AUES JOB NO.: TCS00715/14

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

7TH MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT – MAY 2015

PREPARED FOR
CRBC AND KADEN JOINT VENTURE

Date	Reference No.	Prepared By	Certified By
11 June 2015	TCS00715/14/600/R00100v2	Nicola Hon (Environmental Consultant)	T.W. Tam (Environmental Team Leader)

ENVIRON

Ref.: HYDHZMBEEM00_0_3040L.15 11 June 2015

AECOM By Fax (2293 6300) and By Post
Supervising Officer Representative's Office
No. 8 Mong Fat Street, Tuen Mun,
New Territories, Hong Kong

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
Monthly EM&A report for May 2015 (EP-354/2009/D)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report (May 2015) certified by the ET Leader (AUES reference: TCS00715/14/600/R00100v2 dated 11 June 2015) provided to us via e-mail on 11 June 2015.

We have no adverse comment on the captioned monthly EM&A report. We write to verify the captioned submission in accordance with Condition 4.4 of EP-354/2009/D.

Thank you for your kind 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)
HyD – Mr. Matthew Fung (By Fax: 3188 6614)
AECOM – Mr. Conrad Ng (By Fax: 3922 9797)
AUES – Mr. T. W. Tam (By Fax: 2959 6079)
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EXECUTIVE SUMMARY

ES01 This is the **7th** Monthly EM&A Report presenting the monitoring results and inspection findings for the period from **1 to 31 May 2015** (hereinafter 'the Reporting Period').

SUMMARY OF EM&A ACTIVITIES FOR THE REPORTING PERIOD

ES02 The EM&A activities conducted in the Reporting Period are summary in below:-

- 24-hours TSP of Air Quality Monitoring **– 50 events**
- 1-hour TSP of Air Quality Monitoring – **150 events**
- Cultural heritage Inspection – **4 events**
- Landfill Gas Monitoring **– 24 days**
- Landscape & Visual Monitoring – **4 events**
- Environmental Site Inspection – **4 events**

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES03 In the Reporting Period, no exceedances of 1-hour and 24-hour TSP were recorded according to the measurement results by the ET of Contract HY/2012/08. The summary of breach of air quality 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

ES04 No noise complaints were received in the Reporting Period.

ES05 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.

ES06 Site inspection for landscape and visual was conducted on weekly basis by the Landscape Architect to ensure the compliance with the intended aims of the mitigation measures. Most of the landscape works such as planting was not yet commenced.

SITE INSPECTION

ES07 In the Reporting Period, joint site inspection by the RE, ET and the Contractor was carried out on 5th, 12th, 19th and 26th May 2015 and the IEC has attended the joint site inspection on 26th May 2015. No non-compliance was observed during the site inspection.

ES08 Inspection for Pitcher Plants of ecology and grave of culture heritage were also carried out during the weekly site inspection.

ENVIRONMENTAL COMPLAINT

ES09 No environmental complaints were received in the Reporting Period. The statistical summary of environmental complaints is summarized in the following table.

Reporting Period	Environmental Complaint Statistics	
	Frequency	Cumulative
Since project commencement	0	0
May 2015	0	0

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

REPORTING CHANGE

ES11 No reporting changes were made in the Reporting Period.

FUTURE KEY ISSUES

ES12 During wet season, muddy water or other water pollutants from site surface runoff into the public areas will be key environment issue. Water quality mitigation measures to prevent surface runoff into public areas should be paid on special attention.

ES13 Furthermore, air quality mitigation measures recommended in EMIS such as watering of site area for 12 times per day and covering of exposed slopes should be implemented to reduce construction dust impact.

ES14 It was reminded that good housekeeping practice should be maintained. Mosquito control measures should be properly implemented to prevent mosquito breeding on site.

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1 INTRODUCTION

1.1 CONTRACT BACKGROUND

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

1.1.2 The construction works of the Contract mainly include:-

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

1.1.3 This is **7th** monthly EM&A report presenting the monitoring results and inspection findings for period from **1** to **31 May 2015**.

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 and Environmental Submissions*
Section 3 *Summary of Impact Monitoring Requirements under the Contract*
Section 4 *Air Quality Monitoring*
Section 5 *Ecology Monitoring*
Section 6 *Cultural Heritage*
Section 7 *Landscape and Visual*
Section 8 *Landfill gas hazard Monitoring*
Section 9 *Waste Management*
Section 10 *Inspections and Audit*
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 AND ENVIRONMENTAL SUBMISSIONS

2.1 CONTRACT ORGANIZATION

2.1.1 The Contract organization and contact details of key personnel are shown in ***Appendix C***.

2.2 CONSTRUCTION PROGRESS

2.2.1 In the Reporting Period, the major construction activity conducted under the Contract is summarized in below. The two months rolling construction program of the Contract is enclosed in ***Appendix D***.

- Instrumentation and Monitoring
- Site Formation to Slope A, B, C, D, E, TP_F and Upgrading Works
- Toll Plaza Decking TD1, TD2
- Toll Plaza Footbridge-Section 1
- Retaining Structure RW_B-Section 1
- Bridge G1, G2,Bridge H1
- Culvert 1 (TBM) – Stage 4
- Vehicular Underpass TN-01
- Natural Terrain Hazard Mitigation Measures
- Site Clearance
- Tree Felling

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 The environmental submissions under the EP requirement had been submitted to the EPD and they are 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 environmental permits, licenses and notifications for the Contract is presented in ***Table 2-1***.

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

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	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	21-07-2014	7020460	01-08-2014	N/A
5	Permission to Transplant Pitcher Plant	02-12-2014	(7) in AF CON 11/13 pt.4	09-12-2014	08-06-2015
6	CNP for Multiple Task	05-12-2014	GW-RW0949-14	05-12-2014	04-05-2015
7	CNP for MH5	05-05-2015	GW-RW0226-15	18-05-2015	17-11-2015

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS UNDER THE CONTRACT

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 monitoring air quality shall cover the following parameters:

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

3.3 MONITORING LOCATION

3.3.1 The air quality monitoring stations for impact monitoring are listed in ***Table 3-1*** and illustrated in ***Appendix E.***

Table 3-1 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	**Northern Connection** During excavation works for launching shaft, excavation work for Cut and Cover Tunnel and Cut and Cover Tunnel Construction
	24-hour TSP	ASR1, ASR5, AQMS1, ASR6, ASR10	Daily every three days	

Condition	Monitoring Parameter	Monitoring Location	Frequency	Monitoring Requirement
				Toll Plaza During excavation, slope works, construction of road and superstructures and wind erosion from open sites and stockpiling areas **Tunnel Buildings** 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 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 in^2);
(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 (µg/m^3)		1-hour TSP (µg/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.

3.8 MONITORING SCHEDULE

3.8.1 The monitoring schedule for L&V and landfill gas for the present and next reporting period are presented in ***Appendix G***.

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 AIR QUALITY MONITORING RESULTS IN REPORTING PERIOD

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 (**May 2015**).

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 shall be conducted at least once every week to report the protection measure of the Pitcher Plants during construction period.

5.2 PITCHER PLANTS INSPECTION

5.2.1 In the Reporting Period, inspections for implementation status of mitigation measures for the Pitcher Plants were carried out by the ET on 5th, 12th, 19th and 26th May 2015. Trial transplantation of pitcher plant from the nursery site to final receptor site was carried out on 15 April 2015 and a total of 5% of pitcher plant was transplanted. Transplantation of remaining 95% was schedule on late July 2015 tentatively.

5.2.2 During weekly site inspection at the nursery zone, the transplanted Pitcher Plants were observed in fair to poor condition. No construction activities were conducted nearby the nursery zone and the Pitcher Plants were protected properly. Moreover, no repair or maintenance is required for the protected facilities such as scaffold structure and chain link fence.

5.2.3 Random checking was performed for the protected areas Zones 8, 9 and 10 during the weekly site inspections. The Pitcher Plants at the protected areas was protected properly and the growth also was in fair to poor condition. Moreover, no construction activities were carried out nearby the protected areas of Pitcher Plants. 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, Grave G1 of inspection was undertaken on 5th, 12th, 19th and 26th May 2015. Each inspection observed that buffer zone has maintained between the working area and the Grave. The nearby areas were cleanness and no construction materials or equipment was stored to nearby it.

6.2.2 Accordingly, the Contractor has had fully implemented cultural heritage mitigation measures in accordance with the EM&A Manual requirements.

7 LANDSCPAE 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 on **8th, 15th, 22nd and 29th May 2015** by the Registered Landscape Architect.

7.2.2 Most of the landscape works such as planting was not yet commenced. The detailed inspection checklists were provided in ***Appendix K***.

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 (SO) 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 advised by the SO, the gas analyser would be optimally calibrated by the self-test function to provide the most accurate result. The gas analyser is calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.

8.2 LANDFILL GAS MONITORING RESULT

8.2.1 In the Reporting Period, landfill gas monitoring was conducted at the construction of Retaining Walls B and F. Location of both Retaining Walls is illustrated in ***Appendix E***. A BIOGAS 5000 gas analysis was used for the landfill gas monitoring and the valid calibration certificate is presented in ***Appendix H***.

8.2.2 There were a total of ***24*** days monitoring were carried by the Safety Officer or an approved and qualified persons. The results of landfill gas measurement are summarized in ***Table 8-1***. Moreover, database of monitoring result and graphical plot are attached in ***Appendix I***.

Table 8-1 Summary of Landfill Gas Measurement Results

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%	0.2%
Oxygen	<19%	<18%	21.0%	21.2%	21.0%	21.2%
Carbon Dioxide	>0.5%	>1.5%	0%	0.2%	0%	0.2%

8.2.3 The measurement results shown that slightly methane concentration was detected and oxygen concentration measured was over 21.0 % and Carbon Dioxide was between 0 and 0.2 %. No exceedance was triggered and therefore no corrective action was required accordingly.

9 WASTE MANAGEMENT

9.1 GENERAL WASTE MANAGEMENT

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

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

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

9.2 RECORDS OF WASTE QUANTITIES

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

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

9.2.2 The quantities of wastes generated under the Contract in this Reporting Period are summarized in ***Tables 9-1*** and ***9-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix L***. Whenever possible, materials were reused on-site as far as practicable.

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

Type of Waste	Quantity	Disposal Location
Reused in this Contract (Inert) (`000m^3)	4.626	-
Reused in other Projects (Inert) (`000m^3)	18.857	HY/2012/08
Disposal as Public Fill (Inert) (`000m^3)	7.024	Tuen Mum Area 38

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

Type of Waste	Quantity	Disposal Location
Recycled Metal (`000kg)	0	-
Recycled Paper / Cardboard Packing (`000kg)	0	-
Recycled Plastic (`000kg)	0	-
Chemical Wastes (`000kg)	0	-
General Refuses (`000m^3)	0.04	WENT

10 INSPECTION AND AUDIT

10.1 SITE INSPECTION

10.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulated by ET Leader on weekly basis to confirm the environmental performance of the construction site.

Findings / Deficiencies During Reporting Period

10.1.2 In the Reporting Period, joint site inspections to evaluate site environmental performance were carried out by the RE, ET and the Contractor on 5th, 12th , 19th and 26th May 2015. No non-compliance was noted but **5** observations and **2** reminders were recorded during the ***4*** occasions of site inspection. Moreover, ENPO/IEC has attended joint site inspection on ***26 May 2015***.

10.1.3 The findings / deficiencies observed during the weekly site inspection in the Reporting Period are listed in ***Table 10-1***.

Table 10-1 Site Observations for the Contract

Date	Findings / Deficiencies	Follow-Up Status
5 May 2015	• Stagnant water cummlated inside the lifting eyes of conrete block was observed, the Contractor should fill the lifting eyes with sand to prevent mosquito breeding	• Lifting eyes were filled with sand to prevent stagnant water.
12 May 2015	• Turbid effluent was observed from the wastewater treatment facilities, the Contractor was reminded to clean the treatment facilities regularly to ensure the discharge complies with the discharge licenses standard. • Earth bund or sand bags should been erected at the surrounding of site boundary to ensure the surface run-off divert to de-silting facilities for treatment.	• The treatment facilities has been cleaned and no turbid discharge was observed from the site. • Sand bages were provided to divert the surface runoff.
19 May 2015	• Soil and mud was observed inside the u-channel, the Contractor should clean up the soil to prevent muddy water discharge from site. (MH5) • Stagnant water was cumulated on site after rainstorm, the Contractor was reminded to remove the stagnant water after rain to prevent mosquito breeding.	• Sand bags were provided and soil cummualted inside the u-channel was cleaned. • Not required for reminder.
26 May 2015	• Earth bund should be provided to divert the surface runoff to the de-silting facilities for treatment before discharge. (Portal X-2) • Earth bund should be provided to divert the surface runoff to the de-silting facilities for treatment before discharge. (Works area near Pillar Point Fire station) • Stagnant water was cumulated on site after rainstorm, the Contractor was reminded to remove the stagnant water after rain to prevent mosquito breeding.	• Earth bund was provided to divert the surface runoff. • To be followed. • Not required for reminder.

10.1.4 No outstanding deficiency was remained to be rectified in previous Reporting Period.

Table 10-2 Outstanding Items in Site Inspection of previous Reporting Period

Date	Findings / Deficiencies	Follow-Up Status
--	• NA	• NA

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

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

10.1.7 Moreover, good practice for daily housekeeping is reminded. In addition, clean-up of the waste skips and wastewater treatment system should be increased to ensure these facilities functional and effective.

10.1.8 Stagnant water should be removed as soon as possible after rain to prevent mosquito breeding on site.

11 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

11.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

11.1.1 In the Reporting Period, no environmental complaint, summons and prosecution was received For the Contract. Moreover, no exceedance of the environmental performance limit (Action and Limit Levels) was recorded for air quality monitoring. The statistical summary table of environmental exceedance, complaint, summons and prosecution are 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 Month	Previous Months	Cumulative
May 2015	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		
			Air	Noise	Water
May 2015	0	0	NA	NA	NA

Table 11-3 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
May 2015	0	0	NA	NA	NA

Table 11-4 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
May 2015	0	0	NA	NA	NA

11.1.2 In the Reporting Period, no warning letter related to environmental issue was received from the EPD or CEDD.

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 M***.

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 M***.

Table 12-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Air Quality	• 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	• 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	• Wire fencing provided for temporary protect Pitcher Plants • Undertake weekly inspection of Pitcher Plants
Landfill Gas Hazard	• Landfill Gas measurement undertake during trench excavation
Water Quality	• Temporary drainage system provide for surface runoff prevent discharge to public area • Wastewater to be treated by sedimentation tank before discharge.
Noise	• 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	• 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	• The site was generally kept tidy and clean.

12.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

12.2.1 Construction activities as undertaken in the coming month for the Contract lists below:

- Instrumentation and Monitoring
- Site Formation to Slope A, B, C, D, E, TP_F and Upgrading Works
- Toll Plaza Decking TD1, TD2
- Toll Plaza Footbridge-Section 1
- Retaining Structure RW_B-Section 1
- Bridge G1, G2,Bridge H1
- Culvert 1 (TBM) – Stage 4
- Vehicular Underpass TN-01
- Natural Terrain Hazard Mitigation Measures

- Road and Drainage Work at Lung Fu Road Roundabout
- Site Clearance
- Tree Felling

12.3 KEY ENVIRONMENTAL ISSUES FOR THE COMING MONTH

12.3.1 Key environmental issues to be considered in the coming month include:

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Site effluent discharge to the nearby nullah is prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

13 CONCLUSIONS AND RECOMMENDATIONS

13.1 CONCLUSIONS

13.1.1 This is **7th** monthly EM&A report presenting the monitoring results and inspection findings for the period of **1** to **31 May 2015**.

13.1.2 No air quality monitoring including 1-hour and 24-hour TSP exceedance was recorded in the Reporting Period. Although air quality monitoring result complied with the performance criteria, the Contractor was reminded to fully implement the dust control measures.

13.1.3 In the Reporting Period, no noise complaint was received by RE, the Contractor, ENPO or HyD. No Action Level exceedances were therefore triggered and no NOE or the associated corrective actions were required.

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 Weekly site inspection and random checking respectively were performed for the transplanted Pitcher Plants in the nursery site and protected Zones 8 to 10. No construction activities were conducted nearby the nursery zone and the protected areas of Pitcher Plants. The growths of the transplanted pitcher plant and the Pitcher Plants as retained at the protected areas were in fair and normal. No repair or maintenance is required the scaffold structure or chain link fence.

13.1.6 Landfill gas monitoring was conducted at the construction of Retaining Walls B and F by the Safety Officer. The monitoring results shown no exceedances were triggered.

13.1.7 No documented a complaint, notification of summons or successful prosecution is received by the Contract.

13.1.8 Joint site inspection by the RE, ET and Contractor was carried out on 5th, 12th, 19th and 26th May 2015. Moreover, ENPO/IEC attended joint site inspection on 26 May 2015. No non-compliance was recorded during the site inspection, five (5) observations and two (2) reminders were recorded during site inspections.

13.1.9 For cultural heritage, the buffer zone between the working area and the Grave was observed and no construction material or equipment was stored nearby.

13.2 RECOMMENDATIONS

13.2.1 During wet season, muddy water or other water pollutants from site surface runoff into the public areas will be key environment issue. Water quality mitigation measures prevent surface runoff into the public areas should be paid on special attention.

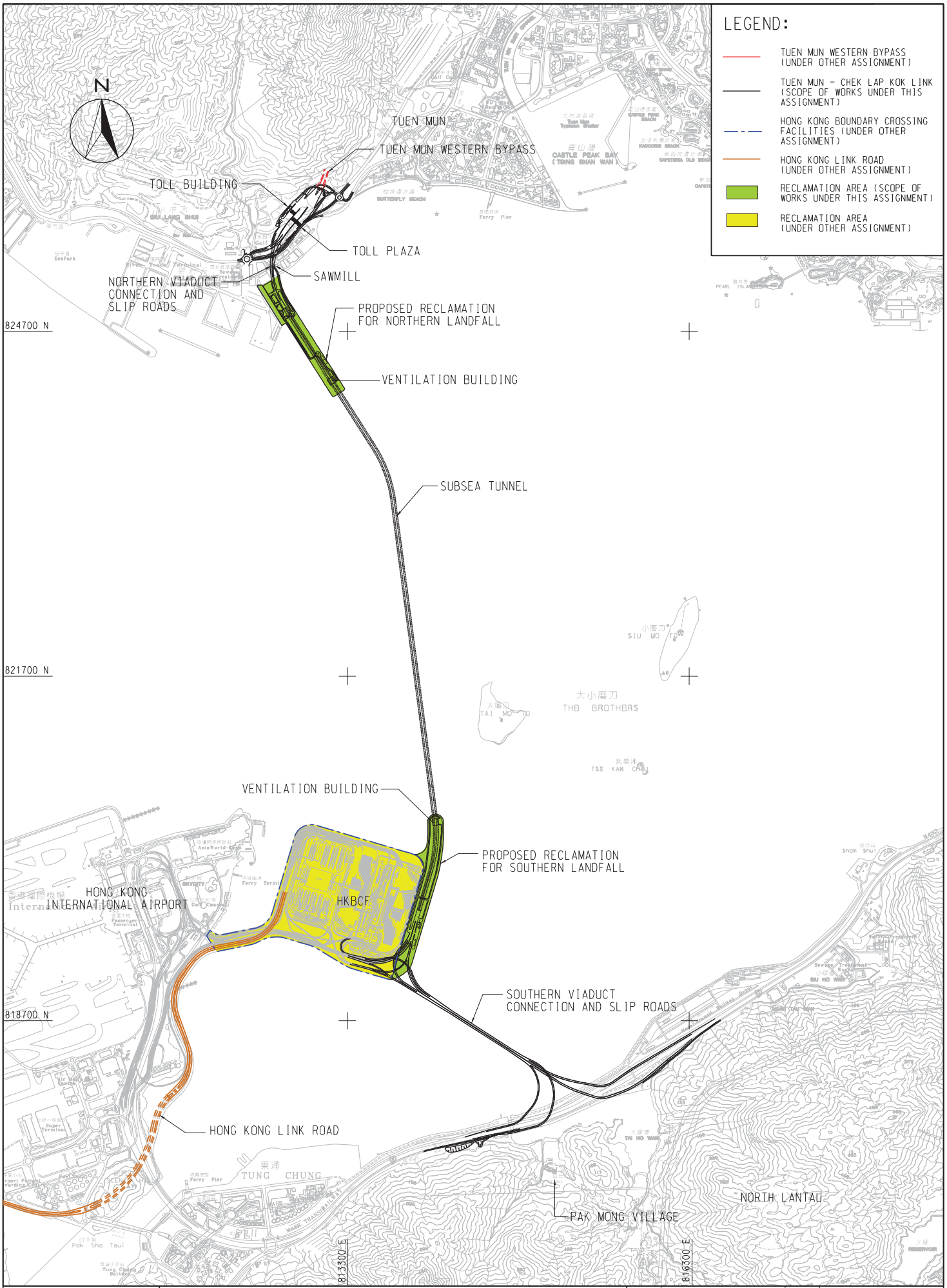
13.2.2 Furthermore, air quality mitigation measures such as watering of site area for 12 times per day and covering of exposed slopes should be implemented to reduce construction dust impact as recommended in the EMIS.

13.2.3 Moreover, good practice for daily housekeeping is reminded. In addition, clean-up of the waste skips and wastewater treatment system should be increased to ensure these facilities functional and effective.

13.2.4 Stagnant water should be removed as soon as possible after rain to prevent mosquito breeding on site.

Appendix A

Project Layout Plan



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

Plotting By: 2009-8-6 CHENCA
PLOT SCALE: 1:1

p:\PROJECTS\60044963\DRAWING\FIGURE\EIA REPORT\CH3\FIGURE 3-1.dgn

Appendix B

Layout Plan of the Contract

Project Management Initials: PI | Designer: | Checked: | ALCF Approved: | CWN | ISO A1 594mm x 841mm

CUT LINE A-A
SEE INSET 'A'
INSET 'A'
CUT LINE B-B
SEE SHEET NO. 60240249/C3/1052
EXISTING FOOTPATHS EXCLUDED FROM LIMIT OF SITE BOUNDARY
BOUNDARY OF PILLAR POINT VALLEY LANDFILL CONSULTATION ZONE
EXISTING GRAVE EXCLUDED FROM LIMIT OF SITE BOUNDARY
EXISTING GRAVE
CLP OVERHEAD CABLE PYLON
UNDERPASS
TOLL BOOTH
TOLL CONTROL BUILDING (BY OTHERS)
TOLL COLLECTOR SUBWAY
BOUNDARY OF PORTION FOLLOWS THE EDGE OF SEAWALL
826200 N
826300 N
826000 N
825800 N
812800 E
813000 E
813200 E
N
蝴蝶灣 BUTTERFLY

LEGEND:

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

NOTES:

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

Plot File by: LXQ2 20140319
PATH: P:\Projects\60240249\DRAWING\CONTRACT\C31000IC3_1051.dgn

AECOM

PROJECT 項目

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE

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

CLIENT 業主

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

CONSULTANT 工程顧問公司

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ISSUE/REVISION 修訂

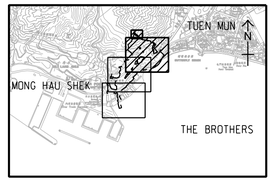
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核
			CWN
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS 階段

SCALE 比例
A1 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖 1 : 50000



PROJECT NO. 項目編號
60240249

CONTRACT NO. 合約編號
HY/2013/12

SHEET TITLE 圖紙名稱

PORTIONS OF SITE AND SITE BOUNDARY SETTING OUT PLAN

SHEET 1 OF 3

SHEET NUMBER 圖紙編號

60240249/C3/1051B

Project Management Initials: PI Designer: CWN Checked: ALCF Approved: CWN ISO A1 594mm x 841mm

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 B	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 B	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

812600 E 812800 E 813000 E 825800 N 825600 N

CUT LINE B-B
SEE SHEET NO. 60240249/C3/1051

CUT LINE D-D
SEE SHEET NO. 60240249/C3/1053

TOLL BOOTH

TOLL CONTROL BUILDING (BY OTHERS)

TOLL COLLECTOR SUBWAY

TOLL BOOTH B

EXISTING GRAVE

ALONG THE EDGE OF SEAWALL

FOOTBRIDGE WITH PASSENGER LIFT

BOUNDARY OF PILLAR POINT VALLEY LANDFILL CONSULTATION ZONE

BOUNDARY OF PORTION FOLLOWS THE OUTER EDGE OF U-CHANNEL

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

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

Plot File by: LUOMQ 2014/3/18
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AECOM

PROJECT 項目
TUEN MUN - CHEK LAP KOK LINK

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

CLIENT 業主
路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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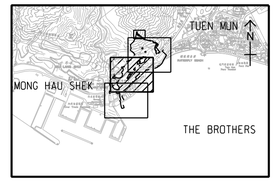
			CWN
			CWN
			CWN
B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS 階段

SCALE 比例
A1 1 : 1000

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN 索引圖引圖 1 : 50000



PROJECT NO. 項目編號
60240249

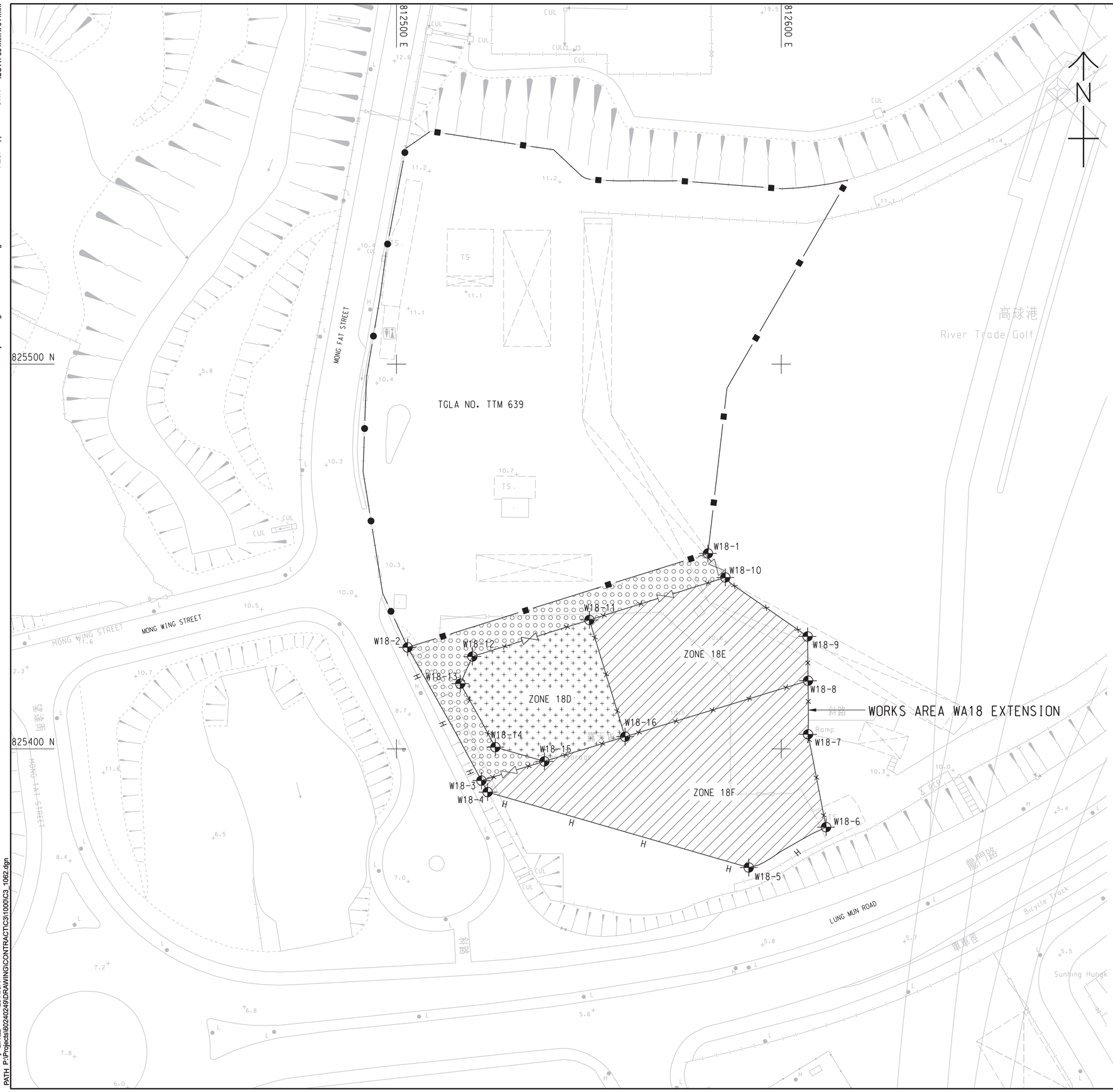
CONTRACT NO. 合約編號
HY/2013/12

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

SHEET 2 OF 3

SHEET NUMBER 圖紙編號
60240249/C3/1052B

Project Management Initials: PI | Designer: | Checked: ALCF | Approved: CWN | ISO A1 594mm x 841mm



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C3/1000.
2. DEMARCATION OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
3. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6110 AND H6111 FOR DETAILS OF HOARDING.
4. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
5. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
6. CHAIN LINK FENCE SHALL BE ERECTED 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.
7. THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE ENGINEER.
8. 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-TTM 639. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
9. 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.
10. THE COMMON AREA SHALL BE CONCRETE PAVED BY THE CONTRACTOR.
11. ZONE 18F SHALL BE USED FOR THE SITE ACCOMMODATION OF THE ENGINEER. ZONE 18E SHALL BE USED FOR SITE ACCOMMODATION OF THE CONTRACTOR.
12. 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 COMMENCMENT OF THE WORKS TO 126 DAYS FROM THE DATE FOR COMMENCMENT 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. B

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)
- H — HOARDING AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
- EXISTING CHAIN LINK FENCE MAINTAINED BY OTHERS
- CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
- EXISTING HOARDING AND GATE MAINTAINED BY OTHERS

SETTING OUT CO-ORDINATES OF WORKS AREA WA18 EXTENSION

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

AECOM

PROJECT 項目

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE

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

CLIENT 業主

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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B	MAR. 14	TENDER ADDENDUM NO. 2	CWN
A	FEB. 14	TENDER ADDENDUM NO. 1	CWN
-	JAN. 14	TENDER DRAWING	CWN

STATUS 階段

SCALE 比例 A1 1 : 500

DIMENSION UNIT 尺寸單位 METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號 60240249

CONTRACT NO. 合約編號 HY/2013/12

SHEET TITLE 圖紙名稱

WORKS AREA AND HOARDING PLAN

SHEET 2 OF 2

SHEET NUMBER 圖紙編號

60240249/C3/1062B

Plot File by: LIXQ2 2014/3/4
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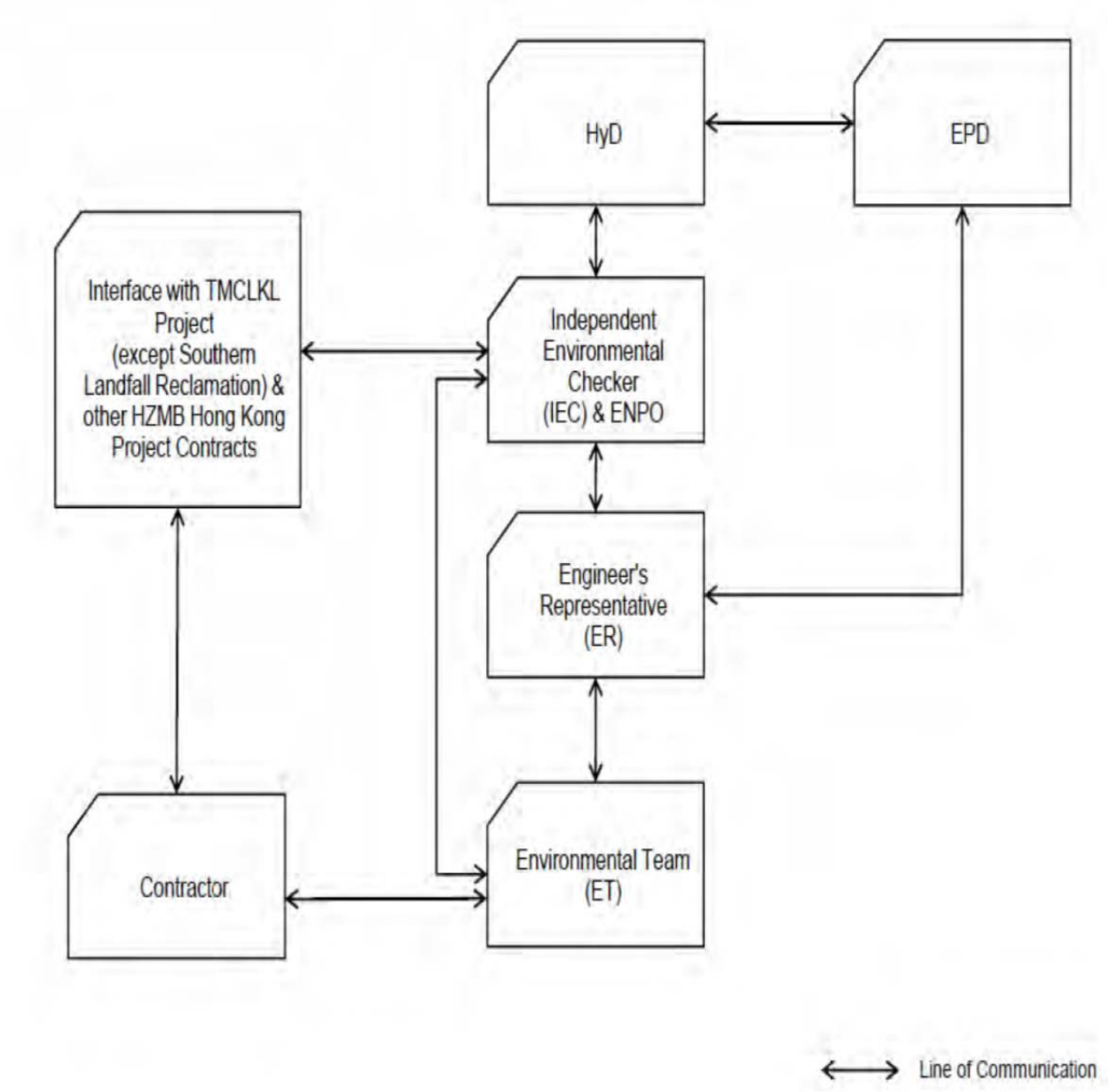
Appendix C

Organization of the Contract



Project Organization chart

Organization chart of the Contractor

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

Organization	Project Role	Name of Key Staff	Tel No	Fax No.
HyD	Employer	Mr. Stephen W.C. Chan	2762 3669	3188 6614
AECOM	Principal Resident Engineer	Mr. S.W. Fok	2218 7209	2218 7399
AECOM	Chief Resident Engineer	Mr. Roger Man	2218 7288	2218 7399
AECOM	Resident Engineer (S&E)	Mr. Kelvin Yeung	22187289	2218 7399
ENVIRON	Environmental Project Office (ENPO)	Mr. YH Hui	3547 2133	3465 2899
ENVIRON	Independent Environmental Checker (IEC)	Dr. FC Tsang	3547 2134	3465 2899
CKJV	Project Manager	Mr. Simon Tong	2253 8300	2253 8399
CKJV	Site Agent	Mr. John Wong	2253 8300	2253 8399
CKJV	Environmental Officer	Miss Ricci Poon	22733199	2375 3655
CKJV	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

ENVIRON (IEC and ENPO) – Environ Hong Kong Limited

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

HKL(RLA) – Hong Kong Landscape

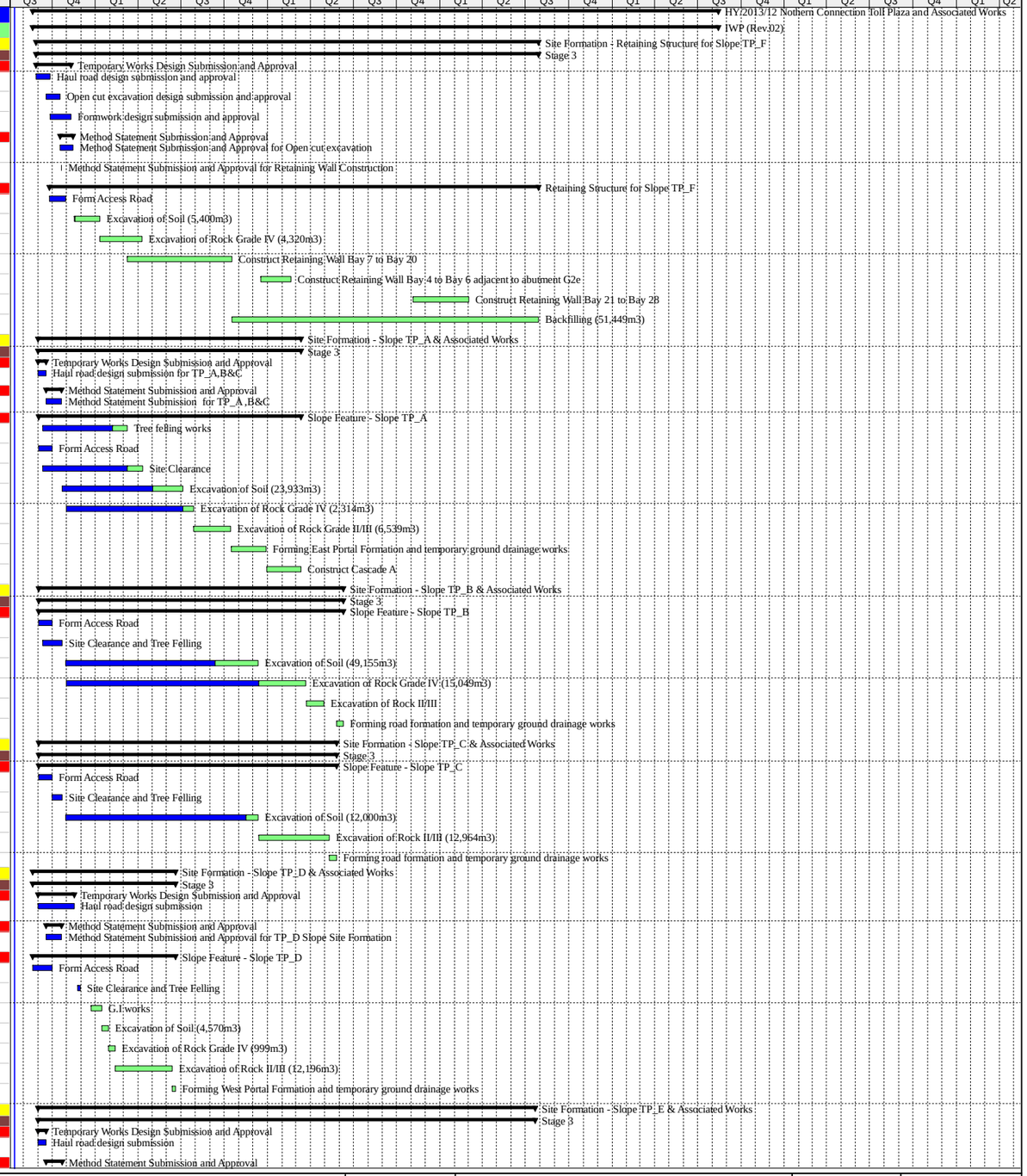
Appendix D

Master Construction Program and Two Months Roll Program

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

CRBC - KADEN Joint Venture

Activity ID	Activity Name	Original Duration	Planned Start	Actual Start	Planned Finish	Actual Finish
HY/2013/12 Nothern Connection Toll Plaza and Associated Works		1445	29-Aug-14	21-Aug-14	13-Aug-18	
IWP (Rev.02)		1445	29-Aug-14	21-Aug-14	13-Aug-18	
Site Formation - Retaining Structure for Slope TP_F		1064	29-Aug-14	29-Aug-14	29-Jul-17	
Stage 3		1064	29-Aug-14	29-Aug-14	29-Jul-17	
Temporary Works Design Submission and Approval		75	29-Aug-14	29-Aug-14	11-Nov-14	11-Nov-14
RWF11000	Haul road design submission and approval	30	29-Aug-14	29-Aug-14	27-Sep-14	27-Sep-14
RWF11050	Open cut excavation design submission and approval	30	18-Sep-14	18-Sep-14	18-Oct-14	18-Oct-14
RWF11100	Formwork design submission and approval	45	27-Sep-14	27-Sep-14	11-Nov-14	11-Nov-14
Method Statement Submission and Approval		32	18-Oct-14	18-Oct-14	18-Nov-14	15-Nov-14
RWF21000	Method Statement Submission and Approval for Open cut excavation	30	18-Oct-14	18-Oct-14	15-Nov-14	15-Nov-14
RWF21050	Method Statement Submission and Approval for Retaining Wall Construction	30	21-Oct-14	21-Oct-14	18-Nov-14	21-Oct-14
Retaining Structure for Slope TP_F		799	27-Sep-14	26-Sep-14	29-Jul-17	
RWF31000	Form Access Road	24	27-Sep-14	26-Sep-14	30-Oct-14	30-Oct-14
RWF31050	Excavation of Soil (5,400m3)	43	18-Nov-14	17-Nov-14	10-Jan-15	
RWF31100	Excavation of Rock Grade IV (4,320m3)	70	10-Jan-15		10-Apr-15	
RWF31300	Construct Retaining Wall Bay 7 to Bay 20	168	09-Mar-15		17-Oct-15	
RWF31325	Construct Retaining Wall Bay 4 to Bay 6 adjacent to abutment G2e	50	17-Dec-15		20-Feb-16	
RWF31350	Construct Retaining Wall Bay 21 to Bay 28	96	04-Nov-16		03-Mar-17	
RWF31400	Backfilling (51,449m3)	504	17-Oct-15		29-Jul-17	
Site Formation - Slope TP_A & Associated Works		520	09-Oct-14	01-Sep-14	12-Mar-16	
Stage 3		520	09-Oct-14	01-Sep-14	12-Mar-16	
Temporary Works Design Submission and Approval		45	09-Oct-14	01-Sep-14	20-Nov-14	18-Sep-14
TPA11000	Haul road design submission for TP_A,B&C	45	09-Oct-14	01-Sep-14	20-Nov-14	18-Sep-14
Method Statement Submission and Approval		45	23-Oct-14	18-Sep-14	04-Dec-14	21-Oct-14
TPA21050	Method Statement Submission for TP_A ,B&C	45	23-Oct-14	18-Sep-14	04-Dec-14	21-Oct-14
Slope Feature - Slope TP_A		309	06-Feb-15	03-Sep-14	12-Mar-16	
TPA31030	Tree felling works	24	06-Feb-15	11-Sep-14	10-Mar-15	
TPA31040	Form Access Road	24	10-Mar-15	03-Sep-14	11-Apr-15	01-Oct-14
TPA31050	Site Clearance	24	11-Apr-15	11-Sep-14	13-May-15	
TPA31100	Excavation of Soil (23,933m3)	48	03-Jun-15	23-Oct-14	05-Aug-15	
TPA31150	Excavation of Rock Grade IV (2,314m3)	18	05-Aug-15	01-Nov-14	27-Aug-15	
TPA31200	Excavation of Rock Grade II/III (6,539m3)	60	29-Jul-15		14-Oct-15	
TPA31250	Forming East Portal Formation and temporary ground drainage works	60	16-Oct-15		29-Dec-15	
TPA31300	Construct Cascade A	60	30-Dec-15		12-Mar-16	
Site Formation - Slope TP_B & Associated Works		207	17-Sep-15	03-Sep-14	10-Jun-16	
Stage 3		207	17-Sep-15	03-Sep-14	10-Jun-16	
Slope Feature - Slope TP_B		207	17-Sep-15	03-Sep-14	10-Jun-16	
TPB31000	Form Access Road	24	17-Sep-15	03-Sep-14	19-Oct-15	01-Oct-14
TPB31050	Site Clearance and Tree Felling	24	20-Oct-15	11-Sep-14	18-Nov-15	23-Oct-14
TPB31100	Excavation of Soil (49,155m3)	72	19-Nov-15	30-Oct-14	17-Feb-16	
TPB31150	Excavation of Rock Grade IV (15,049m3)	80	18-Feb-16	01-Nov-14	01-Jun-16	
TPB31210	Excavation of Rock II/III	28	23-Mar-16		29-Apr-16	
TPB31260	Forming road formation and temporary ground drainage works	11	26-May-16		10-Jun-16	
Site Formation - Slope TP_C & Associated Works		195	17-Sep-15	03-Sep-14	26-May-16	
Stage 3		195	17-Sep-15	03-Sep-14	26-May-16	
Slope Feature - Slope TP_C		195	17-Sep-15	03-Sep-14	26-May-16	
TPC31015	Form Access Road	24	17-Sep-15	03-Sep-14	19-Oct-15	01-Oct-14
TPC31030	Site Clearance and Tree Felling	24	20-Oct-15	02-Oct-14	18-Nov-15	23-Oct-14
TPC31060	Excavation of Soil (12,000m3)	24	18-Jan-16	30-Oct-14	17-Feb-16	
TPC31100	Excavation of Rock II/III (12,964m3)	115	14-Dec-15		11-May-16	
TPC31160	Forming road formation and temporary ground drainage works	11	11-May-16		26-May-16	
Site Formation - Slope TP_D & Associated Works		284	08-Sep-14	21-Aug-14	19-Jun-15	
Stage 3		284	08-Sep-14	21-Aug-14	19-Jun-15	
Temporary Works Design Submission and Approval		30	08-Sep-14	01-Sep-14	09-Oct-14	18-Nov-14
TPD21000	Haul road design submission	30	08-Sep-14	01-Sep-14	09-Oct-14	18-Nov-14
Method Statement Submission and Approval		30	23-Sep-14	18-Sep-14	23-Oct-14	21-Oct-14
TPD11050	Method Statement Submission and Approval for TP_D Slope Site Formation	30	23-Sep-14	18-Sep-14	23-Oct-14	21-Oct-14
Slope Feature - Slope TP_D		220	08-Sep-14	21-Aug-14	19-Jun-15	
TPD31000	Form Access Road	24	08-Sep-14	21-Aug-14	11-Oct-14	01-Oct-14
TPD31025	Site Clearance and Tree Felling	24	24-Nov-14	24-Nov-14	22-Dec-14	30-Nov-14
TPD31035	G.I works	17	22-Dec-14		14-Jan-15	
TPD31100	Excavation of Soil (4,570m3)	12	14-Jan-15		28-Jan-15	
TPD31150	Excavation of Rock Grade IV (999m3)	12	28-Jan-15		11-Feb-15	
TPD31200	Excavation of Rock II/III (12,196m3)	92	11-Feb-15		13-Jun-15	
TPD31250	Forming West Portal Formation and temporary ground drainage works	4	13-Jun-15		19-Jun-15	
Site Formation - Slope TP_E & Associated Works		1047	08-Sep-14	01-Sep-14	21-Jul-17	
Stage 3		1047	08-Sep-14	01-Sep-14	21-Jul-17	
Temporary Works Design Submission and Approval		30	08-Sep-14	01-Sep-14	09-Oct-14	18-Sep-14
TPE11000	Haul road design submission	30	08-Sep-14	01-Sep-14	09-Oct-14	18-Sep-14
Method Statement Submission and Approval		45	23-Sep-14	18-Sep-14	06-Nov-14	23-Oct-14



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

CRBC - Kaden JV

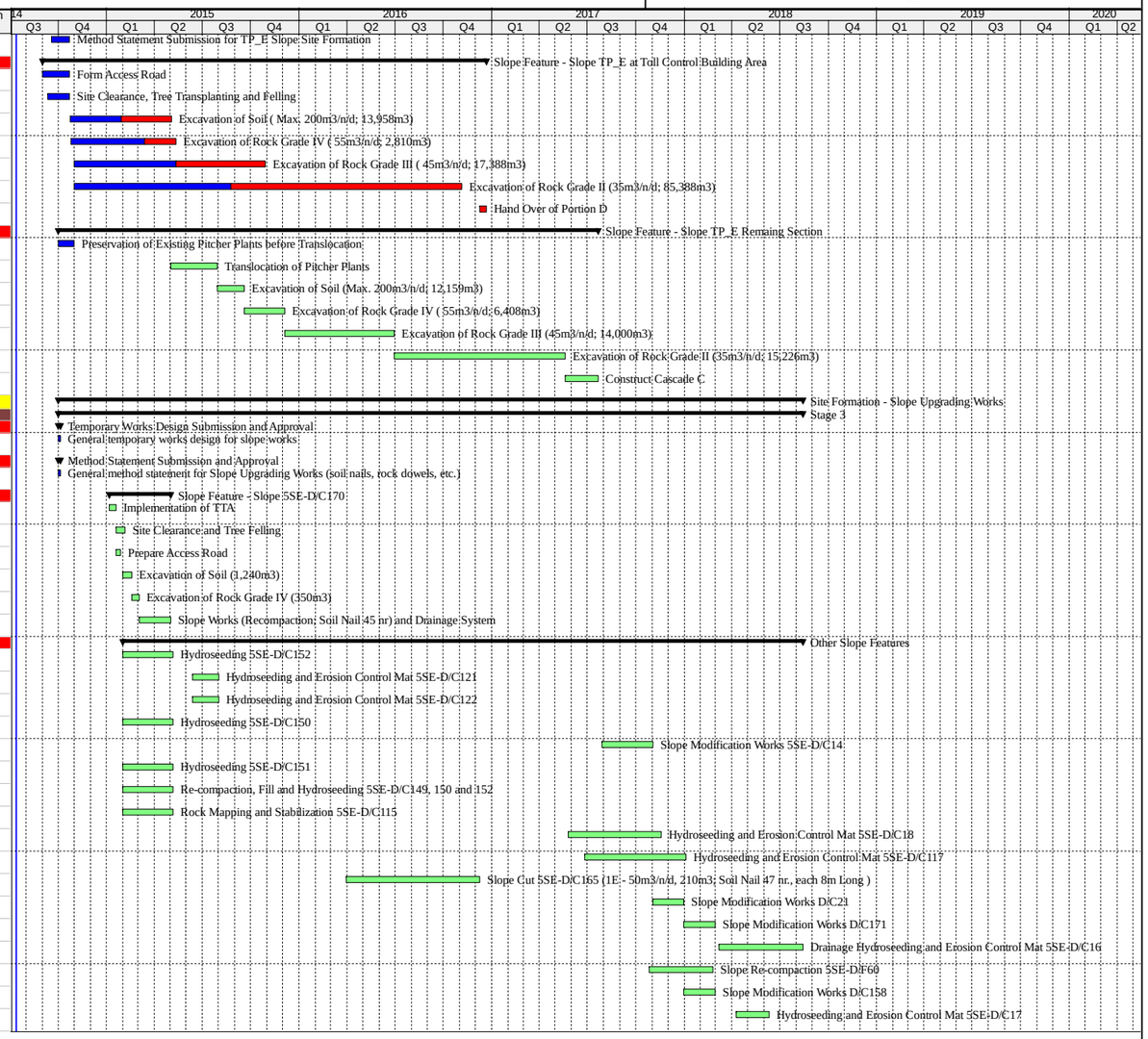
Programme &Progress

Date	Revision	Checked	Approved
30-Nov-14	Draft		

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

CRBC - KADEN Joint Venture

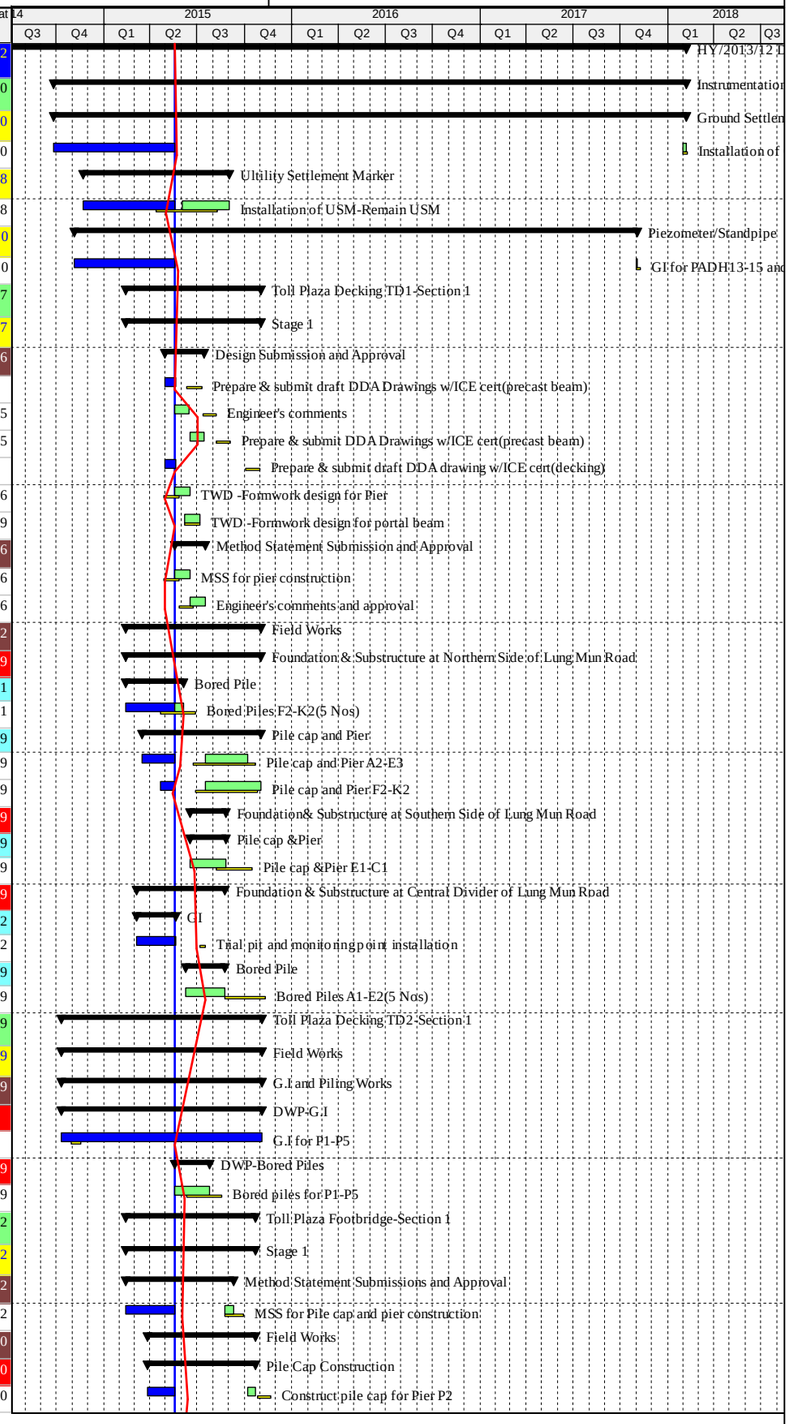
Activity ID	Activity Name	Original Duration	Planned Start	Actual Start	Planned Finish	Actual Finish
TPE21000	Method Statement Submission for TP_E Slope Site Formation	45	23-Sep-14	18-Sep-14	06-Nov-14	23-Oct-14
Slope Feature - Slope TP_E at Toll Control Building Area		804	09-Oct-14	01-Sep-14	21-Dec-16	
TPE31000	Form Access Road	72	09-Oct-14	01-Sep-14	07-Jan-15	23-Oct-14
TPE31050	Site Clearance, Tree Transplanting and Felling	72	11-Nov-14	12-Sep-14	06-Feb-15	23-Oct-14
TPE31100	Excavation of Soil (Max. 200m3/n/d; 13,958m3)	72	28-Jan-15	24-Oct-14	04-May-15	
TPE31150	Excavation of Rock Grade IV (55m3/n/d; 2,810m3)	44	13-Mar-15	25-Oct-14	12-May-15	
TPE31200	Excavation of Rock Grade III (45m3/n/d; 17,388m3)	129	12-May-15	31-Oct-14	29-Oct-15	
TPE31250	Excavation of Rock Grade II (35m3/n/d; 85,388m3)	337	24-Aug-15	01-Nov-14	04-Nov-16	
TPE31300	Hand Over of Portion D	13	08-Dec-16		21-Dec-16	
Slope Feature - Slope TP_E Remaing Section		779	18-Oct-14	02-Oct-14	21-Jul-17	
TPE41000	Preservation of Existing Pitcher Plants before Translocation	154	18-Oct-14	02-Oct-14	02-May-15	31-Oct-14
TPE41020	Translocation of Pitcher Plants	67	02-May-15		29-Jul-15	
TPE41100	Excavation of Soil (Max. 200m3/n/d; 12,159m3)	40	29-Jul-15		18-Sep-15	
TPE41150	Excavation of Rock Grade IV (55m3/n/d; 6,408m3)	60	18-Sep-15		04-Dec-15	
TPE41200	Excavation of Rock Grade III (45m3/n/d; 14,000m3)	160	04-Dec-15		29-Jun-16	
TPE41250	Excavation of Rock Grade II (35m3/n/d; 15,226m3)	250	29-Jun-16		19-May-17	
TPE41300	Construct Cascade C	48	19-May-17		21-Jul-17	
Site Formation - Slope Upgrading Works		1335	17-Dec-14	02-Oct-14	13-Aug-18	
Stage 3		1335	17-Dec-14	02-Oct-14	13-Aug-18	
Temporary Works Design Submission and Approval		30	17-Dec-14	02-Oct-14	17-Jan-15	06-Oct-14
SUW11000	General temporary works design for slope works	30	17-Dec-14	02-Oct-14	17-Jan-15	06-Oct-14
Method Statement Submission and Approval		45	17-Dec-14	02-Oct-14	31-Jan-15	06-Oct-14
SUW21000	General method statement for Slope Upgrading Works (soil nails, rock dowels, etc.)	45	17-Dec-14	02-Oct-14	31-Jan-15	06-Oct-14
Slope Feature - Slope 5SE-D/C170		117	06-Jan-15		02-May-15	
SUW31000	Implementation of TTA	14	06-Jan-15		19-Jan-15	
SUW31050	Site Clearance and Tree Felling	15	19-Jan-15		05-Feb-15	
SUW31100	Prepare Access Road	7	19-Jan-15		27-Jan-15	
SUW31150	Excavation of Soil (1,240m3)	14	31-Jan-15		17-Feb-15	
SUW31200	Excavation of Rock Grade IV (350m3)	9	17-Feb-15		03-Mar-15	
SUW31250	Slope Works (Recompaction; Soil Nail 45 nr) and Drainage System	45	03-Mar-15		02-May-15	
Other Slope Features		992	31-Jan-15		13-Aug-18	
SUW41000	Hydroseeding 5SE-D/C152	72	31-Jan-15		07-May-15	
SUW42000	Hydroseeding and Erosion Control Mat 5SE-D/C121	36	13-Jun-15		01-Aug-15	
SUW43000	Hydroseeding and Erosion Control Mat 5SE-D/C122	36	13-Jun-15		01-Aug-15	
SUW45000	Hydroseeding 5SE-D/C150	72	31-Jan-15		07-May-15	
SUW46000	Slope Modification Works 5SE-D/C14	72	29-Jul-17		02-Nov-17	
SUW47000	Hydroseeding 5SE-D/C151	72	31-Jan-15		07-May-15	
SUW47500	Re-compaction, Fill and Hydroseeding 5SE-D/C149, 150 and 152	72	31-Jan-15		07-May-15	
SUW48000	Rock Mapping and Stabilization 5SE-D/C115	72	31-Jan-15		07-May-15	
SUW49000	Hydroseeding and Erosion Control Mat 5SE-D/C18	136	25-May-17		18-Nov-17	
SUW50000	Hydroseeding and Erosion Control Mat 5SE-D/C117	148	26-Jun-17		03-Jan-18	
SUW51000	Slope Cut 5SE-D/C165 (1E - 50m3/n/d, 210m3; Soil Nail 47 nr., each 8m Long)	196	30-Mar-16		09-Dec-16	
SUW52000	Slope Modification Works D/C21	48	02-Nov-17		30-Dec-17	
SUW53000	Slope Modification Works D/C171	48	30-Dec-17		01-Mar-18	
SUW54000	Drainage Hydroseeding and Erosion Control Mat 5SE-D/C16	120	08-Mar-18		13-Aug-18	
SUW55000	Slope Re-compaction 5SE-D/F60	96	26-Oct-17		24-Feb-18	
SUW56000	Slope Modification Works D/C158	48	30-Dec-17		01-Mar-18	
SUW57000	Hydroseeding and Erosion Control Mat 5SE-D/C17	48	10-Apr-18		11-Jun-18	



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

CRBC - KADEN Joint Venture

Activity ID	Activity Name	Original Duration	Start	Actual Start	Finish	Actual Finish	Performance % Complete	Total Float
HY/2013/12 DWP Rev.3		1193	18-Feb-14 A	18-Feb-14	05-Feb-18		0%	302
Instrumentation and Monitoring		927	25-Sep-14 A	25-Sep-14	05-Feb-18		0%	230
Ground Settlement Marker		8	25-Sep-14 A	25-Sep-14	05-Feb-18		0%	230
IM10090	Installation of GSM11,GSM45-46(Outside site boundary)	8	25-Sep-14 A	25-Sep-14	05-Feb-18		45%	230
Ultility Settlement Marker		90	22-Nov-14 A	22-Nov-14	02-Sep-15		0%	218
IM60020	Installation of USM-Remain USM	90	22-Nov-14 A	22-Nov-14	02-Sep-15		20%	218
Piezometer/Standpipe		7	04-Nov-14 A	04-Nov-14	03-Nov-17		0%	110
IM50025	GI for PADH13-15 and installation piezometer	7	04-Nov-14 A	04-Nov-14	03-Nov-17		66%	110
Toll Plaza Decking TD1-Section 1		249	12-Feb-15 A	12-Feb-15	02-Nov-15		0%	367
Stage 1		249	12-Feb-15 A	12-Feb-15	02-Nov-15		0%	367
Design Submission and Approval		117	01-May-15 A	01-May-15	15-Jul-15		0%	366
TD120100	Prepare & submit draft DDA Drawings w/ICE cert(precast beam)	24	01-May-15 A	01-May-15	22-May-15 A	22-May-15	100%	
TD120110	Engineer's comments	23	20-May-15		16-Jun-15		0%	355
TD120120	Prepare & submit DDA Drawings w/ICE cert(precast beam)	23	17-Jun-15		15-Jul-15		0%	355
TD120140	Prepare & submit draft DDA drawing w/ICE cert(decking)	24	01-May-15 A	01-May-15	22-May-15 A	22-May-15	100%	
TD120180	TWD -Formwork design for Pier	24	20-May-15		17-Jun-15		0%	106
TD120190	TWD -Formwork design for portal beam	24	06-Jun-15		06-Jul-15		0%	149
Method Statement Submission and Approval		48	20-May-15		17-Jul-15		0%	106
TD120300	MSS for pier construction	24	20-May-15		17-Jun-15		0%	106
TD120310	Engineer's comments and approval	24	18-Jun-15		17-Jul-15		0%	106
Field Works		249	12-Feb-15 A	12-Feb-15	02-Nov-15		0%	122
Foundation & Substructure at Northern Side of Lung Mun Road		187	12-Feb-15 A	12-Feb-15	02-Nov-15		0%	99
Bored Pile		51	12-Feb-15 A	12-Feb-15	05-Jun-15		0%	61
TD120510	Bored Piles F2-K2(5 Nos)	51	12-Feb-15 A	12-Feb-15	05-Jun-15		75%	61
Pile cap and Pier		140	16-Mar-15 A	16-Mar-15	02-Nov-15		0%	99
TD120520	Pile cap and Pier A2-E3	91	16-Mar-15 A	16-Mar-15	08-Oct-15		30%	99
TD120530	Pile cap and Pier F2-K2	91	21-Apr-15 A	21-Apr-15	02-Nov-15		10%	99
Foundation& Substructure at Southern Side of Lung Mun Road		54	18-Jun-15		26-Aug-15		0%	149
Pile cap &Pier		54	18-Jun-15		26-Aug-15		0%	149
TD120630	Pile cap &Pier E1-C1	54	18-Jun-15		26-Aug-15		0%	149
Foundation & Substructure at Central Divider of Lung Mun Road		77	07-Mar-15 A	07-Mar-15	25-Aug-15		0%	79
GI		10	07-Mar-15 A	07-Mar-15	21-May-15		0%	72
TD121060	Trial pit and monitoringpoint installation	10	07-Mar-15 A	07-Mar-15	21-May-15		80%	72
Bored Pile		61	08-Jun-15		25-Aug-15		0%	59
TD121300	Bored Piles A1-E2(5 Nos)	61	08-Jun-15		25-Aug-15		0%	59
Toll Plaza Decking TD2-Section 1		86	10-Oct-14 A	10-Oct-14	04-Nov-15		0%	19
Field Works		86	10-Oct-14 A	10-Oct-14	04-Nov-15		0%	19
G.I and Piling Works		86	10-Oct-14 A	10-Oct-14	04-Nov-15		0%	19
DWP-G.I		16	10-Oct-14 A	10-Oct-14	04-Nov-15 A	04-Nov-15	0%	
TD220380	G.I for P1-P5	16	10-Oct-14 A	10-Oct-14	04-Nov-15 A	04-Nov-15	0%	
DWP-Bored Piles		51	20-May-15		25-Jul-15		0%	19
TD220470	Bored piles for P1-P5	51	20-May-15		25-Jul-15		0%	19
Toll Plaza Footbridge-Section 1		72	13-Feb-15 A	13-Feb-15	22-Oct-15		0%	552
Stage 1		72	13-Feb-15 A	13-Feb-15	22-Oct-15		0%	552
Method Statement Submissions and Approval		30	13-Feb-15 A	13-Feb-15	10-Sep-15		0%	152
TFB1060	MSS for Pile cap and pier construction	30	13-Feb-15 A	13-Feb-15	10-Sep-15		50%	152
Field Works		20	28-Mar-15 A	28-Mar-15	22-Oct-15		0%	430
Pile Cap Construction		20	28-Mar-15 A	28-Mar-15	22-Oct-15		0%	430
TFB1240	Construct pile cap for Pier P2	20	28-Mar-15 A	28-Mar-15	22-Oct-15		50%	430



Remaining Level of Effort | Remaining Work | Summary
Primary Baseline | Critical Remaining Work
Actual Work | Milestone

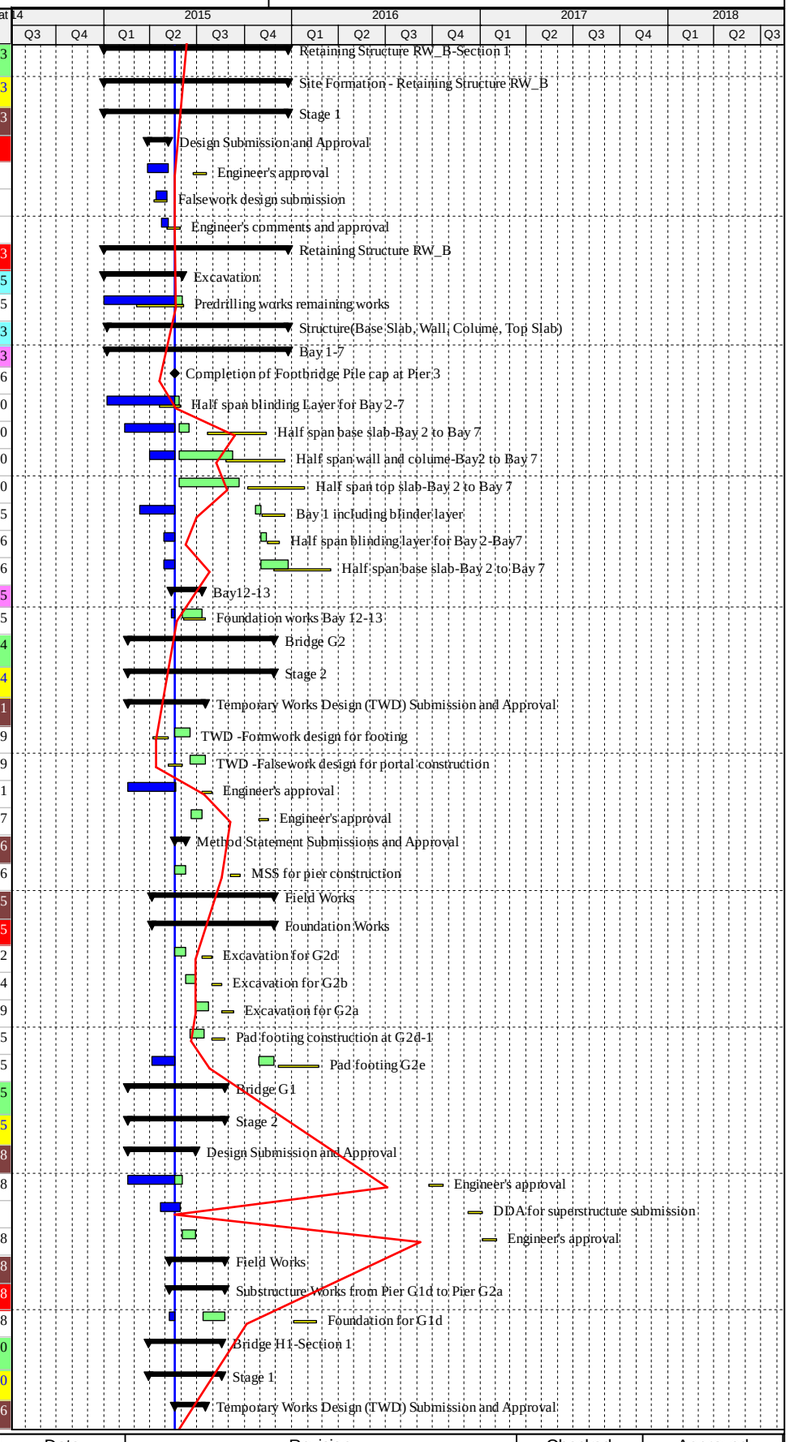
CRBC - Kaden JV
2 Months Rolling Programme Report Update 20-May-15

Date	Revision	Checked	Approved
20-May-15	3		

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

CRBC - KADEN Joint Venture

Activity ID	Activity Name	Original Duration	Start	Actual Start	Finish	Actual Finish	Performance % Complete	Total Float
Retaining Structure RW_B-Section 1		358	01-Jan-15 A	01-Jan-15	24-Dec-15		0%	323
Site Formation - Retaining Structure RW_B		358	01-Jan-15 A	01-Jan-15	24-Dec-15		0%	323
Stage 1		358	01-Jan-15 A	01-Jan-15	24-Dec-15		0%	323
Design Submission and Approval		60	27-Mar-15 A	27-Mar-15	06-May-15 A	06-May-15	0%	
RWB10340	Engineer's approval	21	27-Mar-15 A	27-Mar-15	06-May-15 A	06-May-15	100%	
RWB10390	Falsework design submission	21	13-Apr-15 A	13-Apr-15	04-May-15 A	04-May-15	100%	
RWB10400	Engineer's comments and approval	21	24-Apr-15 A	24-Apr-15	06-May-15 A	06-May-15	100%	
Retaining Structure RW_B		358	01-Jan-15 A	01-Jan-15	24-Dec-15		0%	323
Excavation		68	01-Jan-15 A	01-Jan-15	03-Jun-15		0%	215
RWB10530	Predrilling works remaining works	68	01-Jan-15 A	01-Jan-15	03-Jun-15		84%	215
Structure(Base Slab, Wall, Colume, Top Slab)		358	08-Jan-15 A	08-Jan-15	24-Dec-15		0%	323
Bay 1-7		358	08-Jan-15 A	08-Jan-15	24-Dec-15		0%	323
RWB10010	Completion of Footbridge Pile cap at Pier 3	0	20-May-15*				0%	206
RWB10028	Half span blinding Layer for Bay 2-7	30	08-Jan-15 A	08-Jan-15	27-May-15		83.3%	160
RWB10030	Half span base slab-Bay 2 to Bay 7	90	10-Feb-15 A	10-Feb-15	16-Jun-15		83.3%	160
RWB10040	Half span wall and colume-Bay2 to Bay 7	90	01-Apr-15 A	01-Apr-15	09-Sep-15		10%	160
RWB10050	Half span top slab-Bay 2 to Bay 7	90	27-May-15		21-Sep-15		0%	160
RWB10060	Bay 1 including blinder layer	40	13-Mar-15 A	13-Mar-15	02-Nov-15		80%	255
RWB10070	Half span blinding layer for Bay 2-Bay7	20	28-Apr-15 A	28-Apr-15	13-Nov-15		50%	246
RWB10080	Half span base slab-Bay 2 to Bay 7	90	29-Apr-15 A	29-Apr-15	24-Dec-15		50%	246
Bay12-13		32	12-May-15 A	12-May-15	11-Jul-15		0%	215
RWB10160	Foundation works Bay 12-13	32	12-May-15 A	12-May-15	11-Jul-15		10%	215
Bridge G2		207	18-Feb-15 A	18-Feb-15	27-Nov-15		0%	214
Stage 2		207	18-Feb-15 A	18-Feb-15	27-Nov-15		0%	214
Temporary Works Design (TWD) Submission and Approval		150	18-Feb-15 A	18-Feb-15	17-Jul-15		0%	281
BG23180	TWD -Formwork design for footing	24	20-May-15		17-Jun-15		0%	49
BG23190	TWD -Falsework design for portal construction	24	18-Jun-15		17-Jul-15		0%	49
BG23580	Engineer's approval	17	18-Feb-15 A	18-Feb-15	21-May-15		90%	141
BG23620	Engineer's approval	17	19-Jun-15		11-Jul-15		0%	287
Method Statement Submissions and Approval		17	20-May-15		09-Jun-15		0%	126
BG23230	MSS for pier construction	17	20-May-15		09-Jun-15		0%	126
Field Works		161	04-Apr-15 A	04-Apr-15	27-Nov-15		0%	95
Foundation Works		161	04-Apr-15 A	04-Apr-15	27-Nov-15		0%	95
BG23300	Excavation for G2d	15	20-May-15		08-Jun-15		0%	62
BG23310	Excavation for G2b	15	09-Jun-15		27-Jun-15		0%	144
BG23320	Excavation for G2a	20	29-Jun-15		24-Jul-15		0%	169
BG23350	Pad footing construction at G2d-1	20	18-Jun-15		14-Jul-15		0%	55
BG23410	Pad footing G2e	60	04-Apr-15 A	04-Apr-15	27-Nov-15		60%	95
Bridge G1		510	18-Feb-15 A	18-Feb-15	24-Aug-15		0%	565
Stage 2		510	18-Feb-15 A	18-Feb-15	24-Aug-15		0%	565
Design Submission and Approval		415	18-Feb-15 A	18-Feb-15	27-Jun-15		0%	508
BG112260	Engineer's approval	21	18-Feb-15 A	18-Feb-15	02-Jun-15		50%	508
BG112290	DDA for superstructure submission	21	21-Apr-15 A	21-Apr-15	29-May-15 A	29-May-15	100%	
BG112300	Engineer's approval	21	02-Jun-15		27-Jun-15		0%	508
Field Works		35	09-May-15 A	09-May-15	24-Aug-15		0%	368
Substructure Works from Pier G1d to Pier G2a		35	09-May-15 A	09-May-15	24-Aug-15		0%	368
BG112060	Foundation for G1d	35	09-May-15 A	09-May-15	24-Aug-15		5%	368
Bridge H1-Section 1		101	30-Mar-15 A	30-Mar-15	19-Aug-15		0%	330
Stage 1		101	30-Mar-15 A	30-Mar-15	19-Aug-15		0%	330
Temporary Works Design (TWD) Submission and Approval		48	20-May-15		17-Jul-15		0%	266



Remaining Level of Effort
Primary Baseline
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CRBC - Kaden JV

2 Months Rolling Programme Report Update 20-May-15

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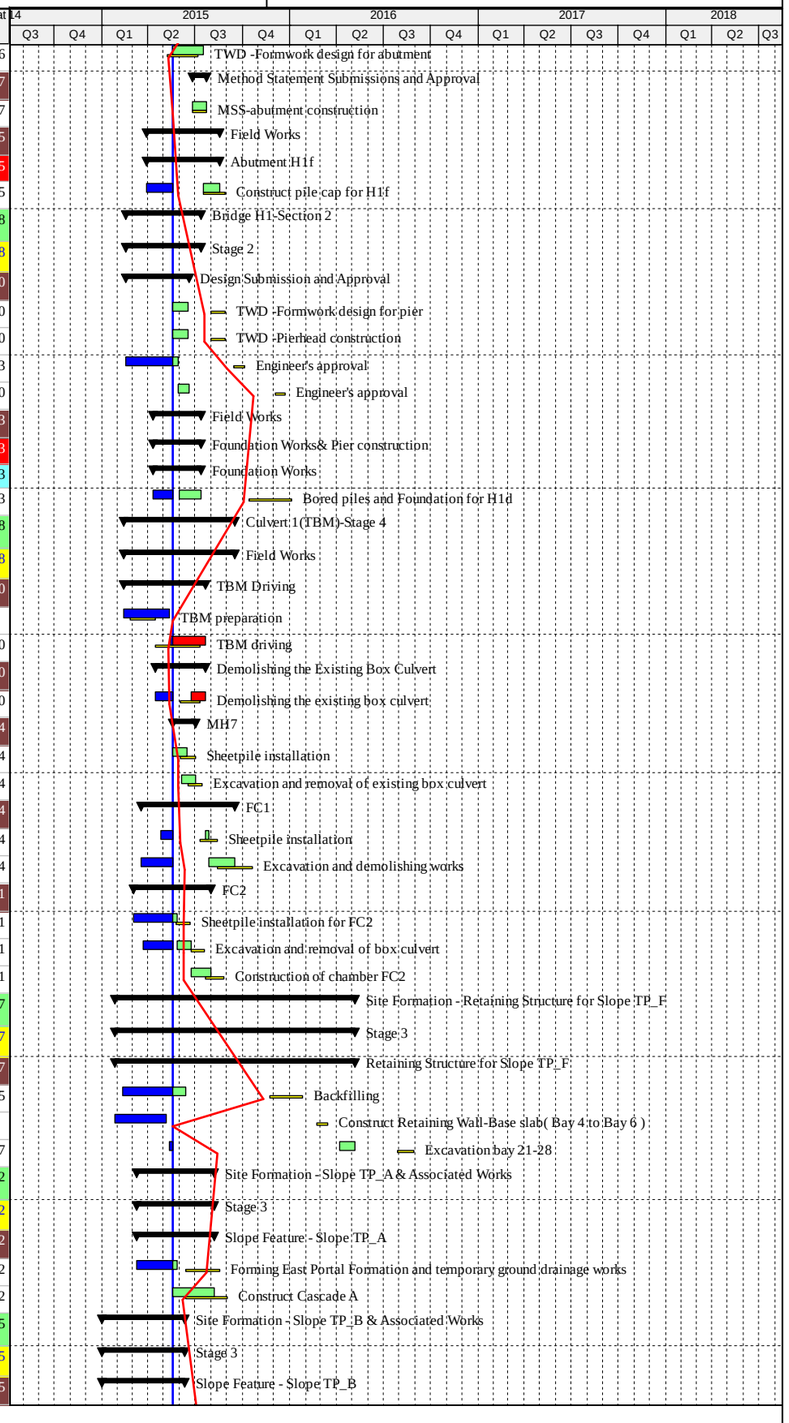
HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

CRBC - KADEN Joint Venture

Activity ID	Activity Name	Original Duration	Start	Actual Start	Finish	Actual Finish	Performance % Complete	Total Float
BH11020	TWD -Formwork design for abutment	48	20-May-15		17-Jul-15		0%	266
Method Statement Submissions and Approval		24	26-Jun-15		24-Jul-15		0%	287
BH11040	MSS-abutment construction	24	26-Jun-15		24-Jul-15		0%	287
Field Works		36	30-Mar-15 A	30-Mar-15	19-Aug-15		0%	255
Abutment H1f		36	30-Mar-15 A	30-Mar-15	19-Aug-15		0%	255
BH11100	Construct pile cap for H1f	36	30-Mar-15 A	30-Mar-15	19-Aug-15		30%	255
Bridge H1-Section 2		160	18-Feb-15 A	18-Feb-15	13-Jul-15		0%	418
Stage 2		160	18-Feb-15 A	18-Feb-15	13-Jul-15		0%	418
Design Submission and Approval		114	18-Feb-15 A	18-Feb-15	19-Jun-15		0%	360
BH12680	TWD -Formwork design for pier	24	20-May-15		17-Jun-15		0%	300
BH12690	TWD -Pierhead construction	24	20-May-15		17-Jun-15		0%	300
BH12820	Engineer's approval	17	18-Feb-15 A	18-Feb-15	30-May-15		50%	243
BH12860	Engineer's approval	17	30-May-15		19-Jun-15		0%	360
Field Works		65	11-Apr-15 A	11-Apr-15	13-Jul-15		0%	233
Foundation Works& Pier construction		65	11-Apr-15 A	11-Apr-15	13-Jul-15		0%	233
Foundation Works		65	11-Apr-15 A	11-Apr-15	13-Jul-15		0%	233
BH12580	Bored piles and Foundation for H1d	65	11-Apr-15 A	11-Apr-15	13-Jul-15		50%	233
Culvert 1(TBM)-Stage 4		197	13-Feb-15 A	13-Feb-15	17-Sep-15		0%	58
Field Works		197	13-Feb-15 A	13-Feb-15	17-Sep-15		0%	58
TBM Driving		129	13-Feb-15 A	13-Feb-15	21-Jul-15		0%	0
CUL13090	TBM preparation	36	13-Feb-15 A	13-Feb-15	12-May-15 A	12-May-15	100%	
CUL13120	TBM driving	66	14-May-15 A	14-May-15	21-Jul-15		6%	0
Demolishing the Existing Box Culvert		30	16-Apr-15 A	16-Apr-15	21-Jul-15		0%	0
CUL13250	Demolishing the existing box culvert	30	16-Apr-15 A	16-Apr-15	21-Jul-15		34%	0
MH7		32	20-May-15		02-Jul-15		0%	104
CUL13340	Sheetpile installation	21	20-May-15		16-Jun-15		0%	104
CUL13350	Excavation and removal of existing box culvert	21	04-Jun-15		02-Jul-15		0%	104
FC1		127	19-Mar-15 A	19-Mar-15	17-Sep-15		0%	24
CUL13400	Sheetpile installation	26	26-Apr-15 A	26-Apr-15	27-Jul-15		78%	24
CUL13410	Excavation and demolishing works	51	19-Mar-15 A	19-Mar-15	17-Sep-15		20%	24
FC2		142	04-Mar-15 A	04-Mar-15	01-Aug-15		0%	51
CUL13450	Sheetpile installation for FC2	21	04-Mar-15 A	04-Mar-15	27-May-15		75%	51
CUL13460	Excavation and removal of box culvert	21	23-Mar-15 A	23-Mar-15	23-Jun-15		5%	51
CUL13470	Construction of chamber FC2	30	23-Jun-15		01-Aug-15		0%	51
Site Formation - Retaining Structure for Slope TP_F		94	27-Jan-15 A	27-Jan-15	07-May-16		0%	187
Stage 3		94	27-Jan-15 A	27-Jan-15	07-May-16		0%	187
Retaining Structure for Slope TP_F		94	27-Jan-15 A	27-Jan-15	07-May-16		0%	187
RWF31308	Backfilling	50	10-Feb-15 A	10-Feb-15	13-Jun-15		60%	315
RWF31325	Construct Retaining Wall-Base slab(Bay 4 to Bay 6)	18	27-Jan-15 A	27-Jan-15	06-May-15 A	06-May-15	100%	
RWF31440	Excavation bay 21-28	25	12-May-15 A	12-May-15	07-May-16		5%	187
Site Formation - Slope TP_A & Associated Works		206	10-Mar-15 A	10-Mar-15	06-Aug-15		0%	132
Stage 3		206	10-Mar-15 A	10-Mar-15	06-Aug-15		0%	132
Slope Feature - Slope TP_A		206	10-Mar-15 A	10-Mar-15	06-Aug-15		0%	132
TPA41350	Forming East Portal Formation and temporary ground drainage works	50	10-Mar-15 A	10-Mar-15	26-May-15		90%	132
TPA41700	Construct Cascade A	60	20-May-15		06-Aug-15		0%	132
Site Formation - Slope TP_B & Associated Works		186	02-Jan-15 A	02-Jan-15	11-Jun-15		0%	505
Stage 3		186	02-Jan-15 A	02-Jan-15	11-Jun-15		0%	505
Slope Feature - Slope TP_B		186	02-Jan-15 A	02-Jan-15	11-Jun-15		0%	505



Remaining Level of Effort | Remaining Work | Summary
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CRBC - Kaden JV
2 Months Rolling Programme Report Update 20-May-15

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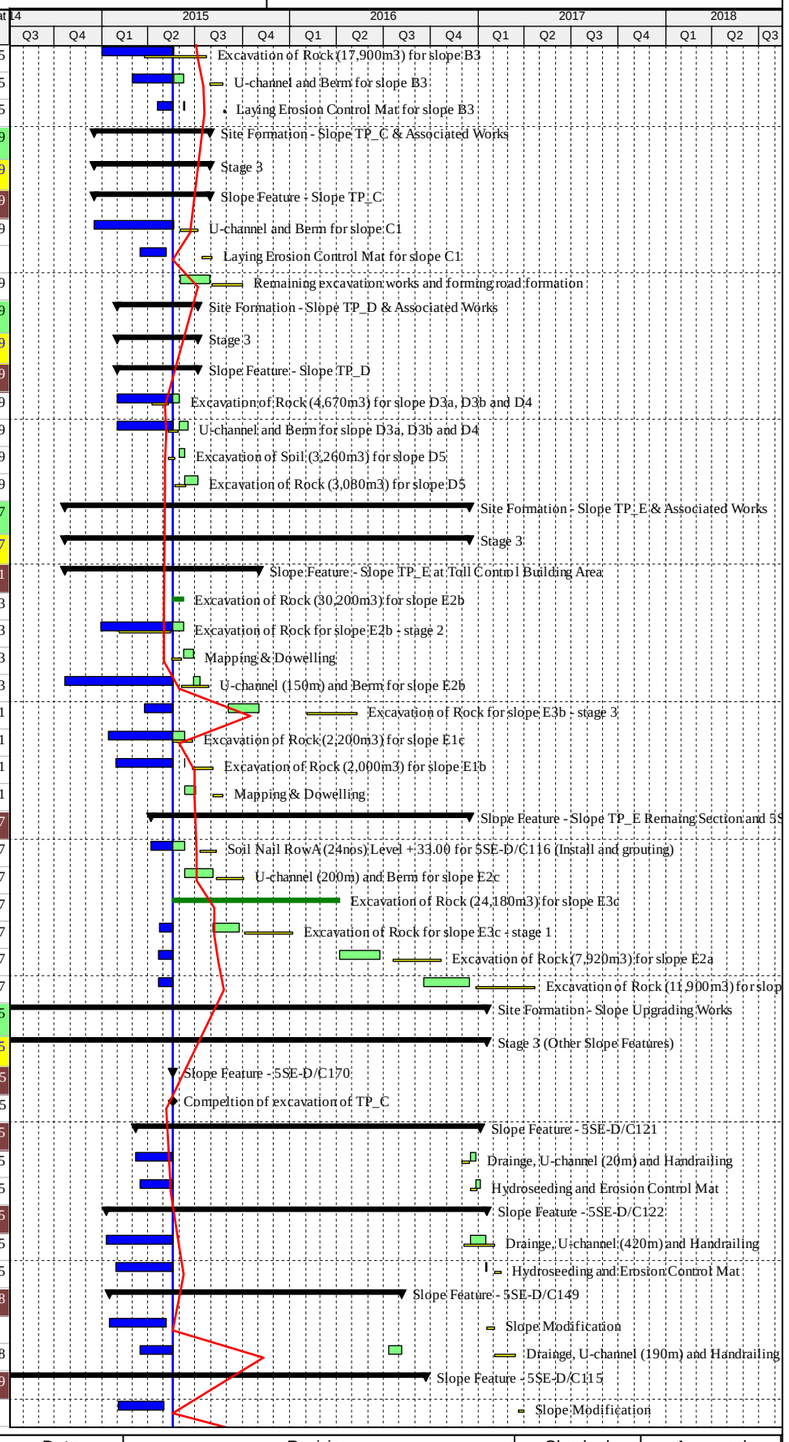
HY/2013/12 TM-CLKL Northern Connection Toll Plaza and Associated Works

CRBC - KADEN Joint Venture

Activity ID	Activity Name	Original Duration	Start	Actual Start	Finish	Actual Finish	Performance % Complete	Total Float
TPB41100	Excavation of Rock (17,900m3) for slope B3	90	02-Jan-15 A	02-Jan-15	20-May-15		99%	505
TPB41210	U-channel and Berm for slope B3	21	02-Mar-15 A	02-Mar-15	09-Jun-15		30%	505
TPB41220	Laying Erosion Control Mat for slope B3	3	20-Apr-15 A	20-Apr-15	11-Jun-15		30%	505
Site Formation - Slope TP_C & Associated Works		159	18-Dec-14 A	18-Dec-14	30-Jul-15		0%	469
Stage 3		159	18-Dec-14 A	18-Dec-14	30-Jul-15		0%	469
Slope Feature - Slope TP_C		159	18-Dec-14 A	18-Dec-14	30-Jul-15		0%	469
TPC50700	U-channel and Berm for slope C1	25	18-Dec-14 A	18-Dec-14	22-May-15		91.4%	469
TPC50800	Laying Erosion Control Mat for slope C1	15	16-Mar-15 A	16-Mar-15	06-May-15 A	06-May-15	100%	
TPC51160	Remaining excavation works and forming road formation	45	02-Jun-15		30-Jul-15		0%	469
Site Formation - Slope TP_D & Associated Works		65	01-Feb-15 A	01-Feb-15	06-Jul-15		0%	59
Stage 3		65	01-Feb-15 A	01-Feb-15	06-Jul-15		0%	59
Slope Feature - Slope TP_D		65	01-Feb-15 A	01-Feb-15	06-Jul-15		0%	59
TPD51400	Excavation of Rock (4,670m3) for slope D3a, D3b and D4	25	01-Feb-15 A	01-Feb-15	01-Jun-15		66%	59
TPD51450	U-channel and Berm for slope D3a, D3b and D4	15	01-Feb-15 A	01-Feb-15	17-Jun-15		10%	59
TPD51500	Excavation of Soil (3,260m3) for slope D5	10	01-Jun-15		12-Jun-15		0%	59
TPD51550	Excavation of Rock (3,080m3) for slope D5	16	12-Jun-15		06-Jul-15		0%	59
Site Formation - Slope TP_E & Associated Works		500	22-Oct-14 A	22-Oct-14	15-Dec-16		0%	127
Stage 3		500	22-Oct-14 A	22-Oct-14	15-Dec-16		0%	127
Slope Feature - Slope TP_E at Toll Control Building Area		229	22-Oct-14 A	22-Oct-14	03-Nov-15		0%	151
TPE61150	Excavation of Rock (30,200m3) for slope E2b	150	06-Nov-14 A	06-Nov-14	08-Jun-15		90%	193
TPE61170	Excavation of Rock for slope E2b - stage 2	75	31-Dec-14 A	31-Dec-14	08-Jun-15		80%	193
TPE61180	Mapping & Dowelling	15	09-Jun-15		27-Jun-15		0%	193
TPE61190	U-channel (150m) and Berm for slope E2b	40	22-Oct-14 A	22-Oct-14	11-Jul-15		75%	193
TPE61230	Excavation of Rock for slope E3b - stage 3	75	26-Mar-15 A	26-Mar-15	03-Nov-15		41.5%	151
TPE61300	Excavation of Rock (2,200m3) for slope E1c	30	14-Jan-15 A	14-Jan-15	11-Jun-15		42.5%	151
TPE61350	Excavation of Rock (2,000m3) for slope E1b	30	30-Jan-15 A	30-Jan-15	11-Jun-15		99.8%	151
TPE61360	Mapping & Dowelling	15	11-Jun-15		03-Jul-15		0%	151
Slope Feature - Slope TP_E Remaing Section and 5SE-D/C116		453	07-Apr-15 A	07-Apr-15	15-Dec-16		0%	127
TPE62170	Soil Nail RowA (24nos) Level + 33.00 for 5SE-D/C116 (Install and grouting)	26	07-Apr-15 A	07-Apr-15	12-Jun-15		29.2%	127
TPE62190	U-channel (200m) and Berm for slope E2c	40	12-Jun-15		05-Aug-15		0%	127
TPE62200	Excavation of Rock (24,180m3) for slope E3c	225	23-Apr-15 A	23-Apr-15	06-Apr-16		0%	127
TPE62210	Excavation of Rock for slope E3c - stage 1	75	23-Apr-15 A	23-Apr-15	25-Sep-15		45%	127
TPE62300	Excavation of Rock (7,920m3) for slope E2a	70	21-Apr-15 A	21-Apr-15	25-Jun-16		13.7%	127
TPE62400	Excavation of Rock (11,900m3) for slope E3a	90	22-Apr-15 A	22-Apr-15	15-Dec-16		21%	127
Site Formation - Slope Upgrading Works		612	18-Feb-14 A	18-Feb-14	19-Jan-17		0%	315
Stage 3 (Other Slope Features)		612	18-Feb-14 A	18-Feb-14	19-Jan-17		0%	315
Slope Feature - 5SE-D/C170		0	20-May-15		20-May-15		0%	115
SFW10065	Compeltion of excavation of TP_C	0	20-May-15				0%	115
Slope Feature - 5SE-D/C121		25	09-Mar-15 A	09-Mar-15	06-Jan-17		0%	325
SFW10280	Drainge, U-channel (20m) and Handrailing	15	09-Mar-15 A	09-Mar-15	28-Dec-16		50%	325
SFW10290	Hydroseeding and Erosion Control Mat	10	16-Mar-15 A	16-Mar-15	06-Jan-17		30.2%	325
Slope Feature - 5SE-D/C122		55	09-Jan-15 A	09-Jan-15	19-Jan-17		0%	315
SFW10320	Drainge, U-channel (420m) and Handrailing	45	09-Jan-15 A	09-Jan-15	16-Jan-17		50%	315
SFW10330	Hydroseeding and Erosion Control Mat	10	30-Jan-15 A	30-Jan-15	19-Jan-17		77.8%	315
Slope Feature - 5SE-D/C149		141	16-Jan-15 A	16-Jan-15	05-Aug-16		0%	288
SFW10390	Slope Modification	10	16-Jan-15 A	16-Jan-15	06-May-15 A	06-May-15	100%	
SFW10400	Drainge, U-channel (190m) and Handrailing	35	16-Mar-15 A	16-Mar-15	05-Aug-16		42.1%	288
Slope Feature - 5SE-D/C115		47	18-Feb-14 A	18-Feb-14	21-Sep-16		0%	289
SFW10430	Slope Modification	10	02-Feb-15 A	02-Feb-15	02-May-15 A	02-May-15	100%	



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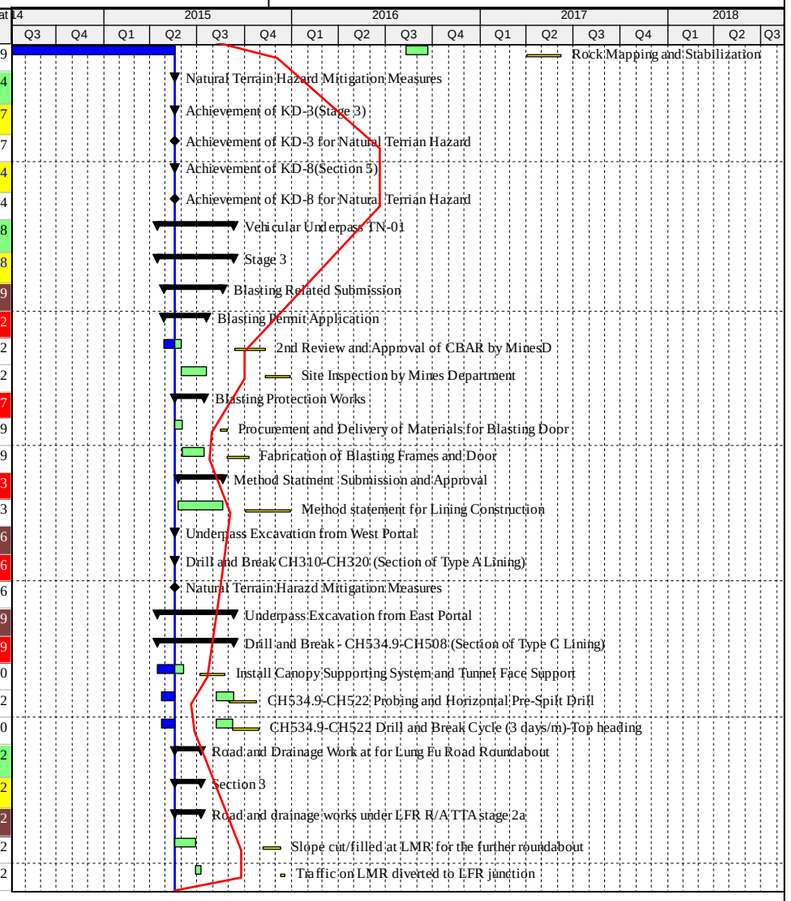
SFW10440	Rock Mapping and Stabilization	45	18-Feb-14 A	18-Feb-14	21-Sep-16		30%	289
Natural Terrain Hazard Mitigation Measures		0	20-May-15		20-May-15		0%	1294
Achievement of KD-3(Stage 3)		0	20-May-15		20-May-15		0%	1017
NTH10050	Achievement of KD-3 for Natural Terrian Hazard	0			20-May-15		0%	1017
Achievement of KD-8(Section 5)		0	20-May-15		20-May-15		0%	1294
NTH10060	Achievement of KD-8 for Natural Terrian Hazard	0			20-May-15		0%	1294
Vehicular Underpass TN-01		273	16-Apr-15 A	16-Apr-15	10-Sep-15		0%	488
Stage 3		273	16-Apr-15 A	16-Apr-15	10-Sep-15		0%	488
Blasting Related Submission		115	27-Apr-15 A	27-Apr-15	19-Aug-15		0%	509
Blasting Permit Application		86	27-Apr-15 A	27-Apr-15	18-Jul-15		0%	202
UDP30080	2nd Review and Approval of CBAR by MinesD	48	27-Apr-15 A	27-Apr-15	01-Jun-15		80%	202
UDP30090	Site Inspection by Mines Department	39	01-Jun-15		18-Jul-15		0%	202
Blasting Protection Works		57	20-May-15		16-Jul-15		0%	267
UDP30010	Procurement and Delivery of Materials for Blasting Door	11	20-May-15		03-Jun-15		0%	219
UDP30020	Fabrication of Blasting Frames and Door	32	03-Jun-15		16-Jul-15		0%	209
Method Statment Submission and Approval		72	26-May-15		19-Aug-15		0%	413
UDP30650	Method statement for Lining Construction	72	26-May-15		19-Aug-15		0%	413
Underpass Excavation from West Portal		0	20-May-15		20-May-15		0%	166
Drill and Break CH310-CH320 (Section of Type A Lining)		0	20-May-15		20-May-15		0%	166
UDP30180	Natural Terrain Harazd Mitigation Measures	0			20-May-15		0%	166
Underpass Excavation from East Portal		151	16-Apr-15 A	16-Apr-15	10-Sep-15		0%	169
Drill and Break - CH534.9-CH508 (Section of Type C Lining)		151	16-Apr-15 A	16-Apr-15	10-Sep-15		0%	169
UDP30340	Install Canopy Supporting System and Tunnel Face Support	40	16-Apr-15 A	16-Apr-15	04-Jun-15		70%	180
UDP30350	CH534.9-CH522 Probing and Horizontal Pre-Spilt Drill	40	23-Apr-15 A	23-Apr-15	10-Sep-15		31.6%	132
UDP30360	CH534.9-CH522 Drill and Break Cycle (3 days/m)-Top heading	38	23-Apr-15 A	23-Apr-15	08-Sep-15		31.6%	170
Road and Drainage Work at for Lung Fu Road Roundabout		37	20-May-15		08-Jul-15		0%	232
Section 3		37	20-May-15		08-Jul-15		0%	232
Road and drainage works under LFR R/A TTA stage 2a		37	20-May-15		08-Jul-15		0%	232
LF20050	Slope cut/filled at LMR for the further roundabout	30	20-May-15		27-Jun-15		0%	232
LF20100	Traffic on LMR diverted to LFR junction	7	29-Jun-15		08-Jul-15		0%	232



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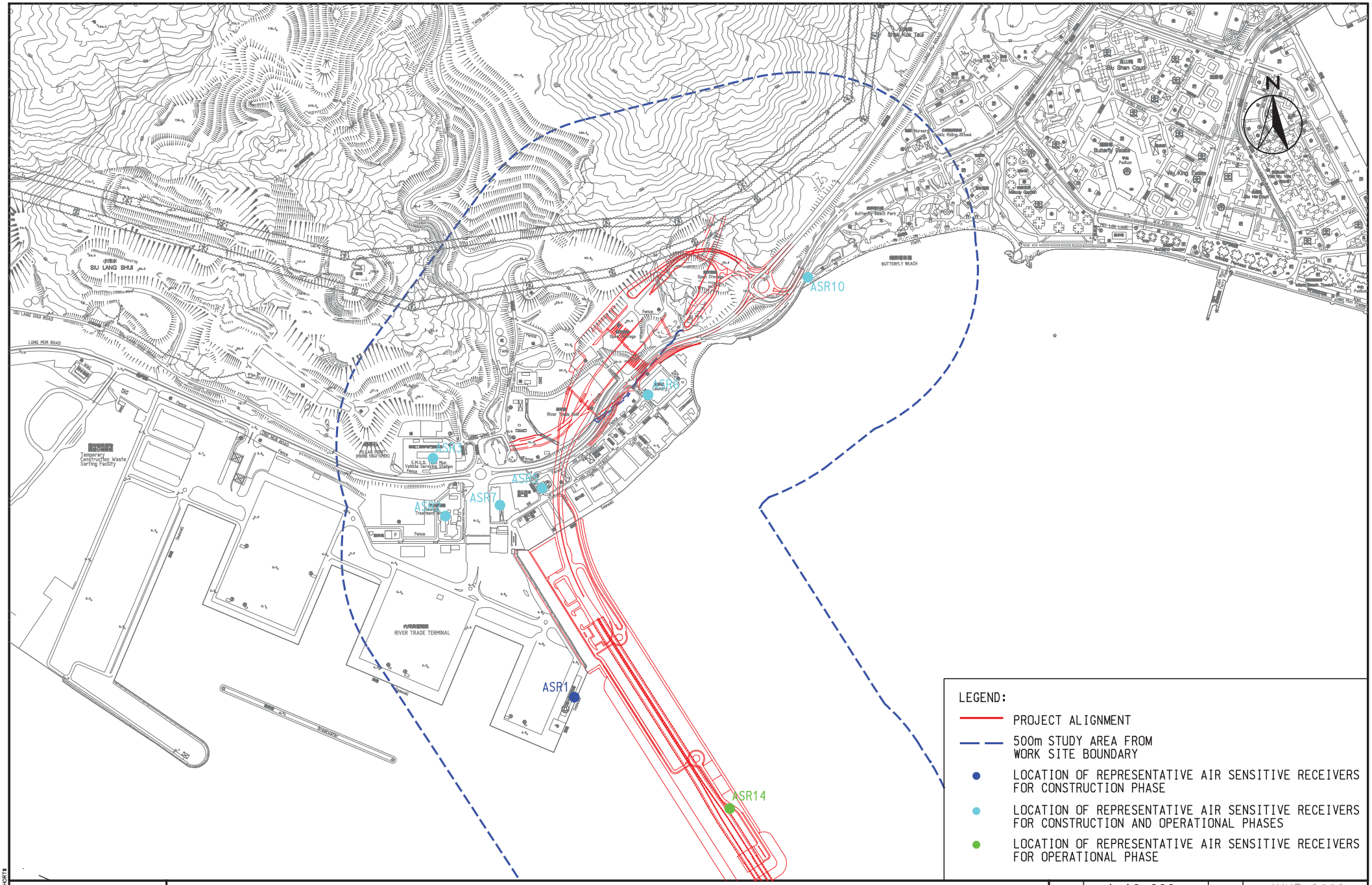
Appendix E

Monitoring Locations / Sensitive Receivers for the Contract

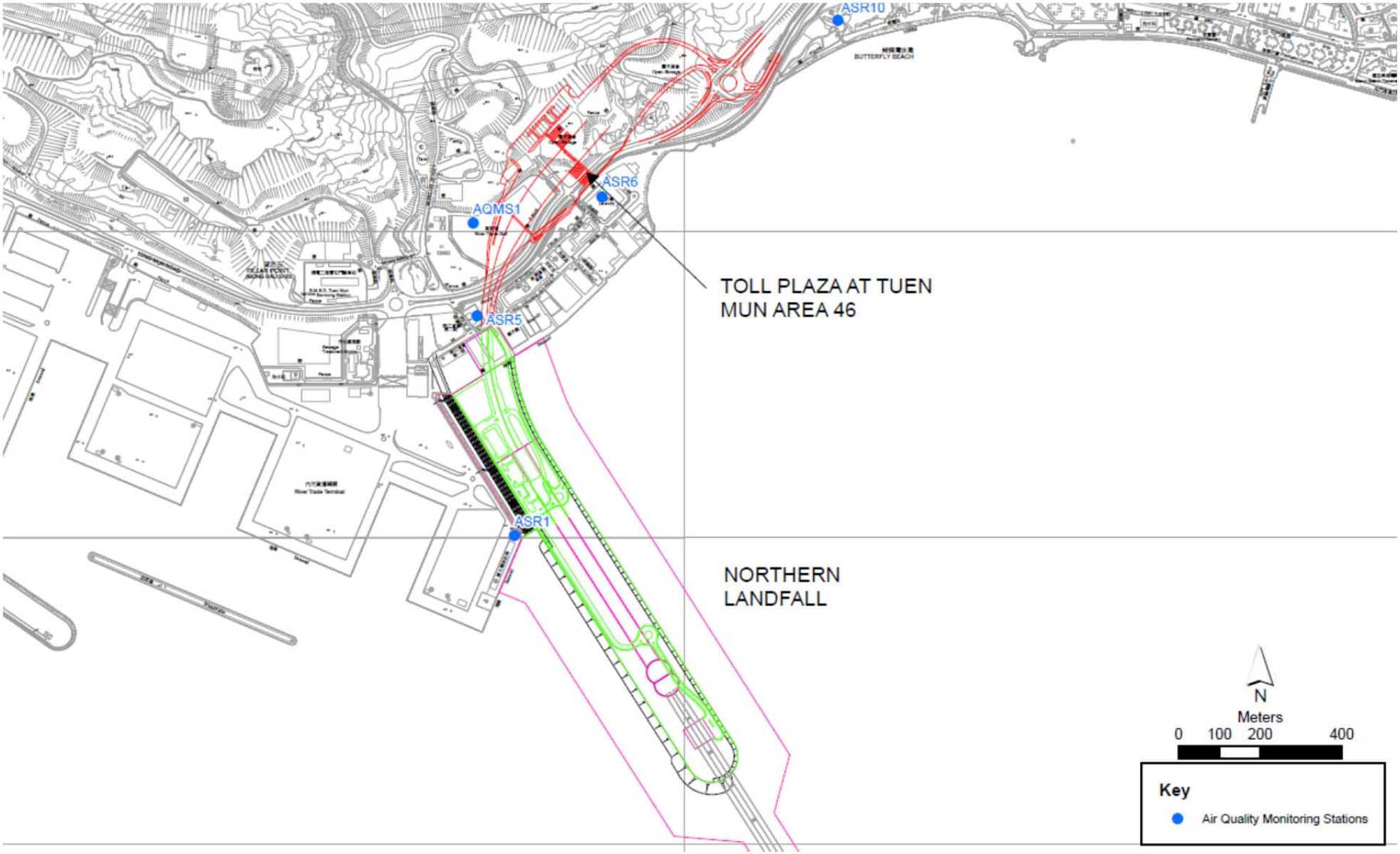


AGREEMENT NO. CE 52/2007(HY)
TUEN MUN – CHEK LAP KOK LINK – INVESTIGATION

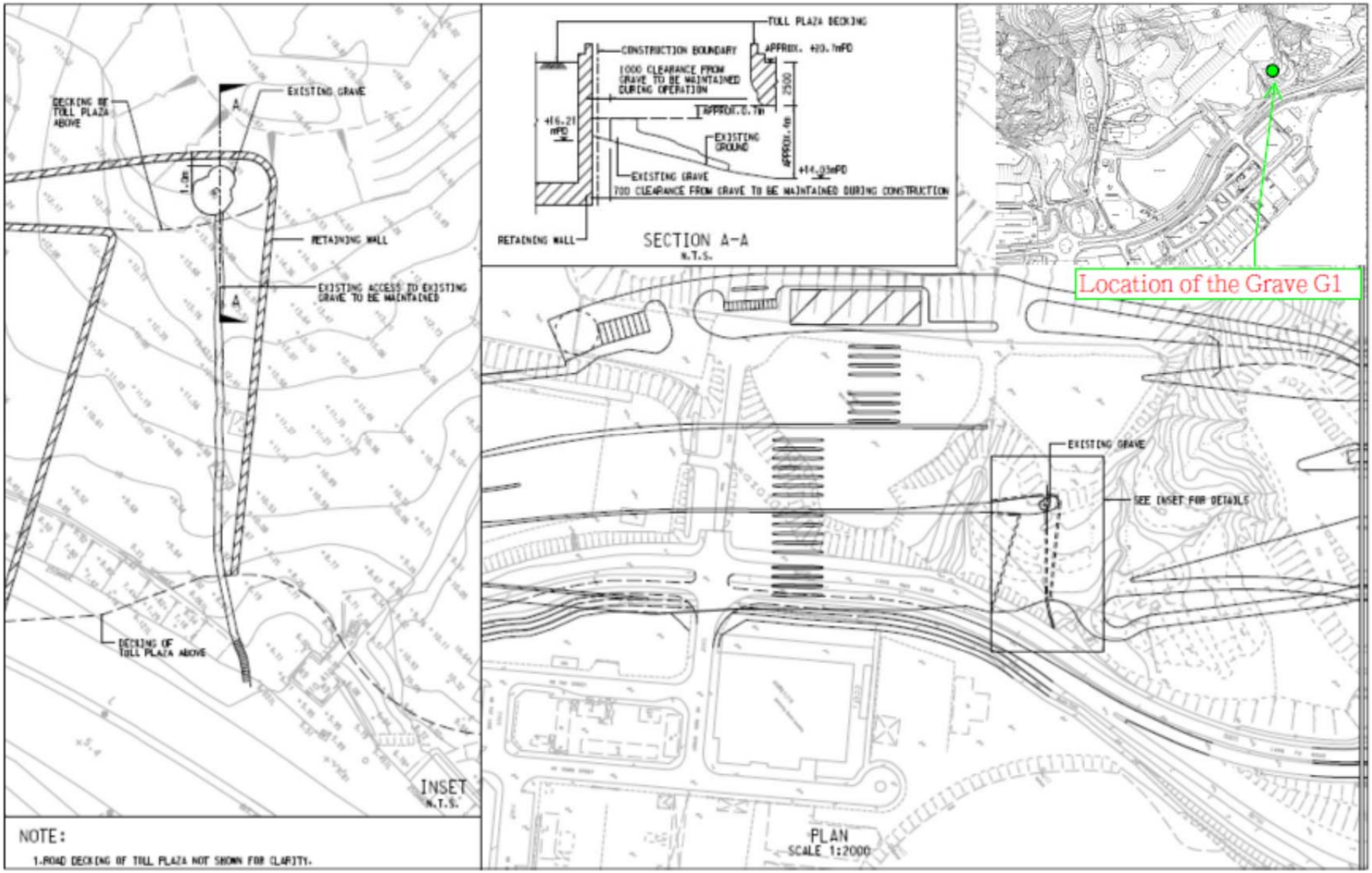
REPRESENTATIVE AIR SENSITIVE RECEIVERS

SCALE	1:10 000	DATE	

Plotting By:7/27/2009
PLOT SCALE: #SCALE$HORT$



Air Quality Monitoring Location



Location of the Grave G1

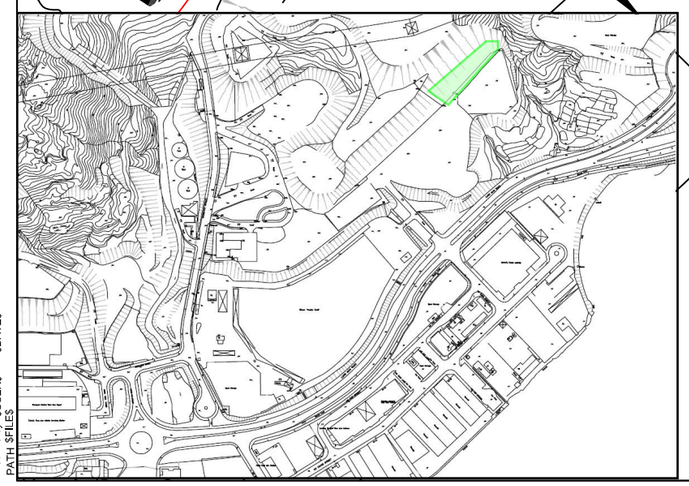
NOTES:

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 KNOWN POPULATIONS OF PITCHER PLANT
- PROPOSED ALIGNMENT OF FENCING (EXACT ALIGNMENT TO BE DETERMINED ON SITE)
- LOCATION OF PROPOSED NURSERY SITE
- LOCATION OF PROPOSED RECEPTOR SITE
- UNDERPASS WORKS AREA (ZONE 8-10 AND NURSERY SITE WILL NOT BE AFFECTED)

812800 E
812900 E
813000 E
825900 N
825800 N
ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5
ZONE 6
ZONE 7
ZONE 8
ZONE 9
ZONE 10
ROAD
WIP Sep 1999



Project Management Initials: Designer: NKCC Checked: ALCF Approved: CWN ISO A1 594mm x 841mm

Plot File by: $USER$ $DATE$
PATH: $FILE$

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
香港拓展大嶼山道路工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

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

STATUS
PRELIMINARY

SCALE
A1 1 : 500

DIMENSION UNIT
METRES

KEY PLAN

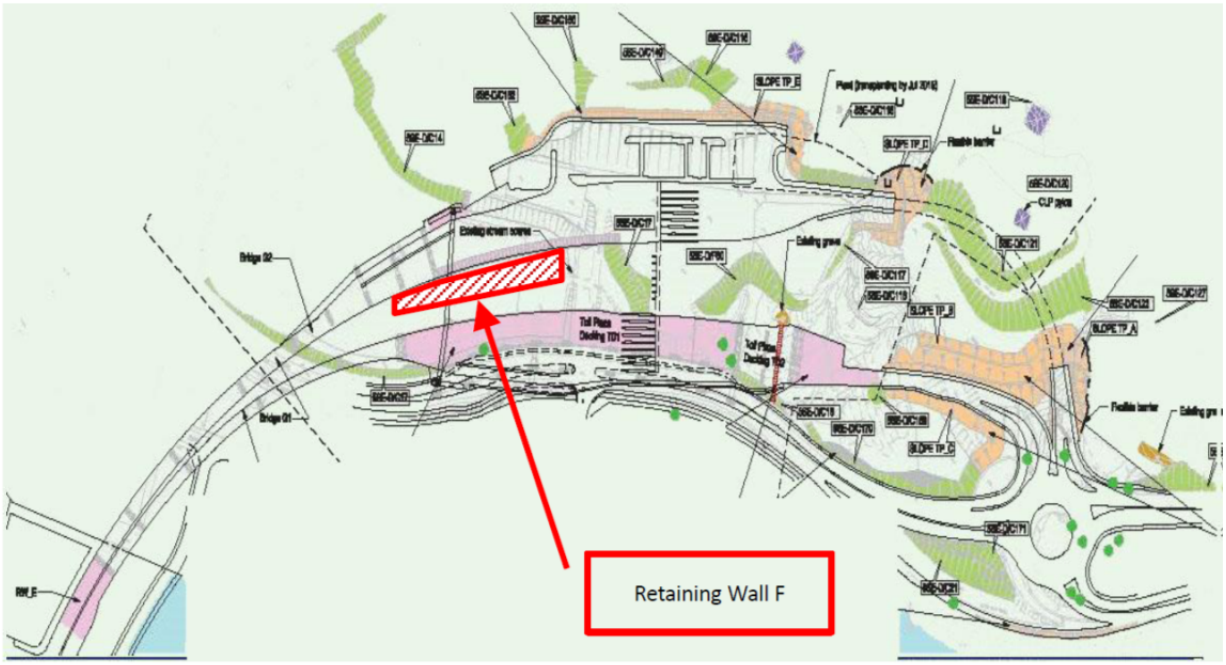
PROJECT NO.
60240249

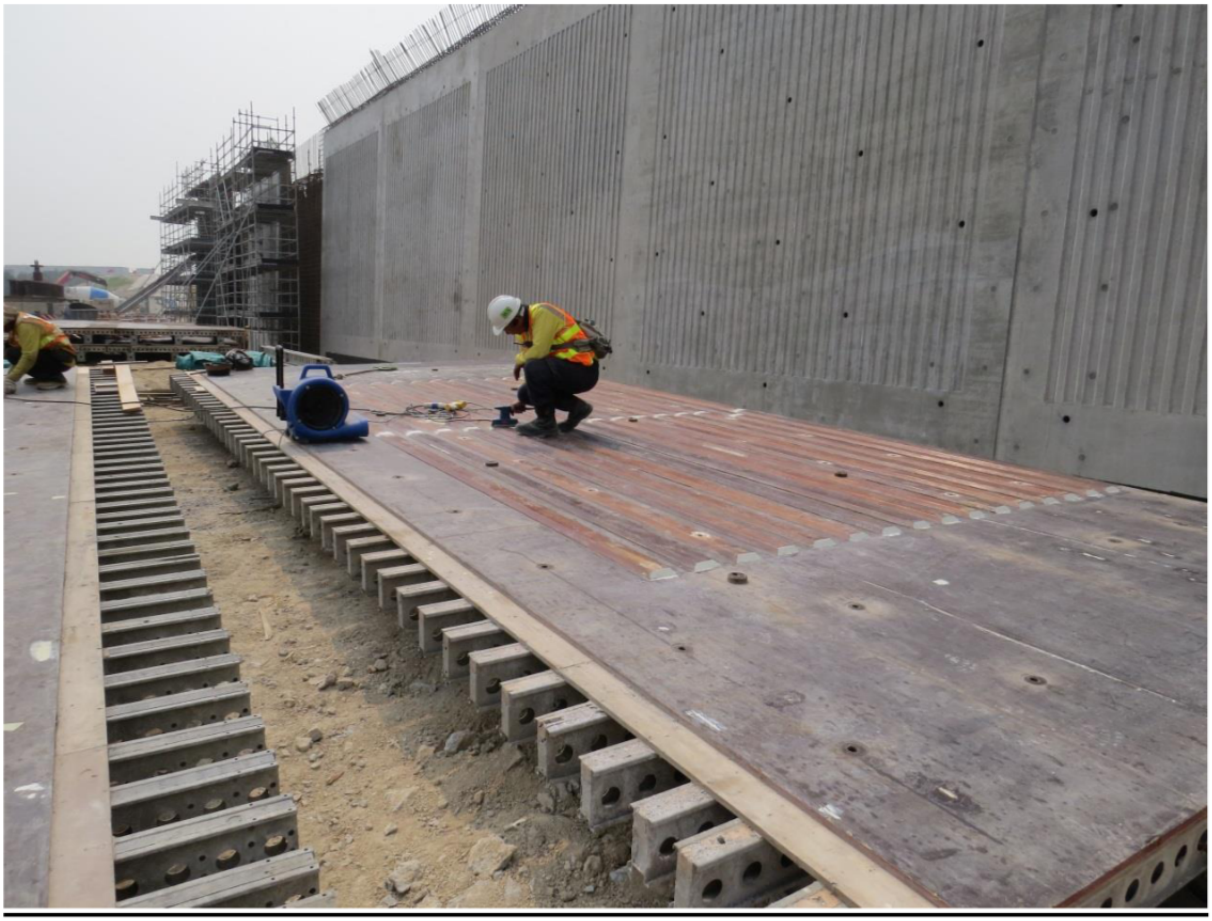
CONTRACT NO.
HY/2013/12

SHEET TITLE
LOCATION OF KNOWN POPULATION OF PITCHER PLANT AND PROPOSED TM-CLKL SITE BOUNDARY

SHEET NUMBER
60240249/C3/6503A

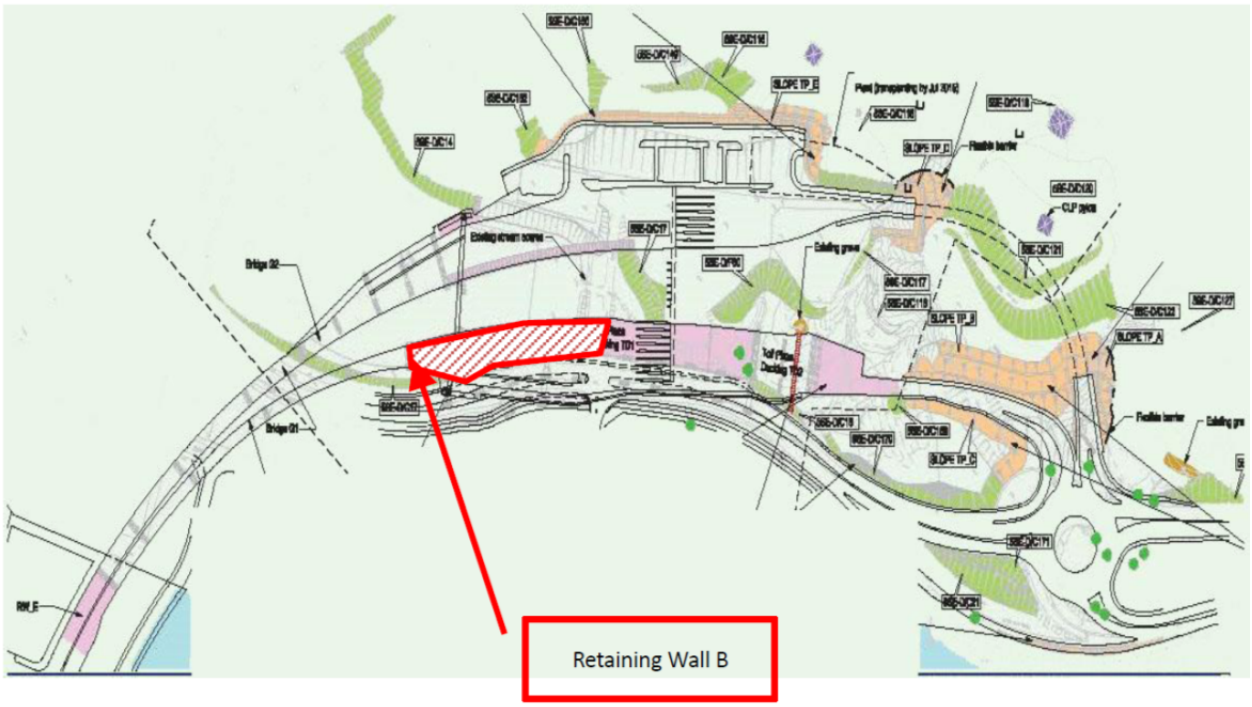
Retaining Wall F





Location of the Retaining Wall F

Retaining Wall B



Location of the Retaining Wall B

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	• Check final design conforms to the requirements of EP and prepare report.	• Check report. • Recommend remedial design if necessary	• Undertake remedial design if necessary	
Non- conformity on one occasion	• Identify Source • Inform IEC and ER • Discuss remedial actions with IEC, ER and Contractor • Monitor remedial actions until rectification has been completed	• 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	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement
Repeated Non-conformity	• 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	• 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	• Notify Contractor • Ensure remedial measures are properly implemented	• 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	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	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.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	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	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.	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	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	• 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	• 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.	• 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.	• Amend working methods • Rectify damage and undertake any necessary replacement
Repeated Non conformity	• 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	• 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	• 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.	• 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

Monitoring Schedule

Impact Monitoring Schedule for May 2015

Date		Landfill Gas Monitoring	Landscape and Visual Monitoring
Fri	1-May-15		
Sat	2-May-15	✓	
Sun	3-May-15		
Mon	4-May-15	✓	
Tue	5-May-15	✓	
Wed	6-May-15	✓	
Thu	7-May-15	✓	
Fri	8-May-15	✓	✓
Sat	9-May-15	✓	
Sun	10-May-15		
Mon	11-May-15	✓	
Tue	12-May-15	✓	
Wed	13-May-15	✓	
Thu	14-May-15	✓	
Fri	15-May-15	✓	✓
Sat	16-May-15	✓	
Sun	17-May-15		
Mon	18-May-15	✓	
Tue	19-May-15	✓	
Wed	20-May-15	✓	
Thu	21-May-15	✓	
Fri	22-May-15	✓	✓
Sat	23-May-15	✓	
Sun	24-May-15		
Mon	25-May-15		
Tue	26-May-15	✓	
Wed	27-May-15	✓	
Thu	28-May-15	✓	
Fri	29-May-15	✓	✓
Sat	30-May-15	✓	
Sun	31-May-15		

✓	Monitoring Day
	Sunday or Public Holiday

Impact Monitoring Schedule for June 2015

Date		Landfill Gas Monitoring	Landscape and Visual Monitoring
Mon	1-Jun-15	✓	
Tue	2-Jun-15	✓	
Wed	3-Jun-15	✓	
Thu	4-Jun-15	✓	
Fri	5-Jun-15	✓	✓
Sat	6-Jun-15	✓	
Sun	7-Jun-15		
Mon	8-Jun-15	✓	
Tue	9-Jun-15	✓	
Wed	10-Jun-15	✓	
Thu	11-Jun-15	✓	
Fri	12-Jun-15	✓	✓
Sat	13-Jun-15	✓	
Sun	14-Jun-15		
Mon	15-Jun-15	✓	
Tue	16-Jun-15	✓	
Wed	17-Jun-15	✓	
Thu	18-Jun-15	✓	
Fri	19-Jun-15	✓	✓
Sat	20-Jun-15	✓	
Sun	21-Jun-15		
Mon	22-Jun-15	✓	
Tue	23-Jun-15	✓	
Wed	24-Jun-15	✓	
Thu	25-Jun-15	✓	
Fri	26-Jun-15	✓	✓
Sat	27-Jun-15	✓	
Sun	28-Jun-15		
Mon	29-Jun-15	✓	
Tue	30-Jun-15	✓	

✓	Monitoring Day
	Sunday or Public Holiday

Appendix H

Calibration Certificates of Monitoring Equipment

CERTIFICATION OF CALIBRATION

Geotech
A subsidiary of LANTEC

ISSUED BY: GEOTECH LABORATORY
Date Of Calibration: 16-Sep-2014
Certificate Number: G502306_2/13335

UKAS CALIBRATION
No. 4533

Approved by Signatory

Dawn Hemings
Laboratory Inspection

GEOTECHNICAL INSTRUMENTS (UK) LTD
Sovereign House, Queensway, Leamington Spa, Warwickshire, CV31 3JR United Kingdom
Tel: +44 (0) 1926 338111 Fax: +44 (0) 1926 338110
E-mail: service@geotech.co.uk www.geotechuk.com

Customer: ***Fugro Geotechnical Services Ltd***

Units 6, 8-11
10/F Worldwide Industrial Centre
43-47 Shan Mei Street
Fo Tan
Sha Tln, N.T.
HONG KONG

Description: BIOGAS 5000

Model: BIOGAS 5000

Serial Number: G502306

UKAS Accredited results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.41
15.1	15.0	0.64
50.0	49.3	0.94

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.43
15.1	14.9	0.70
50.0	50.0	1.1

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.1	21.1	0.31

All concentrations are molar.

CH4, CO2 readings recorded at : 31.6 °C ± 1.5 °C

O2 reading recorded at : 21.9 °C ± 1.5 °C

Barometric Pressure : 1008 mbar ± 3 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using reference gases.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Appendix I

Landfill Gas Monitoring Results and Graphical Plots

Landfill Gas Monitoring Results (Retaining Wall F)

Monitoring Location	Date	Time	Weather	Temperature (°C)	Methane (%)			Oxygen (%)			Carbon Dioxide (%)		
					Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level
Retaining Wall F	2/5/2015	8:00	Cloudy	26	0	10	20	21.1	19	18	0.1	0.5	1.5
	2/5/2015	14:00		31	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	4/5/2015	8:00	Hazy	27	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	4/5/2015	14:00		33	0	10	20	21.1	19	18	0	0.5	1.5
	5/5/2015	8:00	Hazy	25	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	5/5/2015	14:00		30	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	6/5/2015	8:00	Fine	25	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	6/5/2015	14:00		29	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	7/5/2015	8:00	Hazy	26	0.1	10	20	21.1	19	18	0	0.5	1.5
	7/5/2015	14:00		32	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	8/5/2015	8:00	Fine	27	0.1	10	20	21.1	19	18	0	0.5	1.5
	8/5/2015	14:00		31	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	9/5/2015	8:00	Cloudy	24	0	10	20	21.2	19	18	0.1	0.5	1.5
	9/5/2015	14:00		34	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	11/5/2015	8:00	Rain	23	0.1	10	20	21.1	19	18	0.2	0.5	1.5
	11/5/2015	14:00		29	0.1	10	20	21	19	18	0.1	0.5	1.5
	12/5/2015	8:00	Fine	23	0.1	10	20	21	19	18	0.1	0.5	1.5
	12/5/2015	14:00		31	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	13/5/2015	8:00	Fine	25	0.1	10	20	21.2	19	18	0.1	0.5	1.5
	13/5/2015	14:00		29	0.2	10	20	21.2	19	18	0.1	0.5	1.5
	14/5/2015	8:00	Cloudy	26	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	14/5/2015	14:00		31	0.1	10	20	21.2	19	18	0.1	0.5	1.5
	15/5/2015	8:00	Fine	27	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	15/5/2015	14:00		33	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	16/5/2015	8:00	Rain	24	0.1	10	20	21.1	19	18	0.2	0.5	1.5
	16/5/2015	14:00		28	0.2	10	20	21.1	19	18	0.2	0.5	1.5
	18/5/2015	8:00	Hazy	26	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	18/5/2015	14:00		31	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	19/5/2015	8:00	Hazy	27	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	19/5/2015	14:00		31	0.1	10	20	21	19	18	0.1	0.5	1.5
	20/5/2015	8:00	Stormy	25	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	20/5/2015	14:00		31	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	21/5/2015	8:00	Hazy	24	0.1	10	20	21.1	19	18	0	0.5	1.5
	21/5/2015	14:00		27	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	22/5/2015	8:00	Cloudy	24	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	22/5/2015	14:00		26	0.1	10	20	21.2	19	18	0.1	0.5	1.5
	23/5/2015	8:00	Stormy	24	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	23/5/2015	14:00		28	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	26/5/2015	8:00	Stormy	26	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	26/5/2015	14:00		30	0	10	20	21.1	19	18	0.1	0.5	1.5
	27/5/2015	8:00	Fine	27	0	10	20	21	19	18	0.1	0.5	1.5
	27/5/2015	14:00		33	0.1	10	20	21.1	19	18	0.2	0.5	1.5
	28/5/2015	8:00	Hazy	28	0	10	20	21.1	19	18	0.1	0.5	1.5
	28/5/2015	14:00		33	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	29/5/2015	8:00	Cloudy	28	0.1	10	20	21.1	19	18	0	0.5	1.5
	29/5/2015	14:00		33	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	30/5/2015	8:00	Cloudy	26	0.1	10	20	21	19	18	0.2	0.5	1.5
	30/5/2015	14:00		33	0.1	10	20	21.1	19	18	0.1	0.5	1.5

Remark:

Parameter	Criteria	Measurement
Oxygen	Action Level	< 19%
	Limit Level	< 18%
Methane	Action Level	> 10% LEL (> 0.5% v/v)
	Limit Level	> 20% LEL (>1% v/v)
Carbon Dioxide	Action Level	> 0.5%
	Limit Level	> 1.5%

Landfill Gas Monitoring Results (Retaining Wall B)

Monitoring Location	Date	Time	Weather	Temperature (°C)	Methane (%)			Oxygen (%)			Carbon Dioxide (%)		
					Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level	Measurement Result	Action Level	Limit Level
Retaining Wall B	2/5/2015	8:00	Cloudy	26	0	10	20	21.2	19	18	0.1	0.5	1.5
	2/5/2015	14:00		31	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	4/5/2015	8:00	Hazy	27	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	4/5/2015	14:00		33	0.1	10	20	21	19	18	0	0.5	1.5
	5/5/2015	8:00	Hazy	25	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	5/5/2015	14:00		30	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	6/5/2015	8:00	Fine	25	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	6/5/2015	14:00		29	0.1	10	20	21.2	19	18	0.2	0.5	1.5
	7/5/2015	8:00	Hazy	26	0.1	10	20	21	19	18	0.1	0.5	1.5
	7/5/2015	14:00		32	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	8/5/2015	8:00	Fine	27	0.1	10	20	21.1	19	18	0	0.5	1.5
	8/5/2015	14:00		31	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	9/5/2015	8:00	Cloudy	24	0	10	20	21.1	19	18	0.1	0.5	1.5
	9/5/2015	14:00		34	0.1	10	20	21.2	19	18	0.2	0.5	1.5
	11/5/2015	8:00	Rain	23	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	11/5/2015	14:00		29	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	12/5/2015	8:00	Fine	23	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	12/5/2015	14:00		31	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	13/5/2015	8:00	Fine	25	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	13/5/2015	14:00		29	0.2	10	20	21.2	19	18	0.2	0.5	1.5
	14/5/2015	8:00	Cloudy	26	0.2	10	20	21	19	18	0.1	0.5	1.5
	14/5/2015	14:00		31	0.1	10	20	21.1	19	18	0	0.5	1.5
	15/5/2015	8:00	Fine	27	0.2	10	20	21	19	18	0.1	0.5	1.5
	15/5/2015	14:00		33	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	16/5/2015	8:00	Rain	24	0.1	10	20	21.1	19	18	0.2	0.5	1.5
	16/5/2015	14:00		28	0.1	10	20	21.2	19	18	0.1	0.5	1.5
	18/5/2015	8:00	Hazy	26	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	18/5/2015	14:00		31	0.1	10	20	21	19	18	0.2	0.5	1.5
	19/5/2015	8:00	Hazy	27	0.1	10	20	21	19	18	0.1	0.5	1.5
	19/5/2015	14:00		31	0.1	10	20	21	19	18	0.1	0.5	1.5
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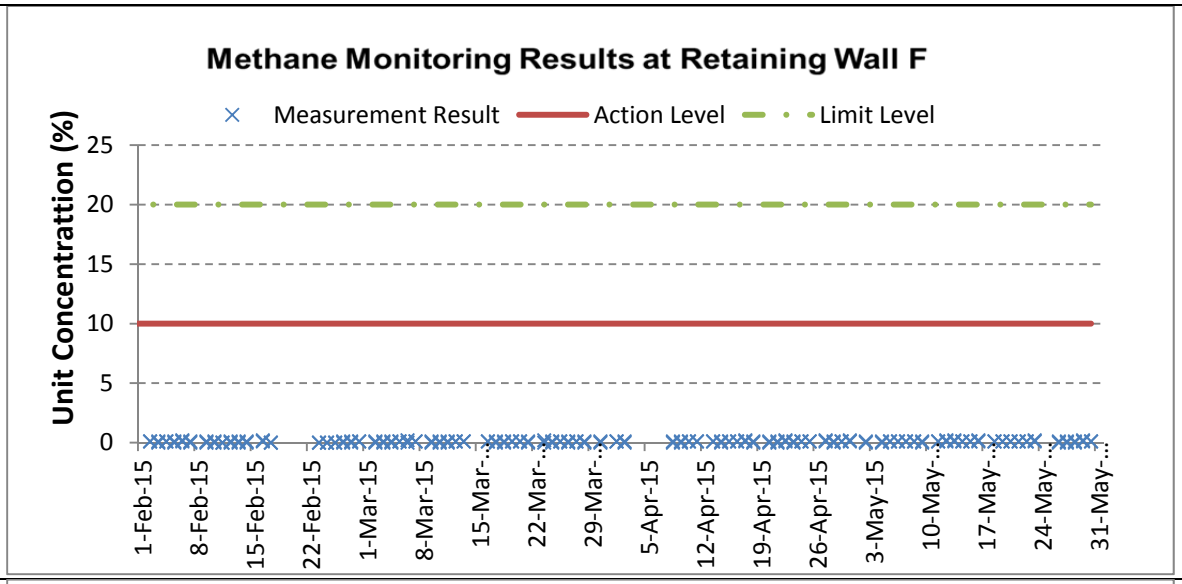
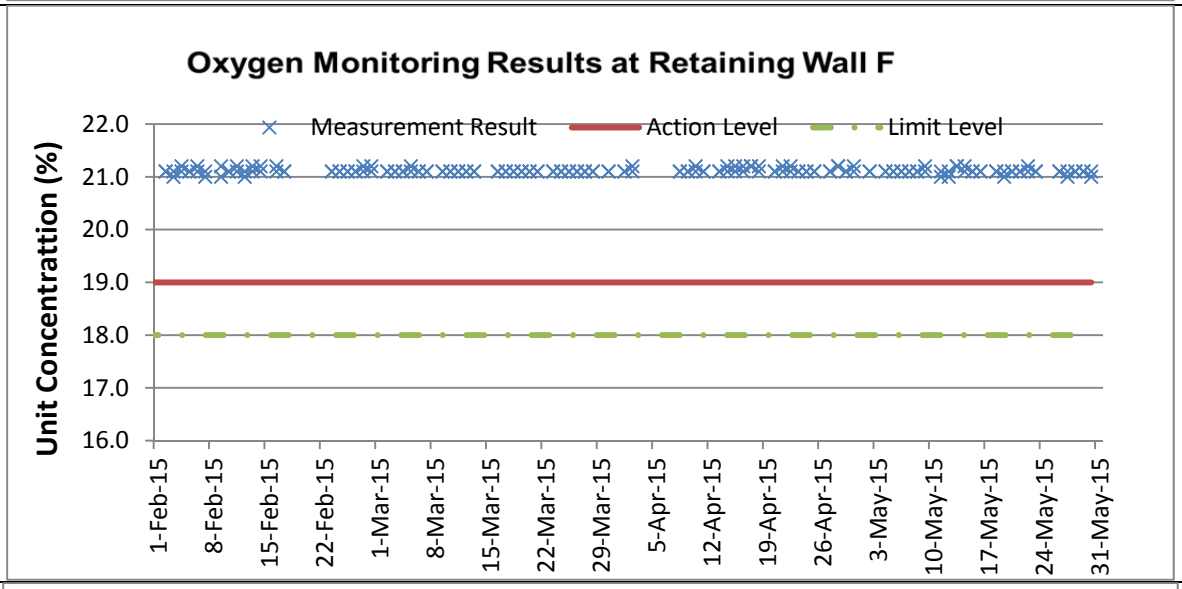
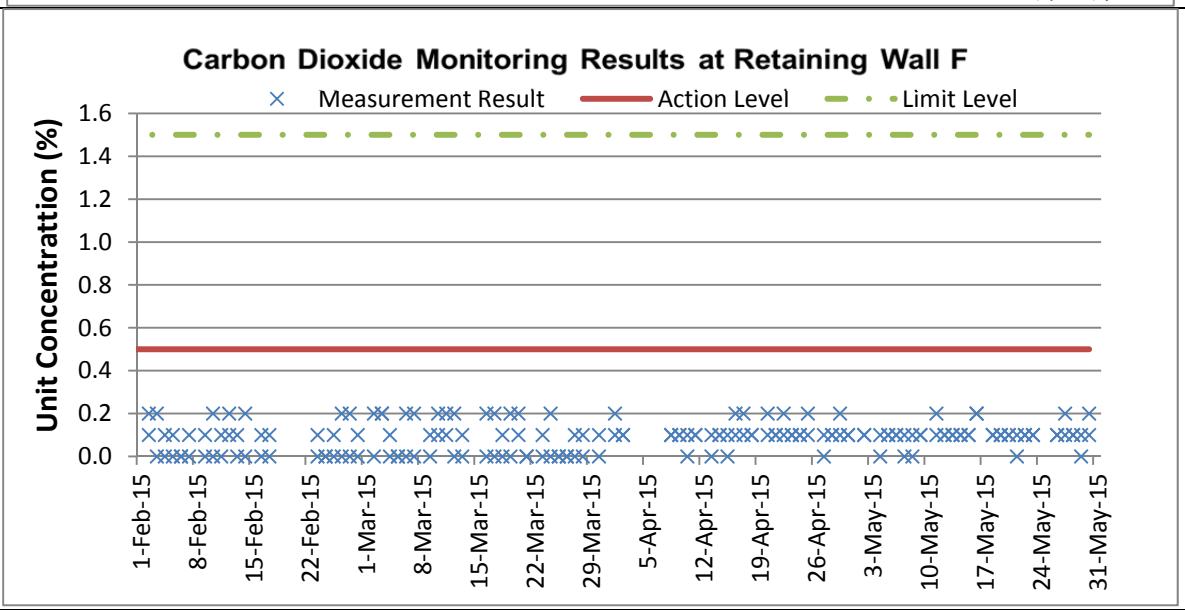
	21/5/2015	8:00	Hazy	24	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	21/5/2015	14:00		27	0.1	10	20	21.2	19	18	0.1	0.5	1.5
	22/5/2015	8:00	Cloudy	24	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	22/5/2015	14:00		26	0.2	10	20	21.2	19	18	0.1	0.5	1.5
	23/5/2015	8:00	Stormy	24	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	23/5/2015	14:00		28	0.2	10	20	21.1	19	18	0.1	0.5	1.5
	26/5/2015	8:00	Stormy	26	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	26/5/2015	14:00		30	0.1	10	20	21.2	19	18	0.2	0.5	1.5
	27/5/2015	8:00	Fine	27	0	10	20	21.1	19	18	0.1	0.5	1.5
	27/5/2015	14:00		33	0.1	10	20	21.2	19	18	0.1	0.5	1.5
	28/5/2015	8:00	Hazy	28	0	10	20	21.1	19	18	0.1	0.5	1.5
	28/5/2015	14:00		33	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	29/5/2015	8:00	Cloudy	28	0.1	10	20	21.1	19	18	0.1	0.5	1.5
	29/5/2015	14:00		33	0.2	10	20	21.2	19	18	0.1	0.5	1.5
	30/5/2015	8:00	Cloudy	26	0.1	10	20	21	19	18	0.2	0.5	1.5
	30/5/2015	14:00		33	0.2	10	20	21.1	19	18	0.1	0.5	1.5

Remark:

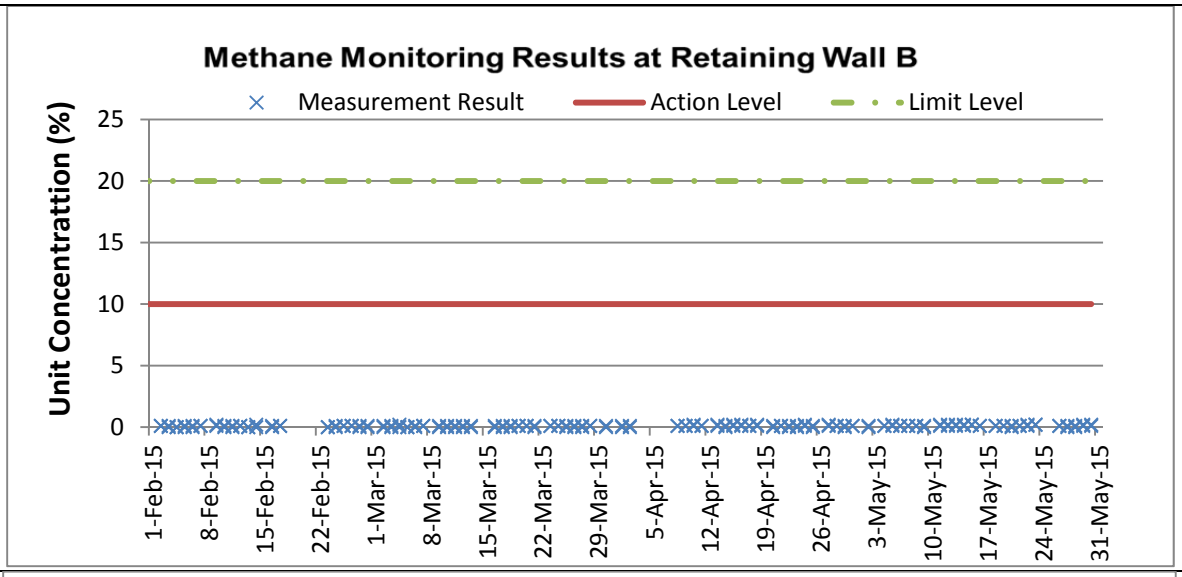
Parameter	Criteria	Measurement
Oxygen	Action Level	< 19%
	Limit Level	< 18%
Methane	Action Level	> 10% LEL (> 0.5% v/v)
	Limit Level	> 20% LEL (>1% v/v)
Carbon Dioxide	Action Level	> 0.5%
	Limit Level	> 1.5%

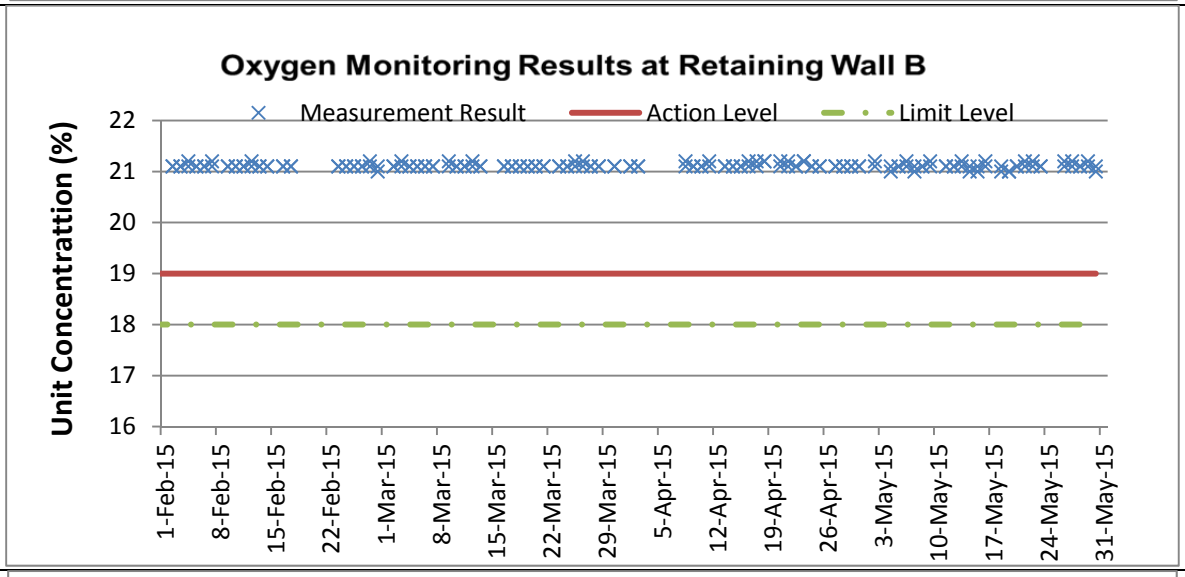


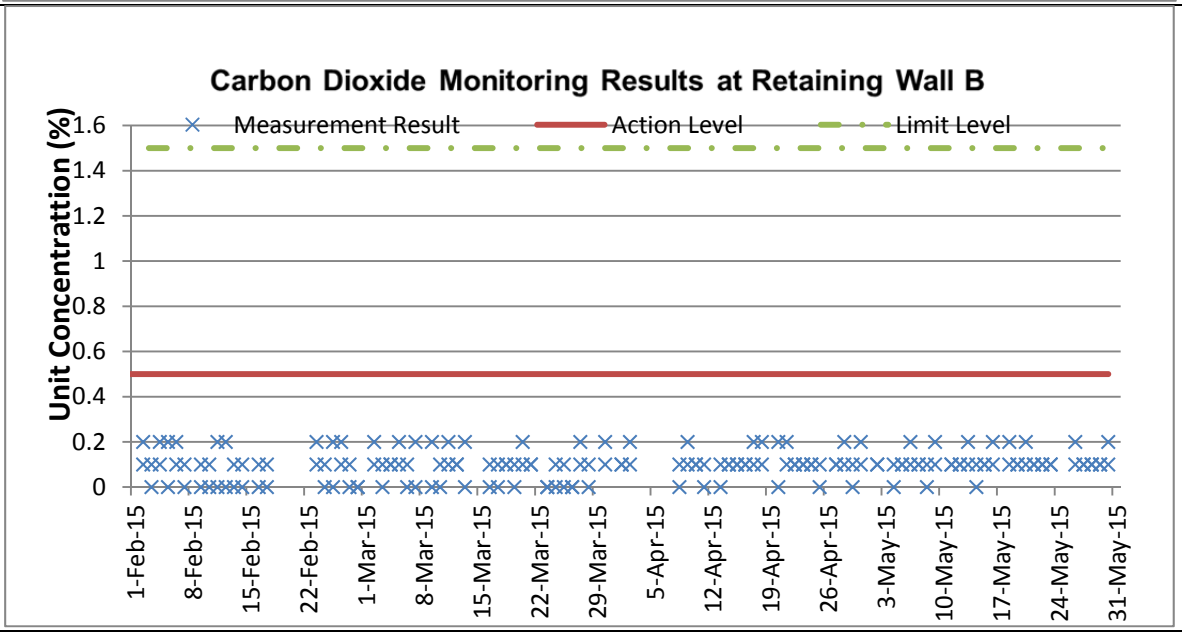




Annotation:
During 1 February to 31 May 2015, major construction activity was construction of retaining wall F and the specified works included excavation, rock breaking, blinding, formworking, steel-fixing and concreting. The weather condition varied from sunny to rainy. The monitoring data was provided by the Contractor followed to their QA/QC control.







Annotation:
During 1 February to 31 May 2015, 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 J

Investigation Report for Exceedance

(Not Used)

Appendix K

Checklist for Landscape and Visual Monitoring

Contract No. HY/2013/12

Tuen Mun – Chek Lap Kok Link – Northern Connection Toll Plaza and Associated Works

Landscape and Visual Checklist

Monitoring Date: 8th May 2015

Item	Environmental Protection Measures	Location/ Timing	Implementation Agent	Status				Remarks
				A	UA	IR	NA	
1	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)	All areas / During construction	Design Consultant/ Contractor	√				
2	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be 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	All areas / During construction	Design Consultant/ Contractor				√	Tree Transplanting Specification has been specified in P.S., no transplantation works has been carried out at this stage.
3	Hillside and roadside screen planting to proposed roads, associated structures and slope works	All areas / During construction	Design Consultant/ Contractor				√	Construction of roads not commenced yet
4	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone)	All areas / During construction	Design Consultant/ Contractor	√				
5	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works	All areas / During construction	Design Consultant/ Contractor				√	For some area, erection of hoarding was not feasible due to

								the limitation of traffic sight line; water barrier with panel was used to screen works.
6	Control night-time lighting and glare by hooding all lights	All areas / During construction	Design Consultant/ Contractor	√				Only temporary traffic management lighting was applied.
7	Ensure no run-off into water body adjacent to the Project Area	All areas / During construction	Design Consultant/ Contractor	√				
8	Avoidance of excessive height and bulk of buildings and structures	All areas / During construction	Design Consultant/ Contractor				√	No high-rise building would be constructed.
9	Recycle/Reuse all felled trees and vegetation, e.g. mulching	All areas / During construction	Design Consultant/ Contractor	√				Recycle of trees carried out by Hong Kong Landscape and BAGUIO was conducted.
10	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	All areas / During construction	Design Consultant/ Contractor				√	Compensatory planting will be carry out in later stage of the project.

Legend: A=Acceptable, UA= Unacceptable, IR=Improvement Required, N/A=Not Applicable

Note: All item reference to Technical Memorandum on Environmental Impact Assessment, TM-CLKL EIA Section 10.9 & Project EM&A Manual Section 7.6

Checked and Monitored by: Chung Koon Wah Albert (RLA) No. R-150 (Date) 3/06/2015

Checked by: (ET) 5/6/15 (Date)

Checked by: (IEC) 5 June 2015 (Date)

Item 1. Existing trees on boundary of the Project Area have been protected carefully during construction.

Item 4. Hydro-seeding or sheeting provided at stockpile.

Item 5. Hoarding with panel around works area & Item 6. Temporary traffic management lighting.

Item 7. Ensure no run-off into water body.

Item 9. Recycle of felled trees (conducted on 24/1, no tree recycled in the reporting period)

Contract No. HY/2013/12

Tuen Mun – Chek Lap Kok Link – Northern Connection Toll Plaza and Associated Works

Landscape and Visual Checklist

Monitoring Date: 15th May 2015

Item	Environmental Protection Measures	Location/ Timing	Implementation Agent	Status				Remarks
				A	UA	IR	NA	
1	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)	All areas / During construction	Design Consultant/ Contractor	√				
2	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be 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	All areas / During construction	Design Consultant/ Contractor				√	Tree Transplanting Specification has been specified in P.S., no transplantation works has been carried out at this stage.
3	Hillside and roadside screen planting to proposed roads, associated structures and slope works	All areas / During construction	Design Consultant/ Contractor				√	Construction of roads not commenced yet
4	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone)	All areas / During construction	Design Consultant/ Contractor	√				
5	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works	All areas / During construction	Design Consultant/ Contractor				√	For some area, erection of hoarding was not feasible due to

								the limitation of traffic sight line; water barrier with panel was used to screen works.
6	Control night-time lighting and glare by hooding all lights	All areas / During construction	Design Consultant/ Contractor	√				Only temporary traffic management lighting was applied.
7	Ensure no run-off into water body adjacent to the Project Area	All areas / During construction	Design Consultant/ Contractor	√				
8	Avoidance of excessive height and bulk of buildings and structures	All areas / During construction	Design Consultant/ Contractor				√	No high-rise building would be constructed.
9	Recycle/Reuse all felled trees and vegetation, e.g. mulching	All areas / During construction	Design Consultant/ Contractor	√				Recycle of trees carried out by Hong Kong Landscape and BAGUIO was conducted.
10	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	All areas / During construction	Design Consultant/ Contractor				√	Compensatory planting will be carry out in later stage of the project.

Legend: A=Acceptable, UA= Unacceptable, IR=Improvement Required, N/A=Not Applicable

Note: All item reference to Technical Memorandum on Environmental Impact Assessment, TM-CLKL EIA Section 10.9 & Project EM&A Manual Section 7.6

Checked and Monitored by: Chung Koon Wah Albert (RLA) No. R-150 (Date) 3/06/2015

Checked by: (ET) 5/6/15. (Date)

Checked by: (IEC) 5 June 2015 (Date)

Item 1. Existing trees on boundary of the Project Area have been protected carefully during construction.

Item 4. Hydro-seeding or sheeting provided at stockpile.

Item 5. Hoarding with panel around works area & Item 6. Temporary traffic management lighting.

Item 7. Ensure no run-off into water body.

Item 9. Recycle of felled trees (conducted on 24/1, no tree recycled in the reporting period)

Contract No. HY/2013/12

Tuen Mun – Chek Lap Kok Link – Northern Connection Toll Plaza and Associated Works

Landscape and Visual Checklist

Monitoring Date: 22nd May 2015

Item	Environmental Protection Measures	Location/ Timing	Implementation Agent	Status				Remarks
				A	UA	IR	NA	
1	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)	All areas / During construction	Design Consultant/ Contractor	√				
2	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be 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	All areas / During construction	Design Consultant/ Contractor				√	Tree Transplanting Specification has been specified in P.S., no transplantation works has been carried out at this stage.
3	Hillside and roadside screen planting to proposed roads, associated structures and slope works	All areas / During construction	Design Consultant/ Contractor				√	Construction of roads not commenced yet
4	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone)	All areas / During construction	Design Consultant/ Contractor	√				
5	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works	All areas / During construction	Design Consultant/ Contractor				√	For some area, erection of hoarding was not feasible due to

								the limitation of traffic sight line; water barrier with panel was used to screen works.
6	Control night-time lighting and glare by hooding all lights	All areas / During construction	Design Consultant/ Contractor	√				Only temporary traffic management lighting was applied.
7	Ensure no run-off into water body adjacent to the Project Area	All areas / During construction	Design Consultant/ Contractor	√				
8	Avoidance of excessive height and bulk of buildings and structures	All areas / During construction	Design Consultant/ Contractor				√	No high-rise building would be constructed.
9	Recycle/Reuse all felled trees and vegetation, e.g. mulching	All areas / During construction	Design Consultant/ Contractor	√				Recycle of trees carried out by Hong Kong Landscape and BAGUIO was conducted.
10	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	All areas / During construction	Design Consultant/ Contractor				√	Compensatory planting will be carry out in later stage of the project.

Legend: A=Acceptable, UA= Unacceptable, IR=Improvement Required, N/A=Not Applicable

Note: All item reference to Technical Memorandum on Environmental Impact Assessment, TM-CLKL EIA Section 10.9 & Project EM&A Manual Section 7.6

Checked and Monitored by: Chung Koon Wah Albert (RLA) No. R-150 (Date) 3/06/2015

Checked by: _____ (ET) 5/6/15 (Date)

Checked by: _____ (IEC) 5 June 2015 (Date)

Item 1. Existing trees on boundary of the Project Area have been protected carefully during construction.

Item 4. Hydro-seeding or sheeting provided at stockpile.

Item 5. Hoarding with panel around works area & Item 6. Temporary traffic management lighting.

Item 7. Ensure no run-off into water body.

Item 9. Recycle of felled trees (conducted on 24/1, no tree recycled in the reporting period)

Contract No. HY/2013/12

Tuen Mun – Chek Lap Kok Link – Northern Connection Toll Plaza and Associated Works

Landscape and Visual Checklist

Monitoring Date: 29th May 2015

Item	Environmental Protection Measures	Location/ Timing	Implementation Agent	Status				Remarks
				A	UA	IR	NA	
1	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)	All areas / During construction	Design Consultant/ Contractor	√				
2	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be 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	All areas / During construction	Design Consultant/ Contractor				√	Tree Transplanting Specification has been specified in P.S., no transplantation works has been carried out at this stage.
3	Hillside and roadside screen planting to proposed roads, associated structures and slope works	All areas / During construction	Design Consultant/ Contractor				√	Construction of roads not commenced yet
4	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone)	All areas / During construction	Design Consultant/ Contractor	√				
5	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works	All areas / During construction	Design Consultant/ Contractor				√	For some area, erection of hoarding was not feasible due to

								the limitation of traffic sight line; water barrier with panel was used to screen works.
6	Control night-time lighting and glare by hooding all lights	All areas / During construction	Design Consultant/ Contractor	√				Only temporary traffic management lighting was applied.
7	Ensure no run-off into water body adjacent to the Project Area	All areas / During construction	Design Consultant/ Contractor	√				
8	Avoidance of excessive height and bulk of buildings and structures	All areas / During construction	Design Consultant/ Contractor				√	No high-rise building would be constructed.
9	Recycle/Reuse all felled trees and vegetation, e.g. mulching	All areas / During construction	Design Consultant/ Contractor	√				Recycle of trees carried out by Hong Kong Landscape and BAGUIO was conducted.
10	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	All areas / During construction	Design Consultant/ Contractor				√	Compensatory planting will be carry out in later stage of the project.

Legend: A=Acceptable, UA= Unacceptable, IR=Improvement Required, N/A=Not Applicable

Note: All item reference to Technical Memorandum on Environmental Impact Assessment, TM-CLKL EIA Section 10.9 & Project EM&A Manual Section 7.6

Checked and Monitored by: Chung Koon Wah Albert (RLA) No. R-150 (Date) 3/06/2015

Checked by: (ET) 5/6/15 (Date)

Checked by: (IEC) 5 June 2015 (Date)

Item 1. Existing trees on boundary of the Project Area have been protected carefully during construction.

Item 4. Hydro-seeding or sheeting provided at stockpile.

Item 5. Hoarding with panel around works area & Item 6. Temporary traffic management lighting.

Item 7. Ensure no run-off into water body.

Item 9. Recycle of felled trees (conducted on 24/1, no tree recycled in the reporting period)

Appendix L

Monthly Summary Waste Flow Table

Monthly Waste Flow Table

Monthly Summary Waste Flow Table for 2015 (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 (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	40.959	0.000	11.915	23.31	5.664	0	0.000	0.000	0.000	0.000	0.07
Feb	50.363	0.000	24.411	25.313	0.629	0	0.000	0.000	0.000	0.000	0.01
Mar	42.223	0.000	13.473	26.648	2.042	0	0.000	0.050	0.000	0.000	0.01
Apr	29.037	0.000	8.06	11.209	9.765	0	0.000	0.000	0.000	0.000	0.003
May	30.547	0.000	4.626	18.857	7.024	0	0.000	0.000	0.000	0.000	0.04
June	-	-	-	-		-	-	-	-	-	-
Sub-total	-	-	-	-		-	-	-	-	-	-
July	-	-	-	-		-	-	-	-	-	-
Aug	-	-	-	-		-	-	-	-	-	-
Sept	-	-	-	-		-	-	-	-	-	-
Oct	-	-	-	-		-	-	-	-	-	-
Nov	-	-	-	-		-	-	-	-	-	-
Dec	-	-	-	-		-	-	-	-	-	-
Total	193.129	0.000	62.485	105.337	25.124	0.000	0.000	0.050	0.000	0.000	0.133

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 M

Environmental Mitigation and Enhancement Measures Implementation Schedule (EMIS)

CONTRACT NO. HY/2013/12
TUEN MUN – CHECK LAP KOK LINK – NORTHERN CONNECTION TOLL PLAZA AND ASSOCIATED WORKS
ENVIORNMENTAL 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		✓

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**	

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	*Appointment of Safety Officer* 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	-	*Safety Measures - Excavation*	Construction Stage	Contractor	EPD/TR8/97 -		Y		✓

		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	-	*Safety Measures – Welding, Flame- Cutting and Hot works* 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	-	*Safety Measures – Enclosed Spaces* 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	-	*Safety Measures – Electrical Equipment* 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	-	*Safety Measures – Piping* 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	-	*Safety Measures – Fire Safety* 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		✓

		posted around the site warning the anger and potential hazards.			Guidance Note				
14.12.1	-	*Safety Measures – Confined Spaces* 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	-	*Monitoring* 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		✓

		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		✓
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		✓
10.9	7.6	Re-vegetation of affected woodland/shrubland with	All areas/detailed design/	Design	TMEIA	Y	Y	Y	N/A

		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	N/A
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		✓

		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		✓

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.	Tol 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		✓

		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: • 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		✓

		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**	

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		<>

		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		<>

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		✓

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

Appendix N

Cumulative Statistics on Exceedance and Complaint

Table N-1 Statistical Summary of Environmental Exceedance

Reporting Period	Environmental Aspect / Parameter	Environmental Performance	Event Exceedance	
			Reporting Period	Cumulative since project commencement
May 2015	Air Quality – 1-hour TSP	Action Level	0	**4**
		Limit Level	0	0
	Air Quality – 24-hour TSP	Action Level	0	0
		Limit Level	0	0

Table N-2 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
May 2015	0	0	NA	NA	NA
Cumulative since project commencement	0	0	NA	NA	NA

Table N-3 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
May 2015	0	0	NA	NA	NA
Cumulative since project commencement	0	0	NA	NA	NA

Table N-4 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics				
	Frequency	Cumulative	Complaint Nature		
			Air	Noise	Water
May 2015	0	0	NA	NA	NA
Cumulative since project commencement	0	0	NA	NA	NA