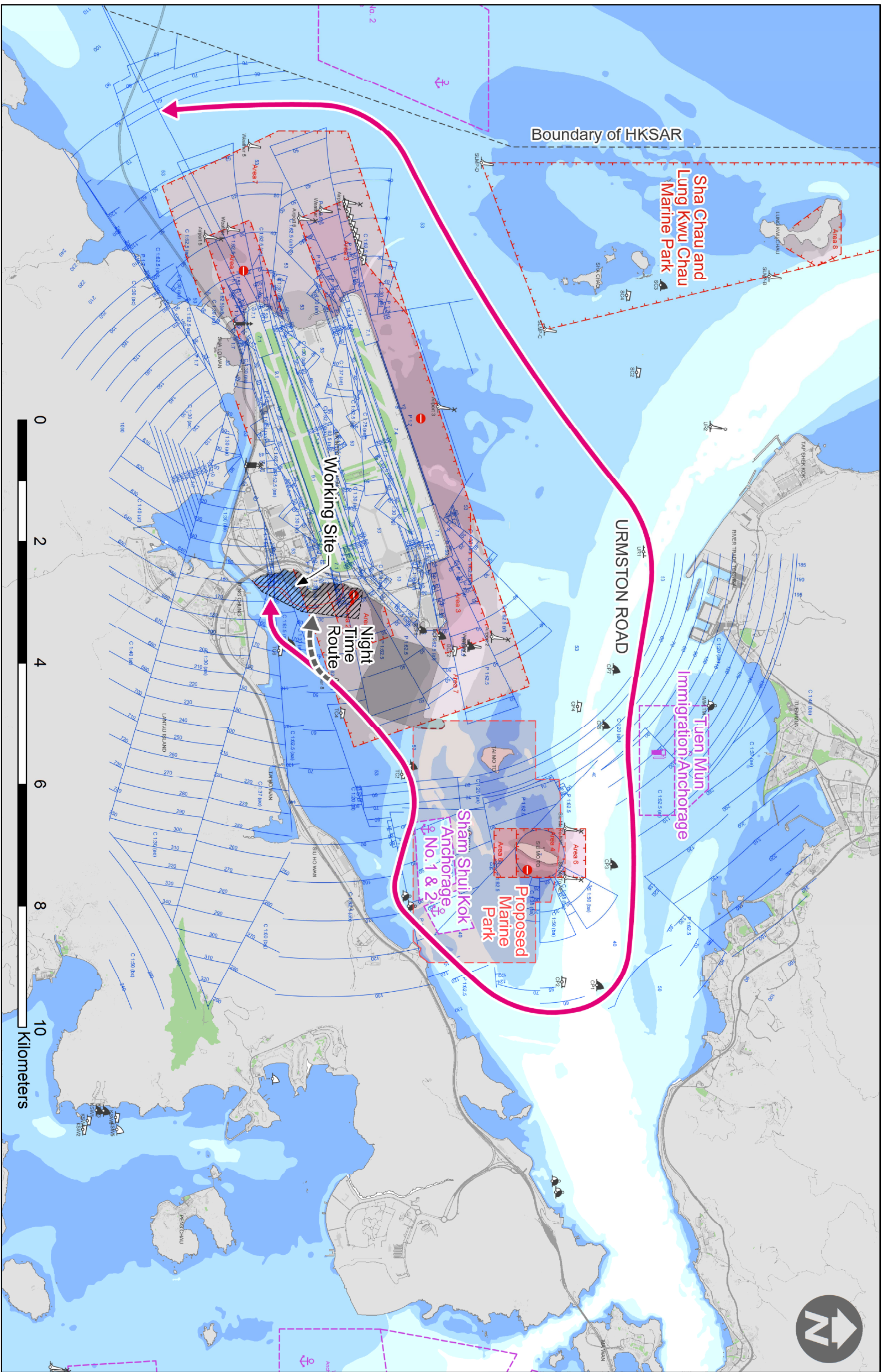
4.0 SUMMARY AND CONCLUSION

This RMTR Plan presents a review of major construction works of HKLR, working fleets particulars and design criteria of marine travel routes. According to the review, preferred marine travel routes for different construction works are recommended. Method of implementation and monitoring as well as precautionary measures are proposed to minimize any potential impacts to Chinese White Dolphin during the course of reclamation works and other construction activities of Contract No. HY/2011/03 for HKLR.



Appendix A

Marine Travel Routes of Vessels



NOTES

- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
- FOR THE FIGURE INCLUDING ACCESS VIA NORTH ENTRANCE, IT WILL BE USED DURING NIGHT TIME WHEN THE RESTRICTION OF CONSTRUCTION NOISE PERMIT (CNP) APPLIES.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 1, 2, 3 OR 4;
 - NO VESSEL ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 5 OR 6;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 30 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 7 OR 8;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 41 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE KAP SHU MUN BRIDGE AREA;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 53 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG MA BRIDGE AREA.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 8 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG CHUNG BRIDGES AREA.
- VESSELS OF LENGTH EXCEEDING 10m SHALL NAVIGATE ONLY IN A SOUTHEASTERLY DIRECTION AT KAP SHU MUN SPECIAL AREA.
- EXCEPT WITH PERMISSION OF THE DIRECTOR OF MARINE, A LOCAL VESSEL THE LENGTH OVERALL OF LESS THAN THE FOLLOWING PERMITTED LENGTH ARE PERMITTED TO ENTER THE FOLLOWING TYPHOON SHELTER:
 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER

Rev	Description	By	Date
B	AMENDMENT	WL	JUL13
A	FIRST ISSUE	WL	MAY13

ARUP 奧雅納工程顧問
 One Arup & Partners Hong Kong Limited

中國建築工程傳動有限公司
 CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. HY/2011/03
 Hong Kong-Zhuhai-Macao Bridge
 Hong Kong Link Road -
 Section Between Scenic Hill and
 Hong Kong Boundary Crossing Facilities

Drawing Title
 MARINE TRAVEL ROUTE OF
 WORKING VESSELS OF
 HY/2011/03

Drawn by	HY/2011/03/M/02025	Scale	N.T.S.
Checked by	PW	Status	FOR INFORMATION
Approved by	FW	Scale	N.T.S.

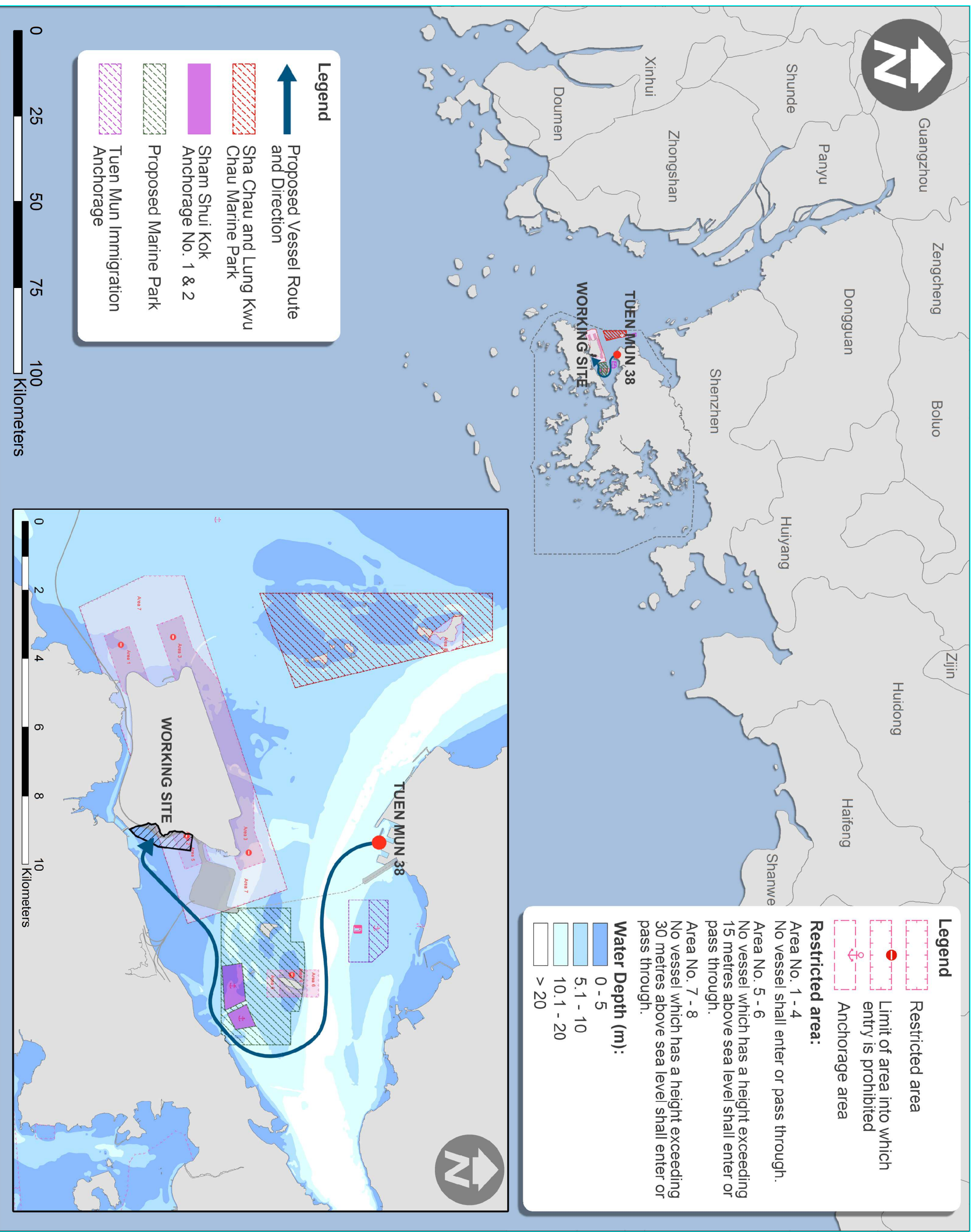


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Appendix B

Marine Travel Routes of Sand Fill/ Rock Fill/ Public Fill Materials



Legend

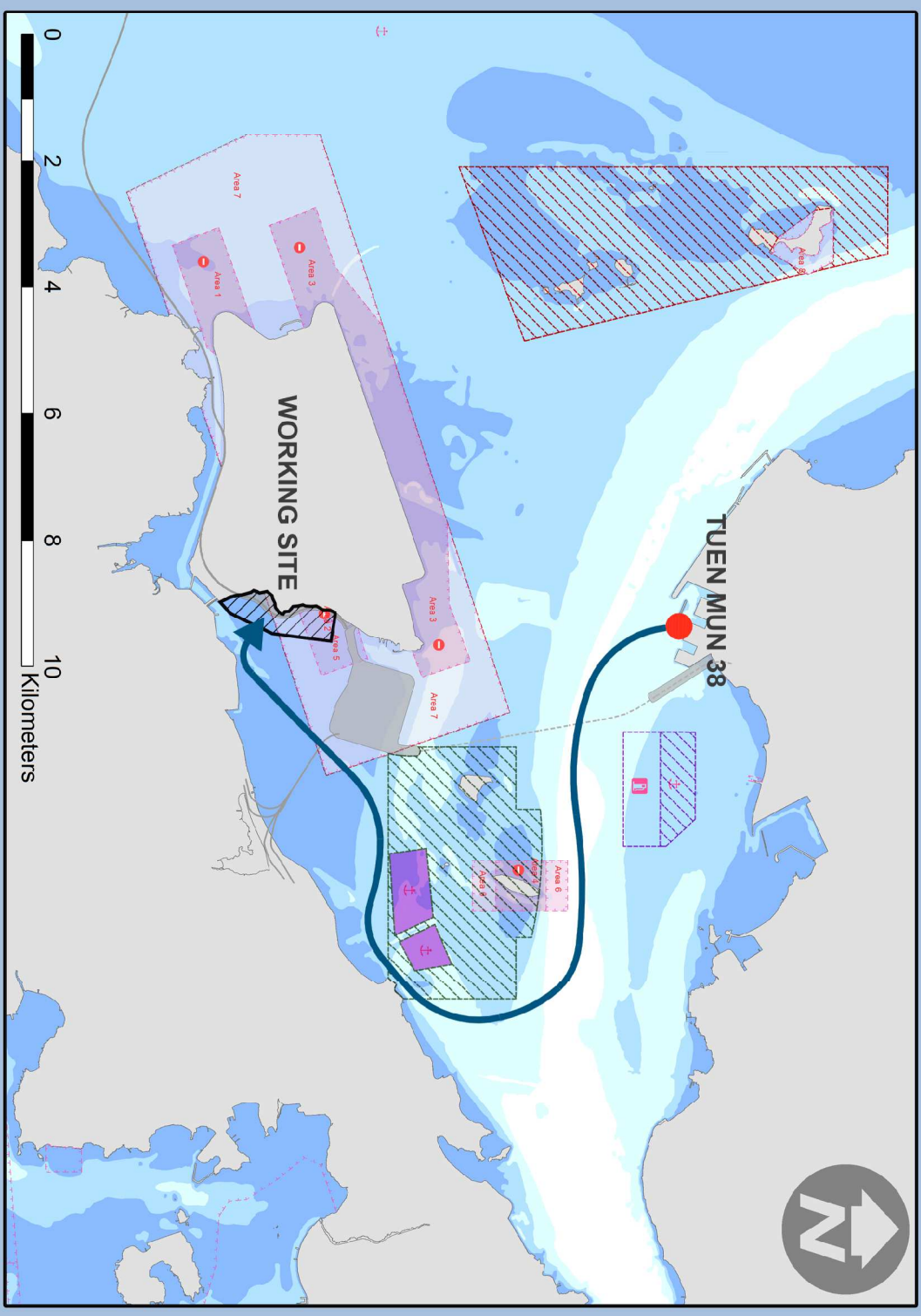
- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Restricted area:

- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20



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F	AMENDMENT	WL	DEC13
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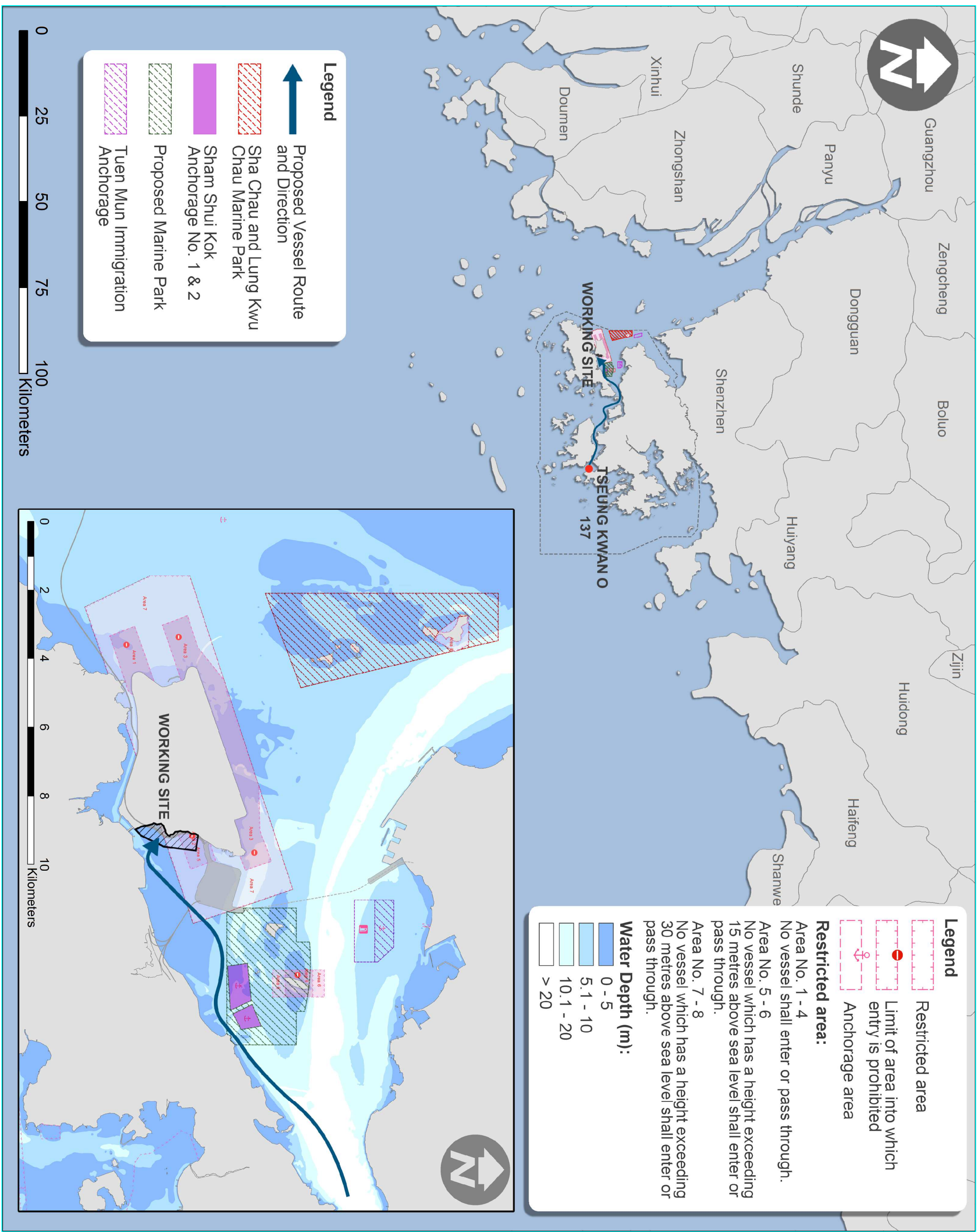
ARUP 奧雅納工程顧問
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Main Contractor:
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Contract No. and Title:
Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
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Section Between Scenic Hill and
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Drawing title
**PROPOSED VESSEL ROUTE
PLAN FOR DELIVERY OF
SAND FILL/ ROCK FILL/
PUBLIC FILL MATERIALS
(SHEET 1)**

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Legend

- Proposed Vessel Route and Direction
- Sha Chau and Lung Kwu Chau Marine Park
- Sham Shui Kok Anchorage No. 1 & 2
- Proposed Marine Park
- Tuen Mun Immigration Anchorage



Legend

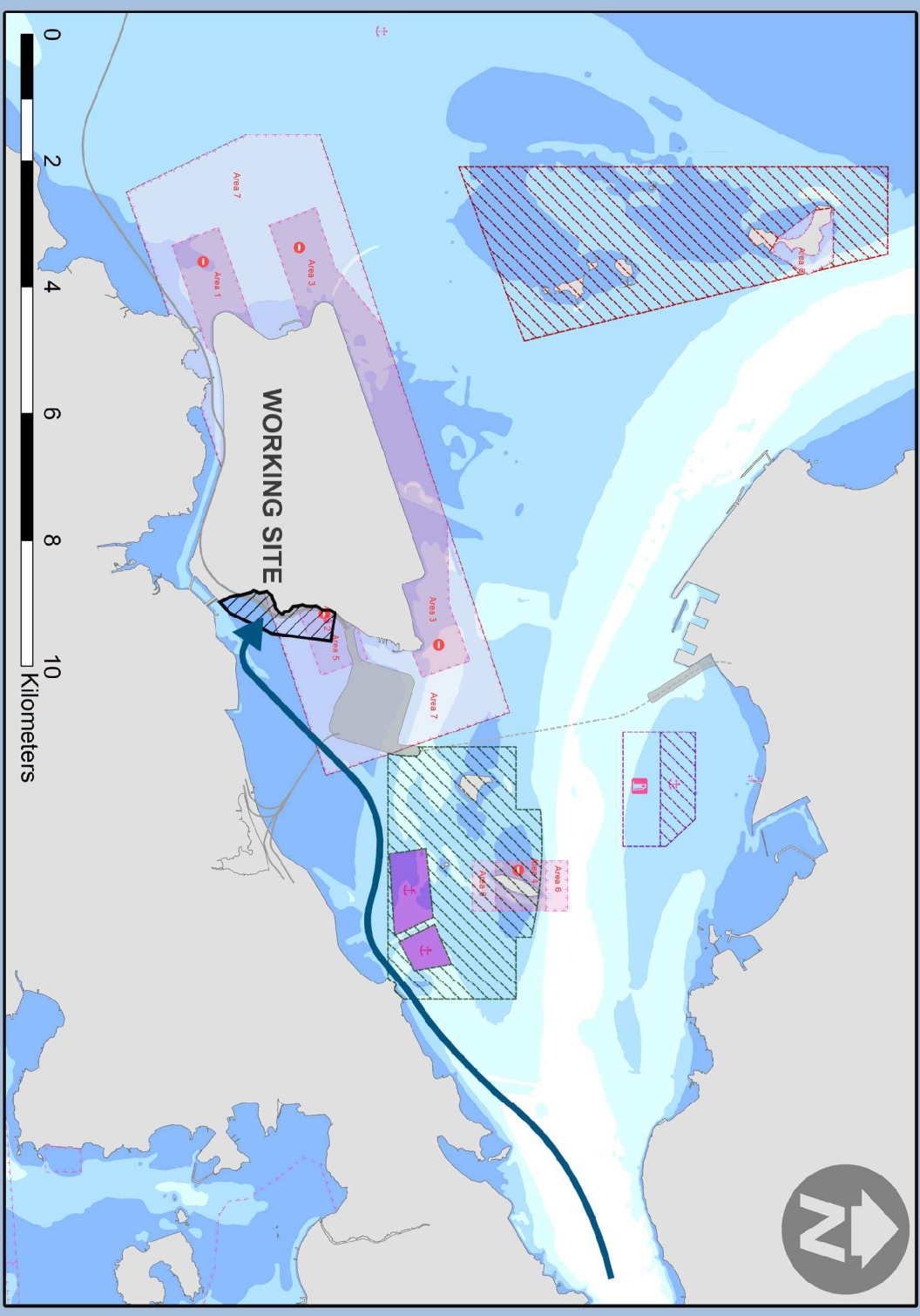
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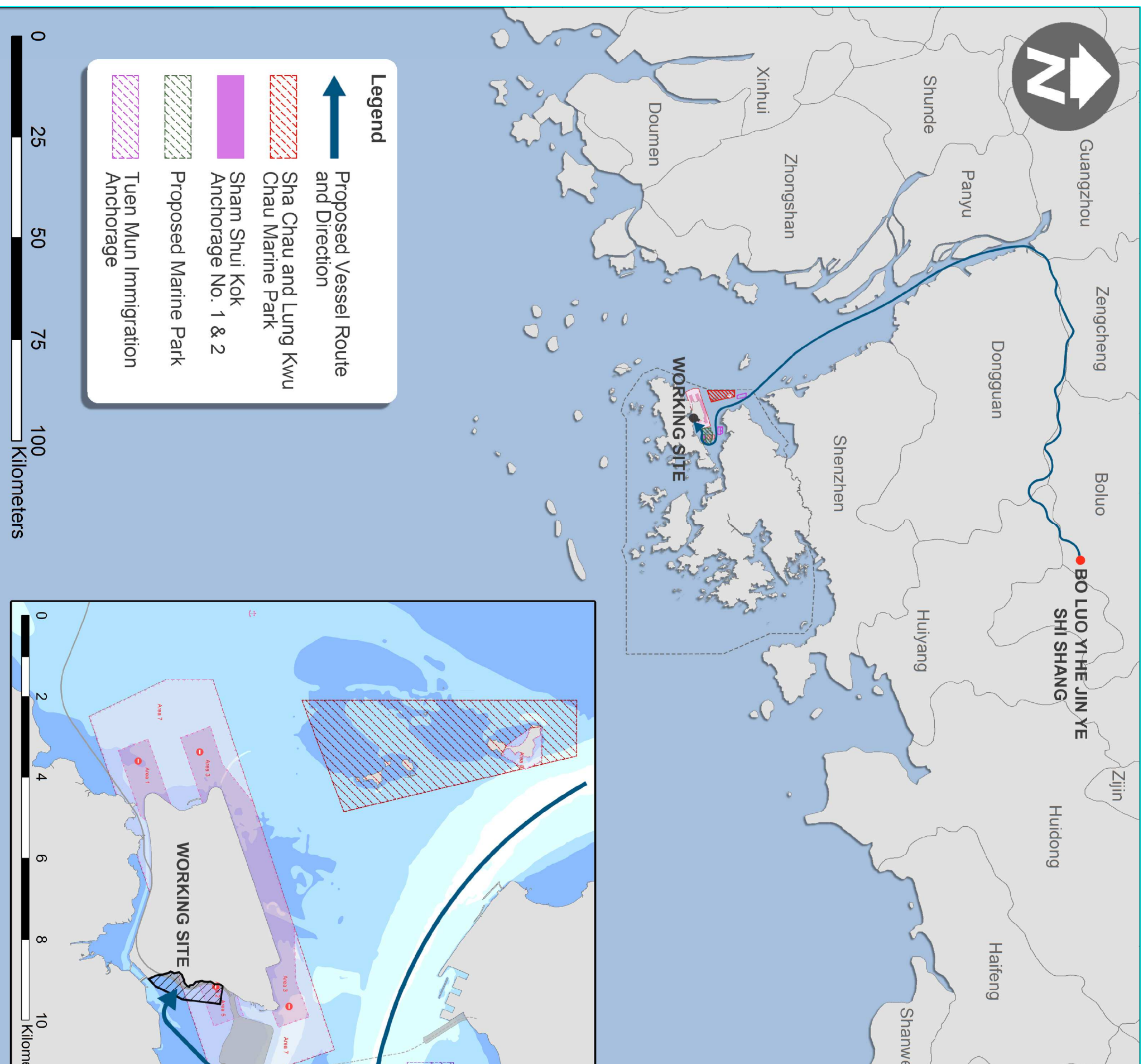
Rev	Description	By	Date
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B	MINOR AMENDMENT	K	24SEP12
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F	AMENDMENT	WL	DEC13

ARUP 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited

Main Contractor: **中國建築工程(香港)有限公司**
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.
Contract No. and Title: **HY/2011/03**
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

Drawing title: **PROPOSED VESSEL ROUTE PLAN FOR DELIVERY OF SAND FILL/ ROCK FILL/ PUBLIC FILL MATERIALS (SHEET 2)**

Drawing No.	HY/2011/03/M/2019	Rev.	F
Drawn	WL	Date	DEC13
Checked	FW	Approved	FW
Scale	N.T.S.	Scale	FOR INFORMATION



Legend

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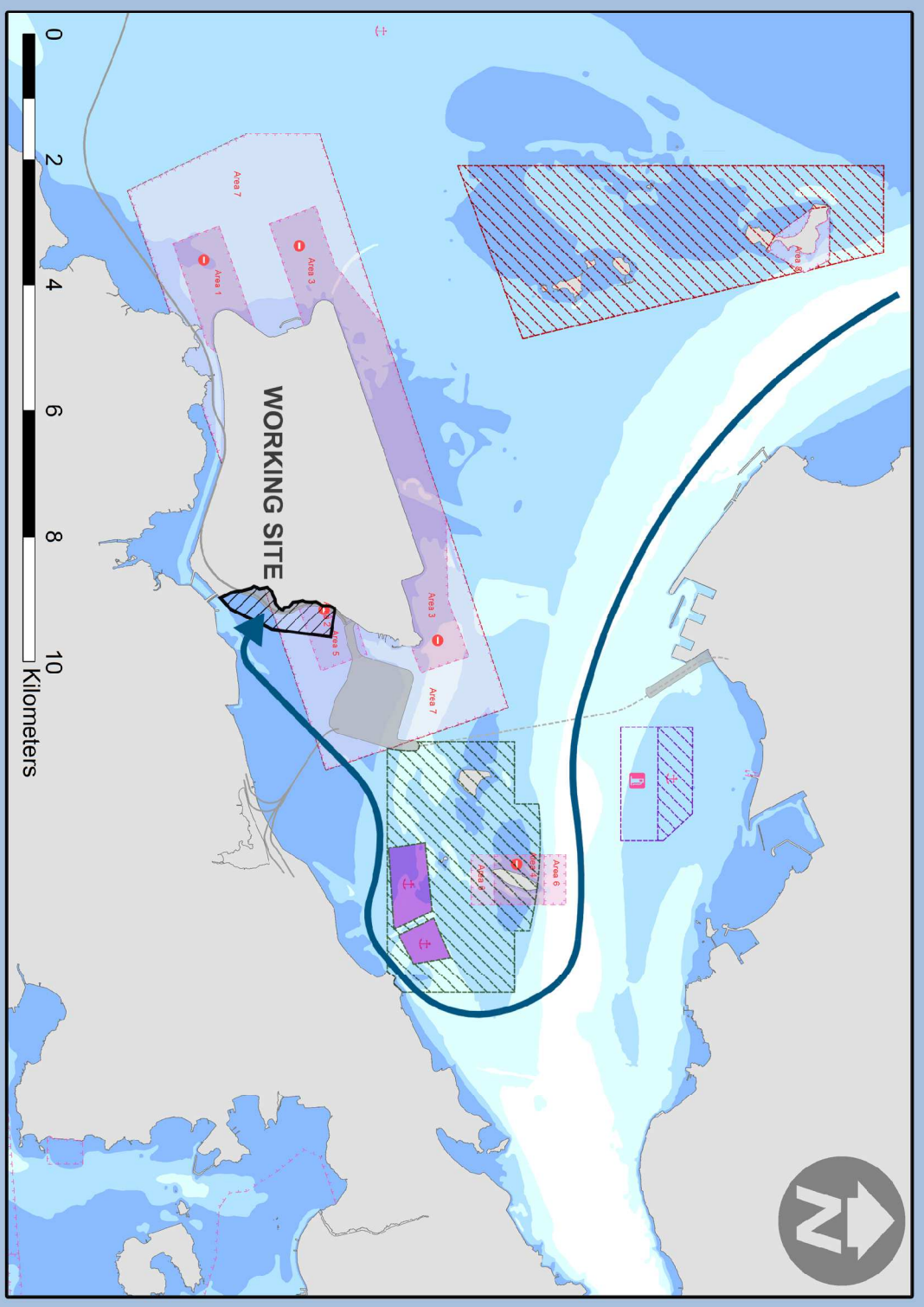
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C	AMENDMENT	WL	MAY13
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E	AMENDMENT	WL	NOV13
F	AMENDMENT	WL	DEC13

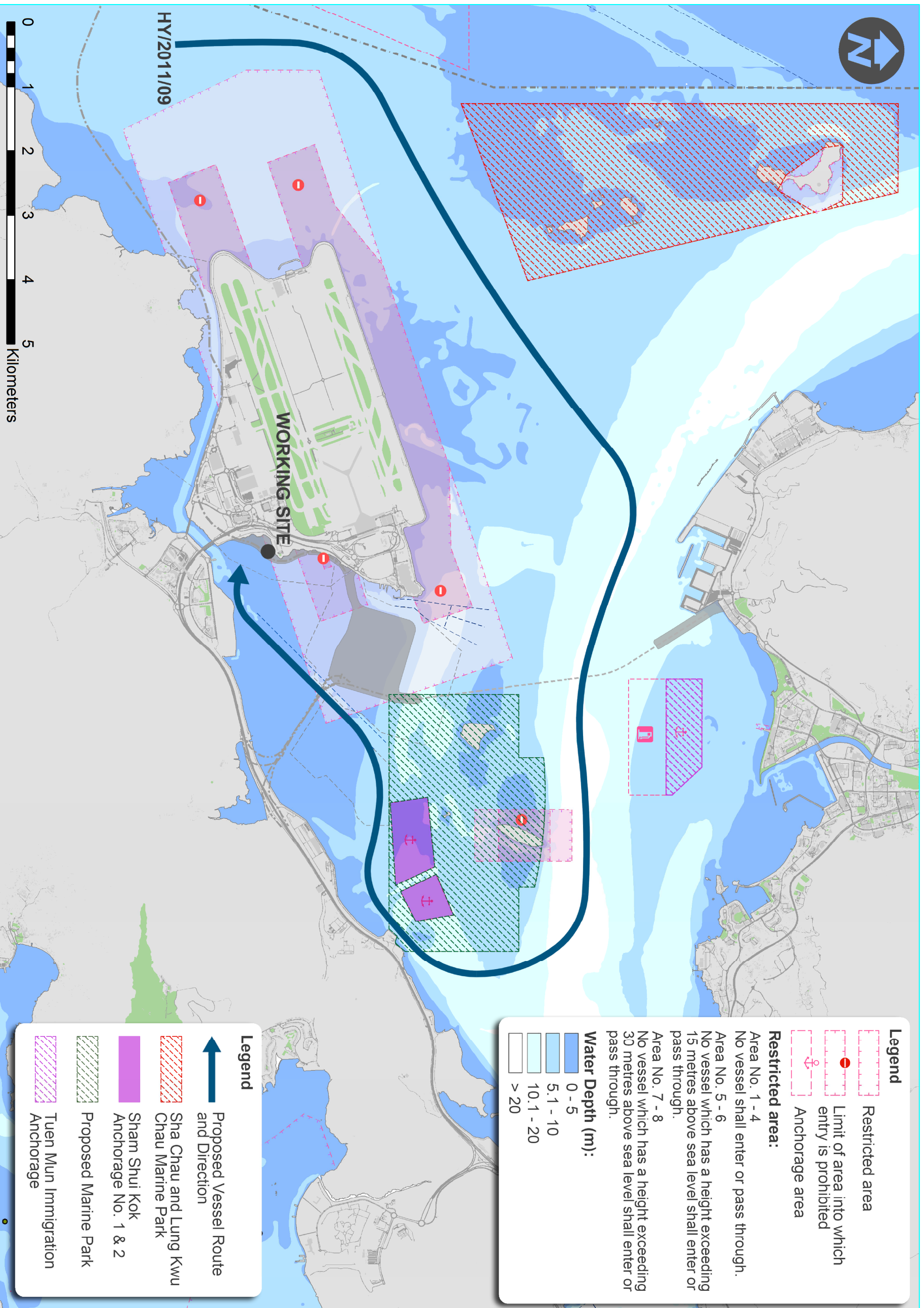
ARUP 奧雅納工程顧問
One Arup & Partner's Hong Kong Limited

中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.
Contract No. and Title:
Contract No. HY/2011/03

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

**PROPOSED VESSEL ROUTE
PLAN FOR IMPORTATION OF
SANDFILL/ROCKFILL/PUBLIC
FILL MATERIAL
(SHEET 3)**

Drawing No.	HY/2011/03/M/2017	Rev.	F
Drawn	WL	Date	DEC13
Checked	FW	Approved	FW
Scale	N.T.S.	Scale	FOR INFORMATION



Legend

- Restricted area
- Limit of area into which entry is prohibited
- ⚓ Anchorage area

Restricted area:

- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20

Legend

- ➔ Proposed Vessel Route and Direction
- Sha Chau and Lung Kwu Chau Marine Park
- Sham Shui Kok Anchorage No. 1 & 2
- Proposed Marine Park
- Tuen Mun Immigration Anchorage

NOTES

1. FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
2. FOR THE FIGURE INCLUDING ACCESS VIA NORTH ENTRANCE, IT WILL BE USED DURING NIGHT TIME WHEN THE RESTRICTION OF CONSTRUCTION NOISE PERMIT (NPN) APPLIES.
3. EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 1, 2, 3 OR 4;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 15 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 5 OR 6;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 30 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 7 OR 8;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 41 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE KAP SHUI MUN BRIDGE AREA;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 53 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TSING MA BRIDGE AREA.
6. EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 8 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG CHUNG BRIDGES AREA.
7. VESSELS OF LENGTH EXCEEDING 10m SHALL NAVIGATE ONLY IN A SOUTHEASTERLY DIRECTION AT KAP SHUI MUN SPECIAL AREA.
8. EXCEPT WITH PERMISSION OF THE DIRECTOR OF MARINE, A LOCAL VESSEL THE LENGTH OVERALL OF LESS THAN THE FOLLOWING PERMITTED LENGTH ARE PERMITTED TO ENTER THE FOLLOWING TYPHOON SHELTER:
 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER

B	MINOR AMENDMENT	WL	DEC13
A	FIRST ISSUE	WL	NOV13
Rev	Description	By	Date

Consultant:
ARUP 奧雅納工程顧問
 One Arup & Partners, Hong Kong Limited

Main Contractor:
CSCEC 中國建築工程(香港)有限公司
 CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. and Title:
 Contract No. HY/2011/03
 Hong Kong-Zhuhai-Macao Bridge
 Hong Kong Link Road -
 Section Between Scenic Hill and
 Hong Kong Boundary Crossing Facilities

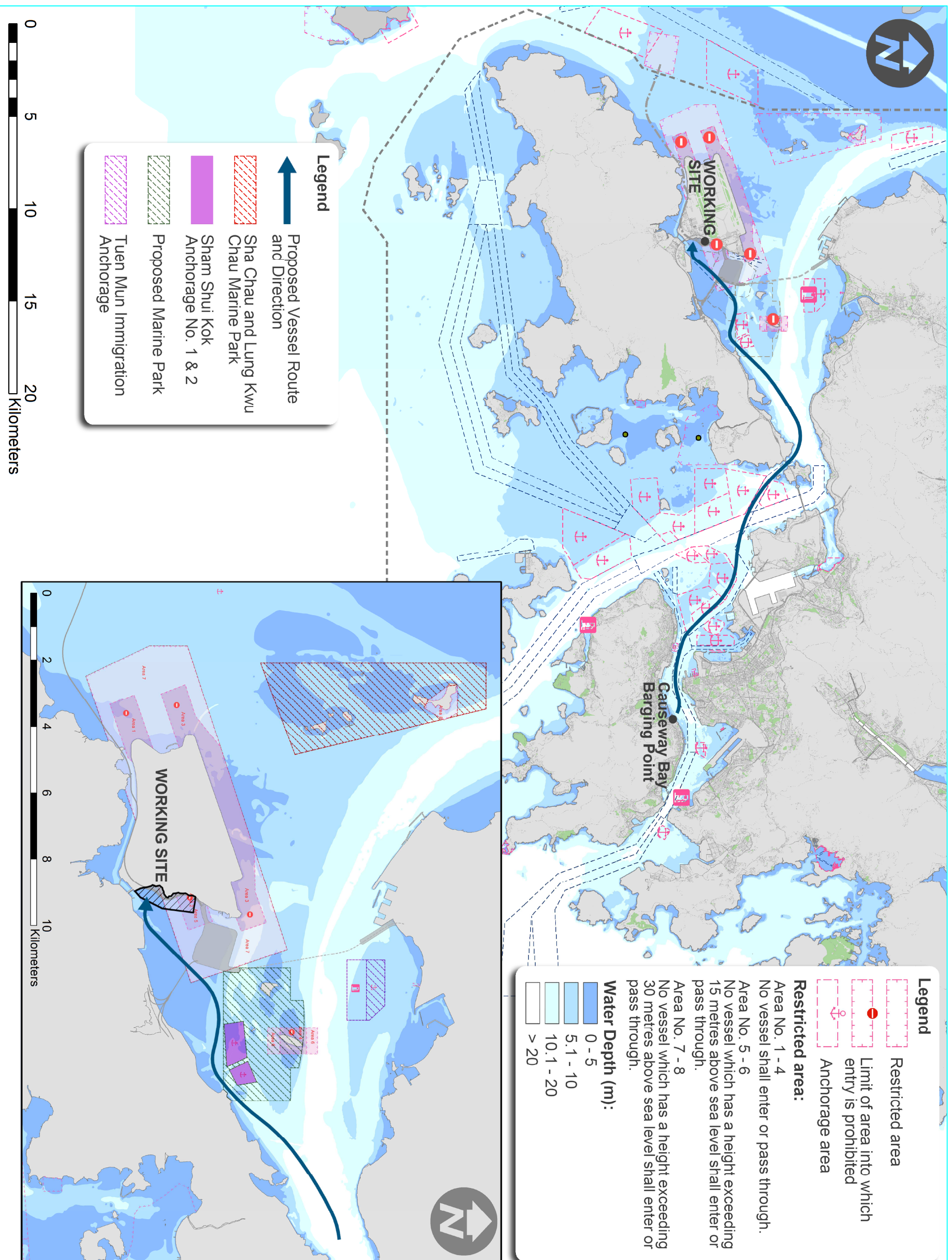
Drawing title
**PROPOSED VESSEL ROUTE
 PLAN FOR IMPORTATION OF
 SANDFILL/ROCKFILL/PUBLIC
 FILL MATERIAL
 (SHEET 4)**

Drawing No.
 HY/2011/03/M/2028

Date
 DEC13

Scale
 N.T.S.

- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
- FOR THE FIGURE INCLUDING ACCESS VIA NORTH ENTRANCE, IT WILL BE USED DURING NIGHT TIME WHEN THE RESTRICTION OF CONSTRUCTION NOISE PERMIT (ONP) APPLIES.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 1, 2, 3 OR 4;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 15 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 5 OR 6;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 30 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 7 OR 8;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 41 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE KAP SHUI MUN BRIDGE AREA;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 53 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG MA BRIDGE AREA.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 8 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG CHUNG BRIDGES AREA.
- VESSELS OF LENGTH EXCEEDING 10m SHALL NAVIGATE ONLY IN A SOUTHEASTERLY DIRECTION AT KAP SHUI MUN SPECIAL AREA.
- EXCEPT WITH PERMISSION OF THE DIRECTION OF MARINE, A LOCAL VESSEL THE LENGTH OVERALL OF LESS THAN THE FOLLOWING PERMITTED LENGTH ARE PERMITTED TO ENTER THE FOLLOWING TYPHOON SHELTER:
 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER



Legend

- Proposed Vessel Route and Direction
- Sha Chau and Lung Kwu Chau Marine Park
- Sham Shui Kok Anchorage No. 1 & 2
- Proposed Marine Park
- Tuen Mun Immigration Anchorage



Legend

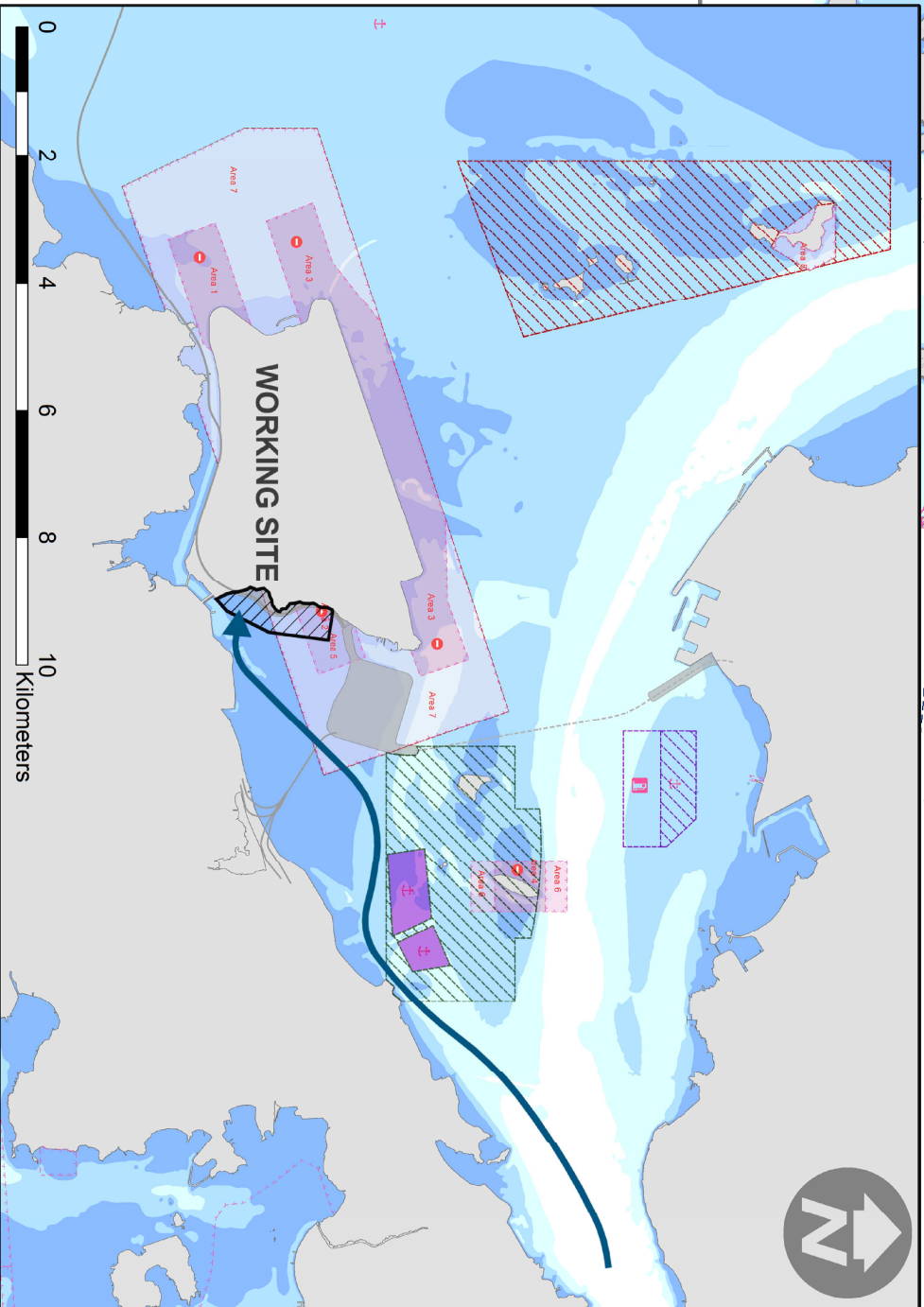
- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Restricted area:

- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20



Rev	Description	By	Date
A	FIRST ISSUE	WL	NOV13
B	MINOR AMENDMENT	WL	DEC13

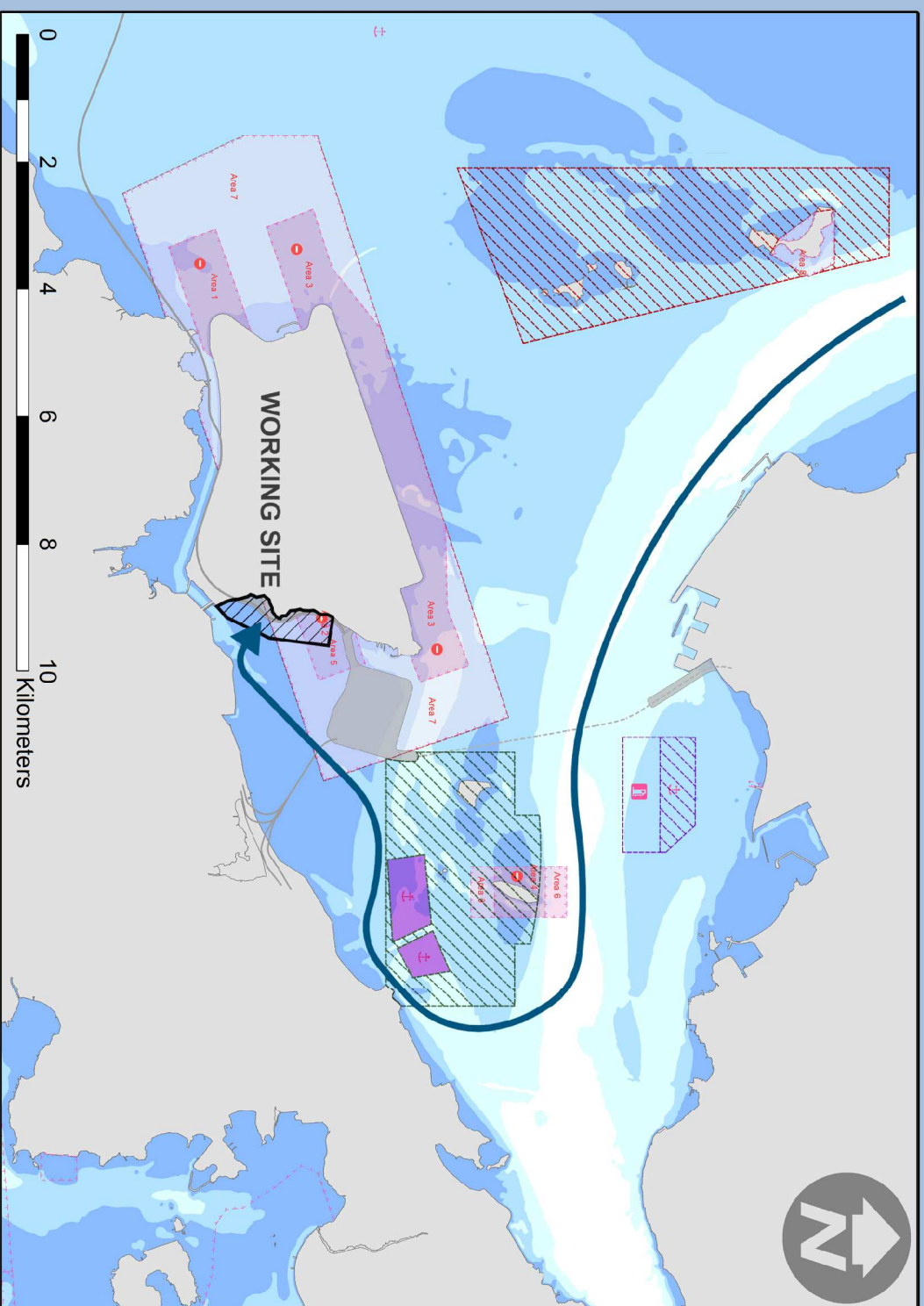
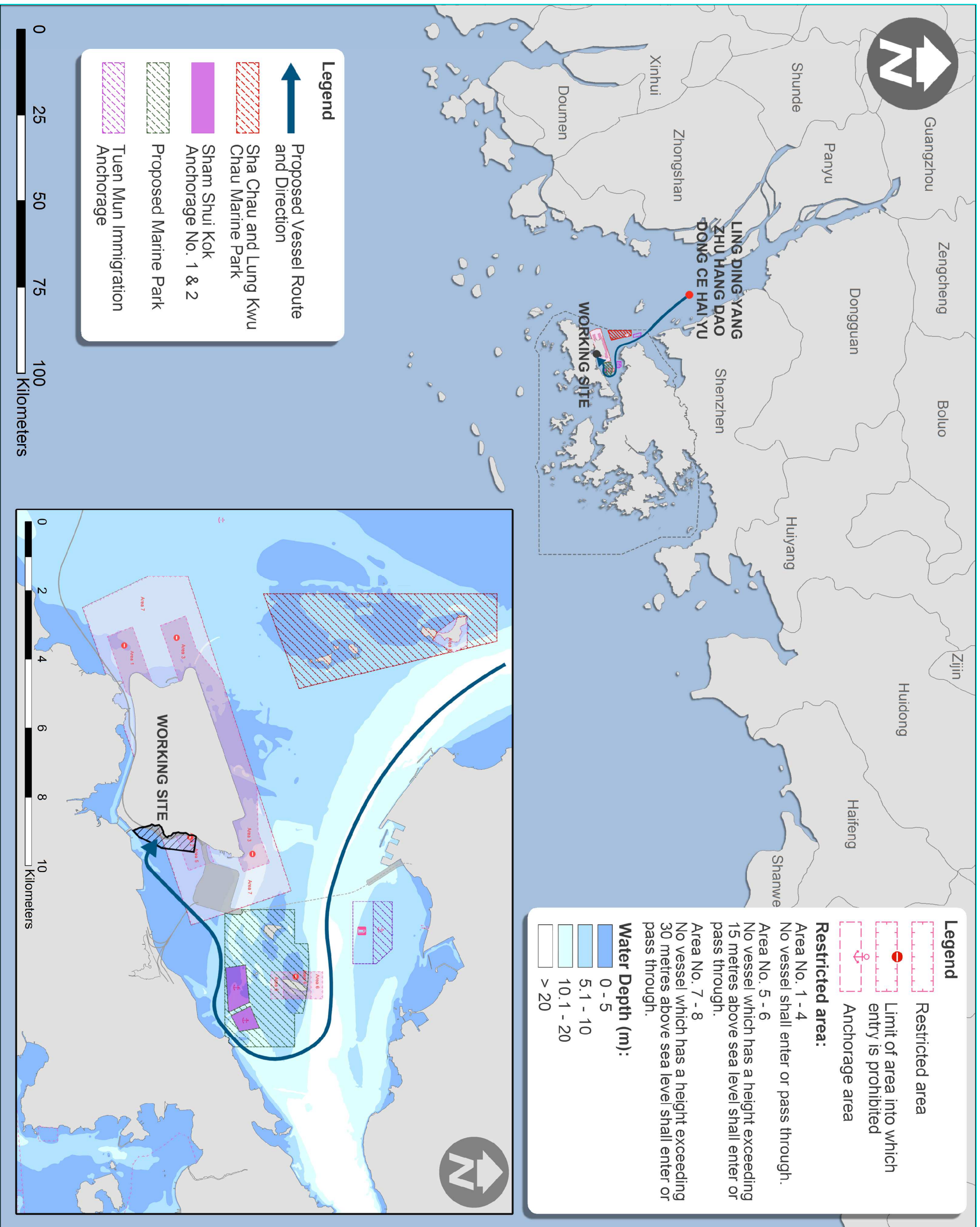
ARUP 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited

Main Contractor: **中國建築工程(香港)有限公司**
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

Drawing title
**PROPOSED VESSEL ROUTE
PLAN FOR IMPORTATION OF
SANDFILL/ROCKFILL/PUBLIC
FILL MATERIAL
(SHEET 5)**

Drawing no.	HY/2011/03/M/2030	Rev.	B
Drawn	WL	Date	DEC13
Checked	FW	Approved	FW
Scale	N.T.S.	Scale	FOR INFORMATION



Legend

- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Restricted area:

- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20

NOTES

- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
- FOR THE FIGURE INCLUDING ACCESS VIA NORTH ENTRANCE, IT WILL BE USED DURING NIGHT TIME WHEN THE RESTRICTION OF CONSTRUCTION NOISE PERMIT (ONP) APPLIES.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
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 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 15 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 5 OR 6;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 30 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 7 OR 8;
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 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 53 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TING MA BRIDGE AREA.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 8 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG CHUNG BRIDGES AREA.
- VESSELS OF LENGTH EXCEEDING 10m SHALL NAVIGATE ONLY IN A SOUTHEASTERLY DIRECTION AT KAP SHUI MUN SPECIAL AREA.
- EXCEPT WITH PERMISSION OF THE DIRECTOR OF MARINE, A LOCAL VESSEL THE LENGTH OVERALL OF LESS THAN THE FOLLOWING PERMITTED LENGTH ARE PERMITTED TO ENTER THE FOLLOWING TYPHOON SHELTER:
 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER

Rev	Description	By	Date
B	MINOR AMENDMENT	WL	DEC13
A	FIRST ISSUE	WL	NOV13

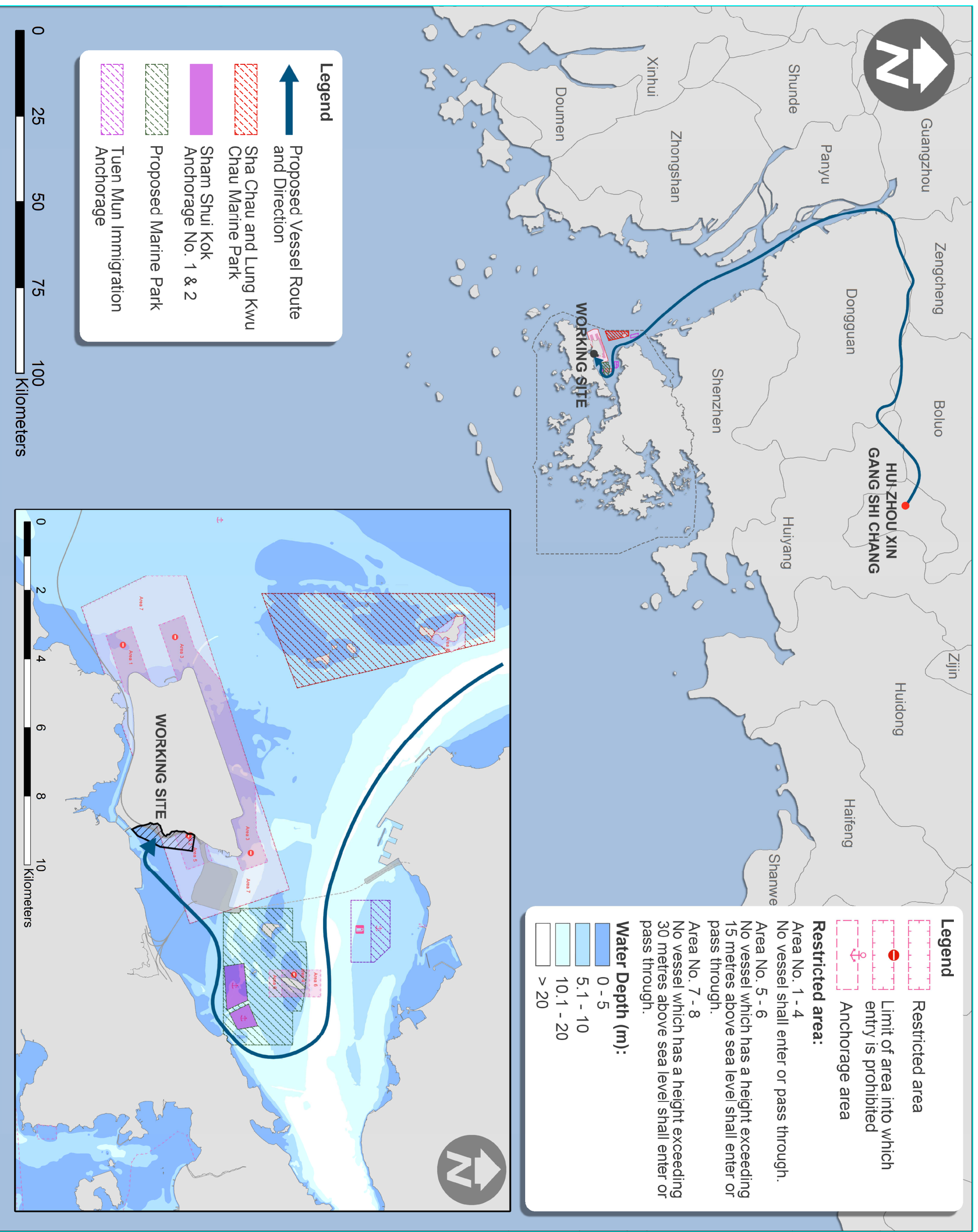
ARUP 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited

Main Contractor: **中國建築工程(香港)有限公司**
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

Drawing title
**PROPOSED VESSEL ROUTE
PLAN FOR IMPORTATION OF
SANDFILL/ROCKFILL/PUBLIC
FILL MATERIAL
(SHEET 6)**

Drawing No.	HY/2011/03/M/2031	Rev.	B
Drawn	WL	Date	DEC13
Checked	FW	Approved	FW
Scale	N.T.S.	Scale	FOR INFORMATION



Legend

- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Restricted area:

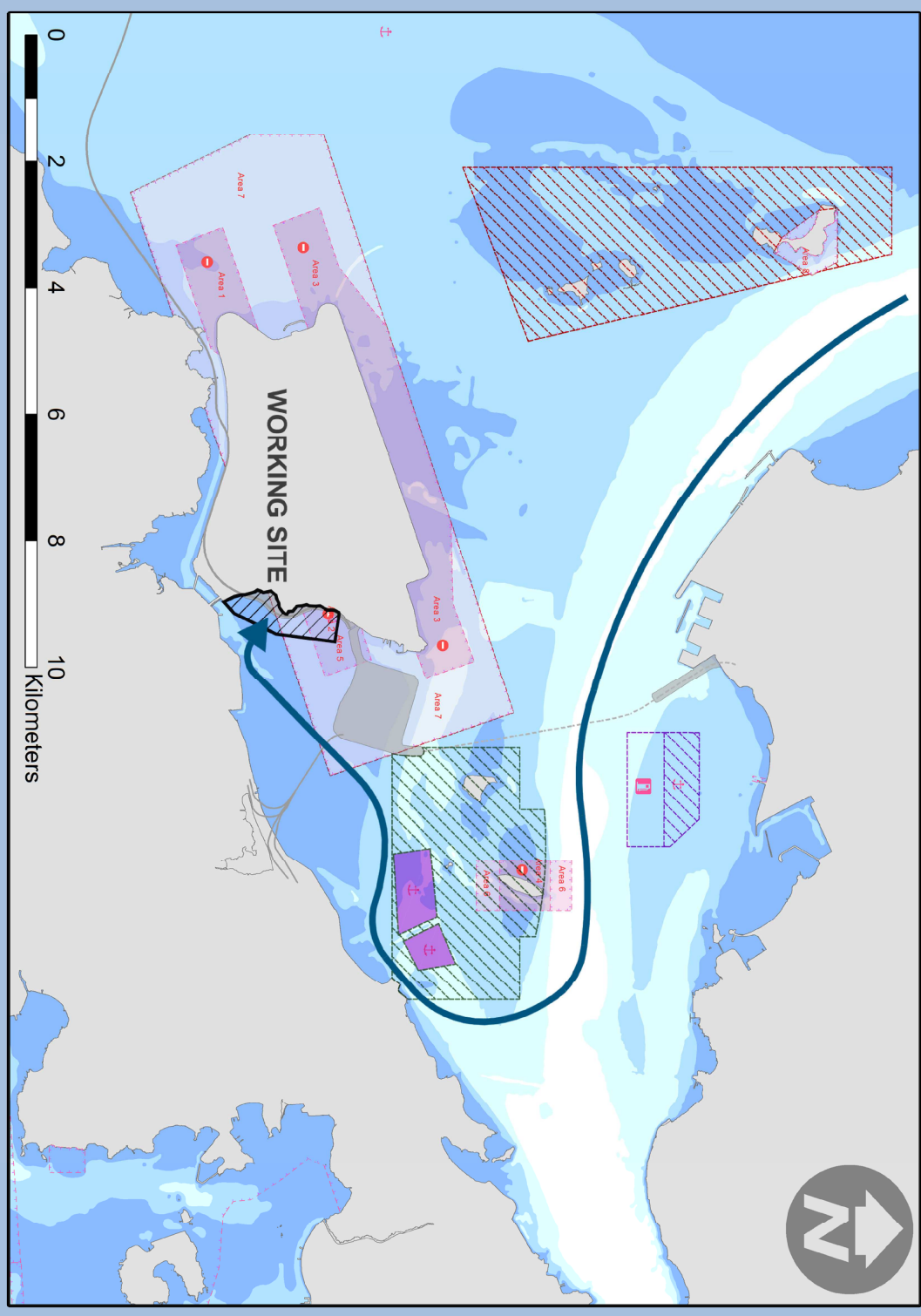
- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20

Legend

- Proposed Vessel Route and Direction
- Sha Chau and Lung Kwu Chau Marine Park
- Sham Shui Kok Anchorage No. 1 & 2
- Proposed Marine Park
- Tuen Mun Immigration Anchorage



- NOTES**
- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
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 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 30 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE AIRPORT APPROACH AREA NO. 7 OR 8;
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 41 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE KAP SHUI MUN BRIDGE AREA;
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 - 75 METRES HEI LING CHAU TYPHOON SHELTER

Rev	Description	By	Date
B	MINOR AMENDMENT	WL	DEC13
A	FIRST ISSUE	WL	NOV13

ARUP 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited

中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

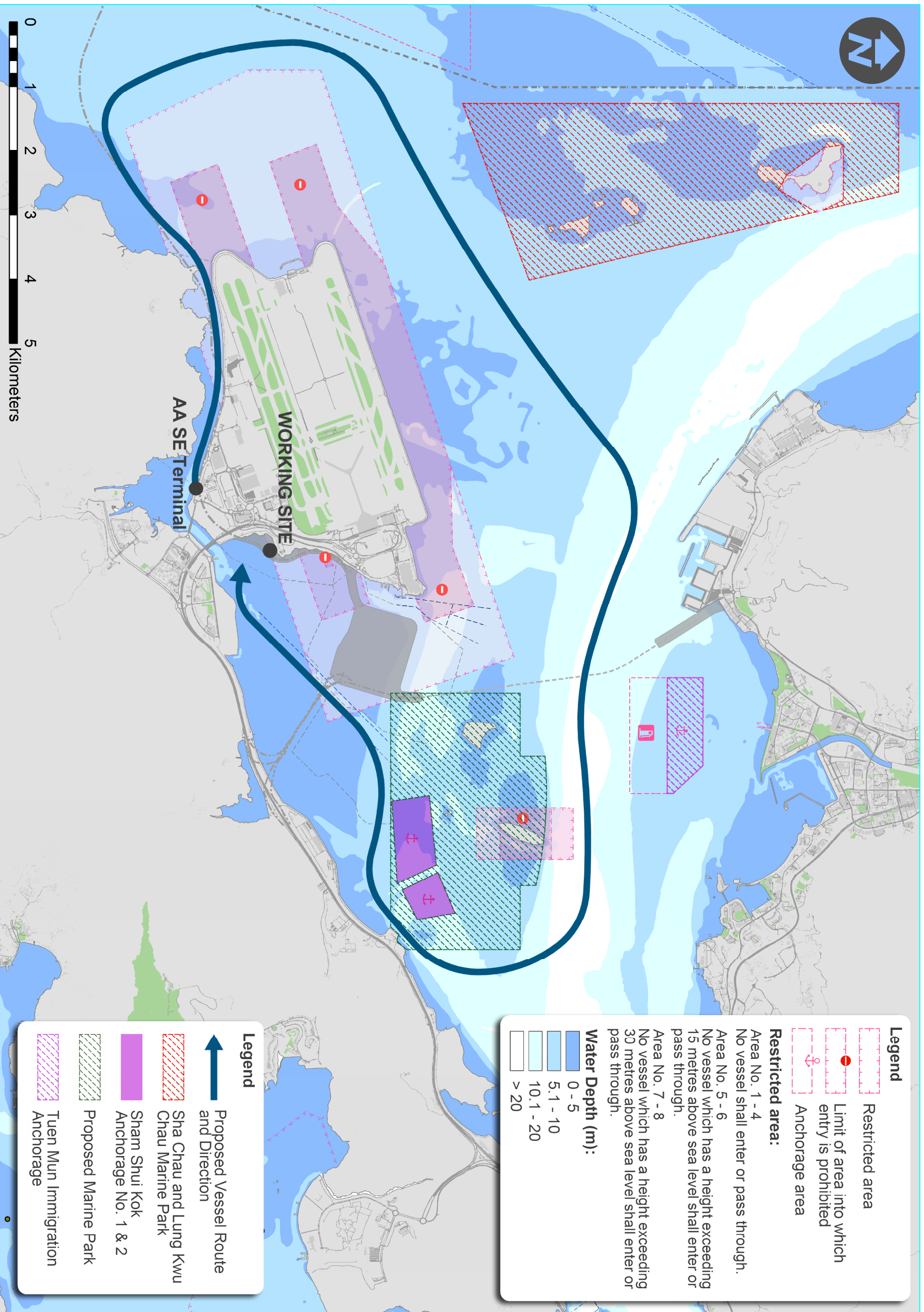
PROPOSED VESSEL ROUTE PLAN FOR IMPORTATION OF SANDFILL/ROCKFILL/PUBLIC FILL MATERIAL (SHEET 7)

Drawing No.	HY/2011/03/M/2032	Rev.	B
Drawn	WL	Date	DEC13
Checked	FW	Approved	FW
Scale	N.T.S.	Scale	FOR INFORMATION

HIGHWAYS DEPARTMENT
路政署
香港路政工程處
Hong Kong Project Management Office

NOTES

- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
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 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 53 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TSING MA BRIDGE AREA.
- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 8 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG CHUNG BRIDGES AREA.
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- EXCEPT WITH PERMISSION OF THE DIRECTION OF MARINE, A LOCAL VESSEL THE LENGTH OVERALL OF LESS THAN THE FOLLOWING PERMITTED LENGTH ARE PERMITTED TO ENTER THE FOLLOWING TYPHOON SHELTER:
 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER



Legend

- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Restricted area:

- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20

Legend

- Proposed Vessel Route and Direction
- Sha Chau and Lung Kwu Chau Marine Park
- Sham Shui Kok Anchorage No. 1 & 2
- Proposed Marine Park
- Tuen Mun Immigration Anchorage

Drawing title
PROPOSED VESSEL ROUTE PLAN FOR IMPORTATION OF SANDFILL/ROCKFILL/PUBLIC FILL MATERIAL (SHEET 8)

Drawing no.
HY/2011/03/M/2033

Drawn	WL	Date	DEC13	Checked	FW	Approved	FW
Scale	N.T.S.						

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Rev	Description	By	Date
A	FIRST ISSUE	WL	DEC13

Consultant
ARUP 奧雅納工程顧問
Ove Arup & Partners, Hong Kong Limited

Main Contractor:
中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. and Title:
Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities



Legend

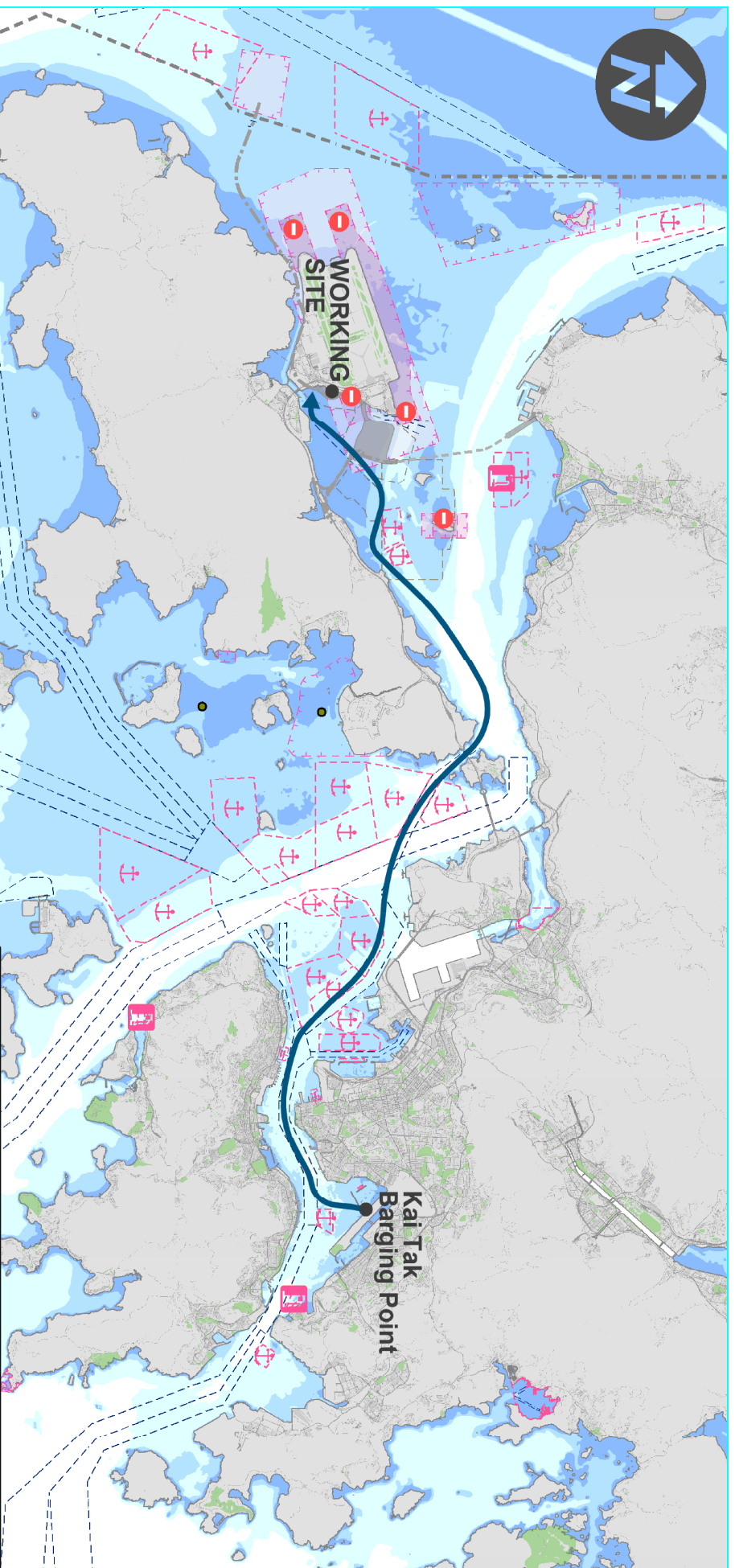
Proposed Vessel Route and Direction

Sha Chau and Lung Kwu Chau Marine Park

Sham Shui Kok Anchorage No. 1 & 2

Proposed Marine Park

Tuen Mun Immigration Anchorage



Legend

Restricted area

Limit of area into which entry is prohibited

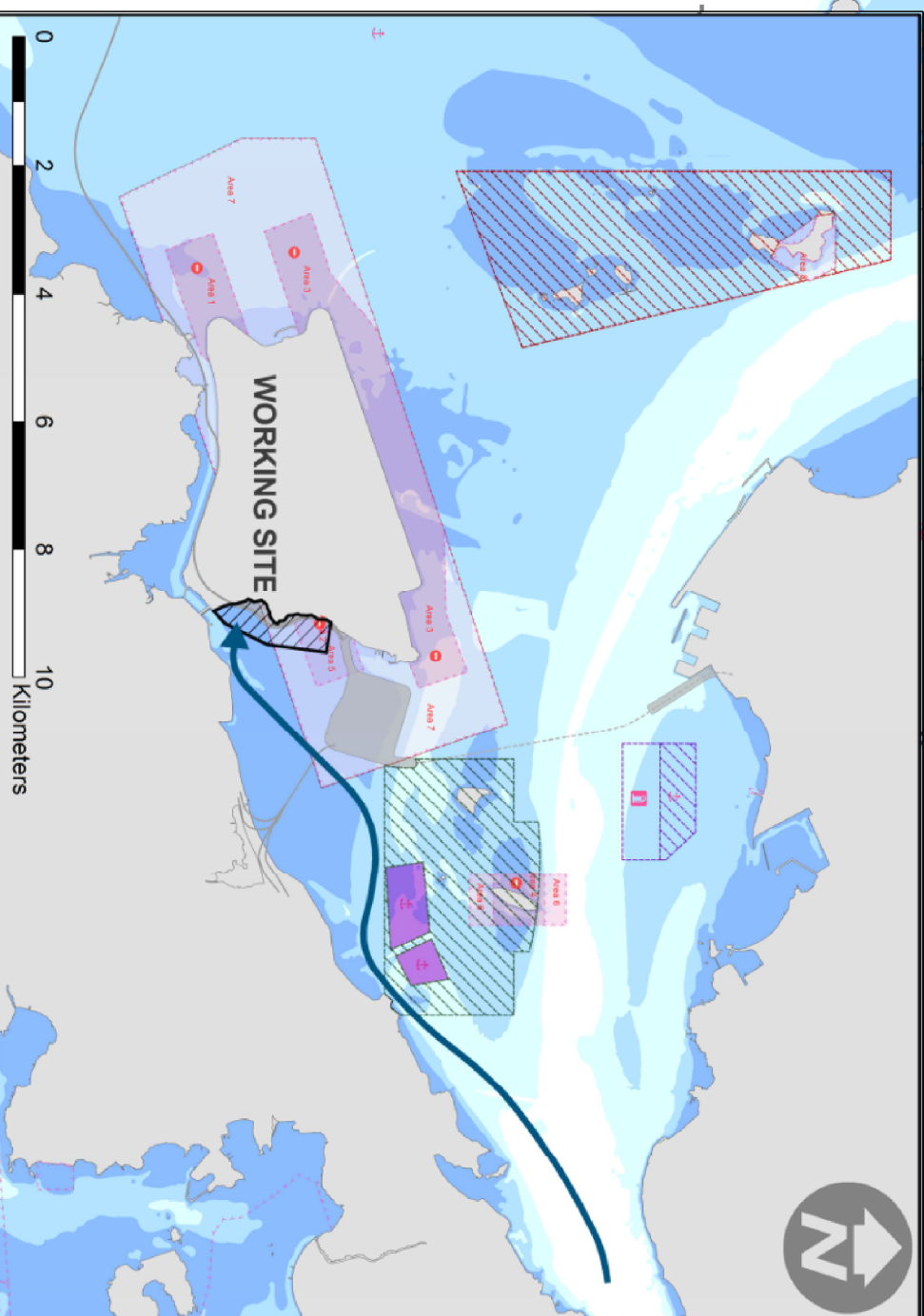
Anchorage area

Restricted area:

- Area No. 1 - 4
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- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20



NOTES

- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
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 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER

A	FIRST ISSUE	WL	DEC13
Rev	Description	By	Date

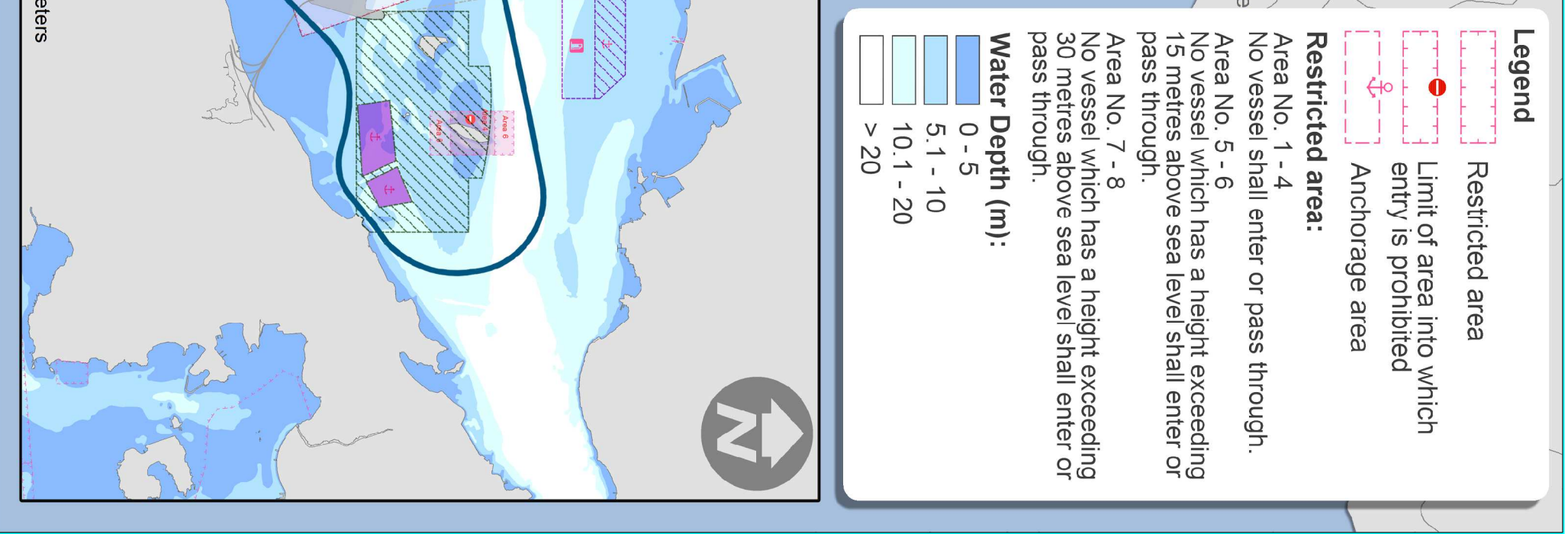
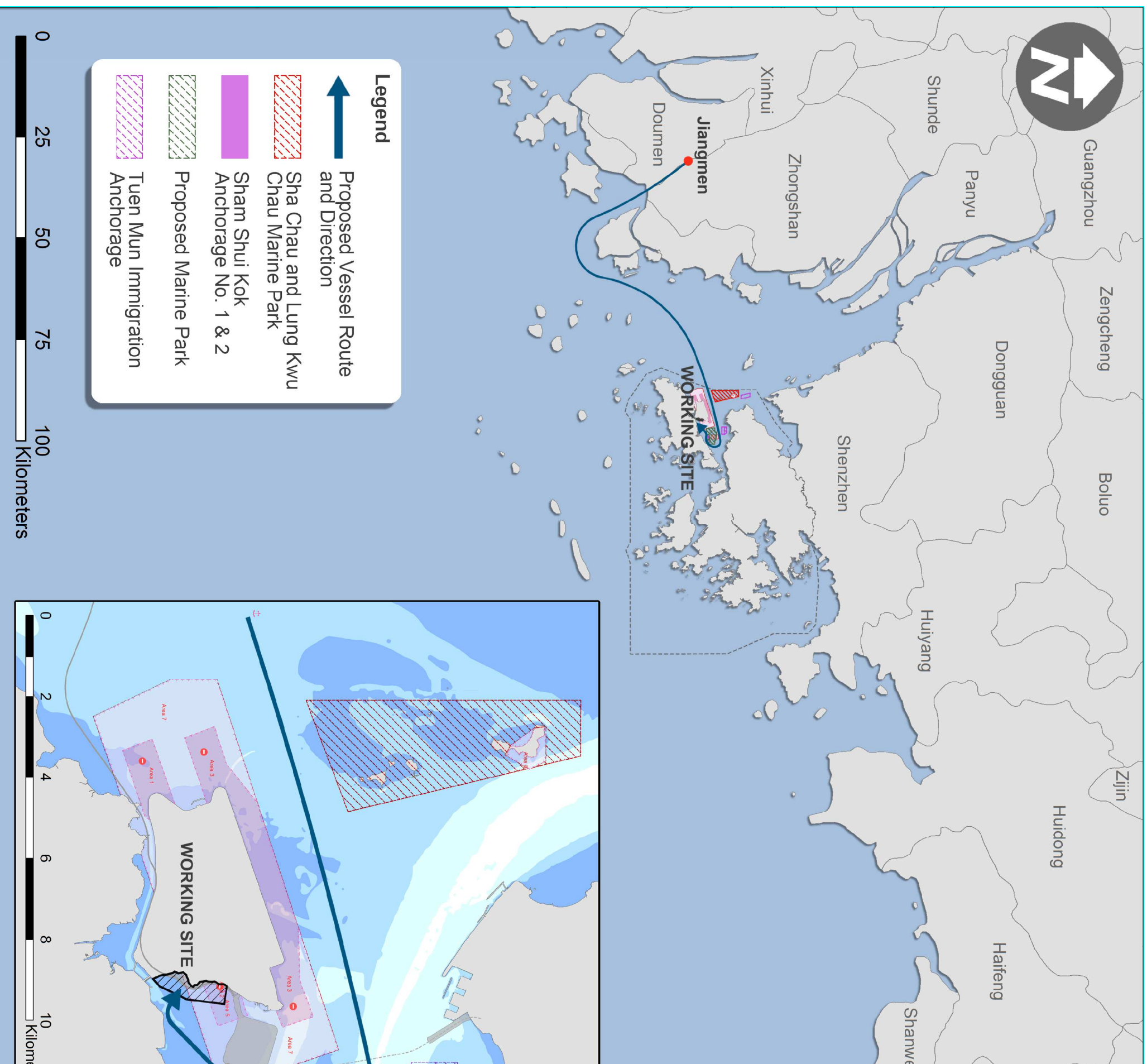
ARUP 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited

Main Contractor:
中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. and Title:
Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

**PROPOSED VESSEL ROUTE
PLAN FOR IMPORTATION OF
SANDFILL/ROCKFILL/PUBLIC
FILL MATERIAL
(SHEET 9)**

Drawing No. HY/2011/03/M/2034 Rev. A
Date: DEC13
Scale: 1:10000
Drawing Title: PROPOSED VESSEL ROUTE PLAN FOR IMPORTATION OF SANDFILL/ROCKFILL/PUBLIC FILL MATERIAL (SHEET 9)



NOTES

- FOR THE SOUTHERN BOUNDARY OF THE PROPOSED MARINE PARK, AS IT IS UNAVOIDABLE TO PASS THROUGH IN ORDER TO ENTER THE SITE AREA, THE ROUTES ARE DECIDED TO PASS THROUGH THE SOUTHEAST CORNER TO MINIMIZE THE IMPACT TO THE MARINE PARK.
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- EXCEPT WITH THE PERMISSION OF THE DIRECTOR OF MARINE:
 - NO VESSEL WHICH HAS A HEIGHT EXCEEDING 8 METRES ABOVE SEA LEVEL SHALL ENTER OR PASS THROUGH THE TUNG CHUNG BRIDGES AREA.
- VESSELS OF LENGTH EXCEEDING 10m SHALL NAVIGATE ONLY IN A SOUTHEASTERLY DIRECTION AT KAP SHUI MUN SPECIAL AREA.
- EXCEPT WITH PERMISSION OF THE DIRECTOR OF MARINE, A LOCAL VESSEL THE LENGTH OVERALL OF LESS THAN THE FOLLOWING PERMITTED LENGTH ARE PERMITTED TO ENTER THE FOLLOWING TYPHOON SHELTER:
 - 50 METRES TUEN MUN TYPHOON SHELTER
 - 75 METRES HEI LING CHAU TYPHOON SHELTER

Legend

- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Restricted area:

- Area No. 1 - 4
No vessel shall enter or pass through.
- Area No. 5 - 6
No vessel which has a height exceeding 15 metres above sea level shall enter or pass through.
- Area No. 7 - 8
No vessel which has a height exceeding 30 metres above sea level shall enter or pass through.

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20

Legend

- Proposed Vessel Route and Direction
- Sha Chau and Lung Kwu Chau Marine Park
- Sham Shui Kok Anchorage No. 1 & 2
- Proposed Marine Park
- Tuen Mun Immigration Anchorage

Legend

- Restricted area
- Limit of area into which entry is prohibited
- Anchorage area

Water Depth (m):

- 0 - 5
- 5.1 - 10
- 10.1 - 20
- > 20

Contract No. and Title:
Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road -
Section Between Scenic Hill and
Hong Kong Boundary Crossing Facilities

Consultant:
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Main Contractor:
中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

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Date: JUN14
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Approved: FW

PROPOSED VESSEL ROUTE PLAN FOR IMPORTATION OF SANDFILL/ROCKFILL/PUBLIC FILL MATERIAL (SHEET 10)

路政署 HIGHWAYS DEPARTMENT
運輸及交通局
香港
Hong Kong Project Management Office

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Appendix C

Plant List for HY/2011/03



Derrick Lighter



Flat-Top Barge



Pelican Barge



Split Hopper Barge - Non Self Propeller



Launch/ Work Boat



Crane Boat

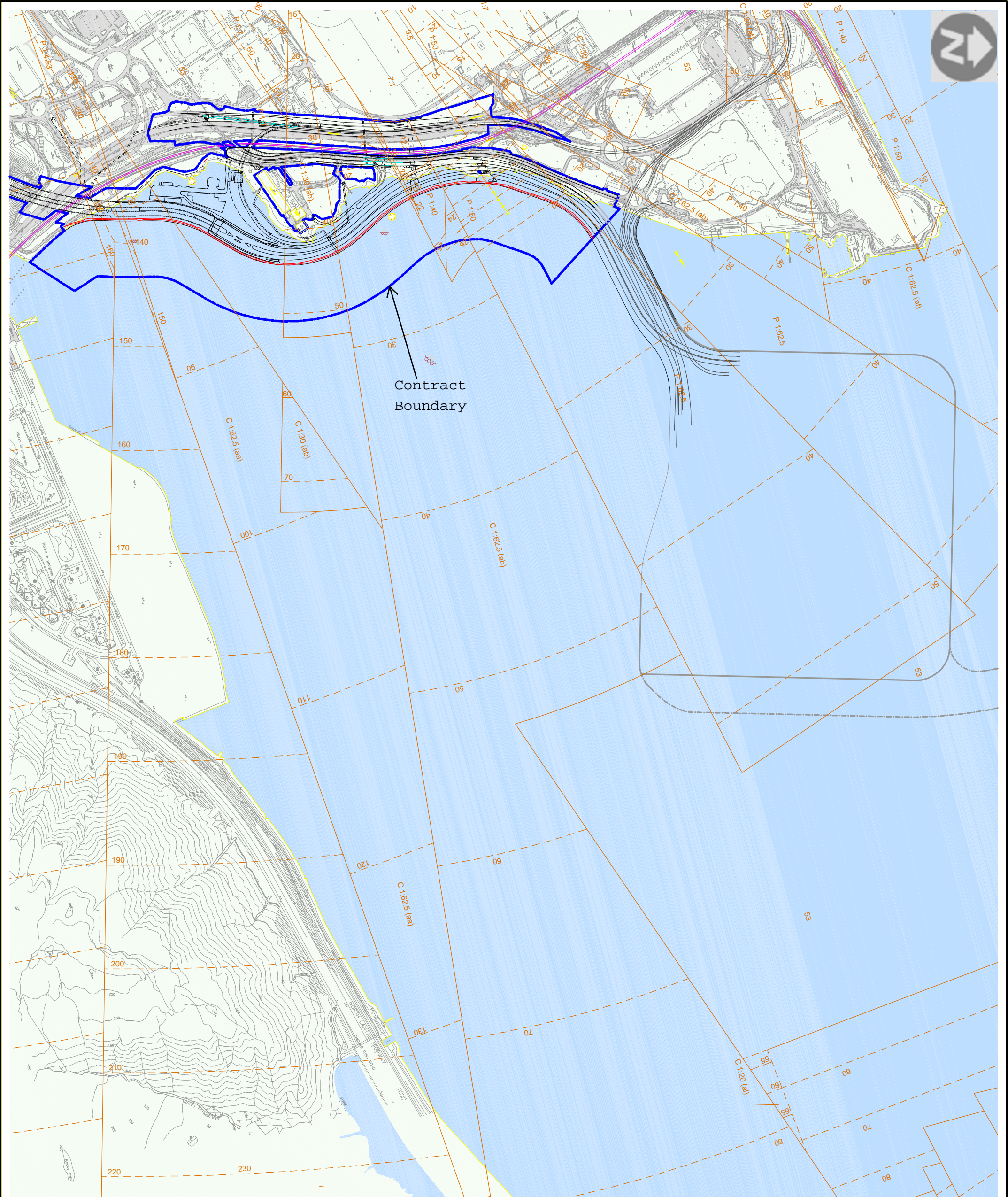


Tug Boat



Figure 1

Airport Height Restriction Plan



Contract Boundary

- NOTES:**
1. THE PROPOSED GROUND INVESTIGATION STATIONS SHOWN ON THIS ARE TO BE CARRIED OUT PRIOR TO THE COMPLETION OF RECLAMATION.
 2. ALL DRILLHOLES SHALL BE TERMINATED AT 5m INTO GRADE (11) OR BETTER ROCK WITH TOR 85% OR 5m BELOW INVERT LEVEL OF TUNNEL (IF APPLICABLE) WHICHEVER IS LOWER.
 3. SPT WITH LINER SAMPLES SHALL BE CARRIED OUT AT 1.5m DEPTH BELOW GROUND LEVEL AT 2m INTERVAL.
 4. PISTON UNDISTURBED SAMPLES SHALL BE TAKEN AT 2m INTERVAL AFTER SPT WITH LINER SAMPLES. MAZIER SAMPLES OF SANDY MATERIALS ARE ENCOUNTERED.
 5. ROTARY DRILL OF H SIZE FOR ALL SOIL TYPES AND N SIZE IN BEDROCK SHALL BE APPLIED TO ALL DILHOLES.
 6. THE FOLLOWING LABORATORY TESTS SHALL BE CARRIED OUT:
 - a) UNCONSOLIDATED UNSATURATED TRIAXIAL AND UNSATURATED UNDRAINED TRIAXIAL TEST (SINGLE STAGE) WITH PORE PRESSURE MEASUREMENTS
 - b) 1-D CONSOLIDATION TEST FOR CLAYEY SOILS
 - c) PARTICLE SIZE DISTRIBUTION, SOIL CLASSIFICATION TEST (INCLUDING ATTERBERG LIMITS),
 - d) MOISTURE CONTENT
 - e) BULK DENSITY

THIS DRAWING HAS BEEN CHECKED AND CERTIFIED BY DESIGN CHECKER.
 DESIGN CHECKER'S SIGNATURE
 DATE

Rev	Description	By	Date
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ARUP 奧雅納工程顧問
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 Main Contractor: **中國建築工程(香港)有限公司**
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD.

Contract No. and Title
 Contract No. HY/2011/03
Hong Kong-Zhuhai-Macao Bridge
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HEIGHT RESTRICTION PLAN

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