



Civil Engineering and Development Department

Contract No. NL/2020/03

Tung Chung New Town Extension – Major
Infrastructure Works in Tung Chung East

Works Vessel Travel Route Plan

Revision 2

Prepared By :	Endorsed By :
Signature: 	Signature: 
Name : Tim Lin Post : Environmental Officer Date : 5 Dec 2024	Name : Aldous Lo Post : Site Agent Date : 5.12.2024

Tung Chung New Town Extension

Environmental Certification Sheet for Environmental Permit No. EP-519/2016

Reference Document/Plan

Document/Plan to be Certified:	Works Vessel Travel Route Plan (Revision 2)
Date of Report:	December 2024

Reference EP Condition

Environmental Permit Condition:	Condition 2.13
---------------------------------	----------------

The Permit Holder shall, no later than 3 months before the commencement of the reclamation related marine works at Tung Chung East, submit 3 hard copies and 1 electronic copy of a Works Vessel Travel Route Plan (The Plan) to the Director for approval.

ET Certification

I hereby certify that the above referenced document/plan complies with the above referenced condition of EP-519/2016

Kelvin So
Environmental Team Leader
ERM-Hong Kong, Limited



Date: 9 December 2024

Qualified Ecologist Certification

I hereby confirm that the Qualified Ecologist of the ET has been consulted in preparing ecological aspects of the above referenced document/plan.

Raymond Chow
Qualified Ecologist
ERM-Hong Kong, Limited



Date: 9 December 2024

Your Ref.

By Post

Our Ref. 198377-0932

Date 9 December 2024

Sustainable Lantau Office
Civil Engineering and Development Department
13/F, North Point Government Offices
333 Java Road, North Point
Hong Kong

Attention: Mr. Rafael TANG / Mr. K.T. WO

Dear Sir,

Agreement No. CE 59/2017 (EP)
Independent Environmental Checker for Tung Chung New Town Extension – Investigation Works Vessel Travel Route Plan (EP condition 2.13)

We refer to the Works Vessel Travel Route Plan (Revision 2) for Tung Chung New Town Extension (East) (TCE) dated December 2024 and certified by the Environmental Team Leader of TCE on 9 December 2024. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 2.13 of EP-519/2016.

Should you have any query, please feel free to contact the undersigned at 2608 7314 (chuawo@binnies.com) or our Edward Lau at 3894 9695 (lauky@binnies.com).

Yours faithfully,
for and on behalf of
BINNIES HONG KONG LIMITED



MANUEL CHUA
INDEPENDENT ENVIRONMENTAL CHECKER

cc: ET Leader / TCE – ERM (Attn: Mr. Kelvin SO) [by Email: kelvin.so@erm.com]
PM / TCE – AECOM (Attn: Mr. Chris CHEUNG) [by Email: crec1@tce-aecom.com]



Binnies Hong Kong Limited
43/F, AIA Kowloon Tower, 100 How Ming Street, Kwun Tong, Kowloon, Hong Kong
賓尼斯工程顧問有限公司
香港九龍觀塘巧明街 100 號友邦九龍大樓 43 樓



+852 2601 1000



+852 2601 3988



binnieshk@binnies.com



Contents

Background	4
1.1 Project Information.....	4
1.2 Purpose of the Works Vessel Travel Route Plan	4
2.0 Design of Works Vessel Travel Route Plan	5
2.1 Identification of Construction Works	5
2.2 Categories of Works Vessel Travelling	7
2.2.1 Works Vessels in the area enclosed by silt curtain.....	7
2.2.2 Works Vessels travel outside the silt curtain and delivery of material to site....	7
2.3 Design Criteria of Works Vessel Travel Route Plan	8
2.3.1 The Brothers Marine Park (BMP)	8
2.3.2 Sha Chau and Lung Kwu Chau Marine Park (SCLKCMP)	8
2.3.3 North Lantau Marine Park (NLMP)	9
2.3.4 Practice of Navigation Safety	9
2.3.5 Restricted Area and Height Restriction of Hong Kong International Airport ...	9
2.3.6 Height restriction of Southern Viaduct of Tuen Mun-Chek Lap Kok Link.....	10
2.3.7 Reduction of Sediment Plume at Shallow Water Area	10
2.3.8 Temporary Mooring Area at WA4 and Holding Area at WA3	11
2.3.9 The Hotspots of Chinese White Dolphins	11
2.4 Selected Works Vessel Travel Routes	11
2.5 Special Circumstances.....	11
3.0 Implementation and Monitoring	13
3.1 Supervision Staff	13
3.2 Method of Implementation and Monitoring	13
3.3 Precautionary Measures.....	14
3.3.1 Consideration of Operation Procedure	14
3.3.2 Training	15
3.3.3 Follow Up Action	16
4.0 Summary and Conclusion.....	17

Appendix A - Particulars of Works Vessels.....	18
Appendix B - Layout Plan Showing Tung Chung East Reclamation Site, Southern Viaduct of Tuen Mun-Chek Lap Kok Link, Tung Chung Buoyed Channel and Brothers Marine Park	23
Appendix C - Works Vessel Travel Route Plan of Transportation of Materials.....	25
Appendix D - Airport Height Restriction and Height Restriction of Southern Viaduct of Tuen Mun-Chek Lap Kok Link.....	29
Appendix E - Temporary Mooring Area at WA4 and Holding Area at WA3	33
Appendix F - Implementation Schedule of the Major Environmental Mitigation Measures	35

Tables

Table 2.1 Previously approved version of the Works Vessel Travel Route Plan

Table 2.2 Type of works vessels in the construction of NL/2020/03

Figures

Figure 2.1 Indicative route of sampans and passengers boat and the near-coast area

Figure 2.2 Water Delph within the site and around Lantau Island

Figure 2.3 Flow chart of “Incident of Vessel Navigation is Deviated from the Selected Regular Marine Travel Route”

Figure 3.1 Distribution of CWD sightings in Hong Kong waters during AFCD monitoring surveys (Apr 2022 - Mar 2023) [Extracted from the “Monitoring of Marine Mammals in Hong Kong Waters (1 April 2022 to 31 March 2023), Final Report” prepared by the Hong Kong Cetacean Research Project.

Background

1.1 Project Information

Build King Samsung Joint Venture (BKSJV) awarded the Contract No. NL/2017/03 Tung Chung New Town Extension – Reclamation and Advance Works (TCNTE reclamation). The work comprises of reclamation of about 129ha of land including the construction of associated seawall and eco-shoreline and drainage box culverts/ channel for the development of TCNTE at Tung Chung East and Road P1.

The Government has planned to further develop the Tung Chung New Town Extension (TCNTE) into a comprehensively planned new town with a larger population capacity and adequate local and regional community facilities. The contract NL/2020/03 Tung Chung New Town Extension – Major Infrastructure Works in Tung Chung East Works Vessel Travel Route Plan, is one of the Contracts under the development of Tung Chung New Town Extension (NL/2020/03). This Contract includes the construction of infrastructure on a newly reclaimed land and includes the following works:

- i. Construction of engineering infrastructure including drainage works, sewerage works (including two sewage pumping stations), waterworks, roadworks (including carriageways, footpaths, cycle tracks and junction improvements), common utility tunnels and landscaping works; and
- ii. Construction of associated environmental mitigation works including noise barriers and low-noise road surfacing.

1.2 Purpose of the Works Vessel Travel Route Plan

In accordance to EP-519/2016 Condition 2.13, this Works Vessel Travel Route Plan (WVTRP) shall be submitted to detail the planning, implementation, safety measures and monitoring of operational routings of the construction works vessels. The designated barging point located within the marina in Tung Chung will be used to transport construction & demolition (C&D) materials generated from the project via marine routes to the West Lagoon area or any other assigned destination as stated within the Plan. The key update for this version of Works Vessel Travel Route Plan is

the transportation arrangement to the West Lagoon area after the completion of reclamation. Accordance with condition 2.5 of the EP, Qualified Ecologists had been appointed to form part of the ET and carry out work relating to ecological aspects. The Qualified Ecologists had been consulted in preparation of this Plan.

2.0 Design of Works Vessel Travel Route Plan

2.1 Identification of Construction Works

Type of works vessels involved would be limited to listed in the previously approved version of the Works Vessel Travel Route Plan under this Environmental Permit attached in. The particulars of works vessels is attached in **Appendix A**.

Layout Plan showing Tung Chung East Reclamation Site, Southern Viaduct of Tuen Mun-Chek Lap Kok (TMCLK) Link, Tung Chung Buoyed Channel and Brothers Marine Park is shown in **Appendix B**.

Working Vessels Types of Works	Derrick lighter	Flat top barge	Tug Boat	Self Propelled Pelican barge	Hopper	Jack up barge	Crane Barge	Self Propelled Cargo Barge	DCM Barge	Cement Barge	Grab Dredger	PVD barge	Anchor Boat
Installation of silt curtain and geotextile	✓	✓	✓										
Laying of sand blanket	✓	✓	✓	✓	✓								
Installation of PVD	✓	✓	✓									✓	
GI works	✓	✓	✓			✓							
Construction of marina	✓	✓	✓			✓	✓	✓					
Reclamation	✓	✓	✓	✓	✓			✓					
Construction of seawall	✓	✓	✓				✓	✓					✓
Removal of existing seawall	✓	✓	✓								✓		



Installation of temporary seawall, cofferdam, and jetty, Seawall no. 1 and Interim Drainage Channel	✓	✓	✓				✓						
Deep Cement Mixing	✓	✓							✓	✓			

Table 2.1 previously approved version of the Works Vessel Travel Route Plan

According to the scope of Contract, the following works shall engage various type of works vessels in the construction of NL/2020/03.

Types of Works	Working Vessels		
	Derrick lighter	Flat top barge	Tug Boat
Installation, regular deployment and positioning of silt curtain and geotextile	✓	✓	✓
Construction & demolition material transportation	✓	✓	✓

Table 2.2 type of works vessels in the construction of NL/2020/03

In additional to the above, general work such as refuse collection, inspection work and transportation of workers and etc. will consist of sampans and passengers boat.

The sampans and passengers boat are used for passenger transportation or inspection only and will only operate with a speed limit of 8 knots at near-coast area (Figure 2.1), except in Tung Chung buoyed channel. As such they are not considered as works vessels and will not be counted in the limit of a maximum of 56 and 10 round trips on a daily and hourly basis respectively.

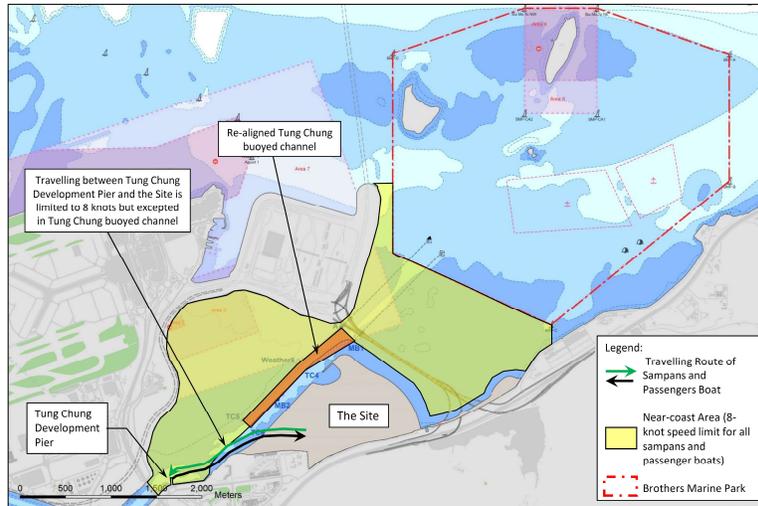


Figure 2.1 Indicative route of sampans and passengers boat and the near-coast area

2.2 Categories of Works Vessel Travelling

2.2.1 Works Vessels in the area enclosed by silt curtain

The potential impact to Chinese White Dolphin of these working vessels shall be low as they shall mainly works within the reclamation site and the moving and position will be carried out in slow speed (< 8 knots).

2.2.2 Works Vessels travel outside the silt curtain and delivery of material to site

The moving of works vessel to and from site area in between the Southern Viaduct of Tuen Mun-Chek Lap Kok Link shall leave the site boundary and navigate in the Tung Chung Buoyed Channel. Vessels travelling outside the silt curtain include Derrick Lighter, Flat Top Barge, Tug Boat, Pelican Barge, Hopper, Cargo Barge and Cement Barge.

In delivery of material such as sand fill, sorted public fill and precast unit from the proposed sources/ factory and stockpile area at WA3 and WA4, the works vessels shall navigate along the existing fairway and Tung Chung Buoyed Channel to the site area. Vessels delivering materials to site include Derrick Lighter, Flat Top Barge, Tug Boat, Pelican Barge, Hopper, Cargo Barge and Cement Barge.

The potential impact of cumulative marine traffic disturbance or collision risk on dolphin due to large sized and slowly moving working vessels with relatively low traffic flow during towing are anticipated to be low. Nevertheless, speed limits and regular travel routes will be implemented to control and minimize marine traffic disturbance on dolphins. The supervising staff of the Contractor will record and control the trips to ensure not exceeding the daily and hourly trip basis. Moreover, good planning of construction vessel activities, minimize stationary/idle work vessels, reduction of waste materials will be implemented to minimize trips of the construction works vessels to and from the works site. Work vessels shall be scheduled tentatively at maximum 4 round trips for transportation of construction & demolition material at barging point on a daily basis. This is well within the maximum number of daily and hourly trips of the EP condition. The supervising staff of the Contractor will record and control the trips are well within the limit, in accordance to the EP Condition 2.13 of the environmental permit EP-519/2016, which specifies not exceeding 56 and 10 round trips on a daily and hourly basis respectively.

2.3 Design Criteria of Works Vessel Travel Route Plan

The design criteria of this Works Vessel Travel Route Plan are summarized as follows:

2.3.1 The Brothers Marine Park (BMP)

The Tung Chung Buoyed Channel falls into the Brothers Marine Park (BMP). Taking into consideration the restriction of BMP, the arrival and departure route will enter the site via the navigation corridor either between the Boundary Crossing Facility and west boundary of BMP.

The speed limit of the work vessels is 8 knots within the BMP, no stopover or anchoring is allowed.

2.3.2 Sha Chau and Lung Kwu Chau Marine Park (SCLKCMP)

Work vessels shall avoid entering the Sha Chau and Lung Kwu Chau Marine Park (SCLKCMP). Existing fairways such as Urmston Road Channel and water between the 3RS projects of Hong Kong International Airport and the

SCLKCMP, shall be selected as the main travel routes for delivery of construction & demolition material to site.

The traffic route is attached in **Appendix C**. Due to the heavy marine traffic flow within this region, working vessels 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.

2.3.3 North Lantau Marine Park (NLMP)

The North Lantau Marine Park (NLMP) was designated with effect on 1 November 2024. The speed limit of the work vessels is 8 knots within the NLMP, no stopover or anchoring is allowed.

2.3.4 Practice of Navigation Safety

The licensed captain will be the only authorized person to control the working vessels under safe marine operation. The captain will strictly follow all navigation safety requirements and international practices with 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 route of contract related working vessels will be adjusted locally to avoid any incident and to ensure safe navigation.

2.3.5 Restricted Area and Height Restriction of Hong Kong International Airport

According to the Airport Height Restriction and Airport Restricted Area as

shown in **Appendix D**, there are seven restricted areas in the vicinity of Hong Kong International Airport where working vessels are not allowed to pass through without authorization. Moreover, the airport height restriction limit will govern the marine travel route of working vessels for the delivery of reclamation material to the site.

2.3.6 Height restriction of Southern Viaduct of Tuen Mun-Chek Lap Kok Link (TMCLKL)

According to Shipping and Port Control Regulation (Cap. 313A) and the Merchant Shipping (Local Vessels) (General) Regulation (Cap. 548F) for vessels passing through the Tung Chung Buoyed Channel under the Tuen Mun-Chek Lap Kok Link, no vessel higher than the limit as shown in the **Appendix D** could access the control area.

For reclamation work for P1 road under the TMCLKL, permission from Marine Department shall be obtain for vessels air draft is higher than 6m.

2.3.7 Reduction of Sediment Plume at Shallow Water Area

The contractor shall schedule, according to the predicted tides of Hong Kong Observatory, all their self-propelled pelican barges to travel into the work site at suitable speed in order to reduce sediment plume at shallow water areas. Figure 2.2 show the water depth within the site and around Lantau Island.

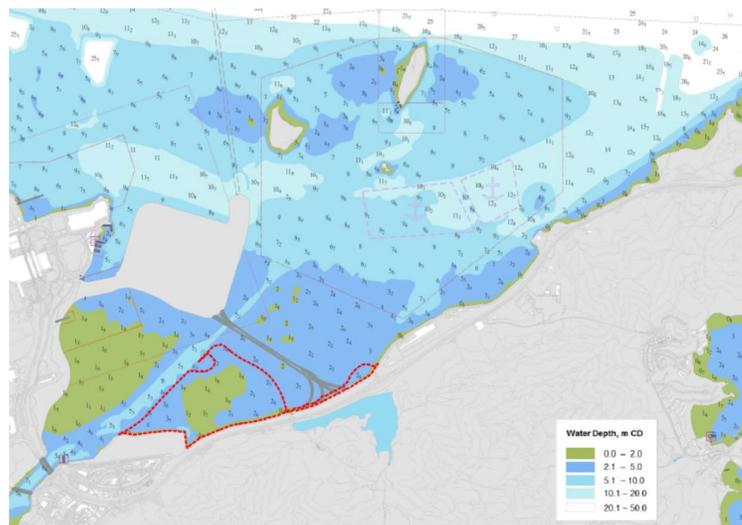


Figure 2.2 Water Delph within the site and around Lantau Island

2.3.8 Temporary Mooring Area at WA4 and Holding Area at WA3

Temporary mooring area is proposed at WA4 (**Appendix E**) to provide intermediate waiting space if traffic within the reclamation site is found to be congested (“congested” mean the waiting time for entering the Site is longer than 1 hour).

Before vessels entering the reclamation site, holding area at WA3 (**Appendix E**) is selected and it is located closer to the works site considers waterspace to the west of Tai Mo To outside the Brothers Marine Park avoiding the high spot.

2.3.9 The Hotspots of Chinese White Dolphins

The Contractor will consider the hotspots of the Chinese White Dolphins near Sha Chau and Lung Kwu Chau Marine Park, along the Urmston Road as one of the design criteria of the Regular Marine Travel Routes. The latest Chinese White Dolphin distribution and abundance would be reviewed with reference to the latest Monitoring of Marine Mammals in Hong Kong Waters (1 April 2022 to 31 March 2023) issued by AFCD. All works vessels will avoid travelling within the hotspots of the Chinese White Dolphin near Sha Chau and Lung Kwu Chau Marine Park along the Urmston Road under normal operation.

2.4 Selected Works Vessel Travel Routes

The marine travel routes for CEDD Contract No. NL/2017/03 delivery of sandfill, rockfill, sorted public fill, precast unit, cement and materials for DCM and NL/2020/03 exportation of construction & demolition materials are attached in **Appendix C**.

2.5 Special Circumstances

If there is any situation or inclement weather including local strong wind current and head-on large vessel affecting the marine safety and the vessels navigation is deviated from the selected regular marine travel route, the captain of the work vessels shall notify the Site Superintendent and the

Environmental Officer shall report the incident to the Project Manager, ET and IEC.

All works vessels shall be equipped with Global Positional System (GPS) or equivalent Automatic Identification System (AIS) for real time tracking and monitoring of their travel routing, speed and anchorage points. The system shall be capable to record and analysis the travel routing, speed and anchorage points.

After the incident, the operator of the work vessels shall provide further information and valid reasons for the deviations. Data from the GPS or AIS will be checked and reviewed. Flow chart concerning the “Incident of Vessel Navigation is Deviated from the Selected Regular Marine Travel Route” will be followed (Figure 2.3). The deviation cases shall be reviewed by ET and checked by IEC. Where necessary, preventive measure shall be followed up and implemented by the concerned operators for improvement.

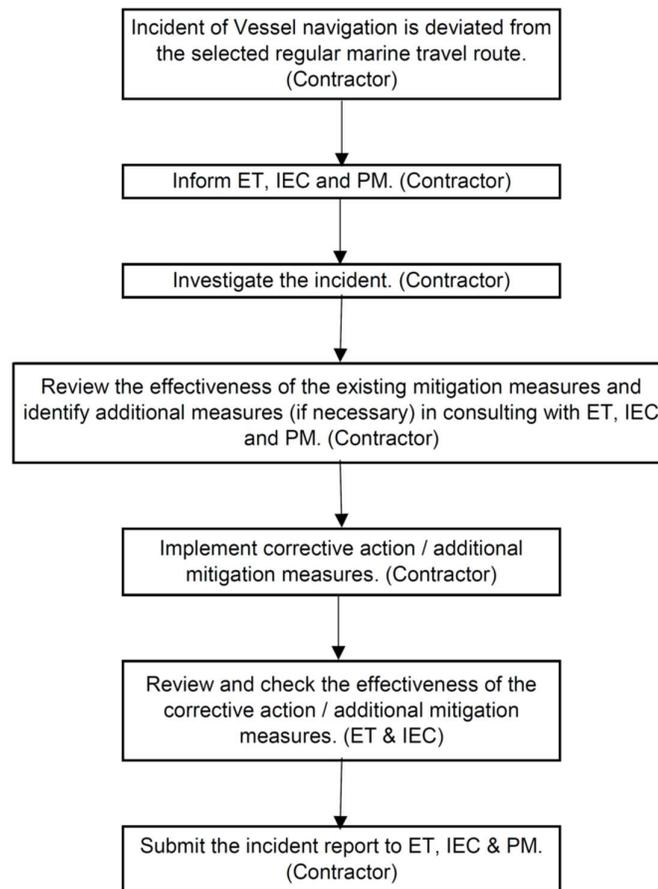


Figure 2.3 Flow chart of “Incident of Vessel Navigation is Deviated from the Selected

Regular Marine Travel Route”

3.0 Implementation and Monitoring

3.1 Supervision Staff

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

3.2 Method of Implementation and Monitoring

Onsite works include all construction activities such as seawall construction and reclamation within the site area. For NL/2020/03, on-site marine work is limited to operating the exportation of construction & demolition materials. As the working vessels are mainly stationed within the site boundary and occasionally will be relocated, solely, to suit the work progress, the potential impacts to Chinese White Dolphin 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.

In accordance to the EP Condition 2.13 of the environmental permit EP-519/2016, all works vessels shall be equipped with Global Positional System (GPS) or equivalent Automatic Identification System (AIS) for real time tracking and monitoring of their travel routing, speed and anchorage points. The system shall be capable to record and analyse the travel routing, speed and anchorage points. The supervising staff of the Contractor will monitor the real time tracking data and issue immediate alert / rectification order to the vessel operators when any deviation from the Works Vessel Travel Route Plan is detected.

The record of speed, anchoring point and marine travel route of offsite working vessels 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 ET and IEC

to demonstrate the conformance of the vessel to the proposed route. If any vessel track log showed the approved marine travel route and speed limit is not followed, formal warning will be issued to the captain and his shipping company or material supplier. For repeated violations, The Contractor will interview the captain and his shipping company or material supplier. The Contractor preserve the right for the suspension of works.

3.3 Precautionary Measures

3.3.1 Consideration of Operation Procedure

The major ecological risk of marine vessel is a moving vessel striking and injuring Chinese White Dolphin (CWD) during travel and navigation. Information regarding the locations of frequent sighting of marine mammals near the proposed vessel routes indicated that the following would also be required to minimize the chance of a vessel striking marine mammals. The Contractor will consider the hotspots of the Chinese White Dolphins near Sha Chau and Lung Kwu Chau Marine Park, along the Urmston Road as one of the design criteria of the Regular Marine Travel Routes. The latest Chinese White Dolphin distribution and abundance would be reviewed with reference to the latest Monitoring of Marine Mammals in Hong Kong Waters (1 April 2022 to 31 March 2023) issued by AFCD. The current distribution of CWD sightings in Hong Kong waters is shown in Figure 3.1.

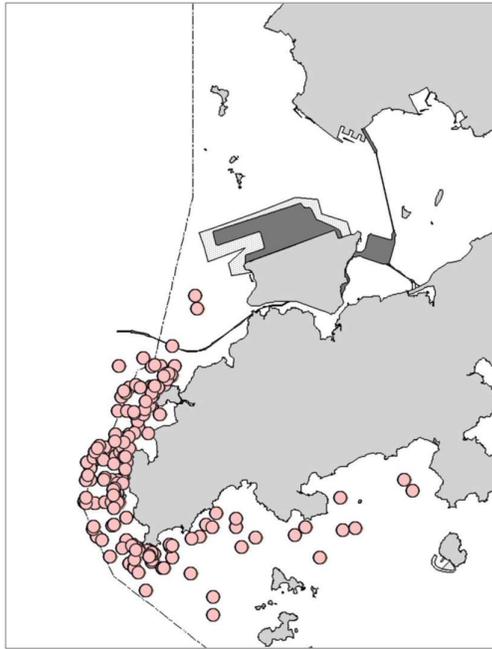


Figure 3.1 Distribution of CWD sightings in Hong Kong waters during AFCD monitoring surveys (Apr 2022 - Mar 2023) [Extracted from the “Monitoring of Marine Mammals in Hong Kong Waters (1 April 2022 to 31 March 2023), Final Report” prepared by the Hong Kong Cetacean Research Project.

Once approaching or leaving the entrance of the silt curtain, all vessels will travel at a speed no greater than 8 knots between the site and boundary of the Brothers Marine Park (BMP). The vessels can then navigate at normal speed (8-12 knots) 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.

Under special circumstance as stated in Section 2.5 when works vessels, sampans or passengers boat travel within BMP, the requirements of (1) speed limit of 8 knots for construction work vessels within the BMP and (2) no stopover or anchoring within BMP shall be followed in accordance with EP Condition 2.13 (iv) and (v).

3.3.2 Training

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

The dolphin specialist is responsible to provide training to the trainers of main contractor (Train the Trainer Scheme). The training will be given by the dolphin specialist or training personnel approved by ET or IEC.

All captains, construction vessels' personnel 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).

Training on the requirements of the Works Vessel Travel Route Plan would be provided for all captains, construction vessels' personnel and the supervising staff to follow, which should include the details of the normal operational routings of the construction works vessels and reporting of deviations from the normal operational routings of the construction works vessels. This training course will be given by the trainers before commencement of work and refreshment course will be provided every quarter.

All the relevant training records will be submitted to Project Manager, ET and IEC at monthly interval to demonstrate the conformance to the EM&A documents.

The training material and its updates will also be provided to ET and IEC for records.

3.3.3 Follow Up Action

For the first time of violating the plan, the Contractor will check, investigate and review the existing works (e.g. method, procedures etc.) and work out a comprehensive corrective action / mitigation measures as agreed with ET, IEC and PM. As for the repeated violating the Plan, the Contractor will cease the concerned operation (if necessary), and on top of implementing the corrective action / mitigation measures, the Contractor will only resume the works until ET, IEC and PM are satisfactory to the follow up actions.

4.0 Summary and Conclusion

This Works Vessel Travel Route Plan presents a review of major construction works of reclamation and other construction activities, working vessels 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. NL/2017/03 & NL/2020/03.

Appendix A - Particulars of Works Vessels

Vessel	
Derrick Barge	
Flat Top Barge	
Tug Boat	
Self Propelled Pelican Barge	

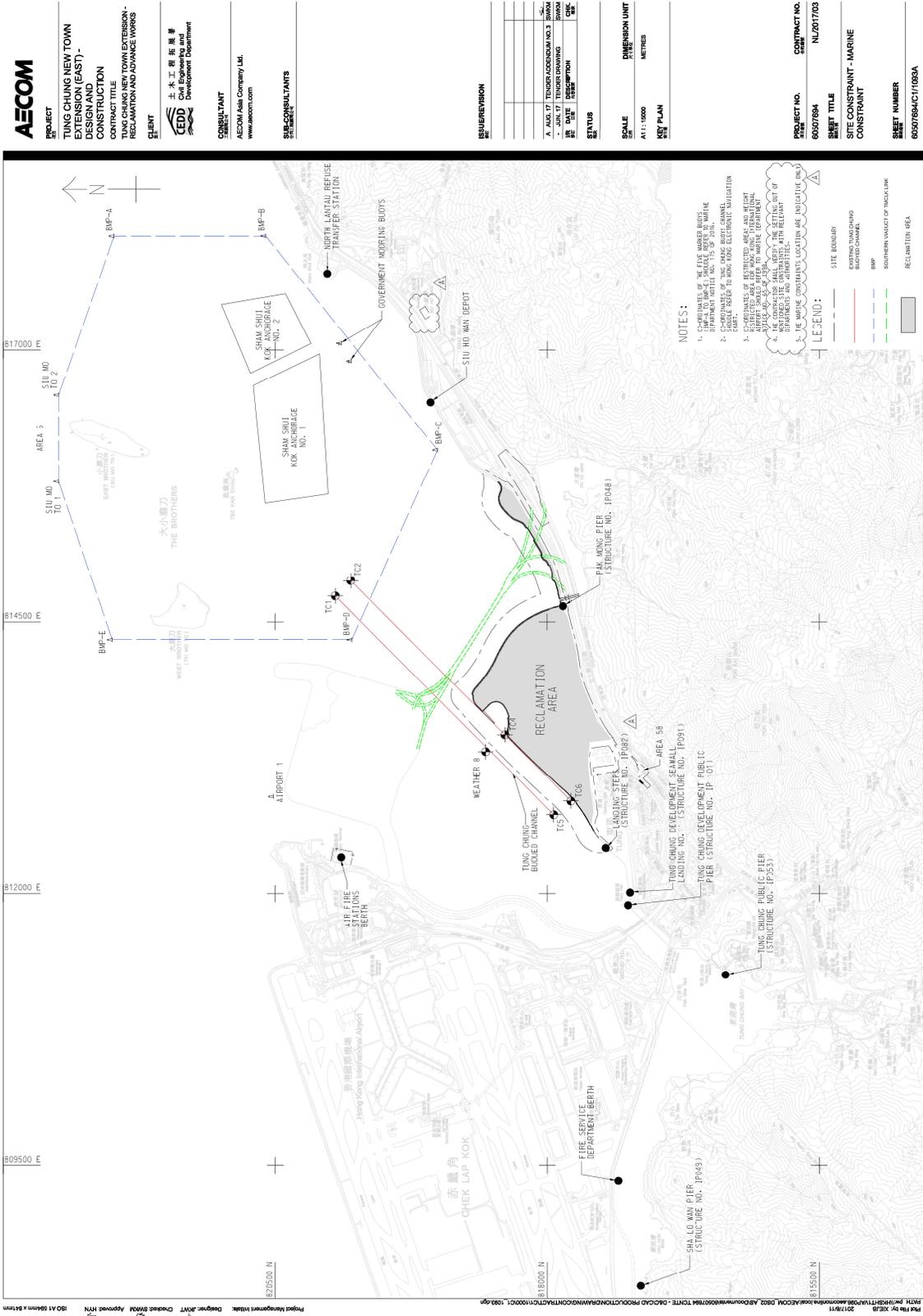
Vessel	
Hopper	
Jack Up Barge	
Crane Barge	
Self Propelled Cargo Barge	

Vessel	
DCM Barge	 A large white barge with a prominent red and white crane structure on deck, operating in a body of water with hills in the background.
Cement Barge	 A large, flat-topped barge with a white upper section and orange lower section, equipped with several large black tires along its side, floating in a harbor.
Grab Barge	 A barge with a yellow crane and a large black grabber bucket, positioned in a body of water.
PVD Barge	 A large, complex barge with multiple cranes and structural elements, floating on a blue sea.

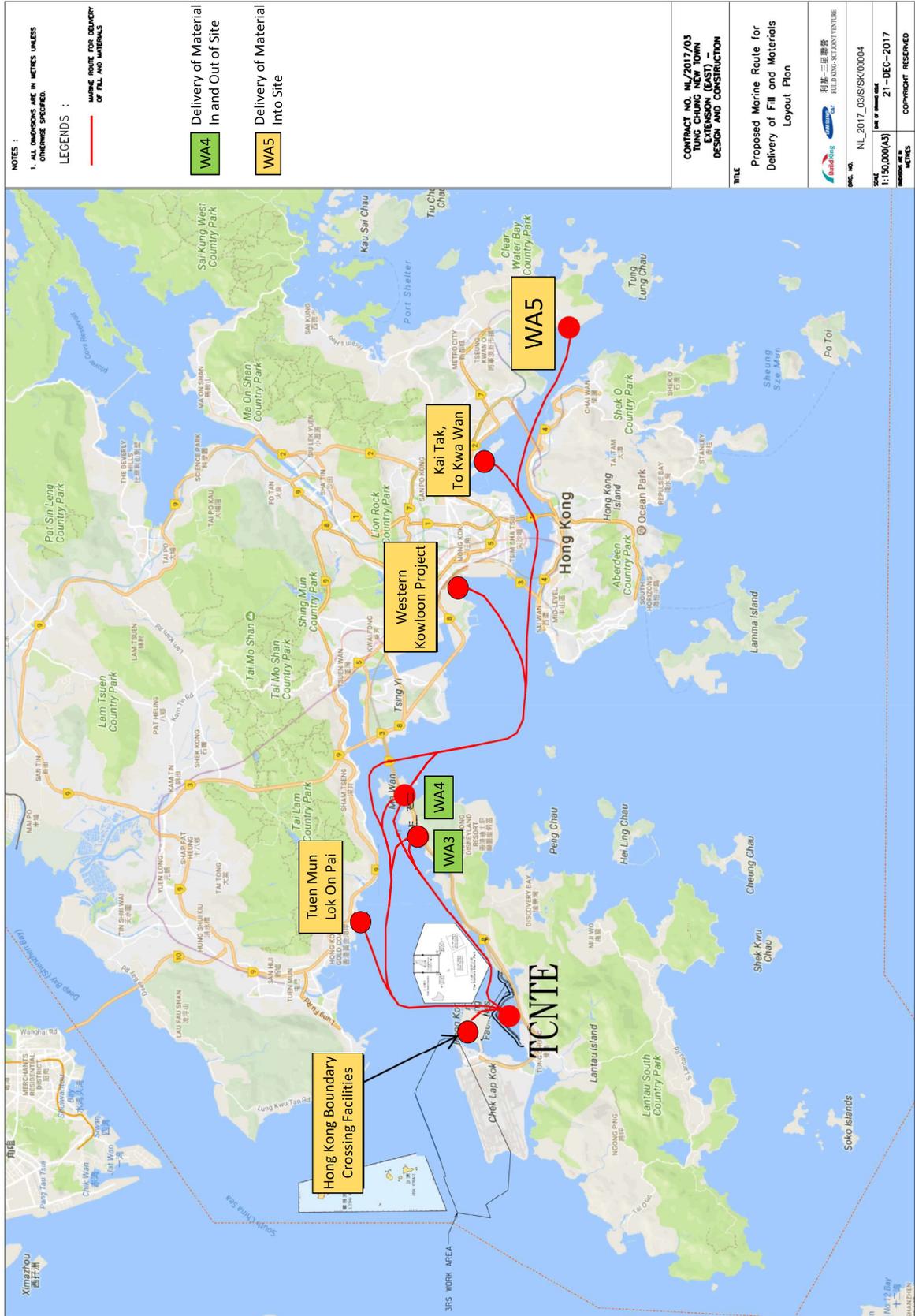
Anchor Boat

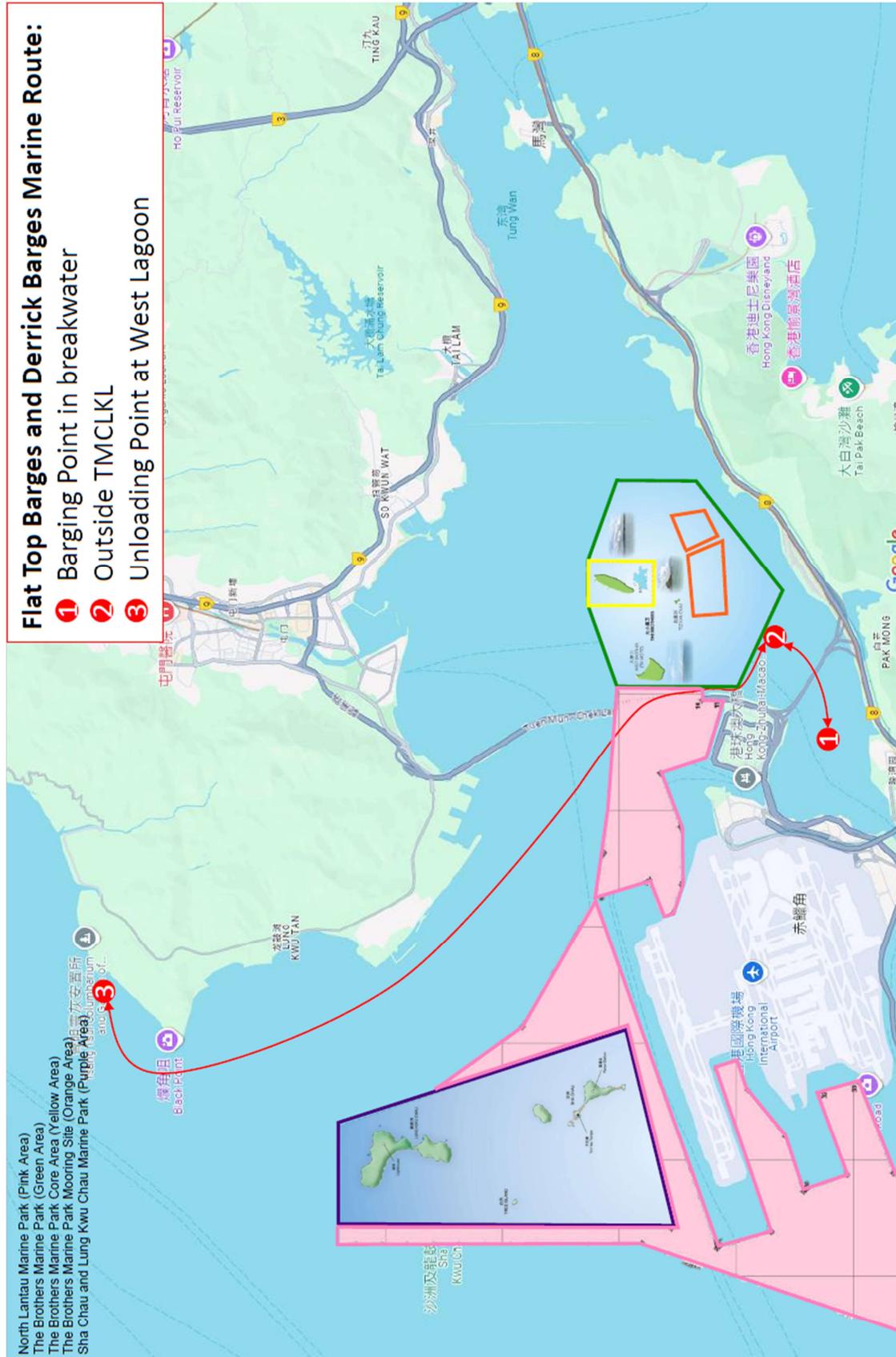


**Appendix B - Layout Plan Showing Tung Chung
East Reclamation Site, Southern Viaduct of
Tuen Mun-Chek Lap Kok Link, Tung Chung
Buoyed Channel and Brothers Marine Park**

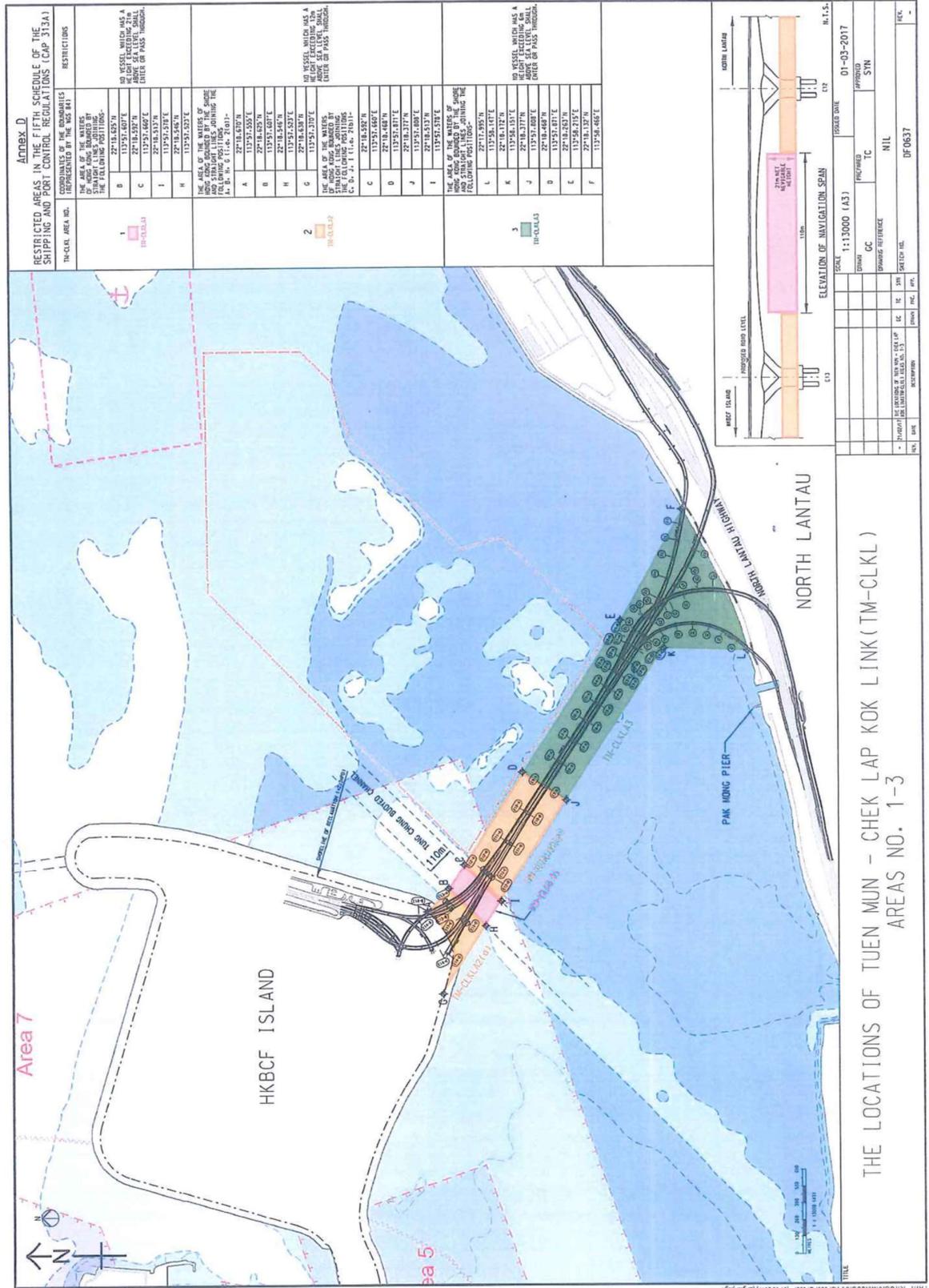


Appendix C - Works Vessel Travel Route Plan of Transportation of Materials

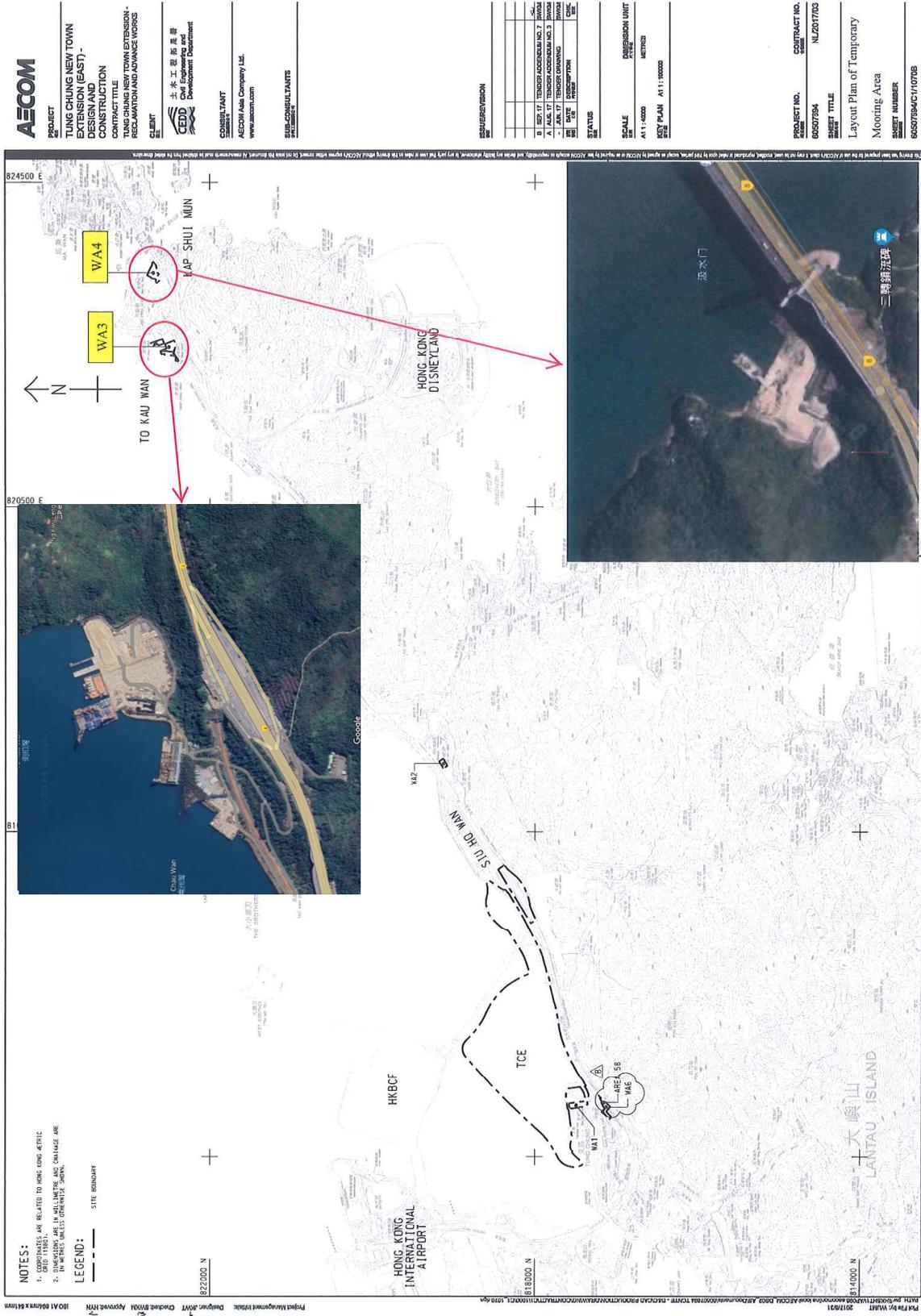




**Appendix D - Airport Height Restriction and
Height Restriction of Southern Viaduct of Tuen
Mun-Chek Lap Kok Link**



Appendix E - Temporary Mooring Area at WA4 and Holding Area at WA3



Appendix F - Implementation Schedule of the Major Environmental Mitigation Measures

WVTRP Ref.	Recommended Major Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location/ Timing	Implementation Stage
2.1	All vessels will operate with a speed limit of 8 knots at near-coast area.	Protection of Chinese White, Minimize water quality impact	Contractor	Construction Site	Construction Phase
2.2.2	The total number of works vessels (except sampans and passengers boat) travelling to and from the works site will be capped to a maximum of 56 and 10 round trips on a daily and hourly basis respectively.	Protection of Chinese White	Contractor	Construction Site	Construction Phase
2.3.1, 2.3.2, 2.3.8, 3.3	All works vessels, including sampans and passenger boats will avoid entering into the BMP and the hotspots of the CWD near Sha Chau and Lung Kwu Chau Marine Park along the Urmston Road under normal operation. Under special circumstance as stated in Section 2.5 when works vessels, sampans or passengers boat travel within BMP, the requirements of (1) speed limit of 8 knots for construction work vessels within the BMP and (2) no stopover or anchoring within BMP shall be followed in accordance with EP Condition 2.13 (iv) and (v).	Protection of Chinese White	Contractor	Construction Site	Construction Phase
2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.7, 2.4	The works vessels shall follow the traffic route as stated in Appendix C	Protection of Chinese White	Contractor	Construction Site	Construction Phase
2.3.7	The contractor shall schedule, according to the predicted tides of Hong Kong Observatory, all their self-propelled pelican barges to travel into the work site at suitable speed in order to reduce sediment plume at shallow water areas.	Minimize water quality impact	Contractor	Construction Site	Construction Phase
2.5, 3.2	All works vessels shall be equipped with Global Positional System (GPS) or equivalent automatic identification system (AIS) for real time tracking and monitoring of their travel routing, speed and anchorage points. The system shall be capable to record and analyse the travel routing, speed and anchorage	Protection of Chinese White	Contractor	Construction Site	Construction Phase



				Protection of Chinese White	Contractor	Construction Site	Construction Phase	
3.3.2	<p>points. The supervising staff of the Contractor will monitor the real time tracking data and issue immediate alert / rectification order to the vessel operators when any deviation from the WVTRP is detected.</p> <p>All captains, construction vessel personnel and the supervising staff should undergo training to learn about local dolphins and porpoises.</p>			Protection of Chinese White	Contractor	Construction Site	Construction Phase	
3.3.2	<p>Training on the requirements of the WTRP would be provided for all captains, construction vessels personnel and the supervising staff to follow, which should include the details of the normal operational routings of the construction works vessels and reporting of deviations from the normal operational routings of the construction works vessels.</p>			Protection of Chinese White	Contractor	Construction Site	Construction Phase	
3.4.3	<p>For the first time of violating the plan, the Contractor will check, investigate and review the existing works (e.g. method, procedures etc.) and work out a comprehensive corrective action / mitigation measures as agreed with ET, IEC and PM. As for the repeated violating the Plan, the Contractor will cease the concerned operation (if necessary), and on top of implementing the corrective action / mitigation measures, the Contractor will only resume the works until ET, IEC and PM are satisfactory to the follow up actions.</p>			Protection of Chinese White, Minimize water quality impact	Contractor	Construction Site	Construction Phase	