

AUES JOB No.: TCS00715/14



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

**6th QUARTERLY ENVIRONMENTAL MONITORING &
AUDIT SUMMARY REPORT –
(February to April 2016)**

PREPARED FOR

CRBC AND KADEN JOINT VENTURE

Quality Index

Date	Reference No.	Prepared By	Certified By
24 May 2016	TCS00715/14/600/R0195v2	 Ben Tam (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

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Ref.: HYDHZMBEEM00_0_4219L.16

01 June 2016

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. Roger Man

Dear Roger,

**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
6th Quarterly EM&A Summary Report (February – April 2016) (EP-
354/2009/D)**

Reference is made to the 6th Quarterly Environmental Monitoring and Audit (EM&A) Summary Report (February to April 2016) (AUES reference: TCS00715/14/600/R0195v2 dated 24 May 2016) certified by the ET Leader and provided to us via e-mail on 25 May 2016.

Please be informed that we have no adverse comments on the captioned quarterly EM&A 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

ES.01. This is the 6th Quarterly EM&A Summary 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 February to 30 April 2016** (hereinafter “Reporting Period”).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.02. Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Total Occasions
Air Quality	1-hour TSP	435
	24-hour TSP	145
Cultural heritage inspection	Grave G1	13
Landfill Gas Monitoring	Oxygen; Methane & Carbon Dioxide	70 days
Landscape & Visual	Landscape & Visual Monitoring	13
Joint Site Inspection / Audit	IEC, ET, the Contractor and RE joint site Environmental Inspection and Auditing	13

BREACHES OF ACTION/LIMIT LEVELS

ES.03. In the Reporting Period, no exceedance was recorded for the measured parameter under the Contract. The summary of breach of monitoring performance is shown below.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	0	0
	24-hour TSP	0	0	0	0	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

ES.04. In the Reporting Period, one (1) environmental complaint was received from EPD on 28 April 2016 regarding to dust and smoke emission from a drilling rig was observed on the slope near Pillar Point, Tuen Mun. Investigation report for the complaint is underway by the ET and it will submit to all relevant parties.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.05. No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGES

ES.06. No reporting changes were made in the Reporting Period.

FUTURE KEY ISSUES

ES.07. During wet season, muddy water or other water pollutants from site surface runoff into the public areas will be key environment issue. Special attention should be paid on the water quality mitigation measures to prevent surface runoff flow to public area.

ES.08. Although in wet season, air quality mitigation measures such as watering of site area for 12 times per day and covering of exposed slopes should be fully implemented to reduce construction dust impact as recommended in the EMIS.

ES.09. It was reminded that good housekeeping practice should be maintained. Mosquito control measures should be properly implemented to prevent mosquito breeding on site especially after rain.

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1. INTRODUCTION

1.1. PROJECT 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). The TM-CLK Link Project is a designated project under Environmental Permit number EP-354/2009/D issued on 13 March 2015. The layout Plan of the Project and the Contract are showed in [Appendix A](#) and [B](#) respectively.
- 1.1.2. The construction works of the Contract mainly include:-
- construction of an approximately 5.4 hectares toll plaza and an associated footbridge;
 - 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;
 - site formation for the construction of the toll plaza, including associated slope works and natural terrain hazard mitigation measures;
 - modification and realignment of the existing Lung Mun Road and Lung Fu Road; and
 - associated waterworks, drainage, sewerage and landscaping works, etc..
- 1.1.3. Action-United Environmental Services & Consulting has been commissioned as an Independent ET to implement the relevant EM&A program in accordance with the approved EM&A Manual, as well as the associated duties.
- 1.1.4. This is the 6th Quarterly EM&A Summary Report covering the period from **1 February to 30 April 2016**.

1.2 REPORT STRUCTURE

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

- Section 1 Introduction*
- Section 2 Contract Organization and Construction Progress*
- Section 3 Summary of Impact Monitoring Requirements*
- 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 Site Inspections*
- Section 11 Environmental Complaints and Non-Compliance*
- Section 12 Implementation Status of Mitigation Measures*
- Section 13 Conclusions and Recommendations*

2 CONTRACT ORGANIZATION AND CONSTRUCTION PROGRESS

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 and 2-month rolling programme is enclosed in [Appendix D](#).

February 2016

- Instrumentation and Monitoring
- Site Formation – Retaining Structure for RW_A, Slope TP_F, TP_G, TP_A and Associated Works, TP_B and Associated Works, TP_C and Associated Works, TP_D and Associated Works, TP_E and Associated Works and Slope Upgrading Works
- Toll Plaza Decking TD1-Section 1, TD2-Section 1
- Toll Plaza Footbridge-Section 1
- Retaining Structure RW_B-Section 1
- Toll Collector Subway & Associated Works-Section 1
- Bridge G1, G2, Bridge H1 Section 2
- Sewer Culvert 1 (TBM) – Stage 4, Culvert 2 & Culvert 3 and Existing Culvert
- Vehicular Underpass TN-01
- Road and Drainage Works for Lung Fu Road Roundabout

March 2016

- Instrumentation and Monitoring
- Site Formation – Retaining Structure for RW_A, Slope TP_F, TP_G, TP_A and Associated Works, TP_B and Associated Works, TP_C and Associated Works, TP_D and Associated Works, TP_E and Associated Works and Slope Upgrading Works
- Toll Plaza Decking TD1-Section 1, TD2-Section 1
- Toll Plaza Footbridge-Section 1
- Retaining Structure RW_B and RW_F
- Toll Collector Subway & Associated Works-Section 1
- Bridge G1, G2, Bridge H1 Section 2
- Sewer Culvert at FC1 and FC2
- Excavation of underpass from East Portal
- Road and Drainage Works at Butterfly Bay, +11mPD and +19mPD

April 2016

- 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 (Portal Beam Construction) and TD2;
- Toll Plaza Footbridge;
- Retaining Structure RW_A, RW_B and RW_F;
- Toll Collector Subway & Associated Works;
- Bridge G1, G2 and Bridge H1;
- Sewer Culvert at FC1 and FC2;
- Waterproofing and lining at Vehicular Underpass;
- Road and Drainage Works at +11mPD, +19mPD and Portion H.

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 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 for Contract No. HY/2013/12 are presented in *Table 2-1*.

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

No.	Type of Permit/ License	Submission Date	Reference/ License No.	Date of Issue	Date of Expiry
1	Air pollution Control (Construction Dust) Regulation	06-08-2014	377719	06-08-2014	N/A
2	Chemical Waste Producer Registration - Waste Producers Number	06-08-2014	5117422C389301	03-09-2014	N/A
3	Water Pollution Control Ordinance - Discharge License	13-08-2014	WT00020065-2014	29-09-2014	30-09-2019
4	Variation of Effluent Discharge License	22-08-15	WT00023973-2016	14-03-16	N/A
5	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	21-07-2014	7020460	01-08-2014	N/A
6	CNP for Multiple Task	7-10-2015	GW-RW0520-15	05-11-2015	04-05-2016
7	CNP for MH5	23-10-2015	GW-RW0563-15	18-11-2015	17-05-2016
8	CNP for Tunnel	13-11-2015	GW-RW0582-15	23-11-2015	22-05-2016
9	CNP for falsework erection	01-02-2016	GW-RW0076-16	15-02-2016	21-04-2016
10	Extend CNP for Flasework Erection	07-04-2016	GW-RW0215-16	26-04-2016	21-06-2016

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

3.1.1 The major construction activities under the Contract are land-based and no marine work will be involved. In accordance with the Project EM&A Manual requirements, the environmental aspects under the Contract shall be included air quality, ecological, cultural heritage, landscape and visual, landfill gas and site inspection during construction period. In addition, 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

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

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

3.3 MONITORING LOCATIONS

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 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

3.4.1 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.

3.4.2 The air quality monitoring requirements for the Contract is summarized 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	<u>Northern Connection</u> During excavation works for launching shaft, excavation work for Cut

Condition	Monitoring Parameter	Monitoring Location	Frequency	Monitoring Requirement
	24-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	Daily every three days	and Cover Tunnel and Cut and Cover Tunnel Construction <u>Toll Plaza</u> During excavation, slope works, construction of road and superstructures and wind erosion from open sites and stockpiling areas <u>Tunnel Buildings</u> During excavation, foundation works, construction of superstructures and wind erosion from open sites and stockpiling areas

3.5 MONITORING EQUIPMENT

- 3.5.1 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*.
- 3.5.2 The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory. A high volume sampler in compliance with the following specifications shall be used for carrying out the 1-hr and 24-hr TSP monitoring:
 - (i) 0.6-1.7 m³/min (20-60 SCFM) adjustable flow range;
 - (ii) equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
 - (iii) installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
 - (iv) capable of providing a minimum exposed area of 406 cm² (63 in²);
 - (v) flow control accuracy: +/- 2.5% deviation over 24-hr sampling period;
 - (vi) equipped with a shelter to protect the filter and sampler;
 - (vii) incorporated with an electronic mass flow rate controller or other equivalent devices;
 - (viii) equipped with a flow recorder for continuous monitoring;
 - (ix) provided with a peaked roof inlet;
 - (x) equipped with a manometer;
 - (xi) able to hold and seal the filter paper to the sampler housing in a horizontal position;
 - (xii) easy to change the filter; and
 - (xiii) capable of operating continuously for 24-hr period.
- 3.5.3 Calibration of dust monitoring equipment shall be conducted by the ET upon installation and in bi-monthly intervals during construction phase. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The calibration data shall be properly documented for future reference by concerned parties, such as the IEC. All the data shall be converted into standard temperature and pressure condition.
- 3.5.4 The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.
- 3.5.5 If the ET proposes to use a direct reading dust meter to measure 1-hr TSP levels on an ad hoc basis, he shall submit sufficient information to the IEC to prove that the instrument is capable of achieving a comparable result as that the High Volume Sampler (HVS) and may be used for the

1-hr sampling. The instrument should also be calibrated regularly and the 1-hr sampling shall be checked periodically by the HVS to check the validity and accuracy of the results measured by the direct reading method.

- 3.5.6 According to the Project EM&A Manual, wind data monitoring equipment shall also be provided and set up for logging wind speed and wind direction near the dust monitoring locations. The equipment installation location shall be proposed by the ET and agreed with the IEC. For installation and operation of wind data monitoring equipment, the following points shall be observed:
- (i) the wind sensors should be installed on masts at an elevated level 10 m above ground so that they are clear of obstructions or turbulence caused by the buildings;
 - (ii) the wind data should be captured by a data logger to be down-loaded for processing at least once a month;
 - (iii) the wind data monitoring equipment should be re-calibrated at least once every six months; and
 - (iv) wind direction should be divided into 16 sectors of 22.5 degrees each.

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

- 3.6.1 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 Action and Limit Levels for impact dust monitoring are shown in *Tables 3-3*.

Table 3-3 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

- 3.6.2 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*.

3.7 OTHER ENVIRONMENTAL ASPECTS

Noise

- 3.7.1 The TM-CLKL EIA study stated that no existing noise sensitive receiver (NSR) was identified within the Study Area at Tuen Mun. Therefore, no noise monitoring is required for the construction phase of the Contract.
- 3.7.2 Regular site inspections and audits will be carried out during the construction phase in order to confirm the construction works under the Contract comply with the regulatory noise requirements.

Water Quality

- 3.7.3 No marine works will be undertaken under the Contract. Therefore, no water quality monitoring is required for the construction phase of the Contract.

Ecology

- 3.7.4 No marine works will be undertaken under the Contract and generated marine ecological impact, no dolphin monitoring is required for the construction phase of the Contract.

- 3.7.5 During construction phase, the ET will perform Pitcher Plants inspection at least once every week to report the growth condition and protection measures.

Landscape and Visual

- 3.7.6 Measures 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 in accordance with the EM&A Manual.

Cultural Heritage

- 3.7.7 Grave G1 as a heritage resource 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.

Landfill Gas

- 3.7.8 During EIA study, landfill gas hazards are likely to be generated from the Pillar Point Valley (PPV) Landfill. Landfill gas monitoring is recommended during construction of the Contract to ensure the works area is free of landfill gas before the worker entered the concerned area.

4 AIR QUALITY MONITORING

4.1 GENERAL

4.1.1 The air quality impact monitoring and enhanced Total Suspended Particulates (TSP) level monitoring at five proposed locations are currently carried out 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. The Contract is not required to conduct its own dust monitoring exercise until the Contract HY/2012/08 ends.

4.2 SUMMARY OF MONITORING RESULTS

4.2.1 In the Reporting Period, 1- hour and 24-hour TSP monitoring at the five proposed locations are continued to perform by the ET of Contract HY/2012/08. Therefore, no air quality monitoring was conducted by the ET of Contract HY/2013/12. Details information of air quality monitoring results could be referred to the Monthly EM&A Reports of the Contract HY /2012 /08 (*February 2016, March 2015 and April 2016*).

4.3 ACTION AND LIMIT (A/L) LEVELS EXCEEDANCE

4.3.1 According to the air quality monitoring result provided by Contract HY/2012/08, no exceedances in 1-hour and 24-hour TSP were recorded in the Reporting Period. No Notification on Exceedances (NOEs) was issued by the ET of Contract HY/2012/08. The summary of air quality exceedance in the Reporting Period 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
NA	NA	NA	--	--

4.4 AIR QUALITY EXCEEDANCE INVESTIGATION

4.4.1 No investigation for exceedance is required for the Reporting Period.

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.

5.2 PITCHER PLANTS INSPECTION

5.2.1 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.

5.2.2 In the Reporting Period, inspections for implementation status of mitigation measures for the Pitcher Plants were carried out by the ET on **2nd, 12th, 16th and 23rd February 2016, 1st, 8th, 15th, 22nd and 29th March 2016, 6th, 12th, 19th and 26th April 2016.**

5.2.3 During each inspection, the transplanted pitcher plant was performed random checking at the final receptor area. It was observed that the transplanted pitcher plants were properly protected and the growth was normally in fair condition except a few individuals appeared poor condition. It is considered that the Pitcher Plant were establishing after transplanting shock and adapting to the condition of the Final Receptor Site and frequent watering is recommended. 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.

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 to prevent any possible damage to the grave and to ensure the 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 the Reporting Period, site inspection for the Grave G1 was undertaken on **2nd, 12th, 16th and 23rd February 2016, 1st, 8th, 15th, 22nd and 29th March 2016, 6th, 12th, 19th and 26th April 2016**. During these inspections, buffer zone was maintained between the working area and the Grave. The nearby areas were clean, and no construction materials or mechanical equipment were stored within or close to the buffer zone.

6.2.2 Accordingly, the Contractor has had fully implemented cultural heritage mitigation measures in accordance with the 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 the Reporting Period, site inspection for landscape and visual mitigation measures was undertaken by the Registered Landscape Architect on **5th, 12th, 19th and 26th February 2016, 4th, 11th, 18th and 25th March 2016, 1st, 8th, 15th, 22nd and 29th April 2016.**

7.2.2 Most of the landscape works such as planting was not yet commenced. The detailed inspection checklists can be referred to the Monthly EM&A Reports (February 2016, March 2016 and April 2016) 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.

8.2 LANDFILL GAS MONITORING RESULT

- 8.2.1 In the Reporting Period, landfill gas monitoring was conducted at the construction of Retaining Wall B and Retaining Wall F and the locations are illustrated in [Appendix E](#). A BIOGAS 5000 gas analyser was used for the landfill gas monitoring.
- 8.2.2 There were total **70** workings days monitoring were carried by the Safety Officer or an approved and qualified persons in this reporting period. **Table 8-1** is summarized landfill gas measurement results. Moreover, graphical plot are attached in [Appendix G](#).

Table 8-1 Summary of Landfill Gas Measurement Results in Reporting Period

Landfill Gas Parameter	Action Level	Limit Level	Detectable at Retaining Wall B		Detectable at Retaining Wall F	
			Min	Max	Min	Max
Methane	>10% LEL (>0.5% v/v)	>20% LEL (>1% v/v)	0%	0.2%	0%	0.1%
Oxygen	<19%	<18%	21.0%	21.1%	21.0%	21.1%
Carbon Dioxide	>0.5%	>1.5%	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 were over 21.0% 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.

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 Whenever possible, materials were reused on-site as far as practicable. The quantities of waste for disposal in the Reporting Period are summarized in *Tables 9-1* and *9-2* and the Waste Flow Table is presented in *Appendix H*.

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

Type of Waste	Quantity			Disposal Location
	Feb 16	Mar 16	Apr 16	
Reused in this Project (Inert) (in '000 m ³)	7.894	16.333	15.186	-
Reused in other Projects (Inert) (in '000 m ³)	5.755	6.392	4.939	<ul style="list-style-type: none"> • Lam Tei Quarry • Eco Park K.wah Recycle Facilities • Lung Kwu Tan Tailor Recycled Aggregates • Laintang BCP • TM-CLKL C2
Disposal as Public Fill (Inert) (in '000 m ³)	1.036	0.496	0.071	Tuen Mum Area 38

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

Type of Waste	Quantity			Disposal Location
	Feb 16	Mar 16	Apr 16	
Recycled Metal (in '000kg)	0	0	0	-
Recycled Paper / Cardboard Packaging (in '000kg)	0	0	0	Licensed collector
Recycled Plastic (in '000kg)	0	0	0	-
Chemical Wastes (in '000kg)	0	0	0	-
General Refuses (in '000m ³)	0.066	0.089	0.154	WENT

9.2.3 To control the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.

10 SITE INSPECTIONS

10.1 REQUIREMENTS

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

10.1.2 During the Reporting Period, **13** events of the joint site inspections were undertaken to evaluate the site environmental performance. The summaries of the findings during site inspection are presented in *Tables 10-1 and 10-2*.

Table 10-1 Site Observations for the Contract for the Reporting Period

Date	Findings / Deficiencies	Follow-Up Status
2 Feb 2016	<ul style="list-style-type: none"> C&D material scattered on the works area was observed. Housekeeping should be improved to maintain works area clean and tidy. (Retaining Wall F) It was reminded that stagnant water cumulated under Retaining Wall B should be drained away as soon as possible or proper mitigation measure should be applied to prevent mosquito breeding. 	<ul style="list-style-type: none"> C&D material was removed and housekeeping was improved. Not required for reminder.
12 Feb 2016	<ul style="list-style-type: none"> As a reminder, water spraying frequency should comply with the EP requirement. 	<ul style="list-style-type: none"> Not required for reminder.
16 Feb 2016	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	NA
23 Feb 2016	<ul style="list-style-type: none"> As a reminder, concrete washing water should be diverted to the de-silting facilities before discharge and the contractor was reminded to prevent washing water discharge into the public area. (Central Divider) As a reminder, cut off drain should be installed at the site exit to prevent site surface run-off or wheel washing water discharge into public area. Also de-silting facilities should be provided. (Works area near fire station) 	<ul style="list-style-type: none"> Not required for reminder. Not required for reminder.
1 Mar 2016	<ul style="list-style-type: none"> Wastewater overflow from site into public area was observed. The contractor should divert the wastewater to de-silting facilities and prevent site discharge water overflow into the public area. (Lung Mun Road near retaining wall B) 	<ul style="list-style-type: none"> No site discharge water overflow into the public area was observed.
	<ul style="list-style-type: none"> General refuse scattered on site was observed and housekeeping should be improved. Also, general refuse and C&D waste should be disposed separately. (Under retaining wall B) 	<ul style="list-style-type: none"> Housekeeping was improved general refuse scattered on site was cleared.
	<ul style="list-style-type: none"> Chemical container without drip tray was observed. Drip tray should be provided for all chemical storage on site. (MH5 & Near retaining wall B) 	<ul style="list-style-type: none"> Drip tray was provided for the oil drum.
8 Mar 2016	<ul style="list-style-type: none"> C&D waste cumulated on site was observed and housekeeping should be improved. The contractor should clean up the waste more frequently. (General) 	<ul style="list-style-type: none"> Housekeeping was improved and C&D waste cumulated on site was disposed properly.

Date	Findings / Deficiencies	Follow-Up Status
	<ul style="list-style-type: none"> Oil drums without drip tray was observed. Drip tray should be provided for all chemical storage on site. (Workshop near weight bridge & works area near TD1) Generator without NRMM label was observed. The contractor should display the label appropriately. (Workshop of Tinkle) 	<ul style="list-style-type: none"> Drip tray was provided for the chemical containers. NRMM label was displayed appropriately.
15 Mar 2016	<ul style="list-style-type: none"> It was reminded that loose and C&D materials near the stream should be removed and proper protection for the edge should be provided to prevent muddy surface runoff overflow into the stream. (Stream B) It was reminded that stagnant water cuulated inside the drip tray should be removed after the rainstorm. (Works area near TD1) 	<ul style="list-style-type: none"> Not required for reminder. Not required for reminder.
22 Mar 2016	<ul style="list-style-type: none"> Tree protection zone should be set up for the retained tree. (Workshop near wheel washing bay) It was reminded that site surface run-off after the rainstorm should be treated before discharge. 	<ul style="list-style-type: none"> Tree protection zone was set up for the retained tree. Not required for reminder.
29 Mar 2016	<ul style="list-style-type: none"> Diverted site discharge overflow into the public area was observed. The Contractor should improve the diverted system to prevent the site discharge spillage into the public area (Lung Mun Road near Stream A) It was reminded that dust mitigation measures should be provided for the dusty site activities to reduce dust impact during dry season. 	<ul style="list-style-type: none"> No discharge overflow was observed. Not required for reminder.
6 Apr 2016	<ul style="list-style-type: none"> No adverse environmental issue was observed. 	NA
12 Apr 2016	<ul style="list-style-type: none"> Turbidity water which after treatment discharged at the designated discharge point was observed. The contractor should review the de-silting system and make sure all discharge water from site should comply with the discharge license requirement. (Behind the site office) 	<ul style="list-style-type: none"> No turbidity water discharged from de-silting system was observed.
19 Apr 2016	<ul style="list-style-type: none"> Tree protection zone should be set up after the chain link fence is demolished to protect retaining tree. (Behind the site office) 	<ul style="list-style-type: none"> Not required for reminder.
26 Apr 2016	<ul style="list-style-type: none"> Dust mitigation measures should be provided for the stockpile storage on site to prevent dust impact. (Near Retaining Wall F) 	<ul style="list-style-type: none"> Stockpile without cover was cleared.

Table 10-2 Summary of Reminders/Observations of Site Inspection

Reporting Period	Date of site inspection	Nos. of findings / reminders	Follow-Up Status
February 2016	2 nd , 12 th , 16 th and 23 rd February 2016	5	Completed
March 2016	1 st , 8 th , 15 th , 22 nd and 29 th March 2016.	12	Completed
April 2016	6 th , 12 th , 19 th and 26 th April 2016	3	Completed

10.1.3 In the Reporting Period, no non-compliance was recorded, however, **20** observations/ reminders were recorded during the site inspections. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

Inspection Checklist for Vulnerable to Contaminated Water Discharge

10.1.4 Following to the complaint about discharge of milky water to Butterfly 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.

10.1.5 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.

10.1.6 The daily inspection for vulnerable to contaminated water discharge was temporarily suspended during the dry season and resumed on 5 April 2016. As requested by the EPD, the associated inspection checklist were presented in the Monthly EM&A Report – April 2016.

11 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

11.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

11.1.1 In the Reporting Period, no summons and prosecution under the EM&A Programme was lodged. Moreover, no exceedance of the environmental performance (Action / Limit Levels) was recorded for monitoring programme. However, one (1) environmental complaint was received and lodged for the Contract. Follow up actions have been undertaken by the Contractor to resolve the deficiencies. The details of complaint are listed below:-

- 28 April 2016 - A complaint was received from the EPD on 28 April 2016. The complainant complained that dust and smoke emission from a drilling rig was observed on the slope near Pillar Point, Tuen Mun. It was suspected that the heavy dust was generated from the construction activities under the Contractor.

11.1.2 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 report for the complaint is underway by the ET and it will submit to all relevant parties.

11.1.3 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 / Parameter	Environmental Performance	Event Exceedance		
			Reporting Period	Previous Periods	Cumulative
1 February 2016 – 30 April 2016	Air Quality - 1-hr TSP	Action Level	0	4	4
		Limit Level	0	0	0
	Air Quality - 24-hr TSP	Action Level	0	0	0
		Limit Level	0	0	0

Table 11-2 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
23 October 2014 – 31 January 2016	3	3	Water (3)
1 February 2016 – 30 April 2016	1	4	Water (3), Air (1)

Table 11-3 Statistical Summary of Environmental Summons

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
23 October 2014 – 31 January 2016	0	0	NA
1 February 2016 – 30 April 2016	0	0	NA

Table 11-4 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
23 October 2014 – 31 January 2016	0	0	NA

1 February 2016 – 30 April 2016	0	0	NA
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12 IMPLEMENTATION STATUS OF MITIGATION MEASURES**12.1 GENERAL REQUIREMENTS**

12.1.1 The environmental mitigation measures that recommended in the Environmental Mitigation and Enhancement Measures Implementation Schedule (EMIS) for in the Project EM&A Manual covered the issues of air quality, cultural heritage, ecology, landfill gas hazard, landscape & visual, noise, water and waste. The updated EMIS for the Contract is shown in [Appendix I](#).

12.1.2 The Contractor shall implement the required environmental mitigation measures according to the EM&A Manual as subject to the site condition. The environmental mitigation measures implemented by the Contract in this Reporting Period are summarized in [Table 12-1](#) and [Appendix I](#).

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"> • Restrain operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. • Keep good maintenance of plants • The noisy plants or works provide mobile noise barriers • Shut down the plants when not in used
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 6th Quarterly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1 February to 30 April 2016**.
- 13.1.2 No air quality monitoring including 1-hour and 24-hour TSP exceedance was recorded in the Reporting Period.
- 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 if the existing condition compliance with the intended aims of the mitigation measures. Most of the landscape works such as planting was not yet commenced.
- 13.1.5 Random checking during weekly site inspection were performed on the transplanted Pitcher Plants in the final receptor site. It was observed that the transplanted pitcher plants were properly protected and the growth was normally in fair condition except a few individuals appeared poor condition. It is considered that the Pitcher Plant were establishing after transplanting shock and adapting to the condition of the Final Receptor Site and frequent watering is recommended.
- 13.1.6 Landfill gas monitoring was conducted at the construction of Retaining Wall B and Retaining Wall F by the Safety Officer. The monitoring results shown no exceedances were triggered.
- 13.1.7 In the Reporting Period, no environmental complaint was received.
- 13.1.8 No notifications of summons, or successful prosecution were received by the Contractor during the Reporting Period.
- 13.1.9 During the Reporting Period, **13** events of the joint site inspections were undertaken to evaluate the site environmental performance. No non-compliance of environmental impacts were observed, indicating the implemented mitigation measures for air quality, construction noise and water quality were effective. Minor deficiencies found in the weekly site inspection were rectified within the specified deadlines. The environmental performance of the Project was considered satisfactory.
- 13.1.10 For cultural heritage, the buffer zone between the working area and the Grave was observed and no construction material or equipment was stored nearby.
- 13.1.11 In the Reporting Period, one (1) environmental complaint was received from EPD on 28 April 2016 regarding to dust and smoke emission from a drilling rig was observed on the slope near Pillar Point, Tuen Mun. Investigation report for the complaint is underway by the ET and it will submit to all relevant parties.
- 13.1.12 No notifications of summons, or successful prosecution were received by the Contractor during the Reporting Period.

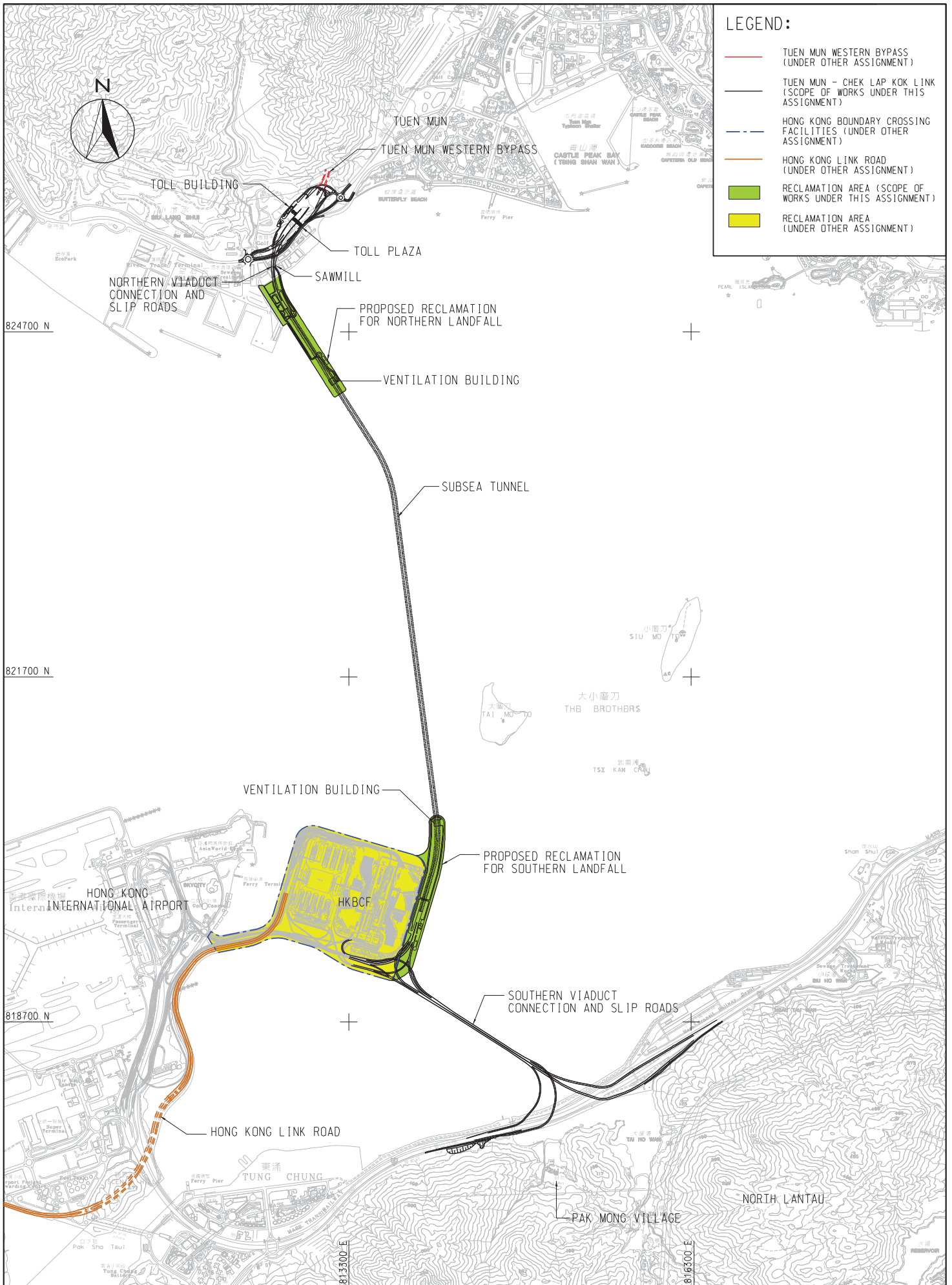
13.2 RECOMMENDATIONS

- 13.2.1 During the wet season, muddy water or other water pollutants from site surface runoff discharged into public areas would be a potential environmental issue. Special attention should be paid on the water quality mitigation measures to prevent surface runoff flow to public area.
- 13.2.2 Air quality mitigation measures such as watering of site area for 12 times per day and covering of exposed slopes should be implemented during the construction period to reduce construction dust impact as recommended in the EMIS.

- 13.2.3 Good practice for daily housekeeping is reminded. Clean-up of waste skips and wastewater treatment system should be increased to ensure these facilities are functioned effectively.
- 13.2.4 Stagnant water should be removed as soon as possible after rain to prevent mosquito breeding on site.

Appendix A

Layout plan of the Project



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

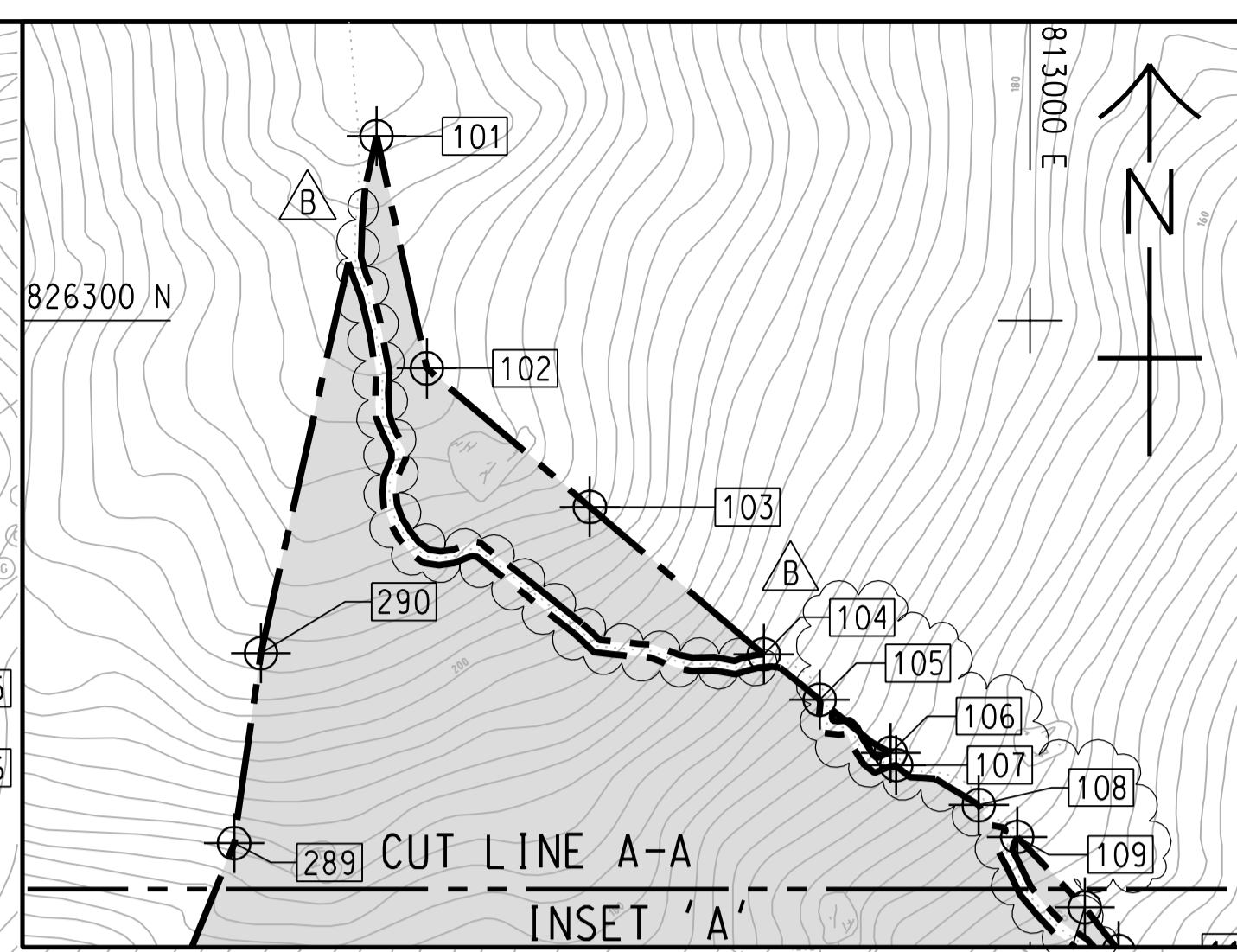
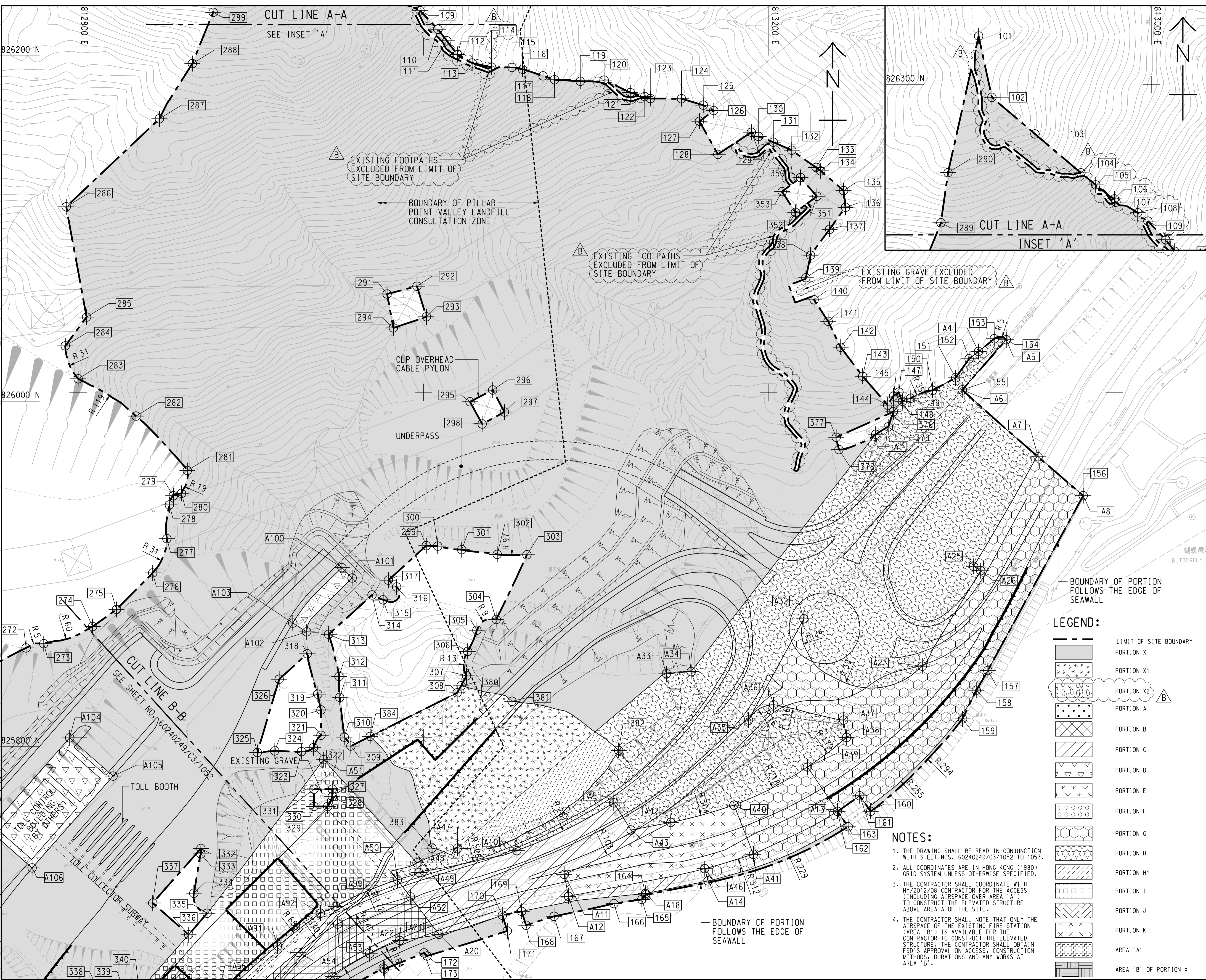
AGREEMENT NO. CE 52/2007(HY)
 TUEN MUN - CHEK LAP KOK LINK - INVESTIGATION
GENERAL LAYOUT OF TM-CLKL

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:

- THE DRAWING SHALL BE READ IN CONJUNCTION WITH SHEET NOS. 60240249/C3/1052 TO 1053.
- ALL COORDINATES ARE IN HONG KONG (1980) GRID SYSTEM UNLESS OTHERWISE SPECIFIED.
- 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.
- 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
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
土研顧問公司
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SUB-CONSULTANTS
分列工程顧問公司

ISSUE/REVISION

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

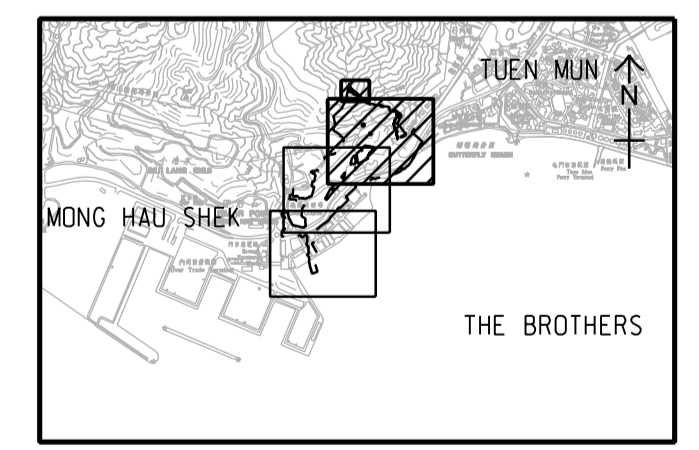
STATUS
編製

SCALE
比例

DIMENSION UNIT
尺寸單位

A1 1:1000 METRES

KEY PLAN 1:50000



PROJECT NO. 60240249
CONTRACT NO. HY/2013/12

SHEET TITLE
PORTIONS OF SITE AND SITE BOUNDARY SETTING OUT PLAN

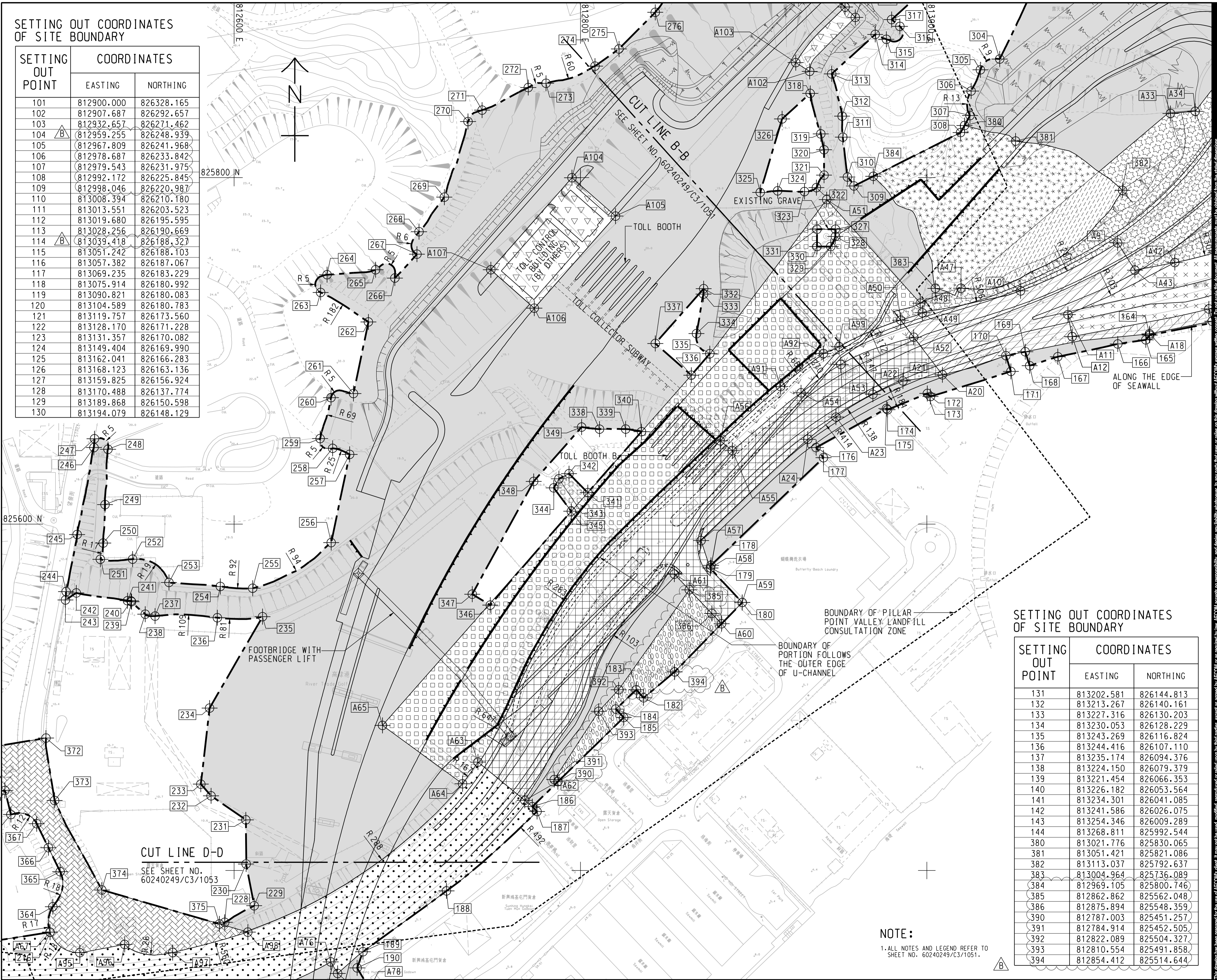
SHEET NUMBER
60240249/C3/1051B

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
 項目
TUEN MUN - CHEK LAP KOK LINK

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

CLIENT
 業主
HIGHWAYS DEPARTMENT
 路政署
 香港橋樑工程處
 Hong Kong - Zhuhai - Macao Bridge
 Hong Kong Project Management Office

CONSULTANT
 工程顧問公司
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SUB-CONSULTANTS
 分判工程顧問公司

ISSUE/REVISION

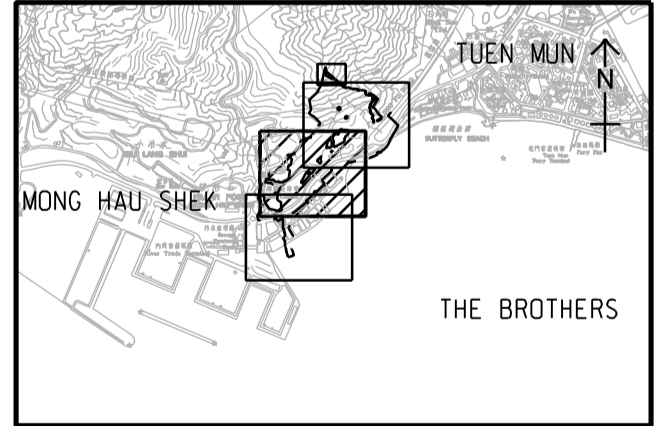
I/R	DATE	DESCRIPTION	CHK.
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS

SCALE
 比例
 A1 1:1000

DIMENSION UNIT
 尺寸單位
 METRES

KEY PLAN
 索引圖
 1:50000



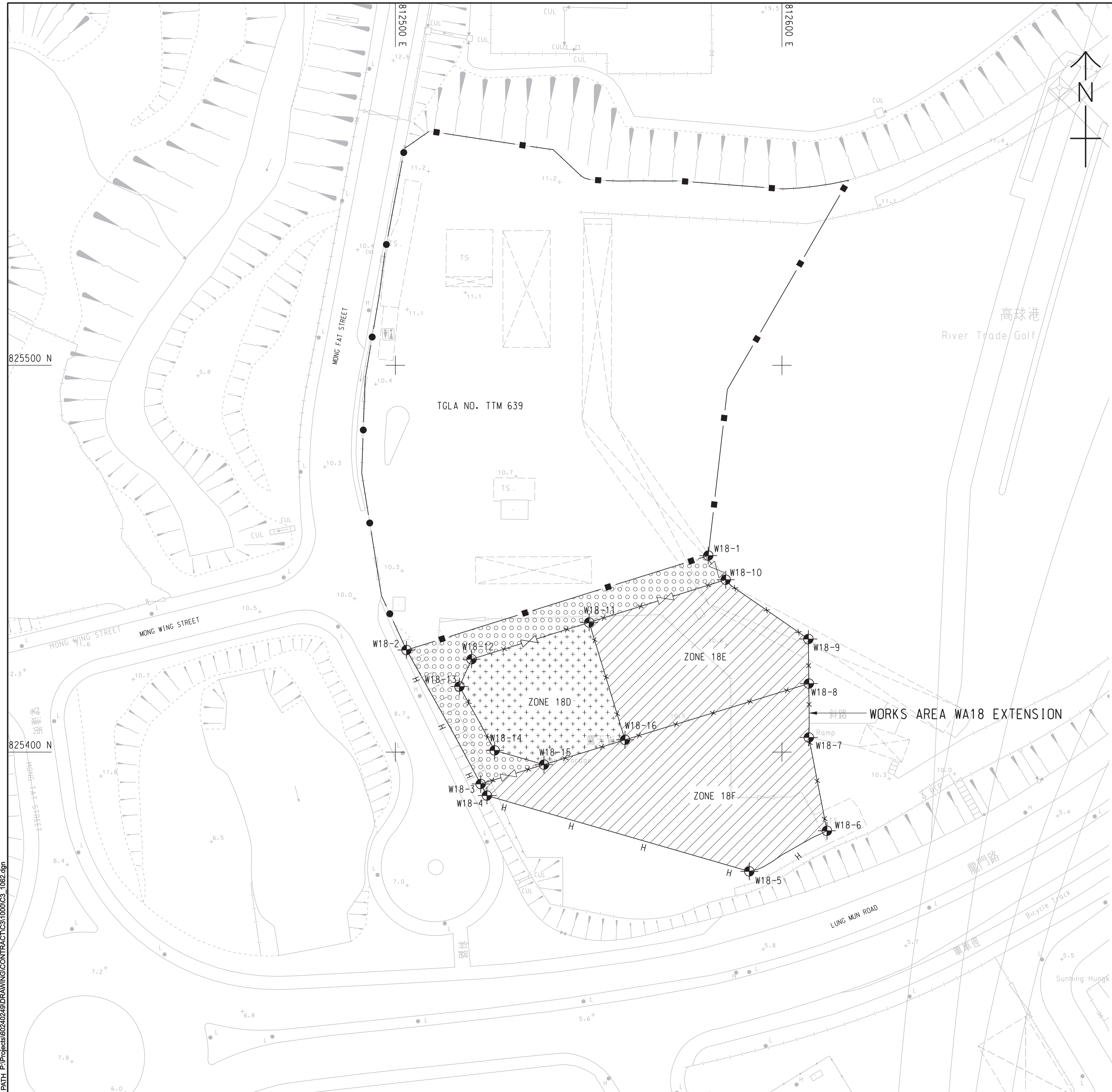
PROJECT NO.
 項目編號
 60240249

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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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



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管理處
 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

I/R	DATE	DESCRIPTION	CHK.
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
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 A1 1:500

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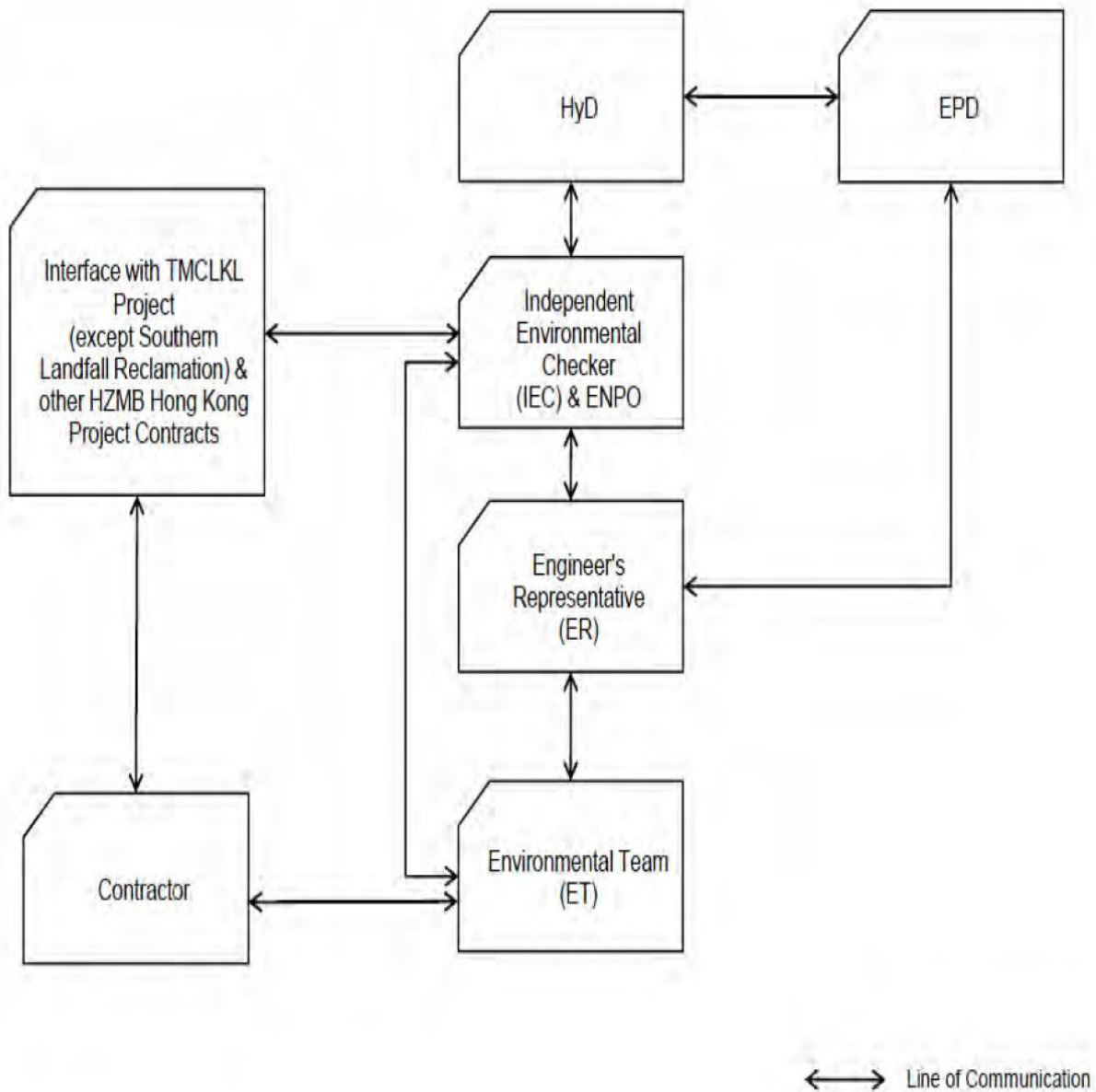
SHEET TITLE
 圖紙名稱
WORKS AREA AND HOARDING PLAN

SHEET NUMBER
 圖紙編號
 60240249/C3/1062B

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Appendix C

Environmental Management Organization Chart



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. Roger Man	2218 7288	2218 7399
AECOM	Resident Engineer (S&E)	Mr. Kelvin Yeung	22187289	2218 7399
Ramboll Environ	Environmental Project Office (ENPO)	Mr. YH Hui	3465 2888	3465 2899
Ramboll Environ	Independent Environmental Checker (IEC)	Dr. FC Tsang	3465 2828	3465 2899
CKJV	Deputy Project Manager	Mr. Raymond Suen	2253 8309	2253 8399
CKJV	Site Agent	Mr. Wilson Lau	2253 8300	2253 8399
KJV	Environmental Officer	Mr. HY Tang	2253 8300	2253 8399
CKJV	Environmental Supervisor	Miss Melody Tong	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 Environ (ENPO and IEC) - Ramboll Environ Hong Kong Limited**AUES (ET) – Action-United Environmental Services & Consulting**HKL(RLA) – Hong Kong Landscape*

Appendix D

Construction Programme

HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016									
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul						
HY/2013/12 DWP Rev.3						905	04-Nov-14 A	03-Nov-17	135										
Achievement of Stages/ Completion of Sections						0	24-Dec-15	24-Dec-15	0										
KD10130	KD3A - Stage 4 Completion Culvert 1, MH2/4/5/7, FCC, connections to WIS culvert	0	24-Dec-15	24-Dec-15*	0														
Site Possession Dates						0	09-Dec-15 A	09-Dec-15 A											
PPD1120	Portion A Possession Date	0	09-Dec-15 A																
Dismantling of HY/2012/04 Project Office at WA6						170	21-Dec-15	07-Jun-16	260										
DM10010	Appointment of specialist subcontractor for demolition	23	21-Dec-15	19-Jan-16	216														
DM10020	Prepare and submit method statement	18	20-Jan-16	12-Feb-16	216														
DM10030	Approval of method statement	24	13-Feb-16	11-Mar-16	216														
DM10040	Advance necessary precautionary and protective measure	22	20-Feb-16	16-Mar-16	202														
DM10050	Demolition Works	61	17-Mar-16	07-Jun-16	202														
Instrumentation and Monitoring						7	04-Nov-14 A	03-Nov-17	110										
Piezometer/Standpipe						7	04-Nov-14 A	03-Nov-17	110										
IMS0025	GI for PADH13-15 and installation piezometer	7	04-Nov-14 A	03-Nov-17	110														
Toll Plaza Decking TD1-Section 1						542	21-Apr-15 A	04-Nov-16	191										
Stage 1						542	21-Apr-15 A	04-Nov-16	191										
Design Submission and Approval						100	05-Jun-15 A	22-Jan-16	301										
TD120190	TWD -Formwork design for portal beam	24	07-Sep-15 A	17-Dec-15 A															
TD120160	Prepare & submit DDA drawing w/ICE cert(decking)	23	05-Jun-15 A	23-Dec-15	301														
TD120220	TWD -Formwork design for in-situ deck	24	21-Dec-15	20-Jan-16	254														
TD120170	Acceptance of the DDA Drawing	23	23-Dec-15	22-Jan-16	301														
Method Statement Submission and Approval						48	21-Jan-16	19-Mar-16	254										
TD121350	MSS for in-situ deck	24	21-Jan-16	20-Feb-16	254														
TD121360	Engineer's comments and approval	24	22-Feb-16	19-Mar-16	254														
Field Works						542	21-Apr-15 A	04-Nov-16	191										
Foundation & Substructure at Northern Side of Lung Mun Road						91	21-Apr-15 A	14-Jan-16	45										
Pile cap and Pier						91	21-Apr-15 A	14-Jan-16	45										
TD120530	Pile cap and Pier F2-K2	91	21-Apr-15 A	14-Jan-16	45														
Foundation & Substructure at Central Divider of Lung Mun Road						102	17-Oct-15 A	04-Mar-16	4										
Pile cap and Pier						102	17-Oct-15 A	04-Mar-16	4										
TD120560	Pile cap F1-K1	55	20-Oct-15 A	05-Jan-16	42														
TD120570	Pier F1-K1	55	16-Nov-15 A	12-Jan-16	42														
TD120540	Pile cap A1-E2	55	17-Oct-15 A	02-Feb-16	4														
TD120550	Pier A1-E2	55	21-Dec-15	04-Mar-16	4														
Portal Construction						232	21-Aug-15 A	04-Nov-16	6										
Portal Beam B						90	21-Aug-15 A	24-May-16	2										
TD121170	TTA for portal construction	5	21-Aug-15 A	25-Aug-15 A															
TD121180	Portal beam B	60	04-Mar-16	24-May-16	4														
Portal Beam C						61	04-Mar-16	25-May-16	4										
TD121190	Portal beam C	61	04-Mar-16	25-May-16	4														
Portal Beam D						61	04-Mar-16	25-May-16	4										
TD121200	Portal beam D	61	04-Mar-16	25-May-16	4														
Portal Beam H						60	18-Dec-15 A	04-Nov-16	4										
TD121240	Portal beam H	60	18-Dec-15 A	04-Nov-16	4														
Deck Construction						91	15-Nov-15 A	11-Apr-16	306										
Precast beam fabrication						91	15-Nov-15 A	11-Apr-16	306										
TD120720	Precast beam(Type 1 total-10 nos)	21	21-Dec-15	16-Jan-16	233														
TD120730	Precast beam(Type 1 total-12 nos)	24	18-Jan-16	17-Feb-16	254														
TD120790	Precast beam(Type 2 total-12 nos)	60	15-Nov-15 A	18-Mar-16	291														
TD120740	Precast beam(Type 1 total-13nos)	26	18-Feb-16	18-Mar-16	254														
TD120750	Precast beam(Type 1 total-8 nos)	16	19-Mar-16	11-Apr-16	306														
Toll Plaza Decking TD2-Section 1						315	24-Jun-15 A	03-Jun-16	131										
Design Submission and Approval						30	30-Oct-15 A	11-Nov-15 A											
TD220040	ELS Design	30	30-Oct-15 A	11-Nov-15 A															
Field Works						241	24-Jun-15 A	03-Jun-16	99										
G.I and Piling Works						88	24-Jun-15 A	19-Sep-15 A											
DWP-Bored Piles						88	24-Jun-15 A	19-Sep-15 A											
TD220500	Working platform for Abutment M	15	24-Jun-15 A	03-Jul-15 A															
TD220530	Working platform for pile cap L4	5	07-Aug-15 A	08-Aug-15 A															

█ Remaining Level of Effort
 █ Remaining Work
 █ Actual Work
 █ Critical Remaining Work
 ◆ ◆ M...
 ▼ S...

CRBC - Kaden JV
Two-Month Rolling Programme

Date	Revision	Checked	Approved
20-Aug-15			

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016				
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
TD220520	Bored piles for P21-P27	70	04-Jul-15 A	21-Aug-15 A										
TD220510	Bored piles for P14-P20	70	31-Jul-15 A	19-Sep-15 A										
Base Slab & Pile Cap Construction														
Abutment K-Base Slab														
TD220560	ELS for abutment K	51	03-Nov-15 A	15-Dec-15 A										
TD220570	Formwork and Reinforcement	30	21-Dec-15	27-Jan-16										
TD220580	Concreting and backfilling	21	27-Jan-16	24-Feb-16										
Pile Cap L1-L4														
TD220590	Sheetpile for Pile cap L1	18	16-Nov-15 A	20-Nov-15 A										
TD220592	ELS for Pile cap L1	18	28-Nov-15 A	02-Jan-16										
TD220600	Pile cap L1	15	04-Jan-16	20-Jan-16										
TD220610	Sheetpile for Pile cap L2	18	04-Jan-16	23-Jan-16										
TD220615	ELS for Pile cap L2	18	25-Jan-16	17-Feb-16										
TD220620	Pile cap L2	15	18-Feb-16	05-Mar-16										
TD220630	Sheetpile for Pile cap L3	18	18-Feb-16	09-Mar-16										
TD220632	ELS for Pile cap L3	20	10-Mar-16	06-Apr-16										
TD220650	ELS for Pile cap L4	14	16-Nov-15 A	14-Apr-16										
Abutment M-Base Slab														
TD220670	ELS for abutment M	55	11-Nov-15 A	03-Jun-16										
Abutment and Pier Construction														
Abutment K														
TD220260	Wall for abutment K	20	25-Feb-16	18-Mar-16										
TD220270	Backfill for abutment K	20	19-Mar-16	16-Apr-16										
Toll Plaza Footbridge-Section 1														
Stage 1														
Method Statement Submissions and Approval														
TFB1050	MSS for steel truss installation including shop drawings submission	90	21-Dec-15	14-Apr-16										
Field Works														
G.I and Foundation Works														
Foundation for Pier P1,P5,P7 and West staircase														
TFB1210	ELS for Pier P1,P5,P7 and West staircase	90	23-Apr-15 A	04-May-15 A										
Pier Construction														
TFB1250	Construct pier P1(include bearing installation)	42	21-Dec-15	13-Feb-16										
TFB1260	Construct pier P5	42	15-Feb-16	07-Apr-16										
TFB1280	Construct pier P2	42	26-Aug-16 A	17-Sep-16										
TFB1290	Construct pier P3	42	22-Sep-15 A	27-Sep-16										
Staircase and Lift Construction														
TFB1350	West staircase construction	48	23-Nov-15 A	23-May-17										
Retaining Structure RW_B-Section 1														
Site Formation - Retaining Structure RW_B														
Stage 1														
Retaining Structure RW_B														
Excavation														
RWB10560	Drainage diversion	21	14-Sep-15 A	18-Sep-15 A										
Structure(Base Slab, Wall, Colum, Top Slab)														
Bay 1-7														
RWB10059	Finish Bridge Hlf abutment	0		24-Nov-15 A										
RWB10104	Half span top slab-Bay 2 to Bay 7	90	21-Jun-15 A	07-Dec-15 A										
RWB10050	Half span top slab-Bay 2 to Bay 7	90	21-Jun-15 A	07-Dec-15 A										
RWB10058	Completion of TD1 Pier(Northern side of TD1)	0	14-Jan-16											
Bay12-13														
RWB10170	Bay12-13	60	18-Sep-15 A	16-Jan-16										
Bay14-Bay15														
RWB10200	Foundation works Bay 14	40	09-Nov-15 A	10-Dec-15 A										
RWB10210	Foundation works Bay 15	40	15-Dec-15 A	26-Jan-16										
RWB10220	Bay 14-15	60	27-Jan-16	13-Apr-16										
Bay 11														
RWB10150	Bay 11	40	22-Nov-15 A	24-Feb-16										
Bay 8-10														
		65	07-Aug-15 A	15-Mar-16										

█ Remaining Level of Effort
 █ Remaining Work
 █ Actual Work
 █ Critical Remaining Work
 ◆ ◆ M..
 ▼ S...

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

Date	Revision	Checked	Approved
20-Aug-15			

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016				
						Dec	Jan	Feb	Mar	Apr				
RWB10110	Bay 8	40	09-Oct-15 A	05-Mar-16	357									
RWB10120	Bay 9	40	07-Aug-15 A	10-Mar-16	357									
RWB10130	Bay 10	40	15-Sep-15 A	15-Mar-16	357									
Backfilling														
RWB10230	Backfilling	40	15-Jun-15 A	26-May-16	436									
Toll Collector Subway & Associated Works-Section 1														
Toll Collector Bridge (Portion I)-Section 1														
Stage 1														
Temporary Works Design(TWD) Submission and Approval														
TCS1240	TWD -Design of lifting system	30	21-Dec-15	27-Jan-16	350									
TCS1580	Engineer's comments and approval	30	28-Jan-16	05-Mar-16	350									
Method Statement Submissions and Approval														
TCS1250	MSS for toll collector bridge and staircase installation	24	07-Mar-16	07-Apr-16	350									
Toll Collector Subway & Associate Works (Portion I)-Section 1														
Stage 1														
Temporary Works Design(TWD) Submission and Approval														
TCS1360	TWD-ELS design for excavation	24	15-Oct-15 A	20-Jan-16	80									
TCS1620	Engineer's comments and approval	24	21-Dec-15	20-Jan-16	80									
Method Statement Submissions and Approval														
TCS1370	MSS for excavation works	24	06-Jan-16	03-Feb-16	80									
TCS1380	Engineer's comments and approval	24	03-Feb-16	05-Mar-16	80									
TCS1390	MSS for subway structural works	24	19-Feb-16	18-Mar-16	80									
TCS1630	Engineer's comments and approval	24	18-Mar-16	20-Apr-16	80									
Field Works - Toll Collector Subway and Staircase														
TCS1410	Finish L shape structure of RW_B	0	16-Jan-16	16-Jan-16	168									
TCS1400	Site clearance	24	21-Jan-16	20-Feb-16	100									
TCS1420	ELS for (SB22-SB16)	40	05-Mar-16	27-Apr-16	89									
Toll Collector Subway (Portion X)-Section 5														
Stage 3														
TCS1100	Excavation Works-S.B 3-8	80	20-Oct-15 A	01-Dec-16	123									
Bridge G2														
Stage 2														
Temporary Works Design (TWD) Submission and Approval														
BG23590	DDA for superstructure(draft)	17	09-Mar-15 A	16-Mar-15 A	134									
BG23620	Engineer's approval	17	21-Dec-15	12-Jan-16	134									
BG23190	TWD -Falsework design for portal construction	24	21-Dec-15	20-Jan-16	55									
BG23200	TWD -Falsework design for in-situ deck construction	24	21-Jan-16	20-Feb-16	55									
Method Statement Submissions and Approval														
BG23240	MSS for deck construction	48	22-Feb-16	21-Apr-16	55									
Field Works														
Foundation Works														
BG23340	Excavation for G2e	25	03-Mar-15 A	20-Mar-15 A										
BG23400	Pad footing G2a	35	28-Oct-15 A	04-Nov-15 A										
BG23370	Pile cap G2e-1	25	04-Nov-15 A	19-Nov-15 A										
BG23310	Excavation for G2b	15	21-Dec-15	09-Jan-16	56									
BG23390	Pad footing G2b	24	11-Jan-16	06-Feb-16	56									
Pier & Abutment Construction														
BG23450	Construct Pier at G2e-2	32	07-Sep-15 A	19-Oct-15 A										
BG23430	Construct Pier at G2d-2	32	18-Aug-15 A	10-Nov-15 A										
BG23440	Construct Pier at G2c-1	32	04-Nov-15 A	12-Dec-15 A										
BG23420	Construct Pier at G2d-1	32	11-Nov-15 A	16-Dec-15 A										
BG23480	Construct abutment G2e	70	26-May-15 A	01-Mar-16	91									
BG23460	Construct Pier at G2b	36	11-Feb-16	23-Mar-16	56									
BG23470	Construct Pier at G2a	45	18-Nov-15 A	16-Apr-16	56									
Portal														
BG23490	Construct Portal G2c	45	21-Jan-16	16-Mar-16	77									
Bridge G1														
Stage 2														
Design Submission and Approval														
		63	03-Feb-15 A	20-Feb-16	313									

█ Remaining Level of Effort
 █ Remaining Work
 █ Actual Work
 █ Critical Remaining Work
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CRBC - Kaden JV
Two-Month Rolling Programme

Date	Revision	Checked	Approved
20-Aug-15			

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016				
						Dec	Jan	Feb	Mar	Apr				
BG112150	TWD -ELS design for pile cap construction	21	03-Feb-15 A	09-Feb-15 A										
BG112300	Engineer's approval	21	21-Dec-15	16-Jan-16	340									
BG112180	TWD -Form traveller design	48	21-Dec-15	20-Feb-16	313									
Method Statement Submissions and Approval														
BG112340	MSS-deck construction	24	22-Feb-16	19-Mar-16	289									
Off-site Works														
BG112000	Form traveller fabrication	90	22-Feb-16	18-Jun-16	209									
Field Works														
Substructure Works from Pier G1d to Pier G2a														
BG112100	Construct Pier G1d	32	02-Oct-15 A	25-Jan-16	280									
BG112130	Pierhead segment construction at Pier G1d	40	25-Jan-16	15-Mar-16	280									
Bridge H1-Section 2														
Stage 2														
Design Submission and Approval														
BH12860	Engineer's approval	17	21-Dec-15	12-Jan-16	190									
BH12700	TWD -Form traveller design	48	21-Dec-15	20-Feb-16	35									
Method Statement Submissions and Approval														
BH12380	MSS-deck construction	24	22-Feb-16	19-Mar-16	109									
Off-site Works														
BH12720	Form traveller fabrication	90	22-Feb-16	18-Jun-16	35									
Field Works														
Foundation Works & Pier construction														
Foundation Works														
BH12580	Bored piles and Foundation for H1d	66	11-Apr-15 A	12-Jan-16	133									
Pier construction														
BH12550	Construct Pier H1e	16	09-Nov-15 A	21-Jan-16	133									
BH12540	Construct Pier H1d	32	12-Jan-16	22-Feb-16	324									
BH12552	TTA application	90	21-Dec-15	14-Apr-16	60									
Culvert 1(TBM)-Stage 4														
Field Works														
MH5 & MH2														
CUL13270	Backfilling and removal of sheetpile of MH2	17	02-Nov-15 A	30-Nov-15 A										
CUL13260	Construct MH5	36	17-Oct-15 A	14-Dec-15 A										
Bay 15 to Bay 16														
CUL13280	Trial trench	7	02-Feb-15 A	03-Feb-15 A										
CUL13310	Construction from Bay 15 and 16	28	18-Aug-15 A	07-Nov-15 A										
CUL13320	Backfilling	8	09-Nov-15 A	12-Nov-15 A										
MH7														
CUL13360	Manhole construction	21	20-Oct-15 A	15-Dec-15 A										
CUL13370	Backfilling and removal of sheetpile	14	16-Dec-15 A	24-Dec-15										
FC1														
CUL13420	FC1 construction	40	23-Nov-15 A	21-Dec-15 A										
CUL13430	Backfilling	4	21-Dec-15	24-Dec-15										
FC2														
CUL13470	Construction of chamber FC2	30	21-Dec-15	27-Jan-16	18									
CUL13480	Backfilling and removal section of sheetpile	14	28-Jan-16	16-Feb-16	18									
BY-Pass Sewer between FC1 and FC2(1800 Pipe)														
CUL13490	Sheetpile installation for FC2 to FC1	21	20-Oct-15 A	15-Dec-15 A										
CUL13500	Excavation and installation of 1800 pipe	30	26-Oct-15 A	30-Jan-16	18									
CUL13510	Backfilling	14	01-Feb-16	19-Feb-16	573									
Completion of KD3A														
CUL13530	KD3A	0	24-Dec-15	24-Dec-15	0									
CUL13520	Achievement of KD-3A(Stage 4)for Box culvert 1	0	24-Dec-15	24-Dec-15	0									
Culvert 2 & Culvert 3 and Existing Box Culvert														
Method statement Submission														
CCE20060	Method statement for Culvert 2&3 construction	24	23-Nov-15 A	30-Nov-15 A										
Culvert 2														
CCE20100	TTA application	72	21-Dec-15	19-Mar-16	101									
CCE20080	MH3 construction	65	28-Jan-16	21-Apr-16	18									

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016					
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
CCE20085	MH6 construction	65	05-Feb-16	29-Apr-16	18										
Culvert 3						90	21-Dec-15	19-Mar-16	457						
CCE20040	Completion the drainage diversion	0		15-Mar-16	461										
CCE20020	TTA Application	72	21-Dec-15	19-Mar-16	312										
Existing Sewer Box Culvert						82	24-Dec-15	15-Mar-16	461						
Existing box culvert to be demolished and reconstructed						82	24-Dec-15	15-Mar-16	461						
CCE20000	Completion of MH7&Bay 15-16	0		24-Dec-15	454										
CCE20010	Existing box culvert to be demolished and reconstructed	60	28-Dec-15	10-Mar-16	352										
CCE20050	Drainage diversion	4	11-Mar-16	15-Mar-16	352										
Site Formation - Retaining Structure RW_A						185	21-Sep-15 A	21-Apr-16	178						
Stage 3						185	21-Sep-15 A	21-Apr-16	178						
Temporary Works Design Submission and Approval						96	21-Dec-15	21-Apr-16	145						
RWA20010	Haul road design submission and approval	48	21-Dec-15	20-Feb-16	145										
RWA20020	ELS design submission and approval	48	22-Feb-16	21-Apr-16	145										
RWA20030	Formwork design submission and approval	48	22-Feb-16	21-Apr-16	145										
Method Statement Submission and Approval						96	21-Dec-15	21-Apr-16	145						
RWA20040	Method Statement Submission and Approval for ELS	48	21-Dec-15	20-Feb-16	145										
RWA20050	Method Statement Submission and Approval for Retaining Wall Construction	48	22-Feb-16	21-Apr-16	145										
Retaining Wall A						111	21-Sep-15 A	05-Mar-16	168						
RWA20090	Pruning for tree transplanting Portion I	72	21-Sep-15 A	03-Feb-16	168										
RWA20100	Tree works (Portion I)	24	21-Sep-15 A	20-Feb-16	168										
RWA20110	Site clearance and tree felling	12	22-Feb-16	05-Mar-16	168										
Site Formation - Retaining Structure for Slope TP_F						190	07-Jan-15 A	26-Apr-16	321						
Stage 3						190	07-Jan-15 A	26-Apr-16	321						
Retaining Structure for Slope TP_F						190	07-Jan-15 A	26-Apr-16	321						
RWF31304	Construct Retaining Wall-Wall construction Bay 7-8,17-19	90	07-Jan-15 A	28-Mar-15 A											
RWF31326	Construct Retaining Wall-Base slab(Bay 1 to Bay 2)	18	26-Aug-15 A	12-Sep-15 A											
RWF31330	Construct Retaining Wall-Wall construction(Bay 4 to Bay 6)	30	15-May-15 A	12-Sep-15 A											
RWF31335	Construct Retaining Wall-Wall construction(Bay 1 to Bay 2)	30	17-Sep-15 A	06-Nov-15 A											
RWF31308	Backfilling	50	10-Feb-15 A	31-Dec-15	341										
RWF31350	Backfilling	24	17-Dec-15 A	27-Feb-16	316										
RWF31460	Construct Retaining Wall-Wall construction(Bay 21 to Bay 28)	90	31-Oct-15 A	26-Apr-16	321										
Site Formation - Retaining Structure for Slope TP_G						84	21-Dec-15	07-Apr-16	232						
Stage 3						84	21-Dec-15	07-Apr-16	232						
Temporary Works Design Submission and Approval						28	21-Dec-15	25-Jan-16	232						
RWG10000	ELS design submission and approval	28	21-Dec-15	25-Jan-16	232										
Method Statement Submission and Approval						56	26-Jan-16	07-Apr-16	232						
RWG10010	Method Statement Submission and Approval for ELS	28	26-Jan-16	01-Mar-16	232										
RWG10020	Method Statement Submission and Approval for TP_G	28	02-Mar-16	07-Apr-16	232										
Site Formation - Slope TP_A & Associated Works						50	24-Nov-14 A	21-Dec-15	247						
Stage 3						50	24-Nov-14 A	21-Dec-15	247						
Slope Feature - Slope TP_A						50	24-Nov-14 A	21-Dec-15	247						
TPA41200	Raking Drain Construction for slope A3	5	24-Nov-14 A	24-Dec-14 A											
TPA41220	Laying Erosion Control Mat for slope A3	13	02-Dec-14 A	31-Dec-14 A											
TPA41210	U-channel and Berm for slope A3	21	30-Nov-14 A	31-Dec-14 A											
TPA41350	Forming East Portal Formation and temporary ground drainage works	50	10-Mar-15 A	21-Dec-15	223										
Site Formation - Slope TP_B & Associated Works						272	02-Mar-15 A	05-May-16	355						
Stage 3						182	02-Mar-15 A	09-Jan-16	355						
Slope Feature - Slope TP_B						182	02-Mar-15 A	09-Jan-16	355						
TPB41210	U-channel and Berm for slope B3	21	02-Mar-15 A	21-Dec-15	355										
TPB41220	Laying Erosion Control Mat for slope B3	3	20-Apr-15 A	21-Dec-15	355										
TPB43600	Forming road formation and temporary ground drainage works	14	21-Dec-15	09-Jan-16	355										
Achievement of KD-3(Stage 3) for Slope B						90	09-Jan-16	05-May-16	355						
TPB41710	Remaining civil works	90	09-Jan-16	05-May-16	355										
Site Formation - Slope TP_C & Associated Works						50	21-Dec-15	23-Feb-16	410						
Achievement of KD-3(Stage 3) for Slope C						50	21-Dec-15	23-Feb-16	410						
TPC51310	Remaining civil works	50	21-Dec-15	23-Feb-16	410										
Site Formation - Slope TP_D & Associated Works						202	06-Jul-15 A	06-May-16	354						
Stage 3						106	06-Jul-15 A	11-Jan-16	178						

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016			
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Slope Feature - Slope TP_D													
TPD52800	Forming West Portal Formation and temporary ground drainage works	10	21-Dec-15	04-Jan-16	184	Forming West Portal Formation and temporary ground drainage works							
TPD51750	U-channel and Berm for slope D6a and D6b	21	06-Jul-15 A	11-Jan-16	178	U-channel and Berm for slope D6a and D6b							
Achievement of KD-7(Section 4) for Slope D													
TPD51253	Remaining works in Portion D	90	11-Jan-16	06-May-16	178								
Achievement of KD-3(Stage 3) for Slope D													
TPD52350	Remaining civil works	90	05-Jan-16	27-Apr-16	360								
Site Formation - Slope TP_E & Associated Works													
Stage 3													
Slope Feature - Slope TP_E at Toll Control Building Area													
TPE61350	Excavation of Rock (2,000m3) for slope E1b	30	30-Jan-15 A	02-Jul-15 A	81	Excavation of Rock for slope E2b - stage 2							
TPE61170	Excavation of Rock for slope E2b - stage 2	75	31-Dec-14 A	29-Dec-15	81	Excavation of Rock (30,200m3) for slope E2b							
TPE61150	Excavation of Rock (30,200m3) for slope E2b	150	06-Nov-14 A	29-Dec-15	81	Mapping & Dowelling							
TPE61180	Mapping & Dowelling	15	13-Nov-14 A	09-Jan-16	81	Excavation of Rock for slope E3b - stage 1							
TPE61210	Excavation of Rock for slope E3b - stage 1	75	07-Jan-15 A	27-Jan-16	81	Excavation of Rock for slope E3b - stage 2							
TPE61220	Excavation of Rock for slope E3b - stage 2	75	28-Feb-15 A	25-Feb-16	81	Excavation of Rock for slope E3b - stage 3							
TPE61230	Excavation of Rock for slope E3b - stage 3	75	26-Mar-15 A	23-Mar-16	81	Excavation of Rock (60,000m3) for slope E3b							
TPE61200	Excavation of Rock (60,000m3) for slope E3b	304	07-Jan-15 A	05-May-16	81	Excavation of Rock for slope E3b - stage 4							
TPE61240	Excavation of Rock for slope E3b - stage 4	75	25-May-15 A	05-May-16	81								
Slope Feature - Slope TP_E Remaining Section and SSE-D/C116													
TPE62190	U-channel (200m) and Berm for slope E2c	40	21-Oct-15 A	06-Jan-16	164	U-channel (200m) and Berm for slope E2c							
TPE62210	Excavation of Rock for slope E3c - stage 1	75	23-Apr-15 A	23-Jan-16	164	Excavation of Rock for slope E3c - stage 2							
TPE62220	Excavation of Rock for slope E3c - stage 2	75	02-Jul-15 A	25-Apr-16	164								
TPE62200	Excavation of Rock (24,180m3) for slope E3c	225	23-Apr-15 A	03-Aug-16	164								
TPE62400	Excavation of Rock (11,900m3) for slope E3a	90	22-Apr-15 A	19-Dec-16	164								
TPE62420	U-channel (220m) and Berm for slope E3a	40	21-Oct-15 A	04-Feb-17	164								
Site Formation - Slope Upgrading Works													
Stage 3 (Other Slope Features)													
Slope Feature - SSE-D/C150													
SFW10210	Hydroseeding and Erosion Control Mat	5	01-Dec-15 A	04-Aug-16	267								
Slope Feature - SSE-D/C152													
SFW10250	Hydroseeding and Erosion Control Mat	5	30-Oct-15 A	07-Sep-16	267								
Slope Feature - SSE-D/C121													
SFW10260	Complete slope D6a and D6b	0	21-Dec-15	21-Dec-15	260	▼ Slope Feature - SSE-D/C121 ◆ Complete slope D6a and D6b							
Slope Feature - SSE-D/C122													
SFW10300	Complete slope D6a and D6b	0	21-Dec-15	21-Dec-15	620	▼ Slope Feature - SSE-D/C122 ◆ Complete slope D6a and D6b							
Slope Feature - SSE-D/C14													
SFW10340	Complete TP_F Backfilling(Bay1-2)	0	27-Feb-16	27-Feb-16	316	▼ Slope Feature - SSE-D/C14 ◆ Complete TP_F Backfilling(Bay1-2)							
Slope Feature - SSE-D/C21													
SFW10540	Completion of Sewer Culvert 1	0	24-Dec-15	24-Dec-15	236	▼ Slope Feature - SSE-D/C21 ◆ Completion of Sewer Culvert 1							
Vehicular Underpass TN-01													
Stage 3													
Blasting Related Submission													
Blasting Permit Application													
UDP30100	Issue of Pre-Licensing Conditions	22	05-Oct-15 A	05-Oct-15 A		Blasting Related Submission							
UDP30110	Formal Issue of Blasting Permit	11	05-Oct-15 A	05-Oct-15 A		Blasting Permit Application							
UDP30090	Site Inspection by Mines Department	39	02-Oct-15 A	02-Dec-15 A		Site Inspection by Mines Department							
Blasting Protection Works													
UDP30030	Installation of Blasting Door	20	25-Jul-15 A	02-Oct-15 A									
Method Statement Submission and Approval													
UDP30650	Method statement for Lining Construction	72	23-Nov-15 A	30-Nov-15 A		Method Statement Submission and Approval							
Underpass Excavation from West Portal													
Drill and Break CH310-CH320 (Section of Type A Lining)													
UDP30190	Install Canopy Supporting System and Tunnel Face Support	48	02-Nov-15 A	09-Nov-15 A		Drill and Break CH310-CH320 (Section of Type A Lining)							
UDP30210	CH310-CH320 - Drill and Break Cycle (3 days/m) -Top heading	28	02-Nov-15 A	20-Jan-16	224	and Tunnel Face Support							
UDP30220	CH310-CH320 - Drill and Break Cycle (3 days/m) -Lower bench	28	02-Nov-15 A	20-Jan-16	223	CH310-CH320 - Drill and Break Cycle (3 days/m) -Top heading							
UDP30200	CH310-CH320 - Probing and Horizontal Pre-Split Drill	30	02-Nov-15 A	22-Jan-16	223	CH310-CH320 - Drill and Break Cycle (3 days/m) -Lower bench							
Drill and Blast CH327.6-CH503													
UDP30260	CH390-CH440 Drill and Blast method (2.0m penetration length/2.0days)	40	23-Nov-15 A	18-Dec-15 A		CH310-CH320 - Probing and Horizontal Pre-Split Drill							
Drill and Blast CH327.6-CH503													
Drill and Blast CH327.6-CH503													

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HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2015				2016					
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
UDP30240	CH327.6-CH337.6 Drill and Blast method (2.0m penetration length/2.0days)	8	20-Jan-16	29-Jan-16	223										
UDP30250	CH337.6-CH390 Drill and Blast method (2.0m penetration length/2.0days)	42	29-Jan-16	22-Mar-16	223										
Underpass Excavation from East Portal						→ Underpass Excavation from East Portal									
Preparation Works															
UDP30320	Mobilization	12	04-Mar-15 A	10-Mar-15 A											
UDP30330	Site Set Up	15	04-Mar-15 A	10-Mar-15 A											
Drill and Break - CH534.9-CH508 (Section of Type C Lining)						→ Drill and Break - CH534.9-CH508 (Section of Type C Lining)									
UDP30340	Install Canopy Supporting System and Tunnel Face Support	40	16-Apr-15 A	07-Aug-15 A											
UDP30400	CH508-CH503 Drill and Break Cycle (3 days/m) w/e Temporary Expansion RockBolt Support	15	22-Jul-15 A	01-Sep-15 A											
UDP30390	CH522-CH508 Drill and Break Cycle (3 days/m) w/e Arch Rib Support	42	21-Jun-15 A	08-Dec-15 A											
Road and Drainage Work at for Lung Fu Road Roundabout						→ Road and Drain									
Section 3						→ Section 3									
Road and drainage works under LFR R/A TTA stage 2a						→ Road and drainage									
LF20050	Slope cut/filled at LMR for the further roundabout	30	21-Dec-15	27-Jan-16	65										
LF20100	Traffic on LMR diverted to LFR junction	7	28-Jan-16	04-Feb-16	65										
LF20350	Drainage & Sewerage works	30	05-Feb-16	14-Mar-16	65										
LF20400	Watermains	20	03-Mar-16	29-Mar-16	65										
LF20450	Irrigation / UU / PL	20	03-Mar-16	29-Mar-16	65										
Achievement of Key Dates						▼ Achievement of Key Dates									
AK10190	Achievement of KD-3A(Stage 4)for Sewer Box culvert 1	0	24-Dec-15	24-Dec-15	0										
						◆ Achievement of KD-3A(Stage 4)for Sewer Box culvert 1									

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HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2016					
						Mar	Apr	May	Jun	Jul	
HY/2013/12 TMCLK Northern Connection Toll Plaza and Associated-Works Programme-Rev.4A Monthly											
Site Possession Dates											
PPD1130	Portion J Possession Date	0	23-Apr-16	23-Apr-16	486						
Toll Plaza Decking TD1-Section 1											
Stage 1											
Design Submission and Approval											
TD120060	Prepare & submit draft DDA drawing w/ICE cert(foundation)	24	10-Dec-14 A	15-Jan-15 A							
TD120070	Engineer's comments	23	16-Jan-15 A	16-Jan-15 A							
TD120080	Prepare & submit DDA drawing w/ICE cert(foundation)	17	16-Jan-15 A	19-Feb-15 A							
TD120090	Acceptance of the DDA Drawing	23	20-Feb-15 A	25-Feb-15 A							
TD120100	Prepare & submit draft DDA Drawings w/ICE cert(precast beam)	24	01-May-15 A	22-May-15 A							
TD120140	Prepare & submit draft DDA drawing w/ICE cert(decking)	24	01-May-15 A	22-May-15 A							
TD120150	Engineer's comments	23	23-May-15 A	04-Jun-15 A							
TD120110	Engineer's comments	23	20-Jul-15 A	23-Jul-15 A							
TD120120	Prepare & submit DDA Drawings w/ICE cert(precast beam)	23	23-Jul-15 A	27-Jul-15 A							
TD120130	Acceptance of the DDA Drawing	23	07-Sep-15 A	30-Nov-15 A							
TD120220	TWD -Formwork design for in-situ deck	24	20-Apr-16	19-May-16	125						
Method Statement Submission and Approval											
TD121330	MSS for precast beam installation	24	22-May-15 A	27-May-15 A							
TD121340	Engineer's comments and approval	24	01-Jun-15 A	02-Jun-15 A							
TD121320	Engineer's comments and approval	24	10-Mar-15 A	24-Jun-15 A							
TD121350	MSS for in-situ deck	24	17-Aug-15 A	17-Jun-16	125						
TD121360	Engineer's comments and approval	24	19-Aug-15 A	21-Jun-16	125						
Field Works											
Foundation & Substructure at Northern Side of Lung Mun Road											
GI											
TD120450	Traffic diversion for Lung Mun Road(change the water barrier and logo)	7	06-Oct-14 A	09-Oct-14 A							
TD120480	Excavation of RW_B(for Bored piles construction,to existing ground level)	46	14-Oct-14 A	20-Jan-15 A							
Bored Pile											
TD120510	Bored Piles F2-K2(5 Nos)	51	12-Feb-15 A	30-Oct-15 A							
Pile cap and Pier											
TD120520	Pile cap and Pier A2-E3	88	16-Mar-15 A	28-Jul-15 A							
Foundation & Substructure at Southern Side of Lung Mun Road											
Bored Piles											
TD120610	Drilling Rig mobilization	0	17-Mar-15 A								
TD120620	Bored Piles E1-C1(3 Nos)	30	17-Mar-15 A	09-Apr-15 A							
Pile cap & Pier											
TD120630	Pile cap & Pier E1-C1	54	21-May-15 A	21-Sep-15 A							
Foundation & Substructure at Central Divider of Lung Mun Road											
GI											
TD121050	Traffic diversion for central divider(G.I)	26	04-Mar-15 A	07-Apr-15 A							
Portal Construction											
Portal Beam 2nd(J)											
TD121190	Portal beam 2nd(Portal J -Pier 20 to Pier 21)	61	18-Feb-16 A	13-Mar-16 A							
Portal Beam 3rd(G)											
TD121200	Portal beam 3rd(Portal G -Pier 16 to Pier 17)	61	18-Feb-16 A	06-Mar-16 A							
Portal Beam 4th(F)											
TD121210	Portal beam 4th(Portal F -Pier 14 to Pier 15)	60	03-Mar-16 A	27-Mar-16 A							
Portal Beam 5th(E)											
TD121220	Portal beam 5th(Portal E -Pier 11 to Pier 13)	60	10-Mar-16 A	10-Apr-16 A							
Portal Beam 6th(D)											
TD121230	Portal beam 6th(Portal D -Pier 8 to Pier 10)	60	20-Apr-16	07-Jul-16	44						
Portal Beam 7th(C)											
TD121240	Portal beam 7th(Portal C -Pier 5 to Pier 7)	60	07-Apr-16 A	06-Jun-16	215						
Portal Beam 8th(B)											
TD121250	Portal beam 8th(Portal B -Pier 3 to Pier 4)	60	20-Apr-16	07-Jul-16	191						
Deck Construction											
Cast in-situ deck between Pier A and Pier B											
TD120640	Portal construction	56	20-Apr-16	30-Jun-16	92						

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HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2016				
						Mar	Apr	May	Jun	Jul
Precast beam fabrication										
TD120730	Precast beam(Type 1 total-12 nos)	24	16-Feb-16 A	17-Mar-16 A		Precast beam(Type 1 total-12 nos)				
TD120790	Precast beam(Type 2 total-12 nos)	60	28-Nov-15 A	26-Mar-16 A		Precast beam(Type 2 total-12 nos)				
TD120740	Precast beam(Type 1 total-13nos)	26	10-Mar-16 A	22-Apr-16	181	Precast beam(Type 1 total-13nos)				
TD120750	Precast beam(Type 1 total-8 nos)	16	22-Apr-16	13-May-16	239	Precast beam(Type 1 total-8 nos)				
TD120760	Precast beam(Type 1 total-8 nos)	16	13-May-16	04-Jun-16	247	Precast beam(Type 1 total-8 nos)				
TD120770	Precast beam(Type 1 total-7 nos)	14	04-Jun-16	23-Jun-16	308	Precast beam(Type 1 total-7 nos)				
Toll Plaza Decking TD2-Section 1										
Field Works										
G.I and Piling Works										
DWP-G.I										
TD220430	Traffic diversion	6	06-Oct-14 A	09-Oct-14 A						
TD220400	G.I for P6-P11	24	10-Oct-14 A	28-Oct-14 A						
TD220420	G.I for P14-P27	42	03-Dec-14 A	07-Jan-15 A						
DWP-Bored Piles										
TD220480	Working platform for pile cap L1-L3	13	08-May-15 A	21-Aug-15 A						
TD220490	Bored piles for P6-P11	60	12-Jun-15 A	03-Oct-15 A						
TD220470	Bored piles for P1-P5	51	30-May-15 A	12-Oct-15 A						
Base Slab & Pile Cap Construction										
Abutment K-Base Slab										
TD220550	Preparation works for drainage channel diversion	30	21-Jul-15 A	03-Aug-15 A						
Pile Cap L1-L4										
TD220630	Sheetpile for Pile cap L3	18	20-Dec-15 A	21-Dec-15 A						
TD220592	ELS for Pile cap L1	18	28-Nov-15 A	28-Dec-15 A						
TD220600	Pile cap L1	15	28-Dec-15 A	15-Jan-16 A						
TD220610	Sheetpile for Pile cap L2	18	17-Feb-16 A	18-Feb-16 A						
TD220615	ELS for Pile cap L2	18	19-Feb-16 A	20-Feb-16 A						
TD220640	Pile cap L3	15	25-Feb-16 A	07-Mar-16 A						
TD220620	Pile cap L2	15	23-Feb-16 A	12-Mar-16 A						
Abutment M-Base Slab										
TD220670	ELS for abutment M	55	11-Nov-15 A	08-Mar-16 A						
TD220680	Formwork and Reinforcement	45	15-Mar-16 A	24-Mar-16 A						
TD220690	Concreting and backfilling	10	30-Mar-16 A	05-Apr-16 A						
Abutment and Pier Construction										
Abutment K										
TD220260	Wall for abutment K	20	26-Jan-16 A	12-Apr-16 A						
TD220270	Backfill for abutment K	20	20-Apr-16	17-May-16	147					
Pier L1										
TD220280	Pier L1	26	26-Jan-16 A	09-Apr-16 A						
Pier L2										
TD220290	Pier L2	26	17-Mar-16 A	09-Apr-16 A						
Pier L3										
TD220140	Pier L3	26	12-Mar-16 A	09-Apr-16 A						
Pier L4										
TD220150	Pier L4	20	22-Feb-16 A	06-Apr-16 A						
Abutment M										
TD220160	Wall for abutment M	30	17-May-16	24-Jun-16	167					
Deck Construction										
TD220000	Construction of walkway	15	17-May-16	04-Jun-16	189					
Miscellaneous Works										
TD220695	Cascade D construction	60	18-Apr-16 A	29-Jul-16	147					
Toll Plaza Footbridge-Section 1										
Stage 1										
Temporary Works Design (TWD) Submission and Approval										
TFB1040	TWD -Falsework support for staircase construction	35	22-Feb-16 A	14-Apr-16 A						
Method Statement Submissions and Approval										
TFB1050	MSS for steel truss installation including shop drawings submission	90	04-Dec-15 A	29-Apr-16	53					
TFB1070	MSS for staircase construction	40	21-Dec-15 A	22-Aug-16	162					
Field Works										

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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2016				
						Mar	Apr	May	Jun	Jul
G.I and Foundation Works										
TFB1160	Socketted H-Pile for Pier P3(9 Nos)	18	03-Nov-14 A	30-Nov-14 A						
Pier Construction										
TFB1250	Construct pier P1(include bearing installation)	194	26-Aug-15 A	24-Sep-16	275					
TFB1260	Construct pier P5	42	14-Mar-16 A	28-May-16	250					
TFB1270	Construct pier P7	42	09-Mar-16 A	12-Jul-16	332					
TFB1280	Construct pier P2	42	26-Aug-15 A	13-Sep-16	159					
TFB1290	Construct pier P3	42	22-Sep-15 A	24-Sep-16	159					
Staircase and Lift Construction										
TFB1350	West staircase construction	48	23-Nov-15 A	04-Jul-17	86					
Retaining Structure RW_B-Section 1										
Site Formation - Retaining Structure RW_B										
Stage 1										
Design Submission and Approval										
RWB10350	ELS design submission	21	08-Oct-14 A	24-Oct-14 A						
RWB10360	Engineer's comments and approval	21	10-Nov-14 A	27-Nov-14 A						
RWB10280	Engineer's comments	21	06-Dec-14 A	18-Dec-14 A						
RWB10290	Alternative Design for RW_B foundation submission	21	18-Dec-14 A	14-Jan-15 A						
RWB10310	Alternative Design for RW_B structure	21	15-Jan-15 A	20-Jan-15 A						
RWB10370	Formwork design submission	21	13-Jan-15 A	26-Jan-15 A						
RWB10380	Engineer's comments and approval	21	16-Jan-15 A	31-Jan-15 A						
RWB10300	Engineer's approval	21	14-Jan-15 A	11-Mar-15 A						
RWB10390	Falsework design submission	21	13-Apr-15 A	04-May-15 A						
Method Statement Submission and Approval										
RWB10410	Method Statement Submission and Approval for Retaining Wall Construction	17	07-Jan-15 A	13-Jan-15 A						
RWB10420	Engineer's comments and approval	17	14-Jan-15 A	31-Jan-15 A						
Retaining Structure RW_B										
Preparing Works										
RWB10470	Site clearance and tree felling-east side	24	01-Dec-14 A	08-Dec-14 A						
Excavation										
RWB10490	Excavation of RW_B up to approx +6.0 mPD-(Bay 1-7)	45	14-Oct-14 A	31-Dec-14 A						
RWB10500	Excavation of RW_B up to approx +6.0 mPD-(Bay11-13)	60	01-Dec-14 A	13-Feb-15 A						
Structure(Base Slab, Wall, Colum, Top Slab)										
Bay 1-7										
RWB10070	Half span blinding layer for Bay 2-Bay7	20	28-Apr-15 A	05-Jun-15 A						
RWB10080	Half span base slab-Bay 2 to Bay 7	60	29-Apr-15 A	12-Jun-15 A						
RWB10030	Half span base slab-Bay 2 to Bay 7	60	10-Feb-15 A	12-Jun-15 A						
RWB10060	Bay 1 including blinder layer	40	13-Mar-15 A	15-Jul-15 A						
Bay 8-10										
RWB10120	Bay 9	40	07-Aug-15 A	16-Jan-16 A						
RWB10130	Bay 10	40	15-Sep-15 A	02-Feb-16 A						
Bay 11										
RWB10140	Foundation works	15	22-Oct-15 A	03-Nov-15 A						
RWB10150	Bay 11	40	23-Nov-15 A	02-Apr-16 A						
Bay12-13										
RWB10170	Bay12-13 and backfilling	60	18-Sep-15 A	25-Apr-16	162					
Bay14-Bay15										
RWB10200	Foundation works Bay 14	40	09-Nov-15 A	10-Dec-15 A						
RWB10210	Foundation works Bay 15	40	15-Dec-15 A	24-Dec-15 A						
RWB10220	Bay 14-15	60	07-Jan-16 A	25-May-16	326					
Backfilling										
RWB10230	Backfilling	40	15-Jul-15 A	25-Jun-16	414					
RWB10235	Precast panels installation	90	25-May-16	20-Sep-16	348					
RW_B Precast Panel										
Precast the Panel										
RWB20000	Precast the Panels(Bay 6-10 nos)	12	20-Apr-16*	05-May-16	12					
RWB20010	Precast the Panels(Bay 5-10 nos)	12	04-May-16	19-May-16	12					
RWB20020	Precast the Panels(Bay 7-10nos)	12	18-May-16	01-Jun-16	12					
RWB20030	Precast the Panels(Bay 4-12nos)	12	30-May-16	14-Jun-16	12					

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RWB20040	Precast the Panels(Bay 8-10nos)	12	13-Jun-16	27-Jun-16	12	Mar, Apr, May, Jun, Jul
Installation the Panel						
RWB20120	Installation the Panel Bay 6	5	06-May-16*	11-May-16	37	May, Jun, Jul
RWB20130	Installation the Panel Bay 5	5	20-May-16	25-May-16	32	May, Jun, Jul
RWB20140	Installation the Panel Bay 7	5	02-Jun-16	07-Jun-16	27	Jun, Jul
RWB20150	Installation the Panel Bay 4	5	16-Jun-16	21-Jun-16	22	Jun, Jul
Toll Collector Subway & Associated Works-Section 1						
Toll Collector Bridge (Portion I)-Section 1						
Stage 1						
Temporary Works Design(TWD) Submission and Approval						
TCS1240	TWD -Design of lifting system	30	20-Apr-16	26-May-16	256	Apr, May, Jun, Jul
TCS1580	Engineer's comments and approval	30	27-May-16	02-Jul-16	256	May, Jun, Jul
Toll Collector Subway & Associate Works (Portion I)-Section 1						
Stage 1						
Temporary Works Design(TWD) Submission and Approval						
TCS1620	Engineer's comments and approval	24	19-Oct-15 A	10-Nov-15 A		
Method Statement Submissions and Approval						
TCS1370	MSS for excavation works	24	10-Nov-15 A	24-Nov-15 A		
TCS1390	MSS for subway structural works	24	03-Dec-15 A	17-Dec-15 A		
TCS1380	Engineer's comments and approval	24	25-Nov-15 A	18-Mar-16 A		Mar, Apr, May, Jun, Jul
TCS1630	Engineer's comments and approval	24	20-Apr-16	19-May-16	175	Apr, May, Jun, Jul
Field Works - Toll Collector Subway and Staircase						
TCS1410	Finish L shape structure of RW_B	0	20-Apr-16 A			Apr, May, Jun, Jul
TCS1400	Site clearance	24	21-Mar-16 A	25-May-16 A		Mar, Apr, May, Jun, Jul
TCS1420	ELS for (SB22-SB16)	40	25-Apr-16	18-Jun-16	162	Apr, May, Jun, Jul
TCS1430	Construction of toll collector subway(from SB22-SB16)	70	23-May-16	22-Aug-16	162	May, Jun, Jul
Toll Collector Subway (Portion X)-Section 5						
Stage 3						
TCS1100	Excavation Works-S.B 3-8	80	20-Oct-15 A	21-Nov-16	132	Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul
Bridge G2						
Stage 2						
Temporary Works Design (TWD) Submission and Approval						
BG23530	DDA for foundation submission	17	15-Dec-14 A	17-Dec-14 A		
BG23560	Engineer's comments	17	09-Dec-14 A	02-Jan-15 A		
BG23540	Engineer's approval	17	17-Dec-14 A	08-Jan-15 A		
BG23570	DDA for substructure submission	17	02-Jan-15 A	16-Apr-15 A		
BG23580	Engineer's approval	17	18-Feb-15 A	21-May-15 A		
BG23200	TWD -Falsework design for in-situ deck construction	24	05-Feb-16 A	20-Apr-16 A		Feb, Mar, Apr, May, Jun, Jul
BG23190	TWD -Falsework design for portal construction	24	05-Feb-16 A	20-Apr-16 A		Feb, Mar, Apr, May, Jun, Jul
BG23620	Engineer's approval	17	20-Apr-16	10-May-16	176	Apr, May, Jun, Jul
Method Statement Submissions and Approval						
BG23230	MSS for pier construction	17	02-Feb-15 A	13-Feb-15 A		
BG23240	MSS for deck construction	48	29-Feb-16 A	14-Mar-16 A		Feb, Mar, Apr, May, Jun, Jul
Field Works						
Foundation Works						
BG23410	Pad footing G2b	40	01-Mar-16 A	10-Mar-16 A		Mar, Apr, May, Jun, Jul
Pier & Abutment Construction						
BG23430	Construct Pier at G2d-2	32	18-Aug-15 A	10-Nov-15 A		
BG23440	Construct Pier at G2c-1	32	04-Nov-15 A	12-Dec-15 A		
BG23460	Construct Pier at G2b	36	14-Mar-16 A	26-Apr-16	139	Mar, Apr, May, Jun, Jul
Deck						
BG23000	Deck(G2e-G2d2)	90	20-Apr-16 A	03-Sep-16	164	Apr, May, Jun, Jul
BG23040	Deck(G2e-G2d1)	60	04-Apr-16 A	22-Feb-17	164	Apr, May, Jun, Jul
Bridge G1						
Stage 2						
Design Submission and Approval						
BG112300	Engineer's approval	21	20-Apr-16	16-May-16	259	Apr, May, Jun, Jul
Method Statement Submissions and Approval						
BG112340	MSS-deck construction	24	24-Nov-15 A	08-Dec-15 A		

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						Mar	Apr	May	Jun	Jul
Off-site Works										
BG112000	Form traveller fabrication	90	21-Jan-16 A	29-Apr-16	258	Off-site Works				
Field Works										
Substructure Works from Pier G1d to Pier G2a										
BG112130	Pierhead segment construction at Pier G1d	40	20-Apr-16	11-Jun-16	197	Field Works				
Deck Construction from Pier G1d to Pier G2a										
BG112462	Completion of Pier at G2a	0	20-Apr-16	20-Apr-16	182	Substructure Works from Pier G1d to Pier G2a				
Bridge H1-Section 2										
Stage 2										
Design Submission and Approval										
BH12790	DDA for substructure(draft)	66	28-Nov-14 A	11-Jun-16	364	Design Submission and Approval				
BH12760	Engineer's comments	17	28-Nov-14 A	09-Dec-14 A						
BH12770	DDA for foundation submission	17	09-Dec-14 A	15-Dec-14 A						
BH12800	Engineer's comments	17	15-Dec-14 A	17-Dec-14 A						
BH12780	Engineer's approval	17	09-Dec-14 A	02-Jan-15 A						
BH12860	Engineer's approval	17	17-Dec-14 A	08-Jan-15 A						
BH12860	Engineer's approval	17	20-Apr-16	10-May-16	114	Engineer's approval				
Method Statement Submissions and Approval										
BH12380	MSS-deck construction	24	24-Nov-15 A	08-Dec-15 A						
Off-site Works										
BH12720	Form traveller fabrication	90	21-Jan-16 A	29-Apr-16	88	Off-site Works				
Field Works										
Foundation Works & Pier construction										
Pier construction										
BH12540	Construct Pier H1d	167	06-Jan-16 A	11-Jun-16	281	Field Works				
BH12540	Construct Pier H1d	32	06-Jan-16 A	17-Mar-16 A		Foundation Works & Pier construction				
BH12554	TTA Diversion	7	18-Apr-16 A	20-Apr-16 A		Pier construction				
BH12886	Pierhead segment construction at Pier H1e	40	20-Apr-16	11-Jun-16	1	Construct Pier H1d				
BH12558	Pierhead segment construction at Pier H1d	40	20-Apr-16	11-Jun-16	281	TTA Diversion				
Culvert 1(TBM)-Stage 4										
Design Submission and Approval										
CUL13180	Final design submission	51	24-Oct-14 A	11-Dec-14 A		Culvert 1(TBM)				
CUL13190	Engineer's approval	21	24-Oct-14 A	13-Nov-14 A						
CUL13190	Engineer's approval	30	13-Nov-14 A	11-Dec-14 A						
Field Works										
Jacking Pit										
CUL13030	ELS for Jacking pit	72	27-Nov-14 A	31-Dec-14 A						
MH7										
CUL13340	Sheetpile installation	68	02-Jun-15 A	15-Dec-15 A						
CUL13350	Excavation and removal of existing box culvert	21	02-Jun-15 A	15-Jun-15 A						
CUL13360	Manhole construction ,Existing box culvert to be demolished and reconstructed	21	13-Jun-15 A	14-Aug-15 A						
CUL13360	Manhole construction ,Existing box culvert to be demolished and reconstructed	36	20-Oct-15 A	15-Dec-15 A						
FC1										
CUL13395	Liasion with CLP and temporary diversion for 11kv cable for construction of FC1	89	17-Dec-14 A	10-Mar-15 A						
CUL13395	Liasion with CLP and temporary diversion for 11kv cable for construction of FC1	89	17-Dec-14 A	10-Mar-15 A						
FC2										
CUL13470	Construction of chamber FC2	289	20-Feb-16 A	13-Jun-16	486	Field Works				
CUL13480	Backfilling and removal section of sheetpile	30	20-Feb-16 A	25-May-16	486	Construction of chamber FC2				
CUL13480	Backfilling and removal section of sheetpile	14	25-May-16	13-Jun-16	486	Backfilling and removal section of sheetpile				
BY-Pass Sewer between FC1 and FC2(1800 Pipe)										
CUL13510	Backfilling	14	21-Mar-16 A	26-Apr-16	486	BY-Pass Sewer between FC1 and FC2(1800 Pipe)				
CUL13510	Backfilling	14	21-Mar-16 A	26-Apr-16	486	Backfilling				
Completion of KD3A and Remaining Works										
CUL13535	Backfilling	70	20-Apr-16	29-Jun-16	611	Completion of				
CUL13535	Backfilling	70	20-Apr-16	29-Jun-16	611	Backfilling				
Culvert 2 & Culvert 3 and Existing Box Culvert										
Method statement Submission										
CCE20070	Method statement for existing box culvert to be abandoned	46	16-Apr-15 A	19-May-16	512	Method statement Submission				
CCE20140	Method statement for screeding the existing box culvert	24	16-Apr-15 A	28-Apr-16 A		Method statement for existing box culvert to be abandoned				
CCE20140	Method statement for screeding the existing box culvert	24	20-Apr-16	19-May-16	421	Method statement for screeding the existing box culvert				
Culvert 2										
CCE20080	MH3 construction	65	20-Feb-16 A	27-Jun-16	263	Culvert 2				
CCE20080	MH3 construction	65	20-Feb-16 A	27-Jun-16	263	MH3 construction				
Culvert 3										
CCE20085	MH6 construction	65	05-Apr-16 A	11-Jul-16	263	MH6 construction				
CCE20085	MH6 construction	65	05-Apr-16 A	11-Jul-16	263	MH6 construction				
Site Formation - Retaining Structure RW_A										
Stage 3										
Temporary Works Design Submission and Approval										
RWA20020	ELS design submission and approval	48	22-Sep-15 A	19-Nov-15 A		Temporary Works Design Submission and Approval				
RWA20020	ELS design submission and approval	48	22-Sep-15 A	19-Nov-15 A		Temporary Works Design Submission and Approval				

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RWA20030	Formwork design submission and approval	48	22-Sep-15 A	19-Nov-15 A							
Method Statement Submission and Approval		48	22-Sep-15 A	19-Nov-15 A							
RWA20050	Method Statement Submission and Approval for Retaining Wall Construction	48	22-Sep-15 A	19-Nov-15 A							
Retaining Wall A		286	21-Sep-15 A	13-Jan-17	217						
RWA20120	Commencement of TD2 Abutment M	0	11-Nov-15 A								
RWA20090	Pruning for tree transplanting Portion I	72	21-Sep-15 A	21-Jan-16 A							
RWA20110	Site clearance and tree felling	12	25-Jan-16 A	29-Apr-16	166						
RWA20130	Install ELS and Excavation (Soil: 10,298m3)	80	01-Feb-16 A	11-Jul-16	166						
RWA20150	Construct Cascade D	24	18-Apr-16 A	14-Oct-16	166						
RWA20160	Drainage Diversion of Existing Stream to Cascade D	12	18-Apr-16 A	29-Oct-16	166						
RWA20170	Construct Retaining Wall A from Bay MJ11 to CH357.8-Base slab	30	23-Feb-16 A	24-Nov-16	166						
RWA20175	Construct Retaining Wall A from Bay MJ11 to CH357.8-Wall construction	42	13-Apr-16 A	13-Jan-17	166						
Site Formation - Retaining Structure for Slope TP_F		891	03-Oct-14 A	08-Aug-16	570						
Stage 3		891	03-Oct-14 A	08-Aug-16	570						
Method Statement Submission and Approval		32	03-Oct-14 A	21-Oct-14 A							
RWF21050	Method Statement Submission and Approval for Retaining Wall Construction	24	03-Oct-14 A	21-Oct-14 A							
RWF21000	Method Statement Submission and Approval for Open cut excavation	24	03-Oct-14 A	21-Oct-14 A							
Retaining Structure for Slope TP_F		653	19-Oct-14 A	08-Aug-16	443						
RWF31300	Construct Retaining Wall -Base slab (Bay 7 to Bay 19)	89	19-Oct-14 A	31-Dec-14 A							
RWF31308	Backfilling	50	10-Feb-15 A	31-Mar-16 A							
RWF31350	Backfilling	24	17-Dec-15 A	25-Apr-16	272						
RWF31470	Backfilling	60	01-Feb-16 A	05-May-16	375						
RWF31480	U-Channel construction,Completion civil provision works for TCSS and E&M	72	06-May-16	08-Aug-16	443						
Site Formation - Slope TP_A & Associated Works		180	20-Oct-14 A	20-Apr-16	103						
Stage 3		180	20-Oct-14 A	20-Apr-16	103						
Slope Feature - Slope TP_A		180	20-Oct-14 A	20-Apr-16	103						
TPA41110	Raking Drain Construction for slope A1	8	20-Oct-14 A	23-Oct-14 A							
TPA41120	U-channel (140m) and Berm for slope A1	21	18-Nov-14 A	30-Nov-14 A							
TPA411400	Excavation of Soil (9200m3) for slope A2	20	21-Oct-14 A	02-Dec-14 A							
TPA41350	Forming East Portal Formation and temporary ground drainage works	50	10-Mar-15 A	20-Apr-16	103						
Site Formation - Slope TP_B & Associated Works		256	13-Oct-14 A	20-Apr-16	438						
Stage 3		256	13-Oct-14 A	20-Apr-16	438						
Slope Feature - Slope TP_B		256	13-Oct-14 A	20-Apr-16	438						
TPB40600	Laying Erosion Control Mat for slope B1	3	18-Oct-14 A	21-Oct-14 A							
TPB40700	Excavation of Soil (19,000m3) for slope B2	35	13-Oct-14 A	01-Nov-14 A							
TPB40500	U-channel and Berm for slope B1	21	17-Oct-14 A	08-Nov-14 A							
TPB40800	U-channel (220m) and Berm for slope B2	21	26-Nov-14 A	10-Dec-14 A							
TPB41210	U-channel (part) and Berm for slope B3	21	02-Mar-15 A	20-Apr-16	438						
TPB41220	Laying Erosion Control Mat for slope B3	3	20-Apr-15 A	20-Apr-16	438						
TPB43600	Forming road formation and temporary ground drainage works	14	20-Apr-15 A	20-Apr-16	438						
Site Formation - Slope TP_C & Associated Works		88	17-Dec-14 A	24-Jun-16	317						
Stage 3		88	17-Dec-14 A	23-Apr-15 A							
Slope Feature - Slope TP_C		88	17-Dec-14 A	23-Apr-15 A							
TPC50500	Excavation of Rock (11,950m3) for slope C1	88	17-Dec-14 A	23-Apr-15 A							
Achievement of KD-3(Stage 3) for Slope C		50	20-Apr-16	24-Jun-16	317						
TPC51310	Remaining civil works	50	20-Apr-16	24-Jun-16	317						
Site Formation - Slope TP_D & Associated Works		269	09-Jan-15 A	01-Sep-16	265						
Stage 3		269	09-Jan-15 A	01-Sep-16	89						
Slope Feature - Slope TP_D		269	09-Jan-15 A	01-Sep-16	89						
TPD51300	Excavation of Soil (1,310m3) for slope D1, D2a and D2b	40	09-Jan-15 A	01-Feb-15 A							
TPD52800	Forming West Portal Formation and temporary ground drainage works	10	21-Jan-16 A	29-Apr-16	94						
TPD51750	U-channel (150m) and Berm for slope D6a and D6b	21	06-Jul-15 A	10-May-16	89						
TPD51753	Remaining works in Portion D	88	20-Jan-16 A	01-Sep-16	89						
Achievement of KD-3(Stage 3) for Slope D		88	03-May-16	24-Aug-16	270						
TPD52350	Remaining civil works and drainage works	88	03-May-16	24-Aug-16	270						
Site Formation - Slope TP_E & Associated Works		733	13-Nov-14 A	27-Feb-17	146						
Stage 3		733	13-Nov-14 A	27-Feb-17	146						
Slope Feature - Slope TP_E at Toll Control Building Area		330	13-Nov-14 A	16-Aug-16	18						
TPE61170	Excavation of Rock for slope E2b - stage 2	75	31-Dec-14 A	26-Apr-16	2						

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HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2016				
						Mar	Apr	May	Jun	Jul
TPE61180	Mapping & Dowelling	15	13-Nov-14 A	09-May-16	94	Mapping & Dowelling				
TPE61210	Excavation of Rock for slope E3b - stage 1	75	07-Jan-15 A	09-May-16	2	Excavation of Rock for slope E3b - stage 1				
TPE61220	Excavation of Rock for slope E3b - stage 2	75	28-Feb-15 A	08-Jun-16	2	Excavation of Rock for slope E3b - stage 2				
TPE61230	Excavation of Rock for slope E3b - stage 3	75	26-Mar-15 A	08-Jul-16	2	Excavation of Rock for slope E3b - stage 3				
TPE61240	Excavation of Rock for slope E3b - stage 4	75	25-May-15 A	16-Aug-16	2	Excavation of Rock for slope E3b - stage 4				
Slope Feature - Slope TP_E Remaining Section and SSE-D/C116		733	13-Nov-14 A	27-Feb-17	146					
TPE62010	Temporary Translocation of Pitcher Plants	21	13-Nov-14 A	14-Nov-14 A						
TPE62100	Excavation of Soil (12,159m3) for slope E	37	17-Nov-14 A	31-Dec-14 A						
TPE62190	U-channel (200m) and Berm for slope E2c	40	21-Oct-15 A	05-May-16	146	U-channel (200m) and Berm for slope E2c				
TPE62210	Excavation of Rock for slope E3c - stage 1	75	23-Apr-15 A	25-May-16	146	Excavation of Rock for slope E3c - stage 1				
TPE62220	Excavation of Rock for slope E3c - stage 2	75	02-Jul-15 A	14-Jul-16	146	Excavation of Rock for slope E3c - stage 2				
TPE62400	Excavation of Rock (11,900m3) for slope E3a	90	22-Apr-15 A	13-Jan-17	146					
TPE62420	U-channel (220m) and Berm for slope E3a	40	21-Oct-15 A	27-Feb-17	146					
Site Formation - Slope Upgrading Works		186	23-Apr-15 A	15-Dec-16	341					
Stage 3 (Other Slope Features)		186	23-Apr-15 A	15-Dec-16	341					
Slope Feature - SSE-D/C170		176	23-Apr-15 A	08-Nov-16	136					
SFW10065	Completion of excavation of TP_C	0	23-Apr-15 A							
SFW10070	Excavation of Soil (1,240m3) and Modification Works	14	21-Feb-16 A	08-Nov-16	136					
Slope Feature - SSE-D/C150		26	01-Dec-15 A	14-Nov-16	341					
SFW10190	Slope Modification	5	17-Feb-16 A	09-Nov-16	341					
SFW10210	Hydroseeding and Erosion Control Mat	5	01-Dec-15 A	14-Nov-16	341					
Slope Feature - SSE-D/C152		5	30-Oct-15 A	15-Dec-16	341					
SFW10250	Hydroseeding and Erosion Control Mat	5	30-Oct-15 A	15-Dec-16	341					
Slope Feature - SSE-D/C121		0	20-Apr-16	20-Apr-16	167	<ul style="list-style-type: none"> ▼ Slope Feature - SSE-D/C121 ◆ Complete slope D6a and D6b 				
SFW10260	Complete slope D6a and D6b	0	20-Apr-16	20-Apr-16	167					
Slope Feature - SSE-D/C122		0	20-Apr-16	20-Apr-16	527	<ul style="list-style-type: none"> ▼ Slope Feature - SSE-D/C122 ◆ Complete slope D6a and D6b 				
SFW10300	Complete slope D6a and D6b	0	20-Apr-16	20-Apr-16	527					
Slope Feature - SSE-D/C14		5	20-Apr-16	25-Apr-16	272	<ul style="list-style-type: none"> ▼ Slope Feature - SSE-D/C14 ◆ Possession of Portion X ◆ Complete TP_F Backfilling(Bay1-2) 				
AK10410	Possession of Portion X	0	20-Apr-16		272					
SFW10340	Complete TP_F Backfilling(Bay1-2)	0	20-Apr-16	25-Apr-16	272					
Slope Feature - SSE-D/C21		0	20-Apr-16	20-Apr-16	147	<ul style="list-style-type: none"> ▼ Slope Feature - SSE-D/C21 ◆ Completion of Sewer Culvert 1 				
SFW10540	Completion of Sewer Culvert 1	0	20-Apr-16	20-Apr-16	147					
Slope Feature - SSE-D/C16		0	20-Apr-16	20-Apr-16	222	<ul style="list-style-type: none"> ▼ Slope Feature - SSE-D/C16 ◆ Complete pier construction at Bridge H1e & G2a 				
SFW10620	Complete pier construction at Bridge H1e & G2a	0	20-Apr-16	20-Apr-16	222					
Slope Feature - SSE-D/C17		0	05-May-16	05-May-16	375	<ul style="list-style-type: none"> ▼ Slope Feature - SSE-D/C17 ◆ Complete of TP_F and TD1 Precast beam installation 				
SFW10740	Complete of TP_F and TD1 Precast beam installation	0	05-May-16	05-May-16	375					
Natural Terrain Hazard Mitigation Measures		168	13-Nov-14 A	27-Dec-14 A						
NTH Design Submission		17	27-Nov-14 A	08-Dec-14 A						
NTH10090	Engineer's comments	17	27-Nov-14 A	08-Dec-14 A						
Method Statement Submission and Approval		17	13-Nov-14 A	26-Nov-14 A						
NTH10010	Method statement submission for NTH	17	13-Nov-14 A	26-Nov-14 A						
Natural Terrain Hazard Mitigation Measures		110	20-Nov-14 A	27-Dec-14 A						
NTH10040	Haul road construction	30	20-Nov-14 A	26-Nov-14 A						
Boulders within Blasting Zone		80	27-Nov-14 A	27-Dec-14 A						
NTH10070	Mitigation measures for 20 boulders within blasting zone	80	27-Nov-14 A	27-Dec-14 A						
Vehicular Underpass TN-01		259	27-Oct-14 A	08-Nov-16	1121					
Stage 3		259	27-Oct-14 A	08-Nov-16	1121					
Blasting Related Submission		139	27-Oct-14 A	21-Sep-15 A						
Blasting Permit Application		72	27-Oct-14 A	03-Nov-14 A						
UDP30060	Review and Approval of CBAR by MinesD	72	27-Oct-14 A	03-Nov-14 A						
Blasting Protection Works		61	29-Jun-15 A	01-Aug-15 A						
UDP30010	Procurement and Delivery of Materials for Blasting Door	11	29-Jun-15 A	05-Jul-15 A						
UDP30020	Fabrication of Blasting Frames and Door	32	06-Jul-15 A	01-Aug-15 A						
Temporary Works Design Submission and Approval		72	07-Sep-15 A	21-Sep-15 A						
UDP30660	Temporary works design for working platform, rebar platform, and lining form	72	07-Sep-15 A	21-Sep-15 A						
Underpass Excavation from East Portal		87	08-Apr-15 A	14-Dec-15 A						
Preparation Works		36	30-Oct-15 A	30-Oct-15 A						
UDP30170	Site Set Up	15	30-Oct-15 A	30-Oct-15 A						
UDP30160	Mobilization	12	30-Oct-15 A	30-Oct-15 A						

█ Remaining Level of Effort
 █ Remaining Work
 ◆ ◆ M..
 █ Actual Work
 █ Critical Remaining Work
 ▼ S...

CRBC - Kaden JV
Two-Month Rolling Programme

Date	Revision	Checked	Approved
20-Apr-16			

HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2016				
						Mar	Apr	May	Jun	Jul
Drill and Break CH534.9-CH490										
UDP30190	Install Canopy Supporting System and Tunnel Face Support	7	08-Apr-15 A	22-Jun-15 A						
Trial Blasts CH490-CH489										
UDP30230	CH490-489 Trial Blast	5	12-Oct-15 A	14-Oct-15 A						
Drill and Blast CH489-CH312										
UDP30240	CH489-CH481 Drill and Blast method (2.0m penetration length/2.0days)	8	16-Oct-15 A	22-Oct-15 A						
UDP30250	CH481-CH439 Drill and Blast method (2.0m penetration length/2.0days)	42	24-Oct-15 A	21-Nov-15 A						
UDP30260	CH439-CH399 Drill and Blast method (2.5m penetration length/2.0days)	32	23-Nov-15 A	14-Dec-15 A						
Underpass Excavation from West Portal										
Preparation Works										
UDP30320	Mobilization	12	04-Mar-15 A	10-Mar-15 A						
UDP30330	Install Supporting System	45	04-Mar-15 A	10-Mar-15 A						
Drill and Break - CH310-312										
UDP30350	CH310-312 Probing and drill and break	30	05-Oct-15 A	24-Oct-15 A						
UDP30355	Blasting door installation	20	26-Oct-15 A	30-Oct-15 A						
Lining Works and Road Works										
Water Proofing and Lining Works										
UDP4090	Erection of Waterproofing Platform(West Portal)	28	03-May-16	07-Jun-16	108					
Type A										
Water Proofing and Kicker										
CH 310-CH327										
UDP4100	Bench Waterproofing works(CH310-CH327.6)(Type A)	10	03-May-16	13-May-16	94					
UDP4110	Kicker pouring(CH310-CH327.6)(Type A)	14	17-May-16	02-Jun-16	94					
CH 450-CH503										
UDP4140	Bench Waterproofing works(CH450-CH503)(Type A)	18	03-Jun-16	25-Jun-16	94					
Lining										
CH 310-CH327										
UDP4160	Pouring Type A Lining CH312-CH327	7	08-Jun-16	17-Jun-16	108					
UDP4170	Erection of rebar fixing platform for west bulkhead wall	7	18-Jun-16	25-Jun-16	268					
Type B										
Water Proofing and Kicker										
UDP4000	Bench waterproofing works and Kick pouring	49	11-Mar-16 A	08-Nov-16	122					
Type C										
UDP4130	Base slab waterproofing and re-bar fixing(Type C) CH503-CH534.9	70	03-May-16	02-Aug-16	205					
Road and Drainage Work ,Utilities Works at for Lung Fu Road Roundabout										
Section 3										
Utilites installation ,road and drainage works (TTA stage 0-1)										
LFR10070	PCCW	15	07-Apr-16 A	03-May-16	0					
LFR10080	Hutchison Global Communication Cable	15	07-Apr-16 A	10-May-16	0					
LFR10090	Hong Kong Boaroband Network	15	04-May-16	24-May-16	0					
LFR10100	Wharf T&T Duct and Joint Box	15	18-May-16	06-Jun-16	0					
LFR10050	Drainage works	40	25-Jan-16 A	11-Jun-16	94					
LFR10060	DN100,300,700	21	25-Jan-16 A	13-Jun-16	94					
LFR10110	New World Telecom	15	30-May-16	20-Jun-16	0					
LFR10120	Town Gas	15	13-Jun-16	04-Jul-16	0					
Utilites installation ,road and drainage works for East Portal										
EPA1000	Rock Cutting	88	20-Apr-16	12-Aug-16	322					
Sewage, Irrigation and Road& Drainage Works										
SAI10060	Sewage, irrigation and road&drainage works -G2-north side	70	04-Jan-16 A	05-Feb-18	230					
SAI10070	Sewage, irrigation and road&drainage works- G2-south side	70	14-Jan-16 A	05-Feb-18	230					

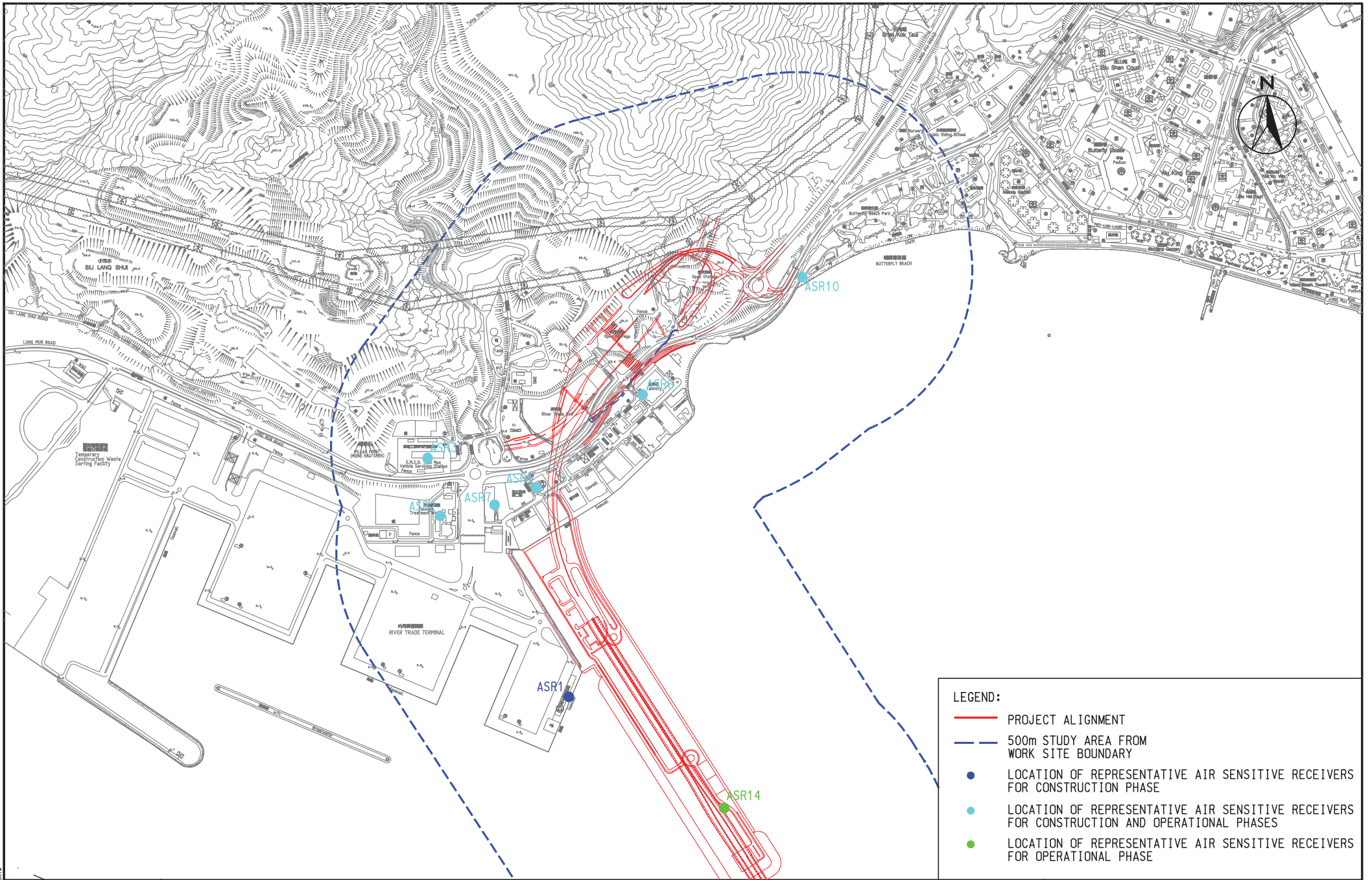
█ Remaining Level of Effort
 █ Remaining Work
 █ Actual Work
 █ Critical Remaining Work
 ◆ ◆ M..
 ▼ ▼ S...

CRBC - Kaden JV
Two-Month Rolling Programme

Date	Revision	Checked	Approved
20-Apr-16			

Appendix E

Monitoring Locations / Sensitive Receivers for the Contract

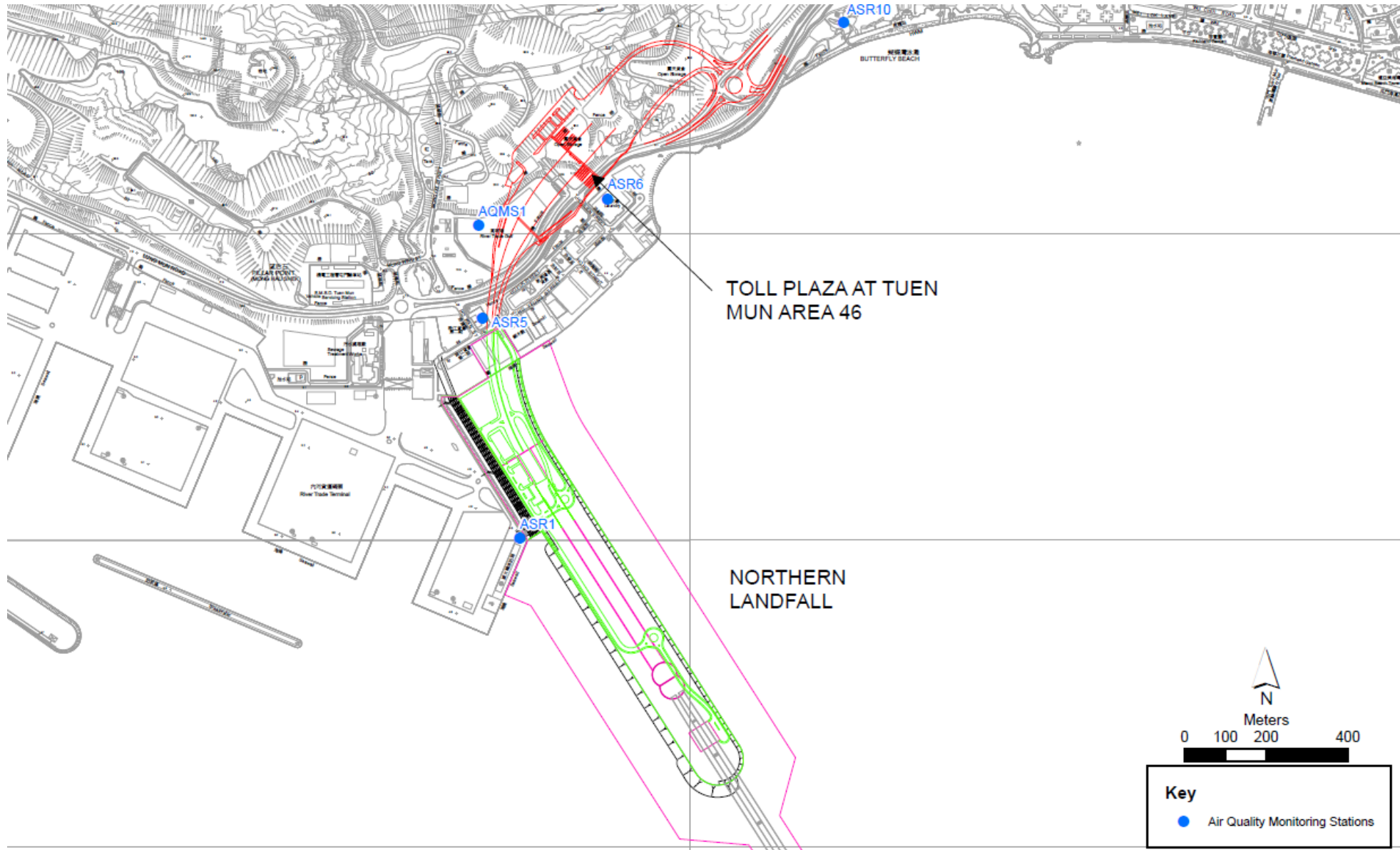


LEGEND:

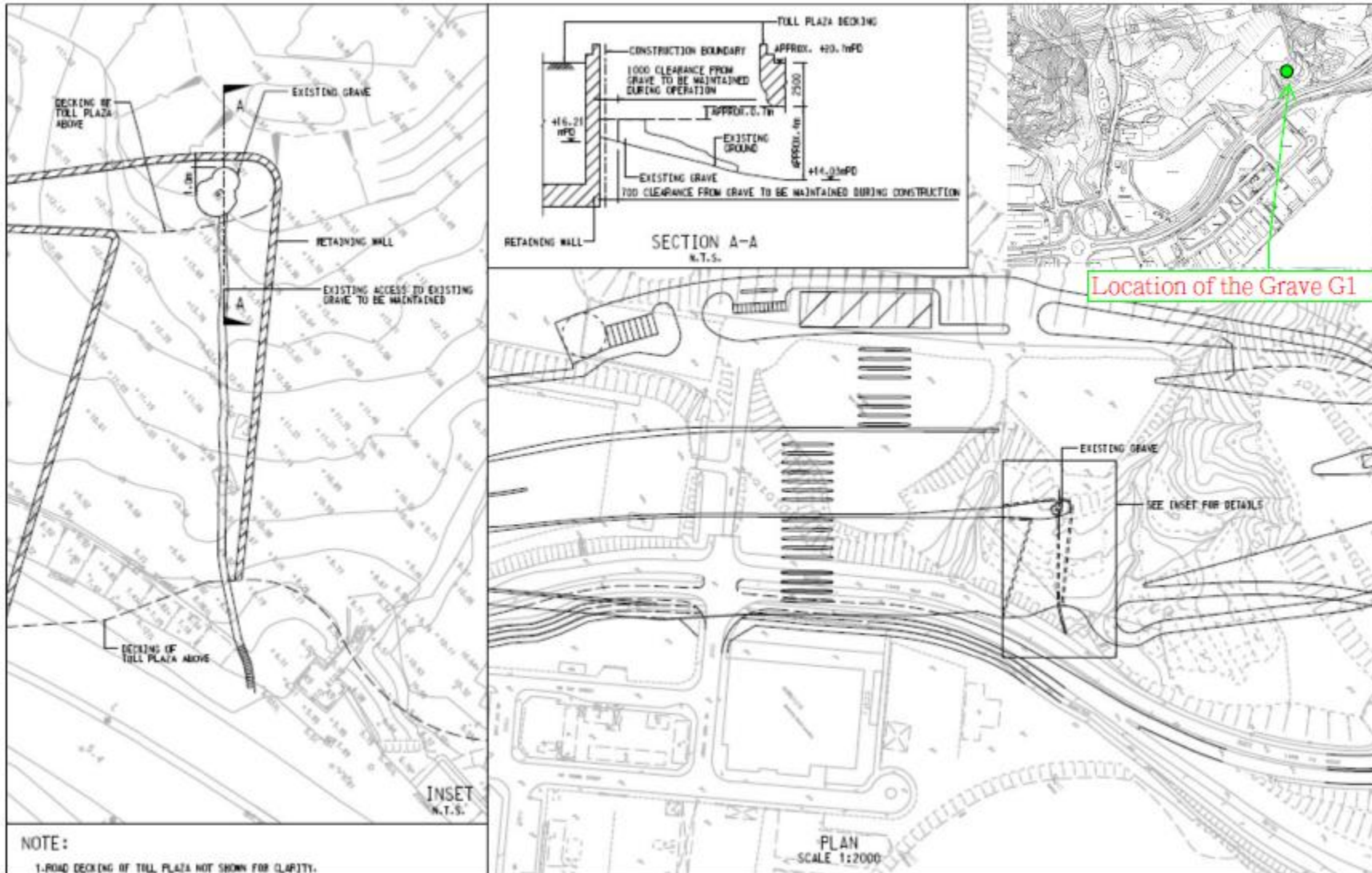
- PROJECT ALIGNMENT
- - - 500m STUDY AREA FROM WORK SITE BOUNDARY
- LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS FOR CONSTRUCTION PHASE
- LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS FOR CONSTRUCTION AND OPERATIONAL PHASES
- LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS FOR OPERATIONAL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






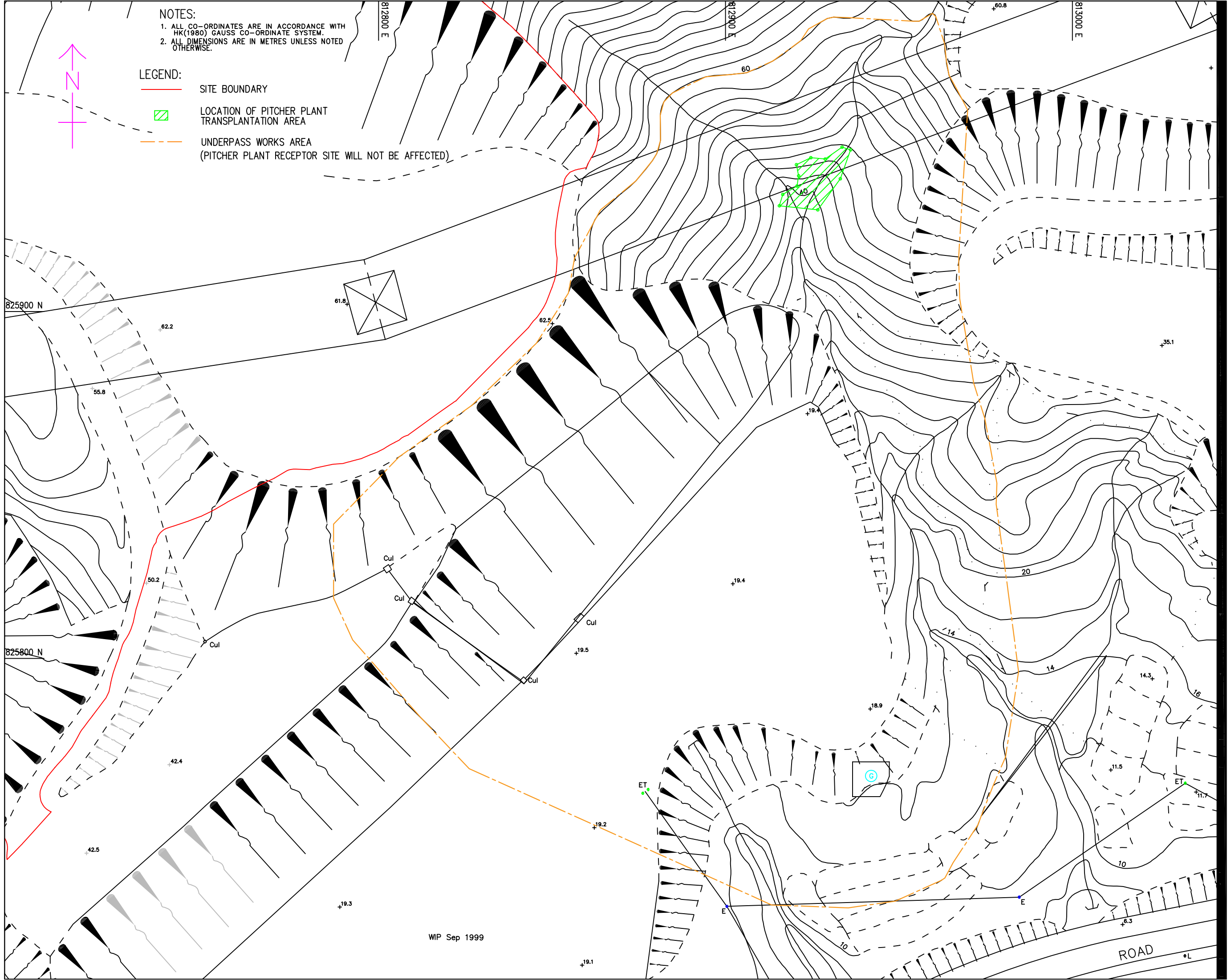
Location of the Grave G1

NOTES:
1. ALL CO-ORDINATES ARE IN ACCORDANCE WITH HK(1980) GAUSS CO-ORDINATE SYSTEM.
2. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.

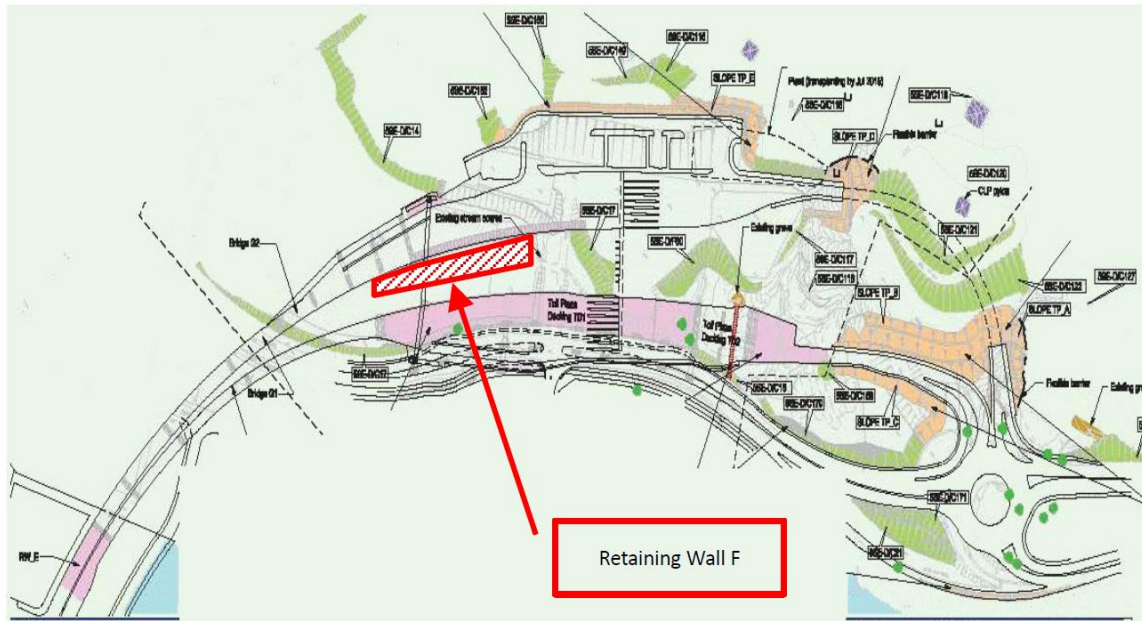


LEGEND:

-  SITE BOUNDARY
-  LOCATION OF PITCHER PLANT TRANSPLANTATION AREA
-  UNDERPASS WORKS AREA
(PITCHER PLANT RECEPTOR SITE WILL NOT BE AFFECTED)



Retaining Wall F



Location of the Retaining Wall F

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	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.	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.	1 Confirm receipt of notification of failure in writing. 2 Notify the Contractor. 3 Ensure remedial measures properly implemented.	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	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.	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.	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.	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

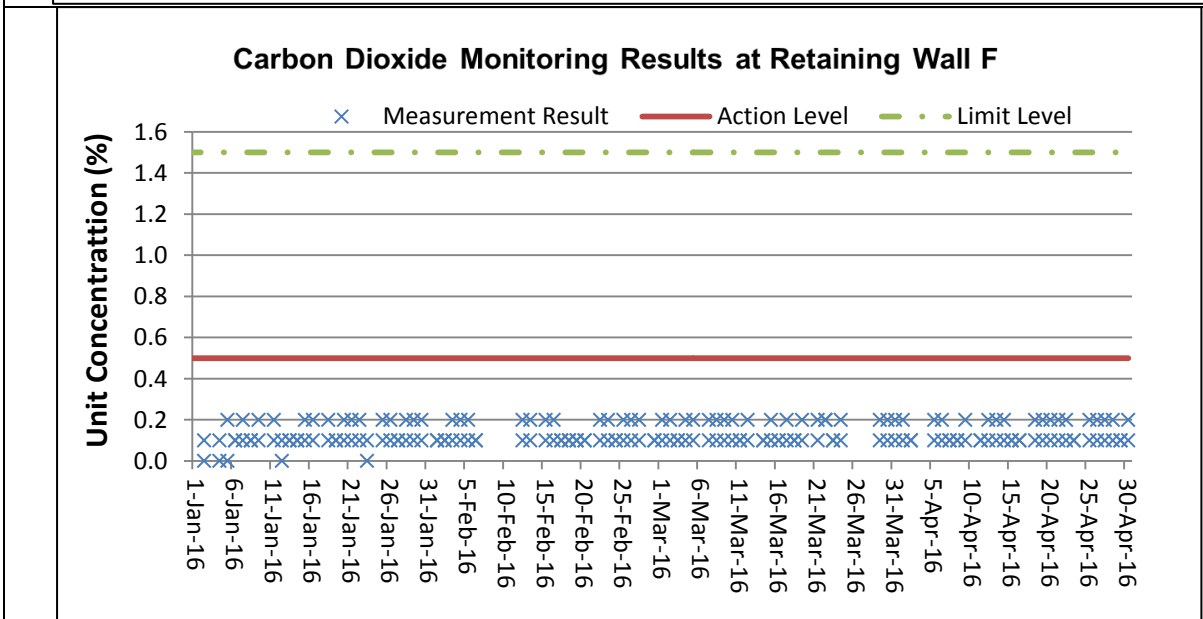
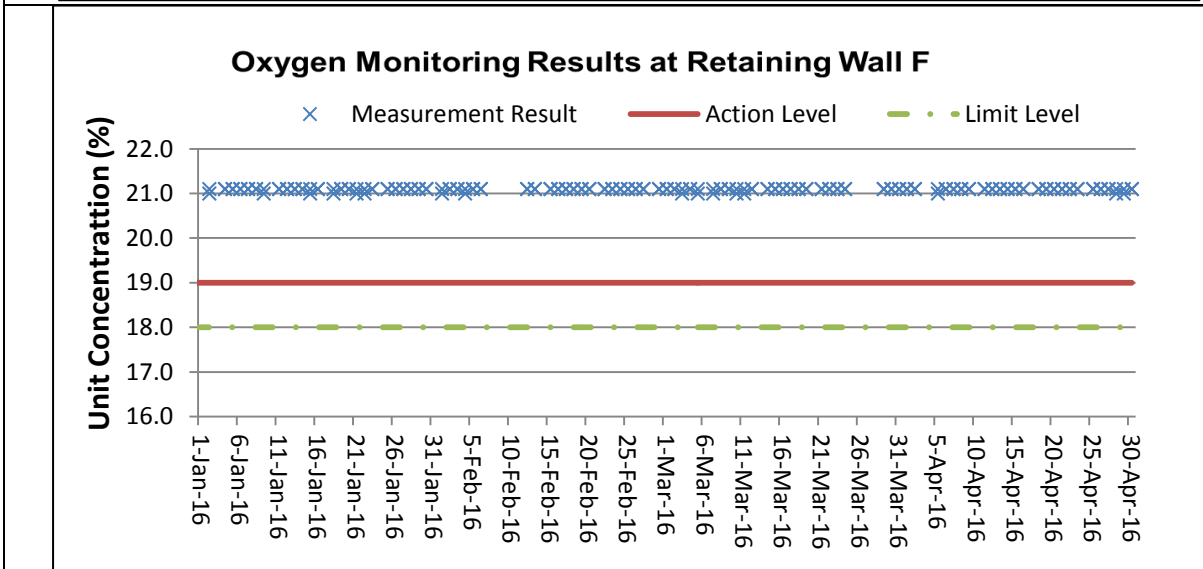
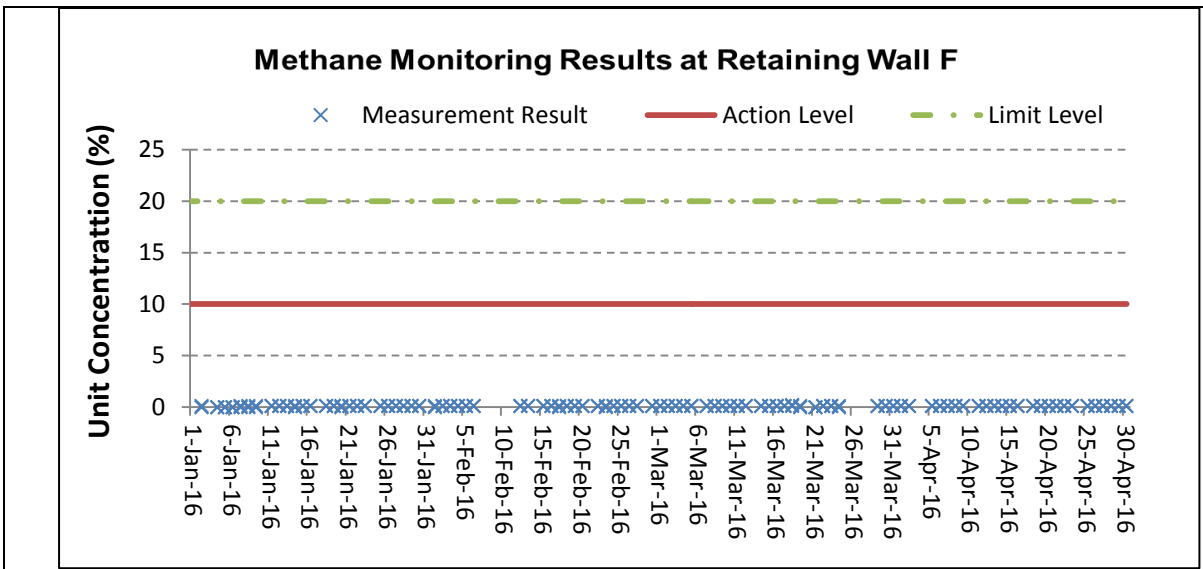
Note: ET – Environmental Specialist, IC(E) – Independent Checker (Environmental), ER – Engineer's Representative

Actions in the Event of Landfill Gas being Detected in Excavation / Confined Area

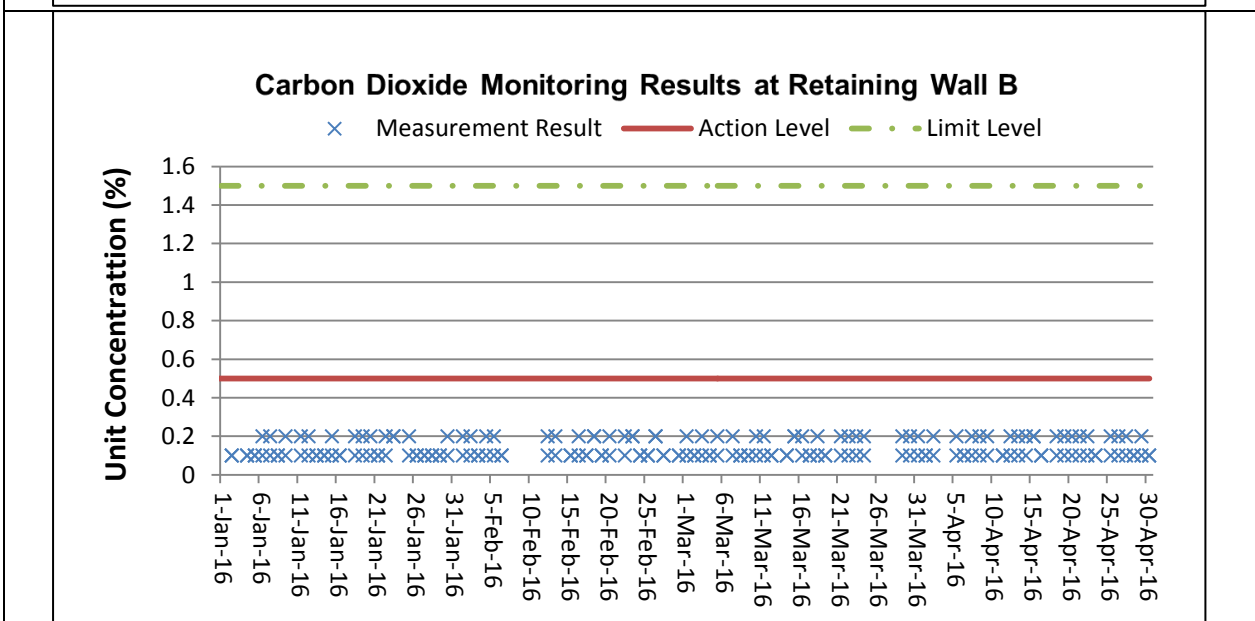
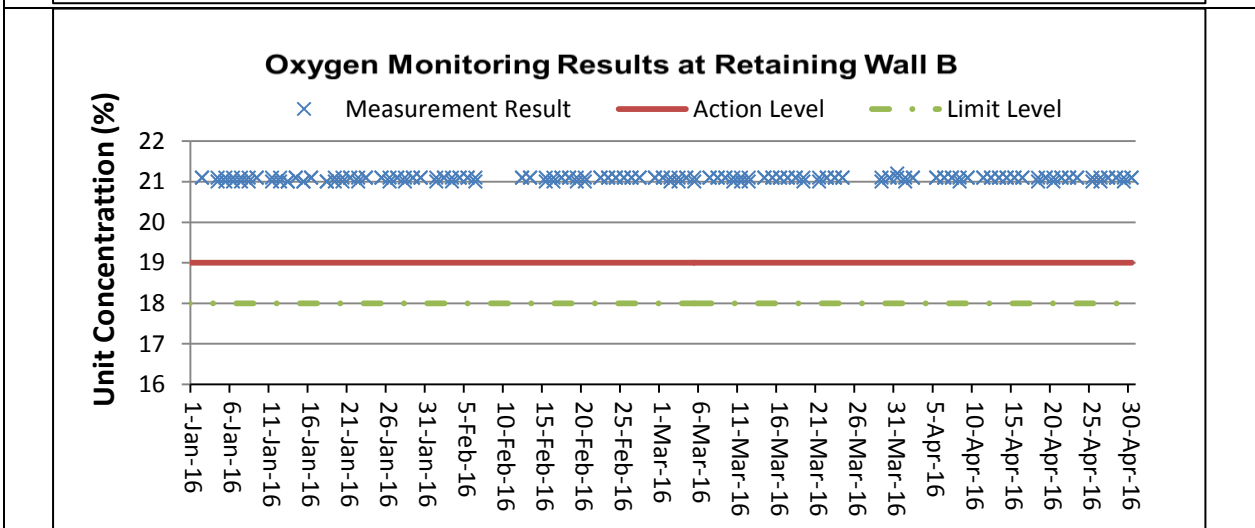
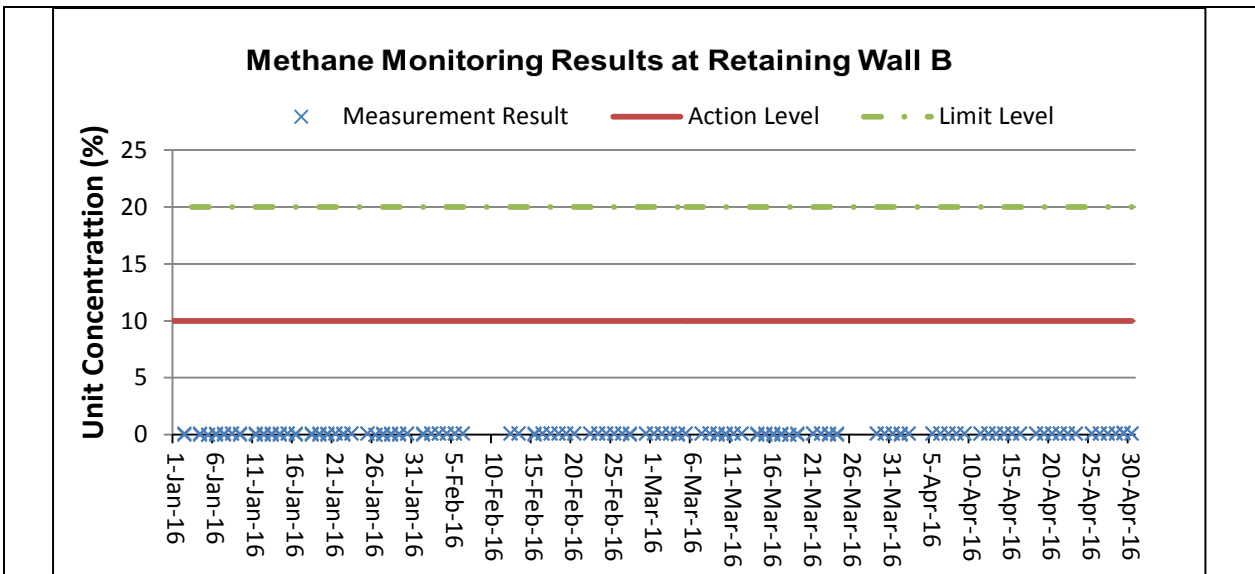
Parameter	Measurement	Action
Oxygen	< 19%	- Ventilate to restore oxygen to > 19%
	< 18%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to > 19%
Methane	> 10% LEL (> 0.5% v/v)	- Prohibit hot work - Ventilate to restore methane to < 10% LEL
	> 20% LEL (>1% v/v)	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 10%
Carbon Dioxide	> 0.5%	- Ventilate to restore oxygen to < 0.5%
	> 1.5%	- Stop work - Evacuate personnel / prohibit entry - Increase ventilation to restore to < 0.5%

Appendix G

Landfill Gas Monitoring Graphical Plots



Annotation:
 During 1 February to 30 April 2016, major construction activity was construction of retaining wall F and the specified works included excavation, rock breaking, 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 February to 30 April 2016, major construction activity was construction of retaining wall B and the specified works included excavation, rock breaking, 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

Waste Flow Table

Appendix A –Monthly Waste Flow Table

Monthly Summary Waste Flow Table for 2016 (year)

Month	Annual Quantities of Inert C&D Materials Generated Monthly						Annual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics & Rubber (see note 2)	Chemical Waste	Others (general refuse)
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	32.146	0.000	12.964	18.171	0.922	0	0.000	0.000	0.000	0.000	0.089
Feb	14.751	0.000	7.894	5.755	1.036	0	0.000	0.000	0.000	0.000	0.066
Mar	23.310	0.000	16.333	6.392	0.496	0	0.000	0.000	0.000	0.000	0.089
Apr	20.350	0.000	15.186	4.939	0.071	0	0.000	0.000	0.000	0.000	0.154
May											
June											
Sub-total	90.557	0.000	52.377	35.257	2.525	0.000	0.000	0.000	0.000	0.000	0.398
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	90.557	0.000	52.377	35.257	2.525	0.000	0.000	0.000	0.000	0.000	0.398

Notes:

- 1 The waste flow table shall also include C&D materials that are specified in the contract to be imported for use at the Site.
- 2 Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- 3 Broken concrete for recycling into aggregates.

Appendix I

Implementation Schedule for Environmental Mitigation Measures

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**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