Civil Engineering and Development Department

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

Monthly Environmental Monitoring and Audit Report for June 2020

(Version 1.0)

Certified By

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

WELLAB accepts no responsibility for changes made to this report by third parties.

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Agreement No. CE 33/2019 (EP)
Independent Environmental Checker for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas – Investigation

Monthly Environmental Monitoring and Audit Report No. 8 (June 2020)

14 July 2020
BY EMAIL & POST

Dear Sir,

We refer to email of 14 July 2020 attaching the Monthly Environmental Monitoring and Audit Report No. 8 prepared by the Environmental Team (ET) of the captioned.

We would like to inform you that we have no adverse comment on the captioned submission. Therefore we write to verify the captioned submission in accordance with the Condition 3.4 of the Environmental Permit no. EP-466/2013, EP-467/2013/A, EP-468/2013/A, EP-469/2013, EP-470/2013, EP-473/2013/A, EP-475/2013/A and EP-546/2017.

Should you have any queries, please contact the undersigned or our Ms. Liz Lo at 2828 5751.

Yours faithfully,
For and on behalf of the
Mott MacDonald Hong Kong Limited

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EXECUTIVE SUMMARY

Introduction

1. This is the 8th monthly Environmental Monitoring and Audit (EM&A) Report under First Phase Development of Kwu Tung North (KTN) and Fanling North (FLN) New Development Areas (NDAs), comprising the Advance Works and First Stage Works (the Project). This report was prepared by Wellab Limited under "Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of KTN and FLN NDAs" (hereinafter called the "Service Contract"). This report documents the findings of Environmental Monitoring and Audit (EM&A) work conducted in June 2020.

2. During the reporting month, the following Works Contracts under relevant Environmental Permit(s) were undertaken for the Project:

Table I Works Contracts under relevant Environmental Permit(s) in the Reporting Month

Works Contracts	Environmental Permit No.	Designated Project (DP)	Commencement date of construction
Contract No. ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works	EP-468/2013/A	Kwu Tung North New Development Area Road D1 to D5	1st June 2020
	EP-470/2013	Utilization of Treated Sewage Effluent (TSE) from Shek Wu Hui Sewage Treatment Works	23rd March 2020
Contract No. ND/2019/06 - Fanling North New Development Area, Phase 1: Re-provisioning of North District Temporary Wholesale Market for Agricultural Products	EP-475/2013/A	Reprovision of temporary Wholesale Market in Fanling North New Development Area	29th October 2019

Environmental Monitoring and Audit Progress

3. A summary of the EM&A activities in this reporting month is listed in **Table II** below:

Table II Summary Table for EM&A Activities in the Reporting Month

EM&A Activities	Works Contracts	
	ND/2019/01	ND/2019/06
1-hr Total Suspended Particulates (TSP) Monitoring	4th, 10th, 16th, 22nd, 26th June 2020	N/A
24-hr TSP Monitoring	4th, 10th, 16th, 22nd, 26th June 2020	N/A
24-hr RSP (Ambient Arsenic) Monitoring for Land Contamination	19th, 24th, 30th June 2020	N/A
Noise Monitoring	4th, 10th, 16th, 22nd June 2020	N/A
Landfill Gas Monitoring	2nd June 2020	N/A
Environmental Site Inspection	2nd, 11th, 16th, 23rd, 30th June 2020	4th, 12th, 18th, 26th June 2020

Remark: N/A – No relevant monitoring is required according to updated EM&A Manual

Breaches of Action and Limit Levels

4. Summary of the environmental exceedances of the reporting month is tabulated in **Table III**.

Table III Summary Table for Events Recorded in the Reporting Month

Environmental Monitoring	Parameter	No. of non-project related Exceedances		Total No. of non-project related Exceedances	No. of Exceedance related to the Construction Works of the Contract		Total No. of Exceedance related to the Construction Works of the Contract
		Action Level	Limit Level		Action Level	Limit Level	
Air Quality	1-hr TSP	0	0	0	0	0	0
	24-hr TSP	0	0	0	0	0	0
	24-hr RSP (Ambient Arsenic)	0	0	0	0	0	0
Noise	$L_{eq(30min)}$	0	0	0	0	0	0
Landfill Gas	O_2	0	0	0	0	0	0
	CH_4						
	CO_2						

Air Quality

5. All construction air quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

6. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

7. No construction of channel for alternation of natural streams was carried out in the reporting month. Therefore, no water quality monitoring was conducted. For the details, please refer to Section 5.

Land Contamination

8. All ambient arsenic monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Landfill Gas Monitoring

9. Monitoring of landfill gases in the reporting month was carried out by the Contractor under ND/2019/01 at excavation location, Portion 6b. No Limit Level exceedance was recorded.

Ecological Monitoring

10. The baseline ecological monitoring has not yet completed in the Reporting Month. Therefore, no ecological monitoring was conducted.

Complaint Log

11. No environmental complaint was received in the reporting month.

Notification of Summons and Successful Prosecutions

12. No notification of summons or successful prosecutions was received in the reporting month.

Reporting Changes

13. This report has been prepared in compliance with the reporting requirements for the subsequent monthly EM&A Report as required by the "Updated Environmental Monitoring and Audit Manual for Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas" (Updated EM&A Manual).

Future Key Issues

14. The major site activities for the coming two months are shown in **Table IV.**

Table IV Summary Table for Site Activities in the coming Two Months

Contract No.	Site Activities (July and August 2020)
ND/2019/01	(a) Site Clearance, Ground Investigation in Portion 1f; (b) Tree Survey, Site Clearance, Ground Investigation in Portion 2 (c) Tree Survey, Site Clearance in Portion 3 (d) Site Clearance, site trial for In-situ cement mixing (ICM) for soil treatment in Portion 4 (e) Site Clearance, Tree Survey, Ground Investigation in Portion 5 (f) Tree Survey, Site Clearance, Ground Investigation in Portion 6a; (g) Set up of Soil Treatment Facility, site trial for Ex-situ cement mixing (ECM) in Portion 6b; (h) Site Clearance, Construction of temporary road for alternative Po Lau Road in Portion 7; (i) Ground Investigation, Hoarding erection, Construction of Retaining Wall in Portion 8a; (j) Site Clearance, Forming access, Ground Investigation, stockpile of soil in Portion 9c; (k) Site Clearance, Excavation in Portion 10a; and (l) Tree Survey, Site Clearance, Ground Investigation in 10b
ND/2019/06	(a) Construction of Management Office Building; (b) Installation of entrance gate, drop gate, Octopus machine and temporary lighting at new run-in/out (c) Construction of hoarding for the final stage; (d) Breaking up the concrete surface and disposal of C&D material off site at Portion 3 (e) Drainage works for interim stage including construction of U-channel and manhole for Portion 3 near Management Office Building (f) Ground investigation works for mini-pile construction at Portion 3 (g) Tree felling at Portion 3 and 6.

1 INTRODUCTION

1.1 Wellab Limited was commissioned by Civil Engineering and Development Department (CEDD) as the Environmental Team to undertake the Environmental Monitoring and Audit (EM&A) services for the Works Contracts involved in the implementation of First Phase Development of Kwu Tung North (KTN) and Fanling North (FLN) New Development Areas (NDAs) Project to ensure that the environmental performance of the Works Contracts comply with the requirements specified in the Environmental Permits (EPs), Updated Environmental Monitoring & Audit (EM&A) Manual, Environmental Impact Assessment (EIA) Report of the KTN FLN NDAs project and other relevant statutory requirements.

Purpose of the report

1.2 This is the 8th EM&A Report which summarises the key findings of the EM&A programme in June 2020.

Structure of the report

1.3 The structure of the report is as follows:

Section 1: **Introduction -** purpose and structure of the report.

Section 2: **Project Information -** summarises background and scope of the Project, site description, project organisation and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licences during the reporting month.

Section 3: **Air Quality Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring - s**ummarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels and Event / Action Plans.

Section 6: **Land Contamination (Ambient Arsenic Monitoring) -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 7: **Landfill Gas Monitoring -** summarises the monitoring requirement, monitoring parameters and frequency, monitoring locations, Action and Limit Levels, monitoring results and observation, and Event / Action Plans.

Section 8: **Ecological Monitoring –** status of ecological monitoring

Section 9: **Environmental Site Inspection -** summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 10: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 11: **Future Key Issues -** summarises the impact forecast and monitoring schedule for the next three months.

Section 12: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

2.1 The Kwu Tung North (KTN) and Fanling North (FLN) New Development Areas (NDAs) are one of the important sources of land and housing supply in the medium and long term. The development of the KTN and FLN NDAs will be implemented in phase for full completion by 2031. The Phase 1 of the NDAs development, comprising the Advance Works and First Stage Works, is targeted to be implemented from the second half of 2019 progressively. The Advance and First Stage Works would include site formation, engineering infrastructure works (including roads, drainage, sewerage, waterworks, landscaping works, pumping stations, and fresh water and flushing water service reservoirs), soil remediation, reprovisioning of North District Temporary Wholesale Market, development of a nature park at Long Valley and implementation of environmental mitigation measures.

2.2 The scope of works under the Advance and First Stage Works comprises the following:

a) The Advance Works (PWP item No. 7747CL-2) consist of:
   i) site formation of land (including soil remediation) in KTN and FLN NDAs for housing, community facilities and engineering infrastructure;
   ii) construction of roads including the eastern section of Fanling Bypass (FLBP(E)) connecting the FLN NDA to Fanling Highway and other roads with footpaths and cycle tracks, and associated junction/ road improvements;
   iii) engineering infrastructure works including drainage. Sewerage (including two sewage pumping stations), waterworks (including a fresh water service reservoir and a flushing water service reservoir in the KTN NDA), landscape works and slopeworks;
   iv) part expansion and upgrading of Shek Wu Hui Sewage Treatment Works (SWHSTW);
   v) reprovisioning works; and
   vi) implementation of environmental mitigation measures and environmental monitoring and audit (EM&A) programme for the works mentioned in (i) to (v) above.

b) The First Stage Works (PWP item No. 7759CL) consist of:
   i) development of a nature park at Long Valley including provision of a visitor centre and a footbridge spanning across Sheung Yue River for connection between these two facilities;
   ii) reprovisioning of two egretry sites in the FLN NDA and enhancement works to an existing egretry site in the KTN NDA;
   iii) site formation of land for a village resite area and a district police station in the KTN NDA;
   iv) engineering infrastructure works including roads, drainage, sewerage, waterbirds, and landscape works; and
   v) implementation of environmental mitigation measures and environmental monitoring and audit (EM&A) programme for the works mentioned in (i) to (iv) above.

2.3 The Project which covers KTN and FLN NDAs is a designated project (DP) under Schedule 3 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). In October 2013, the EIA Report (AEIAR-175/2013) for the Project was approved by the Director of Environmental Protection pursuant to the EIA Ordinance. The relevant EPs under the Project and the respective Work Contracts are summarized in **Table 2.1**.

Table 2.1 Summary of EPs under the Project and the Respective Work Contracts

EP No.	Designated Project	C1	C2	C3	C4	C5	C6	C7
EP-466/2013	Castle Peak Road Diversion	✓						
EP-467/2013/A	Kwu Tung North New Development Area Road P1 and P2 and Associated New Kwu Tung Interchange and Pak Shek Au Interchange Improvement	✓						
EP-468/2013/A	Kwu Tung North New Development Area Road D1 to D5	✓		✓				
EP-469/2013	Sewage Pumping Stations in Kwu Tung North New Development Area		✓					
EP-470/2013	Utilization of Treated Sewage Effluent (TSE) from Shek Wu Hui Sewage Treatment Works	✓						
EP-473/2013/A	Fanling Bypass Eastern Section			✓	✓	✓		
EP-475/2013/A	Reprovision of temporary Wholesale Market in Fanling North New Development Area						✓	
EP-546/2017	Fanling North Temporary Sewage Pumping Station				✓			

Note: C1: ND/2019/01 C2: ND/2019/02 C3: ND/2019/03 C4: ND/2019/04
C5: ND/2019/05 C6: ND/2019/06 C7: ND/2019/07

2.4 The site boundary of the Project and all Works Contracts are shown in **Drawing No. 1**.

Project Organization

2.5 Different parties with different levels of involvement in the Project organization include:

- Project Proponent – Civil Engineering and Development Department (CEDD)
- *Supervisor / Supervisor's* Representative – AECOM
- Environmental Team (ET) – Wellab Limited
- Independent Environmental Checker (IEC) – Mott MacDonald Hong Kong Ltd (MottMac)

2.6 The key personnel contact names and numbers are summarised in **Table 2.2**.

Table 2.2 Key Contacts of the Project

Party	Role	Contact Person	Phone No.	Fax No.
Civil Engineering and Development Department, HKSAR (CEDD)	Project Proponent	Mr. Felix Fan	3152 3551	3547 1658
Supervisor / Supervisor's Representative (AECOM)	Chief Resident Engineer	Mr. Alan Lee	6398 5982	2645 3900
Environmental Team (Wellab Limited)	Environmental Team Leader	Dr. Priscilla Choy	2898 7388	2898 7076
Independent Environmental Checker (MottMac)	Independent Environmental Checker	Mr. Thomas Chan	2828 5967	2827 1823
Contract No. ND/2019/01 Contractor (Build King – Richwell Engineering Joint Venture.)	Site Agent	Mr. Ivan Leung	9640 8340	--
	Environmental Officer	Mr. Daniel Sin	9777 2100	
Contract No. ND/2019/06 Contractor (New Concepts Engineering Development Ltd.)	Site Agent	Mr. Anson Chan	9349 1320	2363 2162
	Environmental Officer	Mr. Alex Choy	9409 9608	
	Environmental Coordinator	Ms. Mildred Hung	9460 2745	

Summary of Construction Works Undertaken During Reporting Month

2.7 The major site activities undertaken in the reporting month are shown in **Table 2.3.**

Table 2.3 Summary Table for Major Site Activities in the Reporting Month

Contract No.	Site Activities (June 2020)
ND/2019/01	(a) Site Clearance, Tree survey in Portion 1f (b) Tree Survey, Site clearance in Portion 2; (c) Site Clearance, Hoarding erection in Portion 4; (d) Site Clearance, Tree Survey and Ground Investigation in Portion 5; (e) Site Clearance, Tree Survey and Ground Investigation in Portion 6a; (f) Set up Soil Treatment Facility, Hoarding erection in Portion 6b; (g) Site Clearance, Ground Investigation, Preparation works for Construction & alternative Po Lau Road in Portion 7 (h) Tree Survey, Ground Investigation, Hoarding erection, Preparation works for Construction of Retaining Wall in Portion 8a; (i) Tree Survey in Portion 8b (j) Site Clearance, Forming access in Portion 9c (k) Site Clearance, Ground Investigation in Portion 10a (l) Ground Investigation in Portion 10b
ND/2019/06	(a) Installation of rain shelter for the interim stage; (b) Construction of run-in/ out (c) Construction of footing and carcass of Management Office Building

Construction Programme

2.8 A copy of Contractors' construction programme is provided in **Appendix A**.

Status of Environmental Licences, Notifications and Permits

2.9 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.4**.

Table 2.4 Status of Environmental Licences, Notifications and Permits

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
ND/2019/01	EP-468/2013/A	1/6/2020	N/A	Valid
	EP-470/2013	21/11/2013	N/A	Valid
ND/2019/06	EP-475/2013/A	13/01/2017	N/A	Valid
Construction Noise Permit (CNP)				
ND/2019/01	GW-RN0378-20	16/06/2020	15/09/2020	Valid
	GW-RN0359-20	09/06/2020	08/08/2020	Valid
	GW-RN0353-20	08/06/2020	07/09/2020	Valid
ND/2019/06	GW-RN0113-20	25/02/2020	24/08/2020	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
ND/2019/01	451792	11/12/2019	N/A	Valid
ND/2019/06	449369	24/09/2019	N/A	Valid
Billing Account for Disposal of Construction Waste				
ND/2019/01	7036265	17/01/2020	N/A	Valid
ND/2019/06	7035473	17/10/2019	N/A	Valid
Registration of Chemical Waste Producer				
ND/2019/01	5213-545-B2578-01	10/01/2020	N/A	Valid
ND/2019/06	5213-625-N2716-01	02/10/2019	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
ND/2019/01	WT00036071-2020	22/06/2020	30/06/2025	Valid
	WT00036073-2020	22/06/2020	30/06/2025	Valid
	WT00036067-2020	22/06/2020	30/06/2025	Valid
	WT00036076-2020	22/06/2020	30/06/2025	Valid
	WT00036075-2020	22/06/2020	30/06/2025	Valid
ND/2019/06	WT00035415-2019	20/03/2020	31/03/2025	Valid

3 AIR QUALITY MONITORING

Monitoring Requirements

3.1 In accordance with the Updated EM&A Manual, impact 1-hour TSP and 24-hr TSP monitoring were conducted to monitor the air quality for the Works Contracts. **Appendix B** shows the established Action/Limit Levels for the air quality monitoring works.

3.2 Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while the impact 24-hour TSP monitoring was conducted for at least once every 6 days at one air quality monitoring station.

Monitoring Location

3.3 Impact air quality monitoring was conducted at the monitoring stations under the Works Contracts, as shown in **Figure 1** according to Table 1.1 of Updated EM&A Manual. **Table 3.1** describes the location of the air quality monitoring station.

Table 3.1 Location for Air Quality Monitoring Locations

EP No.	Contract No.	Monitoring Station	Location
EP-468/2013/A	ND/2019/01	KTN-DMS4	Temporary Structure near Fanling Highway (near Pak Shek Au)

Monitoring Equipment

3.4 As the power supply for High Volume Sample (HVS) for TSP monitoring at KTN-DMS 4 was rejected, direct reading dust meter was used to measure both 1-hour and 24-hour average TSP levels:-

- The proposal for alternative monitoring equipment (i.e. direct reading dust meter) for TSP monitoring was approved by EPD according to approved Baseline Air Quality Monitoring Report (KTN & FLN NDA); and
- Adopt same measurement methodology (i.e. direct reading dust meter) as baseline monitoring for reliable comparison.

3.5 The proposed use of portable direct reading dust meters was submitted to IEC and obtained agreement from the IEC as stated in Section 2.4.5 of the Updated EM&A Manual.

3.6 HVS for 24-hr TSP monitoring will be adopted once secured supply of electricity become available at KTN-DMS 4.

3.7 **Table 3.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix C**.

Table 3.2 Air Quality Monitoring Equipment

Monitoring Station	Equipment	Model and Make	Quantity
KTN-DMS4	Dust Monitor	AEROCET-831	1

3.8 Meteorological information extracted from "Hong Kong Observatory - Ta Kwu Ling Weather Station" was proposed as the alternative method to obtain representative wind data. For Ta Kwu Ling Weather Station, it is located nearby the Project site and situated at approximately 15m above mean sea level. The station's wind data monitoring equipment is set above the existing ground ten meters in compliance with the general setting up requirement. Furthermore, this station also provides other meteorological information, such as the humidity, rainfall, air pressure and temperature etc.

3.9 The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staffs during the monitoring day.

Monitoring Parameters, Frequency and Duration

3.10 **Table 3.3** summarizes the monitoring parameters and frequencies of impact dust monitoring during the Works Contracts activities. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 3.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	Three times/ 6 days
24-hr TSP	Once / 6 days

Monitoring Methodology and QA/QC Procedure

1-hour and 24-hour TSP Air Quality Monitoring

Instrumentation

3.11 Direct reading dust meter was deployed for the air quality monitoring as shown in **Table 3.2**.

3.12 The measuring procedures of the dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(AEROCET-831)

- The dust meter is placed at least 1.3 meters above ground.
- Remove the red rubber cap from the AEROCET-831 inlet nozzle.
- Turn on the power switch that is located on the right side of the AEROCET-831.
- On power up the product intro screen is displayed for 3 seconds. The intro screen displays the product name and firmware version.

- Then the main counter screen will be displayed.
- Press the START button. Internal vacuum pump start running. After 1 minute the pump will stop and the 0.5μm and 5μm channels will show the cumulative counts of particles larger than 0.5μm and 5μm per cubic foot.
- The AEROCET-831 is now checked out and ready for use.
- To switch off the AEROCET-831 power to stop the measuring after sampling.
- Information such as sampling date, time, and display value and site condition were recorded during the monitoring period.

Maintenance/Calibration

3.13 The following maintenance/calibration was required for the direct dust meters:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

Results and Observations

3.14 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in **Table 3.4** and **3.5,** respectively. Detailed monitoring results and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E**.

Table 3.4 Summary Table of 1-hour TSP Monitoring Results during the Reporting Month

Monitoring Station	Concentration (μg/m3)		Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
	Average	Range		
KTN-DMS4	54.8	41.1 – 87.1	297	500

Table 3.5 Summary Table of 24-hour TSP Monitoring Results during the Reporting Month

Monitoring Station	Concentration (μg/m3)		Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
	Average	Range		
KTN-DMS4	87.2	69.9 – 142.5	192	260

3.15 All 1-hour and 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedances were recorded.

3.16 According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting month are shown in **Table 3.6**:

Table 3.6 Observation at Dust Monitoring Stations

Monitoring Station	Major Dust Source
KTN-DMS4	Excavation works, Road traffic

Event and Action Plan

3.17 Should project-related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix I** shall be carried out.

4 NOISE MONITORING

Monitoring Requirements

4.1 In accordance with Updated EM&A Manual, construction noise monitoring was conducted in terms of the A-weighted equivalent continuous sound pressure level (Leq) to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix B** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Location

4.2 Impact noise monitoring was conducted at the monitoring stations, as shown in Figure 1 and 2 according to Table 1.1 of Updated EM&A Manual. **Table 4.1** describes the locations of the noise monitoring stations.

Table 4.1 Location of Noise Monitoring Stations

Contract No.	Monitoring Station(s)	Location(s)
ND/2019/01	CP-KTN-NMS2	Residential Buildings at Ma Tso Lung
	CP-KTN-NMS3	Fung Kong Garden
	CP-KTN-NMS5	N/A
ND/2019/06	CP-FLN-NMS1	Belair Monte

Monitoring Equipment

4.3 Integrating Sound Level Meter was used for impact noise monitoring. The meters are Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (Leq) and percentile sound pressure level (Lx) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 4.2** summarizes the noise monitoring equipment being used. Copies of calibration certificates are attached in **Appendix C**.

Table 4.2 Noise Monitoring Equipment

Equipment	Model	Quantity
Sound & Vibration Analyser	BSWA 801	1
Acoustical Calibrator	SV 30A	1

Monitoring Parameters, Frequency and Duration

4.4 **Table 4.3** summarises the monitoring parameters, frequency and total duration of monitoring.

The noise monitoring schedule is shown in **Appendix D**.

Table 4.3 Noise Monitoring Parameters, Duration and Frequency

Contract No.	Monitoring Stations	Parameter	Duration	Frequency	Measurement
ND/2019/01	CP-KTN NMS2	$L_{10(30\ min.)}$ dB(A) $L_{90(30\ min.)}$ dB(A) $L_{eq(30\ min.)}$dB(A) (as six consecutive $L_{eq,\ 5min}$ readings)	0700-1900 hrs on normal weekdays	Once per week	Free-field[1]
	CP-KTN NMS3				
	CP-KTN NMS5				
ND/2019/06	CP-FLN-NMS1				Façade

Remarks:

[1]: Correction of +3dB (A) for Free-field Measurement.

[2]: A-weighted equivalent continuous sound pressure level (L_{eq}). It is the constant noise level which, under a given situation and time period, contains the same acoustic energy as the actual time-varying noise level.

L_{10} is the level exceeded for 10% of the time. For 10% of the time, the sound or noise has a sound pressure level above L_{10}.

L_{90} is the level exceeded for 90% of the time. For 90% of the time, the noise level is above this level.

Monitoring Methodology and QA/QC Procedures

- The microphone head of the sound level meter was positioned at 1m from the exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acted as a reflecting surface;
- The battery condition was checked to ensure the correct functioning of the meter;
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement : L_{eq}(30 min.) dB(A) (as six consecutive $L_{eq,\ 5min}$ readings) during non-restricted hours (i.e. 0700-1900 hrs on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re- calibration or repair of the equipment;
- During the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet;
- Noise measurement was paused temporarily during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible and observation record during measurement period should be provided; and
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. The wind speed should be checked

with a portable wind speed meter capable of measuring the wind speed in m/s.

Maintenance and Calibration

4.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

4.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

4.7 Immediately prior to and following each noise measurement, the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements would be accepted as valid only if the calibration levels before and after the noise measurement agreed to within 1.0 dB.

Results and Observations

4.8 The noise monitoring results are summarised in **Table 4.4**. Detailed monitoring results and graphical presentations of noise monitoring are shown in **Appendix F**. The weather information for the reporting month is summarized in **Appendix H.**

Table 4.4 Summary Table of Noise Monitoring Results during the Reporting Month

Contract No.	Monitoring Station	Noise Level Leq $_{(30\ min)}$, dB(A)	Baseline Level, dB(A)	Limit Level, dB(A)
ND/2019/01	CP-KTN-NMS2	51.5-55.5	58.6	75
	CP-KTN-NMS3	55.1-64.8	51.6	
	CP-KTN-NMS5	55.4-67.8	57.2	
ND/2019/06	CP-FLN-NMS1	66.2-67.8	69.9	

4.9 All noise monitoring was conducted as scheduled in the reporting month. No complaint was received during the reporting. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix J**.

4.10 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting month are as follows:

Table 4.5 Observation at Noise Monitoring Stations

Contract No.	Monitoring Station	Location	Major Noise Source
ND/2019/01	CP-KTN-NMS2	Residential Buildings at Ma Tso Lung (Existing)	Road Traffic near Ma Tso Lung
	CP-KTN-NMS3	Fung Kong Garden (Existing)	Road Traffic near Fung Kong Garden
	CP-KTN-NMS5	N/A	Other construction site
ND/2019/06	CP-FLN-NMS1	Belair Monte (Existing)	Road Traffic at Ma Sik Road

Event and Action Plan

4.11 Should any project related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix I** shall be carried out.

5 WATER QUALTY MONITORING

Monitoring Requirements

5.1 In accordance with the Updated EM&A Manual, impact water quality monitoring shall be carried out three days per week at all the designated monitoring stations during the construction period. The measurement periods are during the construction of channel specified in Table 4.1 of Updated EM&A Manual. The interval between two sets of monitoring shall not be less than 36 hours.

5.2 Replicate in-situ measurements of Dissolved Oxygen (DO), temperature, turbidity, pH, Suspended Solids (SS) and samples for Suspended Solids (SS), ammonia nitrogen, unionized ammonia, nitrate nitrogen and orthophosphate from each independent sampling event shall be collected to ensure a robust statistically interpretable database.

5.3 **Appendix B** shows the established Action and Limit Levels for the water quality monitoring work according to pre-construction ET's Updated EM&A Manual and Baseline Water Quality Monitoring Report (KTN & FLN NDA).

Monitoring Parameters, Frequency

5.4 **Table 5.2** summarized the monitoring parameters, monitoring periods and frequencies of the water quality monitoring.

Table 5.2 Water Quality Monitoring Parameters and Frequency

Parameters, unit	Depth	Frequency
• Temperature(°C) • pH(pH unit) • turbidity (NTU) • water depth (m) • salinity (ppt) • DO (mg/L and % of saturation) • SS (mg/L) • Ammonia Nitrogen (NH_3-N) (mg NH_3-N/L) • Unionized Ammonia (UIA) (mg/L) • Nitrate-nitrogen (NO_3-N) (mg NO_3^--N/L) • Ortho-phosphate (PO_4) (mg PO_4^{3-}-P/L)	• 3 water depths: 1m below water surface, mid-depth and 1m above river bed. • If the water depth was less than 3m, mid-depth sampling only. • If water depth was less than 6m, mid-depth may be omitted.	3 days per week during construction of channel

Results and Observations

5.5 According to the Section 5.6.1.2 of approved EIA Report, the potential water quality impact

during construction is due to the alternation of natural streams (i.e. channelization of Ma Tso Lung Stream and Siu Hang San Tsuen Stream) as these two streams are the ecological importance streams.

5.6 No construction of channel was carried out Ma Tso Lung Stream and Siu Hang San Tsuen Stream during the reporting month. Therefore, no water quality monitoring was conducted.

6 LAND CONTAMINATION (AMBIENT ARSENIC MONITORING)

Monitoring Requirements

6.1 According to Section 7.5 of updated EM&A Manual, an ambient arsenic monitoring is required to be conducted in KTN during the clean-up processes of arsenic containing soil and the construction phase.

6.2 The Respirable Suspended Particulate (RSP, or PM10) should be measured by High Volume Sampler (HVS) equipped with PM10 selector following the "Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere" Part 50 Chapter 1 Appendix J, Title 40 of the Code of Federal Regulations of the USEPA.

6.3 The Dust-laden air should be drawn through PM10 HVS fitted with a conditioned pre-weighting filter paper, at a controlled rate. After sampling for 24-hour (refer Section 9.5.5 for details on measurement period), the filter paper with retained PM10 particulates shall be collected and returned to the laboratory for drying in a desiccators followed by accurate weighting. 24-hour average RSP levels shall be calculated from the ratio of the mass of PM10 particulates retained on the filter paper to the total volume of air sampled.

6.4 The weighted filter paper shall be prepared for arsenic testing through a "Hot Acid Extraction Procedure". The extracted material shall be tested for arsenic by using Inductively Coupled Plasma/Mass Spectrometry (ICP/MS). The extraction and testing will be referenced to the following methods:

- Compendium Method 1O-3.1 Selection, Preparation and Extraction of Filter Material, Center for Environmental Research Information, Office of Research and Development, USEPA, June 1999; and
- Compendium Method 1O-3.5 determination of Metals in Ambient Particulate Matter using Inductively Coupled Plasma/Mass Spectrometry (ICP/MS., Center for Environmental Research Information, Office of Research and Development, USEPA, June 1999.

Monitoring Location

6.5 Ambient arsenic monitoring was conducted at the monitoring station under the Work Contract, as shown in **Figure 4**. **Table 6.1** describes the locations of the ambient air quality monitoring station.

Table 6.1 Location of Ambient Arsenic Monitoring station

EP. No	Contract No.	Monitoring Stations	Location
EP-468/2013/A	ND/2019/01	KTN-DMS-4A[1]	Temporary Structure at Pak Shek Au

Notes:
[1]: Monitoring at original KTN-DMS-4 (originally proposed in the approved EM&A Manual) was denied as no electricity supply. An alternative location (KTN-DMS-4A) was proposed.

Monitoring Equipment

6.6 **Table 6.2** summarizes the equipment used in the ambient arsenic monitoring. Copies of calibration certificates are attached in **Appendix C**.

Table 6.2 Ambient Arsenic Monitoring Equipment

Monitoring Stations	Equipment	Model and Make	Quantity
KTN-DMS-4A	Calibrator	TISCH Model: TE-5025A	1
	HVS Sampler (RSP)	TISCH Model: TE-6070X	1

Monitoring Parameters, Frequency and Duration

6.7 **Table 6.3** summarizes the monitoring parameters and frequencies of ambient arsenic during the clean-up processes of arsenic-containing soil and construction. The ambient arsenic monitoring schedule for the reporting month is shown in **Appendix D**.

Table 6.3 Impact Ambient Arsenic Monitoring Parameters, Frequency and Duration

Parameters	Frequency
24-hr RSP (Ambient Arsenic)	Once/ 6 days

Monitoring Methodology and QA/QC Procedure

24-hour RSP Monitoring

Instrumentation

6.8 High volume samplers (HVS) (GMW PM10 (TE6070)) complete with appropriate sampling inlets was employed for 24-hour RSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

6.9 The following guidelines were adopted during the installation of HVS:

- a horizontal platform with appropriate support to secure the samplers against gusty wind was provided;
- no two samplers was placed less than 2 meters apart;
- the distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler;
- a minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samplers;
- a minimum of 2 meters separation from any supporting structure, measured horizontally was required;
- no furnace or incinerator flue was nearby;
- airflow around the sampler was unrestricted;
- the sampler was more than 20 meters from the dripline;
- any wire fence and gate, to protect the sampler, were not cause any obstruction during monitoring;
- permission was obtained to set up the samplers and to obtain access to the
- monitoring stations; and
- a secured supply of electricity was needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler will be properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's

instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter will be carefully centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure were sufficient to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature was between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) was < 50% and not vary by more than ±5%. A convenient working RH was 40%. Weighing results were further analysis of RSP concentrations collected by each filter.

Maintenance/Calibration

6.10 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply were in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the ambient arsenic monitoring.

Laboratory Measurement / Analysis

6.11 Quartz filters of size 8" x 10" were labelled before sampling. A HOKLAS accredited laboratory, Wellab Ltd., is responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for the monitoring team. The balance for weighting filter paper was regularly calibrated against a traceable standard.

6.12 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.

6.13 Wellab Ltd. (HOKLAS Registration No. 083), is responsible for the extraction and testing procedure for Arsenic and comprehensive quality assurance and quality control programmes were conducted.

Results and Observations

6.14 The ambient arsenic monitoring results are summarized in **Table 6.4**. Detailed monitoring results and test report are shown in **Appendix E**.

Table 6.4 Summary Table of 24-hour RSP Monitoring Results during the Reporting Month

Monitoring Date	Monitoring Station	Concentration (ng/m^3)	Action Level (ng/m^3)	Limit Level, (ng/m^3)
19/06/2020	KTN-DMS-4A	1.34	9.36	11.7
24/06/2020		0.59		
30/06/2020		1.70		

6.15 All ambient arsenic monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedances were recorded.

Event and Action Plan

6.16 Should project-related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix I** shall be carried out.

7 LANDFILL GAS MONITORING

Monitoring Requirement

7.1 In accordance with the updated EM&A Manual, monitoring of landfill gas (LFG) is required for construction works within the Ma Tso Lung Landfill (MTLL, close to KTN NDA) during the construction phase. This section presents the results of landfill gas measurements performed by the Contractor. **Appendix B** shows the Limit Levels for the monitoring works.

7.2 The MTLL is situated in the vicinity of the KTN NDA. A portion of the development falls within the MTLL and its 250m Consultation Zone.

Monitoring Parameters and Frequency

7.3 Monitoring parameters for Landfill gas monitoring include Methane, Carbon dioxide and Oxygen.

7.4 According to the mitigation measures of the updated EM&A Manual, measurements of the following frequencies should be carried out according to the monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's Guidance Note, "LANDFILL GAS HAZARD ASSESSMENT GUIDANCE NOTE".

7.5 The frequency of monitoring of LFG are conducted referring to the updated EM&A Manual - Monitoring of any LFG which may be migrated to the site should be undertaken during the construction of infrastructure and the development within the Consultation Zone and within MTLL when the works involve confined spaces. Routine gas monitoring should be undertaken during groundwork construction and in all excavations. Monthly gas monitoring should also be conducted for offices, stores etc. set up on site.

Monitoring Locations

7.6 Monitoring of oxygen, methane and carbon dioxide was performed for construction of infrastructure and the development within the Consultation Zone and within MTLL when the works involve confined spaces. In this reporting month, the area required to be monitored for landfill gas are shown below and **Figure 5** shows the landfill gas monitoring locations.

- Excavation Locations: Portion 6b
- Manholes and Chambers: N/A
- Relocation of monitoring wells: N/A
- Any other Confined Spaces: Container in Portion 6b

Monitoring Equipment

7.7 **Table 7.1** summarizes the equipment employed by the Contractor for the landfill gas monitoring.

Table 7.1 Landfill Gas Monitoring Equipment

Equipment	Model and Make	Quantity
Portable gas detector	RKI Eagle (Serial No. E148037)	1

Results and Observations

7.8 In the reporting month, landfill gas monitoring was carried out by the Contractor at the aforesaid locations on 1 occasion with 2 monitoring stations. No Limit Level exceedance for landfill gas monitoring was recorded in the reporting month. The monitoring results are provided in **Appendix G**. Copies of calibration certificates are attached in **Appendix C**.

Event and Action Plan

7.9 Should any project related non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix I** shall be carried out.

8 ECOLOGICAL MONITORING

Status

8.1 During the Reporting Month, baseline ecological monitoring has not yet been completed. Ecological monitoring of Contract No. ND/2019/01 under Environmental Permit (EP-468/2013/A) will be commenced after the completion of baseline ecological monitoring. No ecological monitoring was conducted during the Reporting Month.

9 ENVIRONMENTAL SITE INSPECTION

Site Audits

9.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures on the Contract site. The summaries of site audits are presented in **Table 9.1** and **Appendix K**.

Table 9.1 Summary of Site Audit

Environmental Site Inspection	Works Contracts	
	ND/2019/01	ND/2019/06
Weekly site audit with representative of the *Supervisor's* Representative and the Contractor	2nd, 11th, 16th, 23rd and 30th June 2020	4th, 12th, 18st, 26th June 2020
Joint Site Audit with representative of the *Supervisor's* Representative, the Contractor and IEC	11th June 2020	12th June 2020

9.2 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarised in **Table 9.2**.

Table 9.2 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Contract No.: ND/2019/01			
Air Quality	23/06/2020	The exposed worksite and haul road should be watered regularly.	Improvement/Rectification was observed during follow-up audit session on 30 June 2020.
	30/06/2020	The exposed worksite and haul road should be watered regularly.	Follow-up action is needed to be reported in the following month.
Water Quality	26/05/2020	Vehicles are not cleaned of earth, mud and debris before leaving the site.	Improvement/Rectification was observed during follow-up audit session on 2 June 2020.
	26/05/2020	Water should be cleared regularly.	Item 200526-R02 was remarked as 200602-R03, follow-up action is needed to be reviewed.
	02/06/2020	Vehicles are not cleaned of earth, mud and debris before leaving the site.	Improvement/Rectification was observed during follow-up audit session on 11 June 2020.
	02/06/2020	Water should be regularly cleared.	Improvement/Rectification was observed during follow-up audit session on 11 June 2020.

Parameters	Date	Observations and Recommendations	Follow-up
Waste/ Chemical Management	26/05/2020	Chemical waste/oil should be stored properly in designated area.	Improvement/Rectification was observed during follow-up audit session on 2 June 2020.
	02/06/2020	Chemical is leaked out from the container.	Improvement/Rectification was observed during follow-up audit session on 11 June 2020.
	16/06/2020	Chemical waste/oil should be stored properly in designated area.	Improvement/Rectification was observed during follow-up audit session on 23 June 2020.
	23/06/2020	Chemical waste, waste oil should be disposed of properly.	Improvement/Rectification was observed during follow-up audit session on 30 June 2020.
	30/06/2020	Chemical oil should be stored properly in designated area.	Follow-up action is needed to be reported in the following month.
Landscape and Visual	26/05/2020	Screen hoarding should be properly maintained and provided.	Item 200526-R04 was remarked as 200602-R04, follow-up action is needed to be reviewed.
	02/06/2020	Screen hoarding should be properly maintained and provided.	Improvement/Rectification was observed during follow-up audit session on 11 June 2020.
Contract No.: ND/2019/06			
Water Quality	28/05/2020	Sand and silt settled in drainage system should be removed regularly.	Improvement/Rectification was observed during follow-up audit session on 4 June 2020.
	28/05/2020	Water in drip tray should be cleared regularly.	Improvement/Rectification was observed during follow-up audit session on 4 June 2020.
	26/06/2020	Debris and rubbish in U-channel should be cleared and disposed of properly.	Follow-up action is needed to be reported in the following month.

Waste / Chemical Management	18/06/2020	Chemical waste, waste oil containers should be disposed of properly.	Improvement/Rectification was observed during follow-up audit session on 26 June 2020.
	26/06/2020	Chemical waste, waste oil containers should be stored properly in designated place.	Follow-up action is needed to be reported in the following month.

Implementation Status of Environmental Mitigation Measures

9.3 According to the EIA Report, EPs and the Updated EM&A Manual, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule is provided in **Appendix L**. The photographic records of measures as stipulated in EP to mitigate environmental impacts in the reporting month are presented in **Table 9.3.**

Table 9.3 Photographic Records and Implementation Status of Measures

EP No.	Condition	Photographic Record	Implementation Status
EP-475/2013/A	2.7	  To minimise adverse impacts on habitats of ecological importance in the vicinity of the Project, 2m high solid dull green site barrier fences shall be erected around all active works areas (**Figure 6**)	^[1]
Implementation status:	^ Mitigation measure was fully implemented * Observation/reminder was made during site audit but improved/rectified by the contractor # Observation/reminder was made during site audit but not yet improved/ rectified by the contractor X Non-compliance of mitigation measure • Non-compliance but rectified by the contractor N/A Not Applicable at this stage as no such site activities were conducted in the reporting period		

[1]: Barrier fences might be subjected to change according to phasing plan designed at detailed design stage

9.4 Under EP-468/2013/A (Condition 2.11), to minimise adverse impacts on habitats of ecological importance in the vicinity of the Project, 2m high solid dull green site barrier fences shall be erected around all active works areas. As the Works programme under EP-468/2013/A was still under preparation work and the barrier fences erection was still progressing in the Reporting Month, 2m high solid dull green site barrier fences will be checked once in place.

Solid and Liquid Waste Management Status

9.5 Waste generated from Contract No. ND/2019/06 include inert construction and demolition (C&D) materials and non-inert C&D wastes. For Contract No. ND/2019/01, only general refuse had been generated during reporting month.

9.6 The amount of wastes generated by the construction works of the Contract No. ND/2019/01 and Contract No. ND/2019/06 during the reporting month is shown in **Appendix M**.

9.7 The Contractors are advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in the Updated EM&A Manual and waste management plans shall be fully implemented. The status of implementation of waste management and reduction measures are summited in **Appendix L**.

10 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

10.1 No exceedance of Action and Limit Levels of air quality, construction noise, ambient arsenic and landfill gas monitoring in the reporting month. The summary of exceedance record in reporting month is shown in **Appendix J**.

10.2 Should the monitoring results of the environmental monitoring parameters at any designated monitoring stations indicate that the Action / Limit Levels are exceeded, the actions in accordance with the Event and Action Plans in **Appendix I** be carried out.

Summary of Environmental Non-Compliance

10.3 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

10.4 No environmental complaints were received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix N**.

Summary of Environmental Summon and Successful Prosecution

10.5 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix O**.

11 FUTURE KEY ISSUES

Key Issues in the Coming Two Months

11.1 The major site activities for the coming two months are shown in **Table 11.1.**

Table 11.1 Summary Table for Site Activities in the coming Two Months

Contract No.	Site Activities (July and August 2020)
ND/2019/01	(a) Site Clearance, Ground Investigation in Portion 1f; (b) Tree Survey, Site Clearance, Ground Investigation in Portion 2 (c) Tree Survey, Site Clearance in Portion 3 (d) Site Clearance, site trial for In-situ cement mixing (ICM) for soil treatment in Portion 4 (e) Site Clearance, Tree Survey, Ground Investigation in Portion 5 (f) Tree Survey, Site Clearance, Ground Investigation in Portion 6a; (g) Set up of Soil Treatment Facility, site trial for Ex-situ cement mixing (ECM) in Portion 6b; (h) Site Clearance, Construction of temporary road for alternative Po Lau Road in Portion 7; (i) Ground Investigation, Hoarding erection, Construction of Retaining Wall in Portion 8a; (j) Site Clearance, Forming access, Ground Investigation, stockpile of soil in Portion 9c; (k) Site Clearance, Excavation in Portion 10a; and (l) Tree Survey, Site Clearance, Ground Investigation in 10b
ND/2019/06	(a) Construction of Management Office Building; (b) Installation of entrance gate, drop gate, Octopus machine and temporary lighting at new run-in/out (c) Construction of hoarding for the final stage; (d) Breaking up the concrete surface and disposal of C&D material off site at Portion 3 (e) Drainage works for interim stage including construction of U-channel and manhole for Portion 3 near Management Office Building (f) Ground investigation works for mini-pile construction at Portion 3 Tree felling at Portion 3 and 6.Tree felling at Portion 3 and 6.

Monitoring Schedule for the Next Month

11.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix D**.

Construction Programme for the Next Month

11.3 A tentative construction programme is provided in **Appendix A**.

12 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

12.1 This Monthly EM&A Report presents the EM&A work undertaken in June 2020 in accordance with Updated EM&A Manual.

12.2 No Action/Limit Level exceedance were recorded for air quality, construction noise, ambient arsenic and landfill gas monitoring.

Contract No. ND/2019/01

12.3 Environmental site inspection was conducted on 2nd, 11th, 16th, 23rd and 30th June 2020 by ET in the reporting month.

Contract No. ND/2019/06

12.4 Environmental site inspections were conducted on 4th, 12th, 18th and 26th June 2020 by ET in the reporting month.

12.5 There was no environmental complaints, no notification of summons or successful prosecutions received in the reporting month.

12.6 The ET would keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

12.7 According to the environmental audits performed in the reporting month, the following recommendations were made:

Air Quality Impact

- To enhance the dust suppression measures such as water spraying on all haul roads and expose work site area; and
- To maintain the impervious material to cover the stockpile of dusty materials; and
- To ensure all regulated machines with valid Non-road Mobile Machinery (NRMM) labels.

Water Impact

- To prevent any surface runoff discharge into nearby drainage or stream;
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge; and
- To ensure the drainage facilities would not be clogged with waste to avoid overflow.

Waste/Chemical Management

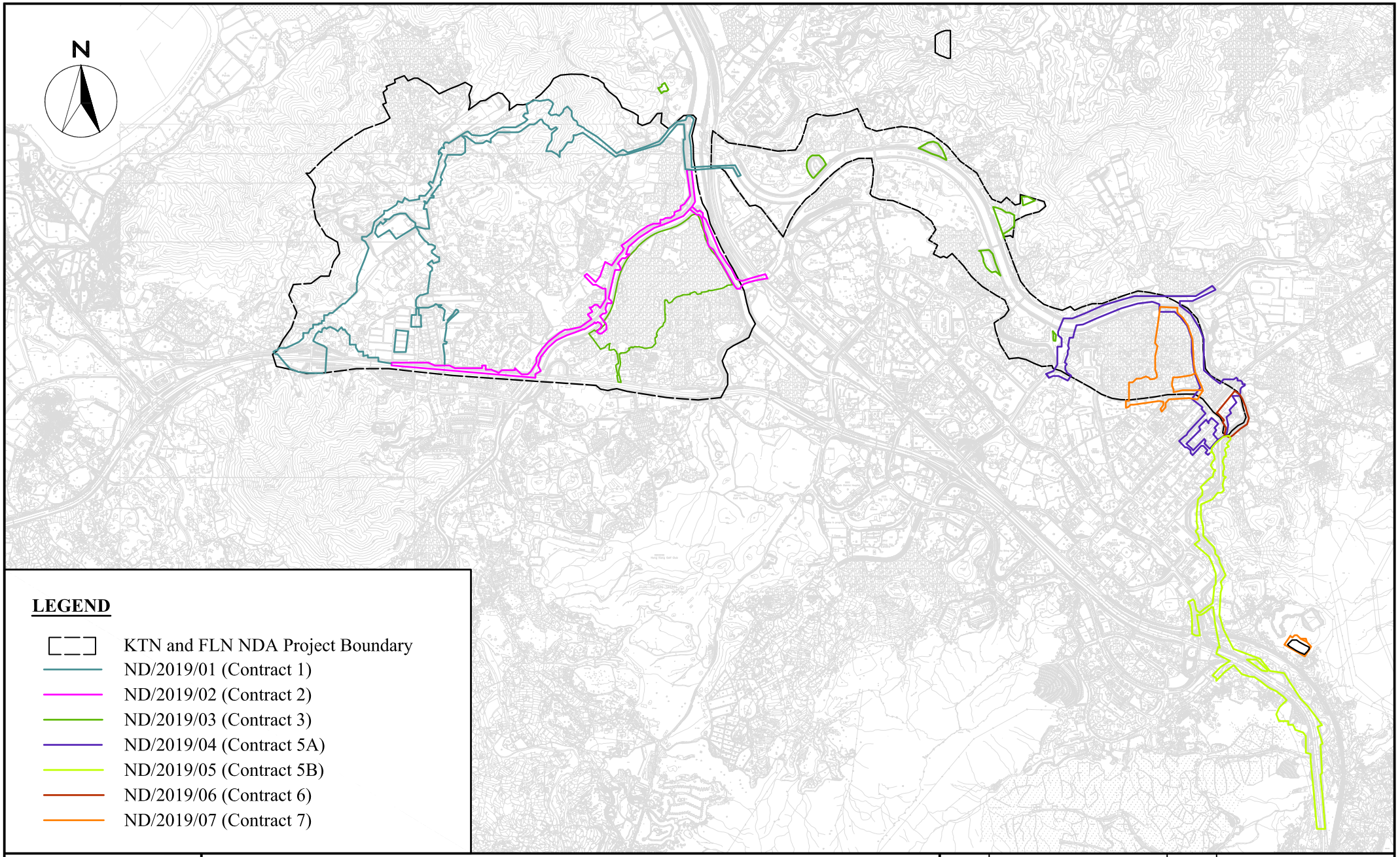
- To avoid improper handling, storage and dispose of oil drums or chemical containers on site; and

- To store chemical waste/waste oil properly in the designated place before disposal.

Landscape & Visual Impact

- To clear the construction materials/wastes properly within the tree protection zone.
- Retained trees should be carefully protected.
- Dull green fencing should be secured with no gaps or no holes.

DRAWING(S)



WELLAB 匯力
consulting . testing . research

Service Contract No. NDO 04/2019 Environmental Team for EM&A Works in Construction Phase for the First Phase Development of KTN and FLN NDAs

Project Boundary for the Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas

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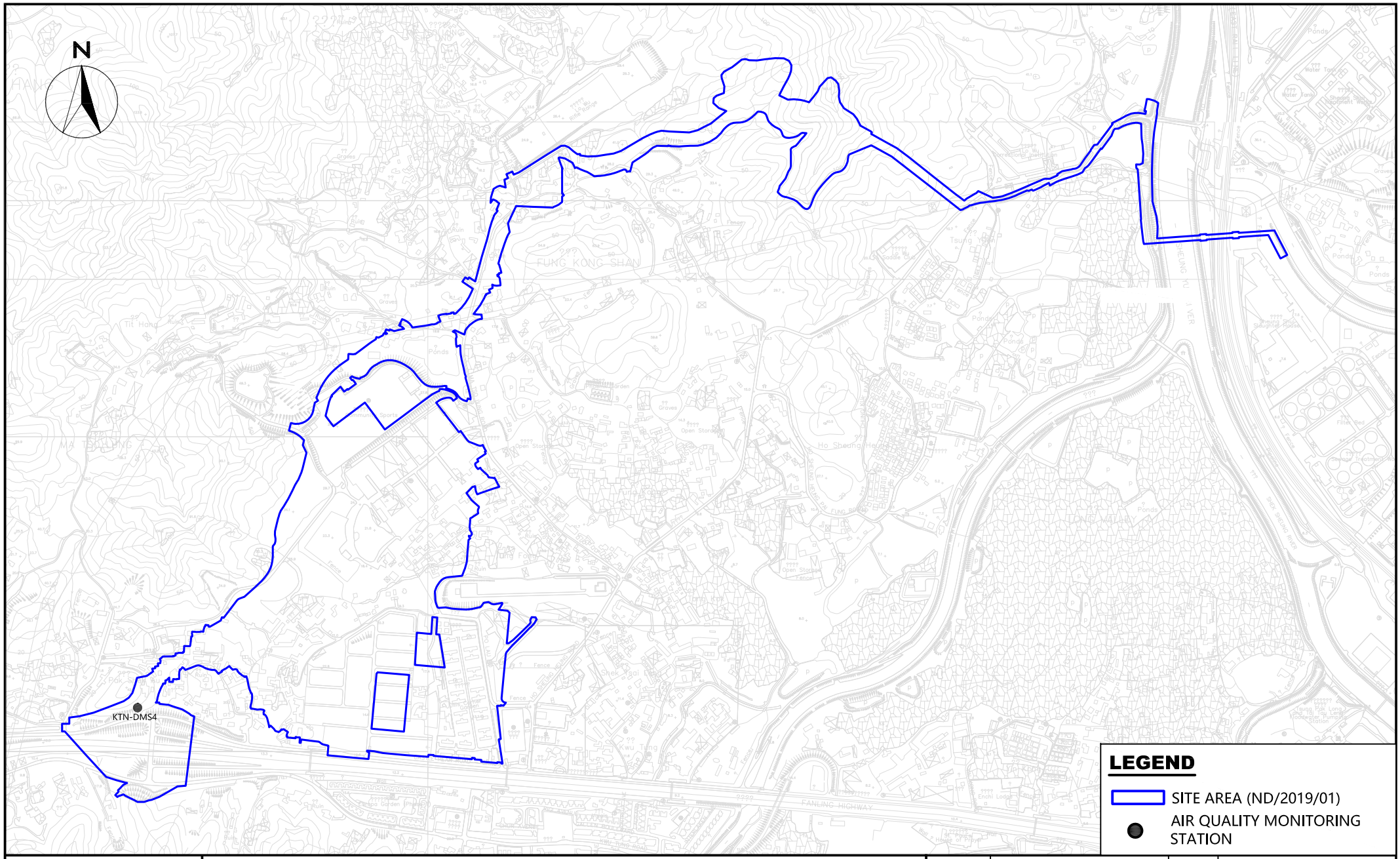
Project No.	WMA20002	Drawing No. 1	REV -

FIGURE(S)



WELLAB 匯力
consulting . testing . research

Service Contract No. NDO 04/2019 Environmental Team for EM&A Works in Construction Phase for the First Phase Development of KTN and FLN NDAs
Contract No. ND/2019/01 Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works
Location of Air Quality Monitoring Station

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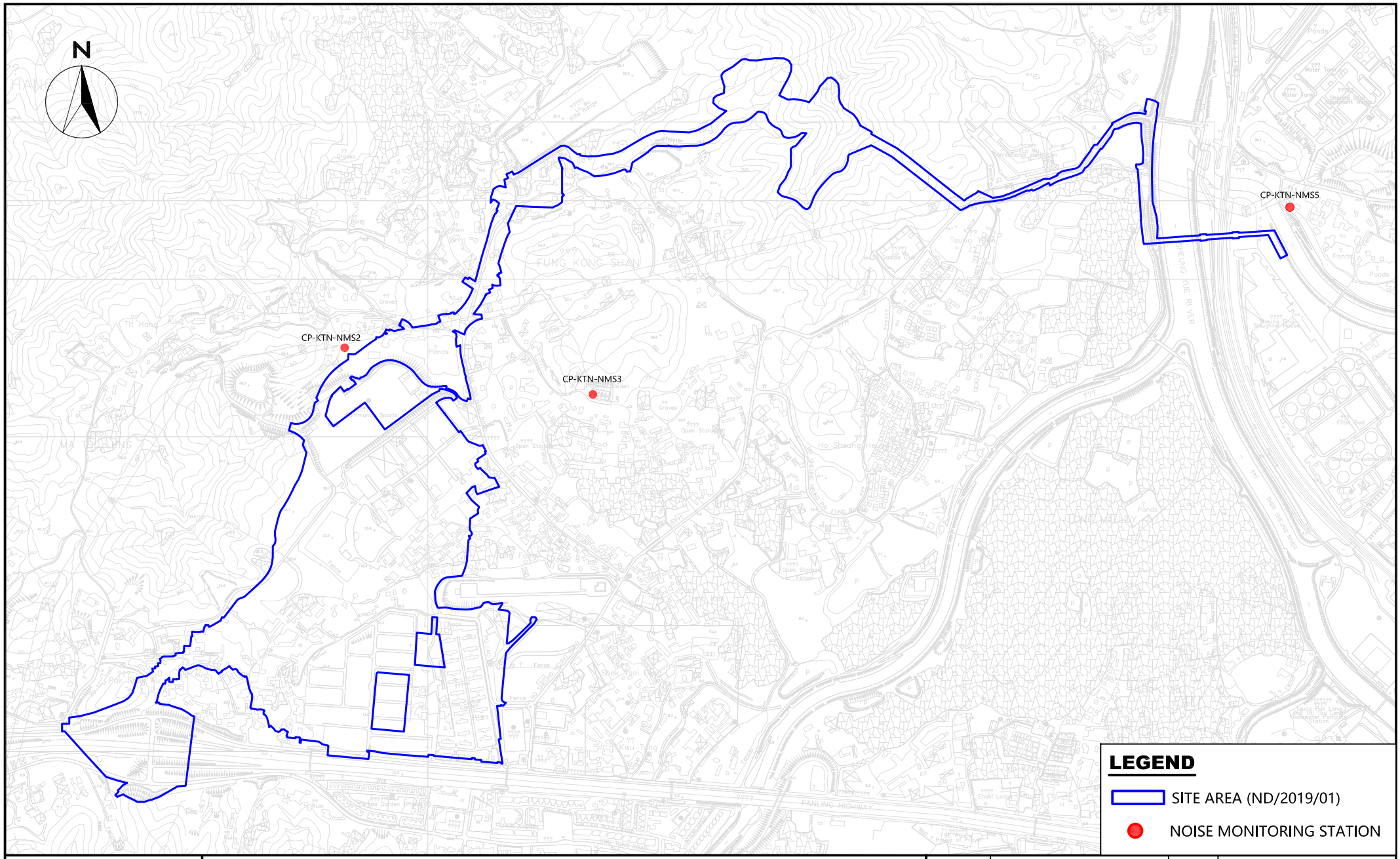
PROJECT No.	WMA20002	FIGURE NO. 1	REV —



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Service Contract No. NDO 04/2019 Environmental Team for EM&A Works in Construction Phase for the First Phase Development of KTN and FLN NDAs
Contract No. ND/2019/01 Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works
Location of Noise Monitoring Station

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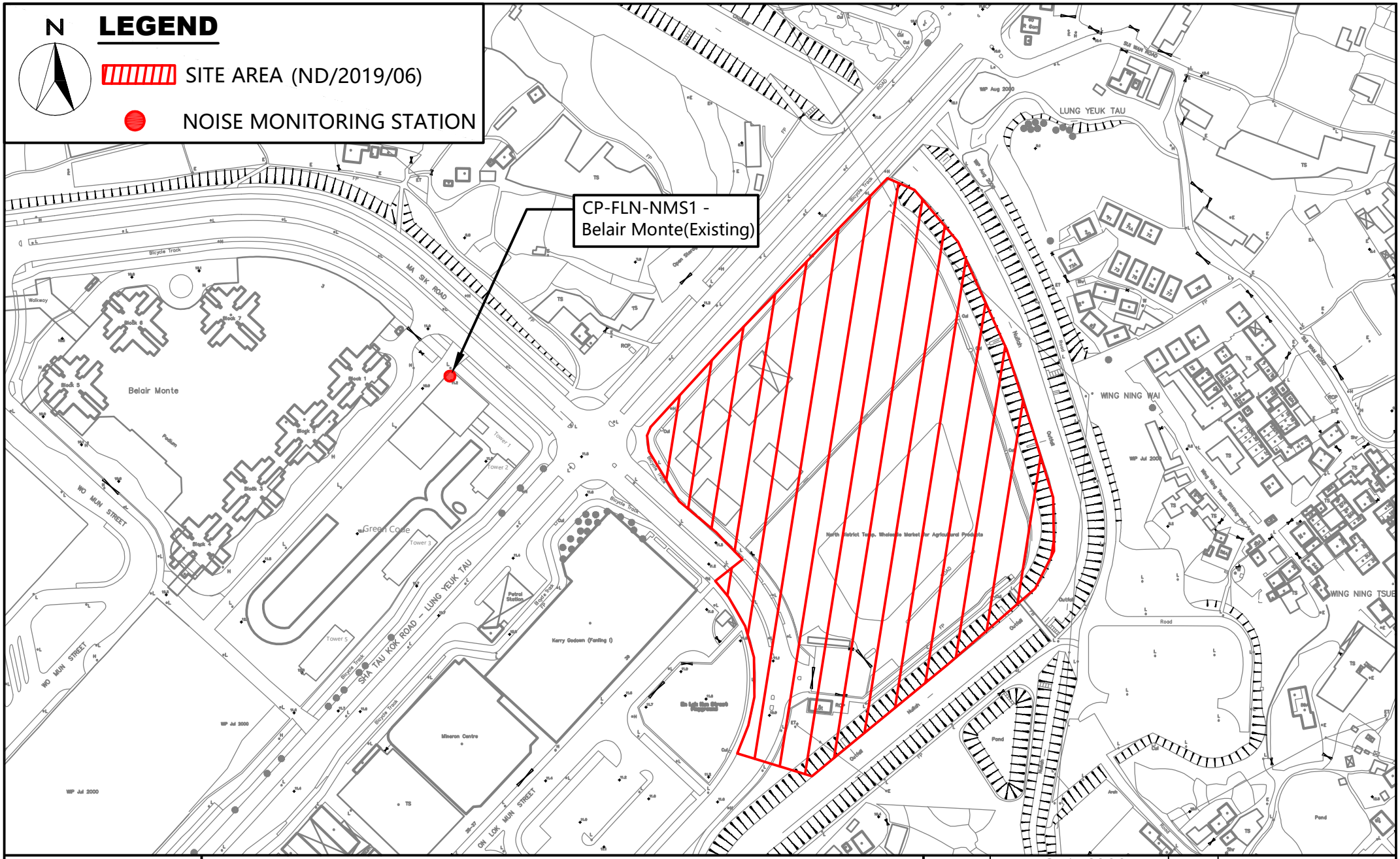
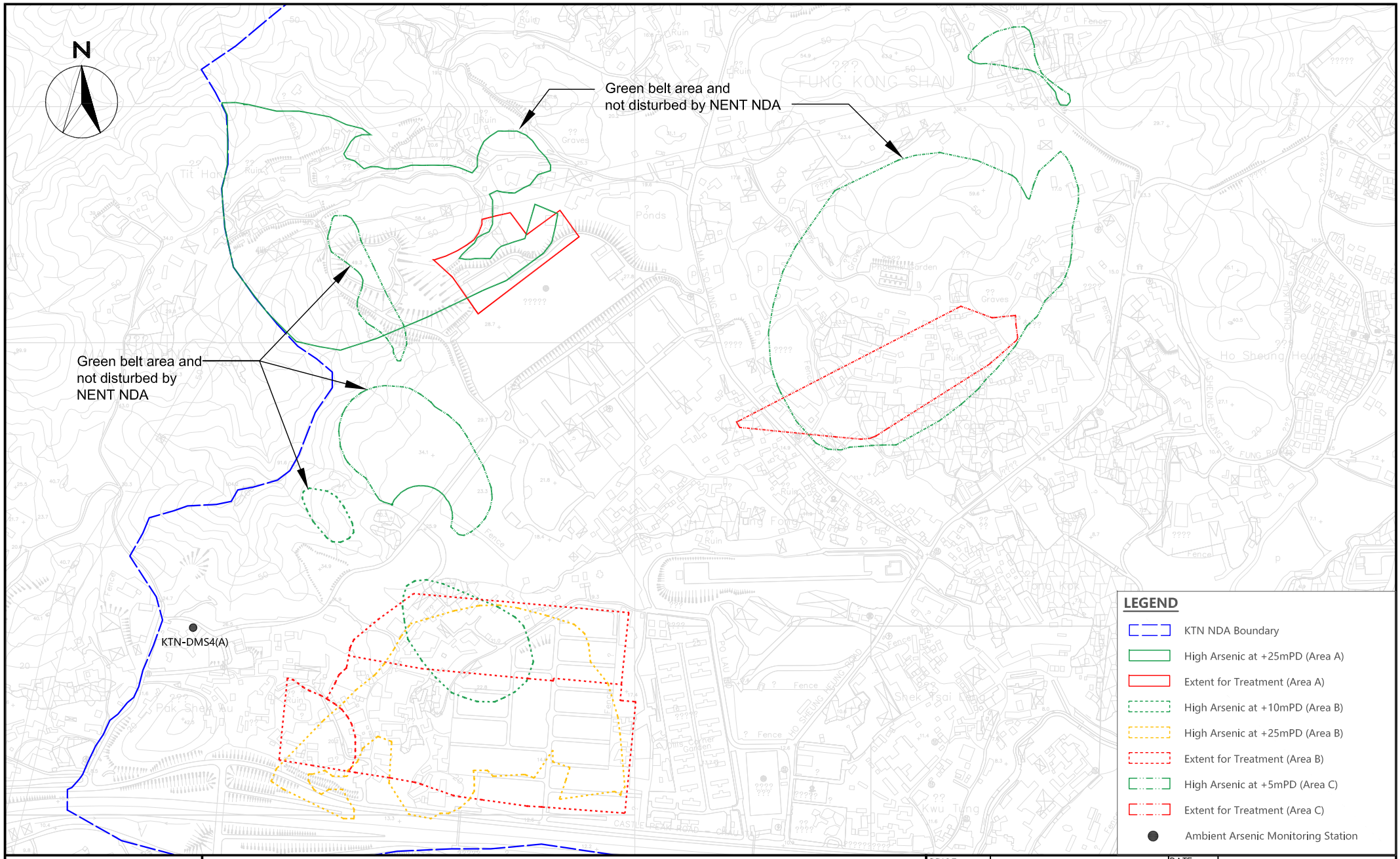
PROJECT No.	WMA20002	FIGURE NO. 2	REV —



WELLAB 匯力
consulting . testing . research

Service Contract No. NDO 04/2019 Environmental Team for EM&A Works in Construction Phase for the First Phase Development of KTN and FLN NDAs
Contract No. ND/2019/06 Fanling North New Development Area, Phase 1: Re-provisioning of North District Temporary Wholesale Market for Agricultural Products
Location of Noise Monitoring Station

SCALE	A4 @ 1: 6000	DATE	FEB 2020
CHECK	KL	DRAWN	KIKI
PROJECT No.	WMA20002	FIGURE NO. 3	REV —

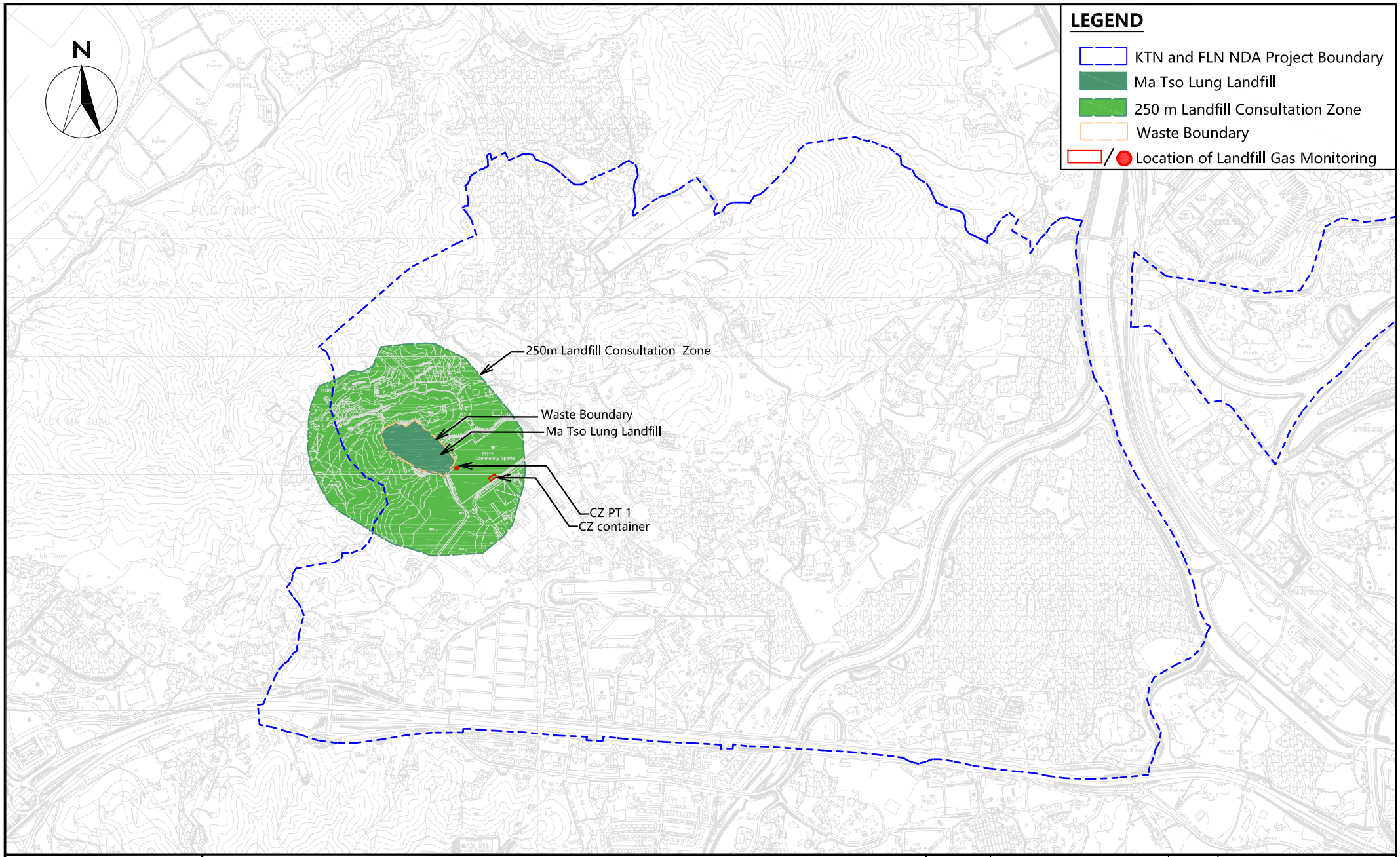


WELLAB 匯力
consulting . testing . research

Service Contract No. NDO 04/2019 Environmental Team for EM&A Works in Construction Phase for the First Phase Development of KTN and FLN NDAs
Contract No. ND/2019/01 Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Location of Ambient Arsenic Monitoring Station

SCALE	1:20000 (A4)	DATE	Jun 2020
CHECK	IT	DRAWN	ML
PROJECT No.	WMA20002	FIGURE NO.	4
		REV	-



WELLAB 匯力
consulting . testing . research

Service Contract No. NDO 04/2019 Environmental Team for EM&A Works in Construction Phase for the First Phase Development of KTN and FLN NDAs
Contract No. ND/2019/01 Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Location of Landfill Gas Monitoring

SCALE	A4 @ 1:40000	DATE	JUNE 2020
CHECK	KL	DRAWN	KIKI
PROJECT No.	WMA20002	FIGURE NO.	5
		REV	—

ISO A1 594mm x 841mm

Approved: IHWL

Checked: ALUI

Designer: DMCH

Project Management Initiate:

NOTES:

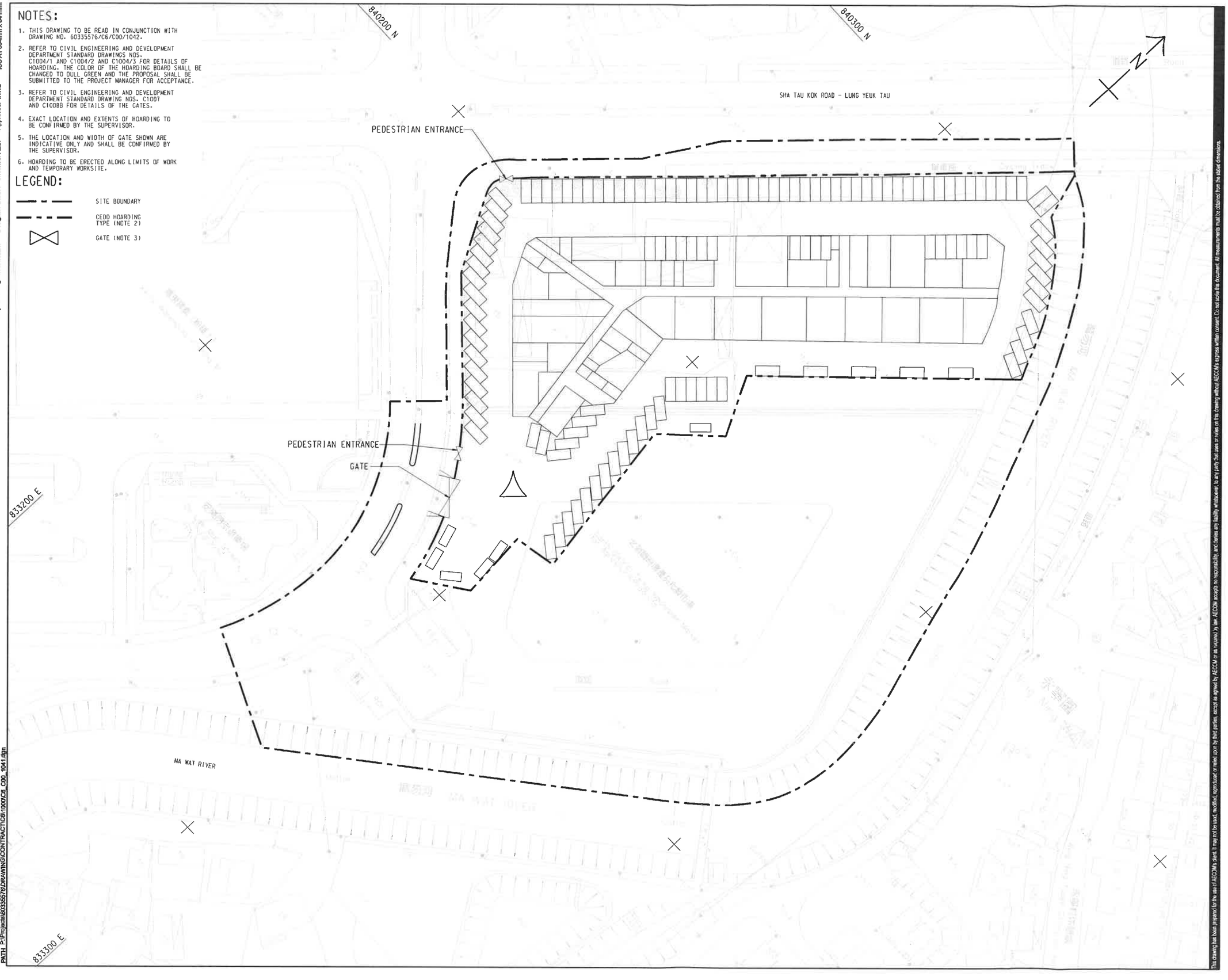
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60335576/C6/C00/1042.
2. REFER TO CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT STANDARD DRAWINGS NOS. C1004/1 AND C1004/2 AND C1004/3 FOR DETAILS OF HOARDING. THE COLOR OF THE HOARDING BOARD SHALL BE CHANGED TO DULL GREEN AND THE PROPOSAL SHALL BE SUBMITTED TO THE PROJECT MANAGER FOR ACCEPTANCE.
3. REFER TO CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT STANDARD DRAWING NOS. C1007 AND C1008B FOR DETAILS OF THE GATES.
4. EXACT LOCATION AND EXTENTS OF HOARDING TO BE CONFIRMED BY THE SUPERVISOR.
5. THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISOR.
6. HOARDING TO BE ERECTED ALONG LIMITS OF WORK AND TEMPORARY WORKSITE.

LEGEND:

SITE BOUNDARY

CEDD HOARDING TYPE (NOTE 2)

GATE (NOTE 3)



Plot File by: Yeuky 29/4/2019
PATH: P:\Projects\60335576\DRAWING\CONTRACT\C6\1000\C6_C00_1041.dgn

AECOM

PROJECT
項目

DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS, PHASE 1

CONTRACT TITLE:

FANLING NORTH NEW DEVELOPMENT AREA, PHASE 1: REPROVISIONING OF NORTH DISTRICT TEMPORARY WHOLESALE MARKET FOR AGRICULTURAL PRODUCTS

CLIENT
業主

土木工程拓展署
CEDD Civil Engineering and Development Department

CONSULTANT
工程顧問公司

AECOM Asia Company Ltd.
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SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

VR 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核
-	FEB-19	TENDER DRAWING	ALUI

STATUS
階段

SCALE 比例: A1 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

Figure 6 (i)
Hoarding Plan of ND/2019/06 (interim Stage)

PROJECT NO. 項目編號: 60335576

CONTRACT NO. 合約編號: ND/2019/06

SHEET TITLE
圖紙名稱

HOARDING PLAN
(INTERIM STAGE)

SHEET NUMBER
圖紙編號

60335576/C6/C00/1041

Project Management Initials: Designer: DMCH Checked: ALUI Approved: IHWL ISO A1 594mm x 841mm

NOTES:

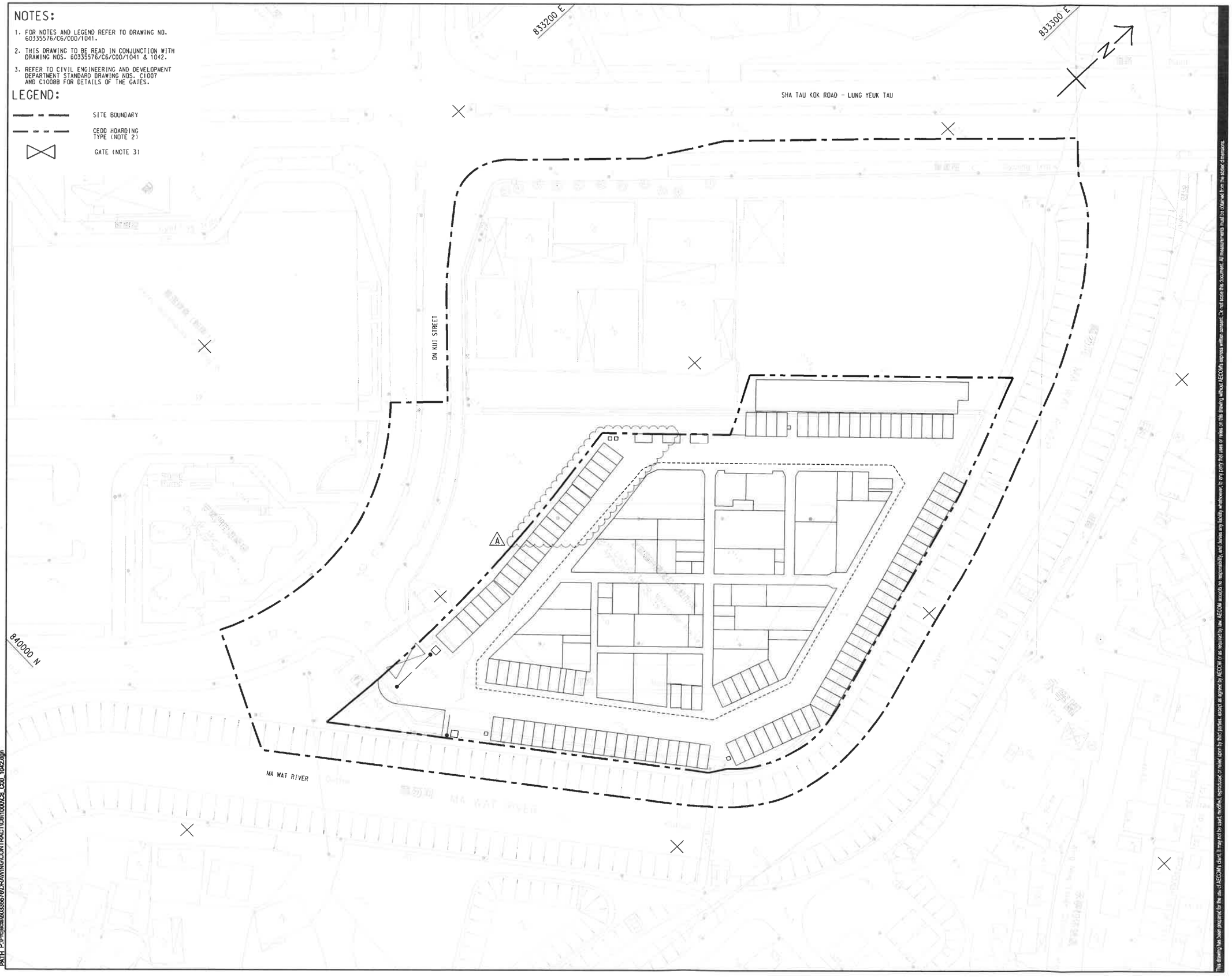
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60335576/C6/C00/1041.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60335576/C6/C00/1041 & 1042.
3. REFER TO CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT STANDARD DRAWING NOS. C1007 AND C10088 FOR DETAILS OF THE GATES.

LEGEND:

SITE BOUNDARY

CEDD HOARDING TYPE (NOTE 2)

GATE (NOTE 3)



Plot File by: Yauky 20/6/2019
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AECOM

PROJECT

DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS, PHASE 1

CONTRACT TITLE:

FANLING NORTH NEW DEVELOPMENT AREA, PHASE 1: REPROVISIONING OF NORTH DISTRICT TEMPORARY WHOLESALE MARKET FOR AGRICULTURAL PRODUCTS

CLIENT

土木工程拓展署
CEDD Civil Engineering and Development Department

CONSULTANT

AECOM Asia Company Ltd.
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SUB-CONSULTANTS

ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK.
A	JUN-19	TENDER ADDENDUM NO. 2	ALUI
-	FEB-19	TENDER DRAWING	ALUI

STATUS

SCALE A1 1 : 500

DIMENSION UNIT METRES

KEY PLAN

Figure 6 (ii)
Hoarding Plan of ND/2019/06 (Final Stage)

PROJECT NO. 60335576

CONTRACT NO. ND/2019/06

SHEET TITLE

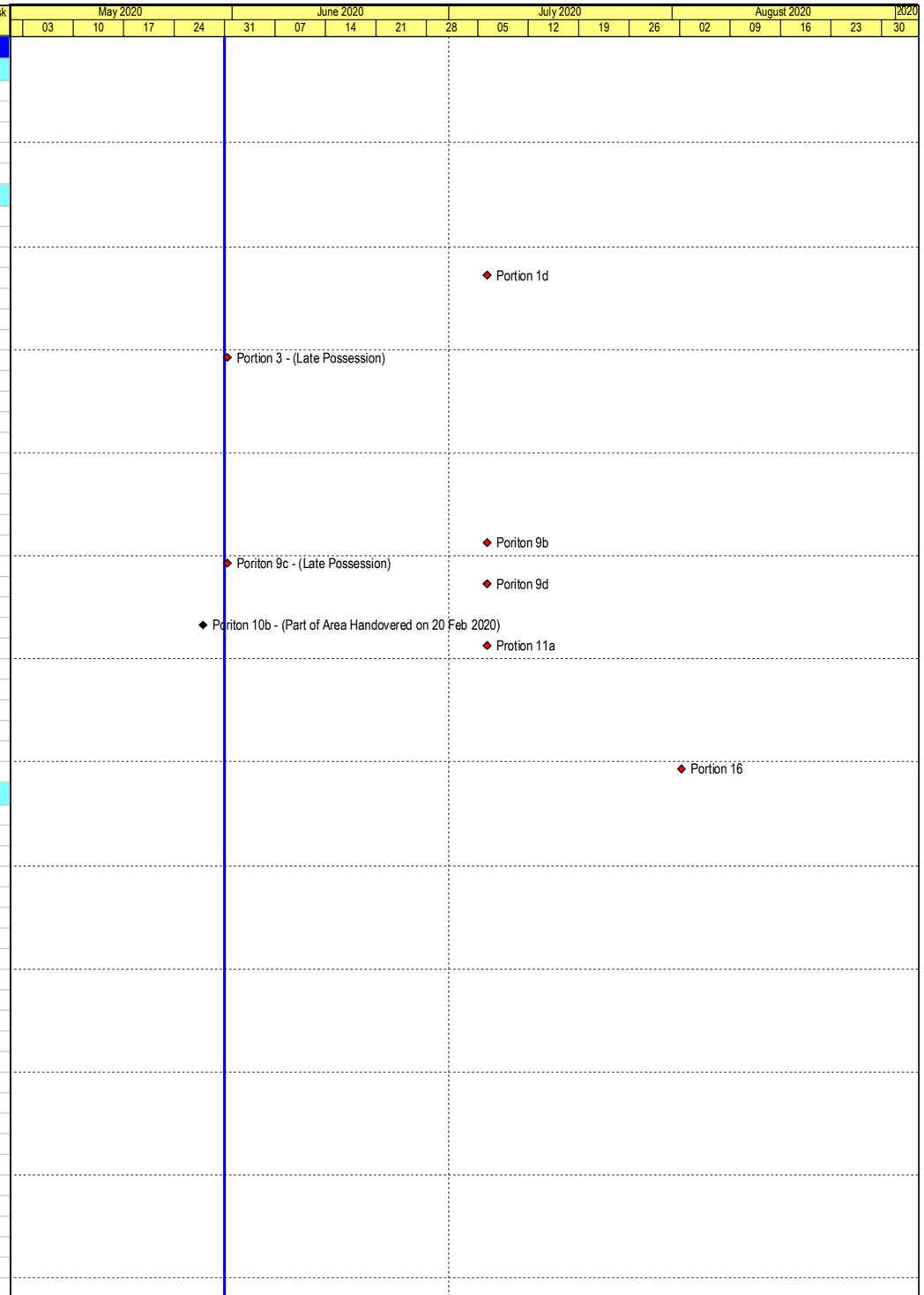
HOARDING PLAN
(FINAL STAGE)

SHEET NUMBER

60335576/C6/C00/1042A

APPENDIX A
CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Predecessors	Successors	Remaining Duration	Start	Finish	Total Float	Calendar	Time Risk
3-Month Rolling Programme (2020-06 to 2020-08)				2412	28-Nov-19 A	06-Jan-27	0		
1.0 - Contract Date				393	28-Nov-19 A	06-Jan-27	0	CD (7d)	
CD-1000	Contract Date		CD-1010, GS	0	28-Nov-19 A			CD (7d)	
CD-1010	Starting date	CD-1000	SC-1000, SC	0	06-Dec-19 A			CD (7d)	
CD-1020	Contract Completion Date	SC-1000, SC-	CD-1030	0		06-Jan-26*	0	CD (7d)	
CD-1030	Contract Completion Date (with Establishment)	CD-1020		0		06-Jan-27*	0	CD (7d)	
CD-1040	Planned Completion Date (Exclude Establishment)	S16-1010, S2	CD-1020	0		10-Dec-25	28	CD (7d)	
2.0 - Site Access Date				1315	23-Dec-19 A	06-Jan-24	0	CD (7d)	
AD-1000	Poriton 1a	CD-1010	S3P1a-1010,	0	06-Jul-21*		0	CD (7d)	
AD-1010	Portion 1b	CD-1010	S4AP1b-101(	0	06-Jul-21*		0	CD (7d)	
AD-1020	Portion 1c	CD-1010	S4BP1c-101(	0	06-Jan-22*		0	CD (7d)	
AD-1030	Portion 1d	CD-1010	S21P1d-1010	0	06-Jul-20*		0	CD (7d)	
AD-1040	Portion 1e - (Minor Area Handovered on 20 Feb 2020)	CD-1010	S6AP1e-101(	0	06-Apr-21*		0	CD (7d)	
AD-1050	Poriton 1f	CD-1010	S14P1f-1010	0	23-Dec-19 A			CD (7d)	
AD-1060	Portion 2 - (Major Area Handovered on 23 Dec 2019)	CD-1010	S8P2-1010, S	0	23-Dec-19 A			CD (7d)	
AD-1070	Portion 3 - (Late Possession)	CD-1010	S8P3-1010, E	0	31-May-20*		-55	CD (7d)	
AD-1080	Portion 4	CD-1010	S5P4-1010, S	0	20-Feb-20 A			CD (7d)	
AD-1090	Portion 5 - (Major Area Handovered on 23 Dec 2019)	CD-1010	S2AP5-1010,	0	23-Dec-19 A			CD (7d)	
AD-1100	Poriton 6a	CD-1010	S8P6a-1010,	0	23-Dec-19 A			CD (7d)	
AD-1110	Poriton 6b	CD-1010	S11P6b-1010	0	20-Feb-20 A			CD (7d)	
AD-1120	Portion 7 - (Part of Area Handovered on 20 Feb 2020)	CD-1010	S3P7-1010, S	0	20-Feb-20 A			CD (7d)	
AD-1130	Portion 8a - (Major Area Handovered on 24 Dec 2019)	CD-1010	S8P8a-1010	0	24-Dec-19 A			CD (7d)	
AD-1140	Portion 8b	CD-1010	S8P8b-1010	0	24-Dec-19 A			CD (7d)	
AD-1150	Portion 9a	CD-1010	S2BP9a-101(	0	06-Jan-22*		0	CD (7d)	
AD-1160	Poriton 9b	CD-1010	S8P9b-1010,	0	06-Jul-20*		0	CD (7d)	
AD-1170	Poriton 9c - (Late Possession)	CD-1010	S14P9c-1010	0	31-May-20*		-55	CD (7d)	
AD-1180	Poriton 9d	CD-1010	S8P9b-1010	0	06-Jul-20*		0	CD (7d)	
AD-1190	Poriotn 10a - (Major Area Handovered on 20 Feb 2020)	CD-1010	S1P10a-1040	0	20-Feb-20 A			CD (7d)	
AD-1200	Poriton 10b - (Part of Area Handovered on 20 Feb 2020)	CD-1010	S12P10b-1010	0	28-May-20 A			CD (7d)	
AD-1210	Protion 11a	CD-1010	S21P11a-1010	0	06-Jul-20*		0	CD (7d)	
AD-1220	Protion 11b	CD-1010	S6BP11b-101	0	06-Jan-24*		0	CD (7d)	
AD-1230	Poriton 12	CD-1010	S9P12-1010,	0	06-Jul-21*		0	CD (7d)	
AD-1240	Poriton 13	CD-1010	S14P13-1010	0	06-Jan-22*		0	CD (7d)	
AD-1250	Portion 14	CD-1010	S5P14-1010,	0	07-Dec-20*		0	CD (7d)	
AD-1260	Portion 15	CD-1010	S6AP15-101(	0	06-Jan-23*		0	CD (7d)	
AD-1270	Portion 16	CD-1010	S14P16-1010	0	02-Aug-20*		0	CD (7d)	
3.0 - Section Completion Date				2160	06-Feb-21	06-Jan-27	0	CD (7d)	
SC-1000	Section 1 - all works Area H except landscape works and District Cooling System related works	CD-1010, S1-	CD-1020	0		06-Oct-22*	0	CD (7d)	
SC-1010	Section 2A - all works in Area C1	CD-1010, S2A	CD-1020	0		06-Feb-22*	0	CD (7d)	
SC-1020	Section 2B - all works in Area C2	CD-1010, S2E	CD-1020	0		06-May-23*	0	CD (7d)	
SC-1030	Section 3 - all works in Area E	CD-1010, S3-	CD-1020	0		21-Feb-22*	0	CD (7d)	
SC-1040	Section 4A - all works in Area D1	CD-1010, S4-	CD-1020	0		06-May-23*	0	CD (7d)	
SC-1050	Section 4B - all works in Area D2	CD-1010, S14	CD-1020	0		21-Oct-23*	0	CD (7d)	
SC-1060	Section 4C - all works in Area D3	CD-1010, S4(	CD-1020	0		06-Feb-23*	0	CD (7d)	
SC-1070	Section 5 - all works in Area I	CD-1010, S5-	CD-1020	0		06-Feb-21*	0	CD (7d)	
SC-1080	Section 6A - all works in Area G1	CD-1010, S6A	CD-1020	0		06-Jul-23*	0	CD (7d)	
SC-1090	Section 6B - all works in Area G2	CD-1010, S6E	CD-1020	0		06-Jul-25*	0	CD (7d)	
SC-1100	Section 6C - all works in Area G3	S6C-1000, CI	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1110	Section 7 - all works in Area K	CD-1010, S7-	CD-1020	0		06-Mar-23*	0	CD (7d)	
SC-1120	Section 8 - all works in Area A except works under Section 18 and landscape works	CD-1010, S8-	CD-1020	0		29-Jul-24*	-38	CD (7d)	
SC-1130	Section 9 - all works in Area F	CD-1010, S9-	CD-1020	0		06-Sep-22*	0	CD (7d)	
SC-1140	Section 10A - all works in Area J	CD-1010, S1(	CD-1020	0		06-Jul-22*	0	CD (7d)	
SC-1150	Section 10B - all works in Area J1	CD-1010, S1(	CD-1020	0		06-Apr-23*	0	CD (7d)	
SC-1160	Section 11 - all works in Area B	CD-1010, S11	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1170	Section 12A - all works in L1 except landscape works and District Cooling System related works	CD-1010, S12	CD-1020	0		06-Oct-24*	0	CD (7d)	
SC-1180	Section 12B - all works in L2 except landscape works and District Cooling System related works	CD-1010, S12	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1190	Section 13 - all works in Area N except landscape works	CD-1010, S13	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1200	Section 14 - all remaining works not included in other section of works	CD-1010, S14	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1210	Section 15 - preservation and protection of trees	CD-1010, S15	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1220	Section 16 - landscape works	CD-1010, S16	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1230	Section 17 - establishment works	CD-1010, S17	CD-1020	0		06-Jan-27*	0	CD (7d)	



Build King – Richwell Engineering Joint Venture

Planned Work
Critical Work
Actual Work
Milestone
Milestone Critical
Summary LOE
Summary LOE Critical

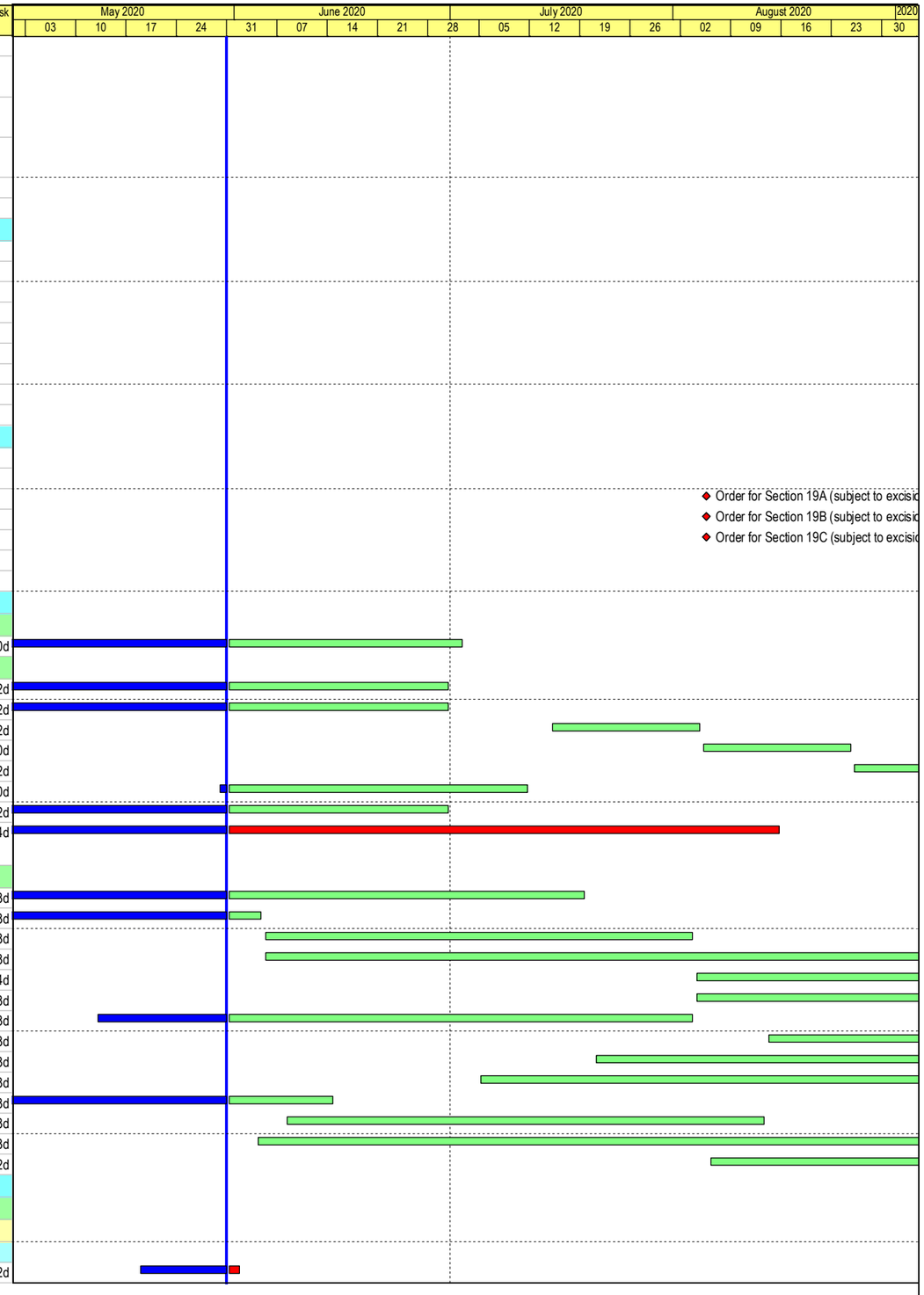
ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Project ID: ND201901-3MRP
Lauyout: ND201901-3MRP

THE 3-MONTH ROLLING PROGRAMME No. 05

Date	Revision	Checked	Approved
31-May-20	Rev. 0	JC	BY

Activity ID	Activity Name	Predecessors	Successors	Remaining Duration	Start	Finish	Total Float	Calendar	Time Risk
SC-1240	Section 18 - the 700mm diameter water mains laying works and associated ancillary structures	CD-1010, S18	CD-1020	0		21-Jun-24*	0	CD (7d)	
SC-1250	Section 19A - 3x1200mm water pipes within Road L1 under Area H for District Cooling System and ancillary structures	CD-1010, S19A-1010	CD-1020	0		06-Jul-22*	0	CD (7d)	
SC-1260	Section 19B - 3x1200mm water pipes within Road L1 under Area L1 for District Cooling System and ancillary structures	CD-1010, S19B-1020	CD-1020	0		06-Jul-24*	0	CD (7d)	
SC-1270	Section 19C - 3x1200mm water pipes within Road L2 under Area L2 for District Cooling System and ancillary structures	CD-1010, S19C-1010	CD-1020	0		06-Oct-25*	0	CD (7d)	
SC-1280	Section 20 - the consturciton of Pak Shek Au Pedestrian Subway Cum Cycle Track	CD-1010, S20	CD-1020	0		06-Jan-26*	0	CD (7d)	
SC-1290	Section 21 - all works in Area M	CD-1010, S21	CD-1020	0		06-Jan-26*	0	CD (7d)	
4.0 - Key Date				1293	06-Oct-20	21-Apr-24	0	CD (7d)	
KD-1000	KD1 609 days after starting date	CD-1010, S1I		0		06-Aug-21*	0	CD (7d)	
KD-1010	KD2 655 days after starting date	CD-1010, S7I		0		21-Sep-21*	0	CD (7d)	
KD-1020	KD3 320 days after starting date	CD-1010, S14		0		21-Oct-20*	0	CD (7d)	
KD-1030	KD4 366 days after starting date	CD-1010, S11		0		06-Dec-20*	0	CD (7d)	
KD-1040	KD5 305 days after starting date	CD-1010, S14		0		06-Oct-20*	0	CD (7d)	
KD-1050	KD6 351 days after starting date	CD-1010, S14		0		21-Nov-20*	0	CD (7d)	
KD-1060	KD7 517 days after starting date	CD-1010, S14		0		06-May-21*	0	CD (7d)	
KD-1070	KD8 1598 days after starting date	CD-1010, S8I		0		21-Apr-24*	0	CD (7d)	
KD-1080	KD9 1230 days after starting date	CD-1010, S14		0		19-Apr-23*	0	CD (7d)	
5.0 - Ordering Date				243	28-Feb-20 A	05-Apr-21	0	CD (7d)	
OD-1000	Order for Section 7 (subject to excision, within 90 days from starting date inclusive)	CD-1010	S7P14-1010,	0		28-Feb-20 A		CD (7d)	
OD-1010	Order for Section 18 (subject to excision, within 487 days from starting date inclusive)	CD-1010	S18-1000, S1	0		05-Apr-21*	0	CD (7d)	
OD-1020	Order for Section 19A (subject to excision, within 244 days from starting date inclusive)	CD-1010	S19A-1000, S	0		05-Aug-20*	0	CD (7d)	
OD-1030	Order for Section 19B (subject to excision, within 244 days from starting date inclusive)	CD-1010	S19B-1000, S	0		05-Aug-20*	0	CD (7d)	
OD-1040	Order for Section 19C (subject to excision, within 244 days from starting date inclusive)	CD-1010	S19C-1000, S	0		05-Aug-20*	0	CD (7d)	
OD-1050	Order for Section 20 (subject to excision, within 365 days from starting date inclusive)	CD-1010	S20S1-1010	0		04-Dec-20*	0	CD (7d)	
OD-1060	Order for Section 21 (subject to excision, within 487 days from starting date inclusive)	CD-1010	S21P1b-1010	0		05-Apr-21*	0	CD (7d)	
6.0 - Preliminaries and General Requirements				195	28-Nov-19 A	11-Dec-20	2217	CD (7d)	
6.1 - Preliminaries				33	28-Nov-19 A	02-Jul-20	2379	CD (7d)	
PRE-1020	Baseline Ecological Monitoring Works (by ET) (from 3/7/19 to 2/7/20)	CD-1000		33	28-Nov-19 A	02-Jul-20	2379	CD (7d)	0d
6.2 - General Submission				108	06-Dec-19 A	15-Sep-20	398	CD (7d)	
GS-1050	Submission of Construction Health and Safety Plan	CD-1000		31	07-Dec-19 A	30-Jun-20*	15	CD (7d)	2d
GS-1080	Submission of Site Traffic Safety Management Plan	CD-1010		31	06-Dec-19 A	30-Jun-20*	15	CD (7d)	2d
GS-1100	Submission of Interface Management Plan	CD-1010	GS-1120	21	15-Jul-20*	04-Aug-20	398	CD (7d)	2d
GS-1120	Acceptance of Interface Management Plan	GS-1100	GS-1130	21	05-Aug-20	25-Aug-20	398	CD (7d)	0d
GS-1130	Submission of Detailed Interface Document	GS-1120	GS-1140	21	26-Aug-20	15-Sep-20	398	CD (7d)	2d
GS-1200	Acceptance of Details for Project Manager's Site Accommodation	GS-1190	S14P7T-1130	42	30-May-20 A	11-Jul-20	25	CD (7d)	0d
GS-1230	Submission of Major Method Statements	CD-1010		31	06-Dec-19 A	30-Jun-20*	45	CD (7d)	2d
GS-1240	Temporary Traffic Management Scheme and XP application (Extension of application due to EWN No. 008)	CD-1010, SP-1240, EC-1090	S13P2-3060, S20S2-1010, S20S2-1010	77	04-Feb-20 A	15-Aug-20	-37	CD (7d)	4d
6.3 - Subletting Package				195	16-Jan-20 A	11-Dec-20	415	CD (7d)	
SP-1010	Project Manager's Site Accommodation	GS-1220	S14P7T-1130	50	31-Mar-20 A	19-Jul-20	17	CD (7d)	3d
SP-1080	Site Formation Works	GS-1220	S1K1-1010, S	5	16-Jan-20 A	04-Jun-20	6	CD (7d)	3d
SP-1090	Piling Works	GS-1220	S8P5-2010, S	60	05-Jun-20	03-Aug-20	39	CD (7d)	3d
SP-1110	Structural Works for Retaining Wall	GS-1220	S8P2-3030, S	120	05-Jun-20	02-Oct-20	55	CD (7d)	3d
SP-1111	Structural Works for TSPS	GS-1220	S7P14-2020	120	04-Aug-20	01-Dec-20	36	CD (7d)	4d
SP-1121	Trenchless Works	GS-1220	S8P8b-4040,	120	04-Aug-20	01-Dec-20	289	CD (7d)	3d
SP-1130	Drainage, Sewerage and Watermain Laying Works	GS-1220	S14K5-2010,	65	13-May-20 A	03-Aug-20	1	CD (7d)	3d
SP-1140	Roadworks	GS-1220	S1K1-2030, S	120	14-Aug-20	11-Dec-20	129	CD (7d)	3d
SP-1141	Road Lighting Works	GS-1220	S1K1-3010	90	21-Jul-20	18-Oct-20	25	CD (7d)	3d
SP-1150	Construction works for Temporary Noise Barrier	GS-1220	S14P7T-3010	120	05-Jul-20	01-Nov-20	63	CD (7d)	3d
SP-1160	E&M works for MBR Plant and Associated Works (including Sewage Transfer Station)	GS-1220	S7P14-2010	15	02-Apr-20 A	14-Jun-20	7	CD (7d)	3d
SP-1190	Design, Supply and Construct Community Liaison Centre by MiC Method	GS-1220	S14P16-3010	67	08-Jun-20	13-Aug-20	6	CD (7d)	3d
SP-1200	Slope Works - Soil Nailing	GS-1220	S13P2-3010,	96	04-Jun-20	07-Sep-20	510	CD (7d)	3d
SP-1220	Pipeworks of District Cooling System (DCS)	OD-1020, OD	S19A-1000, S	60	06-Aug-20	04-Oct-20	8	CD (7d)	2d
7.0 - CONSTRUCTION				1648	06-Dec-19 A	03-Dec-24	399		
Section 1				140	19-May-20 A	17-Oct-20	-12		
Portion 10a in Area H, H1, H2 (Soil Treatment & Provision of Site Access & EVA to MWSC)				140	19-May-20 A	17-Oct-20	-12		
Preparation work/Tree Survey/Site Clearance/GI				17	19-May-20 A	16-Jun-20	0		
S1P10a-1020	Submit and acceptance of tree felling application	S1P10a-1010	S1P10a-1030	2	19-May-20 A	01-Jun-20	0	CD (7d)	2d



Build King – Richwell Engineering Joint Venture

- Planned Work
- Critical Work
- Actual Work
- Milestone
- Milestone Critical
- Summary LOE
- Summary LOE Critical

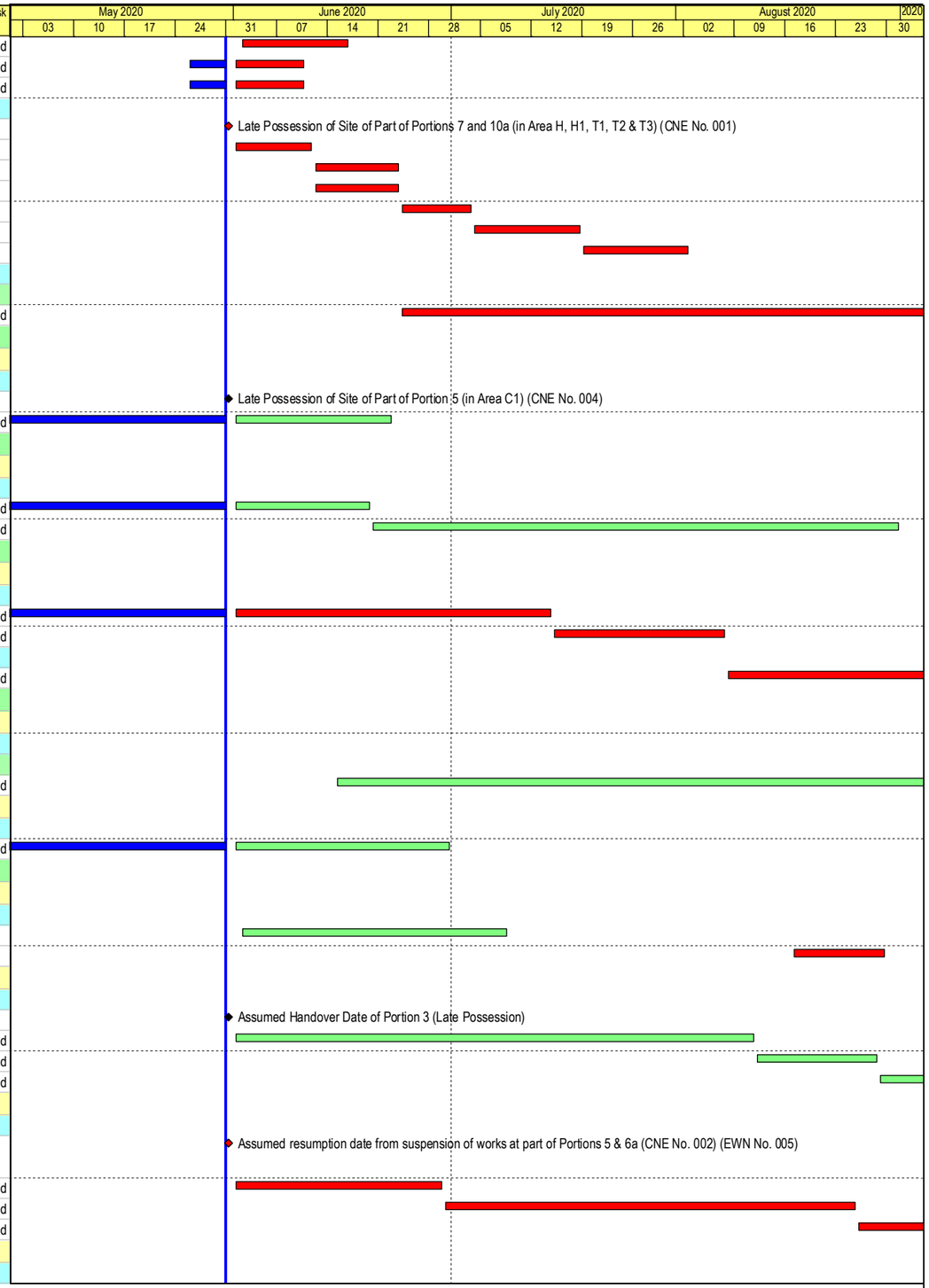
ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Project ID: ND201901-3MRP
Layuyout: ND201901-3MRP

THE 3-MONTH ROLLING PROGRAMME No. 05

Date	Revision	Checked	Approved
31-May-20	Rev. 0	JC	BY

Activity ID	Activity Name	Predecessors	Successors	Remaining Duration	Start	Finish	Total Float	Calendar	Time Risk
S1P10a-1030	Tree felling, transplant and protection	S1P10a-1020	S1K1-1010	13	02-Jun-20	16-Jun-20	0	WD (6d)	2d
S1P10a-1060	Prepare Arsenic Assessment Report	S1P10a-1050	S1P10a-1070	9	26-May-20 A	10-Jun-20	0	WD (6d)	1d
S1P10a-1070	Arsenic Treatment Plan	S1P10a-1050	S1K1-1010, S	9	26-May-20 A	10-Jun-20	0	WD (6d)	1d
Preparation work/Tree Survey/Site Clearance/GI at Late Possession Area (Area H, H1)				64	31-May-20	02-Aug-20	-53		
S1P10a-1100	Late Possession of Site of Part of Portions 7 and 10a (in Area H, H1, T1, T2 & T3) (CNE No. 001)	EC-1001	S1P10a-1110	0	31-May-20*		-59	CD (7d)	
S1P10a-1110	Tree survey and prepare tree felling and transplant report	S1P10a-1100	S1P10a-1120	10	01-Jun-20	11-Jun-20	-45	WD (6d)	
S1P10a-1120	Tree felling, transplant and protection	S1P10a-1110	S1P10a-1140	10	12-Jun-20	23-Jun-20	-45	WD (6d)	
S1P10a-1130	Site clearance	S1P10a-1100	S1P10a-1140	10	12-Jun-20	23-Jun-20	-45	WD (6d)	
S1P10a-1140	Ground investigation and laboratory test (1 no. GI)	S1P10a-1130	S1P10a-1150	10	24-Jun-20	03-Jul-20	-53	CD (7d)	
S1P10a-1150	Prepare Arsenic Assessment Report	S1P10a-1140	S1P10a-1160	15	04-Jul-20	18-Jul-20	-53	CD (7d)	
S1P10a-1160	Arsenic Treatment Plan	S1P10a-1150	S1K1-1010, S	15	19-Jul-20	02-Aug-20	-53	CD (7d)	
KD1 - Provision of Site Access and EVA to MWSC				96	24-Jun-20	17-Oct-20	-11	WD (6d)	
Soil Treatment				96	24-Jun-20	17-Oct-20	-11	WD (6d)	
S1K1-1010	Excavate the high-arsenic containing soil for treatment for Area H (29975m3)	S1P10a-1070	S1K1-1020, S	96	24-Jun-20*	17-Oct-20	-11	WD (6d)	2d
Section 2A				23	08-Apr-20 A	22-Jun-20	365		
Portion 5 in Area C1 (Soil Treatment & Interface with HD's Contractors)				23	08-Apr-20 A	22-Jun-20	365		
Preparation work/Tree Survey/Site Clearance/GI				23	08-Apr-20 A	22-Jun-20	365		
S2AP5-1000	Late Possession of Site of Part of Portion 5 (in Area C1) (CNE No. 004)	EC-1004	S2AP5-1010,	0	31-May-20		368	CD (7d)	
S2AP5-1010	Tree survey and prepare tree felling and transplant report	AD-1090, SP-	S2AP5-1030	19	08-Apr-20 A	22-Jun-20	296	WD (6d)	2d
Section 3				77	06-Apr-20 A	31-Aug-20	219	WD (6d)	
Portion 7 in Area E (Soil Treatment & Interface with HKHS's Contractors)				77	06-Apr-20 A	31-Aug-20	219	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				77	06-Apr-20 A	31-Aug-20	219	WD (6d)	
S3P7-1010	Tree survey and prepare tree felling and transplant report	AD-1120, SP-	S3P7-1030, S	17	06-Apr-20 A	19-Jun-20	219	WD (6d)	2d
S3P7-1020	Site Clearance	AD-1120, S3F	S3P7-1030	60	20-Jun-20	31-Aug-20	219	WD (6d)	2d
Section 5				87	30-Apr-20 A	11-Sep-20	0	WD (6d)	
Portion 4 in Area I (Soil Treatment & Complete Temp. Noise Barriers along Castle Peak Road)				87	30-Apr-20 A	11-Sep-20	0	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				57	30-Apr-20 A	07-Aug-20	0	WD (6d)	
S5P4-1040	Prepare Arsenic Assessment Report	S5P4-1030	S5P4-1050	36	30-Apr-20 A	14-Jul-20	0	WD (6d)	1d
S5P4-1050	Arsenic Treatment Plan	S5P4-1040	S5P4-2010, S	21	15-Jul-20	07-Aug-20	0	WD (6d)	1d
Soil Treatment				30	08-Aug-20	11-Sep-20	0	WD (6d)	
S5P4-2010	Remove soil for treatment (5354m3)	S5P4-1050, S	S5P4-2020	30	08-Aug-20*	11-Sep-20	0	WD (6d)	1d
Section 7 (Subject to excision)				104	17-Apr-20 A	12-Sep-20	12		
Portion 14 in Area K (Complete TSPS with Associated Sewerage)				90	15-Jun-20	12-Sep-20	7	CD (7d)	
KD2 - Complete Temporary Sewage Pumping Station and associated rising mains and sewers, and connect				90	15-Jun-20	12-Sep-20	7	CD (7d)	
Design and Civil Construction				90	15-Jun-20	12-Sep-20	7	CD (7d)	
S7P14-2010	Design and approval of Temporary Sewage Pumping Station (TSPS)	OD-1000, AD-	S7P14-2020,	90	15-Jun-20	12-Sep-20	7	CD (7d)	3d
Portion 4 in Area K (Complete Temp. Noise Barriers along Castle Peak Road)				25	17-Apr-20 A	30-Jun-20	73	WD (6d)	
Preparation work				25	17-Apr-20 A	30-Jun-20	73	WD (6d)	
S7P4-1010	Site Clearance	AD-1080, OD-	S7P4-2010	25	17-Apr-20 A	30-Jun-20	73	WD (6d)	3d
Section 8				740	15-Feb-20 A	09-Jun-22	35		
Portion 2 in Area A (Soil Treatment & Construction of Pak Shek Au Junction)				75	02-Jun-20	29-Aug-20	-32	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				75	02-Jun-20	29-Aug-20	-32	WD (6d)	
S8P2-0010	Tree Survey and prepare tree felling and transplant report	SP-1060	S8P2-1010	30	02-Jun-20*	08-Jul-20	13	WD (6d)	
S8P2-0020	Implement of Stage 1 TTA	GS-1240, AD-	S8P2-1010	12	17-Aug-20	29-Aug-20	-32	WD (6d)	
Portion 3 in Area A (Soil Treatment, Drainage & Roadwork)				135	31-May-20	12-Oct-20	640		
Preparation work/Tree Survey/Site Clearance/GI				135	31-May-20	12-Oct-20	640		
S8P3-1000	Assumed Handover Date of Portion 3 (Late Possession)	EC-1005	S8P3-1010	0	31-May-20*		636	CD (7d)	
S8P3-1010	Site clearance	AD-1070, S8F	S8P3-1020	60	01-Jun-20	11-Aug-20	518	WD (6d)	1d
S8P3-1020	Ground investigation and laboratory test (1 GI)	S8P3-1010, S	S8P3-1030	15	12-Aug-20	28-Aug-20	518	WD (6d)	1d
S8P3-1030	Prepare Arsenic Assessment Report	S8P3-1020	S8P3-1040	36	29-Aug-20	12-Oct-20	518	WD (6d)	1d
Portion 5 in Area A (Soil Treatment, Bored Pile Wall, Drainage & Roadwork)				110	31-May-20	17-Sep-20	-28		
Preparation work/Tree Survey/Site Clearance/GI				110	31-May-20	17-Sep-20	-28		
S8P5-1000	Assumed resumption date from suspension of works at part of Portions 5 & 6a (CNE No. 002) (EWN No. 005)	EC-1002	S8P5-1010, S8P5-2010,	0	31-May-20		-10	CD (7d)	
S8P5-1010	Site clearance	AD-1090, S8F	S8P5-2010, S	24	01-Jun-20	29-Jun-20	-24	WD (6d)	1d
S8P5-1020	Site investigation	AD-1090, S8F	S8P5-2010, S	48	30-Jun-20	25-Aug-20	-24	WD (6d)	2d
S8P5-1030	Ground investigation and laboratory test	SP-1070, S8F	S8P5-1040, S	20	26-Aug-20	17-Sep-20	-24	WD (6d)	1d
Portion 6a in Area A (Soil Treatment, Bored Pile Wall, Drainage & Roadwork)				276	15-Feb-20 A	02-Mar-21	15		
Preparation work/Tree Survey/Site Clearance/GI				114	15-Feb-20 A	21-Sep-20	131		



Build King – Richwell Engineering Joint Venture

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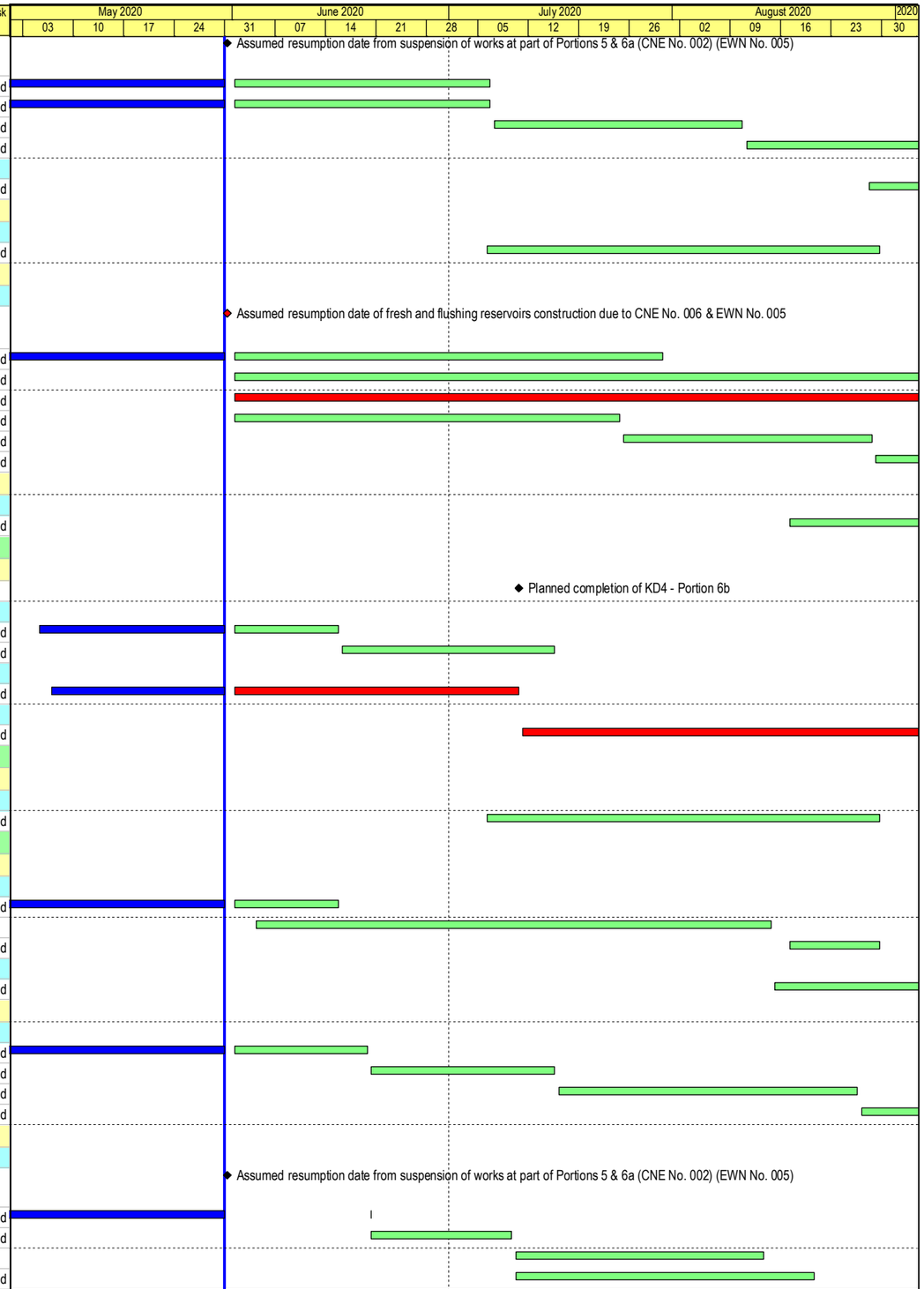
ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Project ID: ND201901-3MRP
Lauyout: ND201901-3MRP

THE 3-MONTH ROLLING PROGRAMME No. 05

Date	Revision	Checked	Approved
31-May-20	Rev. 0	JC	BY

Activity ID	Activity Name	Predecessors	Successors	Remaining Duration	Start	Finish	Total Float	Calendar	Time Risk
S8P6a-1000	Assumed resumption date from suspension of works at part of Portions 5 & 6a (CNE No. 002) (EWN No. 005)	EC-1002	S8P6a-1010, S8P6a-3010,	0	31-May-20		32	CD (7d)	
S8P6a-1010	Site clearance	AD-1100, S8F	S8P6a-2010,	29	15-Feb-20 A	06-Jul-20	13	WD (6d)	2d
S8P6a-1020	Site investigation	AD-1100, S8F	S8P6a-2010,	29	08-Apr-20 A	06-Jul-20	13	WD (6d)	2d
S8P6a-3010	Ground investigation and laboratory test (4 GI)	SP-1070, S8F	S8P6a-3020,	30	07-Jul-20	10-Aug-20	13	WD (6d)	1d
S8P6a-3020	Prepare Arsenic Assessment Report	S8P6a-3010	S8P6a-3030	36	11-Aug-20	21-Sep-20	107	WD (6d)	1d
Bored Pile Wall				151	28-Aug-20	02-Mar-21	13	WD (6d)	
S8P6a-2010	Constructoin of bored pile wall (21 nos., 1 piling rig)	S8P6a-1020,	S8P6a-3040	151	28-Aug-20	02-Mar-21	13	WD (6d)	3d
Portion 9b & 9d in Area A (Soil Treatment, Slope, Retaining Wall, Drainage & Roadwork)				48	06-Jul-20	29-Aug-20	1	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				48	06-Jul-20	29-Aug-20	1	WD (6d)	
S8P9b-1010	Site clearance	AD-1160, AD-	S8P9b-1020,	48	06-Jul-20	29-Aug-20	1	WD (6d)	2d
Portion 8a in Area A (Soil Treatment, Reservoirs, Slope, Drainage & Roadwork)				740	09-Apr-20 A	09-Jun-22	16		
Preparation work/Tree Survey/Site Clearance/GI				740	09-Apr-20 A	09-Jun-22	16		
S8P8a-1000	Assumed resumption date of fresh and flushing reservoirs construction due to CNE No. 006 & EWN No. 005	EC-1006	S8P8a-1020, S8P8a-1030,	0	31-May-20*		-18	CD (7d)	
S8P8a-1015	Site clearance	S8P8a-1010	S8K8-1010	50	09-Apr-20 A	30-Jul-20	54	WD (6d)	2d
S8P8a-1020	General excavation (352230m3, 4 gang with 4 20T backhoes)	S8P8a-1010,	S8P8a-3010,	600	01-Jun-20	09-Jun-22	14	WD (6d)	4d
S8P8a-1030	Form haul road to Flesh Water Service Reservoir	S8P8a-1010,	S8K8-3010, S	150	01-Jun-20	27-Nov-20	-16	WD (6d)	2d
S8P8a-1040	Ground investigation and laboratory test (6 GI)	S8P8a-1010,	S8P8a-1050	45	01-Jun-20	24-Jul-20	138	WD (6d)	1d
S8P8a-1050	Prepare Arsenic Assessment Report	S8P8a-1040	S8P8a-1060	30	25-Jul-20	28-Aug-20	138	WD (6d)	1d
S8P8a-1060	Arsenic Treatment Plan	S8P8a-1050	S8P8a-2010,	30	29-Aug-20	05-Oct-20	138	WD (6d)	1d
Portion 8b in Area A (Soil Treatment & Install Watermains by Trenchless / Open Trench Method)				37	17-Aug-20	28-Sep-20	87	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				37	17-Aug-20	28-Sep-20	87	WD (6d)	
S8P8b-1010	Site Clearance	AD-1140, GS-	S8P8b-4010,	37	17-Aug-20	28-Sep-20	87	WD (6d)	2d
Section 11				1388	05-May-20 A	19-Mar-24	358		
Portion 6b in Area B (Soil Treatment & Operation of HAC Soil Treatment Plant)				1388	05-May-20 A	19-Mar-24	358		
S11P6b-1000	Planned completion of KD4 - Portion 6b	S11P6b-2010	KD-1030	0		10-Jul-20	149	CD (7d)	
Preparation work/Tree Survey/Site Clearance/GI				37	05-May-20 A	15-Jul-20	1382	WD (6d)	
S11P6b-1040	Prepare Arsenic Assessment Report	S11P6b-1030	S11P6b-1050	13	05-May-20 A	15-Jun-20	1382	WD (6d)	1d
S11P6b-1050	Arsenic Treatment Plan	S11P6b-1040	S11P6b-4010	24	16-Jun-20	15-Jul-20	1382	WD (6d)	1d
KD4 - Setting up and T&C of the High Arsenic-containing Soil Treatment Plant				33	07-May-20 A	10-Jul-20	0	WD (6d)	
S11P6b-2010	Set up, testing and commissioning high arsenic-containing soil treatment plant (KD4)	SP-1020, S11	S11P6b-1000	33	07-May-20 A	10-Jul-20	0	WD (6d)	2d
Operation and Dismantling of the Soil Treatment Plant				1097	11-Jul-20	19-Mar-24	0	WD (6d)	
S11P6b-3010	Provide treatment to high arsenic-containing soil	S11P6b-2010	S11P6b-4010	1097	11-Jul-20	19-Mar-24	0	WD (6d)	8d
Section 12A				48	06-Jul-20	29-Aug-20	601	WD (6d)	
Portion 10b in Area L1 (Soil Treatment, Drainage & Roadwork)				48	06-Jul-20	29-Aug-20	601	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				48	06-Jul-20	29-Aug-20	601	WD (6d)	
S12P10b-1010	Tree survey and prepare tree felling and transplant report	AD-1200, SP-	S12P10b-103	48	06-Jul-20*	29-Aug-20	601	WD (6d)	1d
Section 13				398	15-Feb-20 A	02-Jul-21	551		
Portion 2 in Area N (Soil Treatment, Slope, Drainage & Pak Shek Au Junction)				323	12-Mar-20 A	02-Jul-21	385	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				76	12-Mar-20 A	29-Aug-20	372	WD (6d)	
S13P2-1010	Tree survey and prepare tree felling and transplant report	AD-1060, SP-	S13P2-3005	13	12-Mar-20 A	15-Jun-20	435	WD (6d)	2d
S13P2-1011	Site clearance for existing slope feature 2SE-B/CR148	AD-1060, EC-	S13P2-3005	60	04-Jun-20	14-Aug-20	385	WD (6d)	
S13P2-1020	Implement TTMS	GS-1240, AD-	S13P2-1030	12	17-Aug-20	29-Aug-20	240	WD (6d)	1d
Civil Work				260	15-Aug-20	02-Jul-21	385	WD (6d)	
S13P2-3005	Slopeworks for existing feature 2SE-B/CR148 (with about 450 nos. of soil nails)	AD-1060, S13	S13P2-3010	260	15-Aug-20	02-Jul-21	385	WD (6d)	3d
Portion 7 in Area N (Soil Treatment, Drainage & Roadwork)				109	06-Apr-20 A	09-Oct-20	664	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				109	06-Apr-20 A	09-Oct-20	664	WD (6d)	
S13P7-1010	Site clearance	AD-1120	S13P7-1020	17	06-Apr-20 A	19-Jun-20	664	WD (6d)	1d
S13P7-1020	Ground investigation and laboratory test (2 GI)	S13P7-1010,	S13P7-1030	20	20-Jun-20	15-Jul-20	664	WD (6d)	1d
S13P7-1030	Prepare Arsenic Assessment Report	S13P7-1020	S13P7-1040	36	16-Jul-20	26-Aug-20	664	WD (6d)	1d
S13P7-1040	Arsenic Treatment Plan	S13P7-1030	S13P7-2010	36	27-Aug-20	09-Oct-20	664	WD (6d)	1d
Portion 6a & 5 in Area N (Soil Treatment, Noise Barrier, Drainage & Roadwork)				126	15-Feb-20 A	03-Oct-20	696		
Preparation work/Tree Survey/Site Clearance/GI				126	15-Feb-20 A	03-Oct-20	696		
S13P6a-1000	Assumed resumption date from suspension of works at part of Portions 5 & 6a (CNE No. 002) (EWN No. 005)	EC-1002	S13P6a-1010	0	31-May-20*		698	CD (7d)	
S13P6a-1010	Site clearance	AD-1100, S13	S13P6a-1020	0	15-Feb-20 A	20-Jun-20	565	WD (6d)	1d
S13P6a-1020	Ground investigation and laboratory test (1 GI)	S13P6a-1010	S13P6a-1030	15	20-Jun-20	09-Jul-20	565	WD (6d)	1d
S13P6a-1025	Site investigation for Noise Barriers	S13P6a-1020	S13P6a-2010	30	10-Jul-20	13-Aug-20	607	WD (6d)	
S13P6a-1030	Prepare Arsenic Assessment Report	S13P6a-1020	S13P6a-1040	36	10-Jul-20	20-Aug-20	565	WD (6d)	1d



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ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Project ID: ND201901-3MRP
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THE 3-MONTH ROLLING PROGRAMME No. 05

Date	Revision	Checked	Approved
31-May-20	Rev. 0	JC	BY

Activity ID	Activity Name	Predecessors	Successors	Remaining Duration	Start	Finish	Total Float	Calendar	Time Risk
S13P6a-1040	Arsenic Treatment Plan	S13P6a-1030	S13P6a-2010	36	21-Aug-20	03-Oct-20	565	WD (6d)	1d
Section 14				342	06-Jan-20 A	07-May-21	1529		
Portion 10a in Area H1 (Soil Treatment, UU Diversion & Construction Access to MWSC)				24	03-Aug-20	29-Aug-20	-43	WD (6d)	
KD5 - Provision of construction access in Area H1 and between Area H1 and Multi-Welfare Services Com				24	03-Aug-20	29-Aug-20	-43	WD (6d)	
Soil Treatment				24	03-Aug-20	29-Aug-20	-43	WD (6d)	
S14K5-1010	Remove soil for treatment for Area H1 (2143m3)	SP-1080, S11	S14K5-1020	24	03-Aug-20*	29-Aug-20	-43	WD (6d)	1d
Portion 10a in Area H2 (Soil Treatment & Construction Access to MWSC)				74	11-Jul-20	07-Oct-20	0	WD (6d)	
KD6 - Provision of construction access in Area H2 and between Area H2 and Multi-Welfare Services Com				74	11-Jul-20	07-Oct-20	0	WD (6d)	
Soil Treatment				74	11-Jul-20	07-Oct-20	0	WD (6d)	
S14K6-1010	Remove soil for treatment for Area H2 (2827m3)	S1P10a-1070	S14K6-1020	24	11-Jul-20*	07-Aug-20	0	WD (6d)	1d
S14K6-1020	Backfill with treated soil	S14K6-1010	S14K6-2010	50	08-Aug-20	07-Oct-20	0	WD (6d)	2d
Portion 7 in Area P (Soil Treatment & KD3 - Tree Felling, General Site Clearance)				54	06-Apr-20 A	24-Jul-20	89		
KD3 - Tree felling, general site clearance (including the berm removal / levelling and general site				54	06-Apr-20 A	24-Jul-20	89		
S14P7P-1000	Planned completion date of KD3	S14P7P-1010	KD-1020	0		24-Jul-20	89	CD (7d)	
Preparation work				45	06-Apr-20 A	24-Jul-20	74	WD (6d)	
S14P7P-1010	General site clearance for Area P (KD3)	AD-1120	S14P7P-100(	45	06-Apr-20 A	24-Jul-20	74	WD (6d)	4d
Portion 7 in Area S3 (Soil Treatment & Operation of HAC Soil Treatment Plant)				77	06-Apr-20 A	31-Aug-20	1224	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				45	06-Apr-20 A	24-Jul-20	1256	WD (6d)	
S14P7S3-1020	Site Clearance	AD-1120	S14P7S3-103	5	06-Apr-20 A	05-Jun-20	0	WD (6d)	2d
S14P7S3-1040	Prepare Arsenic Assessment Report	S14P7S3-1030	S14P7S3-1050	20	29-May-20 A	30-Jun-20	1256	WD (6d)	2d
S14P7S3-1050	Arsenic Treatment Plan	S14P7S3-1040	S14P7S3-4010	20	02-Jul-20	24-Jul-20	1256	WD (6d)	2d
KD4 - Setting up and T&C of the High Arsenic-containing Soil Treatment Plant				72	06-Jun-20	31-Aug-20	0	WD (6d)	
S14P7S3-2010	Set up, testing and commissioning high arsenic-containing soil treatment plant (KD4)	SP-1020, S14	S14P7S3-10(	72	06-Jun-20*	31-Aug-20	0	WD (6d)	2d
Portion 16 in Area Q (Soil Treatment & Construction of CLC)				59	03-Aug-20	30-Sep-20	0		
Preparation work/Tree Survey/Site Clearance/GI				36	03-Aug-20	12-Sep-20	0	WD (6d)	
S14P16-1010	Ground investigation and laboratory test (1 GI)	AD-1270, SP-	S14P16-1020	15	03-Aug-20	19-Aug-20	0	WD (6d)	1d
S14P16-1020	Prepare Arsenic Assessment Report	S14P16-1010	S14P16-1030	21	20-Aug-20	12-Sep-20	0	WD (6d)	1d
KD7 - Complete the construction works of Community Liaison Centre in Area Q				42	20-Aug-20	30-Sep-20	0	CD (7d)	
S14P16-3010	Design submission for construction of Community Liaison Centre (CLC) using MiC method	S14P16-1010	S14P16-3020	42	20-Aug-20	30-Sep-20	0	CD (7d)	2d
Portion 7 in Area T1, T2, T3 (Soil Treatment & Temp. Noise Barrier along Castle Peak Road)				131	31-May-20	08-Oct-20	1740		
Preparation work/Tree Survey/Site Clearance/GI				131	31-May-20	08-Oct-20	1740		
S14P7T-1001	Late Possession of Site of Part of Portions 7 and 10a (in Area H, H1, T1, T2 & T3) (CNE No. 001)	EC-1001	S14P7T-1010	0	31-May-20*		-27	CD (7d)	
S14P7T-1010	Tree survey and prepare tree felling and transplant report	AD-1120, SP-	S14P7T-1030	6	01-Jun-20	06-Jun-20	-24	WD (6d)	2d
S14P7T-1020	Site Clearance	AD-1120	S14P7T-1030	6	01-Jun-20	06-Jun-20	-24	WD (6d)	2d
S14P7T-1030	Ground investigation and laboratory test (4 GI)	SP-1070, S14	S14P7T-104(	30	08-Jun-20	14-Jul-20	-24	WD (6d)	1d
S14P7T-1040	Prepare Arsenic Assessment Report	S14P7T-1030	S14P7T-1050	36	15-Jul-20	25-Aug-20	1409	WD (6d)	1d
S14P7T-1050	Arsenic Treatment Plan	S14P7T-1040	S14P7T-2030	36	26-Aug-20	08-Oct-20	1409	WD (6d)	1d
Project Manager's Site Accommodation				64	18-Jun-20	02-Sep-20	-24	WD (6d)	
S14P7T-1110	Remove soil to stockpile area	S14P7T-1030	S14P7T-1120	24	18-Jun-20	17-Jul-20	-24	WD (6d)	
S14P7T-1120	Backfill of clean soil	S14P7T-1110	S14P7T-1130	40	18-Jul-20	02-Sep-20	-24	WD (6d)	2d
Portion 6a in Area S2 (Soil Treatment)				111	14-Apr-20 A	12-Oct-20	1310	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				111	14-Apr-20 A	12-Oct-20	1310	WD (6d)	
S14P6a-1010	Tree survey and prepare tree felling and transplant report	AD-1100, SP-	S14P6a-1020	27	14-Apr-20 A	03-Jul-20	1310	WD (6d)	
S14P6a-1020	Site Clearance	S14P6a-1010	S14P6a-1030	48	04-Jul-20	28-Aug-20	1310	WD (6d)	
S14P6a-1030	Ground investigation and laboratory test (5 GI)	SP-1070, S14	S14P6a-1040	36	29-Aug-20	12-Oct-20	1310	WD (6d)	1d
Portion 6b in Area S2 (Soil Treatment)				93	14-Apr-20 A	18-Sep-20	1328	WD (6d)	
Preparation work/Tree Survey/Site Clearance/GI				93	14-Apr-20 A	18-Sep-20	1328	WD (6d)	
S14P6b-1010	Tree survey and prepare tree felling and transplant report	AD-1110, SP-	S14P6b-1020	9	14-Apr-20 A	10-Jun-20	1328	WD (6d)	
S14P6b-1020	Site Clearance	S14P6b-1010	S14P6b-1030	48	11-Jun-20	07-Aug-20	1328	WD (6d)	
S14P6b-1030	Ground investigation and laboratory test (5 GI)	SP-1070, S14	S14P6b-1040	36	08-Aug-20	18-Sep-20	1328	WD (6d)	1d
Portion 1f in Area R (Soil Treatment & Construction of Interim CLC & Road A1)				342	06-Jan-20 A	07-May-21	1330		
Preparation work/Tree Survey/Site Clearance/GI				110	06-Jan-20 A	10-Oct-20	1250	WD (6d)	
S14P1f-1010	Tree survey and prepare tree felling and transplant report	AD-1050, SP-	S14P1f-1040	18	22-May-20 A	20-Jun-20	1255	WD (6d)	
S14P1f-1020	Site Clearance	AD-1050	S14P1f-1030	23	06-Jan-20 A	27-Jun-20	1250	WD (6d)	
S14P1f-1030	Ground investigation and laboratory test (1 GI)	SP-1070, S14	S14P1f-1040	15	29-Jun-20	16-Jul-20	1250	WD (6d)	1d
S14P1f-1040	Prepare Arsenic Assessment Report	S14P1f-1030,	S14P1f-1050	36	17-Jul-20	27-Aug-20	1250	WD (6d)	1d
S14P1f-1050	Arsenic Treatment Plan	S14P1f-1040	S14P1f-3010	36	28-Aug-20	10-Oct-20	1250	WD (6d)	1d
Interim Community Liaison Centre (CLC)				342	18-May-20 A	07-May-21	1243	CD (7d)	
S14P1f-2030	Occupation of interim CLC	S14P1f-2020	S14P1f-2040	342	18-May-20 A	07-May-21	1243	CD (7d)	0d
Portion 9c in Area S1 (Soil Treatment)				119	31-May-20	26-Sep-20	1619		

Build King – Richwell Engineering Joint Venture

- Planned Work
- Critical Work
- Actual Work
- Milestone
- Milestone Critical
- Summary LOE
- Summary LOE Critical

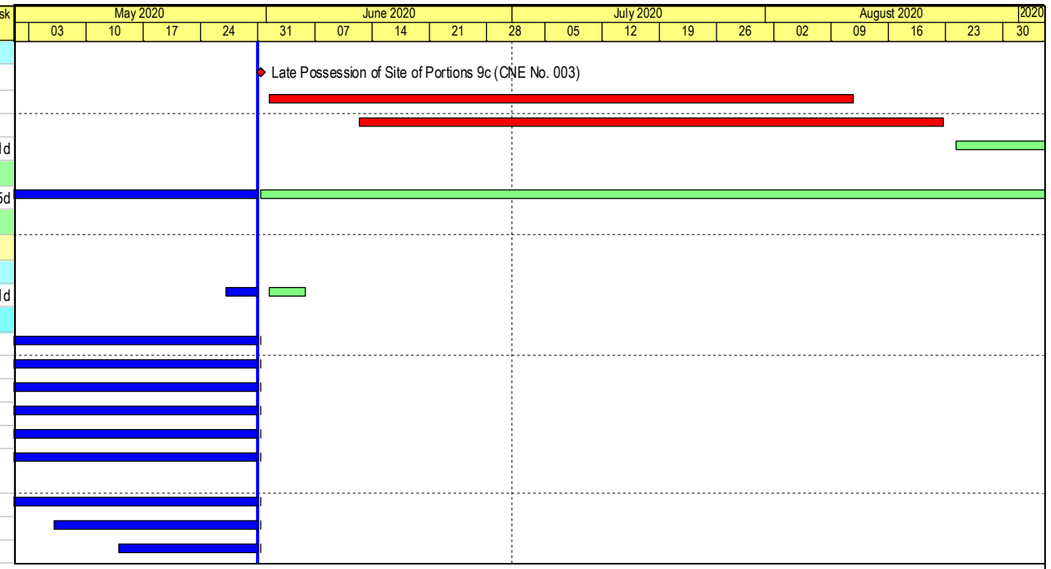
ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

Project ID: ND201901-3MRP
Lauyout: ND201901-3MRP

THE 3-MONTH ROLLING PROGRAMME No. 05

Date	Revision	Checked	Approved
31-May-20	Rev. 0	JC	BY

Activity ID	Activity Name	Predecessors	Successors	Remaining Duration	Start	Finish	Total Float	Calendar	Time Risk
Preparation work/Tree Survey/Site Clearance/GI				119	31-May-20	26-Sep-20	1619		
S14P9c-1000	Late Possession of Site of Portions 9c (CNE No. 003)	EC-1003	S14P9c-1010	0	31-May-20*		-12	CD (7d)	
S14P9c-1010	Tree survey and prepare tree felling and transplant report	AD-1170, SP-	S14P9c-1020	60	01-Jun-20	11-Aug-20	-11	WD (6d)	
S14P9c-1020	Site Clearance	S14P9c-1010	S14P9c-1030	60	12-Jun-20	22-Aug-20	-11	WD (6d)	
S14P9c-1030	Ground investigation and laboratory test (4 GI)	SP-1070, S14	S14P9c-1040	30	24-Aug-20	26-Sep-20	1311	WD (6d)	1d
Section 15				1648	06-Dec-19 A	03-Dec-24	399	CD (7d)	
S15-1000	Presevation and protection of tree	CD-1010	S15-1010	1648	06-Dec-19 A	03-Dec-24	399	CD (7d)	15d
Section 21 (Subject to excision)				5	27-May-20 A	05-Jun-20	1	WD (6d)	
Portion 1d in Area M (Soil Treatment & Demolition of Existing CLC)				5	27-May-20 A	05-Jun-20	1	WD (6d)	
Preparation work				5	27-May-20 A	05-Jun-20	1	WD (6d)	
S21P1d-0010	Demolition of existing Community Liaison Centre (CLC)	S14P1f-2020		5	27-May-20 A	05-Jun-20*	1	WD (6d)	1d
9.0 - Major EWN / CNE				0	06-Jan-20 A	31-May-20	632	CD (7d)	
EC-1001	Late Possession of Site of Part of Portions 7 and 10a (in Area H, H1, T1, T2 & T3) (CNE No. 001)	AD-1120, AD-	S1P10a-1100	0	06-Apr-20 A	31-May-20	-59	CD (7d)	
EC-1002	Suspension of Works at Part of Portions 5 & 6a (in Area A, N & C1) (CNE No. 002) (EWN No. 005)		S13P6a-1000	0	09-Mar-20 A	31-May-20	-10	CD (7d)	
EC-1003	Late Possession of Site of Portions 9c (CNE No. 003)	AD-1170	S14P9c-1000	0	06-Apr-20 A	31-May-20	-12	CD (7d)	
EC-1004	Late Possession of Site of Part of Portion 5 (in Area C1) (CNE No. 004)	AD-1090	S2AP5-1000	0	06-Apr-20 A	31-May-20	368	CD (7d)	
EC-1005	Late Possession of Site of Portion 3 (CNE No. 005)	AD-1070	S8P3-1000	0	06-Apr-20 A	31-May-20	636	CD (7d)	
EC-1006	Strong Objection on the Construction of Service Reservoirs at Portions 8a & 8b (CNE No. 006) (EWN No. 005)		S8P8a-1000, S8P8b-1010	0	18-Mar-20 A	31-May-20	-18	CD (7d)	
EC-1007	Late Possession of remaining part of Portion 2 for soil nail works (CNE No. 008) (EWN No. 006)	AD-1060	S13P2-3005,	0	06-Jan-20 A	31-May-20	470	CD (7d)	
EC-1008	No Access to Part of Portion 8b near Sheung Shui Slaughter House (EWN No. 007)		S8P8b-4010	0	06-May-20 A	31-May-20	225	CD (7d)	
EC-1009	Cancellation of TMLG Meeting on 14 May 2020 by Transportation Department (EWN No. 008)		GS-1240	0	14-May-20 A	31-May-20	-37	CD (7d)	



Build King – Richwell Engineering Joint Venture

- Planned Work
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- Summary LOE Critical

ND/2019/01 - Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Works

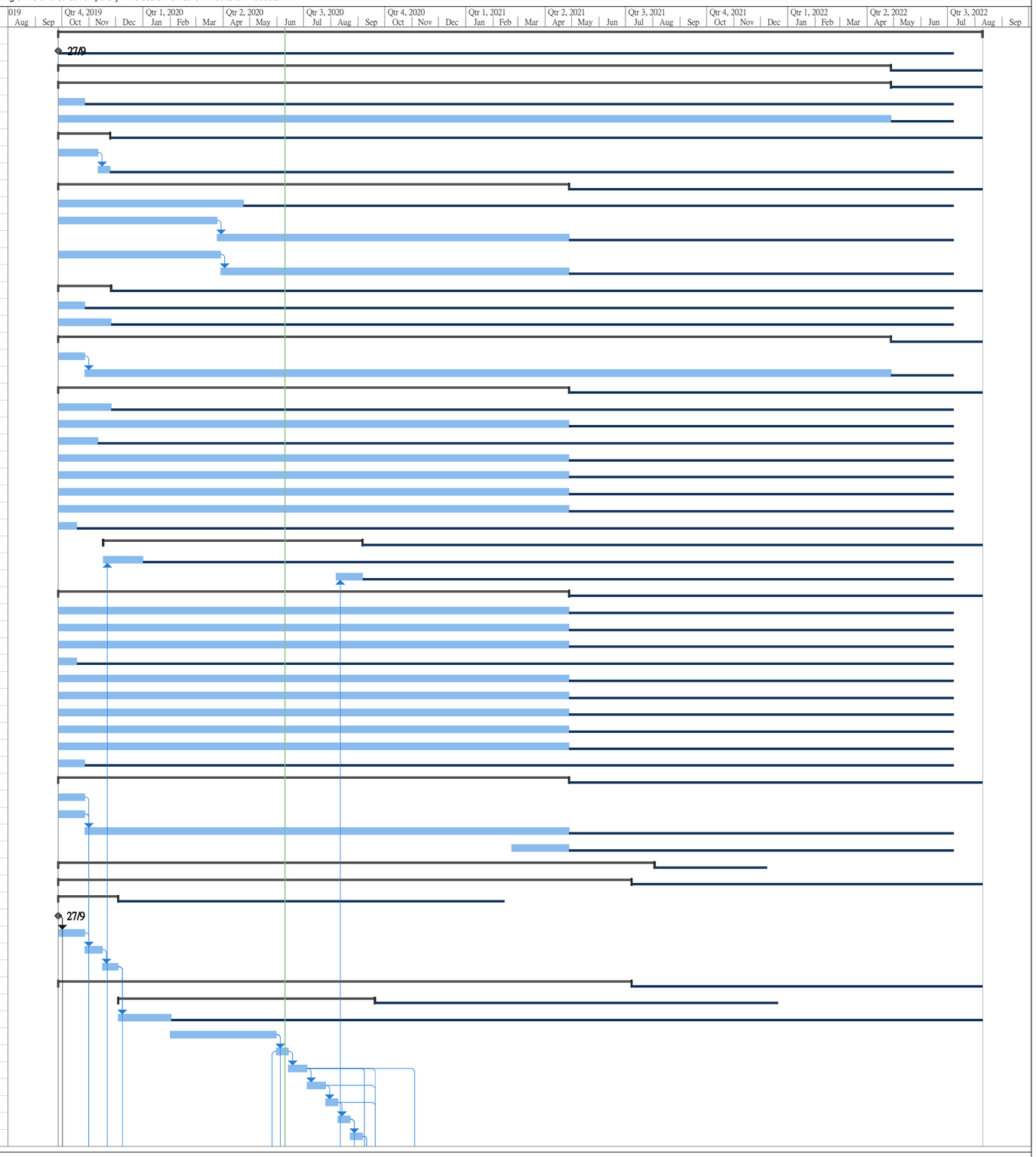
Project ID: ND201901-3MRP
Lauyout: ND201901-3MRP

THE 3-MONTH ROLLING PROGRAMME No. 05

Date	Revision	Checked	Approved
31-May-20	Rev. 0	JC	BY

Contract No. ND/2019/06
Development of Kwu Tung North and Fanling North New Development Areas, Phase 1:
Reprovisioning of North District Temporary Wholesale Market for Aricultural Products

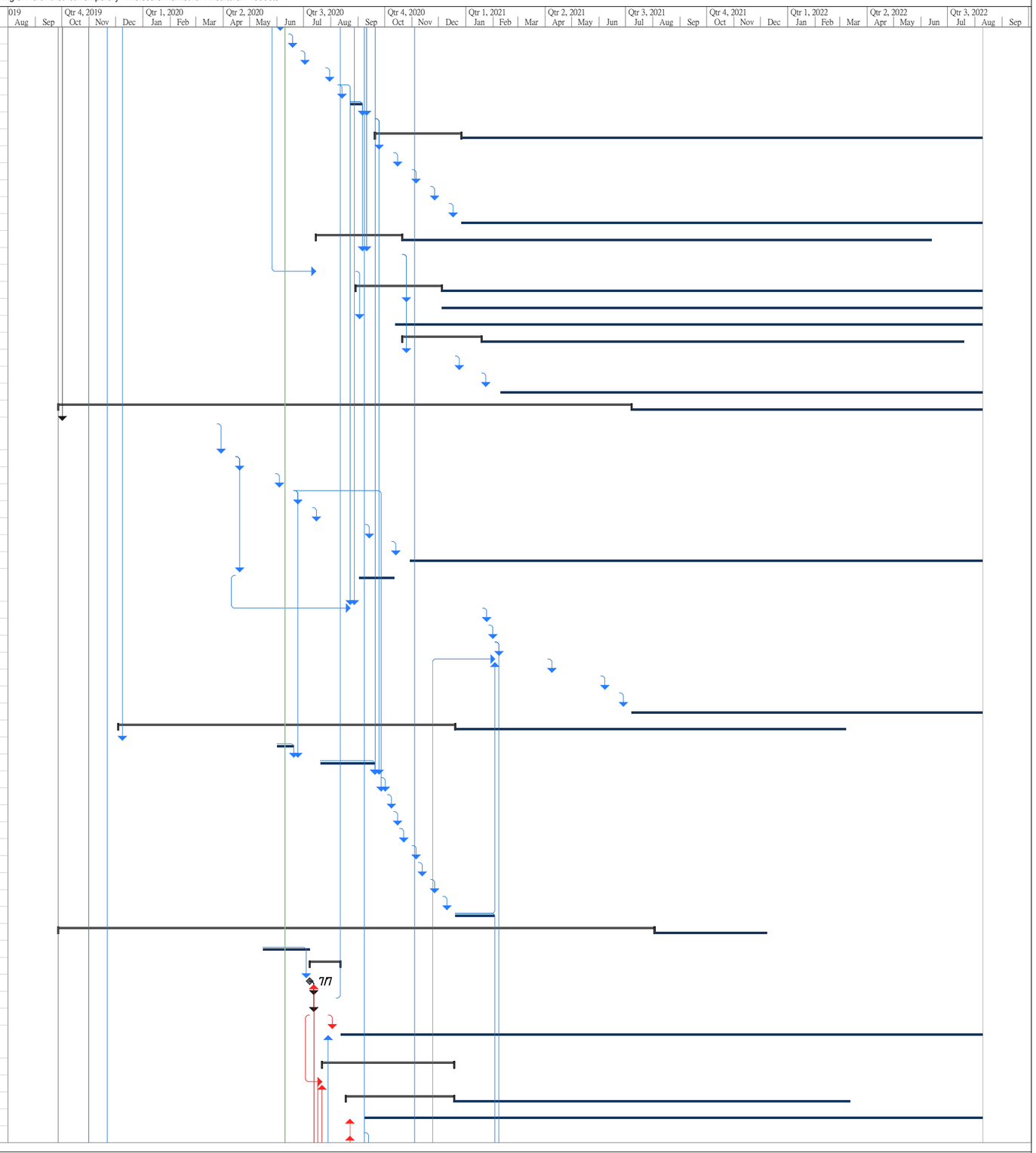
ID	Task Mode	Task Name	Duration	Start	Finish	Float
1		**ND/2019/06 Contract Period**	**1048 days**	**Fri 27/9/19**	**Tue 9/8/22**	**0 days**
2		Starting Date	0 days	Fri 27/9/19	Fri 27/9/19	1015 days
3		**Preliminaries**	**944 days**	**Fri 27/9/19**	**Wed 27/4/22**	**104 days**
4		**Project Manager and Supervisor's site accommodation**	**944 days**	**Fri 27/9/19**	**Wed 27/4/22**	**104 days**
5		Refurnishing the existing site office and provision of furniture and equipment	30 days	Fri 27/9/19	Sat 26/10/19	985 days
6		Provision of regular service to the accommodation (up to completion of DLP)	944 days	Fri 27/9/19	Wed 27/4/22	71 days
7		**Contractor's site accommodation**	**59 days**	**Fri 27/9/19**	**Sun 24/11/19**	**989 days**
8		Searching and rental arrangement	45 days	Fri 27/9/19	Sun 10/11/19	0 days
9		Set up of site office	14 days	Mon 11/11/19	Sun 24/11/19	956 days
10		**Maintenance of land traffic flow**	**579 days**	**Fri 27/9/19**	**Tue 27/4/21**	**469 days**
11		Arrangement of TMLG in different stages	210 days	Fri 27/9/19	Thu 23/4/20	805 days
12		Application of TTA/ XP	180 days	Fri 27/9/19	Tue 24/3/20	0 days
13		Implementation of TTA/ XP in different stages	399 days	Wed 25/3/20	Tue 27/4/21	436 days
14		Maintenance of traffic flow in interim construction stage	184 days	Fri 27/9/19	Sat 28/3/20	0 days
15		Maintenance of traffic flow in final construction stage	395 days	Sun 29/3/20	Tue 27/4/21	436 days
16		**Provision of insurances**	**60 days**	**Fri 27/9/19**	**Mon 25/11/19**	**988 days**
17		Third party insurance	30 days	Fri 27/9/19	Sat 26/10/19	985 days
18		PII for the works	60 days	Fri 27/9/19	Mon 25/11/19	955 days
19		**Land transport for the use of the Project Manager and Supervisor**	**944 days**	**Fri 27/9/19**	**Wed 27/4/22**	**104 days**
20		Provision of vehicles	30 days	Fri 27/9/19	Sat 26/10/19	0 days
21		Provision of transportation service with drivers (including DLP)	914 days	Sun 27/10/19	Wed 27/4/22	71 days
22		**Miscellaneous items**	**579 days**	**Fri 27/9/19**	**Tue 27/4/21**	**469 days**
23		Contract computer facilities for the Project Manager and Supervisor	60 days	Fri 27/9/19	Mon 25/11/19	955 days
24		Provision of progress photographs	579 days	Fri 27/9/19	Tue 27/4/21	436 days
25		Installation of security system for the site	45 days	Fri 27/9/19	Sun 10/11/19	970 days
26		Interface management and public relation works	579 days	Fri 27/9/19	Tue 27/4/21	436 days
27		BIM works	579 days	Fri 27/9/19	Tue 27/4/21	436 days
28		Upkeep of the employer's store	579 days	Fri 27/9/19	Tue 27/4/21	436 days
29		Emergency unit and weather protection scheme	579 days	Fri 27/9/19	Tue 27/4/21	436 days
30		General site clearance	21 days	Fri 27/9/19	Thu 17/10/19	994 days
31		**Hoadings, temporary fences and signboards**	**294 days**	**Sun 17/11/19**	**Sat 5/9/20**	**703 days**
32		Hoadings, temporary fences and signboards at Interim stage	45 days	Sun 17/11/19	Tue 31/12/19	919 days
33		Hoadings, temporary fences and signboards at Final stage	30 days	Fri 7/8/20	Sat 5/9/20	670 days
34		**Environmental management, mitigation and monitoring**	**579 days**	**Fri 27/9/19**	**Tue 27/4/21**	**469 days**
35		Environmental management measures	579 days	Fri 27/9/19	Tue 27/4/21	436 days
36		Environmental mitigation measures	579 days	Fri 27/9/19	Tue 27/4/21	436 days
37		Environmental monitoring measures	579 days	Fri 27/9/19	Tue 27/4/21	436 days
38		Site Management plan for trip ticket system	21 days	Fri 27/9/19	Thu 17/10/19	994 days
39		Air pollution abatement	579 days	Fri 27/9/19	Tue 27/4/21	436 days
40		Noise pollution abatement	579 days	Fri 27/9/19	Tue 27/4/21	436 days
41		Wastewater pollution abatement	579 days	Fri 27/9/19	Tue 27/4/21	436 days
42		Waste Management	579 days	Fri 27/9/19	Tue 27/4/21	436 days
43		Monitoring the use of ultra low sulphur diesel	579 days	Fri 27/9/19	Tue 27/4/21	436 days
44		Temporarory drainage management plan	30 days	Fri 27/9/19	Sat 26/10/19	985 days
45		**Survey of the Site**	**579 days**	**Fri 27/9/19**	**Tue 27/4/21**	**469 days**
46		Initial survey	30 days	Fri 27/9/19	Sat 26/10/19	0 days
47		Conditional survey	30 days	Fri 27/9/19	Sat 26/10/19	0 days
48		Monitoring survey	549 days	Sun 27/10/19	Tue 27/4/21	436 days
49		As-build survey	65 days	Mon 22/2/21	Tue 27/4/21	436 days
50		**Section 1 of the Works**	**676 days**	**Fri 27/9/19**	**Mon 2/8/21**	**127 days**
51		**Works for Portion 4**	**650 days**	**Fri 27/9/19**	**Wed 7/7/21**	**398 days**
52		**General for Portion 4**	**68 days**	**Fri 27/9/19**	**Tue 3/12/19**	**438 days**
53		Access date of Portion 4	0 days	**Fri 27/9/19**	**Fri 27/9/19**	0 days
54		Site clearance and tree felling	30 days	Fri 27/9/19	Sat 26/10/19	0 days
55		Breaking up existing paving	20 days	Sun 27/10/19	Fri 15/11/19	0 days
56		Excavation for management office building	18 days	Sat 16/11/19	Tue 3/12/19	0 days
57		**Management Office Building**	**650 days**	**Fri 27/9/19**	**Wed 7/7/21**	**398 days**
58		**Civil and strucutral works**	**291 days**	**Wed 4/12/19**	**Sat 19/9/20**	**457 days**
59		Construction of foundation from G.L. E-H / 1-3	60 days	Wed 4/12/19	Sat 1/2/20	920 days
60		Idling due to COVID-9 infection	120 days	Sat 1/2/20	Sat 30/5/20	0 days
61		Construction of foundation from G.L. A-E / 1-3	14 days	Sun 31/5/20	Sat 13/6/20	0 days
62		Construction for G/F slabs from G.L. A-E/1-3	21 days	Sun 14/6/20	Sat 4/7/20	0 days
63		Construction for G/F to R/F columns and wall from G.L. A-E/1-3	21 days	Sun 5/7/20	Sat 25/7/20	0 days
64		Construction for R/F slabs and beams from G.L. A-E/1-3	14 days	Sun 26/7/20	Sat 8/8/20	0 days
65		Construction for R/F to UR/F columns and walls at G.L. B-C/1-3	14 days	Sun 9/8/20	Sat 22/8/20	0 days
66		Construction for UR/F slabs and beams at G.L. B-C/1-3	14 days	Sun 23/8/20	Sat 5/9/20	0 days



Project: ND/2019/06
Date: Wed 10/6/20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split	Slack
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress	

ID	Task Mode	Task Name	Duration	Start	Finish	Float
67		Construction of columns and walls from G/F to R/F for G.L. E-H/1-3	14 days	Sun 31/5/20	Sat 13/6/20	0 days
68		Construction of slabs and beams for R/F for G.L. E-H/1-3	14 days	Sun 14/6/20	Sat 27/6/20	0 days
69		Construction of water tanks at R/F from G.L. E-H/1-3	28 days	Sun 28/6/20	Sat 25/7/20	0 days
70		Construction of R/F to UR/F columns and walls from G.L. C-H/1-3	14 days	Sun 26/7/20	Sat 8/8/20	0 days
71		Construction of UR/F beams and slabs from G.L. C-H/1-3	14 days	Sun 9/8/20	Sat 22/8/20	14 days
72		Construction of Parapet walls	14 days	Sun 6/9/20	Sat 19/9/20	0 days
73		**Roofing works**	**98 days**	**Sun 20/9/20**	**Sat 26/12/20**	**591 days**
74		Cememt sand screeding on roof slab	21 days	Sun 20/9/20	Sat 10/10/20	0 days
75		Waterproofing works for roof	21 days	Sun 11/10/20	Sat 31/10/20	0 days
76		Construction of 40mm insulation layer	21 days	Sun 1/11/20	Sat 21/11/20	0 days
77		Construction of 40mm cement sand rendering	21 days	Sun 22/11/20	Sat 12/12/20	0 days
78		300 x 300mm roofing concrete tiles	14 days	Sun 13/12/20	Sat 26/12/20	591 days
79		**External walls and internal walls**	**98 days**	**Wed 15/7/20**	**Tue 20/10/20**	**600 days**
80		External wall block work and finishing	45 days	Sun 6/9/20	Tue 20/10/20	0 days
81		Internal wall block and finishing	45 days	Wed 15/7/20	Fri 28/8/20	0 days
82		**Installation of windows and doors**	**98 days**	**Sat 29/8/20**	**Fri 4/12/20**	**613 days**
83		Installation of external windows and doors	45 days	Wed 21/10/20	Fri 4/12/20	613 days
84		Installation of internal doors	45 days	Sat 29/8/20	Mon 12/10/20	666 days
85		**Interior fitting-out, finishes and fixtures**	**90 days**	**Wed 21/10/20**	**Mon 18/1/21**	**547 days**
86		Erection of interior fitting-out and finishes	60 days	Wed 21/10/20	Sat 19/12/20	0 days
87		Installation of fixtures	30 days	Sun 20/12/20	Mon 18/1/21	0 days
88		Handrail installation for MOB	21 days	Tue 19/1/21	Mon 8/2/21	547 days
89		**Building services works for Wholesale Market**	**650 days**	**Fri 27/9/19**	**Wed 7/7/21**	**398 days**
90		Submissions of BS equipment and materials (including BS items of Wholesale Market)	180 days	Fri 27/9/19	Tue 24/3/20	0 days
91		Approval for BS equipment and materials	21 days	Wed 25/3/20	Tue 14/4/20	0 days
92		Submissions of CBWD and CSD drawings	45 days	Wed 15/4/20	Fri 29/5/20	0 days
93		Approval for CBWD and CSD drawings	21 days	Sat 30/5/20	Fri 19/6/20	0 days
94		Approval and confirmed all construction drawings	21 days	Sat 20/6/20	Fri 10/7/20	0 days
95		Production of BIM model	60 days	Sat 11/7/20	Tue 8/9/20	0 days
96		Submission of BIM model	30 days	Wed 9/9/20	Thu 8/10/20	0 days
97		Approval for BIM model	21 days	Fri 9/10/20	Thu 29/10/20	649 days
98		Production and delivery of BS equipment (including BS items of Wholesale Market)	140 days	Wed 15/4/20	Tue 1/9/20	40 days
99		Installation of BS equipment	150 days	Sun 23/8/20	Tue 19/1/21	0 days
100		Installation of switch panel	7 days	Wed 20/1/21	Tue 26/1/21	0 days
101		Installation of emergency generator	7 days	Wed 27/1/21	Tue 2/2/21	0 days
102		Testing and commissioning of BS equipment	60 days	Wed 3/2/21	Sat 3/4/21	0 days
103		Inspection of BS installations inclunding Fire Services by Authorities	60 days	Sun 4/4/21	Wed 2/6/21	0 days
104		Remedial works after inspection	21 days	Thu 3/6/21	Wed 23/6/21	0 days
105		Re-insepction of BS installations by Authorities	14 days	Thu 24/6/21	Wed 7/7/21	398 days
106		**Transformer Room**	**382 days**	**Wed 4/12/19**	**Sat 19/12/20**	**443 days**
107		Coordination with CLP for power supply and cable entry	180 days	Wed 4/12/19	Sun 31/5/20	19 days
108		Construction for power supply and cable entry	30 days	Sat 20/6/20	Sun 19/7/20	62 days
109		Interior finishing for transformer room	7 days	Sun 20/9/20	Sat 26/9/20	0 days
110		Fitting-out and E&M works	7 days	Sun 27/9/20	Sat 3/10/20	0 days
111		Installation of power panel	7 days	Sun 4/10/20	Sat 10/10/20	0 days
112		Installation check	7 days	Sun 11/10/20	Sat 17/10/20	0 days
113		Inform CLP for inspection	14 days	Sun 18/10/20	Sat 31/10/20	0 days
114		Inspection for transformer room	7 days	Sun 1/11/20	Sat 7/11/20	0 days
115		Cable testing CLP	14 days	Sun 8/11/20	Sat 21/11/20	0 days
116		Installation of power meter by CLP	14 days	Sun 22/11/20	Sat 5/12/20	0 days
117		Power feeding by CLP	14 days	Sun 6/12/20	Sat 19/12/20	45 days
118		**Works for Portion 3**	**676 days**	**Fri 27/9/19**	**Mon 2/8/21**	**127 days**
119		Idling due to COVID-9 infection	105 days	Sat 1/2/20	Fri 15/5/20	53 days
120		**General for Portion 3**	**35 days**	**Tue 7/7/20**	**Tue 11/8/20**	**0 days**
121		Access date of Portion 3 (184 days after starting date)	0 days	Tue 7/7/20	Tue 7/7/20	0 days
122		Site clearance and tree felling	30 days	Wed 8/7/20	Thu 6/8/20	0 days
123		Construction for fencing to the final stage	21 days	Wed 8/7/20	Tue 28/7/20	0 days
124		Construction for ground investigation according to drawing no. 60335576/C6/C00/7501	14 days	Wed 29/7/20	Tue 11/8/20	728 days
125		**Site formation**	**150 days**	**Wed 22/7/20**	**Fri 18/12/20**	**0 days**
126		Breaking up existing paving	45 days	Wed 22/7/20	Fri 4/9/20	0 days
127		**Excavation for underground drainage and pipeline construction**	**123 days**	**Tue 18/8/20**	**Fri 18/12/20**	**449 days**
128		FMH-1.03 -> FMH-1.04 and FMH-1.02 - > FMH-1.01	21 days	Tue 18/8/20	Mon 7/9/20	701 days
129		C6_1.5 -> C6_2.2 -> C6_2.3 -> C6_2.4	21 days	Tue 18/8/20	Mon 7/9/20	0 days



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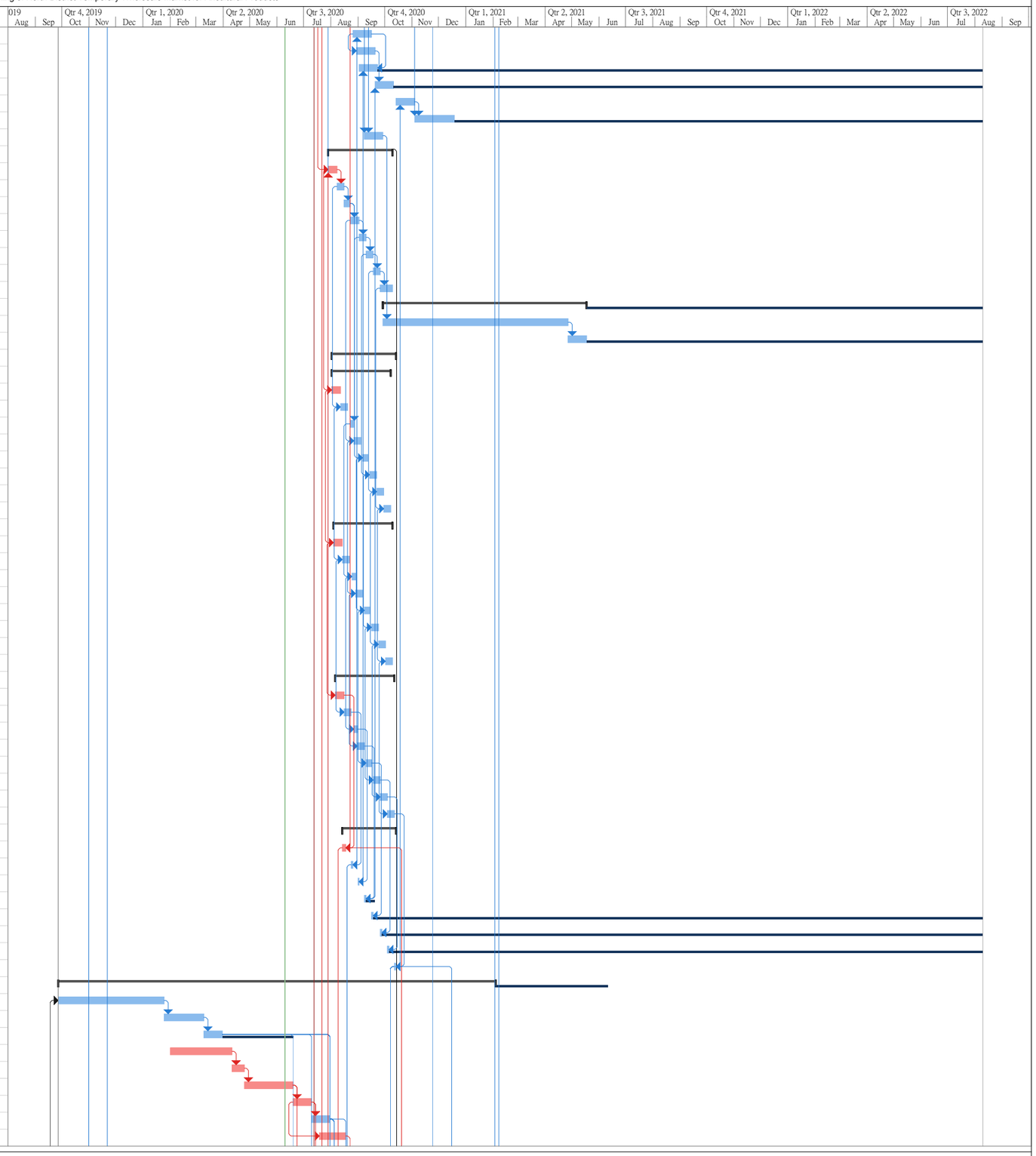
Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split	Slack		
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress			
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress			

ID	Task Mode	Task Name	Duration	Start	Finish	Float
130		FMH-2.06 -> FMH-2.05 -> FMH-2.04	21 days	Wed 26/8/20	Tue 15/9/20	0 days
131		C6_1.4 -> C6_1.3 -> C6_1.2	21 days	Sun 30/8/20	Sat 19/9/20	0 days
132		FMH-2.04 -> FMH-2.03 -> FMH-2.02 -> FMH-2.01	21 days	Wed 2/9/20	Tue 22/9/20	686 days
133		C6_1.2 -> C6_1.1B -> C6_1.1 -> C6_1.1A	21 days	Sun 20/9/20	Sat 10/10/20	668 days
134		DP2.21 -> C6_2.1 -> C6_2.1A -> C6_1.1A	21 days	Wed 14/10/20	Tue 3/11/20	0 days
135		DP2.21 with U-channel construction near MOB	45 days	Wed 4/11/20	Fri 18/12/20	599 days
136		C6_2.4 -> C6_2.5	21 days	Tue 8/9/20	Mon 28/9/20	0 days
137		**Excavation for footing construction**	**73 days**	**Wed 29/7/20**	**Fri 9/10/20**	**0 days**
138		F5 -> F4 -> F3 -> F2 -> F1	10 days	Wed 29/7/20	Fri 7/8/20	0 days
139		F11 and F10 -> F17 and F16	8 days	Sat 8/8/20	Sat 15/8/20	0 days
140		F28	7 days	Sun 16/8/20	Sat 22/8/20	0 days
141		F27 -> F26 - > F25 -> F24	10 days	Sun 23/8/20	Tue 1/9/20	0 days
142		F9 -> F8 -> F7	8 days	Wed 2/9/20	Wed 9/9/20	0 days
143		F16 -> F15 -> F14 -> F13	8 days	Thu 10/9/20	Thu 17/9/20	0 days
144		F22 -> F21 -> F20 -> F19	8 days	Fri 18/9/20	Fri 25/9/20	0 days
145		F6 -> F12 -> F18 -> F23	14 days	Sat 26/9/20	Fri 9/10/20	0 days
146		**Underground drainage construction**	**231 days**	**Tue 29/9/20**	**Mon 17/5/21**	**449 days**
147		Remaining U-channel and drainage construction	210 days	Tue 29/9/20	Mon 26/4/21	0 days
148		Connection to the existing manhole	21 days	Tue 27/4/21	Mon 17/5/21	449 days
149		**Footing construction**	**73 days**	**Sun 2/8/20**	**Tue 13/10/20**	**0 days**
150		**Vertical blinding and blind layers construction**	**67 days**	**Sun 2/8/20**	**Wed 7/10/20**	**0 days**
151		F5 -> F4 -> F3 -> F2 -> F1	10 days	Sun 2/8/20	Tue 11/8/20	0 days
152		F11 and F10 -> F17 and F16	8 days	Wed 12/8/20	Wed 19/8/20	0 days
153		F28	4 days	Sun 23/8/20	Wed 26/8/20	0 days
154		F27 -> F26 - > F25 -> F24	8 days	Thu 27/8/20	Thu 3/9/20	0 days
155		F9 -> F8 -> F7	6 days	Sun 6/9/20	Fri 11/9/20	0 days
156		F16 -> F15 -> F14 -> F13	8 days	Mon 14/9/20	Mon 21/9/20	0 days
157		F22 -> F21 -> F20 -> F19	8 days	Tue 22/9/20	Tue 29/9/20	0 days
158		F6 -> F12 -> F18 -> F23	8 days	Wed 30/9/20	Wed 7/10/20	0 days
159		**Steel fixing for footings**	**67 days**	**Tue 4/8/20**	**Fri 9/10/20**	**0 days**
160		F5 -> F4 -> F3 -> F2 -> F1	10 days	Tue 4/8/20	Thu 13/8/20	0 days
161		F11 and F10 -> F17 and F16	8 days	Fri 14/8/20	Fri 21/8/20	0 days
162		F28	4 days	Tue 25/8/20	Fri 28/8/20	0 days
163		F27 -> F26 - > F25 -> F24	8 days	Sat 29/8/20	Sat 5/9/20	0 days
164		F9 -> F8 -> F7	6 days	Tue 8/9/20	Sun 13/9/20	0 days
165		F16 -> F15 -> F14 -> F13	8 days	Wed 16/9/20	Wed 23/9/20	0 days
166		F22 -> F21 -> F20 -> F19	8 days	Thu 24/9/20	Thu 1/10/20	0 days
167		F6 -> F12 -> F18 -> F23	8 days	Fri 2/10/20	Fri 9/10/20	0 days
168		**Formwork erection for footings**	**67 days**	**Thu 6/8/20**	**Sun 11/10/20**	**0 days**
169		F5 -> F4 -> F3 -> F2 -> F1	10 days	Thu 6/8/20	Sat 15/8/20	0 days
170		F11 and F10 -> F17 and F16	8 days	Sun 16/8/20	Sun 23/8/20	0 days
171		F28	4 days	Thu 27/8/20	Sun 30/8/20	0 days
172		F27 -> F26 - > F25 -> F24	8 days	Mon 31/8/20	Mon 7/9/20	0 days
173		F9 -> F8 -> F7	6 days	Thu 10/9/20	Tue 15/9/20	0 days
174		F16 -> F15 -> F14 -> F13	8 days	Fri 18/9/20	Fri 25/9/20	0 days
175		F22 -> F21 -> F20 -> F19	8 days	Sat 26/9/20	Sat 3/10/20	0 days
176		F6 -> F12 -> F18 -> F23	8 days	Sun 4/10/20	Sun 11/10/20	0 days
177		**Casting concrete for footings**	**61 days**	**Fri 14/8/20**	**Tue 13/10/20**	**0 days**
178		F5 -> F4 -> F3 -> F2 -> F1	4 days	Fri 14/8/20	Mon 17/8/20	0 days
179		F11 and F10 -> F17 and F16	2 days	Mon 24/8/20	Tue 25/8/20	0 days
180		F28	1 day	Tue 1/9/20	Tue 1/9/20	0 days
181		F27 -> F26 - > F25 -> F24	2 days	Tue 8/9/20	Wed 9/9/20	10 days
182		F9 -> F8 -> F7	2 days	Wed 16/9/20	Thu 17/9/20	691 days
183		F16 -> F15 -> F14 -> F13	2 days	Sat 26/9/20	Sun 27/9/20	681 days
184		F22 -> F21 -> F20 -> F19	2 days	Sun 4/10/20	Mon 5/10/20	673 days
185		F6 -> F12 -> F18 -> F23	2 days	Mon 12/10/20	Tue 13/10/20	0 days
186		**Construction for Steel Canopy**	**496 days**	**Fri 27/9/19**	**Wed 3/2/21**	**127 days**
187		Searching for steel fabricator	120 days	Fri 27/9/19	Fri 24/1/20	0 days
188		Preparation for shop drawing of steel canopy	45 days	Sat 25/1/20	Mon 9/3/20	0 days
189		Shop drawing submission for approval	21 days	Tue 10/3/20	Mon 30/3/20	80 days
190		Idling due to COVID-9 infection	70 days	Sat 1/2/20	Fri 10/4/20	0 days
191		Change of steel fabricator	14 days	Sat 11/4/20	Fri 24/4/20	0 days
192		Re-preparation for shop drawing of steel canopy	55 days	Sat 25/4/20	Thu 18/6/20	0 days
193		Re-Shop drawing submission for approval	21 days	Fri 19/6/20	Thu 9/7/20	0 days
194		Approval of shop drawings	21 days	Fri 10/7/20	Thu 30/7/20	0 days
195		Material preparation for steel canopy	30 days	Sun 19/7/20	Mon 17/8/20	0 days



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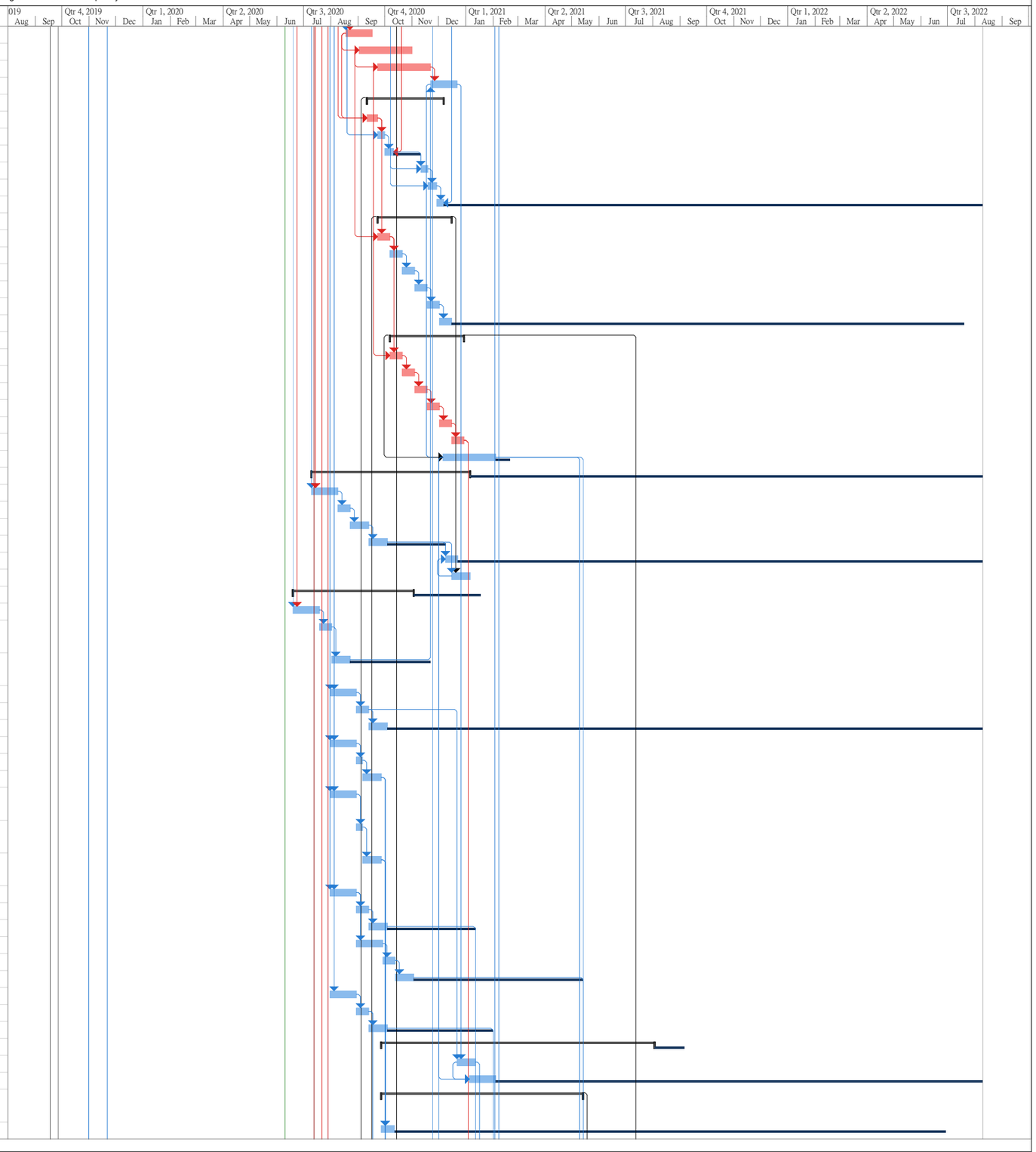
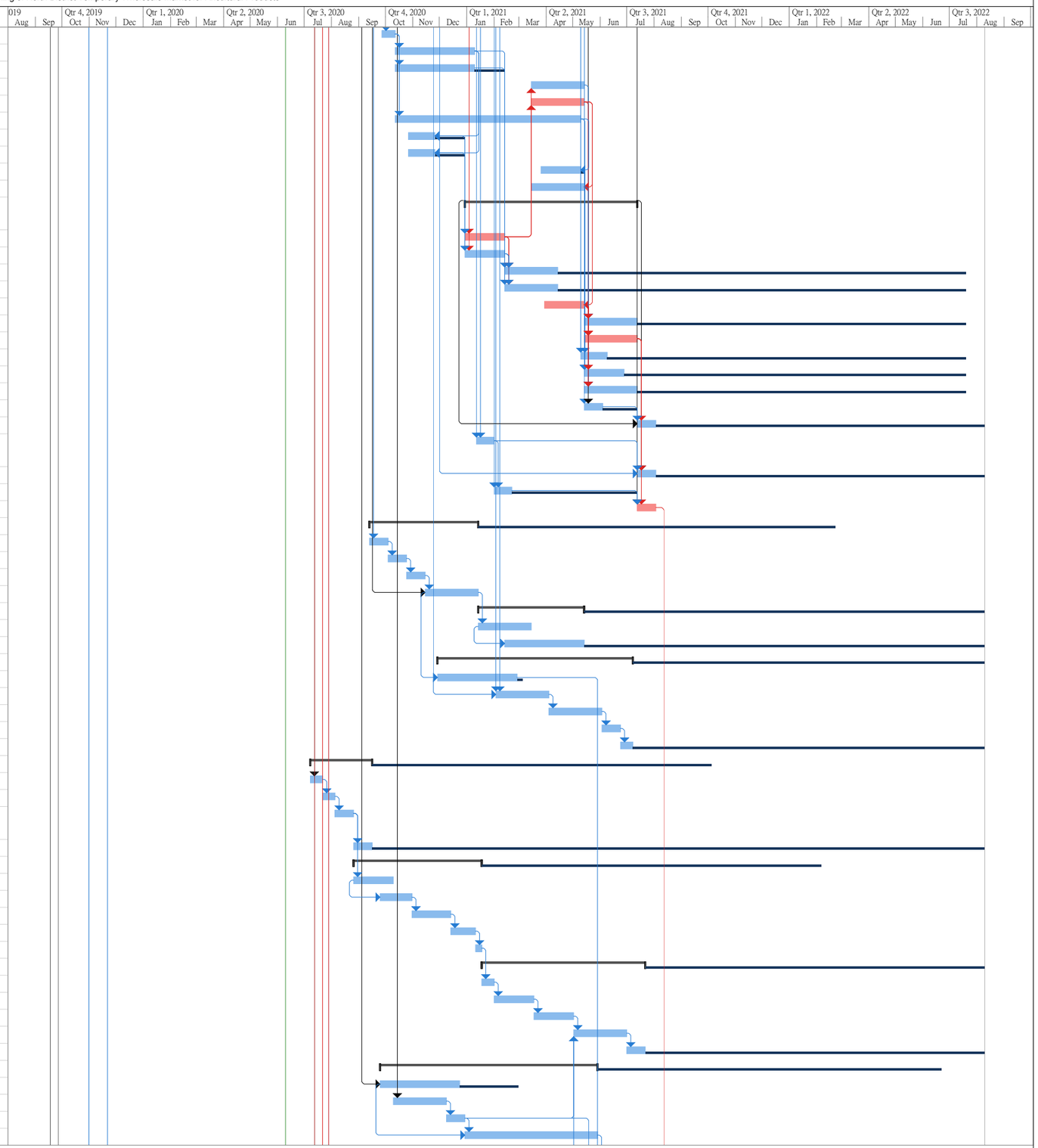
Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Critical
Critical Split
Progress
Manual Progress
Slack

ID	Task Mode	Task Name	Duration	Start	Finish	Float
196		Fabrication and delivery for steel colum	30 days	Tue 18/8/20	Wed 16/9/20	0 days
197		Fabrication and delivery for lower roof steel frame and truss	60 days	Wed 2/9/20	Sat 31/10/20	0 days
198		Fabrication and delivery for upper roof steel frame	60 days	Wed 23/9/20	Sat 21/11/20	0 days
199		Fabrication for skylight	30 days	Sun 22/11/20	Mon 21/12/20	0 days
200		**Installation for steel column**	**87 days**	**Fri 11/9/20**	**Sun 6/12/20**	**0 days**
201		Area 1 - F5, F4, F3, F11, F10, F9	12 days	Fri 11/9/20	Tue 22/9/20	0 days
202		Area 2 - F17, F16, F28	8 days	Wed 23/9/20	Wed 30/9/20	0 days
203		Area 3 -F1, F2, F6, F7, F8	10 days	Thu 1/10/20	Sat 10/10/20	31 days
204		Area 4 -F12, F13, F14, F15	8 days	Wed 11/11/20	Wed 18/11/20	0 days
205		Area 5 - F18, F19, F20, F21, F22	10 days	Thu 19/11/20	Sat 28/11/20	0 days
206		Area 6 - F23, F24, F25, F26, F27	8 days	Sun 29/11/20	Sun 6/12/20	611 days
207		**Installation for lower roof steel frame and truss**	**84 days**	**Wed 23/9/20**	**Tue 15/12/20**	**0 days**
208		Area 1 - F5, F4, F3, F11, F10, F9	14 days	Wed 23/9/20	Tue 6/10/20	0 days
209		Area 2 - F17, F16, F28	14 days	Wed 7/10/20	Tue 20/10/20	0 days
210		Area 3 -F1, F2, F6, F7, F8	14 days	Wed 21/10/20	Tue 3/11/20	0 days
211		Area 4 -F12, F13, F14, F15	14 days	Wed 4/11/20	Tue 17/11/20	0 days
212		Area 5 - F18, F19, F20, F21, F22	14 days	Wed 18/11/20	Tue 1/12/20	0 days
213		Area 6 - F23, F24, F25, F26, F27	14 days	Wed 2/12/20	Tue 15/12/20	581 days
214		**Installation for upper roof steel frame**	**84 days**	**Wed 7/10/20**	**Tue 29/12/20**	**0 days**
215		Area 1 - F5, F4, F3, F11, F10, F9	14 days	Wed 7/10/20	Tue 20/10/20	0 days
216		Area 2 - F17, F16, F28	14 days	Wed 21/10/20	Tue 3/11/20	0 days
217		Area 3 -F1, F2, F6, F7, F8	14 days	Wed 4/11/20	Tue 17/11/20	0 days
218		Area 4 -F12, F13, F14, F15	14 days	Wed 18/11/20	Tue 1/12/20	0 days
219		Area 5 - F18, F19, F20, F21, F22	14 days	Wed 2/12/20	Tue 15/12/20	0 days
220		Area 6 - F23, F24, F25, F26, F27	14 days	Wed 16/12/20	Tue 29/12/20	0 days
221		Installation for skylight system	60 days	Sun 6/12/20	Wed 3/2/21	16 days
222		**Construction for steel staircase**	**180 days**	**Fri 10/7/20**	**Tue 5/1/21**	**581 days**
223		Design for steel staircase	30 days	Fri 10/7/20	Sat 8/8/20	0 days
224		Submission for steel staircase	14 days	Sun 9/8/20	Sat 22/8/20	0 days
225		Approval for steel staircase	21 days	Sun 23/8/20	Sat 12/9/20	0 days
226		Fabrication for steel staircase	21 days	Sun 13/9/20	Sat 3/10/20	66 days
227		Delivery for steel staircase	14 days	Wed 9/12/20	Tue 22/12/20	595 days
228		Installation for steel staircase	21 days	Wed 16/12/20	Tue 5/1/21	0 days
229		**Design issues for roof of steel canopy**	**137 days**	**Fri 19/6/20**	**Mon 2/11/20**	**76 days**
230		Skylight secondary steelwork members design and their fixing	30 days	Fri 19/6/20	Sat 18/7/20	0 days
231		Submission for skylight secondary steelwork members design and their fixing	14 days	Sun 19/7/20	Sat 1/8/20	0 days
232		Approval for the desing of skylight secondary steelwork members and their fixing	21 days	Sun 2/8/20	Sat 22/8/20	91 days
233		Design for glazing panel with Aluminum frame	30 days	Fri 31/7/20	Sat 29/8/20	0 days
234		Submission for glazing panel with Aluminum frame	14 days	Sun 30/8/20	Sat 12/9/20	0 days
235		Approval for design for glazing panel with Aluminum frame	21 days	Sun 13/9/20	Sat 3/10/20	675 days
236		Design for Purlin cleat and layout drawing	30 days	Fri 31/7/20	Sat 29/8/20	0 days
237		Submission for Purlin cleat and layout drawing	7 days	Sun 30/8/20	Sat 5/9/20	0 days
238		Approval for design for Purlin cleat and layout drawing	21 days	Sun 6/9/20	Sat 26/9/20	0 days
239		Design for metal roof cladding system and PMMA skylight system design calculation and shop drawing	30 days	Fri 31/7/20	Sat 29/8/20	0 days
240		Submission for metal roof cladding system and PMMA skylight system design calculation and shop drawing	7 days	Sun 30/8/20	Sat 5/9/20	0 days
241		Approval for metal roof cladding system and PMMA skylight system design calculation and shop drawing	21 days	Sun 6/9/20	Sat 26/9/20	0 days
242		Design for sliding roof hatch or hydraulic swing hatch door	30 days	Fri 31/7/20	Sat 29/8/20	0 days
243		Submission for sliding roof hatch or hydraulic swing hatch door	14 days	Sun 30/8/20	Sat 12/9/20	0 days
244		Approval for sliding roof hatch or hydraulic swing hatch door	21 days	Sun 13/9/20	Sat 3/10/20	100 days
245		Design for guardrail for roof	30 days	Sun 30/8/20	Mon 28/9/20	0 days
246		Submission for guardrail for roof	14 days	Tue 29/9/20	Mon 12/10/20	0 days
247		Approval for guardrail for roof	21 days	Tue 13/10/20	Mon 2/11/20	192 days
248		Design for solar pannel and the steel supporting frame	30 days	Fri 31/7/20	Sat 29/8/20	0 days
249		Submission for solar pannel and the steel supporting frame	14 days	Sun 30/8/20	Sat 12/9/20	0 days
250		Approval for solar pannel and the steel supporting frame	21 days	Sun 13/9/20	Sat 3/10/20	120 days
251		**Construction for roof of steel canopy**	**310 days**	**Sun 27/9/20**	**Mon 2/8/21**	**34 days**
252		Fabrication and delivery for glazing panel with Aluminum frame	21 days	Tue 22/12/20	Mon 11/1/21	0 days
253		Installation for glazing panel with Aluminum frame	30 days	Tue 5/1/21	Wed 3/2/21	552 days
254		**Materials preparation and delivery for Purlin cleat, rockwood insulation, skylight PMMA Pannel**	**229 days**	**Sun 27/9/20**	**Thu 13/5/21**	**0 days**
255		Purlin cleat steel raw	15 days	Sun 27/9/20	Sun 11/10/20	625 days



ID	Task Mode	Task Name	Duration	Start	Finish	Float
256		Prepare fabrication drawing	15 days	Sun 27/9/20	Sun 11/10/20	0 days
257		Under Liner	90 days	Mon 12/10/20	Sat 9/1/21	0 days
258		Alum Halter	90 days	Mon 12/10/20	Sat 9/1/21	34 days
259		Rockwool insulation	60 days	Mon 15/3/21	Thu 13/5/21	0 days
260		Top Liner (Coil)	60 days	Mon 15/3/21	Thu 13/5/21	0 days
261		Skylight PMMA Panel	210 days	Mon 12/10/20	Sun 9/5/21	0 days
262		Purlin	30 days	Tue 27/10/20	Wed 25/11/20	34 days
263		GMS. Gutter in mill finish	30 days	Tue 27/10/20	Wed 25/11/20	34 days
264		Skylight GMS edge capping w/. PE coating	45 days	Fri 26/3/21	Sun 9/5/21	4 days
265		Main Roof GMS. Edge capping w/. PE coating	60 days	Mon 15/3/21	Thu 13/5/21	0 days
266		**Installation for Purlin cleat, rockwood insulation, skylight PMMA Pannel**	**195 days**	**Wed 30/12/20**	**Mon 12/7/21**	**0 days**
267		Install purlin	45 days	Wed 30/12/20	Fri 12/2/21	0 days
268		Install gutter	45 days	Wed 30/12/20	Fri 12/2/21	0 days
269		Install under liner	60 days	Sat 13/2/21	Tue 13/4/21	462 days
270		Install alum. halter	60 days	Sat 13/2/21	Tue 13/4/21	462 days
271		Louvre Install completer	45 days	Tue 30/3/21	Thu 13/5/21	0 days
272		Install rockwool	60 days	Fri 14/5/21	Mon 12/7/21	372 days
273		Install top liner	60 days	Fri 14/5/21	Mon 12/7/21	0 days
274		Install skylight PMMA panel	30 days	Mon 10/5/21	Tue 8/6/21	406 days
275		Install Skylight edge capping	45 days	Fri 14/5/21	Sun 27/6/21	387 days
276		Install Main roof edge capping	60 days	Fri 14/5/21	Mon 12/7/21	372 days
277		Fabrication and delivery for guardrail for roof	21 days	Fri 14/5/21	Thu 3/6/21	39 days
278		Installation of guardrail for roof	21 days	Tue 13/7/21	Mon 2/8/21	372 days
279		Fabrication and delivery for sliding roof hatch or hydraulic swing hatch door	20 days	Tue 12/1/21	Sun 31/1/21	0 days
280		Installation for sliding roof hatch or hydraulic swing hatch door	21 days	Tue 13/7/21	Mon 2/8/21	372 days
281		Fabrication for steel supporting frame for solar pannel	20 days	Mon 1/2/21	Sat 20/2/21	142 days
282		Installation for solar pannel and the steel supporting frame	21 days	Tue 13/7/21	Mon 2/8/21	0 days
283		**Hanging fan and lighting system for steel canopy**	**123 days**	**Sun 13/9/20**	**Wed 13/1/21**	**404 days**
284		Design for hanging fan and lighting system	21 days	Sun 13/9/20	Sat 3/10/20	0 days
285		Submission for hanging fan and lighting system	21 days	Sun 4/10/20	Sat 24/10/20	0 days
286		Approval for hanging fan and lighting system	21 days	Sun 25/10/20	Sat 14/11/20	0 days
287		Installation for hanging fan and lighting system	60 days	Sun 15/11/20	Wed 13/1/21	0 days
288		**Interior fitting-out, finishes and fixtures**	**120 days**	**Thu 14/1/21**	**Thu 13/5/21**	**453 days**
289		Erection of interior fitting-out and finishes	60 days	Thu 14/1/21	Sun 14/3/21	0 days
290		Installation of fixtures	90 days	Sat 13/2/21	Thu 13/5/21	453 days
291		**Building services works**	**221 days**	**Sun 29/11/20**	**Wed 7/7/21**	**398 days**
292		Installation of BS equipment	90 days	Sun 29/11/20	Fri 26/2/21	6 days
293		Testing and commissioning of BS equipment	60 days	Wed 3/2/21	Sat 3/4/21	0 days
294		Inspection of BS installations inclunding Fire Services by Authorities	60 days	Sun 4/4/21	Wed 2/6/21	0 days
295		Remedial works after inspection	21 days	Thu 3/6/21	Wed 23/6/21	0 days
296		Re-insepction of BS installations by Authorities	14 days	Thu 24/6/21	Wed 7/7/21	398 days
297		**Demolision and re-provision works for toilet and RCB**	**70 days**	**Wed 8/7/20**	**Tue 15/9/20**	**384 days**
298		Undergound Utilities detection	14 days	Wed 8/7/20	Tue 21/7/20	0 days
299		PR plan for relocation of toilet and RCB	14 days	Wed 22/7/20	Tue 4/8/20	0 days
300		Re-provision of toilet and RCB before demolish the existing toilet and RCB	21 days	Wed 5/8/20	Tue 25/8/20	0 days
301		Demolish the existing toilet and RCB	21 days	Wed 26/8/20	Tue 15/9/20	693 days
302		**Site formation and mini-pile works**	**145 days**	**Wed 26/8/20**	**Sun 17/1/21**	**384 days**
303		Site formation for mini-pile works	45 days	Wed 26/8/20	Fri 9/10/20	0 days
304		Mini-pile construction for Bay 1 (18 nos.)	36 days	Fri 25/9/20	Fri 30/10/20	0 days
305		Mini-pile construction for Bay 2 (22 nos.)	44 days	Sat 31/10/20	Sun 13/12/20	0 days
306		Concrete strength gaining to 28days	28 days	Mon 14/12/20	Sun 10/1/21	0 days
307		Loading test for the mini-pile (1 no.)	7 days	Mon 11/1/21	Sun 17/1/21	0 days
308		**Ramp structure and road works**	**185 days**	**Mon 18/1/21**	**Wed 21/7/21**	**384 days**
309		Cutting mini-pile and welding capping plates (40 nos.)	14 days	Mon 18/1/21	Sun 31/1/21	0 days
310		Construction for ramp structure	45 days	Mon 1/2/21	Wed 17/3/21	0 days
311		Backfilling to the road paving level	45 days	Thu 18/3/21	Sat 1/5/21	0 days
312		Rigid pavement construction	60 days	Sun 2/5/21	Wed 30/6/21	0 days
313		Construction of steel vehicle parapet and thrie bear	21 days	Thu 1/7/21	Wed 21/7/21	384 days
314		**Road works and On-grade slab**	**246 days**	**Fri 25/9/20**	**Fri 28/5/21**	**389 days**
315		Backfilling to the bottom of on-grade slab	90 days	Fri 25/9/20	Wed 23/12/20	66 days
316		Submission for paneling of on-grade slab and carriageway works	60 days	Sat 10/10/20	Tue 8/12/20	0 days
317		Approval for paneling of on-grade slab and carriageway works	21 days	Wed 9/12/20	Tue 29/12/20	0 days
318		Casting concrete for on-grade slab and carriagewway	150 days	Wed 30/12/20	Fri 28/5/21	0 days



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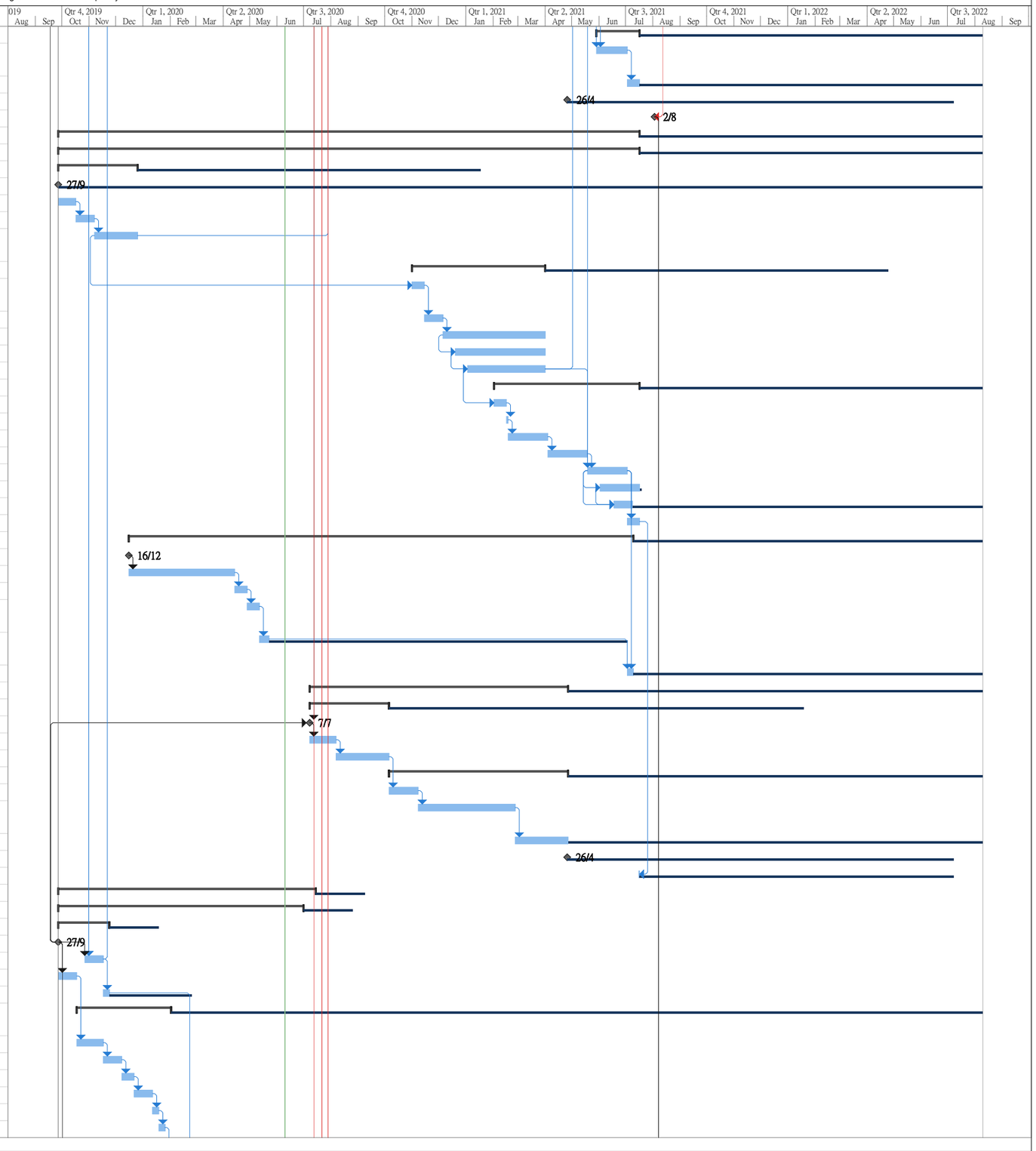
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Critical
Critical Split
Progress
Manual Progress
Slack

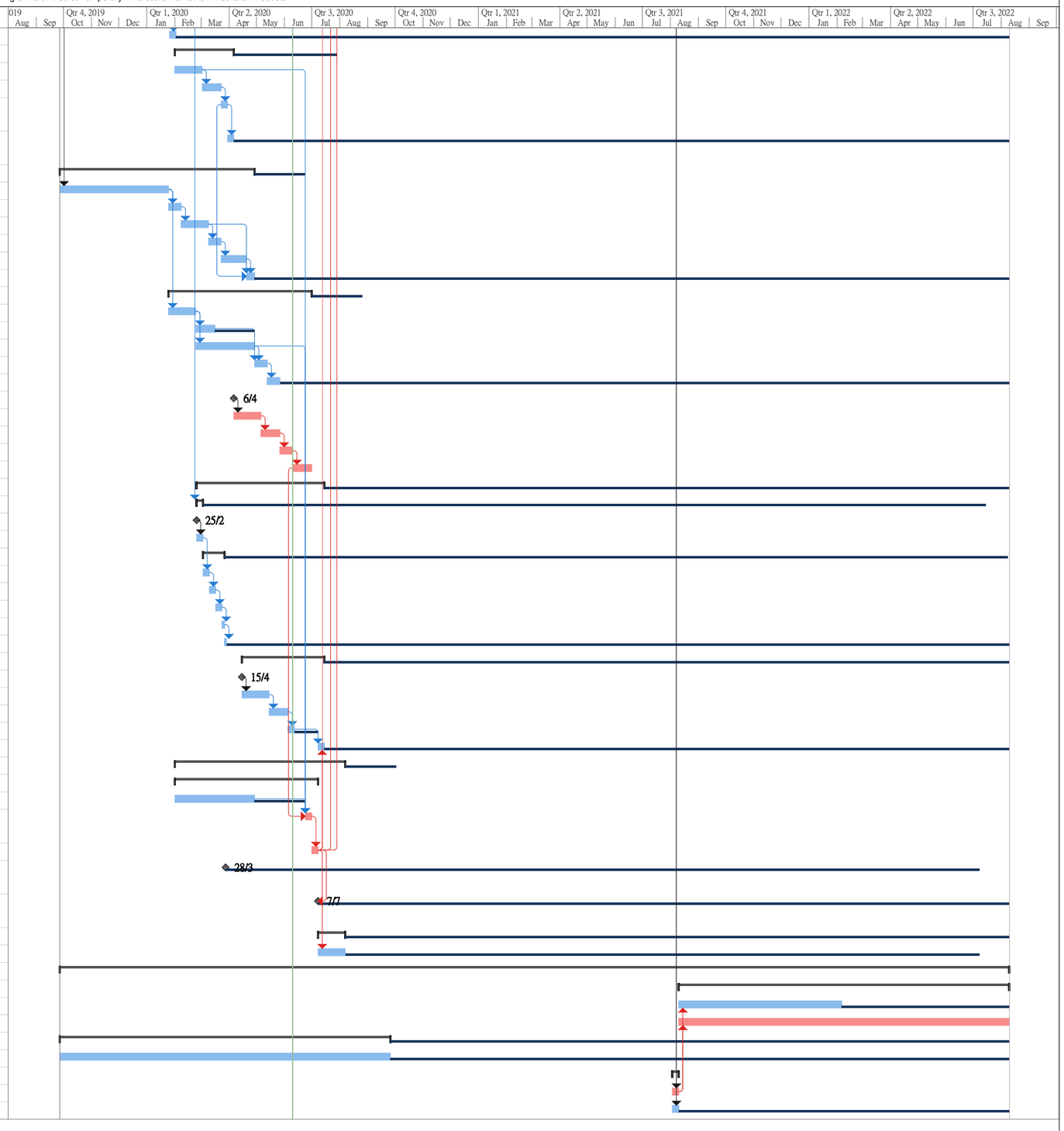
ID	Task Mode	Task Name	Duration	Start	Finish	Float
319		**Street furniture and road marking**	**49 days**	**Sat 29/5/21**	**Fri 16/7/21**	**389 days**
320		Construction for Street furniture as per drawing no. 60335576/C6/C00/1202	35 days	Sat 29/5/21	Fri 2/7/21	0 days
321		Road marking as per drawing no. 60335576/C6/C00/1602	14 days	Sat 3/7/21	Fri 16/7/21	389 days
322		Orignal Completion date of Section 1 of the Works	0 days	Mon 26/4/21	Mon 26/4/21	438 days
323		Revised completion date of Section 1 of the Works	0 days	Mon 2/8/21	Mon 2/8/21	0 days
324		**Section 2 of the Works**	**659 days**	**Fri 27/9/19**	**Fri 16/7/21**	**389 days**
325		**Works for Portion 6**	**659 days**	**Fri 27/9/19**	**Fri 16/7/21**	**389 days**
326		**General for Portion 6**	**90 days**	**Fri 27/9/19**	**Wed 25/12/19**	**389 days**
327		Access date of Portion 6	0 days	Fri 27/9/19	Fri 27/9/19	1048 days
328		Site clearance and tree felling	20 days	Fri 27/9/19	Wed 16/10/19	0 days
329		Construction for geotechnical instrumentation (D57 and D37)	21 days	Thu 17/10/19	Wed 6/11/19	0 days
330		Construction for ground investigation (7 nos.) according to drawing no. 60335576/C6/C00/7501	49 days	Thu 7/11/19	Wed 25/12/19	0 days
331		**Slope and landscape works**	**151 days**	**Sun 1/11/20**	**Wed 31/3/21**	**389 days**
332		Trail pit construction as per drawing no. I/ND/2019/06/60335576/C6/C00/7501	14 days	Sun 1/11/20	Sat 14/11/20	0 days
333		Identification to the replacement for the loose fill	21 days	Sun 15/11/20	Sat 5/12/20	0 days
334		Excavation for the loose fill materails	116 days	Sun 6/12/20	Wed 31/3/21	0 days
335		Replace the loose fill to rockfill	102 days	Sun 20/12/20	Wed 31/3/21	0 days
336		Landscape works	88 days	Sun 3/1/21	Wed 31/3/21	0 days
337		**FW2 and road works**	**165 days**	**Tue 2/2/21**	**Fri 16/7/21**	**389 days**
338		Backfilling to the bottom of FW2 for construction	14 days	Tue 2/2/21	Mon 15/2/21	0 days
339		Blinding concrete casting for FW2	2 days	Tue 16/2/21	Wed 17/2/21	0 days
340		Construction for new feature FW2	45 days	Thu 18/2/21	Sat 3/4/21	0 days
341		Backfilling to the road paving level	45 days	Sun 4/4/21	Tue 18/5/21	0 days
342		Rigid pavement construction	45 days	Wed 19/5/21	Fri 2/7/21	0 days
343		Construction of fence with footing	45 days	Wed 2/6/21	Fri 16/7/21	2 days
344		Construction of steel vehicle parapet and thrie bear	21 days	Fri 18/6/21	Thu 8/7/21	397 days
345		Road marking as per drawing no. 60335576/C6/C00/1601	14 days	Sat 3/7/21	Fri 16/7/21	0 days
346		**Road works construction at On Kui Street**	**572 days**	**Mon 16/12/19**	**Fri 9/7/21**	**396 days**
347		TTA and XP granted	0 days	Mon 16/12/19	Mon 16/12/19	0 days
348		TTA set up for revising shoulder to suit for interim stage	120 days	Mon 16/12/19	Mon 13/4/20	0 days
349		Demolish the existing shoulder	14 days	Tue 14/4/20	Mon 27/4/20	0 days
350		Re-construction the shoulder as per drawing no. 60335576/C6/C00/1001	14 days	Tue 28/4/20	Mon 11/5/20	0 days
351		Construction for street furniture as per drawing no. 60335576/C6/C00/1201	11 days	Tue 12/5/20	Fri 22/5/20	406 days
352		Road marking as per drawing no. 60335576/C6/C00/1601	7 days	Sat 3/7/21	Fri 9/7/21	396 days
353		**Works for Portion 5**	**293 days**	**Tue 7/7/20**	**Mon 26/4/21**	**470 days**
354		**General for Portion 5**	**90 days**	**Tue 7/7/20**	**Mon 5/10/20**	**470 days**
355		Access date of Portion 5 (184 days after starting date)	0 days	Tue 7/7/20	Tue 7/7/20	0 days
356		Site clearance and tree felling	30 days	Wed 8/7/20	Thu 6/8/20	0 days
357		Earthworks	60 days	Fri 7/8/20	Mon 5/10/20	0 days
358		**Street furniture and road marking**	**203 days**	**Tue 6/10/20**	**Mon 26/4/21**	**470 days**
359		Removal of exisiting gate	33 days	Tue 6/10/20	Sat 7/11/20	0 days
360		Construction for Street furniture as per drawing no. 60335576/C6/C00/1202	110 days	Sun 8/11/20	Thu 25/2/21	0 days
361		Road marking as per drawing no. 60335576/C6/C00/1602	60 days	Fri 26/2/21	Mon 26/4/21	470 days
362		Orignal Completion date of Section 2 of the Works	0 days	Mon 26/4/21	Mon 26/4/21	438 days
363		Revised completion date of Section 2 of the Works	1 day	Fri 16/7/21	Fri 16/7/21	356 days
364		**Section 3 of the Works**	**292 days**	**Fri 27/9/19**	**Tue 14/7/20**	**56 days**
365		**Works at Portion 1**	**278 days**	**Fri 27/9/19**	**Tue 30/6/20**	**56 days**
366		**General for Portion 1**	**58 days**	**Fri 27/9/19**	**Sat 23/11/19**	**56 days**
367		Access date of Portion 1	0 days	Fri 27/9/19	Fri 27/9/19	0 days
368		Site clearance and tree felling	21 days	Sun 27/10/19	Sat 16/11/19	0 days
369		Construction for fencing for interim stage	21 days	Fri 27/9/19	Thu 17/10/19	0 days
370		Construction for the insumentation (FLN-2-SF-DH005(P))	7 days	Sun 17/11/19	Sat 23/11/19	93 days
371		**Earthworks / site formation, drainage, fresh water and power suuply works**	**107 days**	**Fri 18/10/19**	**Sat 1/2/20**	**920 days**
372		Excavation for drainage works	30 days	Fri 18/10/19	Sat 16/11/19	0 days
373		Drainage pipelaying	21 days	Sun 17/11/19	Sat 7/12/19	0 days
374		Manhole construction	14 days	Sun 8/12/19	Sat 21/12/19	0 days
375		Backfilling to the drainage area	21 days	Sun 22/12/19	Sat 11/1/20	0 days
376		Connection to the existing manhole	7 days	Sun 12/1/20	Sat 18/1/20	0 days
377		Connection of fresh water supply	7 days	Sun 19/1/20	Sat 25/1/20	0 days



Project: ND/2019/06
Date: Wed 10/6/20

Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Critical
Critical Split
Progress
Manual Progress
Slack

ID	Task Mode	Task Name	Duration	Start	Finish	Float
378		Connection of power supply	7 days	Sun 26/1/20	Sat 1/2/20	920 days
379		**Pavments and road marking to the ground for interim stage**	**65 days**	**Sat 1/2/20**	**Sun 5/4/20**	**114 days**
380		Idling due to COVID-9 infection	30 days	Sat 1/2/20	Sun 1/3/20	0 days
381		100m bituminous materials on compacted backfill	21 days	Mon 2/3/20	Sun 22/3/20	0 days
382		Installation of street furniture according to drawing no. 60335576/C6/C00/1201	7 days	Mon 23/3/20	Sun 29/3/20	0 days
383		Construction for road marking and traffic sign as per drawing no. 60335576/C6/C00/1601	7 days	Mon 30/3/20	Sun 5/4/20	856 days
384		**Temporary lighting installation for Portion 1 and Portion 2**	**215 days**	**Fri 27/9/19**	**Tue 28/4/20**	**56 days**
385		Temporary lighting design	120 days	Fri 27/9/19	Fri 24/1/20	0 days
386		Temporary lighting design submission	14 days	Sat 25/1/20	Fri 7/2/20	0 days
387		Temporary lighting apprvoal	30 days	Sat 8/2/20	Sun 8/3/20	0 days
388		Materials preparation for temporary lighting	14 days	Mon 9/3/20	Sun 22/3/20	0 days
389		Idling due to COVID-9 infection	28 days	Mon 23/3/20	Sun 19/4/20	0 days
390		Temporary lighting installation	9 days	Mon 20/4/20	Tue 28/4/20	833 days
391		**Rain Shelter Construction**	**158 days**	**Sat 25/1/20**	**Tue 30/6/20**	**56 days**
392		Desgin submission for foldable rain shelter	30 days	Sat 25/1/20	Sun 23/2/20	0 days
393		Approval for design submission for foldable rain shelter	21 days	Mon 24/2/20	Sun 15/3/20	44 days
394		Idling due to COVID-9 infection	65 days	Mon 24/2/20	Tue 28/4/20	0 days
395		Material preparation for foldable rain shelter	14 days	Wed 29/4/20	Tue 12/5/20	0 days
396		Construction for foldable rain shelter	14 days	Wed 13/5/20	Tue 26/5/20	805 days
397		PMI for changing part of foldable rain shelter to fixed rain shelter	0 days	Mon 6/4/20	Mon 6/4/20	0 days
398		Design submission for fixed rain shelter	30 days	Mon 6/4/20	Tue 5/5/20	0 days
399		Approval for design submission for fixed rain shelter	21 days	Wed 6/5/20	Tue 26/5/20	0 days
400		Materials preparation for fixed rain shelter	14 days	Wed 27/5/20	Tue 9/6/20	0 days
401		Construction for fixed rain shelter	21 days	Wed 10/6/20	Tue 30/6/20	0 days
402		**Works at Portion 2**	**141 days**	**Tue 25/2/20**	**Tue 14/7/20**	**756 days**
403		**General for Portion 2**	**7 days**	**Tue 25/2/20**	**Mon 2/3/20**	**864 days**
404		Access date for Portion 2 (152 days after starting date)	0 days	Tue 25/2/20	Tue 25/2/20	0 days
405		Site clearance and tree felling	7 days	Tue 25/2/20	Mon 2/3/20	0 days
406		**Underground drainage works**	**24 days**	**Tue 3/3/20**	**Thu 26/3/20**	**864 days**
407		Excavation for underground drainage	7 days	Tue 3/3/20	Mon 9/3/20	0 days
408		Underground drainage pipelaying	7 days	Tue 10/3/20	Mon 16/3/20	0 days
409		Construction of manhole	7 days	Tue 17/3/20	Mon 23/3/20	0 days
410		Connection to the existing manhole	3 days	Tue 24/3/20	Thu 26/3/20	0 days
411		Road marking as per drawing no. 60335576/C6/C00/1601	2 days	Fri 27/3/20	Sat 28/3/20	864 days
412		**Container office - Modification works**	**91 days**	**Wed 15/4/20**	**Tue 14/7/20**	**756 days**
413		PMI for container office modification works	0 days	Wed 15/4/20	Wed 15/4/20	0 days
414		Desgin submission for contanier office modification works	30 days	Wed 15/4/20	Thu 14/5/20	0 days
415		Design approval for container office modification works	21 days	Fri 15/5/20	Thu 4/6/20	0 days
416		Material preparation for contanier office modification works	7 days	Fri 5/6/20	Thu 11/6/20	26 days
417		Construction of container offices modification works	7 days	Wed 8/7/20	Tue 14/7/20	756 days
418		**Change of Market Stage**	**188 days**	**Sat 1/2/20**	**Thu 6/8/20**	**56 days**
419		**From Existing Stage to Iterim Stage Arrangement**	**158 days**	**Sat 1/2/20**	**Tue 7/7/20**	**0 days**
420		Idling due to COVID-9 infection	88 days	Sat 1/2/20	Tue 28/4/20	56 days
421		Notice to stall traders for relocation to Interim Market (30 days before the key date)	7 days	Wed 24/6/20	Tue 30/6/20	0 days
422		Relocation of stall traders from existing NDTWM to Interim Market	7 days	Wed 1/7/20	Tue 7/7/20	0 days
423		Original Key Date completion of interim North District Temporary Wholesale Market for Agricultural Products	0 days	Sat 28/3/20	Sat 28/3/20	832 days
424		Revised Key Date completion of interim North District Temporary Wholesale Market for Agricultural Products	0 days	Tue 7/7/20	Tue 7/7/20	763 days
425		**Completion of Reinstatement of interim NDTWM**	**30 days**	**Wed 8/7/20**	**Thu 6/8/20**	**733 days**
426		Carrying out reinstatement works	30 days	Wed 8/7/20	Thu 6/8/20	700 days
427		**Maintenance Period (12 months of DLP)**	**1048 days**	**Fri 27/9/19**	**Tue 9/8/22**	**0 days**
428		**Outstanding works and defects**	**365 days**	**Tue 10/8/21**	**Tue 9/8/22**	**0 days**
429		Completion of outstanding works	180 days	Tue 10/8/21	Sat 5/2/22	185 days
430		Rectification of defects	365 days	Tue 10/8/21	Tue 9/8/22	0 days
431		**Landscape works**	**365 days**	**Fri 27/9/19**	**Fri 25/9/20**	**683 days**
432		Establishment works	365 days	Fri 27/9/19	Fri 25/9/20	683 days
433		**Final handover of the site**	**7 days**	**Tue 3/8/21**	**Mon 9/8/21**	**0 days**
434		Pre-handover inspection	7 days	Tue 3/8/21	Mon 9/8/21	0 days
435		Handover of the Site	7 days	Tue 3/8/21	Mon 9/8/21	365 days



APPENDIX B
ACTION AND LIMIT LEVELS

Appendix B - Action and Limit Levels

Table B-1 Action and Limit Levels for 1-hour TSP

Monitoring station	Action Level (ug/m^3)	Limit Level (ug/m^3)
KTN-DMS4	297	500

Table B-2 Action and Limit Levels for 24-hour TSP

Monitoring station	Action Level (ug/m^3)	Limit Level (ug/m^3)
KTN-DMS4	192	260

Table B-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) *

Noted:
If works are to be carried during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.
(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Table B-4.1 Action and Limit Levels for Water Quality Monitoring(1)

Parameters	Action Level	Limit Level
DO in mg/L (depth average)#+	5 percentile of baseline data.	4 mg/L or 1 percentile of baseline data.
SS in mg/L (depth averaged)*&	95 percentile of baseline data or 120% of upstream control station.	20 mg/L or 99 percentile of baseline data or 130% of upstream control station.
Turbidity in NTU (depth averaged)*^	95 percentile of baseline data or 120% of upstream control station.	99 percentile of baseline data or 130% of upstream control station.
Unionized ammonia in mg/L (depth averaged)*~	95 percentile of baseline data or 120% of upstream control station.	0.021mg/L or 99 percentile of baseline data or 130% of upstream control station.
Nitrate nitrogen in mg/L (depth averaged)*^	95 percentile of baseline data or 120% of upstream control station.	99 percentile of baseline data or 130% of upstream control station.
Orthophosphate in mg/L (depth averaged)*^	95 percentile of baseline data or 120% of upstream control station.	99 percentile of baseline data or 130% of upstream control station.

Remarks:
AL of DO is 5 percentile of baseline data or level at control station at same tide of the same day (whichever lower) and LL of DO is 4.0 mg/L or level at control station at same tide of the same day (whichever lower);
+ 1 percentile of baseline data were adopted for LL for DO as those levels were greater than 4 mg/L;
* AL is 120% of control station's level at the same tide of the same day when depth average greater than 95 percentile

of baseline data;
^ LL is 130% of control station's level at the same tide of the same day when depth average greater than 99 percentile of baseline data.
~ LL is 130% of control station's level at the same tide of the same day when depth average greater than 99 percentile of baseline data or 0.021mg/L.
& LL is 130% of control station's level at the same tide of the same day when depth average greater than 99 percentile of baseline data or 20mg/L.

Table B-4.2 Summary of Baseline Water Quality Monitoring Results (KTN NDA)(1)

Monitoring Parameter					
Location / **Parameter**	KTN-CS1				
	Max	Min	Average	5 Percentile	1 Percentile
DO in mg/L	7.79	6.28	6.82	6.32	6.28
	Max	Min	Average	95 Percentile	99 Percentile
Turbidity in NTU	72.4	4.59	10.88	62.2	72.2
Suspended Solid in mg/L	74	2	9	60	73
Unionized ammonia in mg/L	0.0005	0.0001	0.0003	0.0004	0.0005
Nitrate nitrogen in mg/L	0.52	0.09	0.27	0.50	0.52
Orthophosphate in mg/L	0.19	0.01	0.10	0.17	0.19

Monitoring Parameter					
Location / **Parameter**	KTN-IS1				
	Max	Min	Average	5 Percentile	1 Percentile
DO in mg/L	8.08	4.71	6.83	6.14	5.02
	Max	Min	Average	95 Percentile	99 Percentile
Turbidity in NTU	44.56	4.57	8.63	38.98	44.56
Suspended Solid in mg/L	35	2	6	31	35
Unionized ammonia in mg/L	0.0006	0.0001	0.0004	0.0005	0.0006
Nitrate nitrogen in mg/L	0.57	0.09	0.29	0.54	0.57
Orthophosphate in mg/L	0.14	0.03	0.09	0.13	0.14

Note:
(1) The Action and Limit Levels for Water Quality Monitoring and the Summary of Baseline Water Quality Monitoring Results are according to pre-construction ET's Updated EM&A Manual and Baseline Water Quality Monitoring Report (KTN & FLN NDA).

Table B-5 Action and Limit Levels for Ambient Arsenic Monitoring

Parameter	Action Level	Limit Level
Ambient Arsenic Concentration	**9.36ng/m^3** **-** 80% of 11.7ng/m3 – the highest ambient arsenic concentration predicted during the construction phase with mitigation measures implemented)	**11.7ng/m^3** - the highest ambient arsenic concentration predicted during the construction phase with mitigation measures implemented

Table B-6 Action level in the event of LFG being detected

Parameter	Monitoring Results	Actions
O_2	<19% v/v	Increase underground ventilation to restore O_2 to >19% v/v
	<18% v/v	Stop works, evacuate all personnel, prohibit entry, and increase ventilation to restore O_2 level to >19%
CH_4	>10% LEL	Prohibit hot works, increase ventilation to restore CH4 to <10% LEL
	>20% LEL	Stop works, evacuate all personnel, increase ventilation further to restore CH_4 to <10% LEL
CO_2	>0.5% v/v	Increase ventilation to restore C O_2 to <0.5% v/v
	>1.5% v/v	Stop works, evacuate all personnel, increase ventilation further to restore CO_2 to <0.5%

APPENDIX C
COPIES OF CALIBRATION CERTIFCATES

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WELLAB LIMITED
Room 1701, Technology Park,
18 On Lai Street, Shatin,
N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	33489
Date of Issue:	2020-05-08
Date Received:	2020-05-06
Date Tested:	2020-05-06
Date Completed:	2020-05-08
Next Due Date:	2020-07-07
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23807
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-01

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.091

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	32667B
Date of Issue:	2019-12-06
Date Received:	2019-12-04
Date Tested:	2019-12-04
Date Completed:	2019-12-06
Next Due Date:	2020-12-05
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35927
Equipment No.	: N-13-03

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	32243
Date of Issue:	2019-09-30
Date Received:	2019-09-27
Date Tested:	2019-09-27
Date Completed:	2019-09-30
Next Due Date:	2020-09-29
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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RSP - Respirable Suspended Particulates Sampler (PM 10)
Field Calibration Report

File No. WMA20002/17/0001

Station KTN-DMS4A - Temporary Structure at Pak Shek Au
Operator: WK

Date: 18-Jun-20
Next Due Date: 17-Aug-20

Equipment No.: A-11-17
Serial No. 3225

Ambient Condition			
Temperature, Ta (K)	307	Pressure, Pa (mmHg)	758.3

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc	0.0588	Intercept, bc	-0.02681
Last Calibration Date:	18-Feb-20	Next Calibration Date:		18-Feb-21	

Calibration of RSP Sampler

Calibration Point	ORIFICE					HVS	
	ΔH(orifice), in. of water	Del Hc (1)	Qstd (2) (CFM)	Qa (3) (CFM) **X -axis**	Qa (3) (m^3/min) **X -axis**	ΔW (HVS), in. of water	$[\Delta W \times (Ta + 30) / Pa]^{1/2}$ **Y-axis**
1	9.1	8.81	50.95	52.60	1.49	11.1	2.22
2	7	6.78	44.74	46.19	1.31	9.9	2.10
3	5.4	5.23	39.35	40.63	1.15	8.8	1.98
4	3.5	3.39	31.77	32.80	0.93	7.4	1.81
5	2.1	2.03	24.71	25.51	0.72	6.3	1.67

By Linear Regression of Y on X

Slope , mw = 0.0204 **Intercept, bw =** 1.1493

Correlation coefficient* = 0.9998

(1) DEL Hc = ΔH x (Pa/760*298/Ta)

(2) Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\}/mc$ (m3/min)

(3) Qa = Qstd x (Ta / Pa) x (760 / 298) (m3/min)

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

Set Point Flow Rate., SFR

SFR = 1.13 x (760/Pa) x (Ta/298) = 41.23

Sampler Well - Type Manometer Set Point, SSP

SSP = [(mw x SFR + bw)^2 x Pa] / (Ta + 30) = 8.92

Remarks:

Conducted by: W.K. Tang Signature: Date: 18/6/2020

Checked by: Ho Kw Signature: Date: 18-6-2020

TISCH Environmental

RECALIBRATION DUE DATE:
February 18, 2021

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	February 18, 2020	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 753.1	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0230	6.4	4.00
3	5	6	1	0.9080	8.0	5.00
4	7	8	1	0.8680	8.8	5.50
5	9	10	1	0.7160	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0001	0.6975	1.4173	0.9958	0.6944	0.8836
0.9959	0.9735	2.0044	0.9915	0.9692	1.2496
0.9937	1.0944	2.2410	0.9894	1.0896	1.3971
0.9927	1.1436	2.3504	0.9883	1.1386	1.4653
0.9873	1.3790	2.8347	0.9830	1.3729	1.7672
QSTD	**m=**	**2.07675**	**QA**	**m=**	**1.30043**
	b=	**-0.02681**		**b=**	**-0.01672**
	r=	**0.99993**		**r=**	**0.99993**

Calculations			
Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

FIREMARK

Calibration Certificate

Number: CCP/70431

Customer: Hong Kong Landfill Restoration Group Limited
Contact Person: Mr. Stanley Cheng
Detector Model: RKI Eagle
Serial Number: E148037

Sensor Type	Calibration gas & concentration	Fresh air reading	Span Set to	Gas Mfg. Co. Cylinder / Lot No.
CH4	**50% vol**	**0% vol**	**50% vol**	**SPANTECH / 11706/1116**
CH4	**50% LEL**	**0% LEL**	**50% LEL**	**SPANTECH / 2286-6-1 to 4**
O2	**18% vol**	**20.9% vol**	**18% vol**	**SPANTECH / 2286-6-1 to 4**
CO2	**30% vol**	**0% vol**	**30% vol**	**SPANTECH / 1883-9-1**

Next Calibration Date: 24th July 2020

Remarks: Instrument PASSED – fit for service.

Authorized Signature

Date: 25th July 2019

FireMark Hong Kong Ltd. 瑞志香港有限公司

FireMark Hong Kong Limited
Flat A, 11/F., Hop Hing Industrial Building, 704 Castle Peak Road, Lai Chi Kok, Kowloon, Hong Kong
Tel : (852) 2751 8871 Fax : (852) 2751 8806

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. NDO 04/2019
Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas
Impact Air Quality and Noise Monitoring Schedule (June 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun
				1hr TSP* X3, 24hr TSP* KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5		
7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun
			1hr TSP* X3, 24hr TSP* KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5			
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
		1hr TSP* X3, 24hr TSP* KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5			**24hr RSP (Arsenic)** KTN-DMS4A	
21-Jun	22-Jun	23-Jun	24-Jun	**25-Jun**	26-Jun	27-Jun
	1hr TSP* X3, 24hr TSP* KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5		**24hr RSP (Arsenic)** KTN-DMS4A		**1hr TSP* X3, 24hr TSP*** KTN-DMS4	
28-Jun	29-Jun	30-Jun				
		24hr RSP (Arsenic) KTN-DMS4A				

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Remarks:

*denoting that monitoring session would be conducted by portable TSP monitor.

Environmental Permit(s)	Contract No.	Air Quality Stations	Noise Stations
EP-468/2013/A	ND/2019/01	**1hr TSP and 24hr TSP** KTN-DMS4 - Temporary Structure near Fanling Highway (near Pak Shek Au) **24hr RSP (Arsenic)** KTN-DMS4A - Temporary Structure at Pak Shek Au	1. CP-KTN-NMS2 - Residential Buildings at Ma Tso Lung 2. CP-KTN-NMS3 -Fung Kong Garden
EP-470/2013		--	CP-KTN-NMS5 - N/A
EP-475/2013A	ND/2019/06	--	CP-FLN-NMS1 - Belair Monte

Contract No. NDO 04/2019
Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas
Tentative Impact Air Quality and Noise Monitoring Schedule (July 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
				1hr TSP* X3, 24hr TSP* KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5		
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
	24hr RSP (Arsenic) KTN-DMS4A		**1hr TSP* X3, 24hr TSP*** KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5		**24hr RSP (Arsenic)** KTN-DMS4A	
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
		1hr TSP* X3, 24hr TSP* KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5		**24hr RSP (Arsenic)** KTN-DMS4A		
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	1hr TSP* X3, 24hr TSP* KTN-DMS4		**24hr RSP (Arsenic)** KTN-DMS4A		**1hr TSP* X3, 24hr TSP*** KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5	
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
		24hr RSP (Arsenic) KTN-DMS4A		**1hr TSP* X3, 24hr TSP*** KTN-DMS4 **Noise** CP-FLN-NMS1, CP-KTN-NMS2, CP-KTN-NMS3, CP-KTN-NMS5		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Remarks:

*Monitoring session would be conducted by portable TSP monitor.

Environmental Permit(s)	Contract No.	Air Quality Stations	Noise Stations
EP-468/2013/A	ND/2019/01	**1hr TSP and 24hr TSP** KTN-DMS4 - Temporary Structure near Fanling Highway (near Pak Shek Au) **24hr RSP (Arsenic)** KTN-DMS4A - Temporary Structure at Pak Shek Au	1. CP-KTN-NMS2 - Residential Buildings at Ma Tso Lung 2. CP-KTN-NMS3 -Fung Kong Garden
EP-470/2013		--	CP-KTN-NMS5 - N/A
EP-475/2013/A	ND/2019/06	--	CP-FLN-NMS1 - Belair Monte

Contract No. NDO 04/2019
Advance and First Stage Works of Kwu Tung North and Fanling North New Development Areas
Tentative Impact Ecological Monitoring Schedule (July 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
		T3[(1)], T5[(1)] High tide: Start time: 10:00 Low tide: Start time: 16:00				
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
	T3[(1)], T5[(1)] High tide: Start time: 14:00 Low tide: Start time: 10:00				Monitoring of Measures to Minimise Impacts on Ecological Sensitive Habitats from Disturbance and Pollution **T1, T6**	
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	T3[(1)], T5[(1)] High tide: Start time: 10:00 Low tide: Start time: 14:00				Monitoring of Measures to Minimise Impacts to Ma Tso Lung Stream **MS_01 - MS_10**	
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	T3[(1)], T5[(1)] High tide: Start time: 14:00 Low tide: Start time: 10:00					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

(1): Monitoring of Measures to Minimise Disturbance to Water Birds on Sheung Yue River and Long Valley

Item	Activity	Monitoring Stations/Transects
1	Monitoring of Measures to Minimise Disturbance to Water Birds on Sheung Yue River, and Long Valley	T3. Sheung Yue River T5. Long Valley
2	Monitoring of Measures to Minimise Impacts to Ma Tso Lung Stream	MS_01, MS_02, MS_03, MS_04, MS_05, MS_06, MS_07, MS_08, MS_09, MS_10
3	Monitoring of Measures to Minimise Impacts on Ecological Sensitive Habitats from Disturbance and Pollution	T1. Ma Tso Lung riparian zone and associated wetland habitats
		T1. Green belt areas E1-8,D1-8 and G1-3 in KTN NDA
		T1. AGR one C2-4 and C2-2 in KTN NDA
		T1. Areas north of Ng Tung River
		T6. Areas in the western part of KTN

APPENDIX E
AIR QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location KTN-DMS4 - Temporary Structure near Fanling Highway (near Pak Shek Au)			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Jun-20	13:00	Cloudy	51.6
4-Jun-20	14:00	Cloudy	45.2
4-Jun-20	15:00	Cloudy	43.5
10-Jun-20	9:00	Sunny	87.1
10-Jun-20	10:00	Sunny	72.8
10-Jun-20	11:00	Sunny	41.3
16-Jun-20	9:00	Sunny	67.4
16-Jun-20	10:00	Sunny	60.1
16-Jun-20	11:00	Sunny	55.1
22-Jun-20	8:45	Sunny	57.1
22-Jun-20	9:45	Sunny	49.1
22-Jun-20	10:45	Sunny	44.9
26-Jun-20	13:00	Sunny	41.1
26-Jun-20	14:00	Sunny	44.0
26-Jun-20	15:00	Sunny	62.4
		Average	54.8
		Maximum	87.1
		Minimum	41.1

Appendix E - 24-hour TSP Monitoring Results

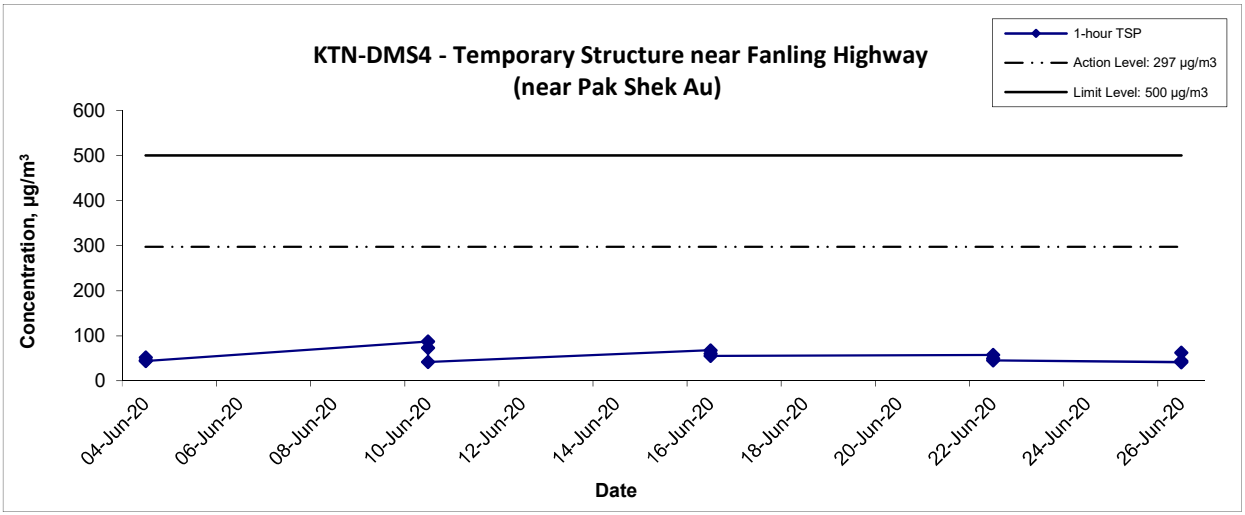
Location KTN-DMS4 - Temporary Structure near Fanling Highway (near Pak Shek Au)			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Jun-20	11:35	Cloudy	71.9
10-Jun-20	9:00	Sunny	78.2
16-Jun-20	9:00	Sunny	142.5
22-Jun-20	8:45	Sunny	73.4
26-Jun-20	8:45	Sunny	69.9
		Minimum	69.9
		Maximum	142.5
		Average	87.2

Appendix E - 24-hour RSP Monitoring Results

Location KTN-DMS4A - Temporary Structure near Pak Shek Au

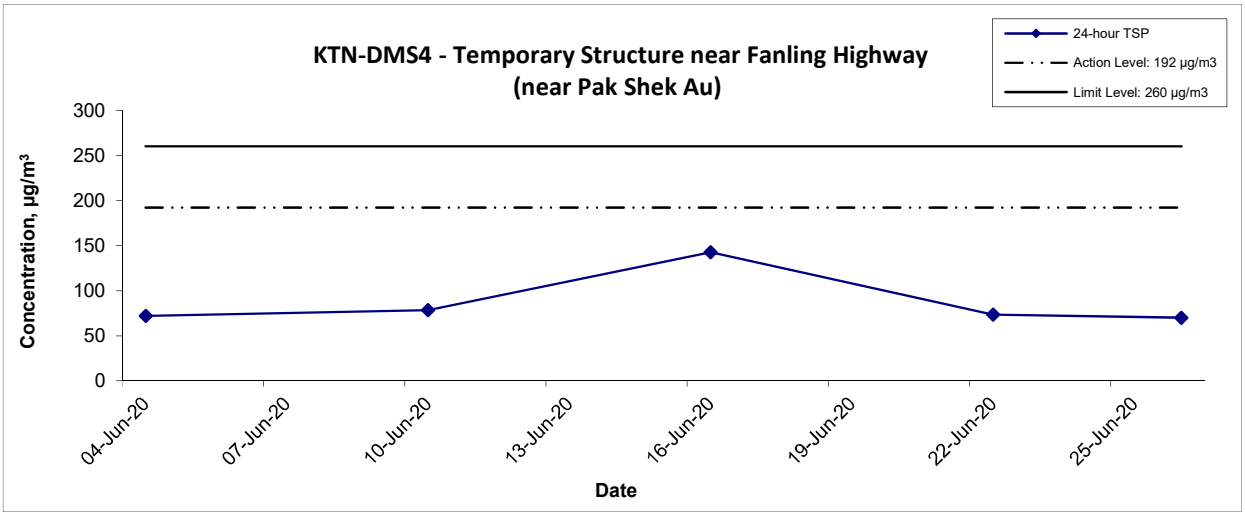
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
			Initial	Final		Initial	Final		Initial	Final			
19-Jun-20	Sunny	300.5	4.3576	4.4118	0.0542	11224.9	11248.9	24.0	1.135	1.138	1.137	1637.1	33.1
24-Jun-20	Sunny	302.6	4.2332	4.2774	0.0442	11248.9	11272.9	24.0	1.146	1.149	1.147	1652.4	26.7
30-Jun-20	Sunny	301.9	4.2532	4.2836	0.0304	11272.9	11296.9	24.0	1.150	1.145	1.147	1651.9	18.4
												Min	18
												Max	33
												Average	26

1-hr TSP Concentration Levels



Title: Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Jun 20	Project No.: WMA20002 Appendix: E	WELLAB 匯力 consulting . testing . research

24-hr TSP Concentration Levels



Title: Graphical Presentation of 24-hour TSP Monitoring Results	Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas	Scale: N.T.S Date: Jun 20	Project No.: WMA20002 Appendix: E

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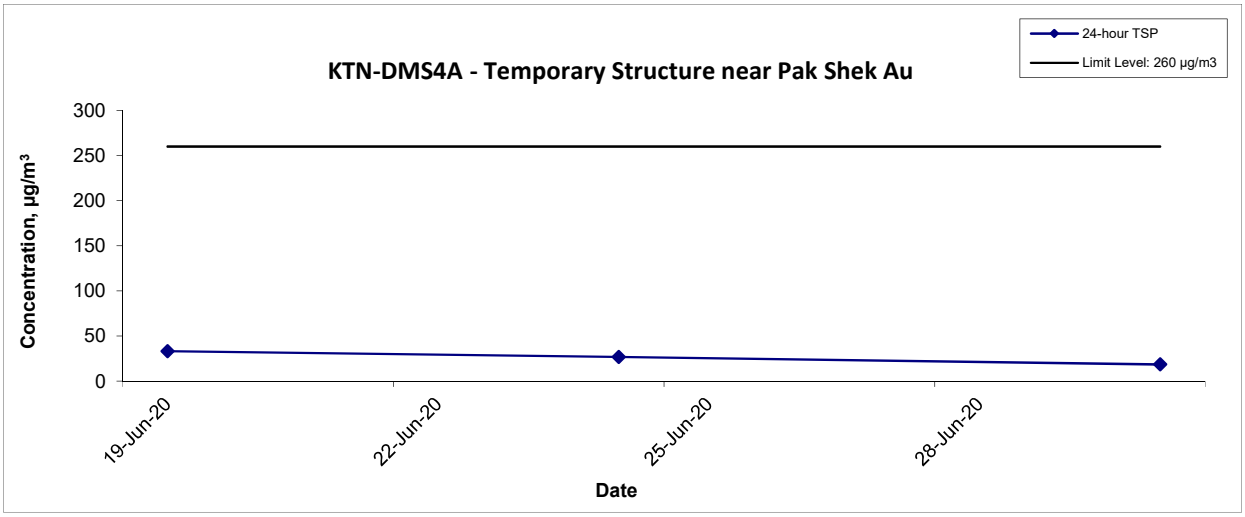
24-hr RSP Concentration Levels



Title: Graphical Presentation of 24-hour RSP Monitoring Results Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas	Scale: N.T.S Date: Jun 20	Project No.: WMA20002 Appendix: E	WELLAB 匯力 consulting . testing . research

Table I - Ambient Arsenic Concentration on 19th June 2020

Parameter	Monitoring Station	Arsenic (Refer to Report No.: 33675)	Standard Volume, Vstd = $Qstd_{avg}$ x Total Time (Refer to the 24-hr RSP Field Operation Data Log Sheet)	Ambient Arsenic Concentration	Exceedance (Refer to Table II for Action and Limit Level)
Ambient Arsenic Concentration, ng/m^3	KTN-DMS4(A) - Temporary Structure at Pak Shek Au	2.2μg	1637.1 m^3	1.34 ng/m^3	No

Table II – Action and Limit Levels for Ambient Arsenic Monitoring

Parameters	Action Level	Limit Level
Ambient Arsenic Concentration	9.36 ng/m^3 80% of 11.7ng/m^3 –the highest ambient concentration predicted during the construction phase with mitigation measures implemented	11.7 ng/m^3 - the highest ambient arsenic concentration predicted during the construction phase with mitigation measures implemented

	Name	Signature	Date
Prepared by:	Meiling Tang	Meiling	30 June 2020
Checked by:	Ivy Tam	Ivy Tam	30 June 2020

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WELLAB LIMITED
Room 1701, Technology Park,
18 On Lai Street, Shatin,
N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

ATTN: **Ms Ivy Tam**

Report No.:	33675
Date of Issue:	2020-06-30
Date Received:	2020-06-20
Date Tested:	2020-06-23
Date Completed:	2020-06-30
Page:	1 of 1

Sample Description : 1 sample as received from customer said to be quartz filter
Laboratory No. : 33675
Project No. : WMA 20002
Project Title: Service Contract No. NDO 04/2019
Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

Tests Requested & Methodology:

Item	Parameters	Ref. Method	Limit of reporting
1	Arsenic	In-house method SOP036 (ICP-MS)	0.18 µg

Results:

Sample ID	200615/002
Sample No.	33675-1
Arsenic (µg)	2.2

Remarks: 1) < = less than
2) Results for the test material reported as received

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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TEST REPORT

APPLICANT: **Wellab (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Report No.:	QC33675
Date of Issue:	2020-06-30
Date Received:	2020-06-20
Date Tested:	2020-06-23
Date Completed:	2020-06-30

ATTN: **Ms Ivy Tam**

QC report

Method Blank

Parameter	Method Blank	Acceptance
Arsenic (μg)	<0.036	<0.036

Filter Lot Blank

Parameter	Filter Lot Blank	Acceptance
Arsenic (μg)	0.07	N/A

Laboratory control spike/ Method QC

Parameter	MQC	Acceptance
Arsenic (%)	113	80-120

Calibration check

Parameter	CCV	Acceptance
Arsenic (%)	105	90-110

Interference check solution A

Parameter	ICS A	Acceptance
Arsenic (μg)	<0.036	<0.036

Interference check solution AB

Parameter	ICS AB	Acceptance
Arsenic (%)	103	70-130

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 33675

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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TEST REPORT

Report No.:	QC33675
Date of Issue:	2020-06-30
Date Received:	2020-06-20
Date Tested:	2020-06-23
Date Completed:	2020-06-30
Page:	2 of 2

QC report

Matrix Spike

Parameter	Matrix Spike	Acceptance
Arsenic (%)	106	75-125

Filter Duplicate

Parameter	Filter Duplicate	Acceptance
Arsenic (%)	11	RPD≤20%

Serial dilution check

Parameter	Serial dilution check	Acceptance
Arsenic (%)	100	90-110

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 33675

**********END OF REPORT**********

Contract No. NDO 04/2019
Advance and First Stage Works of
Kwu Tung North and Fanling North New Development Areas

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24-hr RSP Air Quality Monitoring (Project No.: WMA20002)

Field Operation Data Log Sheet

Station: KTN-DMS4A - Temporary Structure at Pak Shek Au

Sampling Date & Time: From: 19/6/2020 (00 : 00) Collection Date: 20/6/2020

Operators: W.K. Tang

Weather (Sunny) Cloudy Windy Rainy

Wind: Strong Mild (Calm)

High Volume Sampler	Model no.	GMW-PM10
	Blower Motor Serial no.	3225

RSP - Respirable Suspended Particulates Sampler			
Equipment No.	A-11-17	Set Point	8.9
Slope, m	0.0204	Intercept. b	1.1493

	Initial, I	Final, f
Ambient Pressure (mmHg), Pa	758.5	759.2
Ambient Temperature (K), Ta	300.0	301.0
Delta (in. of Water), W	8.9	8.9
$Y = [W \times (Ta+30)/Pa]^{1/2}$	1.968	1.970
Standard flow, Qstd (m^3/min) = (Y - b)*0.0283/m	1.135	1.138
Elapsed Timer Indicator (Hours), T	11224.89	11248.89
Filter Identification no.	200615/002	
Weight of Filter (g)	4.3576	4.4118
Weight of Particulate (g)	0.0542	
Mean Standard Flow, $Qstd_{avg} = (Qstd_i + Qstd_f)/2$	1.137	
Total Time, Total Time = (Tf - Ti) x 60	1440.00	
Standard Volume, Vstd (m^3) = $Qstd_{avg}$ x Total Time	1637.1	
Particulate Concentration ($\mu g/m^3$)	33.1	
Observed Construction Activities — Main Construction Site	N/A	
Observed Construction Activities — Other Construction Site	N/A	

Remarks: N/A

Conducted by: W.K. Tang Signature: Date: 20/6/2020

Checked by: Meiky Tang Signature: Date: 22/6/2020

Service Contract No. NDO 04/2019
Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

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Table I - Ambient Arsenic Concentration on 24th June 2020

Parameter	Monitoring Station	Arsenic (Refer to Report No.: 33701)	Standard Volume, Vstd = $Qstd_{avg}$ x Total Time (Refer to the 24-hr RSP Field Operation Data Log Sheet)	Ambient Arsenic Concentration	Exceedance (Refer to Table II for Action and Limit Level)
Ambient Arsenic Concentration, ng/m^3	KTN-DMS4(A) - Temporary Structure at Pak Shek Au	0.98 μg	1652.4 m^3	0.59 ng/m^3	No

Table II – Action and Limit Levels for Ambient Arsenic Monitoring

Parameters	Action Level	Limit Level
Ambient Arsenic Concentration	9.36 ng/m^3 80% of 11.7ng/m^3 –the highest ambient concentration predicted during the construction phase with mitigation measures implemented	11.7 ng/m^3 - the highest ambient arsenic concentration predicted during the construction phase with mitigation measures implemented

	Name	Signature	Date
Prepared by:	Meiling Tang	Meiling	8 July 2020
Checked by:	Ivy Tam	Ivy Tam	8 July 2020

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WELLAB LIMITED
Room 1701, Technology Park,
18 On Lai Street, Shatin,
N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

ATTN: **Ms Ivy Tam**

Report No.:	33701
Date of Issue:	2020-06-30
Date Received:	2020-06-26
Date Tested:	2020-06-29
Date Completed:	2020-06-30
Page:	1 of 1

Sample Description : 1 sample as received from customer said to be quartz filter
Laboratory No. : 33701
Project No. : WMA 20002
Project Title: Service Contract No. NDO 04/2019
Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

Tests Requested & Methodology:

Item	Parameters	Ref. Method	Limit of reporting
1	Arsenic	In-house method SOP036 (ICP-MS)	0.18 µg

Results:

Sample ID	200615/005
Sample No.	33701-1
Arsenic (µg)	0.98

Remarks: 1) < = less than
2) Results for the test material reported as received

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Report No.:	QC33701
Date of Issue:	2020-06-30
Date Received:	2020-06-26
Date Tested:	2020-06-29
Date Completed:	2020-06-30

ATTN: **Ms Ivy Tam**

Page: 1 of 2

QC report

Method Blank

Parameter	Method Blank	Acceptance
Arsenic (μg)	<0.036	<0.036

Filter Lot Blank

Parameter	Filter Lot Blank	Acceptance
Arsenic (μg)	0.07	N/A

Laboratory control spike/ Method QC

Parameter	MQC	Acceptance
Arsenic (%)	104	80-120

Calibration check

Parameter	CCV	Acceptance
Arsenic (%)	100	90-110

Interference check solution A

Parameter	ICS A	Acceptance
Arsenic (μg)	<0.036	<0.036

Interference check solution AB

Parameter	ICS AB	Acceptance
Arsenic (%)	107	70-130

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 33701

****

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For and On Behalf of **WELLAB Ltd.**

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TEST REPORT

Report No.:	QC33701
Date of Issue:	2020-06-30
Date Received:	2020-06-26
Date Tested:	2020-06-29
Date Completed:	2020-06-30

QC report

Matrix Spike

Parameter	Matrix Spike	Acceptance
Arsenic (%)	104	75-125

Filter Duplicate

Parameter	Filter Duplicate	Acceptance
Arsenic (%)	4	RPD≤20%

Serial dilution check

Parameter	Serial dilution check	Acceptance
Arsenic (%)	97	90-110

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 33701

**********END OF REPORT**********

Contract No. NDO 04/2019
Advance and First Stage Works of
Kwu Tung North and Fanling North New Development Areas

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24-hr RSP Air Quality Monitoring (Project No.: WMA20002)

Field Operation Data Log Sheet

Station: KTN-DMS4A - Temporary Structure at Pak Shek Au

Sampling Date & Time: From: 24/6/2020 (00 : 00) Collection Date: 26/6/2020

Operators: W.K. Tang

Weather (Sunny) Cloudy Windy Rainy

Wind: Strong Mild (Calm)

High Volume Sampler	Model no.	GMW-PM10
	Blower Motor Serial no.	3225

RSP - Respirable Suspended Particulates Sampler			
Equipment No.	A-11-17	Set Point	8.92
Slope, m	0.0204	Intercept. b	1.1493

	Initial, I	Final, f
Ambient Pressure (mmHg), Pa	757.9	757.4
Ambient Temperature (K), Ta	302.2	302.9
Delta (in. of Water), W	8.9	8.9
$Y = [W \times (Ta+30)/Pa]^{1/2}$	1.975	1.978
Standard flow, Qstd (m^3/min) = (Y - b)*0.0283/m	1.146	1.149
Elapsed Timer Indicator (Hours), T	11248.89	11272.89
Filter Identification no.	200615/005	
Weight of Filter (g)	4.2332	4.2774
Weight of Particulate (g)	0.0442	
Mean Standard Flow, $Qstd_{avg} = (Qstd_i + Qstd_f)/2$	1.147	
Total Time, Total Time = (Tf - Ti) x 60	1440.00	
Standard Volume, Vstd (m^3) = $Qstd_{avg}$ x Total Time	1652.4	
Particulate Concentration ($\mu g/m^3$)	26.7	
Observed Construction Activities — Main Construction Site	N/A	
Observed Construction Activities — Other Construction Site	N/A	

Remarks: N/A

Conducted by: W.K. Tang Signature: Date: 26/6/2020

Checked by: Meiby Tang Signature: Meiby Date: 29/6/2020

Table I - Ambient Arsenic Concentration on 30th June 2020

Parameter	Monitoring Station	Arsenic (Refer to Report No.: 33715)	Standard Volume, Vstd = $Qstd_{avg}$ x Total Time (Refer to the 24-hr RSP Field Operation Data Log Sheet)	Ambient Arsenic Concentration	Exceedance (Refer to Table II for Action and Limit Level)
Ambient Arsenic Concentration, ng/m^3	KTN-DMS4(A) - Temporary Structure at Pak Shek Au	2.8 µg	1651.9 m^3	1.70 ng/m^3	No

Table II – Action and Limit Levels for Ambient Arsenic Monitoring

Parameters	Action Level	Limit Level
Ambient Arsenic Concentration	9.36 ng/m^3 80% of 11.7ng/m^3 –the highest ambient concentration predicted during the construction phase with mitigation measures implemented	11.7 ng/m^3 - the highest ambient arsenic concentration predicted during the construction phase with mitigation measures implemented

	Name	Signature	Date
Prepared by:	Meiling Tang	Meiling	10 July 2020
Checked by:	Kenneth Leung	Leung	10 July 2020

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TEST REPORT

APPLICANT: **Wellab (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

ATTN: **Ms Ivy Tam**

Report No.:	33715
Date of Issue:	2020-07-07
Date Received:	2020-07-02
Date Tested:	2020-07-03
Date Completed:	2020-07-07
Page:	1 of 1

Sample Description : 1 sample as received from customer said to be quartz filter
Laboratory No. : 33715
Project No. : WMA 20002
Project Title: Service Contract No. NDO 04/2019
Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

Tests Requested & Methodology:

Item	Parameters	Ref. Method	Limit of reporting
1	Arsenic	In-house method SOP036 (ICP-MS)	0.18 µg

Results:

Sample ID	200615/006
Sample No.	33715-1
Arsenic (µg)	2.8

Remarks: 1) < = less than
2) Results for the test material reported as received

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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TEST REPORT

APPLICANT: **Wellab (EM&A)**
RM 1808, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Report No.:	QC33715
Date of Issue:	2020-07-07
Date Received:	2020-07-02
Date Tested:	2020-07-03
Date Completed:	2020-07-07
Page:	1 of 2

ATTN: **Ms Ivy Tam**

QC report:

Method Blank

Parameter	Method Blank	Acceptance
Arsenic (μg)	<0.036	<0.036

Filter Lot Blank

Parameter	Filter Lot Blank	Acceptance
Arsenic (μg)	0.07	N/A

Laboratory control spike/ Method QC

Parameter	MQC	Acceptance
Arsenic (%)	94	80-120

Calibration check

Parameter	CCV	Acceptance
Arsenic (%)	96	90-110

Interference check solution A

Parameter	ICS A	Acceptance
Arsenic (μg)	<0.036	<0.036

Interference check solution AB

Parameter	ICS AB	Acceptance
Arsenic (%)	104	70-130

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 33715

****

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For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
General Manager

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TEST REPORT

Report No.:	QC33715
Date of Issue:	2020-07-07
Date Received:	2020-07-02
Date Tested:	2020-07-03
Date Completed:	2020-07-07

QC report:

Matrix Spike

Parameter	Matrix Spike	Acceptance
Arsenic (%)	95	75-125

Filter Duplicate

Parameter	Filter Duplicate	Acceptance
Arsenic (%)	9	RPD≤20%

Serial dilution check

Parameter	Serial dilution check	Acceptance
Arsenic (%)	100	90-110

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 33715

**********END OF REPORT**********

Contract No. NDO 04/2019
Advance and First Stage Works of
Kwu Tung North and Fanling North New Development Areas

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24-hr RSP Air Quality Monitoring (Project No.: WMA20002)

Field Operation Data Log Sheet

Station: KTN-DMS4A - Temporary Structure at Pak Shek Au

Sampling Date & Time: From: 30/6/2020 (09 : 00) Collection Date: 2/7/2020

Operators: Ka Chun Weather (Sunny) Cloudy Windy Rainy

Wind: Strong Mild (Calm)

High Volume Sampler	Model no.	GMW-PM10
	Blower Motor Serial no.	3225

RSP - Respirable Suspended Particulates Sampler			
Equipment No.	A-11-17	Set Point	8.92
Slope, m	0.0304	Intercept. b	1.1493

	Initial, I	Final, f
Ambient Pressure (mmHg), Pa	756.4	756.1
Ambient Temperature (K), Ta	302.5	301.2
Delta (in. of Water), W	8.9	8.9
$Y = [W \times (Ta+30)/Pa]^{1/2}$	1.978	1.974
Standard flow, Qstd (m^3/min) = (Y - b)*0.0283/m	1.150	1.145
Elapsed Timer Indicator (Hours), T	11272.91	11296.91
Filter Identification no.	200615/006	
Weight of Filter (g)	4.2532	4.2836
Weight of Particulate (g)	0.0304	
Mean Standard Flow, $Qstd_{avg} = (Qstd_i + Qstd_f)/2$	1.147	
Total Time, Total Time = (Tf - Ti) x 60	1440.00	
Standard Volume, Vstd (m^3) = $Qstd_{avg}$ x Total Time	1651.9	
Particulate Concentration ($\mu g/m^3$)	18.4	
Observed Construction Activities — Main Construction Site	NB	
Observed Construction Activities — Other Construction Site	NA	

Remarks: NA

Conducted by: W.K. Tang Signature: Kwan Date: 2/7/2020

Checked by: Me.Ly Tang Signature: Me.Ly Date: 3/7/2020

Project No. WMA20002

APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - Noise Monitoring Results

Location CP-FLN-NMS1 - Belair Monte (Existing)							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jun-20	Sunny	13:30	69.2	71.4	66.3	67.5	69.9
		13:35	68.5	70.7	64.9		
		13:40	66.8	69.6	62.6		
		13:45	67.1	71.1	60.0		
		13:50	65.8	68.9	59.7		
		13:55	66.3	69.4	60.2		
10-Jun-20	Sunny	16:30	69.2	70.0	57.0	66.2	
		16:35	64.2	67.8	54.7		
		16:40	66.9	71.3	54.8		
		16:45	63.8	67.3	56.4		
		16:50	65.6	69.6	57.9		
		16:55	64.7	68.2	55.6		
16-Jun-20	Sunny	13:03	65.1	69.3	57.0	67.8	
		13:08	66.3	68.6	61.8		
		13:13	69.6	72.0	64.5		
		13:18	69.3	71.8	64.3		
		13:23	65.5	68.3	59.0		
		13:28	68.6	69.0	59.9		
22-Jun-20	Sunny	09:30	67.7	71.6	54.8	66.5	
		09:35	65.1	70.4	55.2		
		09:40	66.5	70.4	56.7		
		09:45	66.6	70.0	55.6		
		09:50	66.0	69.3	52.8		
		09:55	66.7	69.0	54.2		

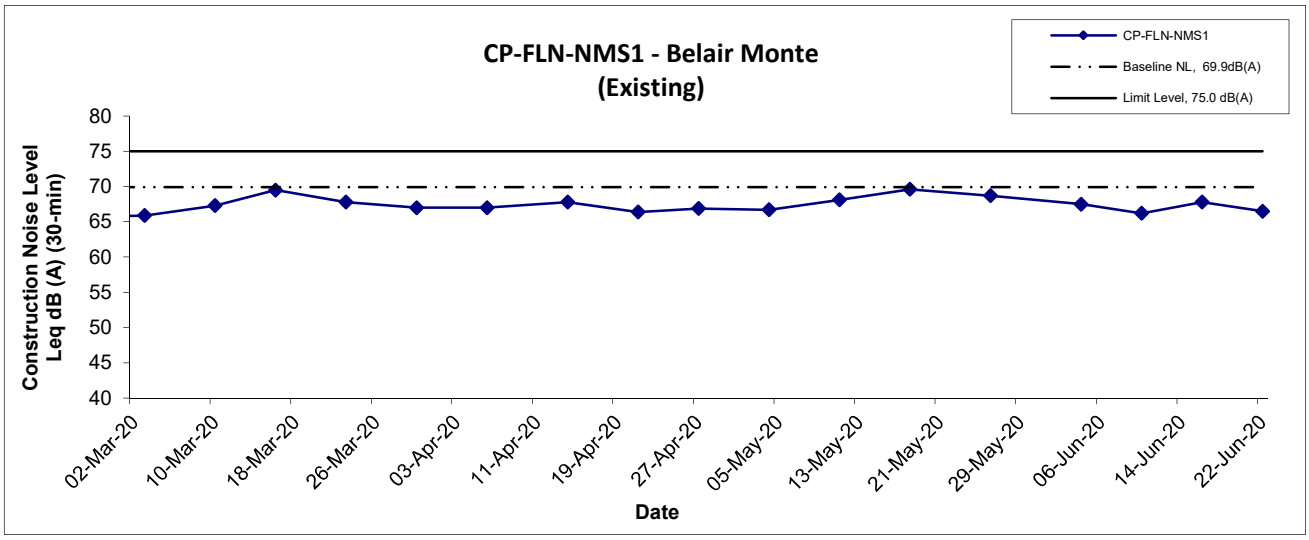
Location CP-KTN-NMS2 - Residential Buildings at Ma Tso Lung (Existing)							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jun-20	Sunny	10:35	55.8	58.7	44.2	54.4	58.6
		10:40	54.8	57.1	42.4		
		10:45	55.6	58.7	44.1		
		10:50	48.3	50.4	42.2		
		10:55	52.3	55.0	47.1		
		11:00	55.8	58.9	45.6		
10-Jun-20	Sunny	10:45	54.0	58.7	47.3	54.0	
		10:50	52.3	54.2	46.1		
		10:55	58.3	61.7	47.7		
		11:00	52.8	53.9	50.1		
		11:05	50.3	53.7	45.1		
		11:10	50.6	52.9	44.2		
16-Jun-20	Sunny	10:55	57.4	59.2	54.9	55.5	
		11:00	54.6	56.8	53.6		
		11:05	54.3	57.0	54.6		
		11:10	54.0	56.8	54.4		
		11:15	56.5	59.7	55.6		
		11:20	55.4	58.7	56.2		
22-Jun-20	Sunny	13:00	55.0	59.9	44.1	51.5	
		13:05	48.7	49.4	42.7		
		13:10	48.7	53.6	41.4		
		13:15	49.3	53.2	42.0		
		13:20	50.8	53.9	44.8		
		13:25	52.7	54.4	45.4		

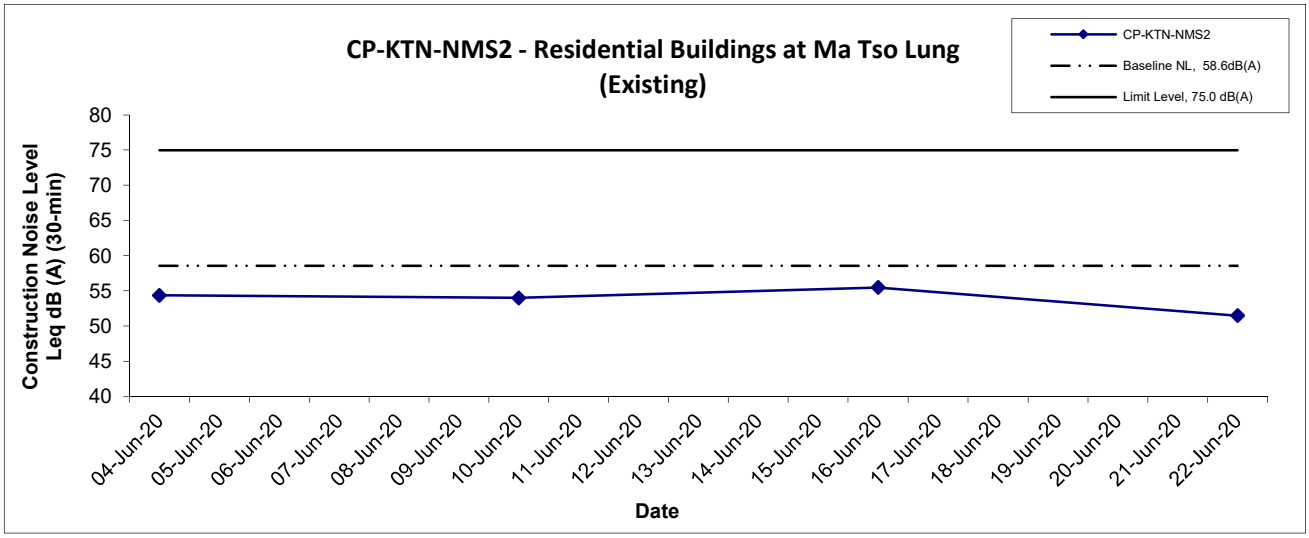
Appendix F - Noise Monitoring Results

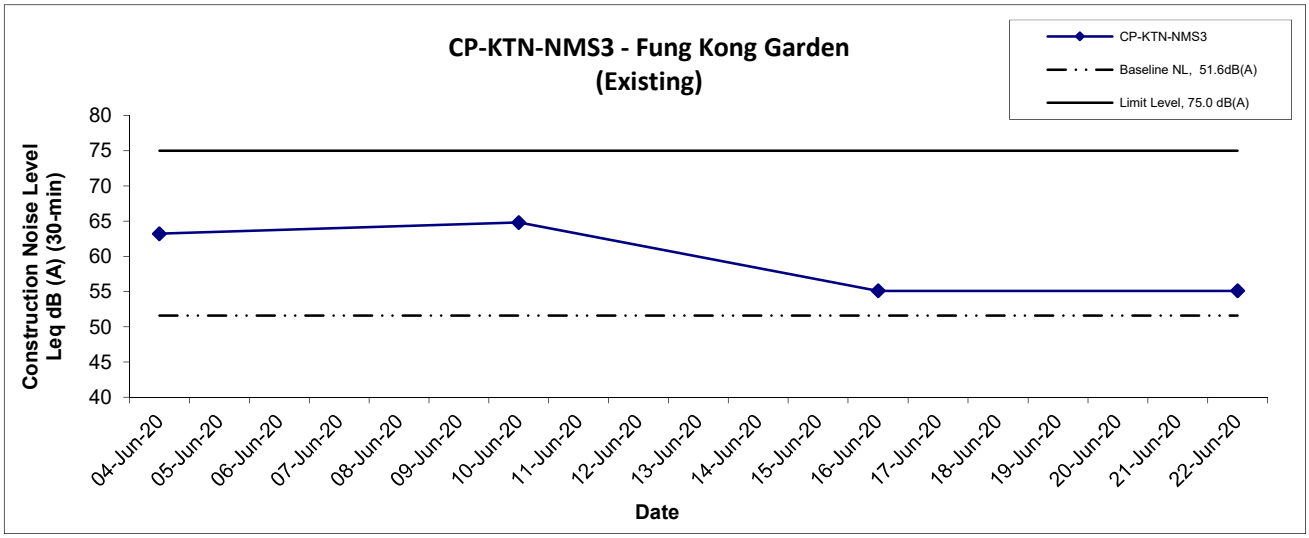
Location CP-KTN-NMS3 - Fung Kong Garden (Existing)							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jun-20	Cloudy	11:30	63.8	68.4	50.8	63.2	51.6
		11:35	65.6	71.6	55.5		
		11:40	56.0	57.4	54.4		
		11:45	55.0	56.1	54.0		
		11:50	66.6	72.1	54.3		
		11:55	61.2	65.1	53.7		
10-Jun-20	Sunny	13:30	64.6	67.6	52.7	64.8	
		13:35	64.1	67.1	59.8		
		13:40	61.6	62.7	55.2		
		13:45	65.3	66.7	52.1		
		13:50	65.9	66.8	52.6		
		13:55	65.9	66.9	53.7		
16-Jun-20	Sunny	11:30	53.8	56.3	52.4	55.1	
		11:35	54.6	57.0	53.8		
		11:40	54.3	57.0	53.6		
		11:45	55.5	57.9	53.8		
		11:50	56.8	59.9	55.6		
		11:55	54.9	57.2	53.6		
22-Jun-20	Sunny	13:45	55.5	57.9	53.8	55.1	
		13:50	54.9	57.2	53.6		
		13:55	56.8	59.9	55.6		
		14:00	53.8	56.3	52.4		
		14:05	54.3	57.0	53.6		
		14:10	54.6	57.0	53.8		

Location CP-KTN-NMS5 - N/A							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Jun-20	Sunny	14:30	72.6	73.6	71.3	67.8	57.2
		14:35	68.6	70.5	66.3		
		14:40	65.0	67.6	61.0		
		14:45	63.1	64.4	61.4		
		14:50	64.3	68.2	54.8		
		14:55	64.4	70.0	54.4		
10-Jun-20	Sunny	09:20	62.5	67.5	52.6	65.2	
		09:25	67.5	70.6	65.4		
		09:30	65.1	67.3	61.3		
		09:35	64.2	71.5	56.3		
		09:40	64.9	68.2	54.4		
		09:45	65.3	67.2	58.5		
16-Jun-20	Sunny	10:10	65.4	67.8	62.8	62.7	
		10:15	63.4	65.8	61.8		
		10:20	62.7	65.6	59.8		
		10:25	61.6	66.7	61.4		
		10:30	60.9	66.4	59.7		
		10:35	59.4	65.8	60.7		
22-Jun-20	Sunny	10:45	55.0	55.6	48.2	55.4	
		10:50	54.7	56.1	48.7		
		10:55	56.3	57.8	47.1		
		11:00	54.7	56.6	48.2		
		11:05	53.3	54.7	51.1		
		11:10	57.3	58.1	52.9		

Noise Levels







Title: Graphical Presentation of Noise Monitoring Results	Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas	Scale: N.T.S Date: Jun 20	Project No.: WMA20002 Appendix: F

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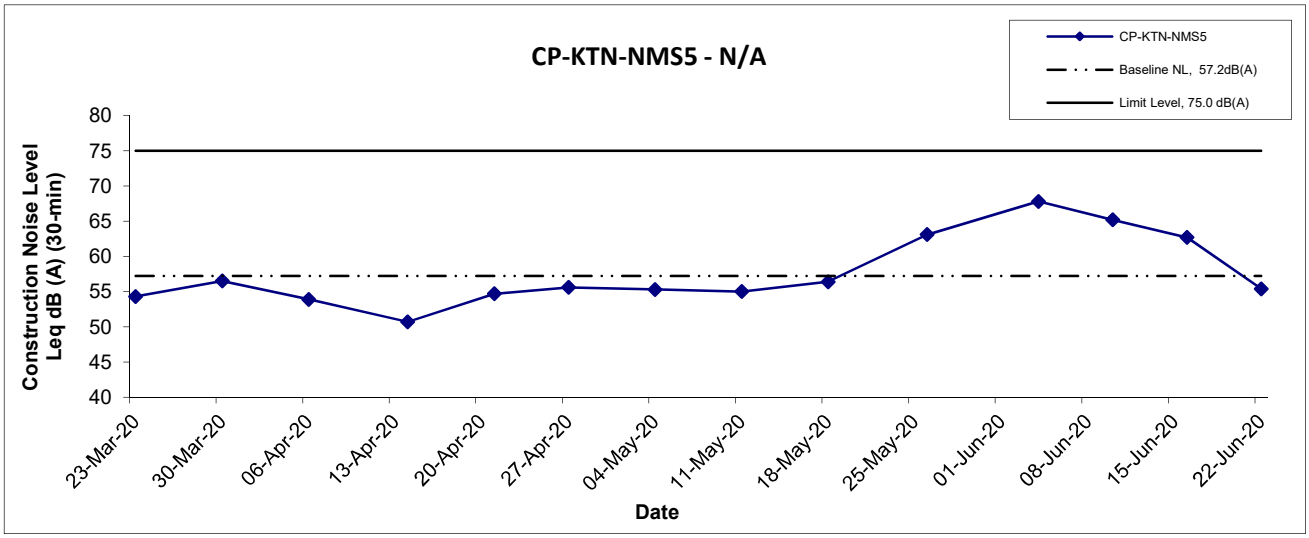
Noise Levels



Title: Graphical Presentation of Noise Monitoring Results Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas	Scale: N.T.S Date: Jun 20	Project No.: WMA20002 Appendix: F	WELLAB 匯力 consulting . testing . research

APPENDIX G
LANDFILL GAS MONITORING RESULTS

Contract No. ND/2019/01

Development of Kwu Tung North & Fanling North New Development Area, Phase 1: Kwu Tung North New Development Area, Phase 1: Site formation & Infrastucture works

堆填區附近區域(Consultation Zone)每月氣體監察記錄

			氧氣 O2	甲烷 CH4	二氧化碳 CO_2
日期及時間	位置	氣體及安全標準	>19%	<10% LEL	<0.5%
02-06-2020 8:35	CZ PT 1		20.9	0	0
02-06-2020 8:45	CZ container 1		20.9	0	0

Prepared by : Matthew Cheng (Safety Officer) Date : 30-06-2020

APPENDIX H
WEATHER CONDITION

APPENDIX H –
GENERAL WEATHER CONDITIONS DURING THE MONITORING PERIOD

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 Jun 2020	29.9	78	Trace
2 Jun 2020	29	82	6.4
3 Jun 2020	29.8	76	Trace
4 Jun 2020	30.1	75	Trace
5 Jun 2020	30	78	2.6
6 Jun 2020	26.8	89	183.8
7 Jun 2020	27.7	91	107.4
8 Jun 2020	28.6	88	40.9
9 Jun 2020	29.4	83	1.3
10 Jun 2020	29.8	78	0.2
11 Jun 2020	30.2	76	Trace
12 Jun 2020	30.4	75	-
13 Jun 2020	29.8	81	11.7
14 Jun 2020	28	84	29.3
15 Jun 2020	29.3	79	0.2

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
16 Jun 2020	28.6	81	9.4
17 Jun 2020	29.1	77	0.9
18 Jun 2020	29.5	77	0.1
19 Jun 2020	29.9	74	Trace
20 Jun 2020	30	74	-
21 Jun 2020	30.2	76	Trace
22 Jun 2020	30.4	77	Trace
23 Jun 2020	30.3	77	-
24 Jun 2020	30.4	77	-
25 Jun 2020	30.2	76	0.1
26 Jun 2020	30.3	77	1.3
27 Jun 2020	30.2	77	1.2
28 Jun 2020	30.4	75	Trace
29 Jun 2020	30.5	74	0.4
30 Jun 2020	30.7	74	Trace

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

APPENDIX I
EVENT ACTION PLANS

Appendix I:

Table I-1: Event / Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC,ER and Contractor; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Notify Contractor.	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Rectify any unacceptable practice and implement remedial measures; and 3. Amend working methods agreed with ER if appropriate.
2. Exceedance for two or more consecutive samples	Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC,ER and Contractor; 3. Advise the ER and Contractor on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings;	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 3. Implement the

	5. Increase monitoring frequency to daily; 6. Discuss with IEC, ER and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; and 8. If exceedance stops, cease additional monitoring.	measures; and 5. Supervise Implementation of remedial measures.		agreed proposals; and 4. Amend proposal if appropriate.
LIMIT LEVEL				
1.Exceedance for one sample	Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor, IEC and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2.Exceedance for two or more	1. Notify IEC, ER, Contractor and EPD;	1. Check monitoring data submitted by	1. Confirm receipt of notification of failure	1. Identify source, investigate the causes of exceedance and

consecutive samples	2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, Contractorand ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedancestops, cease additional monitoring.	ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;and 5. Supervise the implementation of remedial measures.	in writing; 2. Notify Contractor; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented;and 5. If exceedancecontinues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedanceis abated.	propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedanceis abated.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

Table I-2: Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify IEC, ER and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC,	1. Review the monitoring data submitted by the ET; 2. Review the construction methods and proposed remedial	1. Confirm receipt of notification of failure in writing; 2. Notify the Contractor; 3. Require Contractor to	1. Submit noise mitigation proposals to ER and copy to the IEC and ET; 2. Implement noise mitigation

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	ER and Contractor; 4. Discuss jointly with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient; 3. Supervise the implementation of remedial measures.	propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER and Contractor; 3. Repeat measurements to confirm findings; 4. Increase the monitoring frequency; 5. Carry out analysis of Contractor's working procedures with the ER and Contractor to determine possible mitigation to be implemented; 6. Inform IEC, ER and Contractor the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst the ER, ET, and Contractor on the potential remedial actions; 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor; 3. Require the Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to the ER and copy to the ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problems still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

Table I-3: Actions in the event of LFG being detected

Parameter	Monitoring Results	Actions
O_2	<19% v/v	Increase underground ventilation to restore O_2 to >19% v/v
	<18% v/v	Stop works, evacuate all personnel, prohibit entry, and increase ventilation to restore O_2 level to >19%
CH_4	>10% LEL	Prohibit hot works, increase ventilation to restore CH4 to <10% LEL
	>20% LEL	Stop works, evacuate all personnel, increase ventilation further to restore CH_4 to <10% LEL
CO_2	>0.5% v/v	Increase ventilation to restore C O_2 to <0.5% v/v
	>1.5% v/v	Stop works, evacuate all personnel, increase ventilation further to restore CO_2 to <0.5%

Note: Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or another appropriately qualified person. As a minimum these should encompass those actions specified in the above table.

Table I-4: Event / Action Plan for Ambient Arsenic Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC,ER and Contractor; 3. Repeat measurement to confirm finding; and 4. Increase monitoring	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate

	frequency to daily.	proposed remedial measures.		
2. Exceedance for two or more consecutive samples	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC,ER and Contractor; 3. Advise the ER and Contractor on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC, ER and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 2. Implement the agreed proposals; and 3. Amend proposal if appropriate.
LIMIT LEVEL				
1.Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor, IEC and EPD; 3. Repeat measurement to	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance;

	confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	remedial measures; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	implemented.	3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2.Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

			the exceedanceis abated.	

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

APPENDIX J
SUMMARY OF EXCEEDANCE

Appendix J: Exceedance Report

(A) Exceedance Report for Air Quality

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Air Quality	1-hr TSP	0	0	0	0
	24-hr TSP	0	0	0	0
	24-hr RSP (Ambient Arsenic)	0	0	0	0

(B) Exceedance Report for Construction Noise

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Noise	$L_{eq(30\ min.)}$ dB(A)	0	0	0	0

(C) Exceedance Report for Landfill Gas

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Landfill Gas	O_2 (% v/v) CH_4 (% LEL) CO_2 (%v/v)	0	0	0	0

APPENDIX K
SITE AUDIT SUMMARY

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/01 – Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Work

Weekly Site Inspection Record Summary

Checklist Reference Number	200602
Date	2 June 2020 (Tuesday)
Time	9:30-10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
200602-O01	• Vehicles are not cleaned of earth, mud and debris before leaving the site.	D11
200602-R03	• Water should be regularly cleared.	D12iv
	E. Waste / Chemical Management	
200602-O02	• Chemical is leaked out from the container.	E13
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landfill Gas Hazard	
	• No environmental deficiency was identified during site inspection.	
	H. Cultural Heritage	
	• No environmental deficiency was identified during site inspection.	
	I. Landscape and Visual	
200602-R04	• Screen hoarding should be properly maintained and provided.	I2
	J. Ecology	
	• No environmental deficiency was identified during site inspection.	
	K. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	L. Others	
	• Follow-up on previous audit section (Ref. No.:200526), item 200526-R02 and 200526-R04 were remarked as 200602-R03 and 200602-R04 respectively. Follow-up action is needed to be reviewed.	

	Name	Signature	Date
Recorded by	Kimmy Lui		2 June 2020
Checked by	Dr. Priscilla Choy		8 June 2020

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/01 – Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Work

Weekly Site Inspection Record Summary

Checklist Reference Number	200611
Date	11 June 2020 (Thursday)
Time	9:30-10:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landfill Gas Hazard	
	• No environmental deficiency was identified during site inspection.	
	H. Cultural Heritage	
	• No environmental deficiency was identified during site inspection.	
	I. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	J. Ecology	
	• No environmental deficiency was identified during site inspection.	
	K. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	L. Others	
	• Follow-up on previous audit section (Ref. No.:200602), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kimmy Lui		11 June 2020
Checked by	Dr. Priscilla Choy		15 June 2020

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/01 – Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Work

Weekly Site Inspection Record Summary

Checklist Reference Number	200616
Date	16 June 2020 (Tuesday)
Time	9:35-10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200616-R01	• Chemical wate/oil should be stored properly in designated area.	E2
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landfill Gas Hazard	
	• No environmental deficiency was identified during site inspection.	
	H. Cultural Heritage	
	• No environmental deficiency was identified during site inspection.	
	I. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	J. Ecology	
	• No environmental deficiency was identified during site inspection.	
	K. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	L. Others	
	• Follow-up on previous audit section (Ref. No.:200611), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Kimmy Lui		16 June 2020
Checked by	Dr. Priscilla Choy		16 June 2020

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/01 – Kwu Tung North New Development Area, Phase 1: Site Formation and Infrastructure Work

Weekly Site Inspection Record Summary

Checklist Reference Number	200623
Date	23 June 2020 (Tuesday)
Time	9:35-10:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
200623-R01	• The exposed worksite and haul road should be watered regularly.	B1
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200623-R02	• Chemical waste/oil should be disposed of properly.	E2ii
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landfill Gas Hazard	
	• No environmental deficiency was identified during site inspection.	
	H. Cultural Heritage	
	• No environmental deficiency was identified during site inspection.	
	I. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	J. Ecology	
	• No environmental deficiency was identified during site inspection.	
	K. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	L. Others	
	• Follow-up on previous audit section (Ref. No.:200616), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Ella Ho		23 June 2020
Checked by	Dr. Priscilla Choy		23 June 2020

Weekly Site Inspection Record Summary

Checklist Reference Number	200630
Date	30 June 2020 (Tuesday)
Time	9:30-10:50

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
200630-R01	• The exposed worksite and haul road should be watered regularly.	B1
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200630-R02	• Chemical oil should be stored properly in designated area.	E2i
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landfill Gas Hazard	
	• No environmental deficiency was identified during site inspection.	
	H. Cultural Heritage	
	• No environmental deficiency was identified during site inspection.	
	I. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	J. Ecology	
	• No environmental deficiency was identified during site inspection.	
	K. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	L. Others	
	• Follow-up on previous audit section (Ref. No.:200623), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kimmy Lui		30 June 2020
Checked by	Dr. Priscilla Choy		30 June 2020

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/06 – Fanling North New Development Area, Phase 1: Reprovisioning of North District Temporary Wholesale Market for Agricultural Products

Weekly Site Inspection Record Summary

Checklist Reference Number	200604
Date	4 June 2020 (Thusday)
Time	10:00-10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	G. Ecology	
	• No environmental deficiency was identified during site inspection.	
	H. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	I. Others	
	• Follow-up on previous audit section (Ref. No.: 200528), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kimmy Lui		4 June 2020
Checked by	Dr. Priscilla Choy		8 June 2020

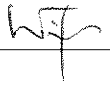
Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/06 – Fanling North New Development Area, Phase 1: Reprovisioning of North District Temporary Wholesale Market for Agricultural Products

Weekly Site Inspection Record Summary

Checklist Reference Number	200612
Date	12 June 2020 (Friday)
Time	14:00-14:35

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	G. Ecology	
	• No environmental deficiency was identified during site inspection.	
	H. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	I. Others	
	• Follow-up on previous audit section (Ref. No.: 200604), no environmental deficiency was identified during site inspection	

	Name	Signature	Date
Recorded by	Kimmy Lui		12 June 2020
Checked by	Dr. Priscilla Choy		15 June 2020

Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/06 – Fanling North New Development Area, Phase 1: Reprovisioning of North District Temporary Wholesale Market for Agricultural Products

Weekly Site Inspection Record Summary

Checklist Reference Number	200618
Date	18 June 2020 (Thursday)
Time	10:00-10:35

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200618-R01	• Chemical waste, waste oil containers should be disposed of properly.	E2ii
	F. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	G. Ecology	
	• No environmental deficiency was identified during site inspection.	
	H. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	I. Others	
	• Follow-up on previous audit section (Ref. No.: 200612), no environmental deficiency was identified during site inspection	

	Name	Signature	Date
Recorded by	Kimmy Lui		18 June 2020
Checked by	Dr. Priscilla Choy		18 June 2020

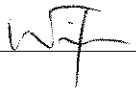
Service Contract No. NDO 04/2019 Environmental Team for Environmental Monitoring and Audit Works in Construction Phase for the First Phase Development of Kwu Tung North and Fanling North New Development Areas

ND/2019/06 – Fanling North New Development Area, Phase 1: Reprovisioning of North District Temporary Wholesale Market for Agricultural Products

Weekly Site Inspection Record Summary

Checklist Reference Number	200626
Date	26 June 2020 (Friday)
Time	14:00-14:40

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
200626-R02	• Debris and rubbish in U-channel should be cleared and disposed of properly.	D17
	E. Waste / Chemical Management	
200626-R01	• Chemical waste, waste oil containers should be stored properly in designated place.	E2i
	F. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	G. Ecology	
	• No environmental deficiency was identified during site inspection.	
	H. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	I. Others	
	• Follow-up on previous audit section (Ref. No.: 200618), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kimmy Lui		29 June 2020
Checked by	Dr. Priscilla Choy		29 June 2020

APPENDIX L
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures (What Measures)	Objectives of the recommended Measures & Main Concerns to address (What Requirements)	Who to implement the measures? (Who)	Location of the measures (Where)	When to Implement the measures? (When)	Implementation Status
Construction Dust Impact							
S3.8	D1	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road is proposed to achieve dust removal efficiency of 92.1%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 to achieve the respective dust removal efficiencies	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	*
S3.8	D2	The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	*
S3.8	D3	Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction Phase • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction phase	* * ^ *

		pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;					^
		• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period.					^
		• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;					^
		• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;					^
		• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;					^
		• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;					^
		• Any skip hoist for material transport should be totally enclosed by impervious sheeting;					N/A
		• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;					N/A
		• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;					N/A
		• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally					N/A

		enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					N/A
S3.8	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction phase	^
Noise Impact (Construction Phase)							
S4.9	N1	Implement the following good site management practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All construction sites	Construction phase	^ ^ ^ ^ ^
S4.9	N2	Install temporary site hoarding (approx 2.4m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial	Contractor	All construction sites where practicable	Construction phase	^

			screening.				
S4.9	N3	Install movable noise barriers and full enclosure and acoustic mat, screen the noisy plants including air compressor and generator.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction phase	^
S4.9	N4	Use of “Quiet” Plant and Working Methods	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction phase	N/A
S4.9	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction phase	^
S4.9	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring stations	Construction phase	^
Water Quality Impact (Construction Phase)							
S5.7	W1	<u>Construction Runoff and Site Drainage</u> In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures should be provided and the Storm Water Pollution Control Plan is given below. where appropriate, should include the following: **Stormwater Pollution Control Plan** • At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal	Control construction runoff	Contractor	All construction sites	Construction phase	*

		facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. • Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipments in order to avoid or minimize polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/sediment trap. The silt/sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction. • Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other					^ ^ ^ N/A

		means. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • All open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately					^ ^ * ^ ^ ^

		designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • Regular environmental audit on the construction site should be carried out in order to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the meander, wetlands and fish ponds.					N/A ^ ^ ^
S5.7	W2	*Stream Diversion* • In order to prevent sediment transport during riverbank works, deployment of silt curtain should be implemented,	Minimize water quality impact due to stream diversion	Contractor	All streams that required diversion	Construction phase	N/A

		especially when construction works encroach or occur in close distance to water body. It is recommended to carry out all the riverbank works and diversion works within a cofferdam or diaphragm wall and the work areas on riverbed should be kept in dry condition.					
S5.7	W3	*Groundwater from Contaminated Area* • For other inaccessible sites, site investigation is required when they are resumed and handed over to the Project Proponent to identify if contaminated groundwater is found. • If the investigation results indicated that the groundwater to be generated from construction works would be contaminated, the contaminated groundwater should be either discharged into recharged wells, or properly treated in compliance with the requirements of Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters. • If recharged well method were used, the groundwater quality in the recharged well should not be affected by recharging operation, i.e. the pollution levels of the recharged groundwater should not be higher than that in the recharging wells. • If treatment and discharge method were used, the design of wastewater treatment facilities, such as active carbon and petrol interceptor, should be submitted to the EPD and a discharge license should be obtained under the	Minimize water quality impact due to potential groundwater from contaminated area	Contractor	All identified groundwater-contaminated areas	Construction phase	N/A N/A N/A N/A

		WPCO through the Regional Offices of EPD.					
S5.7	W4	*Sewage from Workforce* Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures.	Handling of site sewage	Contractor	All construction sites	Construction Phase	^
Waste Management (Construction Waste)							
S7.6	WM1	*Waste Reduction Measures* Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: • segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;	Reduce waste generation	Contractor	All construction sites where practicable	Prior to the commencement of construction	^

		• proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc); • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.					^ ^ N/A ^
S7.6	WM2	Prepare Waste Management Plan and submit to the Engineer for approval	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	N/A
S7.6	WM3	<u>*Good Site Practice*</u> The following good site practices are recommended throughout the construction activities: • Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • Provision of sufficient waste disposal points and regular	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^ ^ ^

		collection for disposal; • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;					^ ^
S7.6	WM4	*Storage of Waste* The following recommendation should be implemented to minimize the impacts: • Waste such as soil should be handled and stored well to ensure secure containment; • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; • Different locations should be designated to stockpile each material to enhance reuse;	Minimize waste impacts from storage	Contractor	All construction sites	Construction phase	^ ^ ^
S7.6	WM5	*Collection and Transportation of Waste* The following recommendation should be implemented to minimize the impacts: • Remove waste in timely manner; • Employ the trucks with cover or enclosed containers for waste transportation;	Minimize waste impact from storage	Contractor	All construction sites	Construction phase	^ ^ ^

		• Obtain relevant waste disposal permits from the appropriate authorities; and • Disposal of waste should be done at licensed waste disposal facilities.					^
S7.6	WM6	*Excavated and C&D Material* Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at Public Fill Reception Facilities areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: • Maintain temporary stockpiles and reuse excavated fill material for backfilling; • Carry out on-site sorting; • Deliver surplus artificial hard materials to Tuen Mun Area 38 recycling plant or its successor for recycling into subsequent useful products; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; and • Implement a recording system for the amount of waste generated, recycled and disposed of for checking; Standard formwork should be used as far as practicable in order to minimize the arising of C&D waste. The use of more durable formwork (e.g. metal hoarding) or plastic facing should be encouraged in order to enhance the possibility of recycling. The purchasing of construction materials should be carefully planned in order to avoid over ordering and wastage.	Minimize waste impacts from excavated and C&D material	Contractor	All construction sites	Construction phase	^ ^ N/A N/A N/A ^ N/A

		Wheel wash facilities have to be provided at the site entrance before the trucks leaving the works area.					^
S7.6	WM7	*Contaminated Soil* As a precaution, it is recommended that standard good site practice should be implemented during the construction phase to minimize any potential exposure to contaminated soils or groundwater. The details of mitigation measures to minimize the potential environmental implications arising from the handling of contaminated materials refer to Land Contamination Section.	Remediate contaminated soil	Contractor	All construction sites where applicable	Construction phase	^
S7.6	WM8	*Chemical Waste* If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste Contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	All construction sites	Construction phase	*
S7.6	WM9	*General Waste* • General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. • Preferably enclosed and covered areas should be	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	N/A ^

		provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. • A reputable waste collector should be employed to remove general refuse on a daily basis.					N/A
S7.6	WM10	*Sewage* • The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. • Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts.	Minimize production of sewage impacts	Contractor	All construction sites	Construction phase	N/A N/A
S7.6	WM11	Topsoil reuse – Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. This is considered a general measure for good site practice.	Good site practice	Contractor/ Project Proponent	Onsite	Construction phase	N/A
Land Contamination							
S 8.4	LC2	Detailed site investigation (SI) for all inaccessible potentially contaminated sites in 2 NDAs	Verify the land contamination potential before the commencement of construction	Project Proponent Detailed Design Consultant Contractor	All inaccessible potentially contaminated sites in 2 NDAs as listed in the CAP	After the land is resumed and handed over to the Project Proponent	*

S 8.5	LC3	Preparation and submission of supplementary Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) for all inaccessible potentially contaminated sites in 2 NDAs to EPD for agreement if land contamination is confirmed	Present the findings of SI and evaluate the potential environmental and human health impacts Recommend appropriate mitigation measures for the contaminated soil and groundwater identified in the assessment if remediation is required	Project Proponent/ Detailed Design Consultant	All inaccessible potentially contaminated sites in 2 NDAs as listed in the CAP	Prior to the commencement of any proposed construction works if land contamination is confirmed and remediation is required	*
S 8.5	LC4	Preparation and submission of Remediation Report to EPD for agreement	Demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed supplementary CAR and RAP	Project Proponent/ Detailed Design Consultant	All inaccessible potentially contaminated sites in 2 NDAs as listed in the CAP	Prior to the commencement of any proposed construction works if land contamination is confirmed and remediation is required	N/A
S 8.6	LC5	Re-appraisal of surveyed sites (if they become part of the land requirement for NDA development) that were not identified as potentially contaminated or could not be accessed for visual inspection during the site survey	Verify the land contamination potential due to potential change of land uses before the commencement of construction	Project Proponent/ Detailed Design Consultant	All surveyed sites (if they become part of the land requirement for NDA development (that were not	After the land is resumed and handed over to the Project Proponent.	N/A

					identified as potentially contaminated or could not be accessed for visual inspection during the site survey as listed in the CAP		
S 8.7.2 and Appendix 8.4	LC6	Treatment of arsenic-containing soil "Solidification/Stabilization" (S/S) treatment method was proposed for the treatment of arsenic-containing soil. Toxicity Characteristic Leaching Procedure (TCLP) test should be undertaken after S/S in order to ensure that the contaminant will not leach to the environment. Unconfined Compressive Strength (UCS) test should be conducted, and not less than 1MPa should be met prior to the backfilling or stockpiled for future reuse within the study area.	To treat the arsenic containing soil	Government Developer/ Contractor	KTN NDA	Prior to commencement of construction works within KTN NDA	N/A
S 8.7.2 and Appendix 8.4	LC7	Excavation and Transportation • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table; • Excavation should be carried out during dry season as far as possible to minimize runoff from excavated soils; • Stockpiling site(s) should be lined with impermeable sheeting	To minimize the potential environmental impacts arising from the handling of contaminated materials	Contractor	KTN NDA	Prior to commencement of construction works within KTN NDA	N/A

		and bunded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of soil to minimize runoff; • Supply of suitable backfill material after excavation, if require; Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet season; • Speed control for the trucks carrying excavated materials should be enforced; and Vehicle wheel washing facilities at the site's exit points should be established and used.					
S 8.7.2 and Appendix 8.4	LC8	Solidification/Stabilization • The loading, unloading, handling, transfer or storage of cement should be carried out in an enclosed system; • Mixing process and other associated material handling activities should be properly scheduled to minimize potential noise impact and dust emission; • The mixing facilities should be sited as far apart as practicable from the nearby noise sensitive receivers; • Mixing of soil and cement / water / other additive(s) should be undertaken at a solidification plant to minimize the potential for leaching; • Runoff from the solidification / stabilization area should be prevented by constructing a concrete bund along the perimeter of the solidification / stabilization area;	To minimize the potential environmental impacts arising from the handling of contaminated materials	Contractor	KTN NDA	The course of treatment	N/A

		• If stockpile of treated soil is required, the stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or site run-off during rainy season; and If necessary, there should be clear and separated areas for stockpiling of untreated and treated materials.					
S 8.7.2 and Appendix 8.4	LC9	<u>Safety Measures</u> • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the zones requiring treatment and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers if necessary; • Provide personal protective clothing (e.g. chemical resistant • jackboot, liquid tight gloves) to site workers if necessary; • Provide first aid training and materials to site worker; • Bulk earth moving equipment should be utilized as much as possible to minimize worker Eating, drinking and smoking should not be allowed in the excavation areas and treatment area to avoid inadvertent ingestion of arsenic containing soil.	To minimize the potential adverse effects on health and safety of construction workers	Contractor	KTN NDA	The course of treatment	N/A
Landfill Gas Hazard							
S10.6	LFG1	• Underground rooms or void should be avoided as far as	To minimize the risk of LFG	Government /	Buildings within	Detailed	N/A

		practicable in the proposed developments within the Consultation Zone and should be avoided totally in the proposed developments within the MTLL. • Buildings or structures within the MTLL should be at ground level with raised floor slabs which are less prone to gas ingress. • For the high risk category, the use of active control of gas, including barriers and detection systems are recommended. These measures include the control of gas by mechanical means e.g. ventilation of spaces with air to dilute gas, or extraction of gas using fans or blowers. • For the low risk category, the provision of barriers to the movement of gas is recommended. Measures recommended include the use of membranes in floors or walls, or in trenches, coupled with high permeability vents such as nofines gravel in trenches or voids/permeable layers below structures. • The need and practicality of incorporating such measures should be reviewed in the detailed Qualitative LFG Hazards Assessment (QLFGHA) during the detailed design stage for developments within the 250m Consultation Zone and within MTLL. Recommendations on the detailed precautionary and protection measures to be adopted should be given in the QLFGHA. • The design and construction method of the proposed development within MTLL (i.e. the proposed recreational area in site E1-1) should be provided to EPD for	hazards to occupants within MTLL and its 250m Consultation Zone	Developer/ Detailed Design Consultant within MTLL and its 250m Consultation Zone	MTLL and its 250m Consultation Zone	design phase	

		agreement in the design stage to ensure compatibility with the landfill restoration facilities and aftercare works within MTLL, such that these facilities and works will not be affected by the construction or operation of the proposed development.					
S10.6	LFG2	• During all works, safety procedures should be implemented to minimize the risks of fires and explosions, asphyxiation of workers (especially in confined space) and toxicity effects resulting from contact with contaminated soils and groundwater. • Safety officers, specifically trained with regard to LFG and leachate related hazards and the appropriate actions to take in adverse circumstances, should be present on all worksites throughout the works. • All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it. • Those staff who work in, or have responsibility for “at risk” areas, including bore pilling and excavation works, should receive appropriate training on working in areas susceptible to LFG. • Enhanced personal hygiene practices including washing thoroughly after working and eating only in “clean” areas should be adopted where contact may have been made with any groundwater which is thought to be contaminated	To minimize the risk of LFG hazards to the staff and visitors within MTLL and its 250m Consultation Zone	Contractor	Construction sites within MTLL and its 250m Consultation Zone	Construction phase	N/A

		with leachate. • Any offices / quarters set up on site should take precautions against LFG ingress, such as being raised off the ground. Other storage premizes, e.g. shipping containers, where this is not possible should be well ventilated prior to entry. • Adequate precautions to prevent the accumulation of LFG under site buildings and within storage shed should be taken by raising buildings off the ground where appropriate and "airing" storage containers prior to entry by personnel and ensuring adequate ventilation at all times. • Smoking and naked flames should be prohibited within confined spaces. "No Smoking" and "No Naked Flame" notices in Chinese and English should be posted prominently around the construction site. Safety notices should be posted warning of the potential hazards. • Welding, flame-cutting or other hot works may only be carried out in confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Officer. The permit to work procedure should set down clearly the requirements for continuous monitoring of methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person who shall be responsible for reviewing the gas measurements as they are made, and					

		who shall have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas. • During the construction works, adequate fire extinguishers and breathing apparatus sets should be made available on site and appropriate training given in their use. • Ongoing gas monitoring should be considered for offices, stores etc set up on site.					
S10.6	LFG3	Utility Companies • The developers should make the utility companies aware of the location and features of the site within the Consultation Zone during the respective detailed design stage as part of the QLFGHA. • The utilities companies should have a responsibility to train and ensure their staff to take appropriate precautions at all times when entering enclosed spaces or plant rooms. • Should utility installation be required in site E1-1, the developers should make the utility companies aware of the potential constraints imposed by the landfill restoration facilities and aftercare works to ensure these facilities and works will remain unaffected. Appropriate precautionary measures against landfill gas should also be taken should utility installation be required within the MTLL.	To minimize the risk of LFG hazards to the occupants, maintenance personnel, visitors and other users within MTLL and its 250m Consultation Zone	Government / Developer within MTLL and its 250m Consultation Zone	Buildings within MTLL and its 250m Consultation Zone	Operation phase	N/A

		Building Management • The management committee of the building estate will hold a special responsibility to ensure that the occupants of the building, its staff and maintenance workers are protected from LFG and that visitors to the site are also made aware as to the dangers and the precautions required to be taken. • Of primary importance to satisfactorily upholding this responsibility will be to ensure that strict procedures for maintaining control over all temporary and /or permanent works proposed at the site are reviewed with regard to the LFG hazard. This needs to be accompanied by a comprehensive contingency plan in case of incidents, including liaison with EPD officers, Fire Services Department, Landfill Restoration Contractors and others, as necessary. • All construction and maintenance (including utilities) personnel working at the site should be made aware of the hazards of LFG and its possible presence on site. This should be achieved through a combination of posting warning signs in prominent places and also by access to detailed information on LFG hazards and the designs and procedural means by which these hazards are being minimized on site. In addition, entry to confined spaces such as refuse/store rooms, drainage manholes etc. should be preceded by a period of “airing” the space by opening the door widely allowing fresh air to enter. Where					

		appropriate, monitoring of gas should also precede entry. • Any proposed modifications or additions to the building structure should be subject to a further assessment of LFG hazard, particularly in areas where a gas membrane has been installed. Any penetrations of the membrane must be repaired as soon as possible after detection or works completion using similar products. • The building management company should also make arrangement with Landfill Restoration Contractor so that they are advised of all situations which may potentially threaten the safety of the building occupants resulting from any accidents or failures at the landfill site. The building management company should also have available suitable gas monitoring equipment for any ad hoc investigations necessary relating to LFG and be in a position to undertake any future routine monitoring of gas which may be considered necessary soloing completion of the defects correction period. • To ensure that all the above protection and precautionary measures and issues pertaining to LFG are properly and consistently addressed by future users and owners of the site, it is recommended that a comprehensive LFG hazard management system be developed by the owner of the building or its property management agency. The system should be developed by the developers of the sites as part of the QLFGHA before the occupation of the building and implemented during its operational phase.					

Cultural Heritage (Pre-construction Phase)							
S11.6.1	CH1	Undertaking Further Archaeological Survey to Cover the Outstanding Areas Further archaeological surveys to cover the outstanding areas of the not-yet-surveyed-area with medium archaeological potential located in the areas with proposed development as presented in Figure 11.9 should be implemented after land resumption to confirm and verify the findings of the EIA. The survey should be conducted by a professional archaeologist and prior to fieldwork commencement, the archaeologist should obtain a Licence to Excavate and Search for Antiquities from the Authority under the AM Ordinance. It should be noted that the scope of further archaeological survey is based on the current proposed alignment. Any additional works areas which have not been covered by the current archaeological impact assessment should be covered as soon as possible. Subject to the findings of the archaeological survey to be conducted after land resumption, additional mitigation measures would be designed and implemented before the commencement of construction works to mitigate the adverse impact.	To confirm and verify the findings of the EIA	Project Proponent/ Contractor/ Qualified Archaeologist	In the not-yet-surveyed-areas with medium archaeological potential located in the areas within Areas D1-11, A3-5, A3-6, B1-1, and B1-7,	After land resumption but before construction	N/A
S11.6.1	CH2	Undertaking Survey-cum-Rescue Excavation A Survey-cum-Rescue Excavation should be conducted after land resumption and before the commencement of construction works to define the precise archaeological deposits extent and to preserve the archaeological resources by record. The excavation should be conducted by a professional archaeologist and prior to fieldwork commencement, the archaeologist should	To define the precise archaeological deposits extent and to preserve the archaeological resources as far as possible	Project Proponent/ Contractor/ Qualified Archaeologist	In KTN NDA, for Site 3 and In FLN NDA for Site 5.	After land resumption but before construction commencement of the zone	N/A

		obtain a Licence to Excavate and Search for Antiquities from the Authority under the AM Ordinance.					
S11.6.1	CH3	Undertaking Preservation in-situ for Site 7 Preservation in-situ of the cultivation deposits in Site 7 is proposed. If disturbance to the site by the design of the Central Park is unavoidable, further archaeological survey should be conducted after land resumption prior to the pre-construction stage to assess the feasibility to incorporate Site 7 into the design of the development plan of the proposed zone. Appropriate followup actions, including preservation of the significant archaeological deposits in-situ in the Central Park, would then be considered with the consent of AMO. The recommended mitigation measure of preservation in-situ with further archaeological survey should be conducted by a professional archaeologist and prior to fieldwork commencement, the archaeologist should obtain a Licence to Excavate and Search for Antiquities from the Authority under the AM Ordinance.	To preserve the archaeological resources as far as possible.	Project Proponent/ Contractor/ Qualified Archaeologist	Site 7 in FLN NDA	After land resumption prior to preconstruction stage of the proposed Central Park (Area C2-8, Zoning O)	N/A
S11.6.1	CH4	Undertaking Induction Training Induction training should be provided to the construction Contractor before the commencement of the excavation works in Spots A, D, F to H. An induction will be conducted as part of the environmental health and safety induction programme to all site staff before they are deployed on site. The induction will	To preserve the archaeological resources as far as possible	Project Proponent/ Contractor/ Qualified Archaeologist	Spots A, D, F to H	Before the commencement of the excavation works and before site staff are deployed on site	N/A

		include an introduction on the historical development of the Site, the possible archaeological remains that may be encountered during ground excavation works as well as the reporting procedures in case suspected archaeological remains are identified. A set of the presentation material (in the form of power point presentation) with content details will be prepared by an archaeologist and submitted to AMO for reference and record purpose. The first induction briefing will be video recorded and it will be used as induction briefing material for new site staff.					
S11.6.1	CH5	Undertaking Archaeological Impact Assessment before Construction at A1 It is recommended that an Archaeological Impact Assessment to be conducted in the impacted area in Area B1-8 and B1-9 at A1 (Sheung Shui Wa Shan Site of Archaeological Interest) after land resumption and before construction when detail construction work information is available to determine the need for further archaeological follow up actions.	To define the precise archaeological deposits extent and to preserve the archaeological resources as far as possible	Project Proponent/ Contractor/ Qualified Archaeologist	Area B1-8 and B1-9 zoned as R4 and R3 in A1	After land resumption but before construction	N/A
S11.6.1	CH6	Undertaking Archaeological Impact Assessment before Construction within A1 but except Area B1-8 and B1-9 Should there be any development work within the Sheung Shui Wa Shan Site of Archaeological Interest, it is recommended that an Archaeological Impact Assessment is required after land resumption and before construction when detail construction work information is available to determine the need for further	To define the precise archaeological deposits extent and to preserve the archaeological resources as far as possible.	Project Proponent/ Contractor/ Qualified Archaeologist	Area within A1 except Area B1-8 and B1-9 in R4 &R3 zoning	After land resumption but before construction	N/A

		archaeological follow up actions.					
S11.6.2	CH7	Undertaking baseline condition survey and baseline vibration impact assessment In case any potential vibration impact on any nearby built heritage features are identified during the pre-construction stage of the Project, prior to commencement of construction works, a baseline condition survey and baseline vibration impact assessment should be conducted by a qualified building surveyor or a qualified structural engineer to define the vibration limit (a vibration limit at 7.5mm/s could be adopted for graded historic buildings) and to evaluate if construction vibration monitoring and structural strengthening measures are required during construction phase so as to ensure the construction performance meets with the vibration standard stated in the EIA report. The condition survey of graded historic building should be submitted to AMO for information.	To minimize the vibration impacts during preconstruction stage on any identified potential vibration impacted built heritage features	Project Proponent/ Contractor	G303 and G308	Preconstruction stage before commencement of construction works during Schedule 3 study	N/A
S11.6.2	CH8	Undertaking baseline condition survey and baseline vibration impact assessment In case any potential vibration impact on any nearby built heritage features are identified during the pre-construction stage of the Project, prior to commencement of construction works, a baseline condition survey and baseline vibration impact assessment should be conducted by a qualified building surveyor or a qualified structural engineer to define the vibration	To minimize the vibration impacts during preconstruction stage on any identified potential vibration impacted built heritage features	Project Proponent/ Contractor	KT57, FL05, FL18, and FL2	Preconstruction stage before commenceme nt of construction works	N/A

		limit (a vibration limit at 7.5mm/s and 15mm/s could be adopted for graded historic buildings and historic buildings respectively) and to evaluate if construction vibration monitoring and structural strengthening measures are required during construction phase so as to ensure the construction performance meets with the vibration standard stated in the EIA report. The condition survey of graded historic building should be submitted to AMO for information.					
S11.6.2	CH9	Conducting Photographic and Cartographic Records Prior to Removal/Relocation of Impacted Built Heritages Prior to removal/relocation of the directly impacted historical buildings and cultural/historical landscape features, photographic and cartographic records should be conducted to preserve them by record. Liaison with and obtaining agreement from the descendants of these features will be carried out the Project Proponent.	To preserve the directly impacted sites by record prior to their removal / relocation	Project Proponent/ Contractor	Ancillary structures of G303, HKT01, HKT02, Entrance Gate of HKT03, HKT04, KT01 to KT10, KT13, KT36, KT39, KT40, KT41, KT43, KT45, KT47, KT50, KT54, KT62 to KT63, KT69, FL01, FL16, and FL35	Prior to Removal / Relocation of features before commenceme nt of construction works during Schedule 3 study	N/A
S11.6.2	CH10	Conducting Photographic and Cartographic Records Prior to Removal/Relocation of Impacted Built Heritages Prior to removal/relocation of the directly impacted historical buildings and cultural/historical landscape features,	To preserve the directly impacted sites by record prior to their removal / relocation	Project Proponent/ Contractor	KT12 and KT61	Prior to Removal / Relocation of features before commencement of	N/A

		photographic and cartographic records should be conducted to preserve them by record. Liaison with and obtaining agreement from the descendants of these features will be carried out by the Project Proponent.				construction works	
S11.6.2	CH11	Relocation of Built Heritages Relocation of built heritages to a reasonable location nearby may be required.	To preserve the directly impacted sites by relocation	Project Proponent/ Contractor	HKT01, HKT02, Entrance Gate of HKT03	After the photographic and cartographic records and before commencement of construction works	N/A
S11.6.2	CH12	Drainage System and Access Route Design For the retained built heritage items in developable area, drainage system and access route would be designed to prevent the persevered flooding and maintain the accessibility to the built heritage.	To prevent the persevered flooding and maintain the accessibility to the built heritage	Contractor /Detailed Design consultant	The retained built heritage items	Pre-construction phase	N/A
Cultural Heritage (Construction Phase)							
S11.6.1	CH13	Inform Upon Archaeological Discovery Pursuant to the Antiquities and Monuments Ordinance, the construction Contractor should inform the AMO immediately in case of discovery of antiquities or supposed antiquities in the course of excavation works in construction phase.	Special attention should be given to areas evaluated to have archaeological potential or significance.	Contractor	All soil excavation works	Immediately upon discovery during excavation works	N/A
S11.6.2	CH14	Watertable Monitoring Since the construction works and development activities may induce change in the watertable. It is recommended the Contractor should ensure that the change of watertable induced by the construction works and development activities will not result in settlement of built heritage.	To minimize the potential impacts to the built heritage items by the change of watertable induced by the works during the Construction phase	Contractor	Within NDAs	Construction phase	N/A
S11.6.2	CH15	Conducting Construction Vibration Monitoring and Structural	To minimize the potential	Contractor	Identified potential	Construction	

		Strengthening Measures Construction vibration monitoring and structural strengthening measures should be conducted during Construction phase based on the assessment result of baseline condition survey and baseline vibration impact assessment, so as to ensure the construction performance meets with the vibration standard stated in the EIA report.	impacts during Construction phase on any identified potential vibration impacted built heritage features		vibration impacted built heritage features	phase, with details specified in baseline condition survey and baseline vibration impact assessment	N/A
Landscape and Visual Impact (Detailed Design, Prior to Construction, Construction and Operation Phases)							
S.12.9	LV1	General Good Practice Measures - For areas unavoidably disturbed by the Project on a short term basis e.g. works areas, the general principle to try and restore these to their former state to suit future land use, should be adhered to. With regard to topsoil, where identified, it should be stripped, treated appropriately, and where suitable and practical stored for re-use in the construction of the soft landscape works such as roadside amenity strips, and open space sites.		Detailed design consultant/ Contractor	Throughout NDAs,	Prior to Construction, Construction & for all planting, this should be installed as the areas become available, to achieve early establishment	N/A
S.12.9 MM1	LV2	Minimum Topographical Change –To minimize landscape and visual impacts, the footprint and elevation of such elements should be optimized to reduce topographical/ landform changes, as well as reduce land take and interference with natural terrain. Where there is a need to significantly cut into the existing landform, retaining walls should be considered as well as cut slopes, to minimize landform changes and land resumption, while also considering visual amenity. Earthworks and engineered slopes should be designed to be a visually interesting landform, compatible with the surrounding landscape and to mimic the	Reduce topographical changes and minimize land resumption	Government / Detailed Design Consultant/ Contractor	Throughout NDAs, particularly for reservoirs	Prior to Construction	N/A

		natural contouring and terrain e.g. introduction and continuation of natural features such as spurs and ridges where appropriate, to support assimilation with the hillside setting.					
S.12.9 MM2	LV3	Detailed Design (Visual) –The footprint and massing of development components and the works area should also be kept to a practical minimum and the detailed design of development components for Construction phase should follow the Sustainable Building Design Guidelines. The form, textures, finishes and colours of the proposed development components should aim to be compatible with the existing surroundings. To improve visual amenity designs should be aesthetically pleasing and treatment of structures also improve visual amenity. For example, natural building materials such as stone and timber, should be considered for architectural features, and light earthy tone colours such as shades of green, shades of grey, shades of brown and off-white should also be considered to reduce the visibility of the development components, including all roadwork, buildings and noise barriers. In addition, the design of structures should consider green roofs were feasible, following stated guidelines. All Noise barriers, particularly noise barriers but also any barriers proposed for ecological impact mitigation, should be kept to a practical minimum, and be of such a designed as to integrate as well as possible into the surrounding visual context and be as low as practical to minimize blocking views. Noise barrier design, including vertical, cantilever or curved, and noise	Improve visual amenity of the new buildings, NDAs in general and integrate as best possible into the surrounding landscape	Detailed Design Consultant	Throughout NDAs	Prior to Construction	N/A

		enclosures including semi-enclosure and full enclosure, at grade and/ or elevated, should follow the guidelines stated. Construction time frame should also be considered and designs seek to keep it to a practical minimum.					
S12.9 MM14.4	LV 4	Avoid affecting Watercourses – In the detailed design, consideration should be made of watercourses, to minimize any impacts e.g. at new bridge crossings, viaducts, road alignment etc. Guidelines stated should be followed. For example, for the stream at Siu Hang San Tsuen in FLN NDA, much of the stream is located underneath the viaduct for the proposed Fanling Bypass. In order to avoid impacts to the stream, the detailed final design of the viaduct should follow guidelines and ensure that no viaduct footings or other structures are placed in the stream. Bridges and box culverts should also be used to minimize the necessity of watercourse modification and protect the watercourses where necessary.	Avoid direct impacts to watercourses	Detailed Design Consultant/ Contractor	All watercourses, particularly the stream at Siu Hang San Tsuen that will flow under the Fanling Bypass Eastern Section	Prior to Construction and Construction Phase	N/A
Landscape and Visual (Construction)							
S.12.9 MM3	LV5	Open Space Provision - the principles adopted in the RODP planning ensure that public open space systems are incorporated. All requirements for open space areas stipulated in the planning documents for the formulation of the Preliminary Layout Plan should be adhered to.	Reprovision of open space. Enhance visual amenity of the area and improve the overall landscape character	Government Developer/ Detailed Design Consultant/ Contractor/	Onsite as stipulated in the planning documents for the formulation of the Preliminary Layout Plan	Prior to Construction and Construction Phas	N/A
S.12.9	LV6	Tree Protection & Preservation – Exiting trees to be retained	Protect and Preserve Trees	Government /	Onsite	Prior to	N/A

MM4		within the Project Site should be carefully protected during construction. In particular OVTs will be preserved according to ETWB Technical Circular (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained		Detailed Design Consultant/ Contractor		Construction and Construction Phase	
S.12.9 MM5	LV7	Tree Transplantation – Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC 2/2004 and 3/2006 and final locations of	Transplant Trees where suitable for transplantation	Government / Detailed Design Consultant/ Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.					
S.12.9 MM6	LV8	Slope Landscaping – Site formation should be reduced as far as possible. Seeding of modified slopes should be done as soon as grading works are completed to prevent erosion and subsequent loss of landscape resources and character. Woodland tree seedlings and/ or shrubs should be planted where slope gradient and site conditions allow. In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping works should comply with GEO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes.	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure man-made slopes are as visually amenable as possible.	Government / Detailed Design Consultant/ Contractor	Onsite	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.9 MM7	LV9	Compensatory Planting – Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under ETWBTC 3/2006.	Compensate for trees and shrubs lost due to the Project.	Government / Detailed Design Consultant/ Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots. Compensatory planting for shrubs should be considered in suitable locations. Native species such as *Melastoma malabathricum, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma dodecandrum, Atalantia buxifolia, Rhodomyrtus tomentosa, Rhaphiolepis indica, and Rhododendron simsii* are suggested.					
S.12.9 MM8	LV10	Woodland Compensatory Planting –Specific Woodland compensatory planting is proposed for any areas of quality woodland that are unavoidably affected by the Project. The location and design of the woodland compensatory planting will principally be within habitats of lower value such as upland grassland. The proposed locations are identified, for example, on the foothills of Tai Shek Mo, and on the higher ground of Fung Kong Shan in KTN NDA; along Fanling Bypass; and a small area in the northern FLN NDA. The intention of the compensatory woodland will be to recreate areas of quality woodland, not necessarily to compensate for loss of trees on a like for like basis (See E18 & E27 also). Native tree species are suggested for planting in the					N/A

		appropriate locations, including *Ailanthus fordii, Bischofia javanica, Castanopsis fissa, Celtis sinensis, Cinnamomum burmannii, Cinnamomum camphora, Xanthoxlyum avicennaeHibiscus tiliaceus, Liquidambar formosana, Sapium discolor, Schefflera heptaphylla and Ilex rotunda*. In addition some understory vegetation may be planted including shrubs such as *Atalantia buxifolia, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma malabathricum, Melastoma dodecandrum, Rhodomyrtus tomentosa, Rhaphiolepis indica, and Rhododendron simsii*. The area allocated for compensatory woodland planting allows in part for the fact that it will take some time for the compensatory planting to achieve the landscape and ecological function and value of the area to be lost. In addition, it allows for the fact that not all of the areas identified for planting will prove to be plantable, by virtue of topography and ground conditions and, especially, because though the areas identified are largely grassland it is inevitable that these areas will already support some patches of trees and shrubs which would be inappropriate for further planting.					

S.12.9 MM9	LV11	Vertical Greening – Planting of climbers to grow up vertical surfaces were appropriate (e.g. building edges, piers).	Soften hard surfaces and facilities	Government / Developer/ Detailed Design Consultant/ Contractor	On appropriate structures	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.9 MM10	LV12	Green Roof – Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable.	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VSRs at high levels. Provide greening.	Government / Developer/ Detailed Design Consultant/ Contractor	On appropriate buildings	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.9 MM11	LV13	Screen Planting – Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Government / Detailed Design Consultant/ Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the NDA structures.	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

S.12.9 MM12	LV14	Road Greening –For viaducts, soft landscaping should be provided to soften the hard, straight edges (for climbers used to cover the vertical, hard surfaces of the piers – see MM9 Vertical Greening) and shade tolerant plants should be planted, where light is sufficient, to improve aesthetic value of areas under viaducts. Both at grade planting and use of elevated planters should be considered for the soft landscaping of viaducts, taking into account the preference to minimize the overall viaduct bulk and integrate architectural forms and textural finishes which improve aesthetics. For at grade roads, planting should be considered along central dividers and on road islands e.g. in the middle of roundabouts. (Roadside planting i.e. at the road edge and not in the central divider or road island, is considered part of Screen Planting)	To soften the hard, straight edges and provide greening along roads.	Government / Developer/ Detailed Design Consultant/ Contractor	On viaducts or along roads	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.9 MM13 & EIA Annex 13	LV15	Marsh/Wetland Compensation –The proposed Long Valley Nature Park (LVNP) will be designed and implemented to enhance on- wetland areas within the LVNP. (See E4,E15 and E25 also) Also see LV16, LV17, and LV18 as wetland planting should be provided along the embankments and beds of modified/ reprovisioned watercourses.	Compensate for Marsh/ Wetland lost due to the Project.	Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

S.12.9 MM14.1	LV16	Reprovision of Natural Stream – Where natural streams are unavoidably affected along some of their length, they can be diverted to avoid the proposed new developments and retain the integrity of the whole stream. Detailed design of any stream diversion should follow the Guidelines in ETWB Technical Circular (Works) No. 5/2005 (Protection of natural streams/rivers from adverse impacts arising from construction works) and appropriate construction methods should be used. Two short stretches of the Ma Tso Lung Stream will be affected by Project in the KTN NDA; by the LMC Eastern Connection Road on the western border of Site F1-3 and further upstream by Site E-2. At both these locations, the stream will be reprovisioned and maintain the flow between unaffected sections of the stream. The reprovisioned stream will be provided with a natural bed and banks, as well as having an area of marsh/ pool next to it and trees and shrubs further from the banks. (See E2, E14 and E24 also)	Achieve a natural stream, similar to existing, including wetland planting provision for embankments	Government / Developer/ Detailed Design Consultant/ Contractor	Streams and channelized watercourses e.g. a Ma Tso Lung and Siu Han San Tsuen	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S12.9 MM14.2	LV17	Stream Buffer Planting –Providing a minimum 10 m buffer with planting (where there is a general presumption against any development taking place) along streams where they flow close to developments, confers a degree of protection to the stream course and its associated vegetation. For the stream at Ma Tso Lung in KTN NDA, the middle and	Protect natural streams	Government / Developer/ Detailed Design Consultant/ Contractor	Streams and channelized watercourses e.g. a Ma Tso Lung and Siu Han San Tsuen	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		upper sections will be designated as Green Belt zone where there is a general presumption against development as buffer to the stream. For the stream at Siu Hang San Tsuen in FLN NDA, within the NDA boundary much of the stream would be located underneath the viaduct for the proposed Fanling Bypass. To the south of the viaduct the stream flows through an Open Space area D1-3. In this Open Space zone a 10m buffer is proposed in which natural vegetation will be retained and enhanced and human activities will be limited in order to avoid direct impacts to the stream bed and to minimize potential indirect impacts to the stream and riparian corridor. (See E3 also)					
S12.9 MM14.3	LV18	Enhancement Planting along Embankment - For channelized watercourses, if these are modified, the Drainage Services Department Practice Note No.1/2005 – Guidelines on Environmental Considerations for River Channel Design, should be considered and appropriate mitigation measures included ensuring the new watercourses match the existing as far as possible. Measures can include enhancement planting to upgrade the channels as appropriate, including consideration of wetland planting along embankments where appropriate; as well as consideration of the best materials for the channel lining (e.g. gabion). All measures must also ensure any necessary maintenance work can be carried out and that the channel meets all its requirements for water flow, etc.	Minimize the necessity of watercourse modification, protect watercourses where possible and enhance channelized watercourses	Government / Developer/ Detailed Design Consultant/ Contractor	Channelized watercourse, particularly the Ma Wat River Channel Diversion	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		For example, a stretch of the Ma Wat River Channel in the south of FLN NDA will have to be diverted for the construction of the Fanling Bypass Eastern Section. This measure will be particularly relevant in this area.					
S12.9 MM15	LV19	Pond Replacement –Principles adopted in the design of the NDAs ensure that they incorporate ponds within the RODPs. All requirements for ponds stipulated in the planning documents for the formulation of the Preliminary Layout Plan (e.g. at Fung Kong Shan Park in E1-7 of KNT ND) should be adhered to.	Reprovision for ponds lost due to the Project.	Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	E1-7 and C1-9 (LVNP) in KNT NDA and generally throughout NDA	Prior to Construction, Construction Phase Maintenance in Operation Phase	N/A
S.12.9 MM16	LV20	Screen Hoarding –Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment and where possible, non- reflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence. Details can refer to the ecological impact assessment (Chapter 13 of the EIA report).	To screen undesirable views of the works site.	Contractor	Throughout NDAs	Construction Phase	N/A
S.12.9 MM17	LV21	Light Control – Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize	To minimize glare impact to adjacent VSRs	Government / Developer/ Contractor	Throughout NDAs	Construction and Operation Phases	N/A

		glare impact to adjacent VSRs during the operation phase.					
Ecology (Prior to Construction Phase or throughout the project)							
S. 13.9	E1	Egretry Habitat Creation & Management Plan (EHCMP) and Woodland Planting and Management Plan (WPMP)	Compensate for loss of Man Kam To Road egretry. Compensate for loss of secondary woodland and hillside plantation of ecological significance.	Project Proponent/ Detailed Design Consultant (EHCMP and WPMP).	FLN area A1-7 (egretry compensation). KTN areas E1-8 and G1-3 (woodland compensation).	Detailed design phase	N/A
S. 13.9	E2	Detailed design of development along lower reaches of Ma Tso Lung Stream and Ma Tso Lung San Tsuen Stream in OU zones F1-2 and F1-3 and detailed design of LMC Loop Eastern Connection Road with restoration of diverted stream and riparian corridor, permanent barrier and underpass on the at-grade section Compensation for the loss of seasonally wet grassland at Ma Tso Lung by habitat restoration and enhancement along diverted section of Ma Tso Lung Stream	Minimize impacts on Ma Tso Lung Stream and Ma Tso Lung San Tsuen Stream and riparian corridor of importance to species of conservation significance.	Project Proponent/ Detailed Design Consultant. (design of Ma Tso Lung Stream diversion and buffer zone habitat restoration measures)	KTN areas F1-2 and F1-3 and LMC Loop Eastern Connection Road.	Detailed design and construction phases.	N/A

S13.9	E3	Detailed design, implementation and management of Siu Hang San Tsuen Stream to have 10m wide vegetated buffer in Open Space zone D1-3, Fanling Bypass to cross stream on viaduct.	Minimize impacts on Siu Hang San Tsuen Stream and stream fauna.	PlanD, Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	FLN area D1-3.	Detailed design, construction and operation phases.	N/A
S.13.9	E4	Long Valley Nature Park (LVNP) designation, design and implementation. Enhancement of non-wetland habitats in LVNP. Planning for the advanced provision of alternative foraging habitat along main river channels for large waterbirds.	Compensate for wetland loss arising from the project and protection of Long Valley from adverse ecological impacts including provision of additional/alternative habitat for large waterbirds using Ng Tung, Sheung Yue and Shek Sheung River channels.	Project Proponent/ Detailed Design Consultant (Long Valley Nature Park Habitat Creation & Management Plan)	Long Valley KTN area C1-9 and any suitable areas to be identified during the planning stage	Detailed design phase	N/A
S13.9	E5	Stringent planning control requirements in Long Valley north and west of Sheung Yue River, including Ho Sheung Heung egretry.	Protect these wetland areas from indirect impacts to habitats and fauna especially breeding ardeids foraging in these areas and utilizing flight-lines from Ho Sheung Heung egretry. Avoid habitat loss and disturbance to fauna of	PlanD.	KTN areas C2-1 and C2-2 , Ho Sheung Heung egretry and areas north of Long Valley along the Ng Tung River to the Shenzhen River	Detailed design phase	N/A

			conservation significance, especially nesting ardeids Maintenance of ecological linkages with Deep Bay ecosystem and avoidance of severance of these linkages, especially for waterbirds				
S13.9	E6	Planning for creation of Green Corridors along the Sheung Yue, Ng Tung and Shek Sheung Rivers, retention and provision of screen plantings where feasible; and detailed design of Open Space areas and development areas along river corridors.	Minimize disturbance to large waterbirds using Ng Tung, Sheung Yue and Shek Sheung River channels. Maintain ecological linkages within NDA Project Area and between Project Area and Deep Bay ecosystem, especially for Long Valley and waterbirds.	Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	Area along Ng Tung, Sheung Yue and Shek Sheung River	Detailed design, construction and operational phases.	N/A
S13.9	E7	Building setback and mounding in locations near Long Valley. KTN area B3-12 (30m setback from road D3) and KTN area C1-1 (15m setback and mounding along northern and northeastern boundaries).	Minimization of disturbance impacts to fauna using Long Valley.	PlanD	KTN area B3-12 (30m setback from road D3) and KTN area C1-1 (15m setback and mounding along northern and northeastern	Detailed design phase	N/A

					boundaries.		
S13.9	E8	Preparation and implementation of Guidelines for building design measures to minimize mortality and light and glare impacts to fauna. Guidelines to address the following measures: Use opaque, non-transparent, non-reflective noise barriers for all developments associated with the Project. Measures to include the following: • Fritting, or the placement of ceramic lines or dots on glass, which creates a visual barrier to birds and reduces air conditioning loads by lowering heat gain, while still allowing light transmission for interior spaces. It is most successful when the frits are applied on the outside surface. Frosted glass has similar effects; • Angled glass to be used only for smaller panes in buildings with a limited amount of glass; • The use of glass that reflects UV light (primarily visible to birds, but not to humans) to reduce collisions; • Film and art treatment allow glass surfaces to be used a medium of expression, often related to the nature and use of the building, as well indicating to birds their impenetrability; • Lightweight external screens can be added to windows or become a façade element of larger buildings, and are suitable where non-operable windows are prevalent, which is often the case in modern buildings in HK	Minimize mortality and disturbance impacts on fauna, especially mammals and birds.	PlanD/ Project Proponent/ Developer/ Detailed Design Consultant	Near Long Valley	Detailed design phase	N/A

	E9	Not used					N/A
S13.8	E10	Review development footprint and layout of proposed developments in KTN areas D1-11a and G1-5 to avoid/minimize direct and indirect impacts on secondary woodland at Ho Sheung Heung and shrubland at Crest Hill.	Minimize loss of secondary woodland and shrubland of ecological value.	Project Proponent/Detailed Design Consultant	KTN areas D1-11a and G1-5 to avoid/minimize direct and indirect impacts on secondary woodland at Ho Sheung Heung and Crest Hill	Detailed design phase	N/A
S13.9	E11	No construction during ardeid breeding season (1 March to 31 July) along Sheung Yue River north or east of KTN D1-5 and east of D1-9 and C2-3, construction hours restricted to 09.00 to 17.30 during 1 March to 31 July on new pedestrian bridge over the Sheung Yue River, new pedestrian bridge over the tidal section of the Ng Tung River and existing bridge between KTN areas C2-2 and C1-8. Review Design and construction methods for all bridges especially those on the Sheung Yue and tidal Ng Tung Rivers and adopt methods which minimize impacts on Long Valley and the rivers, and disturbance and fragmentation impacts on fauna. No overlap in construction of bridges over main river channels. Measures to ensure no hydrological disruption to Long Valley Watercourse and water supply to Long Valley to be designed at	Minimize disturbance impacts (including cumulative impacts with cycle track project) to flight-lines of breeding ardeids.	Project Proponent/ Detailed Design Consultant Contractor	Along and within Sheung Yue and Ng Tung Rivers, Long Valley, Long Valley and watercourse upstream areas including KTN area B3-12	Detailed design/ construction phase.	N/A

		the detailed design stage for the rechannelisation of the Long Valley Watercourse and the development of areas through which it passes, including KTN area B3-12. Contingency plan to address any disruption to be included in LVNP HCMP. Avoid removal or interference with screen planting undertaken under the Construction of Cycle Tracks and Associated Supporting Facilities from Sha Po Tsuen to Shek Sheung project.					
Ecology (Construction Phase)							
S13.9	E12	Compensatory egretry habitat provision and establishment. Review condition and location of egretries before commencement of works. Formulate and implement additional mitigation measures as appropriate. Phasing of works near and within Man Kam To Road Egretry outside breeding season	Compensate for loss of Man Kam To Road egretry habitat. Avoid mortality of breeding egrets	Project Proponent/ Detailed Design Consultant/ Contractor	FLN area A1-7 500m from Man Kam To Road Egretry.	Construction phase.	N/A
S13.9	E13	Review design and construction methods for bridges, especially those on the Sheung Yue and tidal Ng Tung Rivers, and adopt measures which minimize impacts on rivers and disturbance and fragmentation impacts on fauna. No construction during ardeid breeding season (1 March to 31 July) along Sheung Yue River north and east of KTN area D1-5 and east of D1-9 and C2-3 and restriction of working hours on new pedestrian bridges over the Sheung Yue River and tidal Ng Tung River to 09.00 to 17.30 during the ardeid breeding season	Minimize impacts on rivers and disturbance and fragmentation impacts on fauna	Project Proponent/ Detailed Design Consultant/ Contractor	Along and within the Sheung Yue, Ng Tung and Shek Sheung Rivers	Detailed design and construction phases.	N/A

		(1 March to 31 July) Provision of alternative foraging habitat along main river channels for large waterbirds.					
S13.9	E14	Buffer zone of 15-30m as appropriate on both sides (not less than 45m total width) of Ma Tso Lung Stream north of the point where it is crossed by the LMC Loop Eastern Connection Road, and Ma Tso Lung Stream diversion during construction of the LMC Loop Eastern Connection Road; development along lower reaches of Ma Tso Lung Stream and Ma Tso Lung San Tsuen Stream in OU zones in KTN areas F1-2 and F1-3 to be set back beyond buffer. Construction and maintenance of permanent 1.2m high solid faunal barrier at all at-grade sections of LMC Loop eastern connection Road north of junction with road D4 within 15-30m as appropriate of Ma Tso Lung Stream buffer and construction of faunal underpass beneath road. Compensation for the loss of seasonally wet grassland at Ma Tso Lung by habitat restoration and enhancement along diverted section of Ma Tso Lung Stream.	Minimize impacts direct and indirect impacts of habitat loss, disturbance, pollution and fragmentation on Ma Tso Lung Stream and marsh and riparian corridor of importance to species of conservation significance.	PlanD/ Project Proponent/ Developer/ Detailed Design Consultant/ Contractor. (Design of Ma Tso Lung Stream diversion and buffer zone habitat restoration measures)	KTN areas H1-1, F12 and F1-3 and Lok Ma Chau Loop Eastern Connection Road.	Detailed design and construction phases.	N/A

S.13.9	E15	Creation and enhancement of proposed Long Valley Nature Park and creation and enhancement of wetland and buffer planting within LVNP.	Compensate for wetland loss arising from the project	Project Proponent/ Contractor (LVNP Detailed Habitat Creation & Management Plan)	Long Valley, (KTN area C1-9).	Construction phase.	N/A
S13.9	E16	Creation of Green Corridors along the Sheung Yue, Ng Tung and Shek Sheung Rivers, retention and provision of screen plantings where feasible; provision of Open Space areas and development areas along river corridors; Design and erection of 2m high solid dull green site barrier fence between river channel and any active works area along or adjacent to Ng Tung, Sheung Yue and Shek Sheung Rivers. Ng Tung, Sheung Yue and Shek Sheung Rivers screen planting.	Minimize disturbance to waterbirds using Ng Tung, Sheung Yue and Shek Sheung River channels.	Detailed Design Consultant/ Contractor	Ng Tung, Sheung Yue and Shek Sheung Rivers	Detailed design and Construction phases.	N/A
S13.9	E17	Design and erection of 2m high solid dull green site barrier fence between active works areas and all areas/habitats of ecological importance on edge of development areas, including along any roads adjacent to or penetrating into areas/habitats of ecological importance. Erection of a 2m high dull green site barrier fence at the edge of the works area or 30m from Ma Tso Lung Stream and tributaries,	Minimize dust, disturbance, mortality and other adverse ecological impacts on habitats, flora and fauna. Measures to minimize flight-line impacts to birds, especially breeding ardeids.	Contractor	Interface between areas/habitats/ fauna/ flora of ecological importance (e.g. KTN areas B1-3, C1-5, C1- 6, C1-	Construction phase.	N/A

		whichever distance is the greater.			9, C2-2, C2-4, C2-5, D1-8, E1-8, G1- 3, H1-1, Ma Tso Lung Stream and tributaries; FLN areas A1-3, A1-7 and A1-9) and works areas; and around any works areas north of the Fanling Bypass and north of the Ng Tung River west of the western terminus of the Fanling Bypass. Riparian corridor of Ma Tso Lung Stream and tributaries.		
S13.9	E18	Compensatory woodland planting, management and maintenance.	Compensate for loss of secondary woodland and hillside plantation of ecological significance.	Project Proponent/ Contractor	KTN areas E1-8 and G1-3.	Construction phase.	N/A

S13.9	E19	Use opaque, non-transparent, non-reflective noise barriers for all construction sites. Unnecessary lighting should be avoided.	Minimize mortality impacts on birds.	Contractor	All construction sites	Construction phase.	N/A
S13.9	E20	Pre-site clearance check for presence of flora or fauna of conservation significance and bat roosts. If any are found, measures should be proposed and implemented to avoid, minimize and/or compensate for impacts; including adjustments to design, timing of works, transplantation and translocation. Seek agreement of relevant authorities including AFCD in respect of proposed measures, then implement. Pre-site clearance check on all construction sites and pre – works commencement check on watercourses to be physically and/or hydrologically impacted by construction activities for presence of protected plant species/specimens of conservation significance. If any are found consider adjustments to avoid, minimize and/or compensate for impacts; including adjustments to design, timing of works, Pre-site clearance of construction sites in Crest Hill area, KTN areas D1-7, D1-11 and G1-5 (where Eurasian Hobby was recorded) and on Cheung Po Tau, FLN area A3-1 (where Grey Nightjar was recorded) for presence of any breeding birds/breeding sites. If any are found consider adjustments to avoid, minimize and/or compensate for impacts; including	Minimize impacts to flora and fauna of conservation significance. Minimize impacts to protected fauna and flora species. Formulate and implement mitigation measures to avoid, minimize and/or compensate for impacts; including adjustments to design, timing of works, transplantation and translocation.	Government/ Developer/ Contractor/ Ecologist	All construction sites.	Prior to clearance of vegetation and structures.	N/A

		adjustments to design, timing of works, transplantation and translocation. Seek agreement of relevant authorities including AFCD in respect of proposed measures, then implement. Pre-site clearance check on all construction sites for presence of Chinese Bullfrog, translocation to suitable areas including LVNP.					
S13.9	E21	Pre-works commencement check on watercourses to be physically and/or hydrologically impacted by construction activities for presence of flora or fauna of conservation significance and bat roosts. If any are found consider adjustments to avoid, minimize and/or compensate for impacts; including adjustments to design, timing of works, transplantation and translocation. Seek agreement of relevant authorities including AFCD in respect of proposed measures, then implement. Pre-site clearance check on all construction sites for presence of reptile species of conservation significance, capture and translocate to receptor site; review translocation options in respect to species in Ma Tso Lung area and determine whether release locally or elsewhere is appropriate. Seek agreement of relevant authorities including AFCD in respect of proposed measures then implement Pre-works commencement check on watercourses to be physically and/or hydrologically impacted by construction activities for presence of Small Snakehead and *Sommaniathelphusa zanklon*. Capture any *Sommaniathelphusa*	Minimize impacts to flora and fauna of conservation significance. Minimize impacts to protected fauna and flora species. Consider and implement adjustments to avoid, minimize or compensate for impacts; including adjustments to design, timing of works, transplantation and translocation	Government/ Developer/ Contractor/ Ecologist	All construction sites.	Prior to clearance of vegetation and structures.	N/A

		zanklon found and translocate to Ma Tso Lung Stream/ other suitable areas including LVNP					
S13.9	E22	Prevention of dust, run-off and pollutants impacting Deep Bay catchment area and areas of ecological importance.	Avoid increase to pollution entering ecologically sensitive Deep Bay ecosystem.	Contractor	All construction sites.	Construction	N/A
Specific Mitigation Measures for Designated Projects							
DP4- KTN NDA Road D1 to D5 (New Road)							
Noise Impacts (Operational Phase)							
S4.9	N1-DP4	Provide noise barrier before operation of the proposed project and locations of barriers are stated as following: • KTN-NB04: Approx. 35m long, 3m high NB; • KTN-NB05: Approx. 40m long, 3m high NB; • KTN-NB06: Approx. 65m long CNB; • KTN-NB07: Approx. 65m long CNB; • KTN-NB08: Approx. 105m long CNB; • KTN-NB09: Approx. 60m long, 3m high NB; • KTN-NB10: Approx. 90m long, 3m high NB; • KTN-NB19: Approx. 30m long, 3m high NB; • KTN-NB20: Approx. 70m long, 5m high NB; • KTN-NB23: Approx. 80m long, 5m high NB; • KTN-NB24: Approx. 95m long, 7m vertical barrier with 3m cantilevered arm; • KTN-NB25: Approx. 30m long CNB;	Control operational airborne noise due to road traffic	Project Proponent /Contractor	Refer to Appendix 5-1	Prior to operation of the Project	N/A

		• KTN-NB35: Approx. 40m long CNB; • KTN-NB37: Approx. 80m long CNB; • KTN-NB38: Approx. 100m long, 3m high NB; • KTN-NB69: Approx. 120m long, 5m high NB; • KTN-NB70: Approx. 30m long, 7m vertical barrier with 3m cantilevered arm; • KTN-NB73: Approx. 75m long CNB; • KTN-NB75: Approx. 45m long, 3m high NB; • KTN-NB76: Approx. 40m long, 3m high NB; • KTN-NB82: Approx. 45m long, 3m high NB; • KTN-SE03: Approx. 75m long SE with opening to northwestern direction; • KTN-SE05: Approx. 80m long SE with opening to south direction; • KTN-SE07: Approx. 95m long SE with opening to southeastern direction; KTN-FE02: Approx. 130m long FE					
Water Quality Impacts (Operational Phase)							
S5.7	W1-DP4	<u>Road runoff</u> In order to ensure the sand/silt traps removal efficiencies, the following measures should be implemented: • Vehicle dust, tyre scraps and oils might be washed away from the road surface / open areas to the nearby water courses by surface runoff or road surface cleaning. Subject to detailed design and requirement of relevant government departments, the capacities of road drainage system shall cater the runoff from 50 year-return-period	Control water quality impact	Project Proponent / Detailed Design Consultant,/ Maintenance Authority	All road works	Detailed design stage, Operation phase	*

		rainstorm. Proper drainage systems with silt traps and oil interceptors should be installed					
Landscape and Visual (Detailed Design, Prior to Construction, Construction and Operational Phases)							
S.12.A9	LV1-DP4	General Good Practice Measures - For areas unavoidably disturbed by the Project on a short term basis e.g. works areas, the general principle to try and restore these to their former state to suit future land use, should be adhered to. With regard to topsoil, where identified, it should be stripped, treated appropriately, and where suitable and practical stored for re-use in the construction of the soft landscape works such as roadside amenity strips, and open space sites.		Detailed Design Consultant/ Contractor	Throughout NDAs,	Prior to Construction, Construction & for all planting, this should be installed as soon as the areas become available, to achieve early establishment	N/A
S.12.A9 MM1	LV2-DP4	Minimum Topographical Change –To minimize landscape and visual impacts, the footprint and elevation of such elements should be optimized to reduce topographical/ landform changes, as well as reduce land take and interference with natural terrain. Where there is a need to significantly cut into the existing landform, retaining walls should be considered as well as cut slopes, to minimize landform changes and land resumption, while also considering visual amenity. Earthworks and engineered slopes should be designed to be a visually interesting landform, compatible with the surrounding landscape and to mimic the natural contouring and terrain e.g. introduction and continuation of natural features such as spurs and ridges where appropriate, to support assimilation with the hillside setting.	Reduce topographical changes and minimize land resumption	Government / Detailed Design Consultant/ Contractor/	Throughout NDAs, particularly for reservoirs	Prior to Construction	N/A

S.12.A9 MM2	LV3-DP4	Detailed Design (Visual) –The footprint and massing of development components and the works area should also be kept to a practical minimum and the detailed design of development components for Construction phase should follow the Sustainable Building Design Guidelines. The form, textures, finishes and colours of the proposed development components should aim to be compatible with the existing surroundings. To improve visual amenity designs should be aesthetically pleasing and treatment of structures also improve visual amenity. For example, natural building materials such as stone and timber, should be considered for architectural features, and light earthy tone colours such as shades of green, shades of grey, shades of brown and off-white should also be considered to reduce the visibility of the development components, including all roadwork, buildings and noise barriers. In addition, the design of structures should consider green roofs were feasible, following stated guidelines. All Noise barriers, particularly noise barriers but also any barriers proposed for ecological impact mitigation, should be kept to a practical minimum, and be of such a designed as to integrate as well as possible into the surrounding visual context and be as low as practical to minimize blocking views. Noise barrier design, including vertical, cantilever or curved, and noise enclosures including semi-enclosure and full enclosure, at grade and/ or elevated, should follow the guidelines stated. Construction time frame should also be considered and designs seek to keep it to a practical minimum.	Improve visual amenity of the new buildings, NDAs in general and integrate as best possible into the surrounding landscape	Detailed Design Consultant/	Throughout NDAs	Prior to Construction	N/A

S.12.A9 MM4	LV4-DP4	Tree Protection & Preservation – Exiting trees to be retained within the Project Site should be carefully protected during construction. In particular OVTs will be preserved according to ETWB Technical Circular (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.	Protect and Preserve Trees	Government / Detailed Design Consultant/ Contractor	Onsite	Prior to Construction and Construction Phase	*
S.12.A9 MM5	LV5-DP4	Tree Transplantation – Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC 2/2004 and 3/2006 and final locations of transplanted	Transplant Trees where suitable for transplantation	Government / Detailed Design Consultant/ Contractor	Onsite possible. Consider locations where Otherwise offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 „Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.					
S.12.A9 MM6	LV6-DP4	Slope Landscaping – Site formation should be reduced as far as possible. Seeding of modified slopes should be done as soon as grading works are completed to prevent erosion and subsequent loss of landscape resources and character. Woodland tree seedlings and/ or shrubs should be planted where slope gradient and site conditions allow. In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping works should comply with GEO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes.	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure man-made slopes are as visually amenable as possible.	Government Detailed Design Consultant/ Contractor	Onsite	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.A9 MM7	LV7-DP4	Compensatory Planting – Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under ETWBTC 3/2006. Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots. Compensatory planting for shrubs should be considered in	Compensate for trees and shrubs lost due to the Project.	Government Detailed Design Consultant/ Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		suitable locations. Native species such as Melastoma malabathricum, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma dodecandrum, Atalantia buxifolia, Rhodomyrtus tomentosa, Rhaphiolepis indica, and Rhododendron simsii are suggested..					
S.12.A9 MM8	LV8-DP4	Woodland Compensatory Planting –Specific Woodland compensatory planting is proposed for any areas of quality woodland that are unavoidably affected by the Project. The location and design of the woodland compensatory planting will principally be within habitats of lower value such as upland grassland. The proposed locations are identified, for example, on the foothills of Tai Shek Mo, and on the higher ground of Fung Kong Shan in KTN NDA; along Fanling Bypass; and a small area in the northern FLN NDA. The intention of the compensatory woodland will be to recreate areas of quality woodland, not necessarily to compensate for loss of trees on a like for like basis (See E18 & E27 also). Native tree species are suggested for planting in the appropriate locations, including Ailanthus fordii, Bischofia javanica, Castanopsis fissa, Celtis sinensis, Cinnamomum burmannii, Cinnamomum camphora, Xanthoxlyum avicennaeHibiscus tiliaceus, Liquidambar formosana, Sapium discolor, Schefflera heptaphylla and Ilex rotunda. In addition some understory vegetation may be planted including shrubs such as Atalantia buxifolia, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma	Reprovide areas of woodland to compensate for those areas of quality woodland lost.	Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	In areas identified in the EIA Landscape Mitigation Plans and as agreed with AFCD	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		malabathricum, Melastoma dodecandrum, Rhodomyrtus tomentosa, Rhaphiolepis indica, and Rhododendron simsii. The area allocated for compensatory woodland planting allows in part for the fact that it will take some time for the compensatory planting to achieve the landscape and ecological function and value of the area to be lost. In addition, it allows for the fact that not all of the areas identified for planting will prove to be plantable, by virtue of topography and ground conditions and, especially, because though the areas identified are largely grassland it is inevitable that these areas will already support some patches of trees and shrubs which would be inappropriate for further planting.					
S.12.A9 MM9	LV9-DP4	Vertical Greening – Planting of climbers to grow up vertical surfaces were appropriate (e.g. viaduct piers, noise barriers).	Soften hard surfaces and facilities	Government / Detailed Design Consultant/ Contractor	On appropriate structures	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.A9 MM11	LV10-DP4	Screen Planting – Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Government / Detailed Design Consultant/ Contractor	Along roads, around suitable built structures , or around VSRs to contain their view out to the NDA structures.	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.A9 MM12	LV11-DP4	Road Greening –For viaducts, soft landscaping should be provided to soften the hard, straight edges (for climbers used to	To soften the hard, straight edges and provide greening	Government Detailed Design	On viaducts or along roads.	Prior to Construction,	N/A

		cover the vertical, hard surfaces of the piers – see MM9 Vertical Greening) and shade tolerant plants should be planted, where light is sufficient, to improve aesthetic value of areas under viaducts. Both at grade planting and use of elevated planters should be considered for the soft landscaping of viaducts, taking into account the preference to minimize the overall viaduct bulk and integrate architectural forms and textural finishes which improve aesthetics. For at grade roads, planting should be considered along central dividers and on road islands e.g. in the middle of roundabouts. (Roadside planting i.e. at the road edge and not in the central divider or road island, is considered part of Screen Planting)	along roads.	Consultant/ Contractor		Construction Phase & Maintenance in Operation Phase	
S.12.A9 MM13 & EIA Annex 13	LV12-DP4	Marsh/Wetland Compensation –The proposed Long Valley Nature Park (LVNP) will be designed and implemented to enhance on-wetland areas within the LVNP. (See E4,E15 and E25 also) Also see LV16, LV17, and LV18 as wetland planting should be provided along the embankments and beds of modified/ re-provisioned watercourses.	Compensate for Marsh/ Wetland lost due to the Project.	Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.A9 MM15	LV13-DP4	Pond Replacement –Principles adopted in the design of the NDAs ensure that they incorporate ponds within the RODPs. All requirements for ponds stipulated in the planning documents for the formulation of the Preliminary Layout Plan (e.g. at Fung Kong Shan Park in E1-7 of KNT ND) should be adhered to.	Reprovision for ponds lost due to the Project.	Project Proponent/ Detailed Design Consultant/ Contractor/ Maintenance Authority	E1-7 and C1-9 (LVNP) in KNT NDA and generally throughout NDA	Prior to Construction, Construction Phase Maintenance in Operation Phase	N/A
Landscape and Visual (Construction)							

S.12.A9 MM16	LV14-DP4	Screen Hoarding –Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment and where possible, non-reflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence. Details can refer to the ecological impact assessment (Chapter 13 of the EIA report).	To screen undesirable views of the works site.	Contractor			N/A
S.12.A9 MM17	LV15-DP4	Light Control – Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase.	To minimize glare impact to adjacent VSRs	Government / Contractor	Throughout NDAs	Construction and Operation Phases	N/A
Ecology (Prior to Detailed Design Prior to Construction Phase)							
S. 13.9	E1-DP4	Egretry Habitat Creation & Management Plan (EHCMP) and Woodland Planting and Management Plan (WPMP)	Compensate for loss of Man Kam To Road egretry. Compensate for loss of secondary woodland and hillside plantation of ecological significance.	Project Proponent/ Detailed Design Consultant (EHCMP and WPMP).	FLN area A1-7 (egretry compensation). KTN areas E1-8 and G1-3 (woodland compensation).	Detailed design phase.	N/A
Ecology (Detailed Design, Construction and Operational Phases)							
S13.9	E2-DP4	Use opaque, non-transparent, non-reflective noise barriers. Unnecessary lighting should be avoided.	Minimize mortality impacts on birds.	Detailed Design Consultant/ Contractor	Throughout.	Throughout.	N/A

				Maintenance Authority.			
Ecology (Construction Phase)							
S.13.9	E3-DP4	Design and erection of 2m high solid dull green site barrier fence between active works areas and all areas/habitats of ecological importance.	Minimize dust, disturbance, mortality and other adverse ecological impacts on habitats, flora and fauna.	Contractor.	Interface between areas/habitats of ecological importance (KTN areas B1-3, E1-8, G1-3 and H1-1) and works areas	Construction phase.	N/A
S13.9	E4-DP4	Compensatory native woodland planting.	Compensate for loss of plantation of ecological significance.	Project Proponent / Contractor	KTN areas E1-8 and G1-3.	Construction phase.	N/A
S13.8	E5-DP4	Maintenance of compensatory native woodland planting.	Compensate for loss of plantation of ecological significance.	Maintenance Authority.	KTN areas E1-8 and G1-3.	Operation phase	N/A
Cultural Heritage (Pre-construction Phase)							
S11.6.1	CH1-DP4	<u>Undertaking Survey-cum-Rescue Excavation</u> A Survey-cum-Rescue Excavation should be conducted after land resumption and before the commencement of construction works to define the precise archaeological deposits extent and to preserve the archaeological resources by record. The excavation should be conducted by a professional archaeologist and prior to fieldwork commencement, the archaeologist should obtain a Licence to Excavate and Search for Antiquities from the Authority under the AM Ordinance.	To define the precise archaeological deposits extent and to preserve the archaeological resources as far as possible.	Project Proponent / Contractor/ Qualified Archaeologist	In KTN NDA, for Site 1	After land resumption but before Construction commencement of the zones	N/A
S11.6.1	CH2-	<u>Undertaking Further Archaeological Survey to Cover the</u>	To confirm and verify the	Project	In the not-yet-	After land	N/A

	DP4	Outstanding Areas Further archaeological surveys to cover the outstanding areas of the not-yet-surveyed-area with medium archaeological potential located with areas with proposed development as presented in **Figure 11.9** should be implemented after land resumption to confirm and verify the findings of the EIA. The survey should be conducted by a professional archaeologist and prior to fieldwork commencement, the archaeologist should obtain a Licence to Excavate and Search for Antiquities from the Authority under the AM Ordinance. It should be noted that the scope of further archaeological survey is based on the current proposed alignment. Any additional works areas which have not been covered by the current archaeological impact assessment should be covered as soon as possible. Subject to the findings of the archaeological survey to be conducted after land resumption, additional mitigation measures would be designed and implemented before the commencement of construction works to mitigate the adverse impact.	findings of the EIA	Proponent/ Contractor/ Qualified Archaeologist	surveyed- areas with medium archaeological potential located within the work extent of DP4	resumption but before construction	
S11.6.1	CH3-DP4	Undertaking Induction Training Induction training should be provided to the construction Contractor before the commencement of the excavation works in Spot E. An induction will be conducted as part of the environmental health and safety induction programme to all site staff before they are deployed on site. The induction will include an introduction on the historical development of the Site, the possible archaeological remains that may be encountered during ground excavation works as well as the reporting	To preserve the archaeological resources as far as possible	Project Proponent/ Contractor/ Qualified Archaeologist	Spot E	Before the commencement of the excavation works and before site staff are deployed on site	N/A

		procedures in case suspected archaeological remains are identified. A set of the presentation material (in the form of power point presentation) with content details will be prepared by an archaeologist and submitted to AMO for reference and record purpose. The first induction briefing will be video recorded and it will be used as induction briefing material for new site staff.					
S11.6.2	CH4-DP4	Conducting Photographic and Cartographic Records Prior to Removal/Relocation of Impacted Built Heritages Prior to removal/relocation of the directly impacted historical buildings and cultural/historical landscape features, photographic and cartographic records should be conducted to preserve them by record. Liaison with and obtaining agreement from the descendants of these features will be carried out by the Project Proponent.	To preserve the directly impacted sites by record prior to their removal / relocation	Project Proponent/ Contractor	Entrance Gate of HKT03, KT16, KT17 and KT18	Prior to Removal / Relocation of features before commencement of construction works	N/A
S11.6.2	CH5-DP4	Undertaking baseline condition survey and baseline vibration impact assessment In case any potential vibration impact on any nearby built heritage features are identified during the pre-construction stage of the Project, prior to commencement of construction works, a baseline condition survey and baseline vibration impact assessment should be conducted by a qualified building surveyor or a qualified structural engineer to define the vibration limit (a vibration limit at 15mm/s could be adopted for historic buildings) and to evaluate if construction vibration monitoring and structural strengthening measures are required during construction phase so as to ensure the construction performance meets with the vibration standard stated in the EIA	To minimize the vibration impacts during preconstruction stage on any identified potential vibration impacted built heritage features	Project Proponent/ Contractor	HKT03 (Main Building) and G308	Preconstruction stage before commencement of construction works	N/A

		report.					
S11.6.2	CH6-DP4	Relocation of Built Heritages Relocation of built heritages to a reasonable location nearby may be required.	To preserve the directly impacted sites by relocation	Project Proponent/ Contractor	Entrance Gate of HKT03	After the photographic and cartographic records and before commencement of construction works	N/A
Cultural Heritage (Construction Phase)							
S11.6.2	CH7-DP4	Conducting Construction Vibration Monitoring and Structural Strengthening Measures Construction vibration monitoring and structural strengthening measures should be conducted during Construction phase based on the assessment result of baseline condition survey and baseline vibration impact assessment, so as to ensure the construction performance meets with the vibration standard stated in the EIA report.	To minimize the potential impacts during Construction phase on any identified potential vibration impacted built heritage features	Contractor	Identified potential vibration impacted built heritage features	Construction phase, with details specified in baseline condition survey and baseline vibration impact assessment,	N/A
DP7-Utilization of Treated Sewage Effluent (TSE) from Shek Wu Hui Sewage Treatment Works (SWHSTW)							
Landscape and Visual (Construction Phase and Operational Phase)							
S.12.9 MM4	LV1-DP7	Tree Protection & Preservation – Exiting trees to be retained within the Project Site should be carefully protected during construction. In particular OVTs will be preserved according to ETWB Technical Circular (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any	Protect and Preserve Trees	Government / Detailed Design Consultant/ Contractor	*Onsite*	Prior to Construction and Construction Phase	N/A

		works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.					
S.12.9 MM9	LV2-DP7	Vertical Greening – Planting of climbers to grow up vertical surfaces were appropriate (e.g. building edges, piers).	Soften hard surfaces and facilities	Government / Detailed Design Consultant/ Contractor	*On appropriate structures*	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.9 MM10	LV3-DP7	Green Roof – Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable.	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to VSRs at high levels. Provide greening.	Government / Detailed Design Consultant/ Contractor	*On appropriate buildings*	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
DP12-Reprovision of temporary wholesale market in FLN NDA							
Landscape and Visual (Detailed Design, Prior to Construction, Construction and Operational Phases)							

S.12.D9	LV1-DP12	General Good Practice Measures - For areas unavoidably disturbed by the Project on a short term basis e.g. works areas, the general principle to try and restore these to their former state to suit future land use, should be adhered to. With regard to topsoil, where identified, it should be stripped, treated appropriately, and where suitable and practical stored for re-use in the construction of the soft landscape works such as roadside amenity strips, and open space sites.		Detailed design consultant/ Contractor	Throughout NDAs,	Prior to Construction, Construction & for all planting, this should be installed as soon as the areas become available, to achieve early establishment	N/A
S.12.D9 MM1	LV2-DP12	Minimum Topographical Change –To minimize landscape and visual impacts, the footprint and elevation of such elements should be optimized to reduce topographical/ landform changes, as well as reduce land take and interference with natural terrain. Where there is a need to significantly cut into the existing landform, retaining walls should be considered as well as cut slopes, to minimize landform changes and land resumption, while also considering visual amenity. Earthworks and engineered slopes should be designed to be a visually interesting landform, compatible with the surrounding landscape and to mimic the natural contouring and terrain e.g. introduction and continuation of natural features such as spurs and ridges where appropriate, to support assimilation with the hillside setting.	Reduce topographical changes and minimize land resumption	Government / Detailed Design Consultant/ Contractor	Throughout NDAs, particularly for reservoirs	Prior to Construction	N/A
S.12.D9 MM2	LV3-DP12	Detailed Design (Visual) –The footprint and massing of development components and the works area should also be kept to a practical minimum and the detailed design of	Improve visual amenity of the new buildings, NDAs in general and integrate as	Detailed Design Consultant	Throughout NDAs	Prior to Construction	N/A

		development components for Construction phase should follow the Sustainable Building Design Guidelines. The form, textures, finishes and colours of the proposed development components should aim to be compatible with the existing surroundings. To improve visual amenity designs should be aesthetically pleasing and treatment of structures also improve visual amenity. For example, natural building materials such as stone and timber, should be considered for architectural features, and light earthy tone colours such as shades of green, shades of grey, shades of brown and off-white should also be considered to reduce the visibility of the development components, including all roadwork, buildings and noise barriers. In addition, the design of structures should consider green roofs were feasible, following stated guidelines. All Noise barriers, particularly noise barriers but also any barriers proposed for ecological impact mitigation, should be kept to a practical minimum, and be of such a designed as to integrate as well as possible into the surrounding visual context and be as low as practical to minimize blocking views. Noise barrier design, including vertical, cantilever or curved, and noise enclosures including semi-enclosure and full enclosure, at grade and/ or elevated, should follow the guidelines stated. Construction time frame should also be considered and designs seek to keep it to a practical minimum.	best possible into the surrounding landscape				
S.12.D9	LV4-	Tree Protection & Preservation – Exiting trees to be retained	Protect and Preserve Trees	Government /	Onsite	Prior to	N/A

MM4	DP12	within the Project Site should be carefully protected during construction. In particular OVTs will be preserved according to ETWB Technical Circular (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.		Detailed Design Consultant/ Contractor		Construction and Construction Phase	
S.12.D9 MM5	LV5-DP12	Tree Transplantation – Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with	Transplant Trees where suitable for transplantation	Government / Detailed Design Consultant/ Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		ETWBTC 2/2004 and 3/2006 and final locations of transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.					
S.12.D9 MM6	LV6-DP12	Slope Landscaping – Site formation should be reduced as far as possible. Seeding of modified slopes should be done as soon as grading works are completed to prevent erosion and subsequent loss of landscape resources and character. Woodland tree seedlings and/ or shrubs should be planted where slope gradient and site conditions allow. In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping works should comply with GEO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes.	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure man-made slopes are as visually amenable as possible.	Government / Detailed Design Consultant/ Contractor	Onsite	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
S.12.D9 MM7	LV7-DP12	Compensatory Planting – Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under ETWBTC 3/2006.	Compensate for trees and shrubs lost due to the Project.	Government / Detailed Design Consultant/ Contractor	Onsite where possible. Otherwise consider offsite locations	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A

		Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots. Compensatory planting for shrubs should be considered in suitable locations. Native species such as *Melastoma malabathricum, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma dodecandrum, Atalantia buxifolia, Rhodomyrtus tomentosa, Rhaphiolepis indica*, and *Rhododendron simsii* are suggested.					
S.12.D9 MM11	LV8-DP12	Screen Planting – Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Government / Detailed Design Consultant/ Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the NDA structures.	Prior to Construction, Construction Phase & Maintenance in Operation Phase	N/A
Landscape and Visual (Construction)							

S.12.D9 MM16	LV9-DP12	Screen Hoarding –Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment and where possible, nonreflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence. Details can refer to the ecological impact assessment (Chapter 13 of the EIA report).	To screen undesirable views of the works site.	Contractor	Throughout NDAs	Construction Phase	N/A
S.12.D9 MM17	LV10-DP12	Light Control – Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase.	To minimize glare impact to adjacent VSRs	Government / Contractor	Throughout NDAs	Construction and Operation Phases	N/A

Implementation status:

^ Mitigation measure was fully implemented

* Observation/reminder was made during site audit but improved/rectified by the contractor

\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor

X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

N/A Not Applicable at this stage as no such site activities were conducted in the reporting period

APPENDIX M
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: Civil Engineering and Development Department

Monthly Summary Waste Flow Table for 2020

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
February	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
March	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.065
April	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.351
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.793
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.202
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.411
July											
August											
September											
October											
November											
December											
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.411

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	**Hard Rock and Large Broken Concrete**	**Reused in the Contract**	**Reused in Other Projects**	**Disposed as Public Fill**	**Imported Fill**	**Metals**	**Paper / Cardboard Packaging**	**Plastics (see Note 3)**	**Chemical Waste**	**Others, e.g. general refuse**
(in '000m^3)	**(in '000m^3)**	**(in '000m^3)**	**(in '000m^3)**	**(in '000m^3)**	**(in '000m^3)**	**(in '000kg)**	**(in '000kg)**	**(in '000kg)**	**(in '000kg)**	**(in '000m^3)**
1,310.619	300.000	1,010.619	0.000	0.000	0.000	20.000	10.000	20.000	0.500	10.000

Notes: (1) The performance target are given in PS Clause 1.115(14)
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m^3.
(5) Conversion factors for reporting purpose:
in-situ: rock = 2.5 tonnes/m^3; soil = 2.0 tonnes/m^3
excavated: rock = 2.0 tonnes/m^3; soil = 1.8 tonnes/m^3
broken concrete and bitumen = 2.4 tonnes/m^3
C&D Waste = 0.9 tonnes/m^3
Non-inert C&D material: 6.5m3/dump truck
(6) Numbers are rounded off to the nearest three decimal places
* Forecast

Monthly Summary Waste Flow Table
(PS Clauses 1.101 & 1.102)

Name of Department: CEDD

Contract No.:ND/2019/06

Monthly Summary Waste Flow Table for 2019 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in the other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastic (see Note 3)	Chemical Waste	Others, e.g. general refuse
	in '000m3	in '000m3	in '000m3	in '000m3	in '000m3	in '000m3	in '000kg	in '000kg	in '000kg	in '000kg	in '000m3
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov	0	0	0	0	0.927	0	0	0	0	0	0.008
Dec	0	0	0	0	0.428	0	0	0	0	0	0.071
Total	**0**	**0**	**0**	**0**	**1.355**	**0**	**0**	**0**	**0**	**0**	**0.079**

Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in the other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastic (see Note 3)	Chemical Waste	Others, e.g. general refuse
	in '000m3	in '000m3	in '000m3	in '000m3	in '000m3	in '000m3	in '000kg	in '000kg	in '000kg	in '000kg	in '000m3
Jan	0	0	0	0	1.558	0	0	0	0	0	0.038
Feb	0	0	0	0	0.548	0	0	0	0	0	0.011
Mar	0	0	0	0	0.145	0	0	0	0	0	0.022
Apr	0	0	0	0	1.741	0	0	0	0	0	0.043
May	0	0	0	0	0.063	0	0	0	0	0	0.035
June	0	0	0	0	0.008	0	0	0	0	0	0.014
Sub-total	0	0	0	0	4.062	0	0	0	0	0	0.162
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	**0.0**	**0.0**	**0.0**	**0.0**	**8.124**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.324**

Notes: (1) The performance targets are given in PS Clause 1.102(14).

(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

*(4) The *Contractor* shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the *works* , together with a breakdown of the nature where the amount of C&D materials expected to be generated from the works is equal to or exceeding 50,000m3. [Delete Note (4) and the table above on the forecast, where inapplicable].

APPENDIX N
COMPLAINT LOG

Appendix N - Complaint Log

Log Ref.	Location	Received Date	Details of Complaint	Investigation/ Mitigation Action	Status
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APPENDIX O
SUMMARY OF SUCCESSFUL PROSECUTION

Appendix O - Summary of Successful Prosecution

Date of Successful Prosecution	Details of the Successful Prosecution	Status	Follow Up
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