

AUES JOB No.: TCS00715/14

TUEN MUN - CHEK LAP KOK LINK



CONTRACT NO. HY/2013/12 –

**NORTHERN CONNECTION TOLL PLAZA AND
ASSOCIATED WORKS**

**3RD ANNUAL ENVIRONMENTAL MONITORING AND
AUDIT (EM&A) REVIEW REPORT – NOVEMBER 2016
TO OCTOBER 2017**

PREPARED FOR

CRBC AND KADEN JOINT VENTURE

Date	Reference No.	Prepared By	Certified By
26 April 2018	TCS00715/14/600/R0410v3	 Ben Tam (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

Ref.: HYDHZMBEEM00_0_6449L.18

27 April 2018

AECOM
Supervising Officer Representative's Office
No. 8 Mong Fat Street, Tuen Mun,
New Territories, Hong Kong

By Fax (2293 6300) and By Post

Attention: Mr. Albert Yu

Dear Mr. Yu,

**Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing
Facilities, and Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2013/12 TM-CLKL Northern Connection Toll Plaza and
Associated Works
Third Annual EM&A Review Report**

Reference is made to the 3rd Annual Environmental Monitoring and Audit (EM&A) Review Report (AUES reference: TCS00715/14/600/R0410v3 dated 26 April 2017) certified by the ET Leader and provided to us via e-mail on 26 April 2017.

Please be informed that we have no adverse comments on the captioned report.

Thank you for your attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y. H. Hui should you have any queries.

Yours sincerely,



F. C. Tsang
Independent Environmental Checker
Tuen Mun – Chek Lap Kok Link

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
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EXECUTIVE SUMMARY

ES01 In August 2014, CRBC-Kaden Joint Venture (*hereafter “CRBC-Kaden JV”*) has been awarded the Contract No. HY/2013/12 -Northern Connection Toll Plaza and Tunnel Section of the Tuen Mun – Chek Lap Kok Link (*hereinafter called “the Contract”*) by the Highways Department (HyD). The construction phase of the Contract was commenced on **23 October 2014**.

ES02 Before the Contract commencement, the baseline air quality monitoring was carried out by the ET of HY/2012/08 from **16th to 31st October 2013**. A set of Action and Limit Levels (A/L Levels) of air quality performance criteria was proposed by ET of HY/2012/08 which has been verified by IEC and endorsed by EPD. The Action and Limit Levels of the air quality adopted for the Contract is shown in *Table ES-01*.

Table ES-01 Action and Limit Levels of Air Quality Monitoring

Monitoring Station	24-hour TSP, ($\mu\text{g}/\text{m}^3$)		1-hour TSP, ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
ASR1	213	260	331	500
ASR5	238	260	340	500
AQMS1	213	260	335	500
ASR6	238	260	338	500
ASR10	214	260	337	500

ES03 In September 2013, baseline survey for Pitcher Plant has been conducted within the project area by a suitably qualified ecologist. In mid-September 2014, Contract HY/2013/12 has also conducted a one-off survey to confirm the number of existing Pitcher Plant. For cultural heritage, a condition survey for the grave was conducted on **23 September 2014**. The Baseline Monitoring Report for the Contract was submitted on **7 October 2014** for IEC’s verification and **25 November 2014** for EPD’s endorsement.

ES04 This is the **3rd** Annual EM&A Review Report for the “Tuen Mun - Chek Lap Kok Link - Northern Connection Toll Plaza and Associated Works” under Environmental Permit No. EP-354/2009/D (*hereinafter “the EP”*), covering the period from **1 November 2016 to 31 October 2017** (*hereinafter “Reporting Period”*).

SUMMARY OF EM&A ACTIVITIES FOR THE REPORTING PERIOD

ES05 In the Reporting Period, the EM&A activities is summarized in *Table ES-02*.

Table ES-02 Summary EM&A Activities Undertaken in the Reporting Period

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Sub-total Occasions				Total
		1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	
Air Quality	1-hour TSP	465	450	450	450	1815
	24-hour TSP	155	150	150	145	600
Cultural heritage inspection	Grave G1	13	13	13	14	53
Landfill Gas Monitoring	Oxygen; Methane & Carbon Dioxide	73 days	72 days	75 days	75 days	295 days
Landscape & Visual	Landscape & Visual Monitoring	13	13	13	13	52
Joint Site Inspection / Audit	IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing	13	13	13	14	53

BREACH OF ACTION AND LIMIT (A/L) LEVELS

- ES06 In according with the air quality measurement results by the ET of Contract HY/2012/08 total 14 Action Level and 1 Limit Level exceedances of 1-hour TSP were recorded; 1 Action Level exceedance of 24-hour TSP was recorded in the Reporting Period.
- ES07 For landfill gas monitoring, the concentration of all parameters were detected within the acceptable levels. Moreover, no noise complaint was received in the Reporting Period. *Table ES-03* is summarized breach of environmental performance criteria.

Table ES-03 Action and Limit (A/L) Levels Breach Summarized in the Reporting Period

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	14	1	7	7	0
	24-hour TSP	1	0	1	1	0
Landfill Gas Monitoring	Oxygen	0	0	0	0	0
	Methane	0	0	0	0	0
	Carbon Dioxide	0	0	0	0	0

ENVIRONMENTAL COMPLAINT

- ES08 In the first three quarter of Reporting Period, no environmental complaints were received by either the RE or ENPO or HyD or the Main Contractor. However, two (2) environmental complaint were received in the fourth quarter of Reporting Period. The complaint received on 29 September 2017 regarding construction dust issue at Lung Mun Road, Tuen Mun. The complaint received on 24 October 2017 regarding light nuisance created by Tuen Mun - Chek Lap Kok Link Project during mid-night. The statistics of environmental complaint is listed in *Table ES-04*.

Table ES-04 Statistical Summary of Environmental Complaints

Reporting Period	Complaint Nature				Total Registered
	Water Quality	Construction Dust	Construction Noise	Others	
1 November 2016 – 31 October 2017	NA	• 29 September 2017	NA	• 24 October 2017	2

- ES09 Complaint investigations were conducted by the ET and the corresponding investigation reports for the complaint were submitted to relevant parties. Based on investigation results, the contractor has enhanced the management to comply the Contract requirements.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- ES10 No environmental summons or successful prosecutions were recorded in the Reporting Period.

SITE INSPECTION

- ES11 For past twelve months, total 53 occasions joint site inspection were carried out by the RE, IEC, ET and the Contractor. For joint site inspections, no non-compliance was observed. However, 91 observations/reminders were recorded within the past twelve months.
- ES12 During each occasion of site inspection, Pitcher Plants of ecology and grave of culture heritage were also to inspect and audit.

FUTURE KEY ISSUES

- ES13 Construction dust emission would be a key environmental issue during construction work of the Contract at dry season. Dust mitigation measures such as watering at least 12 times per day on all

exposed soil within the Project site and associated work areas in Tuen Mun area throughout the construction period should be implemented in accordance with the EP requirement.

- ES14 Muddy water or other water pollutants from sites surface flow to public area should be avoided. Water quality mitigation measures to prevent surface runoff to impact public areas should be fully implemented.

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1 INTRODUCTION

1.1 CONTRACT BACKGROUND

1.1.1 CRBC-Kaden Joint Venture (hereafter “CRBC-Kaden JV”) is commissioned by the Highways Department (HyD) as the Main Contractor of the Contract No. HY/2013/12 – Northern Connection Toll Plaza and Tunnel Section ((hereafter “the Contract”) and this Contract is part of the Tuen Mun – Chek Lap Kok Link (TM-CLK Link Project). TM-CLK Link Project is a Designated Project under the latest Environmental Permit number VEP-354/2009D issued on 13 March 2015. The layout Plan of the Project and the Contract are showed in [Appendix A](#) and [Appendix B](#) respectively.

1.1.2 The works of the Contract mainly include:-

- a. construction of an approximately 5.4 hectares toll plaza and an associated footbridge;
- b. construction of associated carriageways including approximately 0.74 kilometre land viaducts, and an approximately 230 metres vehicular underpass to connect the toll plaza and the roundabout at Lung Mun Road/Lung Fu Road;
- c. site formation for the construction of the toll plaza, including associated slope works and natural terrain hazard mitigation measures;
- d. modification and realignment of the existing Lung Mun Road and Lung Fu Road; and
- e. associated waterworks, drainage, sewerage and landscaping works, etc..

1.1.3 AECOM Asia Company Limited as the Resident Engineer (RE) and Ramboll Environ Hong Kong Limited as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) were employed by the HyD. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, CRBC-Kaden JV has appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team (ET) to responsible relevant environmental monitoring work.

1.1.4 Construction phase of the Contract was commenced on **23 October 2014**. This is the Second (3rd) Annual EM&A Review Report to summarize the monitoring results and inspection findings with the Contractor performance from **1 November 2016 to 31 October 2017** (hereinafter “Reporting Period”) for the past twelve months.

1.2 REPORT STRUCTURE

1.2.1 The Annual Environmental Monitoring and Audit (EM&A) Review Report is structured into the following sections:-

Section 1 Introduction

Section 2 Contract Organization and Construction Progress and Environmental Submissions

Section 3 Summary of Impact Monitoring Requirements under the Contract

Section 4 Air Quality Monitoring

Section 5 Ecology Monitoring

Section 6 Cultural Heritage

Section 7 Landscape and Visual

Section 8 Landfill gas hazard Monitoring

Section 9 Waste Management

Section 10 Inspection and Auditing

Section 11 Environmental Complaint and Non-Compliance

Section 12 Implementation Status of Mitigation Measures

Section 13 Conclusions and Recommendations

2 CONTRACT ORGANIZATION AND CONSTRUCTION PROGRESS AND ENVIRONMENTAL SUBMISSIONS

2.1 CONTRACT ORGANIZATION

2.1.1 The Contract organization and contact details of key personnel are shown in [Appendix C](#).

2.2 CONSTRUCTION PROGRESS

2.2.1 In the Reporting Period, the major construction activity conducted under the Contract is summarized in below. Moreover, the master construction program of the Contract is enclosed in [Appendix D](#).

- Instrumentation and Monitoring
- Site Formation – Earthwork on Slope D and E; surface drainage on slope C, D & E and Portion H
- Toll Plaza Decking TD1, TD2
- Toll Plaza Footbridge
- Retaining Structure RW_B, RW_F and RW_F
- Bridge G1, G2, Bridge H1 by Form Traveller
- Toll Collector Subway & Associated Works
- Sewer Culvert at FC1 and FC2
- Road and Drainage Works +11mPD, +19mPD and Portion H
- Sewer culvert by hand shield method at FC1 and FC2
- Waterproofing and lining at Vehicular Underpass
- Toll Booth Canopy
- Road and Drainage Works at Portion J and Lung Mun Road

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 In according to the EP, the required documents have submitted to EPD for retention which listed in below:

- Monitoring Plan on construction dust (submission refer to Contract HY/2012/08)
- Landscape and Visual Plan (not yet endorsed by EPD)
- Waste Management Plan (endorsed by the EPD on 16 March 2015)
- Baseline Monitoring Report (not yet endorsed by EPD)

2.3.2 Summary of the relevant permits, licenses, and/or notifications on environmental protection as obtained by the Contract in the past twelve months is presented in [Table 2-1](#).

Table 2-1 Status of Environmental Licenses and Permits of the Contract

No.	Type of Permit/ License	Reference/ License No.	Date of Issue	Date of Expiry
1	Air pollution Control (Construction Dust) Regulation	377719	06-08-2014	N/A
2	Chemical Waste Producer Registration - Waste Producers Number	5117422C389301	03-09-2014	N/A
3	Variation of Effluent Discharge License	WT00023973-2016	14-03-16	30-09-2019
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	7020460	01-08-2014	N/A
5	CNP for Multiple Task	GW-RW0520-16	05-05-2016	04-11-2016
		GW-RW0619-16	05-11-2016	04-05-2017
		GW-RW0230-17	08-05-2017	04-11-2017
6	CNP for MH5	GW-RW0563-16	18-05-2016	17-11-2016
		GW-RW0650-16	18-11-2016	17-05-2017
		GW-RW0242-17	22-05-2017	17-11-2017
7	CNP for Tunnel	GW-RW0582-16	23-05-2016	22-11-2016

No.	Type of Permit/ License	Reference/ License No.	Date of Issue	Date of Expiry
		GW-RW0653-16	23-11-2016	22-05-2017
		GW-RW0243-17	23-05-2017	22-11-2017
8	CNP for falsework erection	GW-RW0472-16	22-08-2016	21-12-2016
		GW-RW0724-16	28-12-2016	16-03-2017
		GW-RW0117-17	09-03-2017	16-06-2017
		GW-RW0205-17	25-04-2017	25-11-2017
		GW-RW0704-16	06-12-2016	21-02-2017
9	CNP for Portion H Roundabout	GW-RW0049-17	14-02-2017	18-08-2017
		GW-RW0242-17	22-05-2017	17-11-2017
		GW-RW0211-17	25-04-2017	01-11-2017
10	CNP for Road Paving Works	GW-RW0211-17	25-04-2017	01-11-2017

Note: CNP is Control Noise Permit

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS UNDER THE CONTRACT

3.1 GENERAL

3.1.1 In view of the construction works under the Contract, the major construction activities are land-based. In accordance with the Project EM&A Manual requirements, environmental aspect monitoring should be conducted including air quality, ecological (Pitcher plant), cultural heritage and site inspections during construction period. In addition, landscape and visual (L&V) monitoring, landfill gas monitoring and audit of the contractor's implementation of the construction noise and land-based water quality pollution control measures are also required for the Contract.

3.1.2 A summary of construction phase EM&A requirements are presented in the sub-sections below.

3.2 AIR QUALITY MONITORING PARAMETERS

3.2.1 The construction phase air quality monitoring shall cover the following parameters:

- 1-hour TSP; and
- 24-hour TSP

3.3 MONITORING LOCATION

3.3.1 The air quality monitoring stations for impact monitoring are listed in *Table 3.1* and illustrated in *Appendix E*.

Table 3-1 Designated Air Quality Monitoring Stations under the Contract

ID	Location	Air monitoring station Description
ASR1	Tuen Mun Fireboat Station	EM&A Manual
ASR5	Pillar Point Fire Station	EM&A Manual
AQMS1	Previous River Trade Golf	Enhanced TSP Level under EP condition 2.4
ASR6	Butterfly Beach Laundry	Enhanced TSP Level under EP condition 2.4
ASR10	Butterfly Beach Park	Enhanced TSP Level under EP condition 2.4

3.4 MONITORING FREQUENCY

General Requirement

3.4.1 For regular impact monitoring, the sampling frequency of at least once in every six days shall be strictly observed at five of the designated monitoring stations for 24-hr TSP monitoring. For 1-hr TSP monitoring, the sampling frequency of at least three times in every six days should be undertaken at five locations when the highest dust impact occurs. The stations to be monitored should be selected based on the prevailing wind direction and their proximity to the active construction works.

Special Requirement

3.4.2 As per Condition 2.4 of the EP of TM-CLKL, an enhanced monitoring plan on TSP level at Tuen Mun ("the Enhanced TSP Monitoring Plan") is required to be submitted to the DEP for approval at least 1 month before the commencement of construction of the Project. Details of the Enhanced TSP Monitoring Plan under Contract No. HY/2012/08 could be found from the project website. The air quality monitoring work under this Contract will follow the monitoring requirement of enhanced TSP monitoring under the project.

3.4.3 The air quality monitoring requirements for the Contract is shown in *Table 3-2*.

Table 3-2 Enhanced TSP Monitoring Plan – Construction Phase

Condition	Monitoring Parameter	Monitoring Location	Frequency	Monitoring Requirement
General	1-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	3 times per day every six days	Throughout the Northern Connection, toll plaza and tunnel buildings construction works
	24-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	Daily every six days	
Special	1-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	3 times per day every three days	<p><u>Northern Connection</u> During excavation works for launching shaft, excavation work for Cut and Cover Tunnel and Cut and Cover Tunnel Construction</p> <p><u>Toll Plaza</u> During excavation, slope works, construction of road and superstructures and wind erosion from open sites and stockpiling areas</p> <p><u>Tunnel Buildings</u> During excavation, foundation works, construction of superstructures and wind erosion from open sites and stockpiling areas</p>
	24-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	Daily every three days	

3.5 DERIVATION OF ACTION/LIMIT (A/L) LEVELS

3.5.1 The baseline monitoring results formed the basis for determining the air quality criteria for the impact monitoring. The ET shall compare the impact monitoring results with air quality criteria set up for 24-hour TSP and 1-hour TSP. Based on results of the approved Baseline Monitoring Report of HyD Contract HY/2012/08, the proposed Action and Limit Levels are shown in *Tables 3-3*.

Table 3-3 TSP Action and Limit Levels for Impact Air Quality Monitoring

Air Quality Monitoring Stations	24-hour TSP ($\mu\text{g}/\text{m}^3$)		1-hour TSP ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
ASR1	213	260	331	500
ASR5	238	260	340	500
AQMS1	213	260	335	500
ASR6	238	260	338	500
ASR10	214	260	337	500

3.5.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in *Appendix F*.

3.6 OTHER ENVIRONMENTAL ASPECTS

Noise

3.6.1 The TM-CLKL EIA study concluded that no existing noise sensitive receiver (NSR) was identified within the Study Area at Tuen Mun. Therefore, no planned NSR designated at the

Project sites of Tuen Mun. Based upon this, no noise monitoring is necessary for construction phase under the Contract.

- 3.6.2 Regular site inspections and audits will be carried out during the construction phase in order to confirm compliance with the regulatory requirements and conformity of the Contractor with regard to noise control and contract conditions.

Water Quality

- 3.6.3 No marine works will be undertaken under the Contract. Based upon this, no water quality monitoring is necessary for construction phase.

Ecology

- 3.6.4 Since the Works of the Contract would not generate marine ecological impact, no dolphin monitoring under the Contract was conducted.

- 3.6.5 During construction phase, the ET will perform Pitcher Plants inspection at least once every week to report the growth condition (only undertaken at Establish period) and protection measures.

Landscape and Visual

- 3.6.6 According to EIA recommendation, site inspection and audit shall be required to be undertaken in the operation stage. Measures to mitigate landscape and visual impacts during construction should be checked and monitored by a Registered Landscape Architect to ensure compliance with the intended aims of the mitigation measures in accordance with the EM&A Manual.

Cultural Heritage

- 3.6.7 Grave G1 of heritage resources is situated near the proposed toll plaza in Tuen Mun. Site inspections should be undertaken at least once per week throughout the construction period to ensure compliance with the intended aims of recommended mitigation measures.

Monitoring and Measurement of Landfill Gas

- 3.6.8 During EIA study, landfill gas hazards are likely to be generated from the Pillar Point Valley (PPV) Landfill. Hence, regular landfill gas monitoring is recommended during construction of the proposed toll plaza. Safety Officer or an approved and appropriated qualified person should be carried out the monitoring works to make sure the area free of landfill gas before any man enters in the area.

- 3.6.9 Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person. As a minimum these should encompass those actions specified as follow:

Table 3-4 Actions in the Event of Landfill Gas being Detected in Excavation / Confined Area

Parameter	Measurement	Action
Oxygen	< 19%	- Ventilate to restore oxygen to > 19%
	< 18%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to > 19%
Methane	> 10% LEL (> 0.5% v/v)	- Prohibit hot work - Ventilate to restore methane to < 10% LEL
	> 20% LEL (>1% v/v)	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 10%
Carbon	> 0.5%	- Ventilate to restore oxygen to < 0.5%

Parameter	Measurement	Action
Dioxide	> 1.5%	<ul style="list-style-type: none">- Stop work- Evacuate personnel / prohibit entry- Increase ventilation to restore to < 0.5%

4 AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 According to the Updated EM&A Manual and the Enhanced Total Suspended Particulates (TSP) Monitoring Plan, the air quality impact monitoring was conducted at the five air quality monitoring stations during the Reporting Period by the ET of Contract HY/2012/08. Sharing of impact air quality monitoring data between HY/2012/08 and HY/2013/12 is agreed by all relevant parties. Therefore the Contract is not required to conduct its own dust monitoring exercise until the Contract HY/2012/08 is ended.

4.2 AIR QUALITY MONITORING RESULTS IN REPORTING PERIOD

4.2.1 In the Reporting Period, total 1,815 of 1-hr TSP measurements and 600 events of 24-hours TSP monitoring at five proposed locations were carried out by the ET of Contract HY/2012/08. Detailed air quality monitoring results and statistical analysis of the trends of air quality data during the Reporting Period can be referred to the Monthly EM&A Reports (from November 2016 to October 2017) and the Fourth Annual EM&A Review Report (November 2016 to October 2017) prepared by the ET of Contract HY/2012/08.

4.3 SUMMARY OF ACTION AND LIMIT (A/L) LEVELS EXCEEDANCE (NON-COMPLIANCE)

4.3.1 According to the air quality monitoring result provided by Contract HY/2012/08, 3 Action Level exceedances of 1-hour TSP were recorded at ASR5, ASR6 & ASR10 on 29 July 2017; 1 Action Level exceedance of 1-hour TSP was recorded at ASR1 on 22 August 2017; 3 Action Level and 1 Limit Level exceedances of 1-hour TSP was recorded at ASR1 (2 Action and 1 Limit) and ASR5 (1 Action) on 12 September 2017; 1 Action Level exceedance of 1-hour TSP was recorded at AQMS1 on 18 September 2017 and 2 Action Level exceedances of 1-hour TSP was recorded at ASR5 on 27 September 2017; 2 Action Level exceedances of 1-hour TSP and 1 Action Level exceedance of 24-hour TSP was recorded at ASR1 on 21 October 2017; 2 Action Level exceedances of 1-hour TSP was recorded at ASR5 and ASR6 on 27 October 2017. Notification on Exceedances (NOEs) were issued after receiving the monitoring result from the Contract HY/2012/08. The summary of air quality exceedance is shown in **Table 4-1**.

Table 4-1 Summary of Air Quality Monitoring Exceedance

Date of Exceedance	Monitoring Station	Air Quality Parameter	Result	Exceed
29 July 2017	ASR5	1Hr TSP	370 µg/m ³	Action Level
29 July 2017	ASR6	1Hr TSP	401 µg/m ³	Action Level
29 July 2017	ASR10	1Hr TSP	475 µg/m ³	Action Level
22 August 2017	ASR1	1Hr TSP	360 µg/m ³	Action Level
12 September 2017	ASR1	1Hr TSP	332 µg/m ³	Action Level
12 September 2017	ASR1	1Hr TSP	545 µg/m ³	Limit Level
12 September 2017	ASR1	1Hr TSP	413 µg/m ³	Action Level
12 September 2017	ASR5	1Hr TSP	367 µg/m ³	Action Level
18 September 2017	AQMS1	1Hr TSP	473 µg/m ³	Action Level
27 September 2017	ASR5	1Hr TSP	355 µg/m ³	Action Level
27 September 2017	ASR5	1Hr TSP	456 µg/m ³	Action Level
21 October 2017	ASR1	1Hr TSP	372 µg/m ³	Action Level
21 October 2017	ASR1	1Hr TSP	439 µg/m ³	Action Level
27 October 2017	ASR5	1Hr TSP	368 µg/m ³	Action Level
27 October 2017	ASR6	1Hr TSP	388 µg/m ³	Action Level
21 October 2017	ASR1	24Hr TSP	220 µg/m ³	Action Level

4.4 AIR QUALITY EXCEEDANCE INVESTIGATION

- 4.4.1 Investigation for the 1-hour and 24-hour TSP exceedance was undertaken upon received the monitoring results by the ET.

- 4.4.2 For the exceednances in the reporting period, the investigation reports were submitted to all relevant parties and concluded that those exceedances are unlikely related to the Contract work and no corrective action was required accordingly. The detailed investigation reports and findings can be referred to the Monthly EM&A Reports of the contract.

5 ECOLOGY MONITORING

5.1 GENERAL

5.1.1 According to the EM&A Manual requirements, regularly inspection for Pitcher Plants at least once every week to report its growth and protection measure situation shall be conducted during construction period.

5.1.2 Total 181 pitcher plants were transplanted to final receptor site and the rest of the Pitcher Plant individuals (certified dead by the specialist) were not transplanted and were treated as general refuse. All the transplantation of pitcher plant from the nursery site to final receptor site was completed on 10th September 2015.

5.2 PITCHER PLANTS INSPECTION

5.2.1 A total **53** occasions of inspection were carried out by the Contractor and ET during the Reporting Period.

5.2.2 Establishment period for the pitcher plants was completed at the end of September 2016, the joint site completion of Establishment period visit with AFCD was undertaken on 23 September 2016 and the final pitcher plants report was submitted to AFCD on early December 2016. Therefore after 23 September 2016, only the integrity of the protection fence was checked to fulfil the EIA requirement. During each inspection, the protection mitigation measures were checked at the final receptor area to make sure no site activities were undertaken inside the protection zone. Besides, no construction activities were observed to be carried out at the surrounding of the final receptor area. The condition of chain link fence is good and no repair or maintenance is required.

5.2.3 No matter the completion of establishment period, the Contractor should properly maintain the fencing along the receptor area to avoid disturbance to the pitcher plants under the EIA requirement.

6 CULTURAL HERITAGE

6.1 GENERAL

6.1.1 According to the EM&A Manual requirements, regular inspection for heritage resource Grave G1 shall be audited by the ET at least once every week to ensure recommended mitigation measures implemented during construction period. The aim of the survey is prevention of any possible damage to the grave and to ensure that proposed mitigation measures are implemented. The broad scope of the audit will involve supervision of the following:

- Non-contact effects of the engineering works, such as vibration from pneumatic drills which could cause damage, such as foundation or wall cracks and loosening of tiles or fixtures; and
- Contact between the historic structures and equipment and materials associated with the engineering works.

6.1.2 Specifically, the monitoring programme will entail the following tasks:

- The extent of the agreed works areas should be regularly checked during the construction phase to ensure the buffer is being maintained; and
- Ensure no stockpiling or equipment storage is affecting the structure.

6.1.3 In the event of non-compliance the responsibilities of the relevant parties is detailed in the Event/ Action Plan in *Appendix F*.

6.2 GRAVE INSPECTION

6.2.1 In this Reporting Period, there are total **53 occasions** to carry out the Grave G1 inspection. During site inspection, buffer zone was observed between the working area and the Grave and no construction material or equipment was stored nearby the Grave.

6.2.2 Since construction works very close to buffer zone of the Grave G1, cultural heritage mitigation measures and protection measures as provided by the Contractor, therefore has fully implemented in accordance with EM&A Manual requirements

7 LANDSCAPE AND VISUAL

7.1 GENERAL

7.1.1 According to EM&A Manual requirements, monitoring of Contractor's operations during construction period to report on Contractor's compliance should be carried out on weekly basis. Measure to mitigate landscape and visual impact during construction should be checked and monitored by a Registered Landscape Architect to ensure compliance with the intended aims of the mitigation measures. Moreover, the progress of the engineering works shall be regularly reviewed on site to identify the earliest practical opportunities for the landscape works to be undertaken.

7.2 LANDSCAPE AND VISUAL INSPECTION

7.2.1 In this Reporting Period, Registered Landscape Architect with the Contractor had undertaken a total of **52** occasions of inspection.

7.2.2 During the Reporting Period, most of the landscape works such as planting was not yet commenced, but some transplanting works was commenced on 22 May 2017. Existing trees on boundary of the project area were properly protected and no damage of the existing trees were record in this Reporting Period. Felled trees during construction were collected by a licensed collector for recycling. The detailed inspection checklists can be referred to relevant Monthly EM&A Reports of the Contract.

8 LANDFILL GAS HAZARD MONITORING

8.1 GENERAL

8.1.1 During EIA study, landfill gas hazards are likely to be generated from the Pillar Point Valley (PPV) Landfill. Hence, regular landfill gas monitoring is recommended during construction of the proposed toll plaza.

8.1.2 During construction, a Safety Officer should be appointed to carry out the monitoring works. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriated qualified person. The routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters in the area.

8.1.3 For excavations deeper than 1m, measurements should be carried out:

- at the ground surface before excavation commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically through the working day whilst workers are in the excavation.

8.1.4 For excavations between 300mm and 1m deep, measurements should be carried out:

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open

8.1.5 For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person.

8.1.6 To ensure the accuracy of the monitoring data, zeroing of the gas analyser shall be undertaken at the start of each day's monitoring. As part of the QA/QC, calibration of the gas analyser shall be conducted at least once every two weeks according to the specification of the manufacturer's operation manual.

8.1.7 The landfill consultation zone was divided into 6 monitoring zones. The landfill gas monitoring zones are summarized in Table 8-1 and the layout plan for the monitoring zone is illustrated in [Appendix E](#).

Table 8-1 Landfill Gas Monitoring Zone

ID	Location	Excavation >300mm deep undertaken in this reporting period
TD1	TD1, Retaining Wall A, Grave G1 and Subway	Yes
RW-B	Retaining Wall B	No
RW-F	Retaining Wall F	No
S&U	Slope and Underpass	No
BW	Bridge Works (G2, H1)	No
LMR	Lung Mun Road	Yes (Till 21 August 2017)

8.2 LANDFILL GAS MONITORING RESULT

8.2.1 In the past twelve months, landfill gas monitoring was conducted at monitoring zone TD1 & LMR between November 2016 and October 2017. For the monitoring zone LMR, the

excavation works was temporary completed on 21 August 2017, therefore the landfill gas monitoring at LMR was suspended after 21 August 2017. A BIOGAS 5000 gas analyser was used for the landfill gas monitoring.

8.2.2 There were total 295 monitoring days carried out by the Safety Officer or an approved and qualified persons. Landfill gas measurement results in the past twelve months are summarized in Table 8-2. Moreover, graphical plot are attached in [Appendix G](#).

Table 8-2 Summary of Landfill Gas Measurement Results in this Annual for TD1 & LMR

Para.	Action Level	Limit Level	In Period	Detectable at TD1		Detectable at LMR	
				Min	Max	Min	Max
Methane	>10% LEL (>0.5% v/v)	>20% LEL (>1% v/v)	Nov 2016 to Jan 2017	0.1%	0.1%	0.1%	0.1%
			Feb 2017 to Apr 2017	0.1%	0.1%	0.1%	0.1%
			May 2017 to Jul 2017	0.1%	0.1%	0.1%	0.1%
			Aug 2017 to Oct 2017	0.1%	0.1%	0.1%	0.1%
Oxygen	<19%	<18%	Nov 2016 to Jan 2017	21.0%	21.1%	21.0%	21.1%
			Feb 2017 to Apr 2017	21.0%	21.1%	21.0%	21.1%
			May 2017 to Jul 2017	21.0%	21.1%	21.0%	21.1%
			Aug 2017 to Oct 2017	19.2%	21.1%	20.1%	21.1%
Carbon Dioxide	>0.5%	>1.5%	Nov 2016 to Jan 2017	0.1%	0.2%	0.1%	0.2%
			Feb 2017 to Apr 2017	0.1%	0.2%	0.1%	0.2%
			May 2017 to Jul 2017	0.1%	0.2%	0.1%	0.2%
			Aug 2017 to Oct 2017	0.1%	0.2%	0.1%	0.2%

8.2.3 The measurement results shown that slightly methane concentration was detected and all oxygen concentration was measured between 19.2% and 21.1% and Carbon Dioxide was between 0.1 % and 0.2 %. No corrective action was required accordingly.

9 WASTE MANAGEMENT

9.1 GENERAL WASTE MANAGEMENT

9.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time. The effective management of waste arisings during the construction phase will be monitored through the site audit programme. The aims of the waste audit are:

- to ensure the waste arising from the works are handled, stored, collected, transferred and disposed of in an environmentally acceptable manner; and
- to encourage the reuse and recycling of material.

9.1.2 In addition to the site inspections, the ET shall review the documentation procedures prepared by the Waste Coordinator once a week to ensure proper records are being maintained and procedures undertaken in accordance with the Waste Management Plan.

9.2 RECORDS OF WASTE QUANTITIES

9.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

9.2.2 In the past twelve months, total quantities of waste disposal are summarized in *Tables 9-1* and *9-2*.

Table 9-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity				Total	Disposal Location
	Nov 2016 – Jan 2017	Feb 2017 – Apr 2017	May 2017 – Jul 2017	Aug 2017 – Oct 2017		
Reused in this Contract (Inert) (‘000m ³)	17.291	5.473	4.839	2.889	30.492	-
Reused in other Projects (Inert) (‘000m ³)	32.067	30.748	15.663	2.596	81.074	<ul style="list-style-type: none"> • TM-CLKL C2 HY/2012/08 • Lam Tei Quarry • Eco Park K.wah Recycle Facilities • Lung Kwu Tan Tailor Recycled Aggregates • Laintang BCP
Disposal as Public Fill (Inert) (‘000m ³)	3.031	7.078	2.250	3.149	15.508	Tuen Mum Area 38

Table 9-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity				Total	Disposal Location
	Nov 2016 – Jan 2017	Feb 2017 – Apr 2017	May 2017 – Jul 2017	Aug 2017 – Oct 2017		
Recycled Metal (‘000kg)	0	0	0	0	0	-
Recycled Paper / Cardboard Packing (‘000kg)	0	0	0	0	0	-
Recycled Plastic (‘000kg)	0	0	0	0	0	-
Chemical Wastes (‘000kg)	0.030	0	0	0	0.030	Licensed collector
General Refuses (‘000m ³)	0.511	0.570	0.592	0.594	2.267	WENT

9.2.3 Whenever possible, materials were reused on-site as far as practicable.

10 INSPECTION AND AUDITING

10.1 SITE INSPECTION

10.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulated by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

Findings / Deficiencies During Reporting Period

10.1.2 In the past twelve months, total 53 events of joint site inspection to evaluate site environmental performance has been carried out by the RE, ET and the Contractor. Moreover, IEC or ENPO attended total 12 occasions' joint site inspection. The quantity of reminders/observations is summarized in **Table 10-1**.

Table 10-1 Summary of Reminders/Observations of Site Inspection for the Annual

Reporting Period	Date of site inspection	Nos. of findings / reminders	Follow-Up Status
November 2016	1st, 8th, 15th, 22nd and 29th November 2016	10	Completed
December 2016	6th, 13th, 20th and 28th December 2016	5	Completed
January 2017	3rd, 10th, 17th and 24th January 2017	8	Completed
February 2017	2nd, 7th, 14th, 21st and 28th February 2017	5	Completed
March 2017	7th, 14th, 21st and 28th March 2017	7	Completed
April 2017	3rd, 11th, 18th and 25th April 2017	8	Completed
May 2017	4th, 9th, 16th, 23rd and 31st May 2017	7	Completed
June 2017	6th, 14th, 20th and 27th June 2017	6	Completed
July 2017	4th, 11th, 18th and 25th July 2017	11	Completed
August 2017	1st, 8th, 15th, 22nd and 29th August 2017	3	Completed
September 2017	5th, 12th, 19th and 27th September 2017	9	Completed
October 2017	3rd, 10th, 17th, 24th and 31st October 2017	12	Completed

10.1.3 In the past twelve months, there are no non-compliance recorded, however, **91** observations/reminders were recorded during the site inspections. The minor deficiencies found in the weekly site inspections were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

11 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

11.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

11.1.1 For the Contract, no summons and prosecution was received in the Reporting Period. However, there are two environmental complaints and 16 exceedances of action / limit levels recorded during the Reporting Period. The statistical summary table of environmental exceedance, complaint, summons and prosecution is presented in *Tables 11-1, 11-2, 11-3 and 11-4*.

Table 11-1 Statistical Summary of Environmental Exceedance

Reporting Period	Environmental Aspect		Exceedance Statistics	
			Action	Limit
1 November 2016 – 31 October 2017	Air Quality	1-hour TSP	14	1
		24-hour TSP	1	0
	Landfill Gas	Methane	0	0
		Oxygen	0	0
		Carbon Dioxide	0	0

Table 11-2 Statistical Summary of Environmental Complaints

Reporting Period	Complaint Nature				Total Registered
	Water Quality	Construction Dust	Construction Noise	Others	
1 November 2016 – 31 October 2017	NA	• 29 September 2017	NA	• 24 October 2017	2

Table 11-3 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics			
	Cumulative	Complaint Nature		
		Air	Noise	Water
1 November 2016 – 31 October 2017	0	NA	NA	NA

Table 11-4 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics			
	Cumulative	Complaint Nature		
		Air	Noise	Water
1 November 2016 – 31 October 2017	0	NA	NA	NA

11.2 SUMMARY RECORD OF ALL COMPLAINTS, ACTION AND WORKING PROCEDURES

11.2.1 During the complaint investigation work, the Contractor was co-operated with the ET in providing all the necessary information and assistance for completion of the investigation. Investigation reports for the complaints have completed by the ET and submitted to all relevant parties and they are summarized in below.

Complaint received on 29 September 2017:

A complaint was received from the EPD on 29 September 2017. The complainant complained that no water spraying for road works to cause construction dust emission at Lung Mun Road across from warehouse near Tuen Mun River Trade Terminal. After the investigation it was concluded that the complaint was project related, the improvement works for dust mitigation had been completed by contractor. The detailed investigation report can be referred to the Monthly EM&A Reports (October 2017) of the contract.

Complaint received on 25 October 2017:

A complaint was received from the EPD on 24 October 2017 by District Councillor Mr. YAN Siu-nam. The District Councillor represents the resident who living at Tuen Mun Ferry Pier area to complain that light nuisance created by Tuen Mun - Chek Lap Kok Link Project during mid-night to cause serious impact for their rest. Also, the complainant query the schedule for the construction works and the mitigation measures to avoid light nuisance affect to the resident. After the investigation it was concluded that the complaint was not project related. The detailed investigation report can be referred to the Monthly EM&A Reports (November 2017) of the contract.

Inspection Checklist for Vulnerable to Contaminated Water Discharge

- 11.2.2 Following the complaint about discharge of milky water to Bufferfuly Beach on 2 September 2015, the Contractor proposed to carry out daily inspection of wastewater treatment facilities, concerned discharge points, drainage inlets and outlets during typhoon or wet season.
- 11.2.3 In addition, specific inspections would also be conducted before and after adverse weather to ensure necessary remedial works would be carried out timely. Should incidental contaminated water discharge be found at the inlet of the associated drainage system, a specific inspection of the relevant drainage pipes would be conducted for traces of deposit, and follow up actions would be taken when necessary.
- 11.2.4 The daily inspection for vulnerable to contaminated water discharge was conducted by the Contractor between 1 to 30 November 2016 and 11 April to 31 October 2017. As requested by the EPD, the associated inspection checklist should be presented in the respective Monthly EM&A Report.

12 IMPLEMENTATION STATUS OF MITIGATION MEASURES

12.1 GENERAL REQUIREMENTS

12.1.1 The environmental mitigation measures that recommended in the Environmental Mitigation Measures Implementation Schedule (EMMIS) in the Project EM&A Manual covered the issues of Air Quality, Cultural Heritage, Ecology, Landfill Gas Hazard, Landscape & Visual, Noise, Water and Waste and they are presented in [Appendix H](#).

12.1.2 In the past twelve months, environmental mitigation measures generally implemented by the Contract are listed in [Table 12-1](#).

Table 12-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Air Quality	<ul style="list-style-type: none"> • Maintain damp / wet surface on access road • Keep slow speed in the sites • All vehicles must use wheel washing facility before off site • Sprayed water during rock breaking works • During transportation by truck, materials loaded lower than the side and tail boards, and covered before transport • Compacted all soil stockpiles • Part of the exposed slopes covered geotextile net
Cultural Heritage	<ul style="list-style-type: none"> • Set a buffer zone between the working area and the Grave • All construction materials and equipment store far from the Grave • Inspection the Grave to ensure provision mitigation measures effective
Ecology	<ul style="list-style-type: none"> • Wire fencing provided for temporary protect Pitcher Plants • Undertake weekly inspection of Pitcher Plants
Landfill Gas Hazard	<ul style="list-style-type: none"> • Landfill Gas measurement undertake during trench excavation
Water Quality	<ul style="list-style-type: none"> • Temporary drainage system provide for surface runoff prevent discharge to public area • Wastewater to be treated by sedimentation tank before discharge.
Noise	<ul style="list-style-type: none"> • No operation of powered mechanical equipment is allowed during restricted hours from 19:00 to 07:00 on the following day and whole day during Sunday and public holiday without construction noise permit (CNP) • Keep good maintenance of plants • The noisy plants or works provide mobile noise barriers • Shut down the plants when not in use
Waste and Chemical Management	<ul style="list-style-type: none"> • On-site sorting prior to disposal • Follow requirements and procedures of the “Trip-ticket System” • Predict required quantity of concrete accurately • Collect the unused fresh concrete at designated locations in the sites for subsequent disposal
General	<ul style="list-style-type: none"> • The site was generally kept tidy and clean.

13 CONCLUSIONS AND RECOMMENDATIONS

13.1 CONCLUSIONS

- 13.1.1 This is 3rd Annual EM&A Review Report presenting the monitoring results and inspection findings for the Reporting Period from **1 November 2016 to 31 October 2017**.
- 13.1.2 In the Reporting Period, total 14 Action Level and 1 Limit Level exceedances of 1-hour TSP were recorded; 1 Action Level exceedance of 24-hour TSP was recorded.
- 13.1.3 In this Reporting Period, no noise complaint was received by RE, the Contractor, ENPO or HyD. No Action Level exceedances were triggered and no NOE or the associated corrective actions were therefore issued.
- 13.1.4 Site inspection for landscape and visual was conducted on weekly basis by the Landscape Architect to ensure the compliance of the intended aims of the mitigation measures. Most of the landscape works such as planting was not yet commenced.
- 13.1.5 Landfill gas monitoring was conducted at TD1 & LMR between November 2016 and October 2017 by the Safety Officer. The monitoring results shown no exceedances were triggered.
- 13.1.6 No notifications of summons or successful prosecution were received during the Reporting Period. However, one complaint about the air quality issue and one complaint about the night-time light nuisance were received during the Reporting Period. Investigations were conducted and the follow-up actions corresponding to the mitigation measures recommended were undertaken by the Contractor to resolve the environmental deficiencies
- 13.1.7 Joint site inspection by the RE, ET and CRBC-Kaden JV was carried in accordance with the EM&A Manual. Moreover, the IEC attended a total of **12** joint site inspections during the Reporting Period. No non-compliance was recorded during the site inspection but **total 91** observations/reminders were recorded in the past twelve months. All the deficiencies were rectified before next site inspection date.
- 13.1.8 A total **53** occasions of Pitcher Plant inspection were carried out by the Contractor and ET during the Reporting Period at the final receptor site. Establishment period for the pitcher plants was completed at the end of September 2016, the join site completion of Establishment period visit with AFCD was undertaken on 23 September 2016 and the final pitcher plants report was submitted to AFCD on early December 2016. Therefore after 23 September 2016, only the integrity of the protection fence was checked to fulfil the EIA requirement. During each inspection, the protection mitigation measures were checking at the final receptor area to make sure no site activities was undertaken inside the protection zone. Besides, no construction activities were observed to be carried out at the surrounding of the final receptor area. The condition of chain link fence is good and no repair or maintenance is required.
- 13.1.9 For cultural heritage in the past twelve months, the buffer zone between the working area and the Grave was observed and no construction material or equipment was stored nearby.

13.2 RECOMMENDATIONS

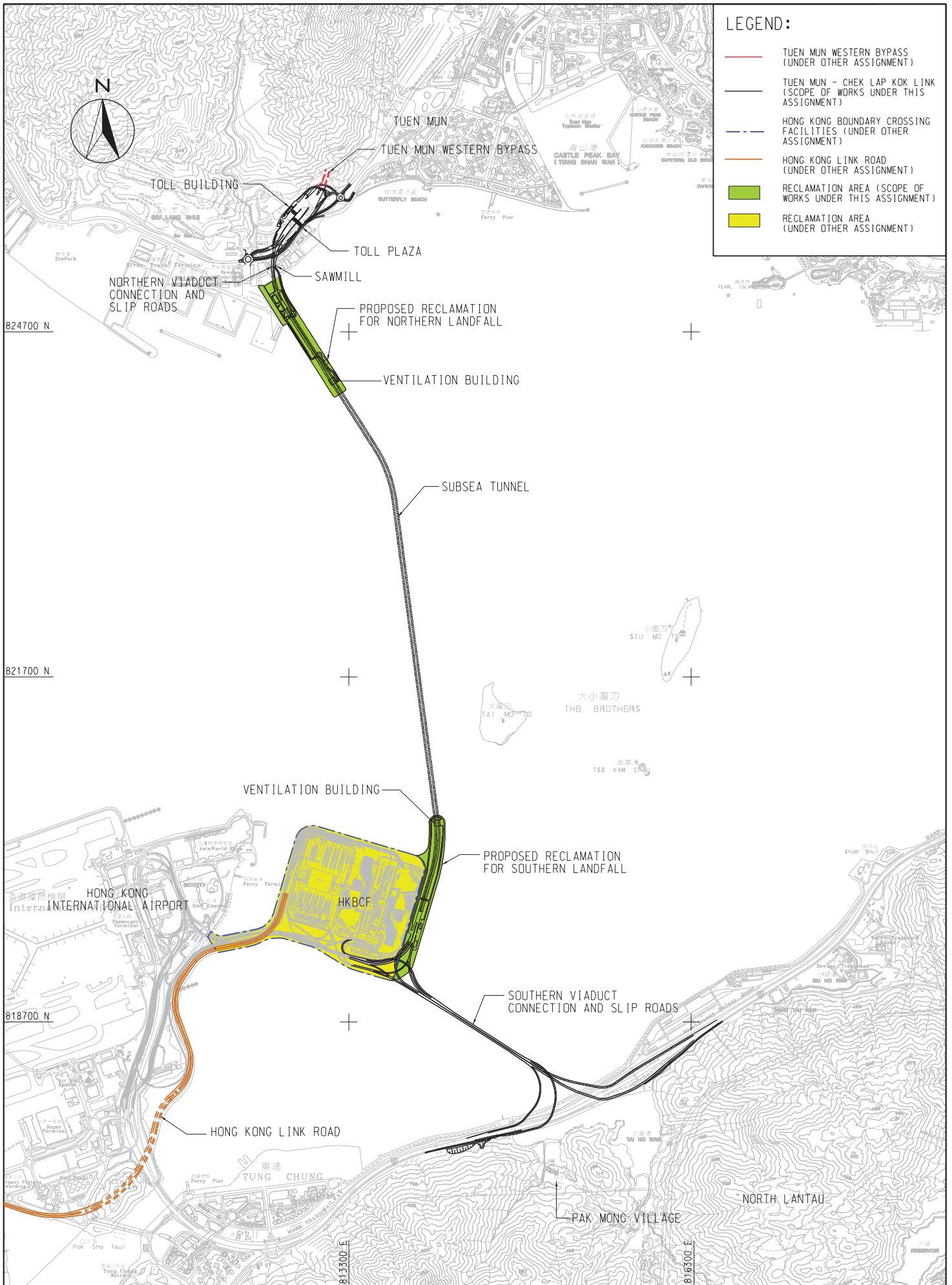
- 13.2.1 The construction phase monitoring programme ensured that any environmental impact to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. The regular site inspection and waste audit ensured that all the mitigation measures on waste management were effectively implemented.
- 13.2.2 The EM&A programme effectively monitored the environmental impacts from the construction phase of the Project and no particular recommendation was advised for the

improvement of the programme.

- 13.2.3 It is considered that the environmental acceptability of the Contract in the past twelve months was satisfactory and acceptable.

Appendix A

Project Layout Plan



LEGEND:

- TUEN MUN WESTERN BYPASS (UNDER OTHER ASSIGNMENT)
- TUEN MUN - CHEK LAP KOK LINK (SCOPE OF WORKS UNDER THIS ASSIGNMENT)
- HONG KONG BOUNDARY CROSSING FACILITIES (UNDER OTHER ASSIGNMENT)
- HONG KONG LINK ROAD (UNDER OTHER ASSIGNMENT)
- RECLAMATION AREA (SCOPE OF WORKS UNDER THIS ASSIGNMENT)
- RECLAMATION AREA (UNDER OTHER ASSIGNMENT)

PROJECT NO. 60044963

AECOM

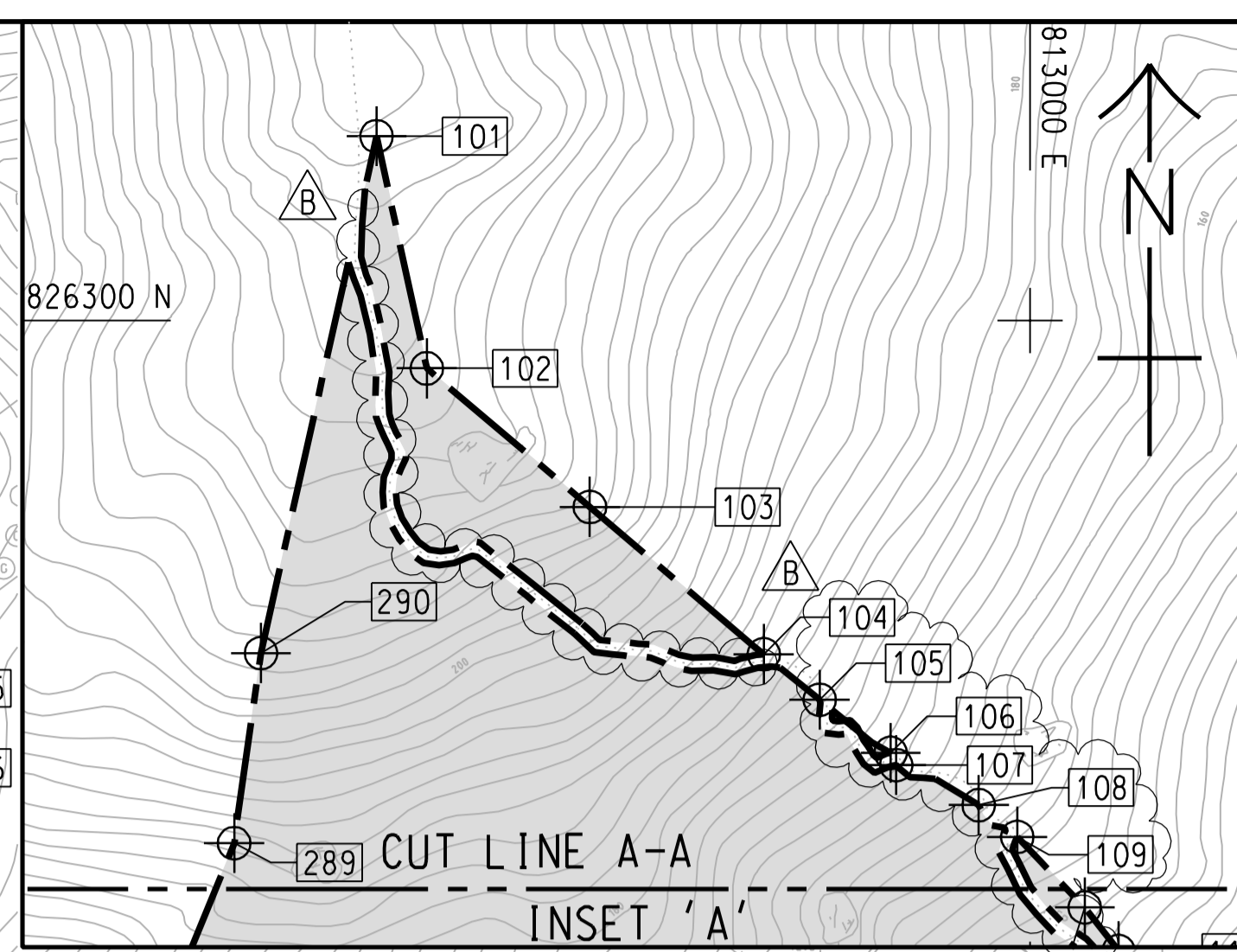
AGREEMENT NO. CE 52/2007(HY)
 TUEN MUN - CHEK LAP KOK LINK - INVESTIGATION
GENERAL LAYOUT OF TM-CLKL

SCALE	A3 1:30000	DATE	JUL. 2009
CHECK	--	DRAWN	WYP
JOB NO.	60044963	DRAWING NO.	Fig 2.1
		REV	A

Appendix B

Layout Plan of the Contract

Project Management Initials: Designer: PI Checked: ALCF Approved: CWN ISO A1 594mm x 841mm
 Plot File by: LINDO 2014/05/19 PATH: P:\Projects\60240249\DRAWING\CONTRACT\C3\1005C3_05E1.dgn



LEGEND:

	LIMIT OF SITE BOUNDARY
	PORTION X
	PORTION X1
	PORTION X2
	PORTION A
	PORTION B
	PORTION C
	PORTION D
	PORTION E
	PORTION F
	PORTION G
	PORTION H
	PORTION H1
	PORTION I
	PORTION J
	PORTION K
	AREA 'A'
	AREA 'B' OF PORTION X

- NOTES:**
1. THE DRAWING SHALL BE READ IN CONJUNCTION WITH SHEET NOS. 60240249/C3/1052 TO 1053.
 2. ALL COORDINATES ARE IN HONG KONG (1980) GRID SYSTEM UNLESS OTHERWISE SPECIFIED.
 3. THE CONTRACTOR SHALL COORDINATE WITH HY/2012/08 CONTRACTOR FOR THE ACCESS (INCLUDING AIRSPACE OVER AREA 'A1') TO CONSTRUCT THE ELEVATED STRUCTURE ABOVE AREA A OF THE SITE.
 4. THE CONTRACTOR SHALL NOTE THAT ONLY THE AIRSPACE OF THE EXISTING FIRE STATION (AREA 'B') IS AVAILABLE FOR THE CONTRACTOR TO CONSTRUCT THE ELEVATED STRUCTURE. THE CONTRACTOR SHALL OBTAIN FSD'S APPROVAL ON ACCESS, CONSTRUCTION METHODS, DURATIONS AND ANY WORKS AT AREA 'B'.

AECOM

PROJECT
項目
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

CLIENT
業主
路政署
HIGHWAYS DEPARTMENT
港務大樓香港工程管理處
Hong Kong - Zhuhai - Macao Bridge
Hong Kong Project Management Office

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ISSUE/REVISION
修訂

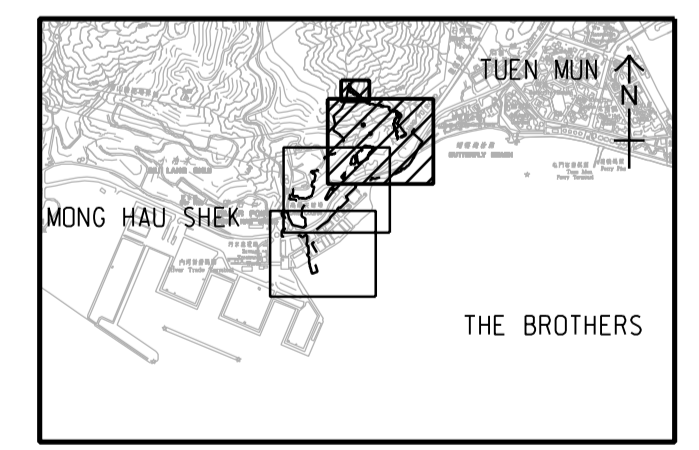
I/R	DATE	DESCRIPTION	CHK.
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS
階段

SCALE
比例
A1 1:1000

DIMENSION UNIT
尺寸單位
METRES

KEY PLAN
索引圖
1:50000



PROJECT NO.
項目編號
60240249

CONTRACT NO.
合約編號
HY/2013/12

SHEET TITLE
圖紙名稱
PORTIONS OF SITE AND SITE BOUNDARY SETTING OUT PLAN

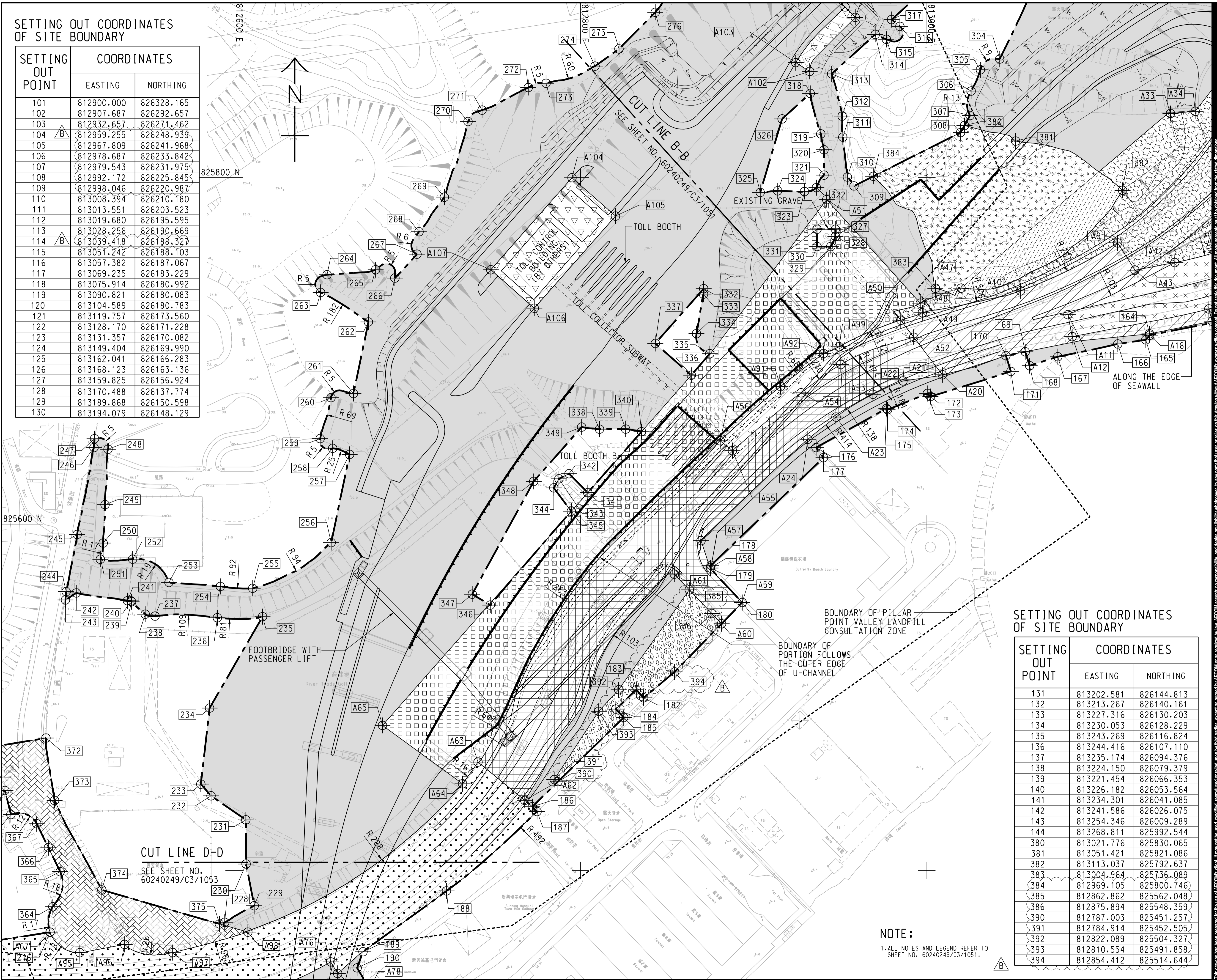
SHEET NUMBER
圖紙編號
60240249/C3/1051B

SHEET 1 OF 3

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SETTING OUT COORDINATES OF SITE BOUNDARY

SETTING OUT POINT	COORDINATES	
	EASTING	NORTHING
101	812900.000	826328.165
102	812907.687	826292.657
103	812932.657	826271.462
104	812959.255	826248.939
105	812967.809	826241.968
106	812978.687	826233.842
107	812979.543	826231.975
108	812992.172	826225.845
109	812998.046	826220.987
110	813008.394	826210.180
111	813013.551	826203.523
112	813019.680	826195.595
113	813028.256	826190.669
114	813039.418	826188.327
115	813051.242	826188.103
116	813057.382	826187.067
117	813069.235	826183.229
118	813075.914	826180.992
119	813090.821	826180.083
120	813104.589	826180.783
121	813119.757	826173.560
122	813128.170	826171.228
123	813131.357	826170.082
124	813149.404	826169.990
125	813162.041	826166.283
126	813168.123	826163.136
127	813159.825	826156.924
128	813170.488	826137.774
129	813189.868	826150.598
130	813194.079	826148.129



SETTING OUT COORDINATES OF SITE BOUNDARY

SETTING OUT POINT	COORDINATES	
	EASTING	NORTHING
131	813202.581	826144.813
132	813213.267	826140.161
133	813227.316	826130.203
134	813230.053	826128.229
135	813243.269	826116.824
136	813244.416	826107.110
137	813235.174	826094.376
138	813224.150	826079.379
139	813221.454	826066.353
140	813226.182	826053.564
141	813234.301	826041.085
142	813241.586	826026.075
143	813254.346	826009.289
144	813268.811	825992.544
380	813021.776	825830.065
381	813051.421	825821.086
382	813113.037	825792.637
383	813004.964	825736.089
384	812969.105	825800.746
385	812862.862	825562.048
386	812875.894	825548.359
390	812787.003	825451.257
391	812784.914	825452.505
392	812822.089	825504.327
393	812810.554	825491.858
394	812854.412	825514.644

NOTE:
 1. ALL NOTES AND LEGEND REFER TO SHEET NO. 60240249/C3/1051.



PROJECT
 TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

CLIENT
 路政署
 HIGHWAYS DEPARTMENT
 港務大樓香港工程管理局
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

CONSULTANT
 工程顧問公司
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分列工程顧問公司

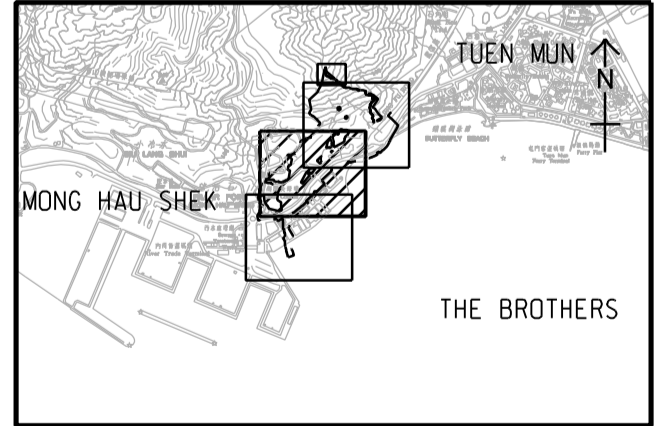
ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS
 備核

SCALE
 比例: A1 1:1000
DIMENSION UNIT
 尺寸單位: METRES

KEY PLAN
 索引圖: 1:50000



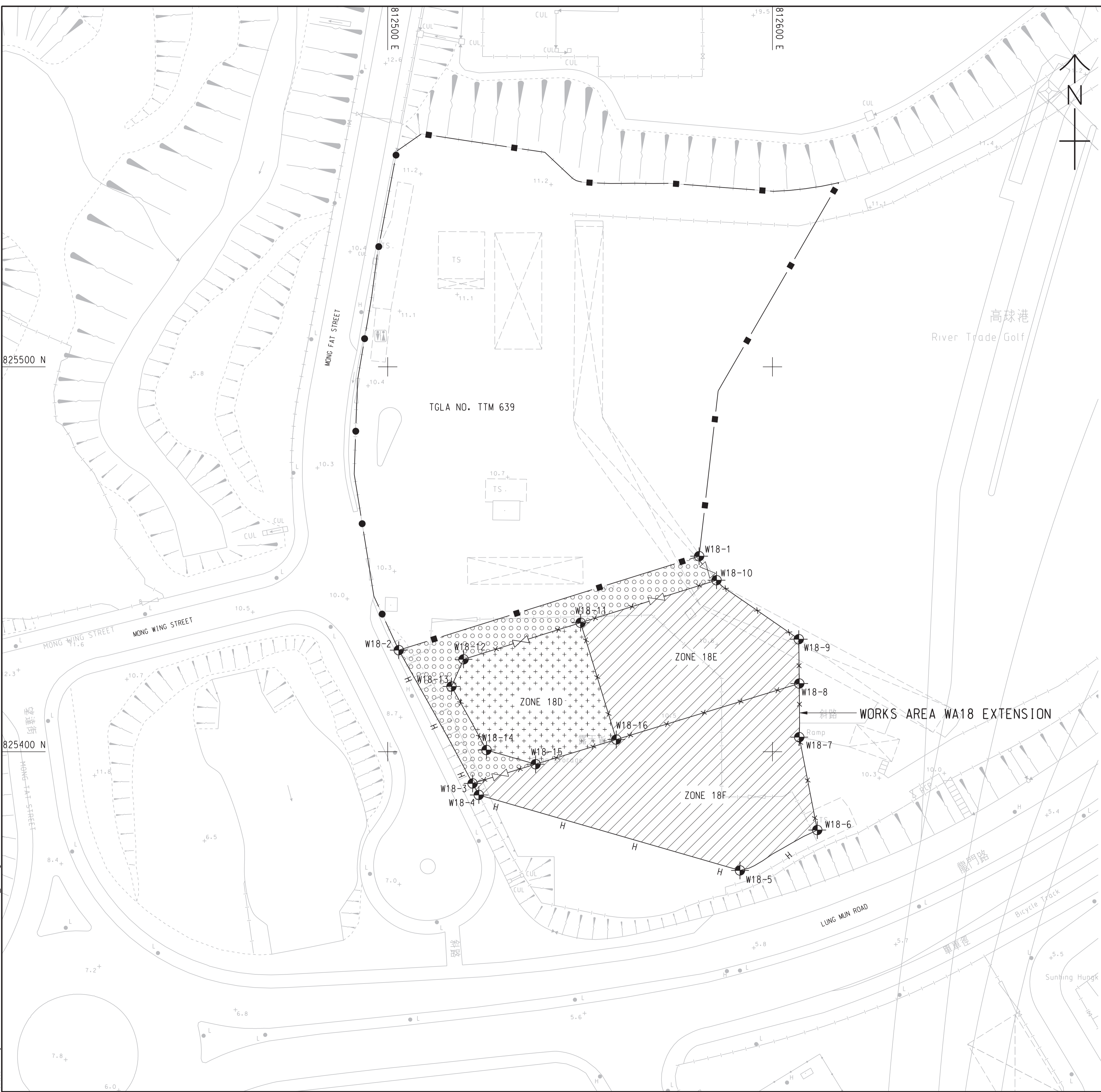
PROJECT NO.
 項目編號: 60240249
CONTRACT NO.
 合約編號: HY/2013/12

SHEET TITLE
 圖紙名稱: PORTIONS OF SITE AND SITE BOUNDARY SETTING OUT PLAN

SHEET NUMBER
 圖紙編號: 60240249/C3/1052B

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Plot File by: LIXQ2 2014/03/4
 PATH: P:\Projects\60240249\DRAWING\CONTRACT\CS1000\C3_1062.dgn
 Project Management Initials: Designer: PL Checked: ALCF Approved: CWN ISO A1 594mm x 841mm



NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C3/1000.
- DEMARCATON OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
- REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6110 AND H6111 FOR DETAILS OF HOARDING.
- REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
- REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
- CHAIN LINK FENCE SHALL BE ERRECTED ALONG THE WORKS AREA BOUNDARY. THE ALIGNMENT AND EXTENT OF HOARDING AND CHAIN LINK FENCE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE ENGINEER.
- THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE ENGINEER.
- THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. GLA-TM 639. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
- THE WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARED-USED AMONG THE TM-CLKL RELATED CONTRACTS. THE AREAS HATCHED WITH ARE TENTATIVELY ALLOCATED FOR THE USE BY THE CONTRACT.
- THE COMMON AREA SHALL BE CONCRETE PAVED BY THE CONTRACTOR.
- ZONE 18F SHALL BE USED FOR THE SITE ACCOMMODATION OF THE ENGINEER. ZONE 18E SHALL BE USED FOR SITE ACCOMMODATION OF THE CONTRACTOR.
- ZONE 18D IS TO BE USED BY THE CONTRACTOR OF CONTRACT NO. HY/2012/08-TUEN MUN-CHEK LAP KOK LINK-NORTHERN CONNECTION SUB-SEA TUNNEL SECTION TO STORE PLANT AND EQUIPMENT ASSOCIATED WITH THE TBM TUNNELS FROM THE DATE FOR COMMENCEMENT OF THE WORKS TO 126 DAYS FROM THE DATE FOR COMMENCEMENT OF THE WORKS. THE CONTRACTOR SHALL LIAISE AND PROVIDE FREE AND UNOBSTRUCTED 24-HOUR ACCESS FOR THE CONTRACTOR OF CONTRACT NO. HY/2012/08 TO ZONE 18D. THE CONTRACTOR SHALL BE GIVEN THE POSSESSION OF ZONE 18D IN ACCORDANCE WITH APPENDIX TO FORM OF TENDER-P.3.

LEGEND:

- WORKS AREA FOR THE CONTRACT
- COMMON AREA (MAINTAINED UNDER THE CONTRACT) TO BE SHARED-USED WITH OTHER CONTRACTS
- AREA TO BE USED BY THE CONTRACTOR OF CONTRACT NO. HY/2012/08 AND WORKS AREA FOR THIS CONTRACT TO BE EARLY HANDED OVER BY THE CONTRACTOR (SEE NOTES NO. 12 ABOVE)
- HOARDING AND GATE (TO BE ERRECTED AND MAINTAINED UNDER THIS CONTRACT)
- EXISTING CHAIN LINK FENCE MAINTAINED BY OTHERS
- CHAIN LINK FENCE AND GATE (TO BE ERRECTED AND MAINTAINED UNDER THIS CONTRACT)
- EXISTING HOARDING AND GATE MAINTAINED BY OTHERS

SETTING OUT CO-ORDINATES OF WORKS AREA WA18 EXTENSION

POINT	CO-ORDINATES	
	EASTING	NORTHING
W18-1	812580.934	825450.791
W18-2	812502.880	825426.380
W18-3	812522.068	825391.750
W18-4	812523.679	825388.756
W18-5	812591.556	825369.151
W18-6	812611.638	825379.647
W18-7	812606.954	825403.769
W18-8	812606.951	825417.705
W18-9	812606.832	825429.231
W18-10	812585.456	825444.557
W18-11	812550.126	825433.508
W18-12	812519.715	825423.997
W18-13	812516.580	825416.947
W18-14	812525.682	825400.438
W18-15	812538.435	825396.754
W18-16	812559.404	825403.166

AECOM

PROJECT
項目

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

CLIENT
業主

路政署
HIGHWAYS DEPARTMENT
港務處大樓香港工程發展處
Hong Kong - Zhuhai - Macao Bridge
Hong Kong Project Management Office

CONSULTANT
工程師有限公司

AECOM Asia Company Ltd.
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SUB-CONSULTANTS
分判工程師有限公司

ISSUE/REVISION
修訂

NO.	DATE	DESCRIPTION	CHK.
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
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-	JAN. 14	TENDER DRAWING	CWN

STATUS
階段

SCALE
比例

A1 1:500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60240249

CONTRACT NO.
合約編號

HY/2013/12

SHEET TITLE
圖紙名稱

WORKS AREA AND HOARDING PLAN

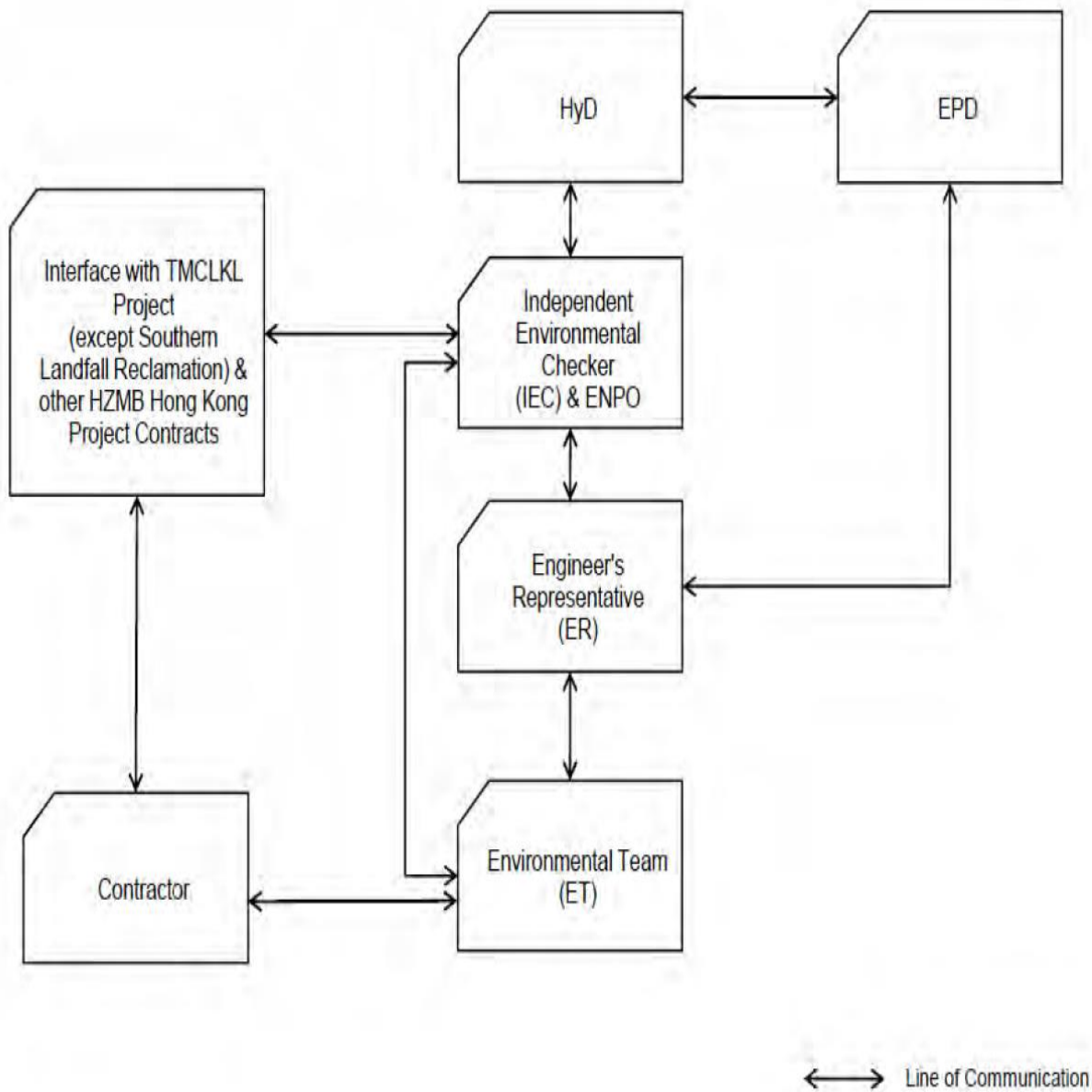
SHEET NUMBER
圖紙編號

60240249/C3/1062B

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Appendix C

Organization of the Contract



Project Organization chart

Organization chart of the Contractor

Contact Details of Key Personnel for the Contract HY/2013/12

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
HyD	Employer	Mr. Stephen W.C. Chan	2762 3669	3188 6614
AECOM	Principal Resident Engineer	Mr. S.W. Fok	2218 7209	2218 7399
AECOM	Chief Resident Engineer	Mr. Albert Yu	2218 7288	2218 7399
AECOM	Resident Engineer (S&E)	Mr. Kelvin Yeung	22187289	2218 7399
Ramboll	Environmental Project Office (ENPO)	Mr. YH Hui	3465 2850	3465 2899
Ramboll	Independent Environmental Checker (IEC)	Dr. FC Tsang	3465 2851	3465 2899
CKJV	Deputy Project Manager	Mr. Raymond Suen	2253 8309	2253 8399
CKJV	Site Agent	Mr. Wilson Lau	2253 8300	2253 8399
CKJV	Safety and Environmental Manager	Mr. Winson Chung	2273 3185	2375 3655
CKJV	Environmental Officer	Mr. Thomas Tang	2253 8300	2253 8399
CKJV	Environmental Supervisor	Mr. Tommy Law	2253 8300	2253 8399
CKJV	Environmental Supervisor	Mr. Alex Li	2253 8300	2253 8399
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Miss Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Mr. Ben Tam	2959 6059	2959 6079
HKL	Registered Landscape Architect	Kenneth Ng	2866 3903	--

Legend:

HyD (Employer) – Highways Department

AECOM (Engineer) – AECOM Asia Co. Ltd.

CKJV (Main Contractor) – CRBC-Kaden Joint Venture

Ramboll (ENPO and IEC) – Ramboll Hong Kong Limited

AUES (ET) – Action-United Environmental Services & Consulting

HKL(RLA) – Hong Kong Landscape

Appendix D

Master Construction Program

Activity ID	Activity Name	2016		2017	
		Oct	Nov	Dec	Jan
HY/2013/12 TMCLK Northern Connection Toll Plaza and Associated-Works Programme-Rev.4A Monthly Update					
Toll Plaza Decking TD1-Section 1					
Stage 1					
Method Statement Submission and Approval					
TD121360	Engineer's comments and approval				
TD121350	MSS for in-situ deck				
Field Works					
Foundation & Substructure at Central Divider of Lung Mun Road					
Bored Pile					
TD121310	Bored Piles F1-K1(5 Nos)				
Pile cap and Pier					
TD120560	Pile cap F1-K1				
TD120550	Pier A1-E2				
TD120570	Pier F1-K1				
Portal Construction					
Portal Beam 1st(H)					
TD120360	TTA application-Stage 3(Night time-portal and decking)				
Deck Construction					
Cast in-situ deck between Pier A and Pier B					
TD120670	Reinforcement and concrete works				
TD120680	Prestressing				
TD120690	Falsework and formwork removal				
Precast beam fabrication					
TD120800	Precast parapet and planter				
Precast beam installation					
TD12020	Precast beam installation between portal F and portal G(4 nos)				
TD12070	Precast beam installation between portal F and portal G(4 nos)				
TD12030	Precast beam installation between portal E and portal F(6 nos)				
TD12040	Precast beam installation between portal C and portal D(5 nos)				
TD12050	Precast beam installation between portal G and portal H(4 nos)				
TD12060	Precast beam installation between portal D and portal E(7nos)				
TD12010	Precast beam installation between portal D and portal E(5 nos)				
TD12080	Precast beam installation between portal B and portal C(10 nos)				
TD12090	Precast beam installation between portal C and portal D (7nos)				
In-situ Deck and Precast Beam					
TD121080	In-situ deck and precast beam between portal E and portal F				
Toll Plaza Decking TD2-Section 1					
Field Works					
G.I and Piling Works					
DWP-Bored Piles					
TD220520	Bored piles for P21-P27				
Base Slab & Pile Cap Construction					
Abutment K-Base Slab					
TD220580	Concreting and backfilling				
Abutment and Pier Construction					
Abutment K					
TD220270	Backfill for abutment K				
Abutment M					
TD220170	Backfill for abutment M				
Deck Construction					
TD220180	Falsework for deck construction				
TD220190	Bearing,formwork, reinforcement& Concreting-North				
TD220000	Construction of walkway				
Miscellaneous Works					
TD220695	Cascade D construction				
Toll Plaza Footbridge-Section 1					
Stage 1					
Method Statement Submissions and Approval					
TFB1090	MSS for concrete slab and planter construction over steel truss				

█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

CRBC - Kaden JV

Three-Month Rolling Programme

Date	Revision	Checked	Approved
20-Nov-16			

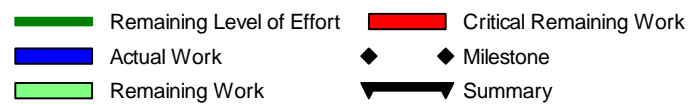
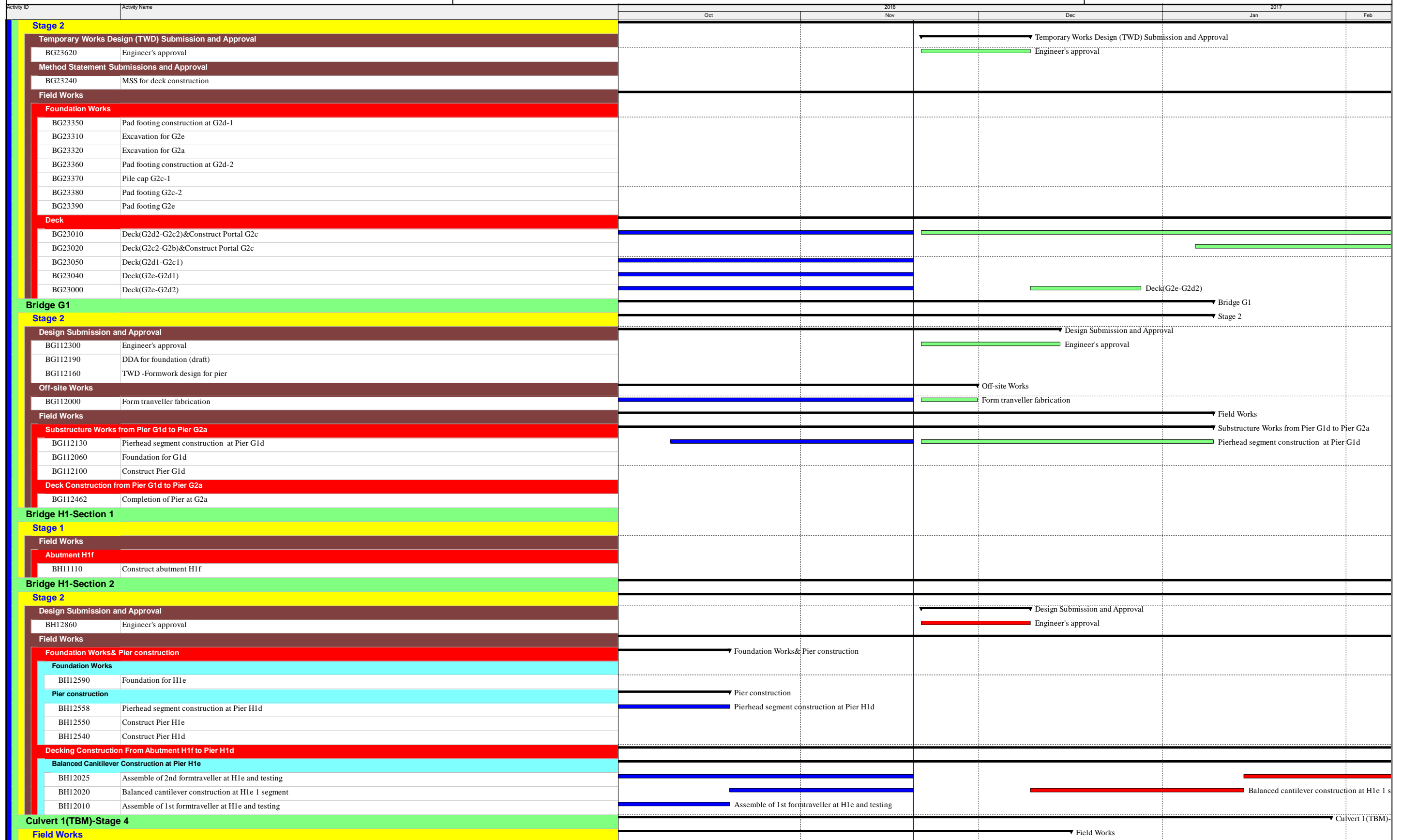


█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

CRBC - Kaden JV

Three-Month Rolling Programme

Date	Revision	Checked	Approved
20-Nov-16			



CRBC - Kaden JV

Three-Month Rolling Programme

Date	Revision	Checked	Approved
20-Nov-16			

Activity ID	Activity Name	2016					2017	
		Oct	Nov	Dec	Jan	Feb		
Receiving Pit								
CUL13150	Prepare for TBM Exit and remove TBM							
Demolishing the Existing Box Culvert								
CUL13250	Demolishing the existing box culvert							
MH5 & MH2								
CUL13265	Construct MH2							
FC1								
CUL13410	Excavation and demolishing works							
CUL13420	FC1 construction							
FC2								
CUL13470	Construction of chamber FC2							
CUL13480	Backfilling and removal section of sheetpile							
CUL13460	Excavation and removal of box culvert							
BY-Pass Sewer between FC1 and FC2(1800 Pipe)								
CUL13510	Backfilling							
Completion of KD3A and Remaining Works								
CUL13535	Backfilling							
Culvert 2 & Culvert 3 and Existing Box Culvert								
Method statement Submission								
CCE20140	Method statement for screeding the existing box culvert							
Culvert 2								
CCE20120	Bay 20							
CCE20090	Bay 21							
Culvert 3								
CCE20215	MH8							
CCE20210	Bay 22							
CCE20212	Drainage diversion							
CCE20085	MH6 construction							
Existing Sewer Box Culvert								
MH3-MH6								
CCE20220	Base slab to be applied with screeding concrete							
Site Formation - Retaining Structure RW_A								
Stage 3								
Retaining Wall A								
RWA20145	Construct Retaining Wall A from TD2 Abutment M to MJ 11-Wall construction							
RWA20175	Construct Retaining Wall A from Bay MJ11 to CH357.8-Wall construction							
RWA20160	Drainage Diversion of Existing Stream to Cascade D							
RWA20150	Construct Cascade D							
RWA20180	Backfilling Works							
RWA20170	Construct Retaining Wall A from Bay MJ11 to CH357.8-Base slab							
Retaining Structure RW_E								
Stage 2								
Design Submission and Approval								
RWE20000	DDA for foundation (draft)							
RWE20040	DDA for substructure(draft)							
RWE20010	Engineer's comments							
RWE20020	DDA for foundation submission							
RWE20030	Engineer's approval							
Site Formation - Retaining Structure for Slope TP_F								
Stage 3								
Retaining Structure for Slope TP_F								
RWF31350	Backfilling							
RWF31470	Backfilling							
RWF31480	U-Channel construction,Completion civil provision works for TCSS and E&M							
RWF31304	Construct Retaining Wall-Wall construction Bay 7-8,17-20							
Site Formation - Slope TP_A & Associated Works								
Stage 3								
Slope Feature - Slope TP_A								
TPA41200	Raking Drain Construction for slope A3							

█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

CRBC - Kaden JV

Three-Month Rolling Programme

Date	Revision	Checked	Approved
20-Nov-16			

Activity ID	Activity Name	2016		2017		
		Oct	Nov	Dec	Jan	Feb
TPA41210	U-channel (240m) and Berm for slope A3					
TPA41220	Laying Erosion Control Mat for slope A3					
TPA41350	Forming East Portal Formation and temporary ground drainage works					
TPA41700	Construct Cascade A					
Site Formation - Slope TP_B & Associated Works						
Stage 3						
Slope Feature - Slope TP_B						
TPB41200	Raking Drain Construction for slope B3					
TPB41210	U-channel (part) and Berm for slope B3					
Site Formation - Slope TP_C & Associated Works						
Stage 3						
Slope Feature - Slope TP_C						
TPC51160	Remaining excavation works and forming road formation					
TPC50800	Laying Erosion Control Mat for slope C1					
Achievement of KD-3(Stage 3) for Slope C						
TPC51320	Achievement of KD-3(Stage 3) for slope C					
Achievement of KD-8 (Section 5) for Slope C						
TPC51330	Remaining works include landscape works and establishment works					
Site Formation - Slope TP_D & Associated Works						
Stage 3						
Slope Feature - Slope TP_D						
TPD51550	Excavation of Rock (3,080m3) for slope D5					
TPD51600	U-channel (125m) and Berm for slope D5					
TPD52800	Forming West Portal Formation and temporary ground drainage works					
TPD51700	Excavation of Rock (5,450m3) for slope D6a and D6b					
Achievement of KD-7(Section 4) for Slope D						
TPD51755	Hand over of portion D					
Achievement of KD-3(Stage 3) for Slope D						
TPD52350	Remaining civil works and drainage works					
Site Formation - Slope TP_E & Associated Works						
Stage 3						
Slope Feature - Slope TP_E at Toll Control Building Area						
TPE61700	Hand Over Portion D					
TPE61250	Mapping & Dowelling					
TPE61260	U-channel (300m) and Berm for slope E3b					
TPE61600	All remaining works include civil provision for TCSS and E&M					
TPE61360	Mapping & Dowelling					
TPE61380	U-channel (230m) and Berm for slope E1b and E1c					
TPE61220	Excavation of Rock for slope E3b - stage 2					
TPE61350	Excavation of Rock (2,000m3) for slope E1b					
Slope Feature - Slope TP_E Remaining Section and 5SE-D/C116						
TPE62420	U-channel (220m) and Berm for slope E3a					
TPE62550	Remaining civil works					
TPE62250	Mapping & Dowelling					
TPE62260	U-channel (150m) and Berm for slope E3c					
TPE62230	Excavation of Rock for slope E3c - stage 3					
TPE62410	Mapping & Dowelling					
TPE62600	Construct Cascade C					
TPE62170	Soil Nail RowA (24nos) Level + 33.00 for 5SE-D/C116 (Install and grouting)					
TPE62160	Soil Nail RowB (22nos) Level + 35.00 for 5SE-D/C-116 (Install and grouting)					
TPE62190	U-channel (200m) and Berm for slope E2c					
Site Formation - Slope Upgrading Works						
Stage 3 (Other Slope Features)						
Slope Feature - 5SE-D/C170						
SFW10130	Soil Nail RowB (18nos) (Install and grouting)					
SFW10140	Soil Nail RowC (18nos) (Install and grouting)					
SFW10080	Excavation of Rock (350m3) for 5SE-D/C170					
SFW10120	Soil Nail RowA (19nos) (Install and grouting)					
SFW10110	Drainage, U-channel (410m) and Handrailing					

█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
▬ Remaining Work ▬ Summary

CRBC - Kaden JV

Three-Month Rolling Programme

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Activity ID	Activity Name	2016					2017	
		Oct	Nov	Dec	Jan	Feb		
SFW10100	Rock Mapping and Stabilization							Rock Mapping and Stabilization
SFW10105	Raking Drain Construction							Raking Drain Construction
SFW10050	Site Clearance and Tree Felling							
SFW10060	Prepare Access Road							
SFW10070	Excavation of Soil (1,240m3) and Modification Works							
Slope Feature - 5SE-D/C165								
SFW10820	Drainage, U-channel (80m) and Handrailing							
SFW10800	Soil Nail RowB (16nos) Level + 15.60 (Install and grouting)							
SFW10810	Soil Nail RowA (19nos) Level + 13.60 (Install and grouting)							
Slope Feature - 5SE-D/C150								
SFW10180	Complete slope E3b - stage 4							Complete slope E3b - stage 4
SFW10190	Slope Modification							
SFW10210	Hydroseeding and Erosion Control Mat							
Slope Feature - 5SE-D/C152								
SFW10230	Slope Modification							
SFW10250	Hydroseeding and Erosion Control Mat							
Slope Feature - 5SE-D/C121								
SFW10260	Complete slope D6a and D6b							Complete slope D6a and D6b
Slope Feature - 5SE-D/C122								
SFW10300	Complete slope D6a and D6b							Complete slope D6a and D6b
Slope Feature - 5SE-D/C14								
SFW10340	Complete TP_F Backfilling(Bay1-2)							Complete TP_F Backfilling(Bay1-2)
AK10410	Possession of Portion X							Possession of Portion X
Slope Feature - 5SE-D/C149								
SFW10390	Slope Modification							
SFW10400	Drainage, U-channel (190m) and Handrailing							
SFW10410	Hydroseeding and Erosion Control Mat							
Slope Feature - 5SE-D/C115								
SFW10430	Slope Modification							
Slope Feature - 5SE-D/C21								
SFW10540	Completion of Sewer Culvert 1							Completion of Sewer Culvert 1
Slope Feature - 5SE-D/C16								
SFW10620	Complete pier construction at Bridge H1e & G2a							Complete pier construction at Bridge H1e & G2a
Slope Feature - 5SE-D/C17								
SFW10740	Complete of TP_F and TD1 Precast beam installation							Complete of TP_F and TD1 Precast beam installation
Natural Terrain Hazard Mitigation Measures								
Natural Terrain Hazard Mitigation Measures								
Boulders outside Blasting Zone								
NTH10080	Mitigation measures for 20 boulders outside blasting zone							
Vehicular Underpass TN-01								
Stage 3								
Blasting Related Submission								
Blasting Permit Application								
UDP30100	Issue of Pre-Licensing Conditions							
UDP30090	Site Inspection by Mines Department							
UDP30110	Formal Issue of Blasting Permit							
Method Statement Submission and Approval								
UDP30650	Method statement for Lining Construction							
Lining Works and Road Works								
Water Proofing and Lining Works								
UDP4120	Modify lining formwork							Modify lining formwork
Type A								
Water Proofing and Kicker								
CH 310-CH327								
UDP4100	Bench Waterproofing works(CH310-CH327.6)(Type A)							Bench Waterproofing works(CH310-CH327.6)(Type A)
UDP4110	Kicker pouring(CH310-CH327.6)(Type A)							Kicker pouring(CH310-CH327.6)(Type A)
Lining								
CH 310-CH327								
UDP4160	Pouring Type A Lining CH312-CH327							Pouring Type A Lining CH312-CH327

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█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

CRBC - Kaden JV

Three-Month Rolling Programme

Date	Revision	Checked	Approved
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Activity ID	Activity Name	2016		2017		
		Oct	Nov	Dec	Jan	Feb
UDP4170	Erection of rebar fixing platform for west bulkhead wall					
UDP4190	Rebar fixing platform for west bulkhead wall					
UDP4230	Formwork for west bulkhead wall					
UDP4270	Concrete for west bulkhead wall					
CH 450-CH503						
UDP4220	Pouring Type A Lining CH486-CH503					
Type B						
Water Proofing and Kicker						
UDP4000	Bench waterproofing works and Kick pouring					
Lining B						
UDP4020	Pour Type B Lining CH373-409					
UDP4040	Pour Type B Lining CH409-440					
UDP4010	Pour Type B Lining CH337-373					
Lining B1						
UDP4030	Type B1 Lining formwork CH327-337					
UDP4060	Type B1 Lining formwork CH440-450					
UDP4070	Lining for Type B1 CH440-450					
Type C						
UDP4240	Rebar fixing platform for east bulkhead wall					
UDP4250	Formwork for east bulkhead wall					
UDP4200	Lining type C rebar fixing CH503-CH534.9					
Road and Drainage Work ,Utilities Works at for Lung Fu Road Roundabout						
Section 3						
Utilites installation ,road and drainage works (TTA stage 0-1)						
LFR10150	Pubic Lighting					
LFR10160	CLP + CRD					
LFR10170	Trax Comm					
LFR10180	Completion of this stage civil provision for E&M, TCSS					
LFR10190	Irrigation System					
LFR10200	Road Pavement					
LFR10210	TTA for stage 1					
LFR10140	HKC Cable					
LFR10130	Smartone Cable					
LFR10120	Town Gas					
LFR10110	New World Telecom					
LFR10100	Wharf T&T Duct and Joint Box					
LFR10090	Hong Kong Boaroband Network					
LFR10080	Hutchison Global Communication Cable					
LFR10070	PCCW					
LFR10050	Drainage works					
LFR10060	DN100,300,700					
Utilites installation ,road and drainage works (TTA stage 1)						
LFR10270	Filling Works					
Road and Drainage Work ,Utilities Works at Lung Mun Road						
Lung Mun Road (Westbound)						
Ho Suen Street North						
LMRWA1000	Drainage Work					
LMRWA1020	DN700 CHH 0 - 69					
LMRWA1030	DN200 CHJ 0 - 120					
LMRWA1040	PCCW					
LMRWA1050	Hutchison Global Communication Cable					
LMRWA1060	Hong Kong Boaroband Network					
Utilites installation ,road and drainage works for East Portal						
EPA1000	Rock Cutting					
Sewage, Irrigation and Road& Drainage Works						
SAI10060	Sewage, irrigation and road&drainage works -G2-north side					
SAI10070	Sewage, irrigation and road&drainage works- G2-south side					
Achievement of Key Dates						
AK10320	Achievement of KD-3(Stage 3) for slope C					

█ Remaining Level of Effort █ Critical Remaining Work
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Activity ID	Activity Name	2017				
		Feb	Mar	Apr	May	Jun
HY/2013/12 TMCLK Northern Connection Toll Plaza and Associated-Works Programme-Rev.4A Monthly						
Achievement of Stages/ Completion of Sections						
KD10170	KD7 - Sec 4 Completion All Works within Portion D incl EM&A Implementation					
Toll Plaza Decking TD1-Section 1						
Stage 1						
Method Statement Submission and Approval						
TD121360	Engineer's comments and approval					
Field Works						
Portal Construction						
Portal Beam 1st(H)						
TD121180	Portal beam 1st(Portal H -Pier 18 to Pier 19)					
Portal Beam 2nd(J)						
TD121190	Portal beam 2nd(Portal J -Pier 20 to Pier 21)					
Portal Beam 3rd(G)						
TD121200	Portal beam 3rd(Portal G -Pier 16 to Pier 17)					
Deck Construction						
Precast beam fabrication						
TD120800	Precast parapet and planter					
Precast beam installation						
TD12100	Precast beam installation between portal H and portal J (4nos)					
TD12110	Precast beam installation between portal G and portal H(4nos)					
TD12120	Precast beam installation between portal H and portal J(3nos)					
TD12130	Precast beam installation between portal J and portal K(4nos)					
In-situ Deck and Precast Beam						
TD121100	In-situ deck and precast beam between portal D and portal E					
TD121090	In-situ deck and precast beam between portal F and portal G					
TD121105	In-situ deck and precast beam between portal C and portal D					
TD121110	In-situ deck and precast beam between portal B and portal C					
TD121120	In-situ deck and precast beam between portal G and portal H					
TD121130	In-situ deck and precast beam between portal H and portal J					
TD121140	In-situ deck and precast beam between portal J and portal K					
TD121150	M.J installation					
Toll Booth Canopy						
Toll booth canopy and island						
TD121270	Toll booth island					
Toll Plaza Decking TD2-Section 1						
Field Works						

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Date	Revision	Checked	Approved
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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
G.I and Piling Works							
DWP-Bored Piles							
TD220530	Working platform for pile cap L4						
TD220540	Bored piles for P12-13						
Deck Construction							
TD220190	Bearing,formwork, reinforcemnt& Concreting-North						
TD220200	Bearing,formwork, reinforcemnt& Concreting-South						
Miscellaneous Works							
TD220695	Cascade D construction						
Toll Plaza Footbridge-Section 1							
Stage 1							
Method Statement Submissions and Approval							
TFB1090	MSS for concrete slab and planter construction over steel truss						
Off-site Works							
TFB1100	Steel truss fabrication						
Field Works							
Pier Construction							
TFB1320	Construct pier P6						
TFB1310	Construct pier P4						
Steel Truss Installation							
TFB1330	Steel truss assembly and installation						
TFB1340	Steel truss connection						
Staircase and Lift Construction							
TFB1350	West staircase construction						
TFB1370	East staircase construction						
TFB1380	Lift construction B						
TFB1360	Lift construction A						
Concrete Decking , Planters and Finishing Works							
TFB1390	Concrete decking and planter construction						
Retaining Structure RW_B-Section 1							
Site Formation - Retaining Structure RW_B							
Stage 1							
Retaining Structure RW_B							
Structure(Base Slab, Wall, Colum, Top Slab)							
Bay12-13							
RWB10170	Bay12-13 and backfilling						
Backfilling							

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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
RWB10230	Backfilling	Backfilling					
RWB10260	Parapet and street furniture installation for TCSS and E&M installation	Parapet and street furniture installation for TCSS and E&M installation					
Toll Collector Subway & Associated Works-Section 1		Toll Collector Subway					
Toll Collector Bridge (Portion I)-Section 1		Toll Collector Bridge (Portion I)-Section 1					
Stage 1		Stage 1					
Temporary Works Design (TWD) Submission and Approval		Temporary Works Design (TWD) Submission and Approval					
TCS1240	TWD -Design of lifting system	TWD -Design of lifting system					
TCS1580	Engineer's comments and approval	Engineer's comments and approval					
Field Works		Field Works					
TCS1270	Finish the in-situ deck of Bridge TD1(G-H)	Finish the in-situ deck of Bridge TD1(G-H)					
Toll Collector Subway & Associate Works (Portion I)-Section 1		Toll Collector Subway & Associate Works (Portion I)-Section 1					
Stage 1		Stage 1					
Method Statement Submissions and Approval		Method Statement Submissions and Approval					
TCS1630	Engineer's comments and approval	Engineer's comments and approval					
Field Works - Toll Collector Subway and Staircase		Field Works - Toll Collector Subway and Staircase					
TCS1430	Construction of toll collector subway(from SB22-SB16)	Construction of toll collector subway(from SB22-SB16)					
TCS1440	Construction of staircase	Construction of staircase					
Toll Collector Subway (Portion X)-Section 5		Toll Collector Subway (Portion X)-Section 5					
Stage 3		Stage 3					
TCS1072	Construct Toll Collector Subway SB 1	Construct Toll Collector Subway SB 1					
TCS1074	Backfill for SB 1	Backfill for SB 1					
TCS1130	Construct Toll Collector Subway SB 9-16	Construct Toll Collector Subway SB 9-16					
TCS1090	Hand over Portion D	Hand over Portion D					
TCS1140	Backfilling SB2-8	Backfilling SB2-8					
TCS1150	Backfilling SB9-16	Backfilling SB9-16					
TCS1160	Islands for Toll Booths SB 1-8	Islands for Toll Booths SB 1-8					
TCS1170	Islands for Toll Booths SB 9-16	Islands for Toll Booths SB 9-16					
Bridge G2		Bridge G2					
Stage 2		Stage 2					
Temporary Works Design (TWD) Submission and Approval		Temporary Works Design (TWD) Submission and Approval					
BG23620	Engineer's approval	Engineer's approval					
Field Works		Field Works					
Foundation Works		Foundation Works					
BG23340	Excavation for G2b	Excavation for G2b					
Deck		Deck					
BG23050	Deck(G2d1-G2c1)	Deck(G2d1-G2c1)					
BG23020	Deck(G2c2-G2b)&Construct Portal G2c	Deck(G2c2-G2b)&Construct Portal G2c					

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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
BG23030	Deck(G2b-G2a)						Deck(G2b-G2a)
BG23060	Deck(G2c1-G2b)						
BG23070	Deck(G2b-G2a)						
Bridge G1							
Stage 2							
Design Submission and Approval							
Design Submission and Approval							
BG112230	DDA for substructure(draft)						
BG112210	DDA for foundation submission						
BG112220	Engineer's approval						
BG112180	TWD -Form traveller design						
BG112300	Engineer's approval						
Field Works							
Deck Construction from Pier G1d to Pier G2a							
BG112120	Assemble of 1st formtraveller at G1d and testing						
BG112350	Balanced cantilever construction at G1d 1st segment						
BG112360	Assemble of 2nd formtraveller at G1d and testing						
BG112780	TTA application						
Bridge H1-Section 2							
Stage 2							
Design Submission and Approval							
Design Submission and Approval							
BH12860	Engineer's approval						
Field Works							
Decking Construction From Abutment H1f to Pier H1d							
Balanced Canitilever Construction at Pier H1e							
BH12028	Balanced cantilever construction at H1e 2nd segment						
BH12030	2nd Pair						
BH12040	3rd Pair						
BH12050	4th Pair						
BH12060	5th Pair						
BH12070	6th Pair						
BH12080	7th Pair						
BH12090	8th Pair						
BH12110	9th Pair						
Insitu Deck at Abutment H1f							
BH12420	Construct End Span H1f						
Balanced Canitilever Construction at Pier H1d							
BH12130	Assemble of 1st formtraveller at H1d						

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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
Culvert 1(TBM)-Stage 4		Culvert 1(TBM)-Stage 4					
Field Works		Field Works					
Bay15 to Bay16							
CUL13300	Excavation						
CUL13310	Pipe installation for Bay 15 and 16 and grouting						
FC2		FC2					
CUL13470	Construction of chamber FC2						
CUL13480	Backfilling and removal section of sheetpile	Backfilling and removal section of sheetpile					
BY-Pass Sewer between FC1 and FC2(1800 Pipe)		BY-Pass Sewer between FC1 and FC2(1800 Pipe)					
CUL13490	Sheetpile installation for FC2 to FC1						
CUL13500	Excavation and installation of 1800 pipe						
CUL13510	Backfilling	Backfilling					
Completion of KD3A and Remaining Works		Completion of KD3A and Remaining Works					
CUL13535	Backfilling	Backfilling					
Culvert 2 & Culvert 3 and Existing Box Culvert							
Method statement Submission		Method statement Submission					
CCE20140	Method statement for screeding the existing box culvert	Method statement for screeding the existing box culvert					
Culvert 2							
CCE20090	Bay 21	Bay 21					
CCE20120	Bay 20	Bay 20					
Culvert 3							
CCE20212	Drainage diversion	Drainage diversion					
CCE20215	MH8	MH8					
Existing Sewer Box Culvert							
MH3-MH6							
CCE20220	Base slab to be applied with screeding concrete	Base slab to be applied with screeding concrete					
Site Formation - Retaining Structure RW_A		Site Formation - Retaining					
Stage 3		Stage 3					
Retaining Wall A		Retaining Wall A:					
RWA20150	Construct Cascade D	Construct Cascade D					
RWA20160	Drainage Diversion of Existing Stream to Cascade D	Drainage Diversion of Existing Stream to Cascade D					
RWA20180	Backfilling Works	Backfilling Works					
RWA20240	Completion civil provision works for TCSS and E&M	Completion civil provision works for TCSS and E&M					
Retaining Structure RW_E		Retaining Structure RW_E					
Stage 2		Stage 2					
Design Submission and Approval		Design Submission and Approval					
RWE20000	DDA for foundation (draft)	DDA for foundation (draft)					

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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
RWE20010	Engineer's comments			Engineer's comments			
RWE20020	DDA for foundation submission				DDA for foundation submission		
RWE20040	DDA for substructure(draft)					DDA for substructure(draft)	
RWE20030	Engineer's approval					Engineer's approval	
Site Formation - Retaining Structure for Slope TP_F							Site Formation - Retaining Structure for Slope TP_F
Stage 3							Stage 3
Retaining Structure for Slope TP_F							Retaining Structure for Slope TP_F
RWF313071	Construct Retaining Wall-Wall construction Bay 20						
RWF31308	Backfilling						
RWF31480	U-Channel construction,Completion civil provision works for TCSS and E&M						U-Channel construction,Completion civil provision works for TCSS and E&M
Site Formation - Slope TP_A & Associated Works							Site Formation - Slope TP_A & Associated Works
Achievement of KD-3(Stage 3) for Slope A							Achievement of KD-3(Stage 3) for Slope A
TPA41800	Tunnel Lining Completion			◆ Tunnel Lining Completion			
TPA41830	Achievement of KD-3(Stage 3) for slope A				◆ Achievement of KD-3(Stage 3) for slope A		
TPA41810	Remaining civil works and draiange works(After tunnel civil works construction)					Remaining civil works and draiange works(After tunnel civil works construction)	
Site Formation - Slope TP_B & Associated Works							Site Formation - Slope TP_B & Associated Works
Achievement of KD-3(Stage 3) for Slope B							Achievement of KD-3(Stage 3) for Slope B
TPB41710	Remaining civil works and drainage works						Remaining civil works and drainage works
Site Formation - Slope TP_C & Associated Works							Site Formation - Slope TP_C & Associated Works
Achievement of KD-3(Stage 3) for Slope C							Achievement of KD-3(Stage 3) for Slope C
TPC51320	Achievement of KD-3(Stage 3) for slope C			◆ Achievement of KD-3(Stage 3) for slope C			
Achievement of KD-8 (Section 5) for Slope C							Achievement of KD-8 (Section 5) for Slope C
TPC51330	Remaining works inculde landscape works and establishment works					Remaining works inculde landscape works and establishment works	
Site Formation - Slope TP_D & Associated Works							Site Formation - Slope TP_D & Associated Works
Achievement of KD-7(Section 4) for Slope D							Achievement of KD-7(Section 4) for Slope D
TPD51755	Hand over of portion D			◆ Hand over of portion D			
Achievement of KD-3(Stage 3) for Slope D							Achievement of KD-3(Stage 3) for Slope D
TPD52350	Remaining civil works and drainage works						Remaining civil works and drainage works
Site Formation - Slope TP_E & Associated Works							Site Formation - Slope TP_E & Associated Works
Stage 3							Stage 3
Slope Feature - Slope TP_E at Toll Control Building Area							Slope Feature - Slope TP_E at Toll Control Building Area
TPE61190	U-channel (150m) and Berm for slope E2b						
TPE61240	Excavation of Rock for slope E3b - stage 4						
TPE61380	U-channel (230m) and Berm for slope E1b and E1c						U-channel (230m) and Berm for slope E1b and E1c
TPE61600	All remaining works include civil provision for TCSS and E&M						All remaining works include civil provision for TCSS and E&M
TPE61700	Hand Over Portion D						Hand Over Portion D
TPE65350	KD-7(Section 4)						◆ KD-7(Section 4)

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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
Slope Feature - Slope TP_E Remaining Section and 5SE-D/C116		Slope Feature - Slope TP_E Remaining Section and 5SE-D/C116					
TPE62210	Excavation of Rock for slope E3c - stage 1	[Blue bar]					
TPE62410	Mapping & Dowelling	[Green bar]					
TPE62420	U-channel (220m) and Berm for slope E3a	[Blue bar]					
TPE62600	Construct Cascade C	[Green bar]					
TPE62550	Remaining civil works	[Blue bar]					
TPE62700	Achievement of KD-3(Stage 3) for slope E	◆ Achievement of KD-3(Stage 3) for slope E					
Achievement of KD-8(Section 5) for Slope E		▼ Achievement of KD-8(Section 5) for Slope E					
TPE65320	Remaining works include landscape works and establishment works	[Green bar]					
Site Formation - Slope Upgrading Works		Site Formation - Slope Upgrading Works					
Stage 3 (Other Slope Features)		Stage 3 (Other Slope Features)					
Slope Feature - 5SE-D/C170		Slope Feature - 5SE-D/C170					
SFW10080	Excavation of Rock (30000m3) for 5SE-D/C170	[Blue bar]					
SFW10105	Raking Drain Construction	[Green bar]					
SFW10110	Drainage, U-channel (410m) and Handrailing	[Green bar]					
SFW10850	Achievement of KD-3(Stage 3)	[Green bar]					
Slope Feature - 5SE-D/C165		Slope Feature - 5SE-D/C165					
SFW10780	Slope Cut and Modification Works (350m3)	[Blue bar]					
SFW10790	Soil Nail RowC (12nos) Level + 17.60 (Install and grouting)	[Blue bar]					
SFW10800	Soil Nail RowB (16nos) Level + 15.60 (Install and grouting)	[Blue bar]					
SFW10810	Soil Nail RowA (19nos) Level + 13.60 (Install and grouting)	[Blue bar]					
SFW10820	Drainage, U-channel (80m) and Handrailing	[Green bar]					
SFW10830	Hydroseeding and Erosion Control Mat	[Green bar]					
SFW10870	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C150		Slope Feature - 5SE-D/C150					
SFW10890	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C152		Slope Feature - 5SE-D/C152					
SFW10220	Complete slope 5SE-D/C150	[Blue bar]					
SFW10240	Drainage, U-channel (90m) and Handrailing	[Green bar]					
SFW10250	Hydroseeding and Erosion Control Mat	[Green bar]					
SFW10910	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C121		Slope Feature - 5SE-D/C121					
SFW10930	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C122		Slope Feature - 5SE-D/C122					
SFW10950	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C14		Slope Feature - 5SE-D/C14					
SFW10340	Complete TP_F Backfilling(Bay1-2)	◆ Complete TP_F Backfilling(Bay1-2)					

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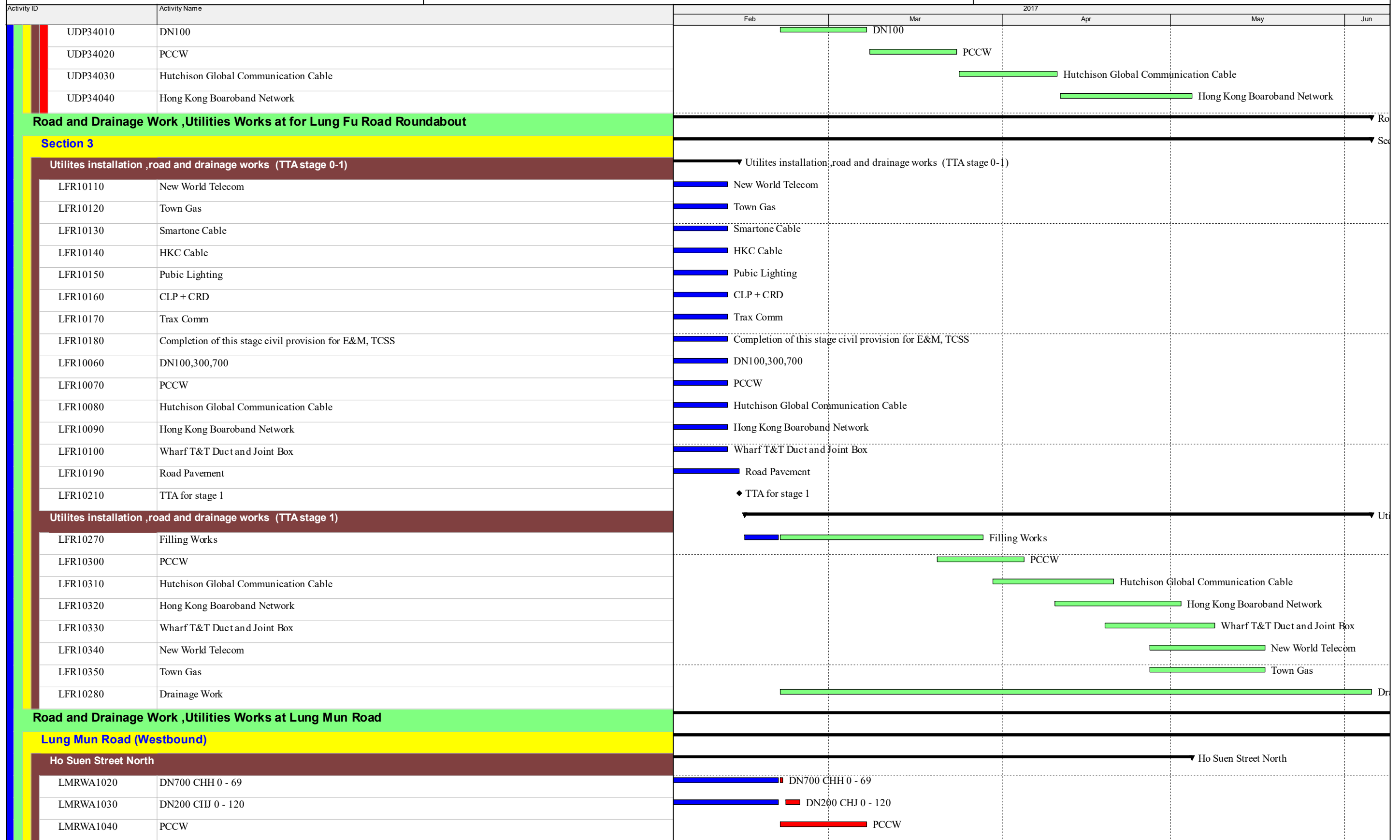
Date	Revision	Checked	Approved
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Activity ID	Activity Name	2017	Feb	Mar	Apr	May	Jun
AK10410	Possession of Portion X		◆ Possession of Portion X				
Slope Feature - 5SE-D/C149				▼ Slope Feature - 5SE-D/C149			
SFW10380	Complete slope 5SE-D/C152			◆ Complete slope 5SE-D/C152			
SFW10990	Achievement of KD-3(Stage 3)			◆ Achievement of KD-3(Stage 3)			
Slope Feature - 5SE-D/C115				▼ Slope Feature - 5SE-D/C115			
SFW10450	Drainage, U-channel (150m) and Handrailing						
SFW10420	Complete slope 5SE-D/C149						
SFW11010	Achievement of KD-3(Stage 3)			◆ Achievement of KD-3(Stage 3)			
Slope Feature - 5SE-D/C21					▼ Slope Feature - 5SE-D/C21		
SFW10550	Slope Modification		■ Slope Modification				
SFW10560	Rock Mapping and Stabilization			■ Rock Mapping and Stabilization			
SFW11070	Achievement of KD-3(Stage 3)				◆ Achievement of KD-3(Stage 3)		
SFW10570	Hydroseeding and Erosion Control Mat		■ Hydroseeding and Erosion Control Mat				
Slope Feature - 5SE-D/C171					▼ Slope Feature - 5SE-D/C171		
SFW10580	Complete slope 5SE-D/C21				◆ Complete slope 5SE-D/C21		
SFW11090	Achievement of KD-3(Stage 3)				◆ Achievement of KD-3(Stage 3)		
Slope Feature - 5SE-D/C16						▼ Slope Feature - 5SE-D/C16	
SFW10630	Slope Modification		■ Slope Modification				
SFW10640	Rock Mapping and Stabilization			■ Rock Mapping and Stabilization			
Slope Feature - 5SE-D/C17						▼ Slope Feature - 5SE-D/C17	
SFW10750	Slope Modification		■ Slope Modification				
SFW10760	Drainage, U-channel (180m) and Handrailing			■ Drainage, U-channel (180m) and Handrailing			
SFW10770	Hydroseeding and Erosion Control Mat				■ Hydroseeding and Erosion Control Mat		
SFW11170	Achievement of KD-3(Stage 3)				◆ Achievement of KD-3(Stage 3)		
Vehicular Underpass TN-01						▼ Vehicular Underpass TN-01	
Stage 3						▼ Stage 3	
Lining Works and Road Works							
Water Proofing and Lining Works							
Type B							
Lining B1							
UDP4080	Completed the lining works						
Type C							
UDP4250	Formwork for east bulkhead wall						
UDP4260	Concrete for east bulkhead wall						
Road and Drainage Work, Utilities Works in Tunnel							
Road and Drainage Work, Utilities Works in Tunnel							
UDP34000	DN300			■ DN300			

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Activity ID	Activity Name	2017				
		Feb	Mar	Apr	May	Jun
LMRWA1000	Drainage Work	Drainage Work				
LMRWA1050	Hutchison Global Communication Cable	Hutchison Global Communication Cable				
LMRWA1060	Hong Kong Boaroband Network	Hong Kong Boaroband Network				
LMRWA1070	Wharf T&T Duct and Joint Box	Wharf T&T Duct and Joint Box				
Ho Suen Street South						
LMRWA1200	DN300 CHE 0 - 116	DN300 CHE 0 - 116				
LMRWA1210	DN100 CHG 0 - 112	DN100 CHG 0 - 112				
LMRWA1170	Drainage Work	Drainage Work				
Utilites installation ,road and drainage works for East Portal						
EPA1000	Rock Cutting	Rock Cutting				
EPA1020	DN300 CHA 0 - 175&DN100	DN300 CHA 0 - 175&DN100				
Utilites installation ,road and drainage works near portion D						
TOLLA1010	DN300	DN300				
TOLLA1020	DN100	DN100				
TOLLA1030	PCCW	PCCW				
TOLLA1040	Hutchison Global Communication Cable	Hutchison Global Communication Cable				
TOLLA1050	Hong Kong Boaroband Network	Hong Kong Boaroband Network				
Sewage, Irrigation and Road& Drainage Works						
SAI10060	Sewage, irrigation and road&drainage works -G2-north side	Sewage, irrigation and road&drainage works -G2-north side				
SAI10070	Sewage, irrigation and road&drainage works- G2-south side	Sewage, irrigation and road&drainage works- G2-south side				
SAI10040	Sewage, irrigation and road&drainage works -G1&H1-north side	Sewage, irrigation and road&drainage works -G1&H1-north side				
Achievement of Key Dates						
AK10320	Achievement of KD-3(Stage 3) for slope C	Achievement of KD-3(Stage 3) for slope C				
AK10365	Achievement of KD-7(Section 4) for slope E	Achievement of KD-7(Section 4) for slope E				
AK10280	Achievement of KD-3(Stage 3) for slope A	Achievement of KD-3(Stage 3) for slope A				

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**CRBC - Kaden JV
Three-Month Rolling Programme**

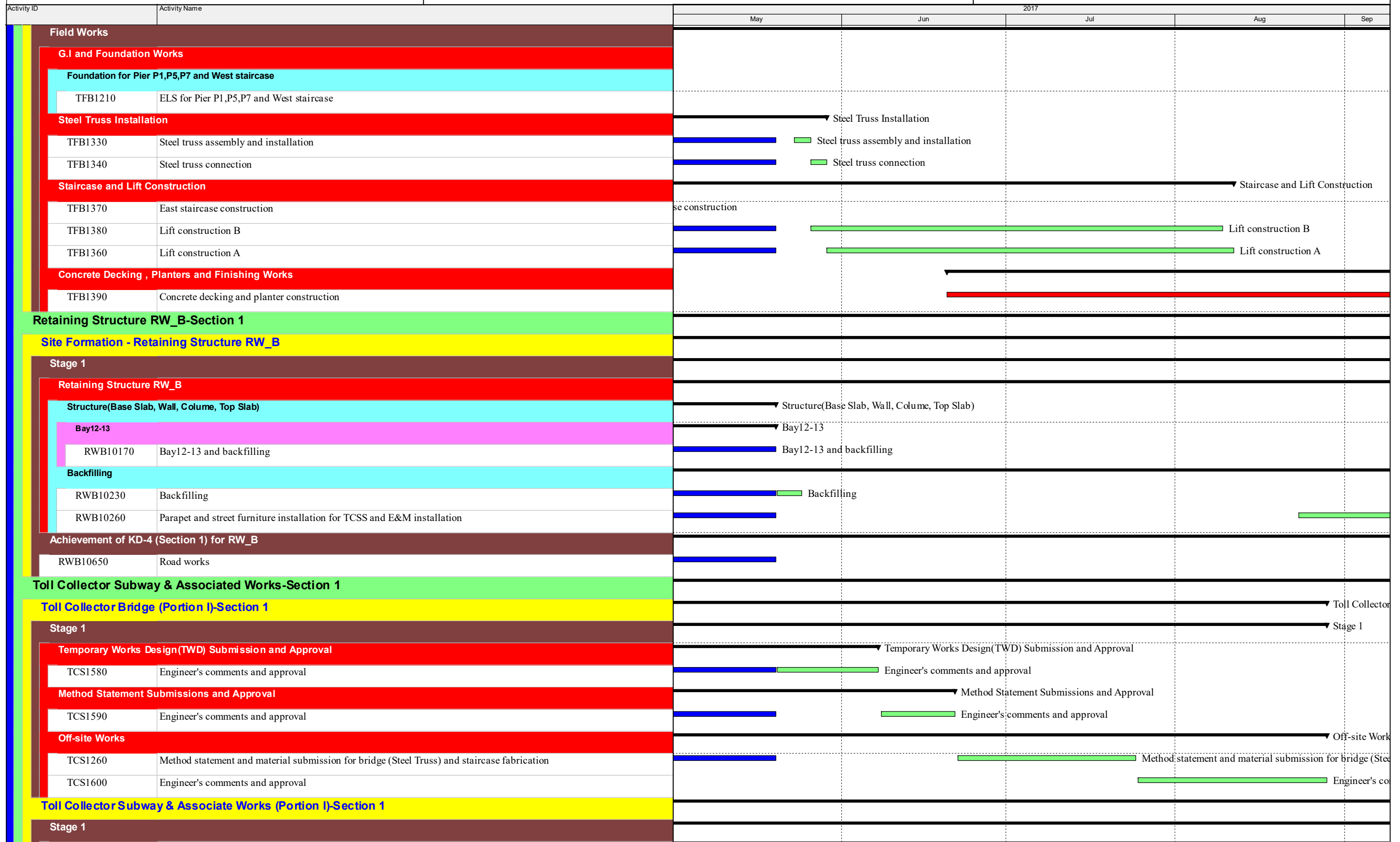
Date	Revision	Checked	Approved
03-03-17			

Activity ID		Activity Name		2017				
				May	Jun	Jul	Aug	Sep
HY/2013/12 TMCLK Northern Connection Toll Plaza and Associated-Works Programme-Rev.4A Monthly								
Toll Plaza Decking TD1-Section 1								
Stage 1								
Method Statement Submission and Approval				▼ Method Statement Submission and Approval				
TD121360	Engineer's comments and approval	[Green bar]						
Field Works								
Deck Construction				▼ Deck Construction				
Precast beam fabrication				▼ Precast beam fabric				
TD120800	Precast parapet and planter	[Green bar]						
In-situ Deck and Precast Beam				▼ In-situ Deck and Precast Beam				
TD121140	In-situ deck and precast beam between portal J and portal K	[Green bar]						
TD121150	M.J installation	[Green bar]						
TD121130	In-situ deck and precast beam between portal H and portal J	[Green bar]						
Parapet and Finishing Work								
Parapet and Railing Installation								
TD120940	Parapet and planter installation	[Green bar]						
Toll Booth Canopy								
Toll both canopy and island								
TD121270	Toll booth island	[Green bar]						
TD121280	Column for canopy	[Green bar]						
Toll Plaza Decking TD2-Section 1								
Field Works								
Deck Construction				▼ Deck Construction				
TD220200	Bearing,formwork, reinforcemnt& Concreting-South	[Green bar]						
TD220220	Predressing	[Green bar]						
TD220720	Falsework removal and M.J installation	[Green bar]						
Parapet and Finishing Works				▼ Parapet and Finishing Works				
TD220210	Construct parapet ,planter and street furniture installation for TCSS and E&M installation	[Green bar]						
TD220230	Feature groove,Completion civil provision works for TCSS and E&M	[Green bar]						
Miscellaneous Works				▼ Miscellaneous Works				
TD220700	Achievement of KD-1(Stage 1)for TD2	◆ Achievement of KD-1(Stage 1)for TD2						
Completion of TD2				▼ Completion of TD2				
TD220010	Drainage works	[Green bar]						
Toll Plaza Footbridge-Section 1								
Stage 1								
Method Statement Submissions and Approval				▼ Method Statement Submissions and Approval				
TFB1090	MSS for concrete slab and planter construction over steel truss	[Green bar]						

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Activity ID	Activity Name	2017	May	Jun	Jul	Aug	Sep	
Method Statement Submissions and Approval		Method Statement Submissions and Approval						
TCS1630	Engineer's comments and approval	Engineer's comments and approval						
Field Works - Toll Collector Subway and Staircase		Construction of staircase						
TCS1440	Construction of staircase	Construction of staircase						
TCS1450	Internal finishing works	Internal finishing works						
TCS1460	Backfilling	Backfilling						
Field Works - Toll Booth & Canopy		Completion of top slab of RW_B(M.J10-M.J11) and completion of structure SB22-SB16						
TCS1470	Completion of top slab of RW_B(M.J10-M.J11) and completion of structure SB22-SB16	Completion of top slab of RW_B(M.J10-M.J11) and completion of structure SB22-SB16						
TCS1480	Toll booth slab	Toll booth slab						
TCS1490	Island for toll booths	Island for toll booths						
TCS1500	Toll Canopy	Toll Canopy						
Toll Collector Subway (Portion X)-Section 5		Backfilling SB9-16						
Stage 3		Backfilling SB9-16						
TCS1150	Backfilling SB9-16	Backfilling SB9-16						
TCS1140	Backfilling SB2-8	Backfilling SB2-8						
TCS1170	Islands for Toll Booths SB 9-16	Islands for Toll Booths SB 9-16						
TCS1160	Islands for Toll Booths SB 1-8	Islands for Toll Booths SB 1-8						
TCS1180	Toll Canopy, Completion civil provision works for TCSS and E&M	Toll Canopy, Completion civil provision works for TCSS and E&M						
Bridge G2		Bridge G2						
Stage 2		Stage 2						
Temporary Works Design (TWD) Submission and Approval		Temporary Works Design (TWD) Submission and Approval						
BG23620	Engineer's approval	Engineer's approval						
Field Works		Field Work						
Deck		Deck						
BG23060	Deck(G2c1-G2b)	Deck(G2c1-G2b)						
BG23030	Deck(G2b-G2a)	Deck(G2b-G2a)						
BG23070	Deck(G2b-G2a)	Deck(G2b-G2a)						
Bridge G1		Design Submission and Approval						
Stage 2		Design Submission and Approval						
Design Submission and Approval		Design Submission and Approval						
BG112240	Engineer's comments	Engineer's comments						
BG112270	DDA for superstructure(draft)	DDA for superstructure(draft)						
BG112250	DDA for substructure submission	DDA for substructure submission						
BG112260	Engineer's approval	Engineer's approval						
BG112300	Engineer's approval	Engineer's approval						
Field Works		Deck Construction from Pier G1d to Pier G2a						
Deck Construction from Pier G1d to Pier G2a		Deck Construction from Pier G1d to Pier G2a						

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Activity ID	Activity Name	May	Jun	Jul	Aug	Sep
BG112360	Assemble of 2nd formtraveller at G1d and testing					
BG112370	Balanced cantilever construction at G1d 2nd segment					
BG112380	2nd Pair					
BG112390	3rd Pair					
BG112400	4th Pair					
BG112410	5th Pair					
BG112420	6th Pair					
BG112430	7th Pair					
BG112440	8th Pair					
BG112460	9th Pair					
BG112780	TTA application					
Bridge H1-Section 2						
Stage 2						
Design Submission and Approval						
BH12860	Engineer's approval					
Field Works						
Decking Construction From Abutment H1f to Pier H1d						
Insitu Deck at Abutment H1f						
BH12420	Construct End Span H1f					
Balanced Canitilever Construction at Pier H1d						
BH12130	Assemble of 1st formtraveller at H1d					
BH12140	Balanced cantilever construction at H1e 1st segment					
BH12142	Assemble of 2nd formtraveller at H1d					
BH12144	Balanced cantilever construction at H1e 2nd segment					
BH12150	2nd Pair					
Culvert 1(TBM)-Stage 4						
Completion of KD3A and Remaining Works						
CUL13535	Backfilling					
Culvert 2 & Culvert 3 and Existing Box Culvert						
Method statement Submission						
CCE20140	Method statement for screeding the existing box culvert					
Culvert 2						
CCE20090	Bay 21					
CCE20120	Bay 20					
Culvert 3						
CCE20212	Drainage diversion					
CCE20215	MH8					

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Activity ID	Activity Name	2017				
		May	Jun	Jul	Aug	Sep
Existing Sewer Box Culvert						
MH3-MH6						
CCE20220	Base slab to be applied with screeding concrete					
Site Formation - Retaining Structure RW_A						
Stage 3						
Retaining Wall A						
RWA20240	Completion civil provision works for TCSS and E&M					
Achievement of KD-3 (Stage 3)						
RWA20190	Achievement of KD-3(Stage 3) for RW_A					
Achievement of KD-8 (Section 5) for RW_A						
RWA20200	Drainage Works					
Retaining Structure RW_E						
Stage 2						
Design Submission and Approval						
RWE20000	DDA for foundation (draft)					
RWE20040	DDA for substructure(draft)					
RWE20010	Engineer's comments					
RWE20100	DDA for superstructure submission					
RWE20020	DDA for foundation submission					
RWE20060	DDA for substructure submission					
RWE20030	Engineer's approval					
RWE20070	Engineer's approval					
RWE20110	Engineer's approval					
RWE20120	ELS design submission and approval					
Method Statement Submission and Approval						
RWE20130	Method Statement Submission and Approval for ELS					
RWE20140	Method Statement Submission and Approval for Retaining Wall Construction					
RWE20150	Method Statement Submission and Approval for piling works					
Site Formation - Retaining Structure for Slope TP_F						
Stage 3						
Retaining Structure for Slope TP_F						
RWF31314	Completion of Bridge G2e footing					
RWF31325	Construct Retaining Wall-Base slab (Bay 4 to Bay 6)					
RWF31326	Construct Retaining Wall-Base slab (Bay 1 to Bay 2)					
RWF31480	U-Channel construction,Completion civil provision works for TCSS and E&M					
Site Formation - Slope TP_A & Associated Works						
Achievement of KD-3(Stage 3) for Slope A						

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Activity ID	Activity Name	2017				
		May	Jun	Jul	Aug	Sep
TPA41830	Achievement of KD-3(Stage 3) for slope A			◆ Achievement of KD-3(Stage 3) for slope A		
TPA41810	Remaining civil works and draiange works(After tunnel civil works construction)					
Site Formation - Slope TP_B & Associated Works						
Achievement of KD-3(Stage 3) for Slope B						
TPB41710	Remaining civil works and drainage works					
Site Formation - Slope TP_C & Associated Works						
Achievement of KD-3(Stage 3) for Slope C						
TPC51320	Achievement of KD-3(Stage 3) for slope C			▼ Achievement of KD-3(Stage 3) for Slope C		
				◆ Achievement of KD-3(Stage 3) for slope C		
Achievement of KD-8 (Section 5) for Slope C						
TPC51330	Remaining works inculde landscape works and establishment works					
TPC51340	Achievement of KD-8(Section 5) for slope C				◆ Achievement of KD-8(Section 5) for slope C	
Site Formation - Slope TP_D & Associated Works						
Achievement of KD-3(Stage 3) for Slope D						
TPD52350	Remaining civil works and drainage works					
Site Formation - Slope TP_E & Associated Works						
Stage 3						
Slope Feature - Slope TP_E Remaing Section and 5SE-D/C116						
TPE62220	Excavation of Rock for slope E3c - stage 2					
TPE62420	U-channel (220m) and Berm for slope E3a					
TPE62550	Remaining civil works					
TPE62410	Mapping & Dowelling					
TPE62600	Construct Cascade C					
TPE62700	Achievement of KD-3(Stage 3) for slope E					
Achievement of KD-8(Section 5) for Slope E						
TPE65320	Remaining works inculde landscape works and establishment works					
Site Formation - Slope Upgrading Works						
Stage 3 (Other Slope Features)						
Slope Feature - 5SE-D/C170						
SFW10080	Excavation of Rock (30000m3) for 5SE-D/C170					
SFW10105	Raking Drain Construction					
SFW10110	Drainge, U-channel (410m) and Handrailing					
SFW10850	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C165						
SFW10820	Drainge, U-channel (80m) and Handrailing					
SFW10830	Hydroseeding and Erosion Control Mat					
SFW10870	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C150						

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SFW10890	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C152		▼ Slope Feature - 5SE-D/C152				
SFW10240	Drainage, U-channel (90m) and Handrailing	■ Drainage, U-channel (90m) and Handrailing				
SFW10250	Hydroseeding and Erosion Control Mat	■ Hydroseeding and Erosion Control Mat				
SFW10910	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C121		▼ Slope Feature - 5SE-D/C121				
SFW10280	Drainage, U-channel (20m) and Handrailing					
SFW10270	Slope Modification					
SFW10290	Hydroseeding and Erosion Control Mat					
SFW10930	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C122		▼ Slope Feature - 5SE-D/C122				
SFW10310	Slope Modification					
SFW10320	Drainage, U-channel (420m) and Handrailing					
SFW10950	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C149		▼ Slope Feature - 5SE-D/C149				
SFW10380	Complete slope 5SE-D/C152	◆ Complete slope 5SE-D/C152				
SFW10990	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C115		▼ Slope Feature - 5SE-D/C115				
SFW11010	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C18		▼ Slope Feature - 5SE-D/C18				
SFW10460	Complete Bridge TD2 Decking	◆ Complete Bridge TD2 Decking				
SFW10470	Slope Modification	■ Slope Modification				
SFW10480	Drainage, U-channel (60m) and Handrailing	■ Drainage, U-channel (60m) and Handrailing				
Slope Feature - 5SE-D/C21		▼ Slope Feature - 5SE-D/C21				
SFW10550	Slope Modification	■ Slope Modification				
SFW10560	Rock Mapping and Stabilization	■ Rock Mapping and Stabilization				
SFW11070	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
SFW10570	Hydroseeding and Erosion Control Mat	■ Hydroseeding and Erosion Control Mat				
Slope Feature - 5SE-D/C171		▼ Slope Feature - 5SE-D/C171				
SFW10590	Slope Modification					
SFW10580	Complete slope 5SE-D/C21	◆ Complete slope 5SE-D/C21				
SFW11090	Achievement of KD-3(Stage 3)	◆ Achievement of KD-3(Stage 3)				
Slope Feature - 5SE-D/C16		▼ Slope Feature - 5SE-D/C16				
SFW10630	Slope Modification	■ Slope Modification				
SFW10640	Rock Mapping and Stabilization	■ Rock Mapping and Stabilization				
Slope Feature - 5SE-D/F60		▼ Slope Feature - 5SE-D/F60				
SFW10670	Complete of Bridge TD2 decking	◆ Complete of Bridge TD2 decking				

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SFW10680	Slope Modification			█ Slope Modification		
SFW10690	Drainage, U-channel (360m) and Handrailing			█ Drainage, U-channel (360m) and Handrailing		
Slope Feature - 5SE-D/C158				▼ Slope Feature - 5SE-D/C158		
SFW10710	Complete backfilling of RW_A			◆ Complete backfilling of RW_A		
Slope Feature - 5SE-D/C17				▶ Slope Feature - 5SE-D/C17		
SFW10750	Slope Modification		█ Slope Modification			
SFW10760	Drainage, U-channel (180m) and Handrailing		█ Drainage, U-channel (180m) and Handrailing			
SFW10770	Hydroseeding and Erosion Control Mat			█ Hydroseeding and Erosion Control Mat		
SFW11170	Achievement of KD-3(Stage 3)			◆ Achievement of KD-3(Stage 3)		
Natural Terrain Hazard Mitigation Measures						
Natural Terrian Hazard Mitigation Measures						
Boulders outside Blasting Zone						
NTH10120	Mitigation measures for 15 boulders outside blasting zone					
Achievement of KD-3(Stage 3)						
NTH10050	Achievement of KD-3 for Natural Terrian Hazard					
Achievement of KD-8(Section 5)						
NTH10060	Achievement of KD-8 for Natural Terrian Hazard					
Vehicular Underpass TN-01						
Stage 3						
Road and Drainage Work,Utilities Works in Tunnel						
Road and Drainage Work,Utilities Works in Tunnel						
UDP34000	DN300		█ DN300			
UDP34010	DN100		█ DN100			
UDP34020	PCCW		█ PCCW			
UDP34030	Hutchison Global Communication Cable			█ Hutchison Global Communication Cable		
UDP34040	Hong Kong Boaroband Network			█ Hong Kong Boaroband Network		
Road and Drainage Work ,Utilities Works at for Lung Fu Road Roundabout						
Section 3						
Utilites installation ,road and drainage works (TTA stage 1)						
LFR10300	PCCW	█ PCCW				
LFR10280	Drainage Work	█ Drainage Work				
LFR10310	Hutchison Global Communication Cable	█ Hutchison Global Communication Cable				
LFR10270	Filling Works	█ Filling Works				
LFR10320	Hong Kong Boaroband Network	█ Hong Kong Boaroband Network				
LFR10330	Wharf T&T Duct and Joint Box	█ Wharf T&T Duct and Joint Box				
LFR10290	DN700 ,300,100	█ DN700 ,300,100				
LFR10340	New World Telecom	█ New World Telecom				

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Activity ID	Activity Name	2017				
		May	Jun	Jul	Aug	Sep
LFR10350	Town Gas		■			
LFR10360	Smartone Cable		■			
LFR10370	HKC Cable		■			
LFR10380	Pubic Lighting		■			
LFR10390	CLP + CRD			■		
LFR10400	TraxComm			■		
LFR10410	Completion of this stage civil provision for E&M, TCSS				■	
LFR10420	Road Pavement				■	
Utilites installation ,road and drainage works (TTA Stage 2-0)						
LFR10450	Drainage Work		■			
Road and Drainage Work ,Utilities Works at Lung Mun Road						
Lung Mun Road (Westbound)						
Ho Suen Street North						
LMRWA1020	DN700 CHH 0 - 69	■				
LMRWA1030	DN200 CHJ 0 - 120	■				
LMRWA1000	Drainage Work	■				
LMRWA1040	PCCW	■	■			
LMRWA1050	Hutchison Global Communication Cable	■	■			
LMRWA1060	Hong Kong Boaroband Network	■	■			
LMRWA1070	Wharf T&T Duct and Joint Box	■	■			
LMRWA1080	New World Telecom	■	■			
LMRWA1090	Town Gas	■		■		
LMRWA1100	Smartone Cable	■		■		
LMRWA1110	HKC Cable	■		■		
LMRWA1120	Pubic Lighting	■			■	
LMRWA1130	CLP + CRD	■			■	
LMRWA1140	TraxComm	■				■
Ho Suen Street South						
LMRWA1190	DN200 CHK 0 - 50	■				
LMRWA1200	DN300 CHE 0 - 116	■				
LMRWA1210	DN100 CHG 0 - 112	■				
LMRWA1170	Drainage Work	■				
Utilites installation ,road and drainage works for East Portal						
EPA1000	Rock Cutting	■	■	■	■	■
EPA1020	DN300 CHA 0 - 175&DN100	■			■	
EPA1030	Street furniture and sign gantry	■			■	
EPA1130	CLP	■				

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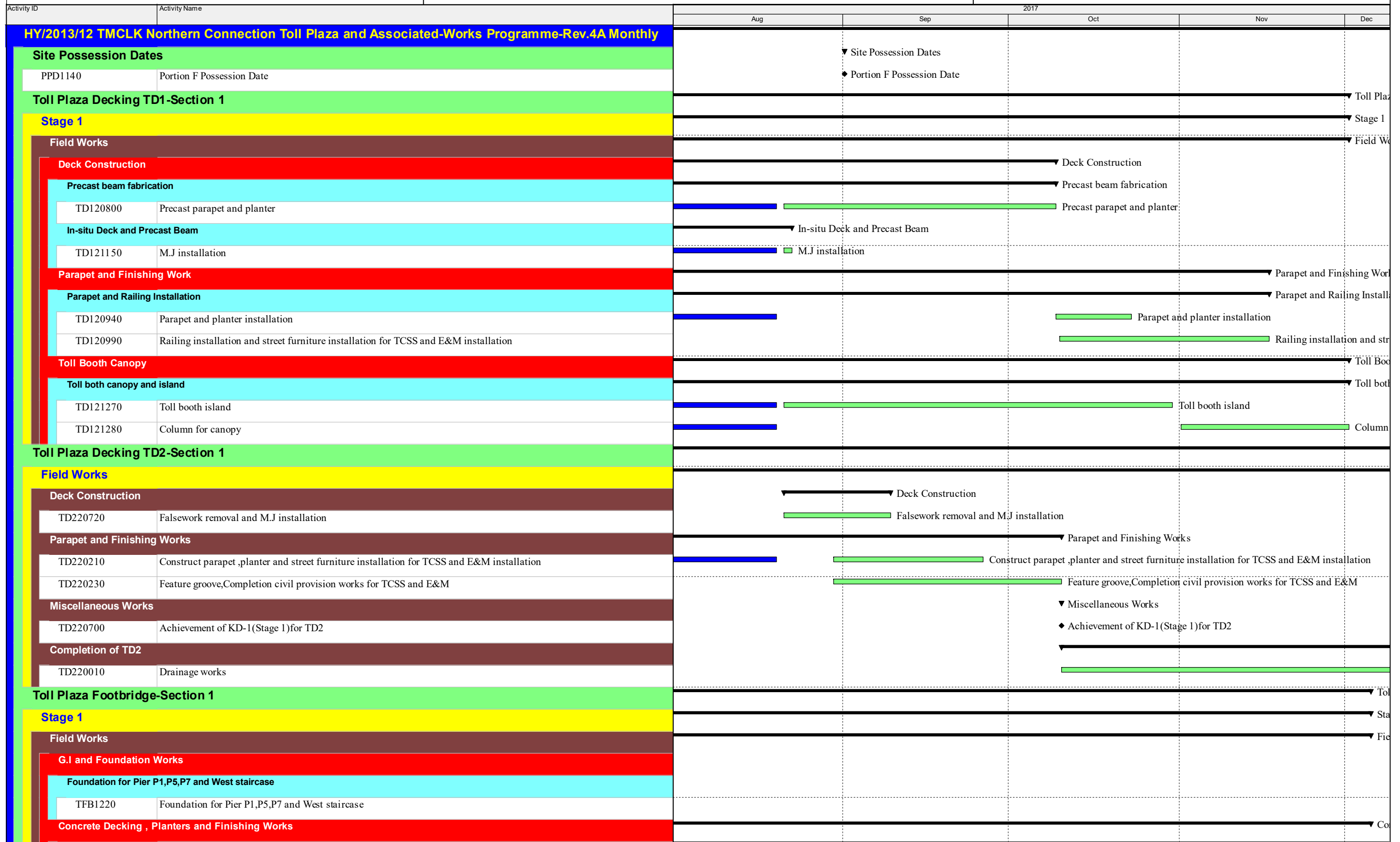
Date	Revision	Checked	Approved
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Activity ID	Activity Name	2017				
		May	Jun	Jul	Aug	Sep
Utilites installation ,road and drainage works near portion D		Utilites installation ,road and drainage wor				
TOLLA1010	DN300	DN300				
TOLLA1020	DN100	DN100				
TOLLA1030	PCCW	PCCW				
TOLLA1040	Hutchison Global Communication Cable	Hutchison Global Communication Cable				
TOLLA1050	Hong Kong Boaroband Network	Hong Kong Boaroband Network				
Sewage, Irrigation and Road& Drainage Works						
SAI10020	Sewage, irrigation and road&drainage works - RW_B-north side					
SAI10060	Sewage, irrigation and road&drainage works -G2-north side					
SAI10070	Sewage, irrigation and road&drainage works- G2-south side					
SAI10030	Sewage, irrigation and road&drainage works - RW_B-south side					
SAI10040	Sewage, irrigation and road&drainage works -G1&H1-north side					
SAI10050	Sewage, irrigation and road&drainage works - G1&H1-south side					
Achievement of Key Dates		Achievement of Key Dates				
AK10320	Achievement of KD-3(Stage 3) for slope C	◆ Achievement of KD-3(Stage 3) for slope C				
AK10280	Achievement of KD-3(Stage 3) for slope A	◆ Achievement of KD-3(Stage 3) for slope A				
AK10210	Achievement of KD-3(Stage 3) for RW_A	◆ Achievement of KD-3(Stage 3) for RW_A				
AK10330	Achievement of KD-8(Section 5) for slope C	◆ Achievement of KD-8(Section 5) for slope C				
AK10020	Achievement of KD-1(Stage 1) for TD2	◆ Achievement of KD-1(Stage 1) for TD2				

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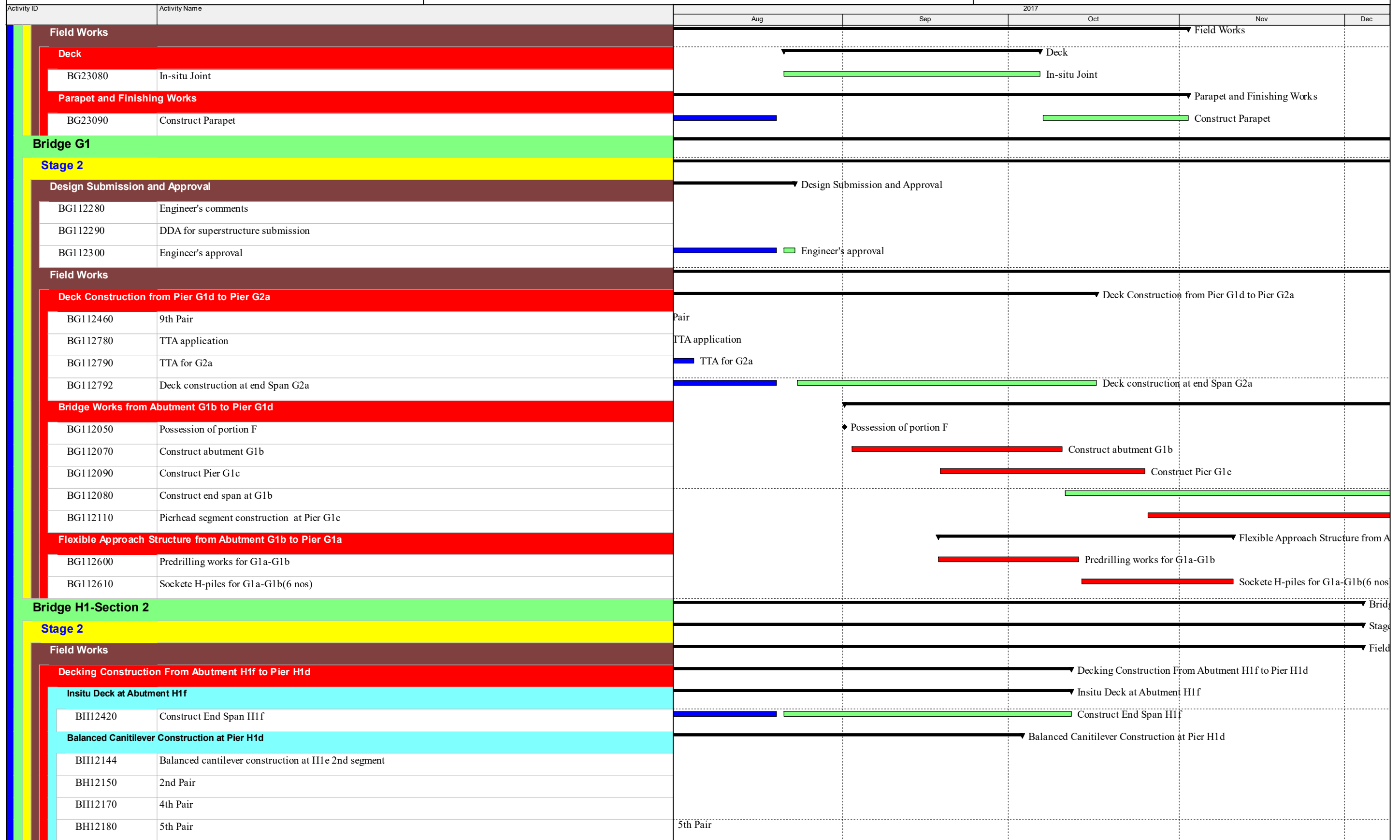
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Date	Revision	Checked	Approved
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Activity ID	Activity Name	Aug	Sep	Oct	Nov	Dec
BH12190	6th Pair	6th Pair				
BH12200	7th Pair		7th Pair			
BH12210	8th Pair			8th Pair		
BH12230	9th Pair				9th Pair	
BH12240	In-situ ditch				In-situ ditch	
Bridge Works From Pier H1b to Pier H1d						
BH12600	Possession of portion F			Possession of portion F		
Balanced Canilever Construction at Pier H1c						
BH12000	Construct Pier H1c			Construct Pier H1c		
BH12250	Pierhead segment construction at Pier H1c				Pierhead segment construction at Pier H1c	
Abutment and Deck at H1b						
BH12610	Construct Abutment H1b include bearing installation				Construct Abutment H1b include bearing installation	
Flexible Approach Structure from Abutment H1b to Pier H1a						
BH12450	Predrilling works for H1a-H1b			Predrilling works for H1a-H1b		
BH12460	Sockete H-piles for H1a-H1b(6 nos)				Sockete H-piles for H1a-H1b(6 nos)	
BH12465	Loading test					Loading test
Culvert 2 & Culvert 3 and Existing Box Culvert						
Method statement Submission						
CCE20140	Method statement for screeding the existing box culvert			Method statement Submission		
						Method statement for screeding the existing box culvert
Culvert 2						
CCE20090	Bay 21	Bay 21				
CCE20120	Bay 20			Bay 20		
CCE20130	Bay 19				Bay 19	
Culvert 3						
CCE20212	Drainage diversion		Drainage diversion			
CCE20215	MH8				MH8	
Existing Sewer Box Culvert						
MH3-MH6						
CCE20220	Base slab to be applied with screeding concrete					
Site Formation - Retaining Structure RW_A						
Stage 3						
Retaining Wall A						
RWA20240	Completion civil provision works for TCSS and E&M				Completion civil provision works for TCSS and E&M	
Achievement of KD-3 (Stage 3)						
RWA20190	Achievement of KD-3(Stage 3) for RW_A					Achievement of KD-3(Stage 3) for RW_A
Achievement of KD-8 (Section 5) for RW_A						
RWA20200	Drainage Works					Drainage Works

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Activity ID		Activity Name		2017				
				Aug	Sep	Oct	Nov	Dec
Retaining Structure RW_E								
Stage 2								
Design Submission and Approval				Design Submission and Approval				
RWE20080	DDA for superstructure(draft)							
RWE20090	Engineer's comments							
RWE20050	Engineer's comments							
RWE20060	DDA for substructure submission							
RWE20030	Engineer's approval	Engineer's approval						
RWE20070	Engineer's approval	Engineer's approval						
RWE20110	Engineer's approval	Engineer's approval						
RWE20120	ELS design submission and approval	ELS design submission and approval						
Method Statement Submission and Approval				Method Statement Submission and Approval				
RWE20130	Method Statement Submission and Approval for ELS	Method Statement Submission and Approval for ELS						
RWE20140	Method Statement Submission and Approval for Retaining Wall Construction	Method Statement Submission and Approval for Retaining Wall Construction						
RWE20150	Method Statement Submission and Approval for piling works	Method Statement Submission and Approval for piling works						
Box Structures and L-Shape Retaining Wall for Retaining Wall E								
RWE20160	Possession of Portion F	Possession of Portion F						
RWE20170	Predrilling works	Predrilling works						
RWE20180	Excavation and piling works(12 nos)	Excavation and piling works(12 nos)						
Site Formation - Retaining Structure for Slope TP_F				Site Formation - Retaining Structure for Slope TP_F				
Stage 3				Stage 3				
Retaining Structure for Slope TP_F				Retaining Structure for Slope TP_F				
RWF31330	Construct Retaining Wall-Wall construction(Bay 4 to Bay 6)							
RWF31430	New haul road							
RWF31335	Construct Retaining Wall-Wall construction(Bay 1 to Bay 2)							
RWF31350	Backfilling							
RWF31480	U-Channel construction,Completion civil provision works for TCSS and E&M	U-Channel construction,Completion civil provision works for TCSS and E&M						
Site Formation - Slope TP_A & Associated Works				Site Formation - Slope TP_A & Associated Works				
Achievement of KD-3(Stage 3) for Slope A				Achievement of KD-3(Stage 3) for Slope A				
TPA41830	Achievement of KD-3(Stage 3) for slope A	Achievement of KD-3(Stage 3) for slope A						
TPA41810	Remaining civil works and draiange works(After tunnel civil works construction)	Remaining civil works and draiange works(After tunnel civil works construction)						
Site Formation - Slope TP_B & Associated Works				Site Formation - Slope TP_B & Associated Works				
Achievement of KD-3(Stage 3) for Slope B				Achievement of KD-3(Stage 3) for Slope B				
TPB41730	Achievement of KD-3(Stage 3) for slope B	Achievement of KD-3(Stage 3) for slope B						
TPB41710	Remaining civil works and drainage works	Remaining civil works and drainage works						
Achievement of KD-8 (Section 5) for Slope B				Achievement of KD-8 (Section 5) for Slope B				
TPB41760	Remaining works inculde landscape works and establishment works	Remaining works inculde landscape works and establishment works						

█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

**CRBC - Kaden JV
Three-Month Rolling Programme**

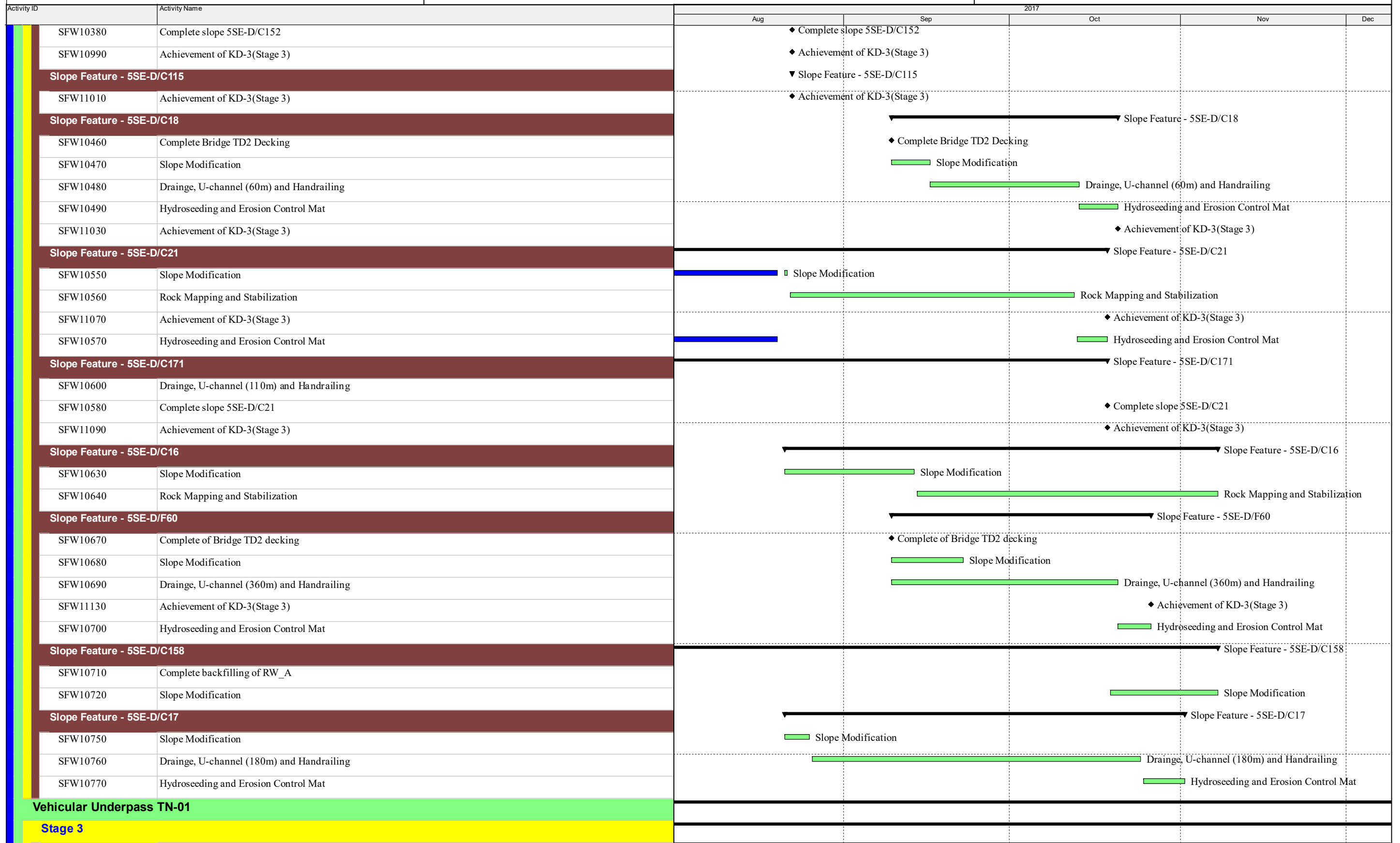
Date	Revision	Checked	Approved
31-08-17			

Activity ID	Activity Name	2017				
		Aug	Sep	Oct	Nov	Dec
Site Formation - Slope TP_C & Associated Works						
Achievement of KD-3(Stage 3) for Slope C						
TPC51320	Achievement of KD-3(Stage 3) for slope C					
Achievement of KD-8 (Section 5) for Slope C						
TPC51340	Achievement of KD-8(Section 5) for slope C					
Site Formation - Slope TP_E & Associated Works						
Stage 3						
Slope Feature - Slope TP_E Remaining Section and 5SE-D/C116						
TPE62600	Construct Cascade C					
TPE62700	Achievement of KD-3(Stage 3) for slope E					
Achievement of KD-8(Section 5) for Slope E						
TPE65320	Remaining works include landscape works and establishment works					
Site Formation - Slope Upgrading Works						
Stage 3 (Other Slope Features)						
Slope Feature - 5SE-D/C170						
SFW10080	Excavation of Rock (30000m3) for 5SE-D/C170					
SFW10105	Raking Drain Construction					
SFW10110	Drainage, U-channel (410m) and Handrailing					
SFW10850	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C165						
SFW10820	Drainage, U-channel (80m) and Handrailing					
SFW10830	Hydroseeding and Erosion Control Mat					
SFW10870	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C150						
SFW10890	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C152						
SFW10250	Hydroseeding and Erosion Control Mat					
SFW10910	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C121						
SFW10930	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C122						
SFW10330	Hydroseeding and Erosion Control Mat					
SFW10950	Achievement of KD-3(Stage 3)					
Slope Feature - 5SE-D/C14						
SFW10350	Slope Modification					
SFW10360	Drainage, U-channel (60m) and Handrailing					
Slope Feature - 5SE-D/C149						

█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

**CRBC - Kaden JV
Three-Month Rolling Programme**

Date	Revision	Checked	Approved
31-08-17			



■ Remaining Level of Effort ■ Critical Remaining Work
■ Actual Work ◆ Milestone
■ Remaining Work ▼ Summary

**CRBC - Kaden JV
Three-Month Rolling Programme**

Date	Revision	Checked	Approved
31-08-17			

Activity ID	Activity Name	2017				
		Aug	Sep	Oct	Nov	Dec
Road and Drainage Work, Utilities Works in Tunnel						
Road and Drainage Work, Utilities Works in Tunnel						
UDP34000	DN300	■ DN300				
UDP34010	DN100	■ DN100				
UDP34020	PCCW	■ PCCW				
UDP34030	Hutchison Global Communication Cable	■ Hutchison Global Communication Cable				
UDP34040	Hong Kong Boaroband Network	■ Hong Kong Boaroband Network				
UDP34050	Wharf T&T Duct and Joint Box	■ Wharf T&T Duct and Joint Box				
UDP34060	New World Telecom	■ New World Telecom				
UDP34070	Town Gas	■ Town Gas				
UDP34080	Smartone Cable	■ Smartone Cable				
UDP34090	HKC Cable	■ HKC Cable				
Achievement of KD-8 (Section 5) for TN-01						
UDP20640	Road works and Remaining works(Sundry Metalwork,etc)	■				
Road and Drainage Work ,Utilities Works at for Lung Fu Road Roundabout		→ Road and Drainage Work ,Utilities Works at for				
Section 3		→ Section 3				
Utilites installation ,road and drainage works (TTA stage 1)		→ Utilites installation ,road and drainage works (TTA stage 1)				
LFR10390	CLP + CRD	■ CLP + CRD				
LFR10400	TraxComm	■ TraxComm				
LFR10410	Completion of this stage civil provision for E&M, TCSS	■ Completion of this stage civil provision for E&M, TCSS				
LFR10430	Irrigation System	■ Irrigation System				
LFR10420	Road Pavement	■ Road Pavement				
LFR10440	TTA for Stage 2-0	■ TTA for Stage 2-0				
LFR10290	DN700 ,300,100	■ DN700 ,300,100				
LFR10300	PCCW	■ PCCW				
LFR10310	Hutchison Global Communication Cable	■ Hutchison Global Communication Cable				
LFR10320	Hong Kong Boaroband Network	■ Hong Kong Boaroband Network				
LFR10330	Wharf T&T Duct and Joint Box	■ Wharf T&T Duct and Joint Box				
LFR10340	New World Telecom	■ New World Telecom				
LFR10350	Town Gas	■ Town Gas				
LFR10360	Smartone Cable	■ Smartone Cable				
LFR10370	HKC Cable	■ HKC Cable				
LFR10380	Pubic Lighting	■ Pubic Lighting				
LFR10270	Filling Works	■ Filling Works				
Utilites installation ,road and drainage works (TTA Stage 2-0)		→ Utilites installation ,road and drainage works (TTA Stage 2-0)				
LFR10450	Drainage Work	■ Drainage Work				
LFR10470	PCCW	■ PCCW				

■ Remaining Level of Effort ■ Critical Remaining Work
■ Actual Work ◆ Milestone
■ Remaining Work ▼ Summary

CRBC - Kaden JV
Three-Month Rolling Programme

Date	Revision	Checked	Approved
31-08-17			

Activity ID	Activity Name	2017				
		Aug	Sep	Oct	Nov	Dec
LFR10480	Hutchison Global Communication Cable					
LFR10460	DN100,300,700,800					
LFR10490	Hong Kong Boaroband Network					
LFR10500	Wharf T&T Duct and Joint Box					
LFR10510	New World Telecom					
LFR10520	Town Gas					
LFR10530	Smartone Cable					
Road and Drainage Work ,Utilities Works at Lung Mun Road		Road and Drainage Work ,Utilities Works at Lung Mun Road				
Lung Mun Road (Westbound)		Lung Mun Road (Westbound)				
Ho Suen Street North		Ho Suen Street North				
LMRWA1130	CLP + CRD					
LMRWA1040	PCCW					
LMRWA1050	Hutchison Global Communication Cable					
LMRWA1060	Hong Kong Boaroband Network					
LMRWA1070	Wharf T&T Duct and Joint Box					
LMRWA1080	New World Telecom					
LMRWA1090	Town Gas					
LMRWA1100	Smartone Cable					
LMRWA1110	HKC Cable					
LMRWA1120	Pubic Lighting					
LMRWA1140	TraxComm					
LMRWA1150	Irrigation System					
LMRWA1160	Road Pavement					
Ho Suen Street South		Ho Suen Street South				
LMRWA1190	DN200 CHK 0 - 50					
LMRWA1200	DN300 CHE 0 - 116					
LMRWA1210	DN100 CHG 0 - 112					
LMRWA1170	Drainage Work					
LMRWA1220	PCCW					
Utilites installation ,road and drainage works for East Portal		Utilites installation ,road and drainage works for East Portal				
EPA1000	Rock Cutting					
EPA1020	DN300 CHA 0 - 175&DN100					
EPA1030	Street furniture and sign gantry					
EPA1040	PCCW					
EPA1050	Hutchison Global Communication Cable					
EPA1060	Hong Kong Boaroband Network					
EPA1070	Wharf T&T Duct and Joint Box					

█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

CRBC - Kaden JV
Three-Month Rolling Programme

Date	Revision	Checked	Approved
31-08-17			

Activity ID	Activity Name	2017				
		Aug	Sep	Oct	Nov	Dec
EPA1080	New World Telecom	[Blue bar]				[Green bar] New World Telecom
EPA1090	Town Gas	[Blue bar]				[Green bar] Town Gas
EPA1100	Smartone Cable	[Blue bar]				[Green bar] Smartone Cable
EPA1110	HKC Cable	[Blue bar]				[Green bar] HKC Cable
EPA1120	Pubic Lighting	[Blue bar]				[Green bar]
EPA1130	CLP	[Blue bar]				[Green bar]
EPA1140	TraxComm	[Blue bar]				[Green bar]
Utilites installation ,road and drainage works near portion D		[Summary arrow]				
TOLLA1010	DN300	[Blue bar]	[Green bar] DN300			
TOLLA1020	DN100	[Blue bar]	[Green bar] DN100			
TOLLA1030	PCCW		[Green bar] PCCW			
TOLLA1040	Hutchison Global Communication Cable			[Green bar] Hutchison Global Communication Cable		
TOLLA1050	Hong Kong Boaroband Network				[Green bar] Hong Kong Boaroband Network	
Sewage, Irrigation and Road& Drainage Works		[Summary arrow]				
SAI10060	Sewage, irrigation and road&drainage works -G2-north side	[Blue bar]				[Green bar]
SAI10020	Sewage, irrigation and road&drainage works - RW_B-north side	[Blue bar]			[Green bar]	
SAI10070	Sewage, irrigation and road&drainage works- G2-south side	[Blue bar]				
SAI10030	Sewage, irrigation and road&drainage works - RW_B-south side	[Blue bar]				
SAI10040	Sewage, irrigation and road&drainage works -G1&H1-north side	[Blue bar]				
SAI10050	Sewage, irrigation and road&drainage works - G1&H1-south side	[Blue bar]				
Achievement of Key Dates		[Summary arrow]				
AK10330	Achievement of KD-8(Section 5) for slope C		[Milestone]			
AK10320	Achievement of KD-3(Stage 3) for slope C		[Milestone]			
AK10300	Achievement of KD-3(Stage 3) for slope B			[Milestone]		
AK10280	Achievement of KD-3(Stage 3) for slope A				[Milestone]	
AK10210	Achievement of KD-3(Stage 3) for RW_A				[Milestone]	
AK10020	Achievement of KD-1(Stage 1) for TD2					[Milestone]

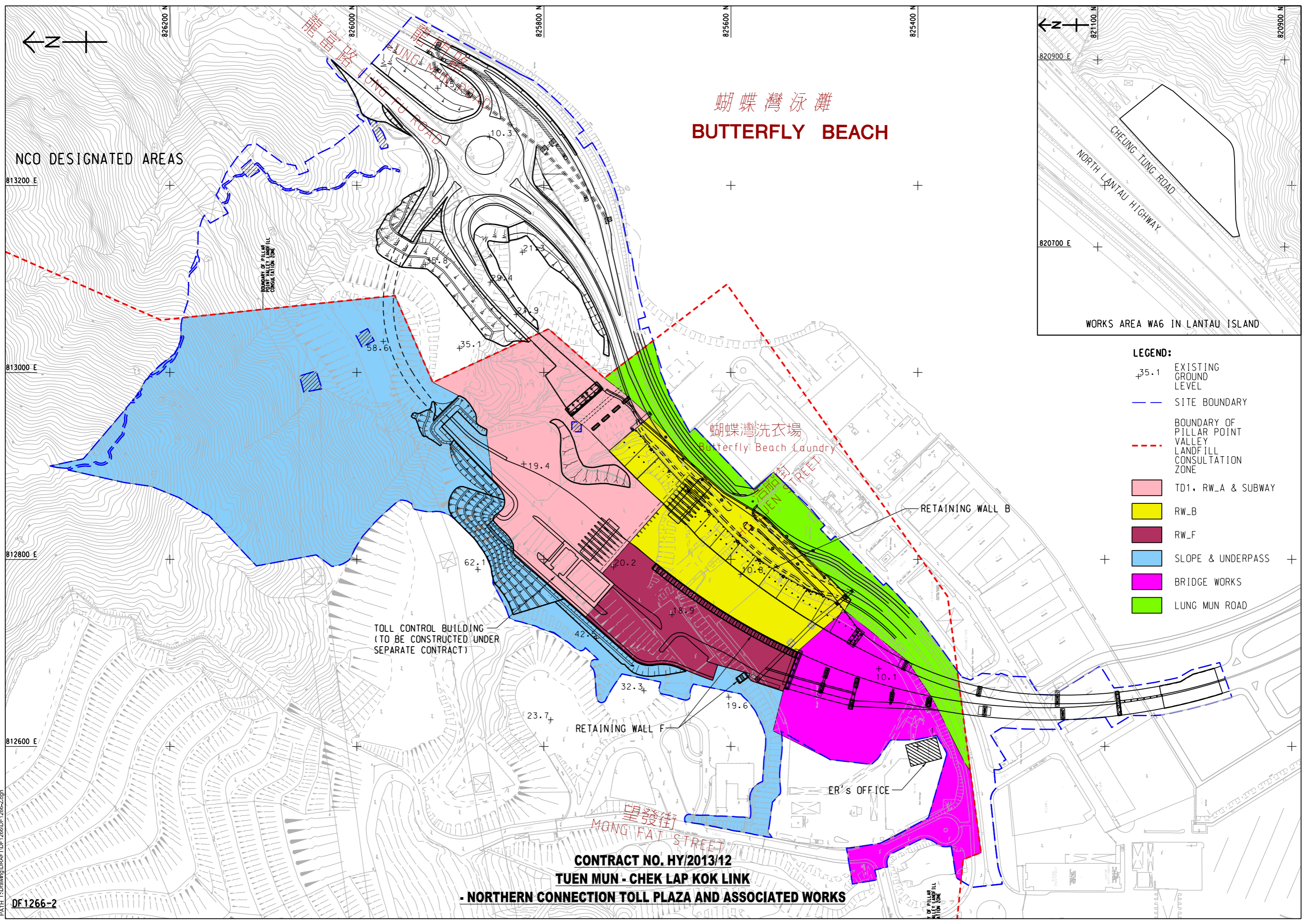
█ Remaining Level of Effort █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work [Arrow] Summary

**CRBC - Kaden JV
Three-Month Rolling Programme**

Date	Revision	Checked	Approved
31-08-17			

Appendix E

Monitoring Locations for the Contract



蝴蝶灣泳灘
BUTTERFLY BEACH

NCO DESIGNATED AREAS

WORKS AREA WA6 IN LANTAU ISLAND

- LEGEND:**
- +35.1 EXISTING GROUND LEVEL
 - SITE BOUNDARY
 - BOUNDARY OF PILLAR POINT VALLEY LANDFILL CONSULTATION ZONE
 - TD1, RW_A & SUBWAY
 - RW_B
 - RW_F
 - SLOPE & UNDERPASS
 - BRIDGE WORKS
 - LUNG MUN ROAD

TOLL CONTROL BUILDING
 (TO BE CONSTRUCTED UNDER
 SEPARATE CONTRACT)

RETAINING WALL F

RETAINING WALL B

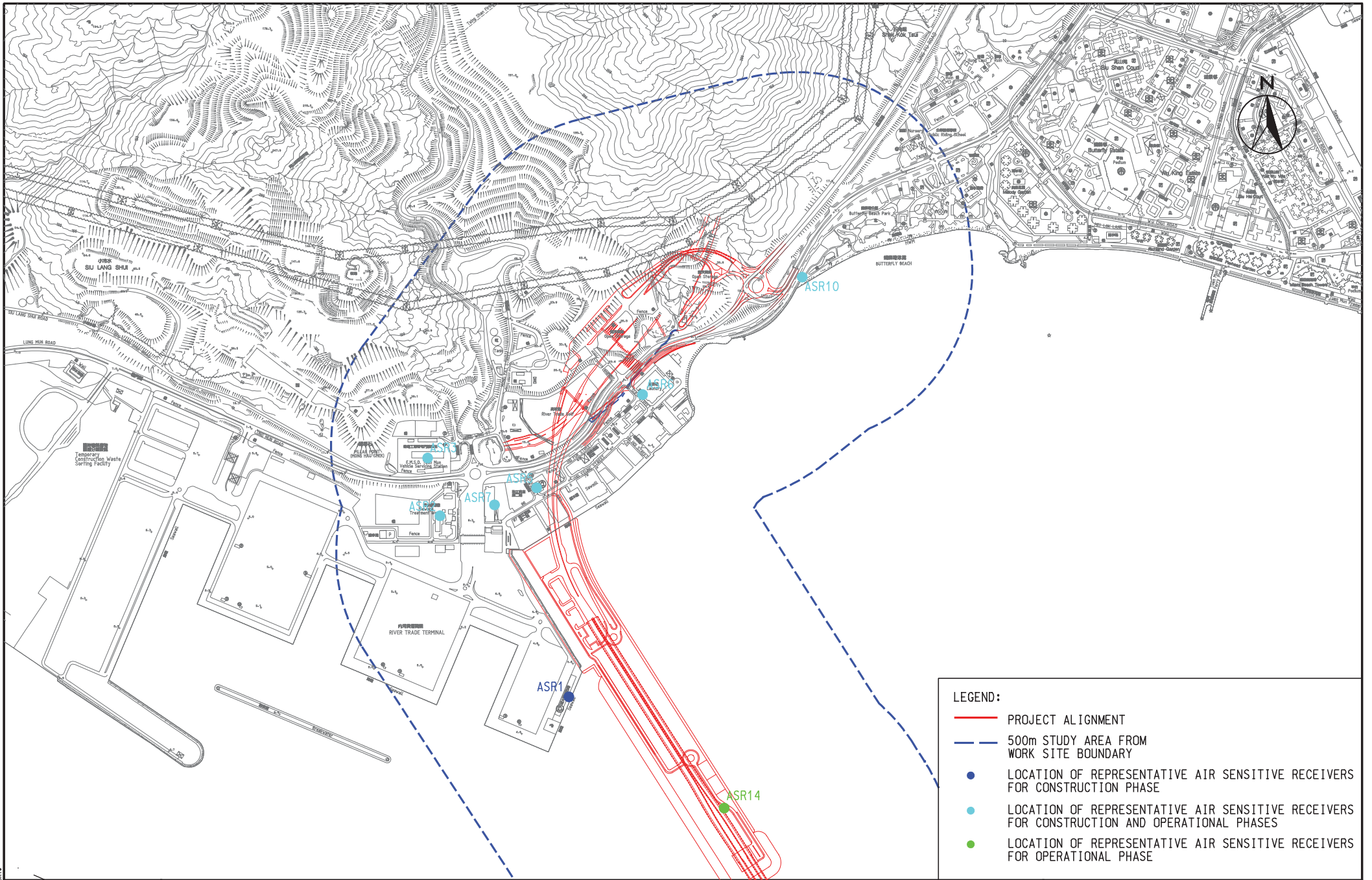
ER'S OFFICE

蝴蝶灣洗衣場
 Butterfly Beach Laundry

CONTRACT NO. HY/2013/12
TUEN MUN - CHEK LAP KOK LINK
- NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS

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DF1266-2

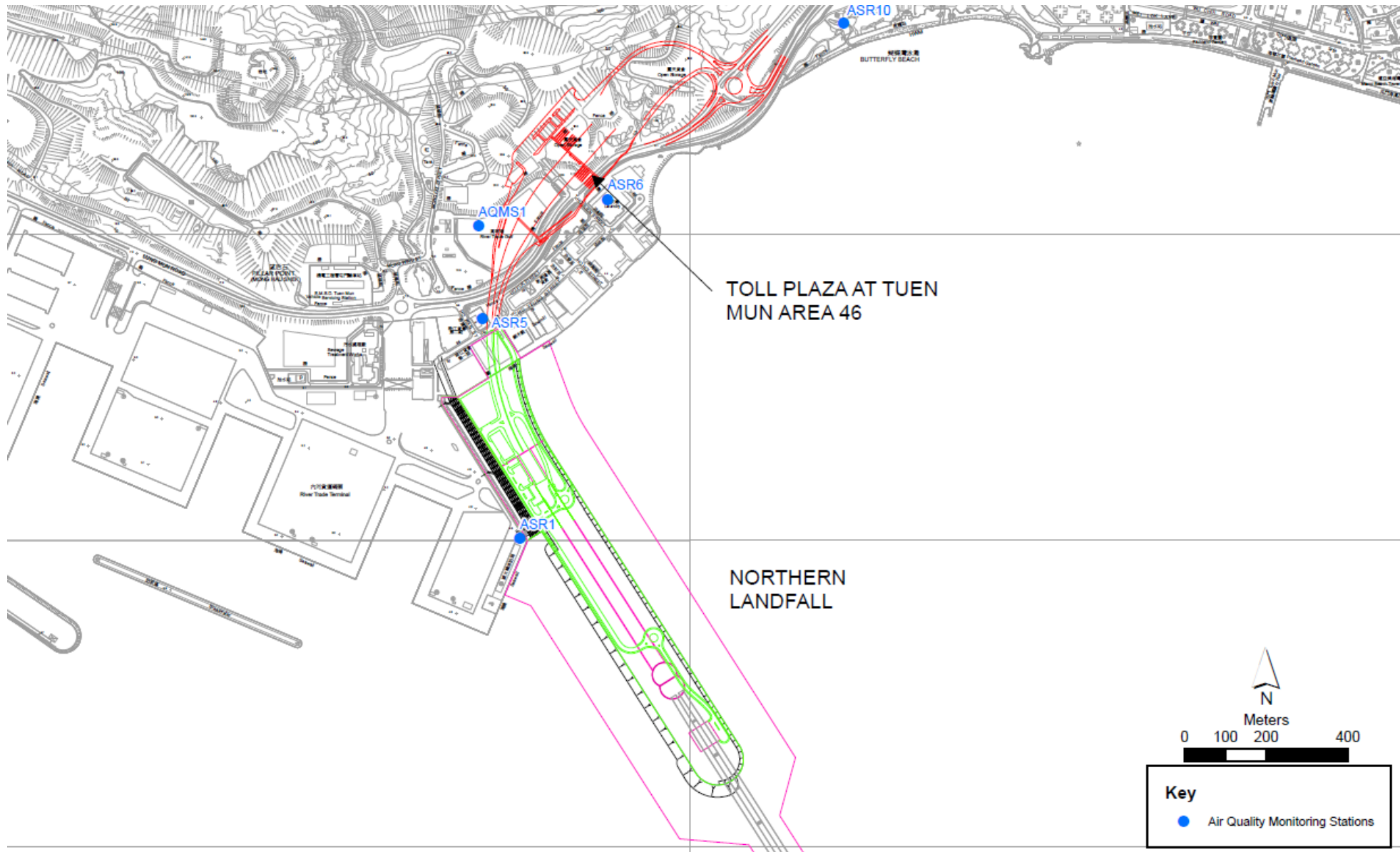


LEGEND:

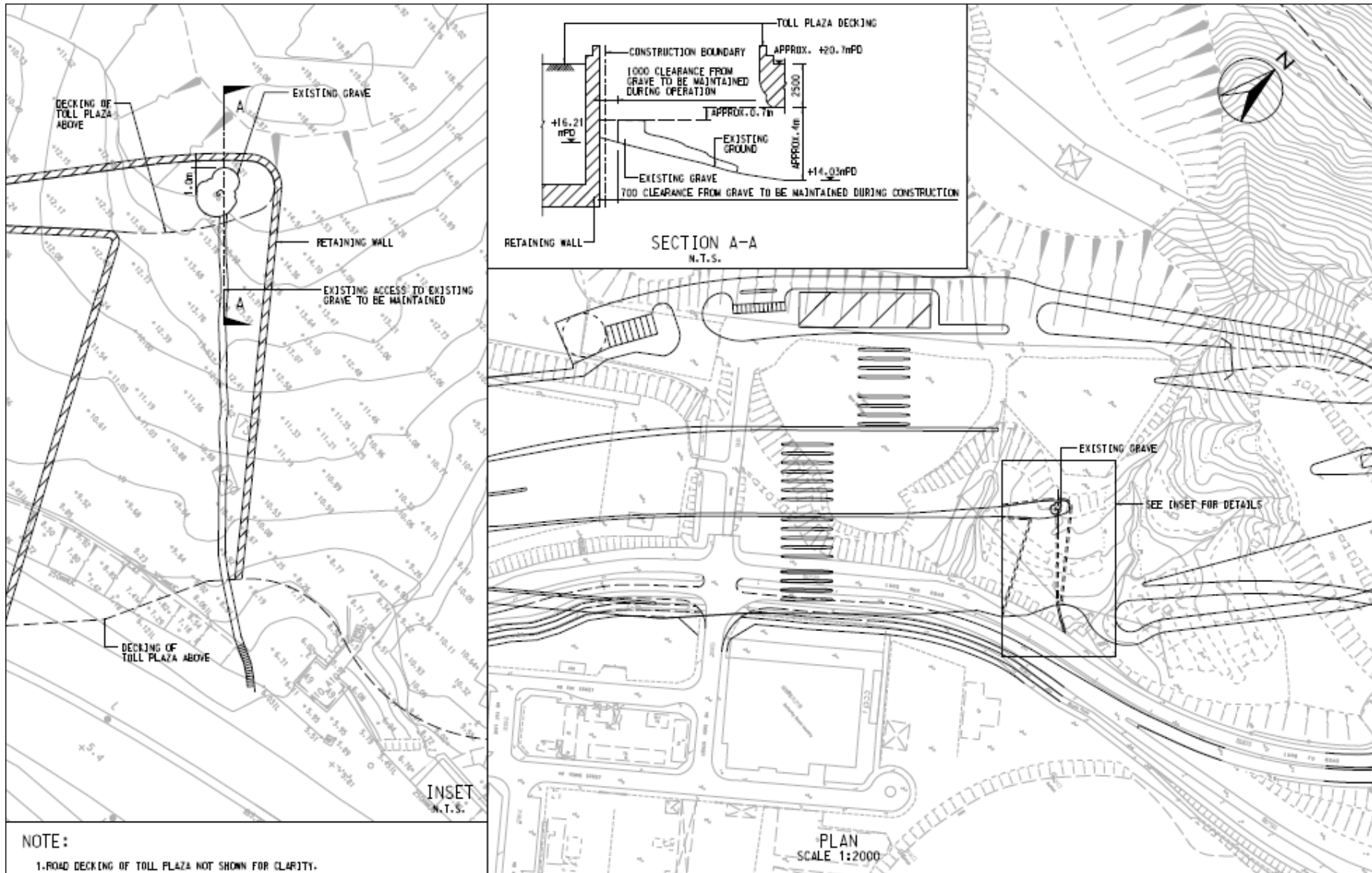
- PROJECT ALIGNMENT
- - - 500m STUDY AREA FROM WORK SITE BOUNDARY
- LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS FOR CONSTRUCTION PHASE
- LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS FOR CONSTRUCTION AND OPERATIONAL PHASES
- LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS FOR OPERATIONAL PHASE

AGREEMENT NO. CE 52/2007(HY)
 TUEN MUN - CHEK LAP KOK LINK - INVESTIGATION
REPRESENTATIVE AIR SENSITIVE RECEIVERS

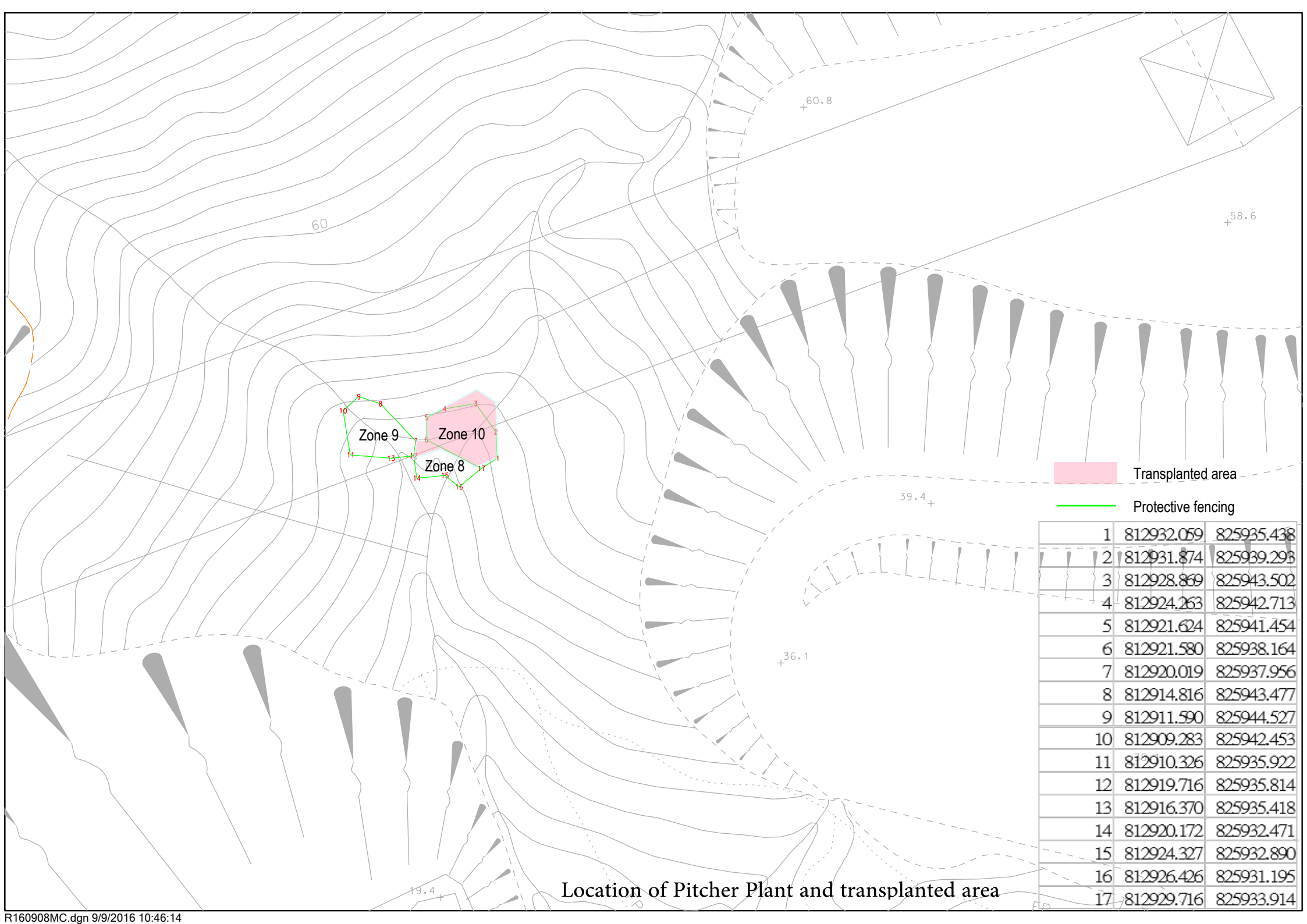
SCALE	1 : 10 000	DATE
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Air Quality Monitoring Location



Location of the Grave G1



Transplanted area

Protective fencing

1	812932.059	825935.438
2	812931.874	825939.293
3	812928.869	825943.502
4	812924.263	825942.713
5	812921.624	825941.454
6	812921.580	825938.164
7	812920.019	825937.956
8	812914.816	825943.477
9	812911.590	825944.527
10	812909.283	825942.453
11	812910.326	825935.922
12	812919.716	825935.814
13	812916.370	825935.418
14	812920.172	825932.471
15	812924.327	825932.890
16	812926.426	825931.195
17	812929.716	825933.914

Location of Pitcher Plant and transplanted area

Appendix F

Event and Action Plan

Event and Action Plan for Air Quality

EVENT	ACTION			
	ET ⁽¹⁾	IEC ⁽¹⁾	SOR ⁽¹⁾	Contractor(s)
Action Level				
Exceedance recorded	<ol style="list-style-type: none"> 1 Identify the source. 2 Repeat measurements to confirm findings. If two consecutive measurements exceed Action Level, the exceedance is then confirmed. 3 Inform the IEC and the SOR 4 Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5 If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6 Discuss with the IEC and the Contractor on remedial actions required. 7 If exceedance continues, arrange meeting with the IEC and the SOR. 8 If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1 Check monitoring data submitted by the ET. 2 Check the Contractor's working method. 3 If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4 Advise the SOR on the effectiveness of the proposed remedial measures. 5 Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1 Confirm receipt of notification of failure in writing. 2 Notify the Contractor. 3 Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1 Rectify any unacceptable practice. 2 Amend working methods if appropriate 3 If the exceedance is confirmed to be Project related, submit proposals for remedial actions to IEC within 3 working days of notification 4 Implement the agreed proposals 5 Amend proposal if appropriate.
Limit Level				
Exceedance recorded	<ol style="list-style-type: none"> 1. Identify the source. 2. Repeat measurement to confirm finding. If two consecutive measurements exceed Limit Level, the exceedance is then confirmed. 3. Inform the IEC, the SOR, the DEP and the Contractor. 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented. 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 7. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken. 8. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results. 9. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1 Check monitoring data submitted by the ET. 2 Check Contractor's working method. 3 If the exceedance is confirmed to be Project related after investigation, discuss with the ET and the Contractor on possible remedial measures. 4 Advise the SOR on the effectiveness of the proposed remedial measures. 5 Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. If the exceedance is confirmed to be Project related after investigation, in consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1 Take immediate action to avoid further exceedance. 2 If the exceedance is confirmed to be Project related after investigation, submit proposals for remedial actions to IEC within 3 working days of notification. 3 Implement the agreed proposals. 4 Amend proposal if appropriate. 5 Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

Event and Action Plan for Landscape and Visual Impact

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	Contractor
Design Check	<ul style="list-style-type: none"> Check final design conforms to the requirements of EP and prepare report. 	<ul style="list-style-type: none"> Check report. Recommend remedial design if necessary 	<ul style="list-style-type: none"> Undertake remedial design if necessary 	
Non- conformity on one occasion	<ul style="list-style-type: none"> Identify Source Inform IEC and ER Discuss remedial actions with IEC, ER and Contractor Monitor remedial actions until rectification has been completed 	<ul style="list-style-type: none"> Check report Check Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise ER on effectiveness of proposed remedial measures. Check implementation of remedial measures 	<ul style="list-style-type: none"> Notify Contractor Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> Amend working methods Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ul style="list-style-type: none"> Identify Source Inform IEC and ER Increase monitoring frequency Discuss remedial actions with IEC, ER and Contractor Monitor remedial actions until rectification has been completed If nonconformity stops, cease additional monitoring 	<ul style="list-style-type: none"> Check monitoring report Check Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise ER on effectiveness of proposed remedial measures Supervise implementation of remedial measures 	<ul style="list-style-type: none"> Notify Contractor Ensure remedial measures are properly implemented 	<ul style="list-style-type: none"> Amend working methods Rectify damage and undertake any necessary replacement

Event / Action Plan for Cultural Heritage

Action Level	ET	IC (E)	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the IC(E) and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IC(E), the ER and the Contractor 5. Monitor remedial actions until 6. rectification has been completed 7. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ES and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement

Note:

ET – Environmental Specialist, IEC – Independent Environmental Checker, ER – Engineer's Representative

Event / Action Plan for General Ecology

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ul style="list-style-type: none"> Identify Source Inform the IEC and the ER Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed 	<ul style="list-style-type: none"> Check report Check the Contractor's working method Discuss with the ET and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures. Check implementation of remedial measures. 	<ul style="list-style-type: none"> Notify Contractor Ensure remedial measures are properly implemented Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in the case of a serious nonconformity until situation rectified. 	<ul style="list-style-type: none"> Amend working methods Rectify damage and undertake any necessary replacement
Repeated Non conformity	<ul style="list-style-type: none"> Identify Source Inform the IC(E) and the ER Increase monitoring frequency Discuss remedial actions with the IC(E), the ER and the Contractor Monitor remedial actions until rectification has been completed If exceedance stops, cease additional monitoring 	<ul style="list-style-type: none"> Check monitoring report Check the Contractor's working method Discuss with the ES and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures Supervise implementation of remedial measures 	<ul style="list-style-type: none"> Notify the Contractor Ensure remedial measures are properly implemented Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in the case of a serious nonconformity until situation rectified. 	<ul style="list-style-type: none"> Amend working methods Rectify damage and undertake any necessary replacement

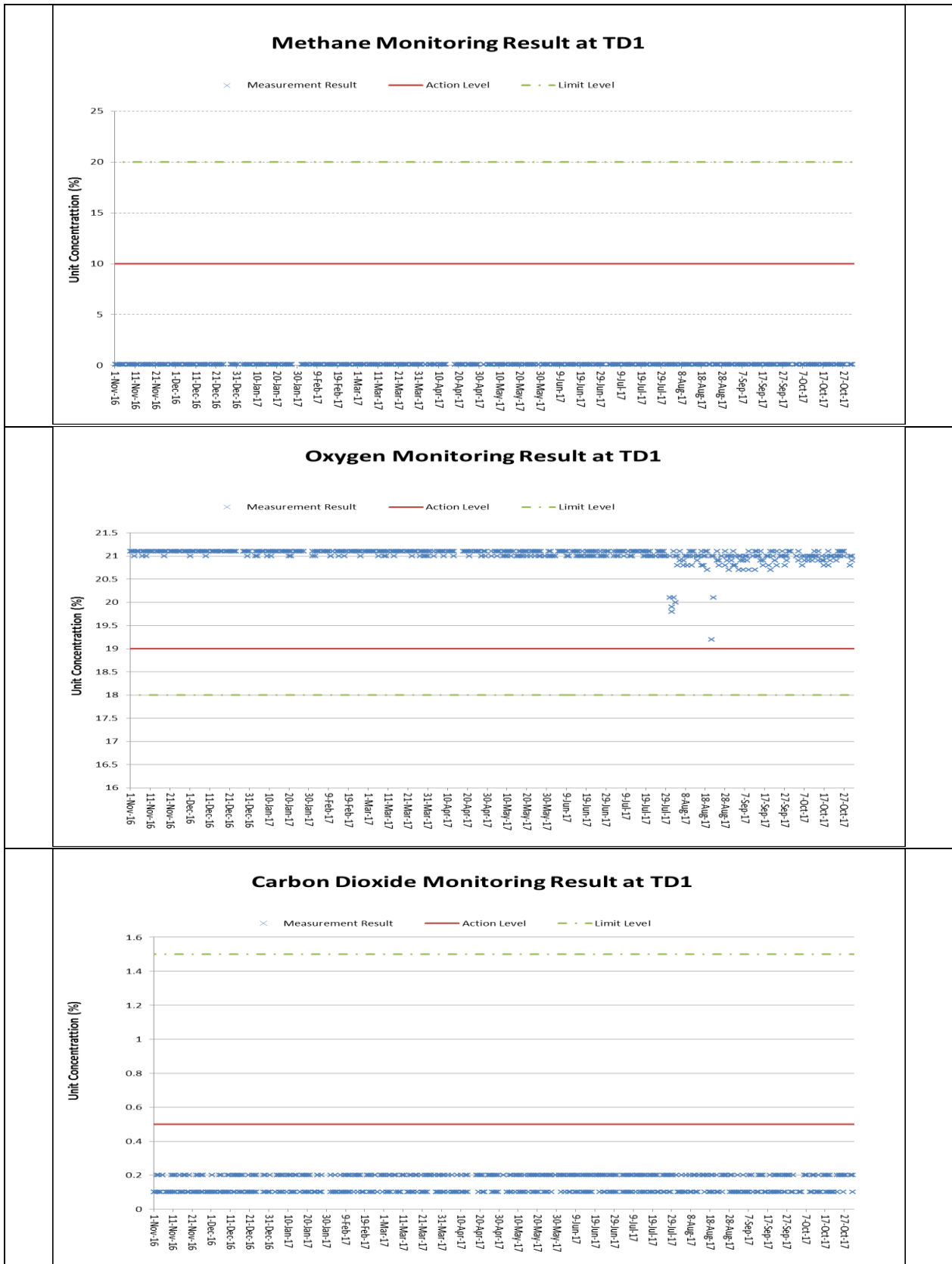
Note: ET – Environmental Specialist, IC(E) – Independent Checker (Environmental), ER – Engineer's Representative

Appendix G

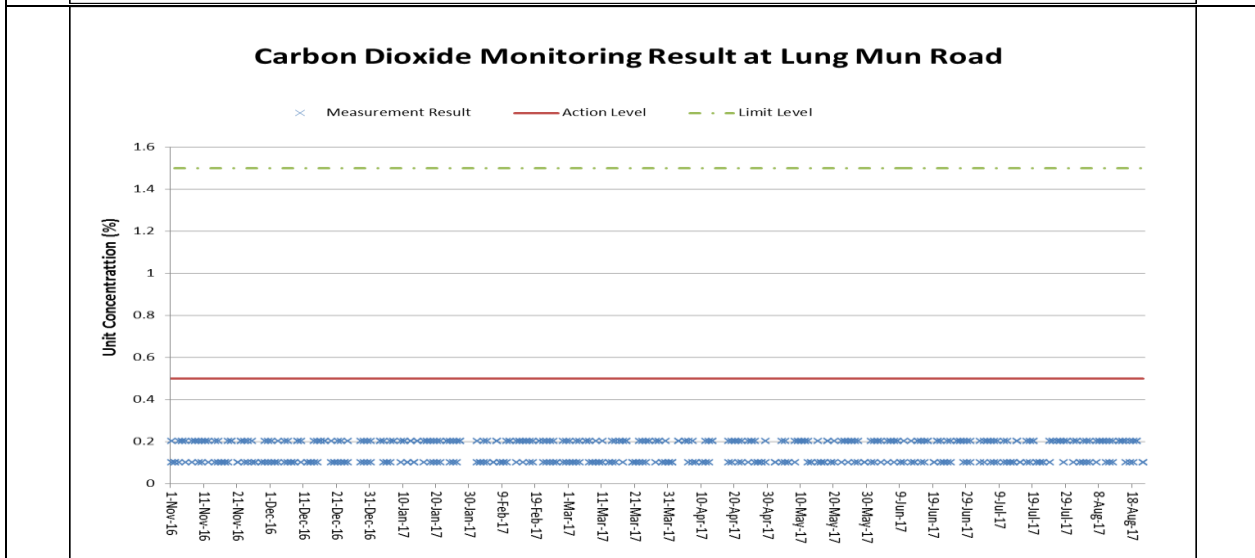
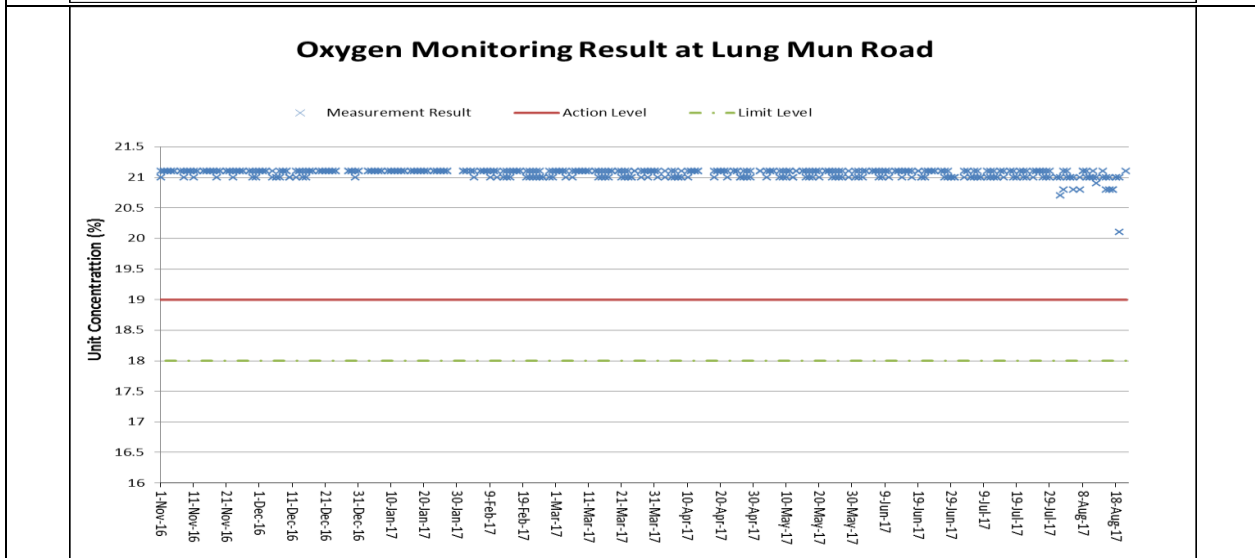
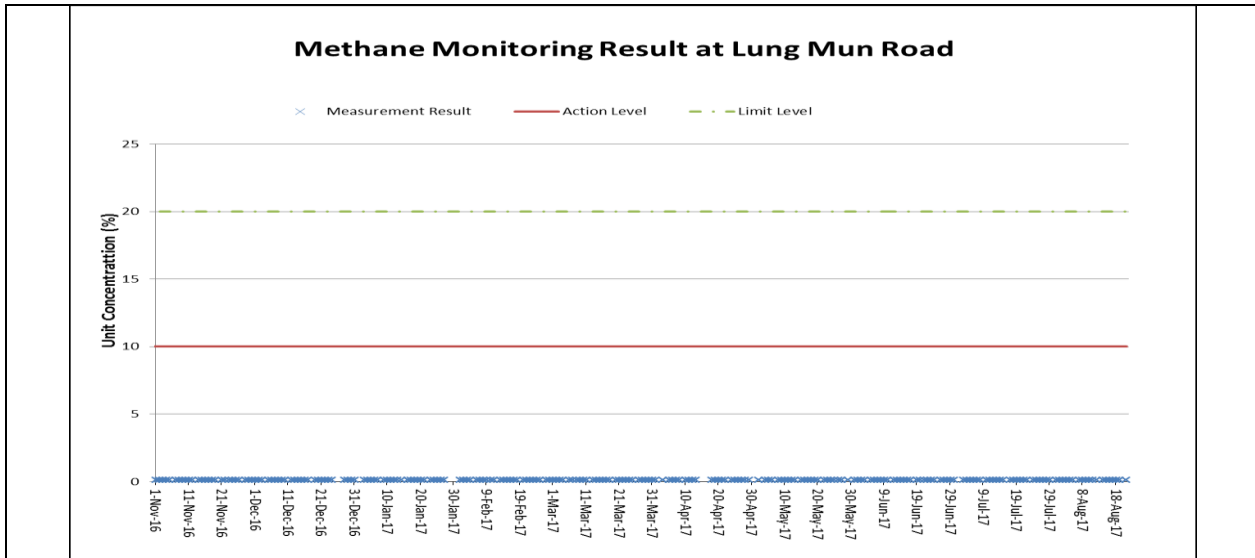
Graphical Plot of Monitoring Results

I. Landfill Gas

GRAPHICAL PLOT OF LANDFILL GAS MONITORING RESULTS



Annotation:
 During 1 November 2016 to 31 October 2017, major construction activity at TD1 and the specified works included excavation, stitching, blinding, formworking, steel-fixing and concreting. The weather condition varied from sunny to rainy. The monitoring data was provided by the Contractor followed to their QA/QC control.



Annotation:

During 1 November 2016 to 21 August 2017, major construction activity at Lung Mun Road and the specified works included excavation, blinding, formworking, steel-fixing and concreting. The weather condition varied from sunny to rainy. The monitoring data was provided by the Contractor followed to their QA/QC control.

Appendix H

Environmental Mitigation Measures Implementation Schedule (EMMIS)

CONTRACT NO. HY/2013/12

**TUEN MUN – CHECK LAP KOK LINK – NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS
ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURE IMPLEMENTATION SCHEDULE**

Air Quality									
EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status *
						D	C	O	
4.8.1	3.8	An effective watering programme of twice daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		✓
4.8.1	3.8	Watering of the construction sites in Lantau for 8 times/day and in Tuen Mun for 12 times/day to reduce dust emissions by 87.5% and 91.7% respectively and shall be undertaken.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<>
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.8.1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓

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4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Areas of exposed soil shall be minimized to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit	All representative existing ASRs / throughout construction period	Contractor	EM&A Manual		Y		✓

Cultural Heritage

EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
11.8	Section 9	EM&A in the form of audit of the mitigation measures	All areas / throughout construction period	Highways Department	EIAO-TM		Y		✓

Ecology

EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	

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7.13#	6.3, 6.5#	Fencing or other physical barriers for protection of Pitcher Plant around Zones 8, 9 and 10 and the temporary nursery site	Tuen Mun Area 46 shrubland/ Detailed/ Prior to construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
7.13	6.5	Audit Pitcher Plant protection measures	Tuen Mun Area 46	Contractor	TMEIA		Y		✓
7.13	6.5	The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.	All areas / As soon as accessible	Contractor	TMEIA		Y		✓
7.13	6.5	Spoil heaps shall be covered at all times.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Avoid damage and disturbance to the remaining and surrounding natural habitat	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Placement of equipment in designated areas within the existing disturbed land	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Disturbed areas to be reinstated immediately after completion of the works.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Construction activities should be restricted to the proposed works boundary	All areas / Throughout construction	Contractor	TMEIA		Y		✓

Landfill Gas Hazard Assessment

EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
14.12.2	14.2	<u>Appointment of Safety Officer</u> Appoint a properly trained safety officer and provide with appropriate equipment to measure and monitor LFG hazard. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	<u>Safety Measures - Excavation</u>	Construction Stage	Contractor	EPD/TR8/97 -		Y		✓

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		Staff should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards. Excavation procedures and code of practice should be implemented.			Landfill Gas Hazard Assessment Guidance Note				
14.12.2	-	<u>Safety Measures – Welding, Flame- Cutting and Hot works</u> Hot works should be confined to open areas away from any trench or excavation. Should hot works must be carried out in trenches or confined space, “permit to work” procedures should be followed.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	<u>Safety Measures – Enclosed Spaces</u> Site offices or buildings located within PPV Landfill Consultation Zone which have the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas; or be raised clear of the ground by a minimum of 500mm.	Site office, building, tunnel, subway, confined area / Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	<u>Safety Measures – Electrical Equipment</u> Any electrical equipment, such as motors and extension cords, should be intrinsically safe.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	<u>Safety Measures – Piping</u> During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping/conduiting should be capped at the end of each working day.	Services & utilities / Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.2	-	<u>Safety Measures – Fire Safety</u> Adequate fire safety equipments should be provided on site. Workers and visitors should be notified of the potential fire hazards. Safety notices should be	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment		Y		✓

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		posted around the site warning the anger and potential hazards.			Guidance Note				
14.12.1	-	<u>Safety Measures – Confined Spaces</u> Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces, and that appropriate monitoring procedures are in place to prevent hazards in confined spaces.	Confined space / Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓
14.12.1	-	<u>Monitoring</u> Periodically during ground-works within the Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. Depending on the results of the measurements, actions required will vary. As a minimum these should encompass those actions specified in Table 14.8 of the EIA Report or Table 14.1 of the EM&A Manual.	Construction Stage	Contractor	EPD/TR8/97 - Landfill Gas Hazard Assessment Guidance Note		Y		✓

Landscape and Visual

EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	Existing trees on boundary of the Project Area shall be carefully protected during construction. 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. (Tree protection measures will be detailed at Tree Removal Application stage) (CM1)	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be	All areas/detailed design/ during	Design Consultant/	TMEIA	Y	Y		NA

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		transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme (CM2)	construction	Contractor					
10.9	7.6	Hillside and roadside screen planting to proposed roads, associated structures and slope works (CM3)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y		NA
10.9	7.6	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone) (CM4)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		<>
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Recycle/Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Compensatory tree planting 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 Felling Application process under ETWBTC 3/2006 (CM10)	All areas/detailed design/ during Construction	Design Consultant/ Contractor	TMEIA	Y	Y		NA
10.9	7.6	Re-vegetation of affected woodland/shrubland with	All areas/detailed design/ during Construction	Design	TMEIA	Y	Y	Y	N/A

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		native species (OM1)	during Construction/ post construction	Consultant/ Contractor					
10.9	7.6	Tall buffer screen tree / shrub / climber planting where appropriate should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimize unnecessary light spill (OM3)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities (OM5)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	N/A
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (OM6)	All areas/detailed design/ during Construction/ post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓
Waste									
EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste Management Plan which specifies procedures such	Contract mobilisation	Contractor	TMEIA, Works Branch		Y		✓

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		as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.			Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material				
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimize the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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12.6	8.1	Inert C&D materials from the toll plaza cut slopes shall be reused for construction of the raised platform for the toll plaza where possible.	Toll Plaza / toll plaza construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		◇
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/ plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper	All areas / throughout construction period	Contractor	TMEIA		Y		✓

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		disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.							
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		◇
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows: <ul style="list-style-type: none"> • suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; • Having a capacity of <450L unless the specifications have been approved by the EPD; and • Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. • Clearly labelled and used solely for the storage of chemical wastes; • Enclosed with at least 3 sides; • Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; • Adequate ventilation; • Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and • Incompatible materials are adequately separated. 	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Waste oils, chemicals or solvents shall not be	All areas / throughout	Contractor	TMEIA		Y		✓

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		disposed of to drain,	construction period						
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	All waste containers shall be in a secure area on hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminum cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		✓
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All areas / throughout construction period	Contractor	EM&A Manual		Y		✓
Water Quality									
EIA reference	EM&A Manual reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	

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Land Works									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		◇
6.10	-	Sewage effluent and discharges from onsite kitchen facilities shall be directed to Government sewer in accordance with the Requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		◇
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		◇
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		◇
6.10	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction	All areas/ throughout construction period	Contractor	TM-EIAO		Y		◇

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		materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.							
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		✓
6.10	-	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		◇

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6.10	Section 5	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
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Remarks:

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation Measures but need improvement.
- × Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Contractor
- △ Deficiency of Mitigation Measures but rectified by Contractor
- N/A Not Applicable in Reporting Period
- # Amended against condition 3.13 of EP-354/2009/C

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government