

# Tung Chung New Town Extension



5<sup>th</sup> PLG Meeting  
Date : 19 July 2021



土木工程拓展署  
CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT

可持續大嶼辦事處  
SUSTAINABLE LANTAU OFFICE

# Agenda

1. Confirmation of Last Meeting Minutes
2. Matters Arising from Last Meeting
3. Environmental Monitoring and Audit (EM&A)
  - a) Tung Chung East
  - b) Tung Chung West
4. AOB

# 1. Confirmation of Last Meeting Minutes

## 2. Matters Arising from Last Meeting

### Eco-shoreline

Paras. 3.1.2 to 3.1.4:

- *To optimize the design of eco-shoreline.*

Para. 4:

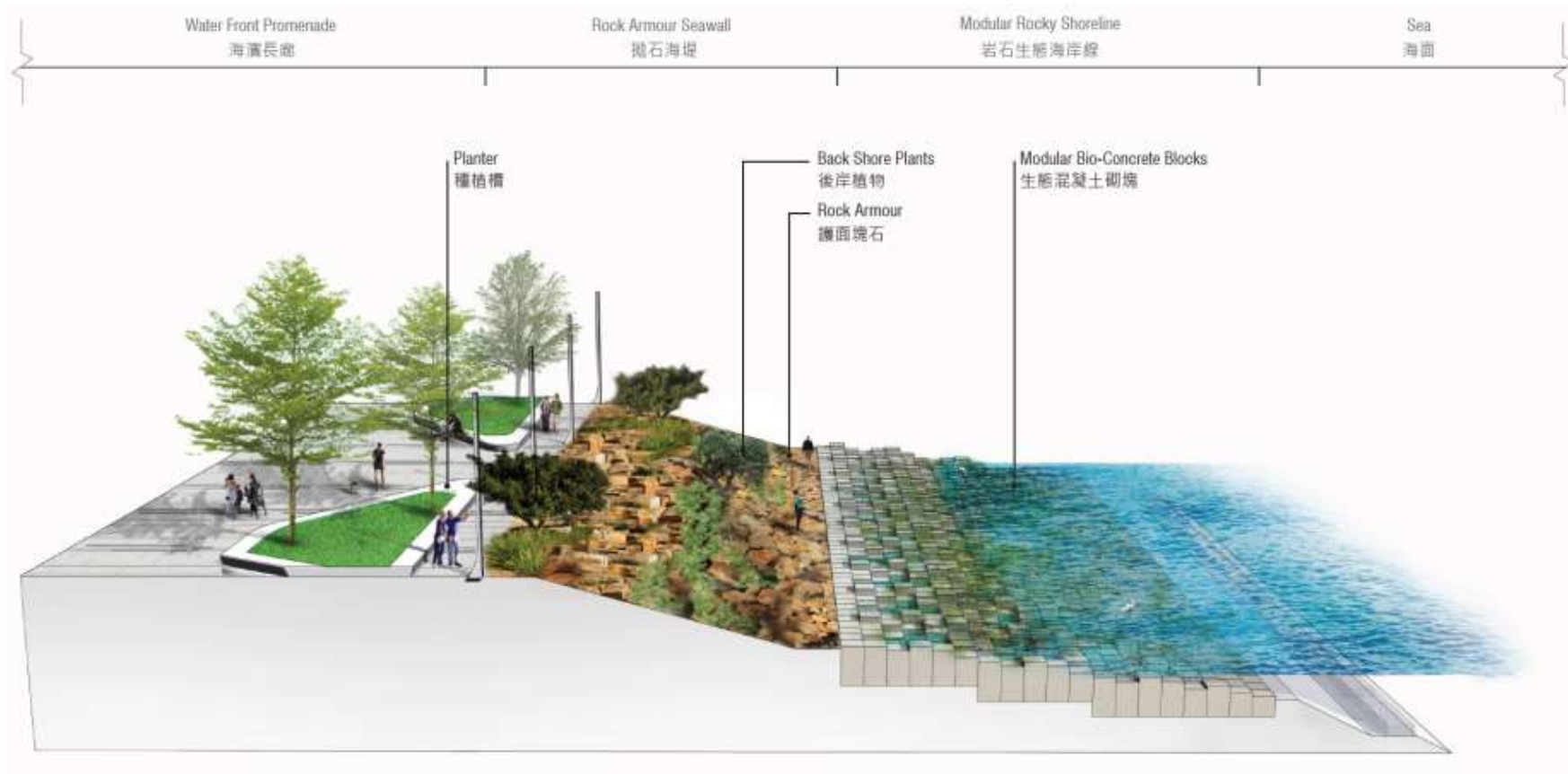
- *To arrange site visits to eco-shoreline for stakeholders after the pandemic.*

# Mangrove Eco-shoreline





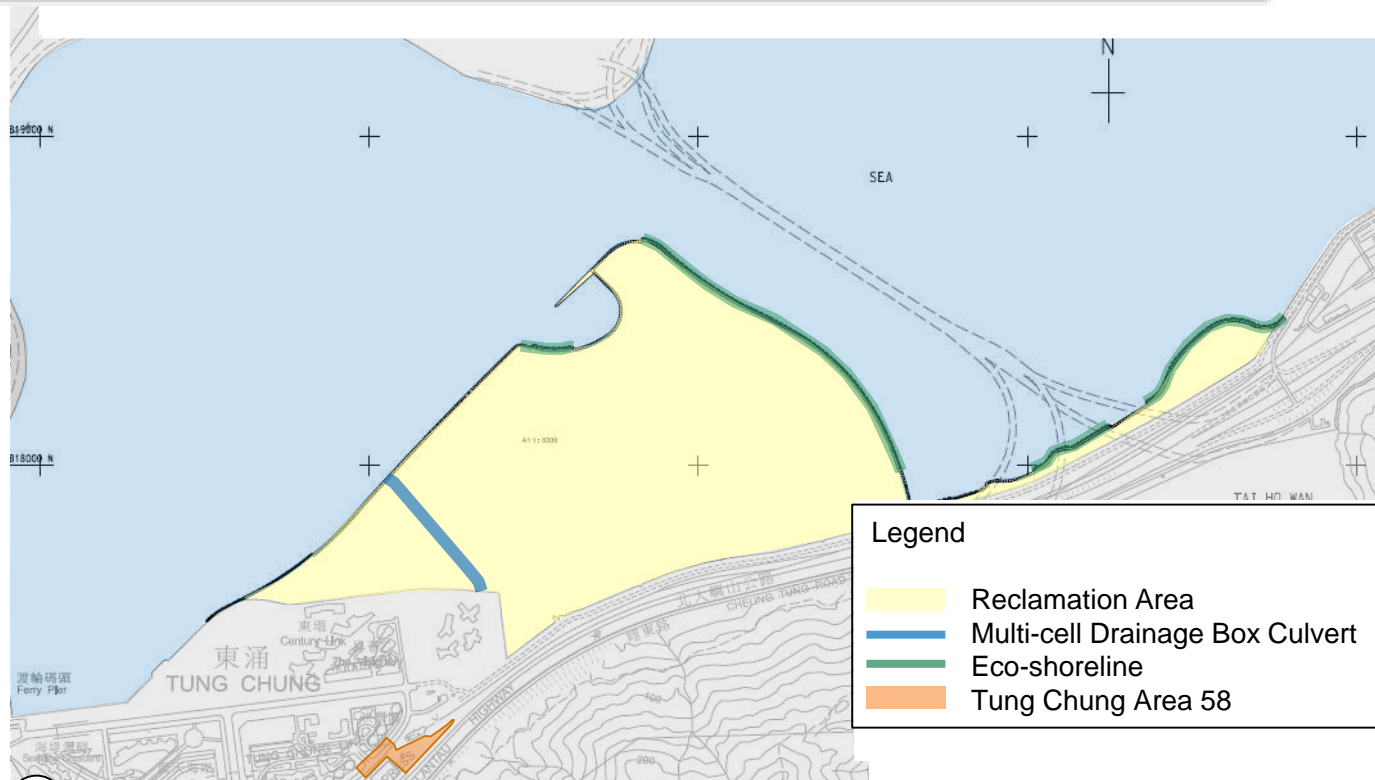
# Rocky Eco-shoreline



# 3. Environmental Monitoring and Audit

## a) Tung Chung East

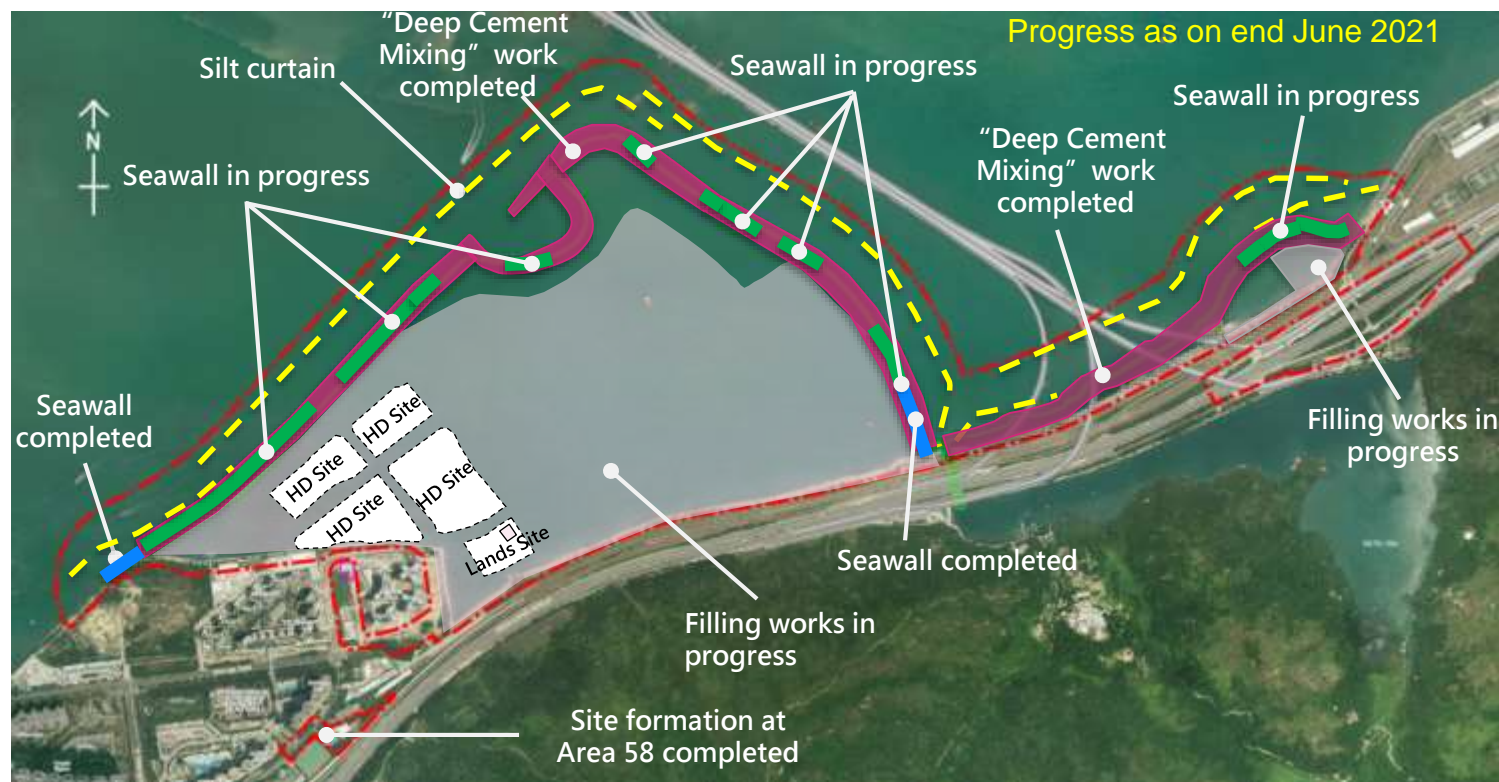
# Tung Chung East Reclamation



- ① 130 hectares land reclamation by non-dredged method
- ② Construction of 4.9 km seawalls partly with eco-shorelines
- ③ Construction of 470m extension of multi-cell drainage box culvert
- ④ Site formation for future development in Tung Chung Area 58



# Current Progress



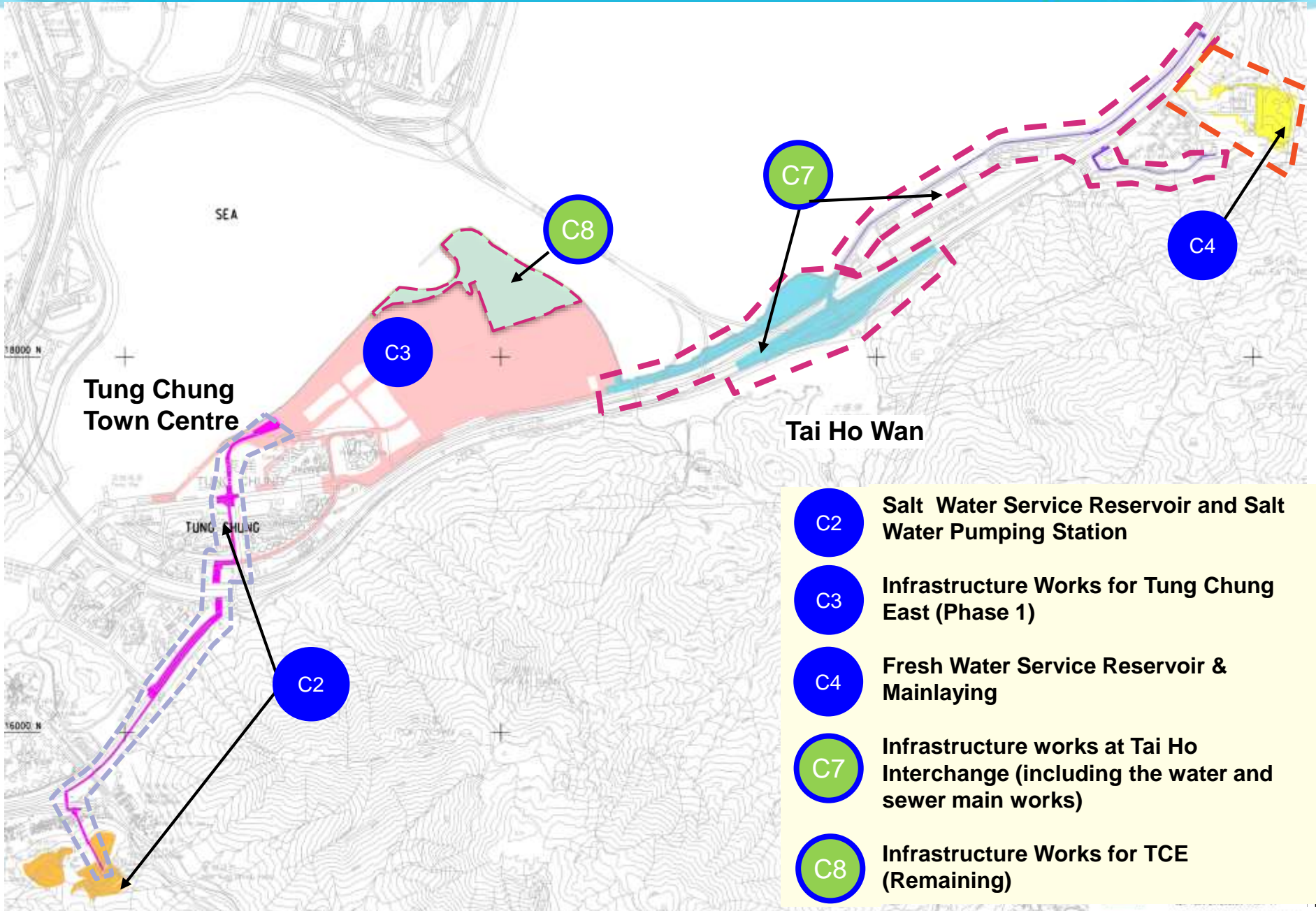
# Aerial Photo

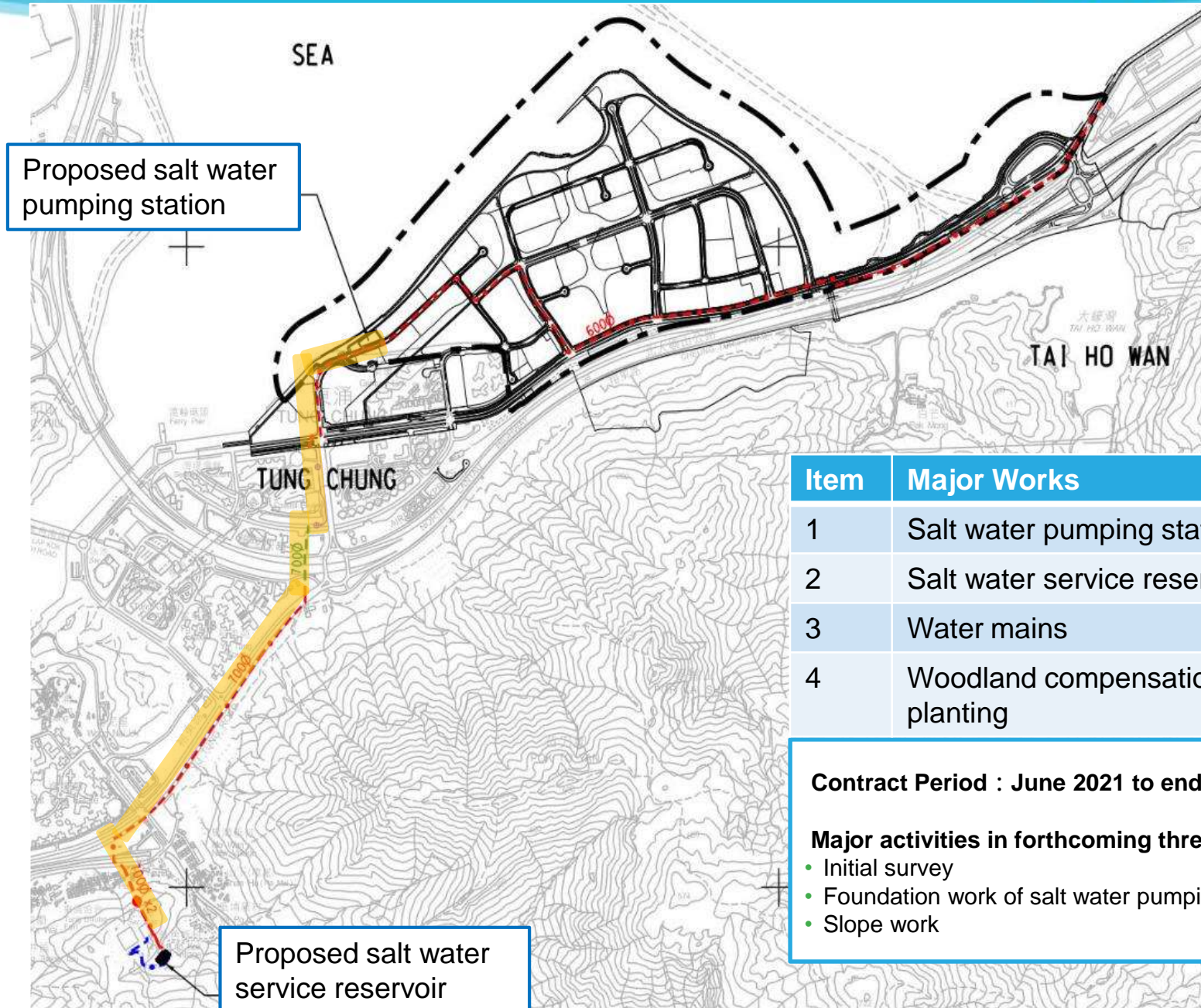
Photo taken in June 2021





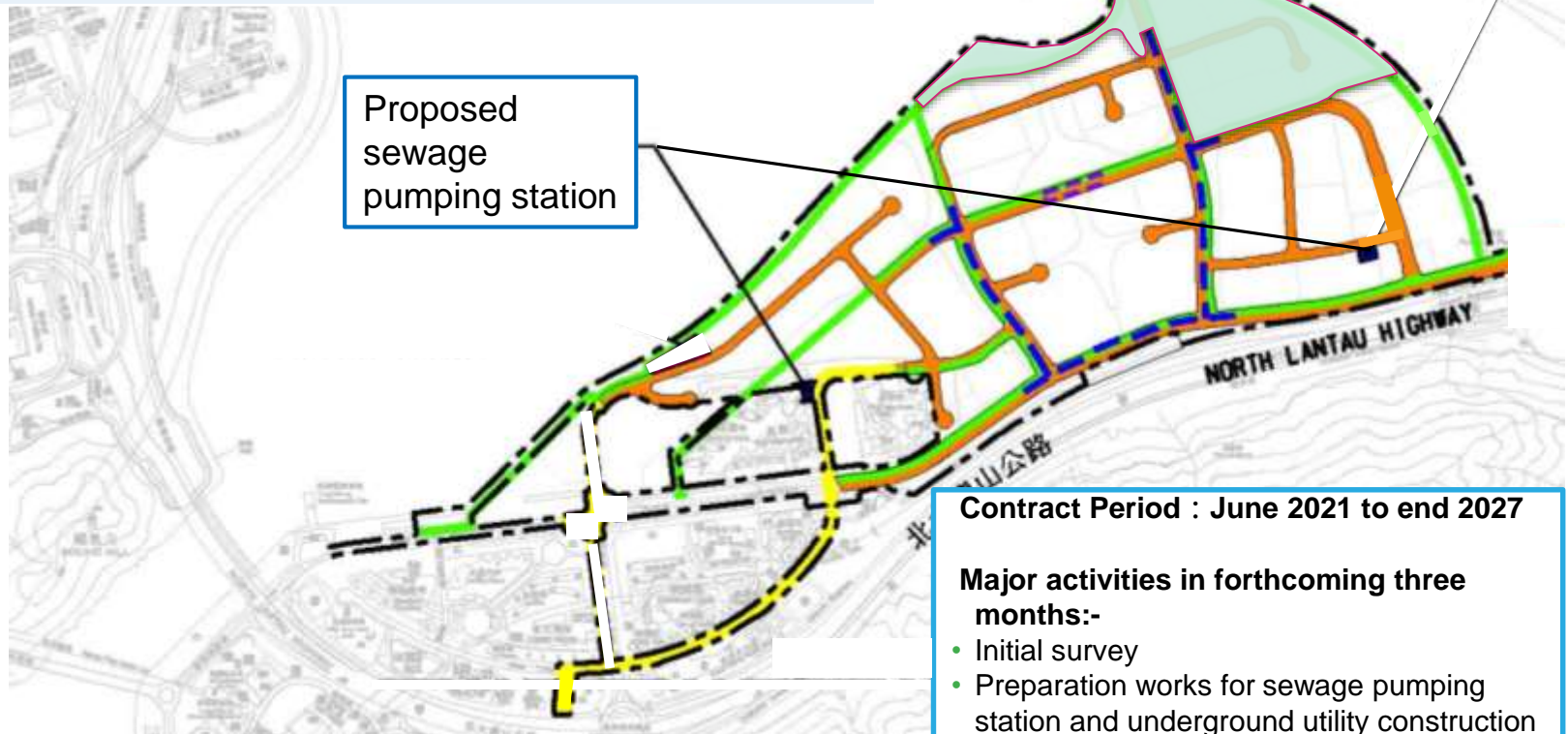
# Tung Chung East Infrastructure





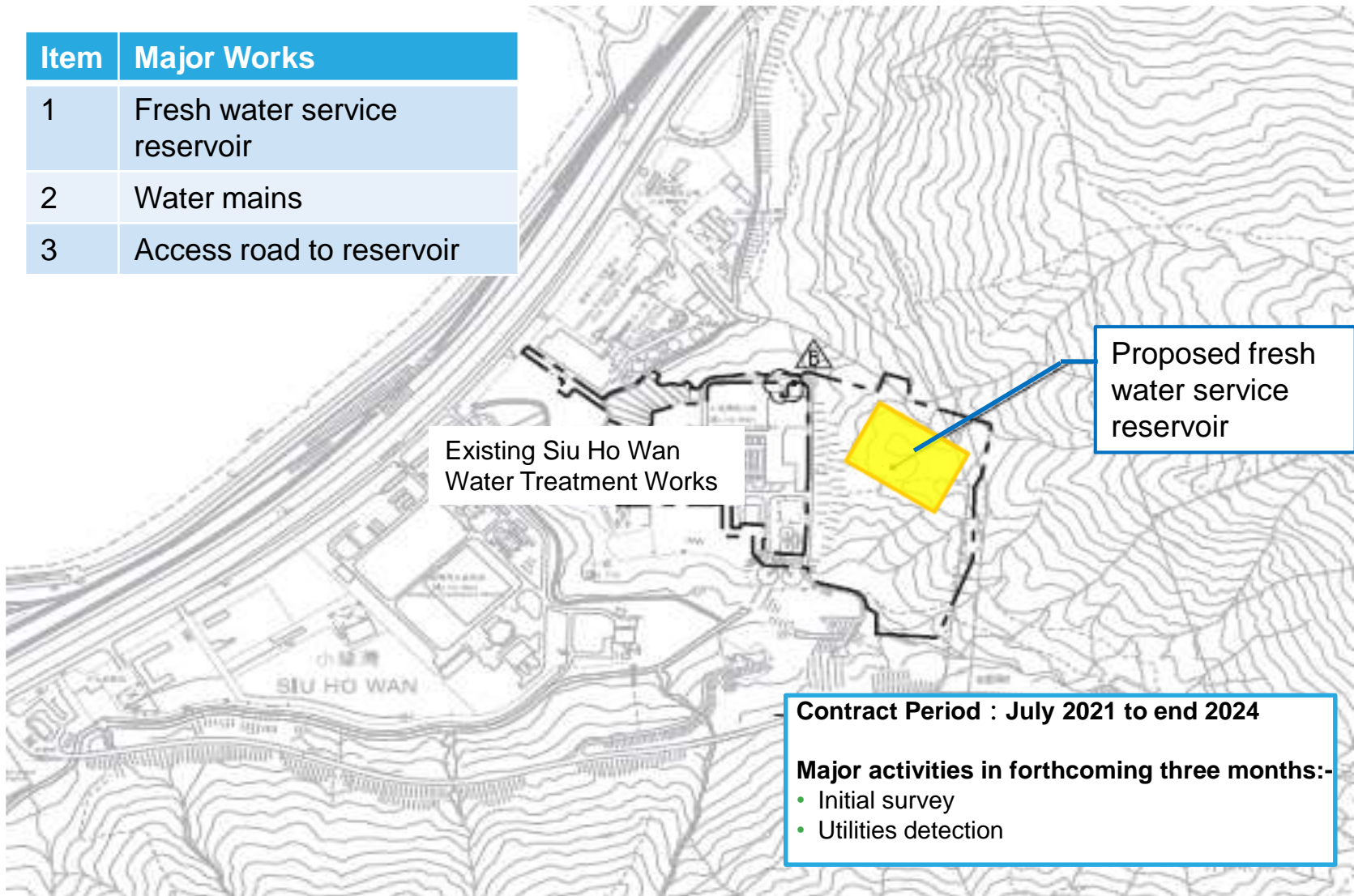


Item	Major Works
1	Local road network, footpath and cycle track network
2	Road P1 connecting Tung Chung East to Pak Mong section
3	East and west sewage pumping stations
4	Associated drainage, water and soft landscaping works





Item	Major Works
1	Fresh water service reservoir
2	Water mains
3	Access road to reservoir



# Newsletter Issues

**東涌新市鎮擴展—填海及前期工程**  
TUNG CHUNG NEW TOWN EXTENSION - RECLAMATION AND ADVANCE WORKS

**第十一期通訊**  
NEWSLETTER ISSUE 11

2021-02

歡迎閱讀第十一期東涌新市鎮擴展—填海及前期工程通訊，本通訊將介紹防止船隻碰撞監察系統，並提供有關工程進度及相關資訊。

Welcome to our eleventh issue of the newsletter for Tung Chung New Town Extension - Reclamation and Advance Works. This issue covers the Collision Prevention Monitoring System for vessels, progress of reclamation works and relevant information.

**防止船隻碰撞監察系統**  
Collision Prevention Monitoring System for Vessels

為防止工船船隻在進行工船時與屯門近岸離岸碼頭(與舊船塢)衝突發生碰撞，本工程設置了防止船隻碰撞監察系統及船舶監察設備。系統會即時監察和記錄船隻的運動軌跡並與船隻平台持續監察工船船隻位置及方向，系統將能夠有效監察及防止船隻與碼頭之衝突發生碰撞。此類即時監察，避免意外發生。

To avoid collision of construction works vessels with the vessel of Tuen Mun - Chei Lap Kok Link (Southern Connection), a Collision Prevention Monitoring System for vessels with Internet of Things(IoT) sensors was deployed. The system merges the real-time data into a Building Information Modelling(IoM) based management platform to continuously monitor the positions and movements of construction works vessels. The monitoring system effectively detects and prevents potential collision of vessels with the wharf and triggers immediate alert to avoid accidents.



即時監察系統  
Real-time monitoring system

實時監察系統可即時監察工船船隻位置及方向  
Real-time monitoring of the position and orientation of construction works vessels by using the Collision Prevention Monitoring System for Vessels

**Key Remarks:**

1. 透過即時監察系統，確保工程船隻與船塢、船塢及船塢碼頭之安全，並提供即時監察及記錄船隻的運動軌跡及位置，並提供即時監察及記錄船隻的運動軌跡及位置，並提供即時監察及記錄船隻的運動軌跡及位置。
2. 透過即時監察系統，確保工程船隻與船塢、船塢及船塢碼頭之安全，並提供即時監察及記錄船隻的運動軌跡及位置，並提供即時監察及記錄船隻的運動軌跡及位置。

**東涌新市鎮擴展—填海及前期工程**  
TUNG CHUNG NEW TOWN EXTENSION - RECLAMATION AND ADVANCE WORKS

**第十二期通訊**  
NEWSLETTER ISSUE 12

2021-05

歡迎閱讀第十二期東涌新市鎮擴展—填海及前期工程通訊，本通訊將介紹在建造箱型排水暗渠的過程中應用深層水泥支撐合法。

Welcome to our twelfth issue of the newsletter for Tung Chung New Town Extension - Reclamation and Advance Works. This issue covers the application of deep cement mixing method for box culvert construction, progress of reclamation works and relevant information.

**在建造箱型排水暗渠的過程中應用深層水泥支撐合法**  
Application of Deep Cement Mixing Method for Box Culvert Construction

由於填海區海床地質情況，原有箱型排水暗渠設計和現有的箱型排水暗渠需要與新的箱型排水暗渠連接。在填海區海床地質情況(1.0米至3.5米)深，需要深層水泥支撐合法。傳統方法會安裝鋼筋及轉向角，但需要安裝、搬運及支撐結構。本工程採用深層水泥支撐合法，具有深層水泥支撐合法(與傳統方法相比)，加強泥土、形成穩定土。與傳統方法相比，深層水泥支撐合法不需要安裝、搬運及支撐結構。因此，廢除工牌及轉角，減少安裝時間，而且工牌亦能大幅增加，加快建造進度。

Due to reclamation, the geology is shifted northward and the existing box culvert needs to be extended to the new zone. Track extension is required before construction of the box culvert (15.5m wide and 3.5m high). The conventional method is to install excavation and lateral support, including sheet piles, walings and struts. In the project, deep cement mixing (DCM) method (Please refer to Newsletter Issue No. 2) was applied to strengthen the soil as a retaining wall. Compared with the conventional method, installation of sheet piles, walings and struts are not required in DCM method. As such, the construction sequence are simpler and the time for installation is reduced. In addition, more working space is available, which speeds up the works progress.



傳統方法  
Conventional method

深層水泥支撐合法 (深層水泥)  
Construction of box culvert using DCM method

**Key Remarks:**

1. 深層水泥支撐合法，具有深層水泥支撐合法(與傳統方法相比)，加強泥土、形成穩定土。與傳統方法相比，深層水泥支撐合法不需要安裝、搬運及支撐結構。因此，廢除工牌及轉角，減少安裝時間，而且工牌亦能大幅增加，加快建造進度。
2. 深層水泥支撐合法，具有深層水泥支撐合法(與傳統方法相比)，加強泥土、形成穩定土。與傳統方法相比，深層水泥支撐合法不需要安裝、搬運及支撐結構。因此，廢除工牌及轉角，減少安裝時間，而且工牌亦能大幅增加，加快建造進度。

QR Code: 

To take note of construction progress



# Dedicated Website under EP-519/2016



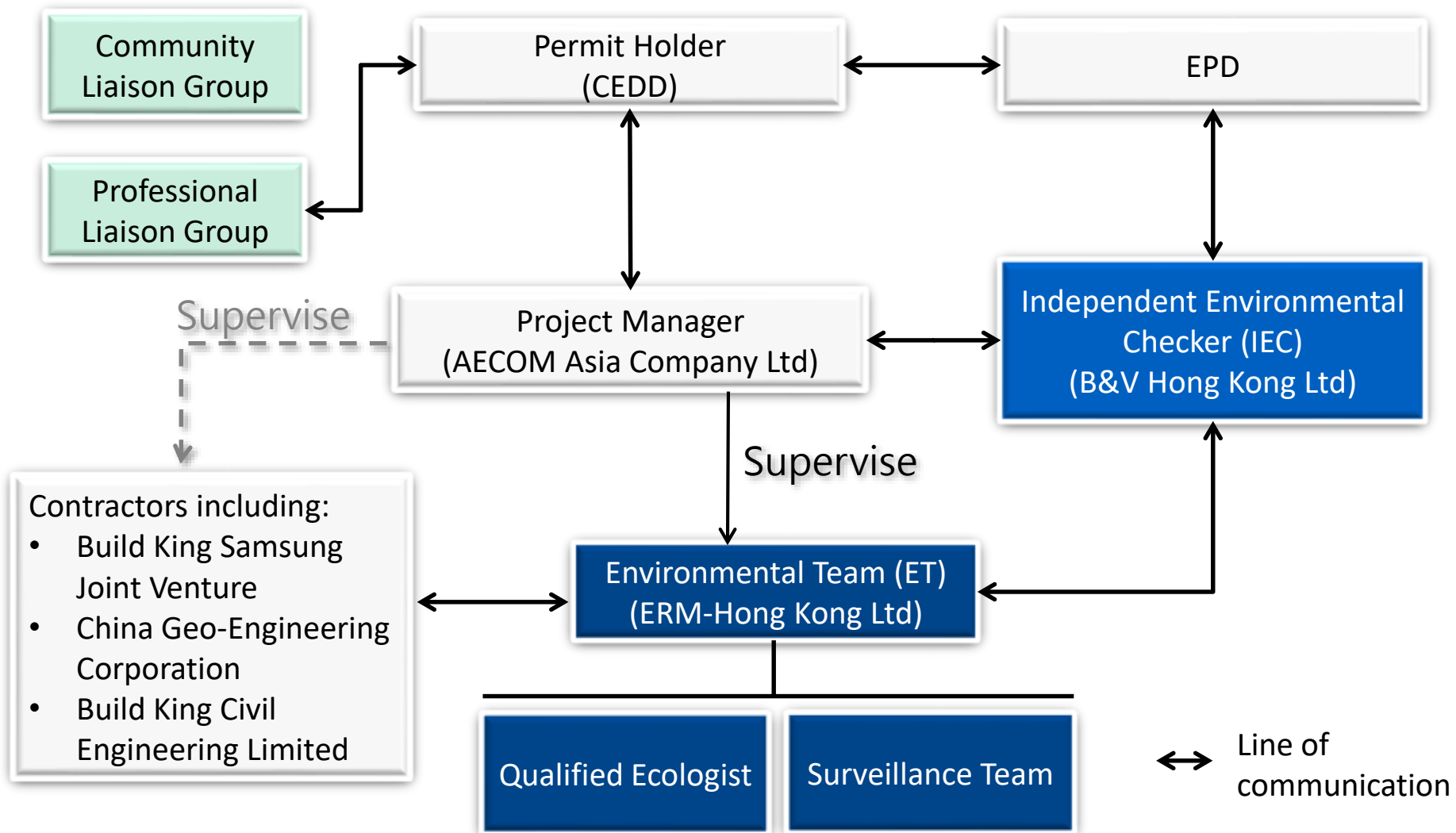
Website: <http://env.tcnte.hk/index.html>



## Tung Chung New Town Extension

This dedicated website is set up in accordance with the requirements in the Environmental Permit (EP) (EP NO. EP-519/2016) to enable user-friendly public access of information of the Tung Chung New Town Extension and the associated environmental monitoring data.

# EM&A Management Organization



# Protection and Mitigation Measures on Construction Activities



Water spraying by water truck for dust control



Automatic sprinklers for dust control



Noise monitoring



Noise mitigation measures on deep cement mixing plant



# Protection and Mitigation Measures on Construction Activities



Maintenance of  
perimeter silt curtain

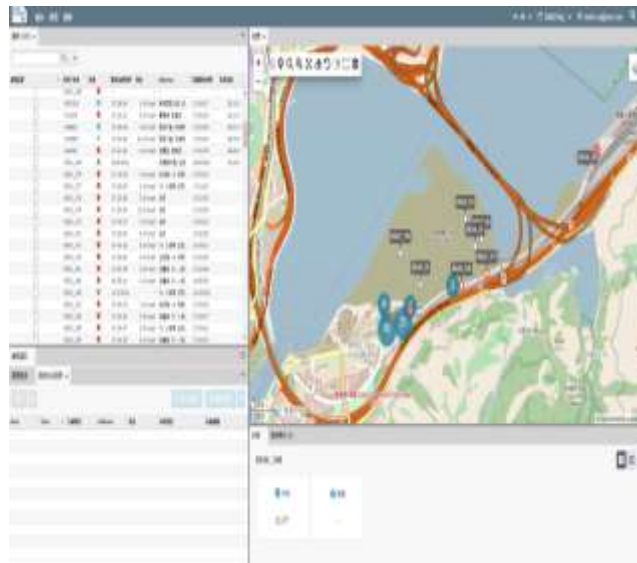


Water quality monitoring



Tracking and Speed control of  
works vessels

# Protection and Mitigation Measures on Construction Activities



Real time tracking and monitoring system for dump trucks



Trip ticket for waste control

# EM&A Monitoring – Air Quality



## Air Quality Monitoring

**Frequency** Three times every six days  
**Monitoring Parameter** 1-hour Total Suspended Particulate



## Monitoring Results between Jan 2021 and Jun 2021

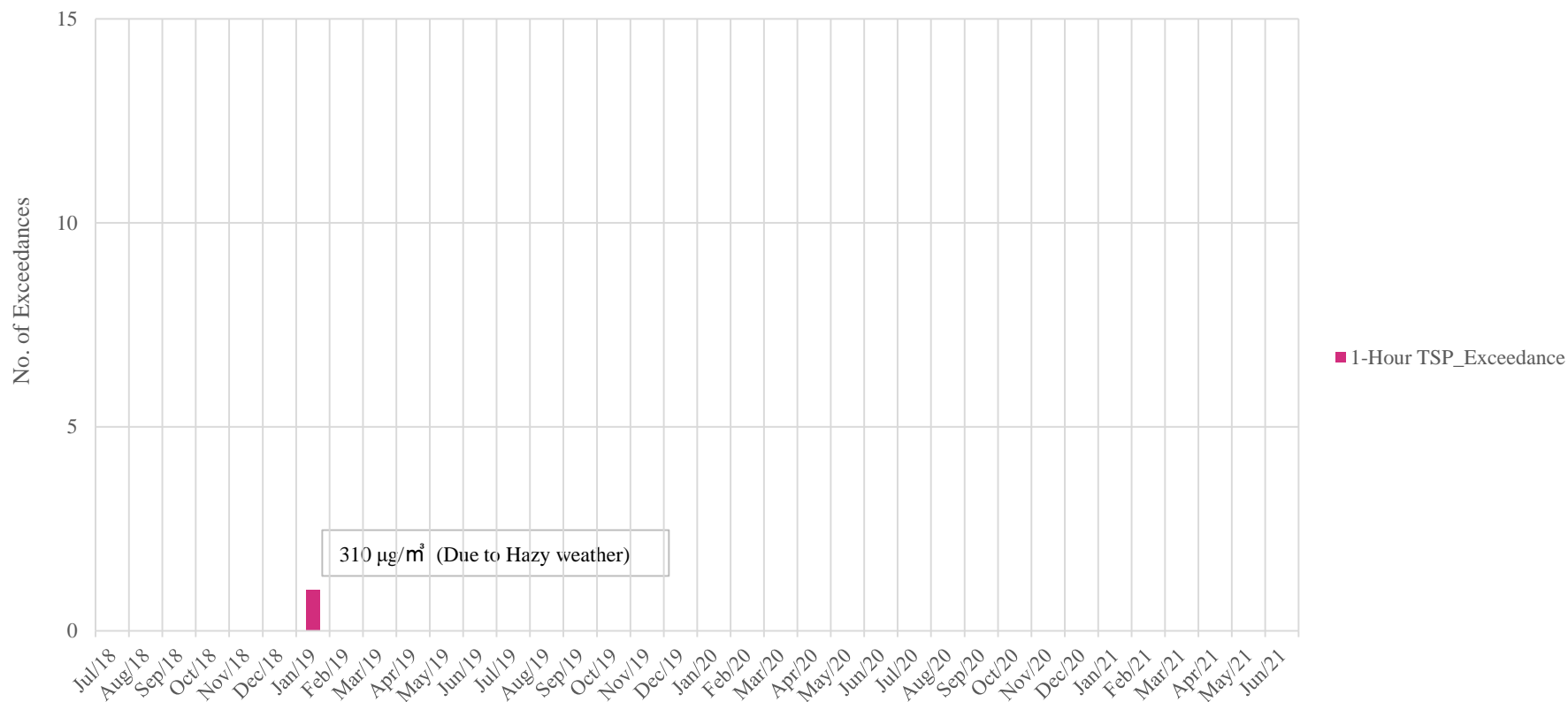
No project-related exceedance was recorded.



*Dust monitoring near Ying Tung Estate (DM-1)*

# EM&A Monitoring – Air Quality

**Tung Chung New Town Extension - Reclamation and Advance Works**  
1-Hour TSP Exceedance Record of Air Quality Monitoring



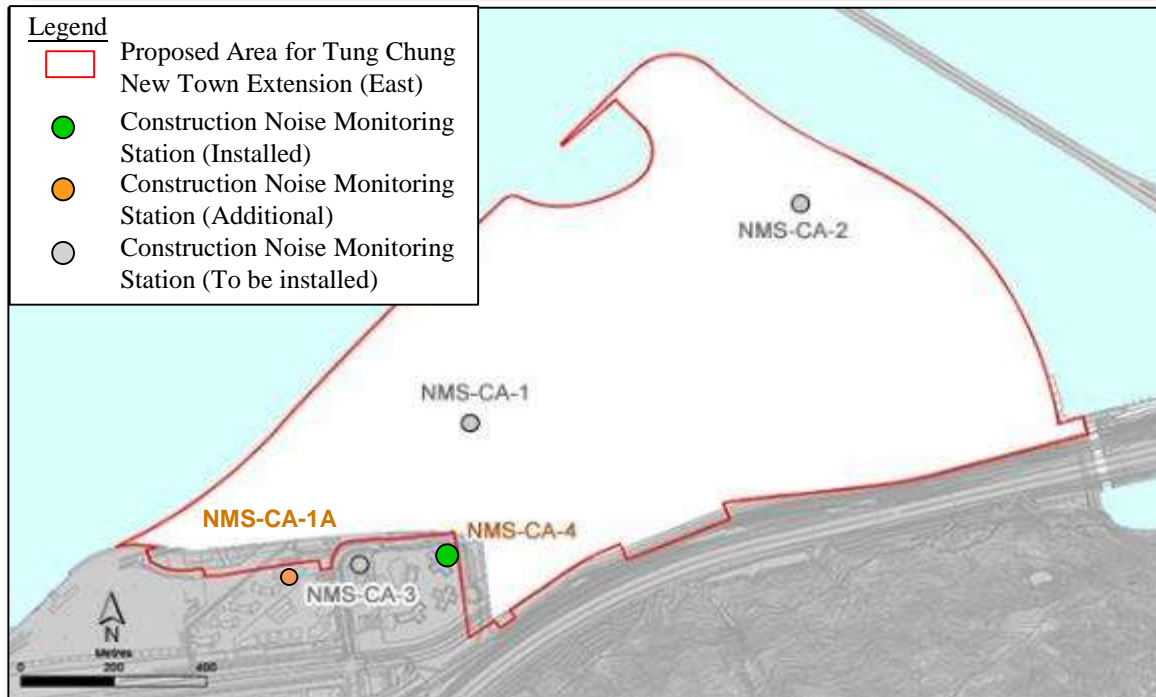


# EM&A Monitoring – Noise



## Noise Monitoring

**Frequency** Once per week  
**Monitoring Parameter**  $L_{eq}$  (30mins)



## Monitoring Results between Jan 2021 and Jun 2021

Results of noise monitoring indicated that noise levels were within acceptable level (75dBA)

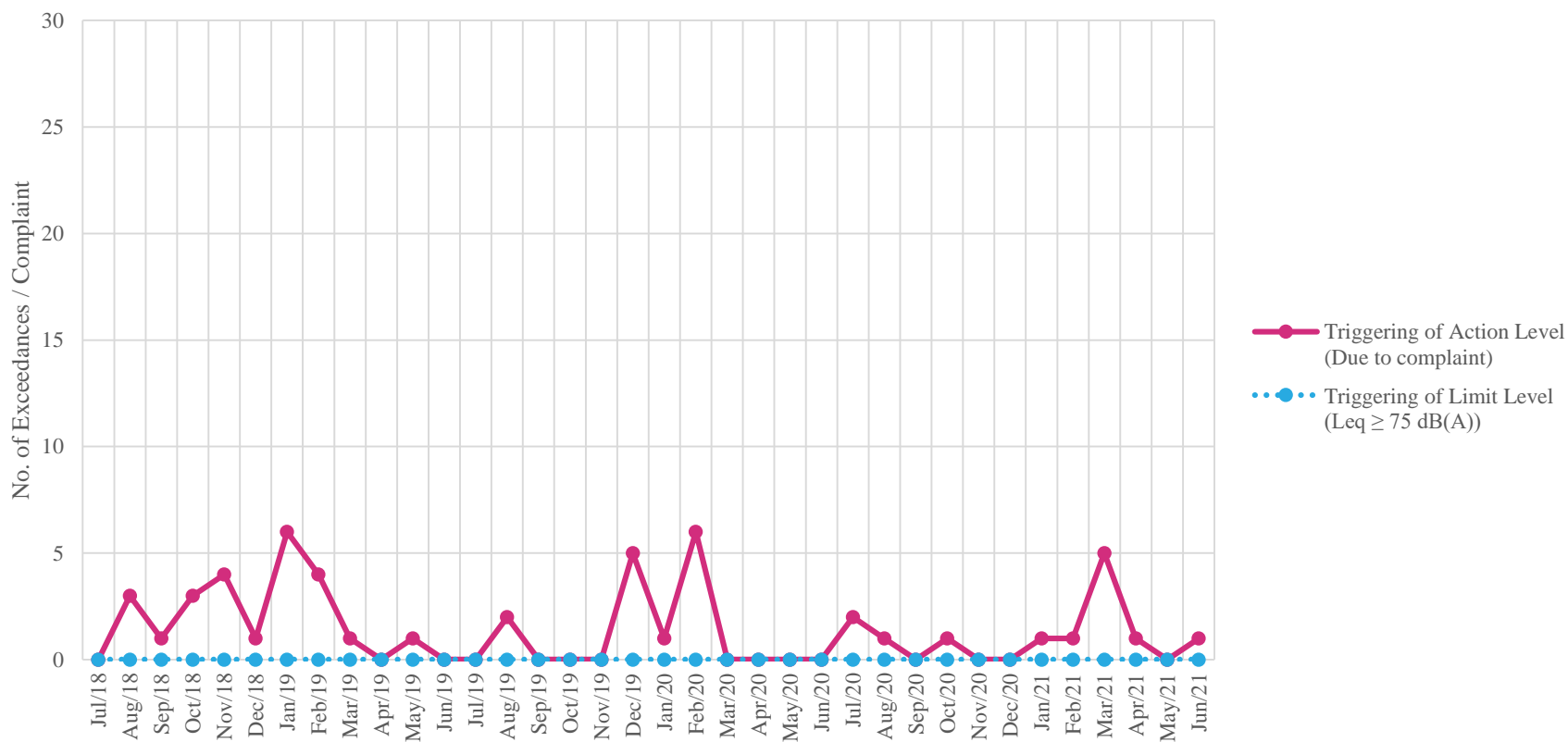


Noise monitoring near Ying Tung Estate (NMS-CA-4)



# EM&A Monitoring – Noise

**Tung Chung New Town Extension - Reclamation and Advance Works**  
Exceedance / Complaint Record of Noise Monitoring



# EM&A Monitoring – Water Quality



## Water Quality Monitoring

**Frequency** 3 times per week, at mid-flood & mid-ebb tides  
**Monitoring Parameter** Dissolved Oxygen, pH Value, Salinity, Turbidity, Suspended Solids, Temperature



## Monitoring Results between Jan 2021 and Jun 2021

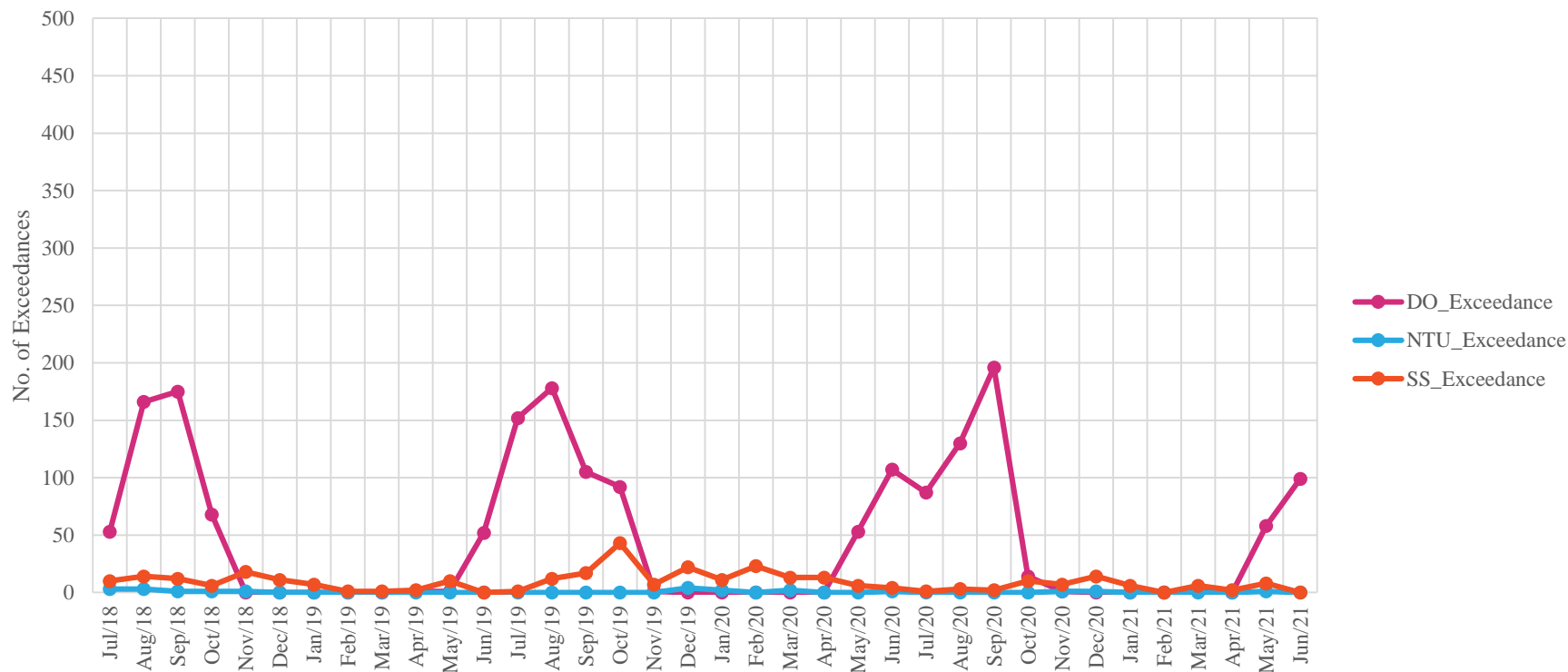
No project-related exceedance was recorded.



Water monitoring by ET (TCE-WQM1)

# EM&A Monitoring – Water Quality

**Tung Chung New Town Extension - Reclamation and Advance Works**  
Exceedance Record of Water Quality Monitoring



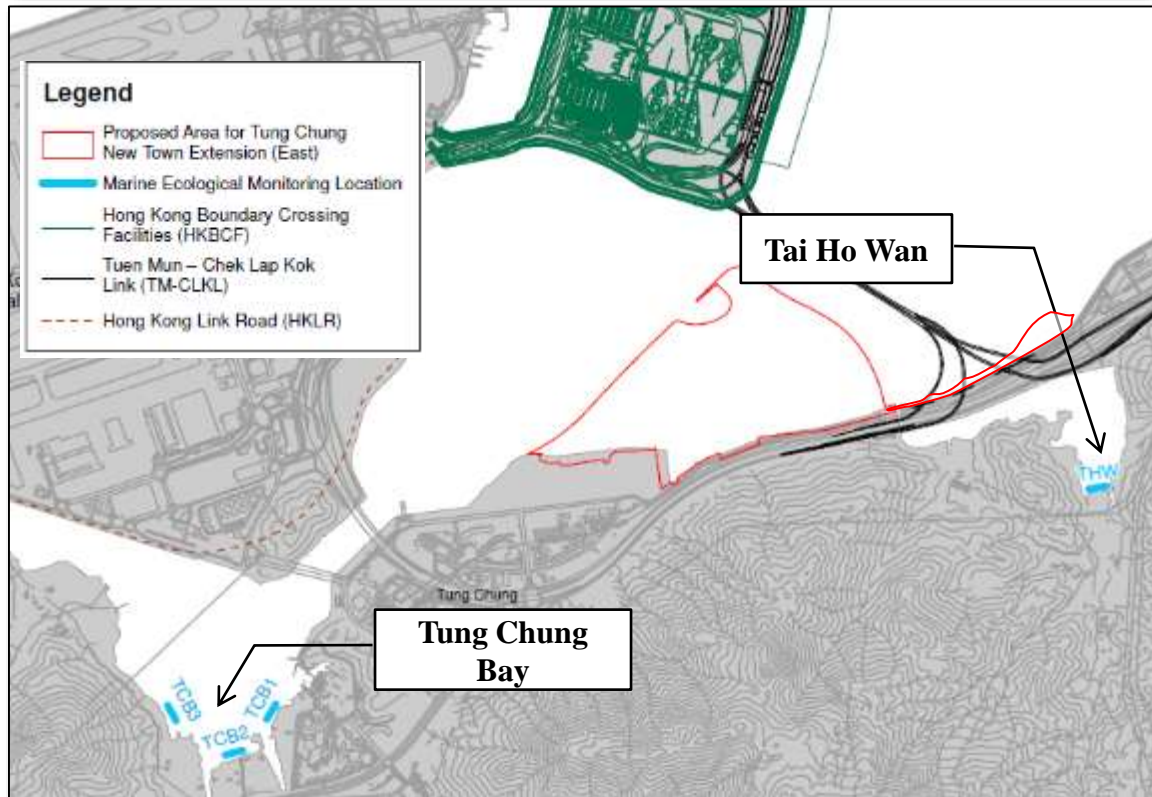
The majority exceedances recorded were DO exceedances. Low levels of DO were recorded during summer period. This trend suggested the changes should be due to seasonal fluctuation.

# EM&A Monitoring – Ecology



## Ecological Monitoring

<b>Frequency</b>	Quarterly
<b>Monitoring Parameter</b>	Horseshoe Crabs, Seagrass, Intertidal Soft Shore Communities



## Monitoring Results between Mar 2021 and Jun 2021

Ecological monitoring was conducted in Jun 2021.

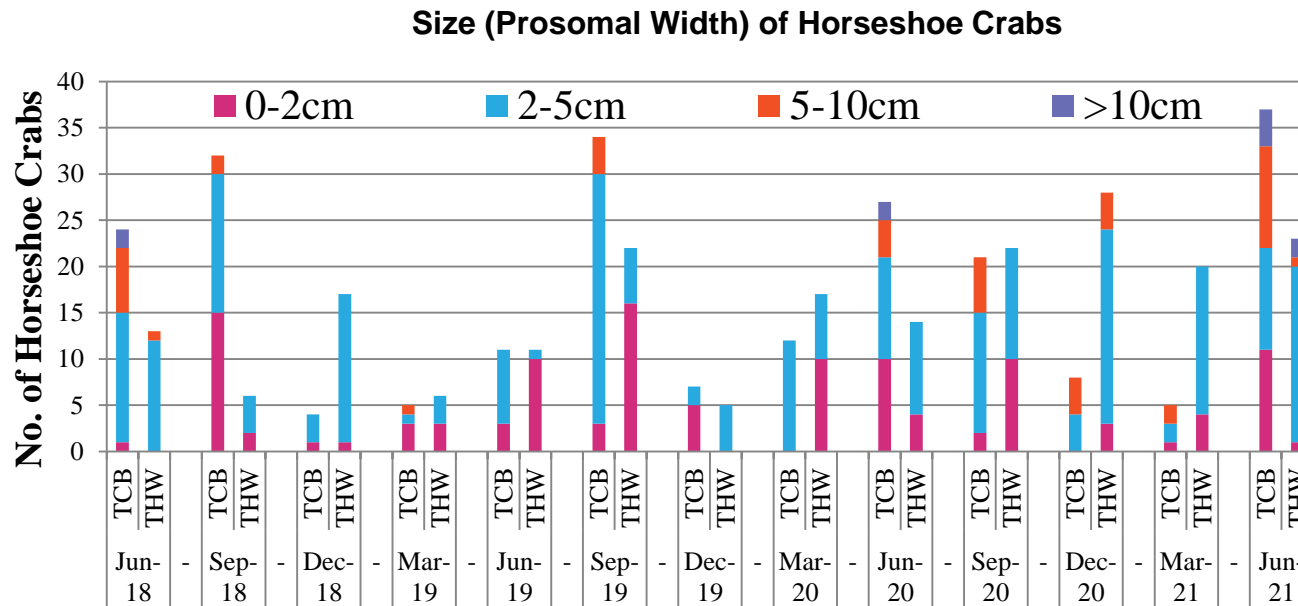
Horseshoe crabs were found in both Tung Chung Bay and Tai Ho Wan.



Juvenile *Tachypleus tridentatus* found at Tung Chung Bay

# Horseshoe Crab

- Numbers of horseshoe crabs varied over time and were generally higher in summer period (May – Sep)
- Small juvenile horseshoe crabs (prosomal width <2 cm) were recorded during all impact monitoring since Sep 2018



Baseline  
(May-Jun 18)



Recorded at Tung Chung Bay



# Complaint received

Date	Water	Air	Noise	Others (Light, Waste, Ecology)
Jul 18 – Dec 18	2	1	12	4
Jan 19 – Jun 19	4	4	12	2
Jul 19 – Dec 19	1	4	7	0
Jan 20 – Jun 20	1	6	7	0
Jul 20 – Dec 20	4	24	4	0
Jan 21 – Jun 21	3	10	9	0
Categories	<ul style="list-style-type: none"> <li>• Sea pollution</li> <li>• Red tide</li> <li>• Muddy plume/ Track</li> </ul>	<ul style="list-style-type: none"> <li>• Odour</li> <li>• Dust</li> <li>• Dark smoke</li> <li>• Muddy Track</li> </ul>	<ul style="list-style-type: none"> <li>• Noise from DCM plant</li> <li>• Noise early at the morning</li> </ul>	<ul style="list-style-type: none"> <li>• Light disturbance</li> </ul>



土木工程拓展署  
Civil Engineering and  
Development Department



# Environmental Monitoring and Audit

## Tung Chung West

5<sup>th</sup> PLG Meeting  
Date: 19 July 2021

# Tung Chung West

➤ **Contract No.: NL/2020/05**

Item	Major Works
①	Road works and associated works for Tung Chung Road North, Ma Wan Chung Car Park, Chung Yan Road
②	Area 29A Town Park and Coastal Pedestrian Access
③	Site Formation at Area 23

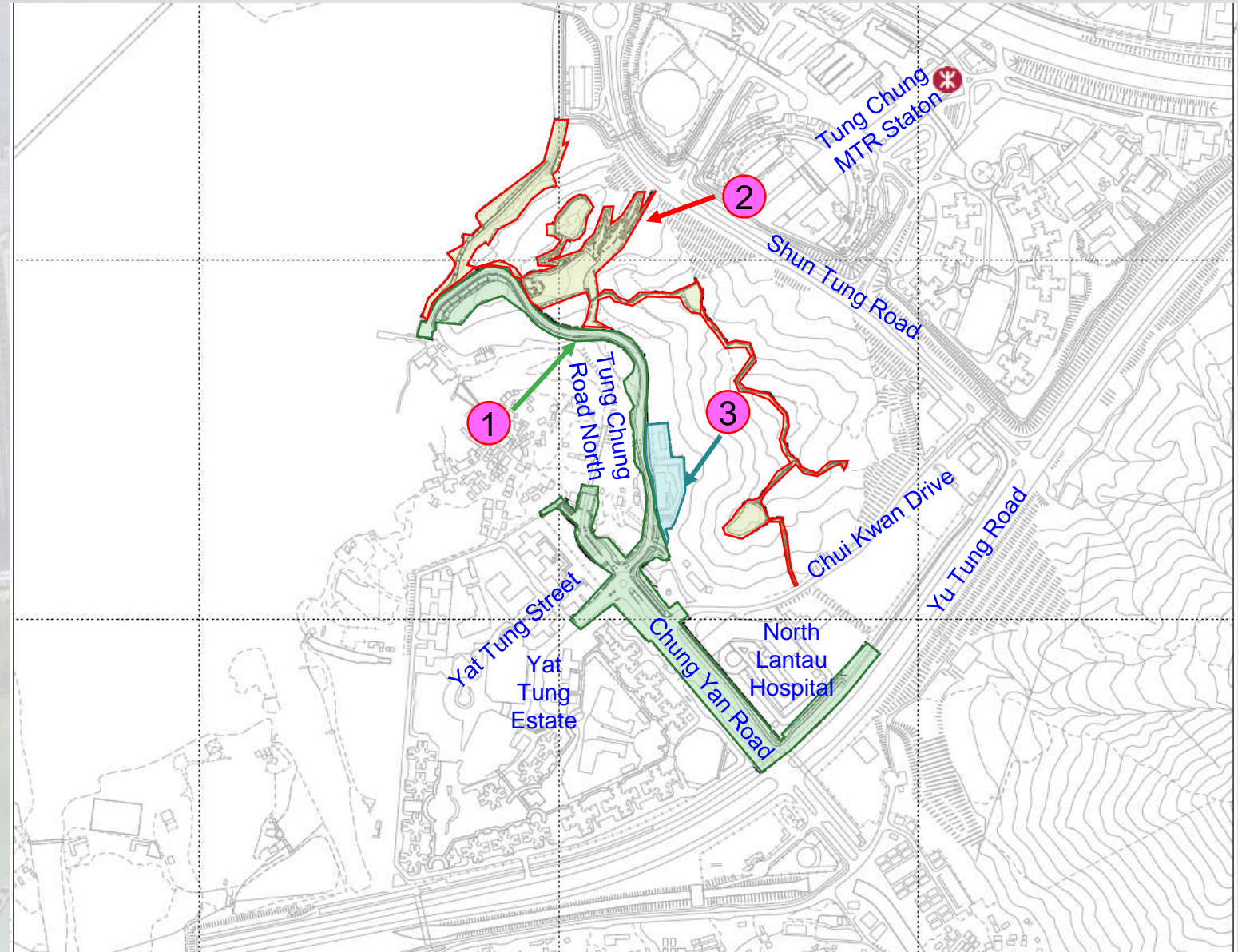
**Contract Period : May 2021 to January 2025**

## Major activities in forthcoming three months:-

- Initial topographical survey
- Tree survey
- Condition survey of buildings and structures
- Site clearance and erection of hoarding

## Environmental Works:-

- Archaeological survey
- Land contamination survey





# Tung Chung West

➤ **Contract No.: NL/2020/06**

Item	Major Works
1	Road Works for Chung Mun Road, Road L29, Road L30 & Shek Mun Kap Road
2 & 3	Sewerage Pumping Station & associated Pressurized Pipes
4	Common Utility Tunnel
5	River Park & Visitor Center
6	Bridges across Tung Chung River
7	Site Formation at Area 42 & Area 46
8	Sustainable Urban Drainage System
9	Woodland Compensation Planting

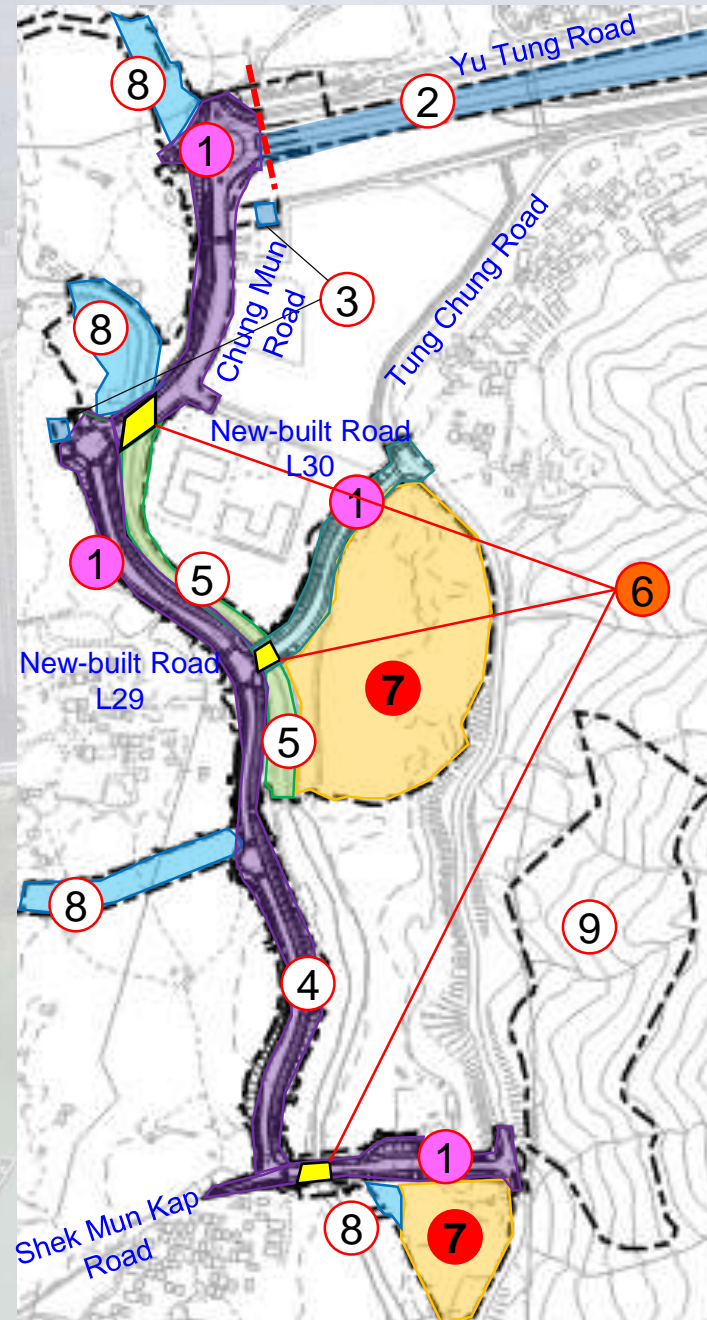
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**Major activities in forthcoming three months:-**

- Initial topographical survey
- Tree survey
- Condition survey of buildings and structures
- Site clearance and erection of hoarding

**Environmental Works:-**

- Archaeological survey
- Land contamination survey





# Management Organisation



# Baseline Monitoring





# Baseline Monitoring

## Legend:



Air quality monitoring location



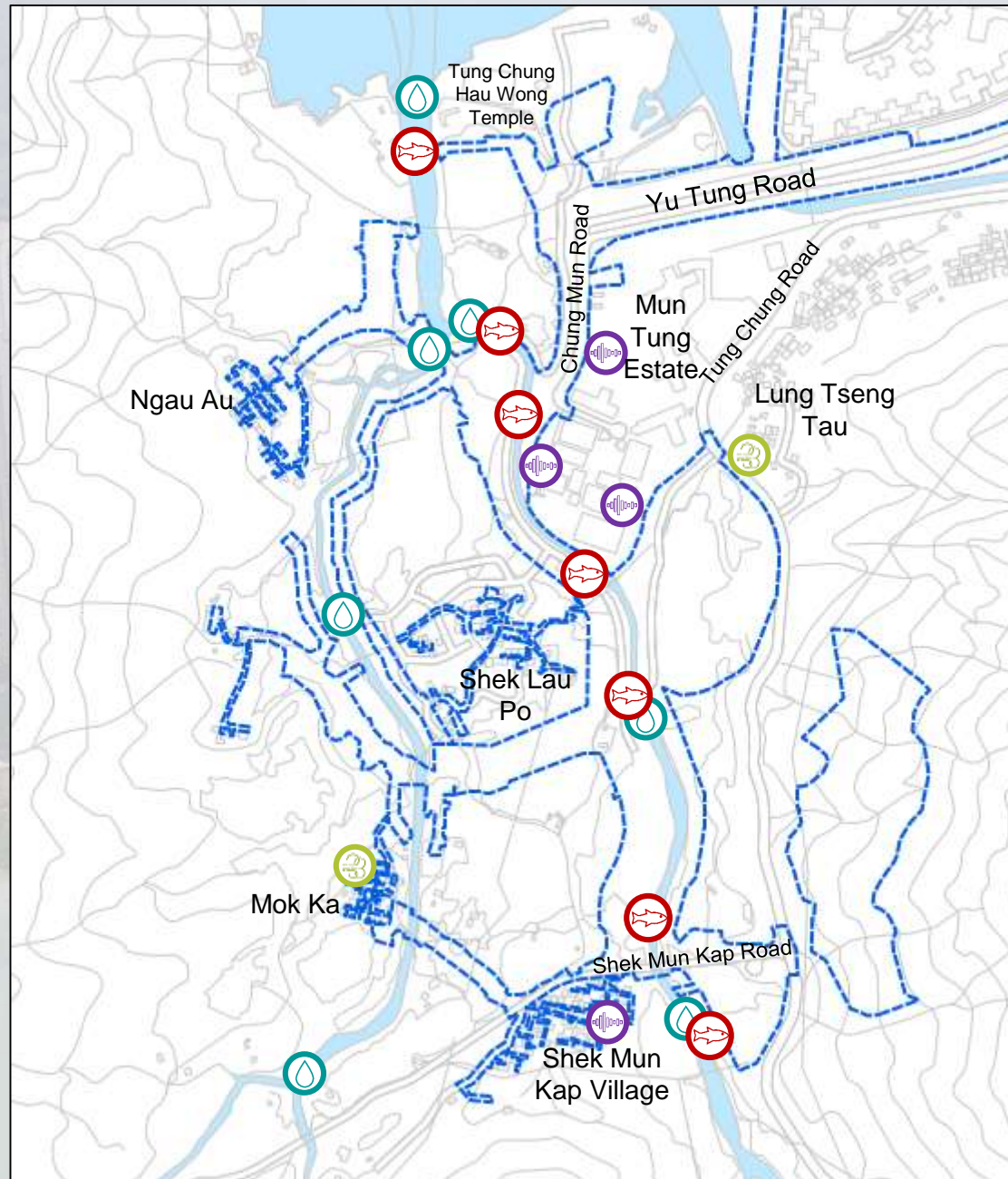
Noise monitoring location



Stream water quality monitoring location



Ecological monitoring location



Monitoring Parameter	No. of Stations
Air Quality	2
Noise	5
Stream Water	7
Ecological	4+3

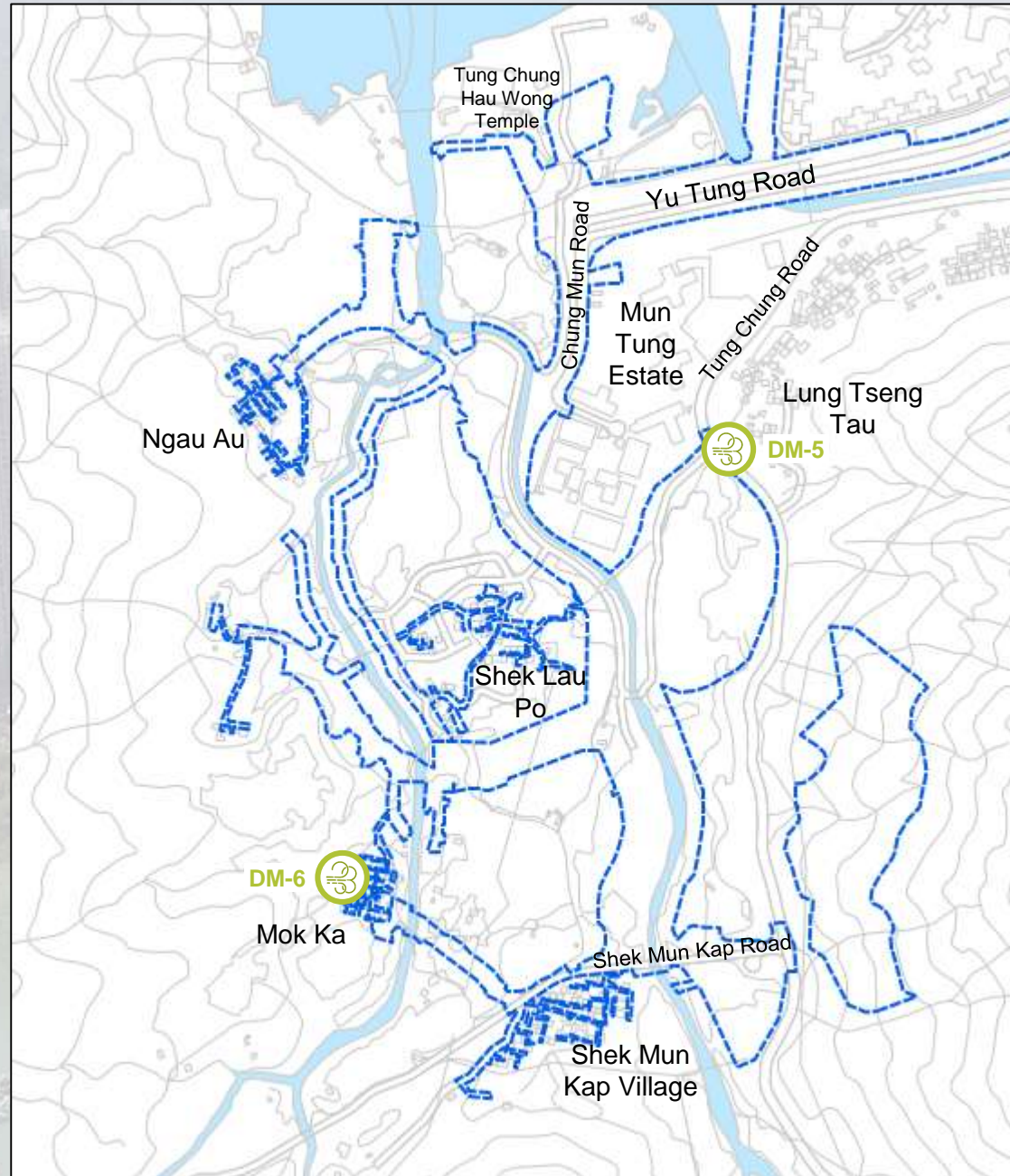


# Air Quality Monitoring

## LEGEND:



Air quality monitoring location





# Air Quality Monitoring



Monitoring Locations	Description	Monitoring Parameter	Monitoring Programme (Baseline)	Monitoring Programme (Impact)
DM-5	Lung Tseng Tau	1-hour TSP	<ul style="list-style-type: none"><li>• At least 14 consecutive days</li><li>• At least 3 times per day</li></ul>	<ul style="list-style-type: none"><li>• At least 3 times in every 6 days</li></ul>
DM-6	Mok Ka			

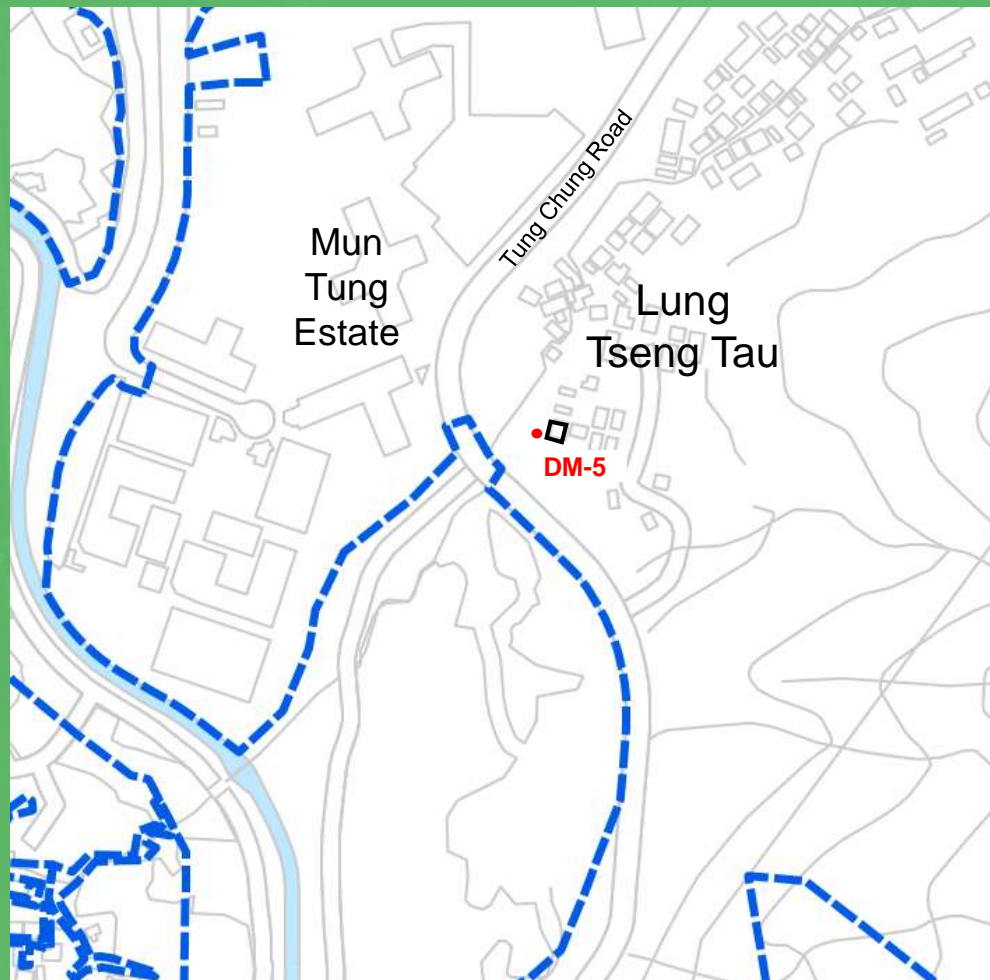
# Air Quality Monitoring



## DM-5 – Lung Tseng Tau



The red triangle indicates the proposed monitoring location



# Air Quality Monitoring



## DM-6 – Mok Ka



The red triangle indicates the proposed monitoring location



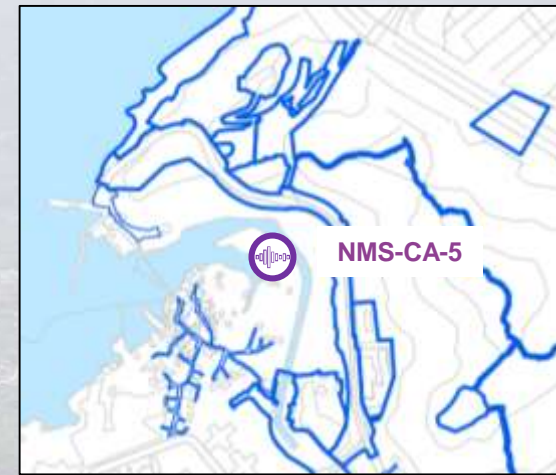
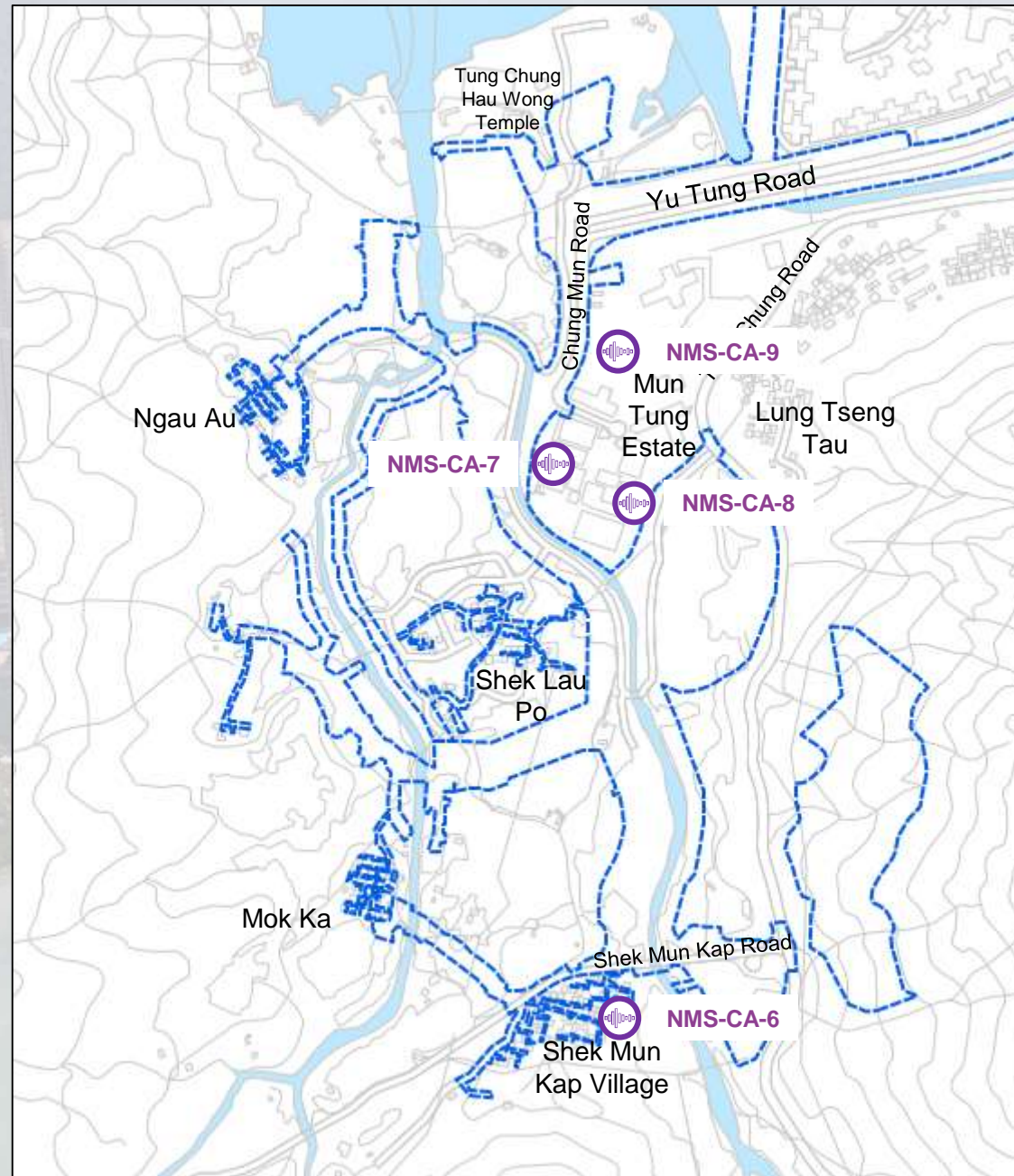


# Noise Monitoring

## LEGEND:



Noise monitoring location





# Noise Monitoring



Monitoring Locations	Description	Monitoring Parameter (Baseline)	Monitoring Parameter (Impact)	Monitoring Programme (Baseline monitoring)	Monitoring Programme (Impact monitoring)
NMS-CA-5	Village house in Ma Wan Chung	A-weighted levels $L_{eq}$ , $L_{10}$ and $L_{90}$	$L_{eq,(30min)}$ (i.e. 6 consecutive $L_{eq,(5min)}$ readings)	Daily for a period of at least two weeks in a sample period interval of <ul style="list-style-type: none"> <li>• 5 minutes or 30 minutes between 0700 and 1900, and;</li> <li>• 5 minutes between 1900 and 0700</li> </ul>	Once every week for 30 minutes measurement during normal construction working hour (i.e. 0700 – 1900 Monday to Saturday),
NMS-CA-6	Village house in Shek Mun Kap				
NMS-CA-7	YMCA of Hong Kong Christian College				
NMS-CA-8	Caritas Charles Vath College				
NMS-CA-9	Hong Chi Shiu Pong Morninghope School				

# Noise Monitoring



The red triangle indicates the proposed monitoring location



**NMS-CA-5**  
Village house in  
Ma Wan Chung





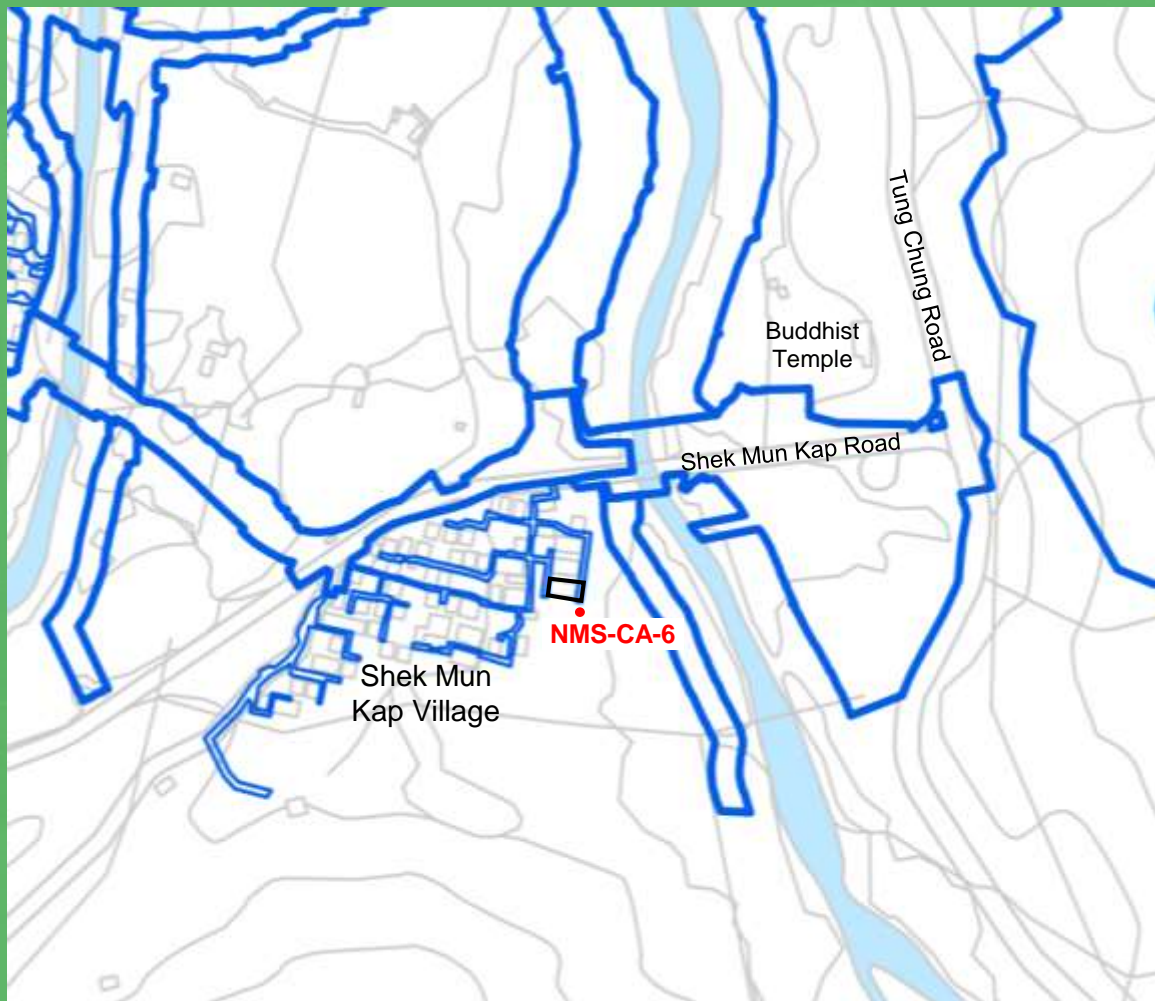
# Noise Monitoring



The red triangle indicates the proposed monitoring location



**NMS-CA-6**  
Village house in  
Shek Mun Kap



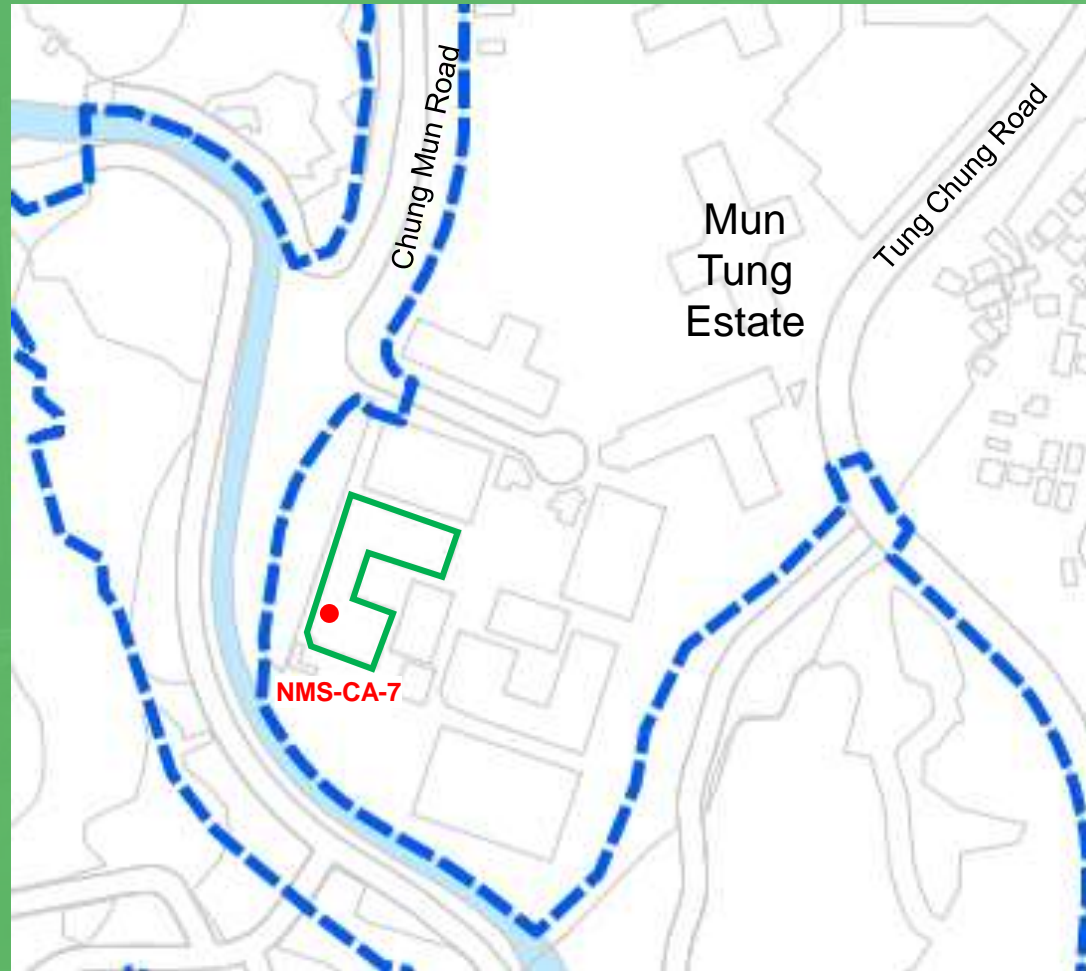
# Noise Monitoring



The red triangle indicates the proposed monitoring location



**NMS-CA-7**  
YMCA of Hong Kong  
Christian College





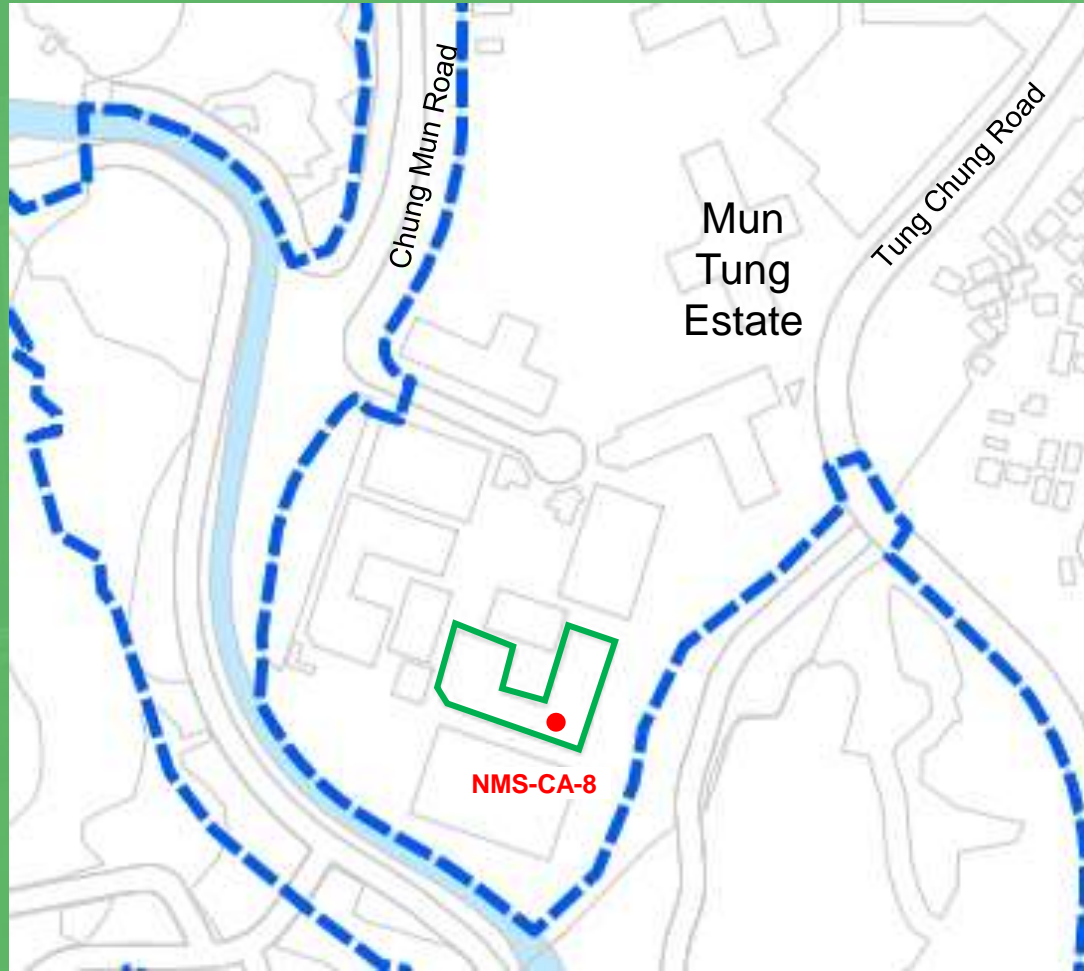
# Noise Monitoring



The red triangle indicates the proposed monitoring location



**NMS-CA-8**  
Caritas Charles Vath  
College



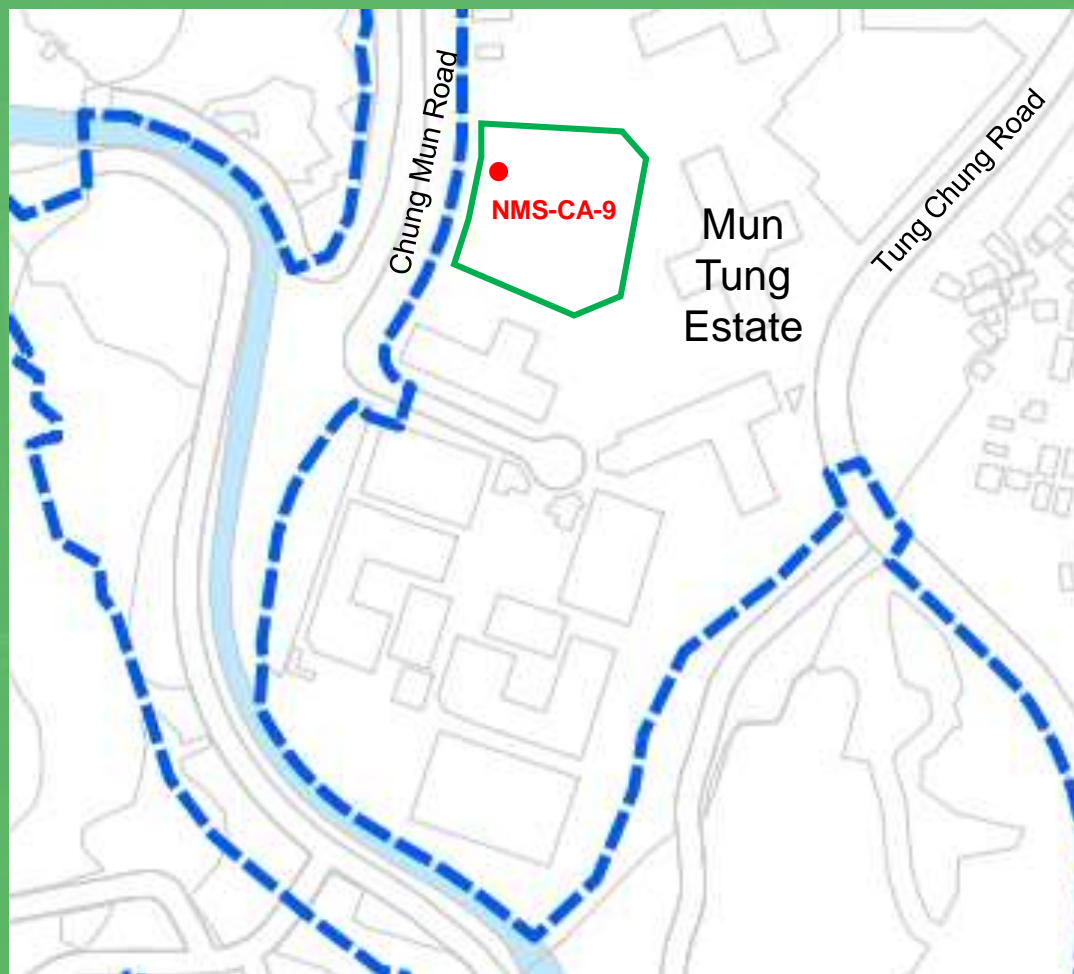
# Noise Monitoring



The red triangle indicates the proposed monitoring location



**NMS-CA-9**  
Hong Chi Shiu Pong  
Morninghope School





# Stream Water Quality Monitoring at Tung Chung Stream (TCS)

## LEGEND:



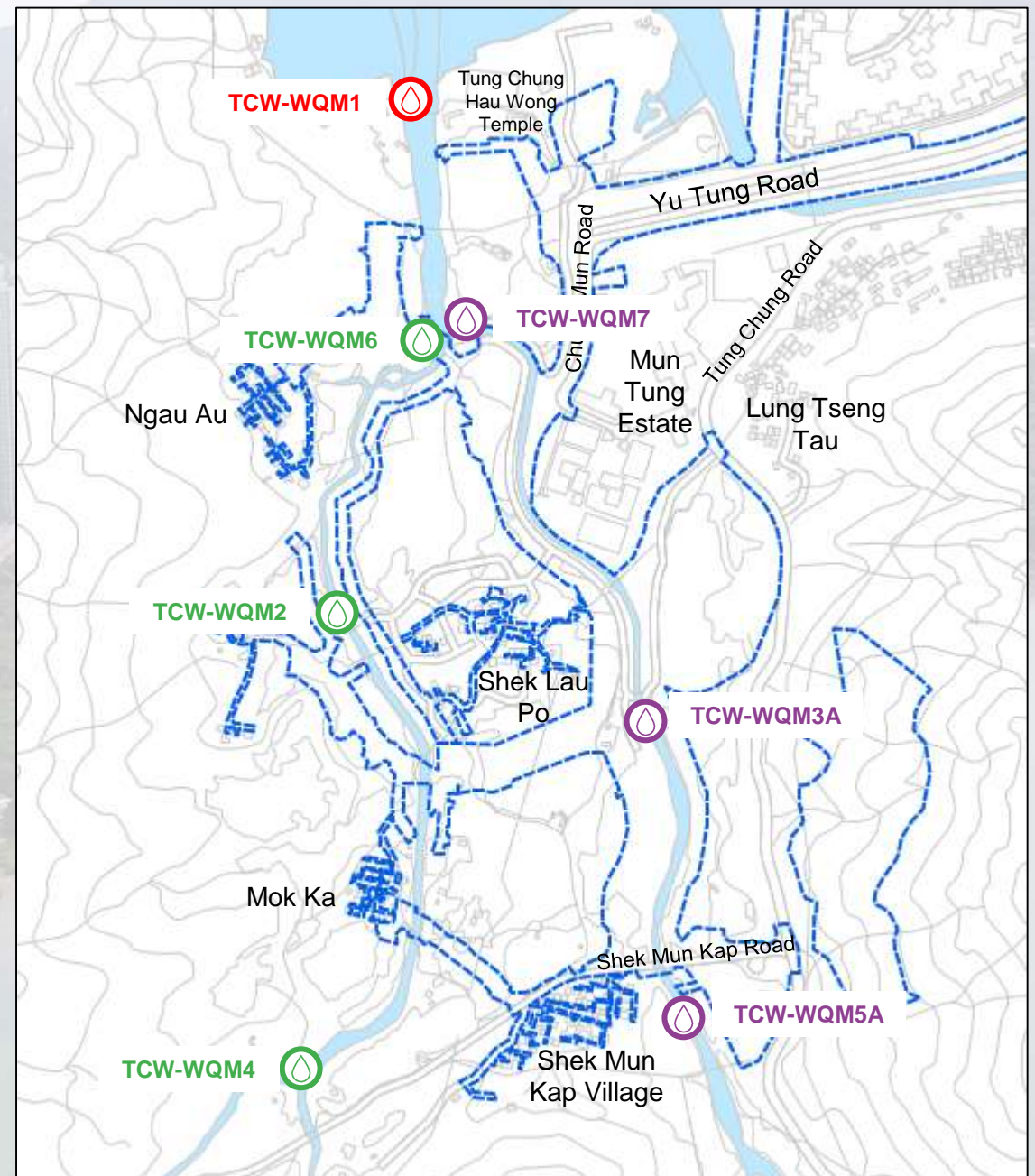
Stream water quality monitoring location (River Mouth)



Stream water quality monitoring location (West Tributary)



Stream water quality monitoring location (East Tributary)





# Stream Water Quality Monitoring at Tung Chung Stream (TCS)



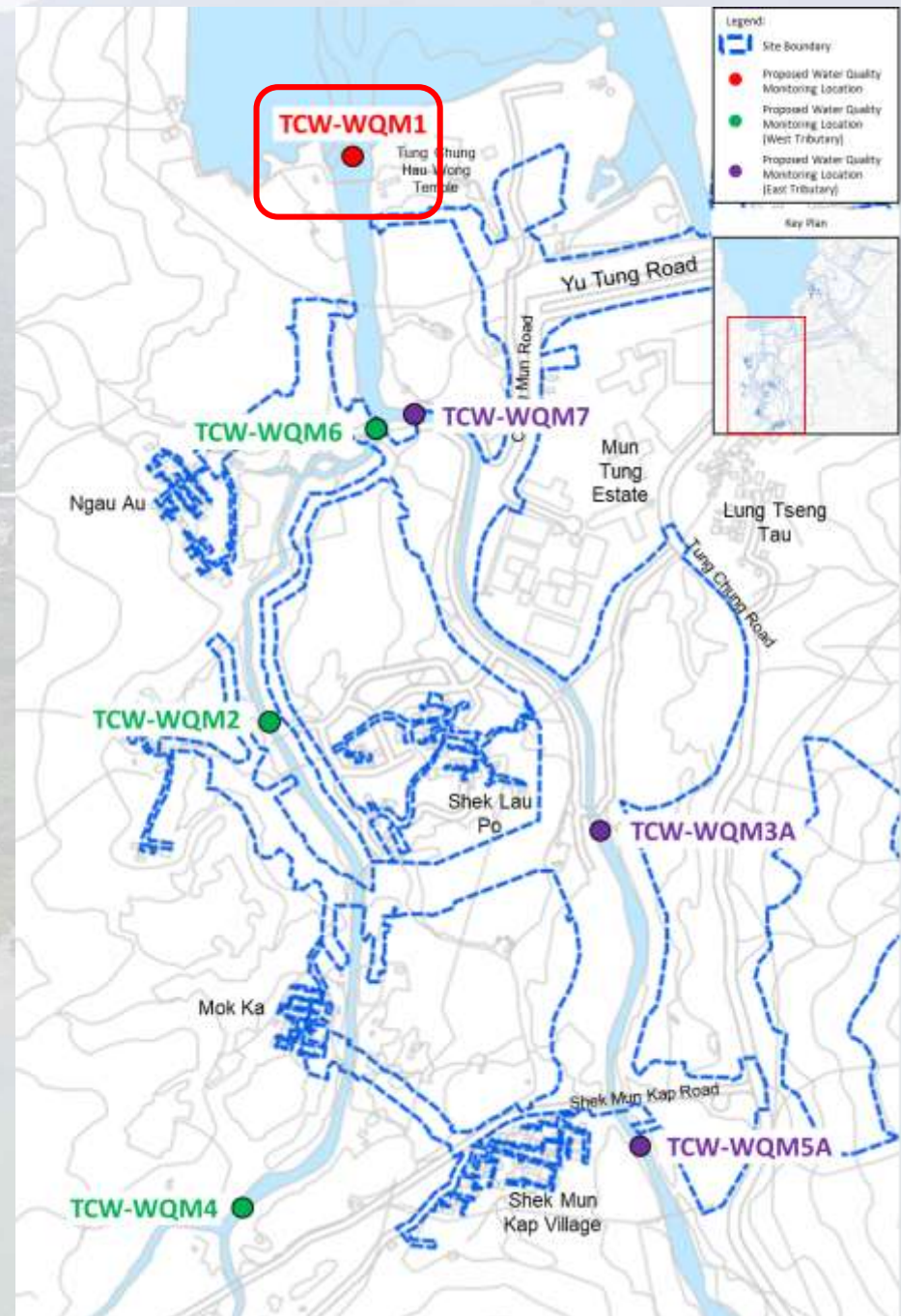
Monitoring Locations	Description	Monitoring Parameter	Monitoring Programme (Baseline)	Monitoring Programme (Impact)
TCW-WQM1	Downstream of TCS	<ul style="list-style-type: none"> <li>Dissolved Oxygen (DO)</li> <li>DO Saturation (DO%)</li> <li>Temperature</li> <li>Turbidity</li> <li>Salinity</li> <li>pH</li> <li>Suspended Solids (SS)</li> </ul>	<ul style="list-style-type: none"> <li>At least 4 weeks prior to the commencement of construction works</li> <li>3 days in a week</li> </ul>	<ul style="list-style-type: none"> <li>During the entire construction period</li> <li>3 days in a week</li> </ul>
TCW-WQM2	Midstream of TCS (West Tributary)			
TCW-WQM3A	Midstream of TCS (East Tributary)			
TCW-WQM4	Upstream of TCS (West Tributary)			
TCW-WQM5A	Upstream of TCS (East Tributary)			
TCW-WQM6	Downstream of TCS (West Tributary)			
TCW-WQM7	Downstream of TCS (East Tributary)			

# Stream Water Quality Monitoring

## Stream Water Quality Monitoring at Tung Chung Stream (TCS)



**TCW-WQM1**  
Downstream of TCS

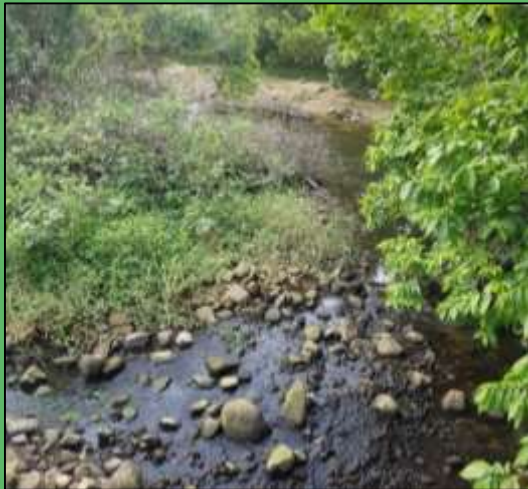




# Stream Water Quality Monitoring



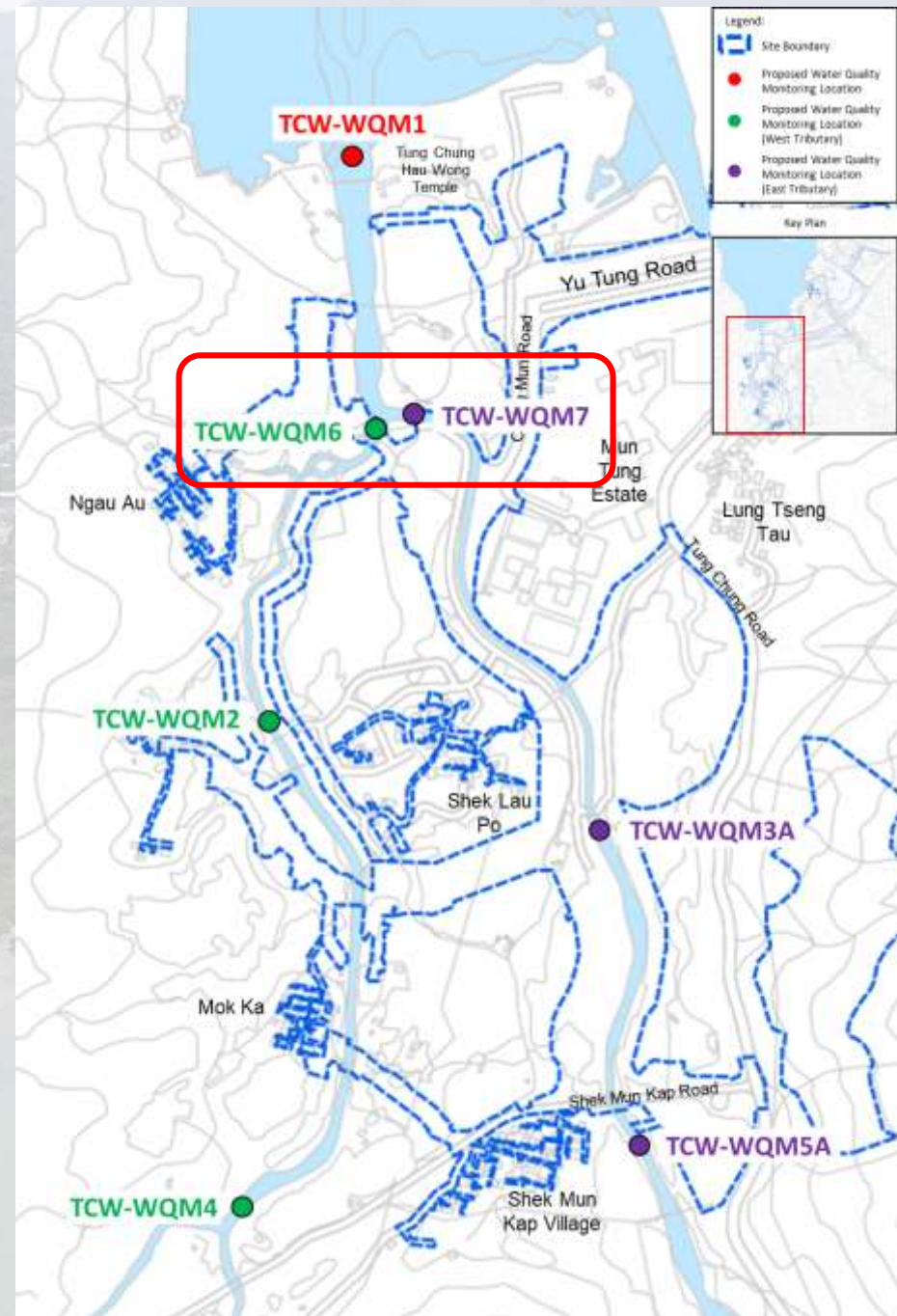
## Stream Water Quality Monitoring at Tung Chung Stream (TCS)



**TCW-WQM6**  
Downstream of  
TCS (West)



**TCW-WQM7**  
Downstream of  
TCS (East)





# Stream Water Quality Monitoring



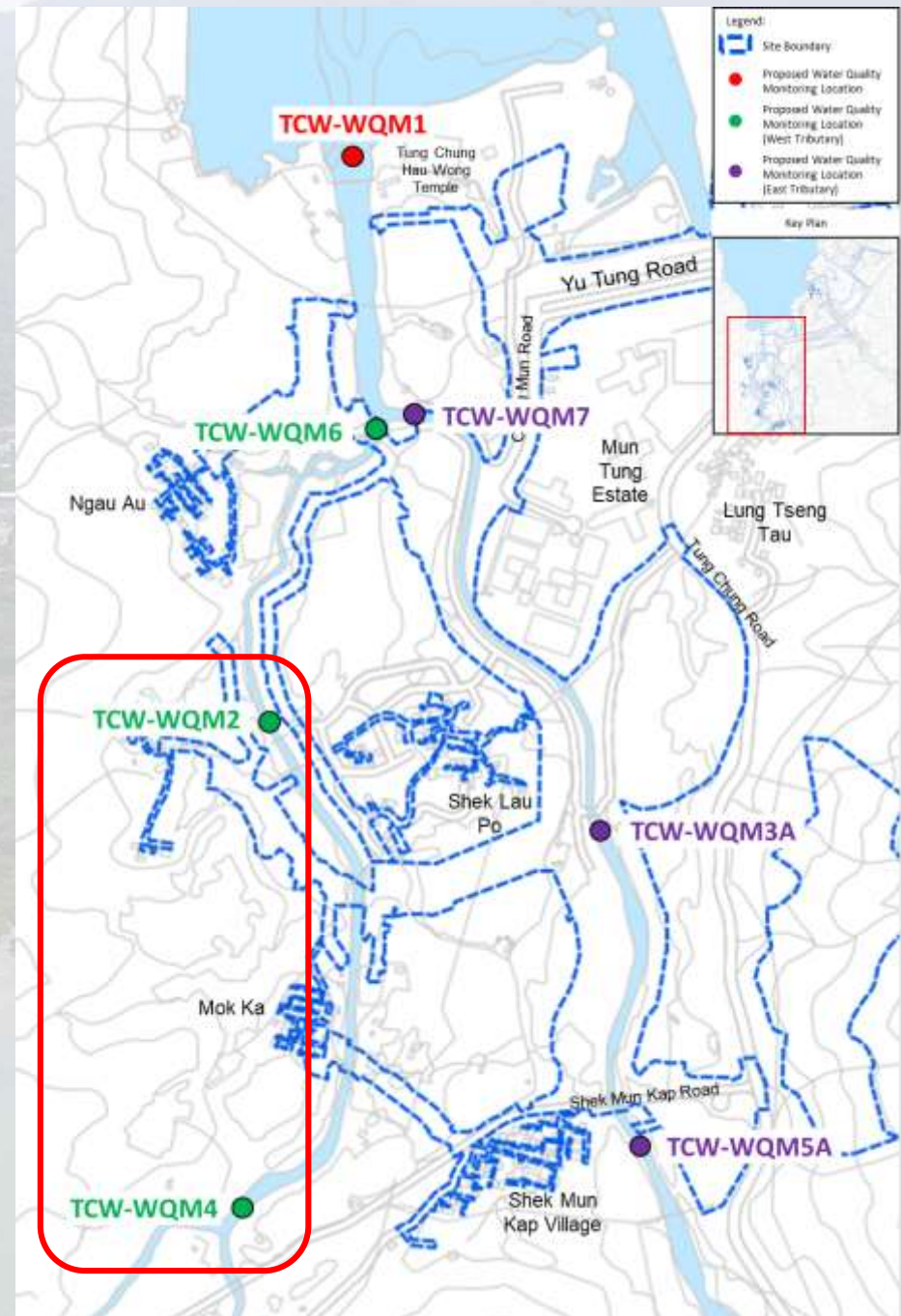
## Stream Water Quality Monitoring at Tung Chung Stream (TCS)



**TCW-WQM2**  
Midstream of  
TCS (West)



**TCW-WQM4**  
Upstream of  
TCS (West)





# Stream Water Quality Monitoring



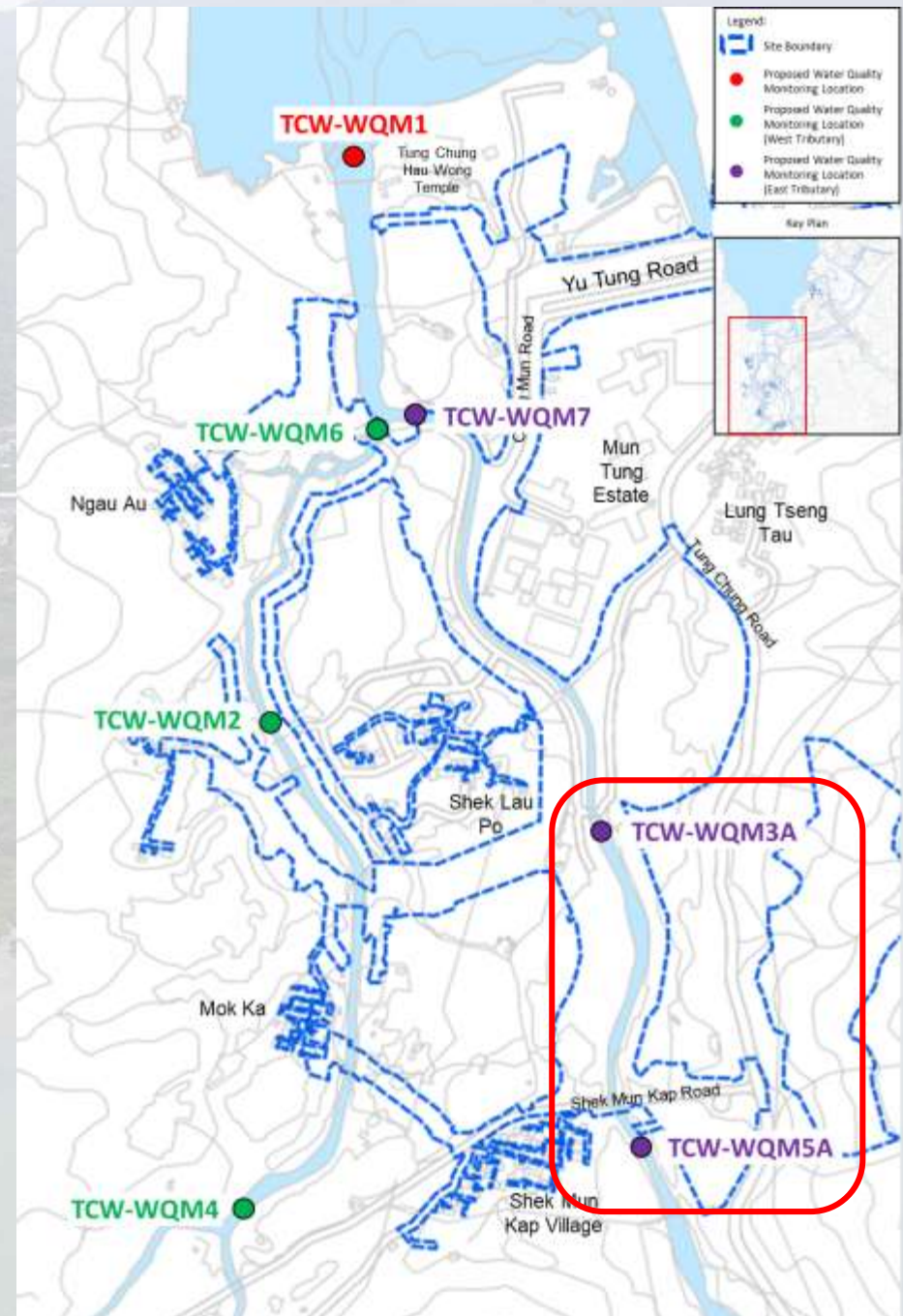
## Stream Water Quality Monitoring at Tung Chung Stream (TCS)



**TCW-WQM3A**  
Midstream of TCS (East)



**TCW-WQM5A**  
Upstream of TCS (East)



- Legend:
- Site Boundary
  - Proposed Water Quality Monitoring Location
  - Proposed Water Quality Monitoring Location (West Tributary)
  - Proposed Water Quality Monitoring Location (East Tributary)



# Ecological Monitoring

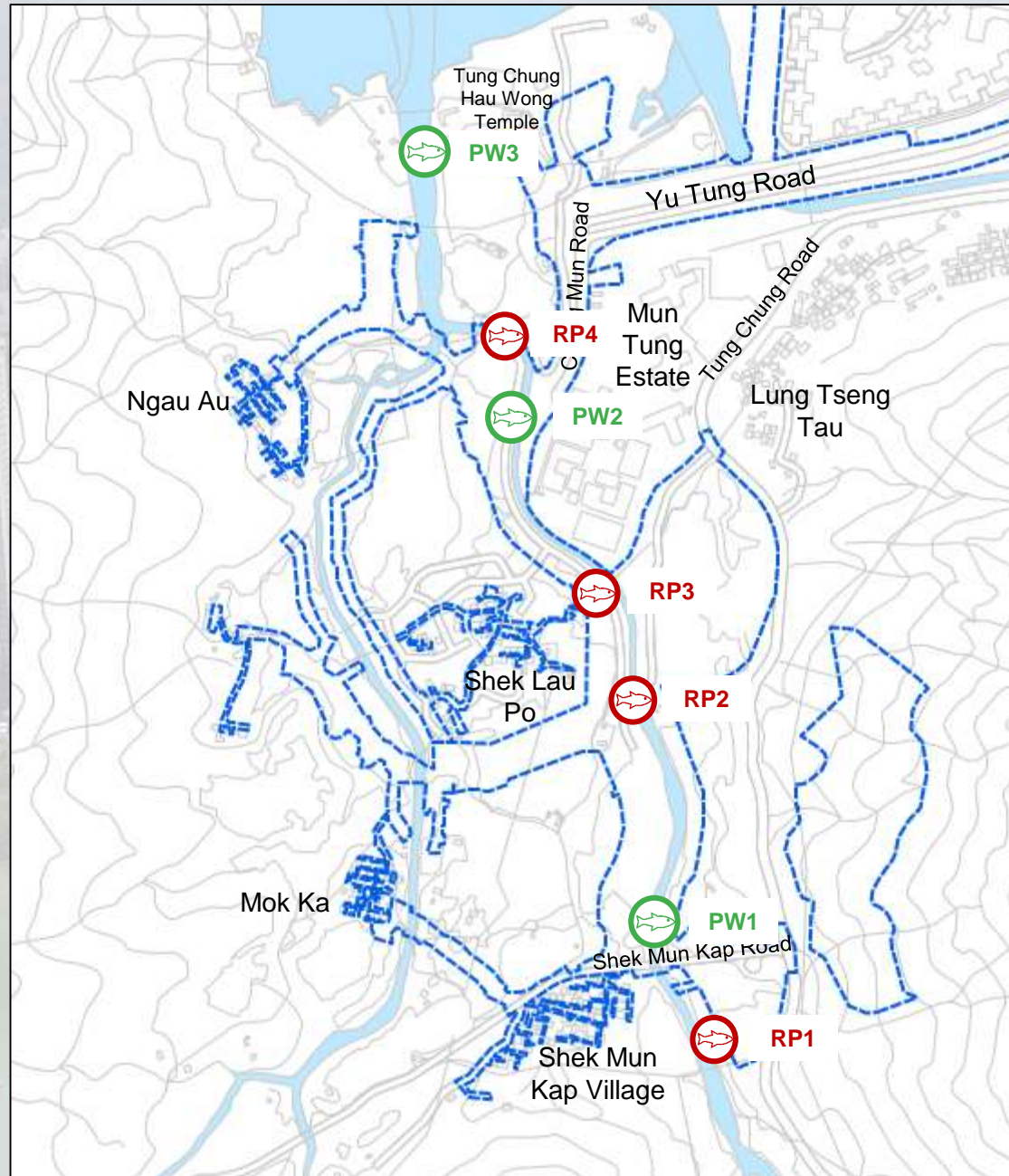
## LEGENDS:



Ecological monitoring location for the proposed River Park



Ecological monitoring location for other public works





# Ecological Monitoring



## Ecological Monitoring

\*Environmental Team of Tung Chung New Town Extension (East) is currently conducting baseline ecological monitoring till July 2021

Sampling Locations for the Proposed River Park  
(12-month monitoring)



Photo RP1



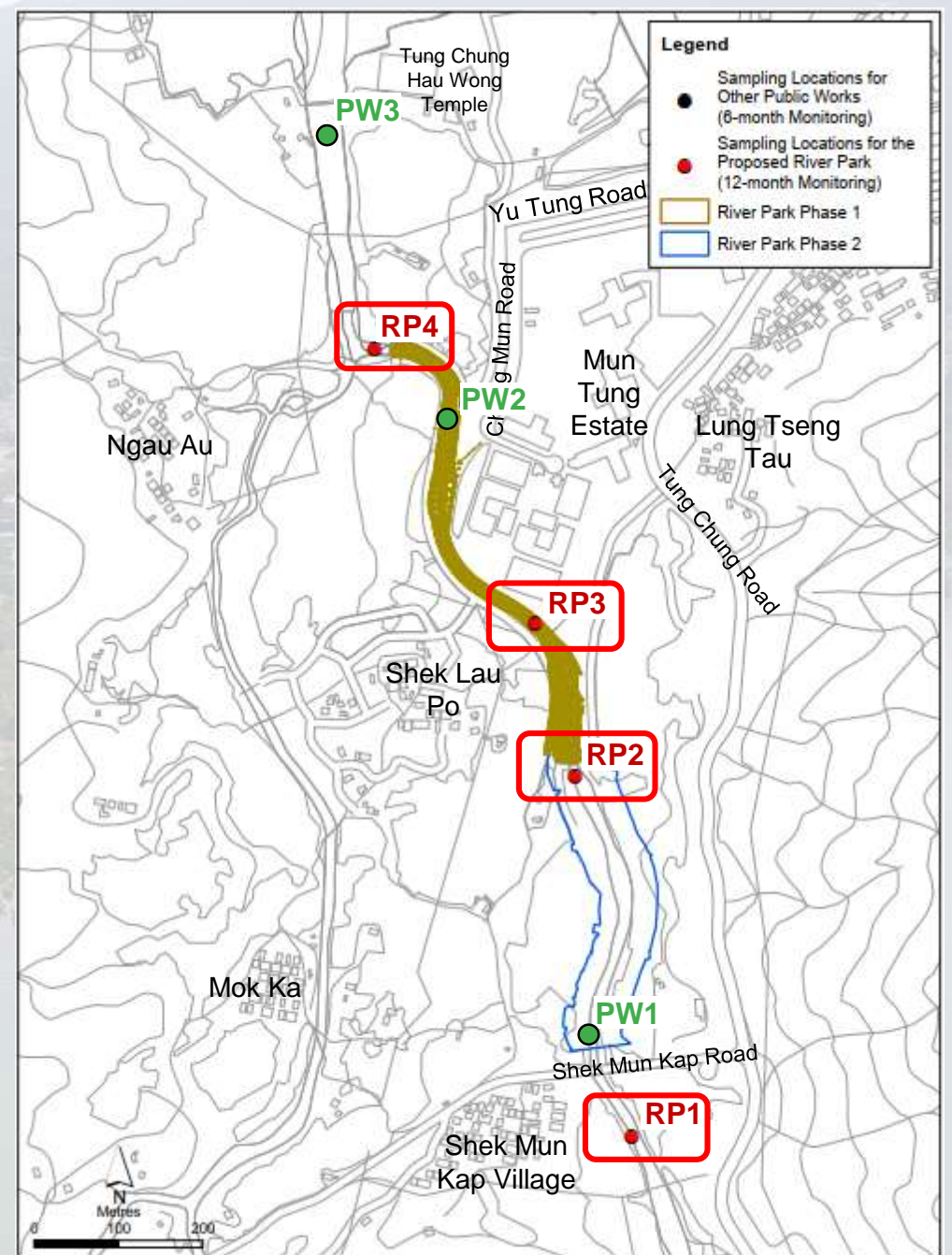
Photo RP2



Photo RP3



Photo RP4





# Ecological Monitoring



## Ecological Monitoring

\*Environmental Team of Tung Chung New Town Extension (East) is currently conducting baseline ecological monitoring till July 2021

Sampling Locations for Other Public Works  
(6-month monitoring)



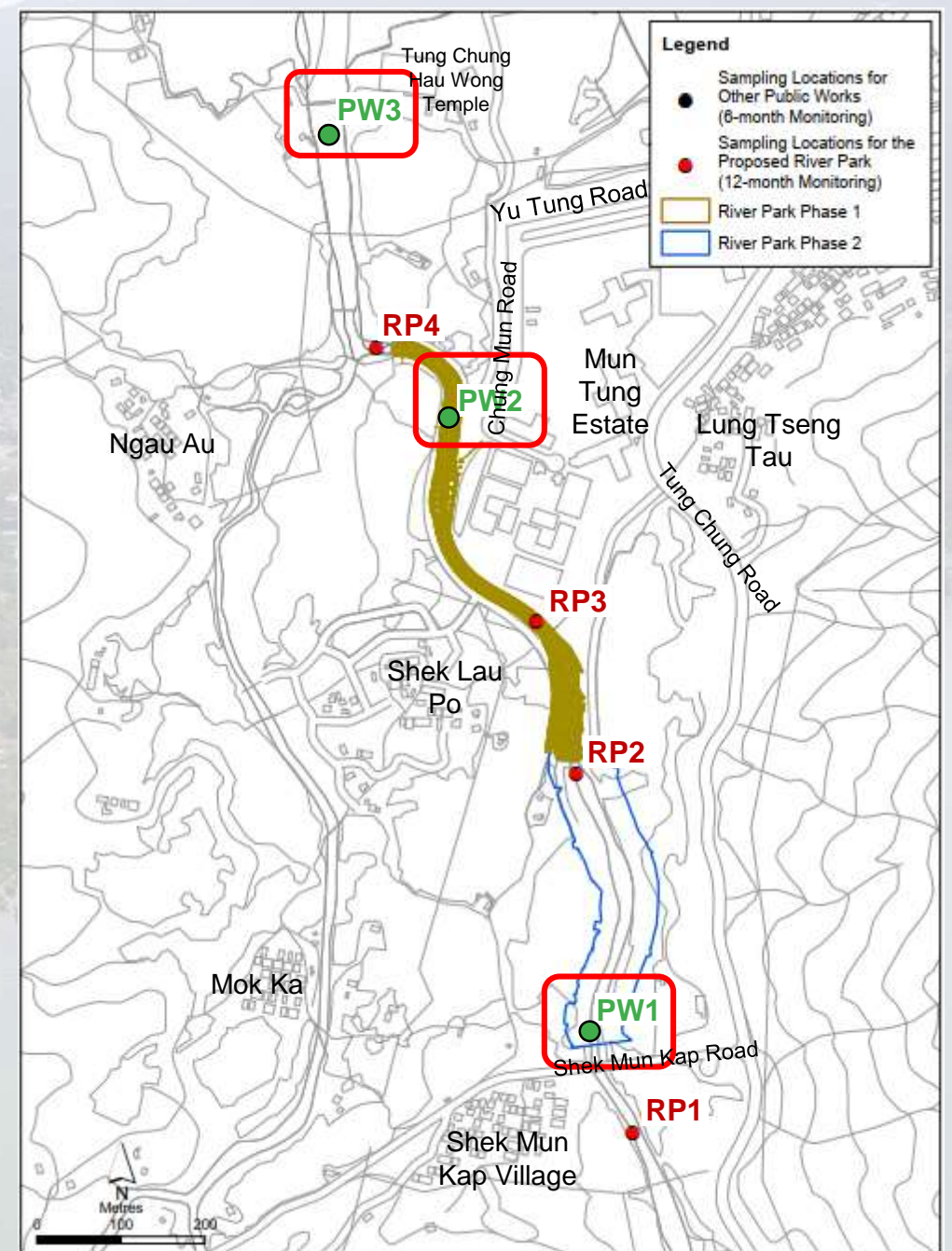
Photo PW1



Photo PW2



Photo PW3



# Ecological Monitoring



- The ecological monitoring is focused on freshwater fish and aquatic invertebrates
- Sampling methods include:
  - **Kick sampling** – Quick method for surveying benthic invertebrates in shallow fast-flowing streams
  - **Baited fish cages** – For collecting fish that are wary of humans
  - **Direct observation** – Least invasive method used for shallow, slow-moving streams with clear water and minimal vegetation
  - **Active search** – For collecting fish and invertebrates in deep/turbid water, stream with dense aquatic vegetation and within stream substrate



# Ecological Monitoring

- Three Species of Conservation Concern recorded during baseline monitoring:

	Common Name	Scientific Name	Conservation Status (Fellowes <i>et al.</i> , 2002)	Locations recorded (cumulative)
1)	Beijing Thick-lipped Barb*	<i>Acrossocheilus beijiangensis</i>	Global Concern	RP1, RP2, RP4, PW1
2)	Rice Fish*	<i>Oryzias curvinotus</i>	Global Concern	RP4
3)	Emerald Cascader (larva)	<i>Zygonyx iris</i>	Potential Global Concern	RP1, RP2, RP3, RP4, PW2

\* Species with asterisk = Considered as Species of Conservation by AFCD Assessment



Beijing Thick-lipped Barb



Rice Fish



Emerald Cascader (larva)





土木工程拓展署  
Civil Engineering and  
Development Department



# Thank you