BUILD KING - SCT JOINT VENTURE

Civil Engineering and Development Department

Contract No. NL/2017/03

Tung Chung New Town Extension – Reclamation and Advance Works

Works Vessel Travel Route Plan

Revision 1

Complied By :	Authorized for issue :
Signature :	Signature :
Name: Calvin Sze Post : Environmental Manager Date : 6 Jun 2018	Name: Mr. Keith Tse Post : Site Agent Date : 6 Jun 2018

土木工程拓展署
Civil Engineering and Development Department

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 1)
Date of Report:	6 June 2018

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

Jovy Tam
Environmental Team Leader
ERM-Hong Kong, Limited

Date: 7 June 2018

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: 7 June 2018

BLACK & VEATCH

Black & Veatch Hong Kong Limited
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OUR REF 198377-0038

YOUR REF

DATE 7 June 2018

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

For the attention of Mr. H.Y. Szeto / Mr. Stanley Yip

Dear Sirs,

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 1) dated 6 June 2018 and certified by the Environmental Team Leader on 7 June 2018. 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@bv.com) or our Ivan Ting at 9222 9490 (iec.tcnte@gmail.com).

Yours faithfully,
for and on behalf of
BLACK & VEATCH HONG KONG LIMITED

MANUEL CHUA
Independent Environmental Checker

c.c. ET Leader – ERM (Attn: Mr. Jovy Tam) [by Email: jovy.tam@erm.com]
Project Manager / TCE – AECOM (Attn: Mr. Robo Lo) [by Email: sre1.tce@gmail.com]

Contents

APPENDICES

1 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.

1.2 Purpose of the Works Vessel Travel Routes Plan (WVTRP)

In accordance to EP-519/2016 Condition 2.13, this Works Vessel Travel Routes Plan (WVTRP) shall be submitted to detail the planning, implementation, safety measures and monitoring of operational routings of the construction works vessels for the construction of NL/2017/03.

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 Design of Works Vessel Travel Route Plan

2.1 Identification of Construction Works

According to the scope of Contract, the following of works shall engage various type of works vessels in the construction of NL/2017/03. The particulars of works vessels is attached in **Appendix A**. Layout Plan showing Tung Chung East Reclamation Site, Southern Viaduct of TMCLK Link, Tung Chung Buoyed Channel and BMP 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	✓	✓							✓	✓			

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

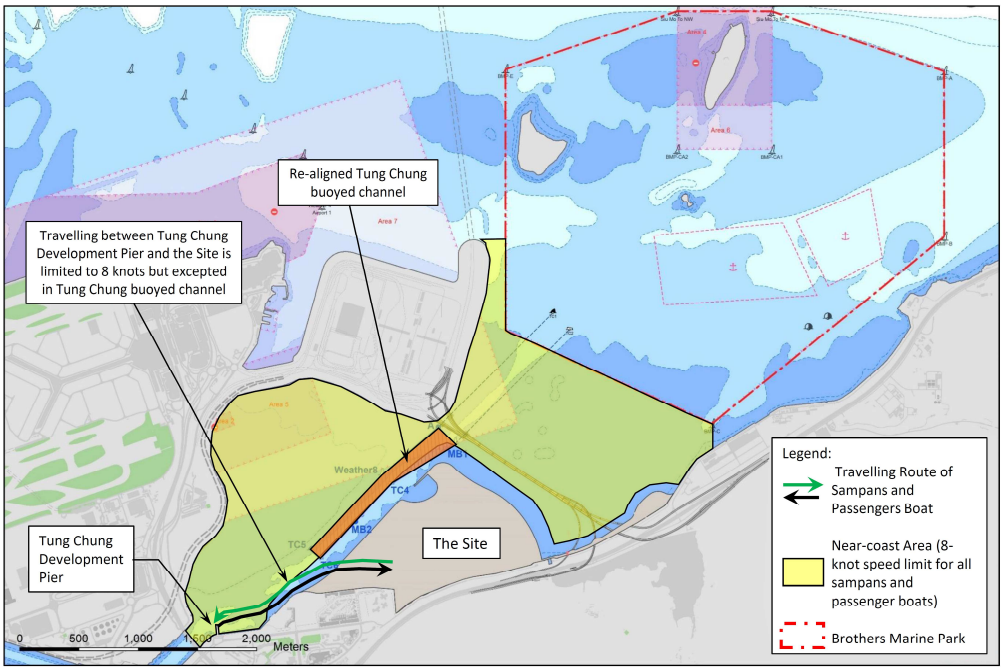


Figure 2.1 Indicative route of sampans and passengers boat and the near-coast area

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 TMCLK 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. 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.

2.3 Design Criteria of Works Vessel Travel Routes Plan (WVTRP)

The design criteria of this WVTRP are summarized as follows:

2.3.1 The Brothers Marine Park

The Tung Chung Buoyed Channel falls into The Brothers Marine Park (BMP). Under normal operation and taken in consideration of restriction due to the BMP, arrival and departure route of the works vessels will generally enter the site via the navigation corridor either between the Boundary Crossing Facility and west boundary of BMP or between the south east boundary of the BMP and Siu Ho Wan. Besides, sampans and passengers boat would avoid entering into the BMP 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).

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

Vessels shall avoid entering the 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 material to site.

The traffic route is attached in **Appendix C**. Because of the existing volume of marine traffic, the contract related 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 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.

2.3.4 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.

2.3.5 Height restriction of Southern Viaduct of TMCLK Link

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 TML-CLKL, 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 TML-CLKL, permission from Marine Department shall be obtain for vessels air draft is higher than 6m.

2.3.6 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.

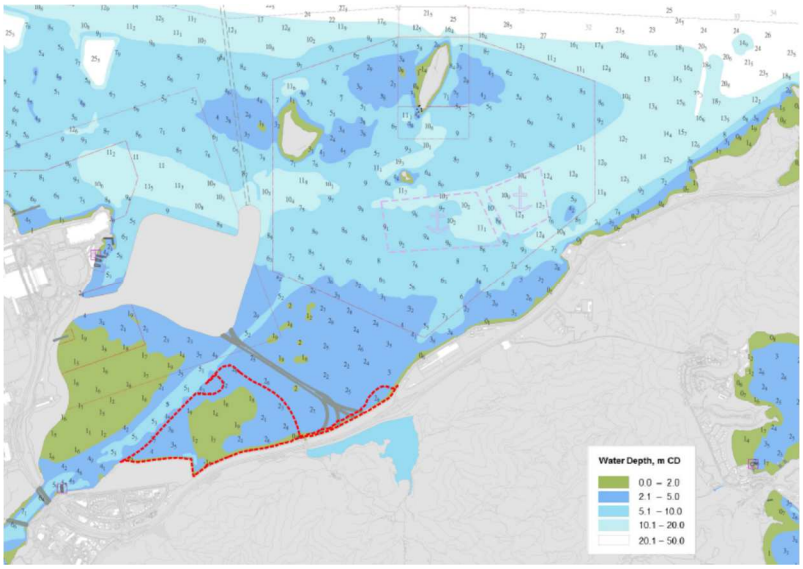


Figure 2.2 Water Delph within the site and around Lantau Island

2.3.7 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 BMP avoiding the high spot.

2.3.8 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 (2016-17) 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 delivery of sandfill, rockfill, sorted public fill, precast unit, cement and materials for DCM is attached in **Appendix C**.

2.5 Special Circumstances

If there is any situation 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 fleet captain shall notify the Marine Traffic Manger 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 fleet 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.

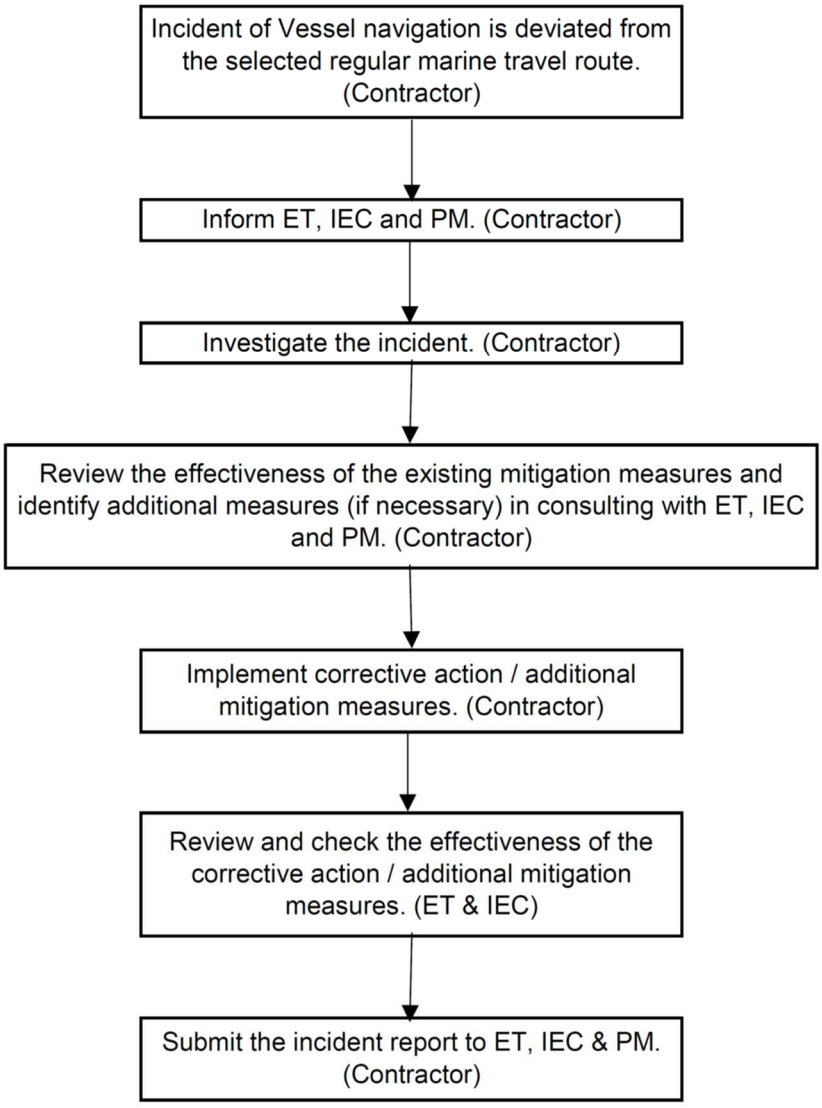


Figure 2.3 Flow chart of "Incident of Vessel Navigation is Deviated from the Selected Regular Marine Travel Route"

3 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 Marine Traffic Manager, 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. 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 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 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 WVTRP 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 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 (2016-17) issued by AFCD. The current distribution of CWD sightings in Hong Kong waters is shown in Figure 3.1.

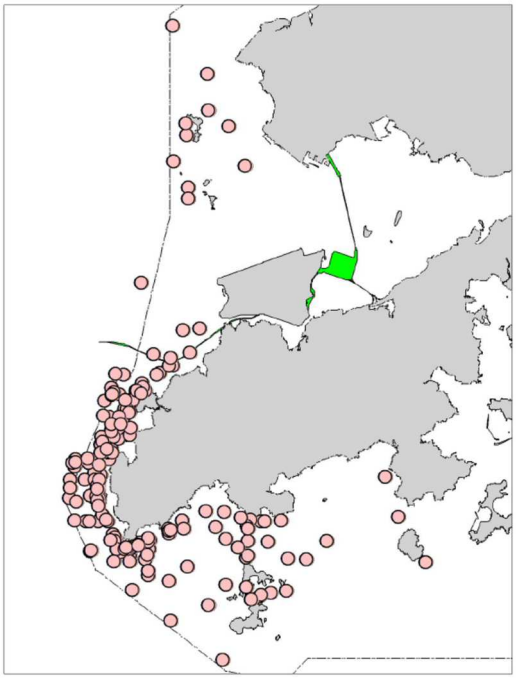


Figure 3.1 Distribution of CWD sightings in Hong Kong waters during AFCD monitoring surveys (Apr 2016 - Mar 2017) [Extracted from the "Monitoring of Marine Mammals in Hong Kong Waters (2016-17), Final Report" prepared by the Hong Kong Cetacean Research Project.

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. 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 WVTRP 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 Summary and Conclusion

This WVTRP Plan presents a review of major construction works of reclamation, 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.

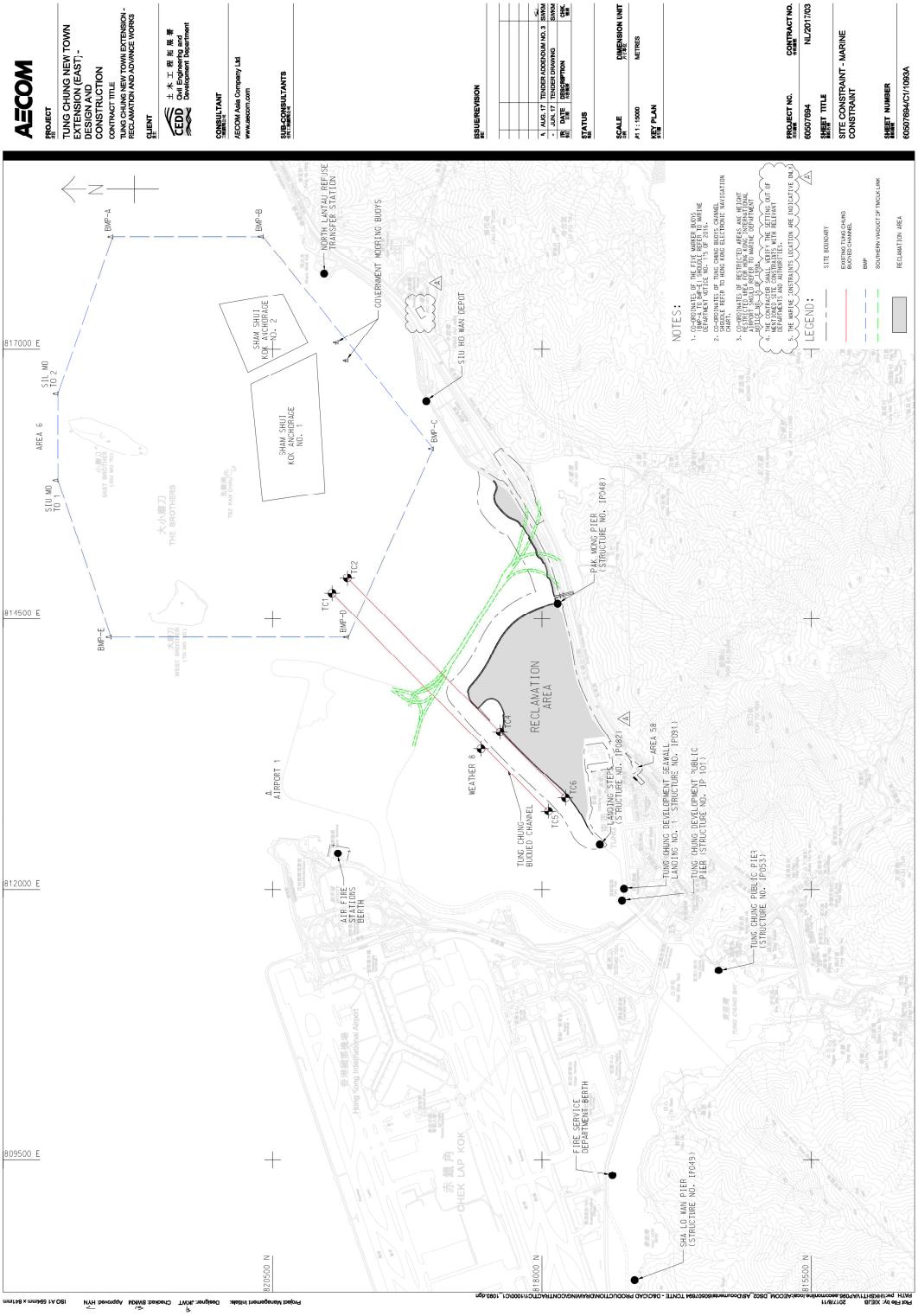
Appendix A - Particulars of Works Vessels

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

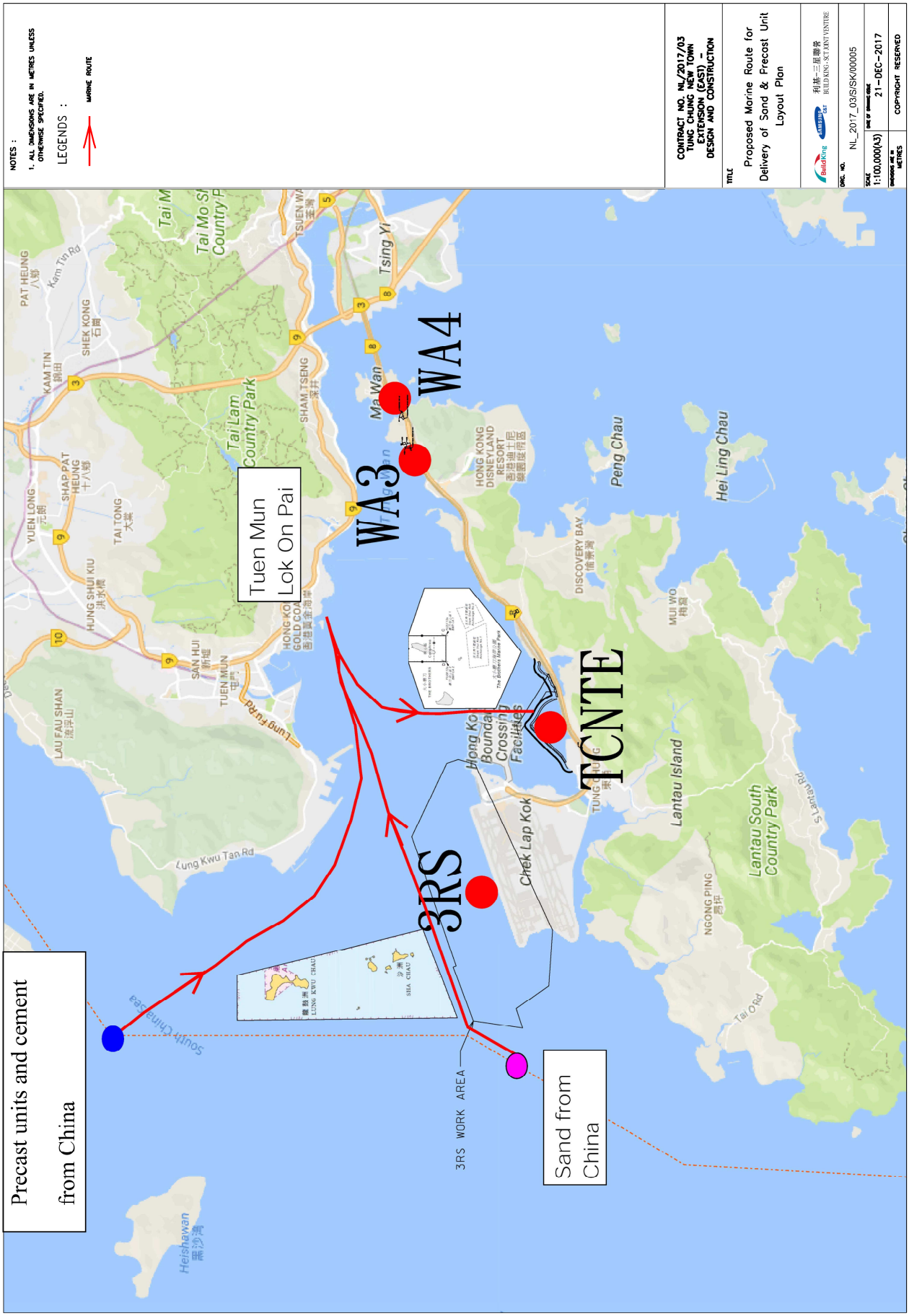
Vessel	
Hopper	
Jack Up Barge	
Crane Barge	
Self Propelled Cargo Barge	

Vessel	
DCM Barge	
Cement Barge	
Grab Barge	
PVD Barge	

Appendix B - Layout Plan Showing Tung Chung East Reclamation Site, Southern Viaduct of TMCLK Link, Tung Chung Buoyed Channel and BMP


AECOM
PROJECT
TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION
CONTRACT TITLE
TUNG CHUNG NEW TOWN EXTENSION - RECLAMATION AND ADVANCE WORKS
CLIENT
土木工程拓展署
Civil Engineering and Development Department
CEDD
CONSULTANT
AECOM Asia Company Ltd
www.aecom.com
SUB-CONSULTANTS
ISSUE/REVISION
A / AUG. 17 TENDER ADDENDUM NO.3 SWOM
- / JUN. 17 TENDER DRAWING SWOM CHK
NO. DATE DESCRIPTION CHK
STATUS
SCALE
DIMENSION UNIT
AT 1 : 15000
METRES
KEY PLAN
PROJECT NO.
CONTRACT NO.
605076940
NL/2017/03
SHEET TITLE
SITE CONSTRAINT - MARINE CONSTRAINT
SHEET NUMBER
605076940/C1/1093A
NOTES:
LEGEND:
SITE BOUNDARY
EXISTING TUNG CHUNG BUCHED CHANNEL
BMP
SOUTHERN VIADUCT OF TKOCKLINK
RECLAMATION AREA
BMP-A
BMP-B
BMP-C
BMP-D
BMP-E
TC1
TC2
TC3
TC4
TC5
TC6
NORTH LANTAU REFUSE TRANSFER STATION
GOVERNMENT MOORING BUOYS
SIU HO WAN DEPOT
SHAM SHUI KOK ANCHORAGE NO. 1
SHAM SHUI KOK ANCHORAGE NO. 2
SIU MO TO 1
SIU MO TO 2
AREA 6
THE BROTHERS
PAK MONG PIER (STRUCTURE NO. 1P048)
RECLAMATION AREA
LANDING STEPS (STRUCTURE NO. 1P082)
AREA 58
TUNG CHUNG DEVELOPMENT SEAWALL LANDING NO. 1 (STRUCTURE NO. 1P091)
TUNG CHUNG DEVELOPMENT PUBLIC PIER (STRUCTURE NO. 1P107)
TUNG CHUNG PUBLIC PIER (STRUCTURE NO. 1P053)
TUNG CHUNG BUCHED CHANNEL
WEATHER 8
AIRPORT 1
AIR FIRE STATION BERTH
FIRE SERVICE DEPARTMENT BERTH
SHA LO WAN PIER (STRUCTURE NO. 1P049)
CHEK LAP KOK
Hong Kong International Airport
817000 E
814500 E
812000 E
809500 E
820500 N
818000 N
815500 N

Appendix C - Works Vessel Travel Route Plan of Transportation of Materials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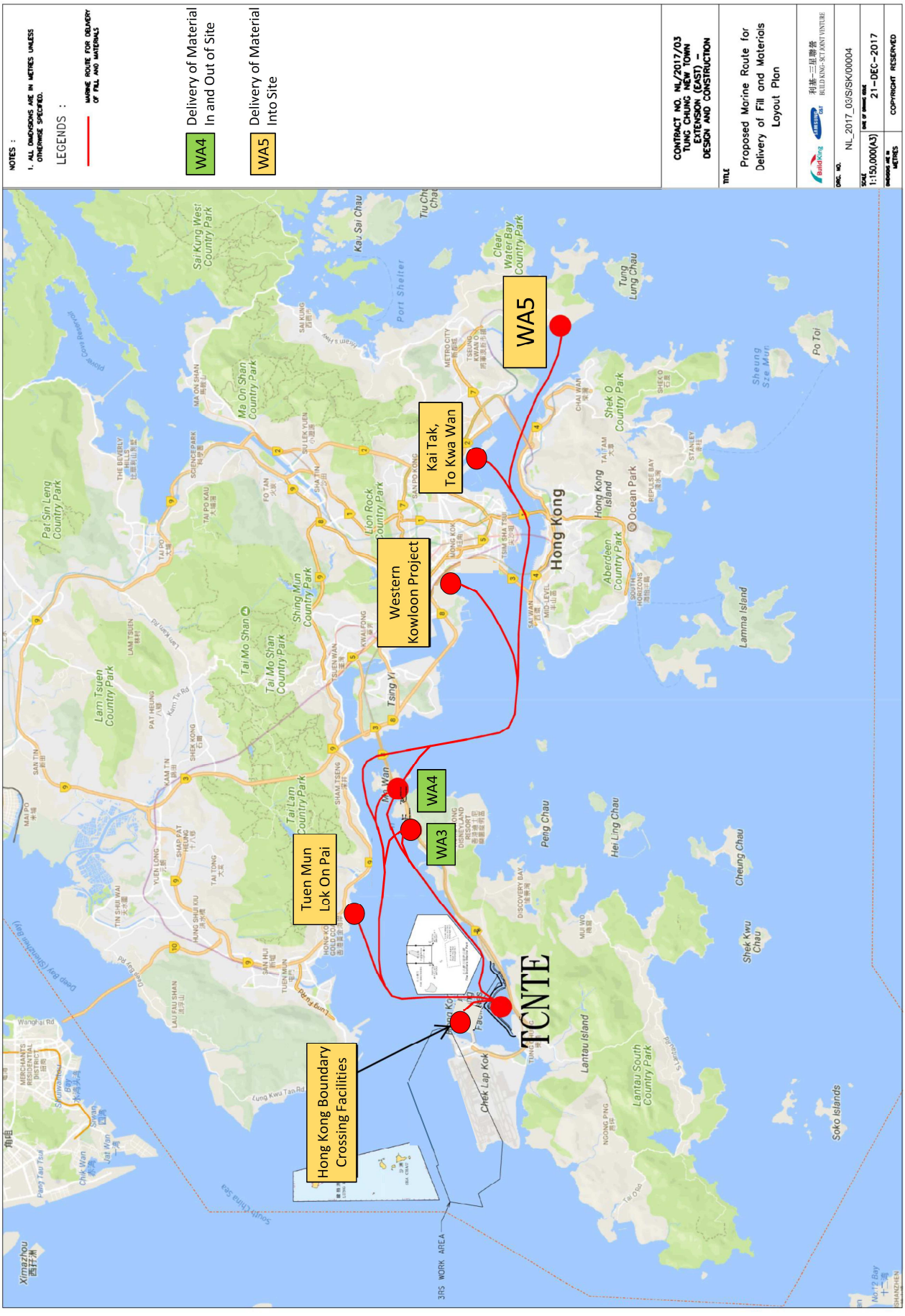
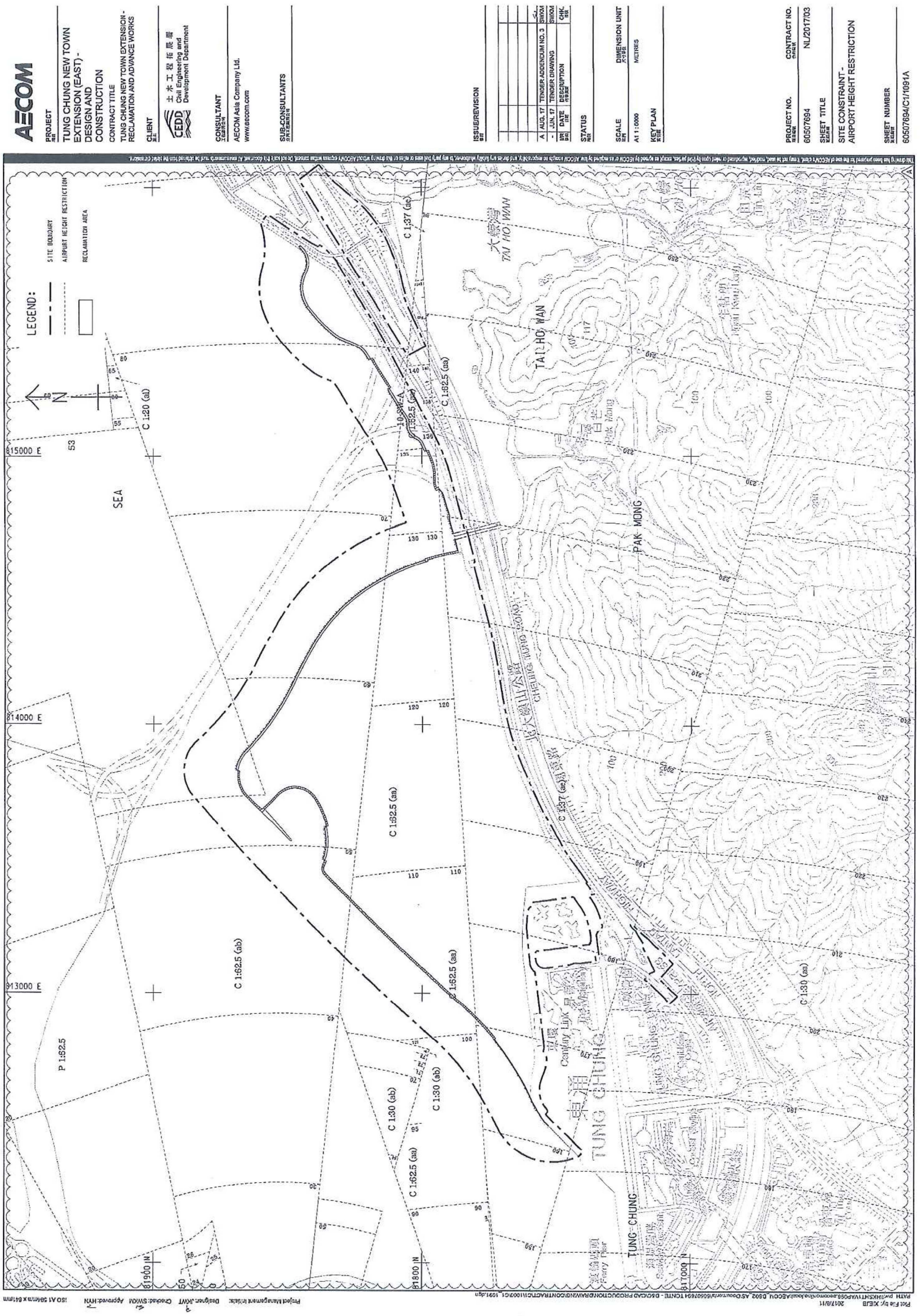
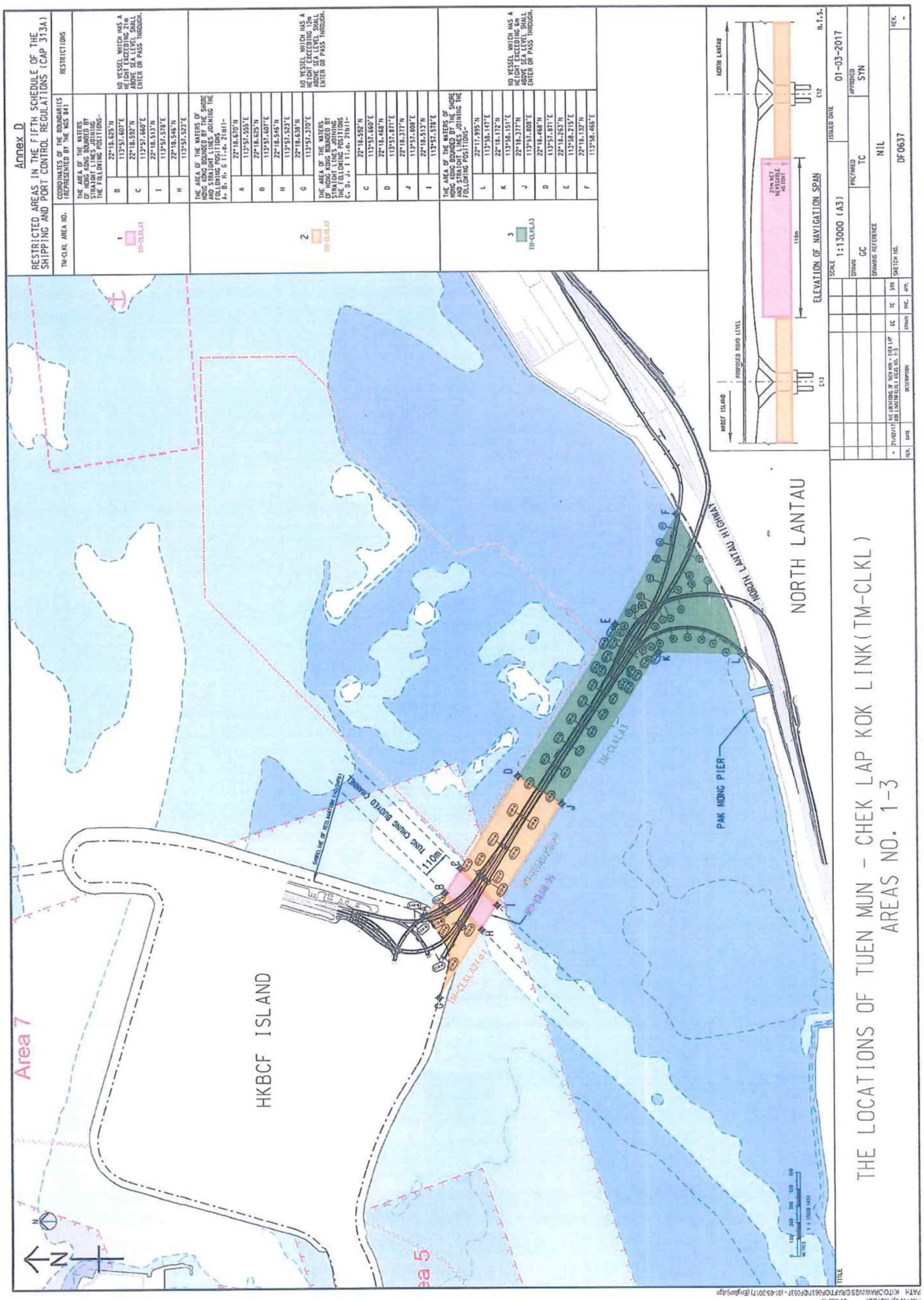
CONTRACT NO. NL/2017/03
TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION
TITLE
Proposed Marine Route for Delivery of Sand & Precast Unit Layout Plan
DRG. NO.
NL_2017_03/S/SK/00005
SCALE
1:100,000(A3)
DATE OF DRAWING ISSUE
21-DEC-2017
DRAWING ARE IN METRES
COPYRIGHT RESERVED
BUILD KING - SCT JOINT VENTURE
Precast units and cement from China
Sand from China
WA3
WA4
3RS
TCNTE
Tuen Mun Lok On Pai
3RS WORK AREA
Ma Wan
Tsing Yi
Peng Chau
Hei Ling Chau
Lantau Island
Lantau South Country Park
Chek Lap Kok
Hong Kong Boundary Crossing Facilities
Lung Kwu Tan Rd
South China Sea
Heishawan


NOTES :
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
LEGENDS :
MARINE ROUTE FOR DELIVERY OF FILL AND MATERIALS
WA4 Delivery of Material In and Out of Site
WA5 Delivery of Material Into Site
CONTRACT NO. NL/2017/03 TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION
TITLE
Proposed Marine Route for Delivery of Fill and Materials Layout Plan
BUILD KING - SCT JOINT VENTURE
DWG. NO. NL_2017_03/S/SK/00004
SCALE 1:150,000(A3)
DATE OF PLOTTING 21-DEC-2017
COPYRIGHT RESERVED
WA5
Kai Tak, To Kwa Wan
Western Kowloon Project
WA4
WA3
Tuen Mun Lok On Pai
Hong Kong Boundary Crossing Facilities
TCNTE
3RS WORK AREA
Hong Kong
Tsing Yi
Lantau Island
Lamma Island
Peng Chau
Hei Ling Chau
Cheung Chau
Shek Kwu Chau
Soko Islands
Po Toi
Sai Kung West Country Park
Ma On Shan Country Park
Par Sin Leng Country Park
Lam Tsuen Country Park
Tai Mo Shan Country Park
Shing Mun Country Park
Tai Lam Country Park
Lion Rock Country Park
Aberdeen Country Park
Shek O Country Park
Clear Water Bay Country Park
Lantau South Country Park
Ximazhou

Appendix D - Airport Height Restriction and Height Restriction of Southern Viaduct of TMCLK Link

BUILD KING - SCT JOINT VENTURE




Annex D
RESTRICTED AREAS IN THE FIFTH SCHEDULE OF THE SHIPPING AND PORT CONTROL REGULATIONS (CAP 313A)
HKBCF ISLAND
NORTH LANTAU
PAK MONG PIER
Area 7
110m
ELEVATION OF NAVIGATION SPAN
THE LOCATIONS OF TUEN MUN - CHEK LAP KOK LINK (TM-CLKL)
AREAS NO. 1-3

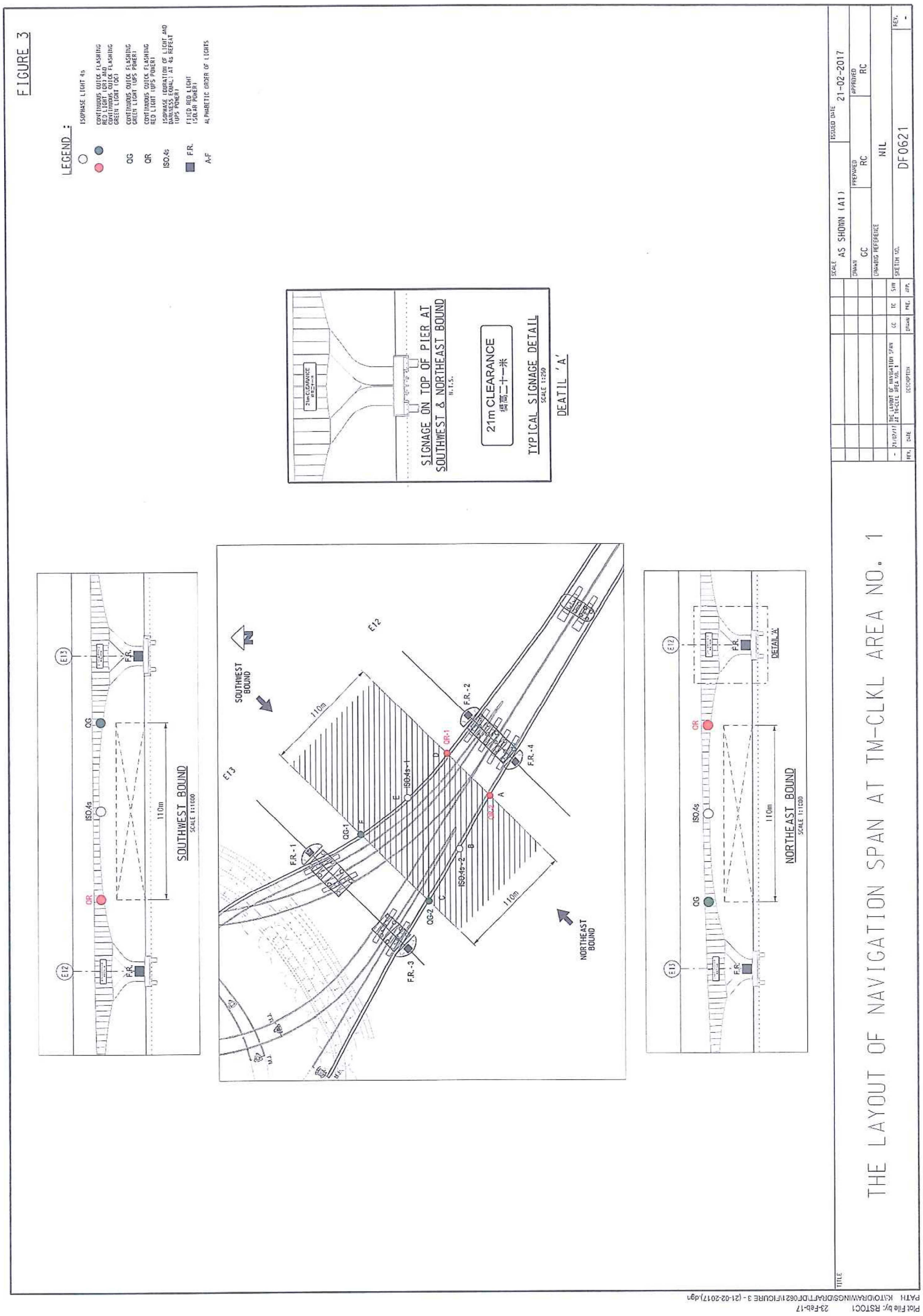
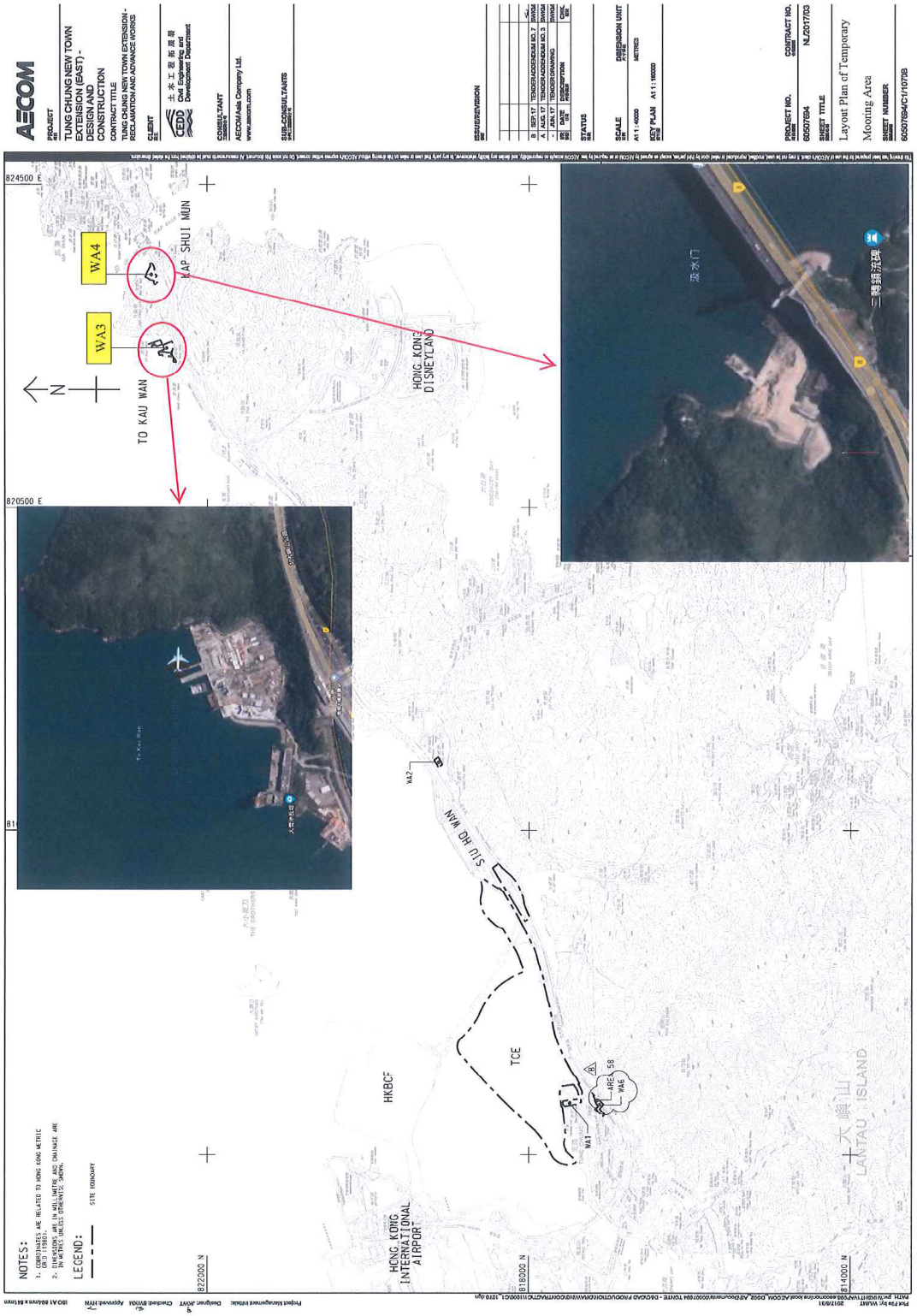


FIGURE 3
LEGEND :
SOUTHWEST BOUND
NORTHEAST BOUND
SIGNAGE ON TOP OF PIER AT SOUTHWEST & NORTHEAST BOUND
21m CLEARANCE
TYPICAL SIGNAGE DETAIL
DEATIL 'A'
110m
AS SHOWN (A1)
21-02-2017
NIL
DF0621
THE LAYOUT OF NAVIGATION SPAN AT TM-CLKL AREA NO. 1

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


WA4
WA3
KAP SHUI MUN
TO KAU WAN
HONG KONG DISNEYLAND
SIU HO WAN
HKBCF
TCE
HONG KONG INTERNATIONAL AIRPORT
LANTAU ISLAND
824500 E
820500 E
822000 N
818000 N
814000 N
NOTES:
LEGEND:

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	The sampans and passengers boat will operate with a speed limit of 8 knots at near-coast area.	Protection of Chinese White Dolphins	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 Dolphins	Contractor	Construction Site	Construction Phase
2.3.1, 2.3.2, 2.3.8, 3.3.1	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 Dolphins	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 Dolphins	Contractor	Construction Site	Construction Phase

WVTRP Ref.	Recommended Major Environmental Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage
2.3.6	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.	Minimise 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 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.	Protection of Chinese White Dolphins	Contractor	Construction Site	Construction Phase
3.3.2	All captains, construction vessels' personnel and the supervising staff should undergo training to learn about local dolphins and porpoises.	Protection of Chinese White Dolphins	Contractor	Construction Site	Construction Phase
3.3.2	Training on the requirements of the WVTRP 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.	Protection of Chinese White Dolphins	Contractor	Construction Site	Construction Phase